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**Install Java**

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sudo apt update

sudo apt install default-jdk

or

sudo apt install openjdk-21-jdk

------------------------------------------------------------------

**Install Tomcat**

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Step 1: Create a dedicated user and group for Tomcat

sudo groupadd tomcat

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

Step 2: Download and Install Tomcat 9.0.108

1. Navigate to the /tmp directory:

cd /tmp

2. Download the Tomcat 9.0.108 tar.gz file:

curl -O https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.108/bin/apache-tomcat-9.0.108.tar.gz

3. Create the installation directory and extract the archive:

sudo mkdir /opt/tomcat

sudo tar xzvf apache-tomcat-9.0.108.tar.gz -C /opt/tomcat --strip-components=1

Step 3: Set Permissions

Adjust the ownership and permissions:

sudo chown -R tomcat: /opt/tomcat

sudo chmod +x /opt/tomcat/bin/\*.sh

Step 4: Create a systemd Service File

Determine the Java installation path: Note the path (e.g., /usr/lib/jvm/java-11-openjdk-amd64).

sudo update-java-alternatives -l

Create the systemd service file:

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

Add the following content, replace JAVA\_HOME with your Java path:

[Unit]

Description=Apache Tomcat Web Application Container

After=network.target

[Service]

Type=forking

Environment=JAVA\_HOME=/usr/lib/jvm/java-1.21.0-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

Reload systemd and start Tomcat:

sudo systemctl daemon-reload

sudo systemctl start tomcat

sudo systemctl enable tomcat

sudo systemctl start tomcat

sudo systemctl stop tomcat

sudo systemctl restart tomcat

------------------------------------------------------------------

**Install PostgreSQL**

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1. Add the PostgreSQL APT Repository

sudo sh -c 'echo "deb http://apt.postgresql.org/pub/repos/apt $(lsb\_release -cs)-pgdg main" > /etc/apt/sources.list.d/pgdg.list'

import the repository signing key:

wget --quiet -O - https://www.postgresql.org/media/keys/ACCC4CF8.asc | sudo apt-key add -

2. Update Package Lists

sudo apt update

3. Install PostgreSQL 17

sudo apt install postgresql-17 postgresql-client-17

4. Start and Enable PostgreSQL Service

sudo systemctl start postgresql

sudo systemctl enable postgresql

5. Verify Installation

psql --version

Optional: Configure PostgreSQL

Allow Remote Connections

Edit the PostgreSQL configuration file to allow connections from all IP addresses:

sudo nano /etc/postgresql/17/main/postgresql.conf

Find the line:

#listen\_addresses = 'localhost'

And change it to:

listen\_addresses = '\*'

edit the pg\_hba.conf file to configure client authentication:

sudo nano /etc/postgresql/17/main/pg\_hba.conf

Add the following line at the end to allow MD5 password authentication:

host all all 0.0.0.0/0 md5

Restart PostgreSQL to apply changes:

sudo systemctl restart postgresql

Set Password for the postgres User

sudo -u postgres psql

ALTER USER postgres PASSWORD admin123;

Exit the prompt:

\q

1. Update System Packages

sudo apt update && sudo apt upgrade -y

2. Install Required Dependencies

Ensure curl and gnupg are installed:

sudo apt install curl ca-certificates gnupg -y

3. Add the pgAdmin APT Repository

Import the repository’s public key:

curl -fsS https://www.pgadmin.org/static/packages\_pgadmin\_org.pub | sudo gpg --dearmor -o /usr/share/keyrings/packages-pgadmin-org.gpg

Add the repository to your system:

echo "deb [signed-by=/usr/share/keyrings/packages-pgadmin-org.gpg] https://ftp.postgresql.org/pub/pgadmin/pgadmin4/apt/$(lsb\_release -cs) pgadmin4 main" | sudo tee /etc/apt/sources.list.d/pgadmin4.list

4. Install pgAdmin 4

Update package lists and install pgAdmin 4:

sudo apt update

sudo apt install pgadmin4 -y

5. Configure pgAdmin 4 in Web Mode

sudo /usr/pgadmin4/bin/setup-web.sh

6. Access pgAdmin 4

Open your web browser and navigate to:

http://localhost/pgadmin4

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**Set Tomcat start on System Reboot**

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1. Create the Init Script

sudo nano /etc/init.d/tomcat

Insert the following content, adjusting paths and variables:

#!/bin/bash

## BEGIN INIT INFO

# Provides: Tomcat

# Required-Start: $remote\_fs $syslog

# Required-Stop: $remote\_fs $syslog

# Default-Start: 2 3 4 5

# Default-Stop: 0 1 6

# Short-Description: Start Tomcat at boot time

# Description: Enable Apache Tomcat service.

### END INIT INFO

CATALINA\_HOME=/opt/tomcat

case $1 in

start)

sh $CATALINA\_HOME/bin/startup.sh

;;

stop)

sh $CATALINA\_HOME/bin/shutdown.sh

;;

restart)

sh $CATALINA\_HOME/bin/shutdown.sh

sh $CATALINA\_HOME/bin/startup.sh

;;

esac

exit 0

2. Make the Script Executable

sudo chmod +x /etc/init.d/tomcat

3. Register the Script to Run at Boot

sudo update-rc.d tomcat defaults

This command creates the necessary symbolic links in the /etc/rc\*.d/ directories to ensure that Tomcat starts and stops at the appropriate runlevels.

4. Start Tomcat Manually

sudo /etc/init.d/tomcat start

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**Update CACERTS for Twilio**

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Open <https://api.twilio.com/>

Download the twiliocom certificate

sudo /usr/lib/jvm/java-1.21.0-openjdk-amd64/bin/keytool -importcert -cacerts -storepass changeit -noprompt -alias twilio -file /home/l-pit/Downloads/twilio-com.cer

sudo /usr/lib/jvm/java-1.21.0-openjdk-amd64/bin/keytool -list -cacerts -storepass changeit > /home/l-pit/Downloads/twiliocom.txt

------------------------------------------------------------------

**Set CRON tab**

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0,5,10,15,20,25,30,35,40,45,50,55 \* \* \* \* sudo /home/l-pit/schedulers/ControllerBunkerDataScheduler.sh >> /home/l-pit/BunkerDataScheduler.log 2>&1

0,5,10,15,20,25,30,35,40,45,50,55 \* \* \* \* sudo /home/l-pit/schedulers/ControllerTunnelDataScheduler.sh >> /home/l-pit/TunnelDataScheduler.log 2>&1

0,5,10,15,20,25,30,35,40,45,50,55 \* \* \* \* sudo /home/l-pit/schedulers/ControllerGrowerDataScheduler.sh >> /home/l-pit/GrowerDataScheduler.log 2>&1

2,32 \* \* \* \* sudo /home/l-pit/schedulers/ControllerLogScheduler.sh >> /home/l-pit/schedulers/logs/LogScheduler.log 2>&1

3,18,33,48 \* \* \* \* sudo /home/l-pit/schedulers/ControllerAlarmScheduler.sh >> /home/l-pit/schedulers/logs/AlarmScheduler.log 2>&1