

• AZURE to AWS VM Migration Project

Install MongoDB on AMAZON Linux Server

1)vim /etc/yum.repos.d/mongodb-org-5.0.repo

```
[mongodb-org-5.0]
name=MongoDB Repository
baseurl=https://repo.mongodb.org/yum/amazon/2/mongodb-org/5.0/x86_64/
gpgcheck=1
enabled=1
gpgkey=https://www.mongodb.org/static/pgp/server-5.0.asc
```

2)sudo yum install -y mongodb-org

3)sudo systemctl start mongod

4)sudo systemctl status mongod

-

Install MongoDB on UBUNTU Linux Server

1)sudo apt install dirmngr gnupg apt-transport-https
ca-certificates software-properties-common

2)wget -qO -
https://www.mongodb.org/static/pgp/server-4.4.asc | sudo
apt-key add -

```
3) sudo add-apt-repository 'deb [arch=amd64]  
https://repo.mongodb.org/apt/ubuntu  
focal/mongodb-org/4.4 multiverse'
```

```
4) sudo apt install mongodb-org
```

The following packages will be installed on your system:

- `mongodb-org-server` - The mongod daemon and corresponding init scripts and configurations.
- `mongodb-org-mongos` - The mongos daemon.
- `mongodb-org-shell` - The mongo shell, an interactive JavaScript interface to MongoDB. It is used to perform administrative tasks through the command line.
- `mongodb-org-tools` - Contains several MongoDB tools for importing and exporting data, statistics, as well as other utilities.

```
5) sudo systemctl enable --now mongod
```

To verify whether the installation has completed successfully, connect to the MongoDB database server using the mongo tool, and print the connection status:

```
mongo --eval 'db.runCommand({ connectionStatus: 1 })'
```

6) `sudo systemctl restart mongod`

Databases:

This table will list the commands most commonly used when working with the database as a whole.

Type	Command	Description
Create/Connect	<code>use <db></code>	Connects to a specific database. If none exists then one will automatically be created with that name. Doc
List All	<code>show dbs</code>	Lists all Databases. DBs with no data are not shown. Doc
List Current	<code>db.getName()</code>	Lists the name of the currently selected database. Doc
Return	<code>db</code>	Returns the currently selected Database. Allows you to use methods and chain commands. IE <code>db.createCollection('test')</code> . Doc
Drop	<code>db.dropDatabase()</code>	Drops the currently selected Database. Doc

Stats	<code>db.stats()</code>	Lists the stats about the current Database. Doc
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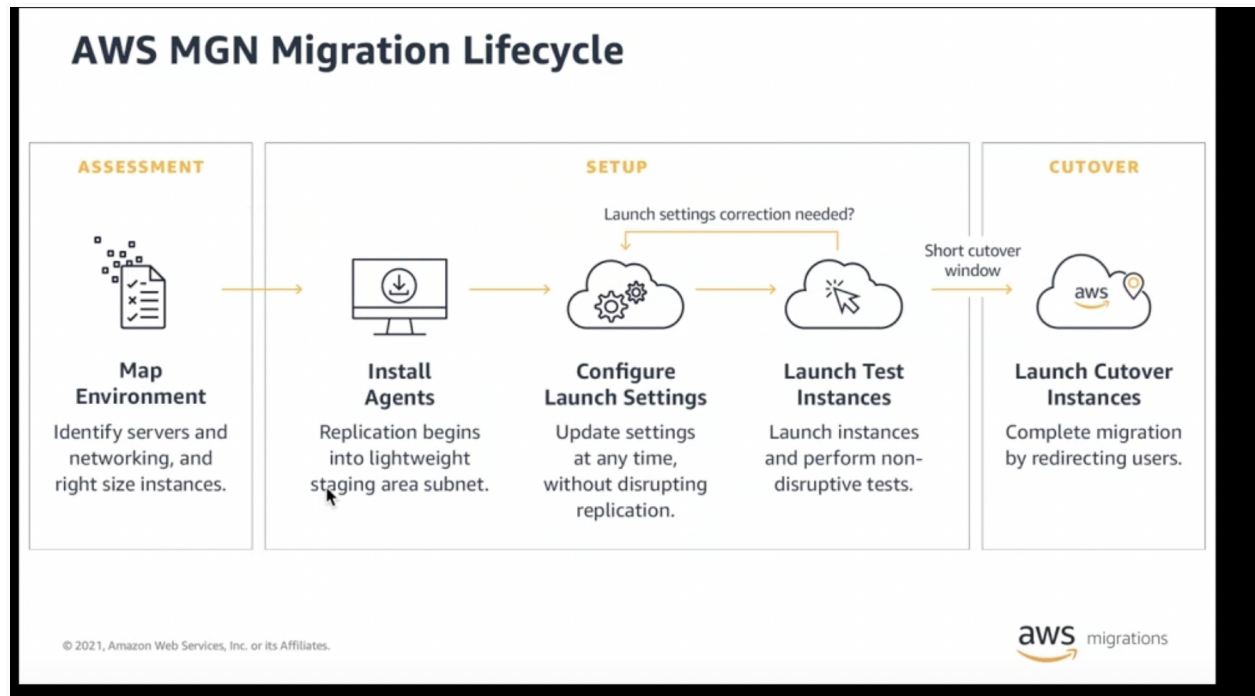
Introducing AWS Application Migration Service

[AWS Application Migration Service](#) (AWS MGN) **is the primary migration service recommended for lift-and-shift migrations to AWS.** Customers currently using Server Migration Service (SMS) are encouraged to **switch to** Application Migration Service for future migrations.

AWS Application Migration Service simplifies and expedites your migration to the cloud. It allows you to quickly realize the benefits of migrating applications to the cloud without changes and with minimal downtime.

With AWS Application Migration Service, you can migrate your applications from **physical infrastructure**, VMware vSphere, Microsoft Hyper-V, Amazon Elastic Compute Cloud (AmazonEC2), Amazon Virtual Private Cloud (Amazon VPC), **and other clouds to AWS.**

Application Migration Service - Agent Based



Step1)

Sign in AWS portal , go to Application Migration Service

Click on IAM , (AWS will create IAM for you to use these service)

Install the Installer on Linux/Windows Machine (target)
Copy the AWS Replication Service with IAM Role.
Policy -> AWSApplicationmigrationAgentPolicy.

So, that it will sync & Add the Server Auto - on AWS Account

```
Last login: Sat May 14 11:23:33 2022 from 202.52.134.200
azureuser@2Linuxmachine:~$ sudo su -
root@2Linuxmachine:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        29G   2.3G   27G   8% /
devtmpfs         3.9G     0   3.9G   0% /dev
tmpfs            3.9G   8.0K   3.9G   1% /dev/shm
tmpfs            796M  976K  795M   1% /run
tmpfs            5.0M     0   5.0M   0% /run/lock
tmpfs            3.9G     0   3.9G   0% /sys/fs/cgroup
/dev/loop2       45M   45M     0 100% /snap/snapd/15534
/dev/loop0       62M   62M     0 100% /snap/core20/1434
/dev/loop1       68M   68M     0 100% /snap/lxd/22753
/dev/sda15      105M   5.2M  100M   5% /boot/efi
/dev/sdb1        16G   45M   15G   1% /mnt
/dev/loop3       56M   56M     0 100% /snap/core18/2409
/dev/loop4       68M   68M     0 100% /snap/powershell/205
tmpfs            796M     0  796M   0% /run/user/1000
root@2Linuxmachine:~# 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
--2022-05-15 11:24:52-- 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).
.. 52.219.62.19
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.c
om)|52.219.62.19|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 13740 (13K) [binary/octet-stream]
Saving to: './aws-replication-installer-init.py'

./aws-replication-installer-init.py  100%[=====>]  13.42K  --.-KB/s   in 0s

2022-05-15 11:24:53 (113 MB/s) - './aws-replication-installer-init.py' saved [13740/13740]

root@2Linuxmachine:~#
```

Add servers

To add your source servers to this console, you need to install the AWS Replication Agent on them. Use the options below to construct the installation command, then copy the command and download the installer. [Learn more](#)

Agentless replication is available. [Learn more](#)

AWS Replication Agent installation

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](#)

AKIARBVHYJGXIQ33PJQ3

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

✓ Command copied

4. Download the installer using this command:

```
wget -O ./aws-replication-installer-init.py https://aws-applicati
```

Copy

If you need to validate the installer hash, the correct hash can be found here:

<https://aws-application-migration-service-hashes-ap-south-1.s3.ap-south-1.amazonaws.com/latest/linux/aws-replication-installer-init.py.sha512>

5. Copy and input the command below into the command line on your source server

```
sudo python3 aws-replication-installer-init.py --region ap-south-
```

Copy

Back

Install Linux Kernel on Source Server (Imp step)

```
apt install linux-aws
```

Step2)

After firing the command , it Will Download & Install the AWS Replication Service & Identify the Volumes for

Replication.

```
root@2Linuxmachine:~# sudo python3 aws-replication-installer-init.py --region ap-south-1 --aws-access-key-id AKIARBVHYJGXIQ33vUqB+U4nFRkzMaKKCCD0lyvm6Z0pVo5j0c+I --no-prompt
The installation of the AWS Replication Agent has started.
Identifying volumes for replication.
Identified volume for replication: /dev/sda of size 31 GiB
Identified volume for replication: /dev/sdb of size 16 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-ea585424f164d3981.
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@2Linuxmachine:~#
```

Step3)

AWS Replication Background Process Starts Replicating the Server to AWS Console.

Aws-rep+

```
top - 11:42:42 up 1 day, 22:26, 1 user, load average: 0.12, 0.13, 0.09
Tasks: 154 total, 1 running, 153 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.5 sy, 4.7 ni, 94.5 id, 0.3 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 7953.8 total, 5054.8 free, 567.8 used, 2331.2 buff/cache
MiB Swap: 0.0 total, 0.0 free, 0.0 used. 7078.4 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
33274	aws-rep+	23	3	2489164	182124	19228	S	10.3	2.2	1:11.27	./jre/bin/java -client -Xms88m -Xmx88m -XX:+HeapDumpOnOutOfMemoryError -XX:HeapDump
33435	root	20	0	0	0	0	I	0.3	0.0	0:00.07	[kworker/0:0-events]
33511	root	20	0	11024	3824	3164	R	0.3	0.0	0:00.03	top
1	root	20	0	105368	14336	8336	S	0.0	0.2	0:09.83	/sbin/init
2	root	20	0	0	0	0	S	0.0	0.0	0:00.02	[kthreadd]
3	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	[rcu_gp]
4	root	0	20	0	0	0	T	0.0	0.0	0:00.00	[rcu_gp]

Source servers (1)

Actions ▼

Replication ▼

Active source servers ▼

Q Filter source servers by property or value

<input type="checkbox"/>	Source server name ▲	Alerts ▼	Replication type ▼	Migration lifecycle ▼	Data replication status	Last snapshot ▼	Next step
<input type="checkbox"/>	2Linuxmachine	-	Agent based	Not ready	Initiating	-	Wait for initial

This account is currently using 1 concurrent replicating server out of 20 allocated servers.

Replication settings Info

Edit

Replication Servers

Subnet
subnet-029a4e823999d60da

Replication Server instance type
c4.2xlarge

Use dedicated Replication Server
No

EBS encryption
Default

Default EBS volume type for disks over 500GiB
Use faster SSD disks (gp2)

Always use Application Migration Service security group
Yes

Additional security groups
None

Data routing and throttling

Use private IP for data replication (VPN, DirectConnect or VPC peering)
No

Create public IP
Yes

Throttle network bandwidth
10000 Mbps

Replicated disks

[View details under Disks settings](#)

Replication resources tags

No resource tags exist

Replication initiation steps

- ✓ Create security groups
- ✓ Launch Replication Server
- ✓ Boot Replication Server
- ✓ Authenticate with service
- ✓ Download replication software
- ✓ Create staging disks
- ✓ Attach staging disks
- ✓ Pair Replication Server with AWS Replication Agent
- ⋮ Connect AWS Replication Agent to Replication Server
- ⌵ Start data transfer

Step4)

Before Planning for the Migration.

Manage the Replication Server Settings from AWS Console.

->Instance type for Replication , for smooth migration

According to Previous Compatible VM instance type.

Or can use AWS Recommendations.

IN AWS Ec2 , we can see Ec2 Instance Running

Instances (1) [Info](#)

Instance state = running Clear filters

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	
<input type="checkbox"/>	AWS Application Migration Service Replication Server	i-07b99fd515b7c4acb	Running	c4.2xlarge	2/2 checks passed	N

Step5)

Manage the Launch Server Settings from AWS Console
From Ec2 Launch Template.

->Assign Public Ip or not

->Assign Subnet/VPC

Migration dashboard | Server info | Tags | Disks settings | Replication settings | **Launch settings**

General launch settings [Info](#) Edit

Instance type right sizing Basic	Operating system licensing BYOL
Start instance upon launch Yes	Transfer server tags No
Copy private IP No	

EC2 Launch Template [Info](#) Modify

Template ID lt-07c4f9aa823a8dd29	Primary network interface
Instance type c4.2xlarge	Description -
EBS volumes Volume 1 (16 GiB, EBS, Provisioned IOPS SSD (io1)) Volume 2 (31 GiB, EBS, Provisioned IOPS SSD (io1))	Subnet subnet-029a4e823999d60da
Security groups -	Public IP Yes
Tenancy -	Private IP addresses -
Placement group name -	

Step6)

Ready for Testing Phase
, After 100% initial Sync

Application Migration Service > Source servers > 2Linuxmachine

2Linuxmachine (s-ea585424f164d3981) Actions ▼

Next actions [Info](#)

Launch test instance

Migration dashboard | [Server info](#) | [Tags](#) | [Disks settings](#) | [Replication settings](#) | [Launch settings](#)

Lifecycle [Info](#)

Not ready → **Ready for testing** → Test in progress → Ready for cutover → Cutover in progress → Cutover complete

Launch status	Last test	Cutover
-	-	-

Step7)

Launch the Test Instance from the
Test & Cut-Over Dropdown

- Select Launch Test Instances

Launch test instance for 1 server

×

You are about to launch EC2 instance for 1 server.

These instances will be launched according to the Launch Settings you have configured for them. Launched instances accrue EC2 charges as per your AWS account's rates. [Learn more](#)

Cancel

Launch

Agent based

Total replicated storage

46 of 46 GiB

Cutover complete

Elapsed replication

65 min

Last seen

15 May 2022, 18:

Launch job mgnjob-e6938552e4c593b24 created

Starting to launch test instance for 1 server.

Application Migration Service > Source servers > 2Linuxmachine

2Linuxmachine (s-ea585424f164d3981)

Actions Replication

Next actions

Complete testing and mark as 'Ready for cutover'

Migration dashboard

Server info

Tags

Disks settings

Replication settings

Launch settings

Lifecycle

Not ready

Ready for testing

Test in progress

Ready for cutover

Cutover in progress

Cutover complete

Launch status

Waiting

Last test

Job ID: mgnjob-e6938552e4c593b24

Started: 15 May 2022, 18:05 (UTC+5:30)

Cutover

-

Data replication status

Check the JOB Status(waiting/done) from Launch History, by clicking on JOB ID.

Job: mgnjob-e6938552e4c593b24

Details

Type Launch	Status Started	Initiated by Launch test instances
Start time 15 May 2022, 18:05 (UTC+5:30)	Completed time -	

Job log [Info](#)

Time	Event	Additional data
15 May 2022, 18:05 (UTC+5:30)	Job started	
15 May 2022, 18:05 (UTC+5:30)	Started taking snapshot	Source server : 2Linuxmachine

Source servers (1)

Source server name	Status
2Linuxmachine	Pending

Step8)

Test Instance & Launch the Final Cut-Over Instance

NOTES

- 1) As a best practice, perform a test at least one week before you plan to migrate your source servers. This allows you time to identify and solve problems before the cutover takes place.
- 2) After you have finalized the testing of your source servers, you are ready for a cutover. It's best practice to schedule the cutover time in advance. After the cutover action is performed, the server is considered migrated, and you should redirect your users from your original source servers to the migrated ones.

Troubleshooting the OS BOOTing Issue with AWS Support

Discuss in Detailed Troubleshooting in PHASE-2 SOP

Make sure /etc/fstab contains the mount points with block-id rather than the device label.

Make sure the discard flag is added in the /etc/fstab mount point entries

Ensure 5th flags of /etc/fstab mount point entries are 1 and 6th flag for the boot volume is 1

Ensure the VM is using the latest or the supported version of Linux kernels by the target cloud provider