

## **Unit 2. Task 2: VirtualHost Creation**

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# 1 Introduction

In this task we are going to set up several virtualhost. Using virtualhost you can host multiple web pages on the same web server.

Each virtualhost is unique and independent. All configuration parameters not included in its definition will be inherited from the main configuration: */etc/apache2/apache2.conf*

There are three types of virtualhosts:

- Based on name.
- Based on IP.
- Based on several main servers.

We are going to set up two different virtualhosts based on name: empresa3 and empresa4.

# 2 Modify */etc/hosts*

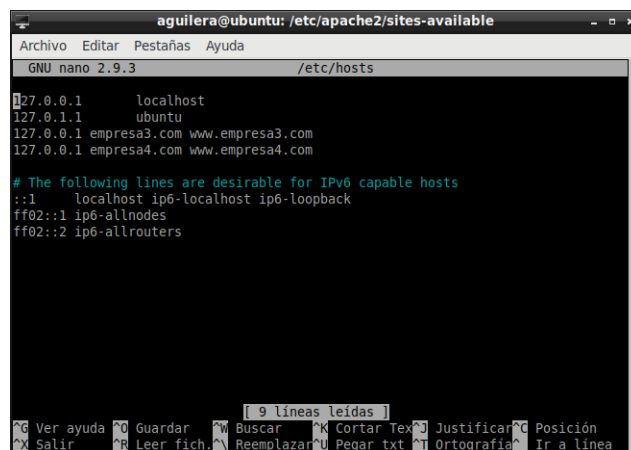
Due to the fact that the DNS server is not set up with the required domain entries, first of all you must add the following lines to the end of the */etc/hosts* file:

- 127.0.0.1 empresa3.com www.empresa3.com
- 127.0.0.1 empresa4.com www.empresa4.com

Execute the command:

```
$ sudo nano /etc/hosts
```

Then, type the lines above:



```
aguilera@ubuntu: /etc/apache2/sites-available
Archivo  Editar  Pestañas  Ayuda
GNU nano 2.9.3 /etc/hosts
127.0.0.1 localhost
127.0.0.1 ubuntu
127.0.0.1 empresa3.com www.empresa3.com
127.0.0.1 empresa4.com www.empresa4.com

# The following lines are desirable for IPv6 capable hosts
::1 localhost ip6-localhost ip6-loopback
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters

[ 9 líneas leídas ]
Ver ayuda  Guardar  Buscar  Cortar Tex  Justificar  Posición
Salir  Leer fich.  Reemplazar  Pegar txt  Ortografía  Ir a línea
```

Figure 1: Adding the domain entries

### 3 Modify /etc/apache2/sites-available

Now, you have to move to */etc/apache2/site-avaliable*:

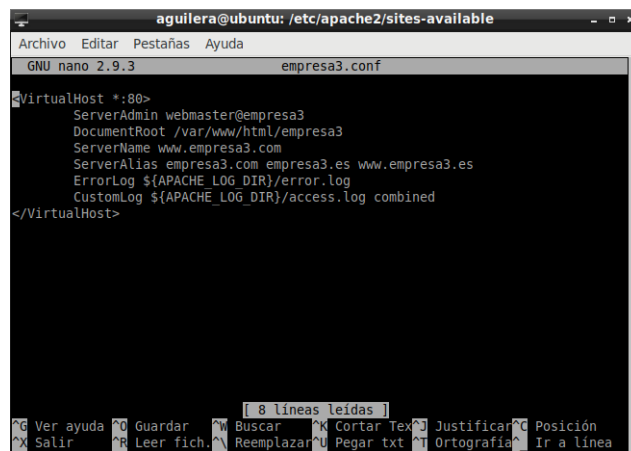
```
$ cd /etc/apache2/sites-available
```

Then, foreach virtualhost you have to create a configuration file:

```
$ sudo nano empresa3.conf
```

```
$ sudo nano empresa4.conf
```

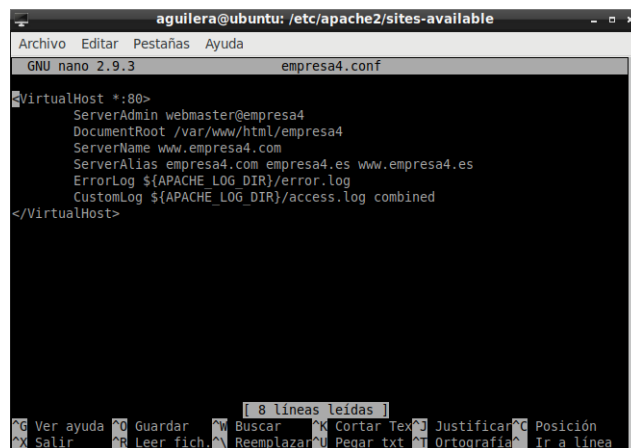
The configuration file of empresa3 will contain:



```
VirtualHost *:80>
  ServerAdmin webmaster@empresa3
  DocumentRoot /var/www/html/empresa3
  ServerName www.empresa3.com
  ServerAlias empresa3.com empresa3.es www.empresa3.es
  ErrorLog ${APACHE_LOG_DIR}/error.log
  CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

Figure 2: empresa3.conf file content

Respectively for empresa4:



```
VirtualHost *:80>
  ServerAdmin webmaster@empresa4
  DocumentRoot /var/www/html/empresa4
  ServerName www.empresa4.com
  ServerAlias empresa4.com empresa4.es www.empresa4.es
  ErrorLog ${APACHE_LOG_DIR}/error.log
  CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

Figure 3: empresa4.conf file content

## 4 Create the site directory tree

After the creation of the configuration files, you have to create the directory that will host your web pages in `/var/www/html` (the default root directory of Apache).

It is recommended to modify the permissions of `/var/www/html` :

```
$ sudo chmod -R 755 /var/www/html
```

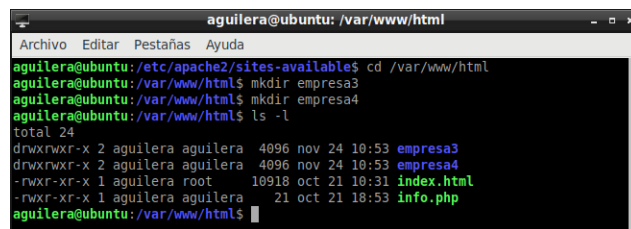
Moving into `/var/www/html` :

```
$ cd /var/www/html
```

You have to create a directory of each web page:

```
$ mkdir empresa3
```

```
$ mkdir empresa4
```

A terminal window titled 'aguilera@ubuntu: /var/www/html' showing a series of commands and their outputs. The commands are: 'cd /var/www/html', 'mkdir empresa3', 'mkdir empresa4', and 'ls -l'. The output of 'ls -l' shows a directory listing for '/var/www/html' with files 'empresa3', 'empresa4', 'index.html', and 'info.php'.

```
aguilera@ubuntu: /var/www/html
Archivo  Editar  Pestañas  Ayuda
aguilera@ubuntu:/etc/apache2/sites-available$ cd /var/www/html
aguilera@ubuntu:/var/www/html$ mkdir empresa3
aguilera@ubuntu:/var/www/html$ mkdir empresa4
aguilera@ubuntu:/var/www/html$ ls -l
total 24
drwxrwxr-x 2 aguilera aguilera 4096 nov 24 10:53 empresa3
drwxrwxr-x 2 aguilera aguilera 4096 nov 24 10:53 empresa4
-rwxr-xr-x 1 aguilera root    10918 oct 21 10:31 index.html
-rwxr-xr-x 1 aguilera aguilera 21 oct 21 18:53 info.php
aguilera@ubuntu:/var/www/html$
```

Figure 4: Directories created with the permissions that we set before

### 4.1 Required testing pages

Then, we are going to create a simple HTML file for each webpage. Thus, if we search in our web browser for the web address, the HTML file will be displayed.

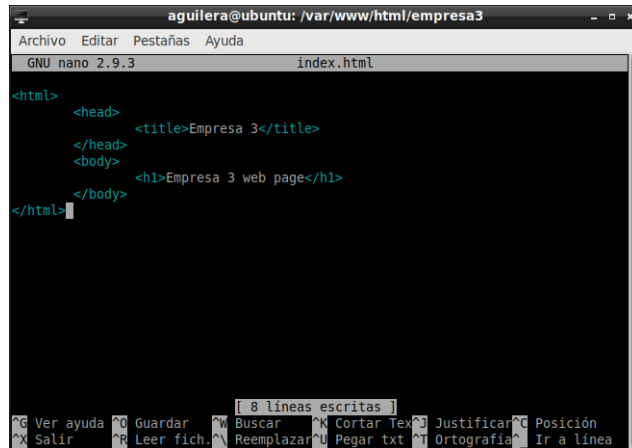
```
$ cd empresa3
```

```
$ nano index.html
```

A simple HTML page, for example:

```
<html>
  <head>
    <title>Empresa 3</title>
  </head>
  <body>
    <h1>Empresa 3 web page</h1>
  </body>
</html>
```

Written in nano:



```
aguilera@ubuntu: /var/www/html/empresa3
GNU nano 2.9.3 index.html

<html>
  <head>
    <title>Empresa 3</title>
  </head>
  <body>
    <h1>Empresa 3 web page</h1>
  </body>
</html>

[ 8 lineas escritas ]
Ver ayuda  Guardar  Buscar  Cortar Tex  Justificar  Posición
Salir  Leer fich.  Reemplazar  Pegar txt  Ortografía  Ir a línea
```

Figure 5: index.html for empresa3

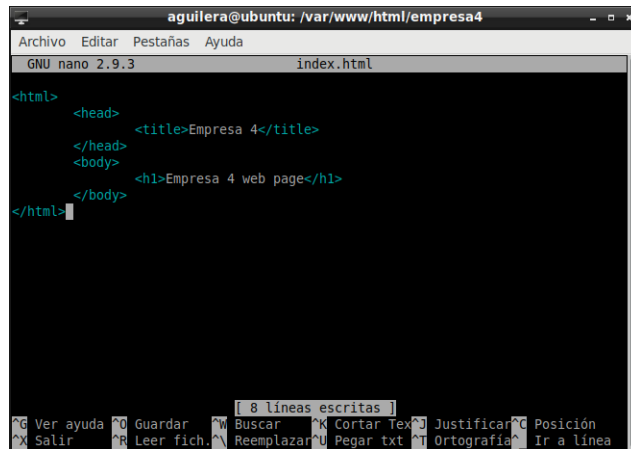
Respectively for empresa4:

```
$ cd ../empresa4
```

```
$ nano index.html
```

```
<html>
  <head>
    <title>Empresa 4</title>
  </head>
  <body>
    <h1>Empresa 4 web page</h1>
  </body>
</html>
```

Written in nano:

A screenshot of a terminal window showing the nano text editor. The window title is 'aguilera@ubuntu: /var/www/html/empresa4'. The editor is editing 'index.html'. The content of the file is: 

```
<html>
  <head>
    <title>Empresa 4</title>
  </head>
  <body>
    <h1>Empresa 4 web page</h1>
  </body>
</html>
```

 The status bar at the bottom shows '8 líneas escritas' and various keyboard shortcuts.

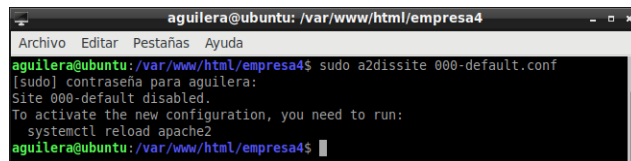
Figure 6: index.html for empresa3

## 5 Enable the virtualhosts

a2ensite from Apache is the tool that you have to use to enable the virtualhosts.

First of all, you have to disable the default configuration using a2dissite:

```
$ sudo a2dissite 000-default.conf
```

A screenshot of a terminal window showing the execution of the 'a2dissite' command. The window title is 'aguilera@ubuntu: /var/www/html/empresa4'. The prompt is 'aguilera@ubuntu:/var/www/html/empresa4\$'. The command entered is 'sudo a2dissite 000-default.conf'. The output is: 

```
[sudo] contraseña para aguilera:
Site 000-default disabled.
To activate the new configuration, you need to run:
    systemctl reload apache2
aguilera@ubuntu:/var/www/html/empresa4$
```

Figure 7: Command execution

Then it ask for an Apache2 reload:

```
$ systemctl reload apache2
```

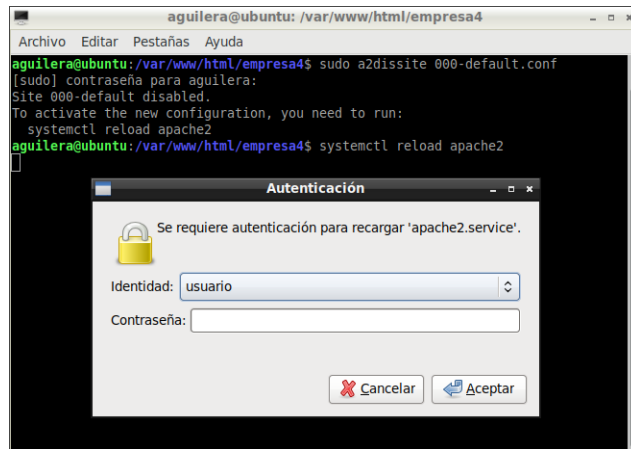


Figure 8: Reloading Apache2

After that, it is time to enable the virtualhosts:

```
$ sudo a2ensite empresa3.conf
```

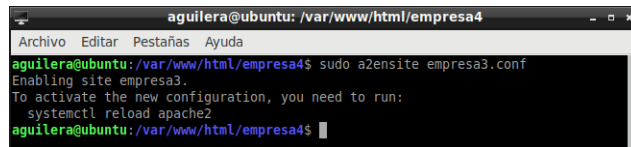


Figure 9: Enabling empresa3

```
$ sudo a2ensite empresa4.conf
```

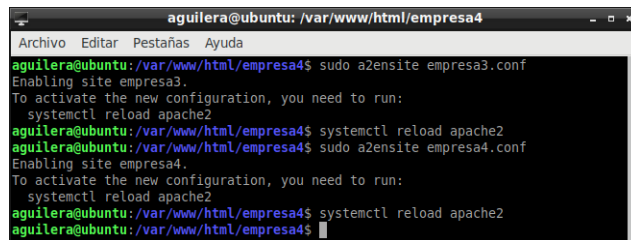


Figure 10: Enabling empresa4

As you can see from the figures above, every time you make any configuration changes Apache2 needs to reload.



## 6 Tests

Typing in the search bar *empresa3.com* or *empresa4.com* :

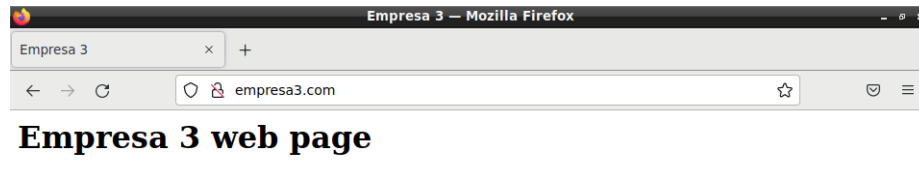


Figure 11: empresa3.com

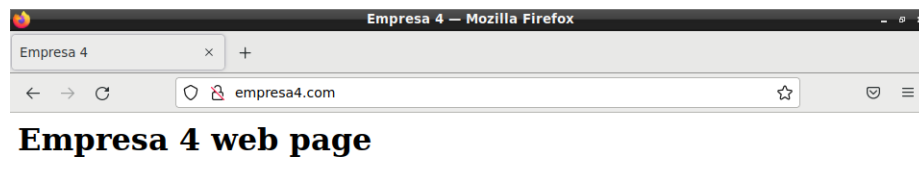


Figure 12: empresa4.com

## References

- [1] [https://educacionadistancia.juntadeandalucia.es/centros/granada/pluginfile.php/1007187/mod\\_resource/content/1/Tema%202.pdf](https://educacionadistancia.juntadeandalucia.es/centros/granada/pluginfile.php/1007187/mod_resource/content/1/Tema%202.pdf)
- [2] <https://www.youtube.com/watch?v=qPQtD5Ht1Rc&t=1067s>
- [3] <https://docs.bluehosting.cl/tutoriales/servidores/inicio-y-reinicio-de-apache-en-linux.html>
- [4] <https://geekytheory.com/como-configurar-un-virtual-host-de-apache-en-linux/>