



8/5/2022

# Project-02

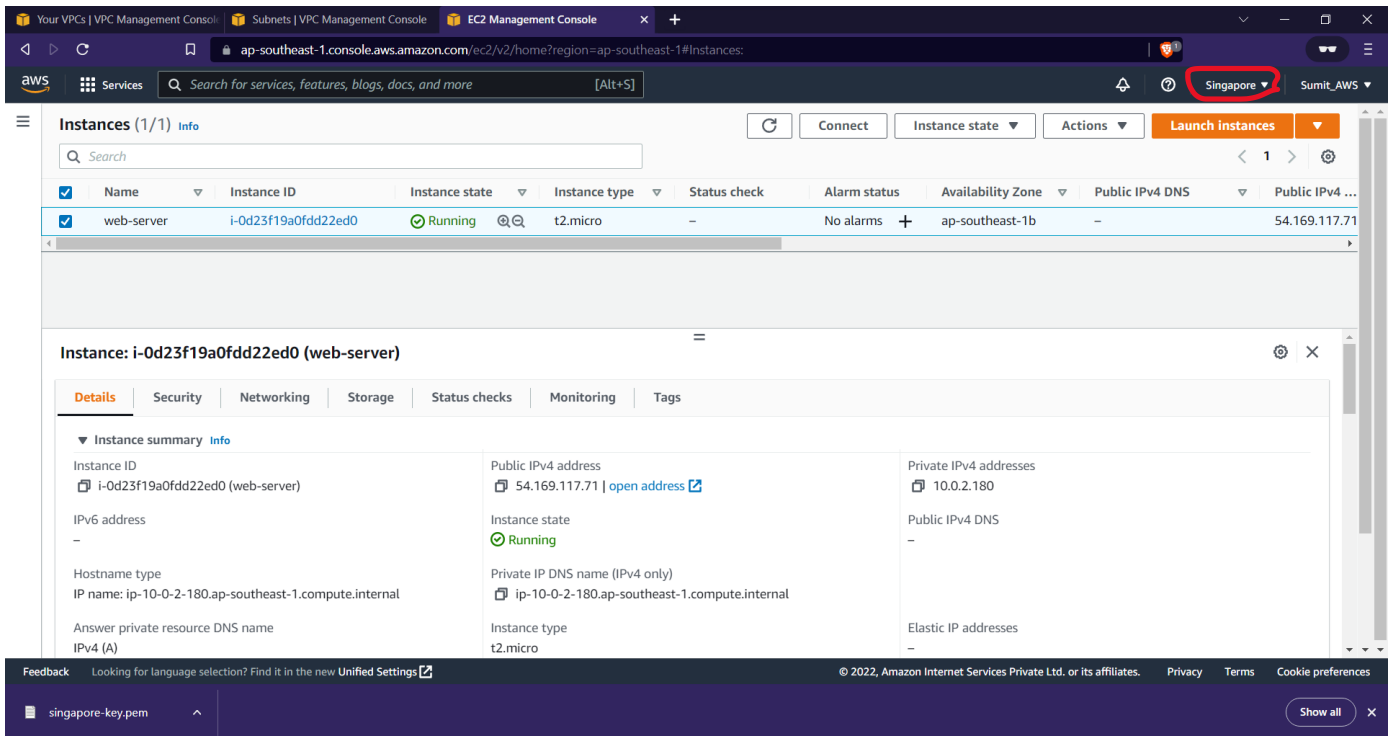
Migrating an On-premises server to AWS.

(On-premises server is taken to be a server in a different AWS region for this project.)

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# 1. Creating an On-premises server in a different region.

## a. Creating an EC2 instance inside a custom VPC with subnets, internet gateway enabled.



## b. Connecting to the EC2 instance and downloading/installing Apache server in it.

```
Xshell 7 (Build 0111)
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Type 'help' to learn how to use Xshell prompt.
[CN:\>] ssh -i "singapore-key.pem" ec2-user@54.169.117.71

Connecting to 54.169.117.71:22...
Connection established.
To escape to local shell, press 'Ctrl+Alt+J'.

WARNING: The remote SSH server rejected X11 forwarding request.

Amazon Linux 2 AMI

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-10-0-2-180 ~]$ sudo su
[root@ip-10-0-2-180 ec2-user]# cd
[root@ip-10-0-2-180 ~]# yum install httpd -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amazon2-core
Resolving Dependencies
--> Running transaction check
--> Package httpd.x86_64 0:2.4.54-1.amzn2 will be installed
--> Processing Dependency: httpd-tools = 2.4.54-1.amzn2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: httpd filesystem = 2.4.54-1.amzn2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: system-logos-httpd for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: mod_http2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: httpd filesystem for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: /etc/mime.types for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libaprutil1.so.0()(64bit) for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libapr1.so.0()(64bit) for package: httpd-2.4.54-1.amzn2.x86_64
--> Running transaction check
--> Package apr.x86_64 0:1.7.0-9.amzn2 will be installed
--> Package apr-util.x86_64 0:1.6.1-5.amzn2.0.2 will be installed
--> Processing Dependency: apr-util-bdb(x86-64) = 1.6.1-5.amzn2.0.2 for package: apr-util-1.6.1-5.amzn2.0.2.x86_64
--> Package generic-logos-httpd-noarch 0:10.0.0-4.amzn2 will be installed
--> Package httpd filesystem.noarch 0:2.4.54-1.amzn2 will be installed
--> Package httpd-tools.x86_64 0:2.4.54-1.amzn2 will be installed
--> Package mailcap.noarch 0:2.141-2.amzn2 will be installed
--> Package mod_http2.x86_64 0:1.15.19-1.amzn2.0.1 will be installed
--> Running transaction check
--> Package apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2 will be installed
--> Finished Dependency Resolution
```

c. Putting some sample website to display.

```
[root@ip-10-0-2-180 ~]# wget https://www.free-css.com/assets/files/free-css-templates/download/page281/limelight.zip
--2022-08-05 06:46:41-- https://www.free-css.com/assets/files/free-css-templates/download/page281/limelight.zip
Resolving www.free-css.com (www.free-css.com)... 217.160.0.242, 2001:8d8:100f:f000::28f
Connecting to www.free-css.com (www.free-css.com)|217.160.0.242|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 6646619 (6.3M) [application/zip]
Saving to: 'limelight.zip'
```

```
100%[=====>] 6,646,619 3.23MB/s in 2.0s
```

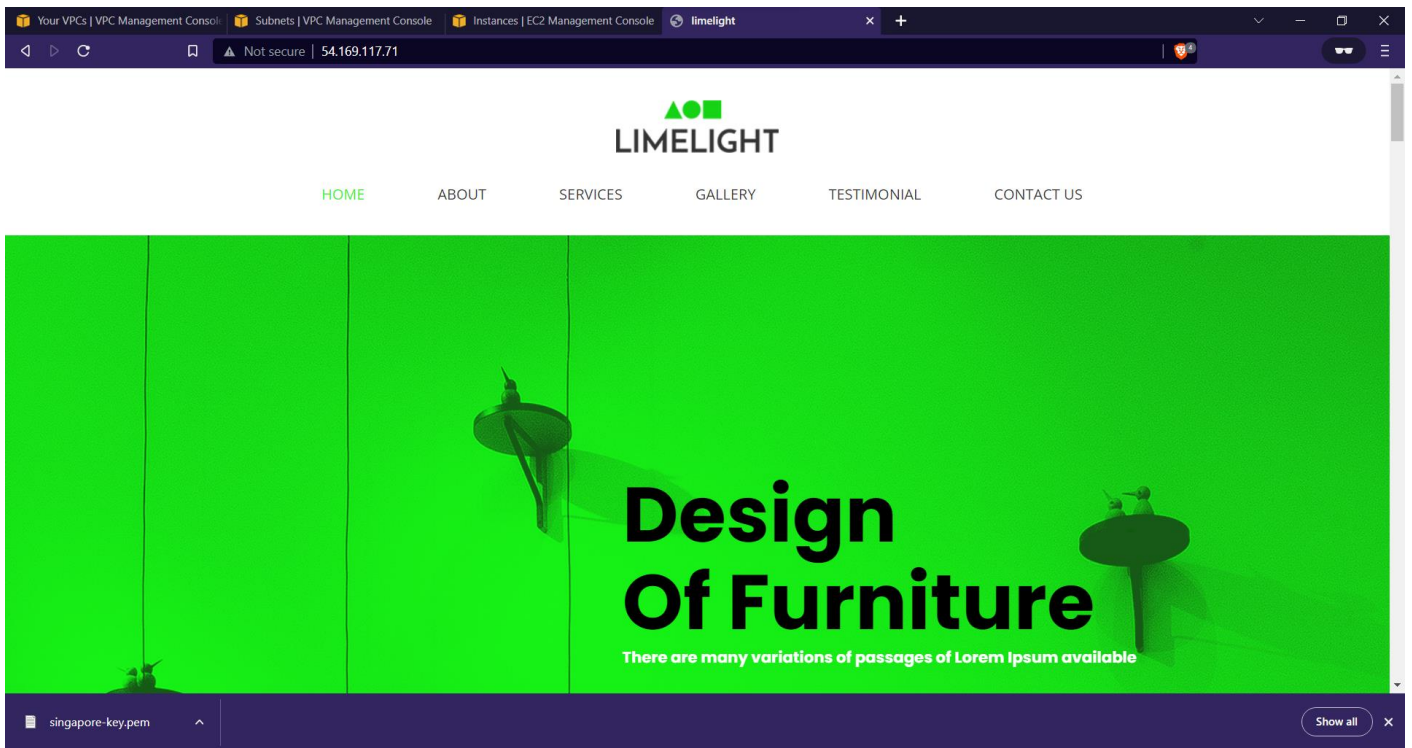
```
2022-08-05 06:46:45 (3.23 MB/s) - 'limelight.zip' saved [6646619/6646619]
```

```
[root@ip-10-0-2-180 ~]# unzip limelight.zip
Archive: limelight.zip
  creating: limelight-html/
  inflating: limelight-html/about.html
  inflating: limelight-html/contact.html
   creating: limelight-html/css/
  inflating: limelight-html/css/.DS_Store
```

**limelight-html** **limelight.zip**

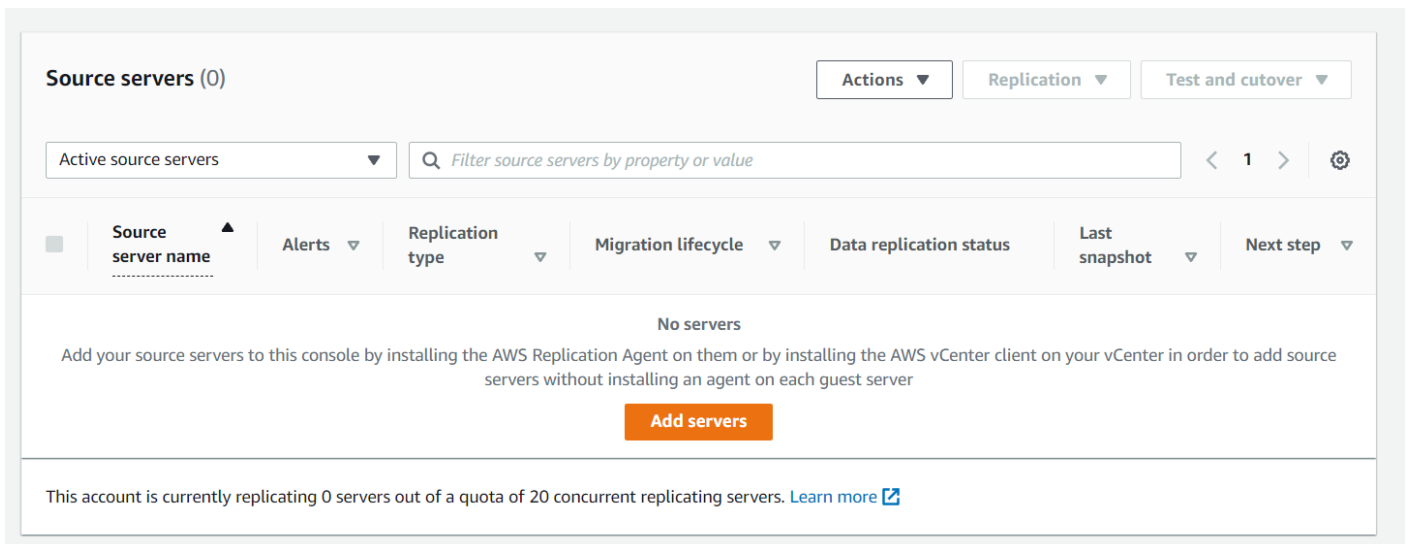
```
[root@ip-10-0-2-180 ~]# ls limelight-html/
about.html  css  gallery.html  images  js  testimonial.html
contact.html  fonts  icon  index.html  service.html
[root@ip-10-0-2-180 ~]# cp -r limelight-html/* /var/www/html
[root@ip-10-0-2-180 ~]#
[root@ip-10-0-2-180 ~]#
```

```
[root@ip-10-0-2-180 ~]# systemctl start httpd.service
[root@ip-10-0-2-180 ~]# systemctl enable httpd.service
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
[root@ip-10-0-2-180 ~]#
```

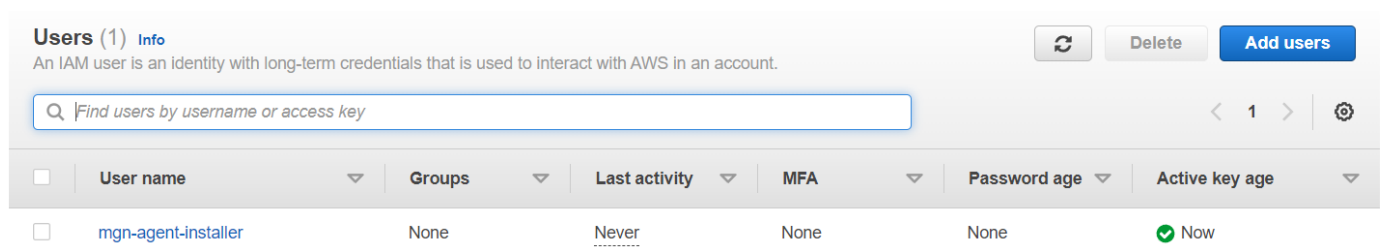


## 2. Migrating the server On-premises to AWS (i.e., from Singapore region to Mumbai region).

a. Set up application migration service and create template.



b. Adding server configuration for migration.  
(1) Creating an IAM role for server migration.



(2) Provide the details of the IAM user.

1. Select your operating system

☒ Linux

☐ Windows

☐ Legacy OS: Windows Server 2003 or Windows Server 2008

2. Select your replication preferences [Info](#)

Replicate all disks ▼

3. IAM access key ID [Info](#)

AKIATYFGC35IEIFGI4IC

Create IAM user

IAM secret access key

This form does not send the secret – it only adds it to the installation command you can copy

.....

Show

(3) Download the installer using the copied command.

```
[root@ip-10-0-2-180 ~]# wget -O ./aws-replication-installer-init.py https://aws-application-migration-service-ap-south-1.s3.ap-south-1.amazonaws.com/latest/linux/aws-replication-installer-init.py
--2022-08-05 07:06:00-- https://aws-application-migration-service-ap-south-1.s3.ap-south-1.amazonaws.com/latest/linux/aws-replication-installer-init.py
Resolving aws-application-migration-service-ap-south-1.s3.ap-south-1.amazonaws.com (aws-application-migration-service-ap-south-1.s3.ap-south-1.amazonaws.com)... 52.219.64.119
Connecting to aws-application-migration-service-ap-south-1.s3.ap-south-1.amazonaws.com (aws-application-migration-service-ap-south-1.s3.ap-south-1.amazonaws.com)|52.219.64.119|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 14387 (14K) [binary/octet-stream]
Saving to: './aws-replication-installer-init.py'

100%[=====>] 14,387 --.-K/s in 0s

2022-08-05 07:06:00 (136 MB/s) - './aws-replication-installer-init.py' saved [14387/14387]
```

(4) Download the replication agent using the copied command.

```
[root@ip-10-0-2-180 ~]#
[root@ip-10-0-2-180 ~]# sudo python3 aws-replication-installer-init.py --region ap-south-1 --aws-access-key-id AKIATYFGC35IEIFGI4IC --aws-secret-access-key 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 - --no-prompt
The installation of the AWS Replication Agent has started.
Identifying volumes for replication.
Identified volume for replication: /dev/xvda of size 8 GiB
All volumes for replication were successfully identified.
Downloading the AWS Replication Agent onto the source server... Finished.
Installing the AWS Replication Agent onto the source server... Finished.
Syncing the source server with the Application Migration Service Console... Finished.
The following is the source server ID: s-e38c7e2c9bff08a89.
You now have 1 active source server out of a total quota of 20.
Learn more about increasing source servers limit at https://docs.aws.amazon.com/mgn/latest/ug/MGN-service-limits.html
The AWS Replication Agent was successfully installed.
[root@ip-10-0-2-180 ~]#
```

c. After adding source server to the migration service, wait for the replication to complete.

Source servers (1)

Actions

Replication

Test and cutover

Active source servers

Filter source servers by property or value

< 1 >

⚙

<input type="checkbox"/>	Source server name ▲	Alerts ▼	Replication type ▼	Migration lifecycle ▼	Data replication status	Last snapshot ▼	Next step ▼
<input type="checkbox"/>	ip-10-0-2-180.ap-southeast-1.compute.internal	-	Agent based	Not ready	Initial sync 7%   19 min left	-	Wait for initial sync to complete

This account is currently replicating 1 server out of a quota of 20 concurrent replicating servers. [Learn more](#)

d. After the replication completed, I launched the test instance as specified in the next step.

Source servers (1)

Actions

Replication

Test and cutover ▲

Active source servers

Filter source servers by property or value

< 1 >

⚙

<input checked="" type="checkbox"/>	Source server name ▲	Alerts ▼	Replication type ▼	Migration lifecycle ▼	Data replication status
<input checked="" type="checkbox"/>	ip-10-0-2-180.ap-southeast-1.compute.internal	-	Agent based	Ready for testing	Healthy

This account is currently replicating 1 server out of a quota of 20 concurrent replicating servers. [Learn more](#)

Testing

Launch test instances

Mark as "Ready for cutover"

Revert to "Ready for testing"

Cutover

Launch cutover instances

Finalize cutover

Revert to "Ready for cutover"

Other

Instances (3) Info

Refresh

Connect

Instance state ▼

Actions ▼

Launch instances

Search

< 1 >

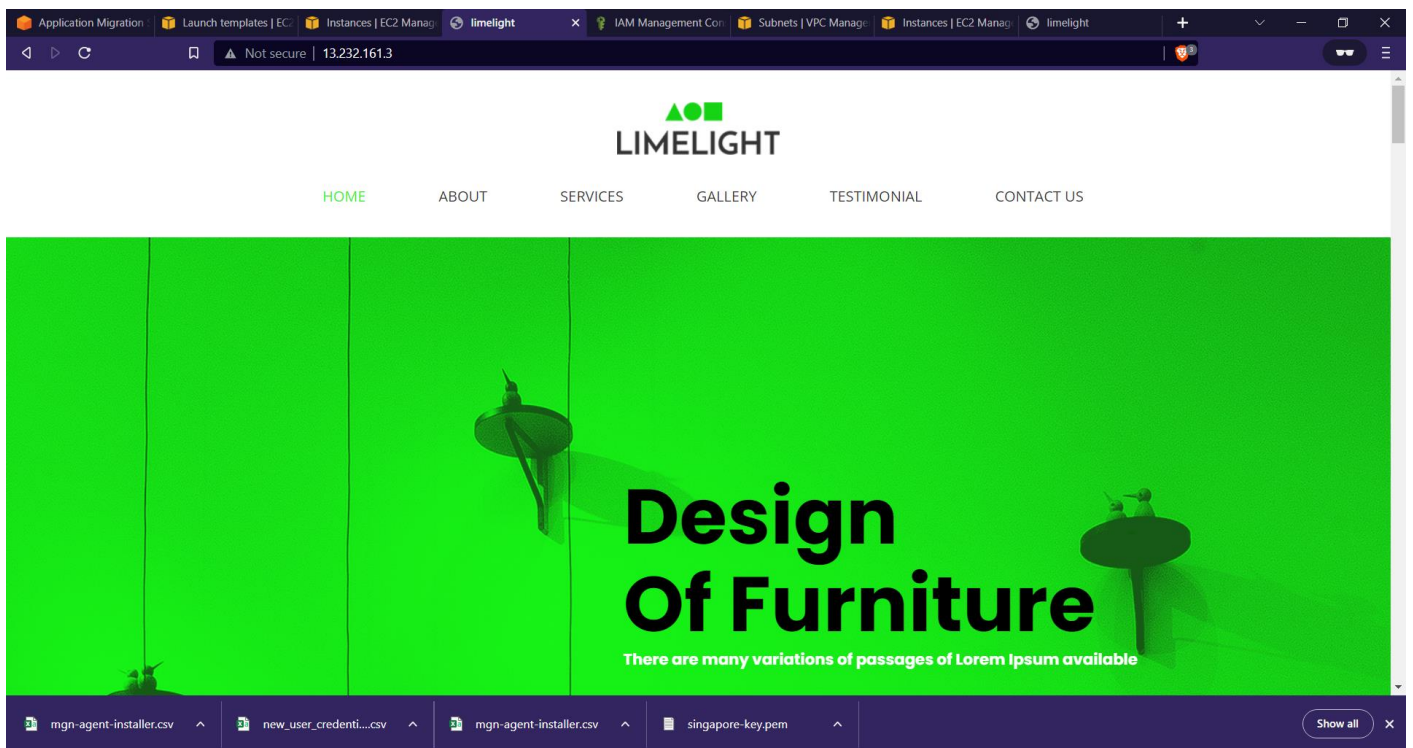
⚙

<input type="checkbox"/>	Name ▼	Instance ID	Instance state ▼	Instance type ▼	Status check	Alarm status
<input type="checkbox"/>	AWS Application Migration Service Conversion Server	i-0b399509856b72981	Terminated	m4.large	-	No alarms +
<input type="checkbox"/>	ip-10-0-1-111.ap-southeast-1.compute.internal	i-0a97812284b7c2cd9	Running	t2.micro	Initializing	No alarms +
<input type="checkbox"/>	AWS Application Migration Service Replication Server	i-03b5e595b88f97865	Running	t2.micro	2/2 checks passed	No alarms +

The launched test server reflected on the EC2 console.

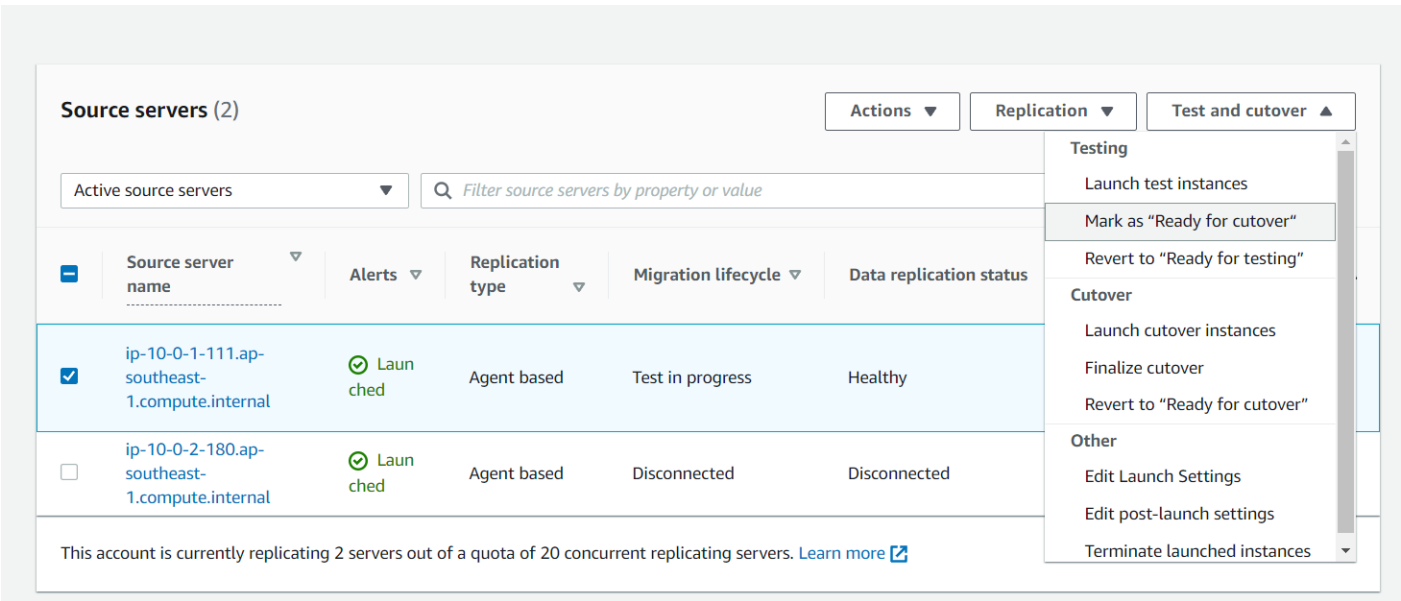
e. Tested using the public IP of ip-10-0-1-111.ap-southeast-1.compute.internal instance to check if conversion was properly completed or not.





As the website was able to host on the public IP, I concluded that the conversion had been done properly.

- f. After testing was successful, I marked the server as “ready for cut-over” as was mentioned in the next step column.



- g. After I marked the server as “ready for cutover”, I then launched cutover instances as was mentioned in the next step.

Source servers (2)

Active source servers

Filter source servers by property or value

	Source server name	Alerts	Replication type	Migration lifecycle	Data replication status
<input checked="" type="checkbox"/>	ip-10-0-1-111.ap-southeast-1.compute.internal	-	Agent based	Ready for cutover	Healthy
<input type="checkbox"/>	ip-10-0-2-180.ap-southeast-1.compute.internal	<span>Launched</span>	Agent based	Disconnected	Disconnected

Testing

Launch test instances

Mark as "Ready for cutover"

Revert to "Ready for testing"

Cutover

Launch cutover instances

Finalize cutover

Revert to "Ready for cutover"

Other

Edit Launch Settings

Edit post-launch settings

This account is currently replicating 2 servers out of a quota of 20 concurrent replicating servers. [Learn more](#)

I tested the cut-over server and it worked fine.

Instances (1/5) Info

Search

1

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status
<input type="checkbox"/>	AWS Application Migration Service Conversion Server	i-0b399509856b72981	Terminated	m4.large	-	No alarms
<input type="checkbox"/>	ip-10-0-1-111.ap-southeast-1.compute.internal	i-0a97812284b7c2cd9	Terminated	t2.micro	-	No alarms
<input type="checkbox"/>	AWS Application Migration Service Replication Server	i-03b5e595b88f97865	Running	t2.micro	2/2 checks passed	No alarms
<input type="checkbox"/>	AWS Application Migration Service Conversion Server	i-0a72391567d94e445	Terminated	m4.large	-	No alarms
<input checked="" type="checkbox"/>	ip-10-0-1-111.ap-southeast-1.compute.internal	i-035d9da40930c9791	Running	t2.micro	2/2 checks passed	No alarms

Instance: i-035d9da40930c9791 (ip-10-0-1-111.ap-southeast-1.compute.internal)

Details

Security

Networking

Storage

Status checks

Monitoring

Tags

Instance summary Info

Instance ID

i-035d9da40930c9791 (ip-10-0-1-111.ap-southeast-1.compute.internal)

IPv6 address

-

Public IPv4 address

13.232.2.131 | [open address](#)

Instance state

Running

Private IPv4 addresses

7.0.1.245

Public IPv4 DNS

-

Application Migration

Launch templates | EC2

Instances | EC2 Manag

limelight

IAM Management Con

Subnets | VPC Manag

Instances | EC2 Manag

limelight

Not secure

13.232.2.131

▲●■

LIMELIGHT

HOME

ABOUT

SERVICES

GALLERY

TESTIMONIAL

CONTACT US

Design Of Furniture

There are many variations of passages of Lorem Ipsum available

READ MORE

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h. After testing the cut-over instances, I finalized the cut-over as was mentioned in the next step.

Application Migration Service > Source servers

Source servers (2)

Active source servers Filter source servers by property or value

	Source server name	Alerts	Replication type	Migration lifecycle	Data replication status
<input checked="" type="checkbox"/>	ip-10-0-1-111.ap-southeast-1.compute.internal	Launched	Agent based	Cutover in progress	Healthy
<input type="checkbox"/>	ip-10-0-2-180.ap-southeast-1.compute.internal	Launched	Agent based	Disconnected	Disconnected

This account is currently replicating 2 servers out of a quota of 20 concurrent replicating servers. [Learn more](#)

Actions: Launch test instances, Mark as "Ready for cutover", Revert to "Ready for testing", Cutover, Launch cutover instances, Finalize cutover, Revert to "Ready for cutover", Other, Edit Launch Settings, Edit post-launch settings, Terminate launched instances

Lifecycle Info

Not ready > Ready for testing > Test in progress > Ready for cutover > Cutover in progress > Cutover complete

Launch status	Last test	Cutover
Launched First boot: Succeeded <a href="#">View in EC2 console</a>	Job ID: <a href="#">mgnjob-e59e39540c71945b9</a> Started: August 05, 2022 at 17:03 (UTC+5:30)	Job ID: <a href="#">mgnjob-ea6eac6863fcdad03</a> Started: August 05, 2022 at 17:20 (UTC+5:30) Finalized: August 05, 2022 at 17:37 (UTC+5:30)

i. After the cut-over was completed, I was marked the server as archived as was mentioned in the next step column.

Application Migration Service > Source servers

Source servers (1)

Active source servers Filter source servers by property or value

	Source server name	Alerts	Replication type	Migration lifecycle	Last snapshot	Next step
<input checked="" type="checkbox"/>	ip-10-0-1-111.ap-southeast-1.compute.internal	Launched	Agent based	Cutover complete	Disconnected	Mark as archived

Actions: Add servers, View server details, Disconnect from service, Mark as archived

Now, Mumbai region also has the exact copy of the web-server present in Singapore, so server migration was successful from on-premises to AWS.