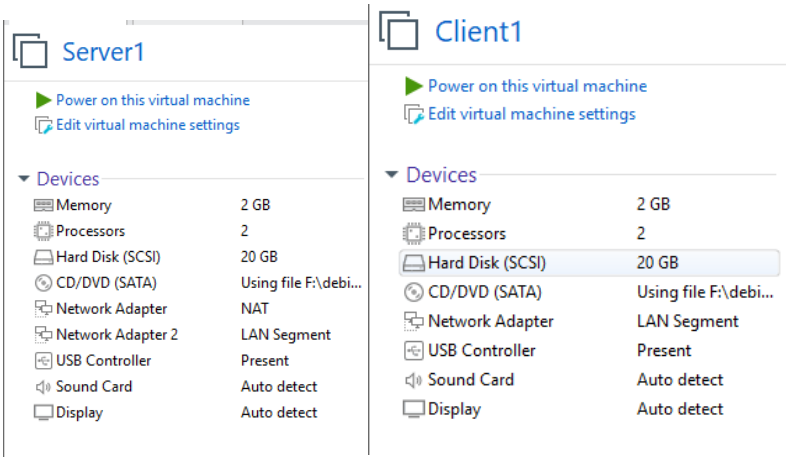
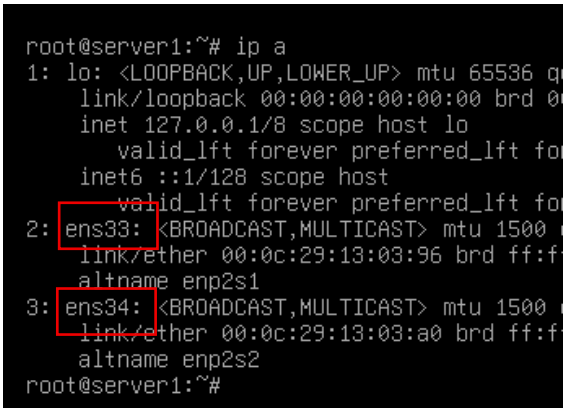
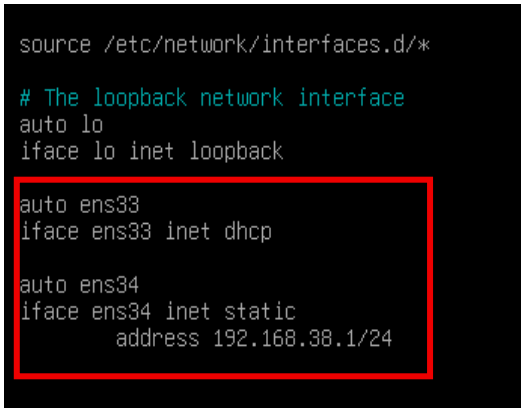
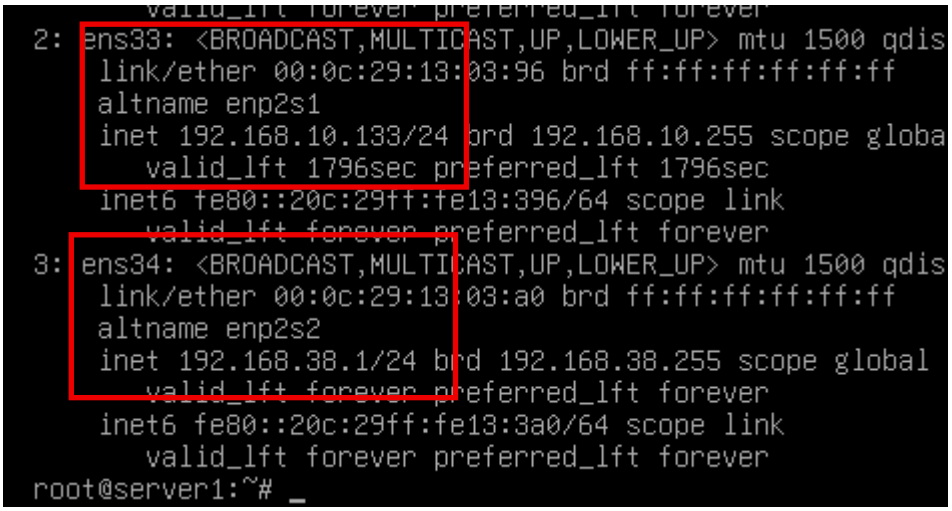
1. Install 2 mesin dengan nama mesin server1 (CLI) dan client1 (GUI) dengan cara diclone
2. Untuk konfigurasi network pada server1 menggunakan 2 network card,yang mana untuk NAT (ens33) dan untuk LAN Segment (ens34),sementara untuk client1 hanya menggunakan 1 network sebagai LAN SEGMENT.



3. Konfigurasi network pada SERVER1 di ens34 dengan IP 192.168.38.1/24







Pastikan pada server1 sudah ada akses internet

```
root@server1:~# 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=128 time=4.83 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=128 time=4.30 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=128 time=4.38 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=128 time=4.33 ms
```

Kemudian pastikan repository pada server1 sudah terkoneksi

```
 GNU nano 7.2                          /etc/apt/sources.list *
#deb cdrom:[Debian GNU/Linux 12.0.0 _Bookworm_ - Official amd64 NETINST with firmware 20230610-10:2>
deb https://mirror.unair.ac.id/debian bookworm main contrib non-free non-free-firmware
deb https://mirror.unair.ac.id/debian bookworm-updates main contrib non-free non-free-firmware
deb https://mirror.unair.ac.id/debian-security bookworm-security main contrib non-free non-free-fir>
_
```

```
root@server1:~# apt update
Get:1 https://mirror.unair.ac.id/debian bookworm InRelease [151 kB]
Get:2 https://mirror.unair.ac.id/debian bookworm-updates InRelease [55.4 kB]
Get:3 https://mirror.unair.ac.id/debian-security bookworm-security InRelease [48.0 kB]
Get:4 https://mirror.unair.ac.id/debian bookworm/main amd64 Packages [8,792 kB]
Get:5 https://mirror.unair.ac.id/debian bookworm/main Translation-en [6,108 kB]
Get:6 https://mirror.unair.ac.id/debian bookworm/contrib amd64 Packages [53.5 kB]
Get:7 https://mirror.unair.ac.id/debian bookworm/contrib Translation-en [48.4 kB]
Get:8 https://mirror.unair.ac.id/debian bookworm/non-free amd64 Packages [102 kB]
Get:9 https://mirror.unair.ac.id/debian bookworm/non-free Translation-en [68.1 kB]
Get:10 https://mirror.unair.ac.id/debian bookworm/non-free-firmware amd64 Packages [6,368 B]
Get:11 https://mirror.unair.ac.id/debian bookworm/non-free-firmware Translation-en [20.9 kB]
Get:12 https://mirror.unair.ac.id/debian bookworm-updates/main amd64 Packages [6,924 B]
Get:13 https://mirror.unair.ac.id/debian bookworm-updates/main Translation-en [5,448 B]
Get:14 https://mirror.unair.ac.id/debian-security bookworm-security/main amd64 Packages [290 kB]
Get:15 https://mirror.unair.ac.id/debian-security bookworm-security/main Translation-en [176 kB]
Get:16 https://mirror.unair.ac.id/debian-security bookworm-security/contrib amd64 Packages [896 B]
Get:17 https://mirror.unair.ac.id/debian-security bookworm-security/contrib Translation-en [652 B]
Get:18 https://mirror.unair.ac.id/debian-security bookworm-security/non-free-firmware amd64 Packages
 [688 B]
Get:19 https://mirror.unair.ac.id/debian-security bookworm-security/non-free-firmware Translation-en
 [472 B]
Fetched 15.9 MB in 4s (4,214 kB/s)
Reading package lists... 0%
```

Lakukan konfigurasi IPTABLES sebagai gateway internet pada mesin client 1

```
root@server1:~# apt install iptables
```

```
root@server1:~# iptables -t nat -A POSTROUTING -o ens33 -j MASQUERADE
```

```
root@server1:~# apt install iptables-persistent_
```

```
jakarta@server1:~$ sudo nano /etc/sysctl.conf_
```

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

```
jakarta@server1:~$ sudo sysctl -p
net.ipv4.ip_forward = 1
jakarta@server1:~$
```

Untuk semua akses menggunakan user (Tidak menggunakan ROOT)

```
root@server1:~# apt install sudo
```

```
root@server1:~# usermod -a -G sudo jakarta
root@server1:~# reboot
```

```
Debian GNU/Linux 12 server1 tty1

server1 login: jakarta
Password:
Linux server1 6.1.0-9-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.27-1 (2023-05-08) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
jakarta@server1:~$ _
```

4. Install DHCP Server pada mesin server1

```
jakarta@server1:~$ sudo apt install isc-dhcp-server -y_
```

```
subnet 192.168.38.0 netmask 255.255.255.0{
  range 192.168.38.2 192.168.38.254;
  option domain-name-servers 8.8.8.8;
  option domain-name "internal.example.org";
  option routers 192.168.38.1;
  option broadcast-address 192.168.38.255;
  default-lease-time 600;
  max-lease-time 7200;
```

```
host client1_{
  hardware ethernet 08:00:07:26:c0:a5;
  fixed-address 198.168.38.2;
}
```

```
jakarta@server1:~$ sudo nano /etc/default/isc-dhcp-server
```

```
  GNU nano 7.2                          /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="ens34"
INTERFACESv6=""
```

```
          CPU:  78ms
jakarta@server1:~$ sudo systemctl restart isc-dhcp-server
```

```
jakarta@server1:~$ systemctl restart isc-dhcp-server
Failed to restart isc-dhcp-server.service: Access denied
See system logs and 'systemctl status isc-dhcp-server.service' for details.
jakarta@server1:~$ systemctl restart isc-dhcp-server
Failed to restart isc-dhcp-server.service: Access denied
See system logs and 'systemctl status isc-dhcp-server.service' for details.
jakarta@server1:~$ systemctl status isc-dhcp-server.service
× isc-dhcp-server.service - LSB: DHCP server
     Loaded: loaded (/etc/init.d/isc-dhcp-server; generated)
     Active: failed (Result: exit-code) since Sun 2026-01-11 19:46:41 EST; 58min ago
       Docs: man:systemd-sysv-generator(8)
    Process: 784 ExecStart=/etc/init.d/isc-dhcp-server start (code=exited, status=1/FAILURE)
        CPU: 78ms
jakarta@server1:~$ sudo systemctl restart isc-dhcp-server
jakarta@server1:~$ sudo systemctl status isc-dhcp-server
● isc-dhcp-server.service - LSB: DHCP server
     Loaded: loaded (/etc/init.d/isc-dhcp-server; generated)
     Active: active (running) since Sun 2026-01-11 20:47:38 EST; 3min 10s ago
       Docs: man:systemd-sysv-generator(8)
    Process: 892 ExecStart=/etc/init.d/isc-dhcp-server start (code=exited, status=0/SUCCESS)
      Tasks: 1 (limit: 2265)
     Memory: 5.0M
        CPU: 68ms
     CGroup: /system.slice/isc-dhcp-server.service
             └─904 /usr/sbin/dhcpd -4 -q -cf /etc/dhcp/dhcpd.conf ens34

Jan 11 20:47:36 server1 dhcpd[904]: Wrote 0 deleted host decls to leases file.
Jan 11 20:47:36 server1 dhcpd[904]: Wrote 0 new dynamic host decls to leases file.
Jan 11 20:47:36 server1 dhcpd[904]: Wrote 0 leases to leases file.
Jan 11 20:47:36 server1 dhcpd[904]: Server starting service.
Jan 11 20:47:38 server1 dhcpd[904]: DHCPDISCOVER from 00:0c:29:98:95:ed via ens34
Jan 11 20:47:38 server1 isc-dhcp-server[892]: Starting ISC DHCPv4 server: dhcpd.
Jan 11 20:47:38 server1 systemd[1]: Started isc-dhcp-server.service - LSB: DHCP server.
Jan 11 20:47:39 server1 dhcpd[904]: DHCPOFFER on 192.168.38.2 to 00:0c:29:98:95:ed (client1) via en>
Jan 11 20:47:39 server1 dhcpd[904]: DHCPREQUEST for 192.168.38.2 (192.168.38.1) from 00:0c:29:98:95>
Jan 11 20:47:39 server1 dhcpd[904]: DHCPACK on 192.168.38.2 to 00:0c:29:98:95:ed (client1) via ens34
```

Cek pada mesin client1

```
       valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group def
    link/ether 00:0c:29:98:95:ed brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 192.168.38.2/24 brd 192.168.38.255 scope global dynamic ens33
       valid_lft 598sec preferred_lft 598sec
    inet6 fe80::20c:29ff:fe98:95ed/64 scope link
       valid_lft forever preferred_lft forever
root@client1:~#
```

5. Setelah mesin client1 mendapatkan ip dari dhcp server mesin server1 maka lakukan tes internet pada mesin client 1

6. Rubah client1 menjadi GUI dengan cara :
   Pastikan pada mesin client1 sudah tergantikan hostnamenya menjadi client 1,ada koneksi internet dan masuk sebagai user

```
root@server1:~# hostnamectl set-hostname client1
root@server1:~# reboot
```

```
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permitted by applicable law.
Last login: Sun Jan 11 19:31:33 EST 2026 on tty1
root@client1:~#
```

Client1

```
  GNU nano 7.2                                /etc/network/interfaces *
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback

auto ens33
iface ens33 inet dhcp_
```

Pastikan mesin client1 sudah dapat ip dari mesin server1

```
root@client1:~# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:0c:29:98:95:ed brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 192.168.38.2/24 brd 192.168.38.255 scope global dynamic ens33
       valid_lft 489sec preferred_lft 489sec
    inet6 fe80::20c:29ff:fe98:95ed/64 scope link
       valid_lft forever preferred_lft forever
root@client1:~# _
```

Lakukan test internet

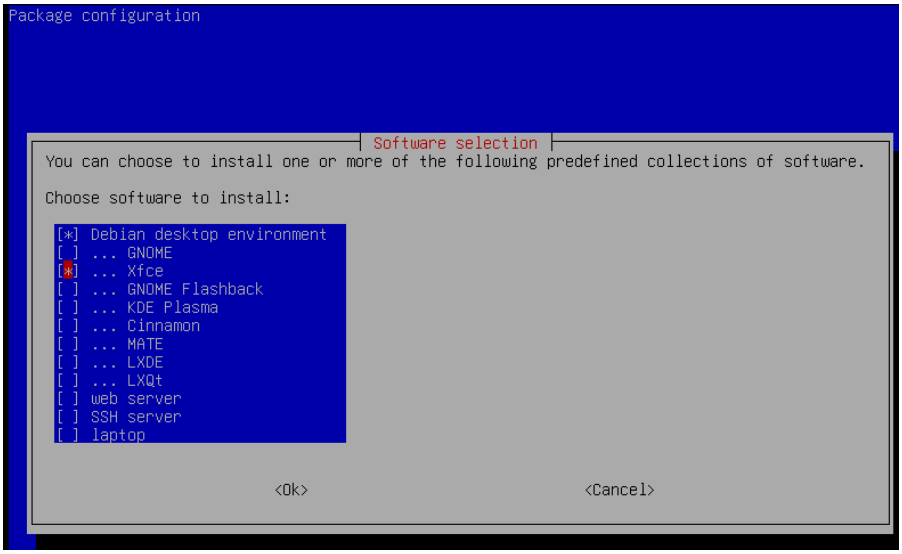
```
root@client1:~# ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=127 time=6.64 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=127 time=5.18 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=127 time=5.60 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=127 time=6.61 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=127 time=5.37 ms
```

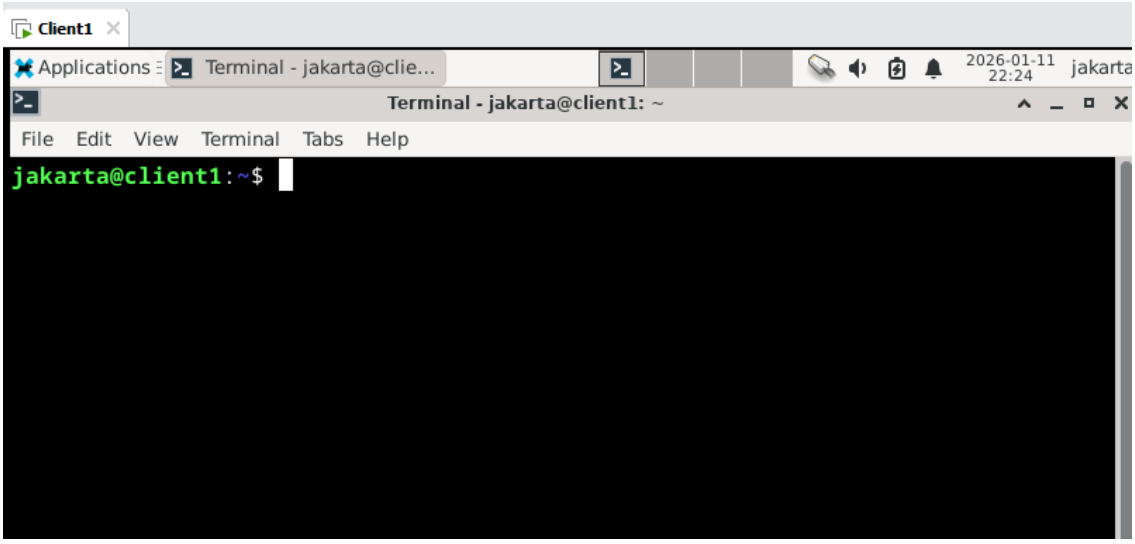
Client1

```
  GNU nano 7.2                              /etc/apt/sources.list
#deb cdrom:[Debian GNU/Linux 12.0.0 _Bookworm_ - Official amd64 NETINST with firmware 20230610-10:2
deb https://mirror.unair.ac.id/debian bookworm main contrib non-free non-free-firmware
deb https://mirror.unair.ac.id/debian bookworm-upadates main contrib non-free non-free-firmware
deb https://mirror.unair.ac.id/debian-security bookworm-security main contrib non-free-firmware
```

```
root@client1:~# apt update
Hit:1 https://mirror.unair.ac.id/debian bookworm InRelease
Get:2 https://mirror.unair.ac.id/debian bookworm-updates InRelease [55.4 kB]
Hit:3 https://mirror.unair.ac.id/debian-security bookworm-security InRelease
Get:4 https://mirror.unair.ac.id/debian bookworm-updates/main amd64 Packages [6,924 B]
Get:5 https://mirror.unair.ac.id/debian bookworm-updates/main Translation-en [5,448 B]
Fetched 67.8 kB in 1s (96.4 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
110 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@client1:~# _
```

```
root@client1:~# tasksel
```





Lakukan install sudo pada mesin client 1

```
root@client1:~# apt install sudo -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
sudo is already the newest version (1.9.13p3-1+deb12u3).
sudo set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 87 not upgraded.
root@client1:~#
```

```
root@client1:~# usermod -a -G sudo jakarta
```

7. Install ansible untuk user 10

```
jakarta@client1:~$ sudo apt install ansible -y
```

```
jakarta@client1:~$ nano hosts.ini
```

```
  GNU nano 7.2                                hosts.ini
[servers]
server1 ansible_password=password
```

```
jakarta@client1:~$ sudo nano /etc/hosts
```

```
  GNU nano 7.2                              /etc/hosts *
127.0.0.1       localhost
127.0.1.1       client1

# The following lines are desirable for IPv6 capable hosts
::1     localhost ip6-localhost ip6-loopback
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters

192.168.38.1 server1
```

```
jakarta@server1:~$ sudo apt install openssh-server -y
```

```
jakarta@client1:~$ ssh server1
The authenticity of host 'server1 (192.168.38.1)' can't be established.
ED25519 key fingerprint is SHA256:PzM+8RgSM+VkEBadyrbzN82bQ1UfAByQDO9dtPJrYcw.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'server1' (ED25519) to the list of known hosts.
jakarta@server1's password:
Linux server1 6.1.0-9-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.27-1 (2023-05-08
) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Sun Jan 11 21:33:31 2026
jakarta@server1:~$
```

```
jakarta@server1:~$ exit
logout
Connection to server1 closed.
jakarta@client1:~$
```

```
jakarta@client1:~$ nano create_300_users.yaml
```

```yaml
- name: Create 10 users
  hosts: servers
  become: yes
  tasks:
    - name: Create users
      user:
        name: "user{{ '%02d' | format(item) }}"
        password: "{{ 'password' | password_hash('sha512') }}"
        home: "/home/user{{ '%02d' | format(item) }}"
      loop: "{{ range(1,11) }}"
```

```
jakarta@client1:~$ ansible-playbook -i hosts.ini -K create_300_users.yaml
BECOME password:

PLAY [Create 10 users] *********************************************************
**

TASK [Gathering Facts] *********************************************************
**
ok: [server1]
```

```
jakarta@server1:~$ ls /home
jakarta  user01  user02  user03  user04  user05  user06  user07  user08  user09  user10
```

```
PLAY RECAP *********************************************************************
**
server1                    : ok=2    changed=1    unreachable=0    failed=0
 skipped=0    rescued=0    ignored=0
```

```
jakarta@client1:~$ sudo apt install bind9
```

```
jakarta@client1:~$ cp /etc/bind/named.conf.local named.conf.master
jakarta@client1:~$ cp /etc/bind/named.conf.local named.conf.slave
```

```
jakarta@client1:~$ nano named.conf.master
```

```
  GNU nano 7.2                        named.conf.master
//
// Do any local configuration here
//

// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";

zone "earthmoon.smkn7.id" {
  type master;
  file "/etc/bind/db.internal";
  allow-transfer { 192.168.8.5; };
};
```

```
jakarta@client1:~$ nano named.conf.slave
```

```
  GNU nano 7.2                        named.conf.slave
//
// Do any local configuration here
//

// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";

zone "earthmoon.smkn7.id" {
  type slave;
  file "/var/cache/bind/db.internal";
  masters { 192.168.8.3; };
};
```

```
jakarta@client1:~$ cp /etc/bind/db.local db.internal
```