

## Documentation d'installation d'Apache Guacamole

### Installation des outils nécessaires :

```
sudo apt install make -y
```

```
sudo apt install gcc g++ libcairo2-dev libjpeg-turbo8-dev libpng-dev libtool-bin libossp-uuid-  
dev libavcodec-dev libavformat-dev libavutil-dev libswscale-dev freerdp2-dev libpango1.0-  
dev libssh2-1-dev libvncserver-dev libtelnet-dev libssl-dev libvorbis-dev libwebp-dev  
libpango1.0-dev libwebsockets-dev libpulse-dev -y
```

### Téléchargement et extraction du serveur Guacamole:

```
wget https://archive.apache.org/dist/guacamole/1.5.1/source/guacamole-server-1.5.1.tar.gz
```

```
tar xzf guacamole-server-1.5.1.tar.gz
```

```
cd guacamole-server-1.5.1/
```

### Configuration, compilation et installation du serveur Guacamole:

```
sudo ./configure --with-init-dir=/etc/init.d
```

```
sudo make
```

```
sudo make install
```

```
sudo ldconfig
```

```
sudo systemctl enable guacd
```

```
sudo systemctl start guacd
```

```
systemctl status guacd
```

### Installation de Tomcat:

```
sudo apt install tomcat9 tomcat9-admin tomcat9-common tomcat9-user -y
```

```
systemctl status tomcat9
```

## Configuration de Guacamole pour Tomcat:

```
sudo mkdir /etc/guacamole
```

```
sudo wget https://archive.apache.org/dist/guacamole/1.5.1/binary/guacamole-1.5.1.war -O  
/etc/guacamole/guacamole.war
```

```
sudo ln -s /etc/guacamole/guacamole.war /var/lib/tomcat9/webapps/
```

```
sudo systemctl restart tomcat9
```

```
sudo systemctl restart guacd
```

## Configuration de l'environnement Guacamole

```
Cd
```

```
sudo mkdir /etc/guacamole/{extensions,lib}
```

```
echo "GUACAMOLE_HOME=/etc/guacamole" | sudo tee -a /etc/default/tomcat9
```

```
sudo nano /etc/default/tomcat9
```

```
# Ajouter à la fin : GUACAMOLE_HOME=/etc/guacamole
```

## Configuration de la base de données MySQL pour Guacamole:

```
sudo apt install mariadb-server mariadb-client
```

```
sudo mysql
```

```
CREATE DATABASE guacamole_db;  
CREATE USER 'guacamole_user'@'localhost' IDENTIFIED BY 'P@$sW0rd';  
GRANT SELECT,INSERT,UPDATE,DELETE ON guacamole_db.* TO  
'guacamole_user'@'localhost';  
FLUSH PRIVILEGES;  
quit;
```

Cela permet de créer la base de données des utilisateurs. Cette base aura pour utilisateur : guacamole\_user et en mot de passe : P@\$sW0rd

## Installation de l'authentification JDBC pour MySQL:

```
wget https://archive.apache.org/dist/guacamole/1.5.1/binary/guacamole-auth-jdbc-1.5.1.tar.gz
```

```
tar vfx guacamole-auth-jdbc-1.5.1.tar.gz
```

```
cat guacamole-auth-jdbc-1.5.1/mysql/schema/*.sql | sudo mysql guacamole_db
```

```
sudo cp guacamole-auth-jdbc-1.5.1/mysql/guacamole-auth-jdbc-mysql-1.5.1.jar /etc/guacamole/extensions/
```

## Configuration du connecteur JDBC MySQL:

```
cd /home
```

```
sudo wget https://cdn.mysql.com/archives/mysql-connector-java-8.0/mysql-connector-j_8.0.33-1ubuntu22.04_all.deb
```

```
sudo dpkg-deb -x mysql-connector-j_8.0.33-1ubuntu22.04_all.deb /home
```

```
cd /home/usr/share/java/
```

```
sudo cp mysql-connector-j-8.0.33.jar /etc/guacamole/lib/
```

```
sudo nano /etc/guacamole/guacamole.properties
```

## Configuration des propriétés de Guacamole:

```
# Hostname and Guacamole server port
guacd-hostname: localhost
guacd-port: 4822
```

```
# MySQL properties
mysql-hostname: localhost
mysql-port: 3306
mysql-database: guacamole_db
mysql-username: guacamole_user
mysql-password: P@$sW0rd
```

**Création d'un lien symbolique pour le répertoire Guacamole :**

```
sudo ln -s /etc/guacamole /usr/share/tomcat9/.guacamole
```

```
sudo systemctl restart tomcat9
```

```
sudo systemctl restart guacd
```

**Installation de l'authentification TOTP:**

```
cd
```

```
wget https://archive.apache.org/dist/guacamole/1.5.1/binary/guacamole-auth-totp-1.5.1.tar.gz
```

```
tar -xzf guacamole-auth-totp-1.5.1.tar.gz
```

```
rm guacamole-auth-totp-1.5.1.tar.gz
```

```
sudo cp guacamole-auth-totp-1.5.1/guacamole-auth-totp-1.5.1.jar  
/etc/guacamole/extensions
```

```
sudo systemctl restart tomcat9
```

```
sudo systemctl restart guacd
```

**Installation et configuration de Nginx pour HTTPS:**

```
sudo apt install nginx
```

```
systemctl enable nginx
```

**Configuration d'un certificat SSL pour Nginx :**

```
sudo openssl req -x509 -nodes -days 365 -newkey rsa:2048 -keyout  
/etc/ssl/private/guacamole-selfsigned.key -out /etc/ssl/certs/guacamole-selfsigned.crt
```

## Configuration du fichier Nginx pour Guacamole :

```
cd
```

```
sudo nano /etc/nginx/sites-available/nginx-guacamole-ssl
```

#Ajouter ceci :

```
server {
    listen 80;
    #server_name guacamole.example.com;
    return 301 https://$host$request_uri;
}
server {
    listen 443 ssl;
    #server_name guacamole.example.com;

    #root /var/www/html;

    index index.html index.htm index.nginx-debian.html;

    ssl_certificate /etc/ssl/certs/guacamole-selfsigned.crt;
    ssl_certificate_key /etc/ssl/private/guacamole-selfsigned.key;

    ssl_protocols TLSv1.2 TLSv1.3;
    ssl_prefer_server_ciphers on;
    ssl_dhparam /etc/nginx/dhparam.pem;
    ssl_ciphers ECDHE-RSA-AES256-GCM-SHA512:DHE-RSA-AES256-GCM-SHA512:ECDHE-RSA-AES256-
GCM-SHA384:DHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES256-SHA384;
    ssl_ecdh_curve secp384r1;
    ssl_session_timeout 10m;
    ssl_session_cache shared:SSL:10m;
    resolver 192.168.42.129 8.8.8.8 valid=300s;
    resolver_timeout 5s;
    add_header Strict-Transport-Security "max-age=63072000; includeSubDomains; preload";
    add_header X-Frame-Options DENY;
    add_header X-Content-Type-Options nosniff;
    add_header X-XSS-Protection "1; mode=block";

    access_log /var/log/nginx/guac_access.log;
    error_log /var/log/nginx/guac_error.log;

    location / {
        proxy_pass http://guacamole.example.com:8080/guacamole/; -----> remplacer
par ip du serveur guacd ou localhost
        proxy_buffering off;
        proxy_http_version 1.1;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
        proxy_set_header Upgrade $http_upgrade;
        proxy_set_header Connection $http_connection;
        proxy_cookie_path /guacamole/ /;
    }
}
```

**Configuration des paramètres SSL pour Nginx :**

```
sudo openssl dhparam -dsaparam -out /etc/nginx/dhparam.pem 4096
```

**Activation de Nginx et redémarrage des services :**

```
sudo ln -s /etc/nginx/sites-available/nginx-guacamole-ssl /etc/nginx/sites-enabled/
```

```
sudo nginx -t
```

```
systemctl restart nginx
```

```
sudo unlink /etc/nginx/sites-enabled/default
```