MALOUT INSTITUTE OF MANAGEMENT AND INFORMATION TECHNOLOGY

SUBJECT

CLOUD COMPUTING LAB FILE

SUBMITTED BY :

NAME–AHSANULHAK

ROLL.NO. –306

UNIV.ROLL.NO.–1906912

BRANCH – B.TECH CSE-A

SEM / YEAR –6TH / 3ND

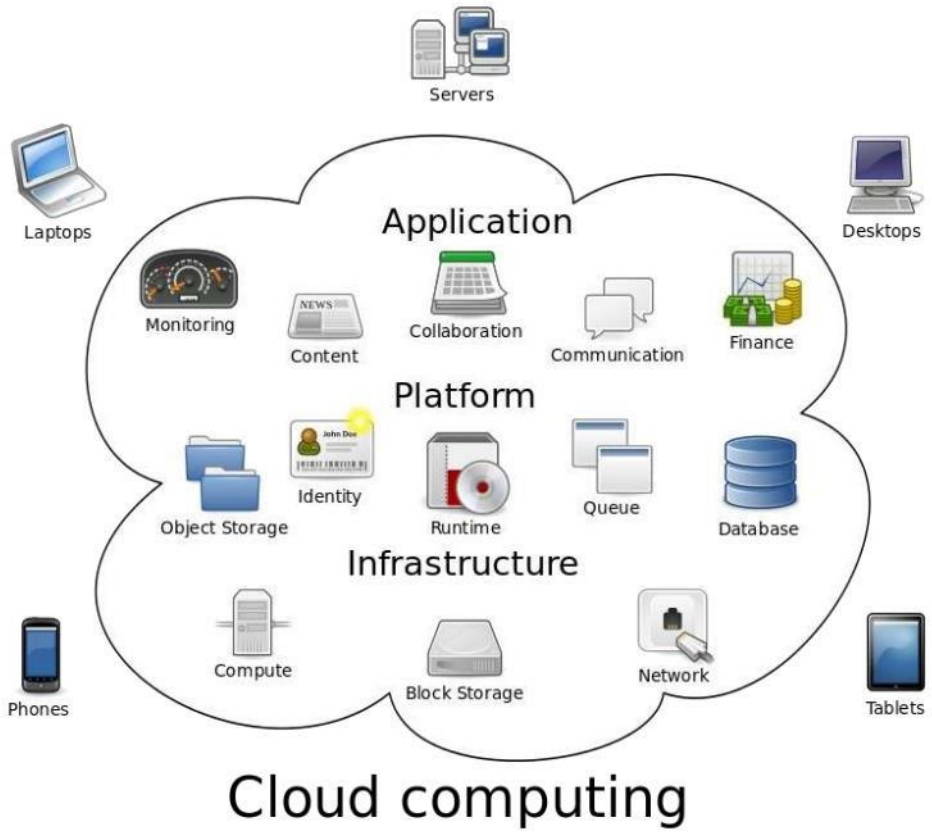
SUBMITTED TO

Harjasdeep Singh Sir

INDEX

Task-1 Introduction to Cloud Computing

Cloud computing is a method for delivering information technology (IT) services in which resources are retrieved from the Internet through web-based tools and applications, as opposed to a direct connection to a server. Rather than keeping files on a proprietary hard drive or local storage device, cloud-based storage makes it possible to save them to a remote database. As long as an electronic device has access to the web, it has access to the data and the software programs to run it.



NIST Cloud Architecture

Figure 1 presents an overview of the NIST cloud computing reference architecture, which identifies the major actors, their activities and functions in cloud computing. The diagram depicts a generic high-level architecture and is intended to facilitate the understanding of the requirements, uses, characteristics and standards of cloud computing

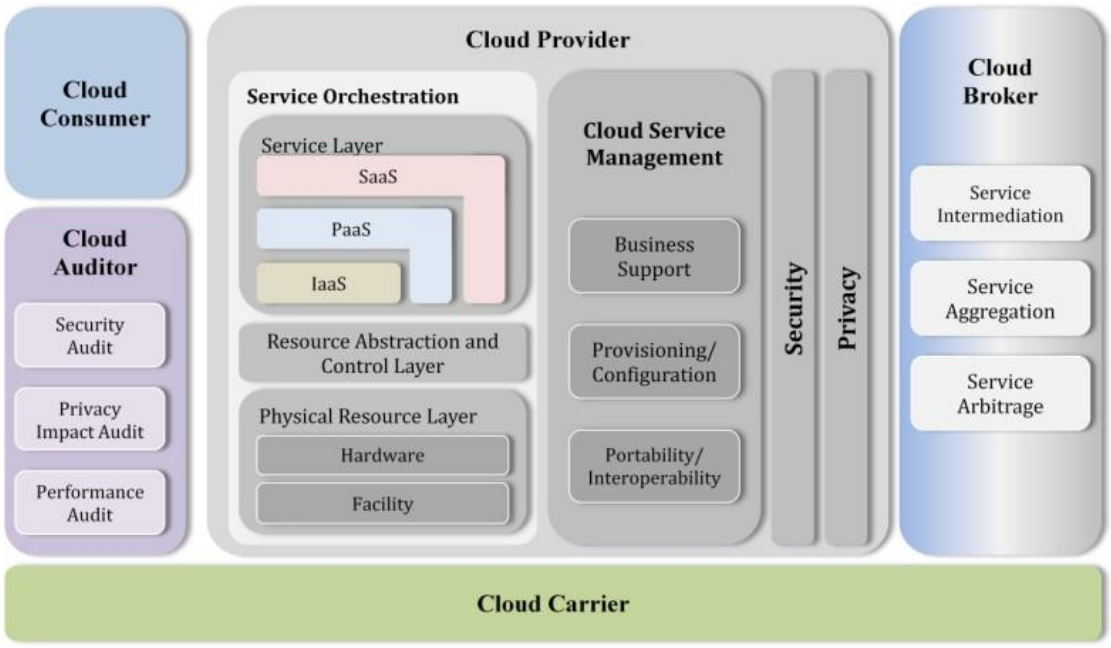


Figure 1: The Conceptual Reference Model

As shown in Figure 1, the NIST cloud computing reference architecture defines five major actors: cloud consumer, cloud provider, cloud carrier, cloud auditor and cloud broker. Each actor is an entity (a person or an organization) that participates in a transaction or process and/or performs tasks in cloud computing. Table 1 briefly lists the actors defined in the NIST cloud computing reference architecture

Actor	Definition
Cloud Consumer	A person or organization that maintains a business relationship with, and uses service from, *Cloud Providers*.
Cloud Provider	A person, organization, or entity responsible for making a service available to interested parties.
Cloud Auditor	A party that can conduct independent assessment of cloud services, information system operations, performance and security of the cloud implementation.
Cloud Broker	An entity that manages the use, performance and delivery of cloud services, and negotiates relationships between *Cloud Providers* and *Cloud Consumers*.
Cloud Carrier	An intermediary that provides connectivity and transport of cloud services from *Cloud Providers* to *Cloud Consumers*.

Table 1: Actors in Cloud Computing

Figure 2 illustrates the interactions among the actors. A cloud consumer may request cloud services from a cloud provider directly or via a cloud broker. A cloud auditor conducts independent audits and may contact the others to collect necessary information. The details will be discussed in the following sections and presented in increasing level of details in successive diagrams.

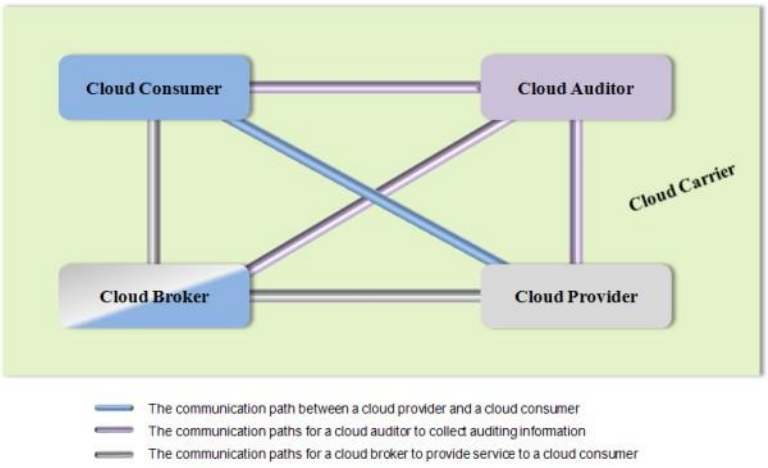


Figure 2: Interactions between the Actors in Cloud Computing

There are five major actors in NIST cloud computing reference architecture as shown in above figure.

These actors are listed below

- Cloud Consumer.
- Cloud Provider.
- Cloud Carrier.
- Cloud Auditor.
- Cloud Broker.

Each actor is an entity may be a person or an organization that participates in a transaction or process and/or performs tasks in cloud computing.

1. Cloud Consumer

- Cloud consumer is the main participants of cloud computing environment.
- A cloud consumer is a person or organization that use the cloud services such as SaaS, PaaS and IaaS.
- A cloud consumer browses the service catalog provided by a cloud provider, cloud consumer requests the appropriate service.
- Cloud provider sets up cloud environment for the service and make a contracts with the cloud consumer for the use of the service.
- Cloud consumers need cloud **Service Level Agreement(SLA**).

SLA act as a agreement for technical performance requirements provided by a cloud provider.

Some terms and conditions regarding the quality of service, security, remedies for performance failures are mentioned in the SLA.

Software as a service applications in the cloud are made accessible via a network to the SaaS consumers.
The consumers of SaaS may be a organizations that gives their employee with access to software applications, end users who directly use software applications, or it may be

software application administrators who is responsible for configure applications on the software for the customers.

Platform as a service can also be employ by the consumer the tools to develop, test, deploy and manage the applications hosted in a cloud environment.

PaaS consumers can be application developers who design and implement application software in software company.

PaaS consumer may be application testers who run and test applications in cloud-based environments, application deployers who publish applications into the cloud,

PaaS may be a application administrators who configure and monitor application performance on a platform.

Cloud Consumers of Infrastructure as a service have access to different hardware resources like virtual computers, network devices such as router, storage media and other fundamental computing resource.

The consumers of Infrastructure as a service may be system developers, system administrators and IT managers who creates, install, manage and monitor the services for IT infrastructure operations.

2. Cloud Provider

- A cloud provider is responsible for making a service available to the cloud consumer. Cloud provider may be a person , team or an organization.
- A Cloud Provider maintain and manages the different cloud computing services for the consumer and makes arrangement to deliver the cloud services to the Cloud Consumers suing network access or internet.

In context to **Software as a Service** Cloud provider is responsible for deploys, configuring, maintaining and updating the operation of the software applications on a cloud infrastructure so that the services are provisioned as per the required levels by the cloud consumers.
The major responsibilities of cloud provider in context to software as a service are to manage , control the applications and overall infrastructure.

In context to **Platform as a Service**, the Cloud Provider manages the computing infrastructure for the platform and runs the cloud software that provides the components of the platform. These components may be software execution stack, databases and some other components that act as middleware.
The PaaS Cloud Provider generally supports the development, deployment and management process of the Platform as a Service.

Some integrated tools like IDE, SDK, development version of cloud software, deployment and management are also the part of Platform as a Service.

Physical computing resources such as servers, networks, storage and hosting infrastructure are also maintain and manage by the cloud provider for the consumer of **Infrastructure as a Service**.
The Cloud Provider implement the cloud software so that computing resources become available to the Cloud Consumer who use the infrastructure as service through a set of service interface and virtual network interfaces that helps in resource abstraction.

3. Cloud Auditor

A cloud auditor is a dedicated team of technically skilled person that can perform an independent examination or review of cloud service controls with the intent to express strength and weakness of the process and some suggestion or improvement.

Audits are performed to verify the standards of services after checking the evidence.

Major role of a cloud auditor is to evaluate the services provided by a cloud provider against the parameters such as security controls, privacy impact and performance etc.

To perform the audit of security a cloud auditor do the assessment of the security controls in the information system to determine the extent to which the controls are implemented accurately and operating as per expectation and producing the desired outcome with respect to the security requirements for the system.

4. Cloud Broker

Some time services integrations becomes more complex due to which it becomes difficult for the cloud consumer to manage the cloud service.

In such situation cloud consumer request cloud services from cloud broker. Cloud Broker acts as mediator between consumer and provider.

- A cloud broker manages the delivery of cloud services , their performance and use.
- A cloud broker negotiates relationships between cloud providers and cloud consumers.

In general, a cloud broker involves in three types of activities which are as follow

- **Service Intermediation**

A cloud broker may enhances a given service by improving some specific capability and providing value-added services to cloud consumers.The improvement may be related to managing the access to cloud services, identity management, performance reporting, enhanced security, etc.

- **Service Aggregation**

Services aggregation can be seems as combining and integrating multiple services into one or some more new services.The broker ensures the data movement between the

cloud consumer and multiple cloud providers in secure manner.A cloud broker also provides the data integration.

- **Service Arbitrage**

Service arbitrage is very similar to service aggregation but there is a little bit difference also.In service arbitrage the services to be aggregated are not fixed in advance.In Service arbitrage a broker has the flexibility to select the services from multiple agencies.The cloud broker, for example, can use a credit-scoring service to measure and select an agency with the best score.

5. Cloud Carrier

Cloud Carrier is another important actors in NIST cloud computing reference architecture.

- Role of cloud carrier is to provide the connectivity and transport of cloud services between cloud consumers and cloud providers.
- Cloud carriers provide access to consumers through **network**, telecommunication and other access devices.

For example- cloud consumers can obtain cloud services through network access devices, such as computers, laptops, mobile phones, mobile Internet devices.

Cloud Service Models

There are the following three types of cloud service models -

1. Infrastructure as a Service (IaaS)
2. Platform as a Service (PaaS)
3. Software as a Service (SaaS)

Infrastructure as a Service (IaaS)

IaaS is also known as **Hardware as a Service (HaaS)**. It is a computing infrastructure managed over the internet. The main advantage of using IaaS is that it helps users to avoid the cost and complexity of purchasing and managing the physical servers.

Characteristics of IaaS

There are the following characteristics of IaaS -

- Resources are available as a service
- Services are highly scalable
- Dynamic and flexible
- GUI and API-based access

- Automated administrative tasks

Example: DigitalOcean, Linode, Amazon Web Services (AWS), Microsoft Azure, Google Compute Engine (GCE), Rackspace, and Cisco Metacloud.

Platform as a Service (PaaS)

PaaS cloud computing platform is created for the programmer to develop, test, run, and manage the applications.

Characteristics of PaaS

There are the following characteristics of PaaS -

- Accessible to various users via the same development application.
- Integrates with web services and databases.
- Builds on virtualization technology, so resources can easily be scaled up or down as per the organization's need.
- Support multiple languages and frameworks.
- Provides an ability to "**Auto-scale**".

Example: AWS Elastic Beanstalk, Windows Azure, Heroku, Force.com, Google App Engine, Apache Stratos, Magento Commerce Cloud, and OpenShift.

Software as a Service (SaaS)

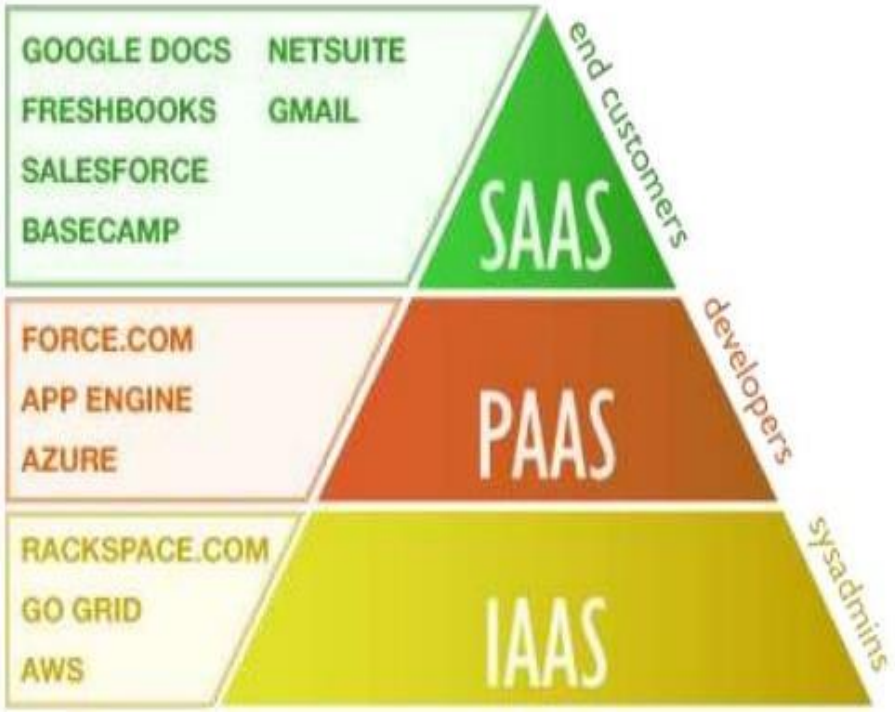
SaaS is also known as "**on-demand software**". It is a software in which the applications are hosted by a cloud service provider. Users can access these applications with the help of internet connection and web browser.

Characteristics of SaaS

There are the following characteristics of SaaS -

- Managed from a central location
- Hosted on a remote server
- Accessible over the internet
- Users are not responsible for hardware and software updates. Updates are applied automatically.

- The services are purchased on the pay-as-per-use basis



Task-2 Installation and Usage of Dropbox

What is Dropbox?

Dropbox is a file hosting service operated by the American company Dropbox, Inc., headquartered in San Francisco, California, that offers cloud storage, file synchronization, personal cloud, and client software. Dropbox was founded in 2007 by MIT students Drew Houston and Arash Ferdowsi as a start-up company, with initial funding from seed acceleratorY Combinator.

Dropbox has been ranked as one of the most valuable start-ups in the US and the world, witha valuation of over US$10 billion, and it has been described as one of Y Combinator's most successful investments to date. However, Dropbox has also experienced criticism and generated controversy for issues including security breaches and privacy concerns.

What technology Dropbox uses?

The Dropbox software enables users to drop any file into a designated folder. The file is then automatically uploaded to Dropbox's cloud-based service and made available to any other of the user's computers and devices that also have the Dropbox software installed, keeping the fileup-to-date on all systems. When a file in a user's Dropbox folder is changed, Dropbox only uploads the pieces of the file that have been changed, whenever possible.

When a file or folder is deleted, users can recover it within 30 days. For Dropbox Plus users, this recovery time can be extended to one year, by purchasing an "Extended Version History"add-on.

Dropbox accounts that are not accessed or emails not replied in a year are automatically

deleted.

Dropbox also offers a LAN sync feature, where, instead of receiving information and data fromthe Dropbox servers, computers on the local network can exchange files directly between each other, potentially significantly improving synchronization speeds. LAN Sync discovers other peers on the same network via UDP port 17500 using a proprietary discovery protocol developed by early Dropbox engineer Paul Bohm in 2010.

Originally, the Dropbox servers and computer apps were written in Python. In July 2014, Dropbox began migrating its performance-critical backend infrastructure to Go.

In September 2012, Dropbox's website code base was rewritten from JavaScript to CoffeeScript.

Dropbox originally used Amazon's S3 storage system to store user files, but between 2014 and2016 they gradually moved away from Amazon to use their own hardware, referred to as "Magic Pocket", due to Dropbox's description as "a place where you keep all your stuff, it doesn’t get lost, and you can always access it". In June 2017, the company announced a major global network expansion, aiming to increase synchronization speeds while cutting costs. The expansion, starting with 14 cities across 7 countries on 3 continents, adds "hundreds of gigabitsof Internet connectivity with transit providers (regional and global ISPs), and hundreds of newpeering partners (where we exchange traffic directly rather than through an ISP)".

Dropbox uses SSL transfers for synchronization and stores the data via Advanced EncryptionStandard (AES)-256 encryption.

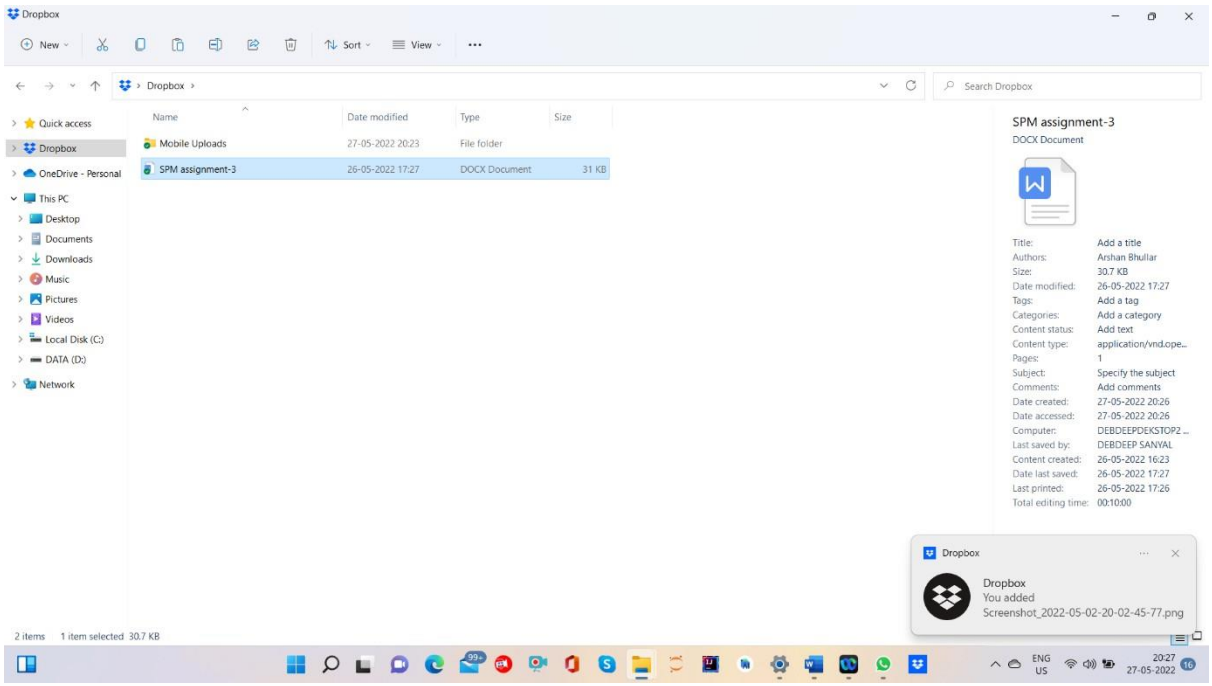
The functionality of Dropbox can be integrated into third-party applications through an application programming interface (API).

Dropbox prevents sharing of copyrighted data, by checking the hash of files shared in public folders or between users against a blacklist of copyrighted material. This only applies to files or folders shared with other users or publicly, and not to files kept in an individual's Dropbox folder that are not shared.

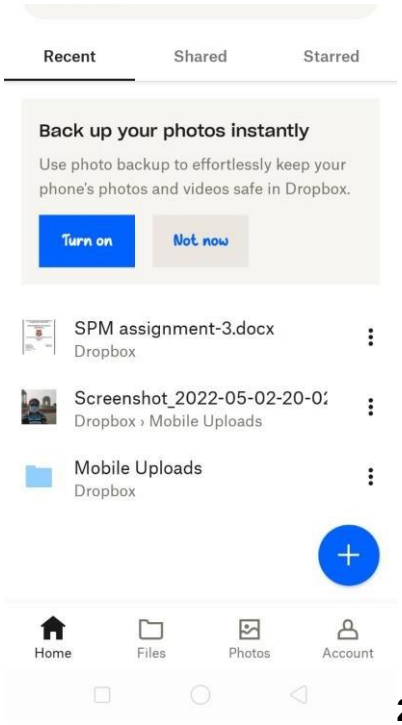
Dropbox has computer apps for Microsoft Windows, Apple macOS, and Linux computers, andmobile apps for iOS, Android, and Windows Phone smartphones and tablets. It also offers a website interface. As part of its partnership with Microsoft, Dropbox announced a universal Windows 10 app in January 2016.

Practical Demonstration

Here we have some snapshots describing how a Dropbox is being operated.



1. **Dropbox launched in system**



2.Checking for the files in mobile

Difference between Dropbox and Google Drive

DROPBOX	GOOGLE DRIVE
It is owned by Dropbox Incorporation.	**It is owned by** Google LLC.
It was developed by Drew Houston **and** Arash Ferdowsi.	**It was developed by** Google.
It was launched in 2007.	**It was launched in 2012.**
It offers only 2 GB free storage space.	**It offers 15 GB free storage space.**
It charges an amount of $120 per year for 2 TB additional space.	**It charges only $100 per year for 2 TB additional space.**
It supports less number of file types.	**It supports almost 30 types of different file formats.**
It shares files through web applications.	**While it shares files through links.**
It is compatible with all operating systems like Windows, Mac, Linux, Android, iOS, Windows Phone, Kindle Fire, Blackberry etc.	**It is compatible with some selected operating systems like Windows, Mac and Android.**
It uses block-syncing to update changes quickly.	**While it does not use block-syncing.**
It syncs with Zoom.	**While it syncs with Google Hangouts Meets.**

Task-3 Example of Application as a Service or SAAS(Live.com)

Microsoft Live

Windows Live is a discontinued brand-name for a set of web services and software products from Microsoft as part of its software plus services platform. Chief components under the brand name included web services (all of which were exposed through corresponding web applications), several computer programs that interact with the services, and specialized web services for mobile devices.

According to Microsoft, Windows Live "is a way to extend the Windows user experience

"Live":

- Windows Live, a set of services and software products mainly aimed at individuals
- Microsoft Office Live, a set of services aimed at small businesses
- The Live Anywhere initiative, aimed to bring a unified online gaming and entertainment network together
- Xbox Live, for Xbox and Xbox 360
- Games for Windows – Live, for various Windows platforms.
- Live Services, a set of tools for developers of Windows Live and Azure ServicesPlatform
- Live Mesh, a software as a service platform that enables PCs and other devices toconnect with each other through the internet
- Live Framework, a REST-based application programming interface for accessing theLive Mesh services over HTTP

Windows Live was first announced on November 1, 2005. In its initial release, several Windows Live properties were rebranded and enhanced from Microsoft's MSN set of productsand services. However, MSN still exists alongside Windows Live as a means of delivering content (as opposed to customized content and communications). In May 2012 Microsoft began renaming Windows Live services, partly in anticipation of Windows 8, which integrates manyof the Windows Live products and services into the

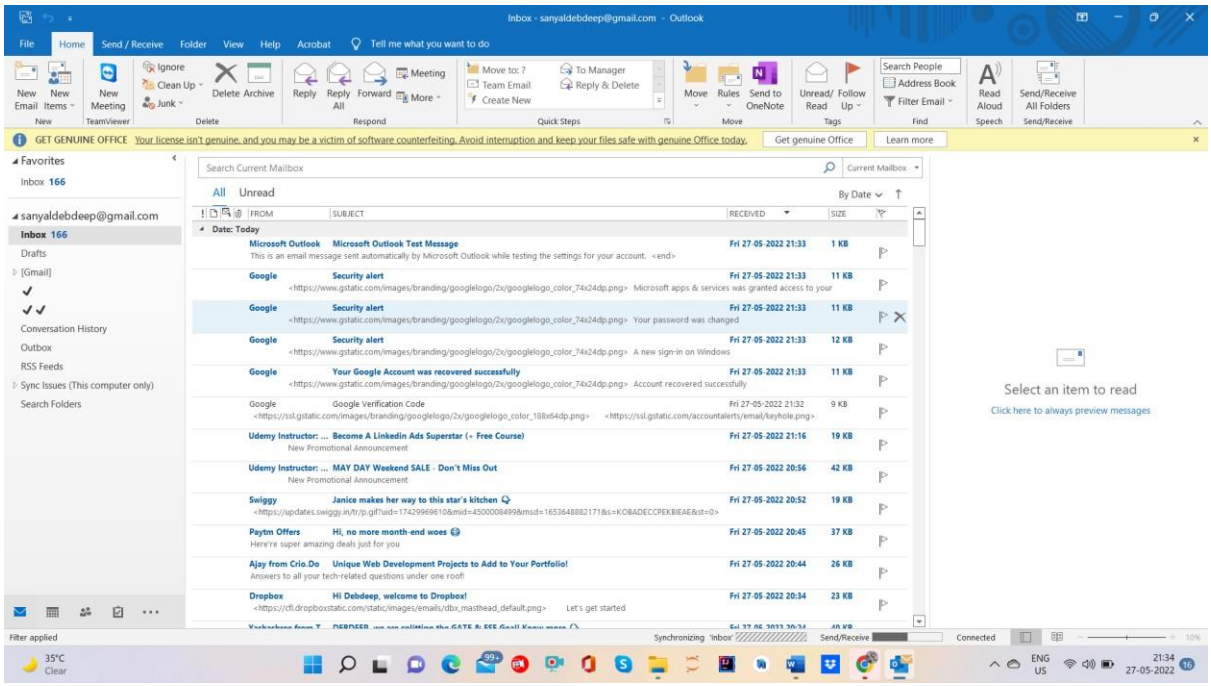
operating system.

Some Examples of Microsoft Live (Snapshots)

XBOX

OFFICE 365

OUTLOOK


Inbox - sanyaldebdeep@gmail.com - Outlook
File
Home
Send / Receive
Folder
View
Help
Acrobat
Tell me what you want to do
GET GENUINE OFFICE
Your license isn't genuine, and you may be a victim of software counterfeiting. Avoid interruption and keep your files safe with genuine Office today.
Get genuine Office
Learn more
Favorites
Inbox 166
sanyaldebdeep@gmail.com
Inbox 166
Drafts
[Gmail]
Conversation History
Outbox
RSS Feeds
Sync Issues (This computer only)
Search Folders
Search Current Mailbox
All
Unread
By Date
FROM
SUBJECT
RECEIVED
SIZE
Date: Today
Microsoft Outlook Microsoft Outlook Test Message Fri 27-05-2022 21:33 1 KB
This is an email message sent automatically by Microsoft Outlook while testing the settings for your account. <end>
Google Security alert Fri 27-05-2022 21:33 11 KB
Google Security alert Fri 27-05-2022 21:33 11 KB
Google Security alert Fri 27-05-2022 21:33 12 KB
Google Your Google Account was recovered successfully Fri 27-05-2022 21:33 11 KB
Google Google Verification Code Fri 27-05-2022 21:32 9 KB
Udemy Instructor: ... Become A Linkedin Ads Superstar (+ Free Course) Fri 27-05-2022 21:16 19 KB
New Promotional Announcement
Udemy Instructor: ... MAY DAY Weekend SALE - Don't Miss Out Fri 27-05-2022 20:56 42 KB
New Promotional Announcement
Swiggy Janice makes her way to this star's kitchen Fri 27-05-2022 20:52 19 KB
Paytm Offers Hi, no more month-end woes Fri 27-05-2022 20:45 37 KB
Here're super amazing deals just for you
Ajay from Crio.Do Unique Web Development Projects to Add to Your Portfolio! Fri 27-05-2022 20:44 26 KB
Answers to all your tech-related questions under one roof!
Dropbox Hi Debdeep, welcome to Dropbox! Fri 27-05-2022 20:34 23 KB
Let's get started
Select an item to read
Click here to always preview messages
Filter applied
Synchronizing 'Inbox'
Send/Receive
Connected
35°C
Clear
ENG
US
21:34
27-05-2022

Task-4 Explain Virtualization and it's Concept

Points to Consider before installing Virtual Machine (VM):

1) Decide which applications you are going to install on your virtual machine.According to that install 32 or 64-bit Operating system in VM. Some applicationsare not compatible with old operating systems. E.g. If you are going to use UFT12.01 it doesn't work with Windows XP. So you should install higher version ofWindows to work with UFT. Check OS compatibility of your required applicationbefore proceeding with operating systeminstallation.
2) Is your Processor supports Virtualization? Almost all of the new processors support virtualization but it is a good idea to check manufacturer's website to know the details. E.g. Intel Pentium Dual Core T2390 processor doesn't support virtualization for a 64-bit operating system. So, in that case, you should install 32- bit operating system compulsory.
3) VMWare also provides a trial period. So you should have a key or serial number to keep using it further.
4) We are going to use VMWare Virtualization software for demonstration.

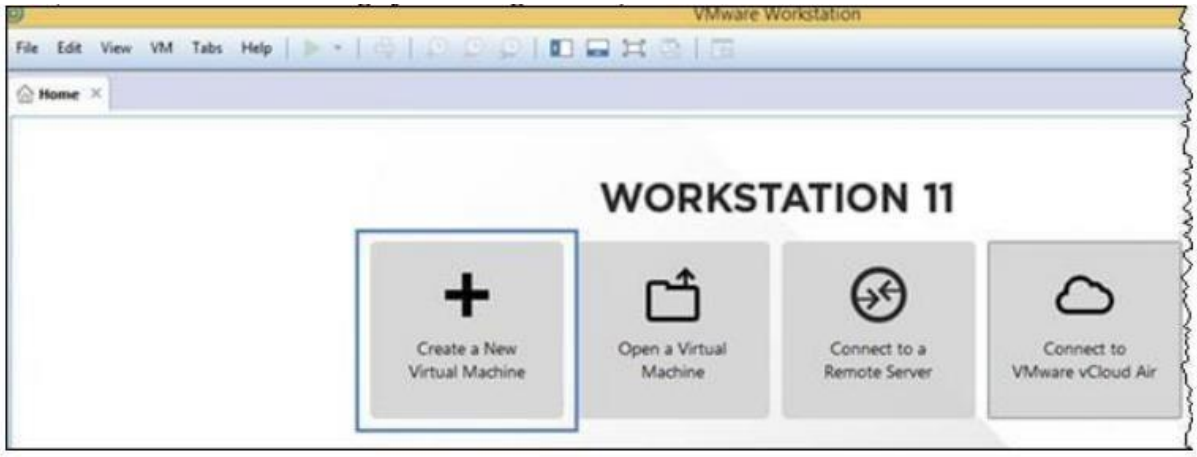
Steps to install and configure VMWare:

1. Download VMWare workstation trial version setup file from here. Set up is around 307 MB. Currently, version 12 is available. Please note we have set up screens on version 11.

2. Install VMWare on your machine. Setup is simple and requires to click Next button couple of times.

3. After installation open VMWare workstation by using either start menu or shortcut created on the desktop.

4. Click on —Create a New Virtual Machinell.



5. With default —Typicall selected click on Next button

6. Specify the path of the operating system set up file

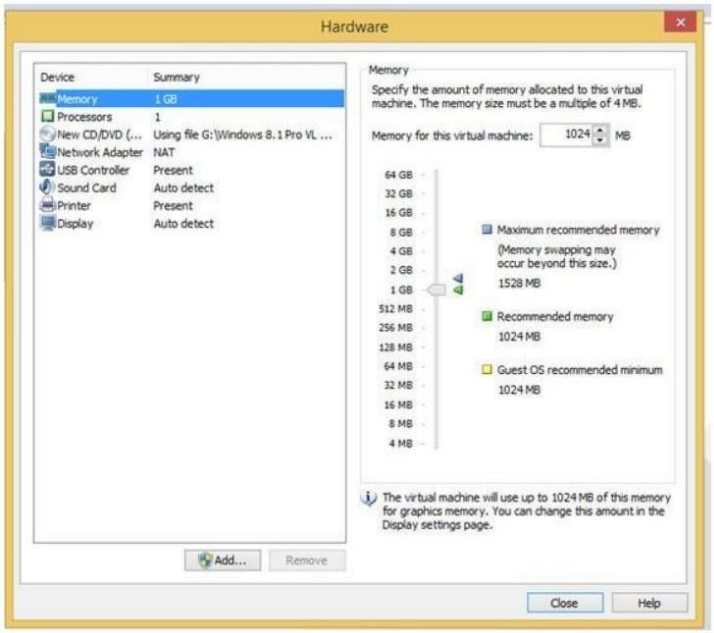
7. In the Next step you need to specify a Key or a serial number of operating system.If you are using trial version then that part can be skipped.

8. Enter the name for the virtual machine and specify a path to the directory where you want to create your virtual machine. It is recommended that the drive you'reselecting to install virtual machine should have sufficient space.

9. Specify an amount of disk space you want to allocate for a virtual machine.Allocate disk space according to the size of software you are going to install on the virtual machine

10. On the next screen it will show configuration you selected for a virtual machine

11. It will allocate Hardware according to the default settings but you can change it by using Customize Hardware button in the above screen. You can specify what amount of RAM, a processor has to be allocated for a virtual machine. Do not allocate complete RAM or complete Processor for a virtual machine. Also, do not allocate very less RAM or processor. Leave default settings or allocate in such way that your application should be able to run on the virtual machine. Else it will result in a slow virtual machine.

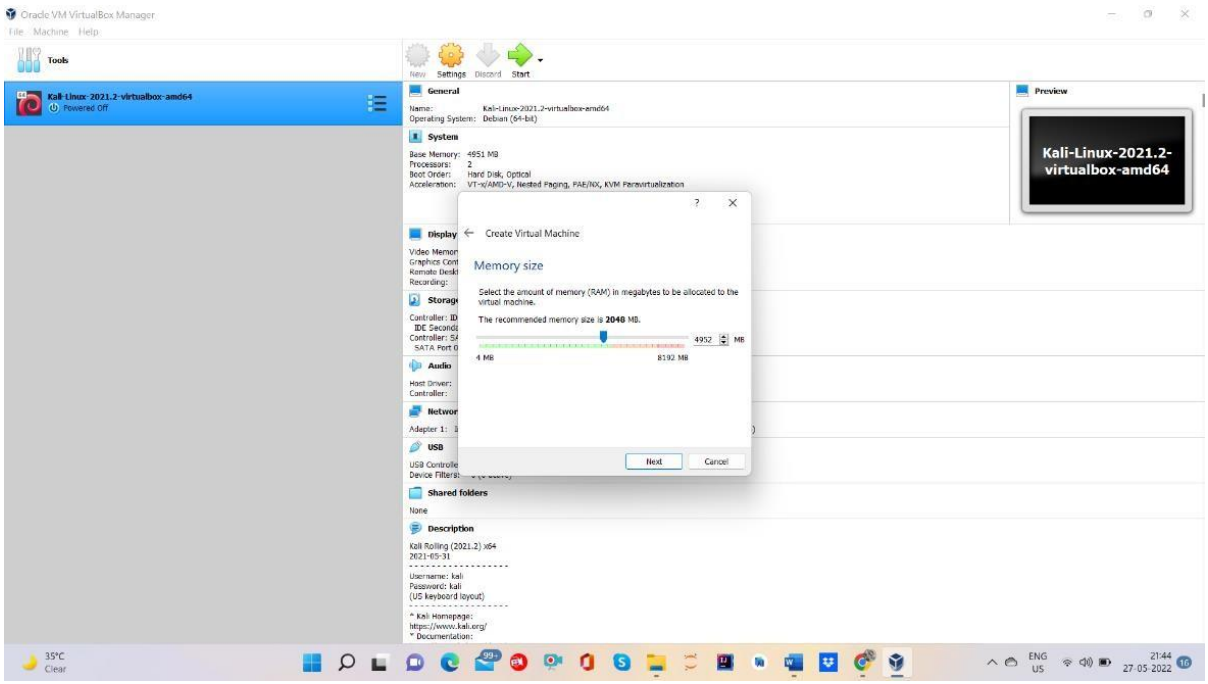


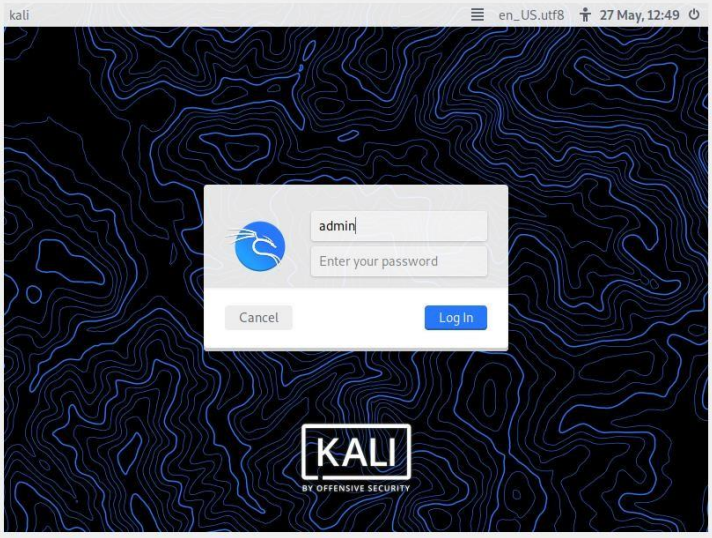
12. Click on the Finish button to create the virtual machine at the specified location and with specified resources. If you have specified a valid file (.iso, .rar., .nrg) for the operating system it will take standard time to complete operating system set up on the virtual machine and then it will be ready to use your regular OS.

Notes:

- **If you didn't specify any operating system while creating the virtual machine, later you can install it just like we do for your laptop or desktop machines. We can use CD/DVD or USB devices like Pen Drive or even set up a file on the disk to install the operating system in the VM.**
- **If your CD/DVD drive is not working then also it is very simple to install the operating system. Go to VM -> Settings –> select CD/DVD -> in the right half select radio button for _use ISO image from' and specify the path on your hard disk 11 where the .iso file is placed. This location will be treated as CD/DVD drive of your machine.**
- **Make sure correct boot order is specified in BIOS so installation will start while getting VM power on (in this case guest OS is not installed). Passing data between host and VM: Generally, VM is having its own drive and it is not showing drives from host OS in the VM environment. Also, VM drive cannot be used from host OS**

SCREENSHOTS OF INSTALLING KALI LINUX (OS)IN VMWARE



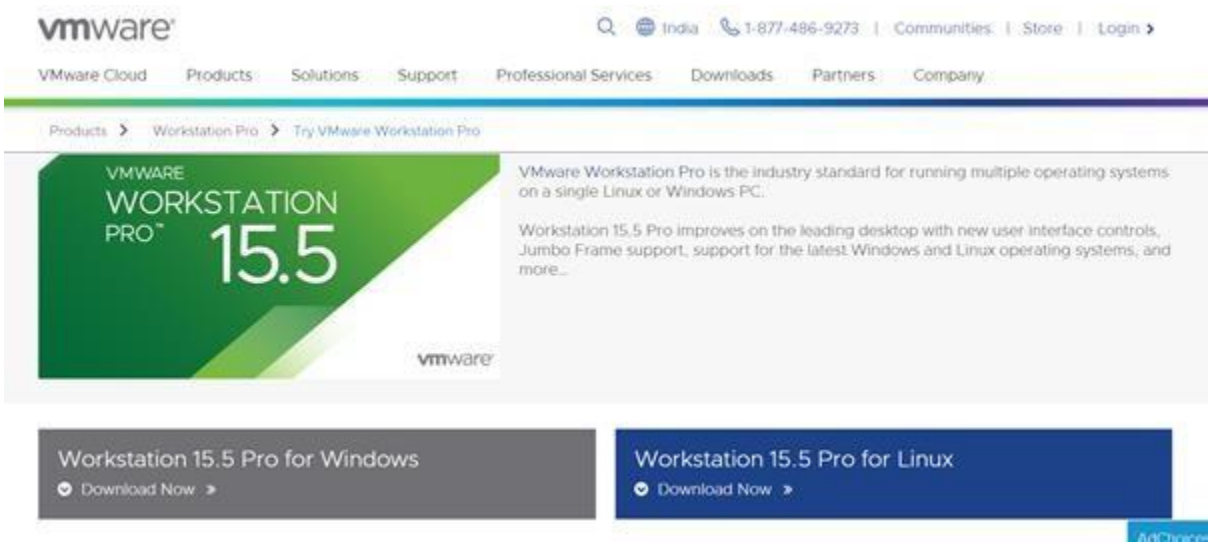


VMware

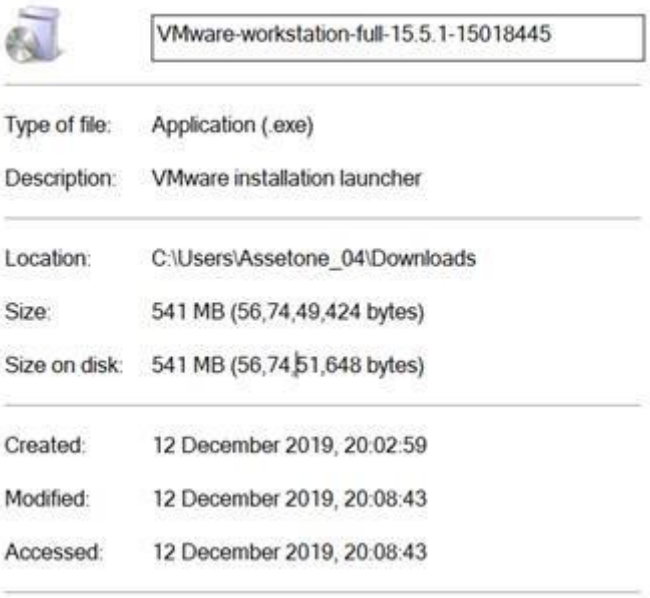
VMware develops virtualization Software. Virtualization software creates an abstraction layer over computer hardware that allows the hardware elements of a single computer — processors, memory, storage, and more — to be divided into multiple virtual computers, commonly called virtual machines (VMs). Each virtual machine runs its own operating system (OS) and behaves like an independent computer, even though it is running on a portion of the actual underlying computer hardware. A VM is a software-based representation of a physical computer. An operating system (OS) running in a VM is called a guest OS.

Let us start Setup and Installation :

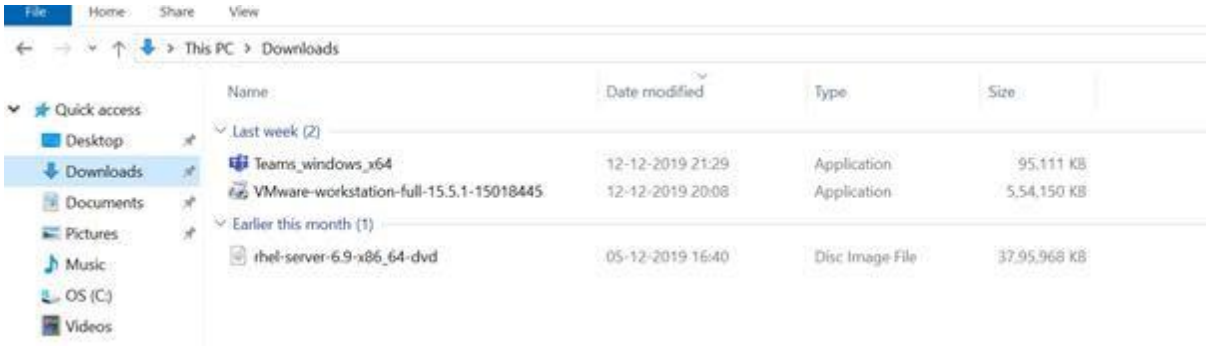
1. Installing VMware Workstation from given below link. There are two options for downloading one is Windows and other for Linux. My Base Operating System is Windows8, So I choose for VMware for Windows. If Your Base OS is Linux go and choose VMware for Linux Link.



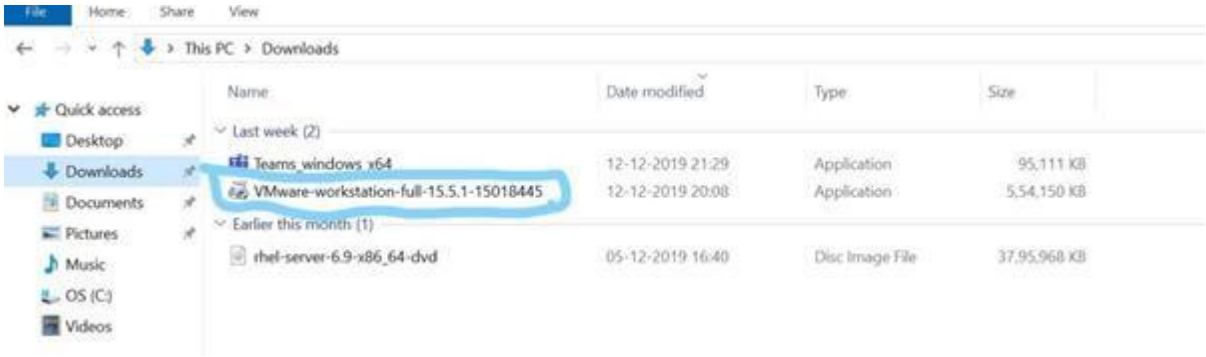
2. Check your VMware Properties.



3. Go to Download Folder.



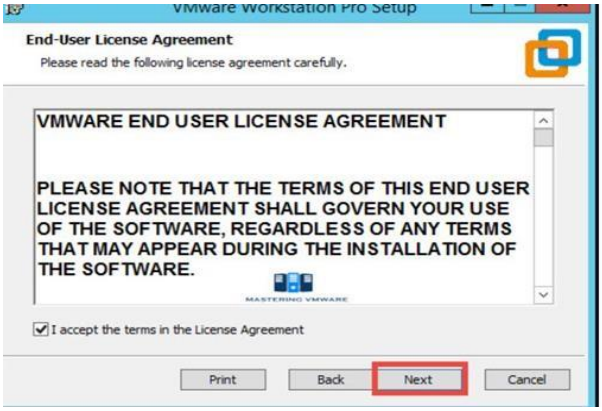
4. Click the VMware downloaded File and Install it.



5. Click on VMware Software and click and choose "**Pin to Taskbar".**

6. Click on VMware Software and Click on Next to the Installation wizard.

7. Read and Accept the VMware End User license agreement.Click Next to Continue.

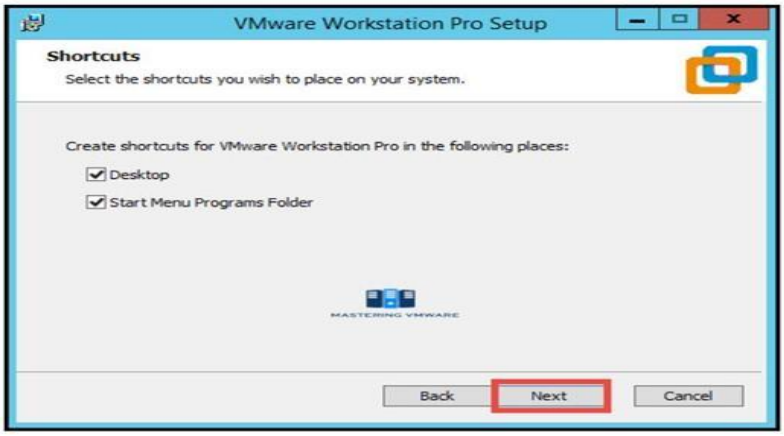


8. Specify the Installation directory. You can also enable Enhance keyboard driver here.Click Next to continue.

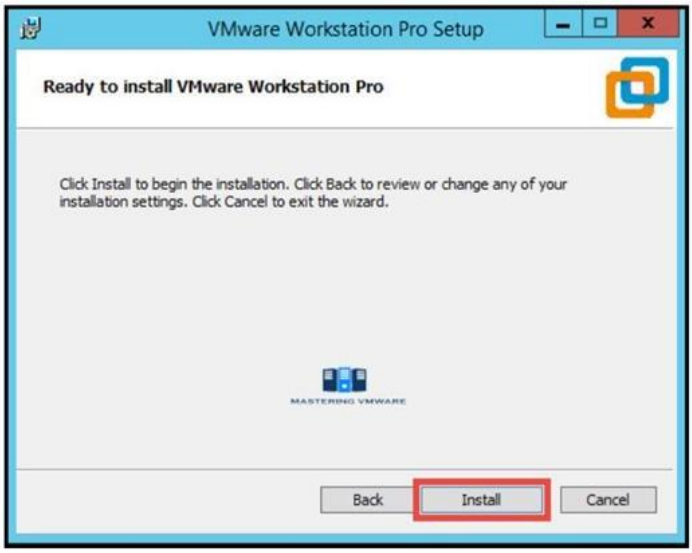
9. You can enable product startup and join the VMware Customer experience Improvement program here.

Click Next to Continue.

10. Select the shortcuts you want to create for easy access to VMware Workstation.Click Next to Continue.



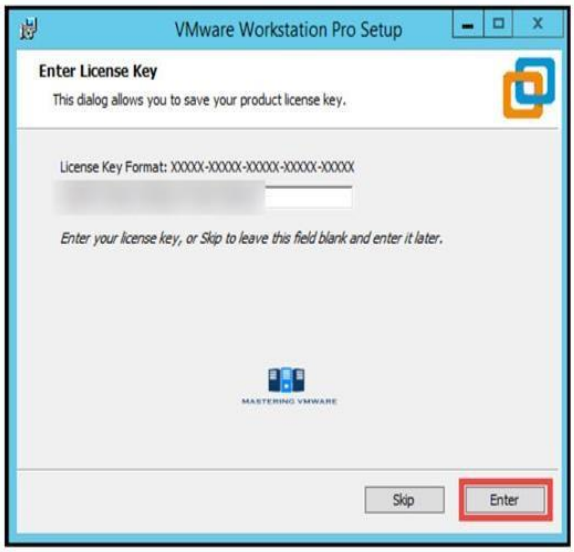
11. Click Install button to start the installation.



12. Installation will take just few seconds to complete.If you have license-key then click on License to enter the license or you can also click Finish to exit the Installer.

13. Provide the License Key for VMware Workstation Pro.

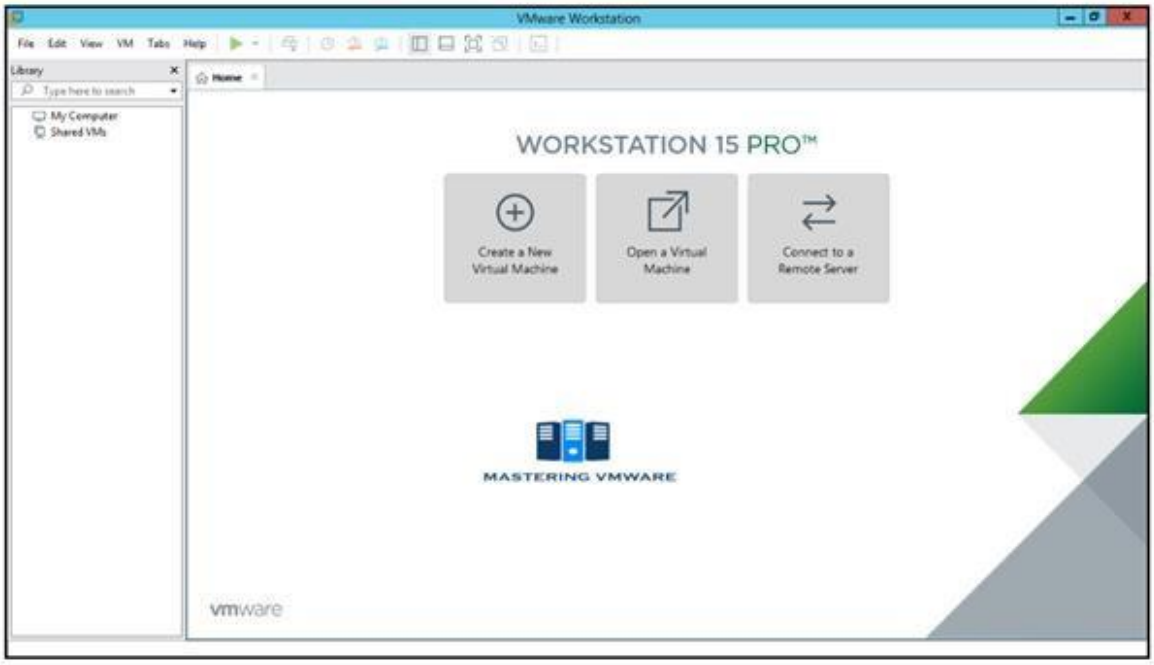
Press Enter to continue.



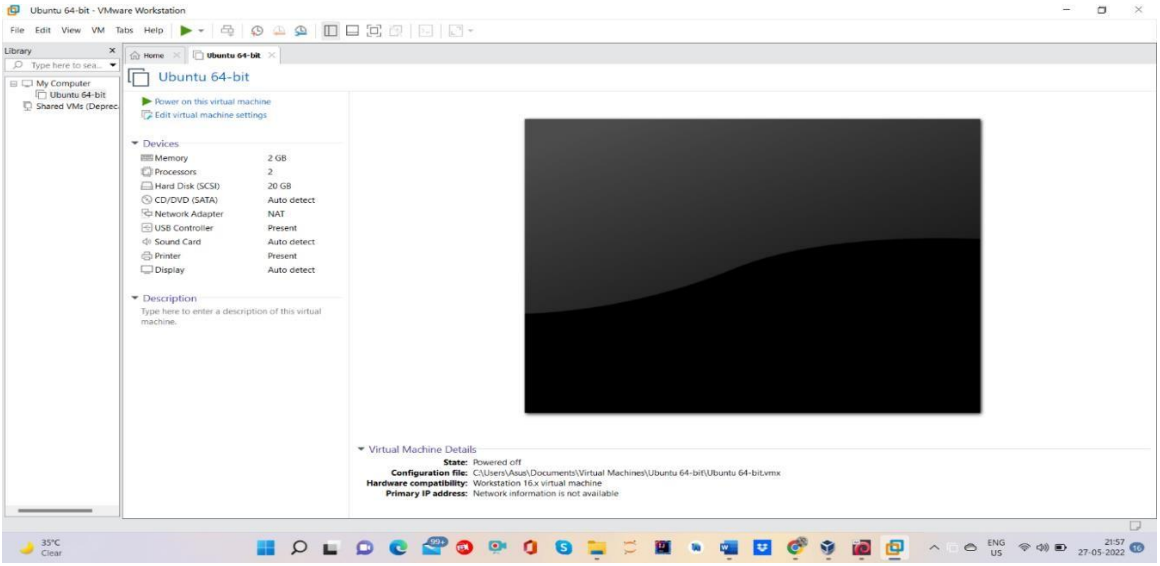
(Suggestion : If you have Don't License key search for internet or ask for who have already installed in their system. They surely have License Key.)

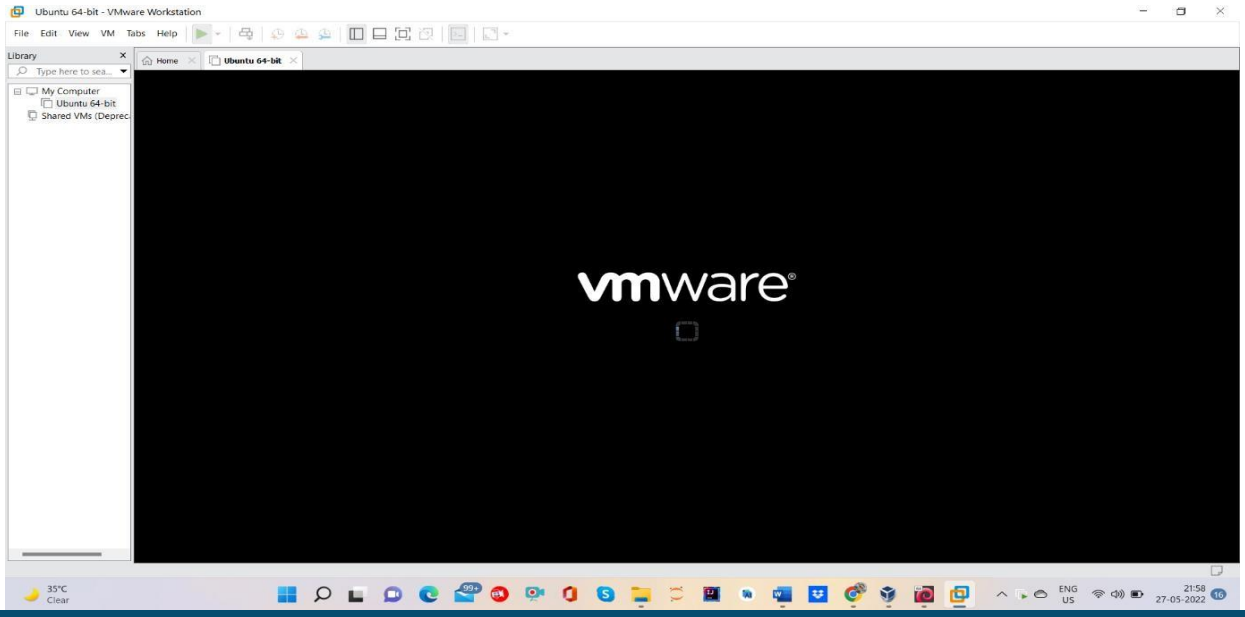
14. **Click Finish to exit the wizard.**

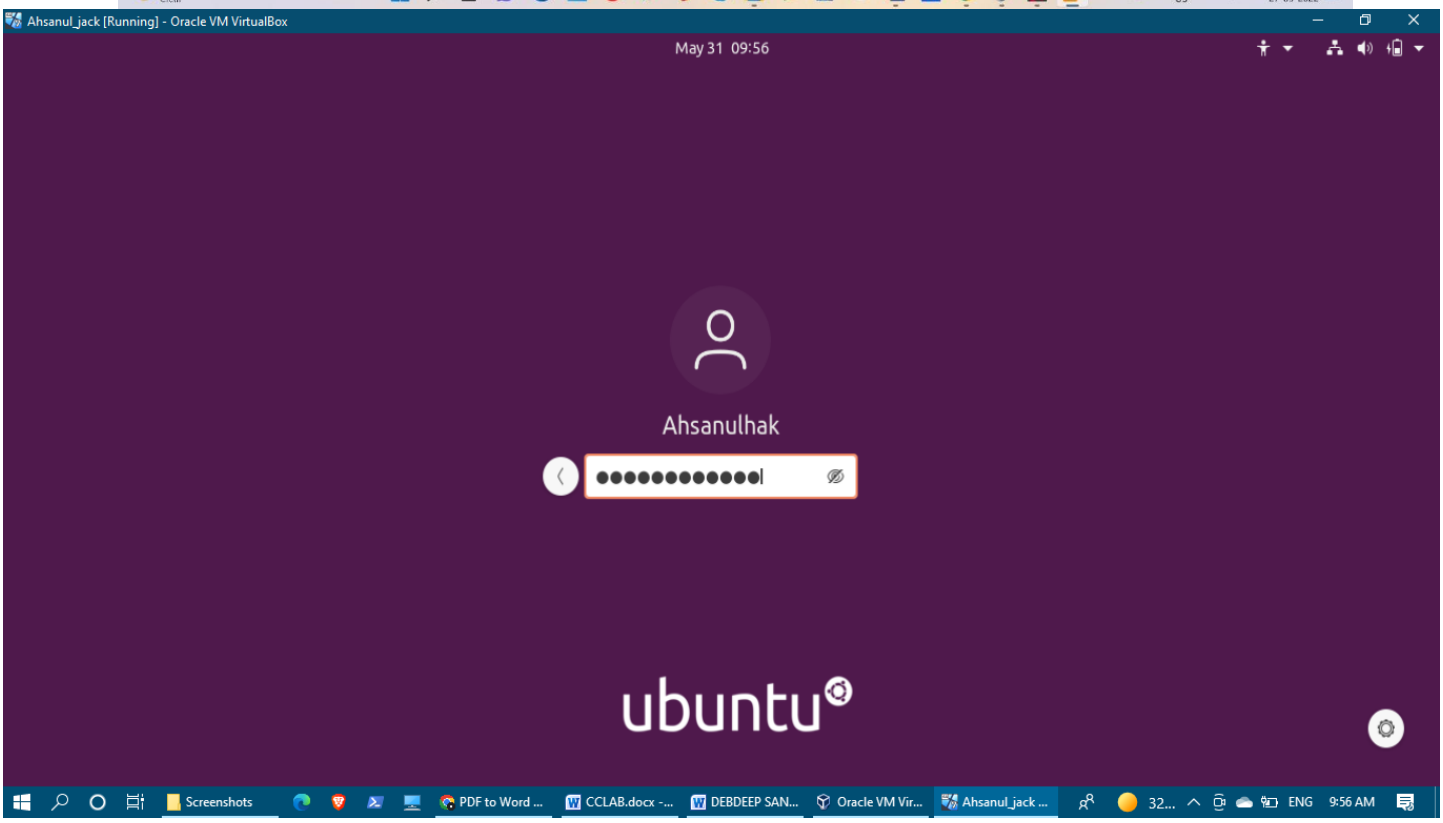
15. **That's it we have successfully installed VMware Workstation Pro.Now you can start the VMware Workstation Pro by clicking on the shortcut on Desktop.Below is the Home screen of the VMware Workstation pro which you will see every time when you start Workstation.**

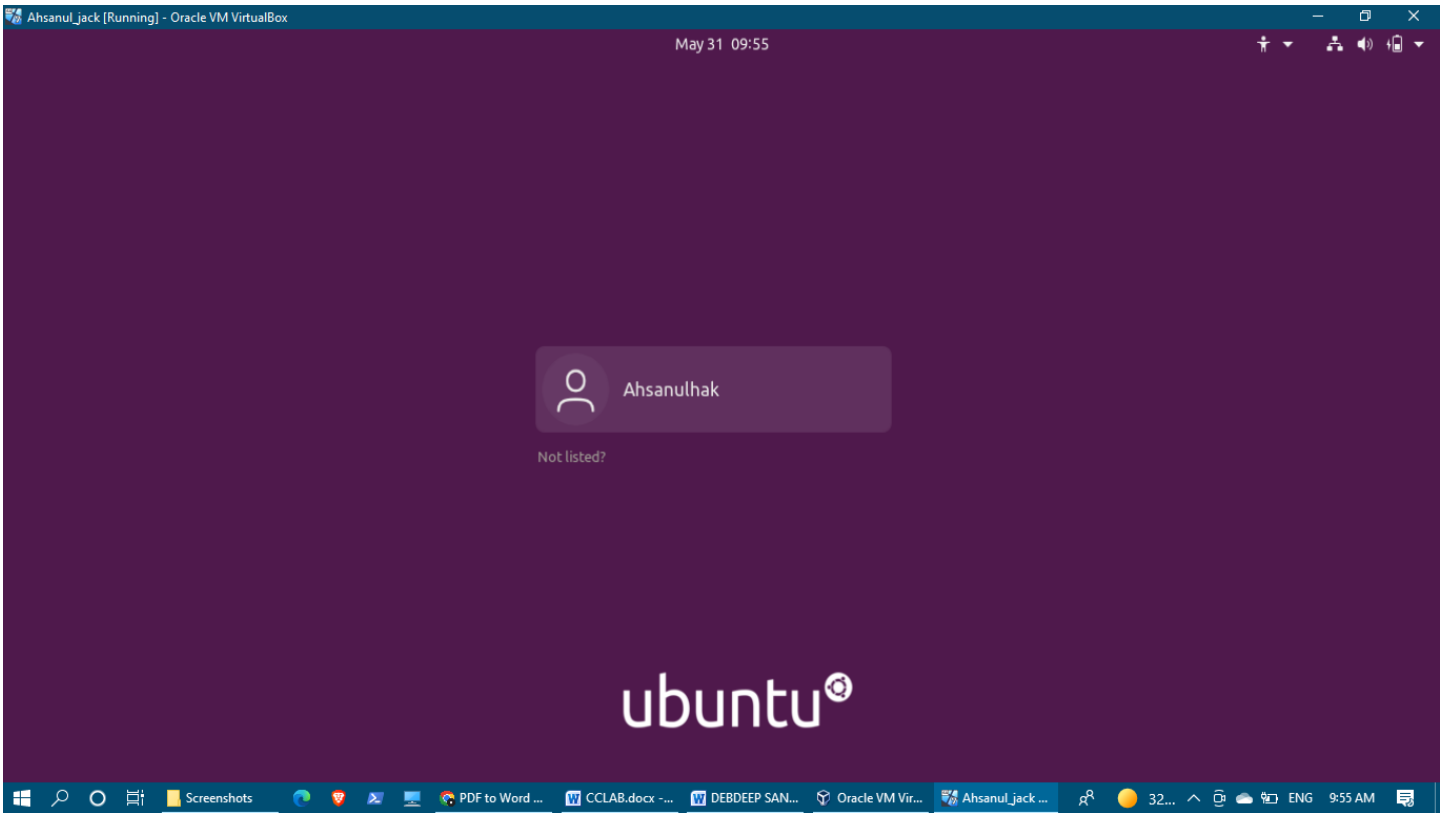


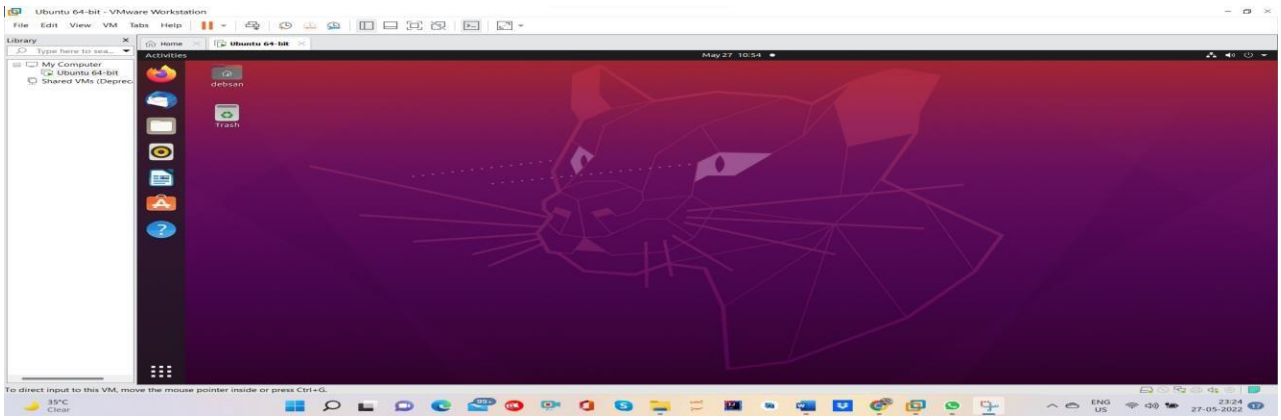
UBUNTU installation in VMware




Ubuntu 64-bit - VMware Workstation
File Edit View VM Tabs Help
Library
Type here to sea...
My Computer
Ubuntu 64-bit
Shared VMs (Deprec
Home
Ubuntu 64-bit
vmware
35°C
Clear
ENG
US
21:58
27-05-2022


Ahsanul_jack [Running] - Oracle VM VirtualBox
May 31 09:56
Ahsanulhak
ubuntu
Screenshots
PDF to Word ...
CCLAB.docx -...
DEBDEEP SAN...
Oracle VM Vir...
Ahsanul_jack ...
ENG
9:56 AM

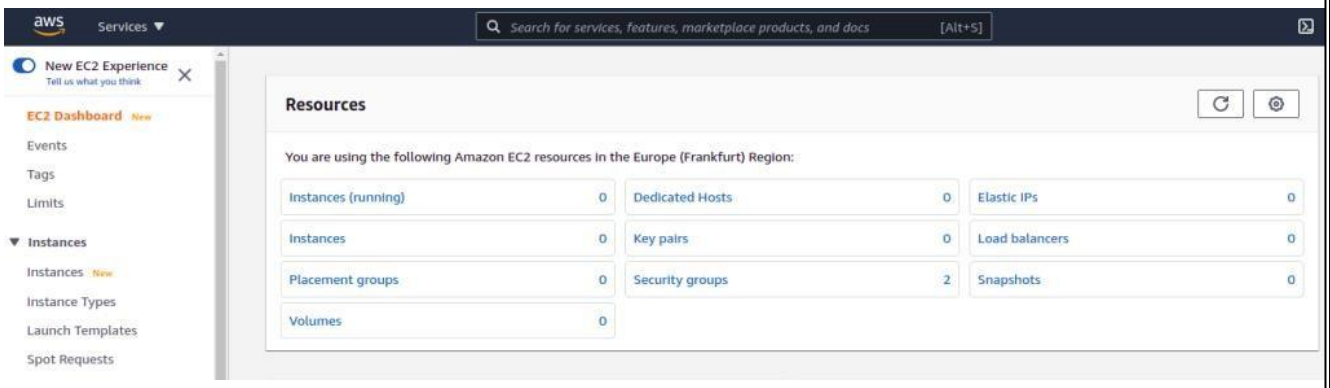

Ahsanul_jack [Running] - Oracle VM VirtualBox
May 31 09:55
Ahsanulhak
Not listed?
ubuntu
Screenshots
PDF to Word ...
CCLAB.docx -...
DEBDEEP SAN...
Oracle VM Vir...
Ahsanul_jack ...
ENG
9:55 AM


Ubuntu 64-bit - VMware Workstation
Activities
May 27 10:54
debsan
trash

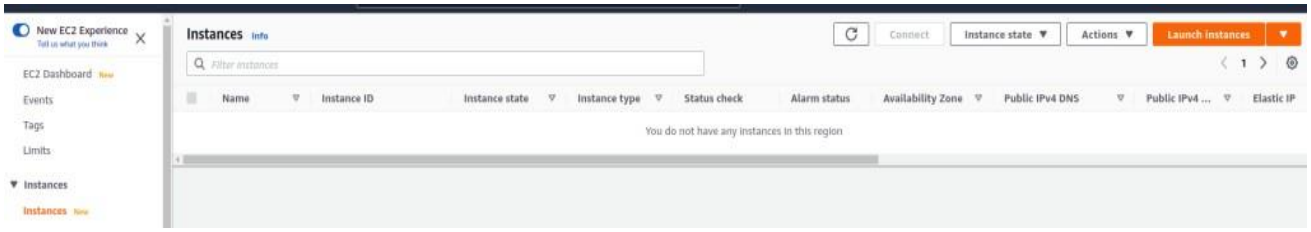
Task-5 Intro to AWS Case study

Installation of EC2 instance on AWS

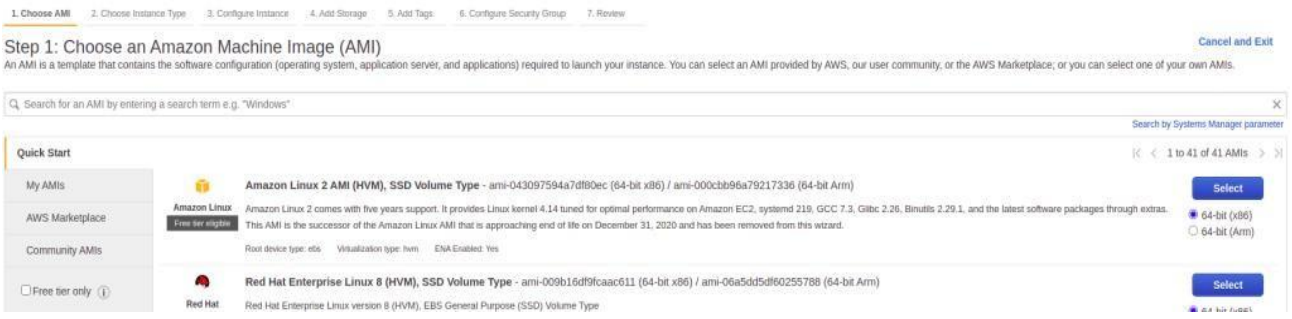
Login to the **AWS Management Console** and search for the **EC2** service. This will bring you to the **EC2 Dashboard**. In the screenshots, the **New EC2 Experience** is enabled, so it might look a bit different on your side when you did not enable this new layout.



In the left menu, click on **Instances** and in order to start creating your first EC2 instance, click the **Launch Instances** button at the top right corner.



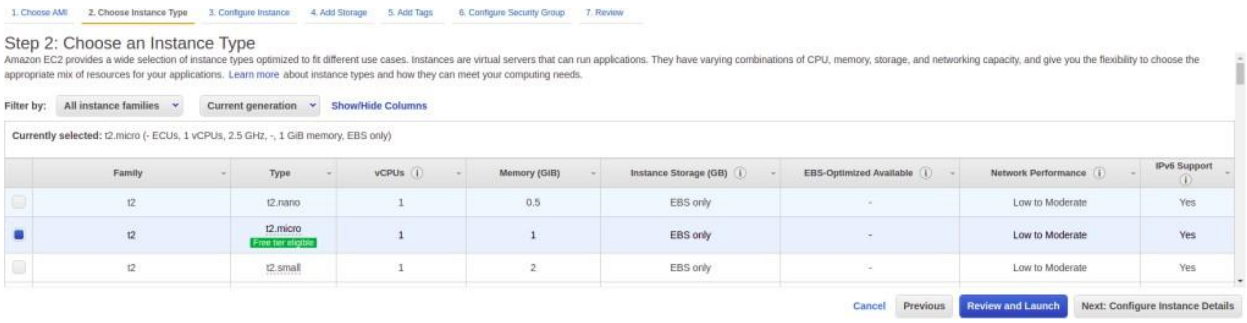
A wizard is started which will guide you through the creation process. In step 1, you need to select an AMI. You choose the **Amazon Linux 2 AMI** which is available in the Free Tier by clicking the **Select** button.



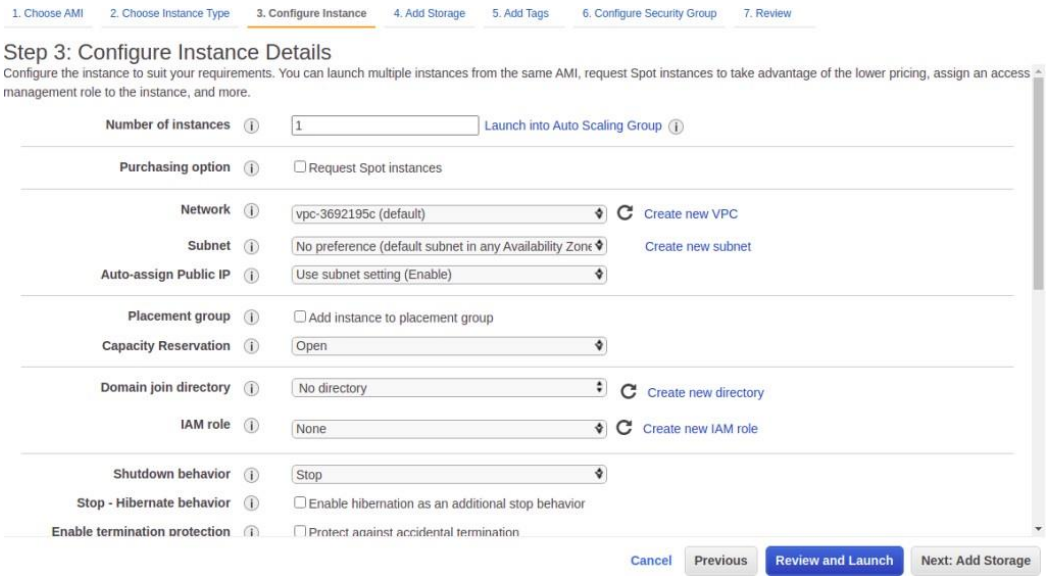
In step 2, you need to choose the **Instance Type** dependent on your needs concerning CPU, memory, storage and networking capacity. Being in the Free Tier,

the choice is easy because there is only one Instance Type available. Choose the **t2.micro** and click the

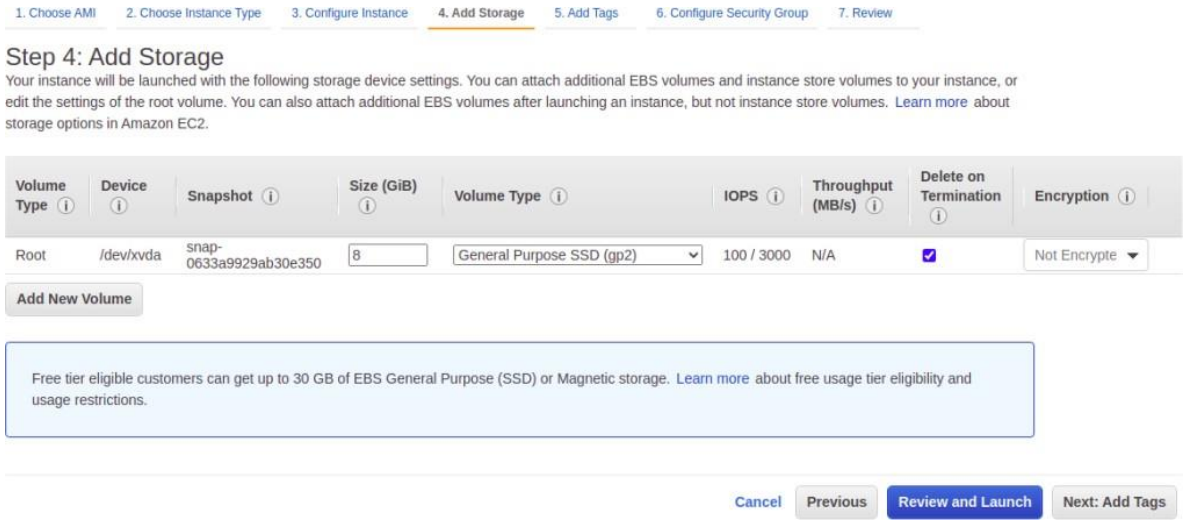
Next: Configure Instance Details button.



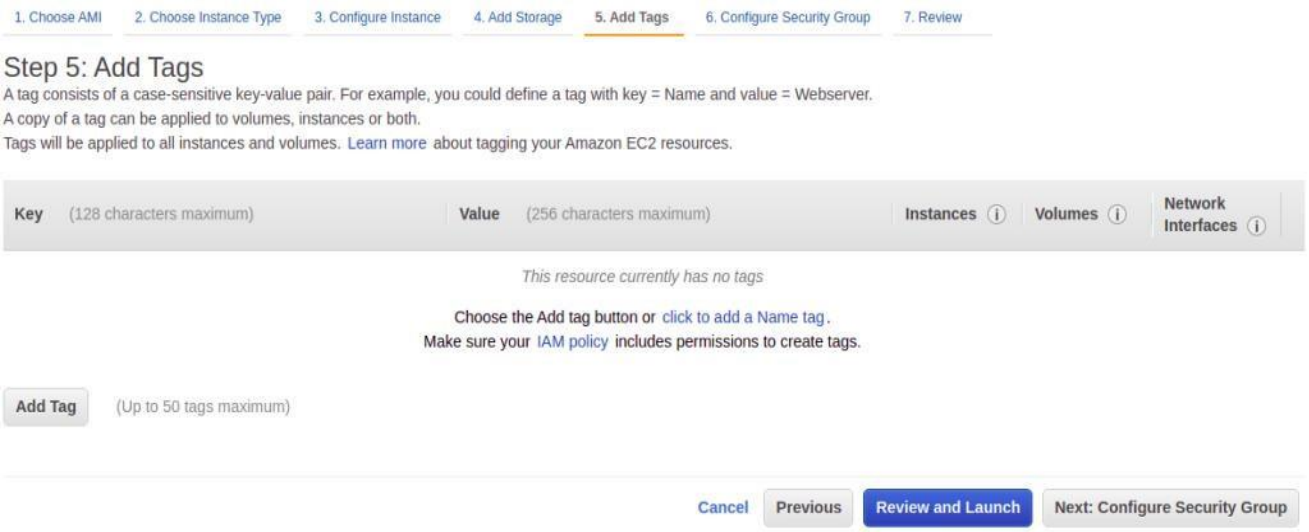
In **step 3**, you have the possibility to configure more items for your instance, e.g. the number of instances you want to create. Leave the defaults and click the **Next: Add Storage** button.



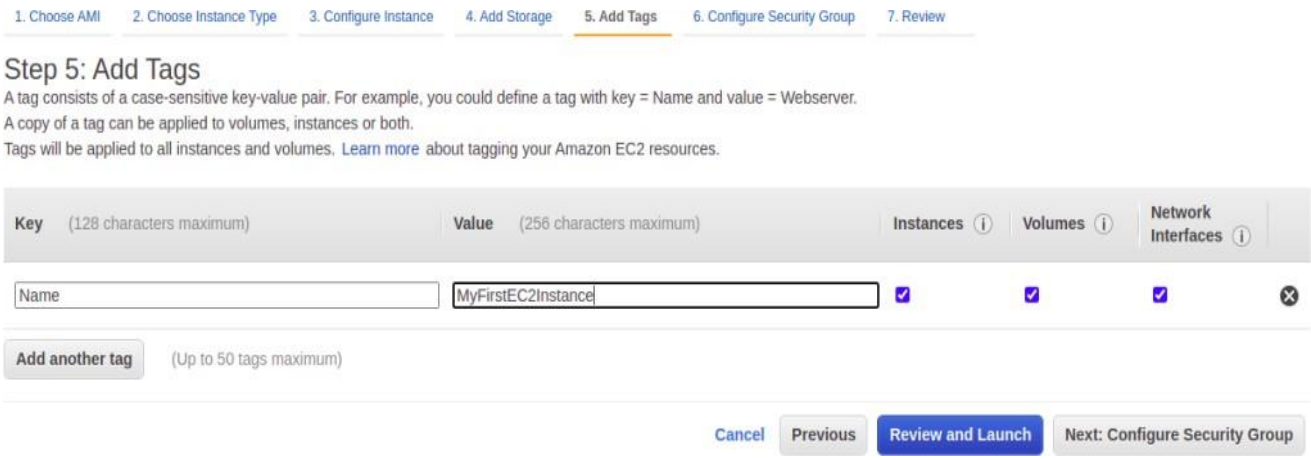
In step 4, you can configure the storage for your EC2 instance. Leave the defaults and click the **Next: Add Tags** button.



In step 5, you can add tags. You can add for example a **Name** tag by clicking the **click to add a Name tag** link.

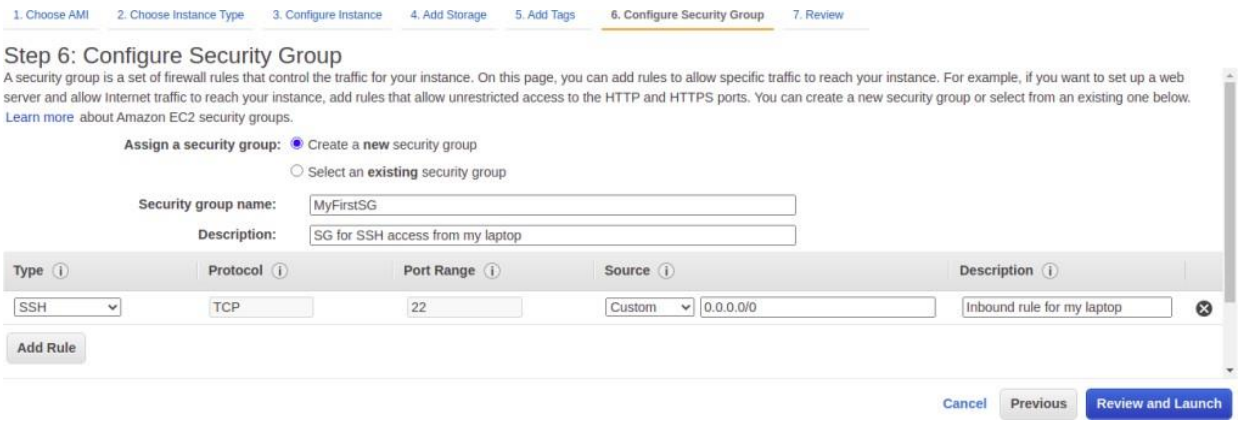


Name it **MyFirstEC2Instance** and click the **Next: Configure Security Group** button.

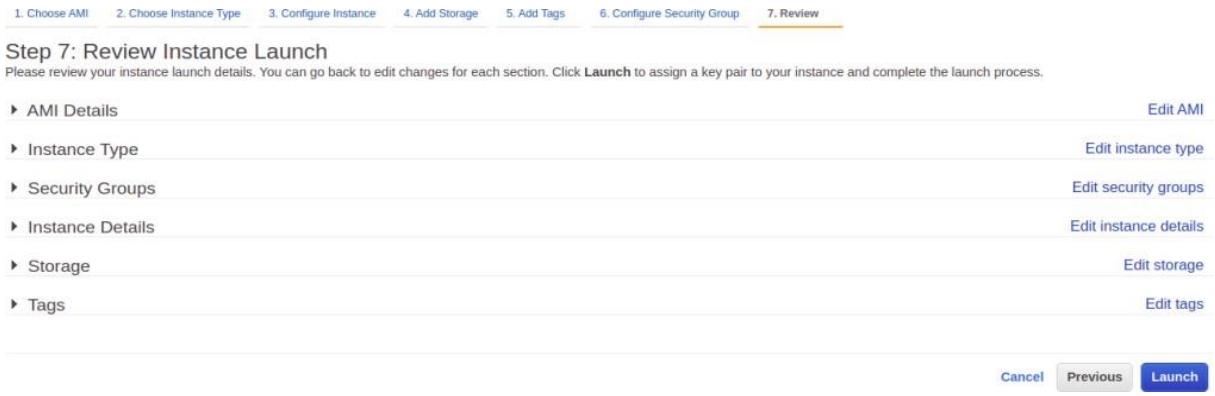


In step 6, you need to select or configure a Security Group. A Security Group is like a firewall in front of your EC2 instance. You have several options here, it is advised to only allow the traffic which is absolutely necessary.

In this case, you will create a new Security Group **MyFirstSG** for SSH access from your machine. Go to WhatIsMyIP.com and fill the IPv4 address followed with ***/32*** as a source instead of **0.0.0.0/0**. Click the **Review and Launch** button.

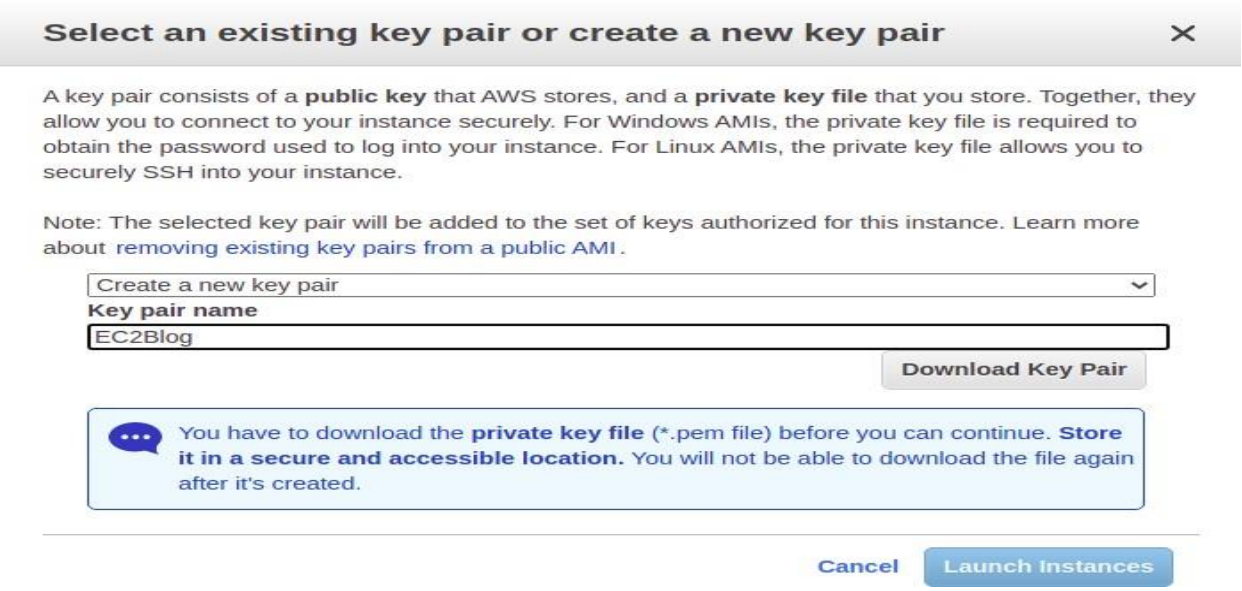


Finally, in step 7, you can review everything and when this is ok, you click the **Launch** button.

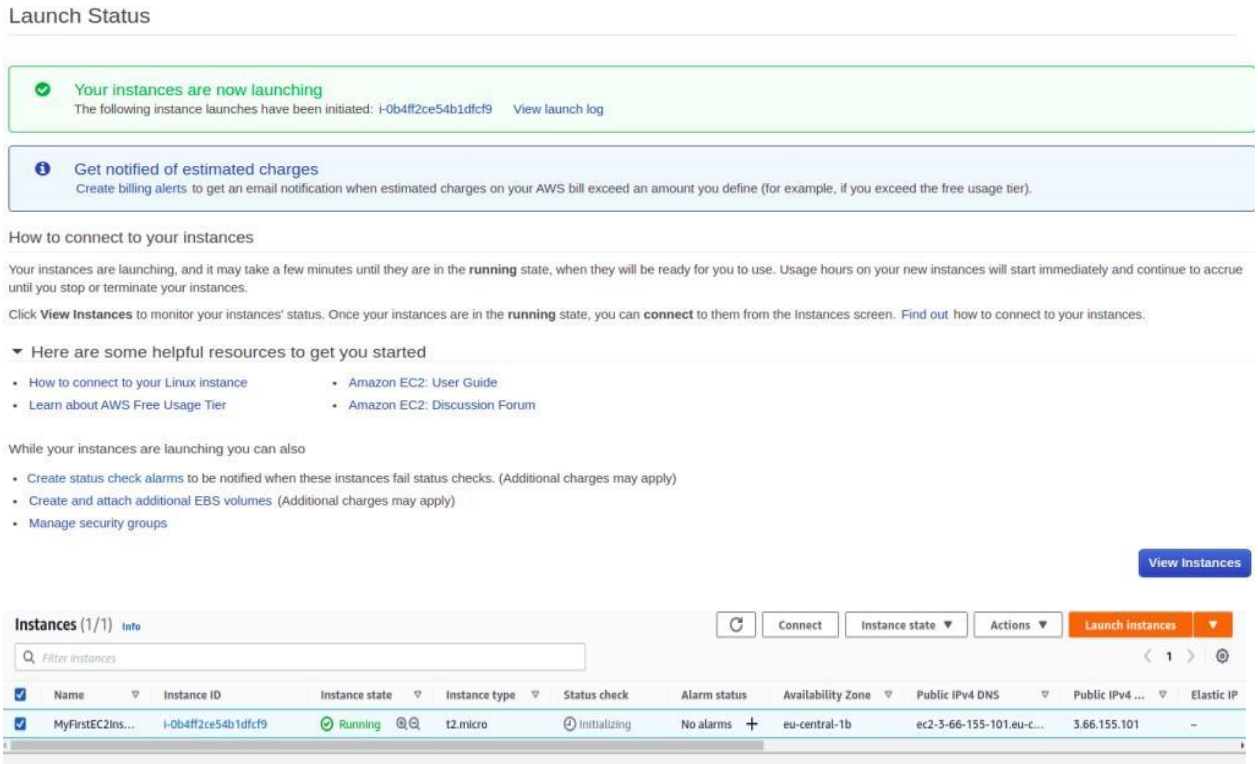


Before being launched, a popup window is show where we need to select an existing key pair or create a new one. This is necessary for accessing the instance by means of a SSH key. Create a new key pair **EC2Blog** and download the key pair.

A **EC2Blog.pem** file is downloaded to your machine. Finally, click the **Launch Instances** button.

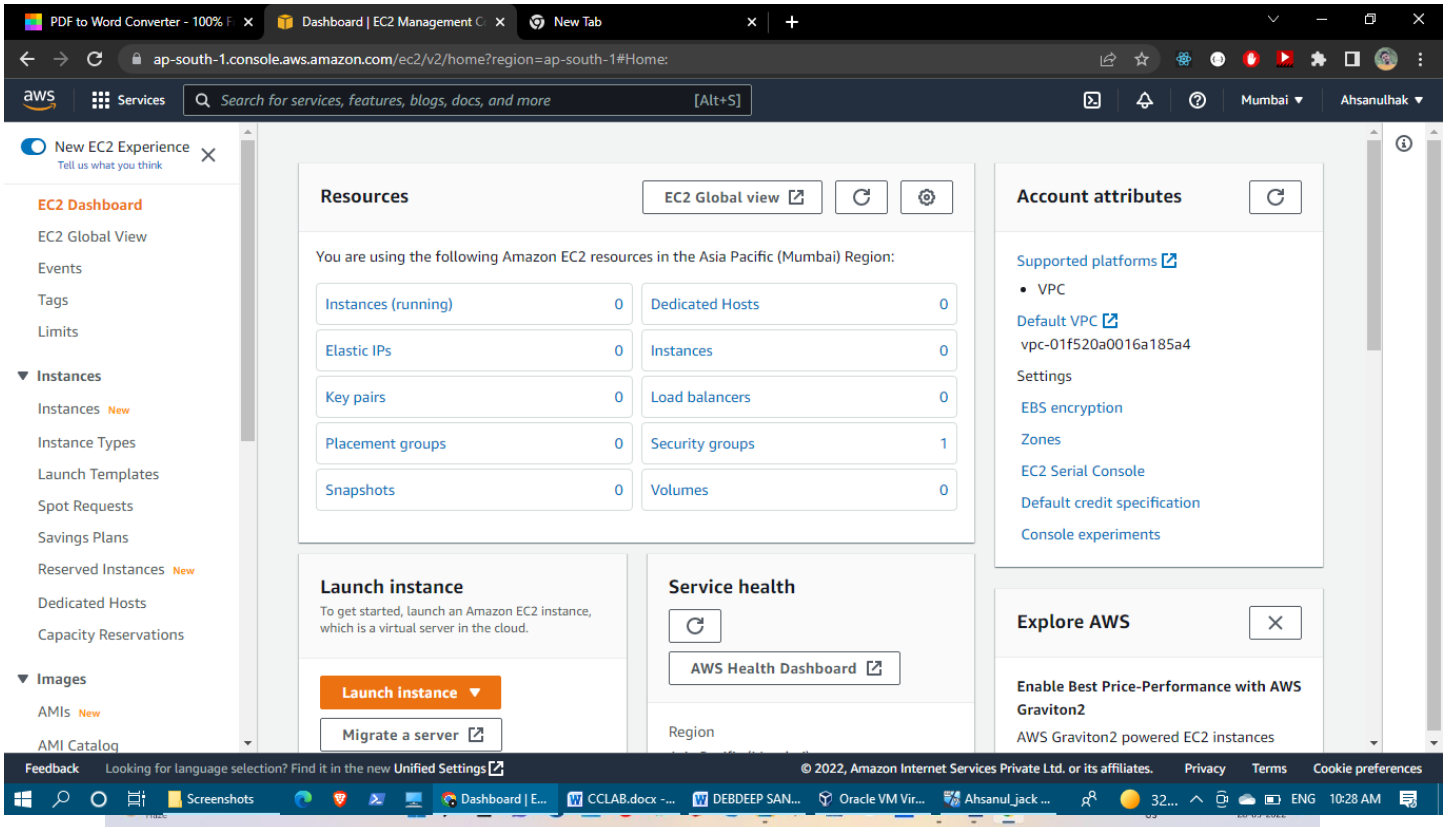


A **Launch Status** page is displayed, click the **View Instances** button.

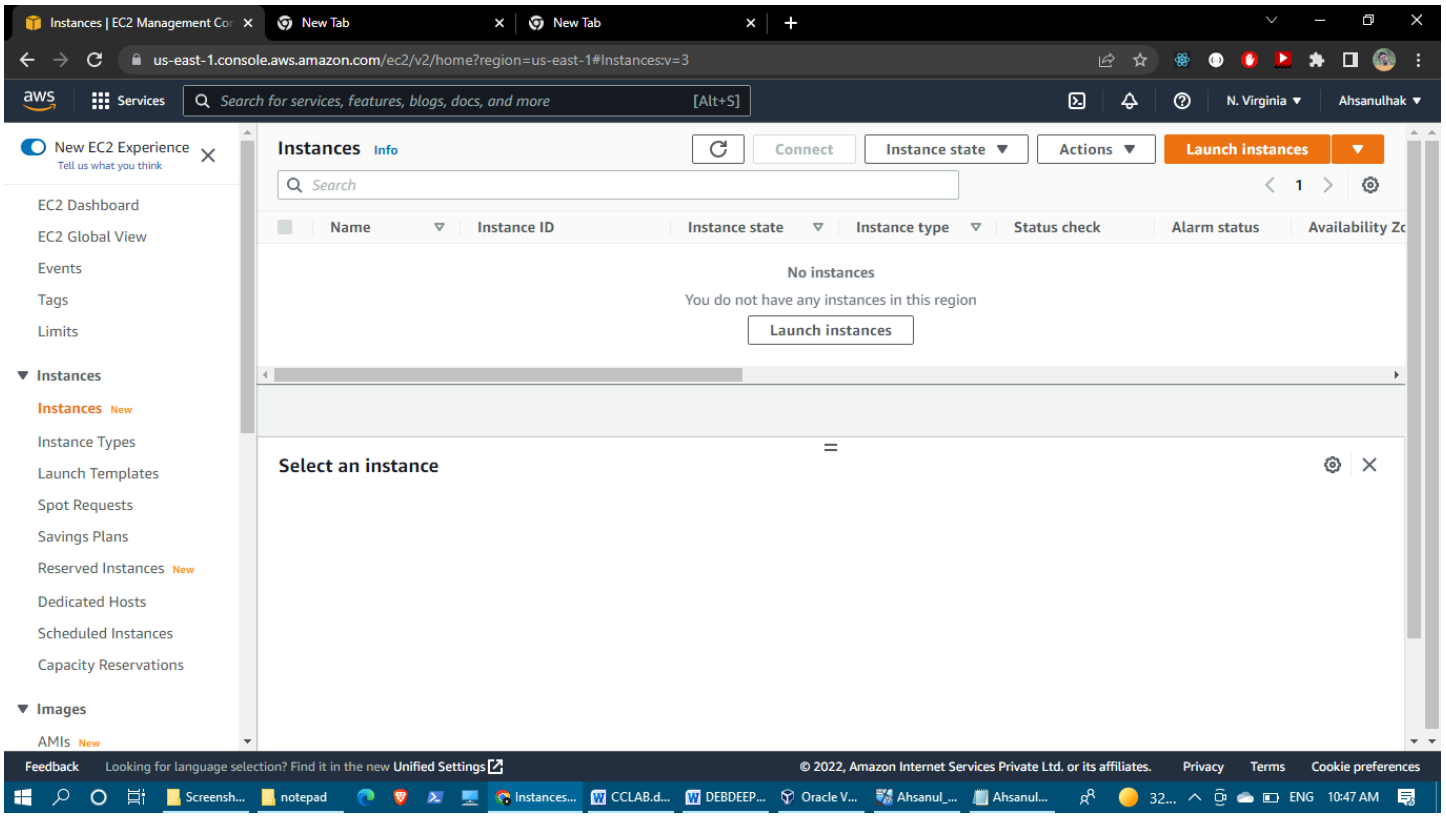


Configuring S3 bucket on AWS.

Sign in to the AWS Management console. After sign in, the screen appears is shown below:

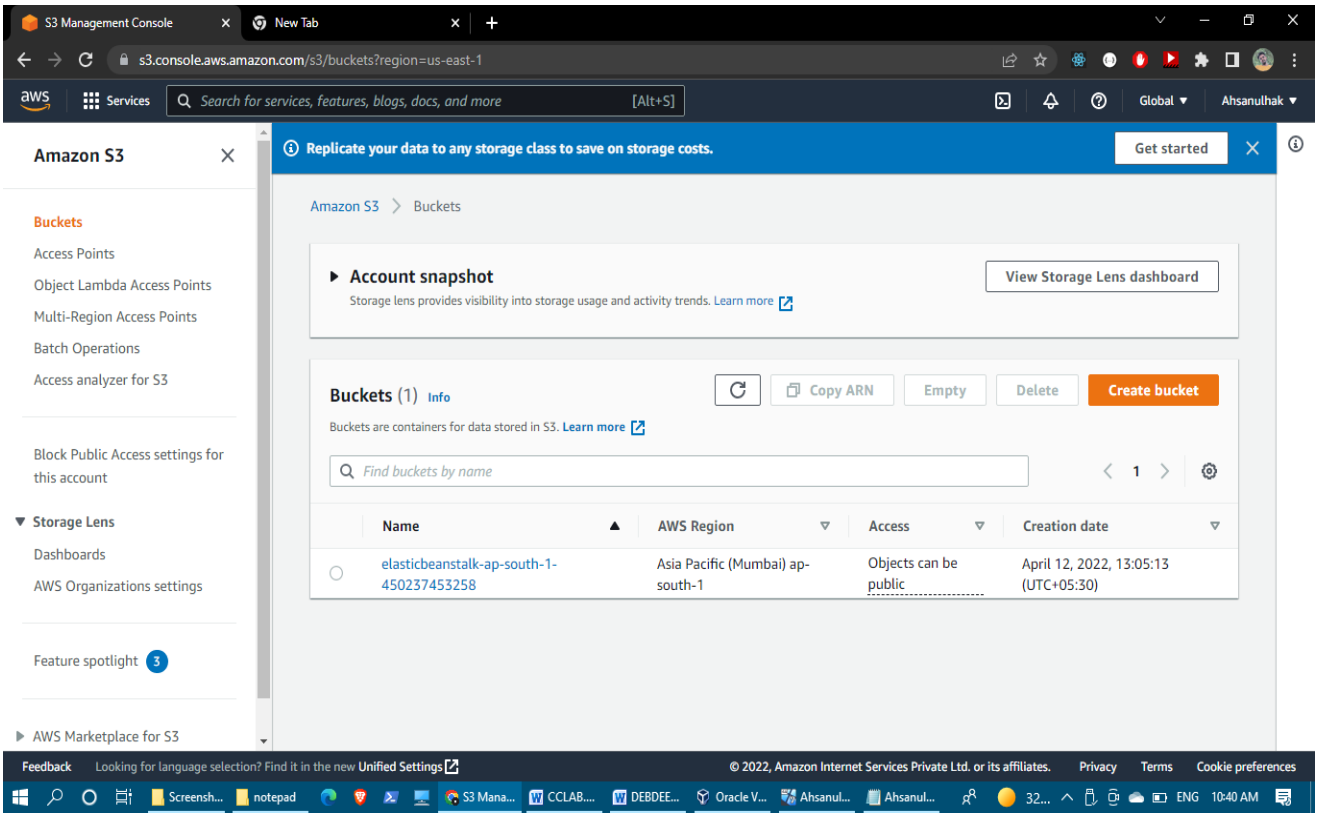


To create an S3 bucket, click on the "Create bucket". On clicking the "Create bucket" button, the screen appears is shown below:


Instances | EC2 Management Co
New Tab
New Tab
us-east-1.console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances:v=3
aws
Services
Search for services, features, blogs, docs, and more
[Alt+S]
N. Virginia
Ahsanulhak
New EC2 Experience
Tell us what you think
EC2 Dashboard
EC2 Global View
Events
Tags
Limits
Instances
Instances New
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances New
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs New
Instances Info
Connect
Instance state
Actions
Launch instances
Search
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
No instances
You do not have any instances in this region
Launch instances
Select an instance
Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Internet Services Private Ltd. or its affiliates.
Privacy
Terms
Cookie preferences
ENG
10:47 AM

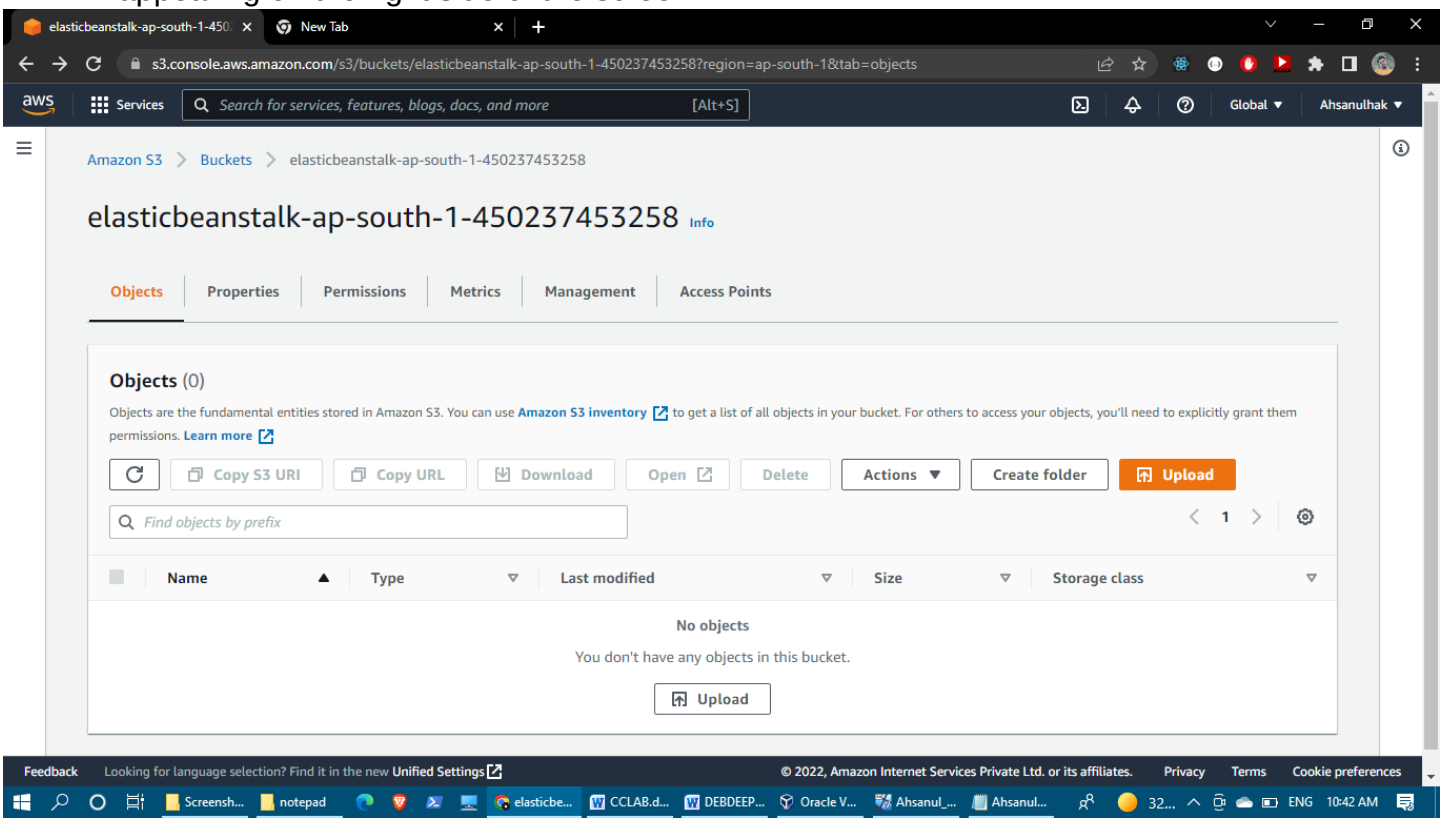
We have seen from the above screen that bucket and its objects are not public as by default, all the objects are private.

Click on the "Upload" button to add the files to your bucket.

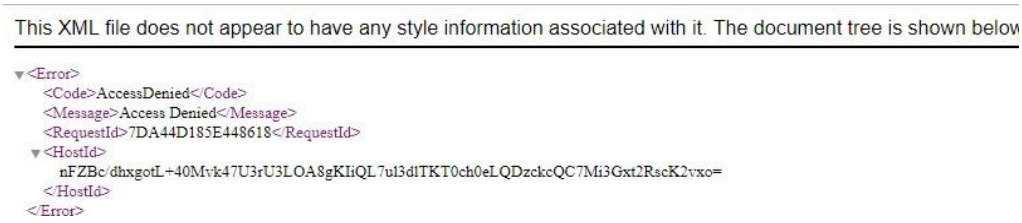

S3 Management Console
New Tab
s3.console.aws.amazon.com/s3/buckets?region=us-east-1
Services
Search for services, features, blogs, docs, and more
[Alt+S]
Global
Ahsanulhak
Amazon S3
Buckets
Access Points
Object Lambda Access Points
Multi-Region Access Points
Batch Operations
Access analyzer for S3
Block Public Access settings for this account
Storage Lens
Dashboards
AWS Organizations settings
Feature spotlight
3
AWS Marketplace for S3
Replicate your data to any storage class to save on storage costs.
Get started
Amazon S3 > Buckets
Account snapshot
Storage lens provides visibility into storage usage and activity trends. Learn more
View Storage Lens dashboard
Buckets (1) Info
Buckets are containers for data stored in S3. Learn more
Copy ARN
Empty
Delete
Create bucket
Find buckets by name
Name
AWS Region
Access
Creation date
elasticbeanstalk-ap-south-1-450237453258
Asia Pacific (Mumbai) ap-south-1
Objects can be public
April 12, 2022, 13:05:13 (UTC+05:30)
Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Internet Services Private Ltd. or its affiliates.
Privacy
Terms
Cookie preferences
ENG
10:40 AM

From the above screen, we observe that the " **CC Lab -1 Debdeep Sanyal-Roll no-326.pdf** " has been successfully uploaded to the bucket "debdeep".

Move to the properties of the object **""** and click on the object URL to run the file appearing on the right side of the screen

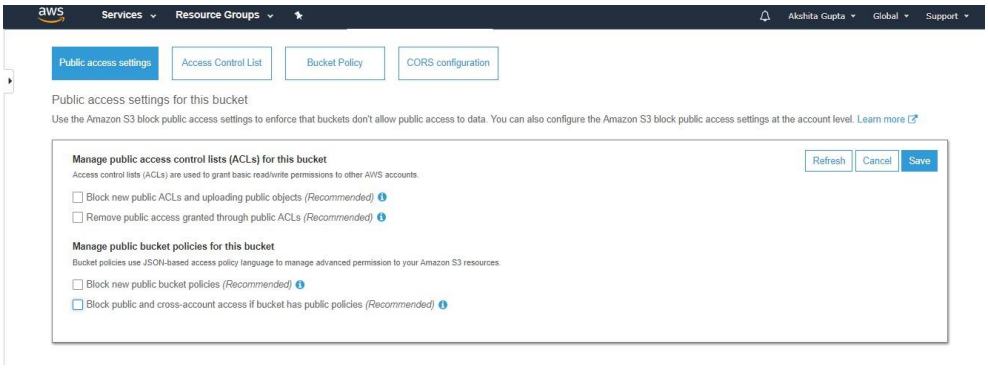


On clicking the object URL, the screen appears is shown below:



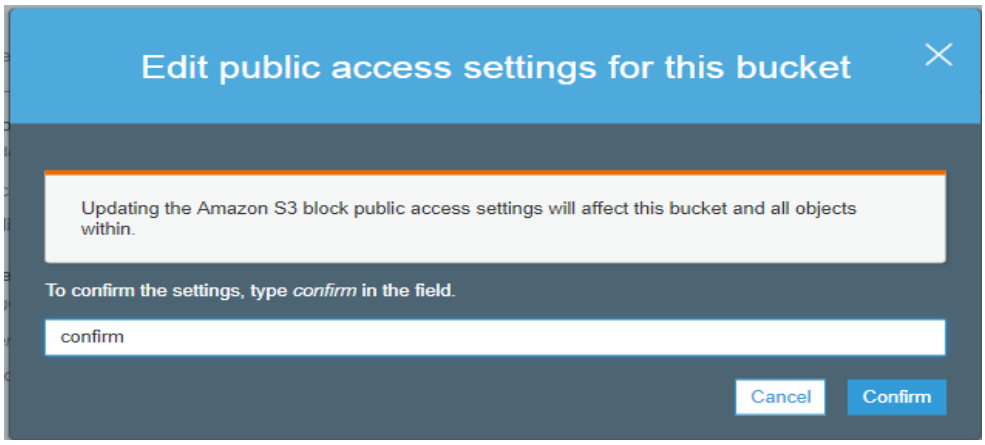
From the above screen, we observe that we are not allowed to access the objects of the bucket.

To overcome from the above problems, we need to set the permissions of a bucket, i.e., "debdeep" and unchecked all of them.

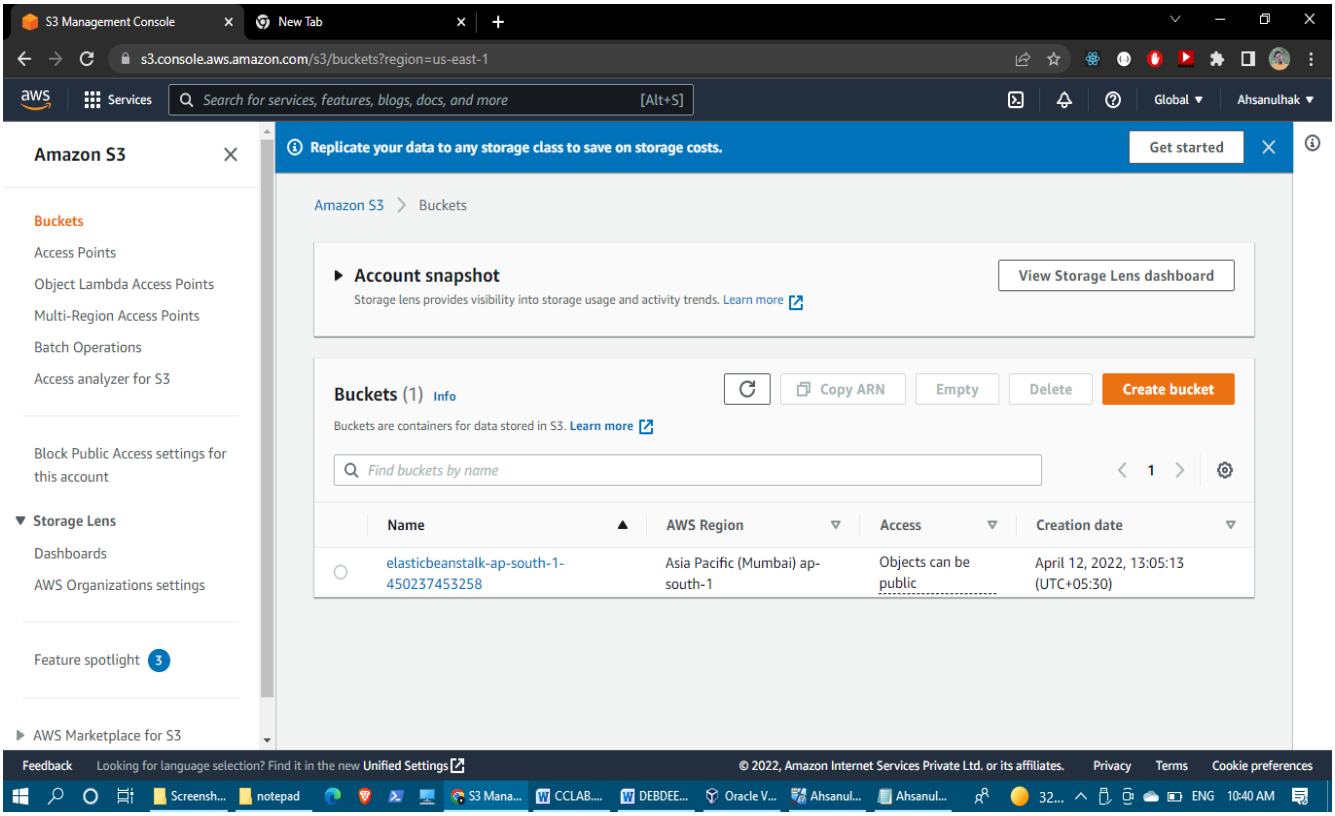


Save these permissions.

Enter "confirm" in a textbox, then click on the "confirm" button.



Click on the **"Actions"** dropdown and then click on the "Make public".


S3 Management Console
New Tab
s3.console.aws.amazon.com/s3/buckets?region=us-east-1
Services
Search for services, features, blogs, docs, and more
[Alt+S]
Global
Ahsanulhak
Amazon S3
Buckets
Access Points
Object Lambda Access Points
Multi-Region Access Points
Batch Operations
Access analyzer for S3
Block Public Access settings for this account
Storage Lens
Dashboards
AWS Organizations settings
Feature spotlight
3
AWS Marketplace for S3
Replicate your data to any storage class to save on storage costs.
Get started
Amazon S3 > Buckets
Account snapshot
Storage lens provides visibility into storage usage and activity trends. Learn more
View Storage Lens dashboard
Buckets (1) Info
Buckets are containers for data stored in S3. Learn more
Copy ARN
Empty
Delete
Create bucket
Find buckets by name
Name
AWS Region
Access
Creation date
elasticbeanstalk-ap-south-1-450237453258
Asia Pacific (Mumbai) ap-south-1
Objects can be public
April 12, 2022, 13:05:13 (UTC+05:30)
Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Internet Services Private Ltd. or its affiliates.
Privacy
Terms
Cookie preferences
ENG
10:40 AM

Task-6 VeraCrypt

Step 1: Download standard or portable version of VeraCrypt

Download VeraCrypt on your Windows computer and install it the same way you install other Windows programs. You can alternatively download the portable version of VeraCrypt, as well.

Step 2: Install it on the system or extract as a portable version

After the download starts, you can also choose, whether you want to install it, or just keep the portable version of VeraCrypt. Just use ‘Repair/Reinstall’ to install VeraCrypt.After you have downloaded and installed VeraCrypt, open the VeraCrypt application, and the first step is to set up encryption.

Step 3: Creating an encrypted drive

Using VeraCrypt, you have three different ways to encrypt your files. Using one of the options, you can encrypt an entire drive, which means, all the files within the drive will be encrypted. The second option will encrypt the system partition or drive. The third or the best option is to create a virtual drive and encrypt the same. After you mount the drive, all the files that you will keep within it will be encrypted. So, here, I will discuss, how you can set up VeraCrypt encryption, using the third option.

After you open the VeraCrypt application, click on ‘Create Volume’.

Next, you will find the three ways to create encrypted volumes, as I just discussed. Just select ‘Create an encrypted file container’, which should be the default option, and click on ‘Next’.

“Apart from this, Encrypt a non-system partition/drive option is there to encrypt a non-system partition such as external hard drives or flash drives; also it let’s create a hidden volume. And Encrypt the system partition or entire system drive one allows the users to encrypt the Windows installed partition or drive which makes it password protected and one has to enter the set security password to use the access and use the system, read and write files etc. So, after using this encryption setting, we need to enter the correct password each time before Windows boots.”

Step 4: Standard VeraCrypt volume

Next, you will have to choose the type of volume that you want to create. You can create a normal volume, which is like any other drive on a computer, but encrypted. With the second option, you can create a hidden volume, which is a useful option if you want to hide your encrypted volume from others. Hidden encrypted volumes can be useful if you often face situations when you need to disclose your password under pressure. So you can choose the second option if you want. But I will proceed with the first option or ‘Standard VeraCrypt volume’. After that, click on ‘Next’.

Step 5: Choose the name of the virtual drive

Now, click on ‘Select File…’ to choose the name of the virtual drive, and the location, and click on ‘Next’. You should select an empty file in this step. Do not select an existing file, as this is not going to encrypt the selected file. This step is only going to create a virtual drive whose contents will be encrypted using VeraCrypt.

Step 6: Select the VeraCrypt Encryption Algorithm

In the next step, you will have to choose the encryption algorithm, which is ‘AES’ by default. Just click on ‘Next’ after you choose the encryption and hashing algorithm from the drop-down menu.

Step 7: VeraCrypt Volume Creation Wizard

The next important step is to choose the size of the encrypted drive volume. Just choose the unit, and enter the size. Here, I am creating a 300 MB volume. You can create a bigger or a smaller drive as per your requirements. After you enter the size, click on ‘Next’.

Step 8: Choose a password

The most important part is to choose a password. To keep your files safe from brute-force attacks, choose a strong and big password that is a combination of letters, numbers and special characters. After you choose your password, click on ‘Next’. You might be prompted to enter a big password.

Step 9: Choose the file system and format

In the final step, you will have to choose the file system, cluster size, and whether you want to do a quick format or a full format. It is also recommended that you keep moving the mouse as much as you can to generate randomness and strengthen the encryption keys. Finally, click on ‘Format’ after you have selected all the necessary options.

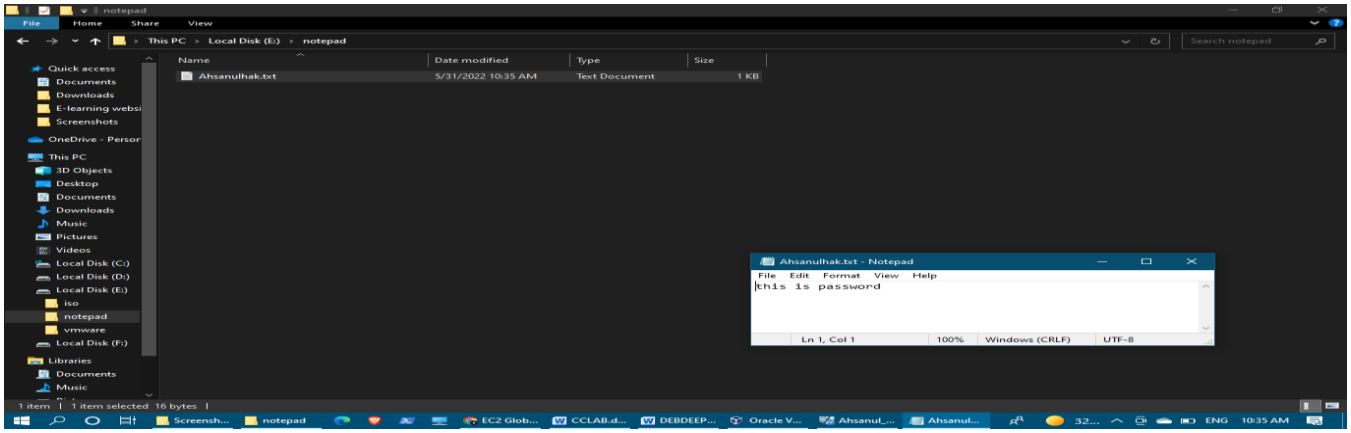
After the format is complete, click on ‘Next’, and you can now exit the wizard.

Now, enter the password, and click on ‘OK’.

Now, you can find the drive within ‘My Computer’ or your default file manager on Windows or the Linux distribution that you are using.

New drive created

Mount to the drive



File created in new drive