






AprilYandi Dwi W

56419974

4IA06

ACT1\_PJAR

## Langkah Pembuatan Server

 Preferences  Import  Export  New  Add

**Welcome to VirtualBox!**

The left part of application window contains global tools and lists all virtual machines and virtual machine groups on your computer. You can import, add and create new VMs using corresponding toolbar buttons. You can popup a tools of currently selected element using corresponding element button.

You can press the **F1** key to get instant help, or visit [www.virtualbox.org](http://www.virtualbox.org) for more information and latest news.

?

×

← Create Virtual Machine


### Name and operating system

Please choose a descriptive name and destination folder for the new virtual machine and select the type of operating system you intend to install on it. The name you choose will be used throughout VirtualBox to identify this machine.

Name:


Server

Machine Folder:

 C:\Users\april\VirtualBox VMs

Type:

Linux



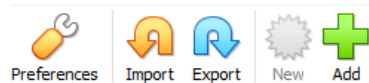
Version:

Ubuntu (64-bit)

Expert Mode

Next

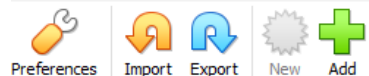
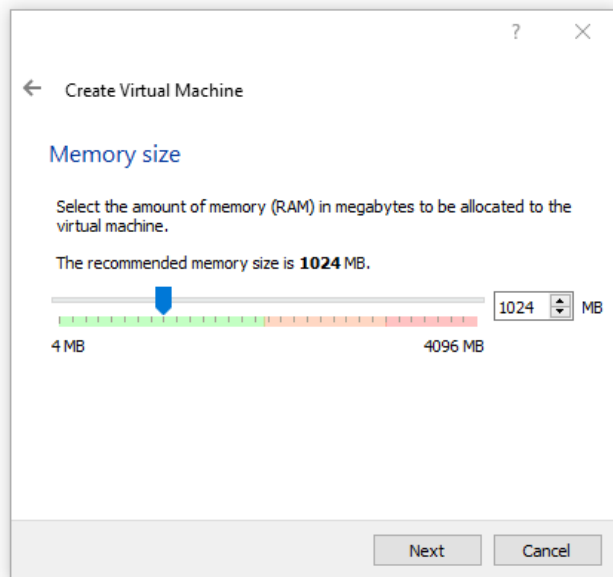
Cancel



### Welcome to VirtualBox!

The left part of application window contains global tools and lists all virtual machines and virtual machine groups on your computer. You can import, add and create new VMs using corresponding toolbar buttons. You can popup a tools of currently selected element using corresponding element button.

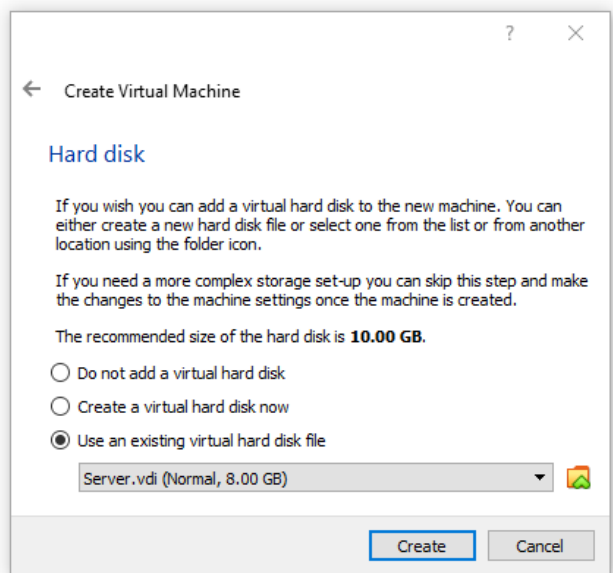
You can press the **F1** key to get instant help, or visit [www.virtualbox.org](http://www.virtualbox.org) for more information and latest news.

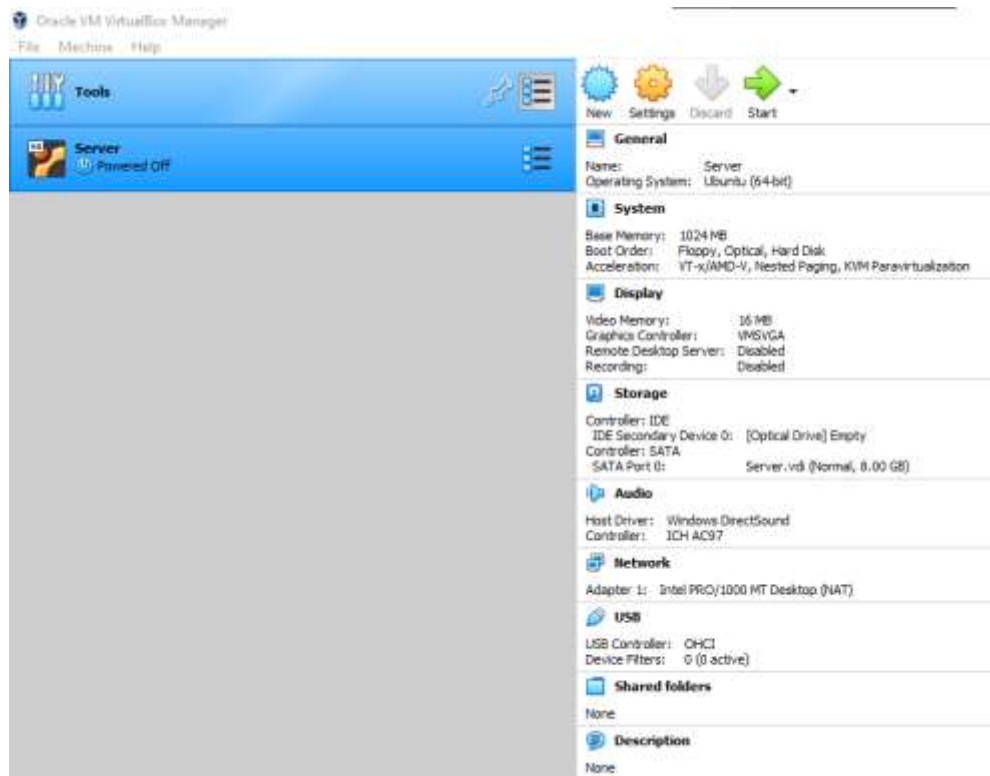


### Welcome to VirtualBox!

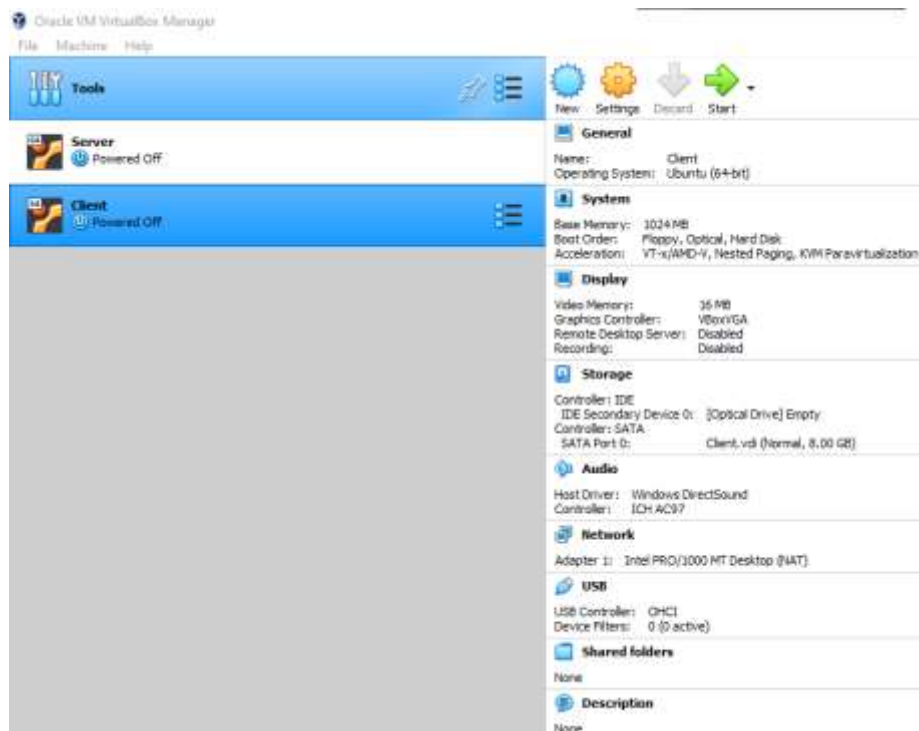
The left part of application window contains global tools and lists all virtual machines and virtual machine groups on your computer. You can import, add and create new VMs using corresponding toolbar buttons. You can popup a tools of currently selected element using corresponding element button.

You can press the **F1** key to get instant help, or visit [www.virtualbox.org](http://www.virtualbox.org) for more information and latest news.





## Langkah Pembuatan Client



```
Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Ubuntu 16.04.2 LTS labti tty1

labti login: server
Password:
Last login: Fri Feb 10 13:15:54 WIB 2017 on tty1
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.4.0-62-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

0 packages can be updated.
0 updates are security updates.

server@labti:~$
```

```
Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Ubuntu 16.04.2 LTS labti tty1

labti login: server
Password:
Last login: Fri Feb 10 13:15:54 WIB 2017 on tty1
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.4.0-62-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

0 packages can be updated.
0 updates are security updates.

server@labti:~$ ifconfig
enp0s3  Link encap:Ethernet  HWaddr 08:00:27:f9:8d:48
        inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255.0
        inet6 addr: fe80::a00:27ff:fef9:8d48/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:35 errors:0 dropped:0 overruns:0 frame:0
        TX packets:42 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:14162 (14.1 KB)  TX bytes:3792 (3.7 KB)

lo      Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        inet6 addr: ::1/128 Scope:Host
        UP LOOPBACK RUNNING  MTU:65536  Metric:1
        RX packets:288 errors:0 dropped:0 overruns:0 frame:0
        TX packets:288 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1
        RX bytes:22254 (22.2 KB)  TX bytes:22254 (22.2 KB)

server@labti:~$ _
```

Server [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

GNU nano 2.5.3 File: /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

# The primary network interface
auto enp0s3
iface enp0s3 inet dhcp
```

Server [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

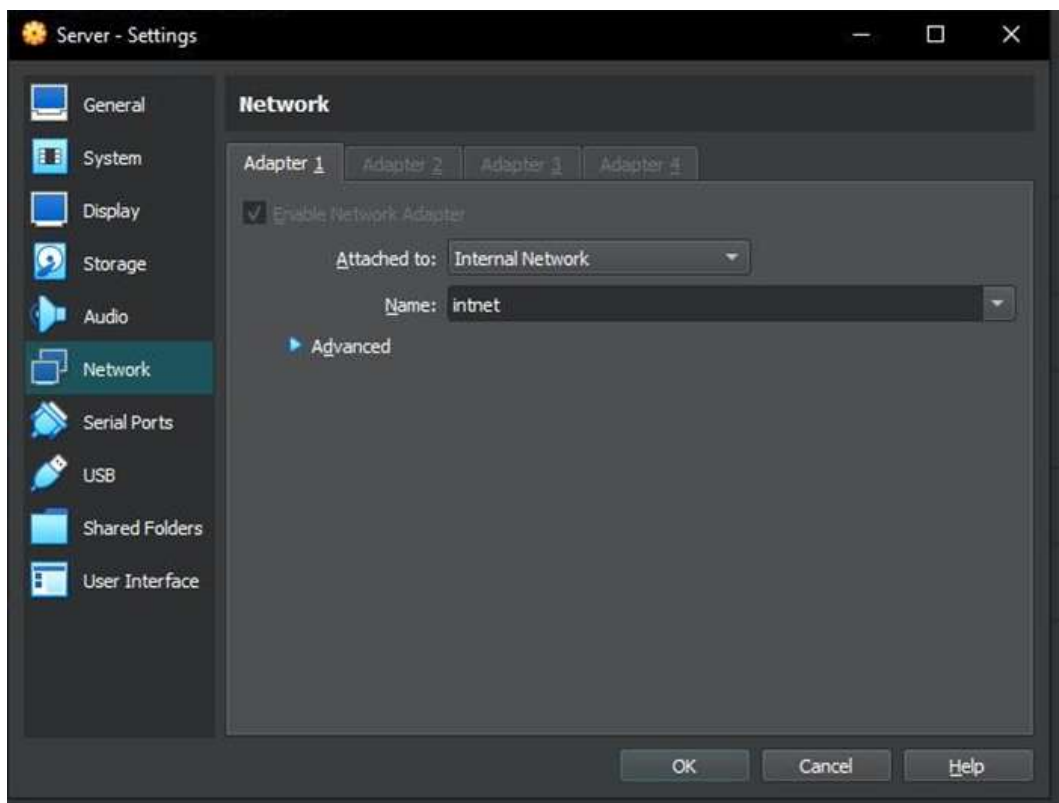
GNU nano 2.5.3 File: /etc/network/interfaces Modified

```
# 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

# The primary network interface
auto enp0s3
iface enp0s3 inet static
    address 192.168.1.10
    netmask 255.255.255.0
    gateway 192.168.1.1
    dns-nameservers 192.168.1.10
```



```
Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

labti login: server
Password:
Last login: Fri Mar 31 09:14:15 WIB 2023 on tty1
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.4.0-62-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

0 packages can be updated.
0 updates are security updates.

New release '18.04.6 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

server@labti:~$ ifconfig
enp0s3    Link encap:Ethernet  HWaddr 08:00:27:f9:8d:48
          inet addr:192.168.1.10  Bcast:192.168.1.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fef9:8d48/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:23 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:1548 (1.5 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:201 errors:0 dropped:0 overruns:0 frame:0
          TX packets:201 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1
          RX bytes:15232 (15.2 KB)  TX bytes:15232 (15.2 KB)

server@labti:~$
```

```
          inet6 addr: fe80::a00:27ff:fef9:8d48/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:23 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:1548 (1.5 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:201 errors:0 dropped:0 overruns:0 frame:0
          TX packets:201 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1
          RX bytes:15232 (15.2 KB)  TX bytes:15232 (15.2 KB)

server@labti:~$ cd /etc/bind
server@labti:/etc/bind$ sudo nano named.conf.local
[sudo] password for server:
```

```
Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.5.3 File: named.conf.local Modified

//
// 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 "praktikum.labti.ug" {
    type master;
    file "/etc/bind/forward.labti";
};

zone "1.168.192.in-addr.arpa" {
    type master;
    file "/etc/bind/reverse.labti";
};

G Get Help  O Write Out  W Where Is  K Cut Text  J Justify  C Cur Pos  Y Prev Page
X Exit      R Read File  _ Replace  U Uncut Text  T To Spell  _ Go To Line  U Next Page
```

```
Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.5.3 File: forward.labti Modified

$TTL 86400
IN      SOA      praktikum.labti.ug.  root.praktikum.labti.ug. (
;Serial
;Refresh
;Retry
;Expire
;Minimum TTL
)
IN      NS       praktikum.labti.ug.
IN      A        192.168.1.10
www     IN      A        192.168.1.10

G Get Help  O Write Out  W Where Is  K Cut Text  J Justify  C Cur Pos  Y Prev Page
X Exit      R Read File  _ Replace  U Uncut Text  T To Spell  _ Go To Line  U Next Page
```



```
Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.5.3 File: reverse.labti

$TTL 86400
@      IN      SOA      praktikum.labti.ug.  root.praktikum.labti.ug. (
                                101      ;Serial
                                3600     ;Refresh
                                1800     ;Retry
                                604800   ;Expire
                                86400    ;Minimum TTL
)
@      IN      NS       praktikum.labti.ug.
@      IN      A        192.168.1.10
www    IN      A        192.168.1.10
```

```
Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.5.3 File: reverse.labti Modified

$TTL 86400
@      IN      SOA      praktikum.labti.ug.  root.praktikum.labti.ug. (
                                101      ;Serial
                                3600     ;Refresh
                                1800     ;Retry
                                604800   ;Expire
                                86400    ;Minimum TTL
)
@      IN      NS       praktikum.labti.ug.
@      IN      A        192.168.1.10
10     IN      PTR      www.praktikum.labti.ug._
```



```
Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
@ IN NS praktikum.labti.ug.
@ IN A 192.168.1.10
10 IN PTR www.praktikum.labti.ug.

server@labti:/etc/bind$ sudo systemctl restart bind9
sudo: systemctl: command not found
server@labti:/etc/bind$ sudo systemctl restart bind9
server@labti:/etc/bind$ nslookup praktikum.labti.ug
Server: 192.168.1.10
Address: 192.168.1.10#53

Name: praktikum.labti.ug
Address: 192.168.1.10

server@labti:/etc/bind$
```

```
Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.5.3 File: /etc/default/isc-dhcp-server

# Defaults for isc-dhcp-server initscript
# sourced by /etc/init.d/isc-dhcp-server
# installed at /etc/default/isc-dhcp-server by the maintainer scripts
#
# This is a POSIX shell fragment
#
# Path to dhcpd's config file (default: /etc/dhcp/dhcpd.conf).
#DHCPD_CONF=/etc/dhcp/dhcpd.conf
#
# Path to dhcpd's PID file (default: /var/run/dhcpd.pid).
#DHCPD_PID=/var/run/dhcpd.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".
INTERFACES=""

[ Read 21 lines ]
^G Get Help ^O Write Out ^U Where Is ^K Cut Text ^J Justify ^C Cur Pos ^V Prev Page
^X Exit ^R Read File ^N Replace ^U Uncut Text ^I To Spell ^G Go To Line ^U Next Page
```

```
Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.5.3 File: /etc/default/isc-dhcp-server Modified

# Defaults for isc-dhcp-server initscript
# sourced by /etc/init.d/isc-dhcp-server
# installed at /etc/default/isc-dhcp-server by the maintainer scripts
#
# This is a POSIX shell fragment
#
# Path to dhcpd's config file (default: /etc/dhcp/dhcpd.conf).
DHCPD_CONF=/etc/dhcp/dhcpd.conf
# Path to dhcpd's PID file (default: /var/run/dhcpd.pid).
DHCPD_PID=/var/run/dhcpd.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".
INTERFACES="enp0s3"
```

```
Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.5.3 File: /etc/dhcp/dhcpd.conf Modified

# This is a very basic subnet declaration.
#subnet 10.254.239.0 netmask 255.255.255.224 {
#  range 10.254.239.10 10.254.239.20;
#  option routers rtr-239-0-1.example.org, rtr-239-0-2.example.org;
#}

# This declaration allows BOOTP clients to get dynamic addresses,
# which we don't really recommend.
#subnet 10.254.239.32 netmask 255.255.255.224 {
#  range dynamic-bootp 10.254.239.40 10.254.239.60;
#  option broadcast-address 10.254.239.31;
#  option routers rtr-239-32-1.example.org;
#}

# A slightly different configuration for an internal subnet.
subnet 192.168.1.0 netmask 255.255.255.0 {
  range 192.168.1.20 192.168.1.30;
  option domain-name-servers 192.168.1.10;
  option domain-name "praktikum.labt.uni-kl.de";
  option subnet-mask 255.255.255.0;
  option routers 192.168.1.1;
  option broadcast-address 192.168.1.255;
  default-lease-time 600;
  max-lease-time 7200;
}

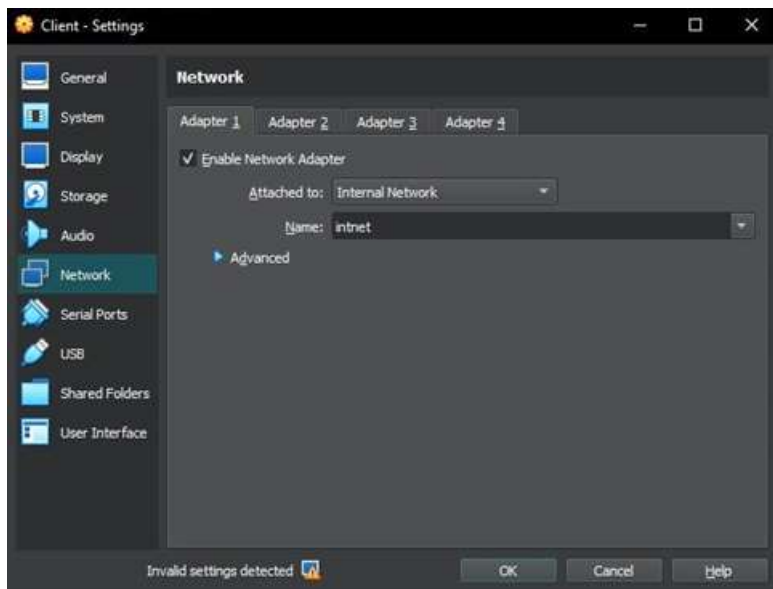
# Hosts which require special configuration options can be listed in
# host statements. If no address is specified, the address will be
# allocated dynamically (if possible), but the host-specific information
[Cancelled]
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos ^V Prev Page
^X Exit ^R Read File ^M Replace ^U Uncut Text ^T To Spell ^_ Go To Line ^N Next Page
```

```
Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
option domain-name "praktikum.labti.ug";
option subnet-mask 255.255.255.0;
option routers 192.168.1.1;
option broadcast-address 192.168.1.255;
default-lease-time 600;
max-lease-time 7200;
}

# Hosts which require special configuration options can be listed in
# host statements.  If no address is specified, the address will be
# allocated dynamically (if possible), but the host-specific information

server@labti:~$ sudo systemctl restart isc-dhcp-server
server@labti:~$ sudo systemctl status isc-dhcp-server
* isc-dhcp-server.service - ISC DHCP IPv4 server
   Loaded: loaded (/lib/systemd/system/isc-dhcp-server.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2023-03-31 09:37:54 WIB; 14s ago
     Docs: man:dhcpd(8)
    Main PID: 1321 (dhcpd)
      Tasks: 1
     Memory: 9.0M
        CPU: 5ms
    CGroup: /system.slice/isc-dhcp-server.service
            └─1321 dhcpd -user dhcpd -group dhcpd -f -4 -pf /run/dhcp-server/dhcpd.pid -cf /etc/dhcp/

Mar 31 09:37:54 labti dhcpd[1321]: For info, please visit https://www.isc.org/software/dhcp/
Mar 31 09:37:54 labti dhcpd[1321]: Wrote 0 leases to leases file.
Mar 31 09:37:54 labti sh[1321]: Wrote 0 leases to leases file.
Mar 31 09:37:54 labti dhcpd[1321]: Listening on LPF/enp0s3/08:00:27:f9:8d:48/192.168.1.0/24
Mar 31 09:37:54 labti sh[1321]: Listening on LPF/enp0s3/08:00:27:f9:8d:48/192.168.1.0/24
Mar 31 09:37:54 labti dhcpd[1321]: Sending on LPF/enp0s3/08:00:27:f9:8d:48/192.168.1.0/24
Mar 31 09:37:54 labti sh[1321]: Sending on LPF/enp0s3/08:00:27:f9:8d:48/192.168.1.0/24
Mar 31 09:37:54 labti dhcpd[1321]: Sending on Socket/fallback/fallback-net
Mar 31 09:37:54 labti sh[1321]: Sending on Socket/fallback/fallback-net
Mar 31 09:37:54 labti dhcpd[1321]: Server starting service.
lines 1-21/21 (END)
```



Client [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Terminal 09:39

```
praktikan@Client: ~
praktikan@Client:~$ nslookup praktikum.labti.ug
Server:      127.0.1.1
Address:     127.0.1.1#53

Name:   praktikum.labti.ug
Address: 192.168.1.10

praktikan@Client:~$
```

Client [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Terminal 09:40

```
praktikan@Client: ~
; <<>> DiG 9.10.3-P4-Ubuntu <<>> praktikum.labti.ug
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 37587
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;praktikum.labti.ug.      IN      A

;; ANSWER SECTION:
praktikum.labti.ug.      86400   IN      A      192.168.1.10

;; AUTHORITY SECTION:
praktikum.labti.ug.      86400   IN      NS      praktikum.labti.ug.

;; Query time: 0 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Fri Mar 31 09:40:33 WIB 2023
;; MSG SIZE rcvd: 77

praktikan@Client:~$
```

```
Client [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Terminal
praktikan@Client: ~
;; ANSWER SECTION:
praktikum.labti.ug.      86400    IN      A       192.168.1.10
;; AUTHORITY SECTION:
praktikum.labti.ug.      86400    IN      NS      praktikum.labti.ug.
;; Query time: 0 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Fri Mar 31 09:40:33 WIB 2023
;; MSG SIZE rcvd: 77

praktikan@Client:~$ ping praktikum.labti.ug
PING praktikum.labti.ug (192.168.1.10) 56(84) bytes of data.
64 bytes from www.praktikum.labti.ug (192.168.1.10): icmp_seq=1 ttl=64 time=0.114 ms
64 bytes from www.praktikum.labti.ug (192.168.1.10): icmp_seq=2 ttl=64 time=0.190 ms
64 bytes from www.praktikum.labti.ug (192.168.1.10): icmp_seq=3 ttl=64 time=0.205 ms
64 bytes from www.praktikum.labti.ug (192.168.1.10): icmp_seq=4 ttl=64 time=0.187 ms
64 bytes from www.praktikum.labti.ug (192.168.1.10): icmp_seq=5 ttl=64 time=0.246 ms
```