

AWS – EC2 and EBS Session

1. Create an EC2 instance (Ubuntu 18.04, T3 nano).(instance A)

The screenshot shows the 'Launch instance wizard' interface in the EC2 Management Console. The user is on Step 1: Choose an Amazon Machine Image (AMI). They have selected the 'SUSE Linux Enterprise Server 15 SP1 (HVM), SSD Volume Type' AMI (ami-0df6cfabfe4385b7). The interface includes tabs for 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, and 7. Review. There are also 'Select' and 'Cancel and Exit' buttons.

Step 1: Choose an Amazon Machine Image (AMI)

SUSE Linux Enterprise Server 15 SP1 (HVM), SSD Volume Type - ami-0df6cfabfe4385b7 (64-bit x86) / ami-0e8325f58b2878f0 (64-bit Arm)

Ubuntu Server 18.04 LTS (HVM), SSD Volume Type - ami-07ebfd5b3428b6f4d (64-bit x86) / ami-0400a1104d5b9caa1 (64-bit Arm)

Amazon RDS

Are you launching a database instance? Try Amazon RDS.

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The screenshot shows the 'Launch instance wizard' interface in the EC2 Management Console. The user is on Step 2: Choose an Instance Type. They have selected the 't2.nano' instance type. The interface includes tabs for 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, and 7. Review. There are also 'Cancel', 'Previous', 'Review and Launch', and 'Next: Configure Instance Details' buttons.

Step 2: Choose an Instance Type

Currently selected: t2.nano (Variable ECUs, 1 vCPUs, 2.4 GHz, Intel Xeon Family, 0.5 GiB memory, EBS only)

Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
General purpose	t2.micro	1	1	EBS only	-	Low to Moderate	Yes
General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes

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Activities Firefox Web Browser Sun 23:58

Launch instance wizard | EC2 Management Console - Mozilla Firefox

Learning | D X Apache Tomcat X BOOTCAMP X Linux Academy X Linux Academy X AWS Account X TTN-Exercise X Launch instance X Amazon Elasti X +

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard

Services Resource Groups EC2 IAM VPC

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 3: Configure Instance Details

Number of instances 1 Launch into Auto Scaling Group

Purchasing option Request Spot instances

Network vpc-d38d68b7 | default (default) Create new VPC

Subnet subnet-06680a5b651f104dc | testpusubnet | us-east-1 Create new subnet 65482 IP Addresses available

Auto-assign Public IP Enable

Placement group Add instance to placement group

Capacity Reservation Open Create new Capacity Reservation

IAM role None Create new IAM role

Shutdown behavior Stop

Cancel Previous Review and Launch Next: Add Storage

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Activities Firefox Web Browser Mon 00:00

Launch instance wizard | EC2 Management Console - Mozilla Firefox

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https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard

Services Resource Groups EC2 IAM VPC

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/sda1	snap-0e078112eedec9db	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

Add New Volume

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

Cancel Previous Review and Launch Next: Add Tags

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Activities Firefox Web Browser ▾ Mon 00:02

Launch instance wizard | EC2 Management Console - Mozilla Firefox

Learning | D X Apache Tom X BOOTCAMP X Linux Acad X Linux Acad X AWS Accoun X TTN-Exercis X Launch insta X Amazon Ela X +

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard

Sales Services Resource Groups EC2 IAM VPC

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.

A copy of a tag can be applied to volumes, instances or both.

Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key	(128 characters maximum)	Value	(256 characters maximum)	Instances	Volumes
owner	Jay Patel			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Purpose	EC2_Exercise-Jay			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Add another tag (Up to 50 tags maximum)

Cancel Previous Review and Launch Next: Configure Security Group

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Activities Firefox Web Browser ▾ Mon 00:03

Launch instance wizard | EC2 Management Console - Mozilla Firefox

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https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard

Sales Services Resource Groups EC2 IAM VPC

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group: Create a new security group Select an existing security group

Security group name: Jayec2demo

Description: Jayec2demo

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	My IP 182.69.239.25/32	e.g. SSH for Admin Desktop

Add Rule

Cancel Previous Review and Launch

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 Jay_Patel	i-06f0234ed6e5c9a16	t2.nano	us-east-1c	 running	 2/2 checks ...	None	 ec2-34-239-124-85.co...	34.239.124.85
---	---------------------	---------	------------	---	--	------	---	---------------

```

Activities Terminator ▾ Mon 00:15
ubuntu@ip-172-31-161-35:~ 144x38
[jay@Jay-Patel:~]$ cd Downloads/
jay@Jay-Patel:Downloads$ ssh -l "jay_patel.pem" ubuntu@ec2-34-239-124-85.compute-1.amazonaws.com
The authenticity of host 'ec2-34-239-124-85.compute-1.amazonaws.com (34.239.124.85)' can't be established.
ECDSA key fingerprint is SHA256:Tssy4UquUMDnISZK/u7emXrs0VX65CTIdLUzWdqb/oQ.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-34-239-124-85.compute-1.amazonaws.com,34.239.124.85' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

 System information as of Sun Feb 23 18:45:24 UTC 2020

 System load: 0.24 Processes: 85
 Usage of /: 13.6% of 7.69GB Users logged in: 0
 Memory usage: 30% IP address for eth0: 172.31.161.35
 Swap usage: 0%

0 packages can be updated.
0 updates are security updates.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-161-35:~$ ls
ubuntu@ip-172-31-161-35:~$ lsblk
NAME  MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
loop0   7:0    0 89.1M  1 loop /snap/core/8268
loop1   7:1    0 19M  1 loop /snap/amazon-ec2-agent/1428

```

2. Create AMI of above instance and launch it. (instance B)

Instances | EC2 Management Console - Mozilla Firefox

Mon 00:22

Learning | D... Apache Tomcat | BOOTCAMP | Linux Academy | Linux Academy | AWS Account | TTN-Exercise | Instances | Amazon Elasti... | Changing the ...

Services ▾ Resource Groups ▾ EC2 IAM VPC

Create Image

Instance ID: i-06f0234ed6e5c9a16

Image name: Jay_patel-instance-A_AMI

Image description: Jay_patel-instance-A_AMI

No reboot:

Instance Volumes

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encrypted
Root	/dev/sda1	snap-0e078112eedeec9db	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

Add New Volume

Total size of EBS Volumes: 8 GiB
When you create an EBS image, an EBS snapshot will also be created for each of the above volumes.

Create Image

Activities Firefox Web Browser ▾ Mon 00:22

Instances | EC2 Management Console - Mozilla Firefox

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Instances | EC2 Management Console - Mozilla Firefox

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances:search=jay%20patel

Services Resource Groups EC2 IAM VPC

New EC2 Experience Tell us what you think

Launch Instance Connect Actions

EC2 Dashboard New

Events

Tags

Reports

Limits

INSTANCES Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts New

Scheduled Instances

Capacity Reservations

IMAGES

Create Image

✓ Create Image request received.

View pending image ami-04df323210bb0f113

Any snapshots backing your new EBS image can be managed on the [snapshots screen](#) after successful image creation.

VPC ID vpc-d38d68b7 (default)

AMI ID ubuntu/images/hvm-ssd/ubuntu-bionic-18.04-amd64-server-2020012 (ami-07ebfd5b3428b6f4d)

Subnet ID subnet-06680a5b651f104dc (testsubnet)

Platform -

Network interfaces eth0

IAM role -

Close

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This screenshot shows the AWS EC2 Management Console. A modal window titled 'Create Image' is open, displaying a green checkmark and the message 'Create Image request received.' It also shows the pending image ID 'ami-04df323210bb0f113'. Below the modal, the main EC2 Instances page is visible, showing various instance configurations like VPC ID, AMI ID, Subnet ID, and Network interfaces. The left sidebar includes sections for Instances, AMIs, and Elastic Block Store.

Activities Firefox Web Browser ▾ Mon 00:23

AMIs | EC2 Management Console - Mozilla Firefox

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AMIs | EC2 Management Console - Mozilla Firefox

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#Images:visibility=owned_by_me

Services Resource Groups EC2 IAM VPC

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Capacity Reservations

IMAGES AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Volumes

Snapshots

Lifecycle Manager

NETWORK & SECURITY

Launch Actions

Owned by me search : jay Patel Add filter

Name	AMI Name	AMI ID	Source	Owner	Visibility	Status	Creation Date
Jay Patel-inst...	ami-04df323210bb0f113	187632318301/J...	187632318301	Private	available	February 24, 2020 at 12:23:23 UTC	

Image: ami-04df323210bb0f113

Details Permissions Tags

AMI ID ami-04df323210bb0f113 Owner 107632318301

AMI Name Jay Patel-instance-A_AMI Source 107632318301/Jay Patel instance A AMI

Edit

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This screenshot shows the AWS EC2 Management Console on the AMIs page. It displays a table of owned AMIs, with one entry for 'Jay Patel-instance-A_AMI' (AMI ID: ami-04df323210bb0f113). Below the table, detailed information for this specific AMI is shown, including its AMI ID, owner, name, and source. The left sidebar lists various AWS services and features.

Activities Firefox Web Browser ▾ Mon 00:26

Launch instance wizard | EC2 Management Console - Mozilla Firefox

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aws Services Resource Groups EC2 IAM VPC

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 7: Review Instance Launch

AMI Details

Jay_patel-instance-A_AMI - ami-04df323210bb0f113

Jay_patel-instance-A_AMI

Root Device Type: ebs Virtualization type: hvm

Instance Type

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.nano	Variable	1	0.5	EBS only	-	Low to Moderate

Security Groups

Security Group ID	Name	Description
sg-0712fdb41febc847c	Jayec2demo	Jayec2demo

All selected security groups inbound rules

Cancel Previous Launch

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Instances | EC2 Management Console - Mozilla Firefox

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aws Services Resource Groups EC2 IAM VPC

New EC2 Experience Tell us what you think

EC2 Dashboard New

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Dedicated Hosts New

Scheduled Instances

Capacity Reservations

IMAGES

Launch Instance Connect Actions

owner : Jay Patel owner : Jay_Patel Add filter

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS
Jay_Patel-Instance-A	i-06f0234ed6e5c9a16	t2.nano	us-east-1c	running	2/2 checks ...	None	ec2-54-152
Jay_patel-Instance-B	i-0857be72004617268	t2.nano	us-east-1c	running	2/2 checks ...	None	ec2-54-152

Instance: i-0857be72004617268 (Jay_patel-Instance-B) Private IP: 172.31.103.127

Description Status Checks Monitoring Tags

Instance ID: i-0857be72004617268	Public DNS (IPv4): -
Instance state: running	IPv4 Public IP: -
Instance type: t2.nano	IPv6 IPs: -
Finding: You may not have permission to access AWS Compute Optimizer.	Elastic IPs: -
Private DNS: ip-172-31-103-127.ec2.internal	Availability zone: us-east-1c

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3. Attach EBS (8 GB) on that running instance.

Activities Firefox Web Browser ▾ Mon 00:45

Create Volume | EC2 Management Console - Mozilla Firefox

Learning | D X Apache Tom X BOOTCAMP X Linux Acad X Linux Acad X AWS Account X TTN-Exercis X Create Volume Instances | E X +

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#CreateVolume:

Services ▾ Resource Groups ▾ EC2 IAM VPC

jay.patel@tothenew.com @ ttn... N. Virginia Support

Volumes > Create Volume

Create Volume

Volume created successfully

Volume ID vol-063641e2671f90f81

Close

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This screenshot shows the AWS EC2 Management Console in a Firefox browser. The user has just created a new EBS volume, which is confirmed by a green message box stating 'Volume created successfully'. The volume's ID is listed as 'vol-063641e2671f90f81'. A 'Close' button is visible in the message box. The main interface shows the 'Create Volume' section with various configuration options like 'Volume Type', 'IOPS', and 'Snapshot'. The left sidebar includes links for Reserved Instances, Dedicated Hosts, Scheduled Instances, Capacity Reservations, AMIs, Bundle Tasks, and Elastic Block Store (Volumes and Snapshots). The bottom navigation bar includes 'Feedback', 'English (US)', and links to 'Privacy Policy' and 'Terms of Use'.

Activities Firefox Web Browser ▾ Mon 00:48

Volumes | EC2 Management Console - Mozilla Firefox

Learning | D X Apache Tom X BOOTCAMP X Linux Acad X Linux Acad X AWS Account X TTN-Exercis X Volumes | E X Instances | E X +

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#Volumes>tag:Owner:Jay_Patel

Services ▾ Resource Groups ▾ EC2 IAM VPC

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Reserved Instances Dedicated Hosts New Scheduled Instances Capacity Reservations

IMAGES AMIs Bundle Tasks

ELASTIC BLOCK STORE Volumes Snapshots Lifecycle Manager

NETWORK & SECURITY Security Groups Elastic IPs New Placement Groups New

Create Volume Actions ▾

Owner : Jay_Patel Add filter

Name Volume ID Size Volume Type IOPS Snapshot Created Availability Zone State

Extra-EBS-j RootEBS-in

Volumes: vol-063641e2671f90f81

Attach

Attach Volume

Volume vol-063641e2671f90f81 (Extra-EBS-jay) in us-east-1c

Instance i-06f0234ed6e5c9a16 in us-east-1c

Device /dev/sdf

Linux Devices: /dev/sdf through /dev/sdp

Note: Newer Linux kernels may rename your devices to /dev/xvdf through /dev/xvdp internally, even when the device name entered here (and shown in the details) is /dev/sdf through /dev/sdp.

IOPS 100 MULTI-Attach Enabled No

Cancel Attach

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This screenshot shows the 'Attach Volume' dialog box in the AWS EC2 Management Console. It is used to attach the previously created volume 'vol-063641e2671f90f81' to an instance 'i-06f0234ed6e5c9a16'. The 'Device' field is set to '/dev/sdf'. A note at the bottom states that newer Linux kernels may rename devices like '/dev/sdf' to '/dev/xvdf'. The dialog has 'Cancel' and 'Attach' buttons. The background shows the main EC2 dashboard with a list of volumes and instances. The left sidebar is identical to the previous screenshot, showing links for Reserved Instances, Dedicated Hosts, Scheduled Instances, Capacity Reservations, AMIs, Bundle Tasks, and Elastic Block Store (Volumes and Snapshots). The bottom navigation bar includes 'Feedback', 'English (US)', and links to 'Privacy Policy' and 'Terms of Use'.

```
ubuntu@ip-172-31-161-35:~$ lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
loop0    7:0    0 89.1M  1 loop /snap/core/8268
loop1    7:1    0 18M  1 loop /snap/amazon-ssm-agent/1480
xvda   202:0    0   8G  0 disk 
└─xvda1 202:1    0   8G  0 part /
xvdf   202:80   0   8G  0 disk
ubuntu@ip-172-31-161-35:~$
```

4. Stop, Start, Restart that EBS (EBS must be auto-attached).

```
Activities Terminator Mon 01:01
ubuntu@ip-172-31-161-35:~$ lsblk
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
loop0 7:0 0 89.1M 1 loop /snap/core/8268
loop1 7:1 0 18M 1 loop /snap/amazon-ssm-agent/1480
xvda 202:0 0 8G 0 disk
└─xvda1 202:1 0 8G 0 part /
xvdf 202:80 0 8G 0 disk

ubuntu@ip-172-31-161-35:~$ sudo mkfs.ext4 -L jay /dev/xvdf
mke2fs 1.44.1 (24-Mar-2018)
Creating filesystem with 2097152 4k blocks and 524288 inodes
Filesystem UUID: be181dbb-48ba-4e30-8d71-57ebc98bc0b
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

ubuntu@ip-172-31-161-35:~$ lsblk
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
loop0 7:0 0 89.1M 1 loop /snap/core/8268
loop1 7:1 0 18M 1 loop /snap/amazon-ssm-agent/1480
xvda 202:0 0 8G 0 disk
└─xvda1 202:1 0 8G 0 part /
xvdf 202:80 0 8G 0 disk

ubuntu@ip-172-31-161-35:~$ sudo vim /etc/fstab
ubuntu@ip-172-31-161-35:~$ mount -a
mount: only root can use "--all" option
ubuntu@ip-172-31-161-35:~$ sudo mount -a
ubuntu@ip-172-31-161-35:~$ lsblk
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
loop0 7:0 0 89.1M 1 loop /snap/core/8268
loop1 7:1 0 18M 1 loop /snap/amazon-ssm-agent/1480
xvda 202:0 0 8G 0 disk
└─xvda1 202:1 0 8G 0 part /
xvdf 202:80 0 8G 0 disk /jay
ubuntu@ip-172-31-161-35:~$
```

```
Activities Terminator ▾ Mon 01:01
ubuntu@ip-172-31-161-35: ~
ubuntu@ip-172-31-161-35: ~ 144x38
LABEL=cloudimg-rootfs / ext4 defaults,discard 0 0
/dev/xvdf /jay ext4 defaults,discard 0 0
"/etc/fstab" 2L, 101C 2,49 All
```

Activities Firefox Web Browser Mon 01:02 Instances | EC2 Management Console - Mozilla Firefox

Learning | D X Apache Tom X BOOTCAMP X Linux Acad X Linux Acad X AWS Accoun X TTN-Exercis X Volumes | Ec X Instances | E X

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances:search=J... jay.patel@tothenew.com @ ttn... N. Virginia Support

aws Services Resource Groups EC2 IAM VPC Actions

Launch Instance Connect Actions

EC2 Dashboard New Events Tags Reports Limits

INSTANCES Instances Instance Types Launch Templates New Spot Requests Savings Plans Reserved Instances Dedicated Hosts New Scheduled Instances Capacity Reservations

IMAGES

Name: Jay_Patel-Instance-A, Jay_Patel-Instance-B

Stop Instances

Are you sure you want to stop these instances?

- i-06f0234ed6e5c9a16 (Jay_Patel-Instance-A)

Note that when your instances are stopped:

- Any data on the ephemeral storage of your instances will be lost.

Cancel Yes, Stop

Instance type	Instance ID	Finding	Private DNS	Private IPs	Availability zone	Security groups
t2.nano	i-06f0234ed6e5c9a16	You may not have permission to access AWS Compute Optimizer.	ip-172-31-161-35.ec2.internal	172.31.161.35	us-east-1c	Jayec2demo. view inbound rules. view outbound rules

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Activities Firefox Web Browser Mon 01:02 Instances | EC2 Management Console - Mozilla Firefox

Learning | D X Apache Tom X BOOTCAMP X Linux Acad X Linux Acad X AWS Accoun X TTN-Exercis X Volumes | Ec X Instances | E X

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances:search=J... jay.patel@tothenew.com @ ttn... N. Virginia Support

aws Services Resource Groups EC2 IAM VPC Actions

Launch Instance Connect Actions

EC2 Dashboard New Events Tags Reports Limits

INSTANCES Instances Instance Types Launch Templates New Spot Requests Savings Plans Reserved Instances Dedicated Hosts New Scheduled Instances Capacity Reservations

IMAGES

Name: Jay_Patel-Instance-A, Jay_Patel-Instance-B

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status
Jay_Patel-Instance-A	i-06f0234ed6e5c9a16	t2.nano	us-east-1c	stopped	None	
Jay_Patel-Instance-B	i-0857be72004617268	t2.nano	us-east-1c	running	2/2 checks ... None	

Instance: i-06f0234ed6e5c9a16 (Jay_Patel-Instance-A) Private IP: 172.31.161.35

Description Status Checks Monitoring Tags

Instance ID	Public DNS (IPv4)	IPv4 Public IP	IPv6 IPs	Elastic IPs
i-06f0234ed6e5c9a16	-	-	-	-
Instance state	stopped			
Instance type	t2.nano			
Finding	You may not have permission to access AWS Compute Optimizer.			
Private DNS	ip-172-31-161-35.ec2.internal			
Private IPs	172.31.161.35			
Secondary private IPs				
Scheduled events				

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The screenshot shows the AWS EC2 Management Console interface. On the left, there's a sidebar with navigation links for Learning, Apache Tomcat, BOOTCAMP, Linux Academy, AWS Account, TTN-Exercises, Volumes, Instances, and Images. The main content area displays the EC2 Dashboard. A modal dialog box is centered over the instance list, prompting the user to confirm starting an instance. The modal title is "Start Instances" and the message asks, "Are you sure you want to start these instances?". It lists the instance ID "i-06f0234ed6e5c9a16" and its name "Jay_Patel-Instance-A". At the bottom of the modal are "Cancel" and "Yes, Start" buttons. In the background, the EC2 dashboard shows two other instances: "Jay Patel-Instance-B" is stopped, and another instance is running with 2/2 checks passed.

```
Activities Terminator ▾ Mon 01:03
ubuntu@ip-172-31-161-35:~ 144x38

xvdf    202:80   0   8G  0 disk /jay
ubuntu@ip-172-31-161-35:~$ mount -a
mount: only root can use "--all" option
ubuntu@ip-172-31-161-35:~$ sudo vim /etc/fstab
ubuntu@ip-172-31-161-35:~$ Connection to ec2-54-152-53-252.compute-1.amazonaws.com closed by remote host.
Connection to ec2-54-152-53-252.compute-1.amazonaws.com closed.
jay@Jay-Patel:Downloads $ ssh -i "jay_patel.pem" ubuntu@ec2-54-173-118-71.compute-1.amazonaws.com
The authenticity of host 'ec2-54-173-118-71.compute-1.amazonaws.com (54.173.118.71)' can't be established.
ECDSA key fingerprint is SHA256:Tsy4UquuM0nISZk/U7emXrsOvxK65CTidLUzWdqB/oQ.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-54-173-118-71.compute-1.amazonaws.com,54.173.118.71' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management:   https://landscape.canonical.com
 * Support:      https://ubuntu.com/advantage

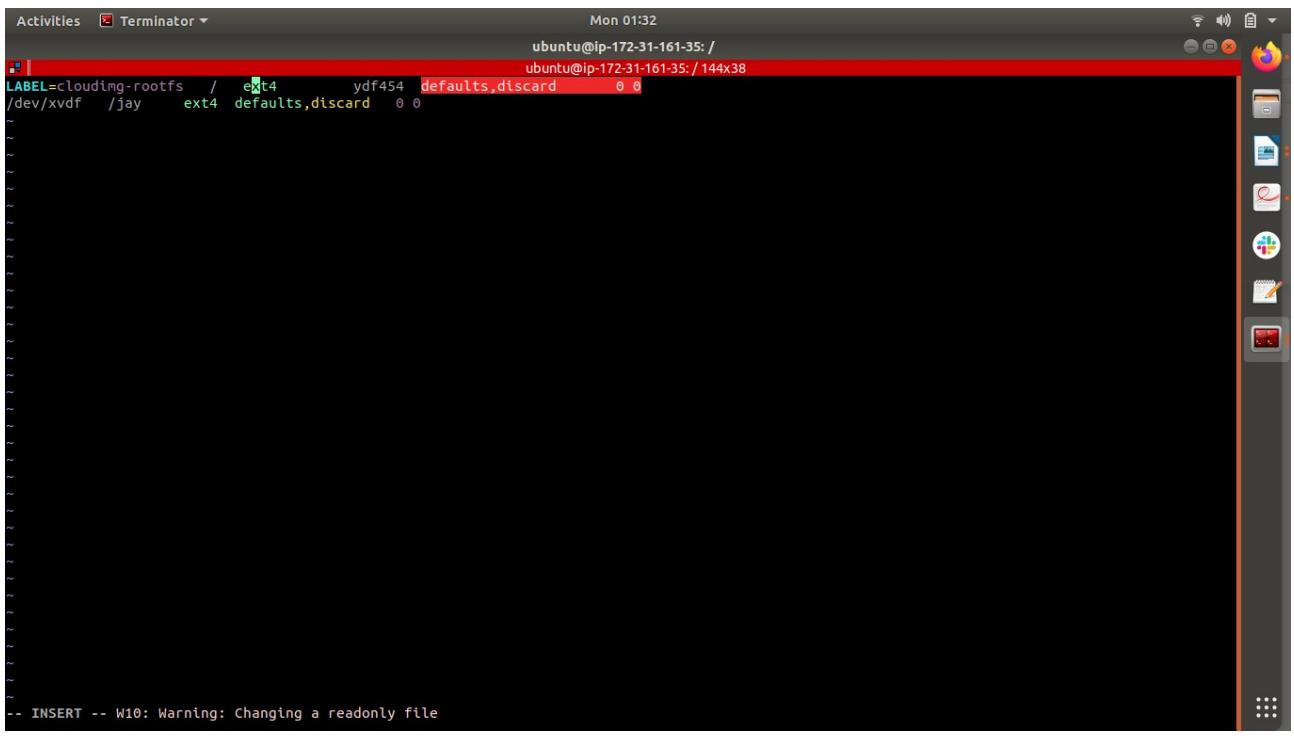
System information as of Sun Feb 23 19:33:33 UTC 2020

System load:  0.55      Processes:         92
Usage of /:   13.8% of 7.69GB   Users logged in:   0
Memory usage: 29%          IP address for eth0: 172.31.161.35
Swap usage:   0%         

0 packages can be updated.
0 updates are security updates.

Last login: Sun Feb 23 19:18:50 2020 from 182.69.239.25
ubuntu@ip-172-31-161-35:~$ lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
loop0    7:0     0  89.1M  1 loop /snap/core/8268
loop1    7:1     0   18M  1 loop /snap/amazon-ssm-agent/1480
xvda   202:0     0   8G  0 disk 
└─xvda1 202:1     0   8G  0 part /
xvdf   202:80    0   8G  0 disk /jay
ubuntu@ip-172-31-161-35:~$ 
```

5. Make some mistake in fstab file, stop and start the instance, then troubleshoot it.



The screenshot shows a Linux desktop environment with a terminal window open in the foreground. The terminal window title is "Terminator". The terminal content shows a portion of the /etc/fstab file with a syntax error:

```
LABEL=cloudimg-rootfs / ext4 ydf454 defaults,discard 0 0
/dev/xvdf /jay ext4 defaults,discard 0 0
```

Below the terminal, a message indicates a warning about changing a readonly file:

```
-- INSERT -- W10: Warning: Changing a readonly file
```

At the bottom of the terminal window, there is a black bar with the following text:

```
ubuntu@ip-172-31-161-35:/$ sudo vim /etc/fstab
sudo: unable to resolve host ip-172-31-161-35: Resource temporarily unavailable
ubuntu@ip-172-31-161-35:/$ █
```

Detach rootfs of instanceA and attach it to instance B and correct fstab entry then vice versa.

Activities Firefox Web Browser ▾ Mon 01:43

Volumes | EC2 Management Console - Mozilla Firefox

Learning | D X Apache Tomcat X BOOTCAMP X Linux Academy X Linux Academy X AWS Account X TTN-Exercise X Volumes | EC2 X Instances | E X +

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#Volumes:search=jay

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▼ NETWORK & SECURITY

Security Groups Elastic IPs New Placement Groups New

Create Volume Actions

search : jay Add filter

Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone	Status
RootEBS-instance-B-jay	vol-0017803...	8 GiB	gp2	100	snap-0c8ad09...	February 24, 2020 ...	us-east-1c	green
Extra-EBS-jay	vol-063641e...	8 GiB	gp2	100		February 24, 2020 ...	us-east-1c	green
RootEBS-Instance-A	vol-0362882...	8 GiB	gp2	100	snap-0e07811...	February 24, 2020 ...	us-east-1c	green

Volumes: vol-0362882525fe88687 (RootEBS-Instance-A)

Description Status Checks Monitoring Tags

Volume ID: vol-0362882525fe88687	Alarm status: None
Size: 8 GiB	Snapshot: snap-0e078112eedec9db
Created: February 24, 2020 at 12:05:15 AM	Availability Zone: us-east-1c

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Activities Terminator ▾ Mon 01:45

ubuntu@ip-172-31-161-35: ~

```
LABEL=cloudimg-rootfs / ext4 defaults,discard 0 0
/dev/xvdf /jay1 ext4 defaults,discard 0 0
```

:wq

6. Resize the EBS from 8 to 10GB

The screenshot shows the AWS EC2 Management Console. In the main pane, there is a table of volumes. One volume, named 'Extra-EBS-jay', has a size of 8 GiB. A modal dialog box titled 'Modify Volume' is open over the table, specifically for this volume. The 'Volume Type' is set to 'General Purpose SSD (gp2)'. The 'Size' field is highlighted and contains the value '10', indicating it is being changed from 8 GiB to 10 GiB. Below the size field, the text '(Min: 1 GiB, Max: 16384 GiB)' is visible. The 'IOPS' section shows '100 / 3000' with the note '(Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS)'. At the bottom of the dialog are 'Cancel' and 'Modify' buttons.

The screenshot shows the AWS EC2 Management Console with the 'Volumes' table. The previously modified volume, 'Extra-EBS-jay', now has a size of 10 GiB, as indicated by the blue selection highlight. The other two volumes in the list remain at 8 GiB: 'RootEBS-instance-B-jay' and 'RootEBS-instance-A'. The table includes columns for Name, Volume ID, Size, Volume Type, IOPS, Snapshot, Created, Availability Zone, and Status.

7. SSH from one instance A to instance B.

The screenshot shows a dual-terminal window on an Ubuntu desktop. The left terminal window is titled "Activities Terminator" and shows the command line for instance A:

```
ubuntu@ip-172-31-41-122:~$ echo instanceA
instanceA
ubuntu@ip-172-31-41-122:~$ sudo ssh -i instance2.pem ubuntu@ec2-35-172-1
33-249.compute-1.amazonaws.com
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

System information as of Sun Feb 23 20:39:11 UTC 2020

System load: 0.0          Processes:      89
Usage of /: 13.8% of 7.69GB  Users logged in:    1
Memory usage: 30%          IP address for eth0: 172.31.41.122
Swap usage:  0%
```

The right terminal window is titled "Mon 02:09" and shows the command line for instance B:

```
ubuntu@ip-172-31-41-122:~$ echo instanceB
instanceB
ubuntu@ip-172-31-41-122:~$
```

8. Copy the EBS in different region(oregon).

The screenshot shows the "Create Snapshot" page in the AWS EC2 Management Console. The URL is <https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#CreateSnapshotFromVolume>.

The form fields are:

- Volume: vol-063641e2671f90f81
- Description: extraebs-jay-sshot
- Encrypted: Not Encrypted
- Tags:
 - Key: owner, Value: Jay_Patel
 - Key: purpose, Value: ec2-exercise-jay

At the bottom, there is a note: "* Required" and a "Create Snapshot" button.

Activities Firefox Web Browser ▾

Mon 02:13

Snapshots | EC2 Management Console - Mozilla Firefox

Learning | Da Apache Tomcat | BOOTCAMP | Linux Acade... | Linux Acade... | AWS Account | TTN-Exercise | Volumes | EC Snapshots Problem load +

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#Snapshots:visibility

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Copy Snapshot

This snapshot, snap-018c74d06ab4ef7d1 (snapshot-jay), will be copied to a new snapshot. Set the new snapshot settings below:

Destination Region: US West (Oregon)

Description: [Copied snap-018c74d06ab4ef7d1 from us-east-1] extraebs-jay

Encryption: Encrypt this snapshot

Cancel Copy

Started: February 24, 2020 at 2:11:15 AM UTC+5:30

Owner: 187632318301

Product codes: -

Description: extraebs-jay-sshoot

KMS Key ID: KMS Key Aliases: KMS Key ARN: Fast Snapshot Restore: -

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9. Detach the root EBS, create its snapshot, than create the AMI and run it as instance such that nginx should be preinstalled at the boot time of instance.

Activities Firefox Web Browser ▾

Mon 02:29

Snapshots | EC2 Management Console - Mozilla Firefox

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https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#Snapshots:visibility

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Owned By Me search : jay Add filter

Name Snapshot ID Size Description Status

InstanceB-jay-snapshot snap-02a887bab8b... 8 GiB instanceB-jay-snapshot completed

snapshot-jay snap-018c74d06ab... 10 GiB extraebs-jay-sshoot completed

Select a snapshot above

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Activities Firefox Web Browser Mon 02:21 AMIs | EC2 Management Console - Mozilla Firefox

Learning | D X Apache Tom X BOOTCAMP X Linux Acad X Linux Acad X AWS Account X TTN-Exercis X AMIs | EC2 M X Volumes | EC X +

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#Images:visibility=owned_by_me

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Launch Actions

Owned by me search : jay Add filter

Name	AMI Name	AMI ID	Source	Owner	Visibility	Status
InstanceB-AMI	Jay-AMI	ami-0b6be63397f70964e	187632318301/J...	187632318301	Private	available
InstanceA-AMI	Jay_patel-instance-A_AMI	ami-04df323210bb0f113	187632318301/J...	187632318301	Private	available

Select an AMI above

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Activities Firefox Web Browser Mon 02:22 Launch instance wizard | EC2 Management Console - Mozilla Firefox

Learning | D X Apache Tom X BOOTCAMP X Linux Acad X Linux Acad X AWS Account X TTN-Exercis X Launch insta X Volumes | EC X +

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 3: Configure Instance Details

File systems Add file system Create new file system

Network interfaces

Device	Network Interface	Subnet	Primary IP	Secondary IP addresses	IPv6 IPs
eth0	New network interface	subnet-06680a15	Auto-assign	Add IP	Add IP

Add Device

Advanced Details

User data As text As file Input is already base64 encoded

```
#!/bin/bash
sudo apt-get install netcat -y
```

Cancel Previous Review and Launch Next: Add Storage

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Activities Firefox Web Browser ▾ Mon 02:23

Launch instance wizard | EC2 Management Console - Mozilla Firefox

Learning | D X Apache Tomcat X BOOTCAMP X Linux Academy X Linux Academy X AWS Account X TTN-Exercise X Launch insta X Volumes | EC2 X +

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 7: Review Instance Launch

⚠ Improve your instances' security. Your security group, Jayec2demo, is open to the world.

Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only. You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

AMI Details Edit AMI

Jay-AMI - ami-0b6be63397f70964e
Jay-AMI

Root Device Type: ebs Virtualization type: hvm

Instance Type Edit instance type

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.nano	Variable	1	0.5	EBS only	-	Low to Moderate

Security Groups Edit security groups

Cancel Previous Launch

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