

* Network configuration :

1. Configure NIC's

IP configuration

hostname

```
File Edit View Search Terminal Help
[root@RHSERVER2 ~]# ifconfig en33
ens33: flags=4163UP,BROADCAST,MULTICAST mtu 1500
    inet 10.0.0.20 brd 255.0.0.0 broadcast 10.255.255.255
        netmask 255.0.0.0
        ether 00:0c:29:28:52:3b txqueuelen 1000 (Ethernet)
            RX packets 5969 bytes 3142377 (2.9 Mib)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 3072 bytes 301932 (382.7 Kib)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
[root@RHSERVER2 ~]# ifconfig en33 10.0.0.200
ens33: flags=4163UP,BROADCAST,MULTICAST mtu 1500
    inet 10.0.0.200 brd 255.0.0.0 broadcast 10.255.255.255
        netmask 255.0.0.0
        ether 00:0c:29:28:52:3b txqueuelen 1000 (Ethernet)
            RX packets 5969 bytes 3142377 (2.9 Mib)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 3081 bytes 393448 (384.2 Kib)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
[root@RHSERVER2 ~]# ifconfig en33 10.0.0.200
[root@RHSERVER2 ~]# ifconfig en33 10.0.0.200 netmask 255.0.0.0
[root@RHSERVER2 ~]# restart adapter
```

```
File Edit View Search Terminal Help
[root@RHSERVER2 ~]# ifconfig en33 10.0.0.200
ens33: flags=4163UP,BROADCAST,MULTICAST mtu 1500
    inet 10.0.0.200 brd 255.0.0.0 broadcast 10.255.255.255
        netmask 255.0.0.0
        ether 00:0c:29:28:52:3b txqueuelen 1000 (Ethernet)
            RX packets 3262 bytes 332833 (320.8 Kib)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 3262 bytes 301932 (382.7 Kib)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
[root@RHSERVER2 ~]#
```

I change IP manually using CLI but GUI doesn't change because Configuration are in RAM

Configuration file in /etc/sysconfig/network-scripts/ifcfg-NIC, go there and edit

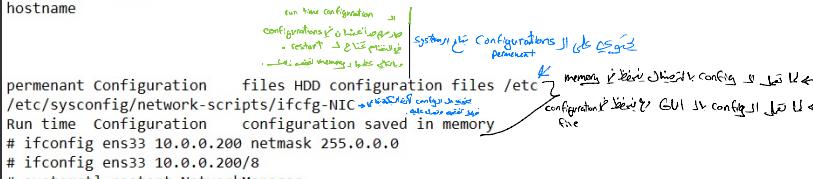
```
File Edit View Search Terminal Help
[root@RHSERVER3 ~]# ifconfig en33 10.0.0.103
ens33: flags=4163UP,BROADCAST,MULTICAST mtu 1500
    inet 10.0.0.103 brd 255.0.0.0 broadcast 10.255.255.255
        netmask 255.0.0.0
        ether 00:0c:29:28:52:3b txqueuelen 1000 (Ethernet)
            RX packets 0 bytes 0 (0.0 B)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 0 bytes 0 (0.0 B)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
[root@RHSERVER3 ~]# ping 10.0.0.102 (10.0.0.102) 56(84) bytes of data.
PING 10.0.0.102 (10.0.0.102) 56(84) bytes of data.
```

to know if command exist:
which nmap
الخطوات المتبعة لتنفيذ الأمر



Network Configuration

- 1- Configure NIC:
- IP Configuration
- hostname



/etc/sysconfig/network-scripts/ifcfg-NIC

Run time Configuration configuration saved in memory

```
# ifconfig ens3 10.0.0.200 netmask 255.0.0.0
# ifconfig ens3 10.0.0.200/8
# systemctl restart NetworkManager
```

nmcli , nmui , GUI
everything is a file

windows Or Linux, these services are to every one (system)

DHCP	DNS	AD	ftp	web	Mail	TCP/IP Services	Service = Protocol	protocol > port number
67	53	ldap 389,Kerberos88	21	80,443	25			open default

www.yahoo.com

```
# /etc/hostname -> contain hostnames, you can change it permanently from here but you need to restart the machine, so change it from command to change it immediately
# hostname server
```

10.4.2

الآن دعنا نلقي على مفهوم configuration في جهازنا، فكما إنك تعلم بالفعل (بالطبع) أن configuration في جهازنا ينبع من ملف systemd configuration file (systemctl status NetworkManager) ومتغيرات environment variables التي هي مطلوبة في وقت التشغيل (run time configuration).

أو بمعنى آخر، configuration run time هي التغييرات التي لا بد من تطبيقها على جهازنا في وقت التشغيل.

* Example for permanent & run time configuration

[root@RHServer2 ~]# systemctl disable NetworkManager → I disabled it, but you need to restart. Changed permanently but still working runtime.

```
Removed /etc/systemd/system/multi-user.target.wants/NetworkManager.service.
Removed /etc/systemd/system/dbus-org.fedoraproject.dispatcher.service.
Removed /etc/systemd/system/network-online.target.wants/NetworkManager-wait-online.service.
[root@RHServer2 ~]# systemctl status NetworkManager
● NetworkManager.service - Network Manager
  Loaded: loaded (/usr/lib/systemd/system/NetworkManager.service; disabled; vendor preset: enabled)
  Active: active (running) since Fri 2021-01-22 03:55:56 EST; 24min ago
    Docs: man:NetworkManager(8)
 Main PID: 21206 (NetworkManager)
   Tasks: 3 (limit: 11337)
  Memory: 6.9M
   CGroup: /system.slice/NetworkManager.service
           └─21206 /usr/sbin/NetworkManager --no-daemon

Jan 22 03:56:00 RHServer2 NetworkManager[21206]: <info> [1611305769.2757] manager: NetworkManager state is now: Jan 22 03:56:09 RHServer2 NetworkManager[21206]: <info> [1611305769.2758] device (ens33): state change: prepare>
Jan 22 03:56:09 RHServer2 NetworkManager[21206]: <info> [1611305769.3653] device (ens33): state change: config>
Jan 22 03:56:09 RHServer2 NetworkManager[21206]: <info> [1611305769.3714] device (ens33): state change: ip-con>
Jan 22 03:56:09 RHServer2 NetworkManager[21206]: <info> [1611305769.3909] device (ens33): state change: ip-che>
Jan 22 03:56:09 RHServer2 NetworkManager[21206]: <info> [1611305769.3915] device (ens33): state change: second>
Jan 22 03:56:09 RHServer2 NetworkManager[21206]: <info> [1611305769.3920] manager: NetworkManager state is now: Jan 22 03:56:09 RHServer2 NetworkManager[21206]: <info> [1611305769.3940] device (ens33): Activation: successf>
Jan 22 03:58:17 RHServer2 NetworkManager[21206]: <info> [1611305867.9136] audit: op=connection-update" uid=1001 Jan 22 04:13:43 RHServer2 NetworkManager[21206]: <info> [1611305867.9524] agent-manager: req[0x811fffd93270, :
```

[root@RHServer2 ~]# systemctl stop NetworkManager → change directly but runtime -

```
[root@RHServer2 ~]# systemctl status NetworkManager
● NetworkManager.service - Network Manager
  Loaded: loaded (/usr/lib/systemd/system/NetworkManager.service; disabled; vendor preset: enabled)
  Active: inactive (dead)
    Docs: man:NetworkManager(8)

Jan 22 03:56:09 RHServer2 NetworkManager[21206]: <info> [1611305769.3915] device (ens33): state change: second>
Jan 22 03:56:09 RHServer2 NetworkManager[21206]: <info> [1611305769.3920] manager: NetworkManager state is now: Jan 22 03:56:09 RHServer2 NetworkManager[21206]: <info> [1611305769.3940] device (ens33): Activation: successf>
Jan 22 03:58:17 RHServer2 NetworkManager[21206]: <info> [1611305867.9136] audit: op=connection-update" uid=1001 Jan 22 04:13:45 RHServer2 NetworkManager[21206]: <info> [1611305867.9524] agent-manager: req[0x811fffd93270, : Jan 22 04:20:53 RHServer200 systemd[1]: Stopping Network Manager...
Jan 22 04:20:53 RHServer200 NetworkManager[21206]: <info> [1611307253.0085] caught SIGTERM, shutting down norma...
Jan 22 04:20:53 RHServer200 NetworkManager[21206]: <info> [1611307253.0102] device (virbr0-nic): released from...
Jan 22 04:20:53 RHServer200 NetworkManager[21206]: <info> [1611307253.0333] exiting (success)
Jan 22 04:20:53 RHServer200 systemd[1]: Stopped Network Manager.
```

/etc/hosts www.cib.com 1.1.1.1 fake web site like cib
DNS Server www.cib.com 2.2.2.2

```
# vim /etc/nsswitch.conf → مفهوم DNS delegation
fake web site cib
ping www.cib.com    ??
pc 7              router 3
```

عندما نغير ما في الماكينة المقدمة (host) في الماكينة المستلمة (client) في الائينس طبقاً

الآن هنا نعم ولكن الواقع يهدى عكس ذلك من حيث العمل DNS Poisoning .
لتحقيق ذلك نقوم بـ DNS Spoofing عن طريق التعديل على DNS file .

remote login
ssh tcp/ip 22
public key and private key infrastructure
ssh ① ~~username~~ root 10.0.0.3 -l for username
ssh root@10.0.0.3
ssh -l root 10.0.0.3 command → without logging in you just run commands

configure ssh with passwordless authentication ↗ { most secure and easy.
ssh-keygen → Create a private & public key, so why?
ssh-copy-id -i /root/.ssh/id_rsa.pub root@10.0.0.3 → copy public key to machine.

① Security
② easy & automation.

We always put sensitive data in home directory, because no one can access home directory.

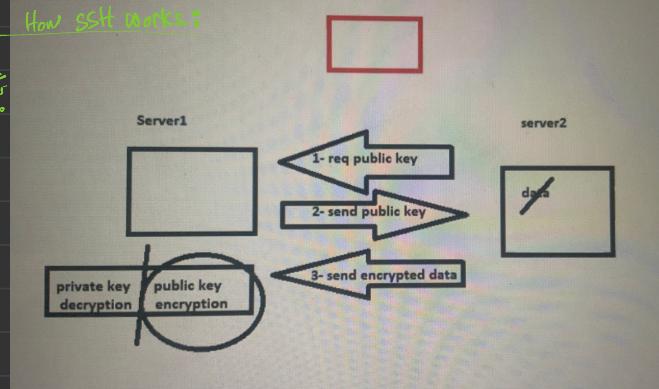
ssh is Client

ssh is domain

> systemctl status sshd

> systemctl stop firewalld

> w
→ show all sessions.



transferring files :

scp /root/work200 10.0.0.3:/root/sales_data -s 22 port depend on ssh

#sftp 22
-local server 10.0.0.2:
sftp name@IP
lpwd lcd lls put FileName get FileName !Command bye
-remote server 10.0.0.3:
ls cd pwd

dest, src (full path) → copy file to dest system

-s to transfer complete dir

* SFTP protocol only for send & receive.

execute command on my system
logout

SFTP(22) Same as ftp(21) but secure and both used only for sending & receiving
tftp work with UDP, ftp work with TCP

