Writeup LKSN 2012 IT Service

Persiapan

1. Susun topologi seperti berikut

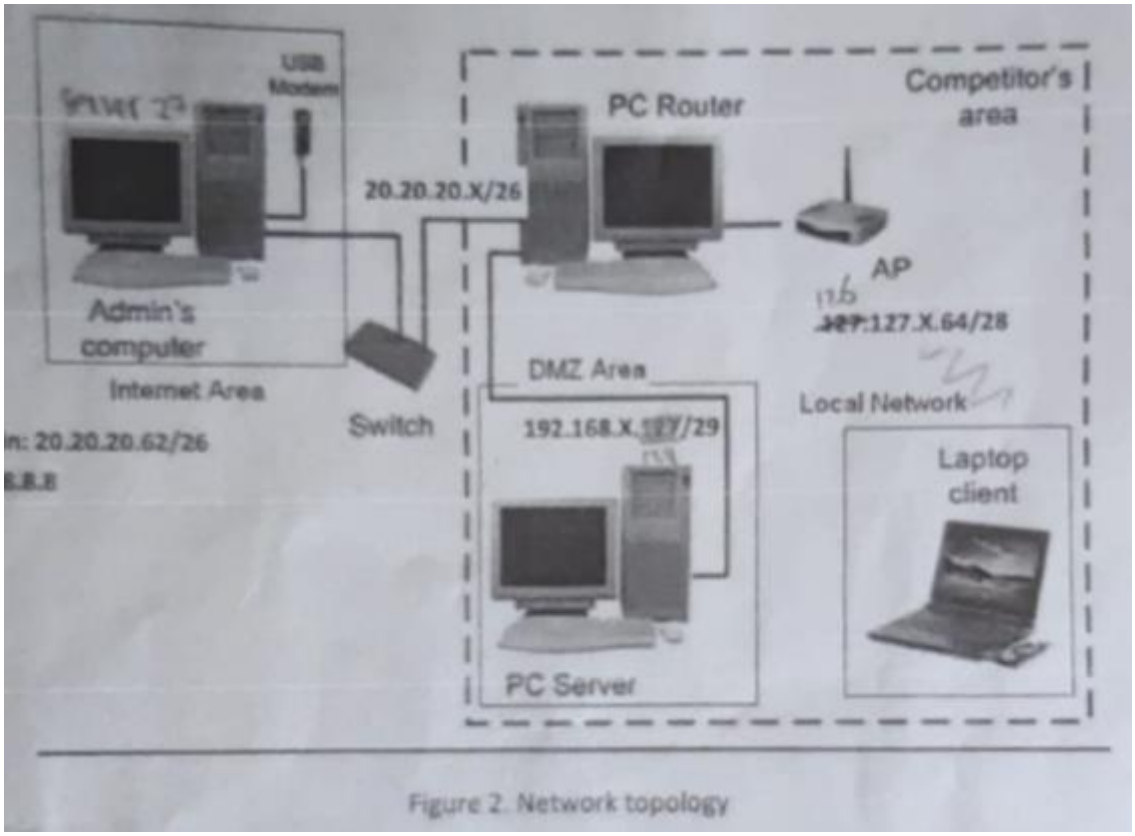


Figure 2. Network topology

2. Install Ubuntu 20.04 pada = Admin's computer (int = swv-asjserver, Cloud-Net1)

   PC Router (int = Cloud-Net 1, 2, dan 3)

   PC Server (int = Cloud-Net3)

   Untuk Laptop client gunakan Windows XP (int = Cloud-Net2)

Konfigurasi IP Address

1. Konfigurasi IP di file "*/etc/netplan/00installer-config.yaml*" menggunakan syntax "*nano"*

```
root@pcrouter:/# nano /etc/netplan/00-installer-config.yaml
```

2. Admin's computer = ens160(Cloud-Net1), ens192(swv-asjserver)

```
  GNU nano 4.8                    /etc/netplan/00-installer-config.yaml
# This is the network config written by 'subiquity'
network:
  ethernets:
    ens160:
      addresses:
      - 172.172.172.2/24

    ens192:
      addresses:
      - 192.168.24.250/24
      gateway4: 192.168.24.1
      nameservers:
        addresses:
        - 8.8.8.8
        - 8.8.4.4
  version: 2
```

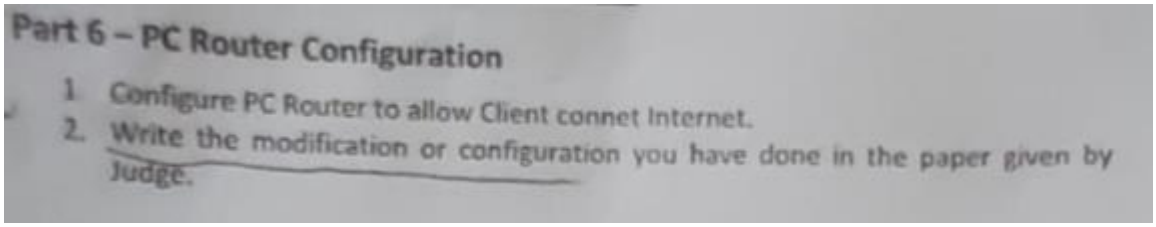
3. PC Router = ens160(Cloud-Net1), ens192(Cloud-Net2), ens224(Cloud-Net3)

```
  GNU nano 4.8                    /etc/netplan/00-installer-config.yaml
# This is the network config written by 'subiquity'
network:
  ethernets:
    ens160:
      addresses:
      - 172.172.172.3/24
      gateway4: 172.172.172.2
      nameservers:
        addresses:
        - 8.8.4.4
        - 8.8.8.8
        search: []
  version: 2

  ethernets:
    ens192:
      addresses:
      - 192.168.10.2/24
      nameservers:
        addresses:
        - 192.168.10.1
        - 8.8.8.8
        search: []
  version: 2

  ethernets:
    ens224:
      addresses:
      - 192.168.16.1/24
      nameservers:
        addresses:
        - 8.8.8.8
        search: []

^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify  ^C Cur Pos  M-U Undo
^X Exit      ^R Read File  ^\ Replace   ^U Paste Text ^T To Spell  ^_ Go To Line M-E Redo
```

4. PC Server = ens160(Cloud-Net3)

```
  GNU nano 4.8                    /etc/netplan/00-installer-config.yaml
# This is the network config written by 'subiquity'
network:
  ethernets:
    ens160:
      addresses:
      - 192.168.16.129/24
      gateway4: 192.168.16.1
      nameservers:
        addresses:
        - 192.168.16.129
        - 8.8.8.8

  version: 2
```

DAY 1 - Konfigurasi Router



Agar client dapat mengakses internet kita harus melakukan konfigurasi **IP Forward**

1. Buka file "*/etc/sysctl.conf*" menggunakan perintah "*nano".* Cari barisan pada gambar berikut lalu hapus tanda pagar (#) pada baris tersebut. Gunakan sysntax *"sysctl -p"* untuk melihat apakah konfigurasi berhasil dilakukan. Setelah itu **Reboot** routernya.

```
# See http://lwn.net/Articles/277146/
# Note: This may impact IPv6 TCP sessions too
#net.ipv4.tcp_syncookies=1

# Uncomment the next line to enable packet forwarding for IPv4
net.ipv4.ip_forward=1

# Uncomment the next line to enable packet forwarding for IPv6
#  Enabling this option disables Stateless Address Autoconfiguration
#  based on Router Advertisements for this host
```

```
root@pcrouter:/# sysctl -p
net.ipv4.ip_forward = 1
```

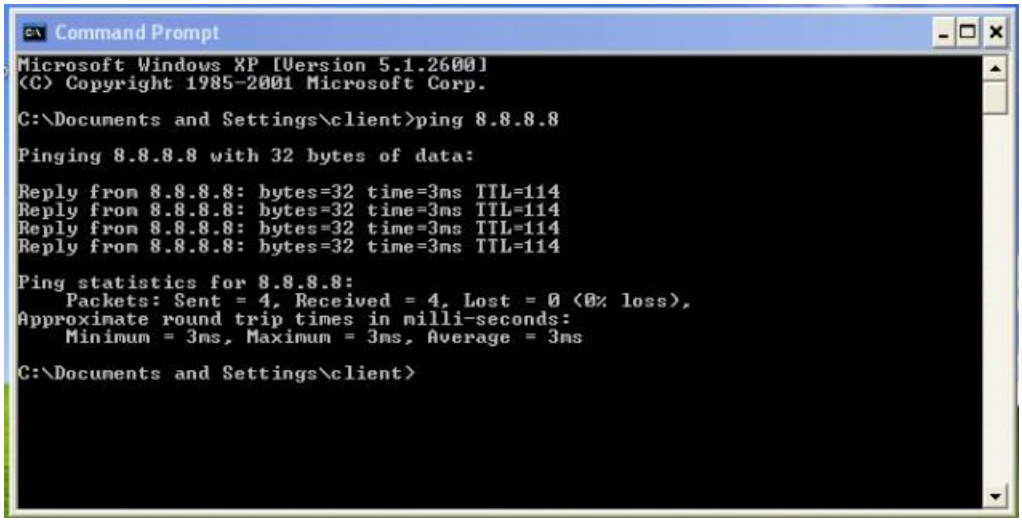
2. Setelah itu konfigurasi **NAT** dengan menggunakan syntax *"iptables -t POSTROUTING -o ens160 -j MASQUERADE"* (ens160 merupakan interface yang terhubung ke internet) agar ip client dapat mengakses internet.

```
root@pcrouter:/# iptables -t POSTROUTING -o ens160 -j MASQUERADE
```

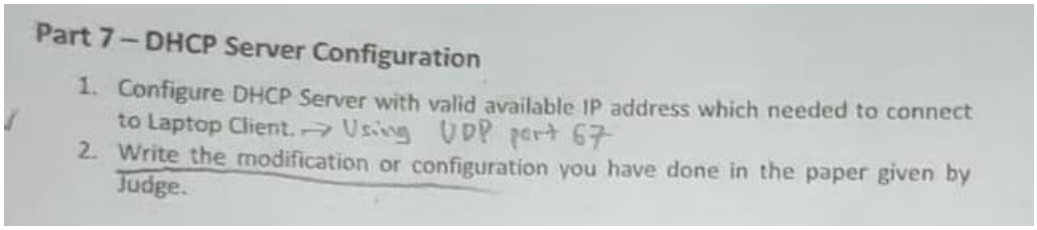
3. Agar konfigurasi iptables tidak hilang saat server direboot, install paket *"iptables-presistent"* menggunakan syntax "*apt install"*

```
root@pcrouter:/# apt install iptables-presistent_
```

4. Untuk ujicoba. Ping ke google.com melalui client



DAY 1 - Konfigurasi DHCP Server



Agar client bisa mendapatkan ip secara otomatis kita akan mengkonfigurasikan **DHCP Server**

1. Install *"isc-dhcp-server"* menggunakan syntax *"apt install"*

```
root@pcrouter:/# apt install isc-dhcp-server_
```

2. Konfigurasi file *"/etc/default/isc-dhcp-server"* menggunakan syntax *"nano"*. Masukkan interface yang ingin disambungkan dengan dhcp server pada baris berikut(disini port yang tersambung dengan client adalah **ens192**)

```
  GNU nano 4.8                          /etc/default/isc-dhcp-server
# Defaults for isc-dhcp-server (sourced by /etc/init.d/isc-dhcp-server)

# Path to dhcpd's config file (default: /etc/dhcp/dhcpd.conf).
#DHCPDv4_CONF=/etc/dhcp/dhcpd.conf
#DHCPDv6_CONF=/etc/dhcp/dhcpd6.conf

# Path to dhcpd's PID file (default: /var/run/dhcpd.pid).
#DHCPDv4_PID=/var/run/dhcpd.pid
#DHCPDv6_PID=/var/run/dhcpd6.pid

# Additional options to start dhcpd with.
#       Don't use options -cf or -pf here; use DHCPD_CONF/ DHCPD_PID instead
#OPTIONS=""

# On what interfaces should the DHCP server (dhcpd) serve DHCP requests?
#       Separate multiple interfaces with spaces, e.g. "eth0 eth1".
INTERFACESv4="ens192"
INTERFACESv6=""
```

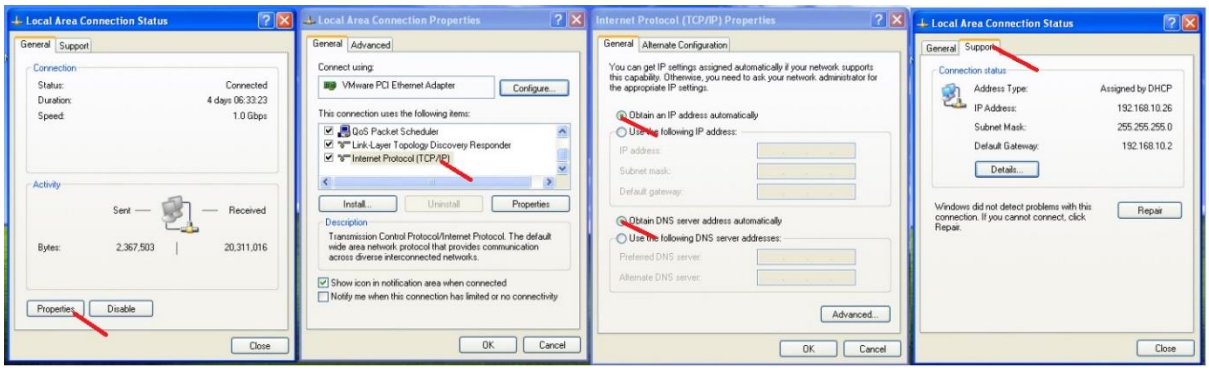
3. Lalu konfigurasikan file DHCP Server pada file *"/etc/dhcp/dhcpd.conf"*. Cari baris berikut lalu konfigurasikan

```
# A slightly different configuration for an internal subnet.
subnet 192.168.10.0 netmask 255.255.255.0 {
  range 192.168.10.5 192.168.10.254;                    IP Pool
  option domain-name-servers 192.168.16.129, 8.8.8.8;   DNS
  option subnet-mask 255.255.255.0;                     Subnetmask
  option routers 192.168.10.2;                          Gateway
  option broadcast-address 192.168.10.255;              Broadcast
  default-lease-time 7200;
  max-lease-time 7200;
}
```

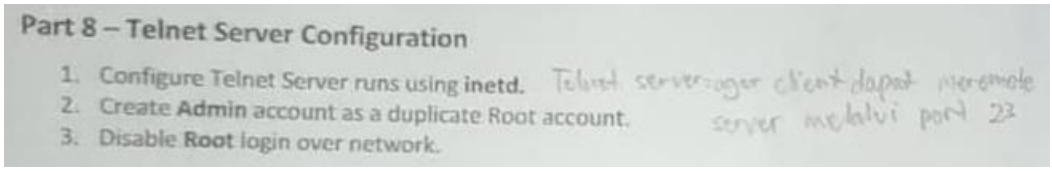
4. Setelah itu Restart service *"isc-dhcp-server"* menggunakan syntax *"systemctl"*

```
root@pcrouter:/# systemctl restart isc-dhcp-server_
```

5. Lakukan uji coba pada client



DAY 1 - Konfigurasi Telnet Server



Agar admin dapat meremote router kita, kita harus mengkonfigurasikan **Telnet Server**

1. Install service telnet menggunakan syntax *"apt install telnetd -y"*

```
root@pcrouter:/# apt install telnetd -y
```

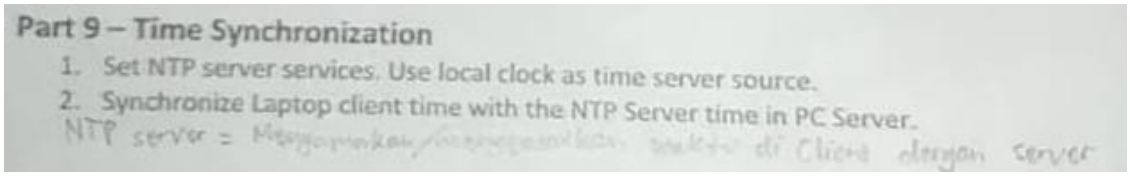
2. Cek status service menggunakan syntax *"systenctl status inetd"*

```
root@pcrouter:/# systemctl status inetd
● inetd.service - Internet superserver
     Loaded: loaded (/lib/systemd/system/inetd.service; enabled; vendor preset: enabled)
     Active: active (running) since Thu 2022-06-23 06:06:08 UTC; 1 weeks 1 days ago
       Docs: man:inetd(8)
   Main PID: 395683 (inetd)
      Tasks: 1 (limit: 4620)
     Memory: 764.0K
     CGroup: /system.slice/inetd.service
             └─395683 /usr/sbin/inetd

Jun 23 06:06:08 pcrouter systemd[1]: inetd.service: Scheduled restart job, restart counter is at 1.
Jun 23 06:06:08 pcrouter systemd[1]: Stopped Internet superserver.
Jun 23 06:06:08 pcrouter systemd[1]: Starting Internet superserver...
Jun 23 06:06:08 pcrouter systemd[1]: Started Internet superserver.
root@pcrouter:/# _
```

3. Lalu coba remote dari computer admin menggunakan syntax "telnet ip_server 23".
   Jika berhasil terhubung, maka akan diminta untuk login.

```
root@cloud:/# telnet 172.172.172.3 23
Trying 172.172.172.3...
Connected to 172.172.172.3.
Escape character is '^]'.
Ubuntu 20.04.2 LTS
pcrouter login: root
Password:
```

DAY 1 - Konfigurasi NTP Server



Agar client dapat menyamakan waktu dengan server kita harus konfigurasikan **NTP Server**

1. Install service NTP Server terlebih dahulu menggunakan syntax *"apt install ntp"*

```
root@pcrouter:/# apt install ntp
```

2. Lalu konfigurasikan file *"/etc/ntp.conf"* untuk mengubah NTP pool default menjadi NTP pool wilayah Indonesia. Cari baris seperti pada gambar berikut lalu berikan tanda pagar pada NTP pool default dan masukkan NTP pool wilayah Indonesia. Tambahkan "restrict **ip_address_network** mask ***subnetmask*** nomodify notrap" agar ip tersebut dapat menggunakan NTP Server yang sudah dikonfigurasikan

```
root@pcrouter:/# nano /etc/ntp.conf _
```

```
# Use servers from the NTP Pool Project. Approved by Ubuntu Technical Board
# on 2011-02-08 (LP: #104525). See http://www.pool.ntp.org/join.html for
# more information.
#pool 0.ubuntu.pool.ntp.org iburst
#pool 1.ubuntu.pool.ntp.org iburst
#pool 2.ubuntu.pool.ntp.org iburst
#pool 3.ubuntu.pool.ntp.org iburst
server 0.id.pool.ntp.org
server 1.id.pool.ntp.org
server 2.id.pool.ntp.org
server 3.id.pool.ntp.org
```

NTP Pool Default

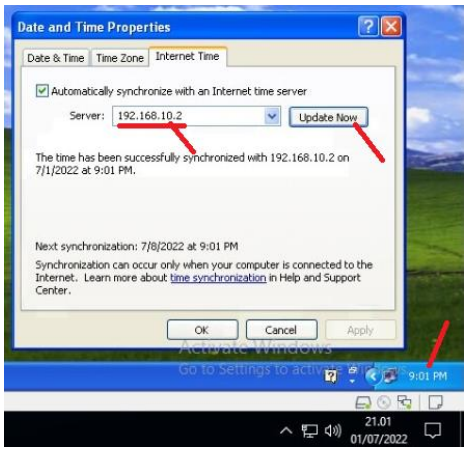
NTP Pool Indonesia

```
# Needed for adding pool entries
restrict source notrap nomodify noquery

restrict 192.168.10.0 mask 255.255.255.0 nomodify notrap
# Clients from this (example!) subnet have unlimited access, but only if
# cryptographically authenticated
```

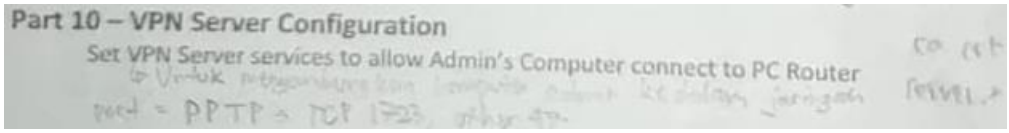
3. Setelah jalanakn NTP Server menggunakan syntax *"systemctl start ntp"* dan cek statusnya menggunakan syntax *"systemctl status ntp"* atau *"ntpq -p"*

```
root@pcrouter:/# systemctl status ntp
● ntp.service - Network Time Service
     Loaded: loaded (/lib/systemd/system/ntp.service; enabled; vendor preset: enabled)
     Active: active (running) since Mon 2022-06-20 00:54:53 UTC; 1 weeks 4 days ago
       Docs: man:ntpd(8)
   Main PID: 298667 (ntpd)
      Tasks: 2 (limit: 4620)
     Memory: 1.2M
     CGroup: /system.slice/ntp.service
             └─298667 /usr/sbin/ntpd -p /var/run/ntpd.pid -g -u 113:118
```

4. Uji coba menggunakan client



DAY 1 - Konfigurasi VPN Server



Konfigurasikan VPN Server agar admin dapat terhubung dengan jaringan yang sama

1. Install paket VPN Server PPTP

```
root@pcrouter:/# apt install pptpd ppp_
```

2. Konfigurasi VPN Server pada file *"/etc/pptpd.conf"* menggunakan perintah *"nano"*

```
root@pcrouter:/# nano /etc/pptpd.conf
```

3. Tambahkan IP berikut pada baris paling bawah

```
# (Recommended)
#localip 192.168.0.1
#remoteip 192.168.0.234-238,192.168.0.245
# or
#localip 192.168.0.234-238,192.168.0.245
#remoteip 192.168.1.234-238,192.168.1.245
localip 192.168.1.1
remoteip 192.168.1.234-238,192.168.1.245
```

4. Lalu setting DNS VPN pada file *"/etc/ppp/pptpd-options"* menggunakan *"nano"*

```
root@pcrouter:/# nano /etc/ppp/pptpd-options
```

5. Setting DNS seperti berikut menggunakan syntax berikut

```
# specifies the secondary DNS address.
# Attention! This information may not b
# client. See KB311218 in Microsoft's k
ms-dns 8.8.8.8
ms-dns 8.8.4.4

# If pppd is acting as a server for Mic
# clients, this option allows pppd to s
# Internet Name Services) server addres
```

6. Selanjutnya buat akun VPN di file *"/etc/ppp/chap-secrets"*

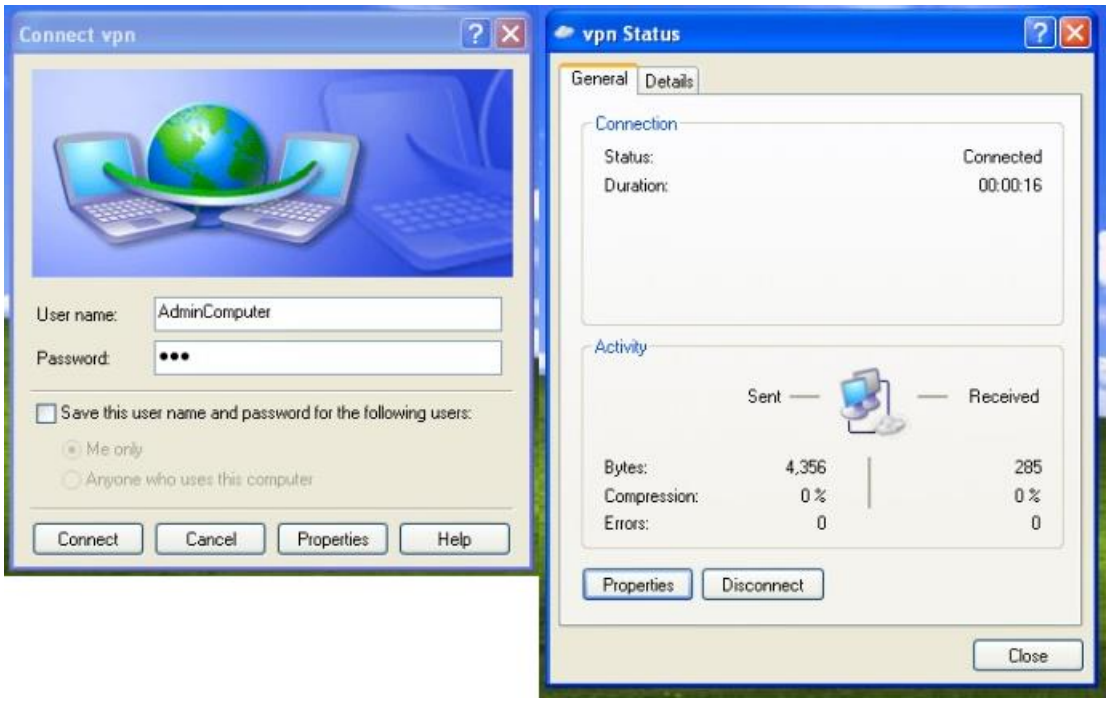
```
root@pcrouter:/# nano /etc/ppp/chap-secrets
```

```
 GNU nano 4.8                          /etc/ppp/chap-secrets
# Secrets for authentication using CHAP
# client        server  secret                  IP addresses
AdminComputer   pptpd   123                     *
```

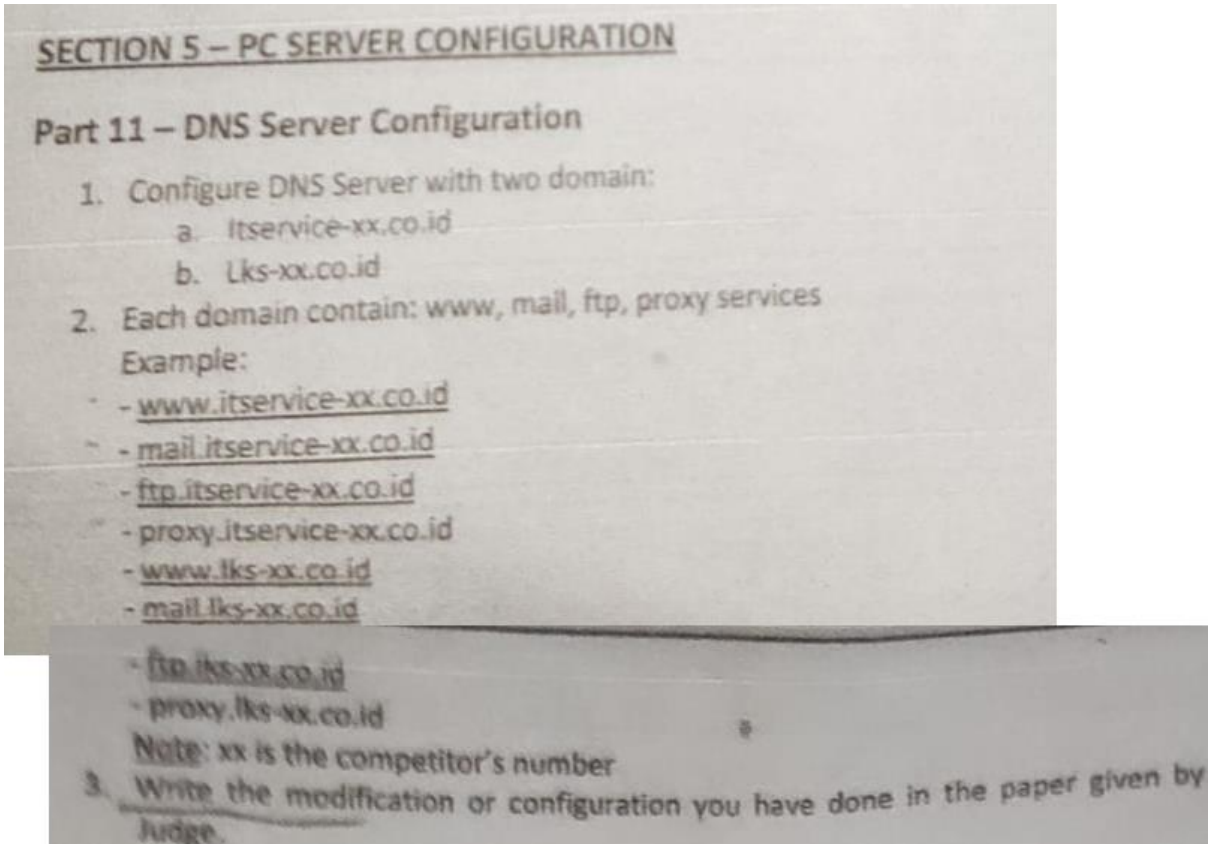
7. Setelah itu lakukan konfigurasi IP Forward
8. Restart VPN menggunakan syntax *"systemctl restart pptpd"* dan cek statusnya

```
root@pcrouter:/# systemctl restart pptpd
root@pcrouter:/# systemctl status pptpd
● pptpd.service - PoPToP Point to Point Tunneling Server
     Loaded: loaded (/lib/systemd/system/pptpd.service; disabled; vendor preset: enabled)
     Active: active (running) since Fri 2022-07-01 14:51:41 UTC; 16s ago
       Docs: man:pptpd(8)
             man:pptpctrl(8)
             man:pptpd.conf(5)
   Main PID: 713478 (pptpd)
      Tasks: 1 (limit: 4620)
     Memory: 300.0K
     CGroup: /system.slice/pptpd.service
             └─713478 /usr/sbin/pptpd --fg

Jul 01 14:51:41 pcrouter systemd[1]: Started PoPToP Point to Point Tunneling Server.
Jul 01 14:51:41 pcrouter pptpd[713478]: MGR: Maximum of 100 connections reduced to 6, not enough IP
Jul 01 14:51:41 pcrouter pptpd[713478]: MGR: Manager process started
Jul 01 14:51:41 pcrouter pptpd[713478]: MGR: Maximum of 6 connections available
lines 1-16/16 (END)
```

9. Ujicoba menggunakan admin(disini saya ujicoba menggunakan client



DAY 2 – Konfigurasi DNS PC Server



SECTION 5 – PC SERVER CONFIGURATION

Part 11 – DNS Server Configuration

1. Configure DNS Server with two domain:
   a. Itservice-xx.co.id
   b. Lks-xx.co.id
2. Each domain contain: www, mail, ftp, proxy services
   Example:
   - www.itservice-xx.co.id
   - mail.itservice-xx.co.id
   - ftp.itservice-xx.co.id
   - proxy.itservice-xx.co.id
   - www.lks-xx.co.id
   - mail.lks-xx.co.id
   - ftp.lks-xx.co.id
   - proxy.lks-xx.co.id

   Note: xx is the competitor's number
3. Write the modification or configuration you have done in the paper given by Judge.

Agar kita dapat mengakses ip server kita menggunakan nama domain kita harus mengkonfigurasikan DNS Server.

1. Install paket *bind9* menggunakan syntax *"apt install bind9"*

```
root@itservice-16:/# apt install bind9_
```

2. Lakukan konfigurasi dns pada direktori *"/etc/bind"* lalu buat file zone(untuk menjalankan file forward dan reverse), forward(untuk meneruskan nama domain ke ip), dan reverse(untuk membalikkan ip ke domain). db.192 = reverse, db.itservice = dns itservice-16.co.id, db.lks = dns lks-16.co.id, named.conf.default-zones = file zone.

```
root@itservice-16:/etc/bind# ls
bind.keys  db.192       db.empty      db.lksr     named.conf.default-zones  rndc.key
db.0       db.192.save  db.itservice  db.local    named.conf.local          zones.rfc1918
db.127     db.255       db.lks        named.conf  named.conf.options
```

3. Pertama konfigurasikan file zones (named.conf.default-zones)

```
 GNU nano 4.8                    named.conf.default-zones                    Modified

zone "itservice-16.co.id" {
        type master;
        file "/etc/bind/db.itservice";
};

zone "lks-16.co.id" {
        type master;
        file "/etc/bind/db.lks";
};

zone "16.168.192.in-addr.arpa" {
        type master;
        file "/etc/bind/db.192";
};
```

FORWARD itservice-16.co.id

FORWARD lks-16.co.id

REVERSE

4. Masuk ke file forward DNS “itservice-16.co.id”(db.itservice) dan konfigurasikan

```
 GNU nano 4.8                                db.itservice
;
; BIND data file for local loopback interface
;
$TTL    604800
@       IN      SOA     itservice-16.co.id. root.itservice-16.co.id. (
                              2         ; Serial
                         604800         ; Refresh
                          86400         ; Retry
                        2419200         ; Expire
                         604800 )       ; Negative Cache TTL
;
@       IN      NS      itservice-16.co.id.
@       IN      A       192.168.16.129
@       IN      MX      10      mail.itservice-16.co.id.
ns      IN      A       192.168.16.129
www     IN      A       192.168.16.129
mail    IN      A       192.168.16.129
ftp     IN      A       192.168.16.129
proxy   IN      A       192.168.16.129
```

5. Selanjutnya konfigurasi file forward DNS “lks-16.co.id”(db.lks)

```
 GNU nano 4.8                                  db.lks
;
; BIND data file for local loopback interface
;
$TTL    604800
@       IN      SOA     lks-16.co.id. root.lks-16.co.id. (
                              2         ; Serial
                         604800         ; Refresh
                          86400         ; Retry
                        2419200         ; Expire
                         604800 )       ; Negative Cache TTL
;
@       IN      NS      lks-16.co.id.
@       IN      A       192.168.16.129
@       IN      MX      10      mail.lks-16.co.id.
ns      IN      A       192.168.16.129
www     IN      A       192.168.16.129
mail    IN      A       192.168.16.129
ftp     IN      A       192.168.16.129
proxy   IN      A       192.168.16.129
```

6. Lanjut konfigurasi file reverse(db.192). Disini saya menggunakan domain “*itservice-16.co.id”* sebagai nama domain utama

```
 GNU nano 4.8                                  db.192
;
; BIND reverse data file for local loopback interface
;
$TTL    604800
@       IN      SOA     itservice.co.id. root.itservice-16.co.id. (
                              1         ; Serial
                         604800         ; Refresh
                          86400         ; Retry
                        2419200         ; Expire
                         604800 )       ; Negative Cache TTL
;
@       IN      NS      itservice.co.id.
@       IN      NS      ns.itservice.co.id.
@       IN      NS      lks-16.co.id.
@       IN      NS      ns.lks-16.co.id.
129     IN      PTR     ns.itservice-16.co.id.
129     IN      PTR     ns.lks-16.co.id.
129     IN      PTR     www.itservice-16.co.id.
129     IN      PTR     www.lks-16.co.id.
129     IN      PTR     mail.itservice-16.co.id.
129     IN      PTR     mail.lks-16.co.id.
129     IN      PTR     ftp.itservice-16.co.id.
129     IN      PTR     ftp.lks-16.co.id.
129     IN      PTR     proxy.itservice-16.co.id.
129     IN      PTR     proxy.lks-16.co.id.
```

7. Setelah itu konfigurasikan dns resolver pada file *"/etc/systemd/resolved.conf"* (didebian file konfigurasi resolver terletak pada *"/etc/resolv.conf"*), lalu hapus tanda pagar pada baris berikut dan masukkan ip dns server yang digunakan

```
root@itservice-16:~# nano /etc/systemd/resolved.conf
```

```
  GNU nano 4.8                          /etc/systemd/resolved.conf
#  This file is part of systemd.
#
#  systemd is free software; you can redistribute it and/or modify it
#  under the terms of the GNU Lesser General Public License as published by
#  the Free Software Foundation; either version 2.1 of the License, or
#  (at your option) any later version.
#
# Entries in this file show the compile time defaults.
# You can change settings by editing this file.
# Defaults can be restored by simply deleting this file.
#
# See resolved.conf(5) for details

[Resolve]
DNS=192.168.16.129
#FallbackDNS=
#Domains=
#LLMNR=no
#MulticastDNS=no
#DNSSEC=no
#DNSOverTLS=no
#Cache=no-negative
#DNSStubListener=yes
#ReadEtcHosts=yes
```

8. Setelah itu restart resolved service menggunakan syntax *"systemctl restart systemd-resolved"*

```
root@itservice-16:~# systemctl restart systemd-resolved_
```

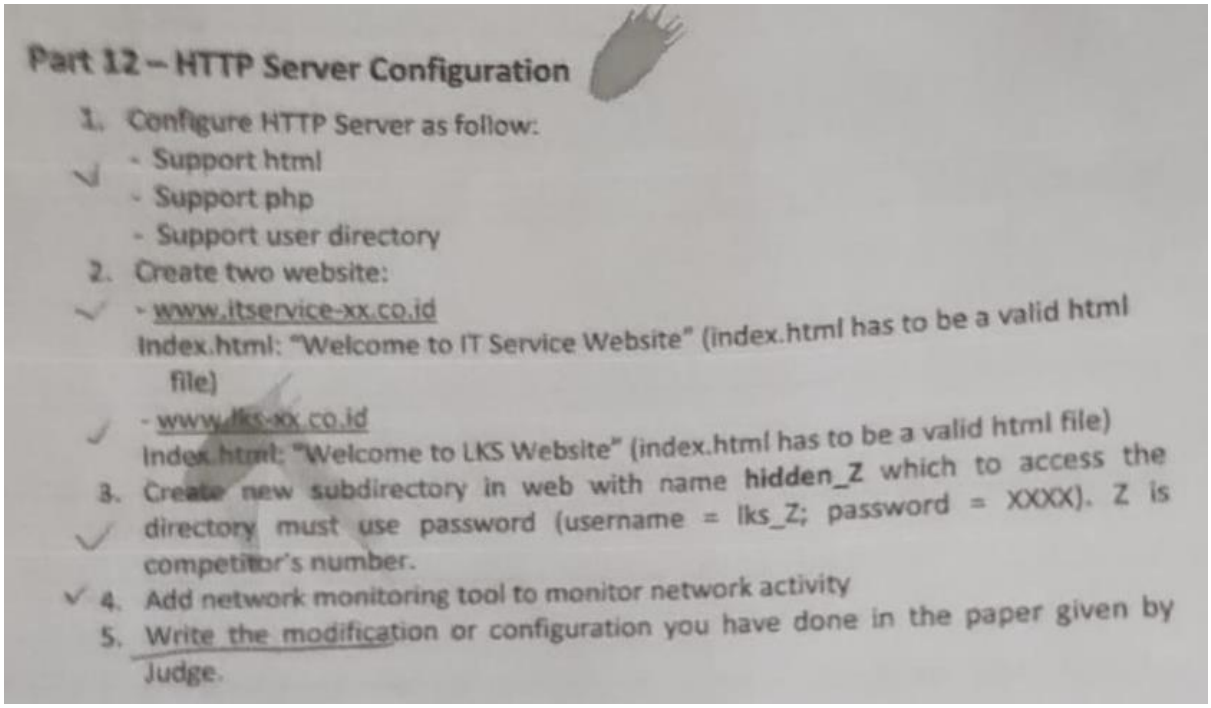
9. Setelah itu setting dns pada file *"/etc/netplan/00-installer-config.yaml"*. Pastikan dns server terletak paling atas

```
  GNU nano 4.8                  /etc/netplan/00-installer-config.yaml                Modified
# This is the network config written by 'subiquity'
network:
  ethernets:
    ens160:
      addresses:
      - 192.168.16.129/24
      gateway4: 192.168.16.1
      nameservers:
        addresses:
        - 192.168.16.129
        - 8.8.8.8
  version: 2
```

10. Lakukan ujicoba menggunakan syntax *"nslookup nama_domain"*

```
root@itservice-16:~# nslookup itservice-16.co.id
Server:         127.0.0.53
Address:        127.0.0.53#53

Non-authoritative answer:
Name:   itservice-16.co.id
Address: 192.168.16.129

root@itservice-16:~# nslookup lks-16.co.id
Server:         127.0.0.53
Address:        127.0.0.53#53

Non-authoritative answer:
Name:   lks-16.co.id
Address: 192.168.16.129
```

Konfigurasi HTTP



Part 12 – HTTP Server Configuration

1. Configure HTTP Server as follow:
   - Support html
   - Support php
   - Support user directory
2. Create two website:
   - www.itservice-xx.co.id
     Index.html: "Welcome to IT Service Website" (index.html has to be a valid html file)
   - www.lks-xx.co.id
     Index.html: "Welcome to LKS Website" (index.html has to be a valid html file)
3. Create new subdirectory in web with name **hidden_Z** which to access the directory must use password (username = lks_Z; password = XXXX). Z is competitor's number.
4. Add network monitoring tool to monitor network activity
5. Write the modification or configuration you have done in the paper given by Judge.

Selanjutnya konfigurasikan HTTP Server untuk membuat website pada kedua domain

1. Install paket apache2 dan php dengan syntax *"apt install apache2" dan "apt install php"*

```
root@itservice-16:~# apt install apache2
root@itservice-16:~# apt install php_
```

2. Setelah itu buat direktori "itservice-16.co.id" dan "lks-16.co.id" yang memuat isi dari website kita di file "/etc/www/" dan gunakan syntax *"chmod -R 777 /var/www/"* untuk memberikan semua jenis permission kepada semua jenis user.

```
root@itservice-16:~# cd /var/www/
html/                .htpasswd          itservice-16.co.id/ lks-16.co.id/
root@itservice-16:~# chmod -R 777 /var/www
```

3. Buat file "index.html" untuk masing masing direktori yang berisi koding halaman website. Isi file tersebut seperti pada gambar

```
root@itservice-16:~# /var/www/itservice-16.co.id/
index.html
root@itservice-16:~# /var/www/lks-16.co.id/
index.html
```

```
 GNU nano 4.8                  /var/www/itservice-16.co.id/index.html
<html>
        <head>
                <title>Home</title>
        </head>
        <body>
                <h1>Welcome to IT Service Website</h1>
        </body>
</html>
```

```
 GNU nano 4.8                  /var/www/lks-16.co.id/index.html
<html>
        <head>
                <title>Home</title>
        </head>
        <body>
                <h1>Welcome to LKS Website!</h1>
        </body>
</html>
```

4. Lalu buat file konfigurasi apache apa direktori *"/etc/apache2/sites-avaible/itservice.conf"*

```
root@itservice-16:~# nano /etc/apache2/sites-available/itservice.conf
```

5. Konfigurasikan file seperti pada gambar. Agar saat kita mengakses domain maka halaman web pada file *"/var/www/nama_domain"* akan muncul

```
 GNU nano 4.8                 /etc/apache2/sites-available/itservice.conf
<VirtualHost *:80>
        ServerAdmin jere@localhost
        ServerName itservice-16.co.id
        ServerAlias www.itservice-16.co.id
        DocumentRoot /var/www/itservice-16.co.id
        ErrorLog ${APACHE_LOG_DIR}/error.log
        CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>

<VirtualHost *:80>
        ServerAdmin jere@localhost
        ServerName lks-16.co.id
        ServerAlias www.lks-16.co.id
        DocumentRoot /var/www/lks-16.co.id
        ErrorLog ${APACHE_LOG_DIR}/error.log
        CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>

_
```

6. Setelah itu gunakan syntax *"a2ensite"* dan "*a2dissite"* untuk menonaktifkan situs *"000-default.conf"* dan mengaktifkan situs *"itservice.conf"*

```
root@itservice-16:~# a2ensite itservice.conf_
root@itservice-16:~# a2dissite 000-default.conf_
```

7. Sekarang kita konfigurasikan bagian **Direktori Tersembunyi** *"hidden_16"* yang saat kita ingin mengaksesnya, maka website akan meminta autentikasi. Untuk itu kita perlu menginstall paket *"apache2-utils"*

```
root@itservice-16:~# /var/www/itservice-16.co.id/
hidden_16/  index.html
root@itservice-16:~# /var/www/lks-16.co.id/
hidden_16/  index.html
```

```
root@itservice-16:~# apt install apache2-utils
```

8. Lalu buat file yang menyimpan user dan password menggunakan syntax *"htpasswd -c /var/www/.htpasswd lks_16",* disini saya tidak menggunakan syntax "-c" karena user "lks_16" sudah dibuat dan disini user "contoh" saya gunakan sebagai contoh. Saya meletak filenya di dekat file website(biasanya orang letak di direktori *"/etc/apache2/.htpasswd"*). Setelah itu masukkan password yang ingin digunakan.

```
root@itservice-16:~# htpasswd /var/www/.htpasswd contoh
New password:
Re-type new password:
Adding password for user contoh
```

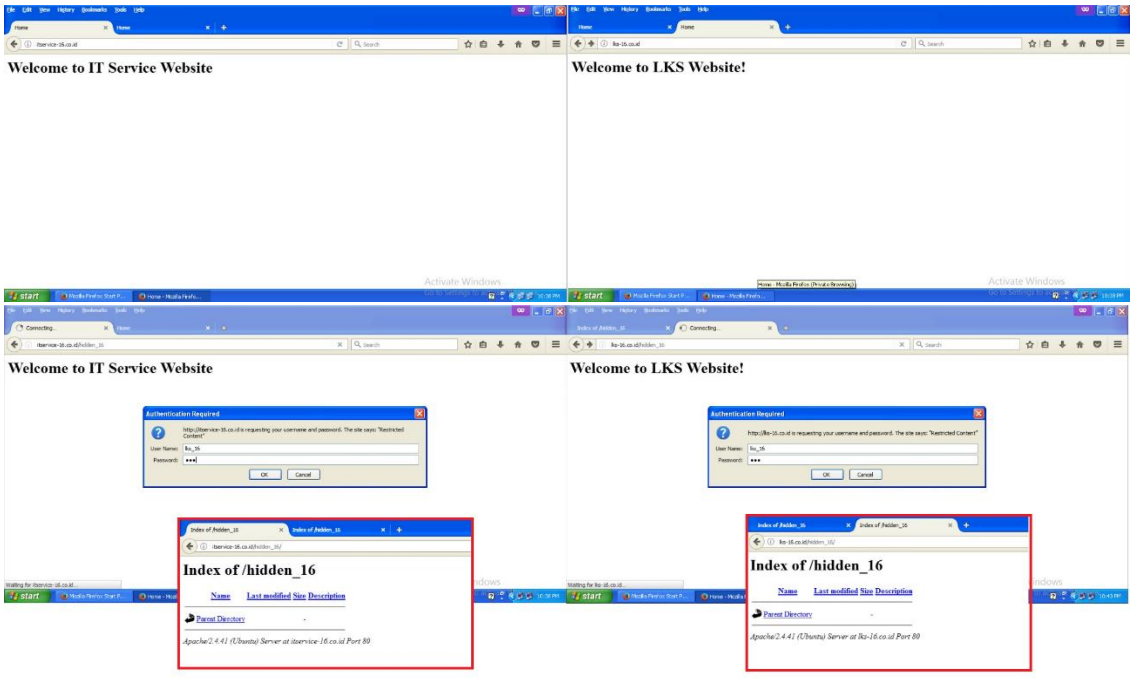
9. Setelah itu kita konfigurasikan direktori mana yang mau kita berikan autentifikasi dengan menulis syntax seperti pada gambar pada file *"/etc/apache2/sites-avaible/itservice.conf/"*

```
 GNU nano 4.8                    /etc/apache2/sites-available/itservice.conf
<VirtualHost *:80>
        ServerAdmin jere@localhost
        ServerName itservice-16.co.id
        ServerAlias www.itservice-16.co.id
        DocumentRoot /var/www/itservice-16.co.id
        ErrorLog ${APACHE_LOG_DIR}/error.log
        CustomLog ${APACHE_LOG_DIR}/access.log combined

        <Directory "/var/www/itservice-16.co.id/hidden_16">
                AuthType Basic
                AuthName "Restricted Content"
                AuthUserFile /var/www/.htpasswd
                Require valid-user
        </Directory>
</VirtualHost>

<VirtualHost *:80>
        ServerAdmin jere@localhost
        ServerName lks-16.co.id
        ServerAlias www.lks-16.co.id
        DocumentRoot /var/www/lks-16.co.id
        ErrorLog ${APACHE_LOG_DIR}/error.log
        CustomLog ${APACHE_LOG_DIR}/access.log combined

        <Directory "/var/www/lks-16.co.id/hidden_16">
                AuthType Basic
                AuthName "Restricted Content"
                AuthUserFile /var/www/.htpasswd
                Require valid-user
        </Directory>
</VirtualHost>
```

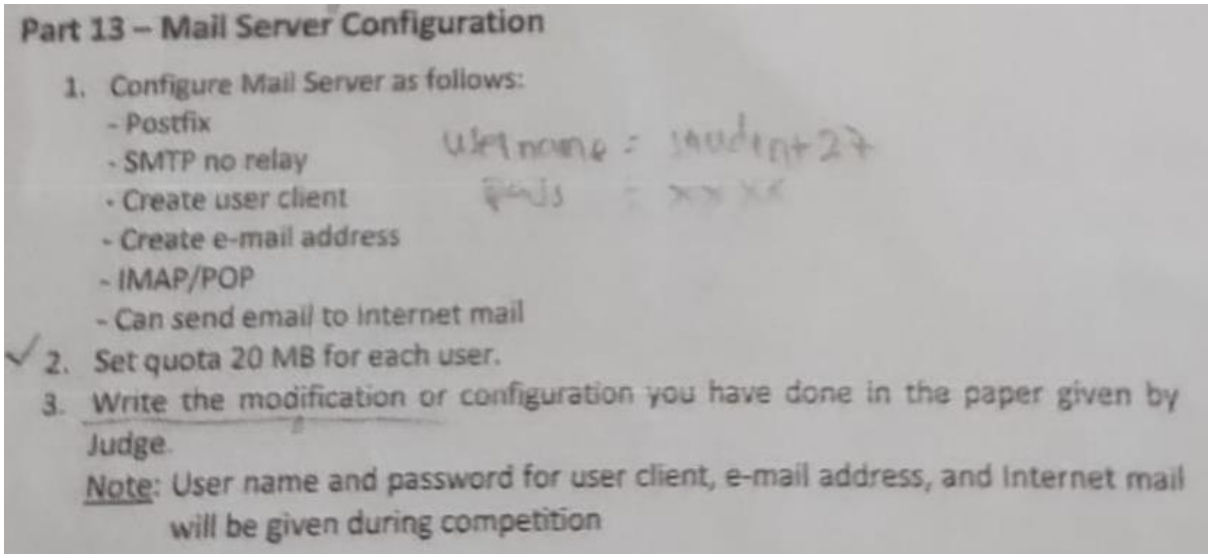
10. Setelah itu restart servis apache2

```
root@itservice-16:~# systemctl restart apache2
```

11. Uji coba menggunakan client. Pertama kita buka domain kita "itservice-16.co.id" atau "lks-16.co.id" setelah itu kita coba akses direktori "hidden_16", jika konfigurasi berhasil maka kita akan diminta untuk autentifikasi. Gunakan user yang sudah kita buat sebelumnya.



Konfigurasi Mail Server



Part 13 – Mail Server Configuration

1. Configure Mail Server as follows:
   - Postfix
   - SMTP no relay
   - Create user client
   - Create e-mail address
   - IMAP/POP
   - Can send email to Internet mail
2. Set quota 20 MB for each user.
3. Write the modification or configuration you have done in the paper given by Judge.

Note: User name and password for user client, e-mail address, and Internet mail will be given during competition

Untuk mengkonfigurasikan mail server kita akan menggunakan postfix

1. Pertama kita install paket postfix, courier imap, dan courier-pop

```
root@itservice-16:~# apt install postfix courier-imap courier-pop
```

2. Setelah itu konfigurasikan seperti berikut 1. Internet site, 2. System mail name, 3. Root and postmaster mail recipient(dikosongkan saja), 4. DNS, 5. Local Network, 6. Mailbox size limit(20mb = 20jt byte), 7. (kosongkan), 8. Jenis IP yang digunakan.

3. Setelah selesai mengkonfigurasi, selanjutya cek konfigurasi dalam file *"/etc/postfix/main.cf"*

```
root@itservice-16:~# nano /etc/postfix/main.cf
```

4. Cek konfigurasi dan pastikan sudah benar

```
 GNU nano 4.8                          /etc/postfix/main.cf

smtpd_relay_restrictions = permit_mynetworks permit_sasl_authenticated defer_unauth_destination
myhostname = itservice-16.co.id
alias_maps = hash:/etc/aliases
alias_database = hash:/etc/aliases
myorigin = /etc/mailname
mydestination = itservice-16.co.id, itservice-16.co.id, mail.itservice-16.co.id, localhost.co.id, ,
relayhost =
mynetworks = 127.0.0.0/8 [::ffff:127.0.0.0]/104 [::1]/128 0.0.0.0/0
mailbox_size_limit = 20000000
recipient_delimiter = +
inet_interfaces = all
inet_protocols = ipv4
home_mailbox = Maildir/
```

5. Setelah selesai mengkonfigurasi, selanjutya reload postfix

```
root@itservice-16:~# systemctl reload postfix_
```

6. Selanjutnya buat direktori "Maildir" yang akan menampung pesan email(disini saya membuat didirektori "skell" agar directory "maildir" akan otomatis dibuat didalam user saat user itu dibuat

```
root@itservice-16:~# maildirmake /etc/skel/Maildir
```

7. Buat user untuk menguji coba. Disini saya menggunakan user *"jere"* dan *"wan"*

```
root@itservice-16:~# adduser contoh
Adding user `contoh' ...
Adding new group `contoh' (1003) ...
Adding new user `contoh' (1003) with group `contoh' ...
Creating home directory `/home/contoh' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for contoh
Enter the new value, or press ENTER for the default
        Full Name []:
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n]
```

8. Setelah itu lakukan uji coba dengan mengirim dan mengecek pesan yang dikirim

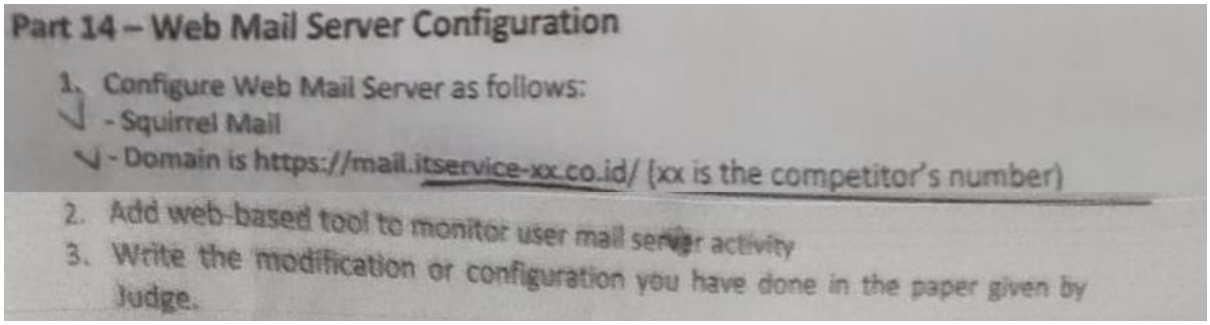
```
root@itservice-16:~# telnet mail.itservice-16.co.id 25
Trying 192.168.16.129...
Connected to mail.itservice-16.co.id.
Escape character is '^]'.
220 itservice-16.co.id ESMTP Postfix (Ubuntu)
mail from:jere
250 2.1.0 Ok
rcpt to:wan
250 2.1.5 Ok
data
354 End data with <CR><LF>.<CR><LF>
test kirim email
.
250 2.0.0 Ok: queued as B58F6E81
quit
221 2.0.0 Bye
Connection closed by foreign host.
root@itservice-16:~# _
```

Mengirim

```
root@itservice-16:~# telnet mail.itservice-16.co.id 110
Trying 192.168.16.129...
Connected to mail.itservice-16.co.id.
Escape character is '^]'.
+OK Hello there.
user wan
+OK Password required.
pass 123
+OK logged in.
stat
+OK 3 1342
retr 3
+OK 432 octets follow.
Return-Path: <jere@itservice-16.co.id>
X-Original-To: wan
Delivered-To: wan@itservice-16.co.id
Received: from itservice-16.co.id (itservice-16.co.id [192.168.16.129])
        by itservice-16.co.id (Postfix) with SMTP id B58F6E81
        for <wan>; Sat,  2 Jul 2022 16:52:12 +0000 (UTC)
Message-Id: <20220702165238.B58F6E81@itservice-16.co.id>
Date: Sat,  2 Jul 2022 16:52:12 +0000 (UTC)
From: jere@itservice-16.co.id

test kirim email
.
quit
+OK Bye-bye.
Connection closed by foreign host.
root@itservice-16:~# _
```

Menerima

Konfigurasi Web Mail Server


Part 14 – Web Mail Server Configuration

1. Configure Web Mail Server as follows:
   - Squirrel Mail
   - Domain is https://mail.itservice-xx.co.id/ (xx is the competitor's number)
2. Add web-based tool to monitor user mail server activity
3. Write the modification or configuration you have done in the paper given by Judge.

Agar kita dapat mengakses mail server kit melalui domain kita harus mengkonfigurasikan web mail server, untuk itu kita harus menginstall squirrelmail.

1. Pertama install paket *"wget"* agar kita dapat mendownload squirrelmail dari web
   ```
   root@itservice-16:~# apt intall wget_
   ```
2. Selanjutnya jalankan syntax berikut untuk mendownload squirrelmail *"wget https://sourceforge.net/projects/squirrlemmail/files/stable/1.4.22/squirrelmail-webmail-1.4.22.zip"*
   ```
   root@itservice-16:~# wget https://sourceforge.net/projects/
   squirrelmail/tiles/stable/1.4.22/squirrelmail-webmail-1.4.22.zip_
   ```
3. Setelah mendonqload, sekarang kita ekstrak filenya
   ```
   root@itservice-16:~# unzip squirrelmail-webmail-1.4.22.zip_
   ```
4. Selanjutanya pindahkan file yang sudah kita ekstrak ke direktori *"var/www/html"*
   ```
   root@itservice-16:~# mv squirrelmail-webmail-1.4.22.zip /var/www/html/
   ```
5. Setelah kita pindahkan sekarang kita ubah namanya
   ```
   root@itservice-16:~# mv /var/www/html/squirrelmail-
   webmail-1.4.22.zip /var/www/html/squirrelmail/_
   ```
6. Gunakan konfigurasi ini agar apache dan squirrelmail dapat terhubung tanpa ada masalah perizinan
   ```
   root@itservice-16:~# chown -R www.data:www.data /var/www/html/squirrelmail/
   ```
7. Dan gunakan syntax ini agar untuk mengganti file permission
   ```
   root@itservice-16:~# chmod 777 -R /var/www/html/squirrelmail/
   ```
8. Selanjutnya kita masuk ke konfigurasi squirrelmail dengan menggunakan syntax *"perl"*
   ```
   root@itservice-16:~# perl /var/www/html/squirrelmail/config/conf.pl
   ```

9. Akan muncul tampilan seperti ini, untuk pertama pilih nomor 2 untuk mengkonfigurasikan namadomain yang akan digunakan

```
SquirrelMail Configuration : Read: config.php (1.4.0)
---------------------------------------------------------
Main Menu --
1.  Organization Preferences
2.  Server Settings
3.  Folder Defaults
4.  General Options
5.  Themes
6.  Address Books
7.  Message of the Day (MOTD)
8.  Plugins
9.  Database
10. Languages

D.  Set pre-defined settings for specific IMAP servers

C   Turn color on
S   Save data
Q   Quit

Command >> _
```

10. Konfigurasikan seperti berikut

```
SquirrelMail Configuration : Read: config.php (1.4.0)
---------------------------------------------------------
Server Settings

General
-------
1.  Domain                : mail.itservice-16.co.id
2.  Invert Time           : false
3.  Sendmail or SMTP      : SMTP

A.  Update IMAP Settings  : localhost:143 (other)
B.  Update SMTP Settings  : localhost:25

R   Return to Main Menu
C   Turn color on
S   Save data
Q   Quit

Command >>
```

11. Setelah itu keluar dan pilih nomor 4 dan setting nomor 11 agar menjadi false

```
SquirrelMail Configuration : Read: config.php (1.4.0)
---------------------------------------------------------
General Options
1.  Data Directory               : /var/local/squirrelmail/data/
2.  Attachment Directory         : /var/local/squirrelmail/attach/
3.  Directory Hash Level         : 0
4.  Default Left Size            : 150
5.  Usernames in Lowercase       : false
6.  Allow use of priority        : true
7.  Hide SM attributions         : false
8.  Allow use of receipts        : true
9.  Allow editing of identity    : true
    Allow editing of name        : true
    Remove username from header  : false
10. Allow server thread sort     : false
11. Allow server-side sorting    : true
12. Allow server charset search  : true
13. Enable UID support           : true
14. PHP session name             : SQMSESSID
15. Location base                :
16. Only secure cookies if poss. : true
17. Disable secure forms         : false
18. Page referal requirement     :

R   Return to Main Menu
C   Turn color on
S   Save data
Q   Quit

Command >>
```

12. Lanjut konfigurasi apache2 dan buka file *"/etc/apache2/sites-avaible/itservice.conf"*

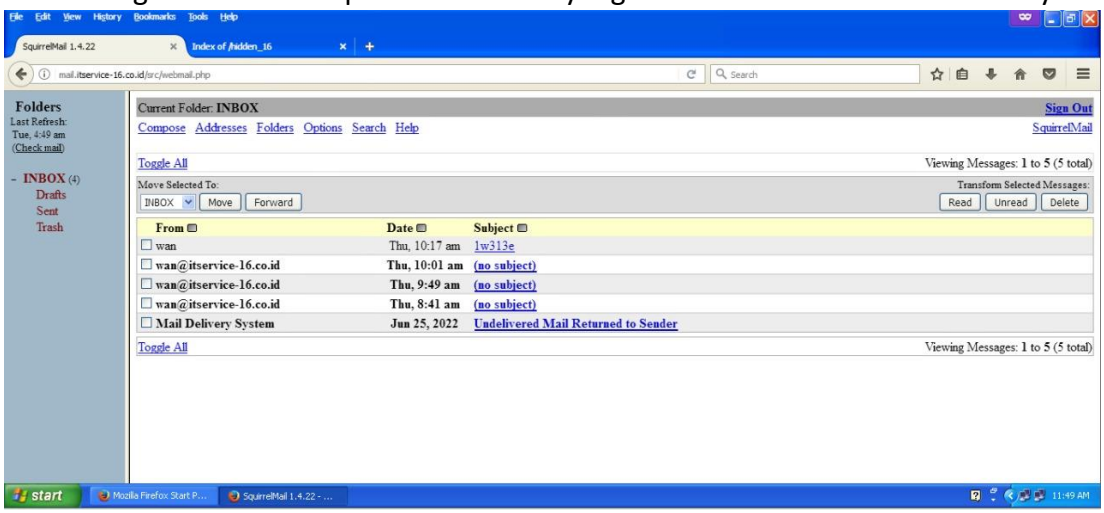
```
root@itservice-16:~# nano /etc/apache2/sites-available/itservice.conf _
```

13. Tambahkan konfigurasi berikut agar kita dapat lansung mengakses squirrelmail menggunakan dns "mail.itservice-16.co.id"

```
 GNU nano 4.8                /etc/apache2/sites-available/itservice.conf                Modified
        </Directory>
</VirtualHost>

<VirtualHost *:80>
        ServerAdmin jere@localhost
        ServerName lks-16.co.id
        ServerAlias www.lks-16.co.id
        DocumentRoot /var/www/lks-16.co.id
        ErrorLog ${APACHE_LOG_DIR}/error.log
        CustomLog ${APACHE_LOG_DIR}/access.log combined

        <Directory "/var/www/lks-16.co.id/hidden_16">
                AuthType Basic
                AuthName "Restricted Content"
                AuthUserFile /var/www/.htpasswd
                Require valid-user
        </Directory>
</VirtualHost>

<VirtualHost *:80>
        ServerName mail.itservice-16.co.id
        DocumentRoot /var/www/html/squirrelmail/

        <Directory /var/www/html/squirrelmail/>
                Options FollowSymLinks
                AllowOverride All
                Order allow,deny
                allow from all
        </Directory>
</VirtualHost>

^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify  ^C Cur Pos  M-U Undo
^X Exit      ^R Read File  ^\ Replace   ^U Paste Text ^T To Spell ^_ Go To Line M-E Redo
```

14. Lanjutkan uji coba pada laptop client dan login menggunakan akun yang sudah kita buat sebelumnya

15. Setelah login maka kita dapat melihat mail yang kira kirim dan terima sebelumnya



Konfigurasi Proxy Server

Part 16 – Proxy Server Configuration

1. Configure Proxy Server to allow only 'whitelist accessed' of website from Laptop client using ACL (access control list).
   Note: List of websites will be given during competition
2. Configure Proxy Server to access Internet using username and password (non-transparent mode).
   Note: Username and password will be given during competition
3. Configure Proxy Server to limit bandwidth for download.
4. Add web-based tool to monitor user proxy activity.
5. Write the modification or configuration you have done in the paper given by Judge.

Disini kita menggunakan ***SQUID*** untuk Proxy Servernya

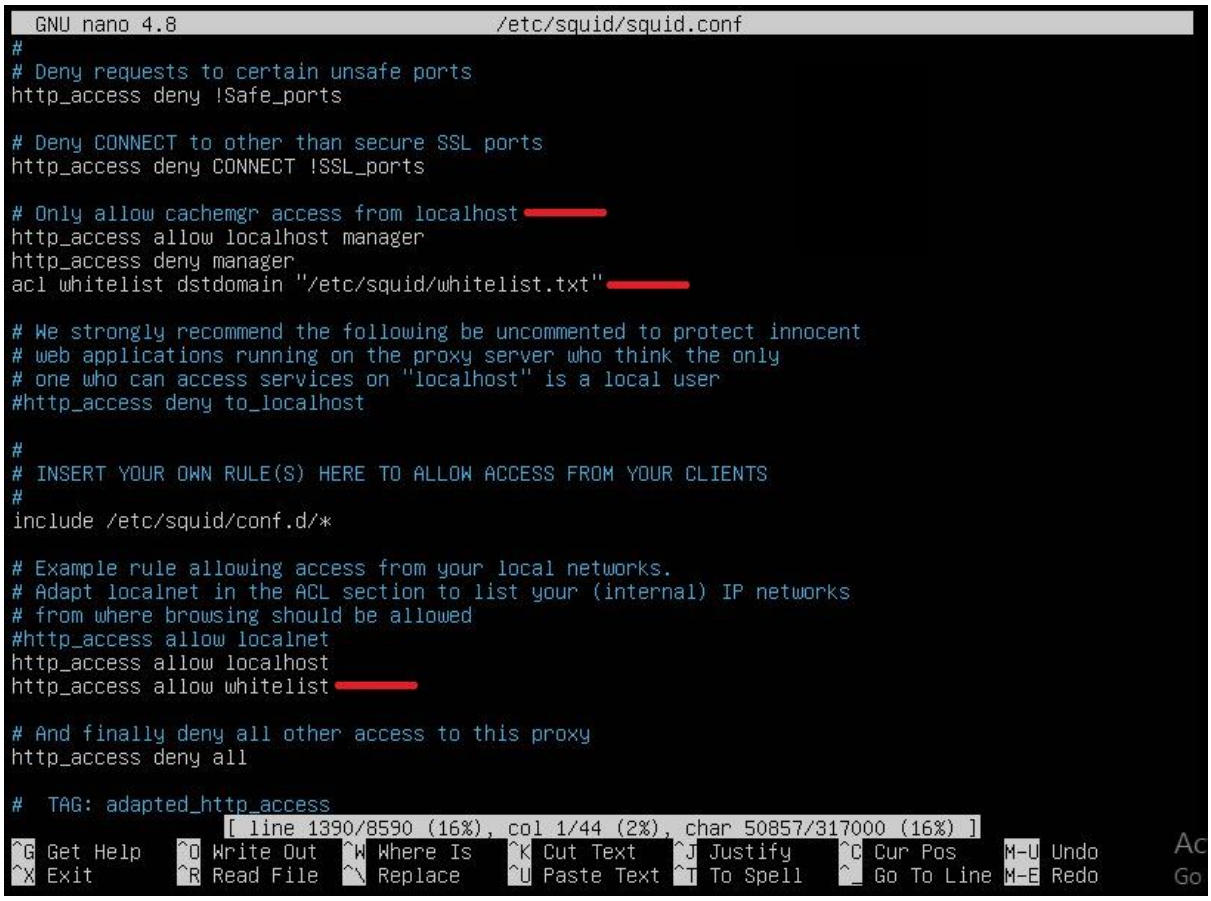
1. Pertama kita install dulu squidnya

```
root@itservice-16:~# apt install squid_
```

2. Lansung saja dikonfigurasikan di file */etc/squid/squid.conf"*

```
root@itservice-16:~# nano /etc/squid/squid.conf
```

3. Cari barisan berikut



4. Tambahkan barisan berikut untuk menyambungkan whitelist yang berisi nama nama domain yang nanti akan kita allow dan buat di *"/etc/squid/whitelist.txt"*

```
acl whitelist dstdomain "/etc/squid/whitelist.txt"
```

5. Lalu tambahkan barisan berikut untuk mengallow domain yang berada di whitelistnya

```
http_access allow whitelist
```

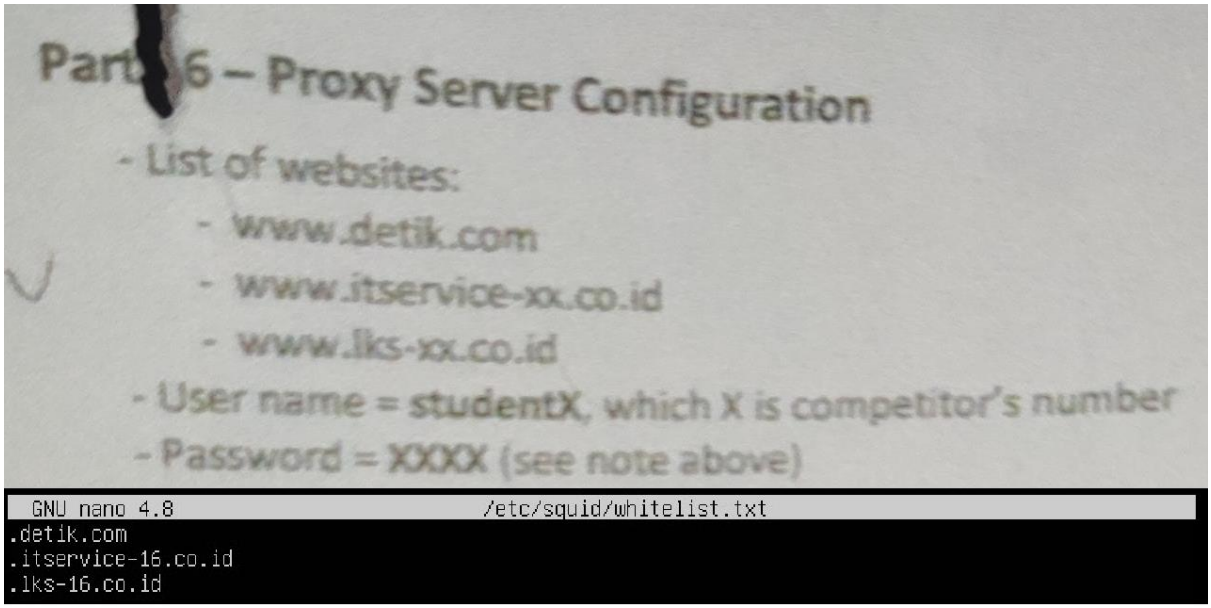
6. Jangan lupa setting DNS Proxy Servernya

```
 GNU nano 4.8                          /etc/squid/squid.conf
#  TAG: dns_nameservers
#       Use this if you want to specify a list of DNS name servers
#       (IP addresses) to use instead of those given in your
#       /etc/resolv.conf file.
#
#       On Windows platforms, if no value is specified here or in
#       the /etc/resolv.conf file, the list of DNS name servers are
#       taken from the Windows registry, both static and dynamic DHCP
#       configurations are supported.
#
#       Example: dns_nameservers 10.0.0.1 192.172.0.4
#Default:
# Use operating system definitions
dns_nameservers 192.168.16.129 8.8.8.8 8.8.4.4

                [ line 8115/8590 (94%), col 47/47 (100%), char 300033/317000 (94%) ]
^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify  ^C Cur Pos  M-U Undo
^X Exit      ^R Read File  ^\ Replace   ^U Paste Text ^T To Spell ^_ Go To Line M-E Redo
```

7. Selanjutnya kita buat file whitelistnya

```
root@itservice-16:~# nano /etc/squid/whitelist.txt
```

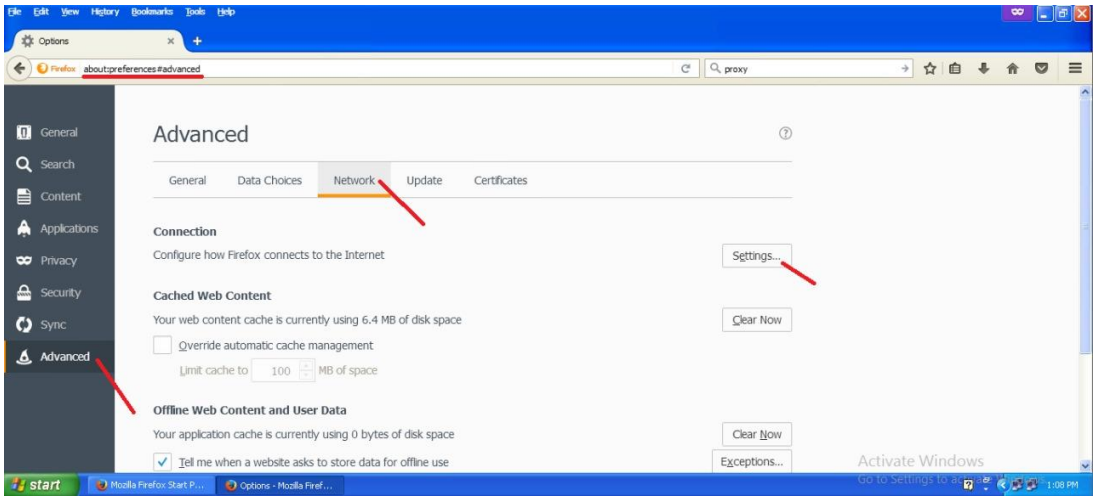
8. Lalu isi file tersebut dengan nama domain yang akan kita allow untuk diakses

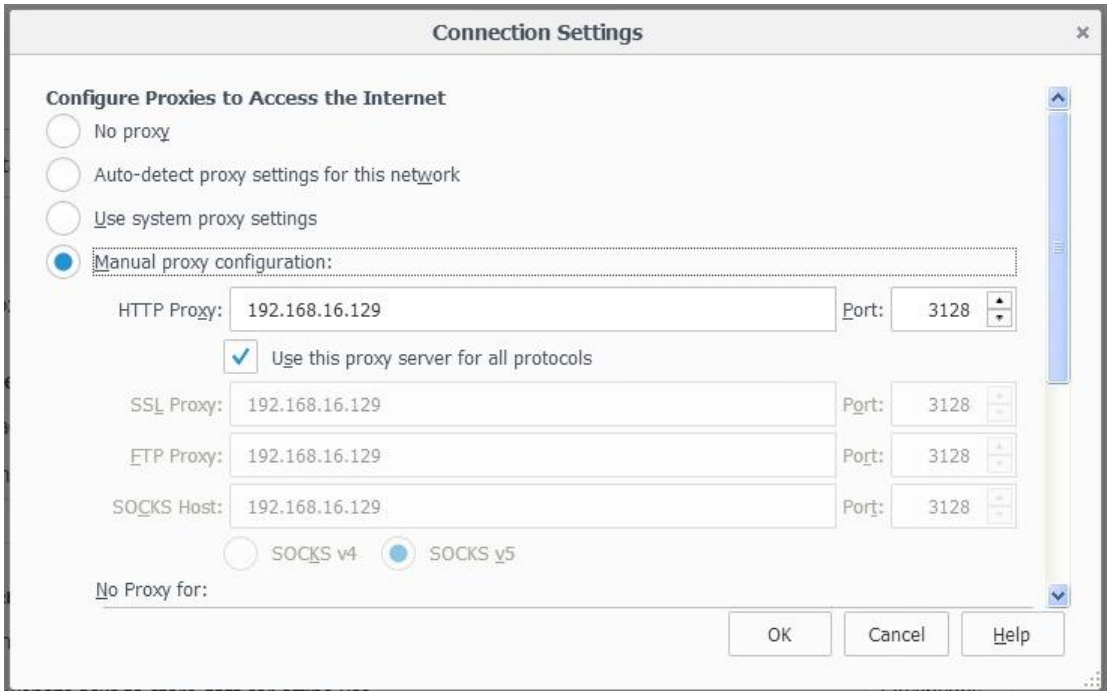


9. Setelah konfigurasi selesai sekarang kita reload service proxy servernya

```
root@itservice-16:~# systemctl reload squid_
```

10. Lakukan uji coba pada client, buka firefox dan setting proxy servernya





11. Selanjutnya kita buka domain yang ada didalam daftar whitelistnya

12. Dan buka domain yang ada didalam daftar whitelist