AWS Application Migration Service:

Move and improve your on-premises and cloud-based applications

Use Case

You are running workloads/servers on your On-Prem Data Center or Any Other popular cloud and you are looking for a solution, that can help you to migrate them to AWS Cloud.

Well For that AWS Application Migration Service is a perfect solution but before that let's understand the concept of Cloud Migration.

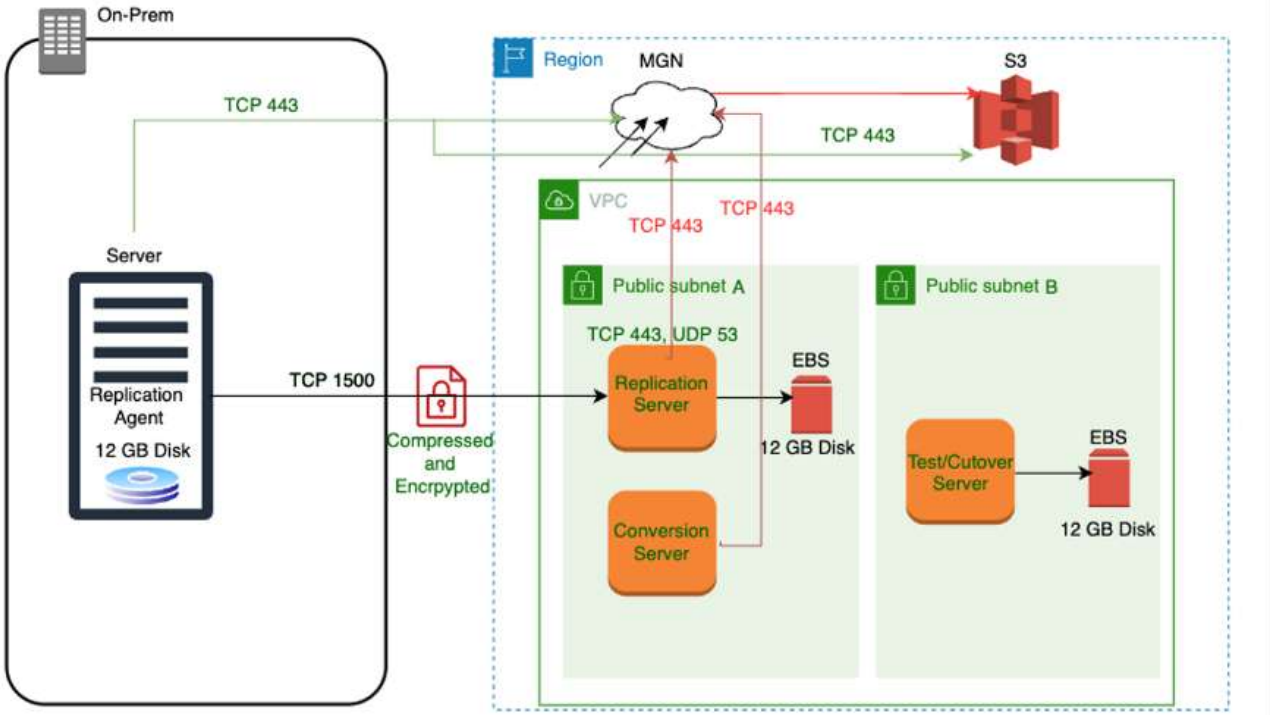
What is Cloud Migration?

Cloud migration is the process of moving a company's data, servers, applications, databases, and workloads to a cloud provider's platform. Migration can be from on-prem to the cloud or from one cloud provider to another cloud provider.

Advantages of Cloud Migration?

Although the cloud has many advantages, I have listed the main ones below.

- Scalability,
- Cost-effectiveness,
- Disaster Recovery,
- Flexibility,
- Security,
- Maintenance,
- Speed and Agility,
- Reliability.

- **AWS Application Migration Service**
- AWS Application Migration Service is the primary migration service recommended for lift-and-shift (rehost) migrations to AWS. You can use AWS MGN to migrate all your applications and databases that run on supported versions of Windows and Linux os.
- 

AWS Application Migration Service Flow

1. Install the AWS Replication Agent on the source server.
2. Wait until Initial Sync is finished.
3. Launch Test instances.
4. Perform acceptance tests on the servers. After the Test instance is tested successfully, finalize the Test and delete the Test instance.
5. Wait for the Cutover window.
6. Confirm that there is no Lag.
7. Stop all operational services on the source server.
8. Launch a Cutover instance.
9. Confirm that the Cutover instance was launched successfully and then finalize the Cutover.

10. Archive the source server.

Environment Details For This Walkthrough

1- We are running an ubuntu 18.04 based VM over Microsoft Hyper V.

2- We are having around 12 gb data into that VM.

3- We have to migrate this VM to AWS cloud with Validation and Testing.

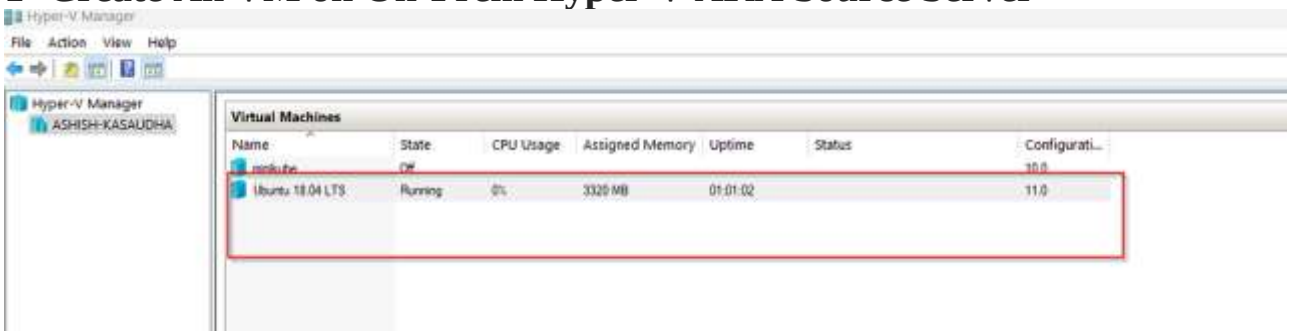
Pre-requisites

1- A Set Of IAM Keys, which can be used for Agent initialization.

- Create an IAM user with credentials, along with the required permission. You can refer to the following link for this.

Let's Get Started

1- Create An VM on On-Prem Hyper-V AKA Source Server

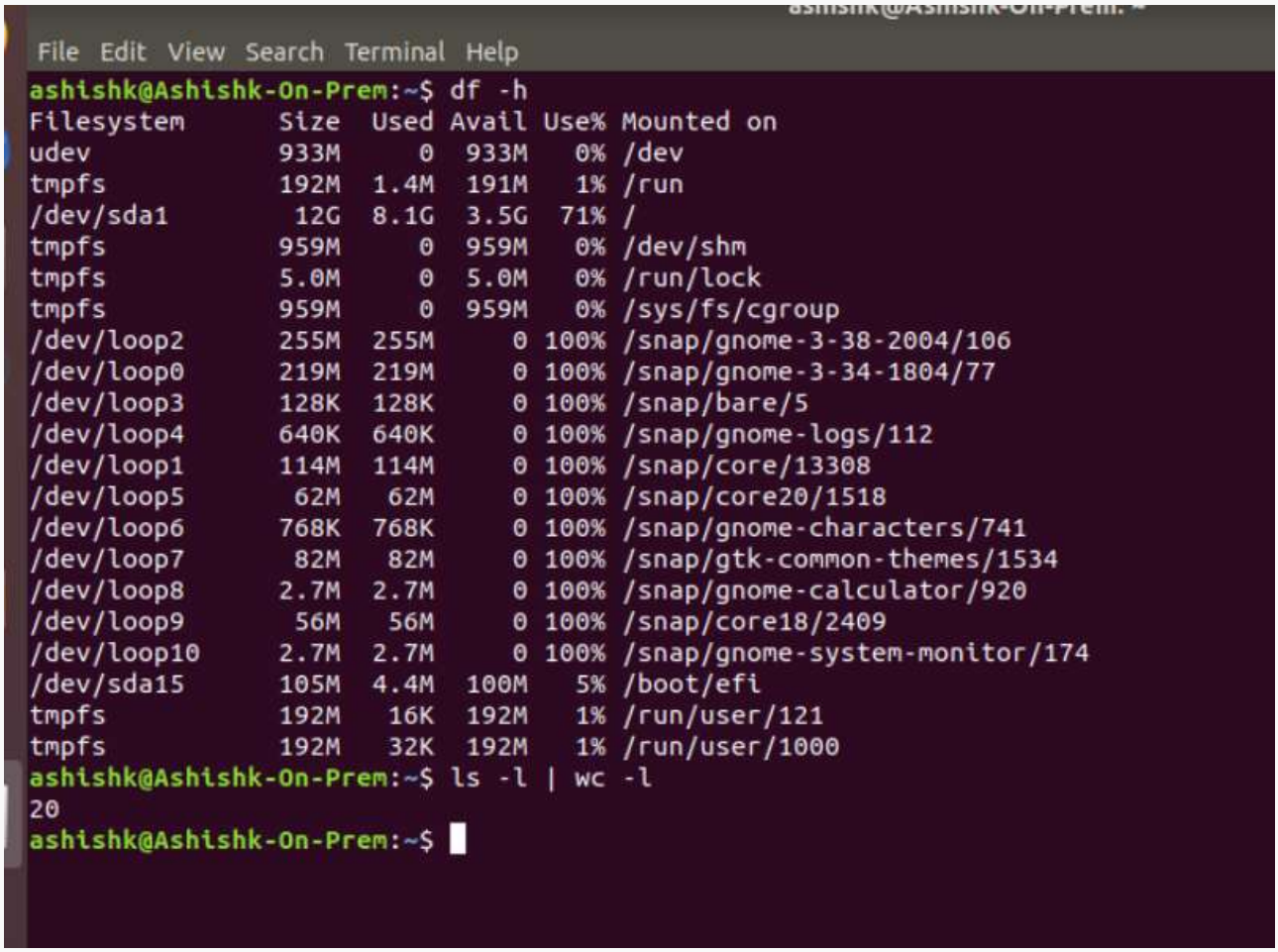


2- Create Files for Migration validation

You can create files, As per your use case.

```
$ head -c 5MB /dev/zero > ostechnix.txt
$ head -c 2048MB /dev/zero > migration.txt

$ head -c 500MB /dev/zero > mgn.txt
```



Disk Space On Server Before MGN Agent Initialization

3- Adjust Application Migration Service Settings

You can customize settings for Application Migration Service as per your use case.

For Our Use case, We have adjusted the following configuration.

Subnet ID

Security Group

Install SSM Agent In Post launch Action

Ec2-launch template for MGN

Default EC2 Launch Template Info

Configure the default settings that will be applied to the EC2 launch template of every target server.

Default target subnet

This is the target subnet to be associated with any instance launched by this service.

Aws-Devops-subnet-public1-us-east-1a
vpc-05b591cae1a280a98

Additional security groups

These are the security groups to associate with all instances launched by this service.

Select additional security groups

ssh-access
sg-09f022dee857f9b05

Default instance type

This is the default instance type to be used for all instances launched by this service.

Choose an instance type

EBS volume type

This is the default volume type used for EBS volumes. You can overwrite this value for small volumes, using API.

General Purpose SSD (gp3)

IOPS

General Purpose SSD (gp3) volumes support a baseline of 3,000 IOPS. Additionally, you can provision up to 500 IOPS per GiB up to a maximum of 16,000 IOPS.

3000

Min: 3000 IOPS, max: 16,000 IOPS (up to 500 IOPS per GiB).

Throughput

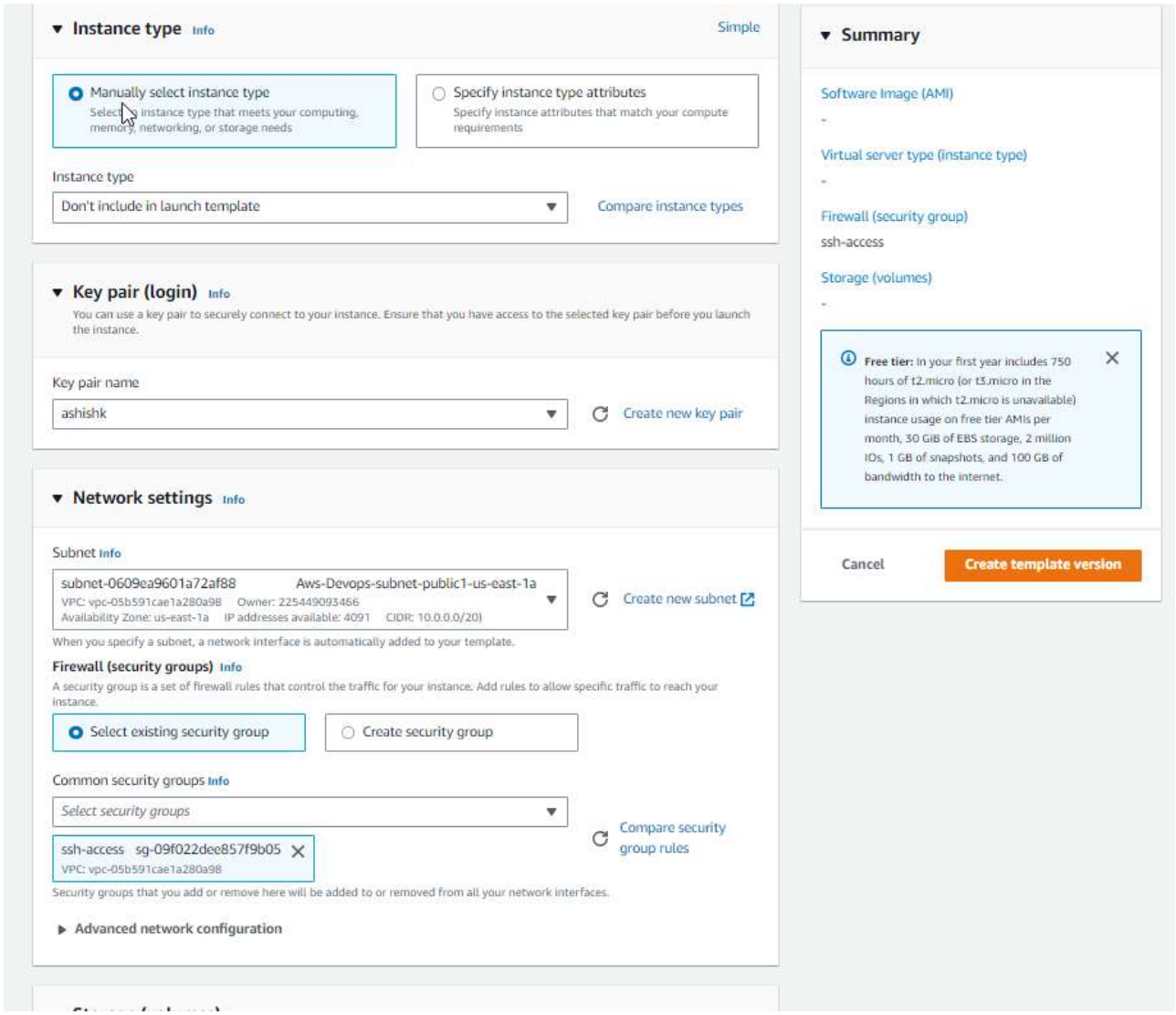
General Purpose SSD (gp3) volumes have a baseline performance of 125 MiB/s. You can provision additional throughput of 0.25 MiB/s per provisioned IOPS up to a maximum of 1,000 MiB/s (at 4,000 IOPS or higher).

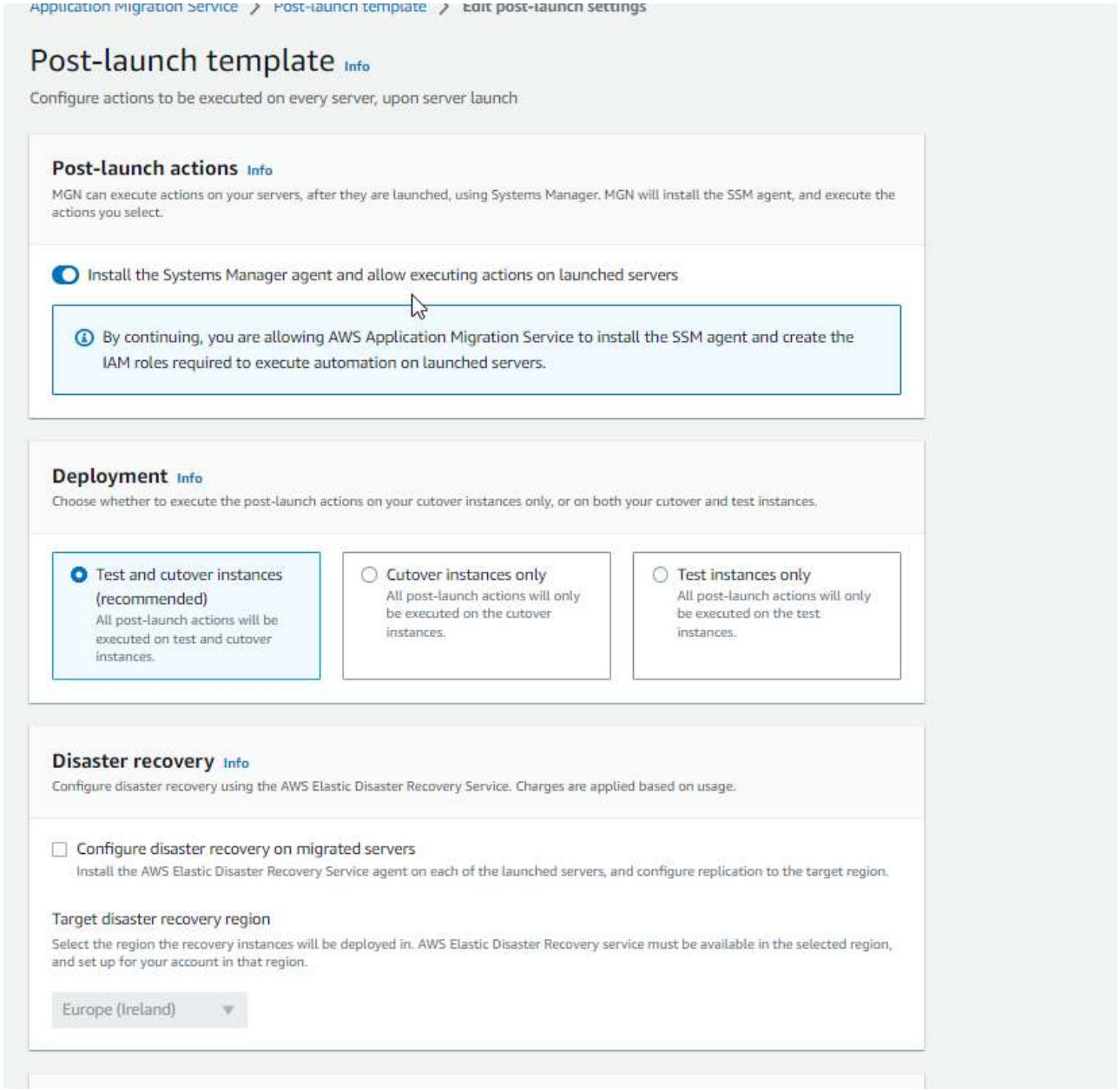
125

Min: 125 MiB/s, max: 1000 MiB/s.

MAP program tagging Info

Configure MAP resource tags to be applied to all instances launched by this service.


Instance type Info
Simple
Manually select instance type
Select instance type that meets your computing, memory, networking, or storage needs
Specify instance type attributes
Specify instance type attributes that match your compute requirements
Instance type
Don't include in launch template
Compare instance types
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
ashishk
Create new key pair
Network settings Info
Subnet Info
subnet-0609ea9601a72af88 Aws-Devops-subnet-public1-us-east-1a
VPC: vpc-05b591cae1a280a98 Owner: 225449093466
Availability Zone: us-east-1a IP addresses available: 4091 CIDR: 10.0.0.0/20)
Create new subnet
When you specify a subnet, a network interface is automatically added to your template.
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.
Select existing security group
Create security group
Common security groups Info
Select security groups
ssh-access sg-09f022dee857f9b05
VPC: vpc-05b591cae1a280a98
Compare security group rules
Security groups that you add or remove here will be added to or removed from all your network interfaces.
Advanced network configuration
Summary
Software Image (AMI)
-
Virtual server type (instance type)
-
Firewall (security group)
ssh-access
Storage (volumes)
-
Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.
Cancel
Create template version

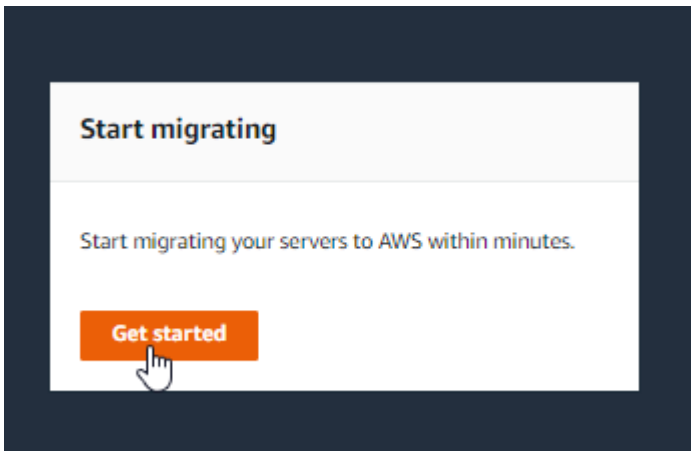


4- Generate IAM Keys

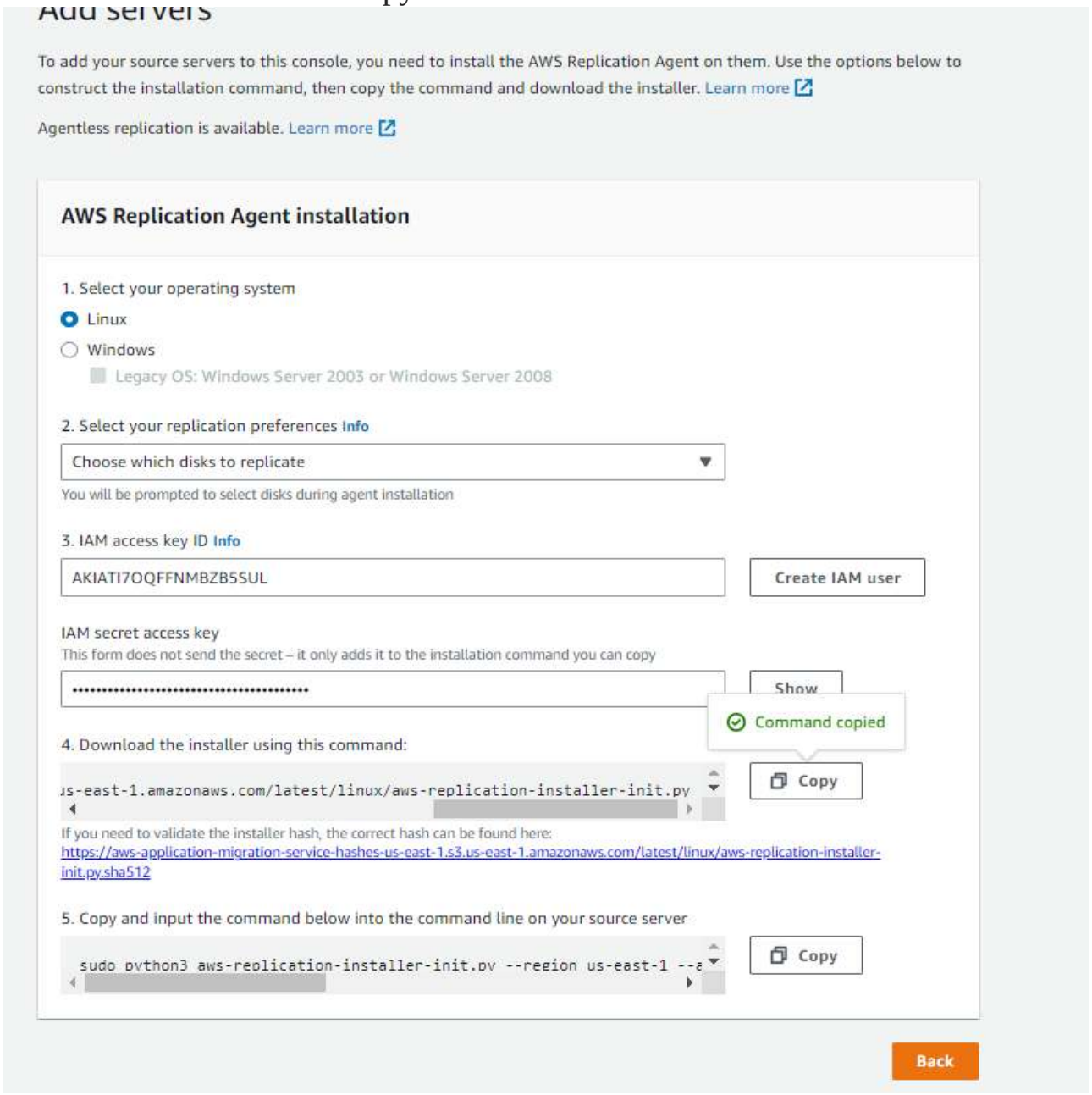
You can refer to Section 3 in the Pre-requisites section for steps.

5- Configure MGN for Agent Installation

- Click on Get Started



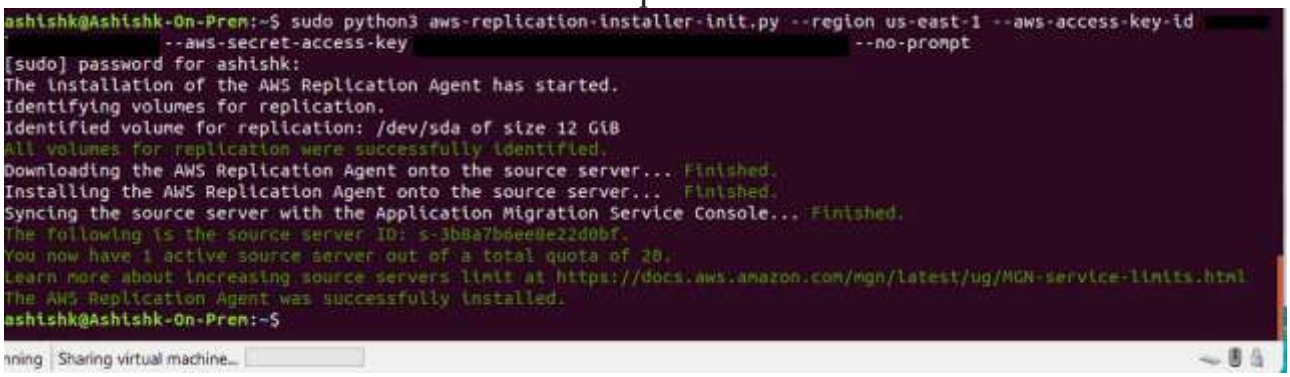
- Provide all the details required for AWS Replication Agent installation and copy both commands.



6- Download Replication Agent on the source server

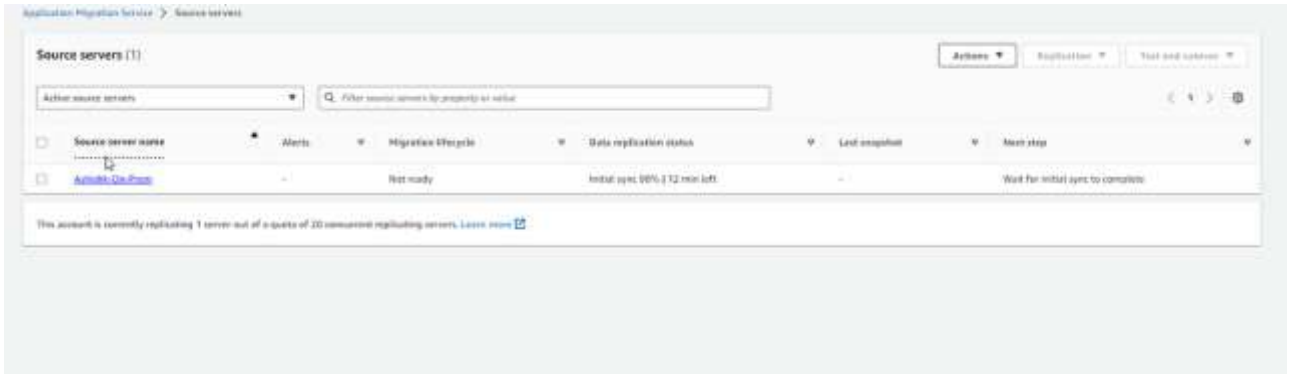
7- Initialized Replication Agent on On-Prem Instance.

You can refer to Section 4 in the Pre-requisites section for command.

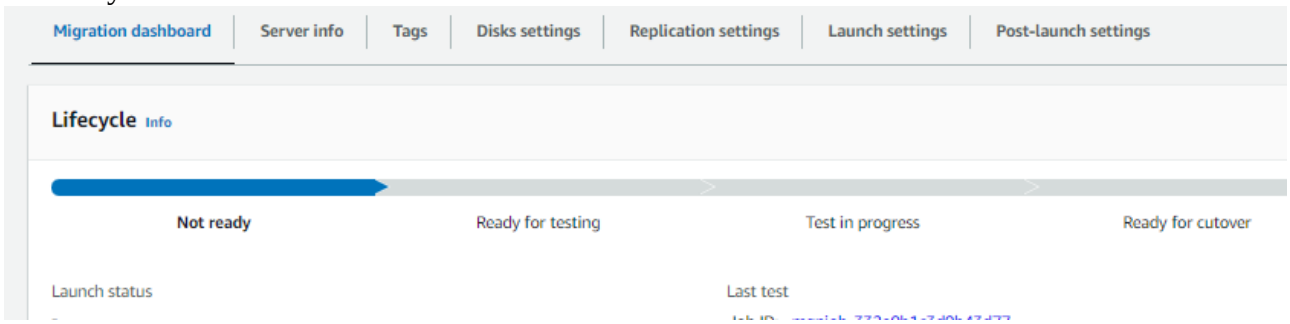


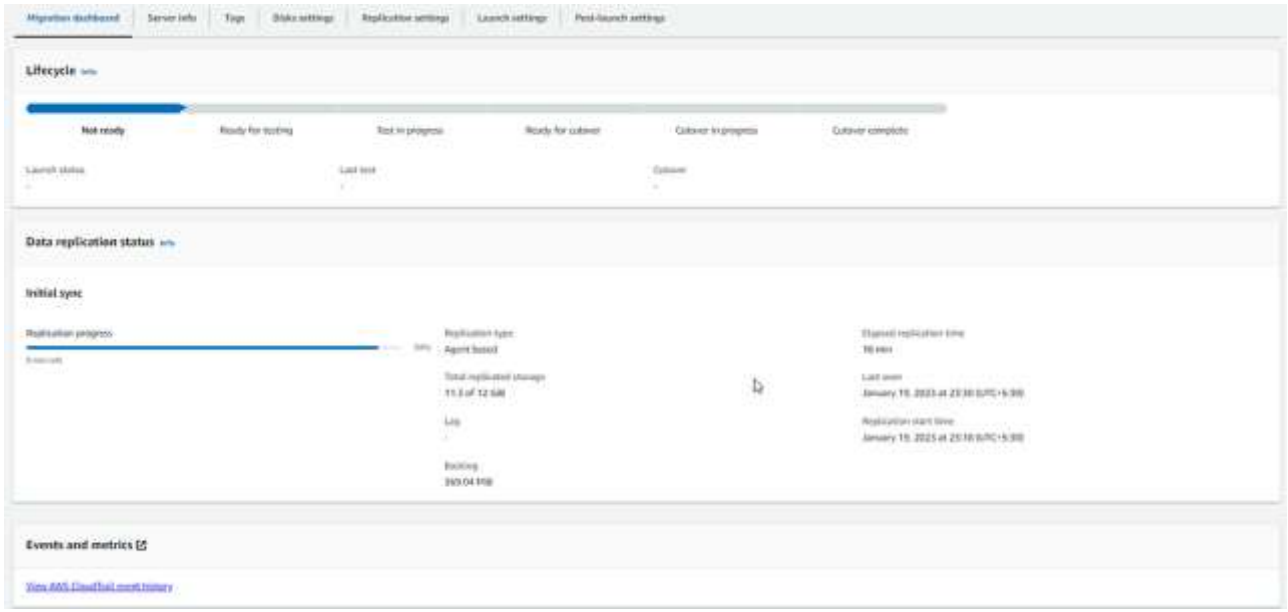
8- Status of Initialization of MGN Console

- Click on Source Server and you will have your server status similar to this.

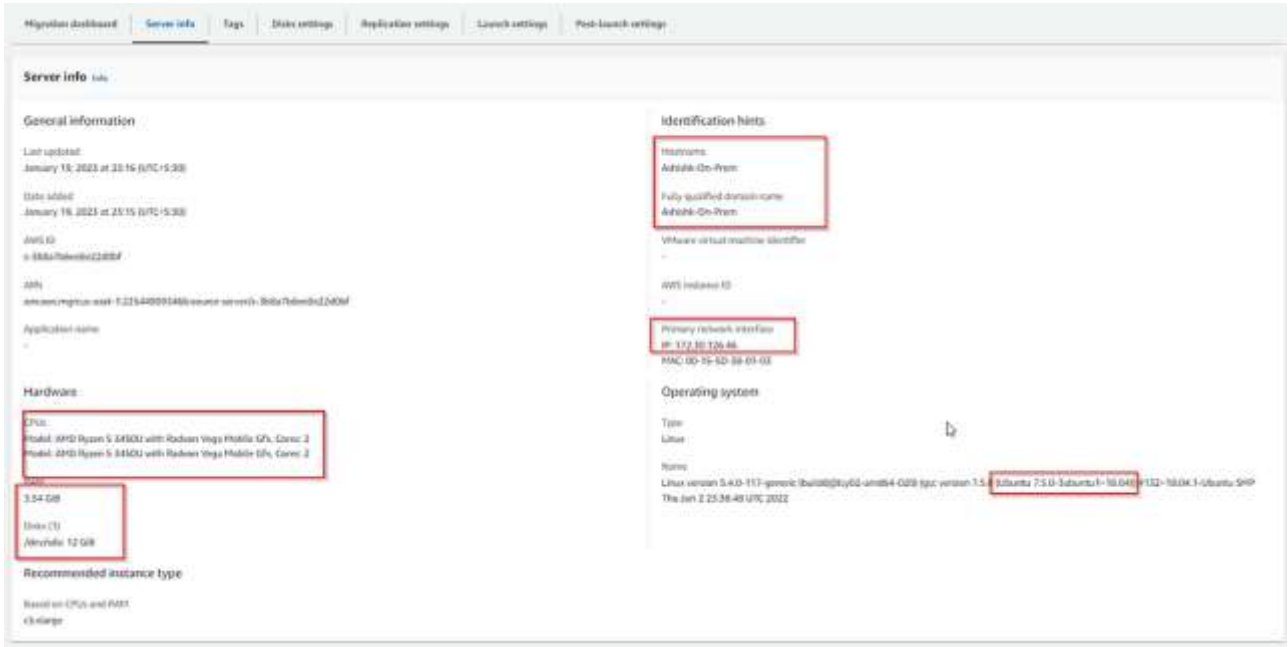


Initial Sync Details



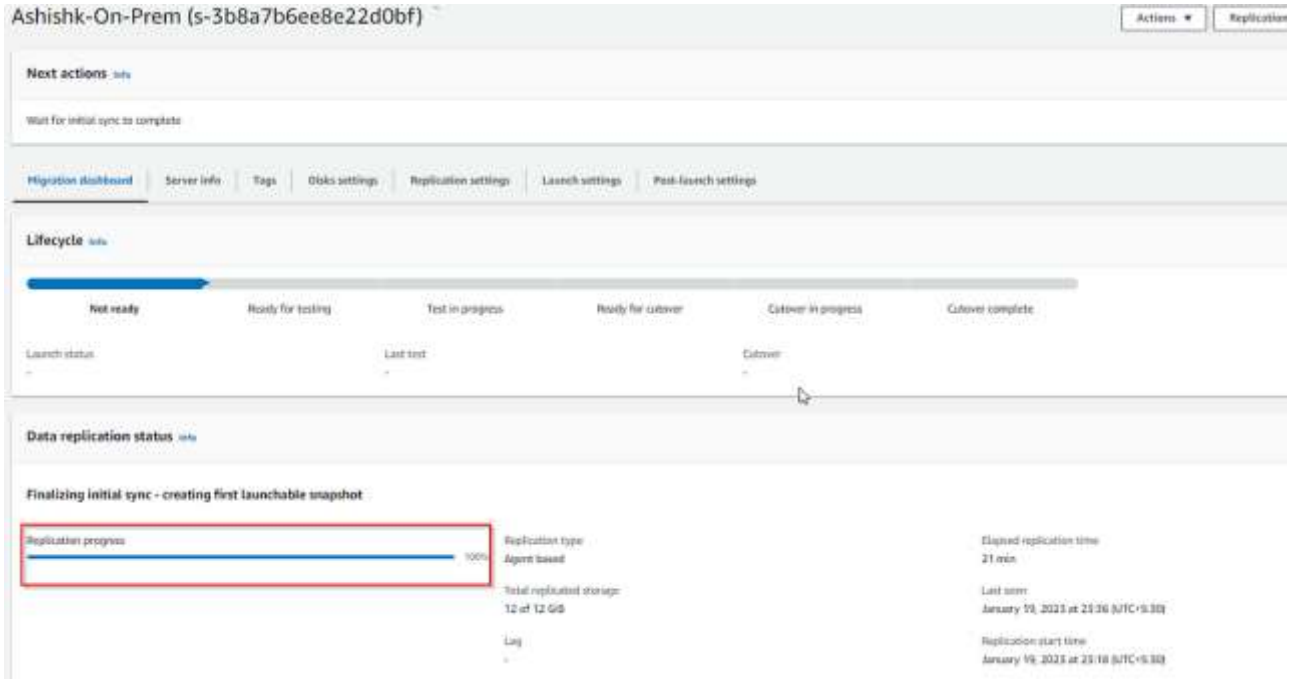


Replication Progress

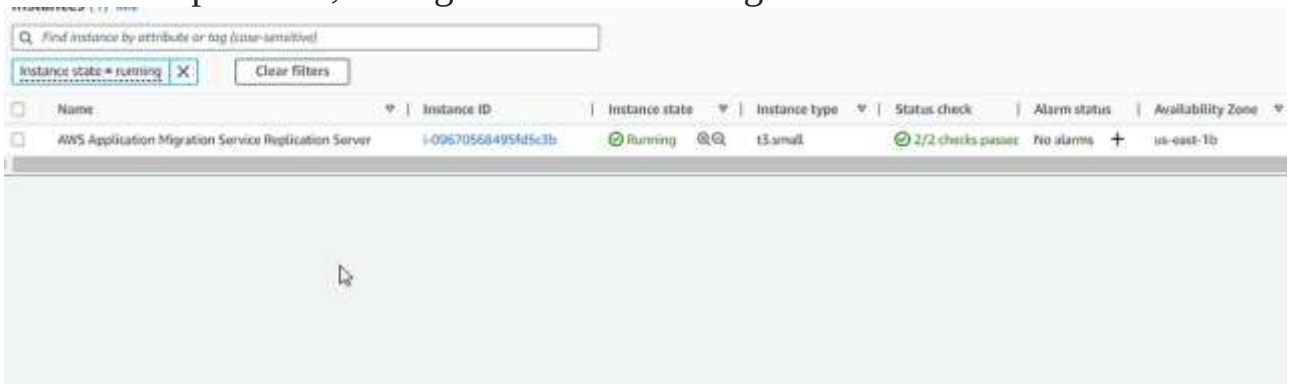


Server Info

- Wait for Replication Progress to be caught with 100%.



- Once your replication progress is completed, then you will see a replication server running on EC2. This is the main instance for replication, throughout this entire migration.

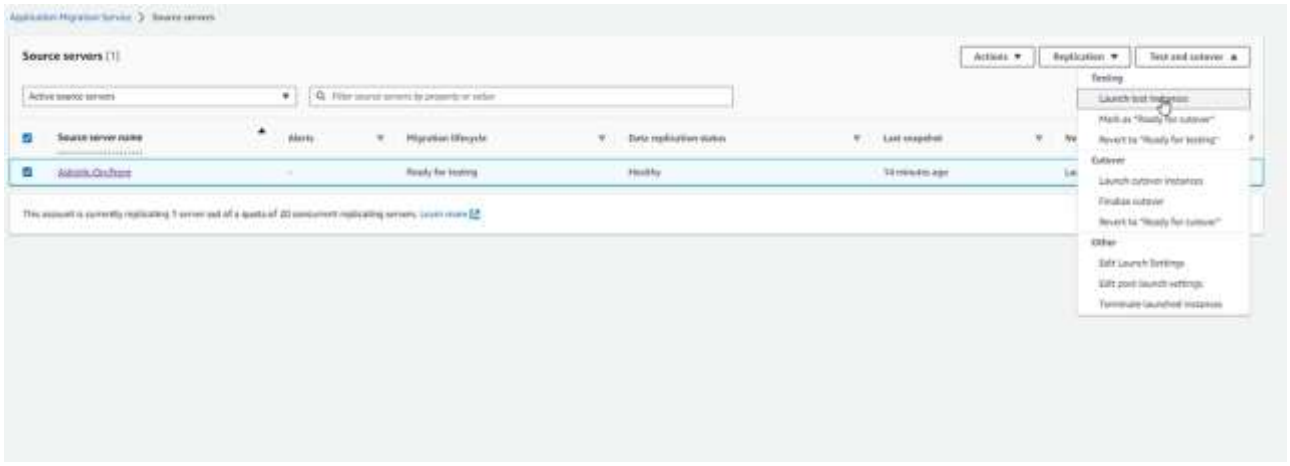


Note: Select the size of replication instance as per your migration capacity. Having a wrong size of replication instance, potentially delay to replication time or it could cause you enormous billing.

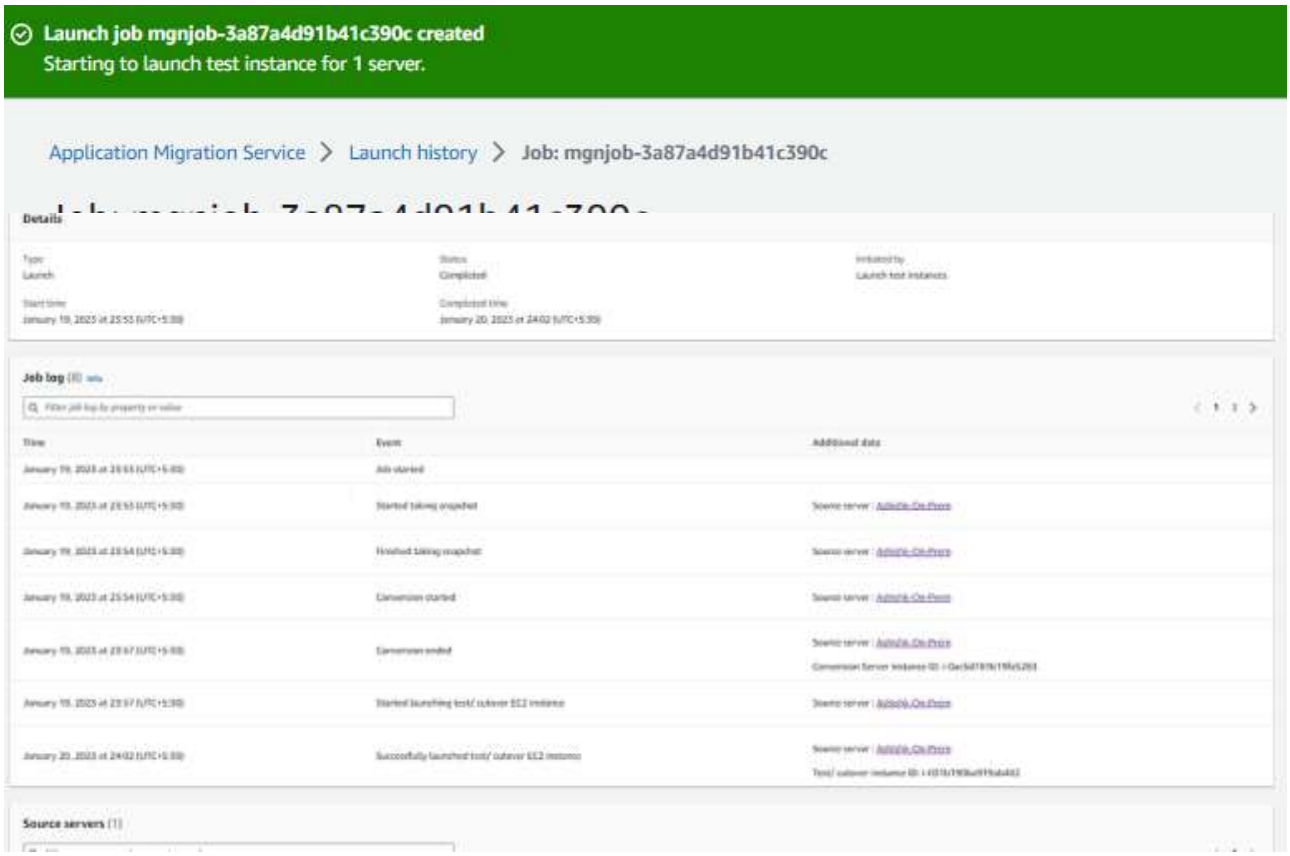
9- Launch Test Instance and Validation

As our replication progress has been completed, now its time to launch test instance.

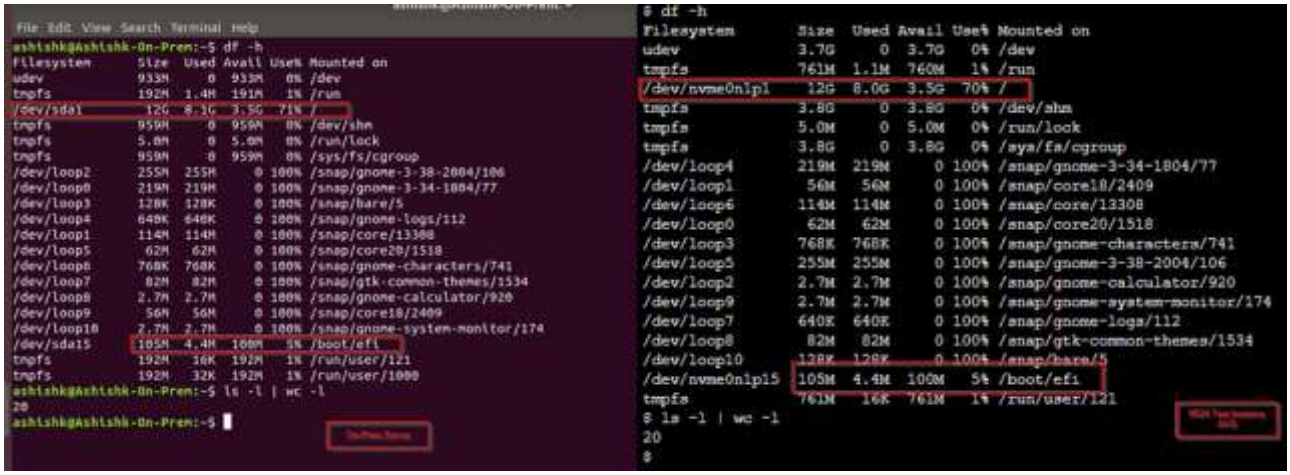
- Click on Launch test instance.



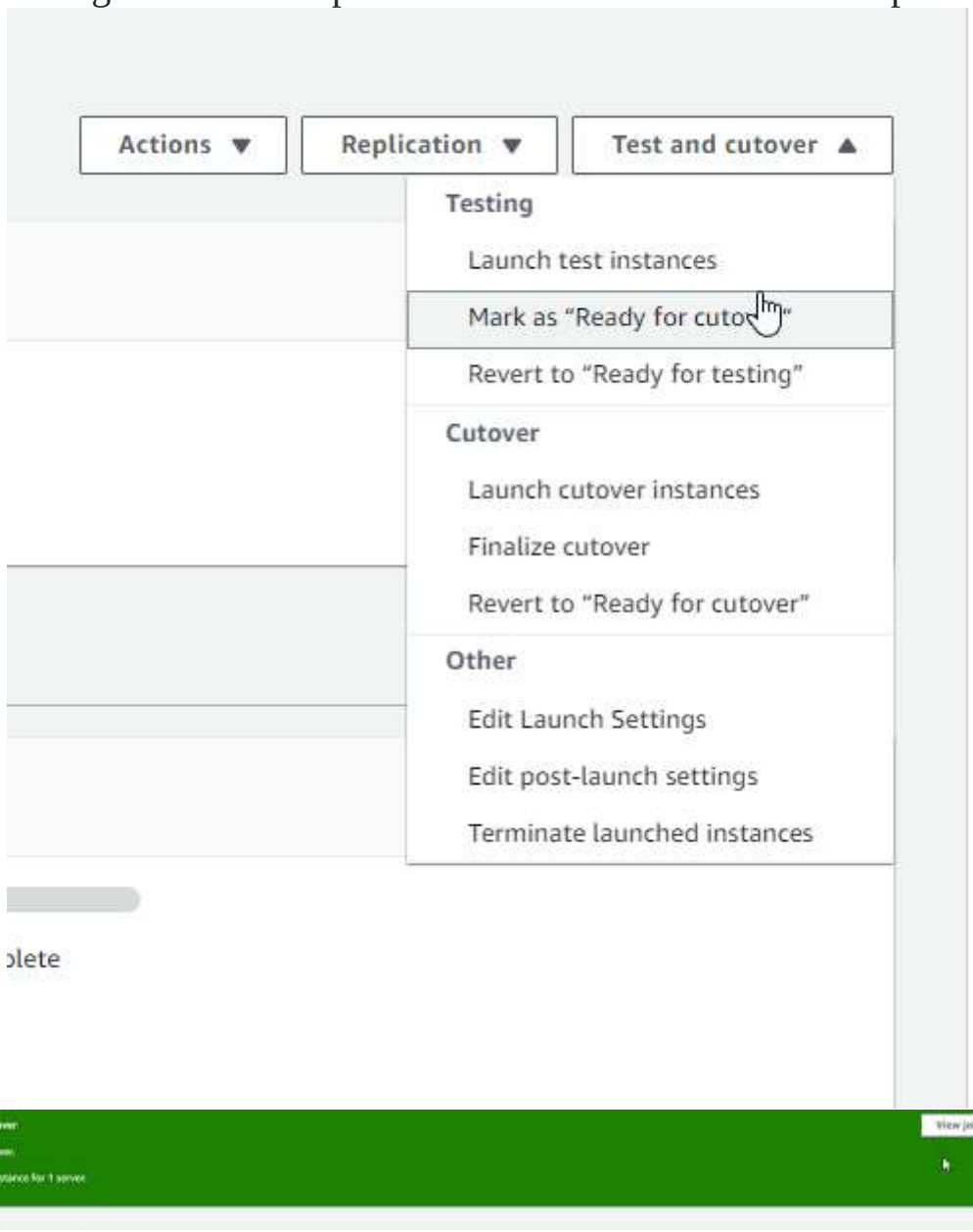
- After Completing the step mentioned above, a launch job will gets created.



- After completion, you can see an ec2 instance running which is an MGN test instance for validation. You can log in to the instance by using aws native method or ssh

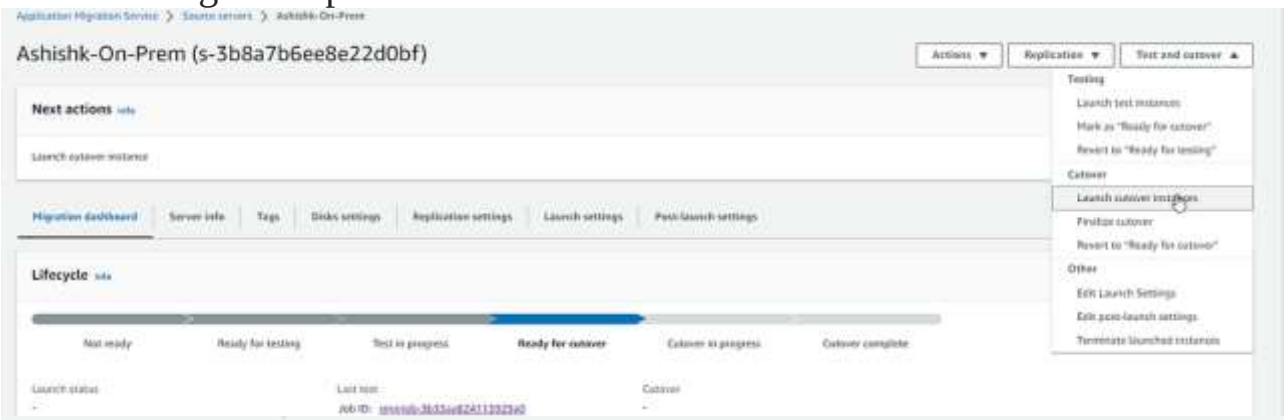


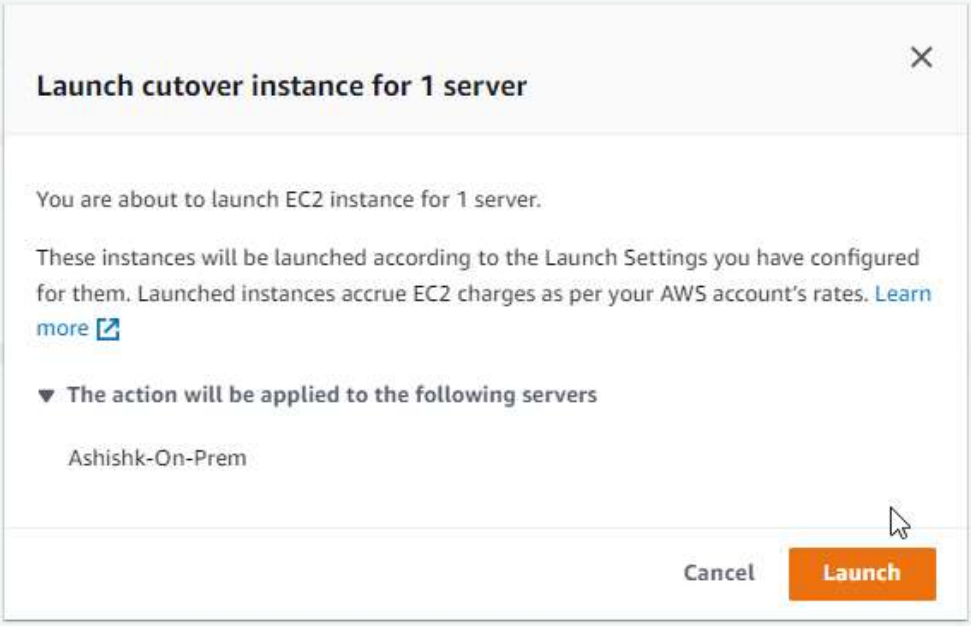
As you can see, All the major partitions size is similar between On-Prem and AWS along with file count. With this, Our migration testing has been completed and we can move to the next phase.

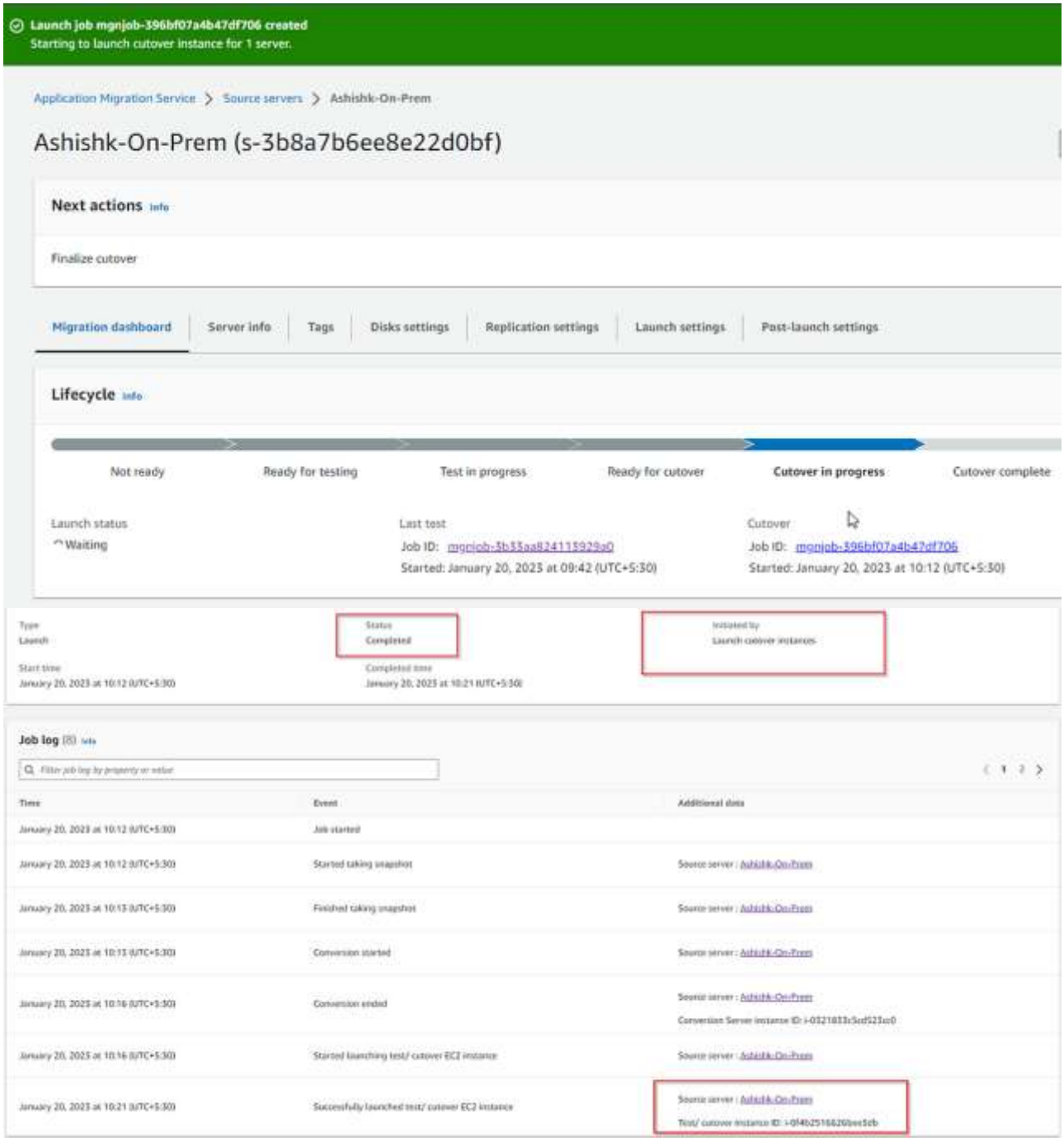


10- Launch Cutover Instance and Finalize Cutover

- As our testing phase has been completed, Now we have moved to Cutover stage. Click on cutover instances and wait for the initiated job to get complete.

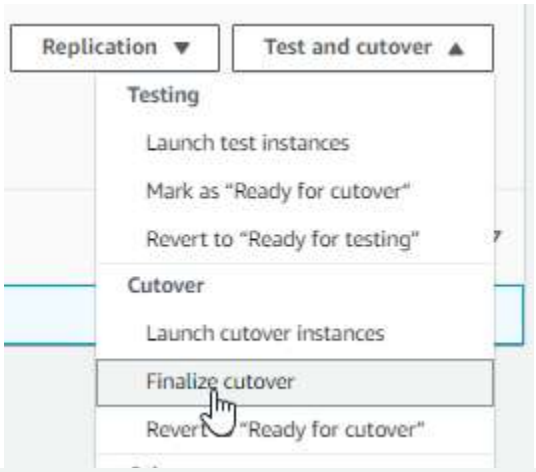


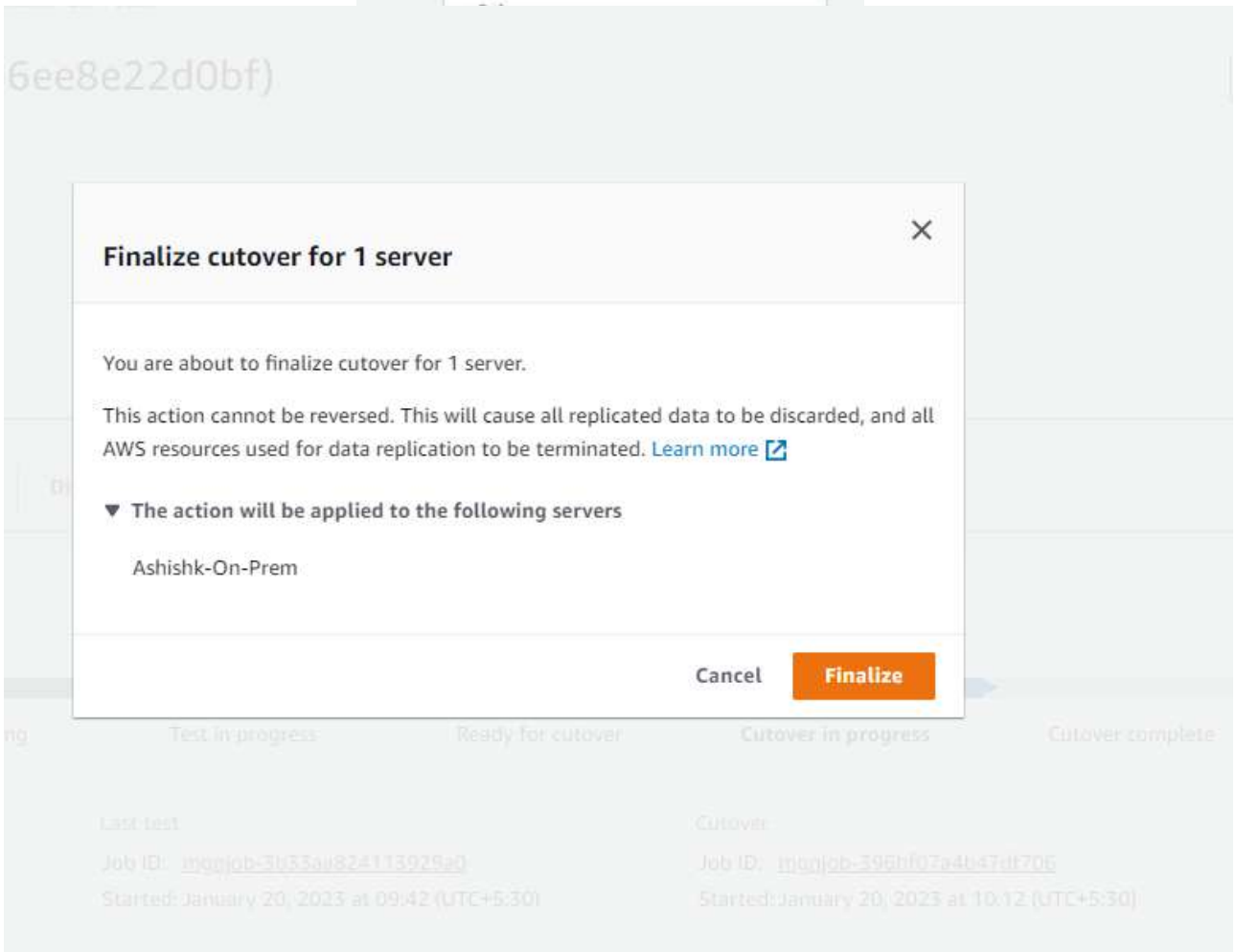


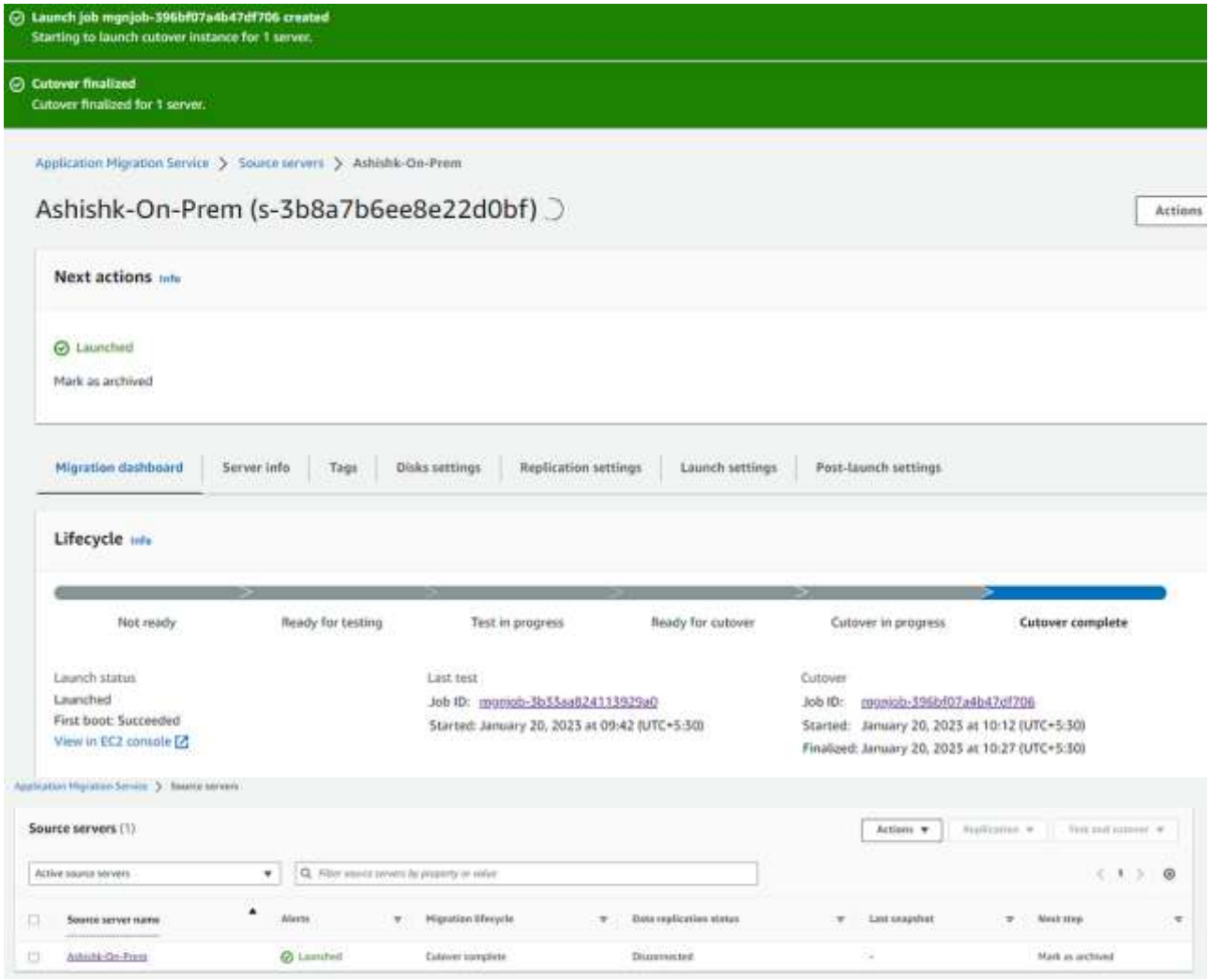


Wait for the cutover instance job to get completed. Now login into the Cutover instance for final validation. Perform your validation and if all looks fine, then move to the next step.

- Click on Finalize Cutover and wait for the job to get completed.

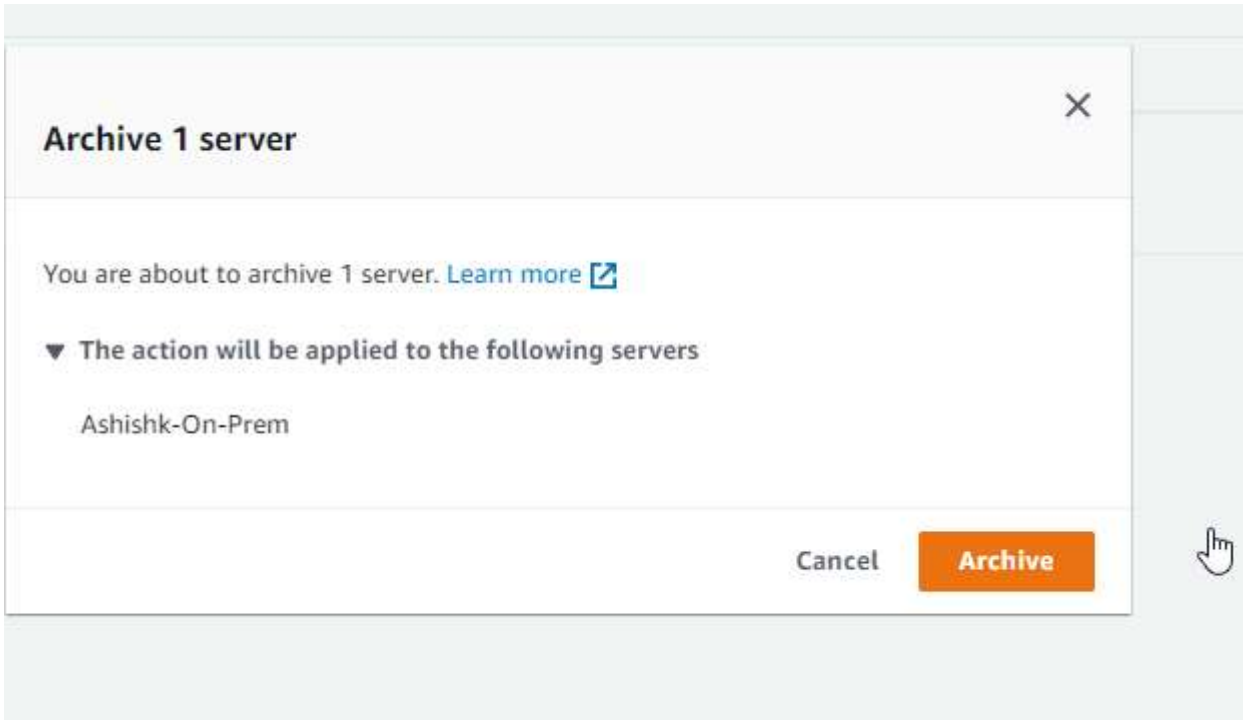

Replication
Test and cutover
Testing
Launch test instances
Mark as "Ready for cutover"
Revert to "Ready for testing"
Cutover
Launch cutover instances
Finalize cutover
Revert to "Ready for cutover"


6ee8e22d0bf)
Finalize cutover for 1 server
You are about to finalize cutover for 1 server.
This action cannot be reversed. This will cause all replicated data to be discarded, and all AWS resources used for data replication to be terminated. Learn more
The action will be applied to the following servers
Ashishk-On-Prem
Cancel
Finalize
Test in progress
Ready for cutover
Cutover in progress
Cutover complete

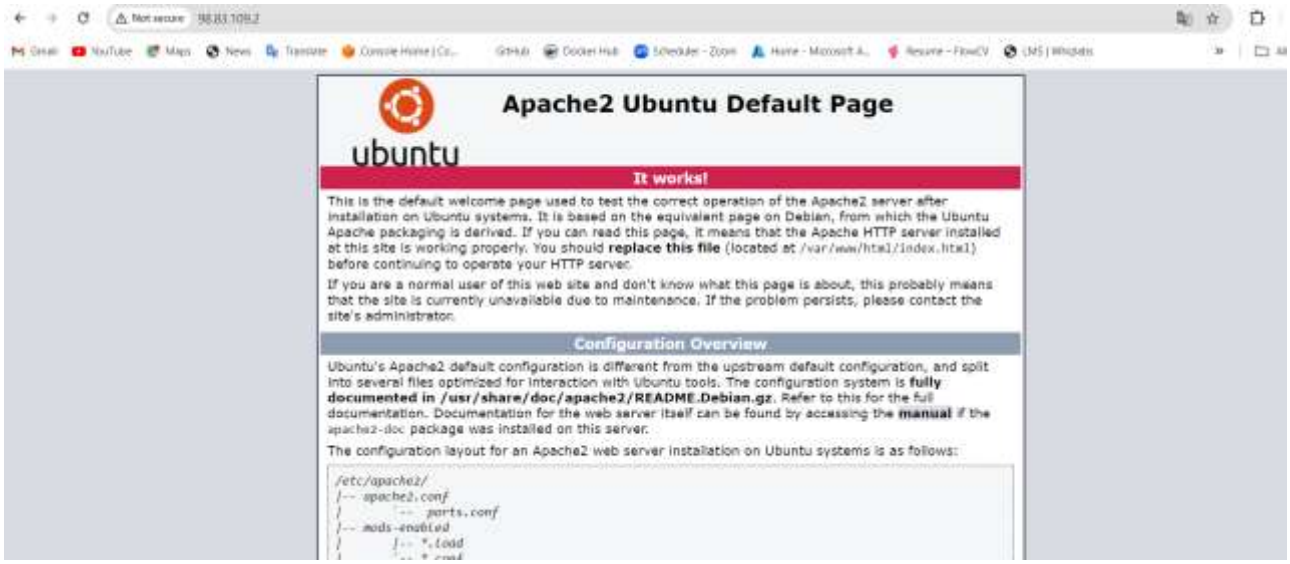


11- Archive Source Server

As our migration has been completed, now we can archive our source server. **Once you archive your server, the AWS Replication Instance will also get terminated as the job has been completed.**



- Aws Application Migration Service Creates a Conversation instance at each lifecycle event. The life of these instances depends on data volume, if you see some instances getting launched and terminated quickly then do not panic.



happy migration