DNS Sinkhole with Pi-hole

Step by Step Pi-hole Configuration on Centos 8

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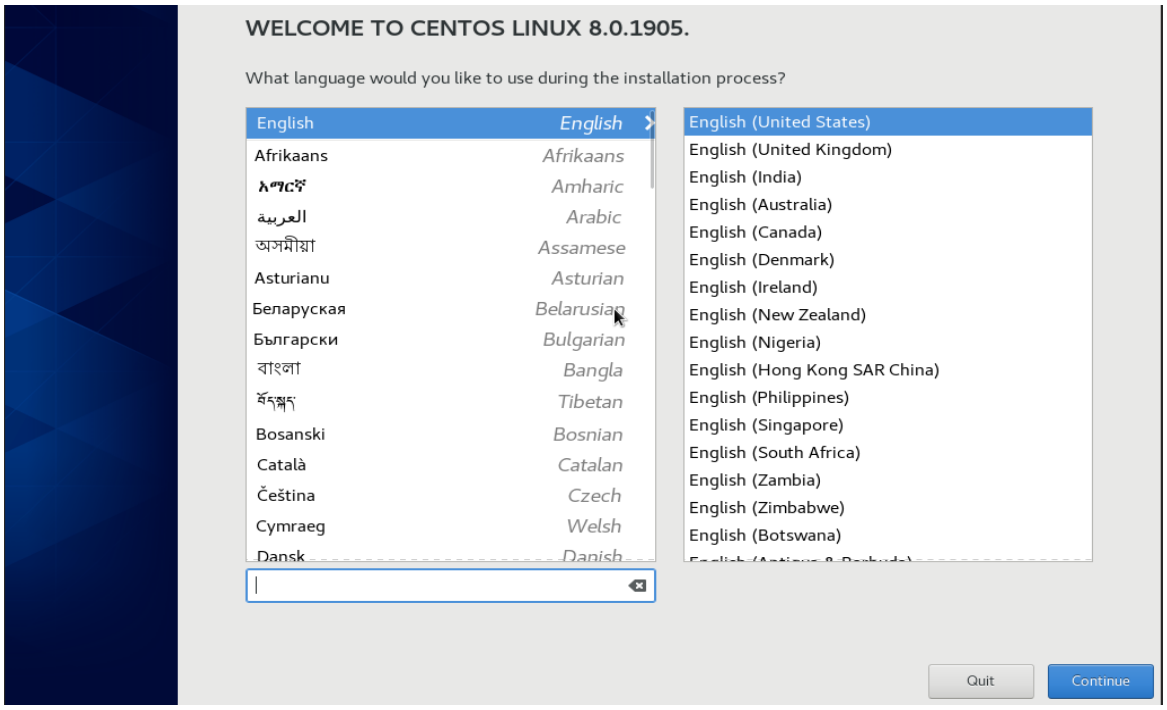
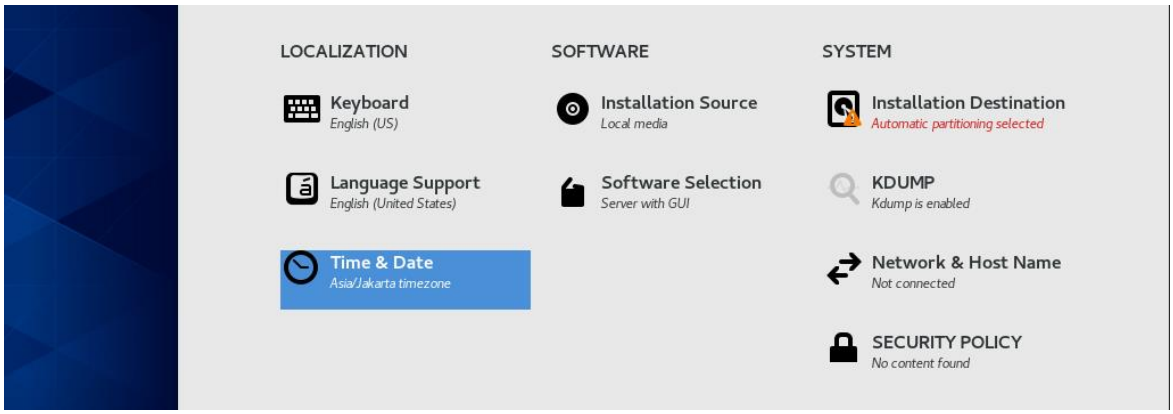
Dinas Komunikasi dan Informatika
Kota Tangerang

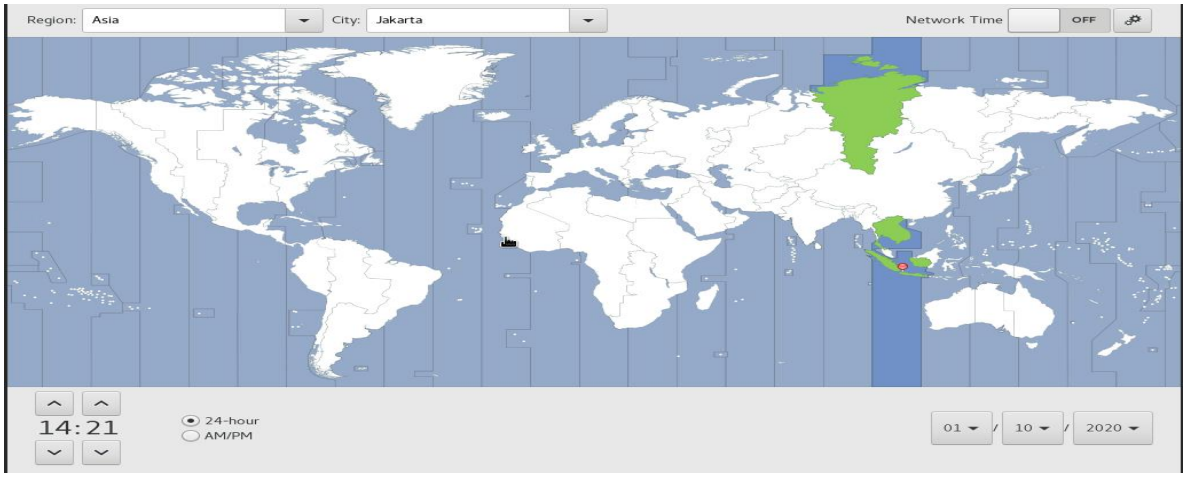
A. CENTOS 8 INSTALLATION

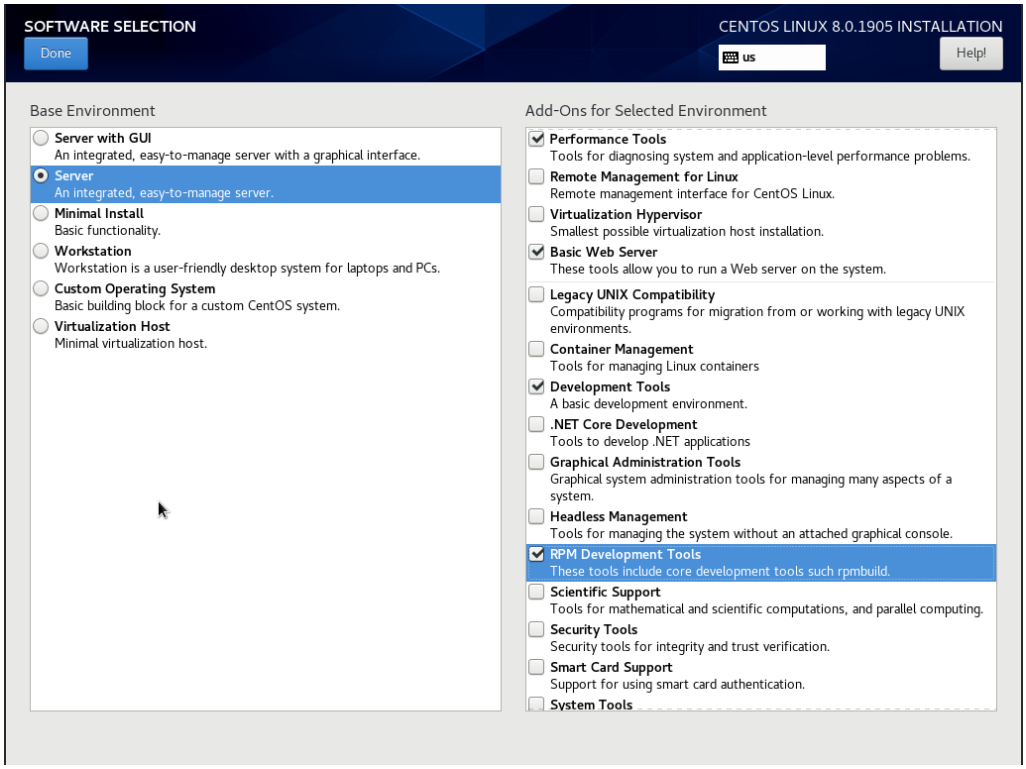


1. Choose Centos 8 Installation Language and Click Continue.

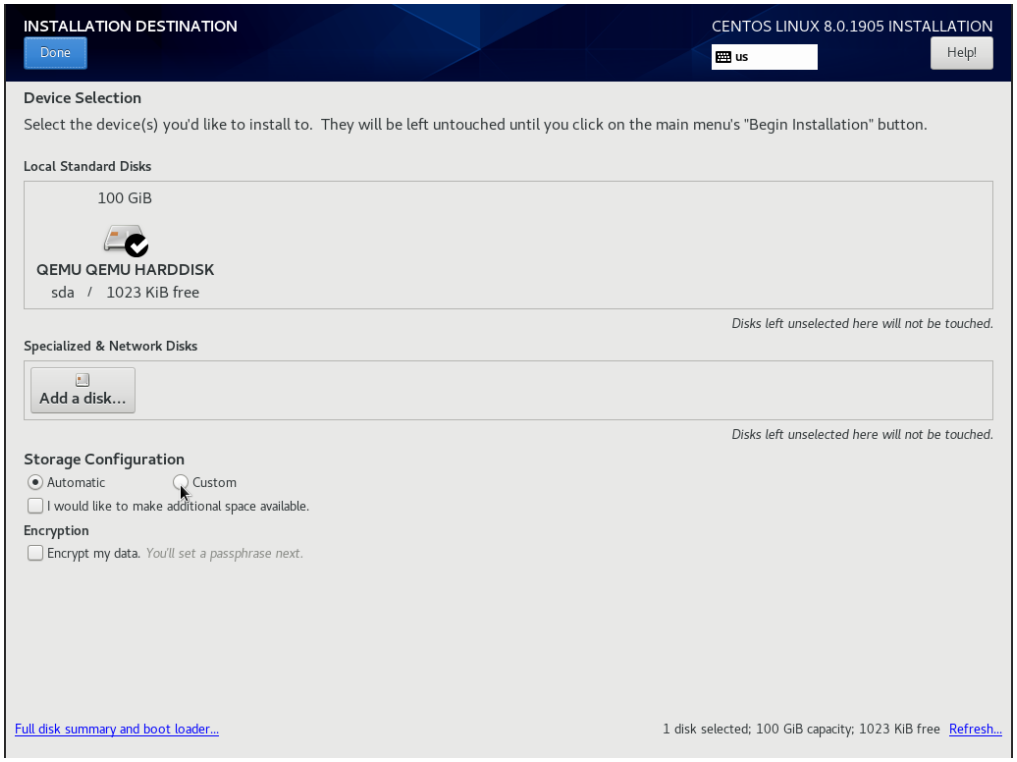


2. Centos 8 will displaying an installation summary. Click Time & Date to set your timezone. I choose Asia/Jakarta.

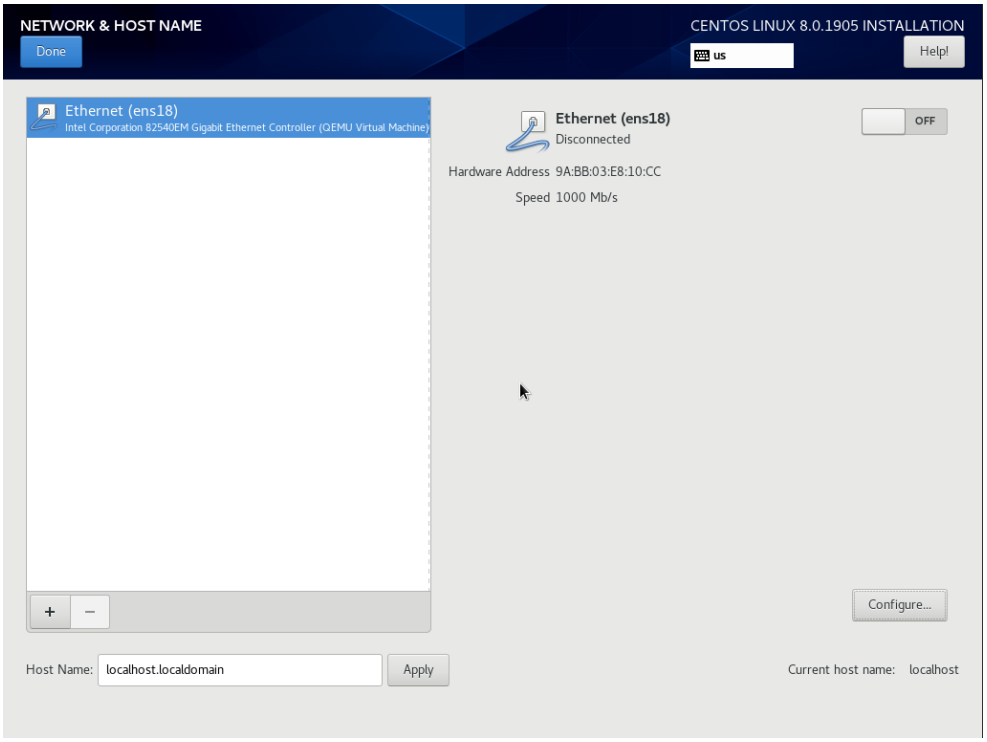




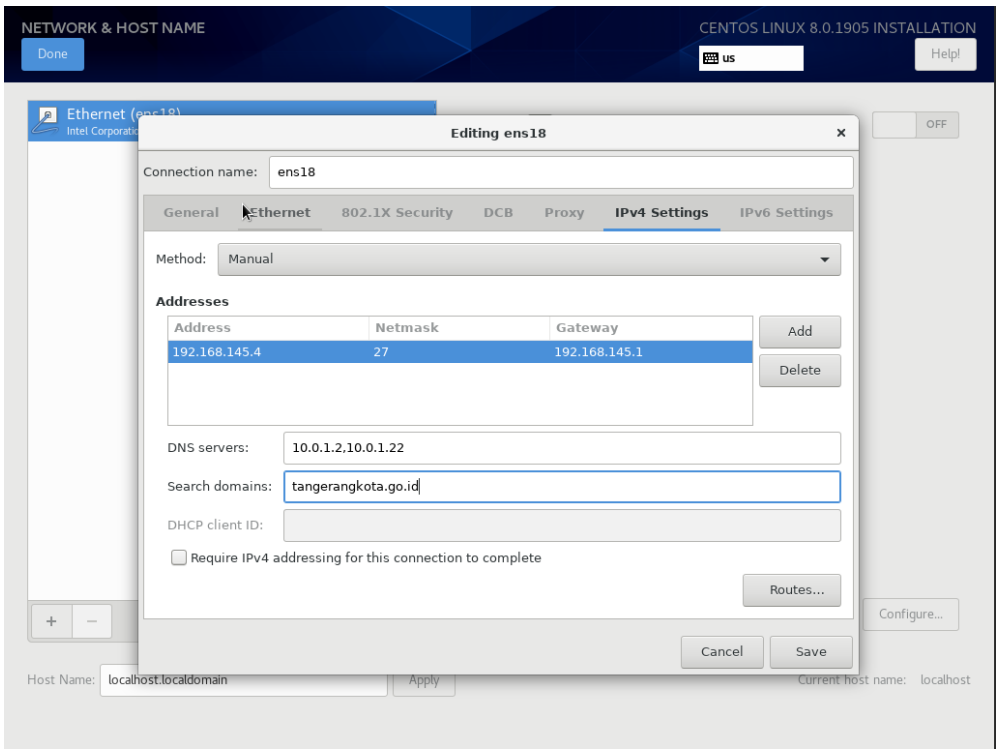
3. After you choose server's timezone, the installation summary will appear again. Click software selection. Choose server and select the following add-ons above. Click done.



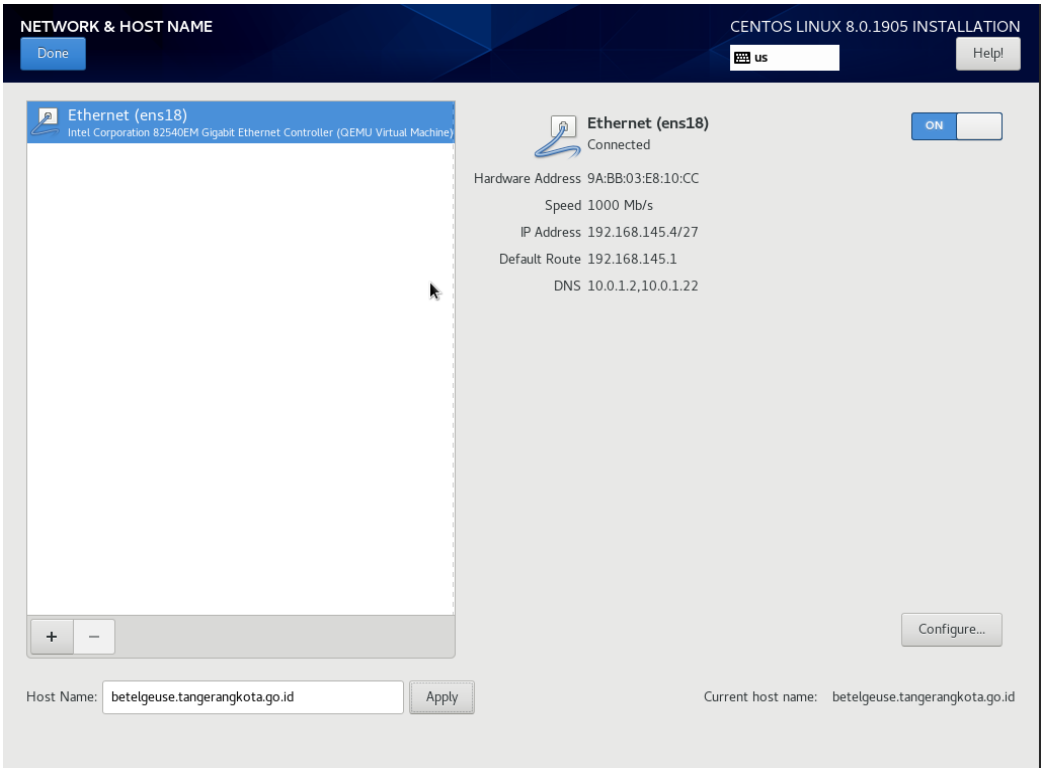
4. Click Installation Destination. You can decided your own storage configuration with choose custom. But in this module, I choose automatic. The system will create partition automatically.



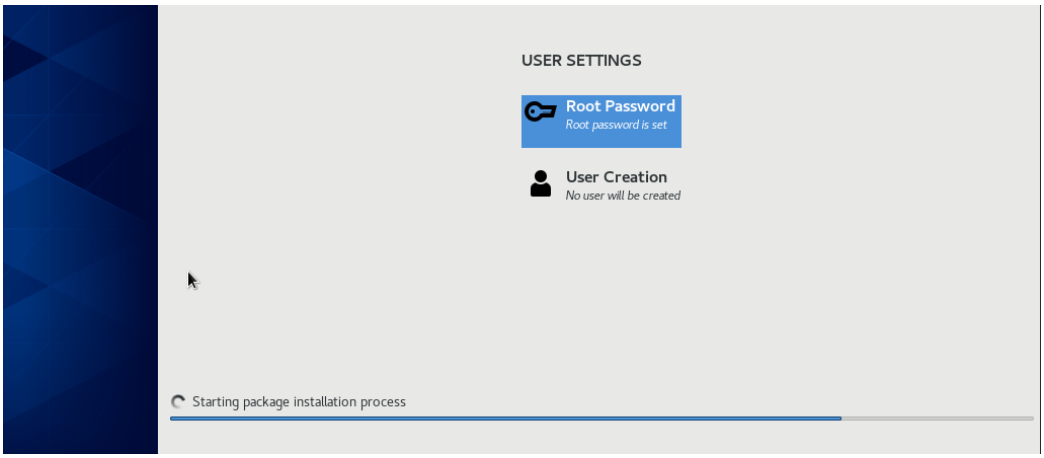
5. If you have an active internet connection, you can configure server's IP Address in installation step. Click Netwok & Host Name on installation summary and then click configure.



6. Click IPv4 Setting tab, set your IP Address and DNS server(s). If finished, click Save.

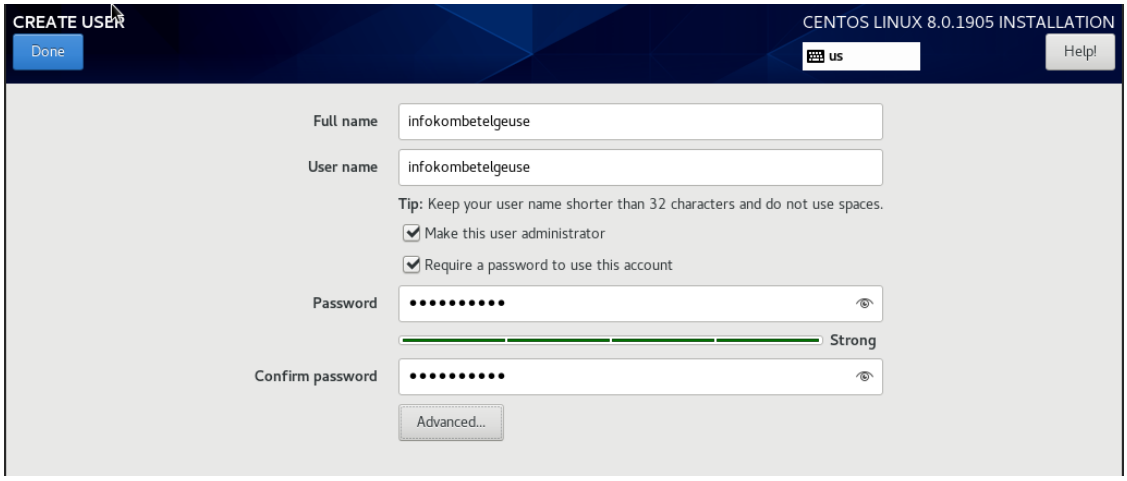


7. Turn on the network interface. Your IP Address wich you configured will be appear. You can also set your hostname here. Decide your hostname (FQDN) like server1.domain.com, etc. If finished, click done.

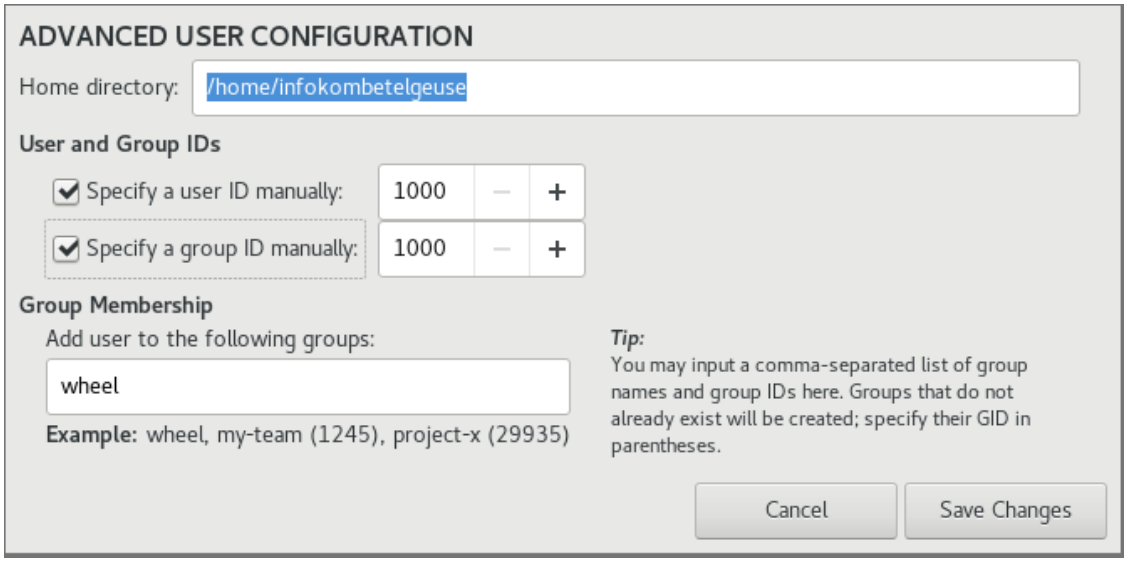


8. After you configured server's IP and Host Name, the installation summary display will appear again. Click begin installation. The system will starting centis 8 installation. During the installation, you can set root password and add user or sudoers user. To set your root's password, click Root Password. To add another user, click User Creation.

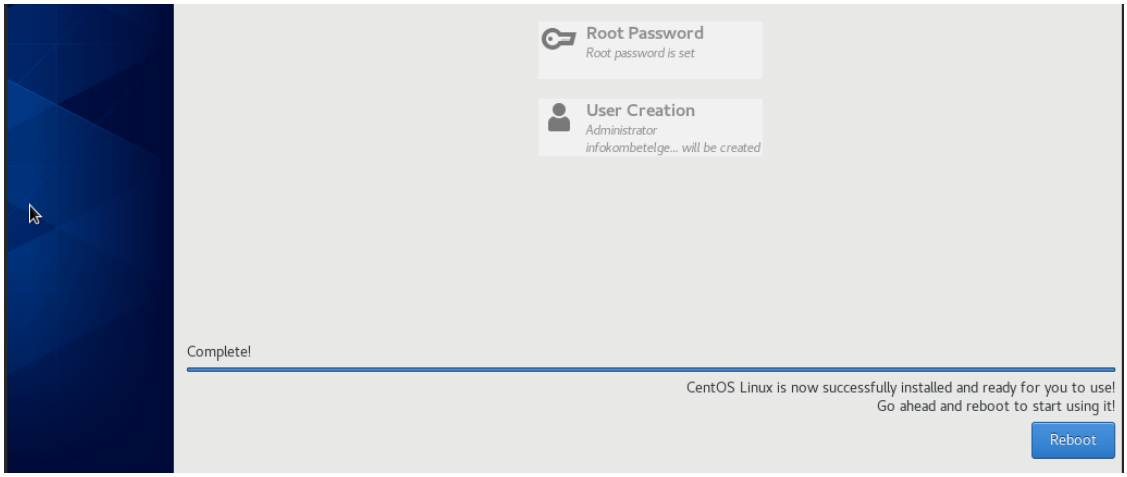
9.



10. Add your user. If you want to create sudoer user, click advance.

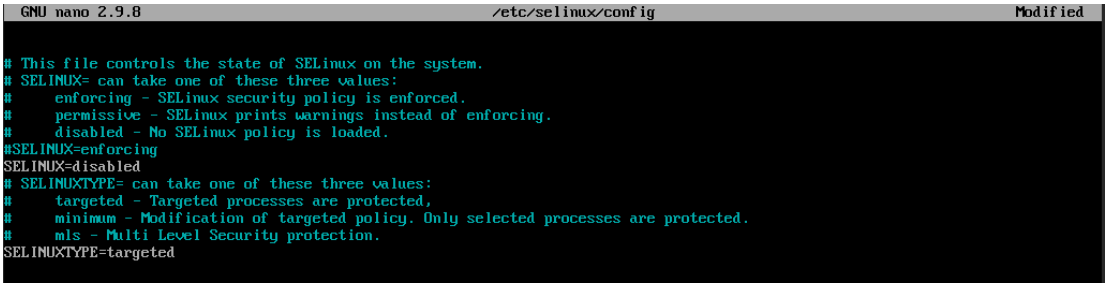


11. The Dialog box will appear. Check Specify a user ID and group ID manually and make sure user ID and group ID set to 1000. Then, add user to wheel group. Click Save Changes, and click done on Create User's form.



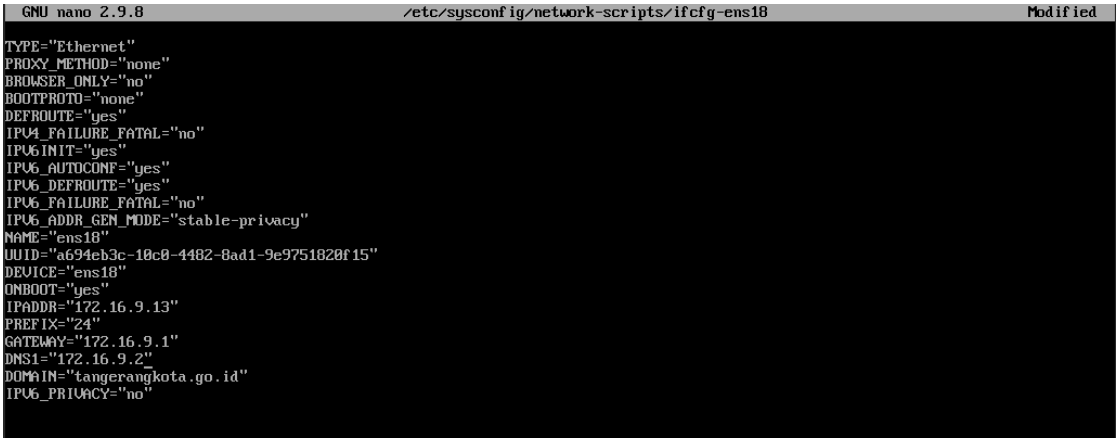
12. Wait for a while, if Centos 8 installation finished, reboot the server.

B. CENTOS 8 CONFIGURATION



1. Before you begin Pi-Hole installation, login as root and turn your selinux into disabled.

```
# nano /etc/selinux/config
```



2. You can also re-configure server ip's with following command.

```
# nano /etc/sysconfig/network-scripts/ifcfg-[iface_name]
```

IPADDR = "172.16.9.13" -> Your Server's IP
PREFIX = "24" -> IP Netmask (Range : 8 to 30)
GATEWAY = "172.16.9.1" -> Your server's gateway
DNS1 = "172.16.9.2" -> Your server's DNS Primary
DOMAIN = "tangerangkota.go.id" -> Domain name of DNS

To restart the network service, run this command below.

```
# nmcli networking off
# nmcli networking on
```

OR

```
# systemctl restart NetworkManager
```

NOTE : IF IP ADDRESS CAN'T CHANGE AFTER NETWORKING SERVICE RESTARTED, YOU CAN RUN THIS COMMAND BELLOW OR REBOOT YOUR SERVER.

```
# ifdown [iface_name]
# ifup [iface_name]
```

```
Port 1212
#AddressFamily any
#ListenAddress 0.0.0.0
#ListenAddress ::
```

```
# Authentication:

#LoginGraceTime 2m
PermitRootLogin no_
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10
```

3. Configure your ssh server. For security reason, change the ssh's default port to free port and set PermitRootLogin to no. Run command below and follow example above.

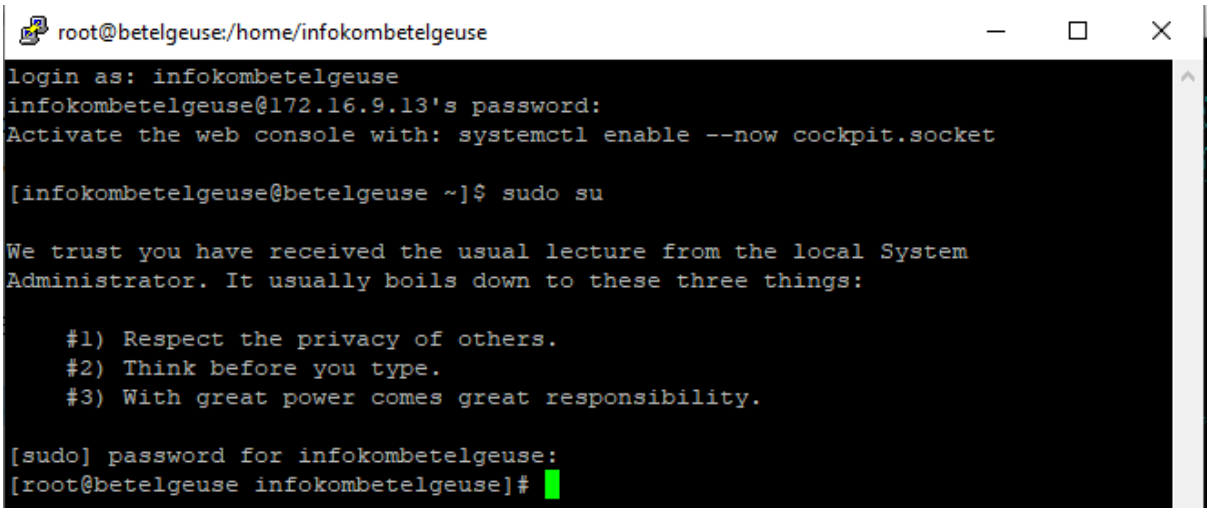
```
# nano /etc/sshd/sshd_config
```

Set selinux to permissive, open new ssh port, and restart ssh service.

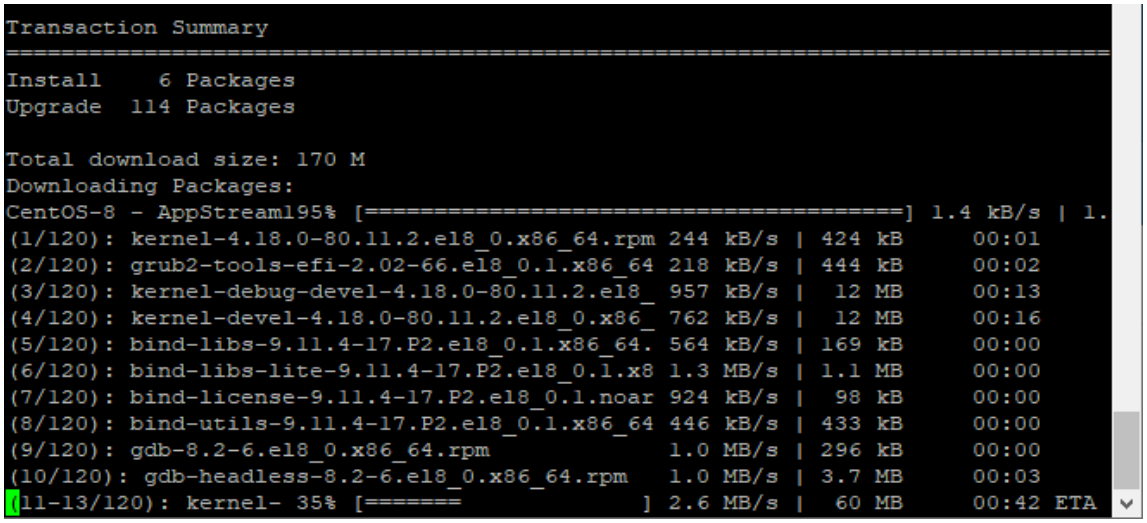
```
# setenforce 0
```

```
[root@betelgeuse ~]# firewall-cmd --perma --add-port=1212/tcp
success
[root@betelgeuse ~]# firewall-cmd --reload
success
[root@betelgeuse ~]# systemctl restart sshd
[root@betelgeuse ~]# _
```

```
# systemctl restart sshd
```



4. Try to login into your server with ssh client like putty, etc.



5. Update Centos 8 with command below. Wait until Centos 8 finished upgrading system, then reboot.

```
# dnf upgrade -y
# reboot
```

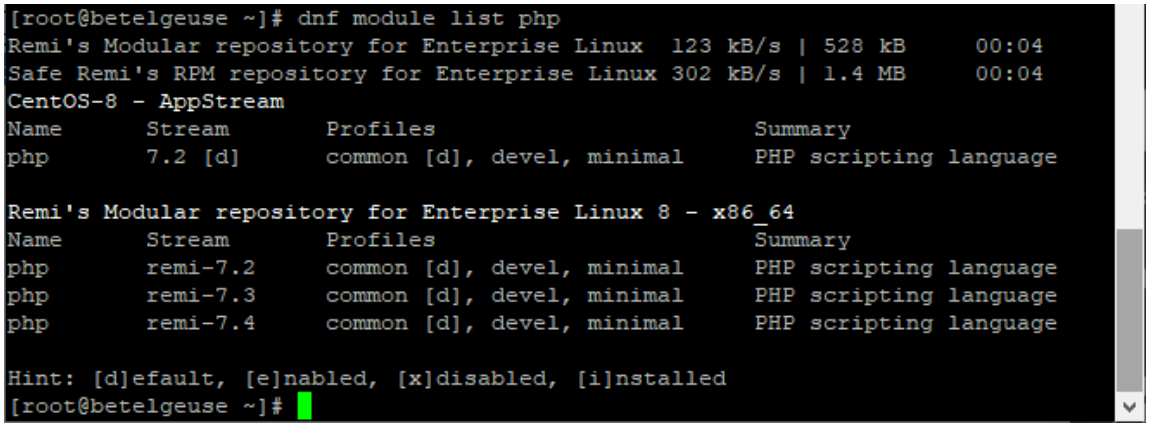
C. PI-HOLE INSTALLATION

1. Install php7.4 with following instruction below.
   a. Install epel repo and remi repo

```
# dnf install https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm -y
# dnf install https://rpms.remirepo.net/enterprise/remi-release-8.rpm -y
```

   b. Check php module list and Install PHP7.4

```
# dnf module list php
# dnf module enable php:remi-7.4 -y
```




```
# dnf install php php-cli php-common php-json php-xml php-mbstring php-mysqli php-zip php-intl
```

2. Install Lighttpd

   a. Install Lighttpd From Source

```
# dnf install -y autoconf make automake libtool pcre-devel zlib-devel bzip2-devel git

# git clone https://git.lighttpd.net/lighttpd/lighttpd1.4.git

# cd lighttpd1.4/

# ./autogen.sh && ./configure --disable-dependency-tracking

# make && make install
```

   b. Create Startup Script for Lighttpd

```
cat << EOF > /etc/systemd/system/lighttpd.service

[Unit]

Description=Lightning Fast Webserver With Light System Requirements

After=syslog.target network-online.target
```

```
[Service]
PIDFile=/var/run/lighttpd.pid
EnvironmentFile=-/etc/sysconfig/lighttpd
ExecStart=/usr/local/sbin/lighttpd -D -f
/etc/lighttpd/lighttpd.conf

[Install]
WantedBy=multi-user.target
EOF
```

c. Reload Daemon and Enable Lighttpd

```
# systemctl daemon-reload
# systemctl enable lighttpd
```

d. Configure Lighttpd Directory

```
# mkdir -p /srv/www
# mkdir -p /etc/lighttpd/conf.d
# mkdir /etc/lighttpd/vhosts.d
# cp doc/config/*.conf /etc/lighttpd/
# cp doc/config/conf.d/*.conf /etc/lighttpd/conf.d
```

e. Add user and group for Lighttpd Process

```
# groupadd lighttpd
# useradd -r -M -g lighttpd lighttpd
```

f. Configure Lighttpd Log Directory

```
# mkdir /var/log/lighttpd
# chown lighttpd: /var/log/lighttpd
```

g. Start Lighttpd Service

```
# systemctl start lighttpd
```

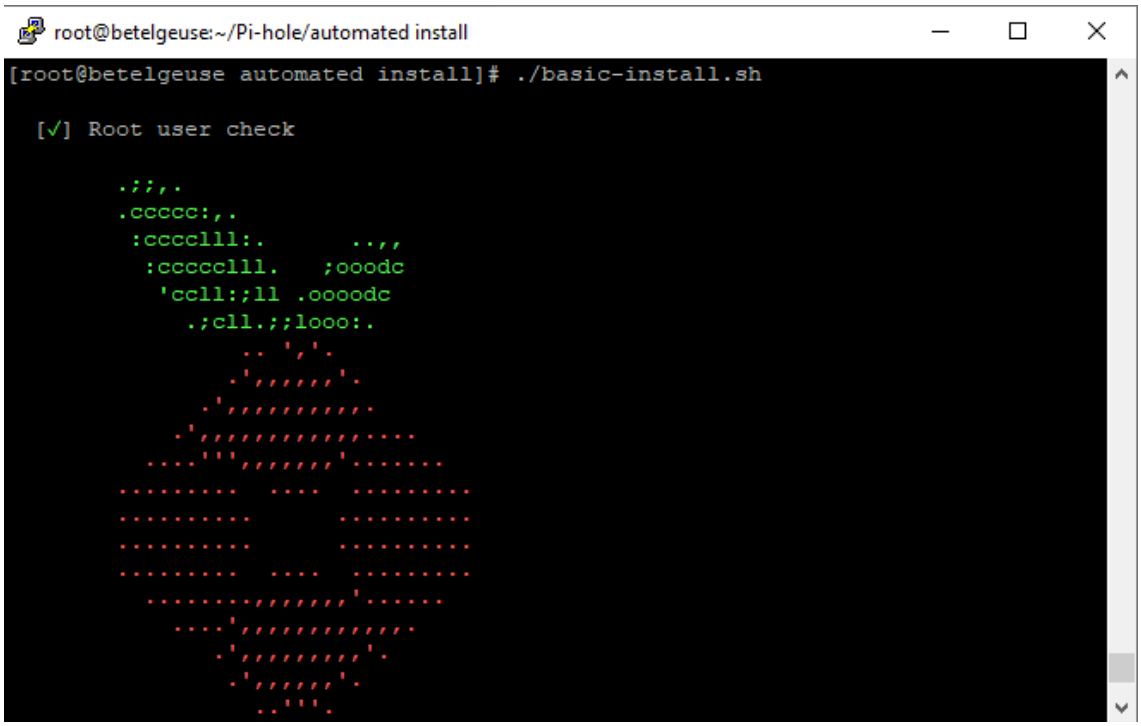
```
# systemctl status lighttpd
```

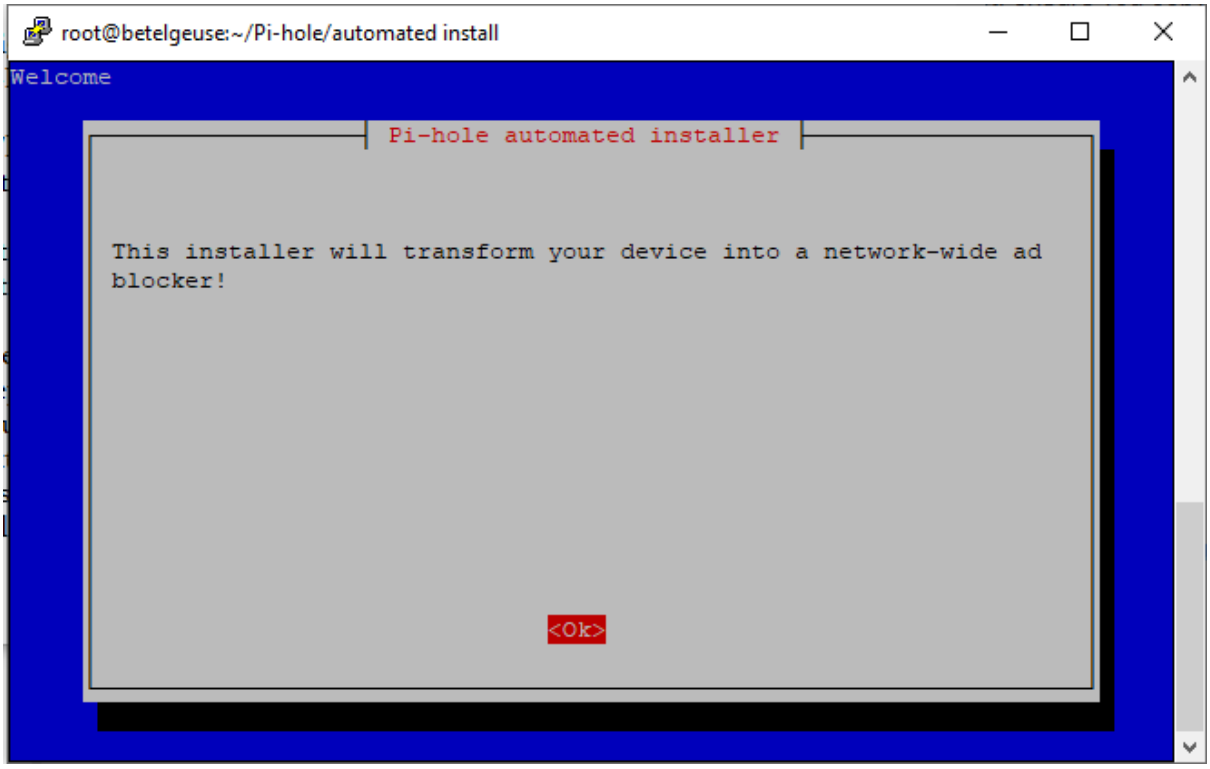
```
[root@betelgeuse ~]# systemctl start lighttpd
[root@betelgeuse ~]# systemctl status lighttpd
● lighttpd.service - Lightning Fast Webserver With Light System Requirements
   Loaded: loaded (/etc/systemd/system/lighttpd.service; enabled; vendor preset>
   Active: active (running) since Fri 2020-01-10 15:35:36 WIB; 4s ago
 Main PID: 589 (lighttpd)
    Tasks: 1 (limit: 24012)
   Memory: 1012.0K
   CGroup: /system.slice/lighttpd.service
           └─589 /usr/local/sbin/lighttpd -D -f /etc/lighttpd/lighttpd.conf

Jan 10 15:35:36 betelgeuse.tangerangkota.go.id systemd[1]: Started Lightning Fa>
Jan 10 15:35:36 betelgeuse.tangerangkota.go.id lighttpd[589]: 2020-01-10 15:35:>
lines 1-11/11 (END)
```

3. Install Pi-Hole

```
# git clone --depth 1 https://github.com/pi-hole/pi-hole.git
Pi-hole
# cd "Pi-hole/automated install/"
# sed -i "s/lighttpd\slighttpd-fastcgi//" basic-install.sh
# chmod +x basic-install.sh
# ./basic-install.sh
```

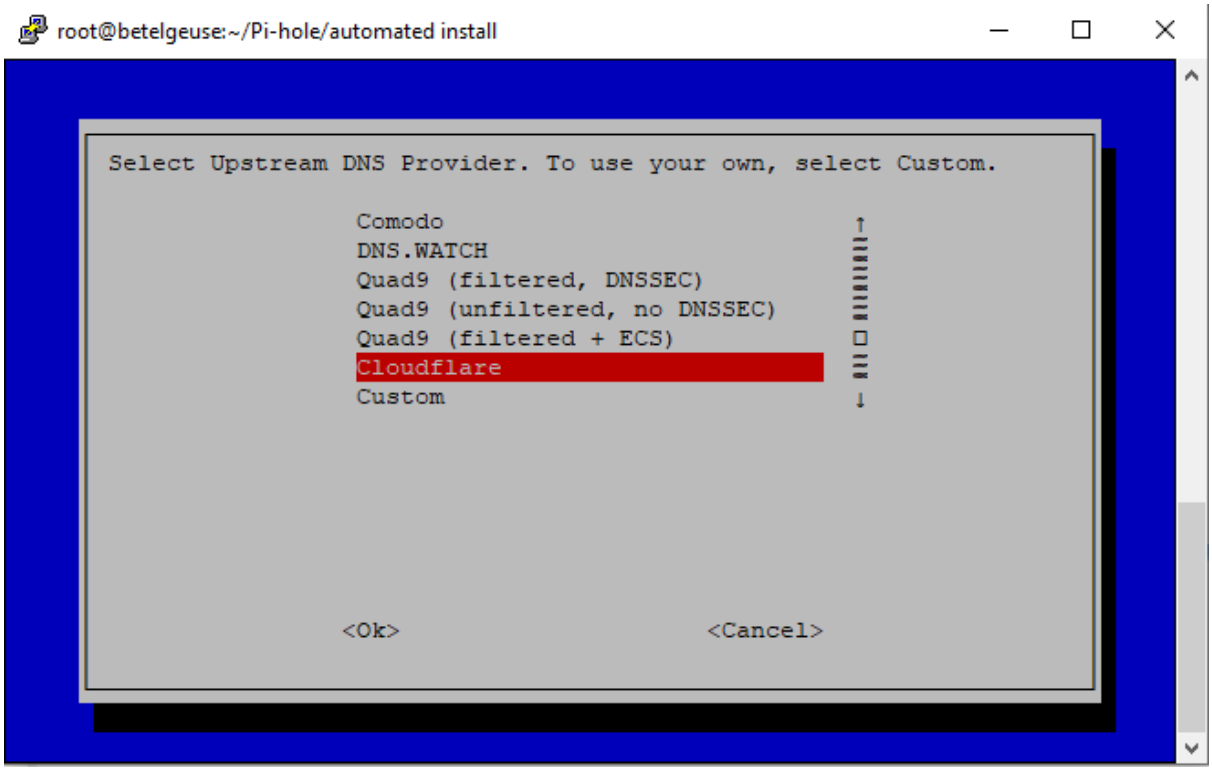




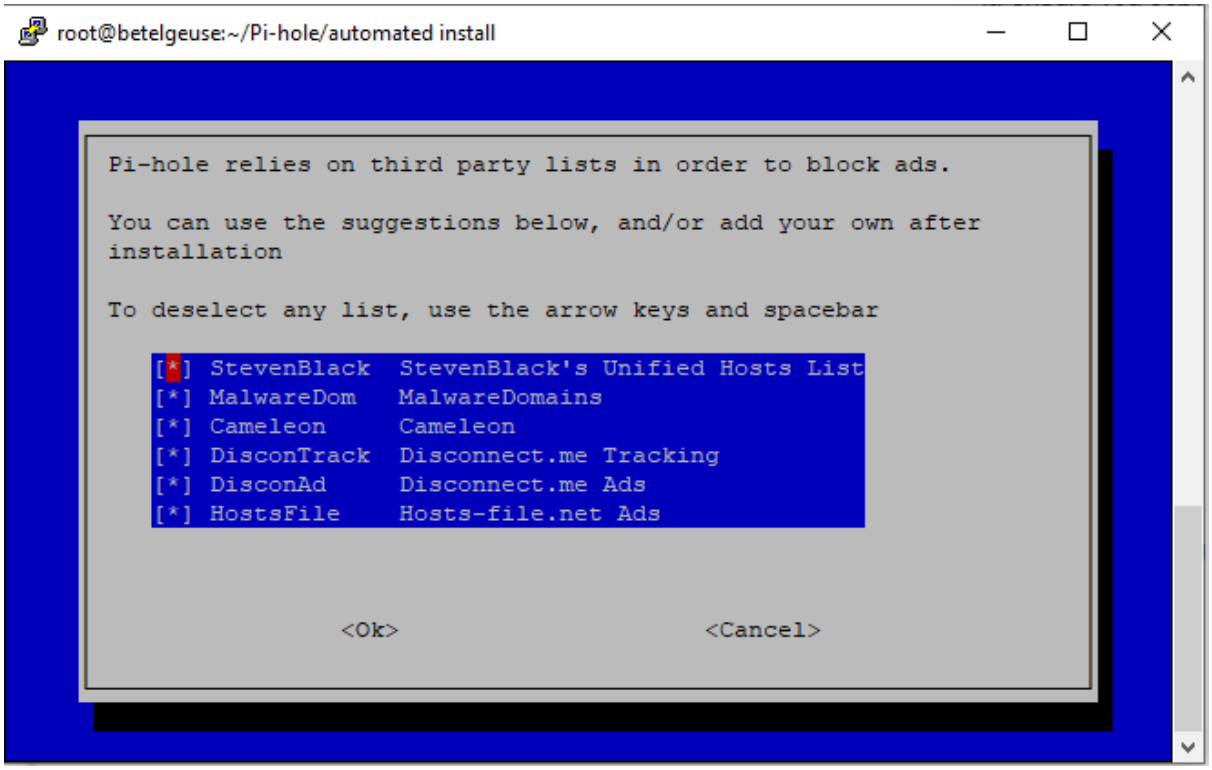
OK [Enter]

OK [Enter]

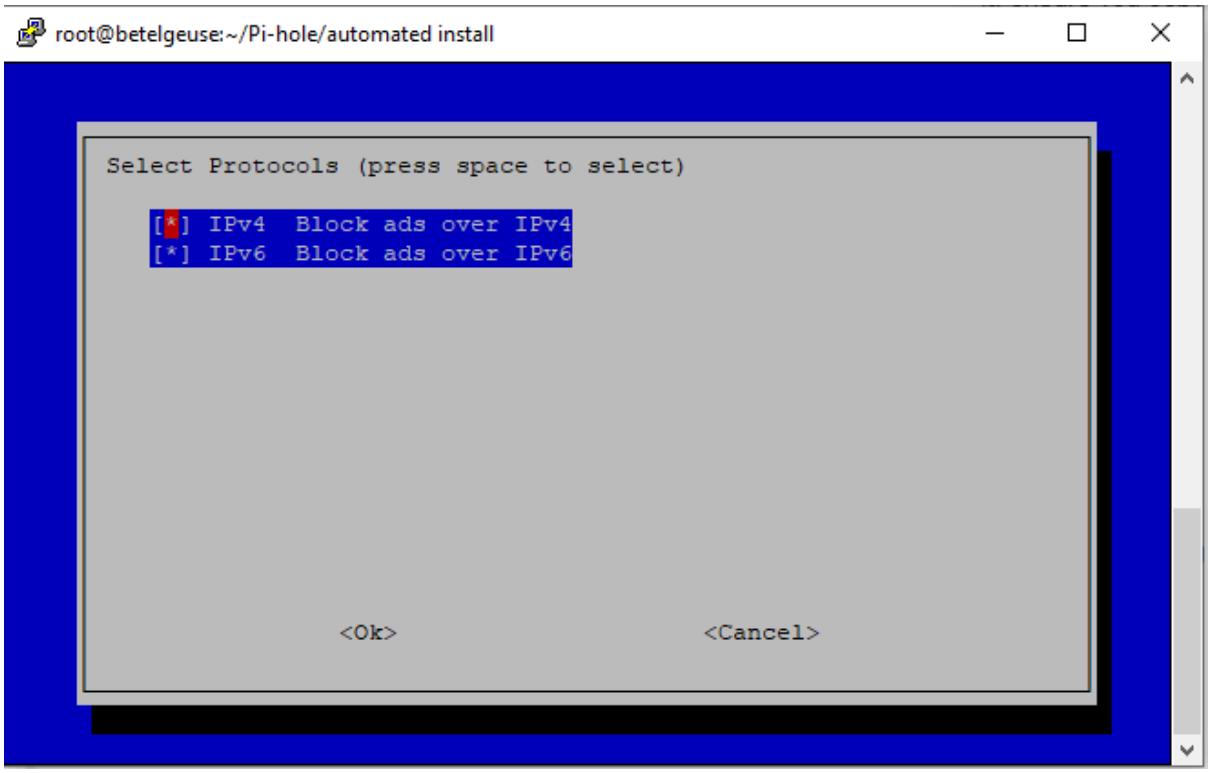
OK [Enter]



Select your upstream DNS Provider. If you have your own DNS Server, you can choose custom and set your IP DNS Server. In this modul, I choose Cloudflare.

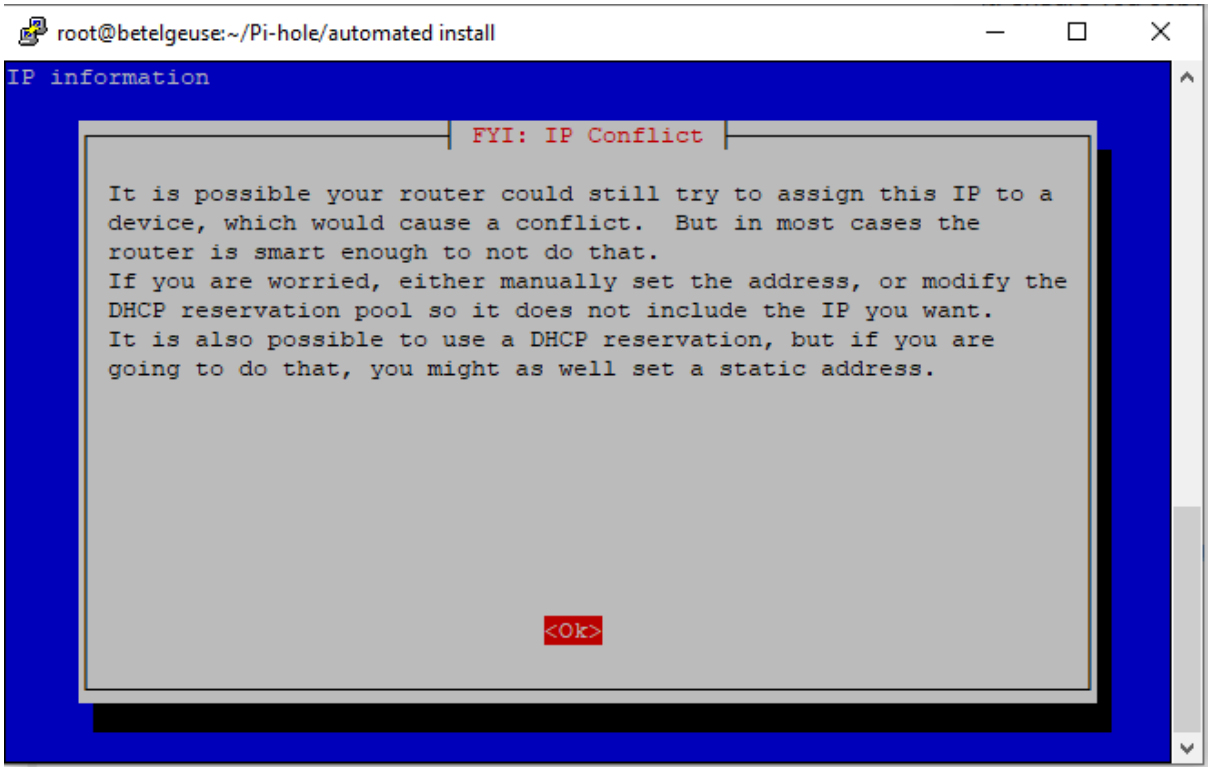


Select domain blacklist source. You can select/deselect with press [Space].

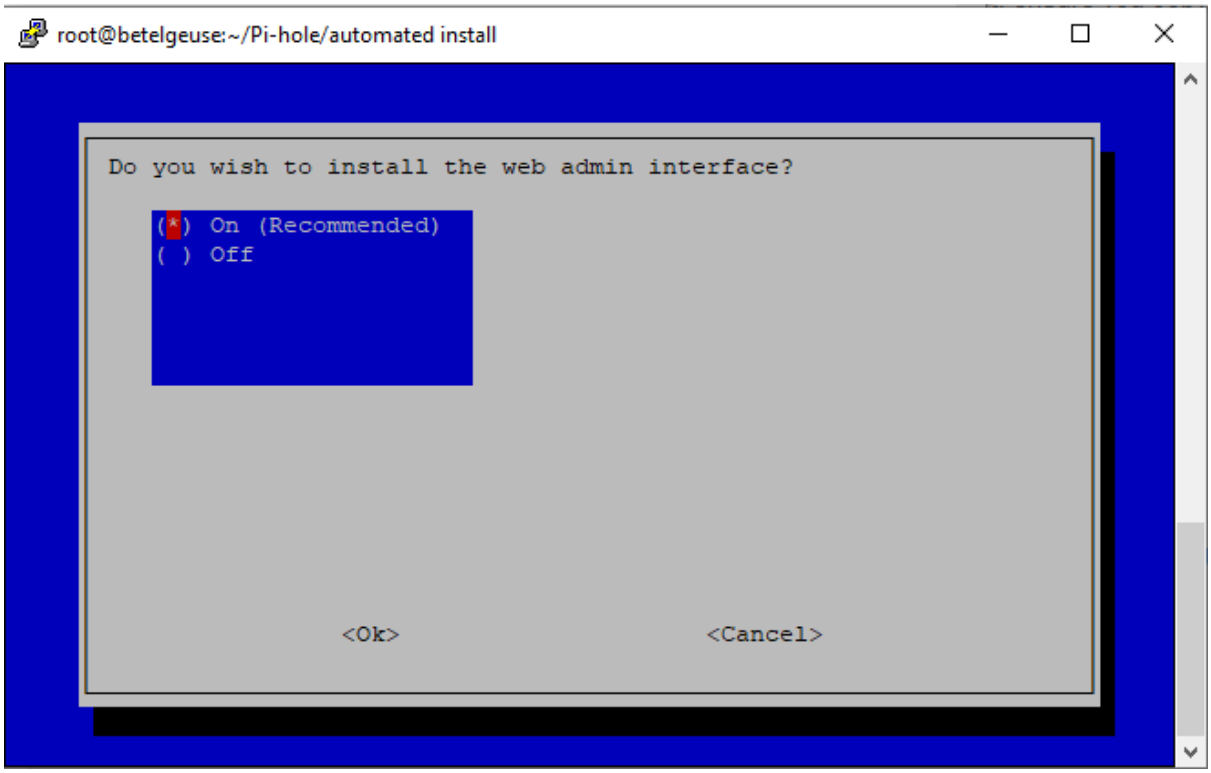


Select or deselect protocols.

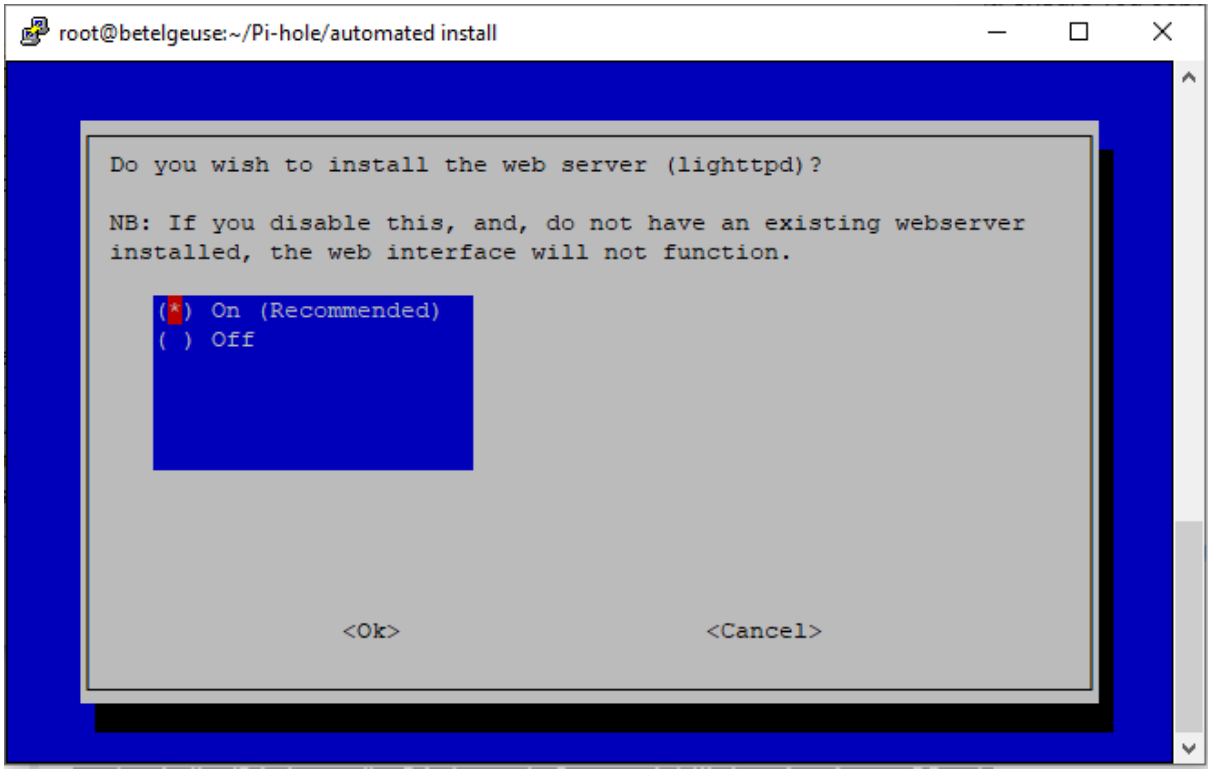
Making your server's IP as a static IP Address. [Yes]



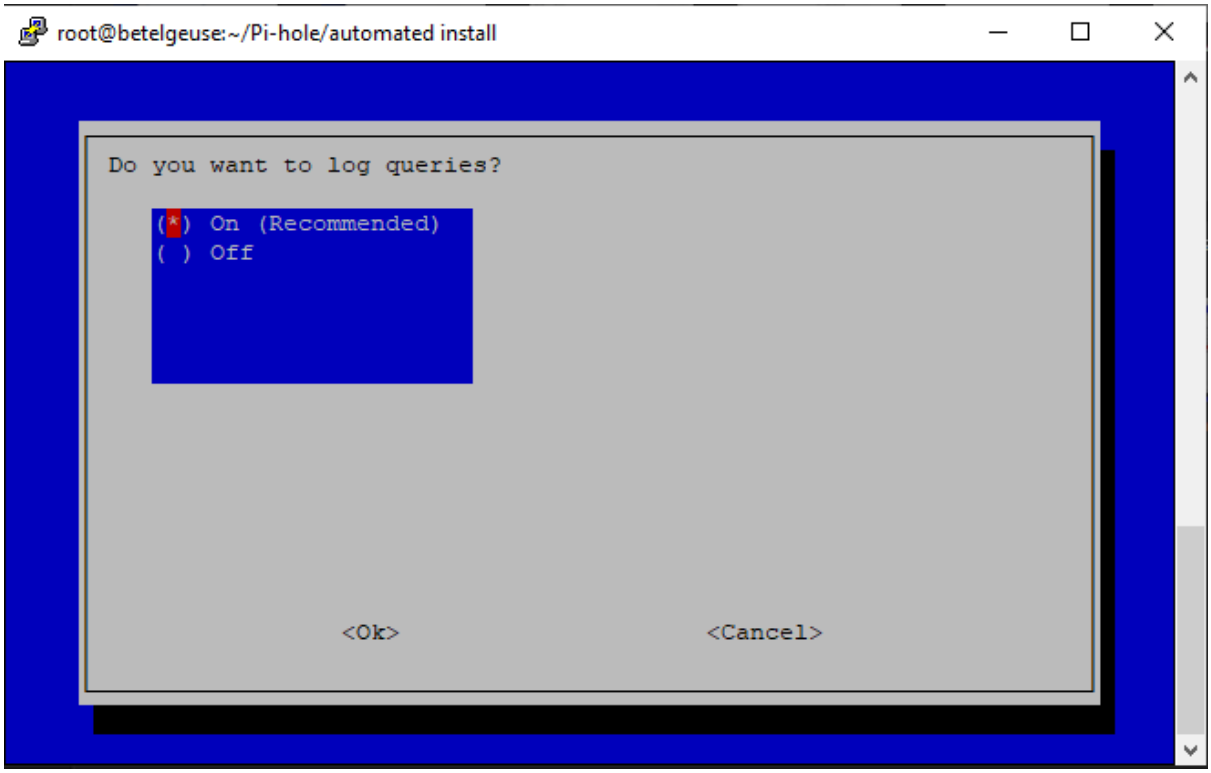
Warning possibility of IP conflict. Make sure your server's IP not used by another device. Ok [Enter]



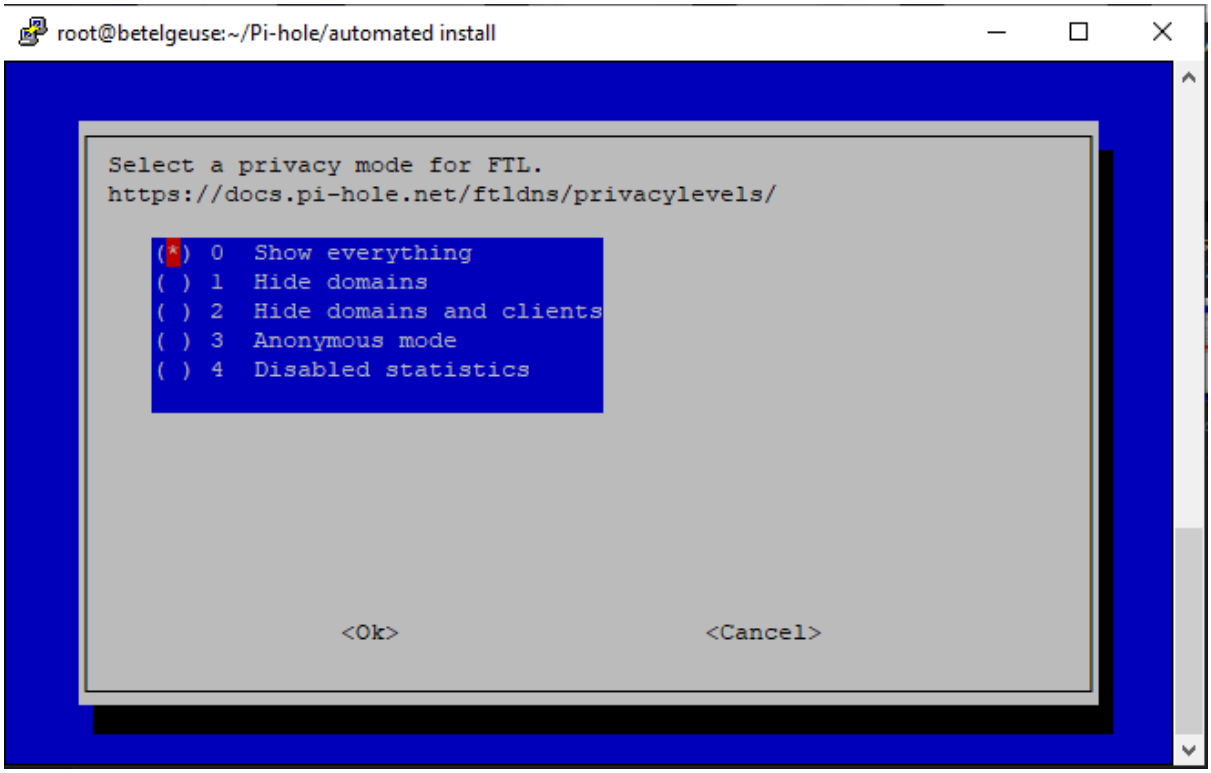
Disable or Enable Admin Interface. Default On. Ok [Enter]



Enable lighttpd, Choose On. Ok [Enter].

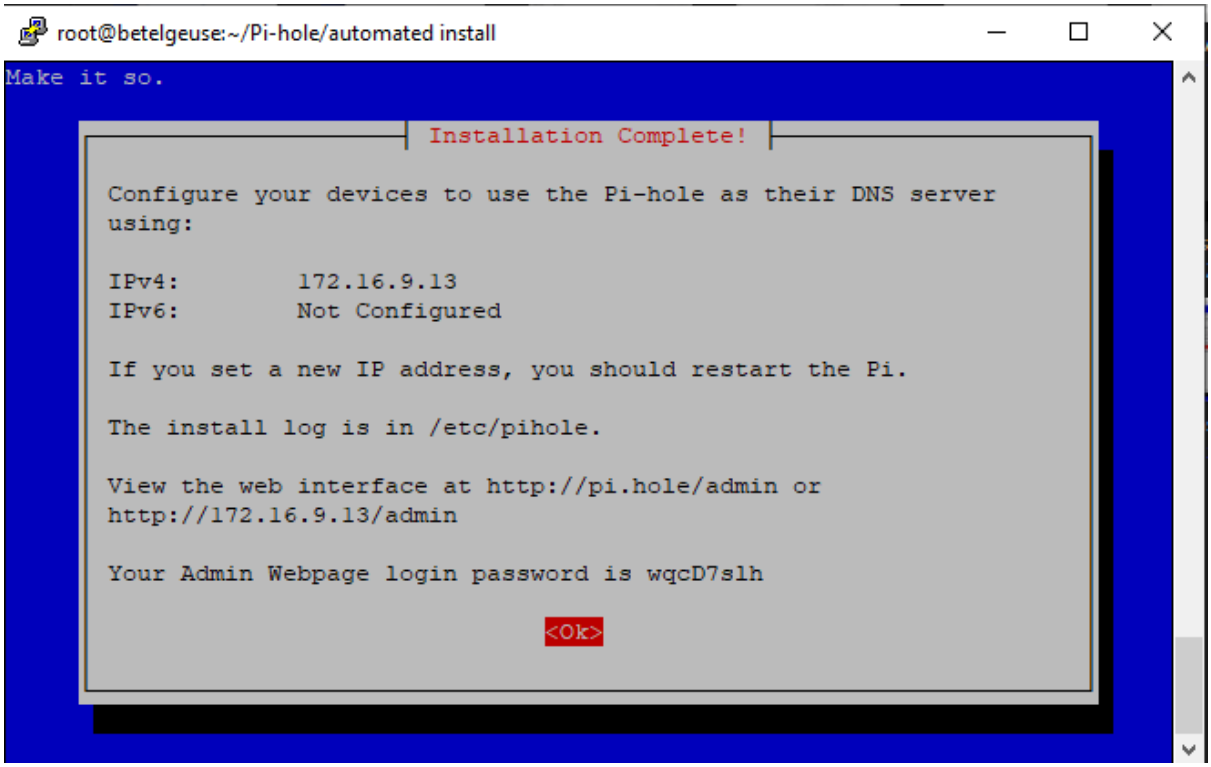


Turn on/off logging queries. Default on. Ok [Enter].

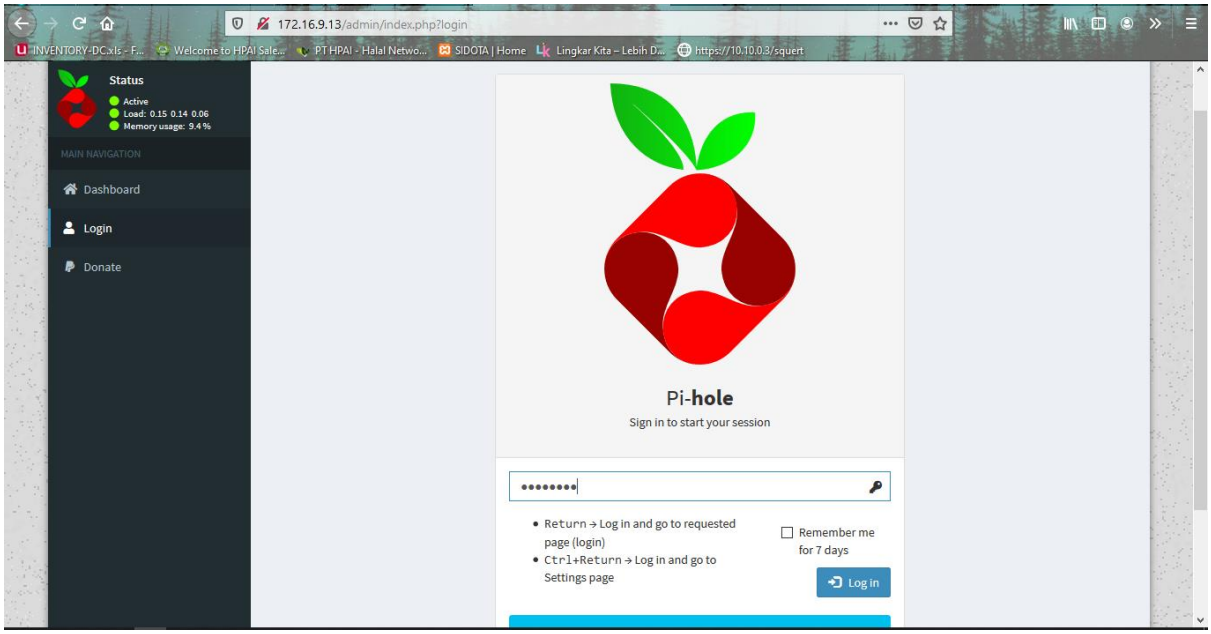


Choose your privacy level for client. Use [Space] for select option. Ok [Enter].

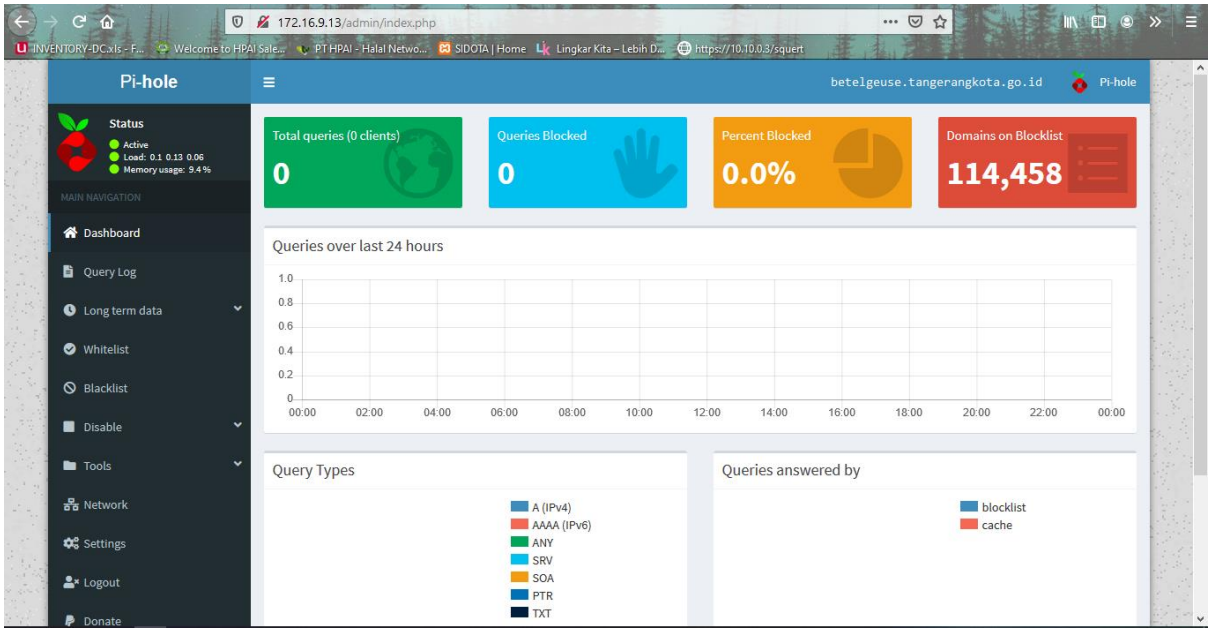
Enable Pi-hole default firewall. Ok [Enter].



Installation Complete. Noted your Pi-hole admin interface password.



Open your Pi-hole Server's IP in browser. In this module, my Pi-hole admin address is http://172.16.9.13/admin. And login with your password.



Pi-Hole dashboard interface.