

# Lab 9

Networking Configuration Basic - I

# 1. Assign Manual IP Address

Aug 9 22:50

momik@ubuntu-desktop: ~

```
momik@ubuntu-desktop:~$ sudo nano /etc/netplan/01-netcfg.yaml  
[sudo] password for momik: ■
```



J+1



Aug 9 22:52

momik@ubuntu-desktop: ~

/etc/netplan/01-netcfg.yaml

```
GNU nano 7.2
network:
  version: 2
  ethernets:
    eth0:
      addresses:
        - 192.168.1.100/24
      gateway4: 192.168.1.1
      nameservers:
        addresses:
          - 8.8.8.8
          - 8.8.4.4
```



^G Help  
^X Exit

^O Write Out  
^R Read File

^W Where Is  
^\\ Replace

^K Cut  
^U Paste

[ Read 12 lines ]  
^T Execute  
^J Justify

^C Location  
^/ Go To Line

Aug 9 22:53

momik@ubuntu-desktop:~

```
momik@ubuntu-desktop:~$ sudo nano /etc/netplan/01-netcfg.yaml
momik@ubuntu-desktop:~$ sudo netplan apply
** (generate:5713): WARNING **: 22:52:51.608: Permissions for /etc/netplan/01-netcfg.yaml
ation should NOT be accessible by others.

** (generate:5713): WARNING **: 22:52:51.608: `gateway4` has been deprecated, use default
See the 'Default routes' section of the documentation for more details.

** (generate:5713): WARNING **: 22:52:51.608: Permissions for /etc/netplan/01-network-man
plan configuration should NOT be accessible by others.

** (process:5712): WARNING **: 22:52:53.121: Permissions for /etc/netplan/01-netcfg.yaml
tion should NOT be accessible by others.

** (process:5712): WARNING **: 22:52:53.129: `gateway4` has been deprecated, use default
See the 'Default routes' section of the documentation for more details.

** (process:5712): WARNING **: 22:52:53.136: Permissions for /etc/netplan/01-network-manag
lan configuration should NOT be accessible by others.

** (process:5712): WARNING **: 22:52:53.628: Permissions for /etc/netplan/01-netcfg.yaml
tion should NOT be accessible by others.

** (process:5712): WARNING **: 22:52:53.663: `gateway4` has been deprecated, use default
See the 'Default routes' section of the documentation for more details.

** (process:5712): WARNING **: 22:52:53.664: Permissions for /etc/netplan/01-network-manag
lan configuration should NOT be accessible by others.
```

momik@ubuntu-desktop:~\$ █

## 2. Assign IP from DHCP Server

Aug 9 22:53

momik@ubuntu-desktop: ~

/etc/netplan/01-netcfg.yaml \*

```
GNU nano 7.2
network:
  version: 2
  ethernets:
    eth0:
      dhcp4: yes
      addresses:
        - 192.168.1.100/24
      gateway4: 192.168.1.1
      nameservers:
        addresses:
          - 8.8.8.8
          - 8.8.4.4
```

Save modified buffer?

Y Yes

N No

^C Cancel

### 3. Install and Configure DHCP Server

Aug 9 22:54

momik@ubuntu-desktop: ~

```
momik@ubuntu-desktop:~$ sudo apt install isc-dhcp-server
```



J+1



Aug 9 22:55

momik@ubuntu-desktop: ~

```
momik@ubuntu-desktop:~$ sudo nano /etc/dhcp/dhcp.conf
```



J+1

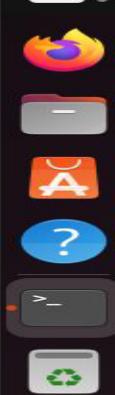


Aug 9 22:56

momik@ubuntu-desktop: ~

/etc/dhcp/dhcp.conf \*

```
GNU nano 7.2
subnet 192.168.1.0 netmask 255.255.255.0 {
    range 192.168.1.100 192.168.1.200;
    option routers 192.168.1.1;
    option domain-name-servers 8.8.8.8, 8.8.8.4;
}
```



^G Help  
^X Exit

^O Write Out  
^R Read File

^W Where Is  
^\\ Replace

^K Cut  
^U Paste

^T Execute  
^J Justify

^C Location  
^/ Go To Line

Aug 9 22:57

momik@ubuntu-desktop: ~

```
GNU nano 7.2                               /etc/default/isc-dhcp-server *
```

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

# Path to dhcpcd's config file (default: /etc/dhcp/dhcpcd.conf).
#DHCPDv4_CONF=/etc/dhcp/dhcpcd.conf
#DHCPDv6_CONF=/etc/dhcp/dhcpcd6.conf

# Path to dhcpcd's PID file (default: /var/run/dhcpcd.pid).
#DHCPDv4_PID=/var/run/dhcpcd.pid
#DHCPDv6_PID=/var/run/dhcpcd6.pid

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

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



^G Help  
^X Exit

^O Write Out  
^R Read File

^W Where Is  
^V Replace

^K Cut  
^U Paste

^T Execute  
^J Justify

^C Location  
^/ Go To Line

## 4. Install and Configure DNS Server

Aug 9 22:58

momik@ubuntu-desktop: ~

```
momik@ubuntu-desktop:~$ sudo apt install bind9
```



J+1



Aug 9 23:00

momik@ubuntu-desktop: ~

/etc/bind/named.conf.local \*

```
GNU nano 7.2
// 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 "example.com" {
    type master;
    file "/etc/bind/db.example.com";
};
```



^G Help  
^X Exit

^O Write Out  
^R Read File

^W Where Is  
^V Replace

^K Cut  
^U Paste

^T Execute  
^J Justify

^C Location  
^/ Go To Line

Aug 9 23:00

momik@ubuntu-desktop: ~

```
momik@ubuntu-desktop:~$ sudo nano /etc/bind/named.conf.local
momik@ubuntu-desktop:~$ sudo cp /etc/bind/db.empty /etc/bind/db.example.com
```



Aug 9 23:01

momik@ubuntu-desktop: ~

/etc/bind/db.example.com

```
GNU nano 7.2
; BIND reverse data file for empty rfc1918 zone
;
; DO NOT EDIT THIS FILE - it is used for multiple zones.
; Instead, copy it, edit named.conf, and use that copy.
;
$TTL    86400
@      IN      SOA    localhost. root.localhost. (
                      1           ; Serial
                      604800      ; Refresh
                      86400       ; Retry
                     2419200     ; Expire
                      86400 )      ; Negative Cache TTL
;
@      IN      NS     localhost.
```



^G Help  
^X Exit

^O Write Out  
^R Read File

^W Where Is  
^V Replace

^K Cut  
^U Paste

^T Execute  
^J Justify

^C Location  
^/ Go To Line

[ Read 14 lines ]

Aug 9 23:01

momik@ubuntu-desktop: ~

```
momik@ubuntu-desktop:~$ sudo nano /etc/bind/named.conf.local
momik@ubuntu-desktop:~$ sudo cp /etc/bind/db.empty /etc/bind/db.example.com
momik@ubuntu-desktop:~$ sudo nano /etc/bind/db.example.com
momik@ubuntu-desktop:~$ █
```



Aug 9 23:01

momik@ubuntu-desktop: ~

```
momik@ubuntu-desktop:~$ sudo systemctl restart bind9
momik@ubuntu-desktop:~$ █
```



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## 5. Install Apache HTTP Server

Aug 9 23:02

momik@ubuntu-desktop: ~

```
momik@ubuntu-desktop:~$ sudo apt install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-l
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libapi
0 upgraded, 8 newly installed, 0 to remove and 94 not upgraded.
Need to get 1,899 kB of archives.
After this operation, 7,455 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://np.archive.ubuntu.com/ubuntu noble/main amd64 libapr1t64 amd64 1.7.2-3.1buil
Get:2 http://np.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1t64 amd64 1.6.3-1.1
Get:3 http://np.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-dbd-sqlite3 amd64
Get:4 http://np.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-ldap amd64 1.6.3-1
Get:5 http://np.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-bin amd64 2.4.5+
Get:6 http://np.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-data all 2.4.5+
Get:7 http://np.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-utils amd64 2.4.5+
Get:8 http://np.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2 amd64 2.4.58-1
Fetched 1,899 kB in 3s (643 kB/s)
Selecting previously unselected package libapr1t64:amd64.
(Reading database ... 40%
```

Aug 9 23:03

momik@ubuntu-desktop:~

```
momik@ubuntu-desktop:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Fri 2024-08-09 23:02:23 +0545; 56s ago
     Docs: https://httpd.apache.org/docs/2.4/
 Main PID: 8925 (apache2)
    Tasks: 55 (limit: 4616)
   Memory: 5.5M (peak: 5.6M)
      CPU: 76ms
     CGroup: /system.slice/apache2.service
             ├─8925 /usr/sbin/apache2 -k start
             ├─8927 /usr/sbin/apache2 -k start
             └─8928 /usr/sbin/apache2 -k start
```

```
Aug 09 23:02:23 ubuntu-desktop systemd[1]: Starting apache2.service - The Apache HTTP Server
Aug 09 23:02:23 ubuntu-desktop apachectl[8924]: AH00558: apache2: Could not reliably determine
Aug 09 23:02:23 ubuntu-desktop systemd[1]: Started apache2.service - The Apache HTTP Server
lines 1-16/16 (END)
```

## 6. Install Samba Server

Aug 9 23:03

momik@ubuntu-desktop: ~

```
momik@ubuntu-desktop:~$ sudo apt install samba
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  attr libboost-iostreams1.83.0 libboost-thread1.83.0 libcephfs2 librados2 librdmacm1t64
  python3-gpg python3-ldb python3-markdown python3-samba python3-talloc python3-tdb samba
  samba-common-bin samba-dsdb-modules samba-vfs-modules tdb-tools
Suggested packages:
  python3-trio python3-aioquic python3-h2 python3-htpx python3-httpcore python-markdown-
  | chrony winbind heimdal-clients
The following NEW packages will be installed:
  attr libboost-iostreams1.83.0 libboost-thread1.83.0 libcephfs2 librados2 librdmacm1t64
  python3-gpg python3-ldb python3-markdown python3-samba python3-talloc python3-tdb samba
  samba-common samba-common-bin samba-dsdb-modules samba-vfs-modules tdb-tools
0 upgraded, 21 newly installed, 0 to remove and 94 not upgraded.
Need to get 12.4 MB of archives.
After this operation, 75.0 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

Aug 9 23:04

momik@ubuntu-desktop: ~

momik@ubuntu-desktop:~\$ sudo nano /etc/samba/smb.conf



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Aug 9 23:04

momik@ubuntu-desktop:~

```
momik@ubuntu-desktop:~$ sudo nano /etc/samba/smb.conf
momik@ubuntu-desktop:~$ sudo systemctl status smbd
● smbd.service - Samba SMB Daemon
   Loaded: loaded (/usr/lib/systemd/system/smbd.service; enabled; preset: enabled)
   Active: active (running) since Fri 2024-08-09 23:04:07 +0545; 47s ago
     Docs: man:smbd(8)
           man:samba(7)
           man:smb.conf(5)
   Main PID: 10469 (smbd)
      Status: "smbd: ready to serve connections..."
        Tasks: 3 (limit: 4616)
       Memory: 21.8M (peak: 22.0M)
         CPU: 111ms
      CGroup: /system.slice/smbd.service
              └─10469 /usr/sbin/smbd --foreground --no-process-group
                  ├─10472 "smbd: notifyd"
                  ├─10473 "smbd: cleanupd"
                  
```

```
Aug 09 23:04:07 ubuntu-desktop systemd[1]: Starting smbd.service - Samba SMB Daemon...
Aug 09 23:04:07 ubuntu-desktop (smbd)[10469]: smbd.service: Referenced but unset environment variable 'SMBD_ENCRYPTION'!
Aug 09 23:04:07 ubuntu-desktop systemd[1]: Started smbd.service - Samba SMB Daemon.
lines 1-19/19 (END)
```

## 7. Install Squid

Aug 9 23:05

momik@ubuntu-desktop: ~

```
momik@ubuntu-desktop:~$ sudo apt install squid
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libdbi-perl libcap3 squid-common squid-langpack
Suggested packages:
  libmldb perl libnet-daemon-perl libsql-statement-perl squidclient squid-cgi squid-purge
  winbind
The following NEW packages will be installed:
  libdbi-perl libcap3 squid squid-common squid-langpack
0 upgraded, 5 newly installed, 0 to remove and 94 not upgraded.
Need to get 3,857 kB of archives.
After this operation, 15.4 MB of additional disk space will be used.
Do you want to continue? [Y/n] ■
```

Aug 9 23:05

momik@ubuntu-desktop:~

```
momik@ubuntu-desktop:~$ sudo systemctl status squid
● squid.service - Squid Web Proxy Server
   Loaded: loaded (/usr/lib/systemd/system/squid.service; enabled; preset: enabled)
   Active: active (running) since Fri 2024-08-09 23:05:25 +0545; 13s ago
     Docs: man:squid(8)
   Process: 11255 ExecStartPre=/usr/sbin/squid --foreground -z (code=exited, status=0/SUC
 Main PID: 11264 (squid)
    Tasks: 4 (limit: 4616)
   Memory: 16.6M (peak: 17.4M)
      CPU: 214ms
     CGroup: /system.slice/squid.service
             └─11264 /usr/sbin/squid --foreground -sYC
                 ├─11267 "(squid-1)" --kid squid-1 --foreground -sYC
                 ├─11268 "(logfile-daemon)" /var/log/squid/access.log
                 ├─11269 "(pinger)"

Aug 09 23:05:25 ubuntu-desktop squid[11267]: Using Least Load store dir selection
Aug 09 23:05:25 ubuntu-desktop squid[11267]: Set Current Directory to /var/spool/squid
Aug 09 23:05:25 ubuntu-desktop squid[11267]: Finished loading MIME types and icons.
Aug 09 23:05:25 ubuntu-desktop squid[11267]: HTCP Disabled.
Aug 09 23:05:25 ubuntu-desktop squid[11267]: Pinger socket opened on FD 14
Aug 09 23:05:25 ubuntu-desktop systemd[1]: Started squid.service - Squid Web Proxy Server
Aug 09 23:05:25 ubuntu-desktop squid[11267]: Squid plugin modules loaded: 0
Aug 09 23:05:25 ubuntu-desktop squid[11267]: Adaptation support is off.
Aug 09 23:05:25 ubuntu-desktop squid[11267]: Accepting HTTP Socket connections at conn3 listening port: 3128
Aug 09 23:05:26 ubuntu-desktop squid[11267]: storeLateRelease: released 0 objects
lines 1-26/26 (END)
```