A. Konfigurasi Dasar
Membuat 1300 user berserta password dengan akses sudo dan konfigurasi ssh untuk login menggunakan password dan public key
```
oabdillah@oalab01:~# for i in {1..1300}; do USERNAME="sevima-adm$i";
PASSWORD="w3bsite#$i"; sudo useradd -s /bin/bash -G sudo "$USERNAME" && echo
"$USERNAME:$PASSWORD" | chpasswd && echo "User $USERNAME dibuat dengan sudo
access"; done
```

```
oabdillah@oalab01:~$ sudo vim /etc/ssh/sshd_config.d/sevima.conf
PasswordAuthentication Yes
PubkeyAuthentication Yes
```

Mengubah port ssh menjadi 2025 serta mengaktifkan seluruh aktifitas log dari user dengan value VERBOSE pada LogLevel

```
oabdillah@oalab01:~$ sudo vim /etc/ssh/sshd_config.d/sevima.conf
Port 2025
LogLevel VERBOSE
```

Untuk mengaktifkan konfigurasi restart
```
oabdillah@oalab01:~$ sudo systemctl daemon-reload
oabdillah@oalab01:~$ sudo systemctl restart ssh.socket
```

Menyesuaikan sumberdaya sesuai dengan ulimit
```
oabdillah@oalab01:~$ sudo vim /etc/security/limits.conf
@sudo soft nofile 2048
@sudo hard nofile 4096
```

B. Certificate Authority
Setup root certificate authority
```
oabdillah@oalab01:~$ sudo mkdir -p /root/ca
oabdillah@oalab01:~$ sudo openssl req -x509 -newkey rsa:4096 -nodes \
-keyout /root/ca/cacert.key \
-out /root/ca/cacert.pem \
-days 3650 \
-subj "/C=ID/O=PT. Sentra Vidya Utama/CN=SEVIMA CA"
```

Generate dan sign tiap-tiap web certificate

```
for domain in www.sevima.site utara.sevima.site timur.sevima.site barat.sevima.site; do \
   sudo openssl genrsa -out /root/ca/$domain.key 2048; \
   sudo openssl req -new -key /root/ca/$domain.key -out /root/ca/$domain.csr -subj
"/C=ID/O=PT. Sentra Vidya Utama/CN=$domain"; \
```

```
    sudo openssl x509 -req -in /root/ca/$domain.csr -CA /root/ca/cacert.pem -CAkey
/root/ca/cacert.key -CAcreateserial -out /root/ca/$domain.crt -days 365; \
done
```

C. Web Server

1. Virtual host HTTP-only untuk melayani utara.sevima.site menggunakan apache2 (Port 8025).

```
oabdillah@oalab01:~$ sudo apt -y install apache2
oabdillah@oalab01:~$ sudo vim /etc/apache2/ports.conf
Listen 8025

oabdillah@oalab01:~$ sudo vim /etc/apache2/sites-available/utara.conf

<VirtualHost *:8025>
    ServerName utara.sevima.site
    DocumentRoot /var/www/utara

    # Custom Headers
    Header set X-Owner-By "Oktavian Rizki Abdillah"
    Header set X-Served-By "apache2"
</VirtualHost>

oabdillah@oalab01:~$ sudo mkdir -p /var/www/utara
oabdillah@oalab01:~$ sudo bash -c 'echo "Hello World from Utara Site" >
/var/www/utara/index.html'
oabdillah@oalab01:~$ sudo a2enmod headers ; sudo a2ensite utara ; sudo systemctl restart
apache2
```

Menggunakan curl untuk cek response web server pada port 8025. Body, X-Owner-By dan X-Served-By sudah sesuai.

```
oabdillah@oalab01:~$ curl -v localhost:8025
* Host localhost:8025 was resolved.
* IPv6: ::1
* IPv4: 127.0.0.1
*   Trying [::1]:8025...
* Connected to localhost (::1) port 8025
> GET / HTTP/1.1
> Host: localhost:8025
> User-Agent: curl/8.5.0
> Accept: */*
>
```

```
< HTTP/1.1 200 OK
< Date: Sat, 17 Jan 2026 05:19:49 GMT
< Server: Apache/2.4.58 (Ubuntu)
< Last-Modified: Sat, 17 Jan 2026 05:18:57 GMT
< ETag: "1c-6488e98401551"
< Accept-Ranges: bytes
< Content-Length: 28
< X-Owner-By: Oktavian Rizki Abdillah
< X-Served-By: apache2
< Content-Type: text/html
<
Hello World from Utara Site
* Connection #0 to host localhost left intact
```

2. Virtual host HTTP-only untuk melayani utara.sevima.site menggunakan nginx (Port 8125). Comment Listen 80 pada apache2 untuk menghadiri port conflict dan mengindari service nginx tidak berjalan karena nginx juga menggunakan port 80 by default.

```
oabdillah@oalab01:~$ sudo vim /etc/apache2/ports.conf
#Listen 80

oabdillah@oalab01:~$ sudo apt -y install nginx
oabdillah@oalab01:~$ sudo vim /etc/nginx/sites-available/timur

server {
    listen 8125;
    server_name timur.sevima.site;

    location / {
        add_header X-Owner-By "Oktavian Rizki Abdillah";
        add_header X-Served-By "nginx";
        root /var/www/timur;
        index index.html;
    }
}

oabdillah@oalab01:~$ sudo mkdir -p /var/www/timur
oabdillah@oalab01:~$ sudo bash -c 'echo "Hello World from Timur Site" >
/var/www/timur/index.html'
oabdillah@oalab01:~$ sudo ln -s /etc/nginx/sites-available/timur /etc/nginx/sites-enabled/
oabdillah@oalab01:~$ sudo systemctl restart nginx
```

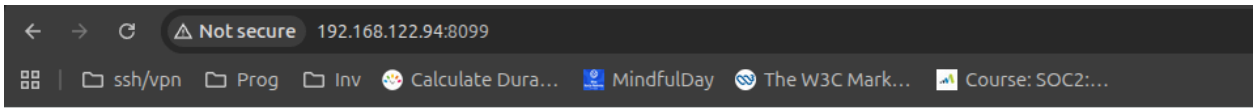
Menggunakan curl untuk cek response web server pada port 8125. Body, X-Owner-By dan X-Served-By sudah sesuai.

```
curl -v localhost:8125
* Host localhost:8125 was resolved.
* IPv6: ::1
* IPv4: 127.0.0.1
*   Trying [::1]:8125...
* connect to ::1 port 8125 from ::1 port 45226 failed: Connection refused
*   Trying 127.0.0.1:8125...
* Connected to localhost (127.0.0.1) port 8125
> GET / HTTP/1.1
> Host: localhost:8125
> User-Agent: curl/8.5.0
> Accept: */*
>
< HTTP/1.1 200 OK
< Server: nginx/1.24.0 (Ubuntu)
< Date: Sat, 17 Jan 2026 05:33:57 GMT
< Content-Type: text/html
< Content-Length: 28
< Last-Modified: Sat, 17 Jan 2026 05:31:18 GMT
< Connection: keep-alive
< ETag: "696b1ea6-1c"
< X-Owner-By: Oktavian Rizki Abdillah
< X-Served-By: nginx
< Accept-Ranges: bytes
<
Hello World from Timur Site
* Connection #0 to host localhost left intact
```

3. Virtual host HTTPS untuk melayani barat.sevima.site menggunakan nginx dengan port https 4435. Terlebih dahulu, comment Listen port 80 dan [::]:80 pada "default" virtual host nginx.

```
oabdillah@oalab01:~$ sudo vim /etc/nginx/sites-enabled/default
#listen 80 default_server;
#listen [::]:80 default_server;

oabdillah@oalab01:~$ sudo vim /etc/nginx/sites-available/barat

server {
    listen 80;
    server_name barat.sevima.site;
    return 301 https://$host:4435$request_uri;
}
```

```
server {
    listen 4435 ssl;
    server_name barat.sevima.site;

    ssl_certificate /root/ca/barat.sevima.site.crt;
    ssl_certificate_key /root/ca/barat.sevima.site.key;

    location / {
        root /var/www/barat;
        index index.html;
    }
}

oabdillah@oalab01:~$ sudo mkdir -p /var/www/barat
oabdillah@oalab01:~$ sudo bash -c 'echo "Hello World from Barat Site" >
/var/www/barat/index.html'
oabdillah@oalab01:~$ sudo ln -s /etc/nginx/sites-available/barat /etc/nginx/sites-enabled/
oabdillah@oalab01:~$ sudo systemctl restart nginx

## D. Load Balancer dengan HAProxy
### Install haproxy dan jadikan satu .crt dan .key file untuk www.sevima.site
oabdillah@oalab01:~$ sudo apt -y install haproxy

oabdillah@oalab01:~$ sudo bash -c 'cat /root/ca/www.sevima.site.crt
/root/ca/www.sevima.site.key > /etc/haproxy/www.sevima.site.combined.pem'

Edit file haproxy.cfg dan tambahkan konfigurasi seperti dibawah ini
oabdillah@oalab01:~$ sudo vim /etc/haproxy/haproxy.cfg

frontend http_front
    bind *:8099
    bind *:443 ssl crt /etc/haproxy/www.sevima.site.combined.pem
    default_backend sevima_cluster

backend sevima_cluster
    balance roundrobin
    server utara 127.0.0.1:8025 check
    server timur 127.0.0.1:8125 check
```



Hello World from Timur Site