

GIT:-

Run an instance and connect it to the terminal.

Then get the root access by giving command

>> sudo su

>>yum install git -y (Install git)

```
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023

[ec2-user@ip-172-31-40-77 ~]$ sudo su
[root@ip-172-31-40-77 ec2-user]# yum install git
Last metadata expiration check: 0:04:30 ago on Sun Apr 7 06:30:26 2024.
Dependencies resolved.
=====
Package                               Architecture      Version            Repository          Size
-----
Installing:
git                                   x86_64            2.40.1-1.amzn2023.0.1  amazonlinux        57 k
Installing dependencies:
git-core                             x86_64            2.40.1-1.amzn2023.0.1  amazonlinux        4.3 M
git-core-doc                         noarch            2.40.1-1.amzn2023.0.1  amazonlinux        2.6 M
perl-Error                           noarch            1:0.17029-5.amzn2023.0.2  amazonlinux        41 k
perl-File-Find                       noarch            1:37-477.amzn2023.0.6    amazonlinux        26 k
perl-Git                             noarch            2.40.1-1.amzn2023.0.1  amazonlinux        45 k
perl-TermReadKey                     x86_64            2.38-9.amzn2023.0.2     amazonlinux        36 k
perl-lib                             x86_64            0.65-477.amzn2023.0.6    amazonlinux        15 k
Transaction Summary
-----
Install 8 Packages
Total download size: 7.1 M
Installed size: 34 M
Is this ok [y/N]: y
Downloading Packages:
(1/8): git-2.40.1-1.amzn2023.0.1.x86_64.rpm                                817 kb/s | 57 kb  00:00
(2/8): perl-Error-0.17029-5.amzn2023.0.2.noarch.rpm                       2.4 MB/s | 41 kb  00:00
(3/8): perl-File-Find-1.37-477.amzn2023.0.6.noarch.rpm                     963 kb/s | 26 kb  00:00
(4/8): git-core-2.40.1-1.amzn2023.0.1.x86_64.rpm                          25 MB/s | 4.3 MB  00:00

i-01edc7be49c9bad8a (GIT)
PublicPc: 3.93.12.141 PrivatePc: 172.31.40.77
```

After installing git make a folder

>>mkdir folder-name

>>ls (for checking folder created or not)

>>cd folder-name (to enter inside folder)

Create a file just for demonstrating as a developer file

>>touch file-name

>>git init (to make the normal repository -> local repository)

```
git-2.40.1-1.amzn2023.0.1.x86_64      git-core-2.40.1-1.amzn2023.0.1.noarch      perl-Error-1:0.17029-5.amzn2023.0.2.noarch
perl-File-Find-1.37-477.amzn2023.0.6.noarch      perl-Git-2.40.1-1.amzn2023.0.1.noarch      perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64      perl-lib-0.65-477.amzn2023.0.6.x86_64

Complete!
[root@ip-172-31-40-77 ec2-user]# mkdir git-folder
[root@ip-172-31-40-77 ec2-user]# ls
git-folder
[root@ip-172-31-40-77 ec2-user]# cd git-folder/
[root@ip-172-31-40-77 git-folder]# touch file1
[root@ip-172-31-40-77 git-folder]# git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /home/ec2-user/git-folder/.git/
[root@ip-172-31-40-77 git-folder]# git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    file1

nothing added to commit but untracked files present (use "git add" to track)
[root@ip-172-31-40-77 git-folder]# git add file1
[root@ip-172-31-40-77 git-folder]# git commit -m "empty file"
[master (root-commit) bec3b3c] empty file
Committer: root <root@ip-172-31-40-77.ec2.internal>
Your name and email address were configured automatically based
on your username and host name. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

i-01edc7be49c9bad8a (GIT)
PublicPc: 3.93.12.141 PrivatePc: 172.31.40.77
```

>>git add .

>> git commit -m "status/comments"

Now have to connect the github account

>> git remote add origin *github-repository-link*

>>git remote -v (check the github connection)

```
root@ip-172-31-40-77:~# git remote add origin https://github.com/HimanshuSolankey/temp.git
root@ip-172-31-40-77:~# git remote -v
error: unknown subcommand: 'iv'
usage: git remote [-v] [--verbose]
or: git remote add [-t <branch>] [-m <master>] [-f] [--tags | --no-tags] [--mirror=<fetch|push>] <name> <url>
or: git remote rename [--[no-]progress] <old> <new>
or: git remote remove <name>
or: git remote set-head <name> (-a | --auto | -d | --delete | <branch>)
or: git remote [-v] [--verbose] show [-n] <name>
or: git remote prune [-n | --dry-run] <name>
or: git remote [-v | --verbose] update [-p | --prune] [(<group> | <remote>)...]
or: git remote set-branches [--add] <name> <branch>...
or: git remote get-url [--push] [--all] <name>
or: git remote set-url [--push] <name> <newurl> [<oldurl>]
or: git remote set-url --add <name> <newurl>
or: git remote set-url --delete <name> <url>

-v, --verbose    be verbose; must be placed before a subcommand

root@ip-172-31-40-77:~# git remote iv
error: unknown subcommand: 'iv'
usage: git remote [-v] [--verbose]
or: git remote add [-t <branch>] [-m <master>] [-f] [--tags | --no-tags] [--mirror=<fetch|push>] <name> <url>
or: git remote rename [--[no-]progress] <old> <new>
or: git remote remove <name>
or: git remote set-head <name> (-a | --auto | -d | --delete | <branch>)
or: git remote [-v] [--verbose] show [-n] <name>
or: git remote prune [-n | --dry-run] <name>
or: git remote [-v | --verbose] update [-p | --prune] [(<group> | <remote>)...]
or: git remote set-branches [--add] <name> <branch>...
or: git remote get-url [--push] [--all] <name>
or: git remote set-url [--push] <name> <newurl> [<oldurl>]
or: git remote set-url --add <name> <newurl>
or: git remote set-url --delete <name> <url>

-v, --verbose    be verbose; must be placed before a subcommand

root@ip-172-31-40-77:~# git remote -v
origin https://github.com/HimanshuSolankey/temp.git (fetch)
origin https://github.com/HimanshuSolankey/temp.git (push)

i-01edc7be49c9bad8a (GIT)
PublicPc: 3.93.12.141 PrivatePc: 172.31.40.77
```

Now we have to just push the file into repository.

>>git push origin master (master is the branch-name)

Check the github we have our newly created file successfully pushed into the github.

Now make some changes in the file in github itself. Now we have to try to pull the updated file to our system.

>>git pull origin master

>>cat file

Create other branch instead of master branch

>>git branch (to check the current or list the branch names)

>>git branch branch-name (to create new branch)

>>git checkout branch-name(to change the branch)

>> git add .

```
i-01edc7be49c9bad8a (GIT)
PublicPc: 3.93.12.141 PrivatePc: 172.31.40.77

origin https://github.com/HimanshuBolankey/temp.git (push)
[root@ip-172-31-40-77 git-folder]# git push origin master
Username for 'https://github.com': HimanshuBolankey
Password for 'https://HimanshuBolankey@github.com':
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Writing objects: 100% (3/3), 212 bytes | 212.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/HimanshuBolankey/temp.git
 * [new branch]      master -> master
[root@ip-172-31-40-77 git-folder]# ls
file1
[root@ip-172-31-40-77 git-folder]# cat file1
file1
[root@ip-172-31-40-77 git-folder]# git pull origin master
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 311 bytes | 311.00 KiB/s, done.
From https://github.com/HimanshuBolankey/temp
 * branch            master       -> FETCH_HEAD
   bcc3c3c..2f9ec04  master       -> origin/master
Updating bcc3c3c..2f9ec04
Fast-forward
 file1 | 1
       1 file changed, 1 insertion(+)
[root@ip-172-31-40-77 git-folder]# ls
file1
[root@ip-172-31-40-77 git-folder]# cat file1
print("Hello WORLD")
[root@ip-172-31-40-77 git-folder]# git branch
* master
[root@ip-172-31-40-77 git-folder]# git branch new-branch
* new-branch
[root@ip-172-31-40-77 git-folder]# git checkout new-branch
Switched to branch 'new-branch'
[root@ip-172-31-40-77 git-folder]# ls
file1
[root@ip-172-31-40-77 git-folder]# add .

i-01edc7be49c9bad8a (GIT)
PublicPc: 3.93.12.141 PrivatePc: 172.31.40.77
```

>> touch file2

>> git add .

>>git commit –m ‘status/comments’

```
bash: add: command not found
[root@ip-172-31-40-77 git-folder]# git add .
[root@ip-172-31-40-77 git-folder]# touch file2
[root@ip-172-31-40-77 git-folder]# ls
file1 file2
[root@ip-172-31-40-77 git-folder]# git commit -m "from new branch"
On branch new-branch
Untracked files:
  (use "git add <file>..." to include in what will be committed)
   file2

nothing added to commit but untracked files present (use "git add" to track)
[root@ip-172-31-40-77 git-folder]# git add .
[root@ip-172-31-40-77 git-folder]# git commit -m "from new branch"
[new-branch 30fc95c] from new branch
Committer: root <root@ip-172-31-40-77.ec2.internal>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 file2
[root@ip-172-31-40-77 git-folder]# git status
On branch new-branch
nothing to commit, working tree clean
[root@ip-172-31-40-77 git-folder]# ls
file1 file2
[root@ip-172-31-40-77 git-folder]# git checkout master
Switched to branch 'master'
[root@ip-172-31-40-77 git-folder]# ls
file1
[root@ip-172-31-40-77 git-folder]#

i-01edc7be49c9bad8a (GIT)
PublicPc: 3.93.12.141 PrivatePc: 172.31.40.77
```

DOCKER

1. Docker Engine :-

Docker Engine is an open source containerization technology for building and containerizing your applications.

2. Dockerfile

A Dockerfile is a script with instructions on how to make a Docker image. In these instructions, you can find information about the operating system, languages, environment variables, file locations, network ports, and other details needed to run the image.

3. Docker Image:-

Docker image is the building block for containers which contains libraries, tools, dependencies, and additional files to run an application.

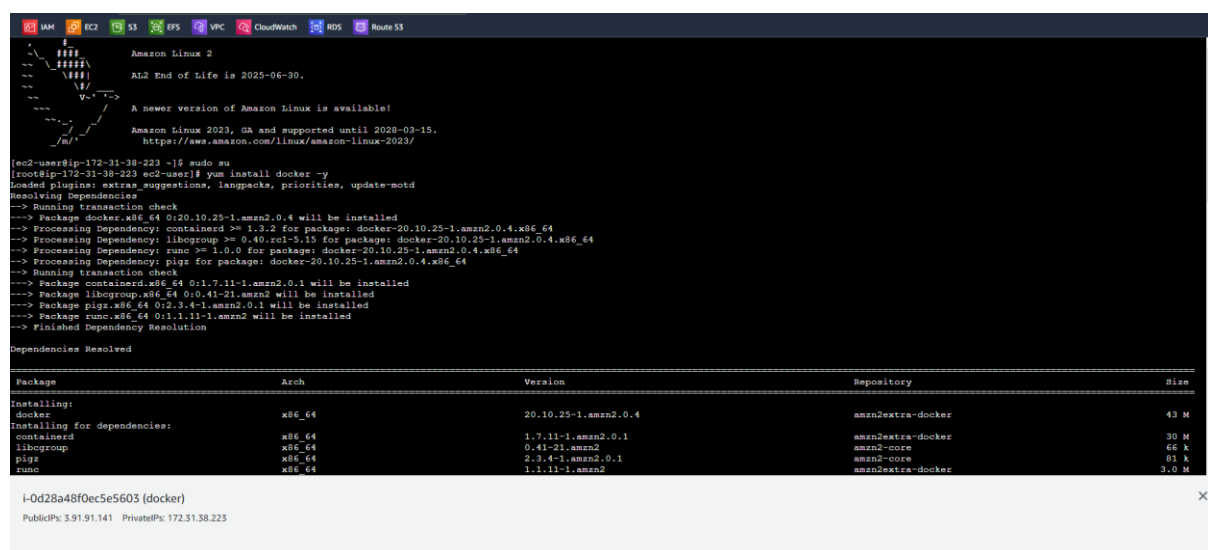
4. Docker containers :-

The active, operational instances of Docker images are known as containers. Docker images are read-only files, whereas containers contain executable, transient content.

Connect instance through shell or open terminal.

```
>>sudo su
```

```
>>yum install docker -y
```



```
Amazon Linux 2
AL2 End of Life is 2025-06-30.

A newer version of Amazon Linux is available!
Amazon Linux 2023, GA and supported until 2028-03-15.
https://aws.amazon.com/linux/amazon-linux-2023/

[ec2-user@ip-172-31-38-223 ~]$ sudo su
[root@ip-172-31-38-223 ec2-user]# yum install docker -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
--> Package docker.x86_64 0:20.10.25-1.amzn2.0.4 will be installed
--> Processing Dependency: containerd >= 1.2.2 for package: docker-20.10.25-1.amzn2.0.4.x86_64
--> Processing Dependency: libgroup >= 0.40.rc1-5.15 for package: docker-20.10.25-1.amzn2.0.4.x86_64
--> Processing Dependency: runc >= 1.0.0 for package: docker-20.10.25-1.amzn2.0.4.x86_64
--> Processing Dependency: pigz for package: docker-20.10.25-1.amzn2.0.4.x86_64
--> Running transaction check
--> Package containerd.x86_64 0:1.7.11-1.amzn2.0.1 will be installed
--> Package libgroup.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 0:1.1.11-1.amzn2 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====================================================================================================================================
Package                                Arch                                Version                                Repository                                Size
=====================================================================================================================================
Installing:
docker                                x86_64                                20.10.25-1.amzn2.0.4                    amzn2extra-docker                        43 M
Installing for dependencies:
containerd                            x86_64                                1.7.11-1.amzn2.0.1                    amzn2extra-docker                        30 M
libgroup                              x86_64                                0.41-21.amzn2                          amzn2-core                              66 k
pigz                                  x86_64                                2.3.4-1.amzn2.0.1                     amzn2-core                              81 k
runc                                   x86_64                                1.1.11-1.amzn2                         amzn2extra-docker                       3.0 M
=====================================================================================================================================

i-0d28a48f0ec5e5603 (docker)
PublicIPs: 3.91.91.141 PrivateIPs: 172.31.38.223
```

>>systemctl start docker

>>docker run -it - -name himanshu Ubuntu /bin/bash

>>exit

```
libnftnl-1.0.1-19.amzn2023.0.2.x86_64 libnftnl-1.2.2-2.amzn2023.0.2.x86_64
pigz-2.5-1.amzn2023.0.3.x86_64 runc-1.1.11-1.amzn2023.0.1.x86_64

Complete!
[root@ip-172-31-27-166 ec2-user]# systemctl start docker
[root@ip-172-31-27-166 ec2-user]# systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; preset: disabled)
   Active: active (running) since Mon 2024-04-08 09:12:28 UTC; 8s ago
   TriggeredBy: ● docker.socket
     Docs: https://docs.docker.com
    Process: 25058 ExecStartPre=/bin/mkdir -p /run/docker (code=exited, status=0/SUCCESS)
    Process: 25076 ExecStartPre=/usr/libexec/docker/docker-setup-runtimes.sh (code=exited, status=0/SUCCESS)
   Main PID: 25081 (dockerd)
      Tasks: 8
     Memory: 32.4M
        CPU: 322ms
    CGroup: /system.slice/docker.service
            └─25081 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock --debug

Apr 08 09:12:27 ip-172-31-27-166.ec2.internal systemd[1]: Starting docker.service - Docker Application Container Engine:
Apr 08 09:12:27 ip-172-31-27-166.ec2.internal dockerd[25081]: time="2024-04-08T09:12:27.8136040Z" level=info msg="Starting
Apr 08 09:12:27 ip-172-31-27-166.ec2.internal dockerd[25081]: time="2024-04-08T09:12:27.8908543Z" level=info msg="API server
Apr 08 09:12:28 ip-172-31-27-166.ec2.internal dockerd[25081]: time="2024-04-08T09:12:28.4304185Z" level=info msg="API server
Apr 08 09:12:28 ip-172-31-27-166.ec2.internal dockerd[25081]: time="2024-04-08T09:12:28.4671030Z" level=info msg="API server
Apr 08 09:12:28 ip-172-31-27-166.ec2.internal dockerd[25081]: time="2024-04-08T09:12:28.4672195Z" level=info msg="API server
Apr 08 09:12:28 ip-172-31-27-166.ec2.internal dockerd[25081]: time="2024-04-08T09:12:28.5401030Z" level=info msg="API server
Apr 08 09:12:28 ip-172-31-27-166.ec2.internal systemd[1]: Started docker.service - Docker Application Container Engine:
lines 1-22/22 (END)

[root@ip-172-31-27-166 ec2-user]# docker run --it --name himanshu ubuntu /bin/bash
unknown flag: --it
See 'docker run --help'.
[root@ip-172-31-27-166 ec2-user]# docker run -it --name himanshu ubuntu /bin/bash
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
b0cd10f490ab: Pull complete
Digest: sha256:77906da86b60585ce12215807090eb327e7386c8fafb5402369e421f44eff17e
Status: Downloaded newer image for ubuntu:latest
root@6edc23edeca5:/#
```

>>docker ps -a

>>docker images

```
[root@ip-172-31-27-166 ec2-user]# docker run --it --name himanshu ubuntu /bin/bash
unknown flag: --it
See 'docker run --help'.
[root@ip-172-31-27-166 ec2-user]# docker run -it --name himanshu ubuntu /bin/bash
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
b0cd10f490ab: Pull complete
Digest: sha256:77906da86b60585ce12215807090eb327e7386c8fafb5402369e421f44eff17e
Status: Downloaded newer image for ubuntu:latest
root@6edc23edeca5:/# docker ps -a
bash: docker: command not found
root@6edc23edeca5:/# docker show
bash: docker: command not found
root@6edc23edeca5:/# docker images
bash: docker: command not found
root@6edc23edeca5:/# docker images^C
root@6edc23edeca5:/# docker images
bash: docker: command not found
root@6edc23edeca5:/# ^C
root@6edc23edeca5:/# ^C
root@6edc23edeca5:/# exit
exit
[root@ip-172-31-27-166 ec2-user]# docker images
REPOSITORY    TAG       IMAGE ID      CREATED        SIZE
ubuntu        latest    ca2b0f26964c  5 weeks ago   77.9MB
[root@ip-172-31-27-166 ec2-user]# docker ps -a
CONTAINER ID   IMAGE      COMMAND                  STATUS              PORTS              NAMES
6edc23edeca5   ubuntu    "/bin/bash"            About a minute ago  Exited (130) 13 seconds ago
[root@ip-172-31-27-166 ec2-user]# docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS      PORTS      NAMES
[root@ip-172-31-27-166 ec2-user]#
```

```
root@4357df180dff:/# exit
exit
[root@ip-172-31-38-223 ec2-user]# docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
[root@ip-172-31-38-223 ec2-user]# docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
4357df180dff   ubuntu   "/bin/bash"   About a minute ago   Exited (0) 10 seconds ago           himanshu
[root@ip-172-31-38-223 ec2-user]# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
ubuntu        latest   ca2b0ef26964a   5 weeks ago   77.9MB
[root@ip-172-31-38-223 ec2-user]#
```

i-Od28a48f0ec5e5603 (docker)

PublicIPs: 3.91.91.141 PrivateIPs: 172.31.38.223