Linux Class 4

Network and DNS client configuration

Abel Guzman sanchez
Systems & networks engineer
www.abelworld.com

Network and DNS Configuration Introduction

- The graphical interface has different tools to configure the network and DNS.
- We will configure every thing from the command prompt.
- The main resources that I have used to create this material are the Debian network interfaces manual and the resolv.conf. You can access it by typing the following.
- `man interfaces` or `man resolv.conf`
- Or also from debians ificial website the following material:
  `https://wiki.debian.org/NetworkConfiguration`

- If you want to configure a network from the command prompt you have to know how to edit a file and some basic commands from Class 2.

- In this material we will use nano for that purpose .

- Is advisable to get some knowledge about creating subnetworks and IP addresses.

Network Configuration

- The first thing that I am going to remind you off, also from Class 2 is a network command: ifcofig.

- It lists your network interfaces; names, Mac Address (HWaddr), IP addresses (inet addr), Network mask (Mask), Broadcast (Bcast).

- In Windows it is similar to ipconfig /all.

- To test it you just need to run this in a root command prompt.

ifconfig command result

```
root@khs01sw10:~# ifconfig

eth0        Link encap:Ethernet   HWaddr 08:00:27:a0:7e:72

inet addr:10.175.0.1   Bcast:10.175.1.255   Mask:255.255.254.0

inet6 addr: fe80::a00:27ff:fea0:7e72/64 Scope:Link

UP BROADCAST RUNNING MULTICAST   MTU:1500   Metric:1

RX packets:831736957 errors:0 dropped:0 overruns:0 frame:0

TX packets:1006510543 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:673686597602 (627.4 GiB)   TX bytes:685797076123 (638.6 GiB)


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:16436   Metric:1

RX packets:293263 errors:0 dropped:0 overruns:0 frame:0

TX packets:293263 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:0

RX bytes:103963497 (99.1 MiB)   TX bytes:103963497 (99.1 MiB)

root@khs01sw10:~#
```

ifconfig

- When you do ifconfig it shows a lot of text.

- Of course it depends on how many interfaces you have.

- For a computer with only one network interface (what we "normally" use as a workstation), it should show only 2 blocks of text.

- One corresponding to the Network interface.

- Normally this network interface is called eth0 for Ethernets and wlan0 for wireless connections.

- And an other one corresponding to the loop back interface.

The loopback Interface

- *"The loopback device is a special, virtual network interface that your computer uses to communicate with itself. It is used mainly for diagnostics and troubleshooting, and to connect to servers running on the local machine."*

- Taken from: http://askubuntu.com/questions/247625/what-is-the-loopback-device-and-how-do-i-use-it on 2014-03-03.

The network configuration using DHCP

1- (Optional) Backup the network file ans save with a diferent name.

- `nano /etc/network/interfaces   (CTRL+o)`

2-3-4- Second open/edit the file

- `nano /etc/network/interfaces`

- Delete the content of the file. Al the text inside. for that you can just use Delete key, backspace or CTRL+k key to cut line by line.

- write the following on the file.

```
auto lo

iface lo inet loopback


auto eth0

allow-hotplug eth0

iface eth0 inet dhcp
```

Finally restart the network service

- root@khs01wxl001:/home/abel# service networking restart

Network configuration with static IP

- The procedure basically is the same.
- The only difference is that you have to change the content of the configuration file:

```
auto lo

iface lo inet loopback

auto eth0

allow-hotplug eth0

iface eth0 inet static

address 192.0.2.7

netmask 255.255.255.0

gateway 192.0.2.254
```

After changing the file you are supposed to restart the network service

```
service networking restart
```

DNS client configuration

- To connect to external resources using network names instead of IP addresses, the computer needs to use the DNS service. This service is very useful to translate from for instance "php.net" to the actual IP of the web server wherever this resource is located.

- On a Linux systems all the DNS configuration for the client are located in a single file in etc or otherwise pointed from this file. The file is called resolv.conf.

Editing resolv.conf

- Basically you just have to open the file with nano or any other editor and change it to your prefered DNS.

- `root~/abel# nano /etc/resolv.conf`

- The content of the file should be something like this:

```
domain gabs.hospitals.moh.gov.bw

search gabs.hospitals.moh.gov.bw

nameserver 10.175.0.1
```

Thank you!