Step 1: Configure NFS

The first step in configuring your DevOps tooling website solution is to set up and configure the NFS server. This will allow your website to access shared files and resources from multiple servers.

Step 2: Configure Database

The next step is to configure your database for your DevOps tooling website solution. This will involve setting up a database server and creating a database for your website to use.

Step 3: Install DevOps Tooling Website Solution

Now that you have configured your NFS server and database, you can install your DevOps tooling website solution. This will involve downloading and configuring the necessary software packages, and setting up your website's configuration files.

Step 4: Test Your Website

Once you have installed your DevOps tooling website solution, you can test it to make sure everything is working properly. You can do this by accessing your website through a web browser and verifying that all of the functionality is working as expected.

In this project you will implement a solution that consists of following components, we will be creating 3 web servers, 1 nfs server and ! database server.

1. **Infrastructure**: AWS
2. **Webserver Linux**: Red Hat Enterprise Linux 8
3. **Database Server**: Ubuntu 20.04 + MySQL
4. **Storage Server**: Red Hat Enterprise Linux 8 + NFS Server
5. **Programming Language**: PHP

PREPARE NFS SERVER

1. Spin up a new EC2 instance with RHEL Linux 8 Operating System.
2. Configure Logical Volume Management on the NFS Server, Instead of formating the disks as ext4 you will have to format them as xfs, Ensure there are 3 Logical Volumes. lv-opt, lv-apps, and lv-logs. Start by creating 3 EBS Volume on AWS and attach it to your NFS Server.

3. Check if your EBS volume has been attached by using this command lsblk .
4. Create a single partition on each of the 3 EBS volume using this command sudo gdisk /dev/xvdf , sudo gdisk /dev/xvdg , sudo gdisk /dev/xvdh
5. Then once you are in the partion console type “n” for new partition , the partition number “1’ then enter, enter, 8300 , then confirm what you have configured by entering “p” , once confirmed then enter “w” to save and then “y” TO PROCEED.
6. Check if your partition was done by using this command lsblk
7. Install Logical volume management using this command sudo yum install lvm2 -y
8. To check for available partition run sudo lvmdiskscan.
9. Create a Physical Volume using this command sudo pvcreate /dev/xvdf1 , sudo pvcreate /dev/xvdg1 , sudo pvcreate /dev/xvdh1
10. Check if the Physical Volume has been created run this command sudo pvs
11. Create a Volume Group and convert all the Physical Volume created into a Volume Group run this command sudo vgcreate nfs-vg /dev/xvdf1 /dev/xvdg1 /dev/xvdh1
12. Check if it has been created using this command sudo vgs
13. Create a Logical Volume using this command and specifying the amount of gig you want to use sudo lvcreate -n lv-apps -L 9G nfs-vg , sudo lvcreate -n lv-logs -L 9G nfs-vg , sudo lvcreate -n lv-opt -L 9G nfs-vg .
14. Check to see the Logical Volume created run sudo lvs
15. Format the disk as xfs using this command sudo mkfs -t xfs /dev/nfs-vg/lv-apps , sudo mkfs -t xfs /dev/nfs-vg/lv-logs , sudo mkfs -t xfs /dev/nfs-vg/lv-opt.
16. Create mount points on /mnt directory for the Logical Volumes, Mount lv-apps on /mnt/apps – To be used by webservers
    Mount lv-logs on /mnt/logs – To be used by webserver logs
    Mount lv-opt on /mnt/opt – To be used by Jenkins server run this command sudo mkdir /mnt/apps , sudo mkdir /mnt/logs , sudo mkdir /mnt/opt.
17. Now mount it, take note mounting replaces everything on the other end so make sure you backup if you have important files in there. sudo mount /dev/nfs-vg/lv-apps /mnt/apps , sudo mount /dev/nfs-vg/lv-logs /mnt/logs , sudo mount /dev/nfs-vg/lv-opt /mnt/opt.
18. Install NFS server, configure it to start on reboot and make sure it is up and running

```
sudo yum -y update
sudo yum install nfs-utils -y
sudo systemctl start nfs-server.service
sudo systemctl enable nfs-server.service
sudo systemctl status nfs-server.service
```

Export the mounts for webservers’ subnet cidr to connect as clients. For simplicity, you will install your all three Web Servers inside the same subnet, but in

production set up you would probably want to separate each tier inside its own subnet for higher level of security.
To check your subnet cidr – open your EC2 details in AWS web console and locate 'Networking' tab and open a Subnet link:

19. Set up permission that will allow our Web servers to read, write and execute files on NFS:

```
sudo chown -R nobody: /mnt/apps
sudo chown -R nobody: /mnt/logs
sudo chown -R nobody: /mnt/opt

sudo chmod -R 777 /mnt/apps
sudo chmod -R 777 /mnt/logs
sudo chmod -R 777 /mnt/opt

sudo systemctl restart nfs-server.service
```

20. Configure access to NFS for clients within the same subnet (example of Subnet CIDR – 172.31.32.0/20) `sudo vi /etc/exports`

```
/mnt/apps <web
serverSubnet-CIDR>(rw,sync,no_all_squash,no_root_squash)
/mnt/logs
<webserverSubnet-CIDR>(rw,sync,no_all_squash,no_root_squash)
/mnt/opt
<webserverSubnet-CIDR>(rw,sync,no_all_squash,no_root_squash)

sudo exportfs -arv
```

21. Check which port is used by NFS and open it using Security Groups (add new Inbound Rule) `rpcinfo -p | grep nfs`

    Important note: In order for NFS server to be accessible from your client, you must also open following ports: TCP 111, UDP 111, UDP 2049

STEP 2 — CONFIGURE THE DATABASE SERVER

1. Update your server and install mysql server run this command sudo apt update -y , sudo apt install mysql-server -y
2. Enter the mysql console lets start configuring run sudo mysql
3. Create a database and name it tooling use create database tooling;
4. Create a database user and name it webaccess use create user ‘webaccess’@’subnet ip’ identified by ‘password’;
   Get the subnet by going to networking on aws and go the subnet id and get the ip address
5. Grant permission to webaccess user on tooling database to do anything only from the webservers subnet cidr use grant all privileges on tooling.* to ‘webaccess’@’webserversubnet ip’ ;
6. Now makes all your setups take effect use flush privileges;

STEP 3 — PREPARE THE WEBSERVERS.

1. Install NFS client run this command `sudo yum install nfs-utils nfs4-acl-tools -y`
2. Mount /var/www/ and target the NFS server’s export for apps `sudo mkdir /var/www  sudo mount -t nfs -o rw,nosuid <NFS-Server-Private-IP-Address>:/mnt/apps /var/www`
3. Confirm your nfs server has been mounted run df -h
   If successful, anything done on /var/www webserver will appear on /mnt/apps nfs server
4. Make sure that the changes will persist on Web Server after reboot: `sudo vi /etc/fstab`
   Add
   `<NFS-Server-Private-IP-Address>:/mnt/apps /var/www nfs defaults 0 0`
5. Install Remi’s repository, Apache and PHP
   `sudo yum install httpd -y`

   `sudo dnf install https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm`

   `sudo dnf install dnf-utils http://rpms.remirepo.net/enterprise/remi-release-8.rpm`

```
sudo dnf module reset php

sudo dnf module enable php:remi-7.4

sudo dnf install php php-opcache php-gd php-curl php-mysqlnd

sudo systemctl start php-fpm

sudo systemctl enable php-fpm

setsebool -P httpd_execmem 1
```

Repeat steps 1-5 for another 2 Web Servers.

6. Verify that Apache files and directories are available on the Web Server in /var/www and also on the NFS server in /mnt/apps. If you see the same files – it means NFS is mounted correctly. You can try to create a new file touch test.txt from one server and check if the same file is accessible from other Web Servers.
7. Locate the log folder for Apache on the Web Server and mount it to NFS server's export for logs. Repeat step №4 to make sure the mount point will persist after reboot. Httpd is the folder for apache and it can be found on /var/log/httpd. So `sudo mount -t nfs -o rw,nosuid <NFS-Server-Private-IP-Address>:/mnt/logs /var/log/httpd`

8. `sudo vi /etc/fstab`
   Add
   `<NFS-Server-Private-IP-Address>:/mnt/logs /var/log/httpd nfs defaults 0 0`

   Fork the tooling source code from Darey.io Github Account to your Github account. (Learn how to fork a repo here)

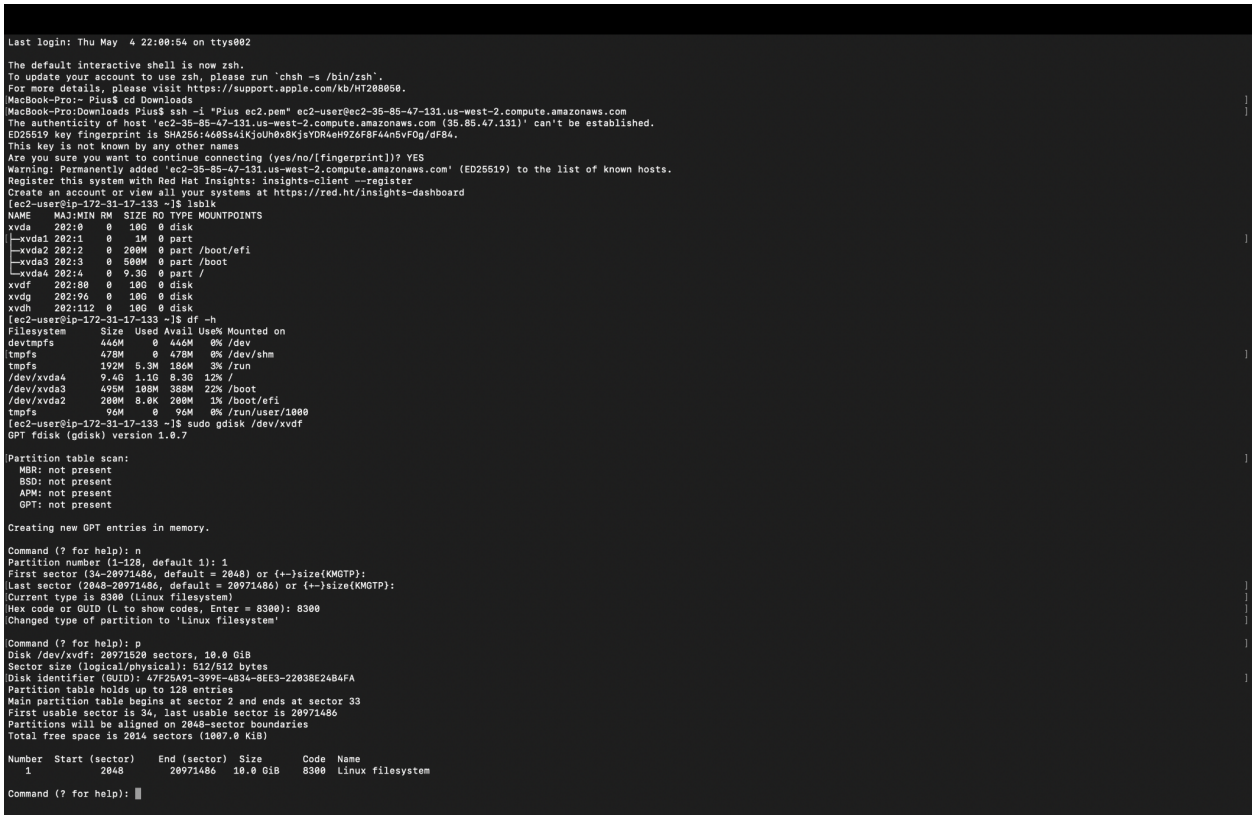
9. First you will need to go to your home directory and then install git on your server and then extract or download the tooling source code to your server. 'sudo yum install git , git init, git clone <link of the source code> or try using wget <link> ' to see if it will extract the source code.
10. After deploying the tooling website's code to the Webserver. Ensure that the html folder from the repository is deployed to /var/www/html. cd tooling , sudo cp html/. /var/www/html
11. Check with your httpd is running sudo systemctl status httpd

Note 1: Do not forget to open TCP port 80 on the Web Server.

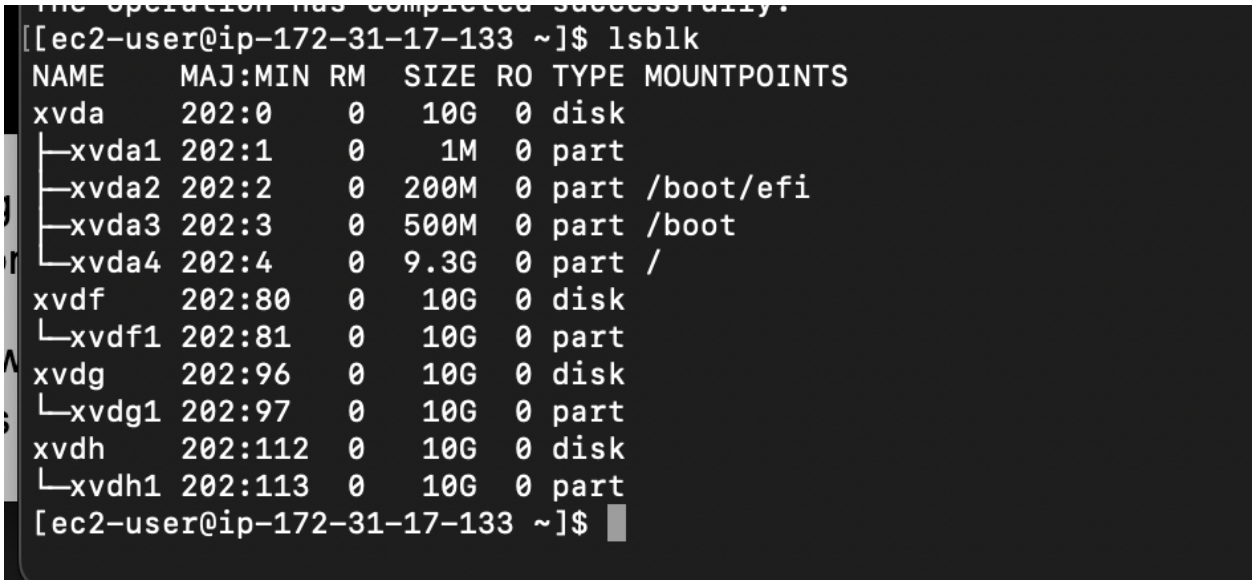
Note 2: If you encounter 403 Error – check permissions to your /var/www/html folder and also disable SELinux ‘sudo setenforce 0’

To make this change permanent – open following config file ‘sudo vi /etc/sysconfig/selinux’ and set SELINUX=disabled then restart httpd.

12. If you are seeing the welcome page, do not worry lets remove the welcome page. Sudo vi /var/www/html or /etc/httpd/conf.d/welcome.conf / sudo mv /etc/httpd/conf.d/welcome.bak
13. Now restart httpd sudo systemctl restart httpd
14. Update the website’s configuration to connect to the database (in /var/www/html/functions.php file) add your db login info it should start with db private id, username, password, database name. Apply tooling-db.sql script to your database using this command mysql -h <databse-private-ip> -u <db-username> -p < tooling-db.sql.
15. Try installing mysql if it doesn't work ‘sudo yum install mysql -y’
16. Make sure you add inbound rule tcp 3306 on your database server and set up the configuration of the bind address and mysql bind address to 0.0.0.0 to allow your webserver connect to it sudo vi /etc/mysql/mysql.conf.d/mysqld.cnf



```
The authenticity of host 'ec2-35-85-47-131.us-west-2.compute.amazonaws.com (35.85.47.131)' can't be established.
ED25519 key fingerprint is SHA256:460Ss4iKjoUh0x8KjsYDR4eH9Z6F8F44n5vFOg/dF84.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? YES
Warning: Permanently added 'ec2-35-85-47-131.us-west-2.compute.amazonaws.com' (ED25519) to the list of known hosts.
Register this system with Red Hat Insights: insights-client --register
Create an account or view all your systems at https://red.ht/insights-dashboard
[ec2-user@ip-172-31-17-133 ~]$ lsblk
NAME    MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda    202:0    0   10G  0 disk
├─xvda1 202:1    0    1M  0 part
├─xvda2 202:2    0  200M  0 part /boot/efi
├─xvda3 202:3    0  500M  0 part /boot
└─xvda4 202:4    0  9.3G  0 part /
xvdf    202:80   0   10G  0 disk
xvdg    202:96   0   10G  0 disk
xvdh    202:112  0   10G  0 disk
[ec2-user@ip-172-31-17-133 ~]$ df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        446M     0  446M   0% /dev
tmpfs           478M     0  478M   0% /dev/shm
tmpfs           192M  5.3M  186M   3% /run
/dev/xvda4      9.4G  1.1G  8.3G  12% /
/dev/xvda3      495M  108M  388M  22% /boot
/dev/xvda2      200M  8.0K  200M   1% /boot/efi
tmpfs            96M     0   96M   0% /run/user/1000
[ec2-user@ip-172-31-17-133 ~]$ sudo gdisk /dev/xvdf
GPT fdisk (gdisk) version 1.0.7

Partition table scan:
  MBR: not present
  BSD: not present
  APM: not present
  GPT: not present

Creating new GPT entries in memory.

Command (? for help): n
Partition number (1-128, default 1): 1
First sector (34-20971486, default = 2048) or {+-}size{KMGTP}:
Last sector (2048-20971486, default = 20971486) or {+-}size{KMGTP}:
Current type is 8300 (Linux filesystem)
Hex code or GUID (L to show codes, Enter = 8300): 8300
Changed type of partition to 'Linux filesystem'

Command (? for help): p
Disk /dev/xvdf: 20971520 sectors, 10.0 GiB
Sector size (logical/physical): 512/512 bytes
Disk identifier (GUID): 47F25A91-399E-4B34-8EE3-22038E24B4FA
Partition table holds up to 128 entries
Main partition table begins at sector 2 and ends at sector 33
First usable sector is 34, last usable sector is 20971486
Partitions will be aligned on 2048-sector boundaries
Total free space is 2014 sectors (1007.0 KiB)

Number  Start (sector)    End (sector)  Size       Code  Name
   1            2048        20971486   10.0 GiB    8300  Linux filesystem

Command (? for help): w

Final checks complete. About to write GPT data. THIS WILL OVERWRITE EXISTING
PARTITIONS!!

Do you want to proceed? (Y/N): y
OK; writing new GUID partition table (GPT) to /dev/xvdf.
The operation has completed successfully.
[ec2-user@ip-172-31-17-133 ~]$
```



```
[[ec2-user@ip-172-31-17-133 ~]$ sudo lvmdiskscan
  /dev/xvda2 [     200.00 MiB]
  /dev/xvda3 [     500.00 MiB]
  /dev/xvda4 [       9.31 GiB]
  /dev/xvdf1 [     <10.00 GiB]
  /dev/xvdg1 [     <10.00 GiB]
  /dev/xvdh1 [     <10.00 GiB]
  0 disks
  6 partitions
  0 LVM physical volume whole disks
  0 LVM physical volumes
 [ec2-user@ip-172-31-17-133 ~]$
```

```
[[ec2-user@ip-172-31-17-133 ~]$ sudo lvcreate -n lv-apps -L 9G nfs-vg
  Logical volume "lv-apps" created.
[[ec2-user@ip-172-31-17-133 ~]$ sudo lvcreate -n lv-opt -L 9G nfs-vg
  Logical volume "lv-opt" created.
[[ec2-user@ip-172-31-17-133 ~]$ sudo lvcreate -n lv-logs -L 9G nfs-vg
  Logical volume "lv-logs" created.
[[ec2-user@ip-172-31-17-133 ~]$ sudo lvs
  LV      VG     Attr       LSize Pool Origin Data%  Meta%  Move Log Cpy%Sync Convert
  lv-apps nfs-vg -wi-a----- 9.00g
  lv-logs nfs-vg -wi-a----- 9.00g
  lv-opt  nfs-vg -wi-a----- 9.00g
 [ec2-user@ip-172-31-17-133 ~]$
```

```
[[ec2-user@ip-172-31-17-133 ~]$ sudo mkdir /mnt/apps
[[ec2-user@ip-172-31-17-133 ~]$ sudo mkdir /mnt/logs
[[ec2-user@ip-172-31-17-133 ~]$ sudo mkdir /mnt/opt
[[ec2-user@ip-172-31-17-133 ~]$ sudo mount /dev/nfs-vg/lv-apps /mnt/apps
[[ec2-user@ip-172-31-17-133 ~]$ sudo mount /dev/nfs-vg/lv-logs /mnt/logs
[[ec2-user@ip-172-31-17-133 ~]$ sudo mount /dev/nfs-vg/lv-opt /mnt/opt
 [ec2-user@ip-172-31-17-133 ~]$
```

```
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database tooling;
Query OK, 1 row affected (0.01 sec)

mysql> create user 'webaccess'@'172.31.16.0/20' identified by 'password';
Query OK, 0 rows affected (0.04 sec)

mysql> grant all privileges on tooling.* to 'webaccess'@'172.31.16.0/20';
Query OK, 0 rows affected (0.01 sec)

mysql> show databases
    ->

^C
mysql> flush privileges;
Query OK, 0 rows affected (0.01 sec)

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| sys                |
| tooling            |
+--------------------+
5 rows in set (0.01 sec)
```

```
May 10 18:48:36 ip-172-31-17-133.us-west-2.compute.internal systemd[1]: Finished NFS server and services.
[ec2-user@ip-172-31-17-133 ~]$ sudo chown -R nobody: /mnt/apps
sudo chown -R nobody: /mnt/logs
sudo chown -R nobody: /mnt/opt

sudo chmod -R 777 /mnt/apps
sudo chmod -R 777 /mnt/logs
sudo chmod -R 777 /mnt/opt

sudo systemctl restart nfs-server.service
[ec2-user@ip-172-31-17-133 ~]$ sudo systemctl restart nfs-server.service
[ec2-user@ip-172-31-17-133 ~]$ sudo systemctl status nfs-server.service
● nfs-server.service - NFS server and services
     Loaded: loaded (/usr/lib/systemd/system/nfs-server.service; enabled; preset: disabled)
     Active: active (exited) since Wed 2023-05-10 19:18:25 UTC; 14s ago
    Process: 56385 ExecStartPre=/usr/sbin/exportfs -r (code=exited, status=0/SUCCESS)
    Process: 56386 ExecStart=/usr/sbin/rpc.nfsd (code=exited, status=0/SUCCESS)
    Process: 56396 ExecStart=/bin/sh -c if systemctl -q is-active gssproxy; then systemctl reload gssprox>
   Main PID: 56396 (code=exited, status=0/SUCCESS)
        CPU: 33ms

May 10 19:18:25 ip-172-31-17-133.us-west-2.compute.internal systemd[1]: Starting NFS server and services.>
May 10 19:18:25 ip-172-31-17-133.us-west-2.compute.internal systemd[1]: Finished NFS server and services.
...skipping...
● nfs-server.service - NFS server and services
     Loaded: loaded (/usr/lib/systemd/system/nfs-server.service; enabled; preset: disabled)
     Active: active (exited) since Wed 2023-05-10 19:18:25 UTC; 14s ago
    Process: 56385 ExecStartPre=/usr/sbin/exportfs -r (code=exited, status=0/SUCCESS)
    Process: 56386 ExecStart=/usr/sbin/rpc.nfsd (code=exited, status=0/SUCCESS)
    Process: 56396 ExecStart=/bin/sh -c if systemctl -q is-active gssproxy; then systemctl reload gssprox>
   Main PID: 56396 (code=exited, status=0/SUCCESS)
        CPU: 33ms

May 10 19:18:25 ip-172-31-17-133.us-west-2.compute.internal systemd[1]: Starting NFS server and services.>
May 10 19:18:25 ip-172-31-17-133.us-west-2.compute.internal systemd[1]: Finished NFS server and services.
~
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[ec2-user@ip-172-31-17-133 ~]$ sudo vi /etc/exports
[ec2-user@ip-172-31-17-133 ~]$ sudo exportfs -arv
exporting 172.31.16.0/20:/mnt/opt
exporting 172.31.16.0/20:/mnt/logs
exporting 172.31.16.0/20:/mnt/apps
[ec2-user@ip-172-31-17-133 ~]$ rpcinfo -p | grep nfs
    100003    3   tcp   2049  nfs
    100003    4   tcp   2049  nfs
    100227    3   tcp   2049  nfs_acl
[ec2-user@ip-172-31-17-133 ~]$
```
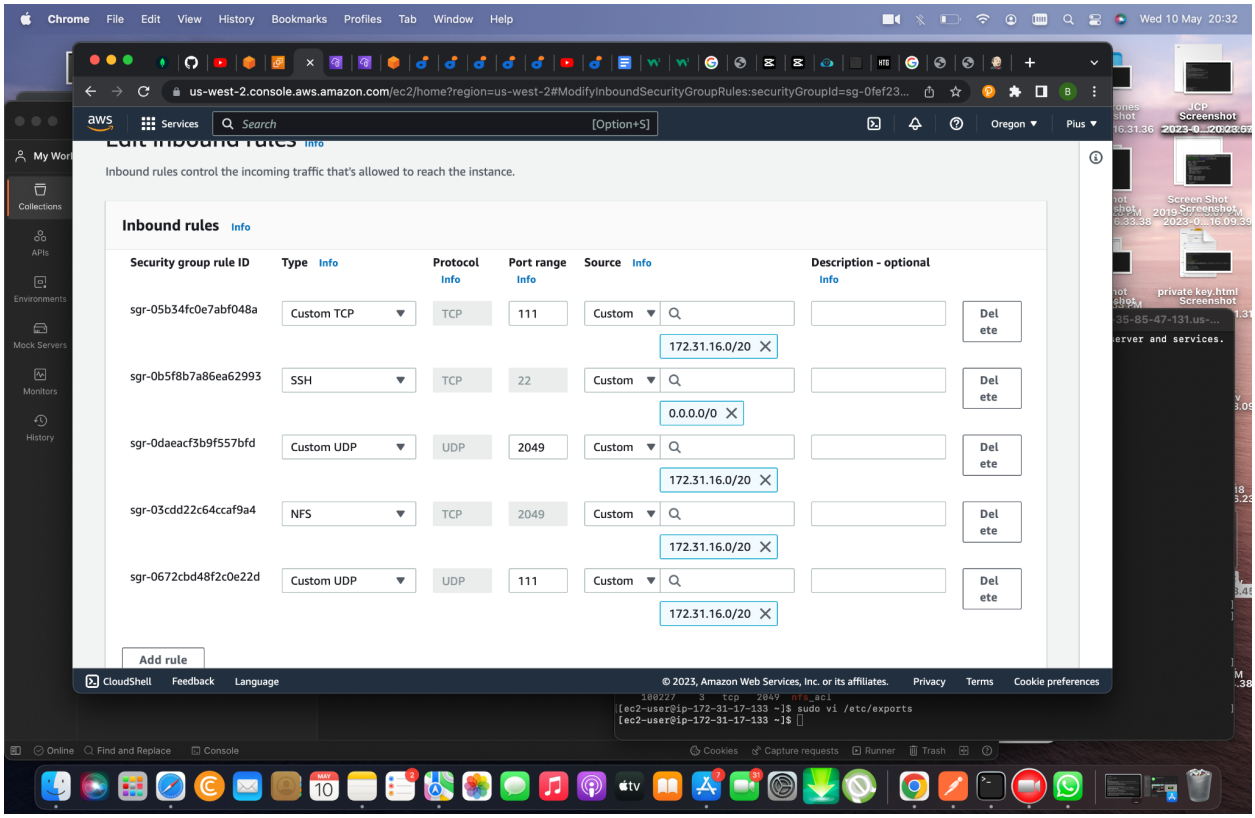
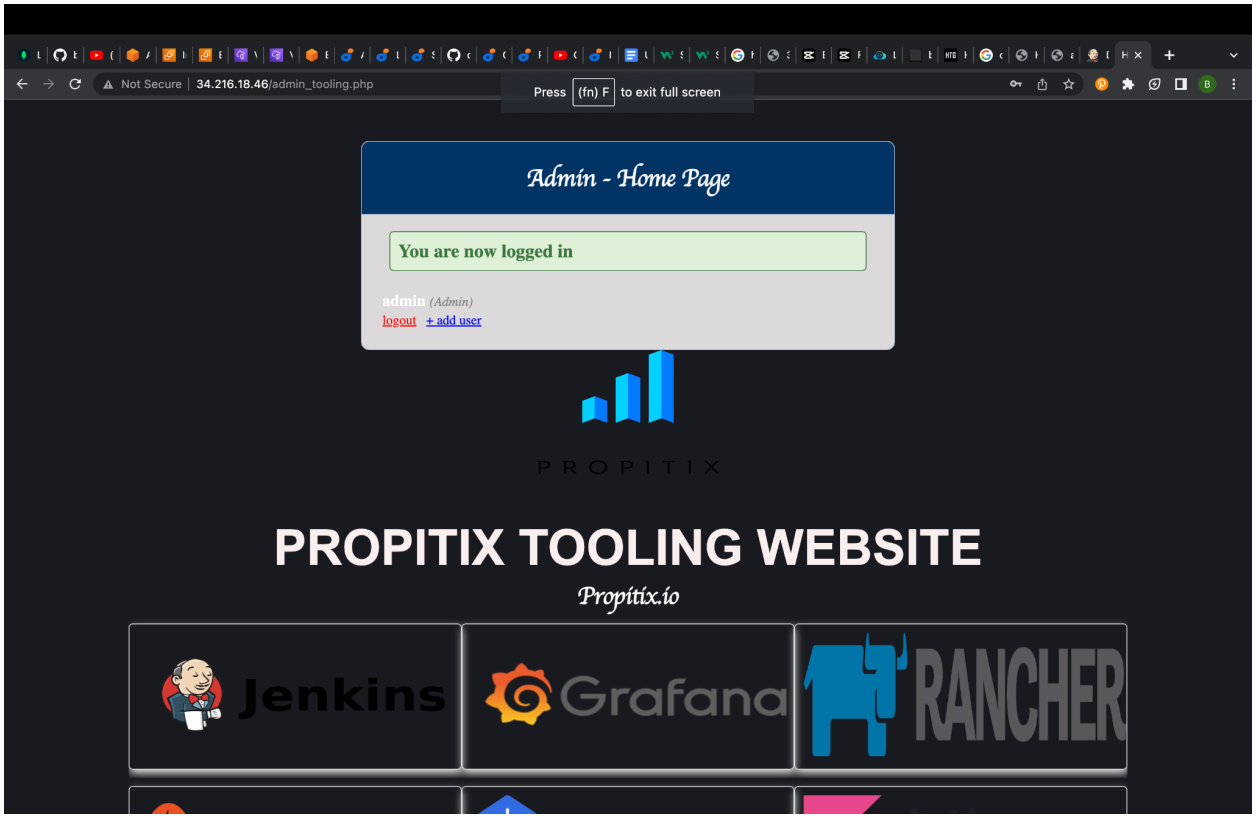




```
  Installing       : nfs-utils-1:2.5.4-18.el9.x86_64                        10/12
  Running scriptlet: nfs-utils-1:2.5.4-18.el9.x86_64                        10/12
  Installing       : sssd-nfs-idmap-2.6.2-4.el9_0.1.x86_64                  11/12
  Installing       : nfs4-acl-tools-0.4.2-0.el9.x86_64                      12/12
  Running scriptlet: nfs4-acl-tools-0.4.2-0.el9.x86_64                      12/12
  Verifying        : quota-nls-1:4.06-6.el9.noarch                           1/12
  Verifying        : libverto-libev-0.3.2-3.el9.x86_64                       2/12
  Verifying        : libev-4.33-5.el9.x86_64                                 3/12
  Verifying        : keyutils-1.6.1-4.el9.x86_64                             4/12
  Verifying        : quota-1:4.06-6.el9.x86_64                               5/12
  Verifying        : sssd-nfs-idmap-2.6.2-4.el9_0.1.x86_64                   6/12
  Verifying        : rpcbind-1.2.6-5.el9.x86_64                              7/12
  Verifying        : nfs4-acl-tools-0.4.2-0.el9.x86_64                       8/12
  Verifying        : nfs-utils-1:2.5.4-18.el9.x86_64                         9/12
  Verifying        : libtirpc-1.3.3-1.el9.x86_64                            10/12
  Verifying        : libnfsidmap-1:2.5.4-18.el9.x86_64                      11/12
  Verifying        : gssproxy-0.8.4-5.el9_2.x86_64                          12/12
Installed products updated.

Installed:
  gssproxy-0.8.4-5.el9_2.x86_64       keyutils-1.6.1-4.el9.x86_64
  libev-4.33-5.el9.x86_64             libnfsidmap-1:2.5.4-18.el9.x86_64
  libtirpc-1.3.3-1.el9.x86_64         libverto-libev-0.3.2-3.el9.x86_64
  nfs-utils-1:2.5.4-18.el9.x86_64     nfs4-acl-tools-0.4.2-0.el9.x86_64
  quota-1:4.06-6.el9.x86_64           quota-nls-1:4.06-6.el9.noarch
  rpcbind-1.2.6-5.el9.x86_64          sssd-nfs-idmap-2.6.2-4.el9_0.1.x86_64

Complete!
[ec2-user@ip-172-31-22-88 ~]$ sudo mkdir /var/www
[ec2-user@ip-172-31-22-88 ~]$ sudo mount -t nfs -o rw,nosuid 172.31.17.133:/mnt/apps
mount: 172.31.17.133:/mnt/apps: can't find in /etc/fstab.
[ec2-user@ip-172-31-22-88 ~]$ sudo mount -t nfs -o rw,nosuid 172.31.17.133:/mnt/apps /var/www
[ec2-user@ip-172-31-22-88 ~]$ lsblk
NAME    MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda    202:0    0   10G  0 disk
├─xvda1 202:1    0    1M  0 part
├─xvda2 202:2    0  200M  0 part /boot/efi
├─xvda3 202:3    0  500M  0 part /boot
└─xvda4 202:4    0  9.3G  0 part /
[ec2-user@ip-172-31-22-88 ~]$ df -h
Filesystem              Size  Used Avail Use% Mounted on
devtmpfs                446M     0  446M   0% /dev
tmpfs                   478M     0  478M   0% /dev/shm
tmpfs                   192M  5.3M  186M   3% /run
/dev/xvda4              9.4G  1.2G  8.2G  13% /
/dev/xvda3              495M  108M  388M  22% /boot
[ec2-user@ip-172-31-22-88 ~]$ sudo yum install httpd -y
tmpfs                    96M     0   96M   0% /run/user/1000
sudo dnf install https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm
[ec2-user@ip-172-31-22-88 ~]$ sudo vi /etc/fstab
sudo dnf install dnf-utils http://rpms.remirepo.net/enterprise/remi-release-8.rpmch.rpm

sudo dnf module reset phps http://rpms.remirepo.net/enterprise/remi-release-8.rpmch.rpm

sudo dnf module enable php:remi-7.4pms.remirepo.net/enterprise/remi-release-8.rpm

sudo dnf install php php-opcache php-gd php-curl php-mysqlnd

sudo systemctl start php-fpmache php-gd php-curl php-mysqlnd

sudo systemctl enable php-fpmche php-gd php-curl php-mysqlnd

setsebool -P httpd_execmem 1
```

```
[ec2-user@ip-172-31-22-88 ~]$ ls /var/www
cgi-bin  html  test.txt
[ec2-user@ip-172-31-22-88 ~]$ ls/var/log
-bash: ls/var/log: No such file or directory
[ec2-user@ip-172-31-22-88 ~]$ ls /var/log
audit                   cron             insights-client  README    tuned
btmp                    dnf.librepo.log  lastlog          rhsm      wtmp
choose_repo.log         dnf.log          maillog          secure
chrony                  dnf.rpm.log      messages         spooler
cloud-init.log          hawkey.log       php-fpm          sssd
cloud-init-output.log   httpd            private          tallylog
[ec2-user@ip-172-31-22-88 ~]$ sudo /var/log/httpd
sudo: /var/log/httpd: command not found
[ec2-user@ip-172-31-22-88 ~]$ sudo mount -t nfs -o rw,nosuid 172.31.17.133:/mnt/logs /var/log/httpd
[ec2-user@ip-172-31-22-88 ~]$
```

```
  perl-Getopt-Long-1:2.52-4.el9.noarch
  perl-Getopt-Std-1.12-480.el9.noarch
  perl-Git-2.39.1-1.el9.noarch
  perl-HTTP-Tiny-0.076-460.el9.noarch
  perl-IO-1.43-480.el9.x86_64
  perl-IO-Socket-IP-0.41-5.el9.noarch
  perl-IO-Socket-SSL-2.073-1.el9.noarch
  perl-IPC-Open3-1.21-480.el9.noarch
  perl-MIME-Base64-3.16-4.el9.x86_64
  perl-Mozilla-CA-20200520-6.el9.noarch
  perl-NDBM_File-1.15-480.el9.x86_64
  perl-Net-SSLeay-1.92-2.el9.x86_64
  perl-POSIX-1.94-480.el9.x86_64
  perl-PathTools-3.78-461.el9.x86_64
  perl-Pod-Escapes-1:1.07-460.el9.noarch
  perl-Pod-Perldoc-3.28.01-461.el9.noarch
  perl-Pod-Simple-1:3.42-4.el9.noarch
  perl-Pod-Usage-4:2.01-4.el9.noarch
  perl-Scalar-List-Utils-4:1.56-461.el9.x86_64
  perl-SelectSaver-1.02-480.el9.noarch
  perl-Socket-4:2.031-4.el9.x86_64
  perl-Storable-1:3.21-460.el9.x86_64
  perl-Symbol-1.08-480.el9.noarch
  perl-Term-ANSIColor-5.01-461.el9.noarch
  perl-Term-Cap-1.17-460.el9.noarch
  perl-TermReadKey-2.38-11.el9.x86_64
  perl-Text-ParseWords-3.30-460.el9.noarch
  perl-Text-Tabs+Wrap-2013.0523-460.el9.noarch
  perl-Time-Local-2:1.300-7.el9.noarch
  perl-URI-5.09-3.el9.noarch
  perl-base-2.27-480.el9.noarch
  perl-constant-1.33-461.el9.noarch
  perl-if-0.60.800-480.el9.noarch
  perl-interpreter-4:5.32.1-480.el9.x86_64
  perl-lib-0.65-480.el9.x86_64
  perl-libnet-3.13-4.el9.noarch
  perl-libs-4:5.32.1-480.el9.x86_64
  perl-mro-1.23-480.el9.x86_64
  perl-overload-1.31-480.el9.noarch
  perl-overloading-0.02-480.el9.noarch
  perl-parent-1:0.238-460.el9.noarch
  perl-podlators-1:4.14-460.el9.noarch
  perl-subs-1.03-480.el9.noarch
  perl-vars-1.05-480.el9.noarch

Complete!
[ec2-user@ip-172-31-22-88 ~]$ 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/
[ec2-user@ip-172-31-22-88 ~]$ git clone https://github.com/darey-io/tooling.git
Cloning into 'tooling'...
remote: Enumerating objects: 243, done.
remote: Total 243 (delta 0), reused 0 (delta 0), pack-reused 243
Receiving objects: 100% (243/243), 283.48 KiB | 4.17 MiB/s, done.
Resolving deltas: 100% (137/137), done.
[ec2-user@ip-172-31-22-88 ~]$ ls
tooling
[ec2-user@ip-172-31-22-88 ~]$
```

```
// connect to database
$db = mysqli_connect('172.31.25.209', 'webaccess', 'password', 'tooling');
```


Not Secure
34.216.18.46/admin_tooling.php
Press (fn) F to exit full screen
Admin - Home Page
You are now logged in
admin (Admin)
logout + add user
PROPITIX
PROPITIX TOOLING WEBSITE
Propitix.io
Jenkins
Grafana
RANCHER