

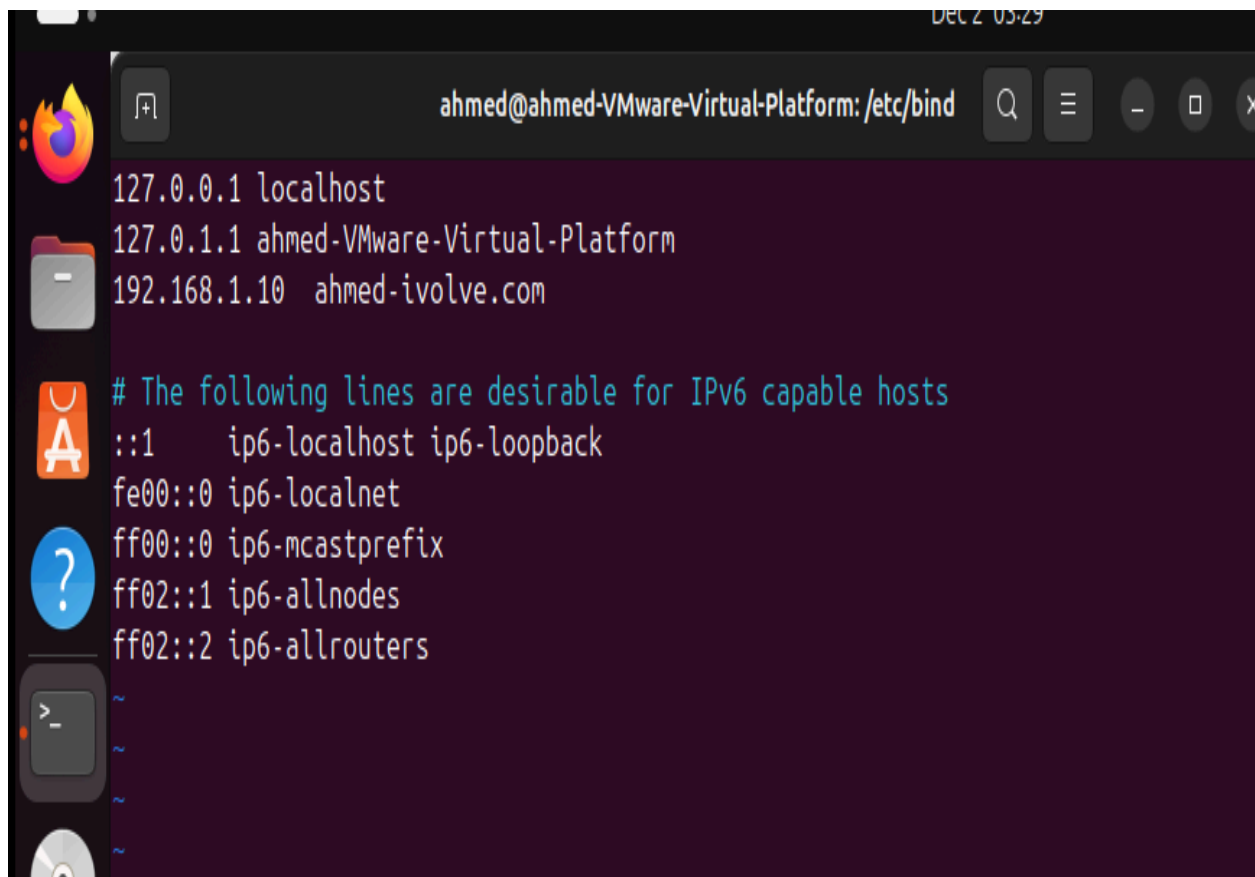
Lab 4: DNS and Network Configuration with Hosts File and BIND9

Objective: Demonstrate the differences between using the hosts file and DNS for URL resolution. Modify the hosts file to resolve a URL to a specific IP address, then configure BIND9 as a DNS solution to resolve wildcard subdomains and verify resolution using dig or nslookup (e.g. name-involve.com, 192.168.1.10).

-configuration /etc/hosts

Add record :

192.168.1.10 ahmed-involve.com

A screenshot of a terminal window titled 'ahmed@ahmed-VMware-Virtual-Platform: /etc/bind'. The terminal shows the contents of the /etc/hosts file. The first three lines are: '127.0.0.1 localhost', '127.0.1.1 ahmed-VMware-Virtual-Platform', and '192.168.1.10 ahmed-involve.com'. Below these, there is a comment line: '# The following lines are desirable for IPv6 capable hosts'. This is followed by several IPv6 addresses and their corresponding hostnames: '::1 ip6-localhost ip6-loopback', 'fe00::0 ip6-localnet', 'ff00::0 ip6-mcastprefix', 'ff02::1 ip6-allnodes', and 'ff02::2 ip6-allrouters'. The terminal window has a dark background and a sidebar on the left with various application icons. The top of the window shows the date 'Dec 2 03:29'.

-BIND9

-sudo apt install BIND9

- 1 - Create a new file named Domain
Add the configuration related to my domain

```
ahmed@ahmed-virtual-machine: /etc/bind$ cat /etc/bind/db.ahmed-ivolve.com
$TTL      86400
@         IN      SOA      ns.ahmed-ivolve.com. admin.ahmed-ivolve.com. (
        3             ; Serial
        604800        ; Refresh
        86400         ; Retry
        2419200       ; Expire
        604800 )      ; Negative Cache TTL
;
@         IN      NS       ns.ahmed-ivolve.com.
ns        IN      A        192.168.1.10
@         IN      A        192.168.1.10
*         IN      A        192.168.1.10
```

domain:ahmd-ivolve.com

Ip:192.168.1.10

(*)**wildcard**:DNS refers to using an asterisk (*) to represent all subdomains of a domain. It allows any subdomain under a specific domain to resolve to the same IP address without needing to define each one individually.

@: epressents the domain name itself. It is a shorthand used in zone files to refer to the domain

- **Open file name.conf.local: to define new zone "ahmed-ivolve.com "And the settings path**

```
//
// 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 "ahmed-ivolve.com" {
    type master;
    file "/etc/bind/db.ahmed-ivolve.com";
};
```

-test dig@127.0.0.1 a.ahmed-ivolve.com

```
ahmed@ahmed-VMware-Virtual-Platform:/etc/bind$ dig @127.0.0.1 a.ahmed-ivolve.c
; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> @127.0.0.1 a.ahmed-ivolve.com
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 12852
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: ec73b012a4cfffab001000000674d17747a008a10bd524e01 (good)
;; QUESTION SECTION:
;a.ahmed-ivolve.com.                IN      A

;; ANSWER SECTION:
a.ahmed-ivolve.com.                86400   IN      A      192.168.1.10

;; Query time: 1 msec
;; SERVER: 127.0.0.1#53(127.0.0.1) (UDP)
.. WHEN: Mon Dec 02 04:12:04 EET 2024
```

Other server

Open /etc/resolv.conf

Add ip server has BIND9

```
# currently in use.
#
# Third party programs should typically not access this file directly, but only
# through the symlink at /etc/resolv.conf. To manage man:resolv.conf(5) in a
# different way, replace this symlink by a static file or a different symlink.
#
# See man:systemd-resolved.service(8) for details about the supported modes of
# operation for /etc/resolv.conf.

nameserver 192.168.216.136
options edns0 trust-ad
search localdomain
```

Test

```
ahmed@ahmed-VMware-Virtual-Platform:~$ dig @192.168.216.136 s.ahmed-ivolve.com
```

```
<<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> @192.168.216.136 s.ahmed-ivolve.com
```

```
(1 server found)
```

```
; global options: +cmd
```

```
; Got answer:
```

```
; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 54380
```

```
; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
```

```
; OPT PSEUDOSECTION:
```

```
EDNS: version: 0, flags:; udp: 1232
```

```
COOKIE: 7ab64f27017a493101000000674d1a3d5ba224d7edd519dd (good)
```

```
; QUESTION SECTION:
```

```
s.ahmed-ivolve.com.          IN      A
```

```
; ANSWER SECTION:
```

```
s.ahmed-ivolve.com.          86400   IN      A      192.168.1.10
```

```
; Query time: 1 msec
```

```
ahmed@ahmed-VMware-Virtual-Platform:~$ dig @192.168.216.136 ahmed-ivolve.com
```

```
; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> @192.168.216.136 ahmed-ivolve.com
```

```
; (1 server found)
```

```
; global options: +cmd
```

```
; Got answer:
```

```
; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 19934
```

```
; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
```

```
; OPT PSEUDOSECTION:
```

```
; EDNS: version: 0, flags:; udp: 1232
```

```
; COOKIE: 0f5bbb8b1fff48cf01000000674d1a01d112944a89e629bf (good)
```

```
; QUESTION SECTION:
```

```
ahmed-ivolve.com.           IN      A
```

```
; ANSWER SECTION:
```

```
ahmed-ivolve.com.           86400   IN      A      192.168.1.10
```