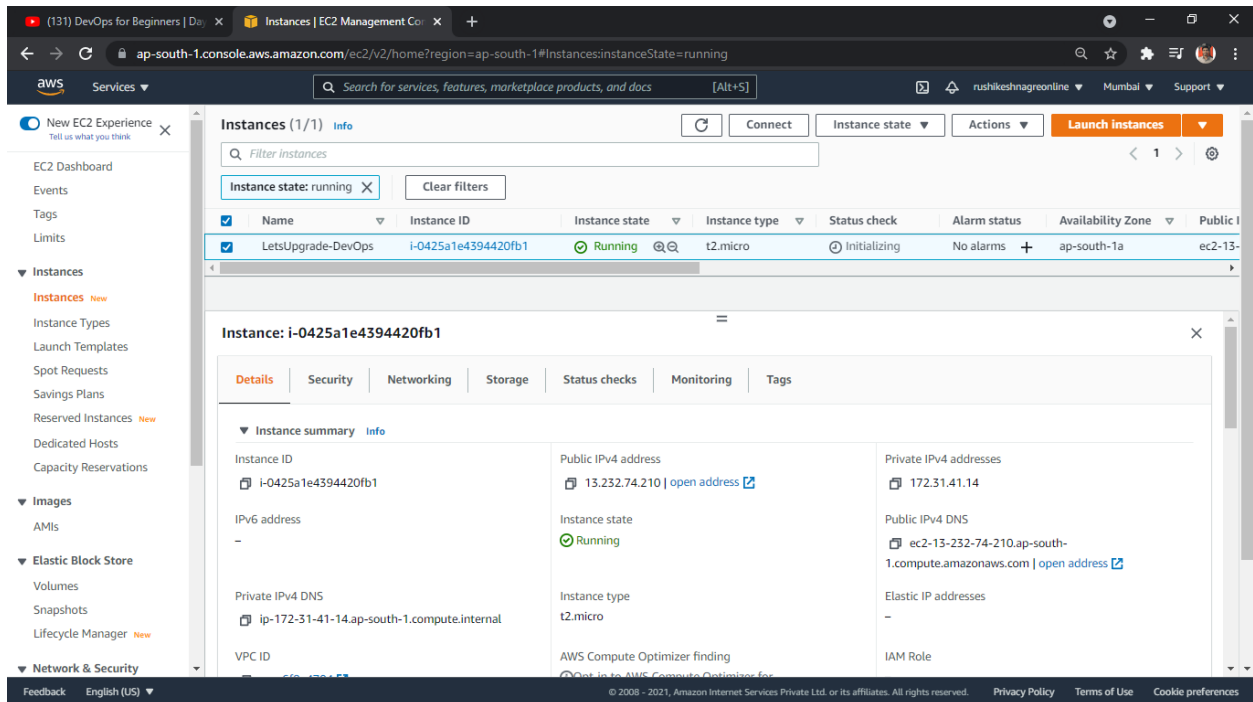


# DevOps Essential Day-2 Assignment

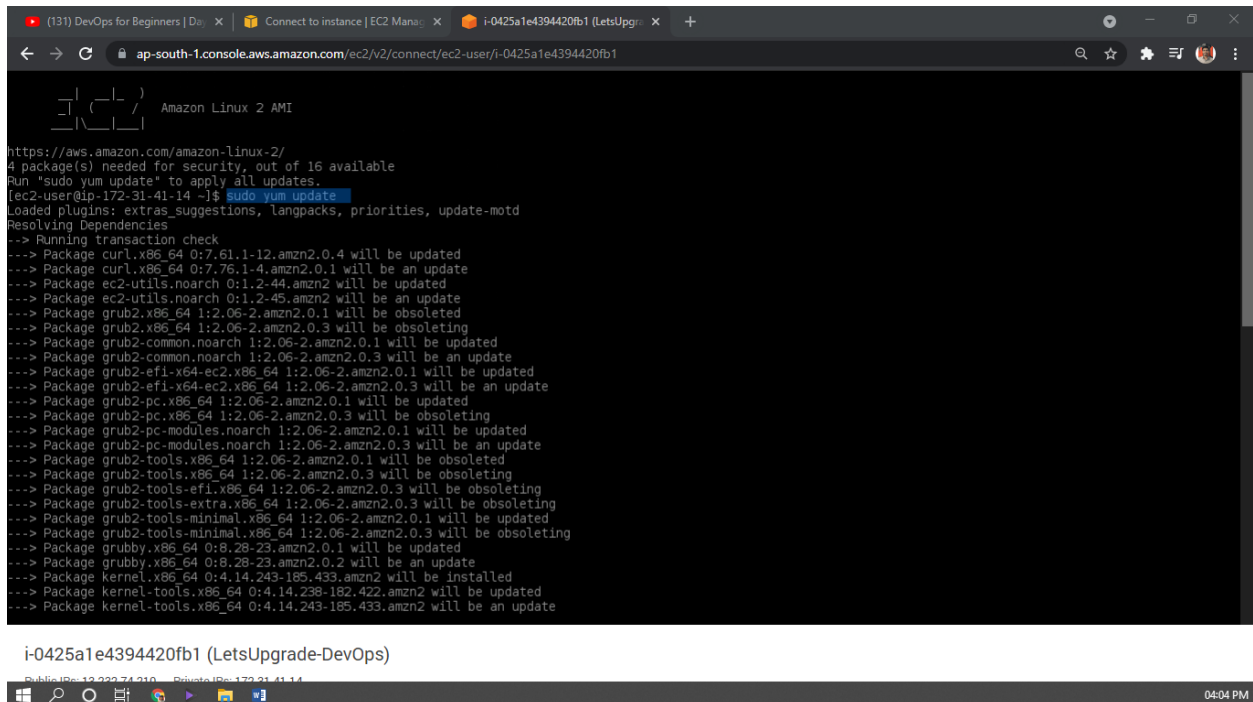


The screenshot shows the AWS Management Console for the 'ap-south-1' region. The 'Instances' page is active, displaying a list of instances. The instance 'LetsUpgrade-DevOps' (ID: i-0425a1e4394420fb1) is in the 'Running' state. The instance details are shown, including its public IPv4 address (13.232.74.210) and private IPv4 address (172.31.41.14).

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
LetsUpgrade-DevOps	i-0425a1e4394420fb1	Running	t2.micro	Initializing	No alarms	ap-south-1a	ec2-13-

**Instance: i-0425a1e4394420fb1**

Details	Security	Networking	Storage	Status checks	Monitoring	Tags
<b>Instance summary</b> Instance ID: i-0425a1e4394420fb1 IPv6 address: - Private IPv4 DNS: ip-172-31-41-14.ap-south-1.compute.internal VPC ID: vpc-6f6c33a7	Public IPv4 address: 13.232.74.210   open address Instance state: Running Instance type: t2.micro AWS Compute Optimizer finding: Opt. in to AWS Compute Optimizer for	Private IPv4 addresses: 172.31.41.14 Public IPv4 DNS: ec2-13-232-74-210.ap-south-1.compute.amazonaws.com   open address Elastic IP addresses: - IAM Role: -				



The screenshot shows a terminal window connected to the instance 'i-0425a1e4394420fb1'. The terminal displays the output of the 'sudo yum update' command, showing a list of packages to be updated, including curl, ec2-utils, grub2, and kernel.

```
Amazon Linux 2 AMI
https://aws.amazon.com/amazon-linux-2/
4 package(s) needed for security, out of 16 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-41-14 ~]$ sudo yum update
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
--> Package curl.x86_64 0:7.61.1-12.amzn2.0.4 will be updated
--> Package curl.x86_64 0:7.61.1-4.amzn2.0.1 will be an update
--> Package ec2-utils.noarch 0:1.2.44.amzn2 will be updated
--> Package ec2-utils.noarch 0:1.2.45.amzn2 will be an update
--> Package grub2.x86_64 1:2.06-2.amzn2.0.1 will be obsoleted
--> Package grub2.x86_64 1:2.06-2.amzn2.0.3 will be obsoleting
--> Package grub2-common.noarch 1:2.06-2.amzn2.0.1 will be updated
--> Package grub2-common.noarch 1:2.06-2.amzn2.0.3 will be an update
--> Package grub2-efi.x64-ec2.x86_64 1:2.06-2.amzn2.0.1 will be updated
--> Package grub2-efi.x64-ec2.x86_64 1:2.06-2.amzn2.0.3 will be an update
--> Package grub2-pc.x86_64 1:2.06-2.amzn2.0.1 will be updated
--> Package grub2-pc.x86_64 1:2.06-2.amzn2.0.3 will be obsoleting
--> Package grub2-pc-modules.noarch 1:2.06-2.amzn2.0.1 will be updated
--> Package grub2-pc-modules.noarch 1:2.06-2.amzn2.0.3 will be an update
--> Package grub2-tools.x86_64 1:2.06-2.amzn2.0.1 will be obsoleted
--> Package grub2-tools.x86_64 1:2.06-2.amzn2.0.3 will be obsoleting
--> Package grub2-tools-efi.x86_64 1:2.06-2.amzn2.0.3 will be obsoleting
--> Package grub2-tools-extra.x86_64 1:2.06-2.amzn2.0.3 will be obsoleting
--> Package grub2-tools-minimal.x86_64 1:2.06-2.amzn2.0.1 will be updated
--> Package grub2-tools-minimal.x86_64 1:2.06-2.amzn2.0.3 will be obsoleting
--> Package grubby.x86_64 0:8.28-23.amzn2.0.1 will be updated
--> Package grubby.x86_64 0:8.28-23.amzn2.0.2 will be an update
--> Package kernel.x86_64 0:4.14.243-185.433.amzn2 will be installed
--> Package kernel-tools.x86_64 0:4.14.238-182.422.amzn2 will be updated
--> Package kernel-tools.x86_64 0:4.14.243-185.433.amzn2 will be an update
```

(131) DevOps for Beginners | DevOps | Connect to instance | EC2 Manag... | i-0425a1e4394420fb1 (LetsUpgr... | +

ap-south-1.console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0425a1e4394420fb1

Updated:  
curl.x86\_64 0:7.76.1-4.amzn2.0.1 ec2-utils.noarch 0:1.2.45.amzn2 grub2-common.noarch 1:2.06-2.amzn2.0.3 grub2-efi-x64-ec2.x86\_64 1:2.06-2.amzn2.0.3  
grub2-pc-modules.noarch 1:2.06-2.amzn2.0.3 grubby.x86\_64 0:8.28-23.amzn2.0.2 kernel-tools.x86\_64 0:4.14.243-185.433.amzn2 libcurl.x86\_64 0:7.76.1-4.amzn2.0.1  
systemtap-runtime.x86\_64 0:4.4-1.amzn2.0.2

Replaced:  
grub2.x86\_64 1:2.06-2.amzn2.0.1 grub2-tools.x86\_64 1:2.06-2.amzn2.0.1

Complete!  
[ec2-user@ip-172-31-41-14 ~]\$ sudo yum install docker  
Loaded plugins: extras\_suggestions, langpacks, priorities, update-motd  
Resolving Dependencies  
--> Running transaction check  
--> Package docker.x86\_64 0:20.10.4-1.amzn2 will be installed  
--> Processing Dependency: runc >= 1.0.0 for package: docker-20.10.4-1.amzn2.x86\_64  
--> Processing Dependency: libcgrou >= 0.40.rc1-5.15 for package: docker-20.10.4-1.amzn2.x86\_64  
--> Processing Dependency: containerd >= 1.3.2 for package: docker-20.10.4-1.amzn2.x86\_64  
--> Processing Dependency: pigz for package: docker-20.10.4-1.amzn2.x86\_64  
--> Running transaction check  
--> Package containerd.x86\_64 0:1.4.6-2.amzn2 will be installed  
--> Package libcgrou.x86\_64 0:0.41-21.amzn2 will be installed  
--> Package pigz.x86\_64 0:2.3.4-1.amzn2.0.1 will be installed  
--> Package runc.x86\_64 0:1.0.0-1.amzn2 will be installed  
--> Finished Dependency Resolution

Dependencies Resolved

Package	Arch	Version	Repository	Size
Installing: docker	x86_64	20.10.4-1.amzn2	amzn2extra-docker	32 M
Installing for dependencies:				
containerd	x86_64	1.4.6-2.amzn2	amzn2extra-docker	24 M
libcgrou	x86_64	0.41-21.amzn2	amzn2-core	66 k
pigz	x86_64	2.3.4-1.amzn2.0.1	amzn2-core	81 k

i-0425a1e4394420fb1 (LetsUpgrade-DevOps)

Public IPs: 13.232.74.210 Private IPs: 172.31.41.14

(131) DevOps for Beginners | DevOps | Connect to instance | EC2 Manag... | i-0425a1e4394420fb1 (LetsUpgr... | +

ap-south-1.console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0425a1e4394420fb1

Complete!  
[ec2-user@ip-172-31-41-14 ~]\$ docker

Usage: docker [OPTIONS] COMMAND

A self-sufficient runtime for containers

Options:

--config string Location of client config files (default "/home/ec2-user/.docker")  
-c, --context string Name of the context to use to connect to the daemon (overrides DOCKER\_HOST env var and default context set with "docker context use")  
-D, --debug Enable debug mode  
-H, --host list Daemon socket(s) to connect to  
-l, --log-level string Set the logging level ("debug"|"info"|"warn"|"error"|"fatal") (default "info")  
--tls Use TLS; implied by --tlsverify  
--tlscacert string Trust certs signed only by this CA (default "/home/ec2-user/.docker/ca.pem")  
--tlscert string Path to TLS certificate file (default "/home/ec2-user/.docker/cert.pem")  
--tlskey string Path to TLS key file (default "/home/ec2-user/.docker/key.pem")  
--tlsverify Use TLS and verify the remote  
-v, --version Print version information and quit

Management Commands:

builder Manage builds  
config Manage Docker configs  
container Manage containers  
context Manage contexts  
image Manage images  
manifest Manage Docker image manifests and manifest lists  
network Manage networks  
node Manage Swarm nodes  
plugin Manage plugins  
secret Manage Docker secrets  
service Manage services  
stack Manage Docker stacks  
swarm Manage Swarm  
system Manage Docker  
trust Manage trust on Docker images

i-0425a1e4394420fb1 (LetsUpgrade-DevOps)

Public IPs: 13.232.74.210 Private IPs: 172.31.41.14

```
(131) DevOps for Beginners | DevOps | Connect to instance | EC2 Manag... i-0425a1e4394420fb1 (LetsUpgr... +
ap-south-1.console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0425a1e4394420fb1
images List images
import Import the contents from a tarball to create a filesystem image
info Display system-wide information
inspect Return low-level information on Docker objects
kill Kill one or more running containers
load Load an image from a tar archive or STDIN
login Log in to a Docker registry
logout Log out from a Docker registry
logs Fetch the logs of a container
pause Pause all processes within one or more containers
port List port mappings or a specific mapping for the container
ps List containers
pull Pull an image or a repository from a registry
push Push an image or a repository to a registry
rename Rename a container
restart Restart one or more containers
rm Remove one or more containers
rmi Remove one or more images
run Run a command in a new container
save Save one or more images to a tar archive (streamed to STDOUT by default)
search Search the Docker Hub for images
start Start one or more stopped containers
stats Display a live stream of container(s) resource usage statistics
stop Stop one or more running containers
tag Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE
top Display the running processes of a container
unpause Unpause all processes within one or more containers
update Update configuration of one or more containers
version Show the Docker version information
wait Block until one or more containers stop, then print their exit codes

Run 'docker COMMAND --help' for more information on a command.

To get more help with docker, check out our guides at https://docs.docker.com/go/guides/
[ec2-user@ip-172-31-41-14 ~]$ docker --version
Docker version 20.10.4, build d3cb89e
[ec2-user@ip-172-31-41-14 ~]$
```

i-0425a1e4394420fb1 (LetsUpgrade-DevOps)

Public IPs: 13.232.74.210 Private IPs: 172.31.41.14

```
(131) DevOps for Beginners | DevOps | Connect to instance | EC2 Manag... i-0425a1e4394420fb1 (LetsUpgr... +
ap-south-1.console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0425a1e4394420fb1
[ec2-user@ip-172-31-41-14 ~]$ sudo service docker start
Redirecting to /bin/systemctl start docker.service
[ec2-user@ip-172-31-41-14 ~]$
```

i-0425a1e4394420fb1 (LetsUpgrade-DevOps)

Public IPs: 13.232.74.210 Private IPs: 172.31.41.14

```
(131) DevOps for Beginners | Do... X  Connect to instance | EC2 Manag... X  i-0425a1e4394420fb1 (LetsUpgr... X  +
ap-south-1.console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0425a1e4394420fb1

[ec2-user@ip-172-31-41-14 ~]$ sudo service docker start
Redirecting to /bin/systemctl start docker.service
[ec2-user@ip-172-31-41-14 ~]$ sudo service docker status
Redirecting to /bin/systemctl status docker.service
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; vendor preset: disabled)
   Active: active (running) since Wed 2021-08-18 10:44:42 UTC; 5min ago
     Docs: https://docs.docker.com
   Process: 8008 ExecStartPre=/usr/libexec/docker/docker-setup-runtimes.sh (code=exited, status=0/SUCCESS)
   Process: 7998 ExecStartPre=/bin/mkdir -p /run/docker (code=exited, status=0/SUCCESS)
  Main PID: 8015 (dockerd)
    Tasks: 7
   Memory: 37.8M
   CGroup: /system.slice/docker.service
           └─8015 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock --default-ulimit nofile=1024:4096

Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.375054733Z" level=info msg="scheme \"unix\" not registered...le=grpc
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.375361022Z" level=info msg="ccResolverWrapper: sending up...le=grpc
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.375646678Z" level=info msg="clientConn switching balancer...le=grpc
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.426963945Z" level=info msg="Loading containers: start."
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.577194362Z" level=info msg="Default bridge (docker0) is a...ddress"
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.629759373Z" level=info msg="Loading containers: done."
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.647113729Z" level=info msg="Docker daemon" commit=363e9a8...20.10.4
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.647597343Z" level=info msg="Daemon has completed initialization"
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal systemd[1]: Started Docker Application Container Engine.
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.671854778Z" level=info msg="API listen on /run/docker.sock"
Hint: Some lines were ellipsized, use -l to show in full.
[ec2-user@ip-172-31-41-14 ~]$
```

i-0425a1e4394420fb1 (LetsUpgrade-DevOps)

Public IPs: 13.232.74.210 Private IPs: 172.31.41.14

```
(131) DevOps for Beginners | Do... X  Connect to instance | EC2 Manag... X  i-0425a1e4394420fb1 (LetsUpgr... X  +
ap-south-1.console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0425a1e4394420fb1

[ec2-user@ip-172-31-41-14 ~]$ sudo service docker stop
Redirecting to /bin/systemctl stop docker.service
Warning: Stopping docker.service, but it can still be activated by:
         docker.socket
[ec2-user@ip-172-31-41-14 ~]$ sudo service docker status
Redirecting to /bin/systemctl status docker.service
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; vendor preset: disabled)
   Active: inactive (dead) since Wed 2021-08-18 10:50:35 UTC; 11s ago
     Docs: https://docs.docker.com
   Process: 8015 ExecStartPre=/usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock $OPTIONS $DOCKER_STORAGE_OPTIONS $DOCKER_ADD_RUNTIMES (code=exited, sta
tus=0/SUCCESS)
   Process: 8008 ExecStartPre=/usr/libexec/docker/docker-setup-runtimes.sh (code=exited, status=0/SUCCESS)
   Process: 7998 ExecStartPre=/bin/mkdir -p /run/docker (code=exited, status=0/SUCCESS)
  Main PID: 8015 (code=exited, status=0/SUCCESS)

Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.577194362Z" level=info msg="Default bridge (docker0) is a...ddress"
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.629759373Z" level=info msg="Loading containers: done."
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.647113729Z" level=info msg="Docker daemon" commit=363e9a8...20.10.4
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.647597343Z" level=info msg="Daemon has completed initialization"
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal systemd[1]: Started Docker Application Container Engine.
Aug 18 10:44:42 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:44:42.671854778Z" level=info msg="API listen on /run/docker.sock"
Aug 18 10:50:35 ip-172-31-41-14.ap-south-1.compute.internal systemd[1]: Stopping Docker Application Container Engine...
Aug 18 10:50:35 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:50:35.059490120Z" level=info msg="Processing signal 'terminated'"
Aug 18 10:50:35 ip-172-31-41-14.ap-south-1.compute.internal dockerd[8015]: time="2021-08-18T10:50:35.060119098Z" level=info msg="Daemon shutdown complete"
Aug 18 10:50:35 ip-172-31-41-14.ap-south-1.compute.internal systemd[1]: Stopped Docker Application Container Engine.
Hint: Some lines were ellipsized, use -l to show in full.
[ec2-user@ip-172-31-41-14 ~]$
```

i-0425a1e4394420fb1 (LetsUpgrade-DevOps)

Public IPs: 13.232.74.210 Private IPs: 172.31.41.14

```
(131) DevOps for Beginners | DevOps | Connect to instance | EC2 Manag... i-0425a1e4394420fb1 (LetsUpgr... +
ap-south-1.console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0425a1e4394420fb1

[ec2-user@ip-172-31-41-14 ~]$ sudo docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
b8dfde127a29: Pull complete
Digest: sha256:0fe98d7debd9049c50b597ef1f85b7c1e8cc81f59c8d623fcb2250e8bec85b38
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
   (amd64)
3. The Docker daemon created a new container from that image which runs the
   executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
   to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/

[ec2-user@ip-172-31-41-14 ~]$
```

i-0425a1e4394420fb1 (LetsUpgrade-DevOps)

Public IPs: 13.232.74.210 Private IPs: 172.31.41.14

```
(131) DevOps for Beginners | DevOps | Connect to instance | EC2 Manag... i-0425a1e4394420fb1 (LetsUpgr... +
ap-south-1.console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0425a1e4394420fb1

[ec2-user@ip-172-31-41-14 ~]$ sudo docker run -it ubuntu bash
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
16ec32c2132b: Pull complete
Digest: sha256:82becede498899ec668628e7cb0ad87b6e1c371cb8a1e597d83a47fac21d6af3
Status: Downloaded newer image for ubuntu:latest
oot@55ca0515f484: /root@55ca0515f484:/# ls
bin boot dev etc home lib lib32 lib64 libx32 media mnt opt proc root run sbin srv sys tmp usr var
oot@55ca0515f484: /root@55ca0515f484:/#
```

i-0425a1e4394420fb1 (LetsUpgrade-DevOps)

Public IPs: 13.232.74.210 Private IPs: 172.31.41.14

## Working with Docker Volumes

```
[ec2-user@ip-172-31-41-14 ~]$ sudo docker volume create
f386b2386743c8d7635ceaf00d5658115b02c91bffc13ac74049dfedd1b61c81
[ec2-user@ip-172-31-41-14 ~]$
```

```
[ec2-user@ip-172-31-41-14 ~]$ sudo docker volume inspect c9f6f8aca2db19a016ae017a9906ae859082a2dc666f373cf3919116ec7fc279
[
  {
    "CreatedAt": "2021-08-18T10:59:25Z",
    "Driver": "local",
    "Labels": {},
    "Mountpoint": "/var/lib/docker/volumes/c9f6f8aca2db19a016ae017a9906ae859082a2dc666f373cf3919116ec7fc279/_data",
    "Name": "c9f6f8aca2db19a016ae017a9906ae859082a2dc666f373cf3919116ec7fc279",
    "Options": {},
    "Scope": "local"
  }
]
[ec2-user@ip-172-31-41-14 ~]$
```

```
[ec2-user@ip-172-31-41-14 ~]$ sudo docker volume ls
DRIVER      VOLUME NAME
local       c9f6f8aca2db19a016ae017a9906ae859082a2dc666f373cf3919116ec7fc279
local       f386b2386743c8d7635ceaf00d5658115b02c91bffc13ac74049dfedd1b61c81
[ec2-user@ip-172-31-41-14 ~]$ sudo docker volume rm c9f6f8aca2db19a016ae017a9906ae859082a2dc666f373cf3919116ec7fc279
c9f6f8aca2db19a016ae017a9906ae859082a2dc666f373cf3919116ec7fc279
[ec2-user@ip-172-31-41-14 ~]$ sudo docker volume ls
DRIVER      VOLUME NAME
local       f386b2386743c8d7635ceaf00d5658115b02c91bffc13ac74049dfedd1b61c81
[ec2-user@ip-172-31-41-14 ~]$ sudo docker volume rm f386b2386743c8d7635ceaf00d5658115b02c91bffc13ac74049dfedd1b61c81
f386b2386743c8d7635ceaf00d5658115b02c91bffc13ac74049dfedd1b61c81
[ec2-user@ip-172-31-41-14 ~]$
```

```
(131) DevOps for Beginners | DevOps | Connect to instance | EC2 Manag... i-0425a1e4394420fb1 (LetsUpgr...
ap-south-1.console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0425a1e4394420fb1
[ec2-user@ip-172-31-41-14 ~]$ sudo service docker stop
Redirecting to /bin/systemctl stop docker.service
Warning: Stopping docker.service, but it can still be activated by:
  docker.socket
[ec2-user@ip-172-31-41-14 ~]$
```

i-0425a1e4394420fb1 (LetsUpgrade-DevOps)

Public IPs: 13.232.74.210 Private IPs: 172.31.41.14