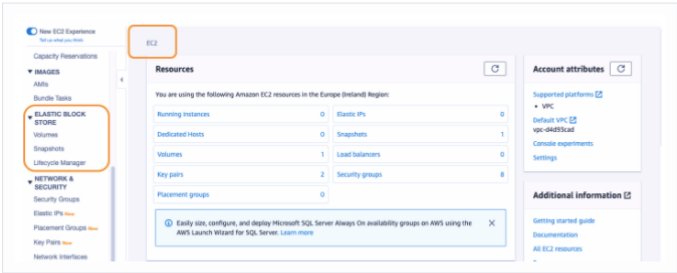
Snapshot

What is Snapshot?

EBS Snapshot

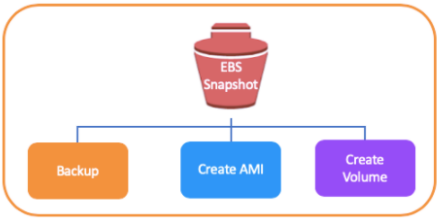
- Snapshot is the name of the method that allows us to take a current copy of an EBS disk. In fact, it is a point-in-time copy of your Amazon EBS volume.
- AWS stores the snapshots in the **S3**. But you can reach snapshots from the AWS Management Console.
- Snapshots option is located just below the Volumes section on the left-hand menu of the EC2 console.



Snapshot

⚠Avoid ! :
- Delete unused Snapshots and Volumes to avoid unwanted charging.

Purpose of Snapshot

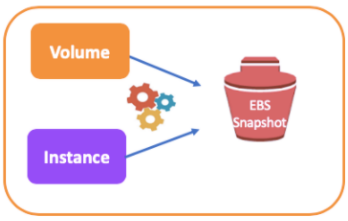


Purpose of Snapshot

We use it for three basic needs:

- First of all, the snapshots are used for the purpose of **Backup** because it allows you to save the current copy of that disk to a location.
- Besides, we can take a snapshot and then **Create AMI**. So we can create a server and make all the settings on it, take a snapshot of it, then create an AMI and make a copy of the same machine.
- Last but not least; We can **Create Volume** from snapshots and connect it to other systems for use.

Options of Creating a Snapshot



Options of Creating a Snapshot

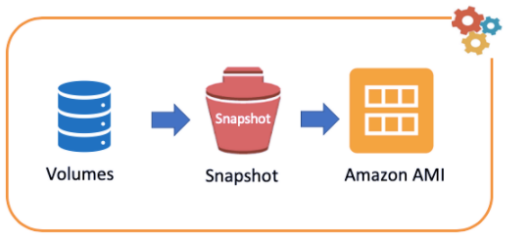
When creating a snapshot, we have 2 options to use as a source . These are **Volume** and **Instance**.

- It's possible to use EBS volume that we created earlier for a virtual machine, or from a root volume assigned to any machine by default to create a snapshot.
- You can also select the instance that you created before to image.

We'll see the example of the volume-based snapshot for now.

⚠Avoid ! :
- The most important thing to do before creating a snapshot is shutting down the related instance.

Creating a Snapshot for a new AMI

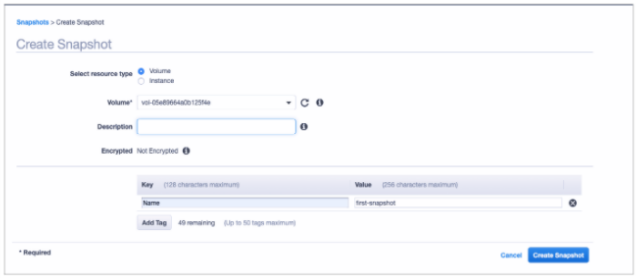


Creating a Snapshot for a new AMI

Now, let's create an AMI by using the volume's snapshot.

So, first, we will take a snapshot of the volume of the Linux system we created before. We will then create a new AMI from this snapshot as shown figure above.

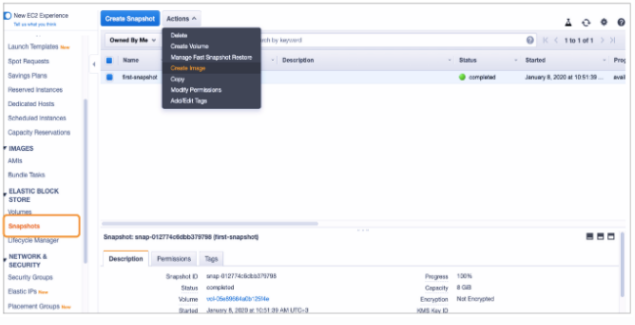
The first thing to do for this is to shut down the virtual machine as we mentioned before. Then go to the **Snapshots Menu** in AWS console and click **Create Snapshot**. You'll see the screen shown below.



Creating a Snapshot Page

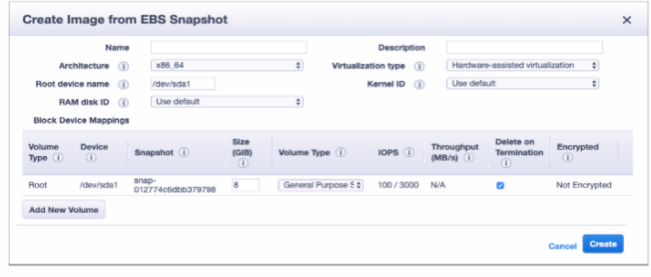
Creating a new AMI

For creating an AMI from a snapshot, first, we select **Create Image** from the Snapshot **Actions** menu.



Snapshot Actions

Then, you'll see this page seen below. Let's customize our AMI.



Create Image From EBS Snapshot Screen

- **Name:**

Let's name the AMI as **BasicAMI**, we will use it for the next lessons also.

- **Architecture:**

The default value is **x86_64**. This is the basic architecture of Intel, all of the processor families that we all use today. So, we select the default.

- **Root Device Name:**

The default value is available for now.

- **RAM Disk ID:**

If you select a specific kernel, you may need to select a specific RAM disk with the drivers to support it. So, for now, leave it as default.

- **Description:**

Let's write **AMI Created First for Linux** as a description

- **Virtualization Type:**

There are two options, Paravirtual, and Hardware-Assisted Virtualization. Paravirtual is no longer available and AWS no longer creates a Paravirtual server. So, let's choose **Hardware-Assisted Virtualization** and go on.

- **Kernel ID:**

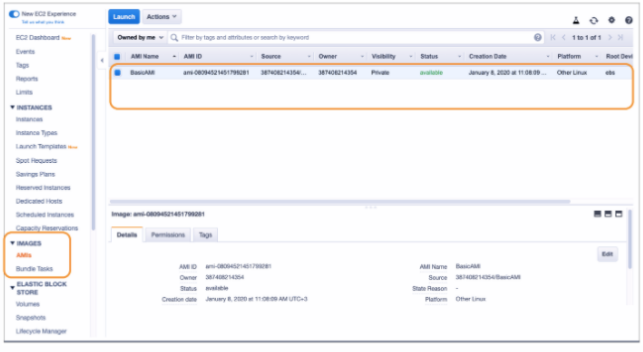
If you're using a snapshot of the root device volume of an instance, you should select the same kernel ID as the original instance. If you're unsure, use the default kernel. So, default is okay for us.

- **Size and Volume Type:**

You can change them if desired. But let's not change them for this example.

Finally, click **Create** and it's done. We have a new AMI derived from a snapshot.

Now, let's go to the AMI's menu from the left-hand side. As you can see in the picture following, we created an AMI Image using the snapshot.



Checking the AMI Created

Creating a New Instance from AMI derived from Snapshot

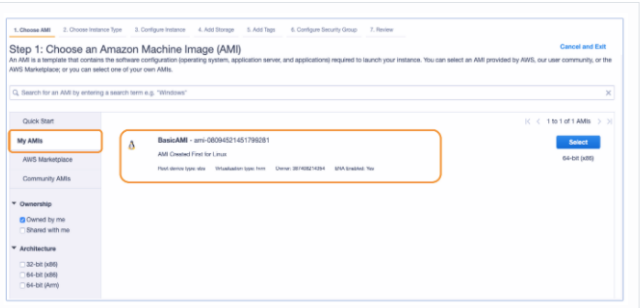
For creating a new instance from AMI, we'll follow almost the same method while creating instances in the previous lesson.

There is only one difference coming out when choosing AMI.

First, go to the Instances tab and click **Launch Instances**.

- **Step 1: Choose an Amazon Machine Image (AMI)**

In the previous lesson, we selected **Quick Start** option on left-hand side as you remember, but this time we'll use **My AMIs** tab and select **BasicAMI** just created by the snapshot.



Step 1: Choose an Amazon Machine Image

- **Step 2: Choose an Instance Type:**

Let's continue with **t2.micro**.

- **Step 3: Configure Instance Details:**

We'll change two values here. First, we will create **1** virtual machine, and then, assign the role of IAM as **ec2-s3-full-access**. We leave all the rest as default.

- **Step 4: Add Storage:**

We can select default and go on.

- **Step 5: Add Tags:**

We determine the tag name as **second_instance** or whatever you want.

- **Step 6: Configure Security Group:**

We can select the existing security group that we created previously. So, let's assign this to the new virtual machine.

And the last step, **Review** the values and click **Launch**. After confirming that you have an existing key, we click **Launch Instance** and that's all.

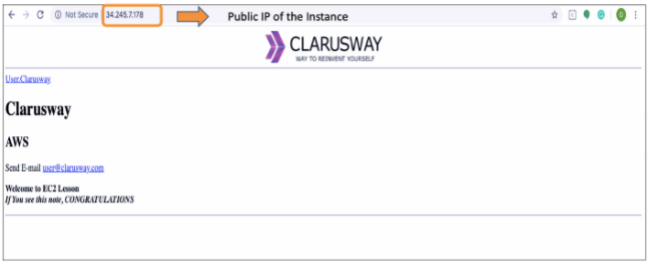
Summary of Creating a New Instance from AMI derived from Snapshot

Creating EC2 Instance

To briefly summarize what we did;

- We took the snapshot of the first machine via default volume,
- Then, we created an AMI from this snapshot,
- The last, we created a new virtual machine from this AMI.

This new virtual machine will be exactly the same as the virtual machine we created before. As you remember, we use it for a website. So, it means, NGINX will be installed and the same website will be found in our new instance. You can check it by copying the Public IP of the new instance and paste it to the browser. You'll see the same website again.



Clarusway Demo Website

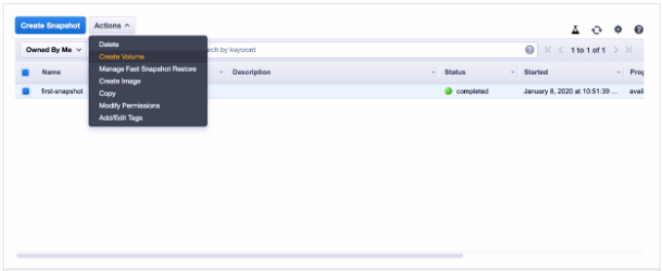
⚠Avoid ! :

- Delete unused Snapshots and Volumes to avoid unwanted charging.

Creating a Volume from Snapshot

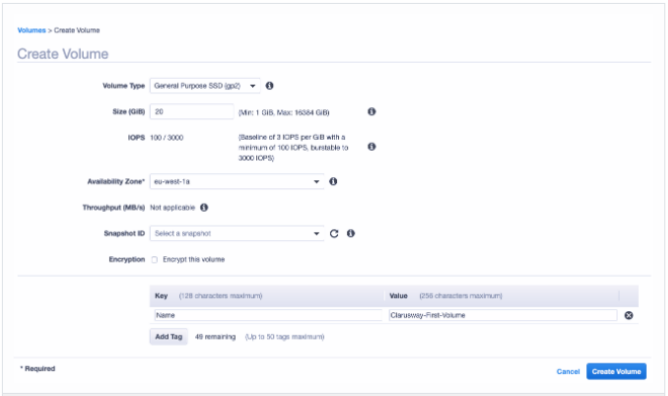
We learned to make a new instance from a snapshot. Now it's time to make volume from a snapshot.

For this: while a related snapshot is checked on the AWS console, we select **Create Volume** on the Actions Menu.



Action Menu

After that, you'll see the page seen below. It's exactly the same as usual creating a volume page.



Creating a Volume Page

- So, we select the volume type first,
- Then, we determine the dimension and AZ(Availability Zone) and Tag, etc.
- Leave the others as default
- Finally, click **Create** and your volume is ready.

⚠Avoid ! :
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Copying a Snapshot (A Way to Encrypt Unencrypted Root Device)

Creating an Encrypted Root Device

We also mentioned before that root device (volume) cannot be encrypted after creation. This is a common question that can be asked in exams.

But, you can encrypt the root device (root volume) which is unencrypted via a **Copied Snapshot**:

- First, create a snapshot of the root device.
- Then copy this snapshot and now you are able to encrypt the created copy snapshot.
- And finally, assign this copied volume to an instance.

So, if you create a volume from the copied snapshot, and assign it to another machine as the root device, then that machine's root device can be encrypted.

⚠Avoid ! :
- Delete unused Snapshots and Volumes to avoid unwanted charging.