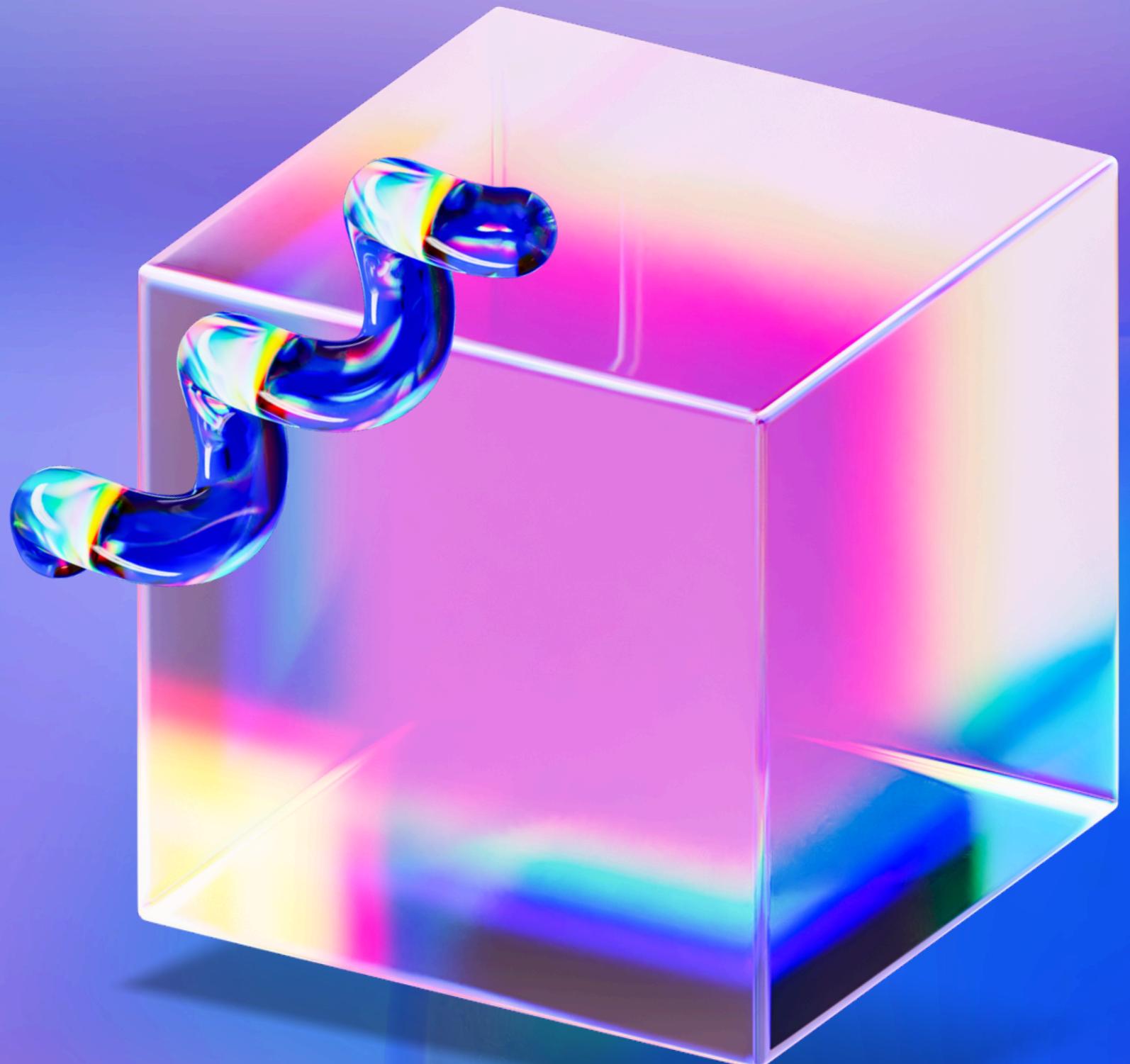




PROJECT :
SYSTEM ADMINISTRATION WITH
INFRASTRUCTURE AS CODE

Fedora Linux



1. Account Provisioning

- Groupadd student

```
bowornthat:x:1000:  
student:x:1001:
```

- Adduser jummumboy

```
bowornthat:x:1000:1000:Bowornthat Khumsanwanich:/home/bowornthat:/bin/bash  
jummumboy:x:1001:1002::/home/jummumboy:/bin/bash
```

- Nano /etc/group add user to group su ចិន sudo លើ fedora ຈະໃຫ្យថា wheel

```
[root@fedora ~]# cat /etc/group | grep wheel  
wheel:x:10:bowornthat,jummumboy  
[root@fedora ~]#
```

1. Account Provisioning

- Login root for check

```
jummumboy@fedora:~$ sudo su - root
```

We trust you have received the usual lecture from the local System Administrator. It usually boils down to these three things:

- #1) Respect the privacy of others.
- #2) Think before you type.
- #3) With great power comes great responsibility.

For security reasons, the password you type will not be visible.

```
[sudo] password for jummumboy:  
[root@fedora ~]# S
```

1. Account Provisioning

- Sudo useradd -m -c “Hemmarat” -d /home/meepooh -s /bin/bash -G student meepooh

```
bowornthat:x:1000:1000:Bowornthat Khumsanwanich:/home/bowornthat:/bin/bash
jummumboy:x:1001:1002::/home/jummumboy:/bin/bash
meepooh:x:1002:1004:Hemmarat:/home/meepooh:/bin/bash
```

- Change 1004 to 1001 group student

```
jummumboy@fedora:~127$ cat /etc/passwd | grep meepooh
meepooh:x:1002:1004:Hemmarat:/home/meepooh:/bin/bash
jummumboy@fedora:~$ cat /etc/group | grep meepooh
student:x:1001:meepooh
meepooh:x:1004:
jummumboy@fedora:~$
```

- Nano /etc/passwd

```
jummumboy:x:1001:1002::/home/jummumboy:/bin/bash
meepooh:x:1002:1001:Hemmarat:/home/meepooh:/bin/bash
```

1. Account Provisioning

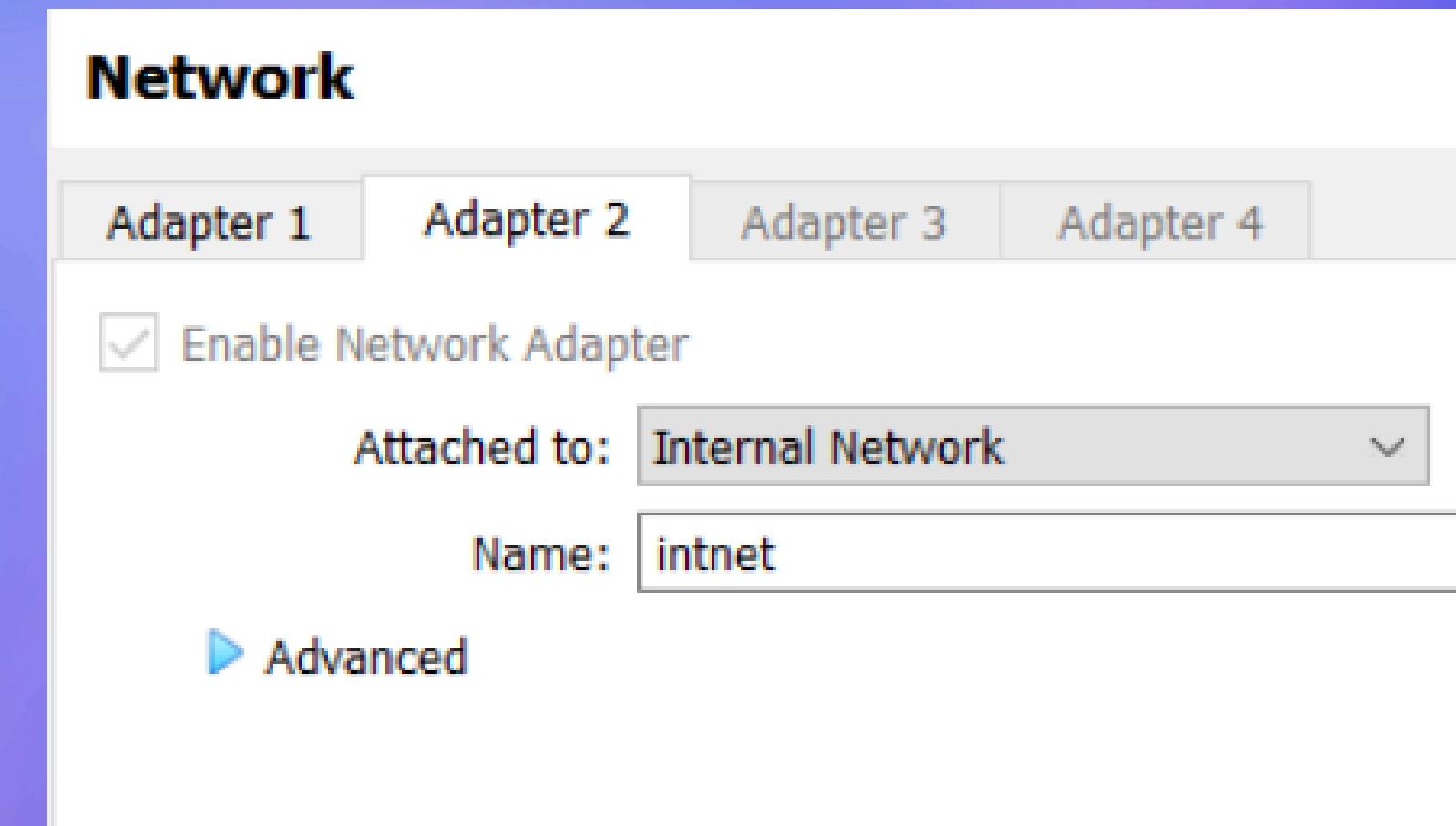
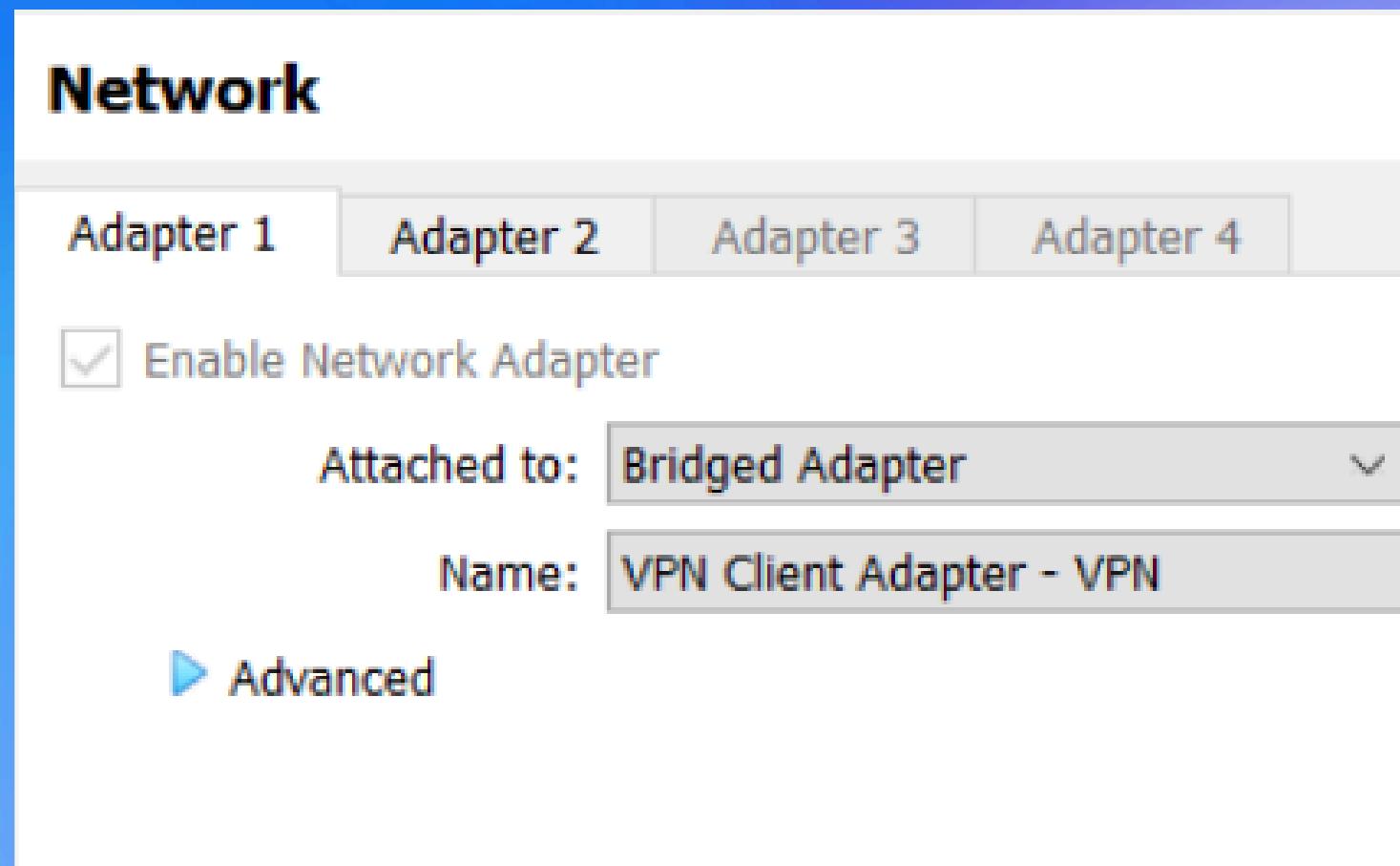
- Nano /etc/group

```
student:x:1001:meepooh  
jummumboy:x:1002:  
passwd:x:1003:  
meepooh:x:1004:  
  
bowornthat:x:1000:  
student:x:1001:  
jummumboy:x:1002:  
passwd:x:1003:
```

- เปลี่ยน permission ของ meepooh ให้เป็นของ group student ที่ directory /home/meepooh

```
jummumboy@fedora:/home$ ls -l  
total 0  
drwxr-x---. 1 bowornthat bowornthat 802 Mar 21 18:32 bowornthat  
drwxr-x---. 1 jummumboy jummumboy 776 Mar 21 18:33 jummumboy  
drwx-----. 1 meepooh 1004 80 Mar 21 18:38 meepooh  
jummumboy@fedora:/home$ sudo chown -R meepooh:student /home/meepooh/  
jummumboy@fedora:/home$ ls -l  
total 0  
drwxr-x---. 1 bowornthat bowornthat 802 Mar 21 18:32 bowornthat  
drwxr-x---. 1 jummumboy jummumboy 776 Mar 21 18:33 jummumboy  
drwx-----. 1 meepooh student 80 Mar 21 18:38 meepooh
```

2. Networking



2. Networking

```
root@fedora:~# cd /etc/sysconfig/network-scripts/
root@fedora:/etc/sysconfig/network-scripts# ls
ifcfg-enp0s8  readme-ifcfg-rh.txt
root@fedora:/etc/sysconfig/network-scripts# nano ifcfg-enp0s8
```

```
GNU nano 7.2
TYPE=Ethernet
DEVICE=enp0s8
BOOTPROTO=static
ONBOOT=yes
IPADDR=192.168.79.1
NETMASK=255.255.255.0
```

3. Domain Name System

```
root@fedora:/etc# tar xvzf /home/bowor�that/Downloads/bind.tgz
bind/
bind/named.conf.local
bind/db.255
bind/db.buu.in.th
bind/db.192.168.200
bind/db.192.168.100
bind/named.conf.options
bind/db.127
bind/db.root
bind/named.conf.default-zones
bind/bind.keys
bind/rndc.key
bind/db.moowan.com
bind/named.conf
bind/zones.rfc1918
bind/db.local
bind/db.0
bind/db.empty
```

3. Domain Name System

```
GNU nano 7.2                               db.moowan.com
;
; Each time you modify this file increment "serial".
; Then get the PID for named and issue "kill -1 (named_pid)".
;
$ORIGIN .com
moowan 86400 IN SOA ns1.moowan.com. root.moowan.com. (
    2103202401      ; serial: year+month+increment(01 ... 99)
    10800           ; refresh: every 3 hours
    3600            ; retry: once per hour
    2600000         ; expire: 30 days
    86400           ; ttl: one day
)
86400 IN NS ns1.moowan.com.

; No good:
; This returns an error from named and makes nslookup unusable.

$ORIGIN moowan.com.
; For Net 192.168.100.xxx
```

```
GNU nano 7.2                               db.192.168.100          Modified
$ORIGIN 168.192.in-addr.arpa.
100 86400 IN SOA ns1.moowan.com. root.moowan.com. (
    2103202401      ; serial: year+month+increment(01 ... 99)
    10800           ; refresh: every 3 hours
    3600            ; retry: once per hour
    2600000         ; expire: 30 days
    86400           ; ttl: one day
)
86400 IN NS ns1.moowan.com.

; No good:
; This returns an error from named and makes nslookup unusable.

$ORIGIN 100.168.192.in-addr.arpa.
1 302400 IN PTR gw.moowan.com. ;cl=5
2 302400 IN PTR toktak.moowan.com. ;cl=5
3 302400 IN PTR www.moowan.com. ;cl=5
4 302400 IN PTR chinjung.moowan.com. ;cl=5
5 302400 IN PTR meepooh.moowan.com. ;cl=5
```

3. Domain Name System

```
GNU nano 7.2                               db.buu.in.th

; Each time you modify this file increment "serial".
; Then get the PID for named and issue "kill -1 (named_pid)".

$ORIGIN in.th.

buu 86400 IN SOA ns1.buu.in.th. root.buu.in.th. (
    2103202401 ; serial: year+month+increment(01 ... 99)
    10800 ; refresh: every 3 hours
    3600 ; retry: once per hour
    2600000 ; expire: 30 days
    86400 ; ttl: one day
)
86400 IN NS ns1.buu.in.th.

; No good:
; This returns an error from named and makes nslookup unusable.

$ORIGIN buu.in.th.

; For Net 192.168.200.xxx
```

```
GNU nano 7.2                               db.192.168.200

;
;

; Each time you modify this file increment "serial".
; Then get the PID for named and issue "kill -1 (named_pid)".

$ORIGIN 168.192.in-addr.arpa.

200 86400 IN SOA ns1.buu.in.th. root.buu.in.th. (
    2103202401 ; serial: year+month+increment(01 ... 99)
    10800 ; refresh: every 3 hours
    3600 ; retry: once per hour
    2600000 ; expire: 30 days
    86400 ; ttl: one day
)
86400 IN NS ns1.buu.in.th.

; No good:
; This returns an error from named and makes nslookup unusable.

$ORIGIN 200.168.192.in-addr.arpa.

1 302400 IN PTR gw.buu.in.th. ;Cl=5
```

3. Domain Name System

```
GNU nano 7.2                                     db.gonggang.com                         Modified
;
; Each time you modify this file increment "serial".
; Then get the PID for named and issue "kill -1 (named_pid)".
;
$ORIGIN com.
gonggang 86400 IN SOA ns1.gonggang.com. root.gonggang.com. (
    2103202401 ; serial: year+month+increment(01 ... 99)
    10800 ; refresh: every 3 hours
    3600 ; retry: once per hour
    2600000 ; expire: 30 days
    86400 ; ttl: one day
)
86400 IN NS ns1.gonggang.com.

; No good:
; This returns an error from named and makes nslookup unusable.

$ORIGIN gonggang.com.

; For Net 172.16.0.xxx
gw      IN A   172.16.0.1
toktak  IN A   172.16.0.2
www     IN A   172.16.0.3
chinjung IN A   172.16.0.4
meepooh  IN A   172.16.0.5
ns1     IN A   172.16.0.11

GNU nano 7.2                                     db.172.16.0                           Modified
;
; Each time you modify this file increment "serial".
; Then get the PID for named and issue "kill -1 (named_pid)".
;
$ORIGIN 16.172.in-addr.arpa.
0 86400 IN SOA ns1.gonggang.com. root.gonggang.com. (
    2103202401 ; serial: year+month+increment(01 ... 99)
    10800 ; refresh: every 3 hours
    3600 ; retry: once per hour
    2600000 ; expire: 30 days
    86400 ; ttl: one day
)
86400 IN NS ns1.gonggang.com.

; No good:
; This returns an error from named and makes nslookup unusable.

$ORIGIN 0.16.172.in-addr.arpa.
1 302400 IN PTR gw.gonggang.com. ;Cl=5
2 302400 IN PTR toktak.gonggang.com. ;Cl=5
3 302400 IN PTR www.gonggang.com. ;Cl=5
4 302400 IN PTR chinjung.gonggang.com. ;Cl=5
5 302400 IN PTR meepooh.gonggang.com. ;Cl=5
```

3. Domain Name System

- Config /etc/ → named.conf , listen port add 192.168.100.10 , allow-query from localhost to any
- Config /etc/bind → named.conf.local

```
zone "gonggang.com" {  
    type master;  
    file "/etc/bind/db.gonggang.com";  
};  
  
zone "0.16.172.in-addr.arpa" {  
    type master;  
    file "/etc/bind/db.172.16.0";  
};
```

```
GNU nano 7.2                                         named.conf  
//  
// named.conf  
//  
// Provided by Red Hat bind package to configure the ISC BIND named(8) DNS  
// server as a caching only nameserver (as a localhost DNS resolver only).  
//  
// See /usr/share/doc/bind*/sample/ for example named configuration files.  
//  
option{  
    listen-on port 53 { 127.0.0.1; 192.168.100.10; };  
    listen-on-v6 port 53 { ::1; };  
    directory "/var/named";  
    dump-file "/var/named/data/cache_dump.db";  
    statistics-file "/var/named/data/named_stats.txt";  
    memstatistics-file "/var/named/data/named_mem_stats.txt";  
    secroots-file "/var/named/data/named.secroots";  
    recursing-file "/var/named/data/named.recurse";  
    allow-query { any; };  
  
/*  
 - If you are building an AUTHORITATIVE DNS server, do NOT enable recursion.  
 - If you are building a RECURSIVE (caching) DNS server, you need to enable  
   recursion.  
 - If your recursive DNS server has a public IP address, you MUST enable access  
   control to limit queries to your legitimate users. Failing to do so will
```

3. Domain Name System

- Test nslookup

```
root@fedora:/etc# nslookup
> server localhost
Default server: localhost
Address: ::1#53
Default server: localhost
Address: 127.0.0.1#53
> chinjung.gonggang.com
Server:      localhost
Address:      ::1#53

Name:  chinjung.gonggang.com
Address: 172.16.0.4
> 172.16.0.4
4.0.16.172.in-addr.arpa name = chinjung.gonggang.com.
```

4. Dynamic DNS

- Test telnet 8.8.8.8
- dnf install dhcp-server

```
root@fedora:~# ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=112 time=30.8 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=112 time=31.6 ms
^C
--- 8.8.8.8 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1156ms
rtt min/avg/max/mdev = 30.754/31.174/31.594/0.420 ms
root@fedora:~# dnf install dhcp-server
Last metadata expiration check: 3:15:08 ago on Thu 21 Mar 2024 07:28:18 PM +07.
Dependencies resolved.
=====
           Package          Architecture      Version       Repository      Size
=====
Installing:
  dhcp-server        x86_64          12:4.4.3-9.P1.fc39   fedora      1.3 M
Transaction Summary
=====
Install 1 Package

Total download size: 1.3 M
Installed size: 4.1 M
Is this ok [y/N]: y
Downloading Packages:
  dhcp-server-4.4.3-9.P1.fc39.x86_64.rpm          7.9 MB/s | 1.3 MB  00:00
-----
Total                                         2.6 MB/s | 1.3 MB  00:00
Running transaction check
Transaction check succeeded.
```

4. Dynamic DNS

- Nano /etc/dhcp/dhcpd.conf

```
# A slightly different configuration for an internal subnet.  
subnet 192.168.100.0 netmask 255.255.255.0 {  
    range 192.168.100.101 192.168.100.200;  
    option domain-name-servers 8.8.8.8, 8.8.4.4;  
    option routers 192.168.100.1;  
    option broadcast-address 192.168.100.255;  
    default-lease-time 600;  
    max-lease-time 7200;  
}
```

- Nano /etc/sysconfig/network-scripts/ifcfg-enp0s8

```
TYPE=Ethernet  
DEVICE=enp0s8  
BOOTPROTO=static  
ONBOOT=yes  
IPADDR=192.168.79.1  
NETMASK=255.255.255.0
```

4. Dynamic DNS

```
root@fedora:/etc/sysconfig/network-scripts# systemctl status NetworkManager
● NetworkManager.service - Network Manager
  Loaded: loaded (/usr/lib/systemd/system/NetworkManager.service; enabled; preset: enabled)
  Drop-In: /usr/lib/systemd/system/service.d
            └─10-timeout-abort.conf
  Active: active (running) since Fri 2024-03-22 04:24:30 +07; 7s ago
    Docs: man:NetworkManager(8)
   Main PID: 3802 (NetworkManager)
     Tasks: 5 (limit: 4645)
    Memory: 4.5M
      CPU: 159ms
     CGroup: /system.slice/NetworkManager.service
             └─3802 /usr/sbin/NetworkManager --no-daemon

Mar 22 04:24:30 fedora NetworkManager[3802]: <info> [1711056270.4103] manager: NetworkManager state is now CONNECTED
Mar 22 04:24:30 fedora NetworkManager[3802]: <info> [1711056270.4104] device (enp0s3): Activation: successful, de...
Mar 22 04:24:30 fedora NetworkManager[3802]: <info> [1711056270.4819] manager: NetworkManager state is now CONNECTING
Mar 22 04:24:30 fedora NetworkManager[3802]: <info> [1711056270.6172] device (enp0s8): state change: config -> ip...
Mar 22 04:24:30 fedora NetworkManager[3802]: <info> [1711056270.6192] device (enp0s8): state change: ip-config -> ...
Mar 22 04:24:30 fedora NetworkManager[3802]: <info> [1711056270.6213] device (enp0s8): state change: ip-check -> ...
Mar 22 04:24:30 fedora NetworkManager[3802]: <info> [1711056270.6215] device (enp0s8): state change: secondaries -> ...
Mar 22 04:24:30 fedora NetworkManager[3802]: <info> [1711056270.6222] device (enp0s8): Activation: successful, de...
Mar 22 04:24:30 fedora NetworkManager[3802]: <info> [1711056270.6225] manager: startup complete
Mar 22 04:24:30 fedora NetworkManager[3802]: <info> [1711056270.8789] agent-manager: agent[e9e8d19ce63cc5c6,:1.85]
```

4. Dynamic DNS

```
root@fedora:/etc/dhcp# ddns-confgen -k dhcp.gonggang.com
# To activate this key, place the following in named.conf, and
# in a separate keyfile on the system or systems from which nsupdate
# will be run:
key "dhcp.gonggang.com" {
    algorithm hmac-sha256;
    secret "0maBkej88ThnsdwIEnomy6/fDYlsoNW2tnghpgYzR/E=";
};

# Then, in the "zone" statement for each zone you wish to dynamically
# update, place an "update-policy" statement granting update permission
# to this key. For example, the following statement grants this key
# permission to update any name within the zone:
update-policy {
    grant dhcp.gonggang.com zonesub ANY;
};

# After the keyfile has been placed, the following command will
# execute nsupdate using this key:
nsupdate -k <keyfile>
```

```
key "dhcp.gonggang.com" {
    algorithm hmac-sha256;
    secret "WtRli7NiMrPlzlDcRAJbBu/B8khPLA00jHQ4P5dj8RE=";
};
```

```
root@fedora:/etc/bind# chown root:bind dhcp.key
root@fedora:/etc/bind# ls -l
total 80
-rw-r--r--. 1 bind bind 2389 Nov 17 2012 bind.keys
-rw-r--r--. 1 bind bind 237 Nov 17 2012 db.0
-rw-r--r--. 1 bind bind 271 Nov 17 2012 db.127
-rw-r--r--. 1 bind bind 739 Mar 21 22:19 db.172.16.0
-rw-r--r--. 1 bind bind 729 Mar 22 05:30 db.192.168.100
-rw-r--r--. 1 bind bind 721 Mar 21 20:57 db.192.168.200
-rw-r--r--. 1 bind bind 237 Nov 17 2012 db.255
-rw-r--r--. 1 bind bind 777 Mar 21 20:56 db.buu.in.th
-rw-r--r--. 1 bind bind 353 Nov 17 2012 db.empty
-rw-r--r--. 1 bind bind 774 Mar 22 05:31 db.gonggang.com
-rw-r--r--. 1 bind bind 270 Nov 17 2012 db.local
-rw-r--r--. 1 bind bind 784 Mar 21 21:12 db.moowan.com
-rw-r--r--. 1 bind bind 2994 Nov 17 2012 db.root
-rw-r--r--. 1 root bind 109 Mar 22 06:26 dhcp.key
-rw-r--r--. 1 bind bind 463 Nov 17 2012 named.conf
-rw-r--r--. 1 bind bind 490 Nov 17 2012 named.conf.default-zones
-rw-r--r--. 1 bind bind 1643 Mar 22 06:37 named.conf.local
-rw-r--r--. 1 bind bind 846 Feb 1 23:36 named.conf.options
-rw-r-----. 1 bind bind 77 Nov 17 2012 rndc.key
-rw-r--r--. 1 bind bind 1317 Nov 17 2012 zones.rfc1918
```

4. Dynamic DNS

4. Dynamic DNS

```
root@fedora:/etc/bind# cp dhcp.key /etc/dhcp
```

```
root@fedora:/etc/dhcp# ls -l
total 12
drwxr-xr-x. 1 root root 18 Mar 21 19:37 dhclient.d
-rw-r--r--. 1 root root 126 Jul 19 2023 dhcpd6.conf
-rw-r--r--. 1 root root 3450 Mar 22 06:42 dhcpd.conf
-rw-r--r--. 1 root bind 109 Mar 22 06:27 dhcp.key
```

4. Dynamic DNS

- Nano /etc/bind/named.conf.local

```
include "/etc/bind/dhcp.key";
// [
// Do any local configuration here
//

// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";
// Domain gonggang.com
zone "gonggang.com" {
    type master;
    file "/etc/bind/db.gonggang.com";
    update-policy {
        grant dhcp.gonggang.com wildcard *.gonggang.com A DHCID;
    };
    #
    # allow-update { none; };
    # allow-transfer { 10.70.20.207; }
    # also-notify { 10.70.20.207; }
};

zone "100.168.192.in-addr.arpa" {
    type master;
    file "/etc/bind/db.192.168.100";
    update-policy {
        grant dhcp.gonggang.com wildcard *.100.168.192.in-addr.arpa PTR;
    };
    #
    # allow-update { none; };
    # allow-transfer { 10.70.20.207; }
    # also-notify { 10.70.20.207; }
};
```

4. Dynamic DNS

```
root@fedora:/etc/dhcp# systemctl restart named

root@fedora:/etc/dhcp#
root@fedora:/etc/dhcp#
root@fedora:/etc/dhcp# systemctl status named
● named.service - Berkeley Internet Name Domain (DNS)
   Loaded: loaded (/usr/lib/systemd/system/named.service; enabled; preset: disabled)
   Drop-In: /usr/lib/systemd/system/service.d
             └─10-timeout-abort.conf
     Active: active (running) since Fri 2024-03-22 06:48:17 +07; 9s ago
       Process: 6272 ExecStartPre=/bin/bash -c if [ ! "$DISABLE_ZONE_CHECKING" == "yes" ]; then /usr/bin/named-checkc>
       Process: 6276 ExecStart=/usr/sbin/named -u named -c ${NAMEDCONF} $OPTIONS (code=exited, status=0/SUCCESS)
     Main PID: 6278 (named)
        Tasks: 18 (limit: 4645)
      Memory: 9.3M
        CPU: 98ms
      CGroup: /system.slice/named.service
              └─6278 /usr/sbin/named -u named -c /etc/named.conf

Mar 22 06:48:17 fedora named[6278]: network unreachable resolving './DNSKEY/IN': 2001:dc3::35#53
Mar 22 06:48:17 fedora named[6278]: network unreachable resolving './NS/IN': 2001:dc3::35#53
Mar 22 06:48:17 fedora named[6278]: network unreachable resolving './DNSKEY/IN': 2001:500:2f::f#53
Mar 22 06:48:17 fedora named[6278]: network unreachable resolving './NS/IN': 2001:500:2f::f#53
Mar 22 06:48:17 fedora named[6278]: network unreachable resolving './DNSKEY/IN': 2001:500:12::d0d#53
Mar 22 06:48:17 fedora named[6278]: network unreachable resolving './DNSKEY/IN': 2001:503:c27::2:30#53
Mar 22 06:48:17 fedora named[6278]: network unreachable resolving './DNSKEY/IN': 2001:500:2f::f#53
Mar 22 06:48:17 fedora named[6278]: network unreachable resolving './DNSKEY/IN': 2001:dc3::35#53
Mar 22 06:48:17 fedora named[6278]: managed-keys-zone: Key 20326 for zone . is now trusted (acceptance timer compl>
Mar 22 06:48:17 fedora named[6278]: resolver priming query complete: success
```

- Nano /etc/dhcp/dhcpd.conf

```
include "/etc/dhcp/dhcp.key";
# dhcpd.conf
#
# Sample configuration file for ISC dhcpd
[

# option definitions common to all supported networks...
option domain-name "gonggang.com";
option domain-name-servers 192.168.100.1;

default-lease-time 600;
max-lease-time 7200;

# Use this to enable / disable dynamic dns updates globally.
ddns-updates on;
ddns-update-style none;
zone gonggang.com
{
    primary 192.168.100.1;
    key dhcp.gonggang.com;
}

zone 100.168.192.in-addr.arpa.
{
    primary 192.168.100.1;
    key dhcp.gonggang.com;
}
```

4. Dynamic DNS

```
# A slightly different configuration for an internal subnet.
subnet 192.168.100.0 netmask 255.255.255.0 {
    range 192.168.100.101 192.168.100.200;
    option domain-name-servers 8.8.8.8, 8.8.4.4;
    option routers 192.168.100.1;
    option broadcast-address 192.168.100.255;
    default-lease-time 600;
    max-lease-time 7200;
    interface enp0s8;
}
```

4. Dynamic DNS

```
root@fedora:/etc/dhcp# systemctl restart dhcpd.service
root@fedora:/etc/dhcp# systemctl status dhcpd.service
● dhcpd.service - DHCPv4 Server Daemon
   Loaded: loaded (/usr/lib/systemd/system/dhcpd.service; enabled; preset: disabled)
   Drop-In: /usr/lib/systemd/system/service.d
             └─10-timeout-abort.conf
     Active: active (running) since Fri 2024-03-22 06:43:06 +07; 8s ago
       Docs: man:dhcpd(8)
              man:dhcpd.conf(5)
   Main PID: 6219 (dhcpd)
     Status: "Dispatching packets..."
      Tasks: 1 (limit: 4645)
     Memory: 5.1M
        CPU: 15ms
      CGroup: /system.slice/dhcpd.service
                └─6219 /usr/sbin/dhcpd -f -cf /etc/dhcp/dhcpd.conf -user dhcpd -group dhcpd --no-pid

Mar 22 06:43:06 fedora dhcpd[6219]: Source compiled to use binary-leases
Mar 22 06:43:06 fedora dhcpd[6219]: Wrote 0 class decls to leases file.
Mar 22 06:43:06 fedora dhcpd[6219]: Wrote 0 deleted host decls to leases file.
Mar 22 06:43:06 fedora dhcpd[6219]: Wrote 0 new dynamic host decls to leases file.
Mar 22 06:43:06 fedora dhcpd[6219]: Wrote 1 leases to leases file.
Mar 22 06:43:06 fedora dhcpd[6219]: Listening on LPF/enp0s8/08:00:27:b0:99:86/192.168.100.0/24
Mar 22 06:43:06 fedora dhcpd[6219]: Sending on   LPF/enp0s8/08:00:27:b0:99:86/192.168.100.0/24
Mar 22 06:43:06 fedora dhcpd[6219]: Sending on   Socket/fallback/fallback-net
Mar 22 06:43:06 fedora dhcpd[6219]: Server starting service.
Mar 22 06:43:06 fedora systemd[1]: Started dhcpd.service - DHCPv4 Server Daemon.
```

5. Web app

```
root@fedora:~# dnf install dnf-plugins-core
Last metadata expiration check: 3:56:43 ago on Fri 22 Mar 2024 03:01:40 AM +07.
Package dnf-plugins-core-4.5.0-1.fc39.noarch is already installed.
Dependencies resolved.
Nothing to do.
Complete!
```

```
root@fedora:~# dnf config-manager --add-repo https://download.docker.com/linux/fedora/docker-ce.repo
Adding repo from: https://download.docker.com/linux/fedora/docker-ce.repo
```

5. Web app

```
root@fedora:~# dnf install docker-ce docker-ce-cli containerd.io
Docker CE Stable - x86_64                                         62 kB/s | 15 kB     00:00
Dependencies resolved.

=====
← Package           Architecture   Version      Repository    Size
=====
Installing:
  containerd.io      x86_64        1.6.28-3.2.fc39  docker-ce-stable  34 M
  docker-ce          x86_64        3:26.0.0-1.fc39   docker-ce-stable  26 M
  docker-ce-cli       x86_64        1:26.0.0-1.fc39   docker-ce-stable  7.3 M
Installing dependencies:
  libcgroup          x86_64        3.0-3.fc39      fedora          74 k
Installing weak dependencies:
  docker-buildx-plugin x86_64        0.13.1-1.fc39   docker-ce-stable  13 M
  docker-ce-rootless-extras x86_64        26.0.0-1.fc39   docker-ce-stable  4.0 M
  docker-compose-plugin x86_64        2.25.0-1.fc39   docker-ce-stable  13 M

Transaction Summary
=====
Install 7 Packages

Total download size: 98 M
Installed size: 384 M
Is this ok [y/N]: y
Downloading Packages:
```

5. Web app

```
root@fedora:~# systemctl start docker
root@fedora:~# systemctl enable docker
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /usr/lib/systemd/system/docker.service
```

```
root@fedora:~# dnf -y install wget
Last metadata expiration check: 0:00:52 ago on Fri 22 Mar 2024 07:00:37 AM +07.
Package wget-1.21.4-1.fc39.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
root@fedora:~# curl -s https://api.github.com/repos/docker/compose/releases/latest \
| grep browser_download_url \
| grep docker-compose-linux-x86_64 \
| cut -d '"' -f 4 \
| wget -qi -
root@fedora:~# chmod +x docker-compose-linux-x86_64
root@fedora:~# mv docker-compose-linux-x86_64 /usr/local/bin/docker-compose
root@fedora:~# docker-compose --version
Docker Compose version v2.25.0
```

5. Web app

5. Web app

```
root@fedora:/etc/nginx# ls
conf.d                               fastcgi_params          mime.types           scgi_params          uwsgi_params
default.d                            fastcgi_params.default mime.types.default scgi_params.default uwsgi_params.default
fastcgi.conf                         koi-utf                nginx.conf         sites-available    win-utf
fastcgi.conf.default     koi-win               nginx.conf.default sites-enabled
root@fedora:/etc/nginx# cp /home/bowornthat/Downloads/sites-conf sites-available/
root@fedora:/etc/nginx# cd sites-
-bash: cd: sites-: No such file or directory
root@fedora:/etc/nginx# cd sites-available/
root@fedora:/etc/nginx/sites-available# ls
sites-conf
```

```
root@fedora:/etc/nginx/sites-enabled# ln -s ../sites-available/sites-conf ./sites-conf
root@fedora:/etc/nginx/sites-enabled# ls
sites-conf
```

5. Web app

```
upstream moowan {
    server localhost:8090;
}

#   server {
#       listen 80;
#       server_name moowan.buu.in.th;
#       rewrite ^ https://moowan.buu.in.th$uri permanent;
#   }

server {
#   listen 443 ssl; # managed by Certbot
    listen 80;■
    server_name moowan.buu.in.th;

    location / {
        proxy_pass          http://moowan;
        proxy_redirect      off;
        proxy_set_header    Host $host:$server_port;
        proxy_set_header    X-Real-IP $remote_addr;
        proxy_set_header    X-Forwarded-For $proxy_add_x_forwarded_for;
        proxy_set_header    X-Forwarded-Proto $scheme;
        proxy_set_header    X-Forwarded-Host $server_name;
    }
}
```

5. Web app

```
root@fedora:/home# mkdir moowan
root@fedora:/home# cd moowan/
root@fedora:/home/moowan# cp /home/bowornthat/Downloads/docker-compose.yml ./
root@fedora:/home/moowan# ls
docker-compose.yml
root@fedora:/home/moowan# nano docker-compose.yml
```

5. Web app

- เปลี่ยน port เป็น 8090:8000

```
version: "3.0"
services:
  moowan-web:
    depends_on:
      - moowan-db
    container_name: moowan-web
    image: bitnami/laravel:latest
    environment:
      - DB_HOST=person-db
      - DB_USERNAME=root
      - DB_DATABASE=person
      - DB_PASSWORD=123456
    ports:
      - "8090:8000"
    networks:
      - moowandev_net
    restart: always
    volumes:
      - /home/moowan/app:/app
      - /home/moowan/webdata:/root
```

- เปลี่ยน port เป็น 8091:80

```
moowan-phpmyadmin:
  container_name: moowan-phpmyadmin
  image: phpmyadmin/phpmyadmin
  environment:
    - PMA_HOST=moowan-db
  ports:
    - "8091:80"
  networks:
    - moowandev_net
  restart: always
```

5. Web app

```
root@fedora:/home/moowan# docker-compose up -d
WARN[0000] /home/moowan/docker-compose.yml: 'version' is obsolete
[+] Running 32/32
  ✓ moowan-db 10 layers [██████████]    0B/0B    Pulled
    ✓ 9a5c778f631f Pull complete
    ✓ 9e77c3a95bf2 Pull complete
    ✓ 8b279a2086e0 Pull complete
    ✓ c8bfbcde7882 Pull complete
    ✓ d35b074b68ec Pull complete
    ✓ beeaa5014e6af Pull complete
    ✓ dc3791a61558 Pull complete
    ✓ 52f9323b9f0e Pull complete
    ✓ 7f7391eab49b Pull complete
    ✓ 8d2f04b287ee Pull complete
  ✓ moowan-phpmyadmin 18 layers [████████████████████████]    0B/0B    Pulled
    ✓ faef57eae888 Pull complete
    ✓ 989a1d6c052e Pull complete
    ✓ 0705c9c2f22d Pull complete
    ✓ 621478e043ce Pull complete
    ✓ 98246dcca987 Pull complete
    ✓ bfed8c155cb6 Pull complete
    ✓ 7a7c2e908867 Pull complete
    ✓ d176994b625c Pull complete
    ✓ 2d8ace6a]716 Pull complete
    ✓ c70df516383c Pull complete
    ✓ 15e1b44fe4c7 Pull complete
    ✓ 65e50d44e95a Pull complete
    ✓ 77f68910bc0a Pull complete
    ✓ 605dd3a6e332 Pull complete
    ✓ 99ce27188f07 Pull complete
    ✓ 74d64e32c5d5 Pull complete
    ✓ ef5fc9928b9f Pull complete
    ✓ 163f3256e112 Pull complete
  ✓ moowan-web 1 layers [■]    0B/0B    Pulled
    ✓ fdf027271835 Pull complete
[+] Running 3/4
  : Network moowan_moowandev_net    Created
  ✓ Container moowan-phpmyadmin    Started
  ✓ Container moowan-db          Started
  ✓ Container moowan-web         Started
```

5. Web app

```
root@fedora:/home/moowan# ls
app  data  docker-compose.yml  mysql  webdata
root@fedora:/home/moowan# docker ps
CONTAINER ID   IMAGE          COMMAND           CREATED          STATUS          PORTS
NAMES
efec84d482c2   bitnami/laravel:latest "/opt/bitnami/script..."  51 seconds ago   Up 49 seconds   3000/tcp, 0.0.0.0
:8090->8000/tcp, :::8090->8000/tcp   moowan-web
a868a46bbfffc  phpmyadmin/phpmyadmin    "/docker-entrypoint..."  52 seconds ago   Up 50 seconds   0.0.0.0:8091->80/
tcp, :::8091->80/tcp   moowan-phpmyadmin
8b3ec50a9dd2   mysql:latest        "docker-entrypoint.s..."  52 seconds ago   Up 50 seconds   3306/tcp, 33060/t
cp
```

5. Web app

```
user www-data;
worker_processes auto;
pid /run/nginx.pid;
include /etc/nginx/modules-enabled/*.conf;

worker_rlimit_nofile 150000;

events {
    worker_connections 20000;
    multi_accept on;
    use epoll;
}
```

```
http {

    ##
    # Basic Settings
    ##

    sendfile on;
    tcp_nopush on;
    tcp_nodelay on;
    keepalive_timeout 65;
    types_hash_max_size 4096;
    # server_tokens off;

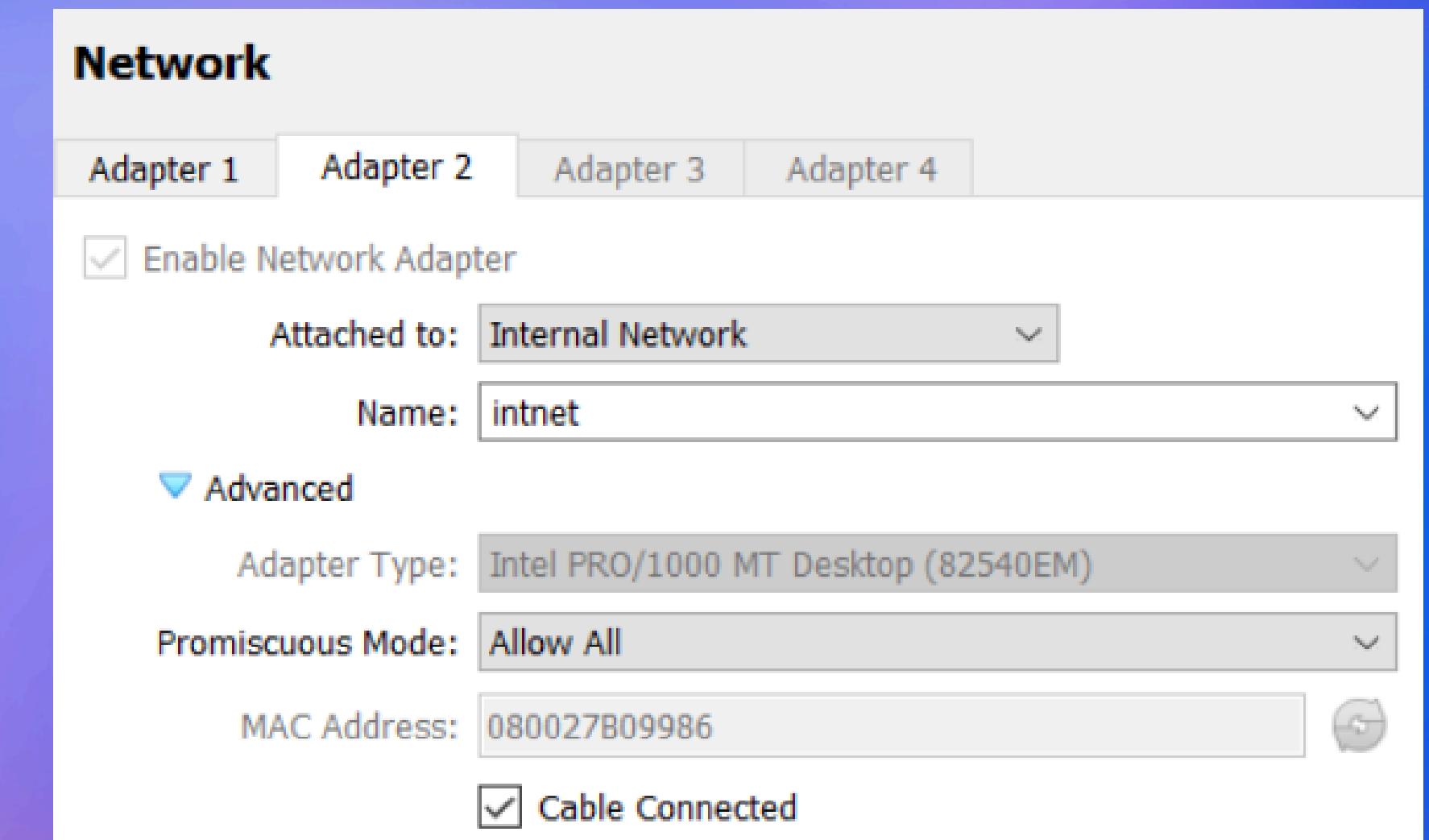
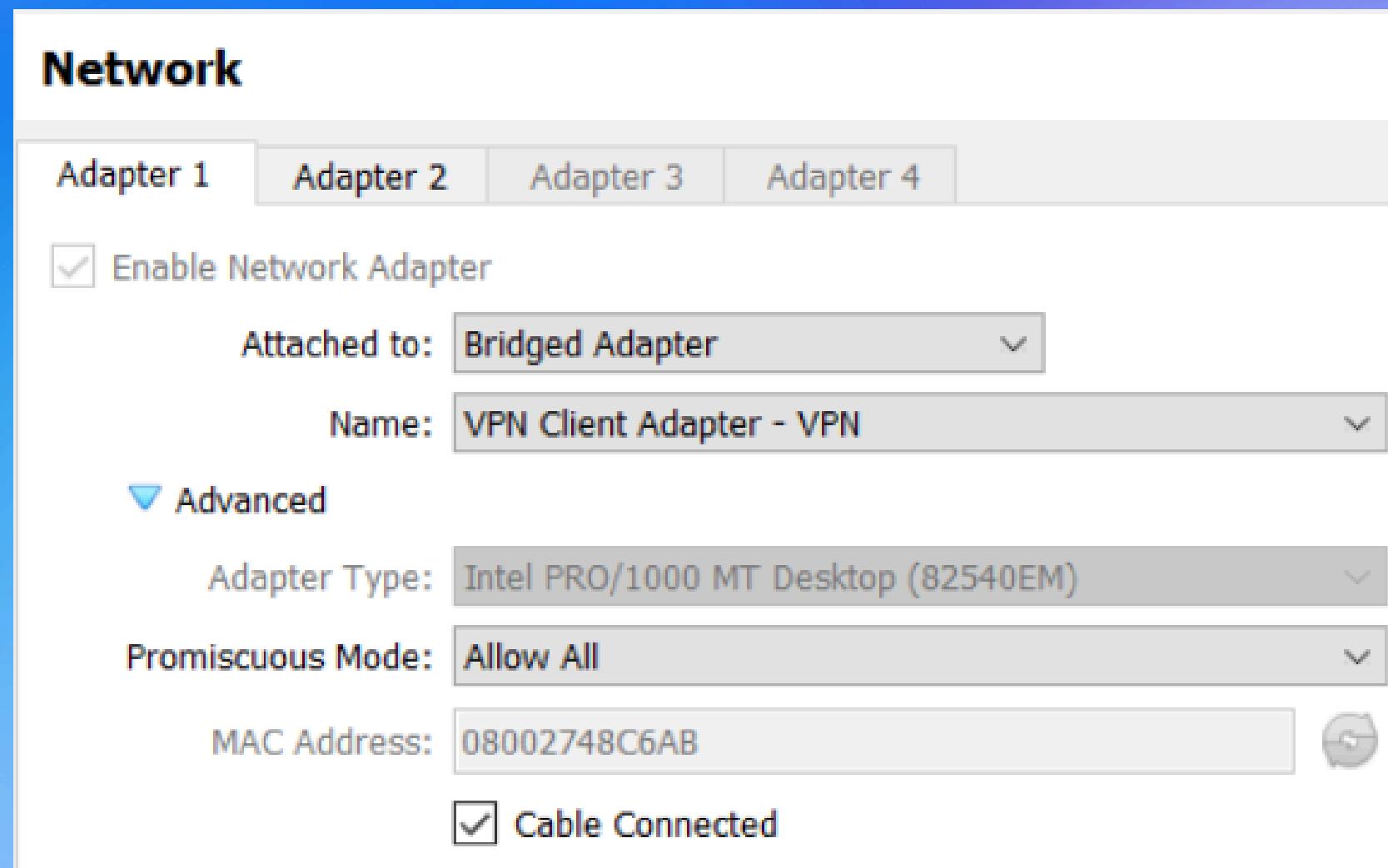
    # server_names_hash_bucket_size 64;
    #          open_file_cache max=10000;
    open_file_cache_min_uses 10;
    open_file_cache max=10000;
    open_file_cache_errors on;

    reset_timedout_connection on;
    server_names_hash_bucket_size 256;
    client_max_body_size 4096M;
    client_body_buffer_size 512k;
    client_body_in_single_buffer on;
    client_body_timeout 180s;
    client_header_timeout 180s;
    client_header_buffer_size 256k;
```

6. master slave

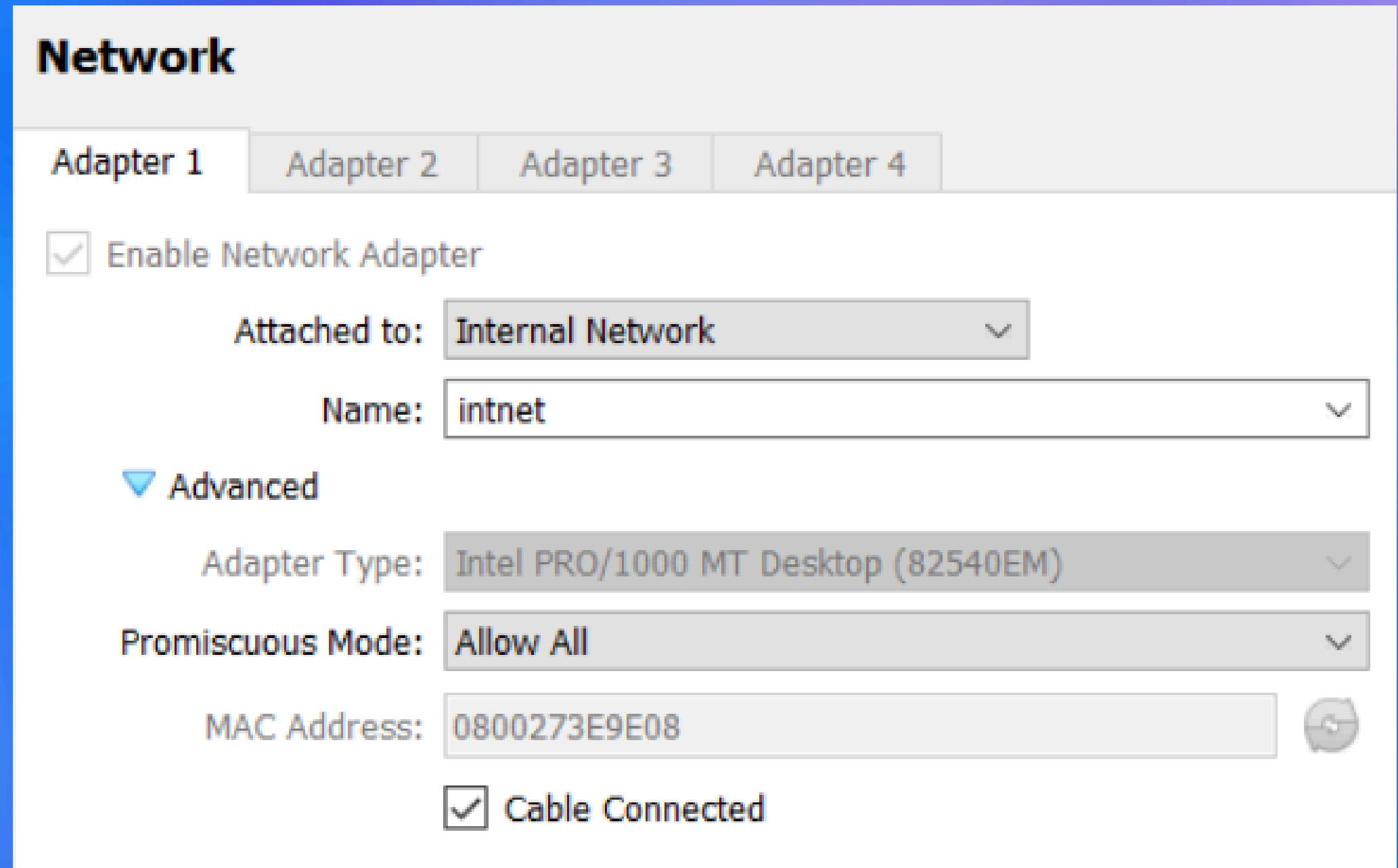
7. Proxy

- Main (Host)



7. Proxy

- Clone (Client)



7. Proxy

```
root@fedora:~# dnf install squid
Ansible for Fedora 39 - x86_64                                         138 B/s | 196 B    00:01
Errors during downloading metadata for repository 'ansible':
  - Status code: 404 for https://releases.ansible.com/rpm/release/39/x86_64/repo/repodata/repomd.xml
(IP: 104.26.0.234)
Error: Failed to download metadata for repo 'ansible': Cannot download repomd.xml: Cannot download repodata/repomd.xml: All mirrors were tried
Ignoring repositories: ansible
Last metadata expiration check: 0:03:46 ago on Fri 22 Mar 2024 11:22:21 AM +07.
Dependencies resolved.

=====
 Package          Architecture Version       Repository      Size
=====
Installing:
  squid           x86_64      7:6.6-1.fc39   updates        3.9 M
Installing dependencies:
  libcap          x86_64      1.0.1-13.fc39  fedora        25 k
  perl-DBI        x86_64      1.643-18.fc39  fedora       708 k
  perl-Digest-SHA x86_64      1:6.04-501.fc39 fedora        61 k
  perl-English    noarch     1.11-502.fc39   updates       14 k
  perl-Math-BigInt noarch     1:1.9998.39-2.fc39 fedora      203 k
  perl-Math-BigRat noarch     0.2624-500.fc39  fedora        41 k
  perl-Math-Complex noarch    1.62-502.fc39   updates       46 k

Transaction Summary
=====
Install 8 Packages
```

7. Proxy

```
root@fedora:/etc/squid# nano squid.conf
root@fedora:/etc/squid# systemctl restart squid
^[[root@fedora:/etc/squid# systemctl status squid
● squid.service - Squid caching proxy
    Loaded: loaded (/usr/lib/systemd/system/squid.service; enabled; preset: disabled)
    Drop-In: /usr/lib/systemd/system/service.d
              └─10-timeout-abort.conf
   Active: active (running) since Fri 2024-03-22 11:49:24 +07; 21s ago
     Docs: man:squid(8)
   Process: 3824 ExecStartPre=/usr/libexec/squid/cache_swap.sh (code=exited, s>
 Main PID: 3827 (squid)
    Tasks: 3 (limit: 4645)
   Memory: 14.1M
      CPU: 98ms
     CGroup: /system.slice/squid.service
             ├─3827 /usr/sbin/squid --foreground -f /etc/squid/squid.conf
             ├─3830 "(squid-1)" --kid squid-1 --foreground -f /etc/squid/squid.>
             └─3831 "(logfile-daemon)" /var/log/squid/access.log

Mar 22 11:49:24 fedora systemd[1]: Starting squid.service - Squid caching proxy...
Mar 22 11:49:24 fedora squid[3827]: Squid Parent: will start 1 kids
Mar 22 11:49:24 fedora squid[3827]: Squid Parent: (squid-1) process 3830 started
Mar 22 11:49:24 fedora systemd[1]: Started squid.service - Squid caching proxy.
```

7. Proxy

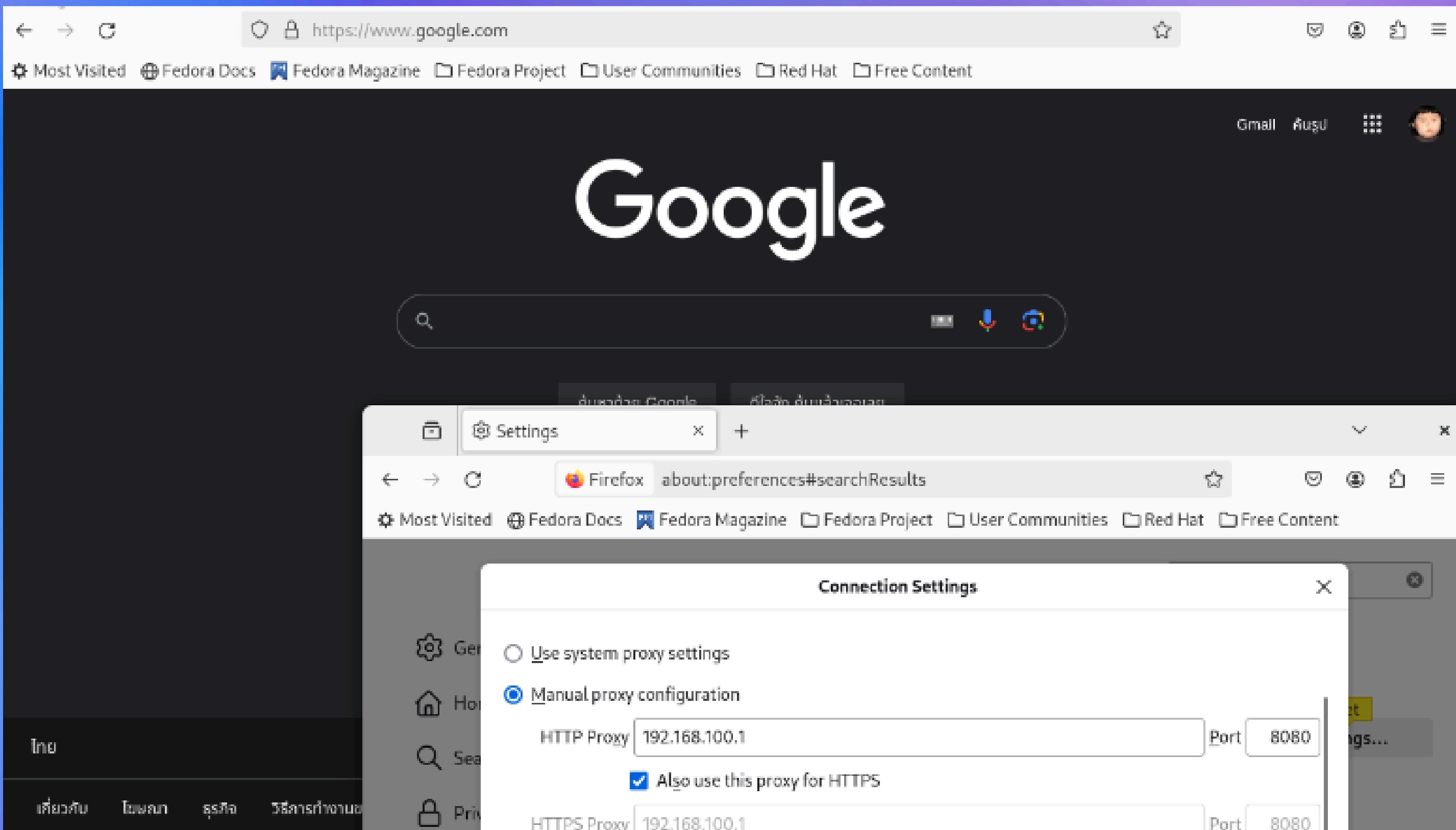
```
#acl localnet src 0.0.0.1-0.255.255.255 # RFC 1122 "this" network (LAN)
#acl localnet src 10.0.0.0/8                  # RFC 1918 local private network (LAN)
#acl localnet src 100.64.0.0/10                 # RFC 6598 shared address space (CGN)
#acl localnet src 169.254.0.0/16                # RFC 3927 link-local (directly plugged) machines
#acl localnet src 172.16.0.0/12                 # RFC 1918 local private network (LAN)
acl localnet src 192.168.0.0/16                # RFC 1918 local private network (LAN)
acl localnet src fc00::/7                      # RFC 4193 local private network range
acl localnet src fe80::/10                     # RFC 4291 link-local (directly plugged) machines
```

```
http_access allow localnet

# And finally deny all other access to this proxy
http_access deny all

# Squid normally listens to port 3128
http_port 8080
```

7. Proxy



7. Proxy

```
root@fedora:~# nano ipforward.sh
```

```
iptables -F
```

```
iptables --table nat --flush
```

```
iptables -t nat -A POSTROUTING -j MASQUERADE
```

```
iptables -A FORWARD -j ACCEPT
```

```
root@fedora:~# bash ipforward.sh
```

```
root@fedora:~# cat /proc/sys/net/ipv4/ip_forward
```

```
1
```

8. Firewall & Configuration management