



# DNS II

## PRACTICA 2

C.E.S ACADEMIA LOPE DE VEGA

CFGS: 2º Administración de Sistemas Informáticos en Red

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\*Hemos usado Ubuntu 16.04

### Ejercicio 1:

Primero empezamos realizando un update y upgrade para actualizar el sistema. Luego procedemos a instalar dnsmasq. Y comprobamos que funciona correctamente.

```
root@rafa-VirtualBox:/home/rafa# apt-get install dnsmasq
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  dnsmasq-base
The following NEW packages will be installed:
  dnsmasq
The following packages will be upgraded:
  dnsmasq-base
1 upgraded, 1 newly installed, 0 to remove and 267 not upgraded.
Need to get 320 kB of archives.
After this operation, 71,7 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://es.archive.ubuntu.com/ubuntu xenial-updates/main i386 dnsmasq-base
u0.16.04.4 [304 kB]
Get:2 http://es.archive.ubuntu.com/ubuntu xenial-updates/universe i386 dnsmasq
.16.04.4 [15,9 kB]
Fetched 320 kB in 0s (736 kB/s)
(Reading database ... 208695 files and directories currently installed.)
Preparing to unpack .../dnsmasq-base_2.75-1ubuntu0.16.04.4_i386.deb ...
Unpacking dnsmasq-base (2.75-1ubuntu0.16.04.4) over (2.75-1ubuntu0.16.04.3) ...
Selecting previously unselected package dnsmasq.
Preparing to unpack .../dnsmasq_2.75-1ubuntu0.16.04.4_all.deb ...
Unpacking dnsmasq (2.75-1ubuntu0.16.04.4) ...
Processing triggers for dbus (1.10.6-1ubuntu3.3) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for systemd (229-4ubuntu16) ...
Processing triggers for ureadahead (0.100.0-19) ...
Setting up dnsmasq-base (2.75-1ubuntu0.16.04.4) ...
Setting up dnsmasq (2.75-1ubuntu0.16.04.4) ...
Processing triggers for systemd (229-4ubuntu16) ...
Processing triggers for ureadahead (0.100.0-19) ...
root@rafa-VirtualBox:/home/rafa# /etc/init.d/dnsmasq stop
[ ok ] Stopping dnsmasq (via systemctl): dnsmasq.service.
root@rafa-VirtualBox:/home/rafa# /etc/init.d/dnsmasq start
[ ok ] Starting dnsmasq (via systemctl): dnsmasq.service.
root@rafa-VirtualBox:/home/rafa# /etc/init.d/dnsmasq restart
[ ok ] Restarting dnsmasq (via systemctl): dnsmasq.service.
```

Ahora vamos a modificar el fichero “/etc/resolv.conf” para añadir el servidor DNS de Google. Después realizamos un nslookup a google para comprobar que esta correctamente.

```
root@rafa-VirtualBox:/# cat /etc/resolv.conf
# Dynamic resolv.conf(5) file for glibc resolver(3) generated by resolvconf(8)
#     DO NOT EDIT THIS FILE BY HAND -- YOUR CHANGES WILL BE OVERWRITTEN
nameserver 8.8.8.8
nameserver 8.8.4.4
root@rafa-VirtualBox:/# nslookup www.google.es
Server:      8.8.8.8
Address:     8.8.8.8#53

Non-authoritative answer:
Name:   www.google.es
Address: 216.58.201.131
```

Una vez añadido el servidor DNS de Google, vamos a modificar el archivo hosts, en el cual añadiremos los nombres de dominio que nos da la práctica.

```
root@rafa-VirtualBox:/etc# cat /etc/hosts
127.0.0.1      localhost
127.0.1.1      rafa-VirtualBox

#Nombres de dominio dados en la practica
200.200.200.100 www.pcprofesor.com profesor miguel
200.200.200.101
200.200.200.103 equipo2.es
200.200.200.104 equiposervidor www.pagina.com

# The following lines are desirable for IPv6 capable hosts
::1          ip6-localhost ip6-loopback
fe00::0      ip6-localnet
ff00::0      ip6-mcastprefix
ff02::1      ip6-allnodes
ff02::2      ip6-allrouters
root@rafa-VirtualBox:/etc#
```

Ya estaría configurado el servidor, ahora configuraremos el cliente. Desde este vamos a modificar el archivo resolv.conf para añadir la dirección ip del servidor DNS nuestro y el de Google. Tras esto vamos a comprobar que todo funciona realizando un nslookup a los nombres de dominio añadidos anteriormente.

```
root@usuario2-VirtualBox:/etc# cat /etc/resolv.conf
# Dynamic resolv.conf(5) file for glibc resolver(3) generated by resolvconf(8)
#     DO NOT EDIT THIS FILE BY HAND -- YOUR CHANGES WILL BE OVERWRITTEN
nameserver 192.168.100.3
nameserver 8.8.8.8
root@usuario2-VirtualBox:/etc# nslookup www.google.es
Server:      192.168.100.3
Address:     192.168.100.3#53

Non-authoritative answer:
Name:   www.google.es
Address: 216.58.201.131

root@usuario2-VirtualBox:/etc# nslookup www.pcprofesor.com
Server:      192.168.100.3
Address:     192.168.100.3#53

Name:   www.pcprofesor.com
Address: 200.200.200.100

root@usuario2-VirtualBox:/etc# nslookup 200.200.200.100
Server:      192.168.100.3
Address:     192.168.100.3#53

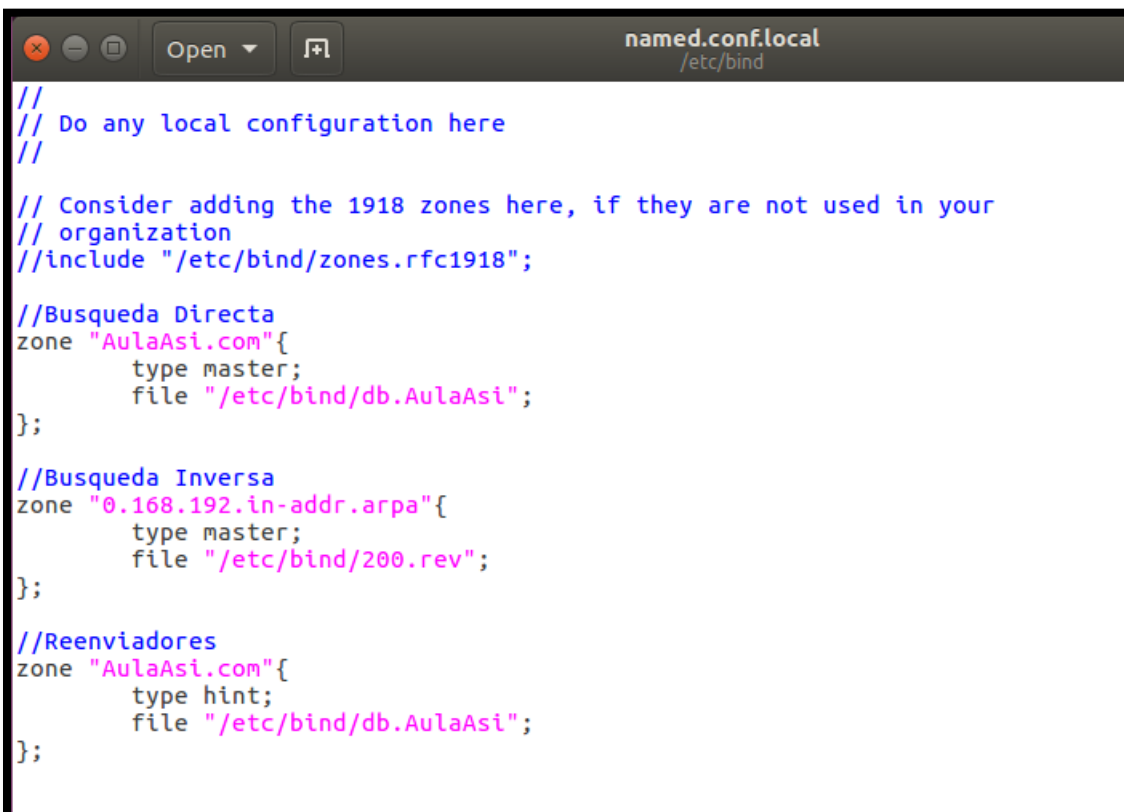
100.200.200.200.in-addr.arpa    name = www.pcprofesor.com.
```

## Ejercicio 2:

Ahora vamos a instalar bind9 y un servidor DNS. Primero instalamos bind9

```
root@rafa-VirtualBox:/# apt-get install bind9
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  bind9-host bind9utils dnsutils libbind9-140 libdns162 libirs141 libisc160 libisccc140
  libisccfg140 liblwres141
Suggested packages:
  bind9-doc rblcheck
The following NEW packages will be installed:
  bind9 bind9utils libirs141
The following packages will be upgraded:
  bind9-host dnsutils libbind9-140 libdns162 libisc160 libisccc140 libisccfg140 liblwres141
8 upgraded, 3 newly installed, 0 to remove and 259 not upgraded.
Need to get 2.036 kB of archives.
After this operation, 3.127 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

Una vez instalado vamos a configurarlo, para ello modificamos el archivo named.conf. En este archivo añadimos la zona de búsqueda directa e inversa, también los reenviadores. Una vez modificado, copiaremos el archivo db.local con el nombre de db.AulaAsi.



```
//
// Do any local configuration here
//

// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";

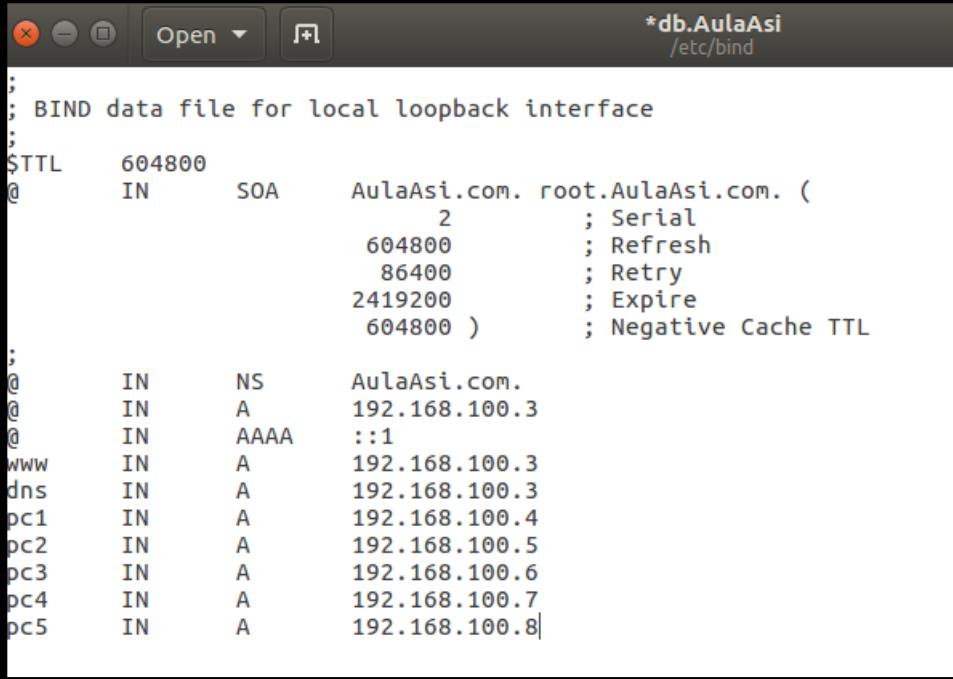
//Busqueda Directa
zone "AulaAsi.com"{
    type master;
    file "/etc/bind/db.AulaAsi";
};

//Busqueda Inversa
zone "0.168.192.in-addr.arpa"{
    type master;
    file "/etc/bind/200.rev";
};

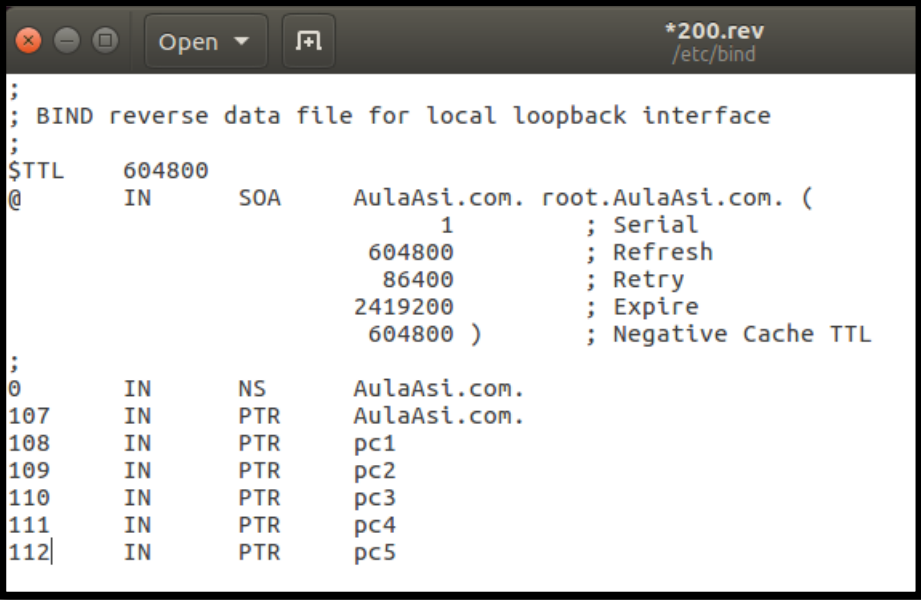
//Reenviadores
zone "AulaAsi.com"{
    type hint;
    file "/etc/bind/db.AulaAsi";
};
```

```
root@rafa-VirtualBox:/etc/bind# named-checkconf
root@rafa-VirtualBox:/etc/bind# cp db.local db.AulaAsi
root@rafa-VirtualBox:/etc/bind# nano db.AulaAsi
root@rafa-VirtualBox:/etc/bind# cp db.127 200.rev
```

Ahora vamos a modificar el archivo que acabamos de copiar, de esta forma los quipos quedaran configurados de manera directa. Para ello cambiamos el nombre de localhost.com por el de nuestro nombre de dominio. Tras esto configuramos el archivo de zona de búsqueda inversa "200.rev".

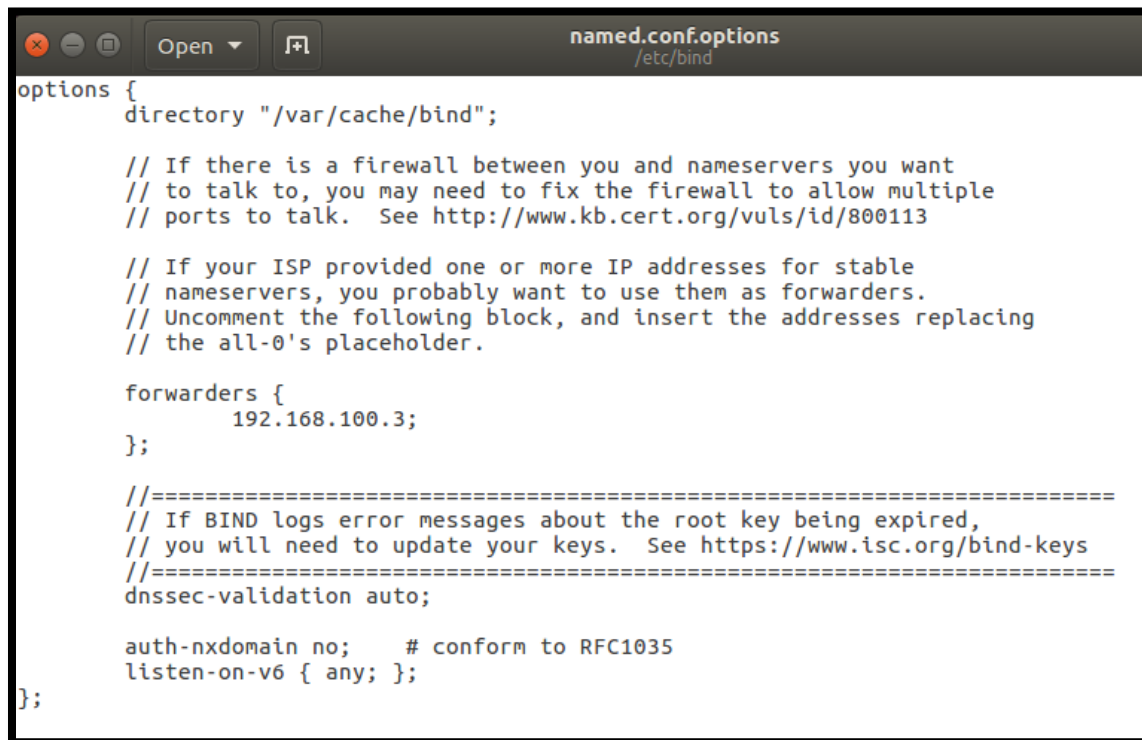


```
;
; BIND data file for local loopback interface
;
$TTL      604800
@          IN      SOA      AulaAsi.com. root.AulaAsi.com. (
                        2      ; Serial
                        604800  ; Refresh
                        86400   ; Retry
                        2419200 ; Expire
                        604800 ) ; Negative Cache TTL
;
@          IN      NS       AulaAsi.com.
@          IN      A        192.168.100.3
@          IN      AAAA     ::1
www        IN      A        192.168.100.3
dns        IN      A        192.168.100.3
pc1        IN      A        192.168.100.4
pc2        IN      A        192.168.100.5
pc3        IN      A        192.168.100.6
pc4        IN      A        192.168.100.7
pc5        IN      A        192.168.100.8
```



```
;
; BIND reverse data file for local loopback interface
;
$TTL      604800
@          IN      SOA      AulaAsi.com. root.AulaAsi.com. (
                        1      ; Serial
                        604800  ; Refresh
                        86400   ; Retry
                        2419200 ; Expire
                        604800 ) ; Negative Cache TTL
;
0          IN      NS       AulaAsi.com.
107        IN      PTR      AulaAsi.com.
108        IN      PTR      pc1
109        IN      PTR      pc2
110        IN      PTR      pc3
111        IN      PTR      pc4
112        IN      PTR      pc5
```

Seguimos modificando archivos, en este caso el archivo `named.conf.options`, modificando la dirección ip que viene por la de nuestra ip. También quitaremos algunos comentarios.

A screenshot of a text editor window titled 'named.conf.options' with the path '/etc/bind' shown below the title. The editor contains the following configuration code:

```
options {
    directory "/var/cache/bind";

    // If there is a firewall between you and nameservers you want
    // to talk to, you may need to fix the firewall to allow multiple
    // ports to talk.  See http://www.kb.cert.org/vuls/id/800113

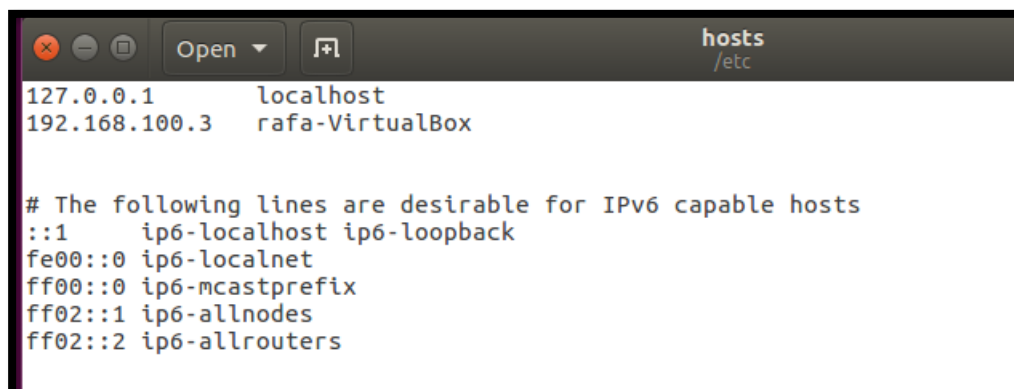
    // If your ISP provided one or more IP addresses for stable
    // nameservers, you probably want to use them as forwarders.
    // Uncomment the following block, and insert the addresses replacing
    // the all-0's placeholder.

    forwarders {
        192.168.100.3;
    };

    //=====
    // If BIND logs error messages about the root key being expired,
    // you will need to update your keys.  See https://www.isc.org/bind-keys
    //=====
    dnssec-validation auto;

    auth-nxdomain no;      # conform to RFC1035
    listen-on-v6 { any; };
};
```

Modificamos el archivo `hosts` y `resolv.conf` como hemos hecho en el ejercicio anterior. Y ya estaría configurado, para comprobarlo debemos de realizar un `nslookup`.

A screenshot of a text editor window titled 'hosts' with the path '/etc' shown below the title. The editor contains the following configuration code:

```
127.0.0.1    localhost
192.168.100.3 rafa-VirtualBox

# The following lines are desirable for IPv6 capable hosts
::1         ip6-localhost ip6-loopback
fe00::0     ip6-localnet
ff00::0     ip6-mcastprefix
ff02::1     ip6-allnodes
ff02::2     ip6-allrouters
```

```
root@rafa-VirtualBox:/etc# cat /etc/resolv.conf
# Dynamic resolv.conf(5) file for glibc resolver(3) generated by resolvconf(8)
#     DO NOT EDIT THIS FILE BY HAND -- YOUR CHANGES WILL BE OVERWRITTEN
nameserver 192.168.100.3
domainserver AulaAsi.com
root@rafa-VirtualBox:/etc#
```