

## 1. Instalación de Apache

### 1.1 Actualizar la lista de paquetes para asegurarse que todo esté al día.

```
gcastro-@gcastro-VirtualBox:~$ sudo apt update
```

### 1.2 Instalar Apache.

```
gcastro-@gcastro-VirtualBox:~$ sudo apt install apache2
```

### 1.3 Verificar que Apache esté en funcionamiento

```
gcastro-@gcastro-VirtualBox:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Sun 2023-10-22 17:32:00 CEST; 10min ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 51714 (apache2)
    Tasks: 55 (limit: 2269)
   Memory: 4.7M
   CGroup: /system.slice/apache2.service
           └─51714 /usr/sbin/apache2 -k start
             └─51716 /usr/sbin/apache2 -k start
               └─51717 /usr/sbin/apache2 -k start
```

### 1.4 Configurar el cortafuegos (UFW) para habilitar el tránsito web al servidor por el puerto por defecto, en este caso el puerto 80.

```
gcastro-@gcastro-VirtualBox:~$ sudo ufw allow 'Apache'
```

### 1.5 Verificar que la regla haya sido correctamente creada.

```
gcastro-@gcastro-VirtualBox:~$ sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip

To Action From
--
80/tcp (Apache) ALLOW IN Anywhere
80/tcp (Apache (v6)) ALLOW IN Anywhere (v6)
```

## 2. Configuración de apache

### 2.1 Crear un directorio en el que ubicar el nuevo proyecto.

```
gcastro-@gcastro-VirtualBox:~$ sudo mkdir /var/www/html/gcastro-
```

### 2.2 Después de moverse al directorio crear el index.html del proyecto

```
gcastro-@gcastro-VirtualBox:/var/www/html/gcastro-$ sudo nano index.html
```

### 2.3 Este será el contenido del documento

```
GNU nano 4.8 index.html Modified
<html>
<head>
    <title>Mi proyecto</title>
</head>
<body>
    <h1>Gabriel Hernando Castro Sánchez</h1>
</body>
</html>
```

#### 2.4 Crear un nuevo archivo de configuración

```
gcastro@gcastro-VirtualBox:/var/www/html/gcastro-$ sudo nano /etc/apache2/sites-available/nuevaConfiguración.conf
```

#### 2.5 Esta va a ser la configuración cambiando el puerto 80 por el puerto 7000

```
<VirtualHost *:7000>
    ServerAdmin webmaster@gcastro-
    ServerName gcastro-
    DocumentRoot /var/www/html/gcastro-

    <Directory /var/www/html/gcastro->
        Options Indexes FollowSymLinks
        AllowOverride None
        Require all granted
    </Directory>
</VirtualHost>
```

#### 2.6 Desactivar la configuración por defecto

```
gcastro@gcastro-VirtualBox:/etc/apache2/sites-available$ sudo a2dissite 000-default.conf
```

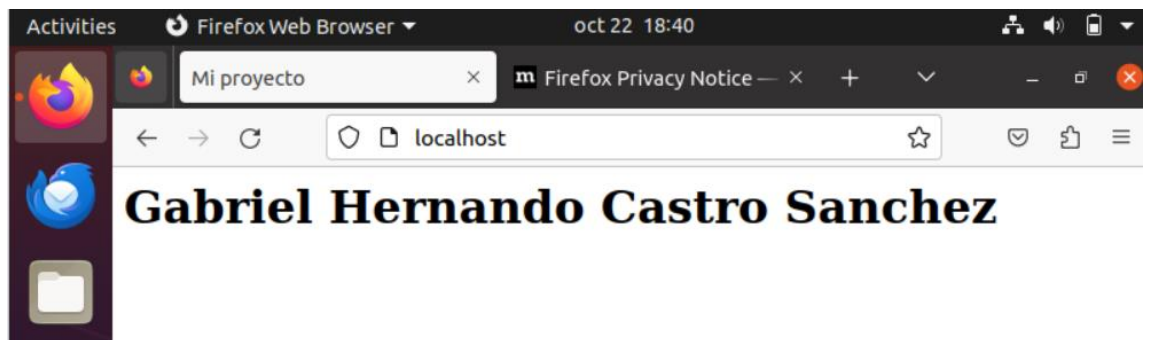
#### 2.6 Activar la configuración

```
gcastro@gcastro-VirtualBox:/var/www/html/gcastro-$ sudo a2ensite nuevaConfiguración.conf
```

#### 2.7 Recargar la configuración de apache

```
gcastro@gcastro-VirtualBox:/var/www/html/gcastro-$ sudo systemctl reload apache2
```

#### 2.8 Finalmente este debe de ser el resultado cuando buscamos localhost en el navegador



### 3. Cambiar el puerto de escucha por el 7000

#### 3.1 Para cambiar el puerto de escucha entrar en el archivo ports.conf

```
gcastro@gcastro-VirtualBox:~$ sudo nano /etc/apache2/ports.conf
```

### 3.2 Cambiar el valor de "Listen 80" por "Listen 7000"

```
GNU nano 4.8 /etc/apache2/ports.conf
# If you just change the port or add more ports here, you will likely also
# have to change the VirtualHost statement in
# /etc/apache2/sites-enabled/000-default.conf

Listen 7000

<IfModule ssl_module>
    Listen 443
</IfModule>

<IfModule mod_gnutls.c>
    Listen 443
</IfModule>

# vim: syntax=apache ts=4 sw=4 sts=4 sr noet
```

## 4. Instalar y configurar TomCat

### 4.1 Instalar JDK

- Actualizar todos los paquetes al igual que se hace en la primera imagen
- Instalar JDK

```
gcastro@gcastro-VirtualBox:~$ sudo apt install openjdk-17-jdk
```

- Verificar que el JDK se ha instalado correctamente

```
gcastro@gcastro-VirtualBox:~$ java -version
openjdk version "17.0.8.1" 2023-08-24
OpenJDK Runtime Environment (build 17.0.8.1+1-Ubuntu-0ubuntu120.04)
OpenJDK 64-Bit Server VM (build 17.0.8.1+1-Ubuntu-0ubuntu120.04, mixed mode, sharing)
```

### 4.2 Instalar Tom Cat

- Verificar qué versión de tomcat es más reciente

```
gcastro@gcastro-VirtualBox:~$ sudo apt-cache search tomcat
```

- Instalar la versión más reciente de tomcat en este caso la versión 9

```
gcastro@gcastro-VirtualBox:~$ sudo apt install tomcat9 tomcat9-admin
```

- Dentro de la carpeta tomcat 9 se encuentra el fichero server.xml, en el que hay que buscar a qué puerto se conecta TomCat, en este caso 8080.

```
<Connector port="8080" protocol="HTTP/1.1"
           connectionTimeout="20000"
           redirectPort="8443" />
```

- Ver en qué puerto está recibiendo las peticiones de todas las direcciones ip, en este caso en el puerto 7000 y el puerto 8080. En este caso el tomcat está escuchando por el puerto 8080 por lo que hay que habilitarlo en el ufw con protocolo tcp.

```
gcastro@gcastro-VirtualBox:~$ ss -ltn
State  Recv-Q  Send-Q  Local Address:Port  Peer Address:Port  Process
LISTEN  0        4096    127.0.0.53%lo:53      0.0.0.0:*
LISTEN  0         5       127.0.0.1:631        0.0.0.0:*
LISTEN  0         5       [::1]:631           [::]:*
LISTEN  0        511     *:7000              *::*
LISTEN  0        100     *:8080              *::*

gcastro@gcastro-VirtualBox:/etc/tomcat9$ sudo ufw allow 8080/tcp
Rule added
Rule added (v6)
gcastro@gcastro-VirtualBox:/etc/tomcat9$ sudo ufw status numbered
Status: active

      To Action From
      --
[ 1] 7000/tcp ALLOW IN Anywhere
[ 2] Apache ALLOW IN Anywhere
[ 3] 8080/tcp ALLOW IN Anywhere
[ 4] Apache (v6) ALLOW IN Anywhere (v6)
[ 5] 7000/tcp (v6) ALLOW IN Anywhere (v6)
[ 6] 8080/tcp (v6) ALLOW IN Anywhere (v6)
```

## 4.2 Crear usuario

Para añadir usuarios se ha de modificar el fichero tomcat-users.xml y añadirlos de esta manera.

```
<role rolename="admin-gui"/>
<role rolename="manager-gui"/>

<user username="tomcat" password="solvetic" roles="admin-gui,manager-gui"/>
</tomcat-users>
```

## 4.3 Visualizar Tom Cat por el servidor

- Visualizar index.htm

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localhost:8080

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# It works !

If you're seeing this page via a web browser, it means you've setup Tomcat successfully. Congratulations!

This is the default Tomcat home page. It can be found on the local filesystem at:  
/var/lib/tomcat9/webapps/ROOT/index.html

Tomcat veterans might be pleased to learn that this system instance of Tomcat is installed with CATALINA\_HOME in /usr/share/tomcat9 and CATALINA\_BASE in /var/lib/tomcat9, following the rules from /usr/share/doc/tomcat9-common/RUNNING.txt.gz.

You might consider installing the following packages, if you haven't already done so:

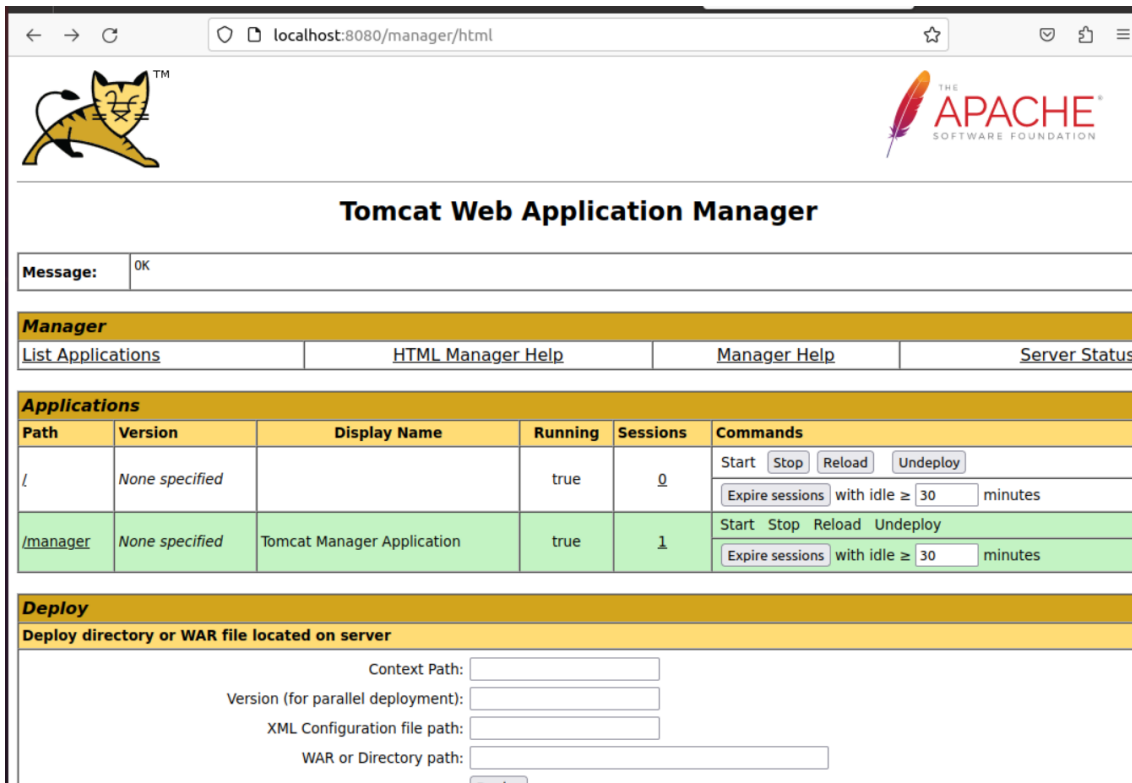
**tomcat9-docs:** This package installs a web application that allows to browse the Tomcat 9 documentation locally. Once installed, you can access it by clicking [here](#).

**tomcat9-examples:** This package installs a web application that allows to access the Tomcat 9 Servlet and JSP examples. Once installed, you can access it by clicking [here](#).

**tomcat9-admin:** This package installs two web applications that can help managing this Tomcat instance. Once installed, you can access the [manager webapp](#) and the [host-manager webapp](#).



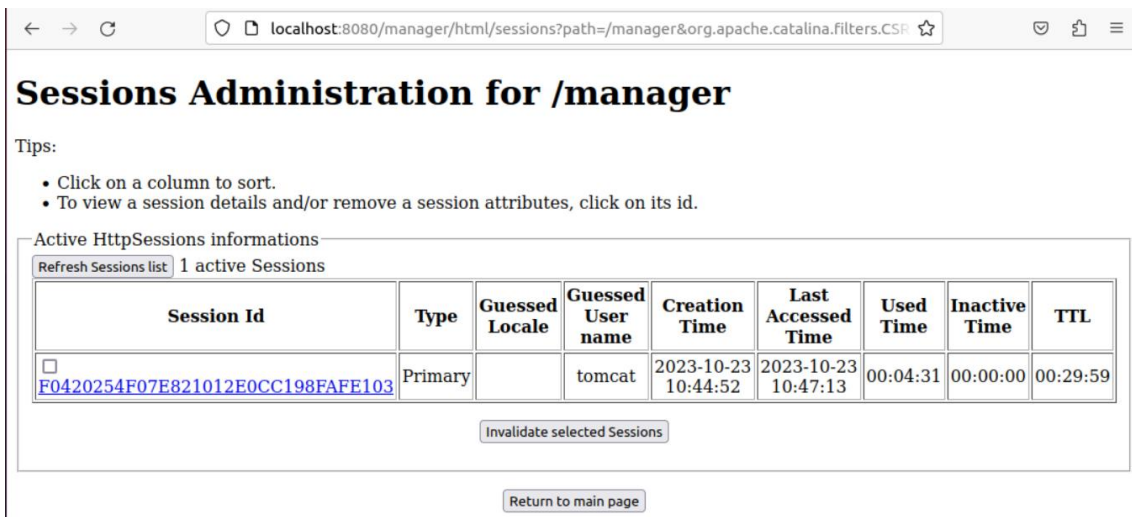
- Visualizar manager



The screenshot shows the Tomcat Web Application Manager interface in a web browser. The browser address bar shows `localhost:8080/manager/html`. The page features the Tomcat logo on the left and the Apache Software Foundation logo on the right. The main heading is "Tomcat Web Application Manager". Below this, there is a message box with "Message: OK". A navigation bar includes links for "List Applications", "HTML Manager Help", "Manager Help", and "Server Status". The "Applications" section displays a table with columns: Path, Version, Display Name, Running, Sessions, and Commands. Two applications are listed: the root path "/" and the "/manager" path. The "/manager" application is running and has 1 session. Below the applications table, the "Deploy" section provides fields for "Context Path", "Version (for parallel deployment)", "XML Configuration file path", and "WAR or Directory path", along with a "Deploy" button.

Path	Version	Display Name	Running	Sessions	Commands
/	None specified		true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/manager	None specified	Tomcat Manager Application	true	1	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes

- HashCode de la conexión



The screenshot shows the "Sessions Administration for /manager" page. The browser address bar shows `localhost:8080/manager/html/sessions?path=/manager&org.apache.catalina.filters.CSP`. The page title is "Sessions Administration for /manager". Below the title, there are "Tips" for using the session list. The "Active HttpSessions informations" section shows a "Refresh Sessions list" button and "1 active Sessions". A table lists the active sessions with columns: Session Id, Type, Guessed Locale, Guessed User name, Creation Time, Last Accessed Time, Used Time, Inactive Time, and TTL. One session is listed with ID `F0420254F07E821012E0CC198FAFE103` and user `tomcat`. Below the table is an "Invalidate selected Sessions" button. At the bottom of the page is a "Return to main page" button.

Tips:

- Click on a column to sort.
- To view a session details and/or remove a session attributes, click on its id.

Active HttpSessions informations

Refresh Sessions list 1 active Sessions

Session Id	Type	Guessed Locale	Guessed User name	Creation Time	Last Accessed Time	Used Time	Inactive Time	TTL
<a href="#">F0420254F07E821012E0CC198FAFE103</a>	Primary		tomcat	2023-10-23 10:44:52	2023-10-23 10:47:13	00:04:31	00:00:00	00:29:59

Invalidate selected Sessions

Return to main page