Contents

Start with update apt:

- sudo apt-get update

Now install BIND:

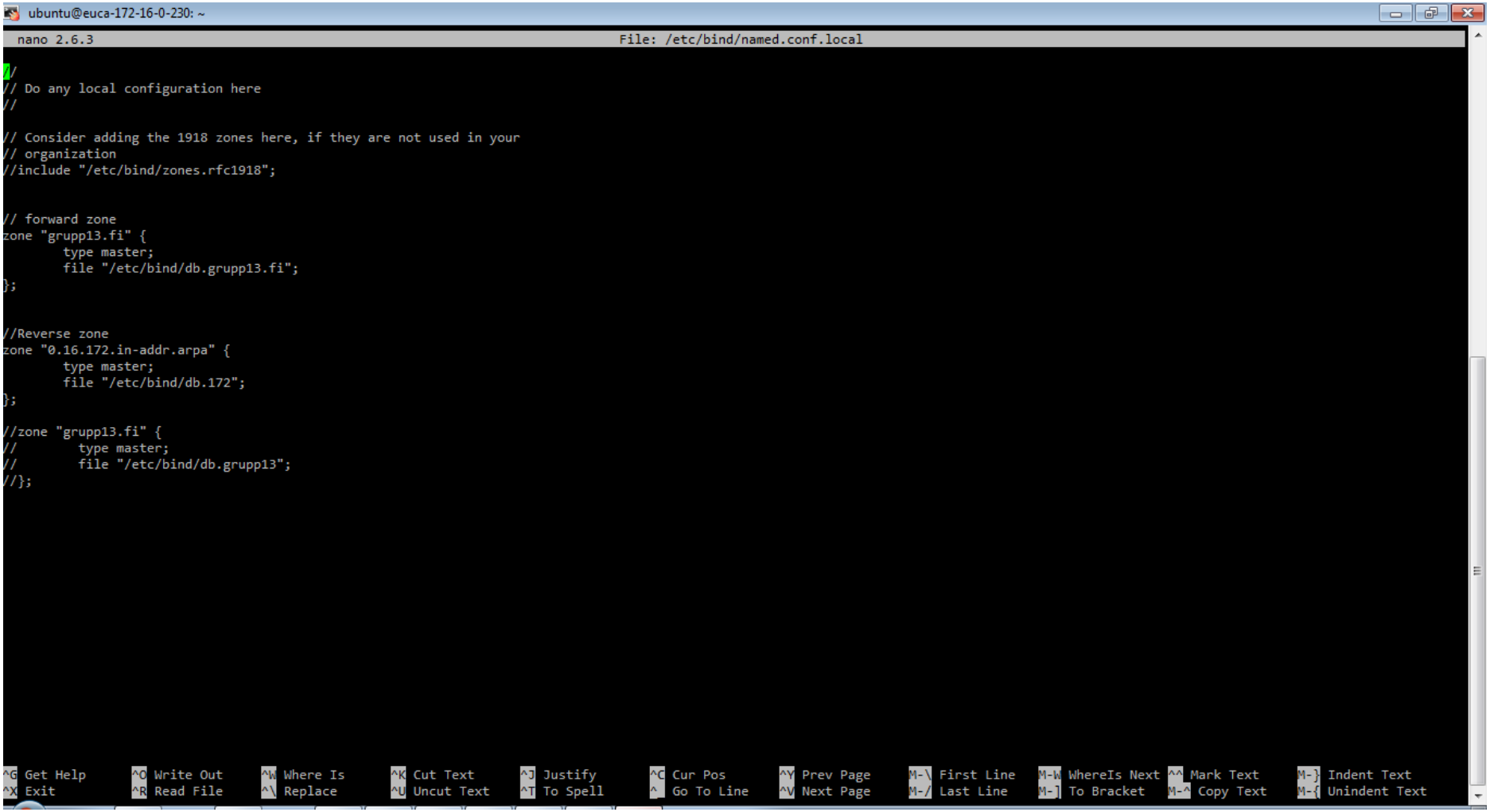
- sudo apt-get install bind9 bind9utils bind9-doc

Register a new domain

To add a DNS zone to BIND9, turning BIND9 into a Primary Master server, the first step is to edit /etc/bind/named.conf.local:

Type to your command line:

- sudo nano /etc/bind/named.conf.local



Now use an existing zone file as a template to create the /etc/bind/db.example.com file:

- sudo cp /etc/bind/db.local /etc/bind/db.grupp13.fi

Edit the new zone file /etc/bind/db.grupp13.fi change localhost. to the FQDN of your server, leaving the additional "." at the end. Change 127.16.0.19 to the nameserver's IP Address and root.grupp13.fi to a valid email address, but with a "." instead of the usual "@" symbol, again leaving the "." at the end. Change the comment to indicate the domain that this file is for.

Create an A record for the base domain, grupp13.fi. Also, create an A record for ns. grupp13.fi, the name server in this example:

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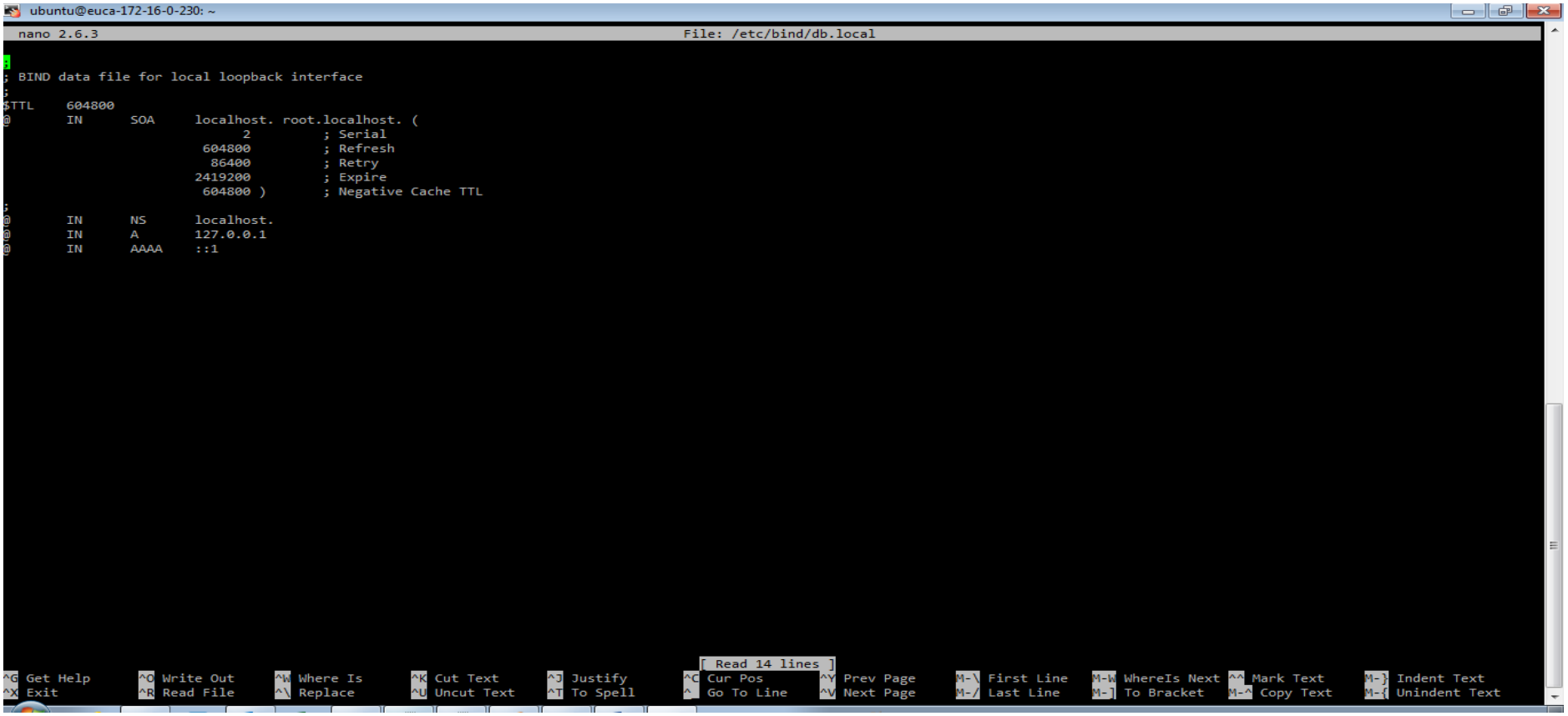

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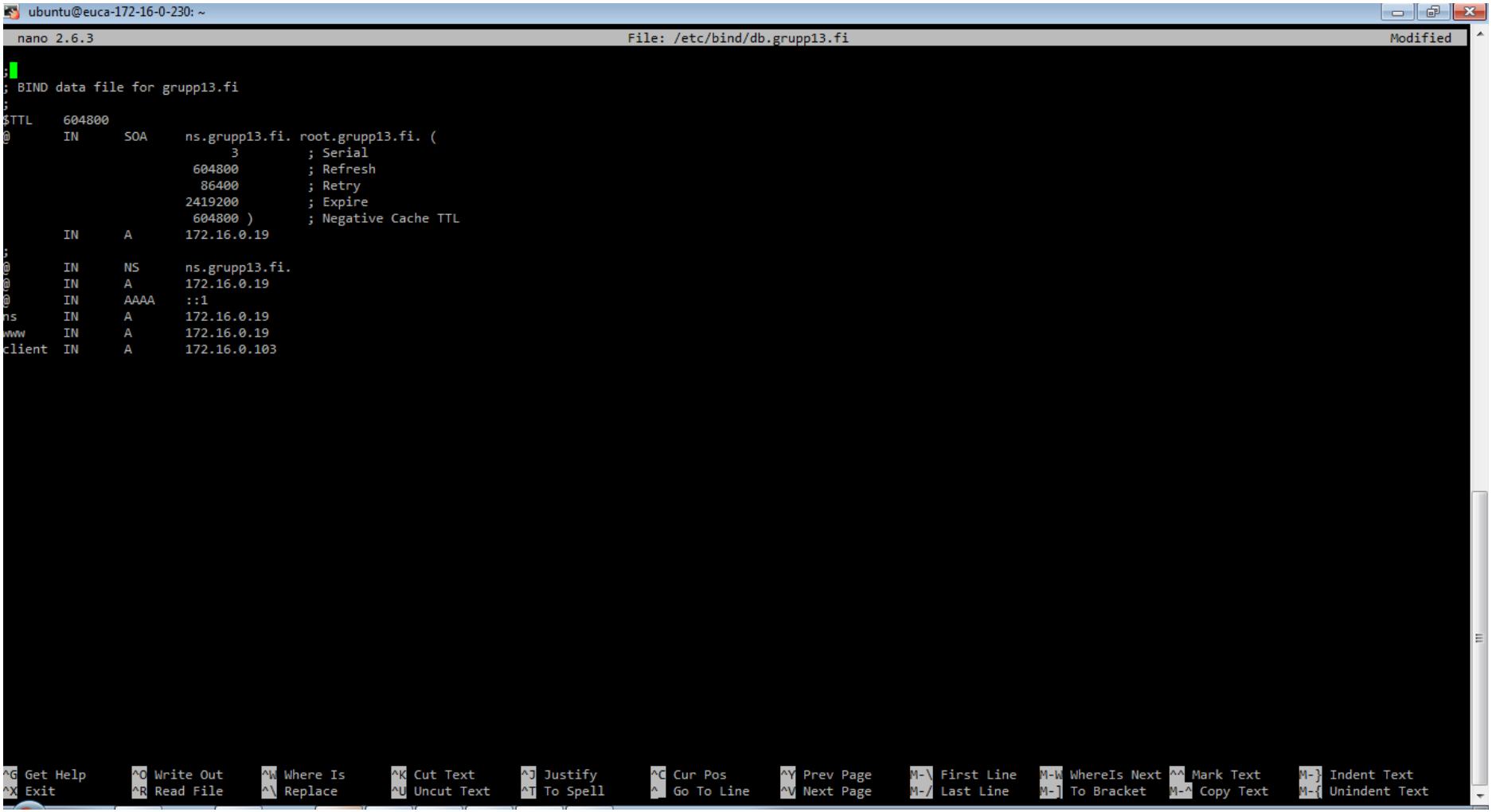


Once you have made changes to the zone file BIND9 needs to be restarted for the changes to take effect:

- sudo systemctl restart bind9.service

Configuring even a so-called. "Reverse zone" for grupp13.fi that allows you to obtain the host name on the basis of an IP address.

Now that the zone is setup and resolving names to IP Adresses a Reverse zone is also required. A Reverse zone allows DNS to resolve an address to a name.

Edit /etc/bind/named.conf.local and add the following:

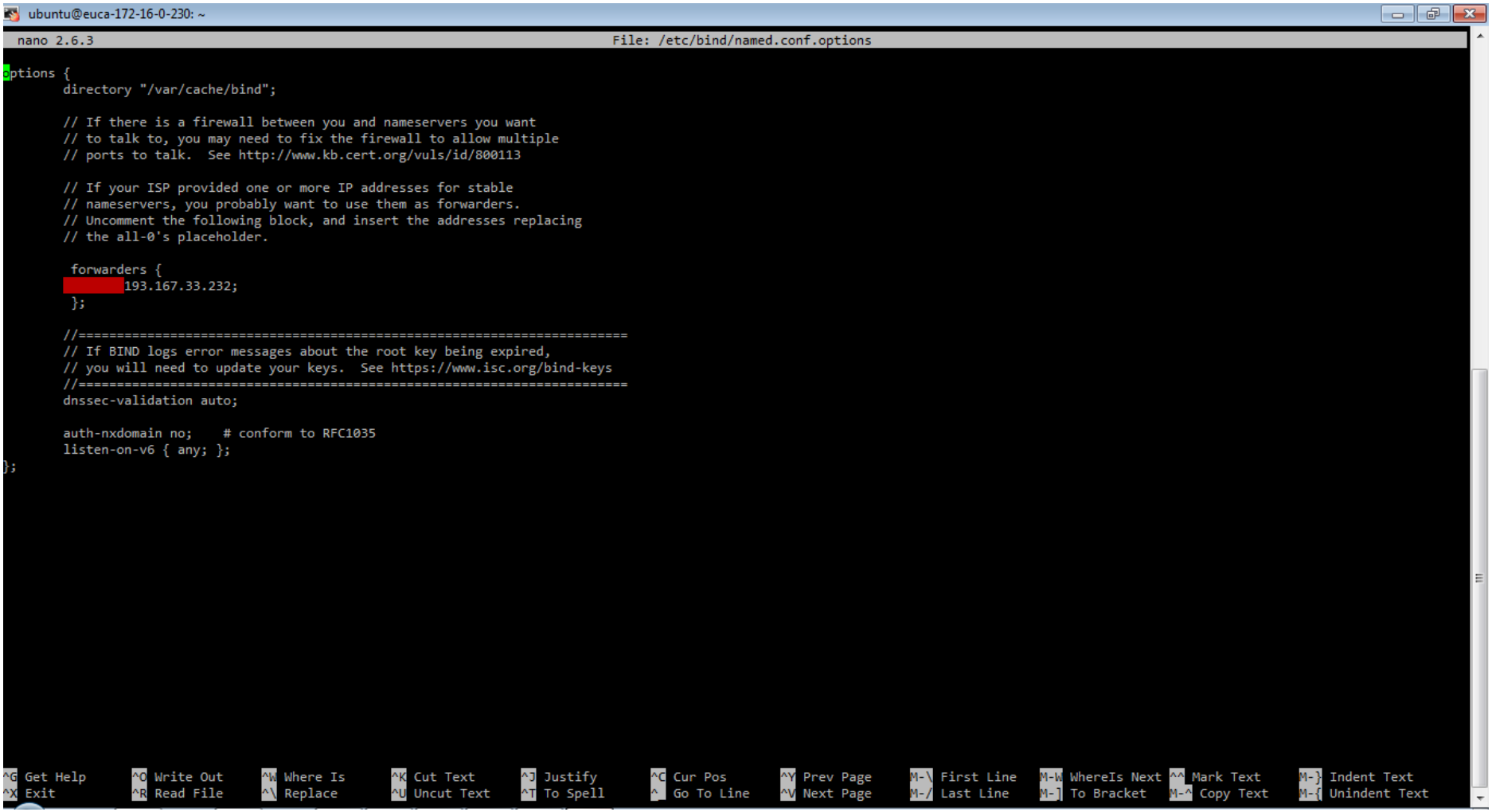
```
zone "1.168.192.in-addr.arpa" {
        type master;
        file "/etc/bind/db.192";
};
```

Configure the DNS server to delegate to the Arcadas DNS server (IP address: 193.167.33.232) to obtain domain name IP addresses that are not registered on their own DNS server.

Caching Nameserver:

Edit /etc/bind/named.conf.options and add the IP Addresses of your ISP's DNS servers.

```
sudo nano /etc/bind/named.conf.options
```

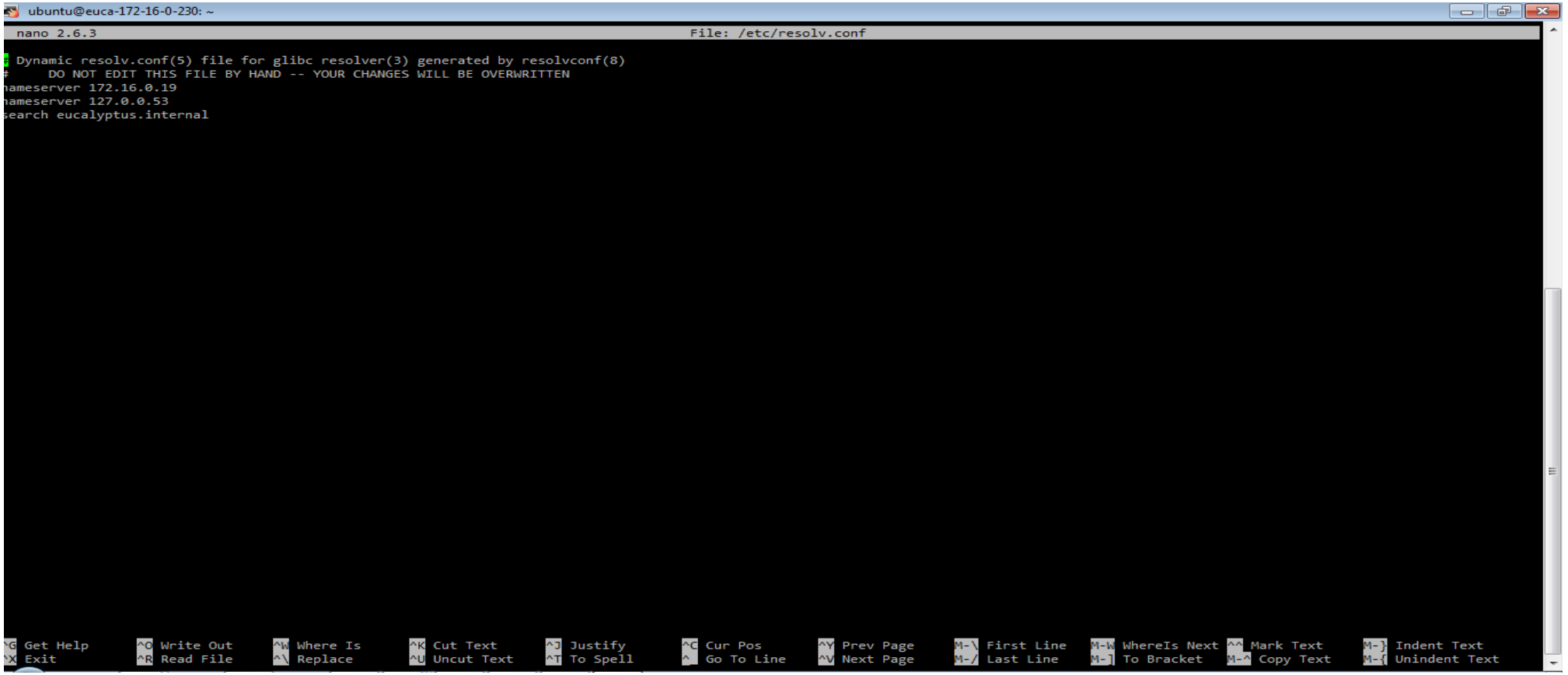


Now restart the DNS server, to enable the new configuration. From a terminal prompt:

- sudo systemctl restart bind9.service

Configuring both the client and the server in the cloud to use your own DNS name service as the primary DNS (in /etc/resolv.conf)

Edit /etc/resolv.conf and add the IP Addresses 172.16.0.19 to it .



- sudo nano /etc/resolv.conf

How DNS Works

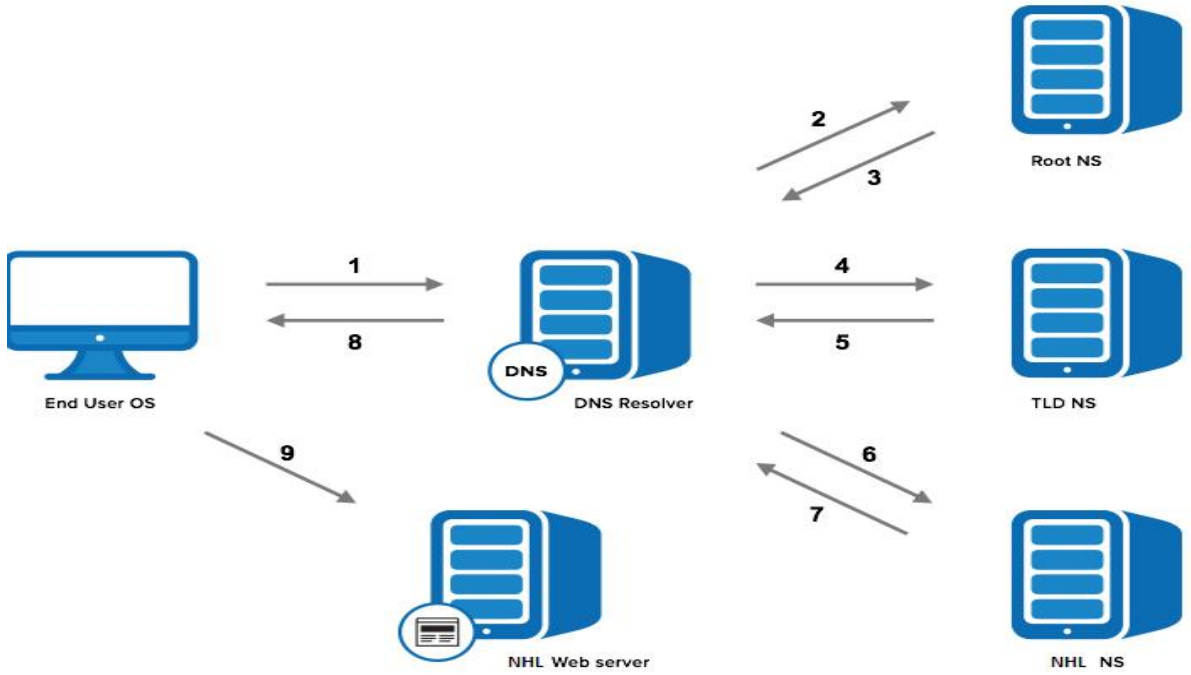
The Domain Name System (*DNS*) is a kind of a phone book (lists names next to numbers) that translates the domain names into IP (Internet Protocol) addresses.

When you type a domain name into your browser such as www.nhl.com, first your computer looks in its local DNS cache, where the recently retrieved information is stored.

Secondly, if the computer is not able to find the answer there, it implements a DNS query to find out.

1. Starts by asking the recursive DNS servers: they have their own caches, so if they get the answer they return the information to the user otherwise .....
2. The recursive DNS servers query root nameservers (there are 13 of them) for the .com domain, which answer with the addresses of the authoritative name servers for www.nhl.com domain.
   The does have the anwer for our reqest but it knows where to find it out. Root nameservers cares of the right part of our request .com then it our request to...
3. TLD nameservers: Every Top-Level Domain, such as *.com*, *.net*, and *.fi*, have their own group of nameservers, that receieve each TLD. TLD aslo does have the required information but it tells us (directs us to) the servers that *do*.
4. The next step is the authoritative DNS servers: they know all the information about an exact domain that is saved in DNS records. Since what we need to acquire is the ip address of www.nhl.com, so we will ask the authoritative ns for the Address Record.

5. From the authoritative nameservers, the Address Record will be retrieved by the recursive server to be saved its local cache inorder to easy and fast the process in the future.
6. The recursive server will then provide your browser(your computer) with the Address Record and will save in its local cache.



Please note that the whole process takes (starts and ends in) milliseconds☺.

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