

Práctica UD3

SERVIDOR DE APLICACIONES

APACHE TOMCAT

Desenvolvimento de Aplicacíons Web

Despregamento de Aplicacíons Web

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Instrucciones

- Las capturas de las máquinas virtuales deben mostrar el nombre de la máquina.
- En el nombre de la máquina virtual debe contener la inicial y el apellido del alumno/a que entrega la práctica.
 - Por ejemplo, si creo una máquina virtual llamada "vsFTPd Server", debo nombrarla "jlopez vsFTPd Server".
- Las capturas deben de tener una calidad suficiente para que su contenido pueda ser legible.
- La entrega será en la tarea de la plataforma moodle mediante un fichero pdf practica_x_tu_nombre.pdf (x es número de practica y tu_nombre es tu nombre) en el que se puedan ver en las diferentes secciones lo solicitado.

Objetivo de la Tarea

Se pondrá en práctica la instalación y administración del contenedor de servlets y JSPs Tomcat, con algunas tareas habituales y sencillas de configuración.

Entorno de trabajo

Sistema Anfitrión: El de vuestro equipo.

Sistema Huésped (Virtualizado): Máquina virtual con Lubuntu 25.04 Plucky Puffin en VirtualBox y máquina virtual con Windows 7 y XAMPP.

Software base a instalar: Apache Tomcat

Entrega

1. Crea un documento PDF (Nombrado como: Tarea3_1_TuNombre_TuApellido.pdf).
2. Incluye todas las capturas de pantalla que estimes oportunas, con pie de foto o comentarios en los casos que se precise explicar brevemente lo que se ve.
3. Responde a las cuestiones
4. Autoevalúate en la siguiente rúbrica

Rúbrica de autoevaluación

Tarea	OK / KO	Comentarios
Parte 1.1 (1 punto)		
Parte 1.2 (3 puntos)		
Parte 1.3 (1 punto)		
Parte 1.4 (1 punto)		
Parte 1.5 (1 punto)		
Parte 1.6 (2 puntos)		
Parte 1.7 (1 punto)		
NOTA FINAL:		

1. Funcionamiento de Tomcat en Windows con XAMPP

Se te facilita una máquina Windows, que ya viene con un Xampp operativo. Se te pedirá lo siguiente.

1.1. Arranque y configuración inicial

Configura para que arranque, y se pueda acceder a su página principal

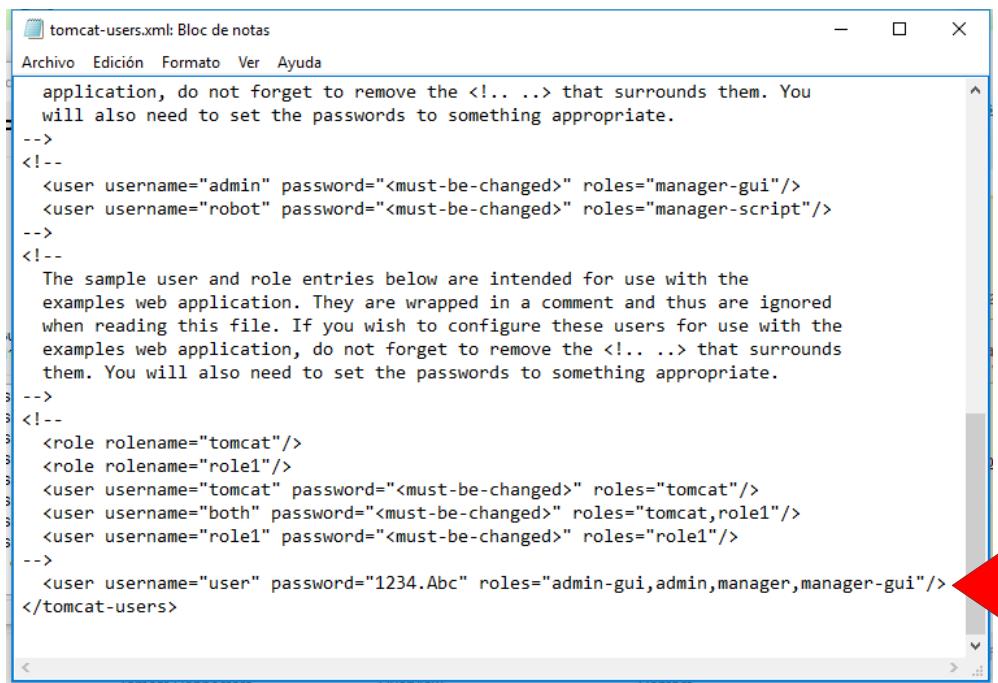
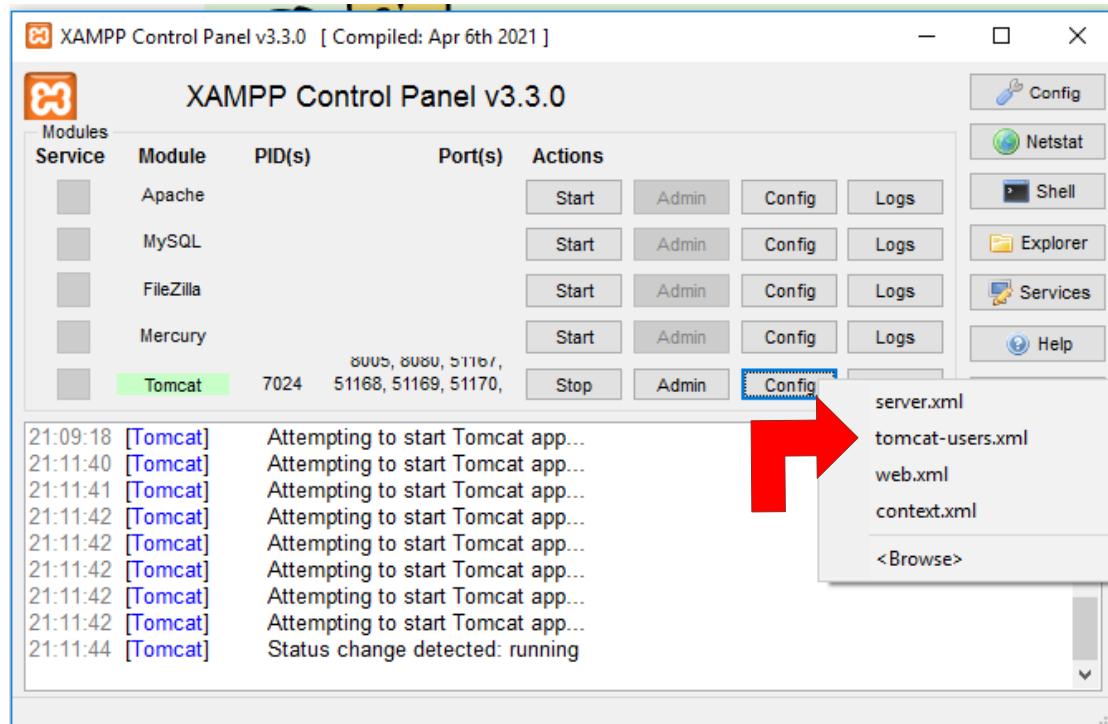
The screenshot shows the Apache Tomcat 8.5.70 homepage. At the top, there's a navigation bar with links to Home, Documentation, Configuration, Examples, Wiki, and Mailing Lists. On the right, there's a 'Find Help' button. Below the navigation, the title 'Apache Tomcat/8.5.70' is displayed next to the Apache logo. A green banner says 'If you're seeing this, you've successfully installed Tomcat. Congratulations!'. To the left of the banner is a cartoon cat icon. To the right are buttons for Server Status, Manager App, and Host Manager. The main content area has sections for 'Developer Quick Start' (with links to Tomcat Setup, First Web Application, Realms & AAA, JDBC DataSources, Examples, Servlet Specifications, and Tomcat Versions), 'Managing Tomcat' (with links to Release Notes, Changelog, Migration Guide, Security Notices, and information about manager webapp access), 'Documentation' (with links to Tomcat 8.5 Documentation, Configuration, and Wiki, along with developer notes about RUNNING.txt), and 'Getting Help' (with links to FAQ and Mailing Lists, and details about various mailing lists like tomcat-announce, tomcat-users, taglibs-user, and tomcat-dev). At the bottom, there are links for Other Downloads, Other Documentation, Get Involved, Miscellaneous, and the Apache Software Foundation.

1.2 Acceso a opciones de gestión y administración

Realiza la configuración para que pueda acceder a server status, Manager App y Host Manager

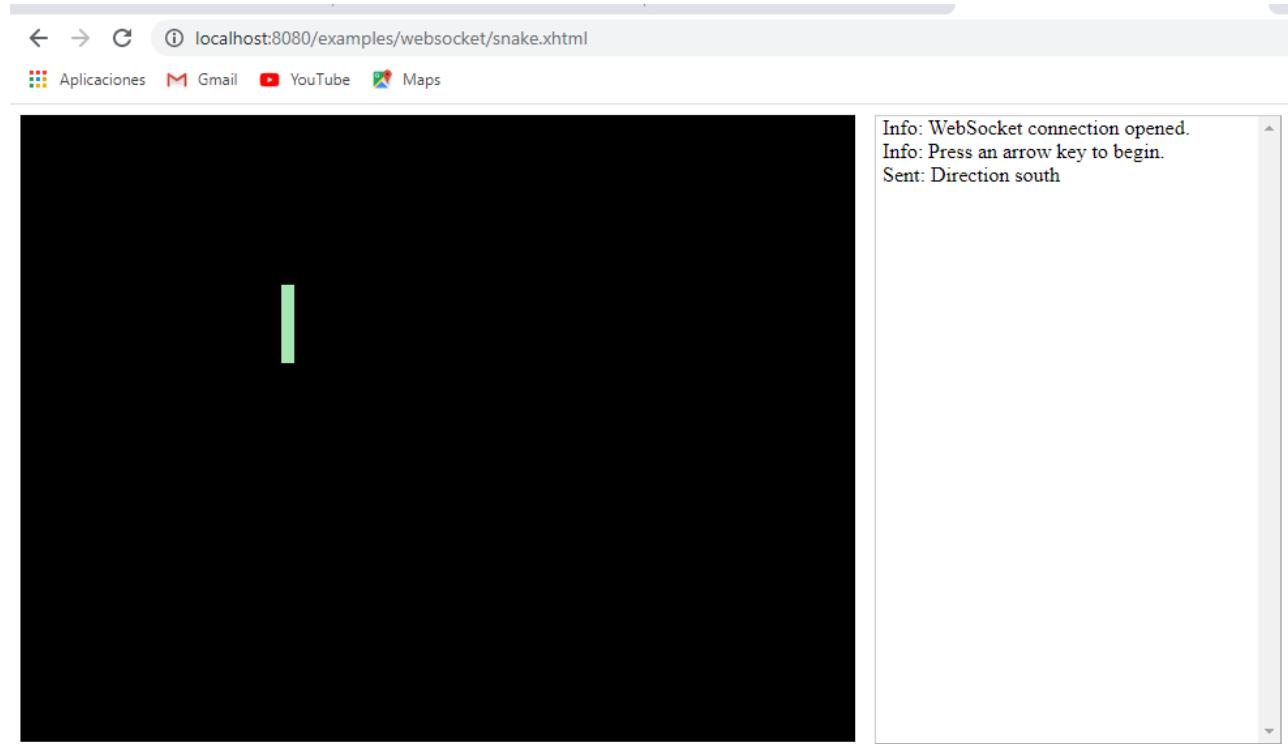
Pistas:

[Guide to Tomcat Manager Application](#) | Baeldung



1.3 Ejemplos

Muestra su funcionamiento con alguno de los ejemplos disponibles



1.4 Despliega tu propia aplicación web

Despliega un fichero Sample.war, y comprueba que puedes acceder a la aplicación

Pistas:

[Apache Tomcat 11 \(11.0.0-M16\) - Tomcat Web Application Deployment](#)

[How to Deploy a WAR File to Tomcat | Baeldung](#)

[Tomcat Manager y su configuración - Arquitectura Java](#)



localhost:8080/sample/

Aplicaciones Gmail YouTube Maps

Lista

Sample "Hello, World" Application



This is the home page for a sample application used to illustrate the source directory organization of a web application utilizing the principles outlined in the Application Developer's Guide.

To prove that they work, you can execute either of the following links:

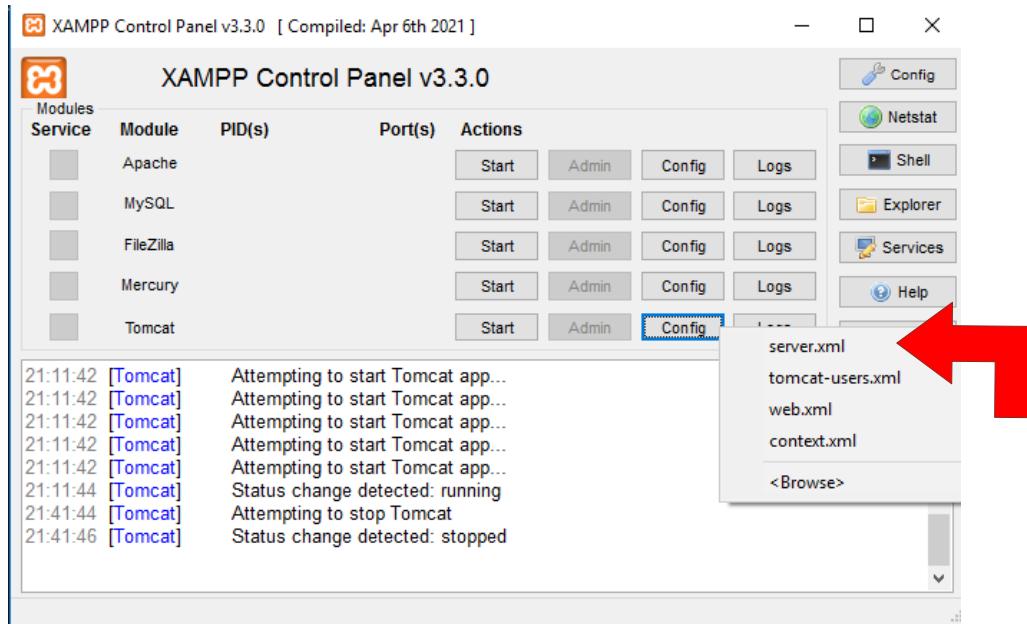
- To a [JSP page](#).
- To a [servlet](#).

1.5 Puerto de escucha

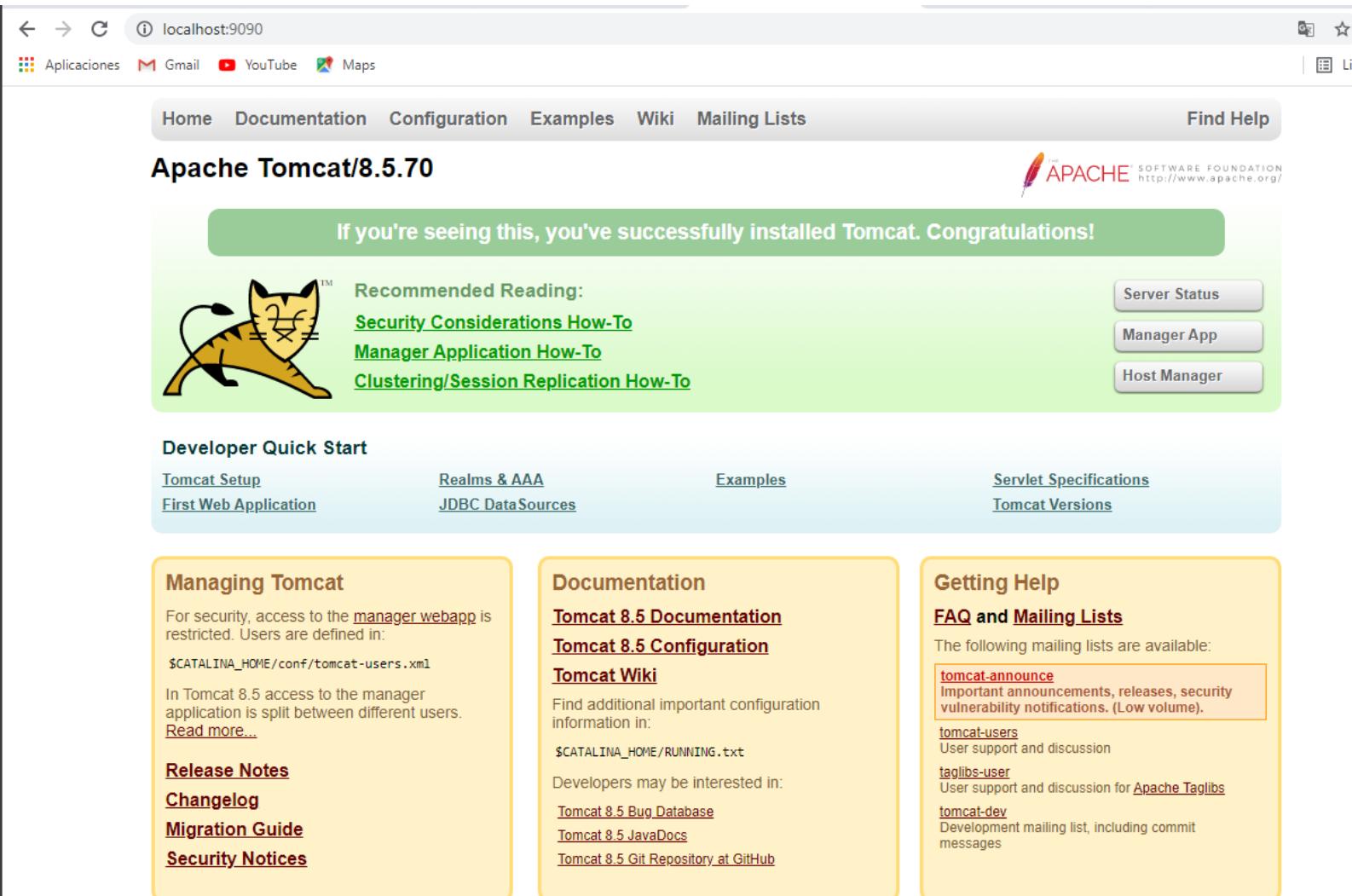
Cambia el puerto donde escucha por defecto de Tomcat

Pista:

[Change the Default Port of the Tomcat Server \(microfocus.com\)](#)



```
so you may not define subcomponents such as "Valves" at this level.  
Documentation at /docs/config/service.html  
-->  
<Service name="Catalina">  
  
<!--The connectors can use a shared executor, you can define one or more named thread |  
<!--  
<Executor name="tomcatThreadPool" namePrefix="catalina-exec-"  
    maxThreads="150" minSpareThreads="4"/>  
-->  
  
<!-- A "Connector" represents an endpoint by which requests are received  
and responses are returned. Documentation at :  
Java HTTP Connector: /docs/config/http.html  
Java AJP Connector: /docs/config/ajp.html  
APR (HTTP/AJP) Connector: /docs/apr.html  
Define a non-SSL/TLS HTTP/1.1 Connector on port 8080  
-->  
<Connector port="9090" protocol="HTTP/1.1" ←  
    connectionTimeout="20000"  
    redirectPort="8443" />  
<!-- A "Connector" using the shared thread pool-->  
<!--
```



The screenshot shows the Apache Tomcat 8.5.70 homepage. At the top, there's a navigation bar with links to Home, Documentation, Configuration, Examples, Wiki, and Mailing Lists, along with a 'Find Help' button. Below the navigation is the Apache logo and the URL <http://www.apache.org/>. A green banner at the top says "If you're seeing this, you've successfully installed Tomcat. Congratulations!". To the left of the banner is a cartoon cat icon. To the right are three buttons: Server Status, Manager App, and Host Manager. The main content area is divided into three columns. The left column, titled "Developer Quick Start", includes links to Tomcat Setup, First Web Application, Realms & AAA, JDBC DataSources, Examples, Servlet Specifications, and Tomcat Versions. The middle column, titled "Documentation", includes links to Tomcat 8.5 Documentation, Tomcat 8.5 Configuration, Tomcat Wiki, and developer information like RUNNING.txt and JavaDocs. The right column, titled "Getting Help", includes links to FAQ and Mailing Lists, and details about various mailing lists: tomcat-announce, tomcat-users, taglibs-user, and tomcat-dev. The footer of the page contains the Apache logo and the URL <http://www.apache.org/>.

2. Instalación, configuración y funcionamiento de Tomcat en Linux

2.1 Instalación

Instala y realiza configuración para que pueda acceder a server status, Manager App y Host Manager
Pistas:

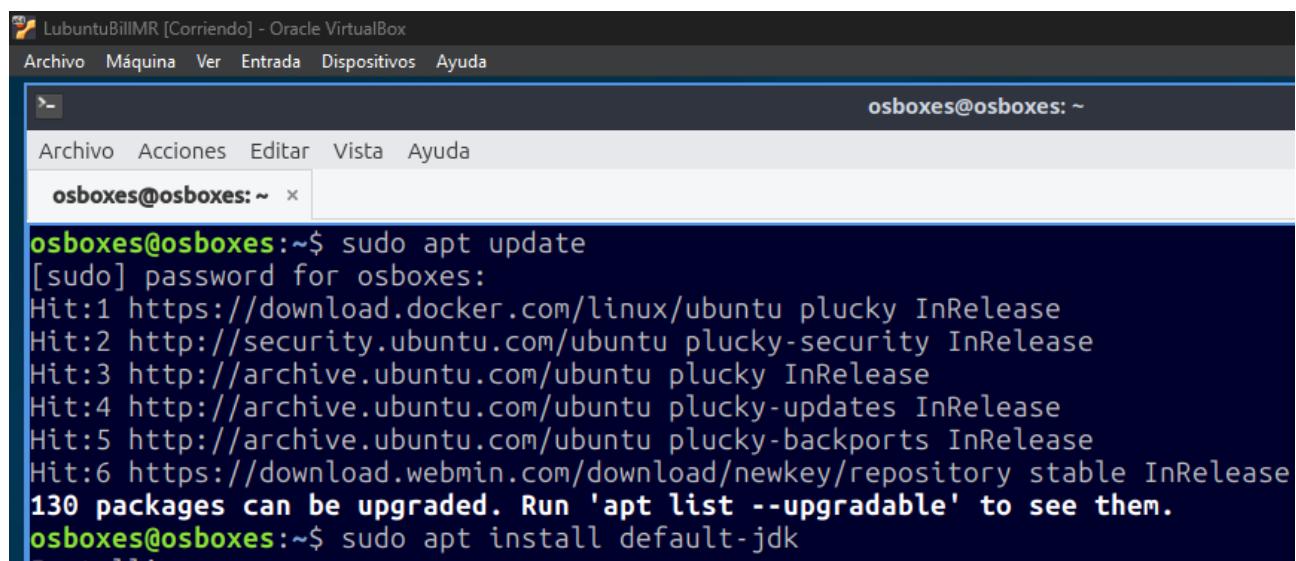
[How to Install Tomcat 11 on Ubuntu 24.04 - Geek Rewind](#)

[How to Install Tomcat 11 on Ubuntu, Debian and Mint](#)

[Apache Tomcat: Complete Guide to Setup and Configuration | Contabo Blog](#)

Paso 1: Instalar el Kit de desarrollo de Java (JDK)

```
osboxes@osboxes:~$ sudo apt update
```



LubuntuBillMR [Corriendo] - Oracle VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

osboxes@osboxes: ~

Archivo Acciones Editar Vista Ayuda

osboxes@osboxes: ~ ×

```
osboxes@osboxes:~$ sudo apt update
[sudo] password for osboxes:
Hit:1 https://download.docker.com/linux/ubuntu plucky InRelease
Hit:2 http://security.ubuntu.com/ubuntu plucky-security InRelease
Hit:3 http://archive.ubuntu.com/ubuntu plucky InRelease
Hit:4 http://archive.ubuntu.com/ubuntu plucky-updates InRelease
Hit:5 http://archive.ubuntu.com/ubuntu plucky-backports InRelease
Hit:6 https://download.webmin.com/download/newkey/repository stable InRelease
130 packages can be upgraded. Run 'apt list --upgradable' to see them.
osboxes@osboxes:~$ sudo apt install default-jdk
```

```
osboxes@osboxes:~$ java -version
openjdk version "21.0.9" 2025-10-21
OpenJDK Runtime Environment (build 21.0.9+10-Ubuntu-125.04)
OpenJDK 64-Bit Server VM (build 21.0.9+10-Ubuntu-125.04, mixed mode, sharing)
```

Crear usuario y directorios para Tomcat

```
osboxes@osboxes:~$ sudo useradd -m -U -d /opt/tomcat -s /bin/false tomcat
```

Descargamos Tomcat desde la web oficial

```
osboxes@osboxes:/tmp$ wget https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.14/bin/apache-tomcat-11.0.14.tar.gz
--2025-12-04 12:53:37-- https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.14/bin/apache-tomcat-11.0.14.tar.gz
Resolving dlcdn.apache.org (dlcdn.apache.org)... 151.101.2.132, 2a04:4e42::644
Connecting to dlcdn.apache.org (dlcdn.apache.org)|151.101.2.132|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 14146369 (13M) [application/x-gzip]
Saving to: 'apache-tomcat-11.0.14.tar.gz'

apache-tomcat-11.0.14.tar.gz 100%[=====] 13.49M 10.9MB/s in 1.2s
2025-12-04 12:53:38 (10.9 MB/s) - 'apache-tomcat-11.0.14.tar.gz' saved [14146369/14146369]
```

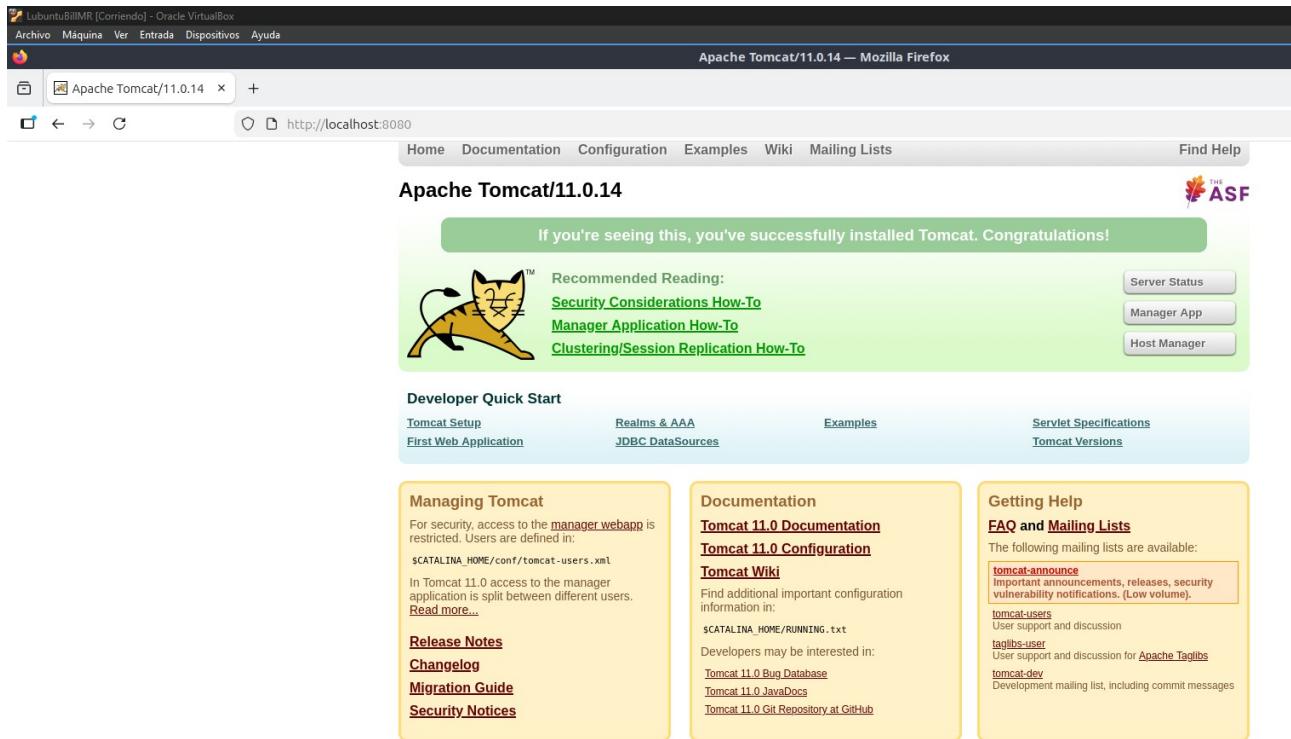
Instalamos

```
osboxes@osboxes:/tmp$ sudo mkdir -p /opt/tomcat
```

```
osboxes@osboxes:/tmp$ sudo tar -xf apache-tomcat-11.0.14.tar.gz -C /opt/tomcat --strip-components=1
```

Arrancamos tomcat

```
osboxes@osboxes:/tmp$ sudo /opt/tomcat/bin/startup.sh
Using CATALINA_BASE:   /opt/tomcat
Using CATALINA_HOME:  /opt/tomcat
Using CATALINA_TMPDIR: /opt/tomcat/temp
Using JRE_HOME:       /usr
Using CLASSPATH:      /opt/tomcat/bin/bootstrap.jar:/opt/tomcat/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
```

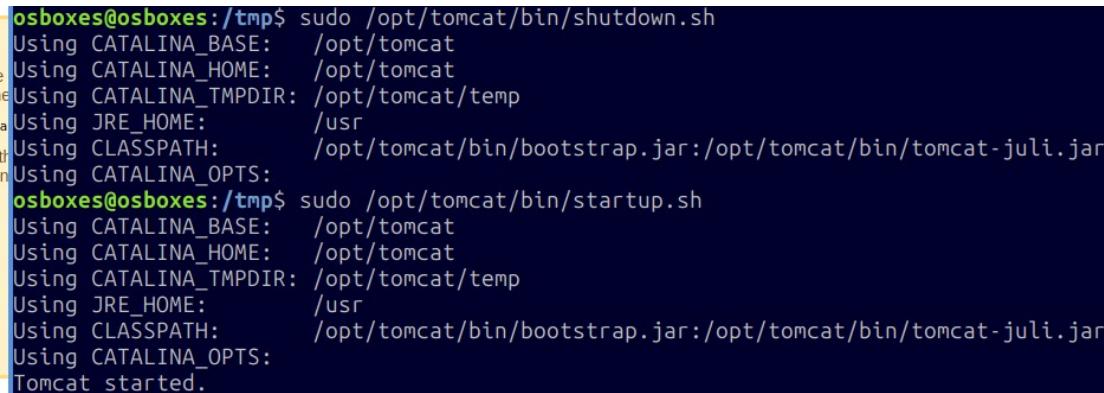


Configurar Manager, Host Manager y Server Status

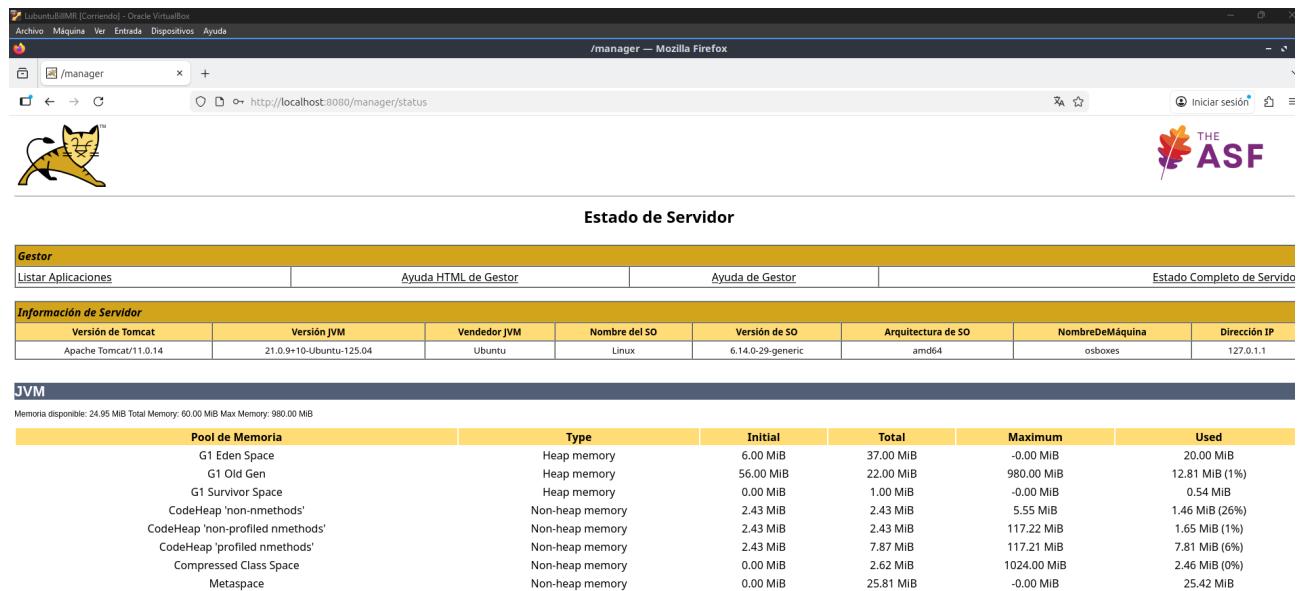
```
osboxes@osboxes: /tmp
Archivo Acciones Editar Vista Ayuda
osboxes@osboxes: /tmp x
GNU nano 8.3          /opt/tomcat/conf/tomcat-users.xml *
<user username="robot" password=<must-be-changed> roles="manager-script"/>
-->
<!--
The sample user and role entries below are intended for use with the
examples web application. They are wrapped in a comment and thus are ignored
when reading this file. If you wish to configure these users for use with the
examples web application, do not forget to remove the <!... ..> that surrounds
them. You will also need to set the passwords to something appropriate.
-->
<!--
<role rolename="tomcat"/>
<role rolename="role1"/>
<user username="tomcat" password=<must-be-changed> roles="tomcat"/>
<user username="both" password=<must-be-changed> roles="tomcat,role1"/>
<user username="role1" password=<must-be-changed> roles="role1"/>
-->
<user username="user" password="1234.Abc" roles="admin-gui,admin,manager,manager-gui"/>
</tomcat-users>
```

```
osboxes@osboxes:/tmp$ sudo /opt/tomcat/bin/shutdown.sh
Using CATALINA_BASE:   /opt/tomcat
Using CATALINA_HOME:  /opt/tomcat
Using CATALINA_TMPDIR: /opt/tomcat/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/tomcat/bin/bootstrap.jar:/opt/tomcat/bin/tomcat-juli.jar
Using CATALINA_OPTS:

osboxes@osboxes:/tmp$ sudo /opt/tomcat/bin/startup.sh
Using CATALINA_BASE:   /opt/tomcat
Using CATALINA_HOME:  /opt/tomcat
Using CATALINA_TMPDIR: /opt/tomcat/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/tomcat/bin/bootstrap.jar:/opt/tomcat/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
```



The screenshot shows a terminal window with a dark background. It displays two sets of commands: `shutdown.sh` and `startup.sh`, both of which output configuration details for Tomcat and then indicate that Tomcat has started.



The screenshot shows a Firefox browser window titled '/manager'. The address bar shows 'http://localhost:8080/manager/status'. The page header includes the Apache Software Foundation logo. The main content area is titled 'Estado de Servidor' (Server Status). It contains several tables: one for 'Información de Servidor' (Server Information) and another for 'JVM' (Java Virtual Machine) memory usage. The 'JVM' table provides detailed information about various memory pools and their usage.

Versión de Tomcat	Versión JVM	Vendedor JVM	Nombre del SO	Versión de SO	Arquitectura de SO	NombreDeMáquina	Dirección IP
Apache Tomcat/11.0.14	21.0.9+10-Ubuntu-125.04	Ubuntu	Linux	6.14.0-29-generic	amd64	osboxes	127.0.1.1

Pool de Memoria	Type	Initial	Total	Maximum	Used
G1 Eden Space	Heap memory	6.00 MiB	37.00 MiB	-0.00 MiB	20.00 MiB
G1 Old Gen	Heap memory	56.00 MiB	22.00 MiB	980.00 MiB	12.81 MiB (1%)
G1 Survivor Space	Heap memory	0.00 MiB	1.00 MiB	-0.00 MiB	0.54 MiB
CodeHeap 'non-nmethod\$'	Non-heap memory	2.43 MiB	2.43 MiB	5.55 MiB	1.46 MiB (26%)
CodeHeap 'non-profiled nmethod\$'	Non-heap memory	2.43 MiB	2.43 MiB	117.22 MiB	1.65 MiB (1%)
CodeHeap 'profiled nmethod\$'	Non-heap memory	2.43 MiB	7.87 MiB	117.21 MiB	7.81 MiB (6%)
Compressed Class Space	Non-heap memory	0.00 MiB	2.62 MiB	1024.00 MiB	2.46 MiB (0%)
Metaspace	Non-heap memory	0.00 MiB	25.81 MiB	-0.00 MiB	25.42 MiB

2.2. Despliegue de aplicación web

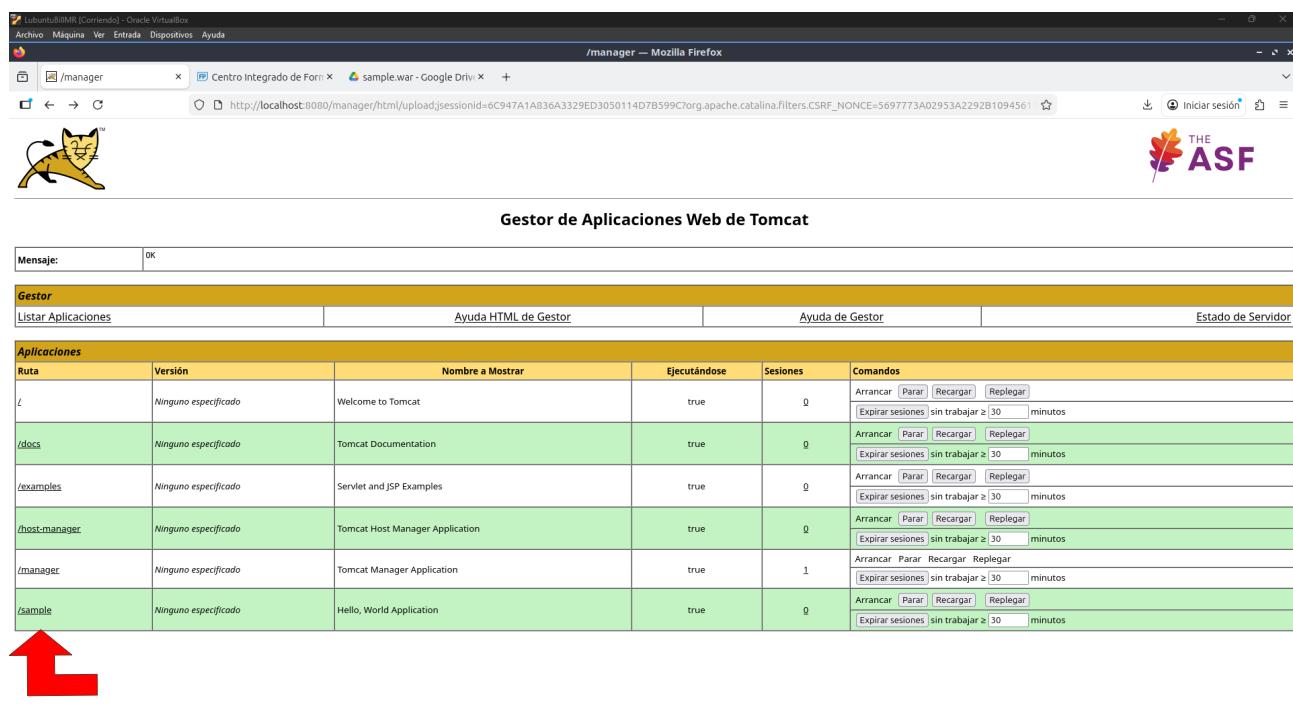
Despliega un fichero Sample.war, y comprueba que puedes acceder a la aplicación

Pistas:

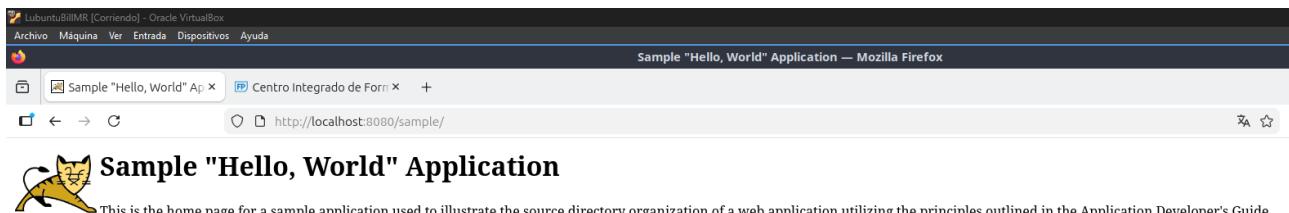
[Apache Tomcat 11 \(11.0.0-M16\) - Tomcat Web Application Deployment](#)

[How to Deploy a WAR File to Tomcat | Baeldung](#)

Archivo WAR a desplegar
Seleccione archivo WAR a cargar <input type="button" value="Browse..."/> sample.war <input type="button" value="Desplegar"/>



The screenshot shows the Apache Tomcat Manager interface. At the top, there is a file upload form with a yellow header 'Archivo WAR a desplegar'. Below it, a message box says 'Mensaje: OK'. The main area is titled 'Gestor de Aplicaciones Web de Tomcat'. It has tabs for 'Gestor', 'Listar Aplicaciones', 'Ayuda HTML de Gestor', 'Ayuda de Gestor', and 'Estado de Servidor'. The 'Listar Aplicaciones' tab is selected, displaying a table of applications. The table has columns: Ruta, Versión, Nombre a Mostrar, Ejecutándose, Sesiones, and Comandos. The 'sample' row, which corresponds to the uploaded 'sample.war' file, is highlighted in green. A red arrow points upwards from the 'sample' row towards the 'Desplegar' button in the upload form.



The screenshot shows a browser window titled 'Sample "Hello, World" Application — Mozilla Firefox'. The address bar shows 'http://localhost:8080/sample/'. The page content includes a logo of a cat and the text: 'Sample "Hello, World" Application'. Below that, it says: 'This is the home page for a sample application used to illustrate the source directory organization of a web application utilizing the principles outlined in the Application Developer's Guide.' A red arrow points to the word 'Application' in the first sentence.

To prove that they work, you can execute either of the following links:

- To a [JSP page](#).
- To a [servlet](#).

3. Securización

Configura para que el acceso sea seguro mediante certificados SSL, accediendo por HTTPS

Pistas:

[A Step-By-Step Guide to Apache Tomcat with SSL Configuration | by Kayathiri Mahendrakumaran | Analytics Vidhya | Medium](#)

[Instalación del certificado SSL en el servidor Apache Tomcat \(sslmarket.es\)](#)

[Apache Tomcat 9 \(9.0.85\) - SSL/TLS Configuration How-To](#)

Crear un certificado SSL autofirmado

```
osboxes@osboxes:/tmp$ sudo keytool -genkey -alias tomcat -keyalg RSA -keystore /opt/tomcat/conf/keystore.jks -keysize 2048 -storepass 1234.Abc -keypass 1234.Abc -dname "CN=localhost, OU=Dev, O=MiEmpresa, L=Ciudad, S=Estado, C=ES"
[sudo] password for osboxes:
Generating 2,048 bit RSA key pair and self-signed certificate (SHA384withRSA) with a validity of 90 days
    for: CN=localhost, OU=Dev, O=MiEmpresa, L=Ciudad, ST=Estado, C=ES
```

Configurar Tomcat para usar HTTPS

```
osboxes@osboxes:/tmp$ sudo nano /opt/tomcat/conf/server.xml
```

```
<Connector port="8443" protocol="org.apache.coyote.http11.Http11NioProtocol"
           maxThreads="150" SSLEnabled="true" scheme="https" secure="true">
    <SSLHostConfig>
        <Certificate certificateKeystoreFile="/opt/tomcat/conf/keystore.jks"
                     certificateKeystorePassword="1234.Abc"
                     type="RSA" />
    </SSLHostConfig>
</Connector>
```

Abrir puerto HTTPS (si aplica)

```
osboxes@osboxes:/tmp$ sudo ufw allow 8443
Rules updated
Rules updated (v6)
```

The screenshot shows the Apache Tomcat 11.0.14 homepage as it appears in Mozilla Firefox. The browser window title is "Apache Tomcat/11.0.14 — Mozilla Firefox". The address bar shows "localhost:8443". The page header includes links for Home, Documentation, Configuration, Examples, Wiki, and Mailing Lists, along with a "Find Help" link and the Apache Software Foundation logo.

The main content area features a green banner with the text "If you're seeing this, you've successfully installed Tomcat. Congratulations!" and a cartoon cat icon. Below the banner, there's a section titled "Recommended Reading" with links to Security Considerations How-To, Manager Application How-To, and Clustering/Session Replication How-To. To the right of this section are three buttons: "Server Status", "Manager App", and "Host Manager".

Below the banner, there's a "Developer Quick Start" section with links to Tomcat Setup, First Web Application, Realms & AAA, JDBC DataSources, Examples, and Servlet Specifications/Tomcat Versions. The "Tomcat Versions" link is underlined.

The page is divided into three main columns:

- Managing Tomcat:** Includes links to manager webapp, \$CATALINA_HOME/conf/tomcat-users.xml, and information about access being restricted between different users. It also lists Release Notes, Changelog, Migration Guide, and Security Notices.
- Documentation:** Includes links to Tomcat 11.0 Documentation, Tomcat 11.0 Configuration, and Tomcat Wiki. It also lists additional configuration information in \$CATALINA_HOME/RUNNING.txt and developer resources like Tomcat 11.0 Bug Database, JavaDocs, and Git Repository at GitHub.
- Getting Help:** Lists mailing lists: tomcat-announce (announcements), tomcat-users (user support), taglibs-user (support for Apache Taglibs), and tomcat-dev (development). It also mentions the Apache Software Foundation.

4. Integración con un IDE

Raliza la integración de Tomcat con un IDE de tu elección (IntelliJ IDEA, Eclipse, Netbeans, Visual Studio Code,...)

Pistas:

[How to Deploy a WAR File to Tomcat | Baeldung](#)

[Visual Studio Code Tomcat y su configuración - Arquitectura Java](#)

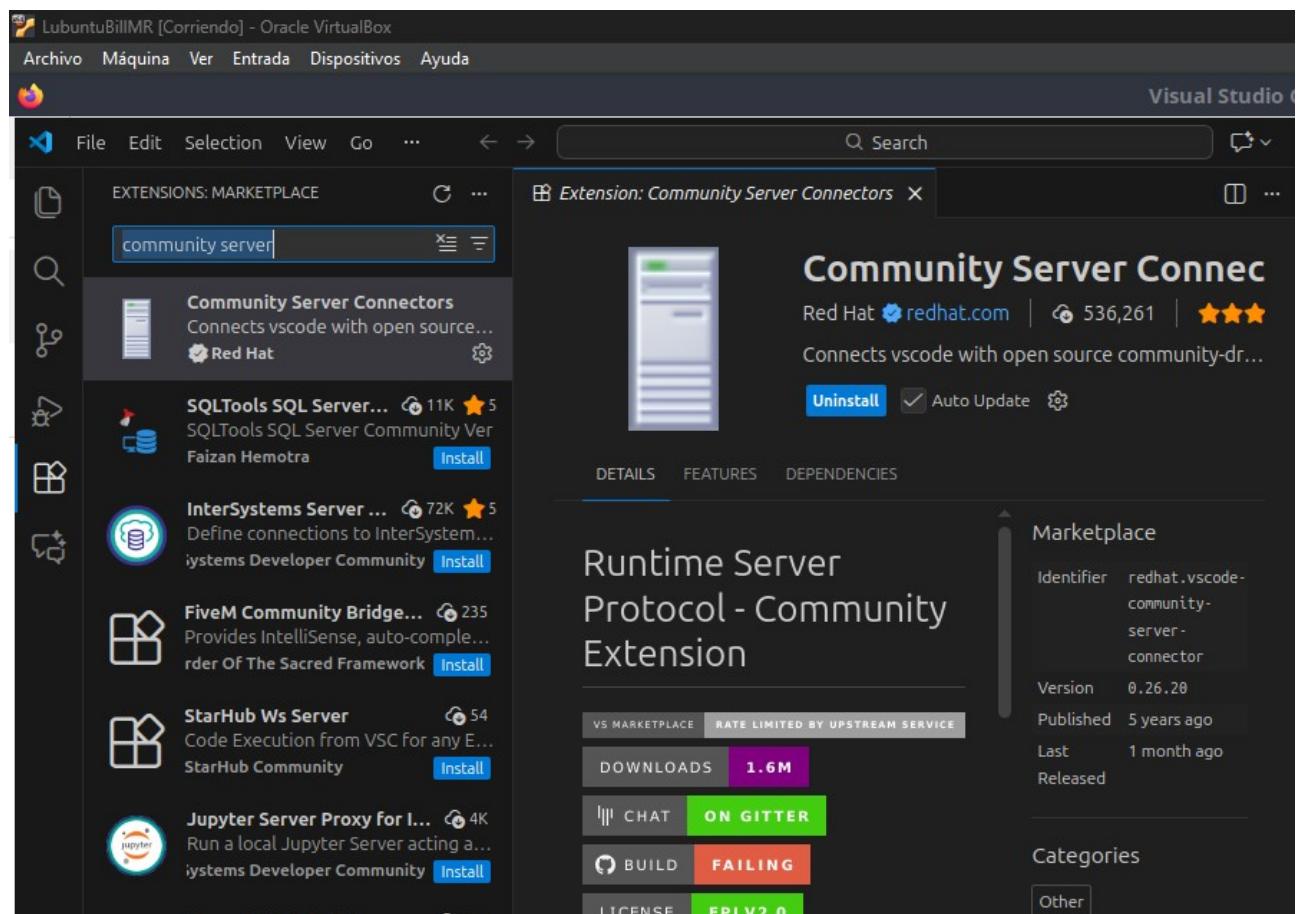
[Instalación de Tomcat y configuración con Visual Studio Code - YouTube](#)

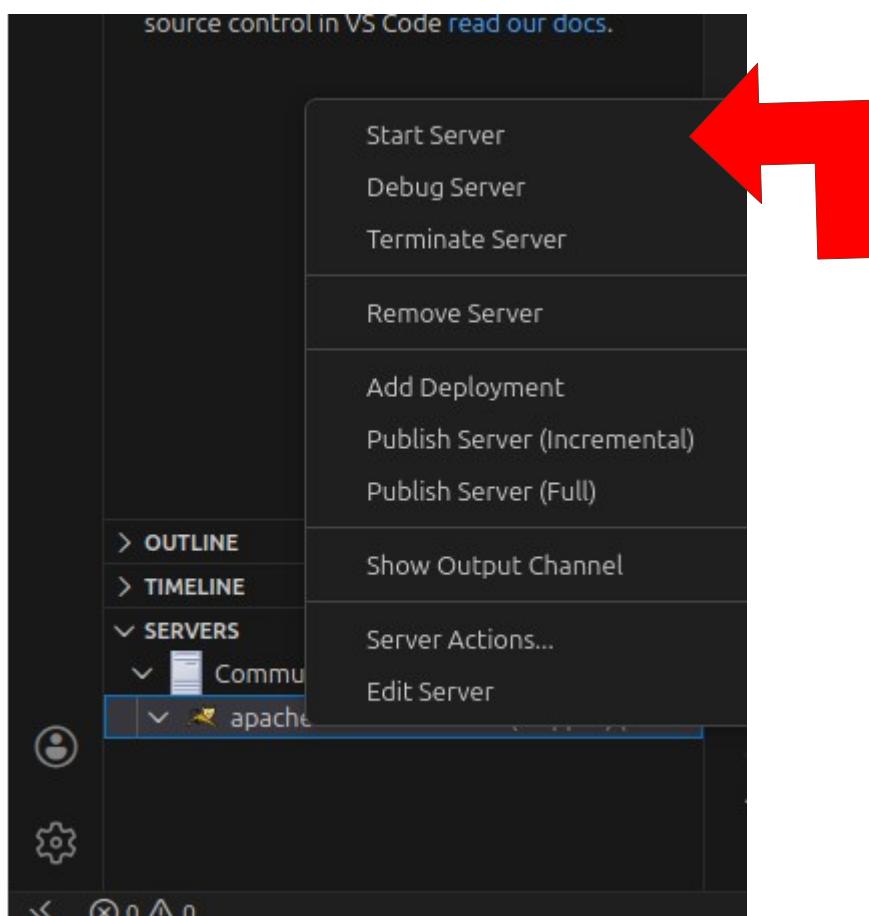
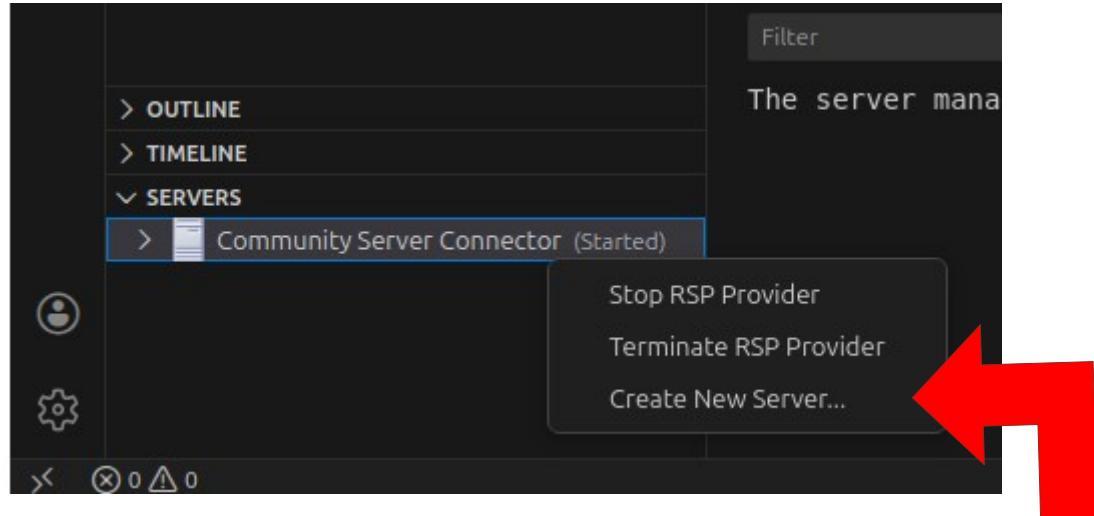
[\(Microsoft Word - Cap\355tulo 6. Eclipse con el plug-in de TOMCAT.doc\) \(us.es\)](#)

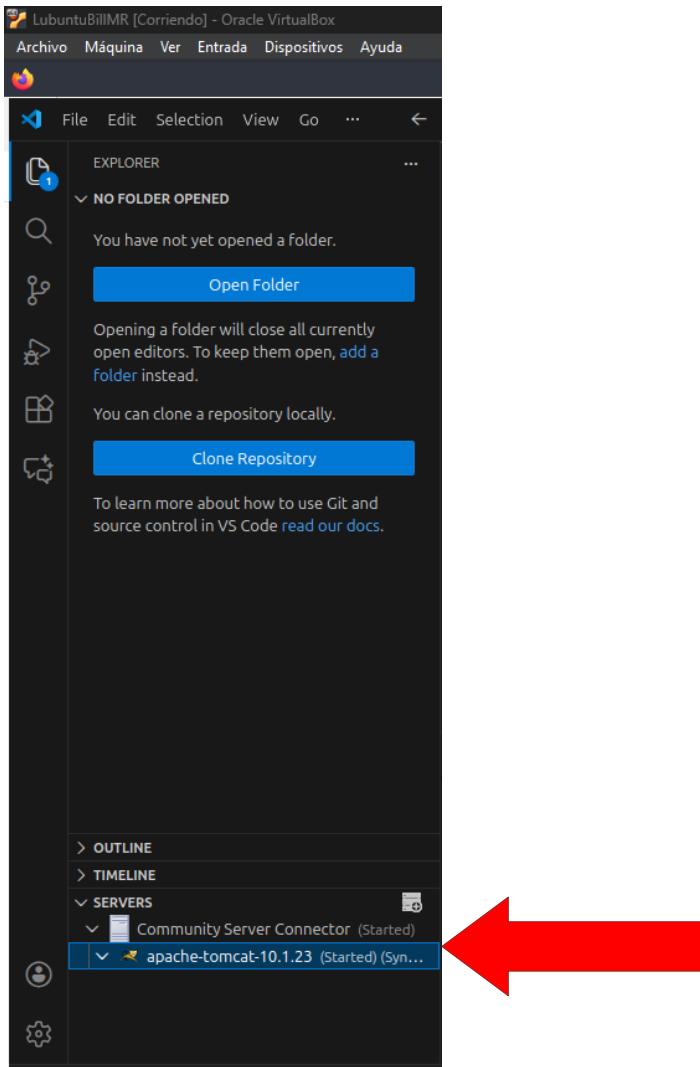
[Cómo configurar Eclipse y Apache Tomcat para desarrollar aplicaciones Java Web - YouTube](#)

[AGREGAR EL SERVIDOR TOMCAT 9 A NETBEANS – VIDEOLCLOUD \(wordpress.com\)](#)

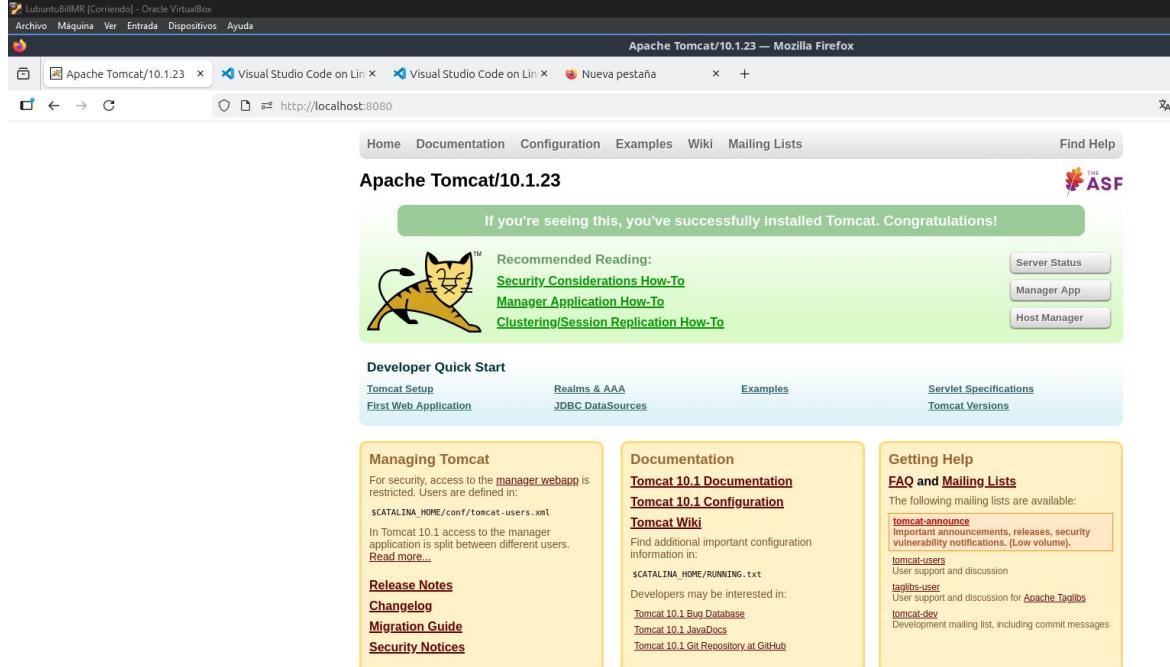
[Instalar y configurar Apache Tomcat 9 en NetBeans - YouTube](#)







The screenshot shows the Visual Studio Code interface with the 'Servers' panel open. A red arrow points to the 'apache-tomcat-10.1.23' entry under the 'Community Server Connector' section, which is labeled as 'Started'. The 'Servers' section also includes an 'Open Folder' button and a 'Clone Repository' button.



The screenshot shows a Mozilla Firefox browser window with the URL <http://localhost:8080>. The page title is 'Apache Tomcat/10.1.23 — Mozilla Firefox'. The main content of the page is:

If you're seeing this, you've successfully installed Tomcat. Congratulations!

Developer Quick Start

- [Tomcat Setup](#)
- [First Web Application](#)
- [Realms & AAA](#)
- [JDBC DataSources](#)
- [Examples](#)
- [Servlet Specifications](#)
- [Tomcat Versions](#)

Managing Tomcat

For security, access to the `manager.webapp` is restricted. Users are defined in: `$CATALINA_HOME/conf/tomcat-users.xml`

In Tomcat 10.1 access to the manager application is split between different users. [Read more...](#)

Release Notes

- [Changelog](#)
- [Migration Guide](#)
- [Security Notices](#)

Documentation

- [Tomcat 10.1 Documentation](#)
- [Tomcat 10.1 Configuration](#)
- [Tomcat Wiki](#)

Find additional important configuration information in: `$CATALINA_HOME/ RUNNING.txt`

Developers may be interested in:

- [Tomcat 10.1 Bug Database](#)
- [Tomcat 10.1 JavaDocs](#)
- [Tomcat 10.1 Git Repository at GitHub](#)

Getting Help

FAQ and Mailing Lists

The following mailing lists are available:

- [tomcat-announce](#): Important announcements, releases, security vulnerability notifications. (Low volume).
- [tomcat-users](#): User support and discussion.
- [taglibs-user](#): User support and discussion for Apache Taglibs.
- [tomcat-dev](#): Development mailing list, including commit messages.

5. Cuestiones

a) ¿Qué versión de Apache Tomcat instalarás dependiendo de tu versión de Java?

Tomcat 9 → Java 8 a 11

- Tomcat 10 → Java 8 a 17
- Tomcat 11 → Java 11 a 21

a.1) Y para la versión 8?

Debes usar **Tomcat 9 o 10**.

a.2) Y para la versión 21?

Debes usar **Tomcat 11**, ya que soporta Java 17 a 21.

b) ¿Qué otros servidores de aplicaciones hay en el mercado? ¿Cuáles son software libre y cuales productos comerciales?

Libres: Tomcat, WildFly, GlassFish, Payara, Jetty

Comerciales: WebSphere, WebLogic, Payara Enterprise

c) Una de las cuestiones a tener en cuenta es el rendimiento de las aplicaciones. ¿Sabrías indicar alguna herramienta para pruebas de carga?

Apache JMeter

d) Otra de las cuestiones a tener en cuenta es la monitorización del servidor de aplicaciones. ¿Sabrías indicarme alguna herramienta para monitorizar tomcat u otro servidor de aplicaciones? ¿Qué indicadores puede interesar monitorizar?

Gratuitas: JConsole, VisualVM, Prometheus + Grafana

Comerciales: New Relic, Dynatrace

Indicadores importantes:

- CPU y memoria JVM
- Heap / non-heap memory
- Threads activos
- Conexiones y sesiones
- Tiempo de respuesta
- Número de peticiones por segundo (Throughput)

- Errores HTTP

Pistas:

[Apache Tomcat® - Which Version Do I Want?](#)

[Apache Tomcat monitoring and integration with Zabbix](#)

[Apache Tomcat Monitoring Guide & 5 Best Tools for 2024 \(comparitech.com\)](#)

[Apache Tomcat - Nagios Exchange](#)

[JMeter vs Other Performance Testing Tools | automateNow](#)

[List of application servers - Wikipedia](#)

[List of application servers - Wikipedia \(aimultiple.com\)](#)

[WebLogic Server | Oracle España](#)

[WebSphere Application Server | IBM](#)

[WildFly](#)