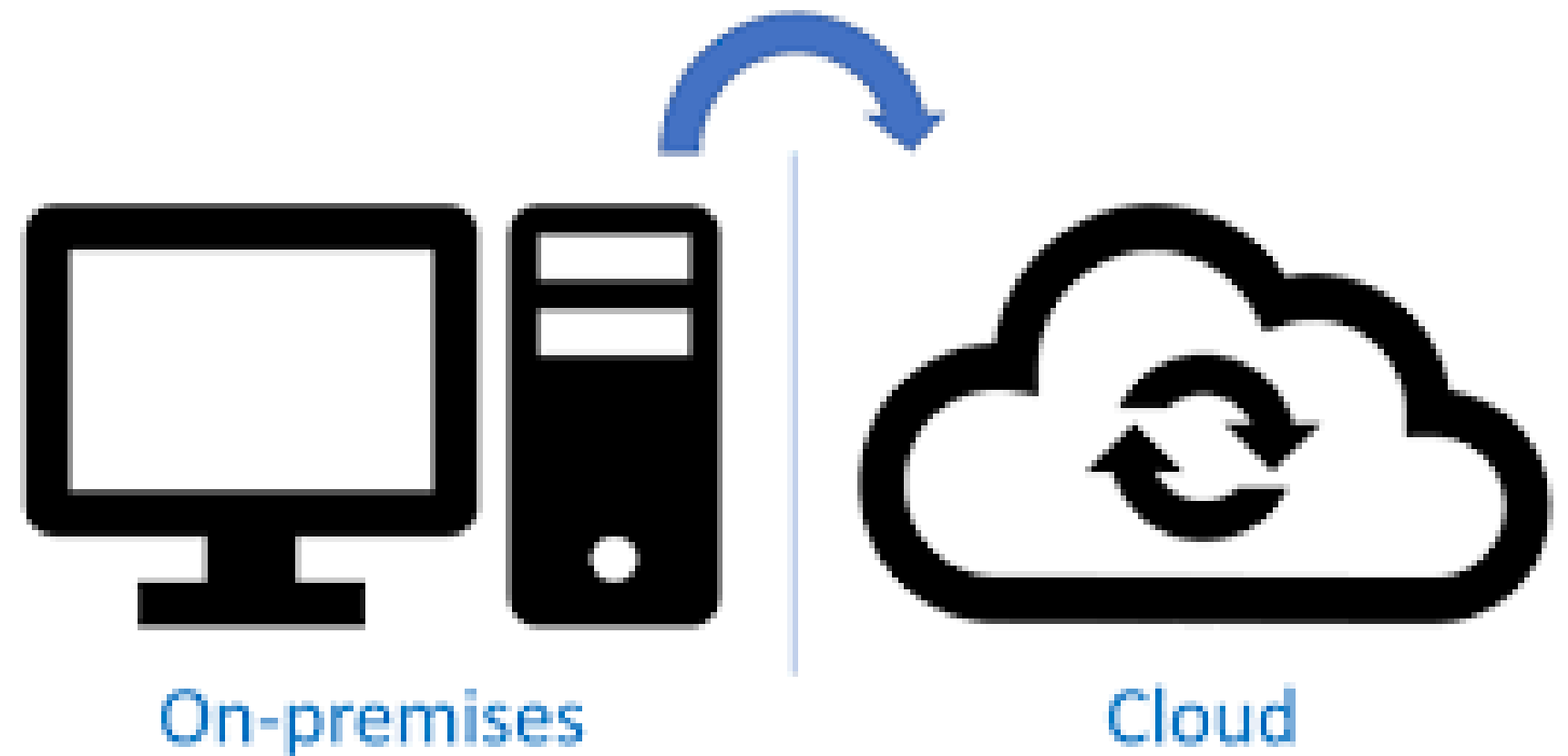


SERVER MIGRATION REPORT

FROM ON-PREM TO AWS CLOUD



Step-1 : Extract On-Prem server

The screenshot displays the Oracle VM VirtualBox Manager interface. On the left, a list of virtual machines includes 'CentOs7' (Powered Off) and 'Server-1' (Powered Off). The 'Server-1' VM is selected, and its settings are shown in the main pane. The settings are organized into sections: General, System, Display, Storage, Audio, Network, USB, Shared folders, and Description. The 'Storage' section is currently expanded, showing the IDE controller and two SATA ports connected to disk files. An error dialog box is overlaid on the right side of the window, indicating a failure to find a file for a specific medium.

Oracle VM VirtualBox Manager

File Machine Help

Tools

CentOs7 Powered Off

Server-1 Powered Off

General

Name: Server-1
Operating System: Red Hat (64-bit)

System

Base Memory: 2048 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Controller: IDE
IDE Secondary Device 0: [Optical Drive] Empty
Controller: SATA
SATA Port 0: Server-1-disk001.vdi (Normal, 20.00 GB)
SATA Port 1: Server-1-disk002.vdi (Normal, 5.00 GB)

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Qualcomm Atheros QCA9377 Wireless Network Adapter)

USB

USB Controller: OHCI
Device Filters: 0 (0 active)

Shared folders

None

Description

None

Writing appliance ... 80%

Writing appliance ...

To: C:
\\Users\\Lenovo\\OneDrive\\Desktop\\On-prem-server\\CentOS-7.ova

Could not find file for the medium 'C:\\Users\\Lenovo\\VirtualBox VMs\\On-prem-CentOS-7\\Server-1-disk001.vdi' (VERR_PATH_NOT_FOUND).

Result Code: VBOX_E_FILE_ERROR (0x80BB0004)

Component: MediumWrap

Interface: IMedium {ad47ad09-787b-44a b-b343-a082a3f2dfb1}

Writing appliance ... 100%

Step-2 : Create s3 bucket with public access and upload the on-prem server in bucket

Services

Search [Alt+S]

N. Virginia Aman Dandale

VPC S3 RDS Lightsail CloudFormation Simple Notification Service Elastic Beanstalk CloudWatch Simple Queue Service Route 53 DynamoDB CloudFront Lambda

Amazon S3

Buckets

vmmigration-on-prem-server

vmmigration-on-prem-server

Info

Objects

Properties

Permissions

Metrics

Management

Access Points

Objects (1)

Info

Refresh

Copy S3 URI

Copy URL

Download

Open

Delete

Actions

Create folder

Upload

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Find objects by prefix

Show versions

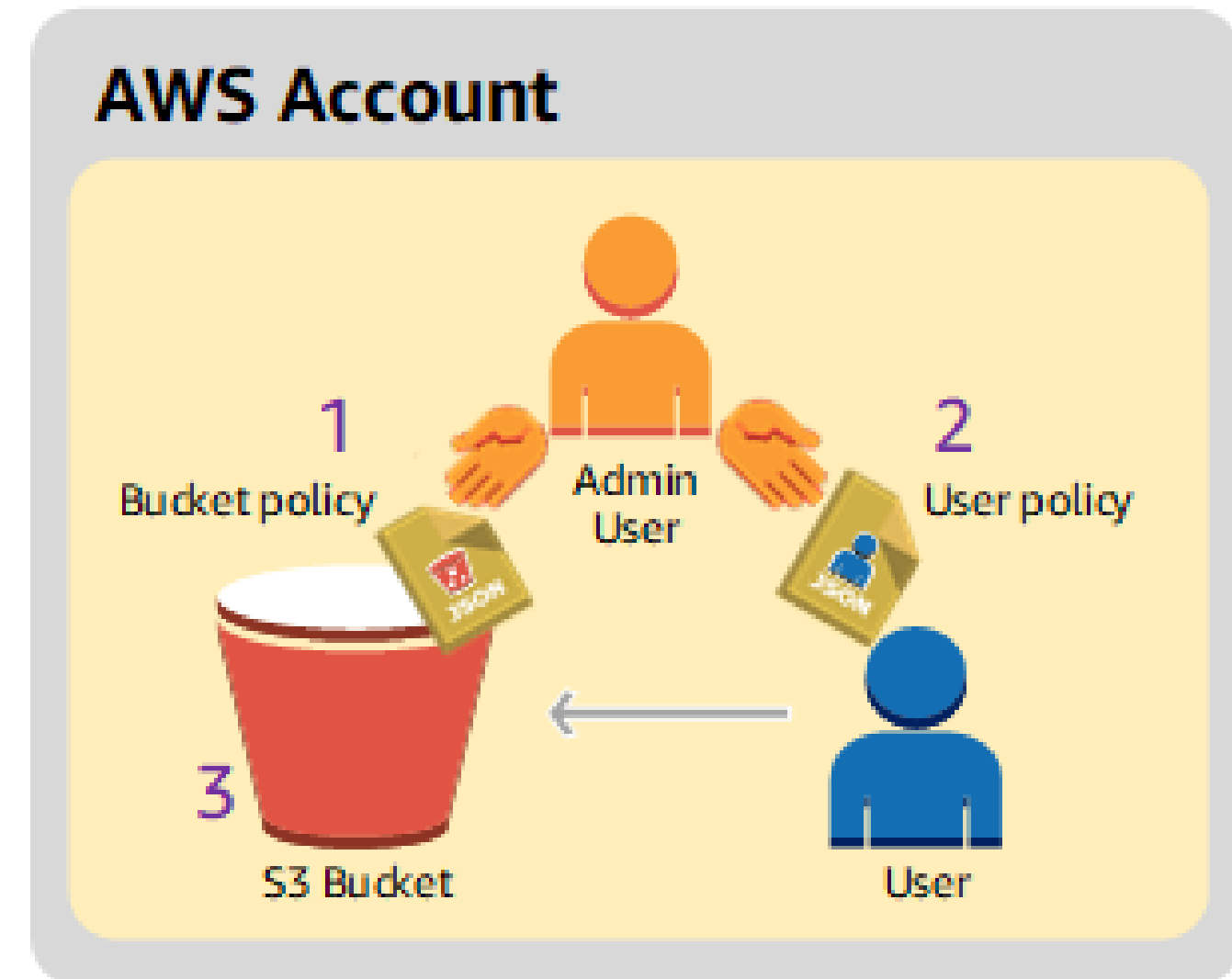
< 1 >

Settings

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	<div>On-prem-CentOS-7.ova</div>	ova	August 27, 2024, 09:12:14 (UTC+05:30)	1.4 GB	Standard

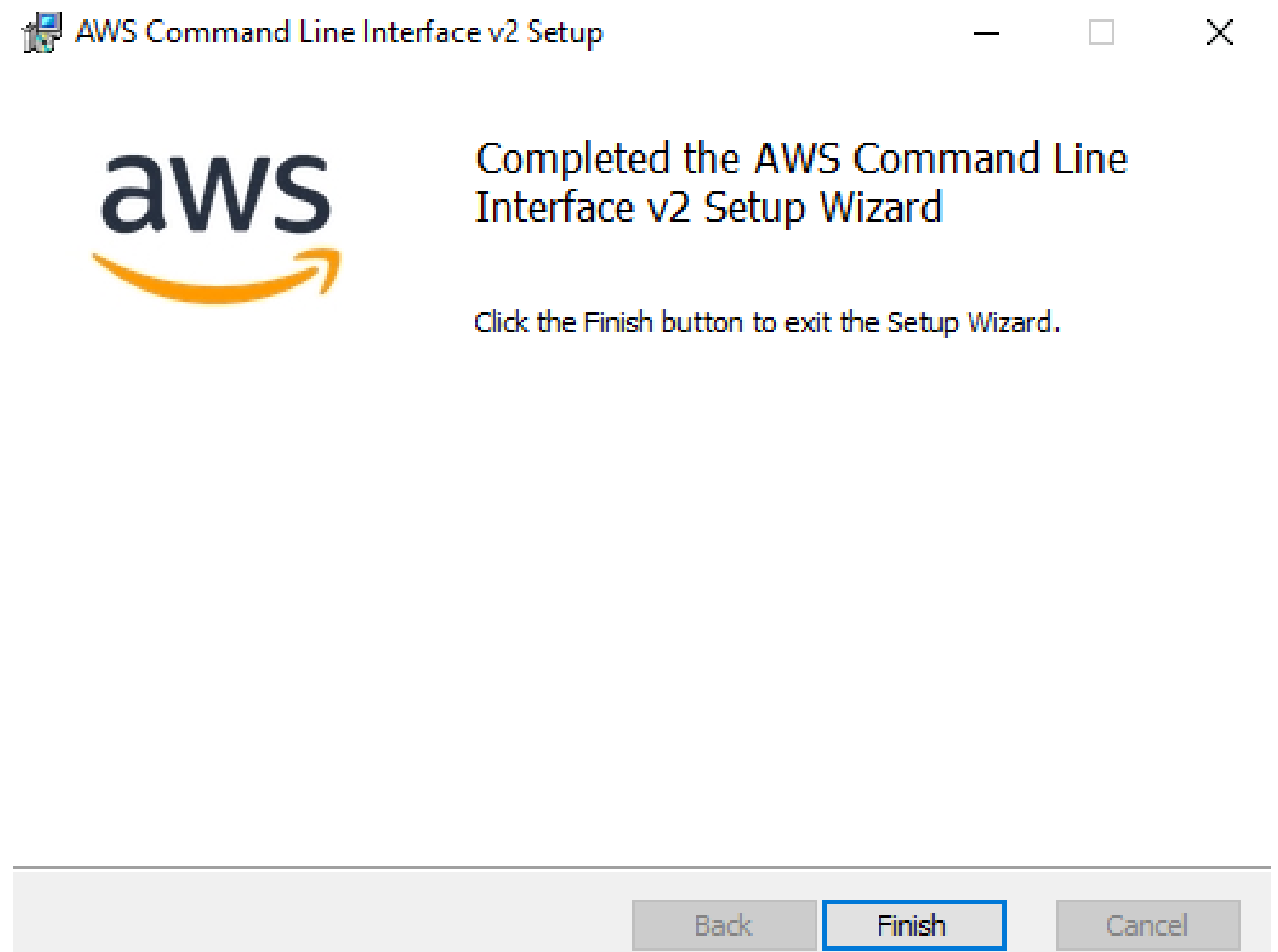
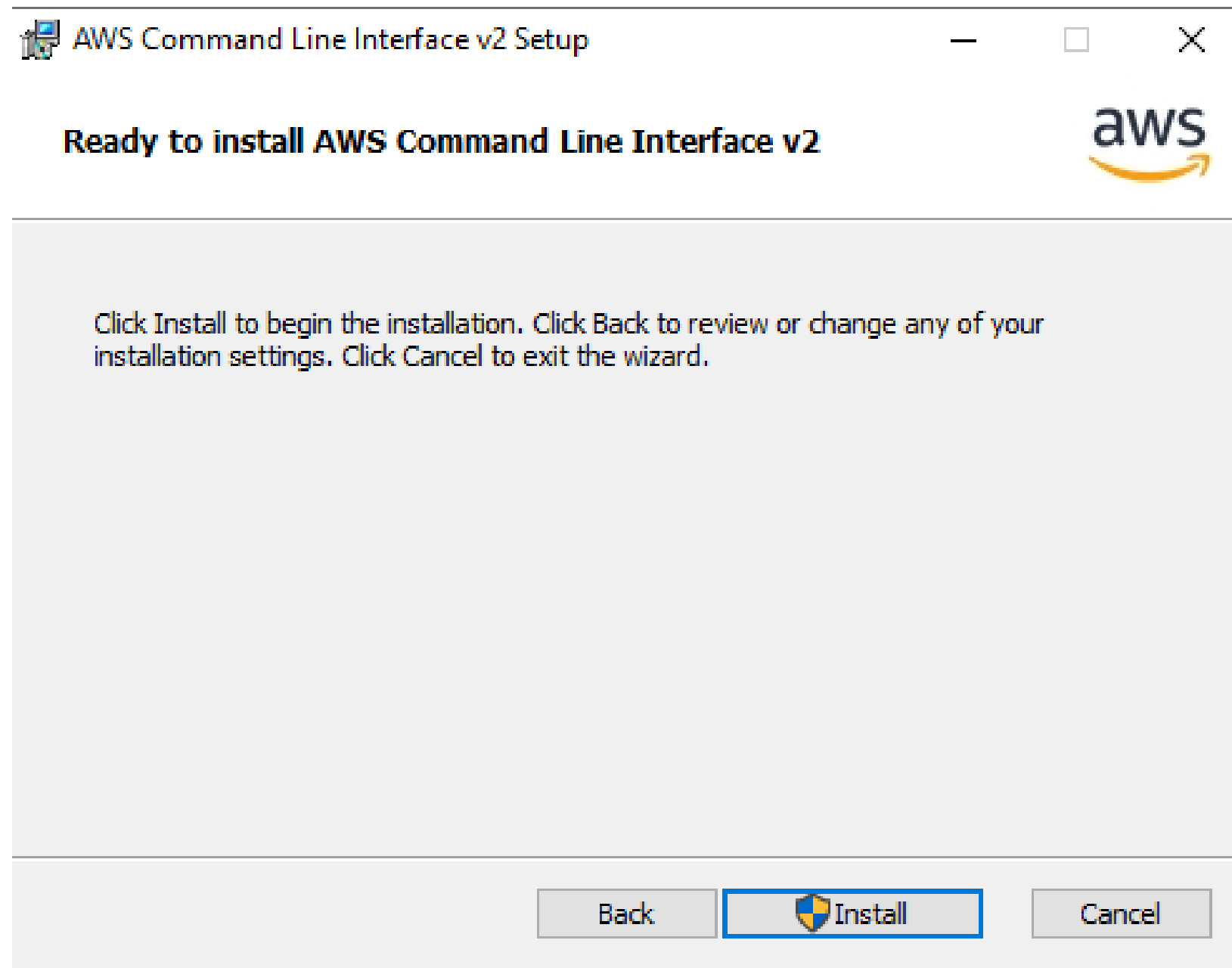
Step-3 : Attached s3 bucket policy to s3 bucket for public access.

```
{  
  "Version": "2012-10-17",  
  "Statement": [  
    {  
      "Sid": "PublicReadGetObject",  
      "Effect": "Allow",  
      "Principal": "*",  
      "Action": "s3:GetObject",  
      "Resource": "arn:aws:s3:::/vmmigration-on-prem-server"  
    }  
  ]  
}
```

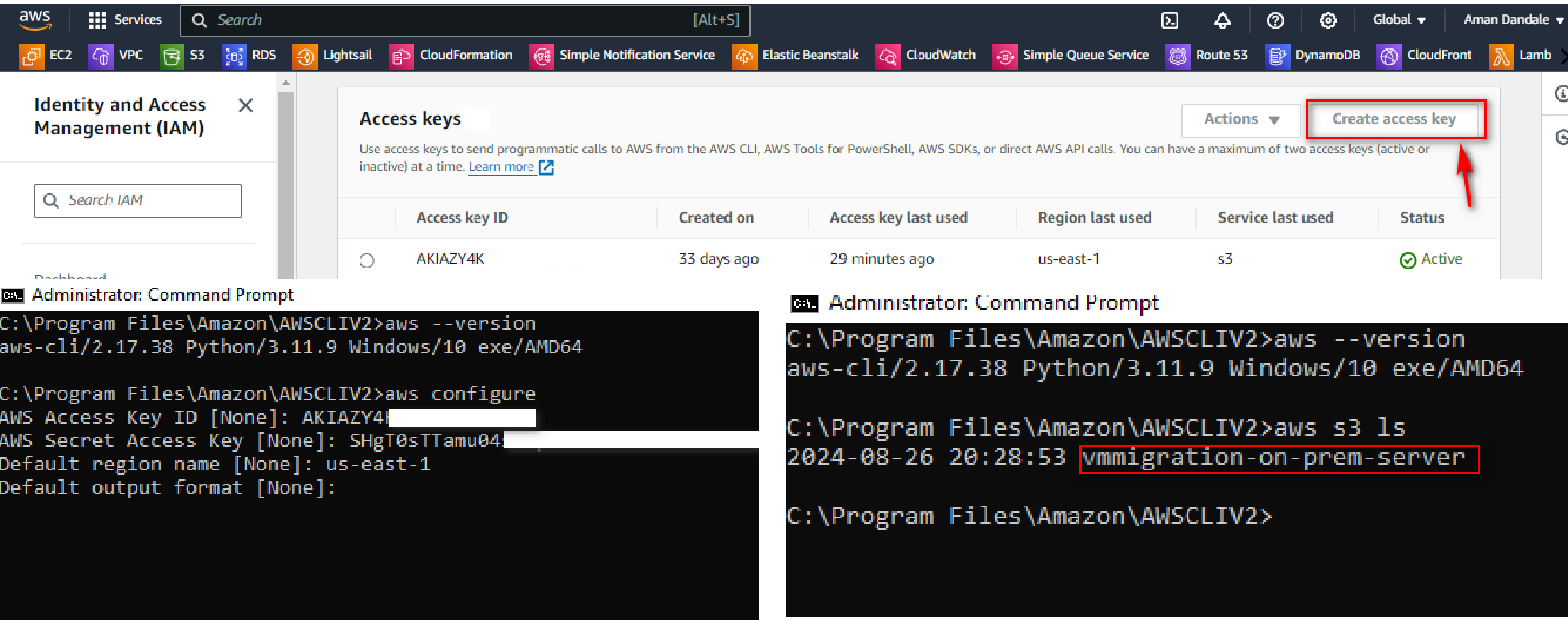


Step-4 : Download and install AWS CLI

Download AWS CLI: <https://docs.aws.amazon.com/cli/latest/userguide/getting-started-install.html>



Step-5 : Now configure AWS CLI with aws account through command prompt



Identity and Access Management (IAM)

Access keys

Use access keys to send programmatic calls to AWS from the AWS CLI, AWS Tools for PowerShell, AWS SDKs, or direct AWS API calls. You can have a maximum of two access keys (active or inactive) at a time. [Learn more](#)

Actions **Create access key**

	Access key ID	Created on	Access key last used	Region last used	Service last used	Status
<input type="radio"/>	AKIAZY4K	33 days ago	29 minutes ago	us-east-1	s3	Active

Administrator: Command Prompt

```
C:\Program Files\Amazon\AWSCLIV2>aws --version
aws-cli/2.17.38 Python/3.11.9 Windows/10 exe/AMD64

C:\Program Files\Amazon\AWSCLIV2>aws configure
AWS Access Key ID [None]: AKIAZY4K
AWS Secret Access Key [None]: SHgT0sTTamu04
Default region name [None]: us-east-1
Default output format [None]:
```

Administrator: Command Prompt

```
C:\Program Files\Amazon\AWSCLIV2>aws --version
aws-cli/2.17.38 Python/3.11.9 Windows/10 exe/AMD64

C:\Program Files\Amazon\AWSCLIV2>aws s3 ls
2024-08-26 20:28:53 vmmigration-on-prem-server

C:\Program Files\Amazon\AWSCLIV2>
```

- Use command to sync aws account: aws configure
- Provide your AWS account's Access key ID and Secret Access key ID
- Select your Default region and output format as Json

Step-6 : Now create a IAM role for importing the on-prem vm to AWS

- Search on google “Required permissions for vm import/export” you will get
- Documentation: <https://docs.aws.amazon.com/vm-import/latest/userguide/required-permissions.html>
- Save IAM policy on Desktop with name “trust-policy.json”

To create the service role

1. Create a file named `trust-policy.json` on your computer. Add the following policy to the file:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": { "Service": "vmie.amazonaws.com" },
      "Action": "sts:AssumeRole",
      "Condition": {
        "StringEquals": {
          "sts:Externalid": "vmimport"
        }
      }
    }
  ]
}
```

```
Administrator: Command Prompt
C:\Program Files\Amazon\AWSCLI>cd..
C:\Program Files\Amazon>cd..
C:\Program Files>cd..
C:\>cd Users
C:\Users>cd Lenovo
C:\Users\Lenovo>cd OneDrive
C:\Users\Lenovo\OneDrive>cd Desktop
C:\Users\Lenovo\OneDrive\Desktop>cd IAM_POLICY
C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY>dir trust-policy.json
Volume in drive C has no label.
Volume Serial Number is F65A-8654

Directory of C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY

08/27/2024  08:49 PM                330 trust-policy.json
               1 File(s)                330 bytes
               0 Dir(s) 159,497,437,184 bytes free

C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY>
```

Step-7 : Redirect the directory path to the location of file "trust-policy.json"

Administrator: Command Prompt

```
C:\Program Files\Amazon\AWSCLI\2>cd..
C:\Program Files\Amazon>cd..
C:\Program Files>cd..
C:\>cd Users
C:\Users>cd Lenovo
C:\Users\Lenovo>cd OneDrive
C:\Users\Lenovo\OneDrive>cd Desktop
C:\Users\Lenovo\OneDrive\Desktop>cd IAM_POLICY
C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY>dir trust-policy.json
Volume in drive C has no label.
Volume Serial Number is F65A-8654

Directory of C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY

08/27/2024  08:49 PM                330 trust-policy.json
               1 File(s)                330 bytes
               0 Dir(s) 159,497,437,184 bytes free

C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY>
```

- Then use below command.

```
aws iam create-role --role-name vmimport -
-assume-role-policy-document "file:///trust-
policy.json"
```

- It will automatically creates one IAM role for importing on-prem VM to cloud.
- This command only creates IAM role without policy.
- We need to attached required policy to IAM role.


```
C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY>dir trust-policy.json
Volume in drive C has no label.
Volume Serial Number is F65A-8654

Directory of C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY

08/27/2024  08:49 PM                330 trust-policy.json
               1 File(s)                330 bytes
               0 Dir(s)  159,495,172,096 bytes free

C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY>aws iam create-role --role-name vmimport --assume-role-policy-document "file:///trust-policy.json"
{
  "Role": {
    "Path": "/",
    "RoleName": "vmimport",
    "RoleId": "AROAZY4KUPMJW4IRVQV4Q",
    "Arn": "arn:aws:iam::671916260115:role/vmimport",
    "CreateDate": "2024-08-27T16:06:50+00:00",
    "AssumeRolePolicyDocument": {
      "Version": "2012-10-17",
      "Statement": [
        {
          "Effect": "Allow",
          "Principal": {
            "Service": "vmie.amazonaws.com"
          },
          "Action": "sts:AssumeRole",
          "Condition": {
            "StringEquals": {
              "sts:Externalid": "vmimport"
            }
          }
        }
      ]
    }
  }
}
```

[IAM](#) > Roles

Roles (66) [Info](#)

An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed



1 match



Role name



Trusted entities



[vmimport](#)

AWS Service: vmie

Step-8: Attach the required policy to IAM role

[Alt+S]

Lightsail

CloudFormation

Simple Notification Service

Elastic Beanstalk

CloudWatch

Simple Queue Service

Route 53

DynamoDB

CloudFront

Lambda

CloudTrail

IAM

Amazon Oper

Global Aman Dandale

IAM > Roles > vmimport

vmimport

Delete

Summary

Edit

Creation date

August 27, 2024, 21:36 (UTC+05:30)

ARN

arn:aws:iam::671916260115:role/vmimport

Last activity

-

Maximum session duration

1 hour

Permissions

Trust relationships

Tags

Access Advisor

Revoke sessions

Permissions policies (1)

Info

You can attach up to 10 managed policies.

Refresh

Simulate

Remove

Add permissions

Search

Filter by Type

All types

< 1 >

Policy name

Type

Attached entities

+ AdministratorAccess

AWS managed - job function

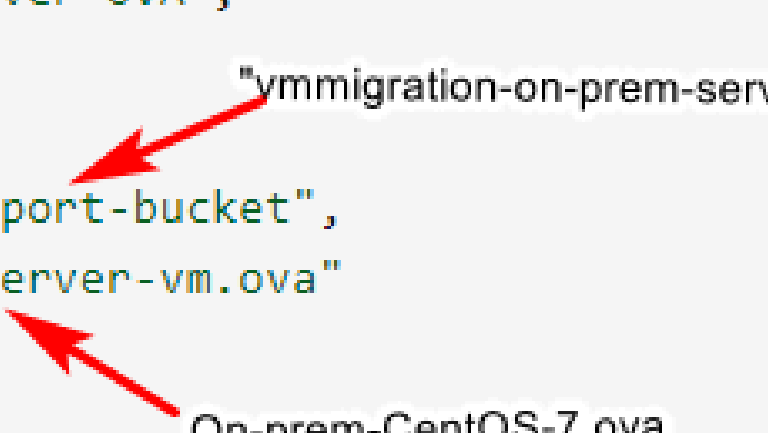
2

Step-9: Importing a VM as an AWS AMI machine using VM Import/Export

- Import your VM as an image : <https://docs.aws.amazon.com/vm-import/latest/userguide/import-vm-image.html>
- Save policy on Desktop with name “containers.json”

The following is an example `containers.json` file that specifies the image using an S3 bucket.

```
[
  {
    "Description": "My Server OVA",
    "Format": "ova",
    "UserBucket": {
      "S3Bucket": "my-import-bucket",
      "S3Key": "vms/my-server-vm.ova"
    }
  }
]
```



The diagram shows two red arrows pointing from labels to the JSON code. One arrow points from the label "vmmigration-on-prem-server" to the value "my-import-bucket" in the "S3Bucket" field. The other arrow points from the label "On-prem-CentOS-7.ova" to the value "vms/my-server-vm.ova" in the "S3Key" field.

```
[
  {
    "Description": "My New_AWS_Server",
    "Format": "ova",
    "UserBucket": {
      "S3Bucket": "vmmigration-on-prem-server",
      "S3Key": "On-prem-CentOS-7.ova"
    }
  }
]
```

Step-10: Import an image with a single disk

- Run the following command on cmd to import an image with a single disk.

```
aws ec2 import-image --description "My New_AWS_Server" --disk-containers  
"file:///containers.json"
```

C:\> Administrator: Command Prompt

```
C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY>dir containers.json  
Volume in drive C has no label.  
Volume Serial Number is F65A-8654
```

```
Directory of C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY
```

```
08/28/2024  10:05 AM                197 containers.json  
             1 File(s)                197 bytes  
             0 Dir(s)  160,260,407,296 bytes free
```

```
C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY>aws ec2 import-image --description "My New_AWS_Server" --disk-containers "file:///containers.json"  
{  
  "Description": "My New_AWS_Server",  
  "ImportTaskId": "import-ami-0c13e3f1fdc01984e",  
  "Progress": "1",  
  "SnapshotDetails": [  
    {  
      "Description": "My New_AWS_Server",  
      "DiskImageSize": 0.0,  
      "Format": "OVA",  
      "UserBucket": {  
        "S3Bucket": "vmmigration-on-prem-server",  
        "S3Key": "On-prem-CentOS-7.ova"  
      }  
    }  
  ],  
  "Status": "active",  
  "StatusMessage": "pending"  
}
```

Step-11: Monitor an import image task

- Use the describe-import-image-tasks command to return the status of an import task.

aws ec2 describe-import-image-tasks --import-task-ids import-ami-0c13e3f1fdc01984e

```
C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY>aws ec2 describe-import-image-tasks --import-task-ids import-ami-0c13e3f1fdc01984e
{
  "ImportImageTasks": [
    {
      "Description": "My New_AWS_Server",
      "ImportTaskId": "import-ami-0c13e3f1fdc01984e",
      "Progress": "20",
      "SnapshotDetails": [
        {
          "DiskImageSize": 1531146240.0,
          "Format": "VMDK",
          "Status": "completed",
          "UserBucket": {
            "S3Bucket": "vmmigration-on-prem-server",
            "S3Key": "On-prem-CentOS-7.ova"
          }
        },
        {
          "DiskImageSize": 330240.0,
          "Format": "VMDK",
          "Status": "completed",
          "UserBucket": {
            "S3Bucket": "vmmigration-on-prem-server",
            "S3Key": "On-prem-CentOS-7.ova"
          }
        }
      ],
      "Status": "active",
      "StatusMessage": "updating",
      "Tags": []
    }
  ]
}
```

```
C:\Users\Lenovo\OneDrive\Desktop\IAM_POLICY>aws ec2 describe-import-image-tasks --import-task-ids import-ami-0c13e3f1fdc01984e
{
  "ImportImageTasks": [
    {
      "Architecture": "x86_64",
      "Description": "My New_AWS_Server",
      "ImageId": "ami-01bd262df79c3fc8f",
      "ImportTaskId": "import-ami-0c13e3f1fdc01984e",
      "LicenseType": "BYOL",
      "Platform": "Linux",
      "SnapshotDetails": [
        {
          "DeviceName": "/dev/sda1",
          "DiskImageSize": 1531146240.0,
          "Format": "VMDK",
          "SnapshotId": "snap-02d07ec8f179f402f",
          "Status": "completed",
          "UserBucket": {
            "S3Bucket": "vmmigration-on-prem-server",
            "S3Key": "On-prem-CentOS-7.ova"
          }
        },
        {
          "DeviceName": "/dev/sdf",
          "DiskImageSize": 330240.0,
          "Format": "VMDK",
          "SnapshotId": "snap-09978c53efd258304",
          "Status": "completed",
          "UserBucket": {
            "S3Bucket": "vmmigration-on-prem-server",
            "S3Key": "On-prem-CentOS-7.ova"
          }
        }
      ],
      "Status": "completed",
      "Tags": []
    }
  ]
}
```

Launching EC-2

- The process involved creating an Amazon Machine Image (AMI) of the original server and launching a new EC2 instance from this AMI.
- Post-migration, I thoroughly compared the specifications of the original server with the newly created EC2 instance, confirming that all configurations matched perfectly with no data loss or discrepancies.

Step-12: Check our imported IAM to respective region with proper IAM ID and Name

aws

Services

Search

[Alt+S]

EC2

VPC

S3

RDS

Lightsail

CloudFormation

Simple Notification Service

Elastic Beanstalk

CloudWatch

Simple Queue Service

Route 53

DynamoDB

CloudFront

Lambda

CloudTrail

IAM

Amazon OpenSea

N. Virginia

Aman Dandale

Amazon Machine Images (AMIs) (1/1)

Owned by me

Find AMI by attribute or tag

Recycle Bin

EC2 Image Builder

Actions

Launch instance from AMI

	Name	AMI name	AMI ID	Source	Owner	Visibility	Status	Creation date
<input checked="" type="checkbox"/>	My Migrated server	import-ami-0c13e3f1fdc01984e	ami-01bd262df79c3fc8f	671916260115/import-ami-0c13e3f1fdc01984e	671916260115	Private	Available	2024/08/28 10:32 GMT+5:30

AMI ID: ami-01bd262df79c3fc8f (My Migrated server)

Details

Permissions

Storage

Tags

AMI ID

ami-01bd262df79c3fc8f (My Migrated server)

Image type

machine

Platform details

Linux/UNIX

Root device type

EBS

AMI name

import-ami-0c13e3f1fdc01984e

Owner account ID

671916260115

Architecture

x86_64

Usage operation

RunInstances

Root device name

/dev/sda1

Status

Available

Source

671916260115/import-ami-0c13e3f1fdc01984e

Virtualization type

hvm

Boot mode

-

State reason

-

Creation date

Wed Aug 28 2024 10:32:07 GMT+0530 (India Standard Time)

Kernel ID

-

Description

AWS-VMImport service: Linux - CentOS Linux 7 (Core) - 3.10.0-1160.80.1.el7.x86_64

Product codes

-

RAM disk ID

-

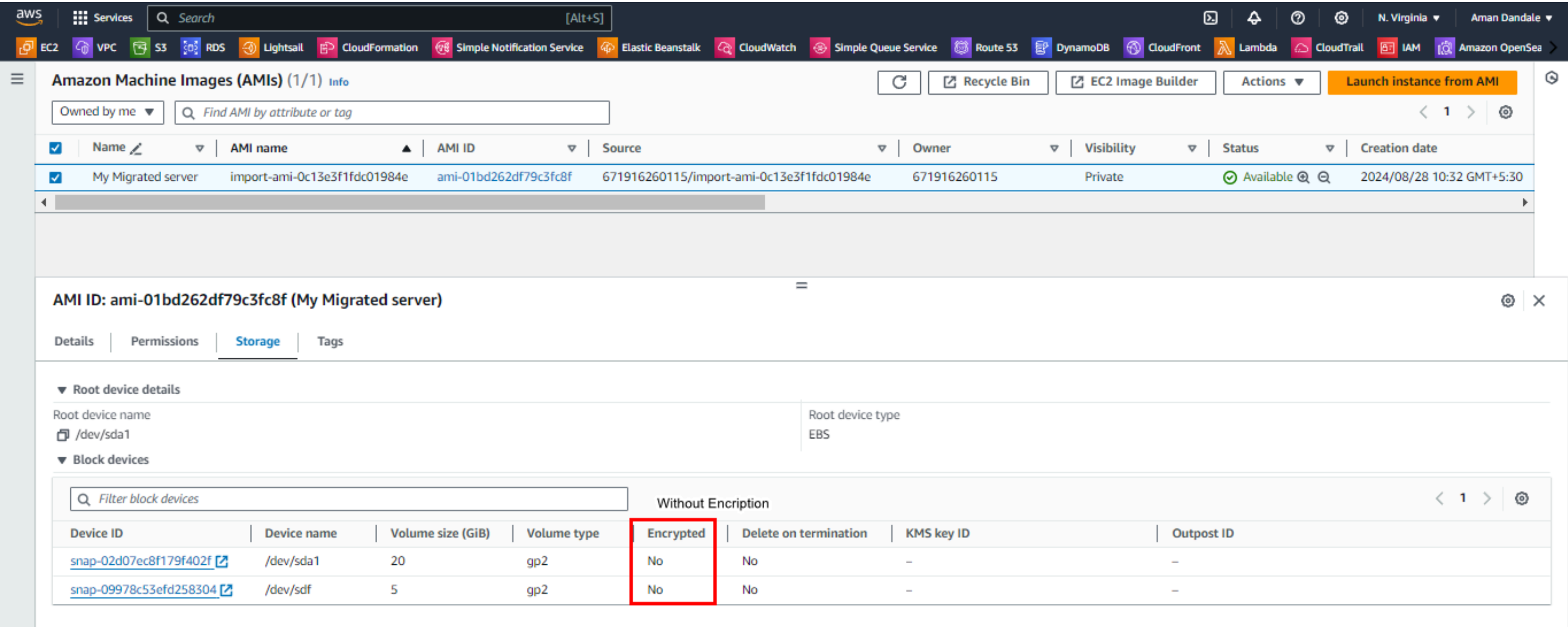
Deprecation time

-

Step-13: Import with the encrypted option enabled

- Use the following command to import an image with an encrypted root volume.

```
aws ec2 import-image --description "My server disks" --encrypted --kms-key-id 0ea3fef3-80a7-4778-gd8c-1c0c6EXAMPLE --disk-containers "file:///C:\import\containers.json"
```



Step-14 Now launch EC-2 from our AMI

- Search our AMI with AMI ID to launch EC-2 Instance

The screenshot shows the AWS Management Console interface for launching an EC2 instance. The breadcrumb navigation indicates the path: EC2 > Instances > Launch an instance > AMIs. The main heading is "Choose an Amazon Machine Image (AMI)". Below this, a search bar contains the AMI ID "ami-01bd262df79c3fc8f". The results are categorized into four tabs: Quick Start AMIs (0), My AMIs (1), AWS Marketplace AMIs (11203), and Community AMIs (0). The "My AMIs (1)" tab is selected, showing a single AMI: "import-ami-0c13e3f1fdc01984e". The AMI details include the AWS logo, the AMI ID, the name "ami-01bd262df79c3fc8f (My Migrated server)", and the description "AWS-VMImport service: Linux - CentOS Linux 7 (Core) - 3.10.0-1160.80.1.el7.x86_64". A "Select" button is located to the right of the AMI details.

Selected AMI: (ami-066784287e358dad1) (Quick Start AMIs)

Search:

Quick Start AMIs (0)
Commonly used AMIs

My AMIs (1)
Created by me

AWS Marketplace AMIs (11203)
AWS & trusted third-party AMIs

Community AMIs (0)
Published by anyone

Refine results

Clear all filters

Owner

☒ Owned by me

☐ Shared with me

OS category

ami-01bd262df79c3fc8f (1 filtered, 1 unfiltered)

import-ami-0c13e3f1fdc01984e

ami-01bd262df79c3fc8f (My Migrated server)

AWS-VMImport service: Linux - CentOS Linux 7 (Core) - 3.10.0-1160.80.1.el7.x86_64

OwnerAlias: -Platform: Other LinuxArchitecture: x86_64Owner: 671916260115Publish date: 2024-08-28Root device type: ebsVirtualization: hvmENA enabled: Yes

Tags:

Name: My Migrated server

Select

Step-15 Now launch EC-2 from our AMI

aws

Services

Search

[Alt+S]

EC2

VPC

S3

RDS

Lightsail

CloudFormation

Simple Notification Service

Elastic Beanstalk

CloudWatch

Simple Queue Service

Route 53

DynamoDB

CloudFront

Lambda

N. Virginia

Aman Dandale

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

AMI from catalog

Recents

My AMIs

Quick Start

Name

import-ami-0c13e3f1fdc01984e

Description

AWS-VMImport service: Linux - CentOS Linux 7 (Core) - 3.10.0-1160.80.1.el7.x86_64

Image ID

ami-01bd262df79c3fc8f

Catalog

Published

Architecture

Virtualization

Root device type

ENA Enabled

My AMIs

2024-08-28T05:02:07.000Z

x86_64

hvm

ebs

Yes

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Summary

Number of instances

1

Software Image (AMI)

import-ami-0c13e3f1fdc01984e

ami-01bd262df79c3fc8f

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

2 volume(s) - 25 GiB

Cancel

Launch instance

Review commands

Step-16: EC-2 Instance launch without key-pair

aws

Services

Search

[Alt+S]

EC2

VPC

S3

RDS

Lightsail

CloudFormation

Simple Notification Service

Elastic Beanstalk

CloudWatch

Simple Queue Service

Route 53

DynamoDB

CloudFront

Lambda

N. Virginia

Aman Dandale

Instances (1/1) Info

Last updated less than a minute ago

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

Instance ID = i-004f543d18336f25b

Clear filters

< 1 >

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
<input checked="" type="checkbox"/>	My-VM-Migrated-server-2	i-004f543d18336f25b	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1b	ec2-23-22-234-163.co...

i-004f543d18336f25b (My-VM-Migrated-server-2)

Instance auto-recovery
Default

AMI Launch index
0

Credit specification
standard

Usage operation
RunInstances

wed Aug 28 2024 12:01:15 GMT+0530 (India Standard Time) (4 minutes)

Lifecycle
normal

Without key-pair

Key pair assigned at launch
-

Kernel ID
-

RAM disk ID
-

Stop-hibernate behavior
Disabled

State transition reason
-

State transition message
-

Owner
671916260115

Step-17 Successfully created and launch EC-2 Instance from our on-prem VM-machine

aws

Services

Search [Alt+S]

EC2

VPC

S3

RDS

Lightsail

CloudFormation

Simple Notification Service

Elastic Beanstalk

CloudWatch

Simple Queue Service

Route 53

DynamoDB

CloudFront

Lambda

CloudTrail

IAM

Amazon OpenSea

N. Virginia

Aman Dandale

Instances (1/1) Info

Last updated less than a minute ago

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

Instance ID = i-0e2454e9516863978

Clear filters

< 1 >

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP	IPv6 IP
<input checked="" type="checkbox"/>	My-VM-Migrat...	i-0e2454e9516863978	Running	t2.micro	2/2 checks passed	View alarms	us-east-1a	ec2-18-206-252-189.co...	18.206.252.189	-	-

i-0e2454e9516863978 (My-VM-Migrated-server)

Details

Status and alarms

Monitoring

Security

Networking

Storage

Tags

▼ Instance summary Info

Instance ID

i-0e2454e9516863978 (My-VM-Migrated-server)

IPv6 address

-

Hostname type

IP name: ip-172-31-87-236.ec2.internal

Answer private resource DNS name

IPv4 (A)

Auto-assigned IP address

18.206.252.189 [Public IP]

Public IPv4 address

18.206.252.189 | [open address](#)

Instance state

Running

Private IP DNS name (IPv4 only)

ip-172-31-87-236.ec2.internal

Instance type

t2.micro

VPC ID

vpc-04f1dcbe2b5cfbe7f

Private IPv4 addresses

172.31.87.236

Public IPv4 DNS

ec2-18-206-252-189.compute-1.amazonaws.com | [open address](#)

Elastic IP addresses

-

AWS Compute Optimizer finding

[Opt-in to AWS Compute Optimizer for recommendations.](#) | [Learn more](#)

Launch without key-pair in AZ-1b

EC2

VPC

S3

RDS

LightSail

CloudFormation

Simple Notification Service

Elastic Beanstalk

CodeBuild

Simple Queue Service

Route 53

DynamoDB

CloudFront

Lambda

[Alt+S]

N. Virginia

Aman Dandale

Launch an instance

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

Name

My-VM-Migrated-server-2

Add additional tags

Application and OS Images (Amazon Machine Image)

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

AMI from catalog

Recents

My AMIs

Quick Start

Name

import-amazon-ami-0c13e3f1fd01984e

Browse more AMIs
Including AMIs from AWS, Marketplace and the Community

Description

AWS-VMLinux service: Linux - CentOS Linux 7 (Core) - 3.10.0-1160.80.1.el7.x86_64

Image ID

ami-01bd262df79c3fc8f

Catalog

Published

Architecture

Virtualization

Root device type

ENA Enabled

My AMIs

2024-08-28T05:02:07.00Z

x86_64

hvm

ebs

Yes

Instance type

Info | Get advice

Instance type

t2.micro

Family: t2 - 1 vCPU - 1 GiB Memory - Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.026 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

Free tier eligible

All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software

Key pair (login)

Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required

Proceed without a key pair (Not recommended)

Default value

Create new key pair

Network settings

Info

VPC - required

vpc-04f1dcbe2b5cfbe7f

(default)

Create new VPC

Subnet

subnet-02912d9404aa7321b

VPC: vpc-04f1dcbe2b5cfbe7f Owner: 671916260115 Availability Zone: us-east-1b Zone type: Availability Zone IP addresses available: 4091 CIDR: 172.31.16.0/20

Create new subnet

Auto-assign public IP

Enable

Additional charges apply when outside of free tier allowance

Firewall (security groups)

Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group

Select existing security group

Common security groups

Select security groups

launch-wizard-2_sg-0902fb72bc8d420 X
vpc-vpc-04f1dcbe2b5cfbe7f

Compare security group rules

Advanced network configuration

Configure storage

Info Advanced

1x 20 GiB gp2 Root volume (Not encrypted)

1x 5 GiB gp2 EBS volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

No Data Lifecycle Manager policies targeting this instance

Creating backups can help you prevent data loss. Learn more

Show details

O x File systems

Edit

Advanced details

Info

Summary

Number of instances

Info

1

Software image (AMI)

import-amazon-ami-0c13e3f1fd01984e
ami-01bd262df79c3fc8f

Virtual server type (instance type)

t2.micro

Firewall (security group)

launch-wizard-2

Virtual server type (instance type)

t2.micro

Firewall (security group)

launch-wizard-2

Virtual server type (instance type)

t2.micro

Storage (volumes)

2 volume(s) - 25 GiB

Virtual server type (instance type)

t2.micro

Firewall (security group)

launch-wizard-2

Storage (volumes)

2 volume(s) - 25 GiB

Virtual server type (instance type)

t2.micro

Firewall (security group)

launch-wizard-2

Storage (volumes)

2 volume(s) - 25 GiB

Virtual server type (instance type)

t2.micro

Firewall (security group)

launch-wizard-2

Storage (volumes)

2 volume(s) - 25 GiB

Virtual server type (instance type)

t2.micro

Firewall (security group)

launch-wizard-2

Storage (volumes)

2 volume(s) - 25 GiB

Virtual server type (instance type)

t2.micro

Firewall (security group)

launch-wizard-2

Storage (volumes)

2 volume(s) - 25 GiB

Cancel

Launch instance

Review commands

aws Services Search [Alt+S]

EC2 VPC S3 RDS Lightsail CloudFormation Simple Notification Service Elastic Beanstalk CloudWatch Simple Queue Service Route 53 DynamoDB CloudFront Lambda

EC2 > Instances > i-0e2454e9516863978

Instance summary for i-0e2454e9516863978 (My-VM-Migrated-server) Info

Updated 29 minutes ago

Instance ID
i-0e2454e9516863978 (My-VM-Migrated-server)

IPv6 address
-

Hostname type
IP name: ip-172-31-87-236.ec2.internal

Answer private resource DNS name
IPv4 (A)

Public IPv4 address
18.206.252.189 | [open address](#)

Instance state
Running

Private IP DNS name (IPv4 only)
ip-172-31-87-236.ec2.internal

Instance type
t2.micro

Private IPv4 addresses
172.31.87.236

Public IPv4 DNS
ec2-18-206-252-189.compute-1.amazonaws.com | [open address](#)

Elastic IP addresses
-

Session settings

SSH Telnet Rsh Xdmcp RDP VNC FTP SFTP Serial File Shell Browser Mosh Aws S3 WSL

Basic SSH settings

Remote host * 18.206.252.189

☒ Specify username root Port 22

Advanced SSH settings

Terminal settings Network settings Bookmark settings

☒ X11-Forwarding ☒ Compression Remote environment: Interactive shell

Execute command:

SSH-browser type: SFTP protocol

☐ Use private key Without key-pair

Execute macro at session start: <none>

OK Cancel

```
2. 18.206.252.189 (root)
root@18.206.252.189's password:

• MobaXterm Personal Edition v24.2 •
  (SSH client, X server and network tools)

▶ SSH session to root@18.206.252.189
  • Direct SSH      : ✓
  • SSH compression : ✓
  • SSH-browser     : ✓
  • X11-forwarding  : ✗ (disabled or not supported by server)

▶ For more info, ctrl+click on help or visit our website.

Last login: Mon Aug 26 18:02:24 2024 from 192.168.84.192
[root@server1 ~]# ls
alertmanager-package grafana-package Package_info Package_info-1 prometheus-package
[root@server1 ~]# curl ifconfig.io
18.206.252.189
[root@server1 ~]# ls -la
total 80
dr-xr-x---.  9 root root  4096 Aug 26 20:12 .
dr-xr-xr-x. 18 root root   277 Aug 28 10:27 ..
drwxr-xr-x.  2 root root    6 Aug 26 20:06 alertmanager-package
-rw-r-----. 1 root root 21063 Aug 25 21:47 .bash_history
-rw-r--r--.  1 root root   18 Dec 29 2013 .bash_logout
-rw-r--r--.  1 root root  176 Dec 29 2013 .bash_profile
-rw-r--r--.  1 root root  176 Dec 29 2013 .bashrc
drwx-----. 3 root root   18 Apr  9 2022 .config
-rw-r--r--.  1 root root  100 Dec 29 2013 .cshrc
drwx-----. 2 root root   54 Apr 24 2022 .elinks
drwxr-xr-x.  2 root root   41 Aug 26 20:12 grafana-package
-rw-r-----. 1 root root   53 Apr 17 2022 .lessht
-rwxrwxrwx.  1 root root  436 Aug 26 19:50 Package_info
-rw-r--r--.  1 root root  492 Aug 26 19:50 Package_info-1
drwxr-----. 3 root root   19 Apr  9 2022 .pki
drwxr-xr-x.  2 root root   96 Aug 26 20:02 prometheus-package
-rw-r-----. 1 root root    7 Aug 26 15:48 .python_history
```

Step-18: Comparison

On-prem-VM-server

```
Server-1 [Running] - Oracle VM VirtualBox

CentOS Linux 7 (Core)
Kernel 3.10.0-1160.80.1.el7.x86_64 on an x86_64

server1 login: root
Password:
Last login: Wed Aug 28 20:10:55 on tty1
[root@server1 ~]# ls
alertmanager-package grafana-package Package_info Package_info-1 prometheus-package
[root@server1 ~]# ls -l
total 8
drwxr-xr-x 2 root root  6 Aug 26 20:06 alertmanager-package
drwxr-xr-x 2 root root 41 Aug 26 20:12 grafana-package
-rw-rw-rw- 1 root root 436 Aug 26 19:50 Package_info
-rw-r--r-- 1 root root 492 Aug 26 19:50 Package_info-1
drwxr-xr-x 2 root root 96 Aug 26 20:02 prometheus-package
[root@server1 ~]# ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
    inet 192.168.84.196  netmask 255.255.255.0  broadcast 192.168.84.255
    inet6 2401:4900:5610:98ed:2ad:50d2:c143:cdf4  prefixlen 64  scopeid 0x0<global>
    inet6 fe80::783f:b1d1:cadf:3f7e  prefixlen 64  scopeid 0x20<link>
    ether 08:00:27:da:a2:19  txqueuelen 1000  (Ethernet)
    RX packets 6  bytes 742 (742.0 B)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 12  bytes 1344 (1.3 KiB)
    TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
    inet 127.0.0.1  netmask 255.0.0.0
    inet6 ::1  prefixlen 128  scopeid 0x10<host>
    loop txqueuelen 1000  (Local Loopback)
    RX packets 2  bytes 112 (112.0 B)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 2  bytes 112 (112.0 B)
    TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0

[root@server1 ~]#
```

AWS EC-2 Instance (After migration to AWS)

```
11. 18.206.252.189 (root)
root@18.206.252.189's password:

• MobaXterm Personal Edition v24.2 •
  (SSH client, X server and network tools)

► SSH session to root@18.206.252.189
  • Direct SSH : ✓
  • SSH compression : ✓
  • SSH-browser : ✓
  • X11-forwarding : ✗ (disabled or not supported by server)

► For more info, ctrl+click on help or visit our website.

Last login: Wed Aug 28 20:17:09 2024 from 117.99.255.180
[root@server1 ~]# ls
alertmanager-package grafana-package mybackup.tar.gz Package_info Package_info-1 prometheus-package
[root@server1 ~]# curl ifconfig.io
18.206.252.189
[root@server1 ~]# ls -l
total 11860
drwxr-xr-x 2 root root  6 Aug 26 20:06 alertmanager-package
drwxr-xr-x 2 root root 41 Aug 26 20:12 grafana-package
-rw-r--r-- 1 root root 12134781 Aug 28 18:05 mybackup.tar.gz
-rwxrwxrwx 1 root root  436 Aug 26 19:50 Package_info
-rw-r--r-- 1 root root  492 Aug 26 19:50 Package_info-1
drwxr-xr-x 2 root root 96 Aug 26 20:02 prometheus-package
[root@server1 ~]# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 9001
    inet 172.31.87.236  netmask 255.255.240.0  broadcast 172.31.95.255
    inet6 fe80::1064:eeff:fe70:da5  prefixlen 64  scopeid 0x20<link>
    ether 12:64:ee:70:0d:a5  txqueuelen 1000  (Ethernet)
    RX packets 2809  bytes 355310 (346.9 KiB)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 2678  bytes 486706 (475.2 KiB)
    TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0
```

Comparison: On-prem-VM-Server

AWS EC-2 Server

General

Name:Server-1

Operating System:Red Hat (64-bit)

System

Base Memory:2048 MB

Boot Order:Floppy, Optical, Hard Disk

Acceleration:Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory:16 MB

Graphics Controller:VMSVGA

Remote Desktop Server:Disabled

Recording:Disabled

Storage

Controller: IDE

IDE Secondary Device 0:[Optical Drive] Empty

Controller: SATA

SATA Port 0:Server-1-disk001.vdi (Normal, 20.00 GB)

SATA Port 1:Server-1-disk002.vdi (Normal, 5.00 GB)

Audio

Host Driver:Windows DirectSound

Controller:ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (Bridged Adapter, Qualcomm Atheros QCA9377 Wireless Network Adapter)

USB

USB Controller:OHCI

Device Filters:0 (0 active)

Shared folders

None

Description

None

[My-VM-Migrated-server-1]

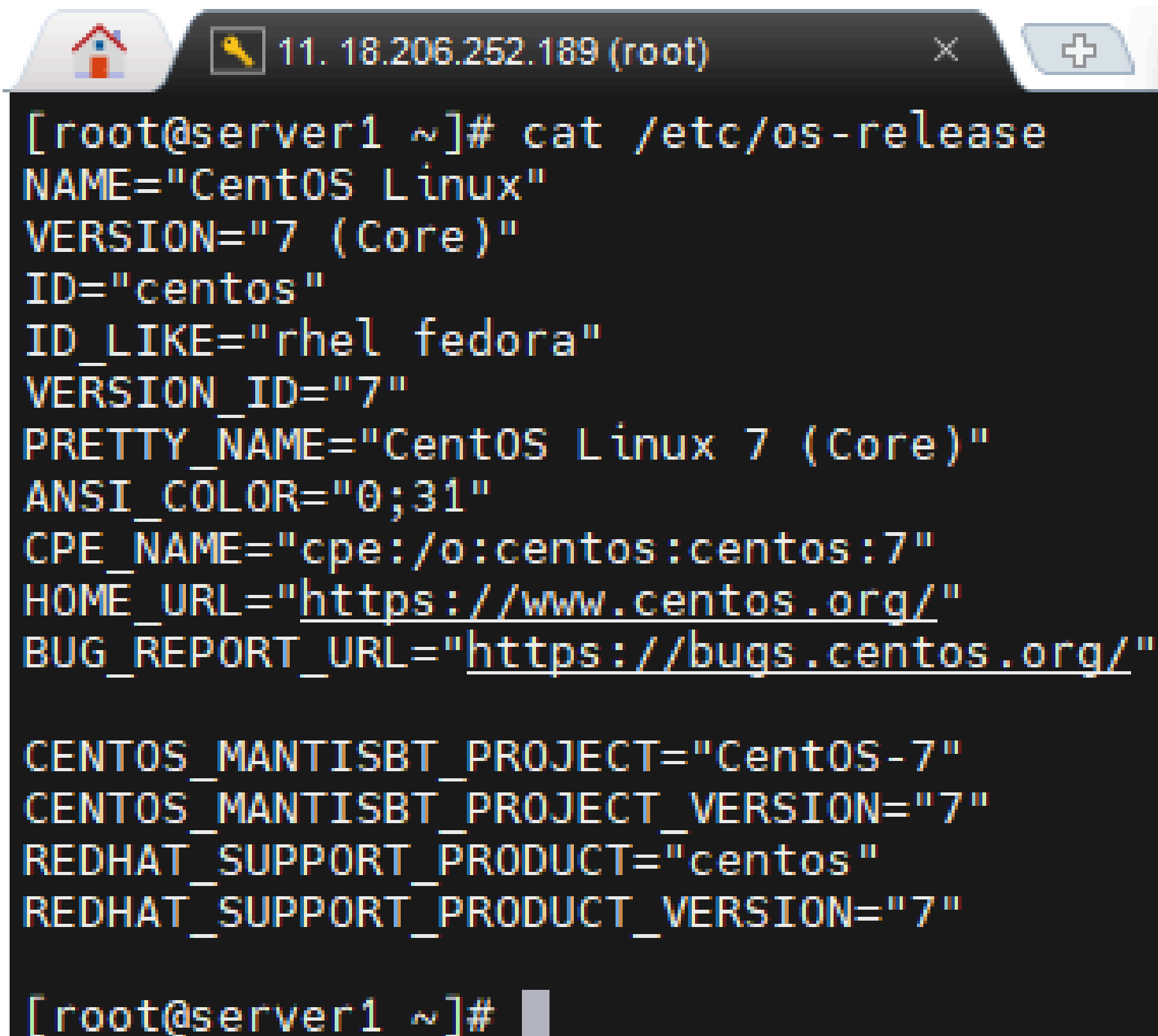
Root de
ERC

i-004f543d18336f25b (My-VM-Migrated-server-1)

Number of vCPUs
1

	Device name	Volume siz...	A
216d	/dev/sda1	20	
1821e	/dev/sdf	5	

Operating System specifications of both server




11. 18.206.252.189 (root)

```
[root@server1 ~]# cat /etc/os-release
NAME="CentOS Linux"
VERSION="7 (Core)"
ID="centos"
ID_LIKE="rhel fedora"
VERSION_ID="7"
PRETTY_NAME="CentOS Linux 7 (Core)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:centos:centos:7"
HOME_URL="https://www.centos.org/"
BUG_REPORT_URL="https://bugs.centos.org/"

CENTOS_MANTISBT_PROJECT="CentOS-7"
CENTOS_MANTISBT_PROJECT_VERSION="7"
REDHAT_SUPPORT_PRODUCT="centos"
REDHAT_SUPPORT_PRODUCT_VERSION="7"

[root@server1 ~]#
```

EC-2 specifications



Server-1 [Running] - Oracle VM VirtualBox

```
[root@server1 ~]# cat /etc/os-release
NAME="CentOS Linux"
VERSION="7 (Core)"
ID="centos"
ID_LIKE="rhel fedora"
VERSION_ID="7"
PRETTY_NAME="CentOS Linux 7 (Core)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:centos:centos:7"
HOME_URL="https://www.centos.org/"
BUG_REPORT_URL="https://bugs.centos.org/"

CENTOS_MANTISBT_PROJECT="CentOS-7"
CENTOS_MANTISBT_PROJECT_VERSION="7"
REDHAT_SUPPORT_PRODUCT="centos"
REDHAT_SUPPORT_PRODUCT_VERSION="7"

[root@server1 ~]#
```

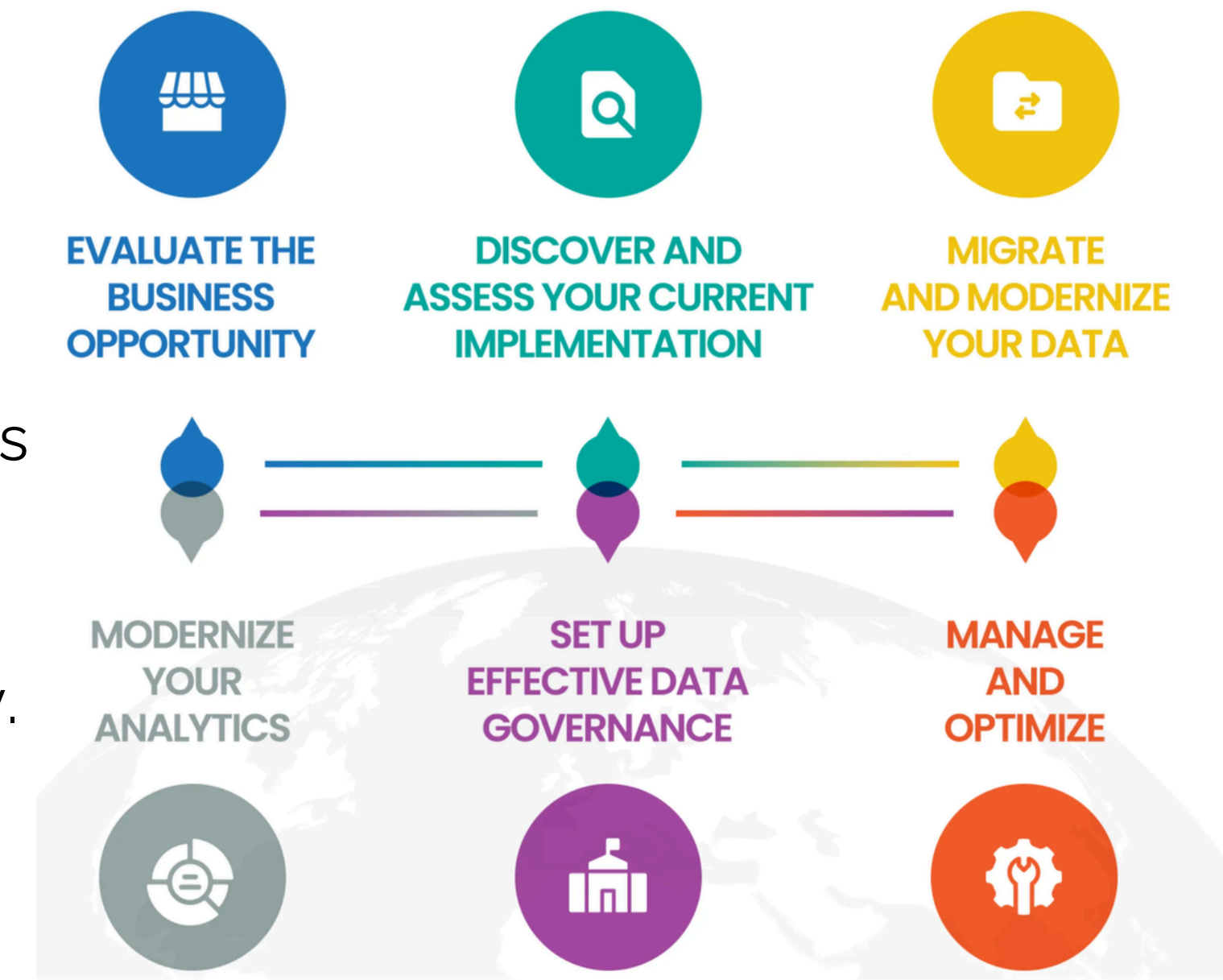
VM-server specifications

same specifications

Data Analysis

- The migration process involved successfully transitioning a CentOS server from an on-premises virtual machine to an AWS EC2 instance using the Re-hosting (lift-and-shift) strategy.
- Post-migration analysis confirmed that the server specifications, including CPU, RAM, and storage, matched perfectly with the original environment, ensuring no data loss or performance degradation.
- Additionally, the migration process was completed efficiently, with minimal downtime and verified data integrity.
- Cost analysis indicated potential savings by leveraging AWS's scalable infrastructure.

Your Data Migration Roadmap



Migration Strategies

- ✓ I have used Rehost migration strategies, also known as lift-and-shift.
- ✓ Re-hosting involves moving applications without making any changes to the architecture or the codebase of application.
- ✓ This strategy is typically chosen when the goal is to move quickly to the cloud with minimal modifications to the existing environment,

MIGRATION STRATEGIES

- 7 **REFACTOR**
- 6 **REPLATFORM**
- 5 **REPURCHASE**
- 4 **REHOST**
- 3 **RELOCATE** ★
- 2 **RETAIN**
- 1 **RETIRE**



Conclusion

- In this project, I employed the Re-hosting (lift-and-shift) migration strategy,
- which involved migrating the CentOS server to AWS using the AWS CLI without any changes to the server's architecture or codebase.
- The process involved creating an Amazon Machine Image (AMI) of the original server and launching a new EC2 instance from this AMI.
- This approach allowed for a seamless and efficient transition to the cloud, ensuring that all server specifications remained intact and consistent with the original virtual machine environment.



On Premise to
Cloud Migration