



Installing Apache Tomcat 9 on Ubuntu 20.04

Apache Tomcat software (<https://tomcat.apache.org/>) is a Java-based HTTP server that can run Java technologies like Java Servlet, JavaServer Pages (JSP), and Java Expression Language. The advanced built-in customization options, high flexibility, and impressive stability make the software highly in-demand and a popular pick among developers globally. Let's see what makes Apache Tomcat stand out among competitors:

- **Open-Source**

Apache Tomcat is an open-source application. That means anyone can download, install and use the app free of cost.

- **Lightweight**

The lightweight feature counts as an added advantage when loading and redeployments as We use cookies on our website to give you the most relevant experience by remembering your preferences compared to competitors. and repeat visits. By clicking "Accept", you consent to the use of ALL the cookies. However you may visit Cookie Settings to provide a controlled consent.

- **Flexibility**

The built-in customization option allows the user to customize the app to their liking based on their needs and project requirements.

- **Advanced Security**

Tomcat applications also offer an advanced level of security.

Since its first release (https://en.wikipedia.org/wiki/Apache_Tomcat) in 1998, the Apache Software Foundation has made incredible changes. As a result, the recent release is more stable than ever before. In this tutorial, **you will learn how to install Apache Tomcat 9 on Ubuntu 20.04.**

Prerequisites

Before we go ahead with installing Apache Tomcat on your Ubuntu system, make sure you have the following:

- An Ubuntu server- you can follow the steps to set up your server from our tutorial (<https://blog.cloudsigma.com/how-to-set-up-your-ubuntu-18-04-server/>).
- A non-root user with sudo (<https://blog.cloudsigma.com/configuring-the-linux-sudoers-file/>)privileges set up on your server (<https://blog.cloudsigma.com/configuring-the-linux-sudoers-file/>).

You are all set now. Next, keep following the steps below to install Apache Tomcat on Ubuntu 20.04

Step 1 – Install Java

First, verify if Java is already installed in your system using the command:

```
1 java -version  
  
cloudsigma@server:~$ java -version  
Command 'java' not found, but can be installed with:  
sudo apt install openjdk-11-jre-headless # version 11.0.14+9-0ubuntu2~20.04, or
```

(<https://blog.cloudsigma.com/wp-content/uploads/3-1.jpg>).

If Java is not installed in your system, then you need to install it in order to execute Java-based applications. You can install the Java Development Kit using the following command and repeat visits. By clicking “Accept”, you consent to the use of ALL the cookies. However you may visit [Cookie Settings](https://www.cookieconsent.com/privacy-policy.html) to provide a controlled consent.

[Cookie settings](#)

ACCEPT

```
cloudsigma@server:~$ sudo apt install default-jre
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  at-spi2-core ca-certificates-java default-jre-headless fontconfig-config
```

(<https://blog.cloudsigma.com/wp-content/uploads/3.jpg>).

Once the installation is complete, verify using the command:

```
1 java -version
```

```
cloudsigma@server:~$ java -version
openjdk version "11.0.14" 2022-01-18
OpenJDK Runtime Environment (build 11.0.14+9-Ubuntu-0ubuntu2.20.04)
OpenJDK 64-Bit Server VM (build 11.0.14+9-Ubuntu-0ubuntu2.20.04, mixed mode, sharing)
```

(<https://blog.cloudsigma.com/wp-content/uploads/3-1-1.jpg>).

Once the installation is complete, it's time to create a `tomcat` user account. For security purposes, it is advisable to run Tomcat with non-root privileges. Remember, if any of the page scripts have root privileges, you can easily modify the hard disk file completely with the page scripts. Next, we will create a new user and group that will run the Tomcat services.

Step 2 – Create & Set-Up Tomcat User

We will create a new user and group that will use all the Tomcat services. We will name the new group `tomcat` using the following command:

```
1 sudo groupadd tomcat
```

After creating a group name, we will create a new `tomcat` user and then add the user to the group `tomcat`:

- Create a new `tomcat` user.
- Add the user membership to the `tomcat` group.

When adding the user to the `tomcat` group, make sure to keep it confidential, so that no one can access your `tomcat` account. For security concerns, keep the user in the home directory where we are going to install `tomcat` (`/opt/tomcat`) and add a shell `/bin/false`:

```
1 sudo useradd -s /bin/false -g tomcat -d /opt/tomcat tomcat
```

Once our account setup is complete, let's move forward and install Tomcat:

```
cloudsigma@server:~$ sudo groupadd tomcat
```

We use <https://www.cookieconsent.com/privacy-policy/cookie-consent-for-privacy-compliance/> to manage cookie consent across our sites. By accepting this notice you consent to the use of cookies. You can view and manage your cookie choices in the cookie settings. By clicking "Accept", you consent to the use of ALL the cookies. However you may visit [Cookie Settings](#) to provide a controlled consent.

[Cookie settings](#)

[ACCEPT](#)

Step 3 – Install Tomcat

We are going to install Tomcat from Tomcat's [official website](#) (<https://tomcat.apache.org/download-80.cgi>). To harness its full potential, download the latest version. To upgrade to the most stable version available, go to the **Binary Distributions** section, scroll over to the **Core** list, and then copy the link to the "tar.gz". Once done, change the directory to `/tmp`:

```
1 cd /tmp
```

Next, using the `curl` command, download Tomcat from the official website as stated above:

```
1 sudo curl -O https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.60/bin/apache-tomcat-9
```

Let's install Tomcat under the `/opt/tomcat` directory. After creating the directory, extract the archive using the following command:

```
1 sudo mkdir /opt/tomcat
2 sudo tar xzvf apache-tomcat-9.0.60.tar.gz -C /opt/tomcat --strip-components=1
```

```
cloudsigma@server:/tmp$ sudo curl -O https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.60/bin/apache-tomcat-9.0.60.tar.gz
% Total    % Received % Xferd  Average Speed   Time     Time      Current
          Dload  Upload Total Spent   Left Speed
100 11.0M 100 11.0M    0     0  36.4M    0 --:--:-- --:--:-- 36.4M
cloudsigma@server:/tmp$ sudo tar xzvf apache-tomcat-9.0.60.tar.gz -C /opt/tomcat --strip-components=1
apache-tomcat-9.0.60/conf/
apache-tomcat-9.0.60/conf/catalina.policy
apache-tomcat-9.0.60/conf/catalina.properties
apache-tomcat-9.0.60/conf/context.xml
apache-tomcat-9.0.60/conf/jaspic-providers.xml
apache-tomcat-9.0.60/conf/jaspic-providers.xsd
apache-tomcat-9.0.60/conf/logging.properties
```

(<https://blog.cloudsigma.com/wp-content/uploads/3-3.jpg>)

Step 4 – Update Permissions

After installing Tomcat in your system, you need to set permissions for the newly created `tomcat` user. Use the following command to change to the directory where we unpacked the Tomcat installation:

```
1 cd /opt/tomcat
```

Next, permit the `tomcat` group ownership over the entire installation directory:

```
1 sudo chgrp -R tomcat /opt/tomcat
2 sudo chmod -R g+r conf
3 sudo chmod g+x conf
```

We use cookies on our website to give you the most relevant experience by remembering your preferences. Once done, make the `tomcat` user the owner of the `webapps`, `work`, `temp`, and `logs` and repeat visits. By clicking "Accept", you consent to the use of ALL the cookies. However you may visit [Cookie Settings](#) to provide a controlled consent.

```
1 sudo chown -R tomcat webapps temp logs
```

```
cloudsigma@server:/tmp$ cd /opt/tomcat
cloudsigma@server:/opt/tomcat$ sudo chgrp -R tomcat /opt/tomcat
cloudsigma@server:/opt/tomcat$ sudo chmod -R g+r conf
cloudsigma@server:/opt/tomcat$ sudo chmod g+x conf
cloudsigma@server:/opt/tomcat$ sudo chown -R tomcat webapps/ work/ temp/ logs
```

(<https://blog.cloudsigma.com/wp-content/uploads/3-4.jpg>).

After setting up all the required permissions, the next step is to create a systemd service file to manage the Tomcat process and to run Tomcat as a service.

Step 5 – Create a systemd Unit File

Although we are done with installing Java, Tomcat needs to know where Java is installed. To know the Java installation location run the following command:

```
1 sudo update-java-alternatives -l
```

The output should look like this:

```
cloudsigma@server:/opt/tomcat$ sudo update-java-alternatives -l
java-1.11.0-openjdk-amd64      1111      /usr/lib/jvm/java-1.11.0-openjdk-amd64
```

(<https://blog.cloudsigma.com/wp-content/uploads/3-5.jpg>).

The highlighted part is `JAVA_Home` as shown below:

```
1 /usr/lib/jvm/java-1.11.0-openjdk-amd64
```

Next, we will create a systemd service file. Open a file named `tomcat.service` from the directory `/etc/systemd/system` using the following command:

```
1 sudo nano /etc/systemd/system/tomcat.service
```

Use VI editor to edit the file and modify the `JAVA_Home` by your `JAVA_Home` location:

```
[Unit]
Description=Apache Tomcat Web Application Container
After=network.target

[Service]
Type=forking
Environment=JAVA_HOME=/usr/lib/jvm/java-1.11.0-openjdk-amd64
Environment='CATALINA_OPTS=-Xms512M -Xmx1024M -server -XX:+UseParallelGC'
Environment='JAVA_OPTS=-Djava.awt.headless=true -Djava.security.egd=file:/dev/.urandom'

ExecStart=/opt/tomcat/bin/startup.sh
ExecStop=/opt/tomcat/bin/shutdown.sh

User=tomcat
Group=tomcat
UMask=0007
RestartSec=10
```

We use [cookies](#) on our website to give you the most relevant experience by remembering your preferences and repeat visits. By clicking “Accept”, you consent to the use of ALL the cookies. However you may visit [Cookie Settings](#) to provide a controlled consent.

[Cookie settings](#)

ACCEPT

```

GNU nano 4.8                               /etc/systemd/system/tomcat.service
[Unit]
Description=Apache Tomcat Web Application Container
After=network.target

[Service]
Type=forking

Environment=JAVA_HOME=/usr/lib/jvm/java-1.11.0-openjdk-amd64
Environment=CATALINA_PID=/opt/tomcat/temp/tomcat.pid
Environment=CATALINA_HOME=/opt/tomcat
Environment=CATALINA_BASE=/opt/tomcat
Environment='CATALINA_OPTS=-Xms512M -Xmx1024M -server -XX:+UseParallelGC'
Environment='JAVA_OPTS=-Djava.awt.headless=true -Djava.security.egd=file:/dev/./urandom'
ExecStart=/opt/tomcat/bin/startup.sh
ExecStop=/opt/tomcat/bin/shutdown.sh

User=tomcat
Group=tomcat
UMask=0007
RestartSec=10
Restart=always

[Install]
WantedBy=multi-user.target

```

(<https://blog.cloudsigma.com/wp-content/uploads/3-6.jpg>).

After adding `JAVA_Home`, save and close the file. Next, reload the systemd daemon so that it knows about our service file:

```
1 sudo systemctl daemon-reload
```

Next, start the Tomcat service using the following command:

```
1 sudo systemctl start tomcat
```

Step 6 – Firewall Configuration

After creating the systemd unit file, it's time to configure the firewalls. Firewall configurations are essential in enabling our requests and access to the Tomcat service. If you have correctly followed the guide, then it's certain that you already have a `ufw` firewall enabled.

Tomcat uses the port `8080` to accept conventional requests. Allow traffic to that port using the command:

```
1 sudo ufw allow 8080
```

```
cloudsigma@server:/opt/tomcat$ sudo ufw allow 8080
Rule added
Rule added (v6)
```

(<https://blog.cloudsigma.com/wp-content/uploads/3-8.jpg>).

The modified firewall enables you to access the default splash page in the IP address followed by `:8080`. You can open in a web browser by going to the IP as shown below:

```
1 http://server_domain_or_IP:8080
```

Once you open the link, you will find the default Tomcat splash page besides other relevant details. On clicking the Manager App link, you will see denied access. We can configure the cookie settings to provide a controlled consent. so that Tomcat automatically starts at boot:

Cookie settings	ACCEPT
---------------------------------	------------------------

```
1 sudo ufw allow 8080
```

Step 7 – Tomcat Web Management Interface Configuration

To use the manager web app that comes with Tomcat, we have to add a login to our Tomcat server. We can do that by editing the `tomcat-users.xml` file as shown below:

```
1 sudo nano /opt/tomcat/conf/tomcat-users.xml
```

```
GNU nano 4.8                               /opt/tomcat/conf/tomcat-users.xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
Licensed to the Apache Software Foundation (ASF) under one or more
contributor license agreements. See the NOTICE file distributed with
this work for additional information regarding copyright ownership.
The ASF licenses this file to You under the Apache License, Version 2.0
(the "License"); you may not use this file except in compliance with
the License. You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
-->
<tomcat-users xmlns="http://tomcat.apache.org/xml"
               xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
               xsi:schemaLocation="http://tomcat.apache.org/xml tomcat-users.xsd">
```

(<https://blog.cloudsigma.com/wp-content/uploads/1-44.png>)

Tomcat comes up with web apps that enable the user to access the `manager-gui` and `admin-gui`. You can define a user between the `tomcat-users` tags as shown below:

```
1 <tomcat-users . . .>
2 <user username="admin" password="password" roles="manager-gui,admin-gui"/>
3 </tomcat-users>
```

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

(<https://blog.cloudsigma.com/wp-content/uploads/1-1-14.png>)

Save and close the file once done.

All the recent versions of Tomcat restrict access to the Manager and Host Manager apps to connections coming from the server itself. To change the IP address restrictions on these, open the appropriate `context.xml` files. To access the Manager app, use the command:

We use cookies on our website to give you the most relevant experience by remembering your preferences and repeat visits. By clicking “Accept”, you consent to the use of ALL the cookies. However you may visit Next, to access the Host Manager app, use the command:
Cookie Settings to provide a controlled consent.

```
1 sudo nano /opt/tomcat/webapps/host-manager/META-INF/context.xml
```

Cookie settings ACCEPT

Based on your needs, you can choose to accept or deny connections. You can comment on the IP address restrictions to allow connections from anywhere. Otherwise, you can add the public IP address to the list to access connections coming from your IP address:

```
1 <Context antiResourceLocking="false" privileged="true" >
2   <!--<Valve className="org.apache.catalina.valves.RemoteAddrValve"
3     allow="127\\.\\d+\\.\\d+\\.\\d+|::1|0:0:0:0:0:0:1" /-->
4 </Context>
```

```
GNU nano 4.8          /opt/tomcat/webapps/host-manager/META-INF/context.xml
The ASF licenses this file to You under the Apache License, Version 2.0
(the "License"); you may not use this file except in compliance with
the License. You may obtain a copy of the License at

  http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
-->
<Context antiResourceLocking="false" privileged="true" >
  <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcessor"
    sameSiteCookies="strict" />
  <Valve className="org.apache.catalina.valves.RemoteAddrValve"
    allow="127\\.\\d+\\.\\d+\\.\\d+|::1|0:0:0:0:0:0:1" />
  <Manager sessionAttributeValueClassNameFilter="java\\.lang\\.\\(?:Boolean|Integer|Long|Number|String)|org\\.>
</Context>
```

(<https://blog.cloudsigma.com/wp-content/uploads/1-2-10.png>).

Save and close the files when you are finished. To reflect the changes you have made, restart the Tomcat service using the following command:

```
1 sudo systemctl restart tomcat
```

Step 8—Web Interface Access

After creating the Tomcat user, we can now access the web management interface. Once again, you can access the interface by going to the server's domain name or IP address followed by port **8080**:

```
1 http://server_domain_or_IP:8080
```

When you click on this url, you will see a page as shown below:

We use cookies on our website to give you the most relevant experience by remembering your preferences and repeat visits. By clicking “Accept”, you consent to the use of ALL the cookies. However you may visit Cookie Settings to provide a controlled consent.

[Cookie settings](#)

[ACCEPT](#)

Apache Tomcat/9.0.35



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



Recommended Reading:

[Security Considerations How-To](#)

[Manager Application How-To](#)

[Clustering/Session Replication How-To](#)

[Server Status](#)

[Manager App](#)

[Host Manager](#)

Developer Quick Start

[Tomcat Setup](#)

[Realms & AAA](#)

[Examples](#)

[Servlet Specifications](#)

[First Web Application](#)

[JDBC Data Sources](#)

[Tomcat Versions](#)

(<https://blog.cloudsigma.com/wp-content/uploads/3-9.jpg>).

You can access the Tomcat web apps by adding the account credentials that you added to the `tomcat-users.xml`. To access the Manager app, use the link:

1 http://server_domain_or_IP:8080/manager/html

When you click on this URL, you will see a page as shown below:

Tomcat Web Application Manager

Message: OK

Manager

List Applications		HTML Manager Help	Manager Help	Server Status	
Applications					
Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/docs	None specified	Tomcat Documentation	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/examples	None specified	Servlet and JSP Examples	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/host-manager	None specified	Tomcat Host Manager Application	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

Deploy

Deploy directory or WAR file located on server

Context Path (required):
XML Configuration file URL:
WAR or Directory URL:

WAR file to deploy

Select WAR file to upload Choose File No file chosen

We use cookies on our website to give you the most relevant experience by remembering your preferences and repeat visits. By clicking "Accept", you consent to the use of ALL the cookies. However you may visit [Cookie Settings](https://blog.cloudsigma.com/wp-content/uploads/3-10-3.png) to provide controlled consent.

To access the Host Manager app, use the link:

[Cookie settings](#)

[ACCEPT](#)

1 http://server_domain_or_IP:8080/host-manager/html

When you click on this URL, you will see a page as shown below:

The screenshot shows the Tomcat Virtual Host Manager interface. At the top, there is a message box with 'Message: OK'. Below it is a navigation bar with tabs: 'Host Manager' (selected), 'List Virtual Hosts', 'HTML Host Manager Help (TODO)', 'Host Manager Help (TODO)', and 'Server Status'. The main area is divided into sections: 'Host name' (listing 'localhost' with note 'Host Manager installed - commands disabled'), 'Add Virtual Host' (form fields for Name, Aliases, App base, and various deployment checkboxes like AutoDeploy, DeployOnStartup, DeployXML, UnpackWARs, Manager App, and CopyXML, with an 'Add' button), and 'Server Information' (table showing Tomcat Version: Apache Tomcat/8.0.33, JVM Version: 1.8.0_03-Ubuntu-8u77-b03-3ubuntu3-b03, JVM Vendor: Oracle Corporation, OS Name: Linux, OS Version: 4.4.0-21-generic, OS Architecture: amd64).

(<https://blog.cloudsigma.com/wp-content/uploads/3-11-2.png>)

Conclusion

Your installation of Tomcat is now complete. You can freely deploy your own Java web applications and enhance your digital experience. You will find out that working on Apache Tomcat is much faster while loading and redeploying when compared to its alternatives. However, it is unsuitable when working with static pages.

For more resources on applying Apache-based servers check out [our blog](#) (<https://blog.cloudsigma.com/blog/>):

- [A Guide on the mod_proxy Extension: Using Apache as a Reverse Proxy](#) (https://blog.cloudsigma.com/a-guide-on-the-mod_proxy-extension-using-apache-as-a-reverse-proxy/).
- [The World of Web Servers: Apache vs. Nginx](#) (<https://blog.cloudsigma.com/the-world-of-web-servers-apache-vs-nginx/>).
- [Setting Up Apache Virtual Hosts on Ubuntu 20.04](#) (<https://blog.cloudsigma.com/setting-up-apache-virtual-hosts-on-ubuntu-20-04/>).
- [Installing the Apache Web Server on CentOS 7](#) (<https://blog.cloudsigma.com/installing-the-apache-web-server-on-centos-7/>)

We use cookies on our website to give you the most relevant experience by remembering your preferences and repeat visits. By clicking "Accept", you consent to the use of ALL the cookies. However you may visit [Cookie Settings](#) to provide a controlled consent.

Happy Computing!

[Cookie settings](#)

ACCEPT



About Hark Labs

Software Engineer and enthusiast about new technologies

[APACHE TOMCAT \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/APACHE-TOMCAT/\)](https://blog.cloudsigma.com/tag/apache-tomcat/)

[APACHE TOMCAT 9 \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/APACHE-TOMCAT-9/\)](https://blog.cloudsigma.com/tag/apache-tomcat-9/)

[AUTOMATED FAILOVER \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/AUTOMATED-FAILOVER/\)](https://blog.cloudsigma.com/tag/automated-failover/)

[CLOUD TUTORIAL \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/CLOUD-TUTORIAL/\)](https://blog.cloudsigma.com/tag/cloud-tutorial/)

[HTTP SERVER \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/HTTP-SERVER/\)](https://blog.cloudsigma.com/tag/http-server/)

[INSTALL APACHE TOMCAT \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/INSTALL-APACHE-TOMCAT/\)](https://blog.cloudsigma.com/tag/install-apache-tomcat/)

[INSTALL TOMCAT \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/INSTALL-TOMCAT/\)](https://blog.cloudsigma.com/tag/install-tomcat/)

[JAVA \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/JAVA/\)](https://blog.cloudsigma.com/tag/java/)

[JDK \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/JDK/\)](https://blog.cloudsigma.com/tag/jdk/)

[JRE \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/JRE/\)](https://blog.cloudsigma.com/tag/jre/)

[OPEN SOURCE \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/OPEN-SOURCE/\)](https://blog.cloudsigma.com/tag/open-source/)

[OPENSOURCE TOOLS \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/OPENSOURCE-TOOLS/\)](https://blog.cloudsigma.com/tag/opensource-tools/)

[SECURITY \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/SECURITY/\)](https://blog.cloudsigma.com/tag/security/)

[SUDO \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/SUDO/\)](https://blog.cloudsigma.com/tag/sudo/)

[TOMCAT \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/TOMCAT/\)](https://blog.cloudsigma.com/tag/tomcat/)

[TOMCAT USER \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/TOMCAT-USER/\)](https://blog.cloudsigma.com/tag/tomcat-user/)

[TUTORIAL \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/TUTORIAL/\)](https://blog.cloudsigma.com/tag/tutorial/)

[UBUNTU \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/UBUNTU/\)](https://blog.cloudsigma.com/tag/ubuntu/)

[UBUNTU SERVER \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/UBUNTU-SERVER/\)](https://blog.cloudsigma.com/tag/ubuntu-server/)

[USERADD \(HTTPS://BLOG.CLOUDSIGMA.COM/TAG/USERADD/\)](https://blog.cloudsigma.com/tag/useradd/)

We use cookies on our website to give you the most relevant experience by remembering your preferences and repeat visits. By clicking “Accept”, you consent to the use of ALL the cookies. However you may visit Cookie Settings to provide a controlled consent.

[Blog Posts \(https://blog.cloudsigma.com/category/blog-posts/\)](https://blog.cloudsigma.com/category/blog-posts/)

[Cookie settings](#)

[ACCEPT](#)

[Business Continuity](https://blog.cloudsigma.com/category/business-continuity/)

[Customer Success Story](https://blog.cloudsigma.com/category/customer-success-story/)

[Databases](https://blog.cloudsigma.com/category/databases/)

[IaaS](https://blog.cloudsigma.com/category/iaas/)

[Networking](https://blog.cloudsigma.com/category/networking/)

[OS-level Virtualization / Containers](https://blog.cloudsigma.com/category/os-level-virtualization-containers/)

[PaaS](https://blog.cloudsigma.com/category/paas/)

[Partner Success Story](https://blog.cloudsigma.com/category/partner-success-story/)

[Press Releases](https://blog.cloudsigma.com/category/press-releases/)

[Pressemitteilungen](https://blog.cloudsigma.com/category/pressemitteilungen/)

[Programming & DevOps](https://blog.cloudsigma.com/category/programming-devops/)

[Research & Innovation Projects](https://blog.cloudsigma.com/category/research-innovation-projects/)

[Security & Privacy](https://blog.cloudsigma.com/category/security-privacy/)

[Software & Tools](https://blog.cloudsigma.com/category/software-tools/)

[Storage](https://blog.cloudsigma.com/category/storage/)

[Tutorials](https://blog.cloudsigma.com/category/tutorials/)

[Usage & Billing](https://blog.cloudsigma.com/category/usage-billing/)

[Video](https://blog.cloudsigma.com/category/video/)

[Webinars](https://blog.cloudsigma.com/category/video/webinars/)

[HOME \(HTTPS://BLOG.CLOUDSIGMA.COM/DEMO-HOME/\)](https://blog.cloudsigma.com/demo-home/)

[LEGAL \(HTTPS://BLOG.CLOUDSIGMA.COM/LEGAL-SWITZERLAND/\)](https://blog.cloudsigma.com/legal-switzerland/)

[FEATURES \(HTTPS://BLOG.CLOUDSIGMA.COM/FEATURES/\)](https://blog.cloudsigma.com/features/)

[IAAS PRICING \(HTTPS://BLOG.CLOUDSIGMA.COM/PRICING/\)](https://blog.cloudsigma.com/pricing/)

[ABOUT CLOUDSIGMA \(HTTPS://BLOG.CLOUDSIGMA.COM/ABOUT/\)](https://blog.cloudsigma.com/about/)

[PARTNERS \(HTTPS://BLOG.CLOUDSIGMA.COM/CLOUD-HOSTING-PARTNER-PROGRAM/\)](https://blog.cloudsigma.com/partners/)

We use cookies on our website to give you the most relevant experience by remembering your preferences and repeat visits. By clicking "Accept" you consent to the use of all the cookies. However you may visit PARTNERS (HTTPS://BLOG.CLOUDSIGMA.COM/CLOUD-HOSTING-PARTNER-PROGRAM/)

Cookie Settings to provide a controlled consent.

[STATUS \(HTTPS://STATUS.CLOUDSIGMA.COM/\)](https://status.cloudsigma.com/)

[CLOUD TUTORIALS \(HTTPS://BLOG.CLOUDSIGMA.COM/COMMUNITY/TUTORIALS/\)](https://cloudsigma.com/community/tutorials/)

[QUESTIONS \(HTTPS://BLOG.CLOUDSIGMA.COM/COMMUNITY/QUESTIONS-AND-ANSWERS/\)](https://cloudsigma.com/community/questions-and-answers/)

[BLOG \(HTTPS://BLOG.CLOUDSIGMA.COM/BLOG/\)](https://blog.cloudsigma.com/blog/)

[CAREERS \(HTTPS://CLOUDSIGMA.COM/CAREERS/\)](https://cloudsigma.com/careers/)

[Cookie settings](#)

[!\[\]\(aeab325055073a3fa4383314ed10d8af_img.jpg\)](https://www.facebook.com/CloudSigma)
[!\[\]\(950b61305aa41cdc30f0c5ddb832ded4_img.jpg\)](https://twitter.com/CloudSigma)
[!\[\]\(55f6c33bfa7ec22eb98619a956ee838f_img.jpg\)](https://www.linkedin.com/company/cloudsigma-ag)
[!\[\]\(d6a405943cef7c872189e5545b7f8d56_img.jpg\)](https://www.youtube.com/cloudsigma)
[!\[\]\(4224abc0234a69b43db6f41df3b04059_img.jpg\)](https://www.instagram.com/cloudsigmahq/)
[!\[\]\(bb20d06e23e6db92cbf9d0dd6ce4e38d_img.jpg\)](https://blog.cloudsigma.com/feed/)



https://marketplace.intel.com/s/partner/a5S3b0000002kE0EAI/cloudsigma?language=en_US&wapkw=cloudsigma



<https://blog.cloudsigma.com/cloudsigma-with-hpe-delivers-innovative-cloud-services-around-the-globe/>

<https://blog.cloudsigma.com/iso-27001-information-security-certified-cloud/>

<https://blog.cloudsigma.com/iso-27017-cloud-security-certified-cloud/>

We use cookies on our website to give you the most relevant experience by remembering your preferences and repeat visits. By clicking “Accept”, you consent to the use of ALL the cookies. However you may visit Cookie Settings to provide a controlled consent.

[Cookie settings](#)

ACCEPT

[\(https://blog.cloudsigma.com/iso-27018-privacy-protection-certified-cloud-3/\)](https://blog.cloudsigma.com/iso-27018-privacy-protection-certified-cloud-3/)

[\(https://blog.cloudsigma.com/iso-20000-it-service-managment-certified-cloud-2/\)](https://blog.cloudsigma.com/iso-20000-it-service-managment-certified-cloud-2/)

[\(https://blog.cloudsigma.com/iso-9001-quality-management-certified-cloud/\)](https://blog.cloudsigma.com/iso-9001-quality-management-certified-cloud/)

[\(https://blog.cloudsigma.com/iso-14001-environmental-management-certified-cloud/\)](https://blog.cloudsigma.com/iso-14001-environmental-management-certified-cloud/)

[\(https://blog.cloudsigma.com/geant-preferred-cloud-partner/\)](https://blog.cloudsigma.com/geant-preferred-cloud-partner/)

[\(https://blog.cloudsigma.com/eu-gdpr-compliant-cloud/\)](https://blog.cloudsigma.com/eu-gdpr-compliant-cloud/)

We use cookies on our website to give you the most relevant experience by remembering your preferences and repeat visits. By clicking “Accept”, you consent to the use of ALL the cookies. However you may visit Cookie Settings to provide a controlled consent.

[Cookie settings](#)

[ACCEPT](#)

[\(https://blog.cloudsigma.com/soc-2-customer-data-management-certified-cloud/\)](https://blog.cloudsigma.com/soc-2-customer-data-management-certified-cloud/)

[\(https://blog.cloudsigma.com/star-level-1-registered-public-cloud/\)](https://blog.cloudsigma.com/star-level-1-registered-public-cloud/)

[\(https://blog.cloudsigma.com/eba-recommendations-compliant-cloud/\)](https://blog.cloudsigma.com/eba-recommendations-compliant-cloud/)

Proud member of

[\(https://www.gaia-x.eu/\)](https://www.gaia-x.eu/)

[\(https://www.de-cix.net/\)](https://www.de-cix.net/)

[\(https://international.eco.de/\)](https://international.eco.de/)

[\(https://www.ripe.net/\)](https://www.ripe.net/)

[\(https://www.arin.net/\)](https://www.arin.net/)

[\(https://www.ocre-project.eu/\)](https://www.ocre-project.eu/)

First Name

Your first name

Email address:

Your email address

We use cookies on our website to give you the most relevant experience by remembering your preferences and repeat visits. By clicking “Accept”, you consent to the use of ALL the cookies. However you may visit Cookie Settings to provide a controlled consent.

[**SUBSCRIBE TO OUR LATEST BLOGS**](#)

[Cookie settings](#)

[ACCEPT](#)

© 2023 CloudSigma AG