Problem statement:

Install NGINX with self signed SSL certificate integration at Ubuntu 18.04

Solution steps :

1.Update repo and install Nginx

2.create openssl self sign private key and self signed certificate

3.Create a Configuration Snippet Pointing to the SSL Key and Certificate

4.Configure Nginx sites-availabale/config file for SSL integration & website directory

5. Soft link between sites-available/config file with *sites-enable*/ directory

6. Verify NGINX connection

7. Finally browse website and check whether it works or not

Implementation:

Below step done at Ubuntu 18.04 OS

1.Update repo and install Nginx

```
sudo apt-get update && apt-get install nginx -y
```

```
sudo /etc/init.d/nginx start
```

```
[ ok ] Starting nginx (via systemctl): nginx.service.
```

```
sudo /etc/init.d/nginx status
```

2.create openssl self sign private key and self signed certificate

sudo openssl req -x509 -nodes -days 365 -newkey rsa:2048 -keyout /etc/ssl/private/nginx-selfsigned.key -out /etc/ssl/certs/nginx-selfsigned.crt

Generating a RSA private key
.....+++++
..+++++
writing new private key to '/etc/ssl/private/nginx-selfsigned.key'

You are about to be asked to enter information that will be incorporated into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.

Country Name (2 letter code) [AU]:BD
State or Province Name (full name) [Some-State]:DHK
Locality Name (eg, city) []:DHK
Organization Name (eg, company) [Internet Widgits Pty Ltd]:Self
Organizational Unit Name (eg, section) []:self
Common Name (e.g. server FQDN or YOUR name) []:asifops.io
Email Address []:

both of the private key and certificate files created under /etc/ssl directory

ls -lrt /etc/ssl/

total 32

-rw-r--r-- 1 root root 10998 May 27 19:15 openssl.cnf

drwx------ 2 root root 4096 Nov 3 07:21 private

drwxr-xr-x 2 root root 16384 Nov 3 07:22 certs

3.Create a Configuration Snippet Pointing to the SSL Key and Certificate

sudo nano /etc/nginx/snippets/self-signed.conf

ssl_certificate /etc/ssl/certs/nginx-selfsigned.crt;

ssl_certificate_key /etc/ssl/private/nginx-selfsigned.key;

save and exit

4.Configure Nginx config file for SSL integration & website directory

N.B: /etc/nginx/sites-available directory should contain all the static files for ur website

/etc/nginx/sites-enable directory will link with sites-avaialble.
/etc/nginx/sites-enable directory file will read by NGINX to load the configuration

First, backup of current config file

sudo cp /etc/nginx/sites-available/default /etc/nginx/sites-available/default.bak

second, config the default config file

sudo nano /etc/nginx/sites-available/default

comment out below lines

#listen 80 default_server;

#listen [::]:80 default_server;

Uncomment below lines and add line “include snippets/self-signed.conf;” here /etc/nginx/snippets/self-signed.conf is configuration snipset pointing to ssl private key and certificates . steps is following :

listen 443 ssl default_server;

listen [::]:443 ssl default_server;

include snippets/self-signed.conf;

```
server {
        #listen 80 default_server;
        #listen [::]:80 default_server;

        # SSL configuration
        #
        listen 443 ssl default_server;
        listen [::]:443 ssl default_server;
        include snippets/self-signed.conf;
```

Then keep

root /var/www/html directory

index index.html

besides give server name as customized name as per requirement , this name not necessary to be a FQDN . keep other parts default.

Steps is showing following picture:

```
root /var/www/html;

# Add index.php to the list if you are using PHP
index index.html;

server_name asifops.io;

location / {
        # First attempt to serve request as file, then
        # as directory, then fall back to displaying a 404.
        try_files $uri $uri/ =404;
}
```

Finally save and exit the file

5.Soft link between sites-available/default with *sites-enable*/ directory

first move sites-enable/ directory default config file to another file name

sudo ln -s /etc/nginx/sites-available/default /etc/nginx/*sites-enable*/

6. Put website content at /var/www/html directory

Here I will clone git repository and put website files at /var/www/html directory as sowing below :

```
root@ip-10-0-0-85:/var/www/html# git clone https://github.com/asif-ops/asif-ops.github.io.git
Cloning into 'asif-ops.github.io'...
remote: Enumerating objects: 69, done.
remote: Counting objects: 100% (69/69), done.
remote: Compressing objects: 100% (56/56), done.
remote: Total 69 (delta 18), reused 50 (delta 11), pack-reused 0
Unpacking objects: 100% (69/69), done.
```

Now site website index,html file is ready

```
root@ip-10-0-0-85:/var/www/html# ls
index.html  src
root@ip-10-0-0-85:/var/www/html#
```

7.Verify NGINX connection

 # sudo nginx -t

nginx: the configuration file /etc/nginx/nginx.conf syntax is ok

nginx: configuration file /etc/nginx/nginx.conf test is successful

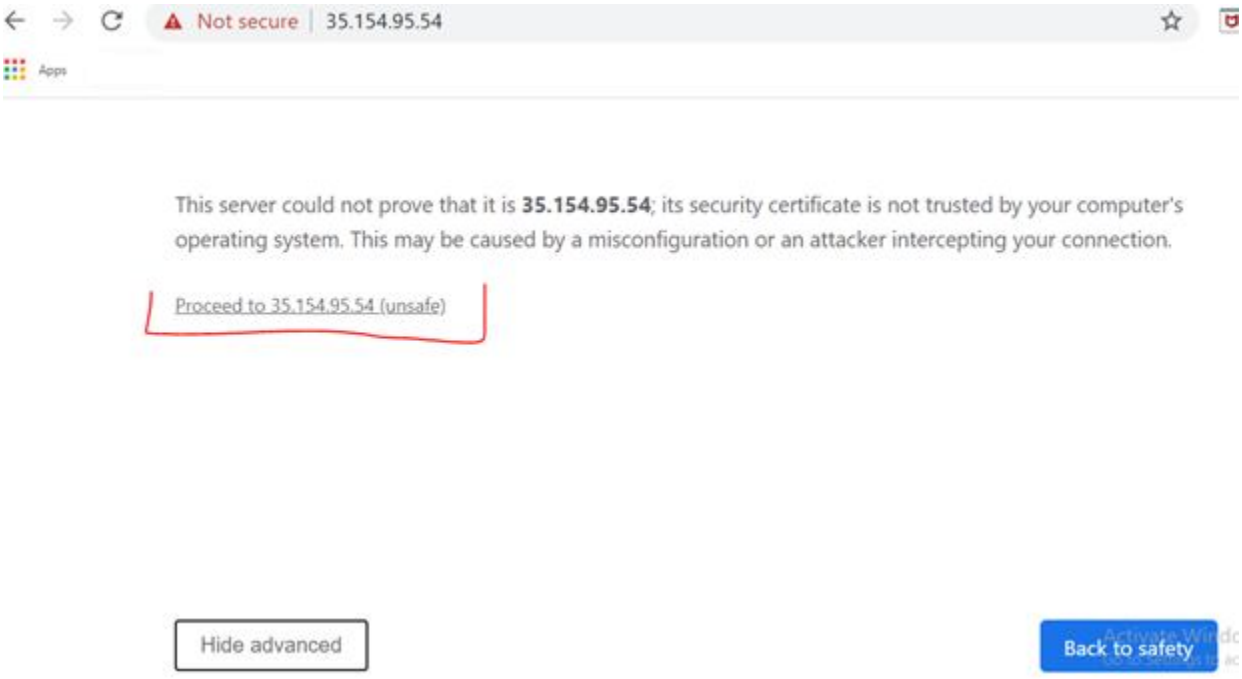
restart nginx service

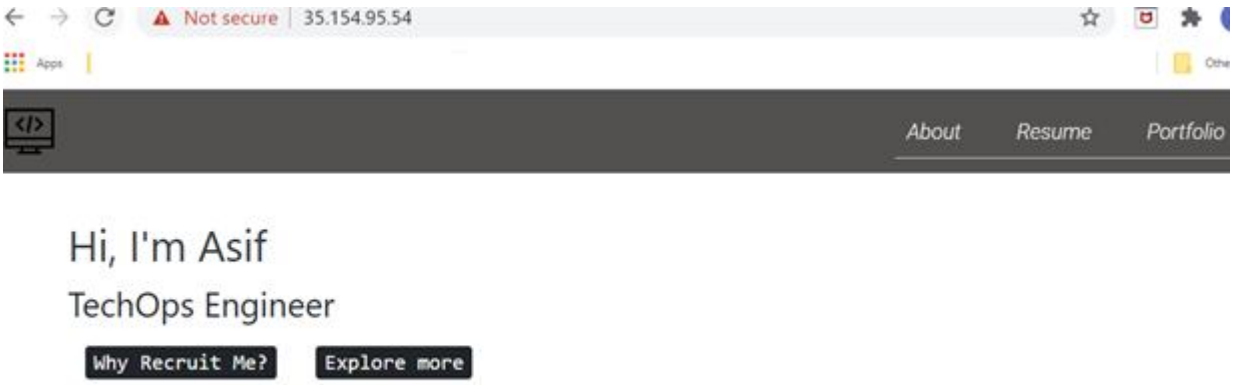
sudo /etc/init.d/nginx restart

[ok] Restarting nginx (via systemctl): nginx.service.

8. Browse website and check whether SSL work or not

Now browse the website weith https and we can see the content of the website as showing below with SSL certification enabled. As this self sign certificate so website showing not secure option when connection

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