# A BRIEF OVERVIEW OF ZABBIX INSTALLATION

**A brief overview of Zabbix Installation**

CS/2020/010 - M.A.P.Nimsara
CS/2020/042 - T.P.Hettiarachchi

# Introduction

## Purpose

This document provides a comprehensive guide for installing and configuring Zabbix, an open-source network monitoring solution. The guide will cover the installation process, database configuration, user management, and dashboard creation.

## Overview of Zabbix

Zabbix is a powerful and flexible monitoring solution that enables you to monitor various network components, servers, and applications. It offers features such as:

- Real-time monitoring of key metrics
- Proactive alerting for critical issues
- Historical data analysis and reporting
- Flexible customization options

## Target Audience

This document is intended for,

- system administrators,
- network engineers, and
- IT professionals

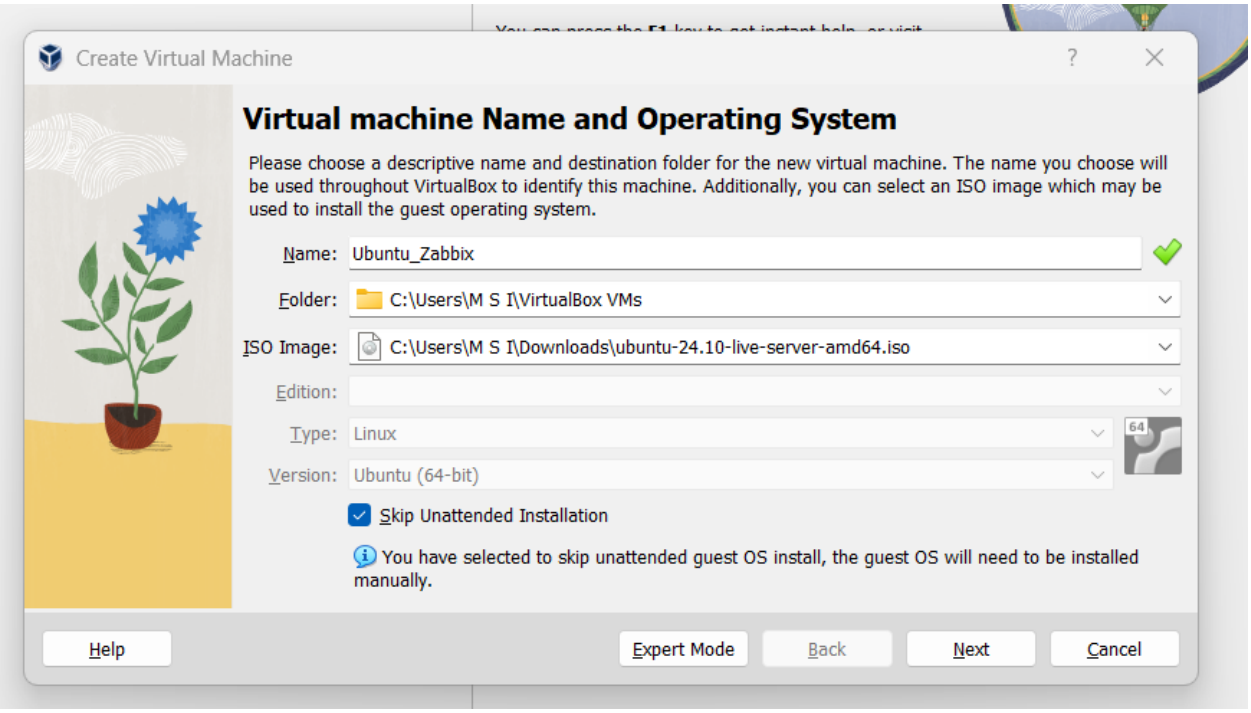
who want to deploy and manage Zabbix in their organizations.

# System Requirements

- ## Hardware Requirements:
    - Minimum CPU and RAM (16 GB – execute progress smoothly) requirements.
    - Disk space requirements for Zabbix server and database.

- ## Software Requirements

    - Install VirtualBox
    - Download and install VirtualBox from the official website: https://www.virtualbox.org/
    - Operating system (Ubuntu Server) and its version.




    - Database system (MySQL or PostgreSQL) and version.
    - Web server

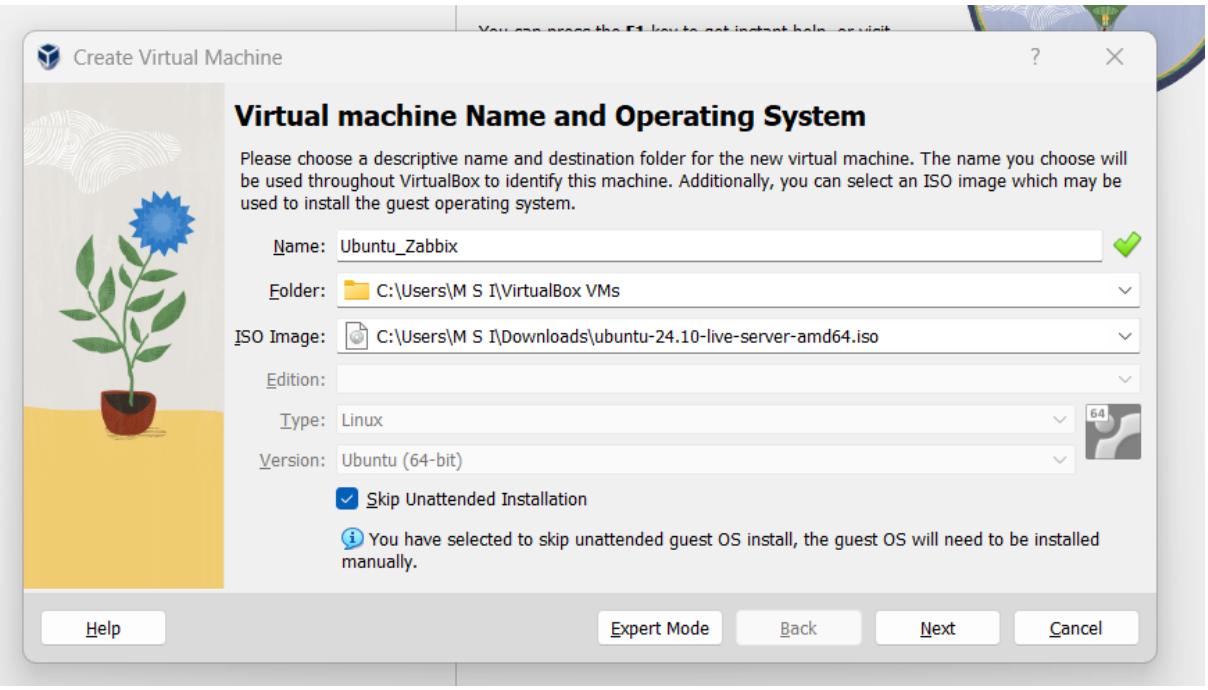
# Installation

## Download Ubuntu Server

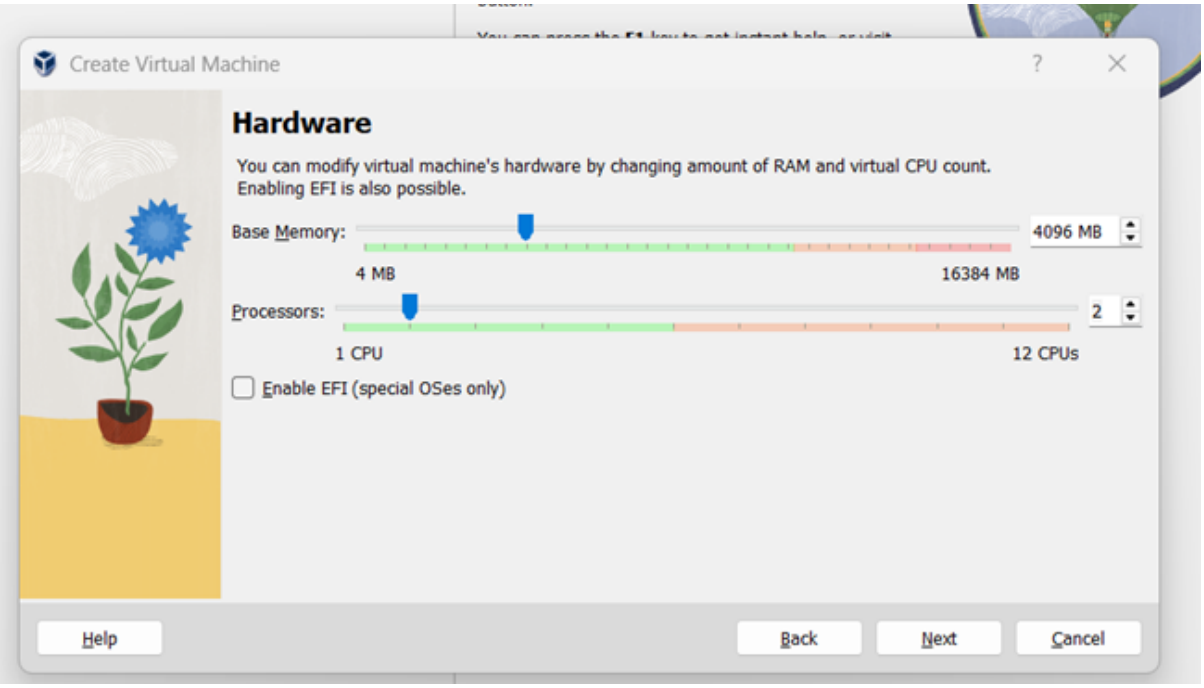
- Visit the official Ubuntu website: [https://ubuntu.com/download/server](https://ubuntu.com/download/server)
- Choose the latest LTS (Long-Term Support) version.
- Download the appropriate ISO file for your system architecture (x86_64 for most modern systems).

- Open VirtualBox and click "New."
- Give your virtual machine a name .
- Choose the appropriate operating system type (Linux) and version (Ubuntu).

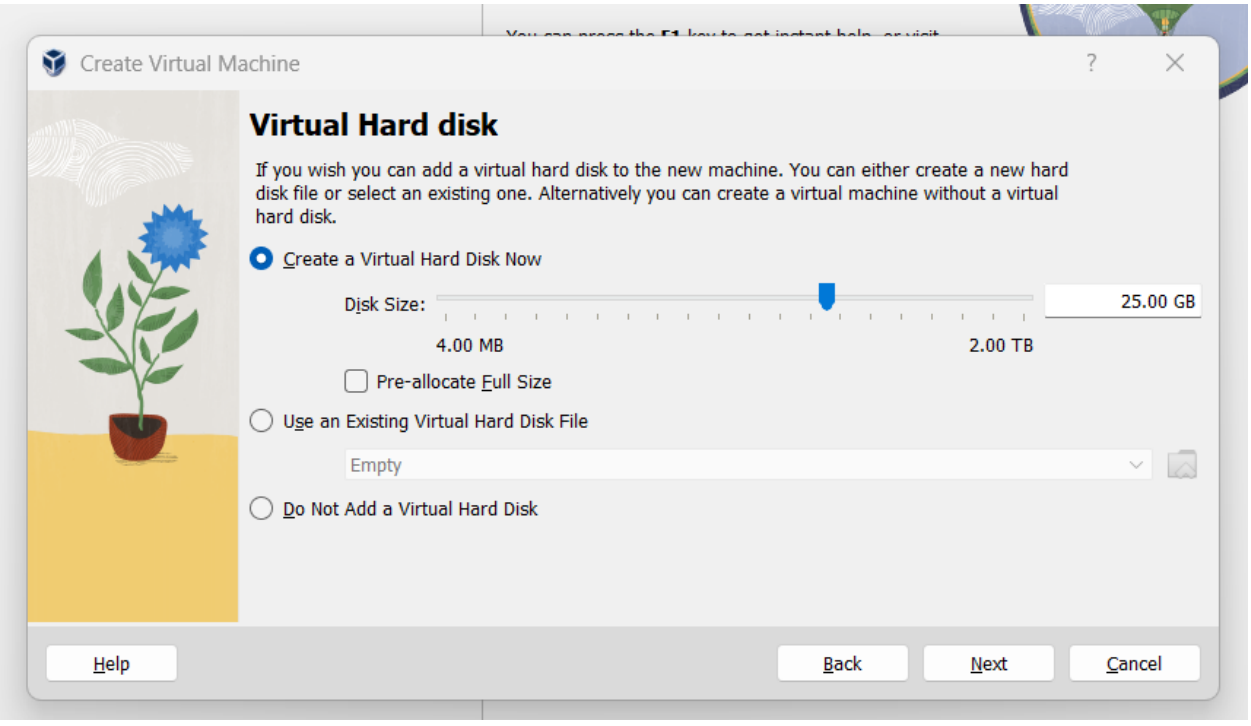
Name- Ubuntu_Zabbix



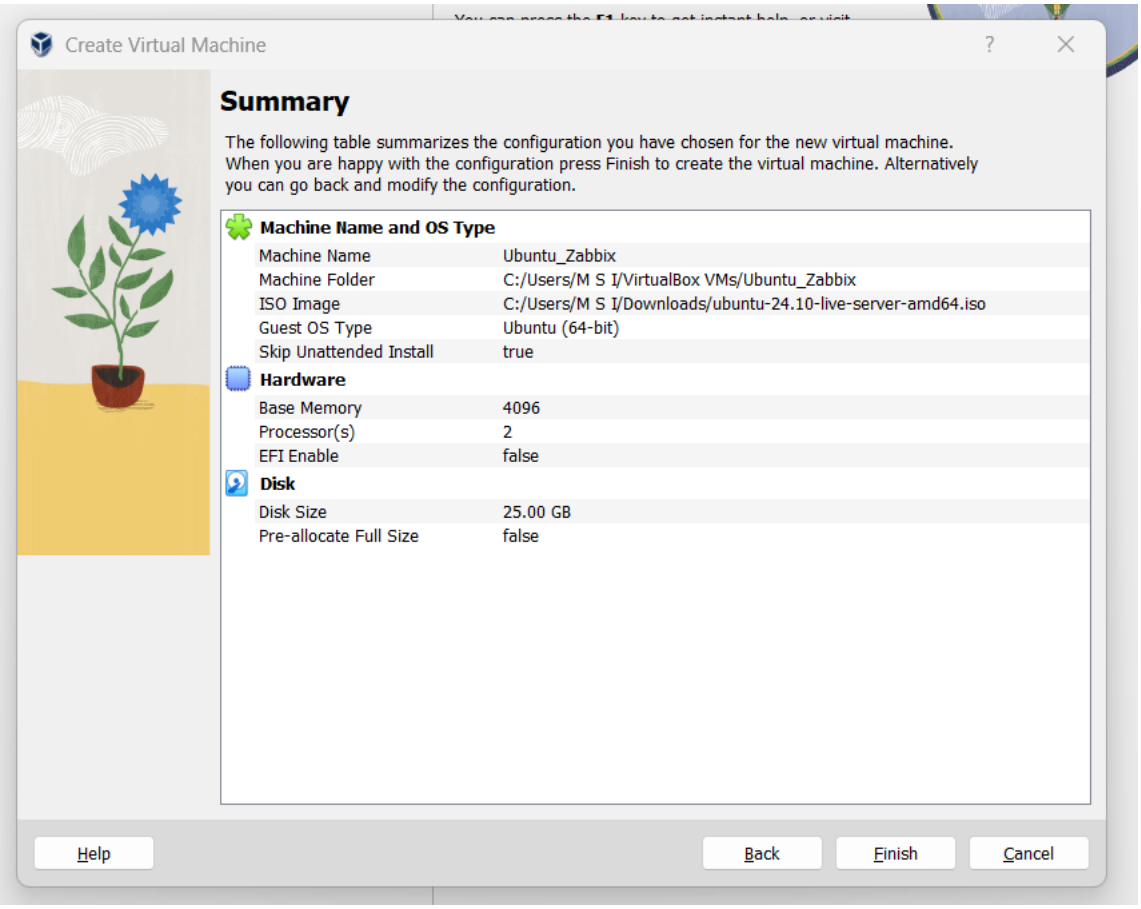
Allocate sufficient memory (RAM) for the virtual machine.




Create a virtual hard disk. Choose a dynamically allocated hard disk to save space.

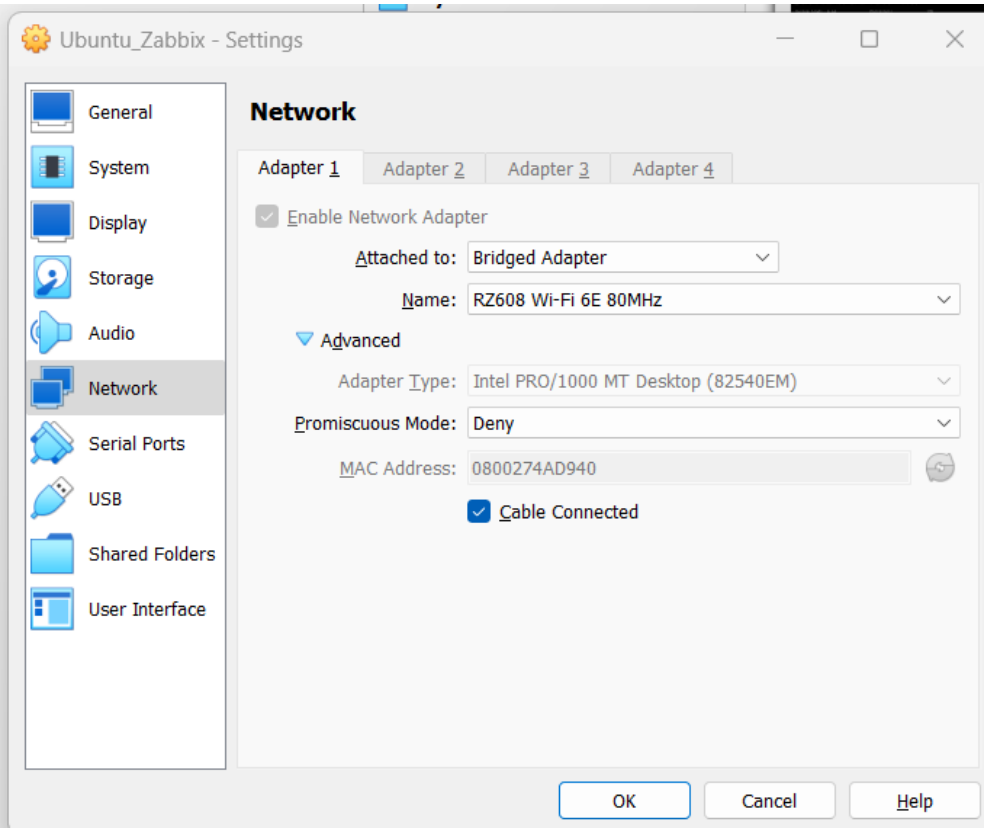


Summary of configuration c



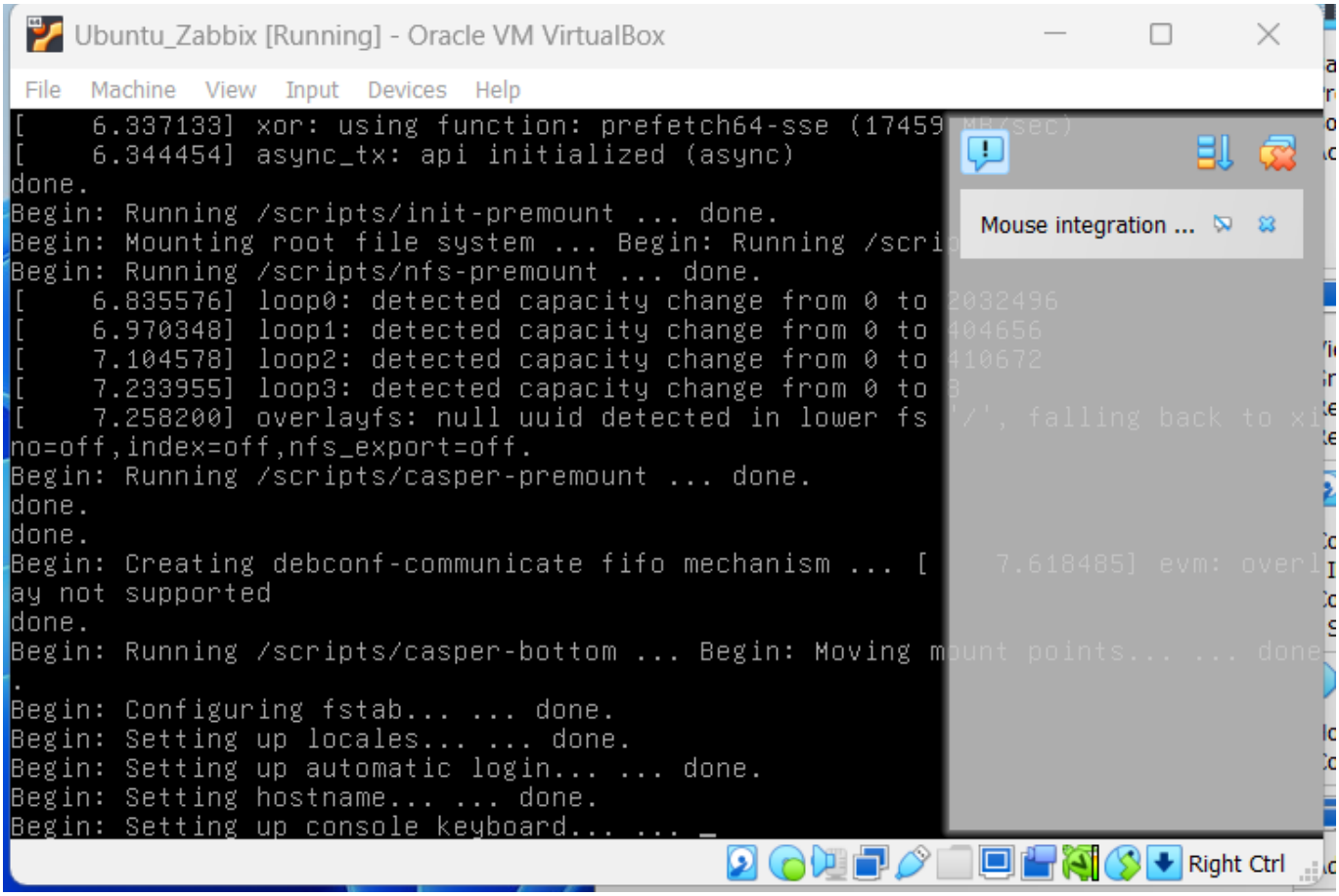

Go to the "Settings" of your virtual machine

Under the "Network" tab, choose a suitable network adapter type (e.g., NAT or Bridged Adapter).



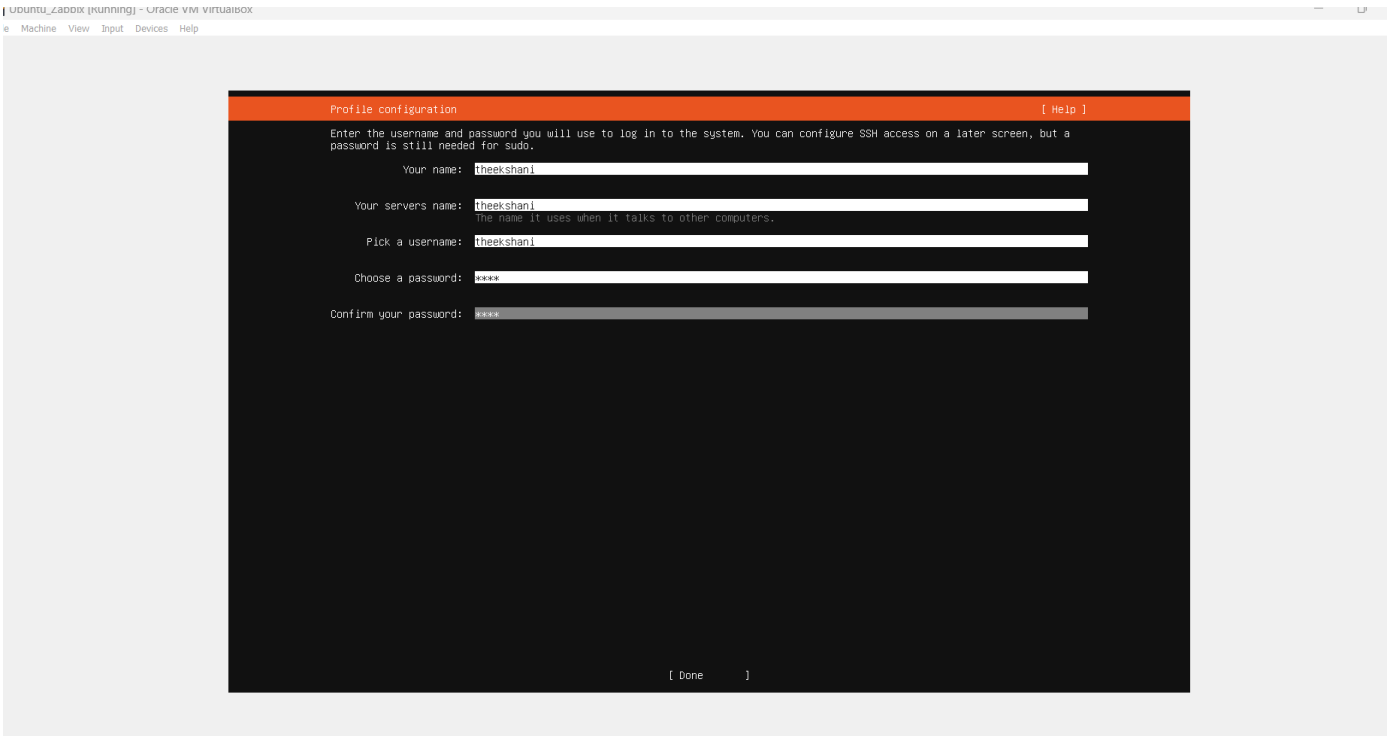
Start the Virtual Machine:

Click "Start" to boot the virtual machine from the ISO image

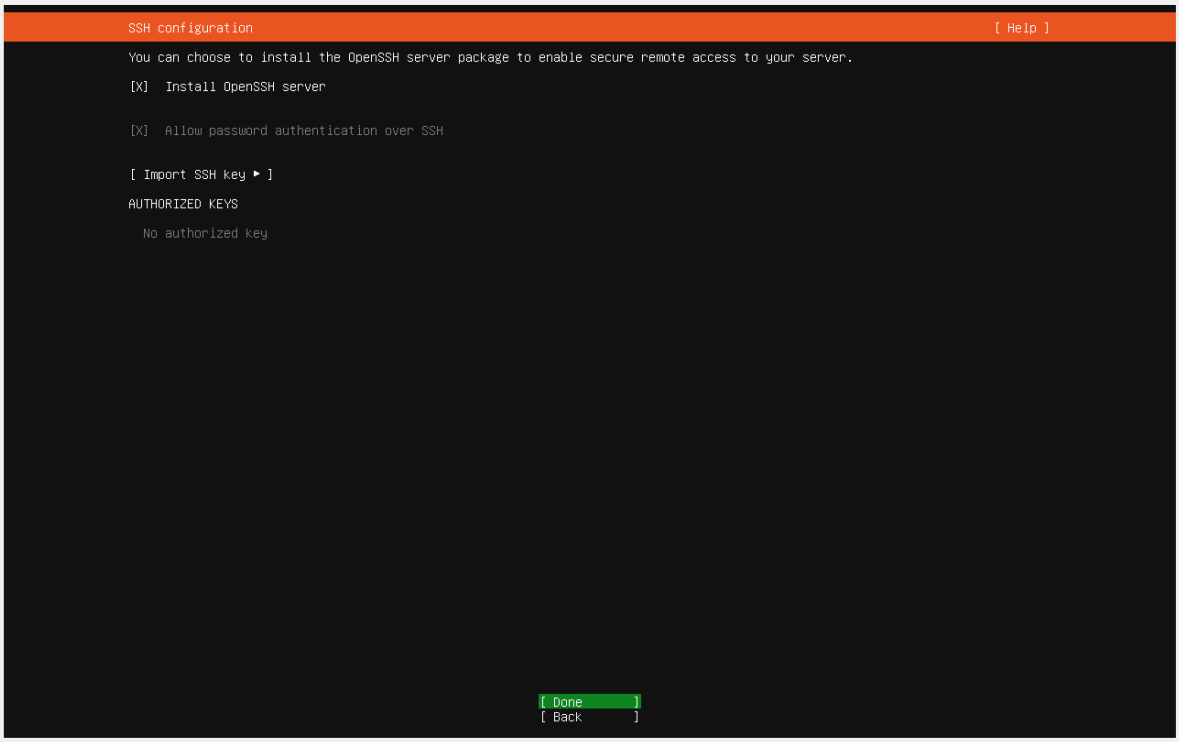



Username and Password

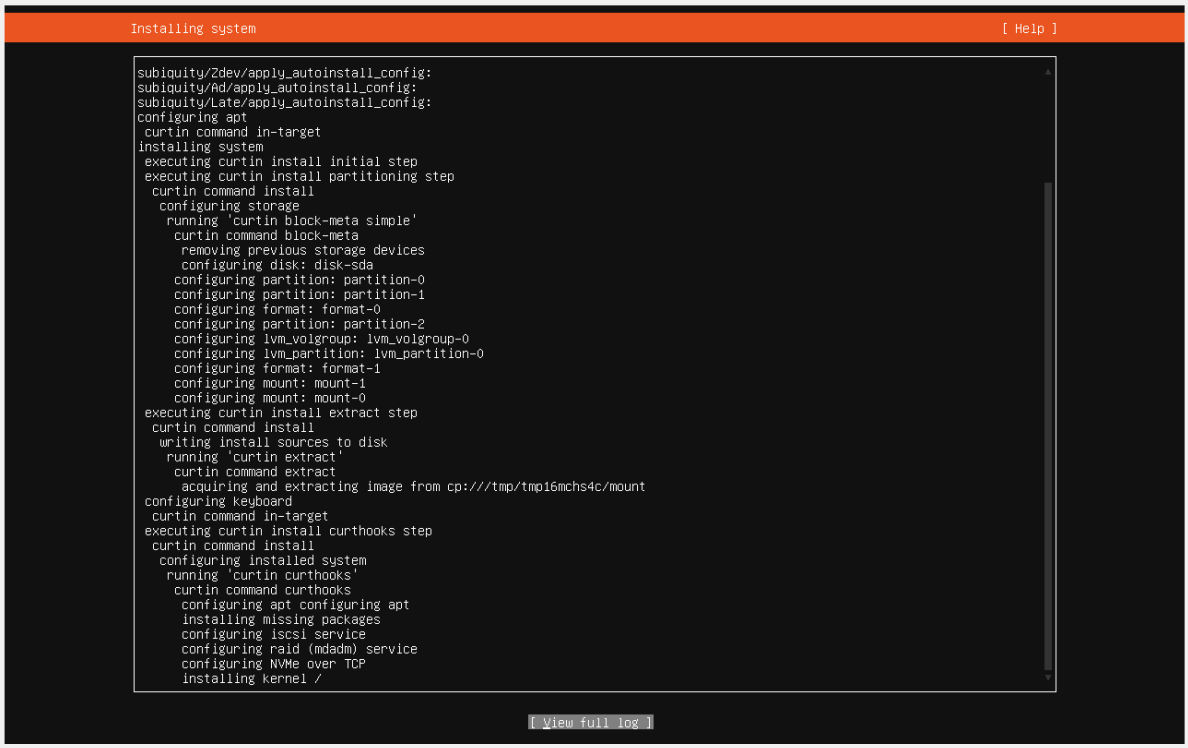
Create a root user account with a strong password

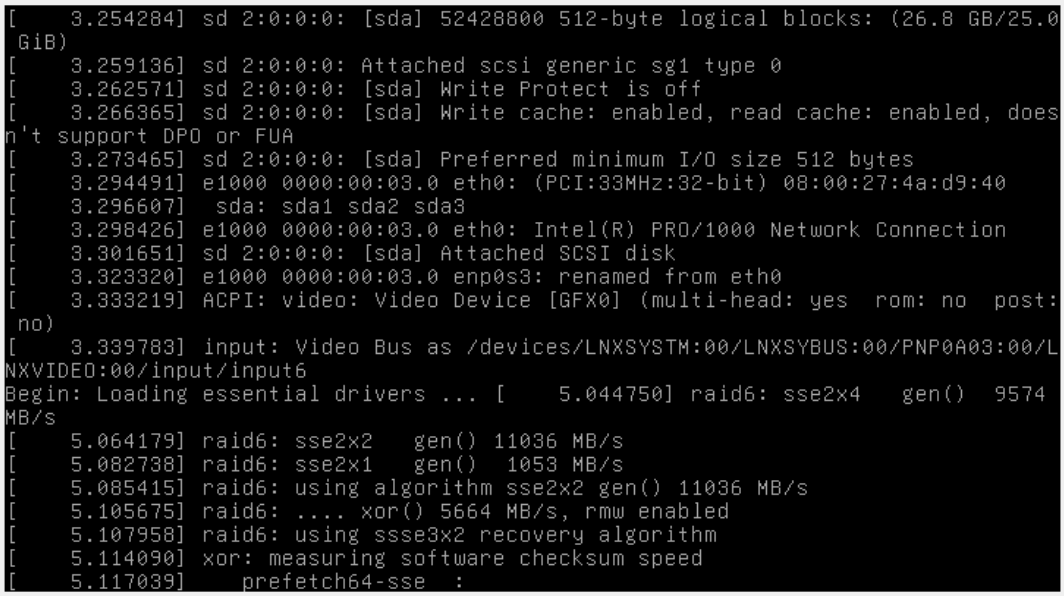


## Installing ssh



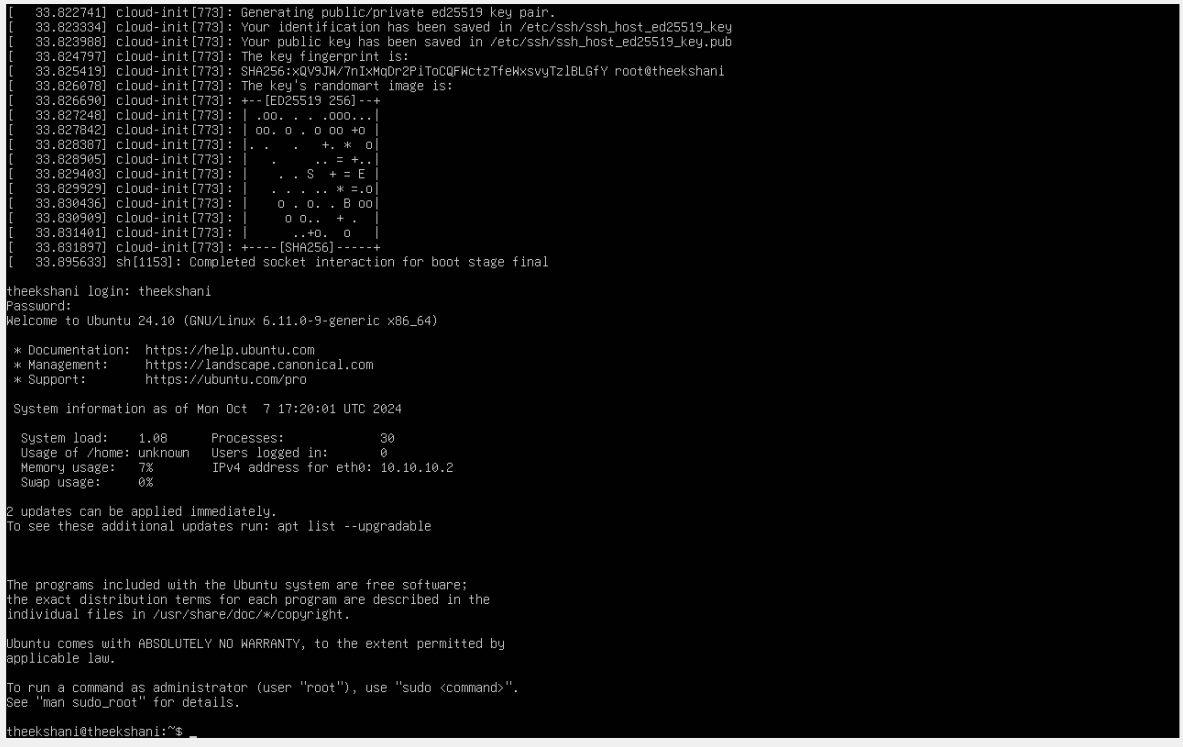

## Insatalling system






- Login
- Update the package lists.

sudo apt update - This command updates the package lists of your Ubuntu system. It checks for newer versions of software packages that are available in the repositories. This ensures that you have the latest package information and can install the latest versions of software



## Sudo apt upgrade

```
theekshani@theekshani:~$ sudo apt update
Hit:1 http://archive.ubuntu.com/ubuntu oracular InRelease
Hit:2 http://archive.ubuntu.com/ubuntu oracular-updates InRelease
Hit:3 http://security.ubuntu.com/ubuntu oracular-security InRelease
Hit:4 http://archive.ubuntu.com/ubuntu oracular-backports InRelease
6 packages can be upgraded. Run 'apt list --upgradable' to see them.
theekshani@theekshani:~$ sudo apt upgrade
The following packages were automatically installed and are no longer required:
  linux-headers-6.11.0-8          linux-modules-6.11.0-8-generic        linux-tools-6.11.0-8
  linux-headers-6.11.0-8-generic  linux-modules-extra-6.11.0-8-generic  linux-tools-6.11.0-8-generic
Use 'sudo apt autoremove' to remove them.

Upgrading:
  distro-info-data  grub-common  grub-pc  grub-pc-bin  grub2-common  iproute2

Summary:
  Upgrading: 6, Installing: 0, Removing: 0, Not Upgrading: 0
  Download size: 5,171 kB
  Space needed: 13.3 kB / 6,145 MB available

Continue? [Y/n]
```

## ip addr show

This command displays the network interfaces and their IP addresses on your system. It provides information about:

Network interfaces: Names of the network interfaces (e.g., eth0, wlan0, lo).

IP addresses: IPv4 and IPv6 addresses assigned to each interface.

MAC addresses: Unique hardware addresses of the network interfaces.

Network masks: Network masks defining the network and host portions of the IP addresses.

Link local addresses: IPv6 addresses used for local communication.

```
Adding boot menu entry for UEFI Firmware Settings ...
done
Processing triggers for man-db (2.12.1-3) ...
Processing triggers for install-info (7.1-3build2) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
theekshani@theekshani:~$ sudo apt install openssh-server
openssh-server is already the newest version (1:9.7p1-7ubuntu4).
The following packages were automatically installed and are no longer required:
  linux-headers-6.11.0-8          linux-modules-6.11.0-8-generic        linux-tools-6.11.0-8
  linux-headers-6.11.0-8-generic  linux-modules-extra-6.11.0-8-generic  linux-tools-6.11.0-8-generic
Use 'sudo apt autoremove' to remove them.

Summary:
  Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 0
theekshani@theekshani:~$ sudo systemctl start ssh
theekshani@theekshani:~$ sudo systemctl enable shh
Failed to enable unit: Unit shh.service does not exist
theekshani@theekshani:~$ sudo systemctl enable ssh
Synchronizing state of ssh.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable ssh
Created symlink '/etc/systemd/system/sshd.service' → '/usr/lib/systemd/system/ssh.service'.
Created symlink '/etc/systemd/system/multi-user.target.wants/ssh.service' → '/usr/lib/systemd/system/ssh.service'.
theekshani@theekshani:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:4a:d9:40 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 metric 100 brd 10.0.2.255 scope global dynamic enp0s3
       valid_lft 86039sec preferred_lft 86039sec
    inet6 fe80::a00:27ff:fe4a:d940/64 scope link proto kernel_ll
       valid_lft forever preferred_lft forever
theekshani@theekshani:~$ sudo ufw allow ssh
Rules updated
Rules updated (v6)
theekshani@theekshani:~$
```

This command is useful for troubleshooting network connectivity issues, checking IP addresses, and understanding the network configuration of your system.

sudo apt install openssh-server - install the SSH server if it isn't already installed
Start and enable the SSH service
sudo systemctl start ssh
sudo systemctl enable ssh
If you have a firewall enabled on your Ubuntu VM, make sure to allow SSH traffic
sudo ufw allow ssh


Ping 192.168.42.146
This command sends ICMP echo requests to the specified IP address and waits for replies. It's used to test network connectivity and measure response times.
Here's how to use it:
Open a terminal: On your Windows or Linux system, open a terminal or command prompt.
Type the command: Replace <ip_address> with the actual IP address you want to ping.
Press Enter: This will start sending ping requests.
The output will show information about the packets sent, received, and lost, as well as round-trip times. This can help you diagnose network connectivity issues and identify potential problems with your network or the target device.

```
(c) Microsoft Corporation. All rights reserved.

C:\Users\M S I>ping 192.168.42.146

Pinging 192.168.42.146 with 32 bytes of data:
Reply from 192.168.42.146: bytes=32 time=12ms TTL=64
Reply from 192.168.42.146: bytes=32 time<1ms TTL=64
Reply from 192.168.42.146: bytes=32 time<1ms TTL=64
Reply from 192.168.42.146: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.42.146:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 12ms, Average = 3ms
```

ssh theekshani@192.168.42.146 - Connect via SSH from Windows Command Prompt
Open Command Prompt on your Windows machine.

Connect to your Ubuntu VM using the SSH command:

```
C:\Users\M S I>ssh theekshani@192.168.42.146
The authenticity of host '192.168.42.146 (192.168.42.146)' can't be establis
hed.
ED25519 key fingerprint is SHA256:xQV9JW/7nIxMqDr2PiToCQFWctzTfeWxsvyTzlBLGf
Y.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.42.146' (ED25519) to the list of known h
osts.
theekshani@192.168.42.146's password:
Welcome to Ubuntu 24.10 (GNU/Linux 6.11.0-9-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Fri Nov  8 01:51:49 PM UTC 2024

  System load:  0.86               Processes:               115
  Usage of /:   43.8% of 11.21GB   Users logged in:         0
  Memory usage: 6%                 IPv4 address for enp0s3: 192.168.42.146
  Swap usage:   0%


0 updates can be applied immediately.
```

# Install and configure Zabbix for your platform

sudo wget https://repo.zabbix.com/zabbix/6.3/ubuntu/pool/main/z/zabbix-release/zabbix-release_6.3-3%2Bubuntu22.04_all.deb
This command downloads a file containing information about Zabbix packages for Ubuntu 22.04. Here's a breakdown:
sudo: Indicates you need administrator privileges to download the file.
wget: A tool for downloading files from the internet.
https://...: Specifies the secure web address (URL) of the file.
zabbix-release_6.3-3+ubuntu22.04_all.deb: The filename containing Zabbix repository information for Ubuntu 22.04.

```
theekshani@theekshani:~$ sudo wget https://repo.zabbix.com/zabbix/6.3/ubuntu
/pool/main/z/zabbix-release/zabbix-release_6.3-3%2Bubuntu22.04_all.deb
[sudo] password for theekshani:
--2024-11-08 13:53:46--  https://repo.zabbix.com/zabbix/6.3/ubuntu/pool/main
/z/zabbix-release/zabbix-release_6.3-3%2Bubuntu22.04_all.deb
Resolving repo.zabbix.com (repo.zabbix.com)... 178.128.6.101, 2604:a880:2:d0
::2062:d001
Connecting to repo.zabbix.com (repo.zabbix.com)|178.128.6.101|:443... connec
ted.
HTTP request sent, awaiting response... 200 OK
Length: 3760 (3.7K) [application/octet-stream]
Saving to: ‘zabbix-release_6.3-3+ubuntu22.04_all.deb’

zabbix-release_6.3 100%[=================>]   3.67K  --.-KB/s    in 0s

2024-11-08 13:53:48 (289 MB/s) - ‘zabbix-release_6.3-3+ubuntu22.04_all.deb’
saved [3760/3760]
```

sudo dpkg -i zabbix-release_6.3-3+ubuntu22.04_all.deb

This command installs the Zabbix repository on your Ubuntu system. This repository provides the necessary packages to install Zabbix.

```
theekshani@theekshani:~$ sudo dpkg -i zabbix-release_6.3-3+ubuntu22.04_all.d
eb
Selecting previously unselected package zabbix-release.
(Reading database ... 126495 files and directories currently installed.)
Preparing to unpack zabbix-release_6.3-3+ubuntu22.04_all.deb ...
Unpacking zabbix-release (1:6.3-3+ubuntu22.04) ...
Setting up zabbix-release (1:6.3-3+ubuntu22.04) ...
```

sudo apt install zabbix-server-mysql zabbix-frontend-php zabbix-apache-conf zabbix-sql-scripts zabbix-agent

```
All packages are up to date.
theekshani@theekshani:~$ sudo apt install zabbix-server-mysql zabbix-fronten
d-php zabbix-apache-conf zabbix-sql-scripts zabbix-agent
The following packages were automatically installed and are no longer requir
ed:
  linux-headers-6.11.0-8          linux-modules-extra-6.11.0-8-generic
  linux-headers-6.11.0-8-generic  linux-tools-6.11.0-8
  linux-modules-6.11.0-8-generic  linux-tools-6.11.0-8-generic
Use 'sudo apt autoremove' to remove them.

Installing:
  zabbix-agent         zabbix-frontend-php  zabbix-sql-scripts
  zabbix-apache-conf   zabbix-server-mysql

Installing dependencies:
  apache2                      libmodbus5
  apache2-bin                  libmysqlclient21
  apache2-data                 libodbc2
  apache2-utils                libopenipmi0t64
  default-mysql-server         libpq5
  fontconfig-config            libprotobuf-lite32t64
  fonts-dejavu-core            libraqm0
  fonts-dejavu-mono            libsharpyuv0
  fping                        libsnmp-base
  libaom3                      libsnmp40t64
  libapache2-mod-php8.3        libtiff6
  libapr1t64                   libtimedate-perl
  libaprutil1-dbd-sqlite3      liburi-perl
  libaprutil1-ldap             libwebp7
  libaprutil1t64               libxpm4
  libargon2-1                  mecab-ipadic
  libblas3                     mecab-ipadic-utf8
  libcgi-fast-perl             mecab-utils
  libcgi-pm-perl               mysql-client-8.0
  libclone-perl                mysql-client-core-8.0
  libde265-0                   mysql-common
  libdeflate0                  mysql-server-8.0
  libencode-locale-perl        mysql-server-core-8.0
  libevent-2.1-7t64            nmap
```

This command installs several Zabbix packages on your Ubuntu system

zabbix-server-mysql: The core Zabbix server component, configured to use MySQL as the database.
zabbix-frontend-php: The web interface for managing and monitoring Zabbix.
zabbix-apache-conf: Apache configuration files for integrating Zabbix with Apache web server.
zabbix-sql-scripts: SQL scripts for initializing the Zabbix database.
zabbix-agent: The Zabbix agent, which collects metrics from monitored devices and sends them to the Zabbix server

```
  libheif-plugin-kvazaar    ncat
  libheif-plugin-rav1e      ndiff
  libheif-plugin-svtenc     zenmap
  libdata-dump-perl         snmptrapd
  libipc-sharedcache-perl

Summary:
  Upgrading: 0, Installing: 110, Removing: 0, Not Upgrading: 0
  Download size: 88.5 MB
  Space needed: 445 MB / 6,126 MB available

Continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu oracular/main amd64 libapr1t64 amd64
1.7.2-3.2ubuntu1 [108 kB]
Get:2 https://repo.zabbix.com/zabbix/6.3/ubuntu jammy/main all zabbix-apache
-conf all 1:6.4.19~rc1-1+ubuntu22.04 [8,468 B]
Get:3 https://repo.zabbix.com/zabbix/6.3/ubuntu jammy/main all zabbix-sql-sc
ripts all 1:6.4.19~rc1-1+ubuntu22.04 [8,093 kB]
Get:4 http://archive.ubuntu.com/ubuntu oracular/main amd64 libaprutil1t64 am
d64 1.6.3-3ubuntu1 [92.8 kB]
Get:5 http://archive.ubuntu.com/ubuntu oracular/main amd64 libaprutil1-dbd-s
qlite3 amd64 1.6.3-3ubuntu1 [11.4 kB]
Get:6 http://archive.ubuntu.com/ubuntu oracular/main amd64 libaprutil1-ldap
amd64 1.6.3-3ubuntu1 [9,208 B]
Get:7 http://archive.ubuntu.com/ubuntu oracular/main amd64 liblua5.4-0 amd64
 5.4.6-3build2 [166 kB]
Get:8 http://archive.ubuntu.com/ubuntu oracular/main amd64 apache2-bin amd64
 2.4.62-1ubuntu1 [1,342 kB]
Get:9 http://archive.ubuntu.com/ubuntu oracular/main amd64 apache2-data all
2.4.62-1ubuntu1 [163 kB]
Get:10 http://archive.ubuntu.com/ubuntu oracular/main amd64 apache2-utils am
d64 2.4.62-1ubuntu1 [97.9 kB]
Get:11 http://archive.ubuntu.com/ubuntu oracular/main amd64 apache2 amd64 2.
4.62-1ubuntu1 [90.4 kB]
Get:12 http://archive.ubuntu.com/ubuntu oracular/main amd64 mysql-common all
 5.8+1.1.1 [6,800 B]
Get:13 http://archive.ubuntu.com/ubuntu oracular/main amd64 mysql-client-cor
e-8.0 amd64 8.0.39-1 [2,549 kB]
5% [13 mysql-client-core-8.0 634 kB/2,549 kB 25%] [3 zabbix-sql-scripts 557
```

# Install sql server

sudo apt-get install mysql-server

This command installs the MySQL database server on your Ubuntu system. MySQL is a popular open-source relational database management system used to store and manage data efficiently.

```
theekshani@theekshani:~$ sudo apt-get install mysql-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer requir
ed:
  linux-headers-6.11.0-8 linux-headers-6.11.0-8-generic
  linux-modules-6.11.0-8-generic linux-modules-extra-6.11.0-8-generic
  linux-tools-6.11.0-8 linux-tools-6.11.0-8-generic
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  mysql-server
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 9,502 B of archives.
After this operation, 41.0 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu oracular/main amd64 mysql-server all
8.0.39-1 [9,502 B]
Fetched 9,502 B in 1s (15.1 kB/s)
Selecting previously unselected package mysql-server.
(Reading database ... 133271 files and directories currently installed.)
Preparing to unpack .../mysql-server_8.0.39-1_all.deb ...
Unpacking mysql-server (8.0.39-1) ...
Setting up mysql-server (8.0.39-1) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
```

sudo systemctl start mysql - This command starts the MySQL database service. It ensures that the MySQL server is running and ready to accept connections from other applications, including Zabbix.

# Create initial database

sudo mysql - This command launches the MySQL command-line client. This client allows you to interact with the MySQL database directly, execute SQL queries, and manage database objects. You can use it to create databases, tables, insert, update, and delete data, and perform other database administration tasks.

```
theekshani@theekshani:~$ sudo systemctl start mysql
theekshani@theekshani:~$ sudo mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.39-1 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statemen
t.

mysql> create database zabbix character set utf8mb4 collate utf8mb4_bin;
Query OK, 1 row affected (0.03 sec)

mysql> create user zabbix@localhost identified by 'password';
Query OK, 0 rows affected (0.04 sec)

mysql> grant all privileges on zabbix.* to zabbix@localhost;
Query OK, 0 rows affected (0.03 sec)

mysql> set global log_bin_trust_function_creators = 1;
Query OK, 0 rows affected, 1 warning (0.00 sec)

mysql> quit;
Bye
```

CREATE DATABASE zabbix CHARACTER SET utf8mb4 COLLATE utf8mb4_bin; - This SQL statement creates a new database named "zabbix" with the UTF-8 character set and binary collation. This ensures that the database can store and retrieve data in various character sets and languages.

CREATE USER 'zabbix'@'localhost' IDENTIFIED BY 'password'; - This statement creates a new MySQL user account named "zabbix" that can only log in from the local host. The password for this user is "password". You should replace "password" with a strong, secure password.

GRANT ALL PRIVILEGES ON zabbix.* TO 'zabbix'@'localhost'; - This statement grants all privileges on the "zabbix" database to the "zabbix" user. This allows the Zabbix server to access and modify the database as needed

SET GLOBAL log_bin_trust_function_creators = 1; - This statement enables the creation of functions and triggers within the database. This is necessary for Zabbix to function properly.

QUIT; - This statement exits the MySQL client.

## On Zabbix server host import initial schema and data. And will be prompted to enter newly created password.

sudo zcat /usr/share/zabbix-sql-scripts/mysql/server.sql.gz | mysql --default-character-set=utf8mb4 -uzabbix -p zabbix - This command executes the Zabbix server database schema creation script:

- sudo zcat /usr/share/zabbix-sql-scripts/mysql/server.sql.gz: This part decompresses the compressed SQL script file and pipes its contents to the mysql command.
- mysql --default-character-set=utf8mb4 -uzabbix -p zabbix: This part executes the MySQL client with the following options:
  - --default-character-set=utf8mb4: Sets the default character set to UTF-8 for the session.
  - -u zabbix: Specifies the username to use for the connection.
  - -p zabbix: Prompts for the password for the specified user.

The combined effect of these commands is to execute the SQL statements in the server.sql.gz script, creating the necessary tables and structures in the MySQL database for Zabbix to function.

```
theekshani@theekshani:~$ sudo zcat /usr/share/zabbix-sql-scripts/mysql/serve
r.sql.gz | mysql --default-character-set=utf8mb4 -uzabbix -p zabbix
Enter password:
sudo mysql
set global log_bin_trust_function_creators = 0;
quit;

theekshani@theekshani:~$ sudo mysql
set global log_bin_trust_function_creators = 0;
quit;

Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 11
Server version: 8.0.39-1 (Ubuntu)

Copyright (c) 2000, 2024, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statemen
t.

mysql> set global log_bin_trust_function_creators = 0;
Query OK, 0 rows affected, 1 warning (0.00 sec)

mysql> quit;
Bye
```

## Disable log_bin_trust_function_creators option after importing database schema.

SET GLOBAL log_bin_trust_function_creators = 0; - This SQL statement disables the creation of functions and triggers within the database. While this is not typically recommended for most use cases, it might be necessary in specific scenarios where security restrictions are in place.

# Configure the database for Zabbix server

## Edit file /etc/zabbix/zabbix_server.conf and set the DB password with ->

sudo vim /etc/zabbix/zabbix_server.conf - This command opens the Zabbix server configuration file /etc/zabbix/zabbix_server.conf in the Vim text editor. This file contains various settings related to the Zabbix server, including database connection parameters, server listening address and port, logging settings, and more.You can edit the configuration file to customize Zabbix's behavior according to your specific needs. For example, you can modify the database connection settings, enable or disable specific features, and adjust logging levels.

```
theekshani@theekshani:~$ sudo vim /etc/zabbix/zabbix_server.conf
[sudo] password for theekshani:
```

# Edit the Parameters

DBHost=localhost- This configuration parameter specifies the hostname or IP address of the database server. In this case, localhost indicates that the database server is running on the same machine as the Zabbix server.

```
### Option: DBHost
#       Database host name.
#       If set to localhost, socket is used for MySQL.
#       If set to empty string, socket is used for PostgreSQL.
#       If set to empty string, the Net Service Name connection method is used to connect to Oracle database; also see
#       the TNS_ADMIN environment variable to specify the directory where the tnsnames.ora file is located.
#
# Mandatory: no
# Default:
# DBHost=localhost
DBHost=localhost
```

DBName=Zabbix - This configuration parameter specifies the name of the database that Zabbix will use to store its data. In this case, the database name is zabbix.

```
### Option: DBName
#       Database name.
#       If the Net Service Name connection method is used to connect to Oracle database, specify the service name from
#       the tnsnames.ora file or set to empty string; also see the TWO_TASK environment variable if DBName is set to
#       empty string.
#
# Mandatory: yes
# Default:
# DBName=

DBName=zabbix
```

DBUser=Zabbix - This configuration parameter specifies the username that Zabbix will use to connect to the database. In this case, the username is zabbix.

```
### Option: DBUser
#       Database user.
#
# Mandatory: no
# Default:
# DBUser=

DBUser=zabbix
```

DBPassword=HAtp20@#- This configuration parameter specifies the password for the database user specified in the DBUser parameter. In this case, the password is password. Remember to replace password with a strong, secure password.

```
### Option: DBPassword
#       Database password.
#       Comment this line if no password is used.
#
# Mandatory: no
# Default:
# DBPassword=
DBPassword=password
```

DBSocket=/var/run/mysqld/mysqld.sock- This configuration parameter specifies the path to the MySQL socket file. This file is used for communication between the Zabbix server and the MySQL database. The default location for the MySQL socket file is /var/run/mysqld/mysqld.sock. However, this location may vary depending on your MySQL installation.

```
### Option: DBSocket
#       Path to MySQL socket.
#
# Mandatory: no
# Default:
# DBSocket=
DBSocket=/var/run/mysqld/mysqld.sock
```

sudo apt install php-mysql - This command installs the PHP MySQL extension on your Ubuntu system. This extension allows PHP scripts to interact with MySQL databases, enabling you to perform database operations like querying, inserting, updating, and deleting data.

```
theekshani@theekshani:~$ sudo apt install php-mysql
The following packages were automatically installed and are no longer required:
  linux-headers-6.11.0-8          linux-modules-extra-6.11.0-8-generic
  linux-headers-6.11.0-8-generic  linux-tools-6.11.0-8
  linux-modules-6.11.0-8-generic  linux-tools-6.11.0-8-generic
Use 'sudo apt autoremove' to remove them.

Installing:
  php-mysql

Installing dependencies:
  php8.3-mysql

Summary:
  Upgrading: 0, Installing: 2, Removing: 0, Not Upgrading: 0
  Download size: 128 kB
  Space needed: 473 kB / 5,117 MB available

Continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu oracular/main amd64 php8.3-mysql amd64 8.3.11-0ubuntu0.24.10.2 [126 kB]
Get:2 http://archive.ubuntu.com/ubuntu oracular/main amd64 php-mysql all 2:8.3+93ubuntu2 [1,838 B]
Fetched 128 kB in 2s (59.5 kB/s)
Selecting previously unselected package php8.3-mysql.
(Reading database ... 133274 files and directories currently installed.)
Preparing to unpack .../php8.3-mysql_8.3.11-0ubuntu0.24.10.2_amd64.deb ...
Unpacking php8.3-mysql (8.3.11-0ubuntu0.24.10.2) ...
Selecting previously unselected package php-mysql.
Preparing to unpack .../php-mysql_2%3a8.3+93ubuntu2_all.deb ...
Unpacking php-mysql (2:8.3+93ubuntu2) ...
Setting up php8.3-mysql (8.3.11-0ubuntu0.24.10.2) ...

Creating config file /etc/php/8.3/mods-available/mysqlnd.ini with new version

Creating config file /etc/php/8.3/mods-available/mysqli.ini with new version

Creating config file /etc/php/8.3/mods-available/pdo_mysql.ini with new version
Setting up php-mysql (2:8.3+93ubuntu2) ...
Processing triggers for libapache2-mod-php8.3 (8.3.11-0ubuntu0.24.10.2) ...
Processing triggers for php8.3-cli (8.3.11-0ubuntu0.24.10.2) ...
```

# Start Zabbix server and agent processes

systemctl restart zabbix-server zabbix-agent apache2 – This command restarts the following services on your Ubuntu system:

- zabbix-server: Restarts the Zabbix server, which is responsible for collecting and processing monitoring data.
- zabbix-agent: Restarts the Zabbix agent, which collects data from monitored devices and sends it to the Zabbix server.
- apache2: Restarts the Apache web server, which is used to serve the Zabbix web interface.

Restarting these services is often necessary after making configuration changes or installing new software packages to ensure that the changes take effect.

```
theekshani@theekshani:~$ systemctl restart zabbix-server zabbix-agent apache
2
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ====
Authentication is required to restart 'zabbix-server.service'.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ====
Authentication is required to restart 'zabbix-agent.service'.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ====
Authentication is required to restart 'apache2.service'.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
```

systemctl enable zabbix-server zabbix-agent apache2 - This command enables the specified services to start automatically at system boot time. This ensures that the Zabbix server, agent, and Apache web server will start whenever the system is rebooted.

```
theekshani@theekshani:~$ systemctl enable zabbix-server zabbix-agent apache2
Synchronizing state of zabbix-server.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable zabbix-server
==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ====
Authentication is required to reload the systemd state.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
1==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ====
Authentication is required to reload the systemd state.
Authenticating as: theekshani
Password:
polkit-agent-helper-1: pam_authenticate failed: Authentication failure
==== AUTHENTICATION FAILED ====
Reload daemon failed: Access denied
Synchronizing state of zabbix-agent.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable zabbix-agent
==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ====
Authentication is required to reload the systemd state.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ====
Authentication is required to reload the systemd state.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ====
Authentication is required to reload the systemd state.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ====
Authentication is required to reload the systemd state.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-unit-files ====
Authentication is required to manage system service or unit files.
```

## Here again ping

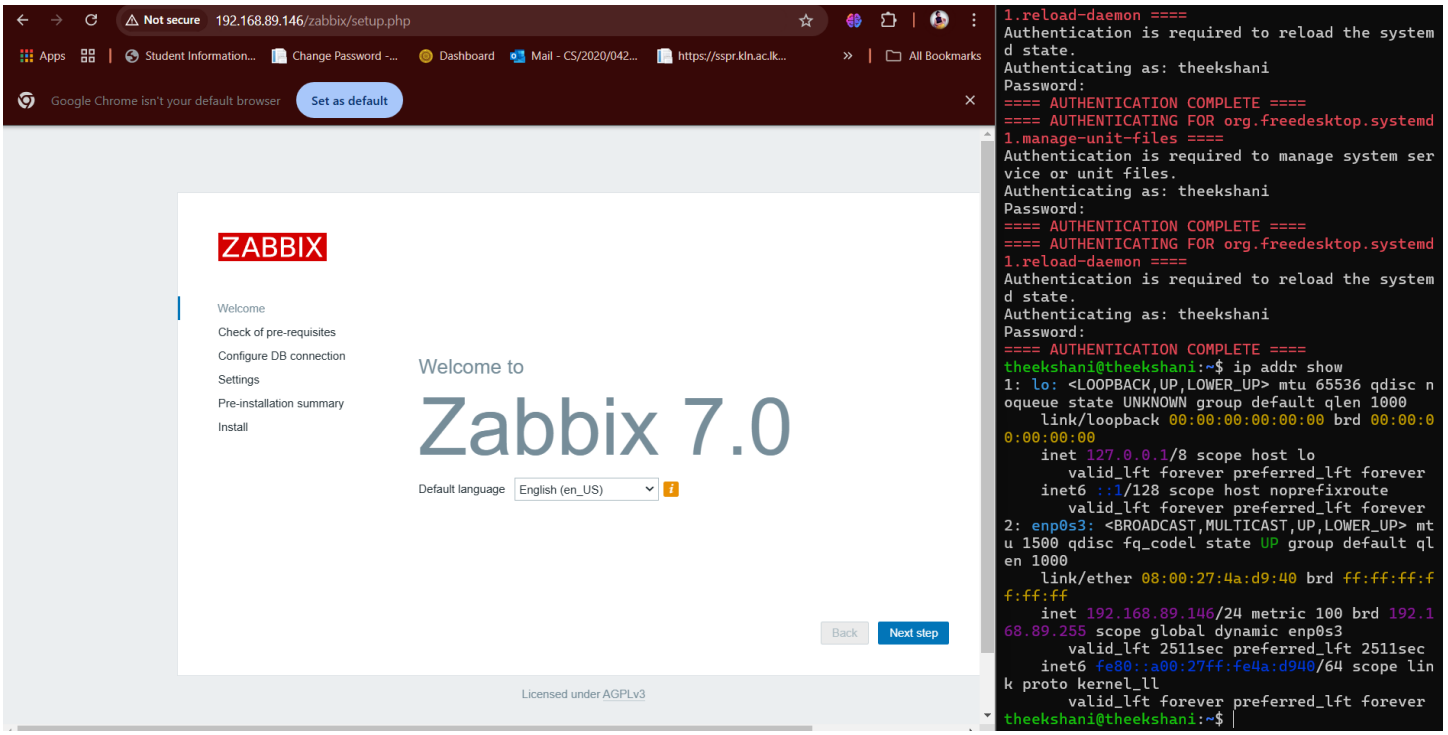
```
Microsoft Windows [Version 10.0.26100.2161]
(c) Microsoft Corporation. All rights reserved.

C:\Users\M S I>ping 192.168.89.146

Pinging 192.168.89.146 with 32 bytes of data:
Reply from 192.168.89.146: bytes=32 time<1ms TTL=64
Reply from 192.168.89.146: bytes=32 time<1ms TTL=64
Reply from 192.168.89.146: bytes=32 time<1ms TTL=64
Reply from 192.168.89.146: bytes=32 time=1ms TTL=64

Ping statistics for 192.168.89.146:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\M S I>
```

```
==== AUTHENTICATION COMPLETE ====
Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ====
Authentication is required to reload the systemd state.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ====
Authentication is required to reload the systemd state.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-unit-files ====
Authentication is required to manage system service or unit files.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ====
Authentication is required to reload the systemd state.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
theekshani@theekshani:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:4a:d9:40 brd ff:ff:ff:ff:ff:ff
    inet 192.168.89.146/24 metric 100 brd 192.168.89.255 scope global dynamic enp0s3
       valid_lft 2511sec preferred_lft 2511sec
    inet6 fe80::a00:27ff:fe4a:d940/64 scope link proto kernel_ll
       valid_lft forever preferred_lft forever
theekshani@theekshani:~$
```

## Open Zabbix UI web page and proceed with web ui config (should be self explanatory)

**Zabbix Frontend Installation**: Access Zabbix through a web browser and follow the setup wizard, which confirms PHP and database configuration.

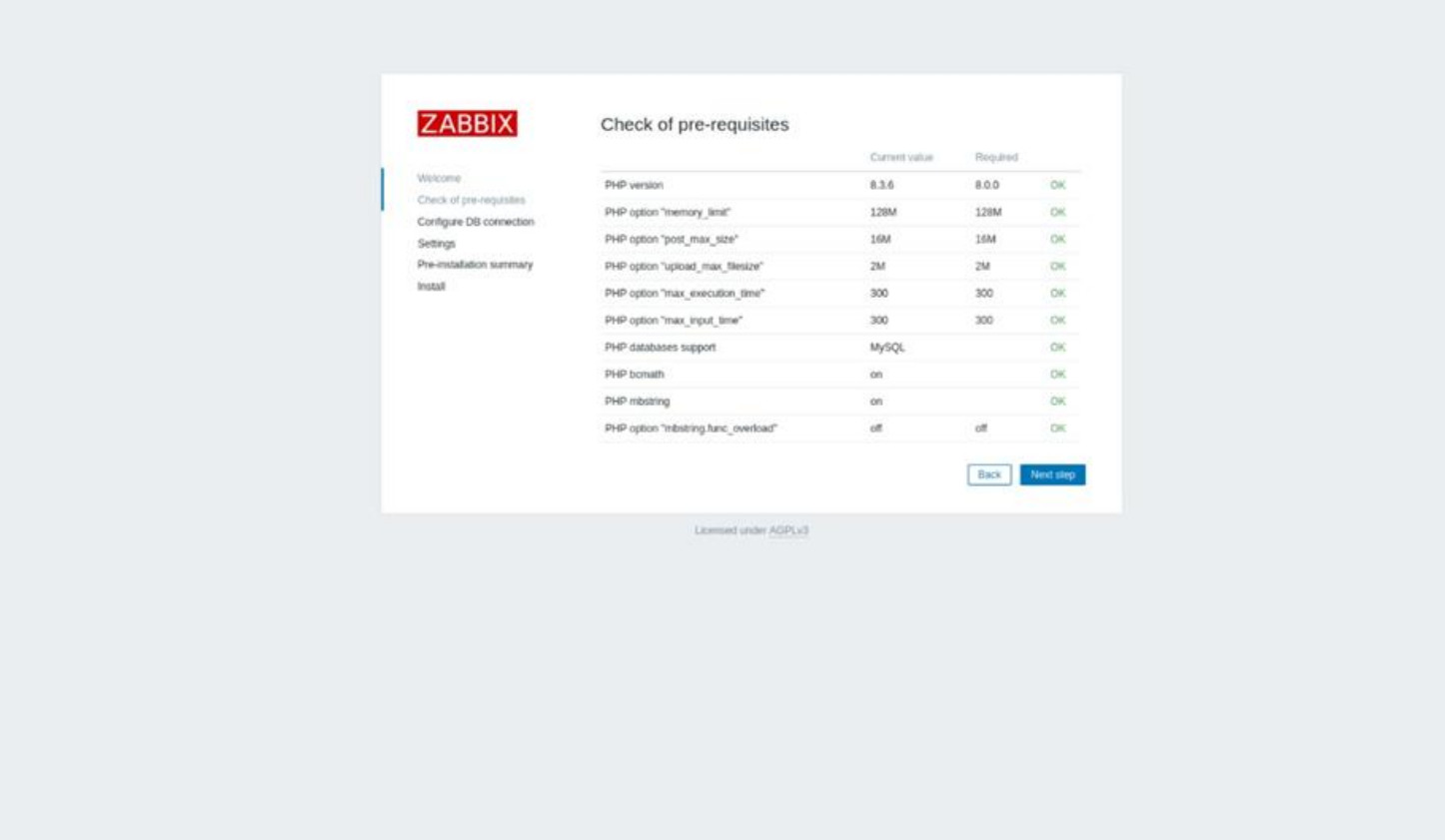
The default URL for Zabbix UI when using Apache web server is [http://192.168.89.146/zabbix](http://192.168.89.146/zabbix)



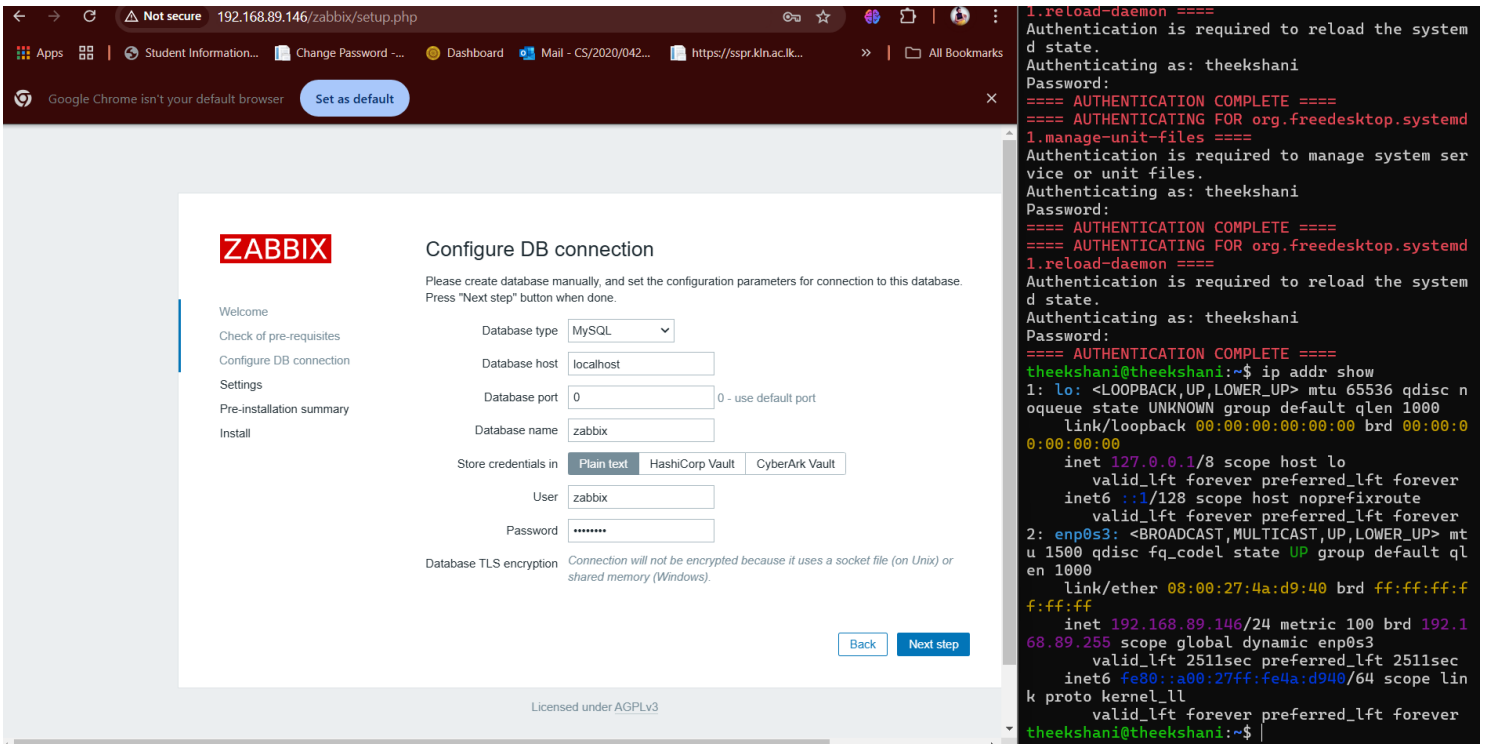

```
1.reload-daemon ====
Authentication is required to reload the systemd state.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-unit-files ====
Authentication is required to manage system service or unit files.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ====
Authentication is required to reload the systemd state.
Authenticating as: theekshani
Password:
==== AUTHENTICATION COMPLETE ====
theekshani@theekshani:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:4a:d9:40 brd ff:ff:ff:ff:ff:ff
    inet 192.168.89.146/24 metric 100 brd 192.168.89.255 scope global dynamic enp0s3
       valid_lft 2511sec preferred_lft 2511sec
    inet6 fe80::a00:27ff:fe4a:d940/64 scope link proto kernel_ll
       valid_lft forever preferred_lft forever
theekshani@theekshani:~$
```

# Successfully Connected !

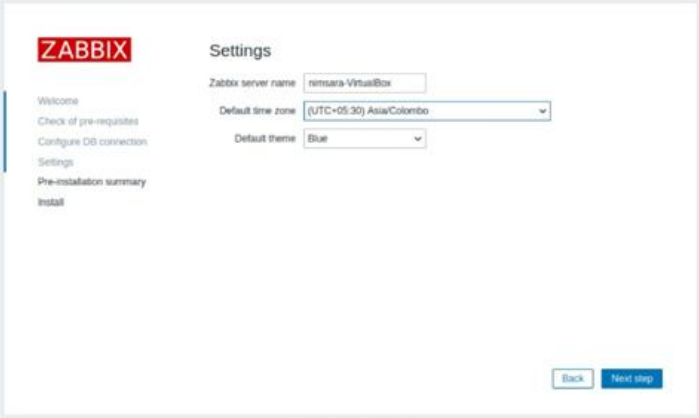
Check Prerequisites: Ensure the server has required resources and dependencies (e.g., web server, database, PHP).




Configure Database Connection: Connect Zabbix to the database by setting up the database user, permissions, and connection settings in the zabbix_server.conf file.

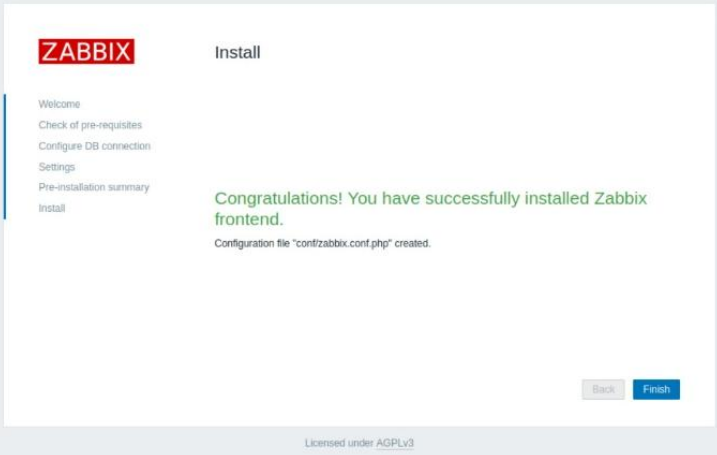


Adjust PHP Settings: Modify PHP configurations, like time zone and memory limits, to match Zabbix requirements.



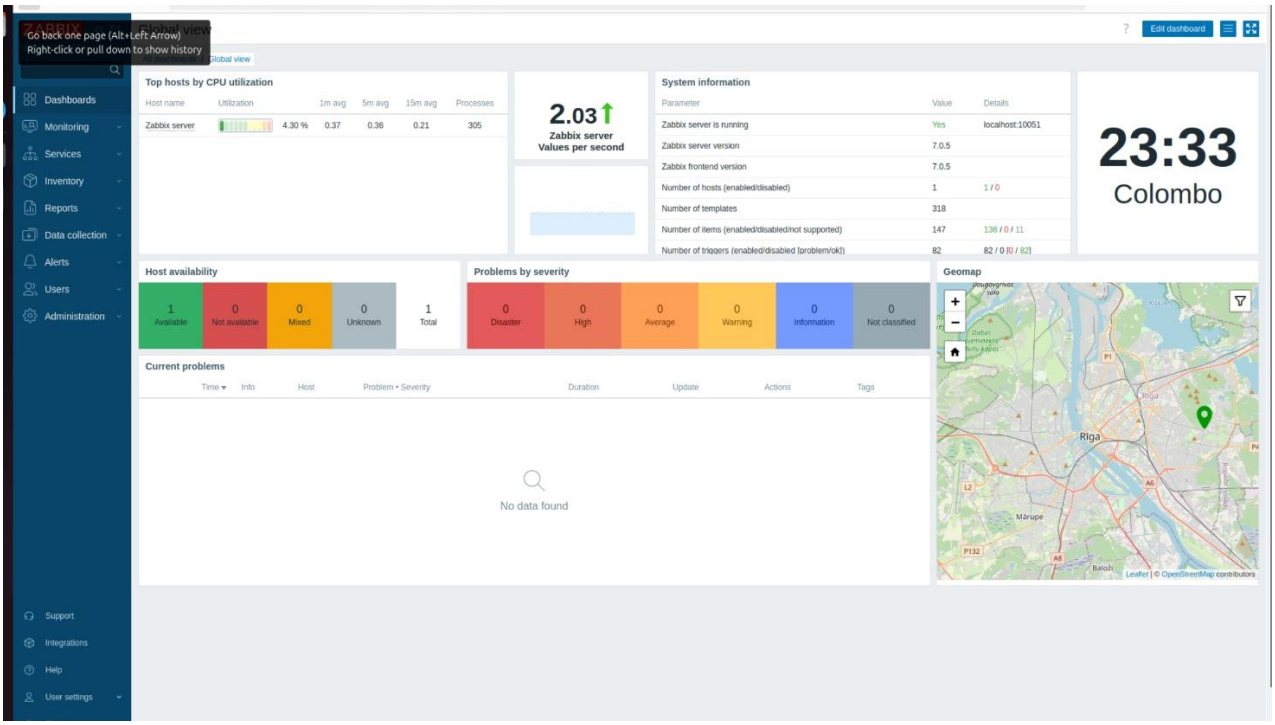

Pre-installation Summary: Verify the settings before starting the actual installation. This summary shows if everything is configured correctly.

Install Zabbix Frontend: Complete the installation process in the web interface, confirming Zabbix is installed and accessible

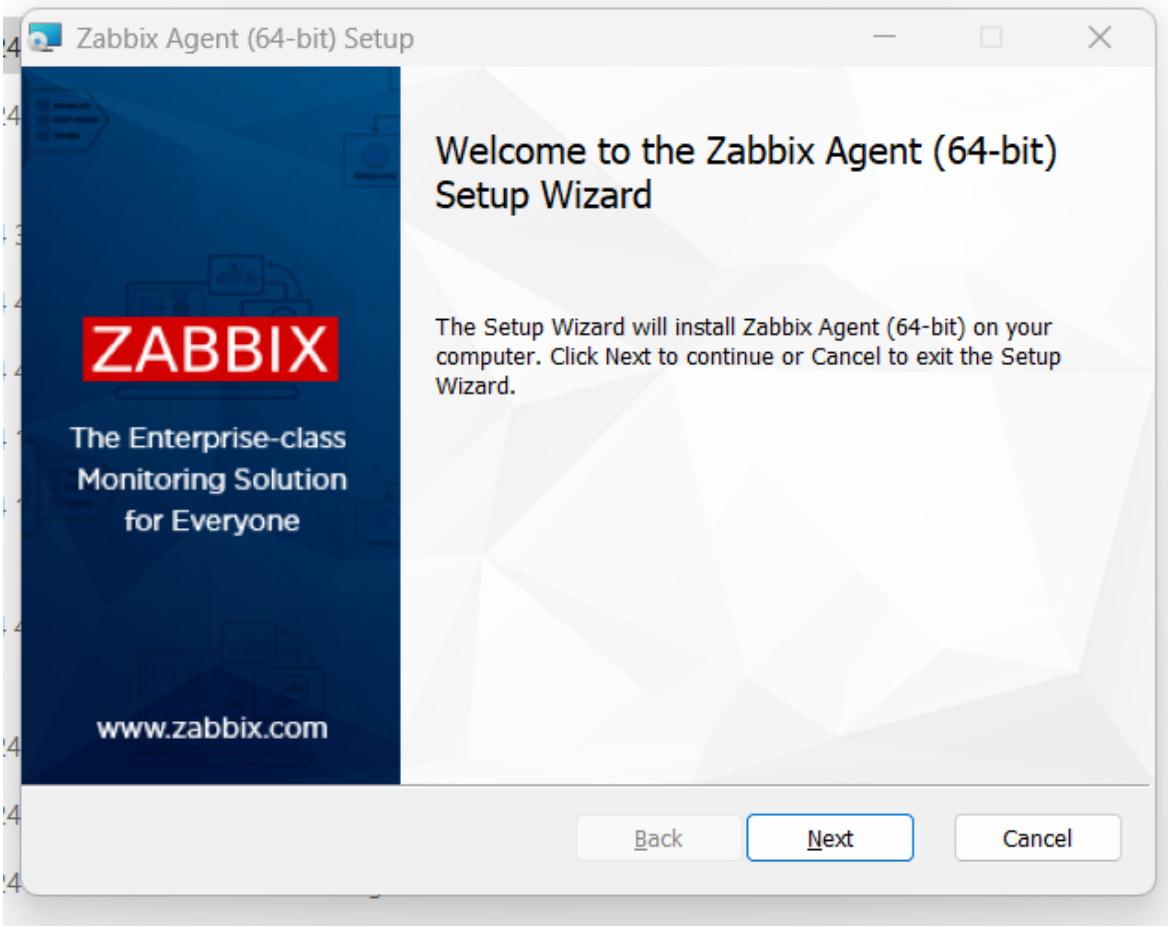


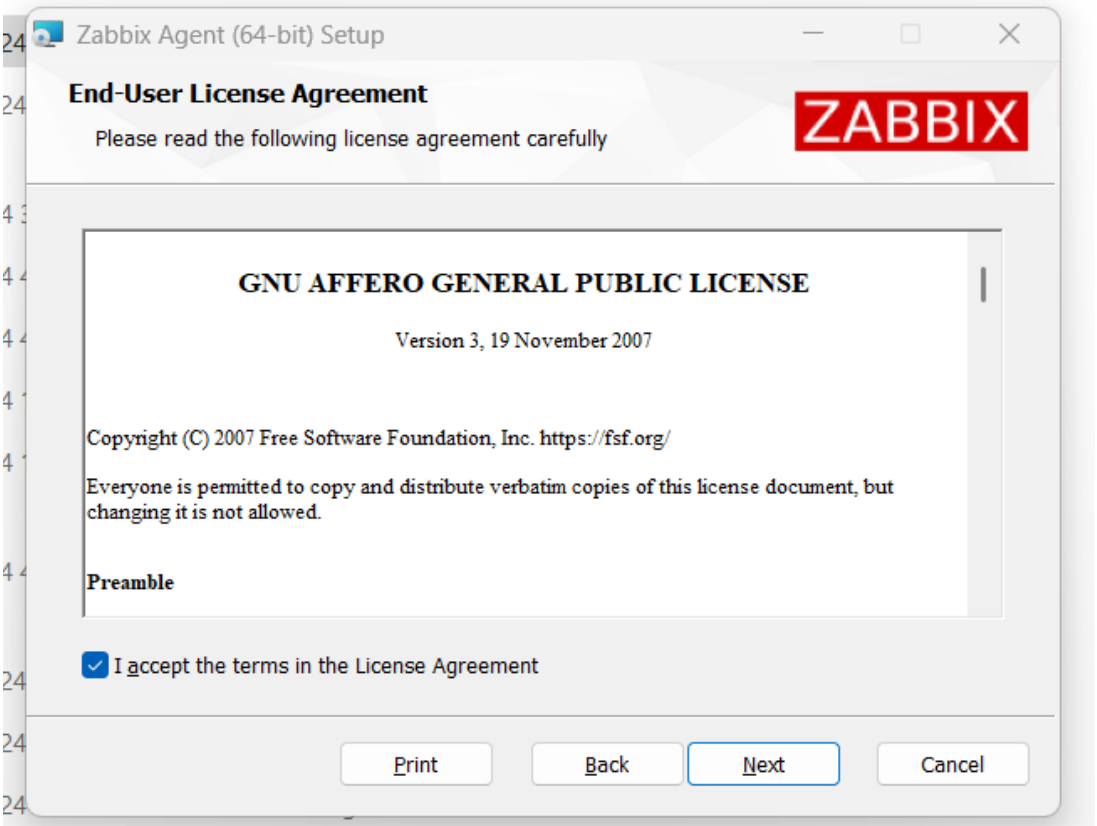

# Successfully Installed Zabbix frontend !

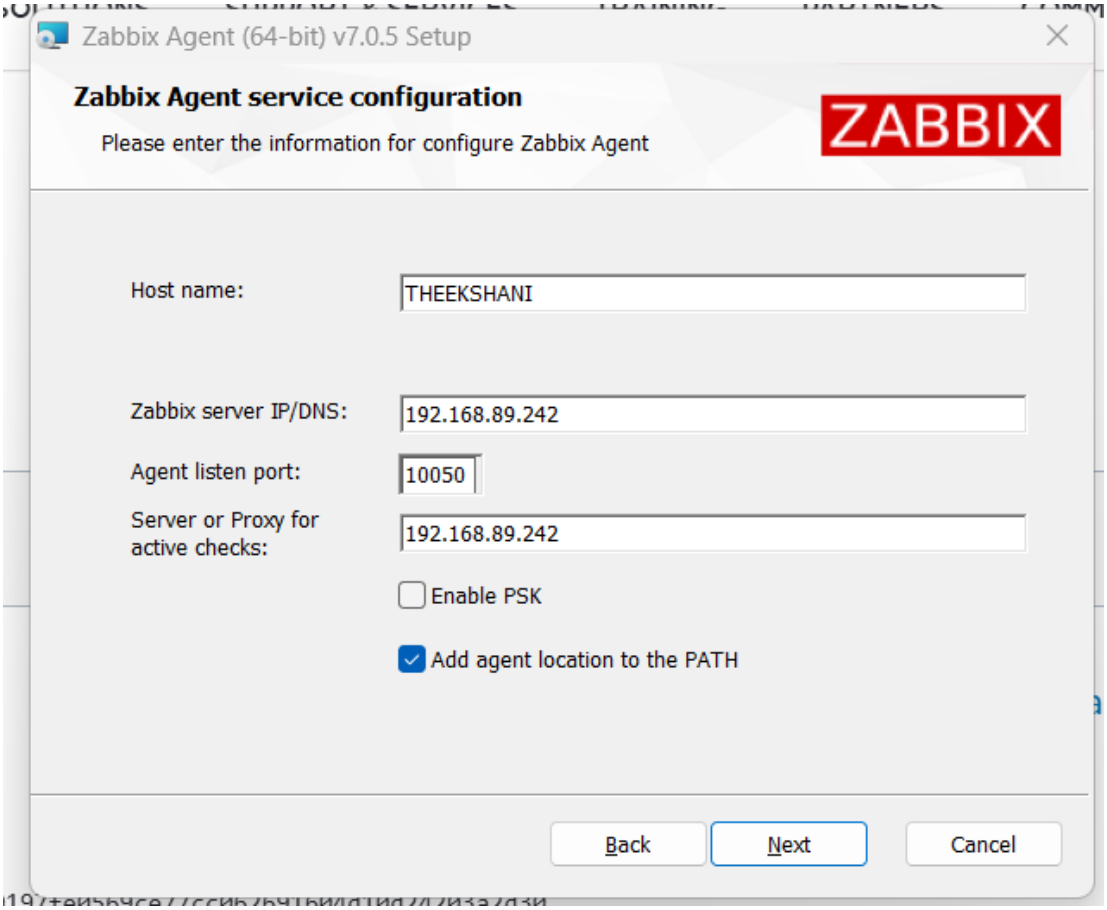
**Dashboard Configuration: Log in to Zabbix and set up the initial dashboard, customizing it with widgets for an overview of system metrics.**



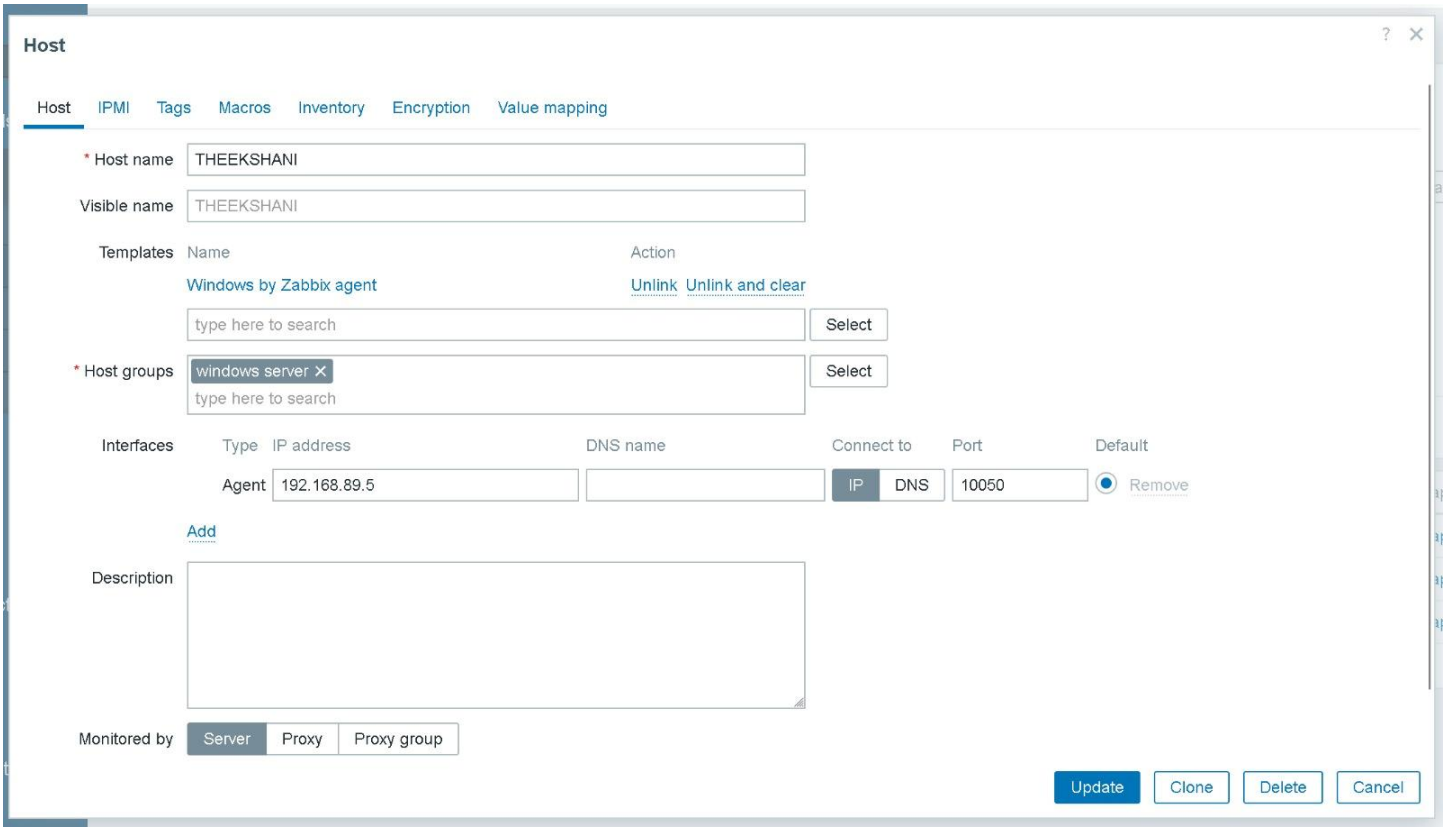

Add Zabbix Agent: Install and configure Zabbix Agent on devices you want to monitor. This involves setting the server IP in zabbix_agentd.conf and starting the agent service.

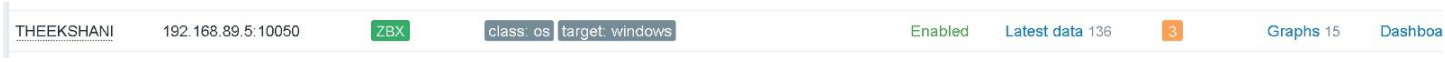


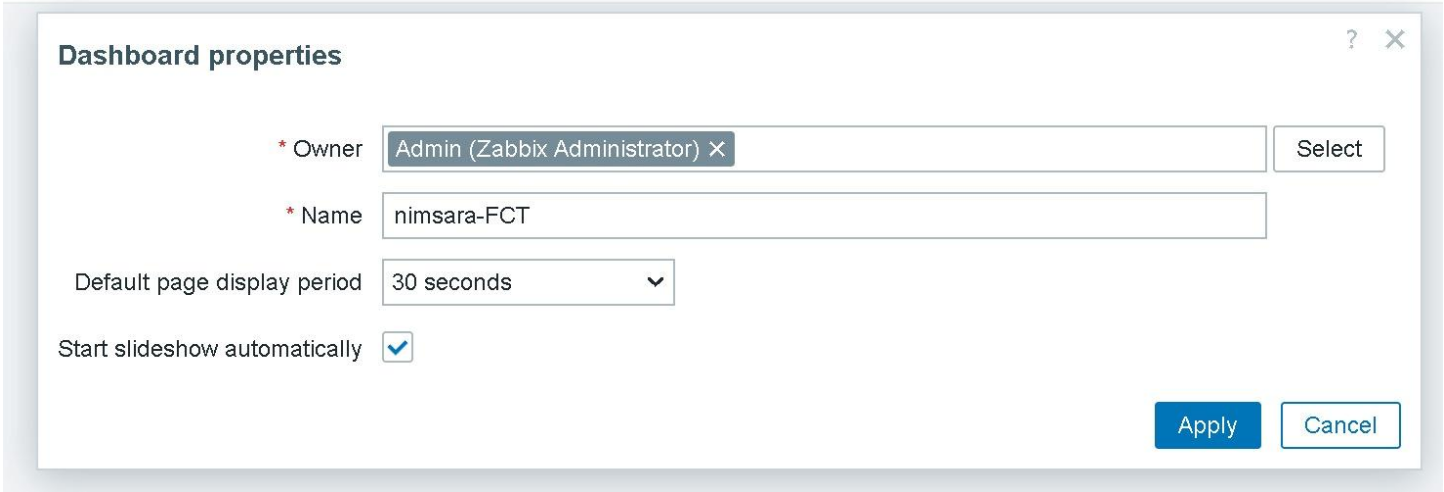

Zabbix Agent (64-bit) Setup
End-User License Agreement
Please read the following license agreement carefully
ZABBIX
GNU AFFERO GENERAL PUBLIC LICENSE
Version 3, 19 November 2007
Copyright (C) 2007 Free Software Foundation, Inc. https://fsf.org/
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.
Preamble
I accept the terms in the License Agreement
Print
Back
Next
Cancel

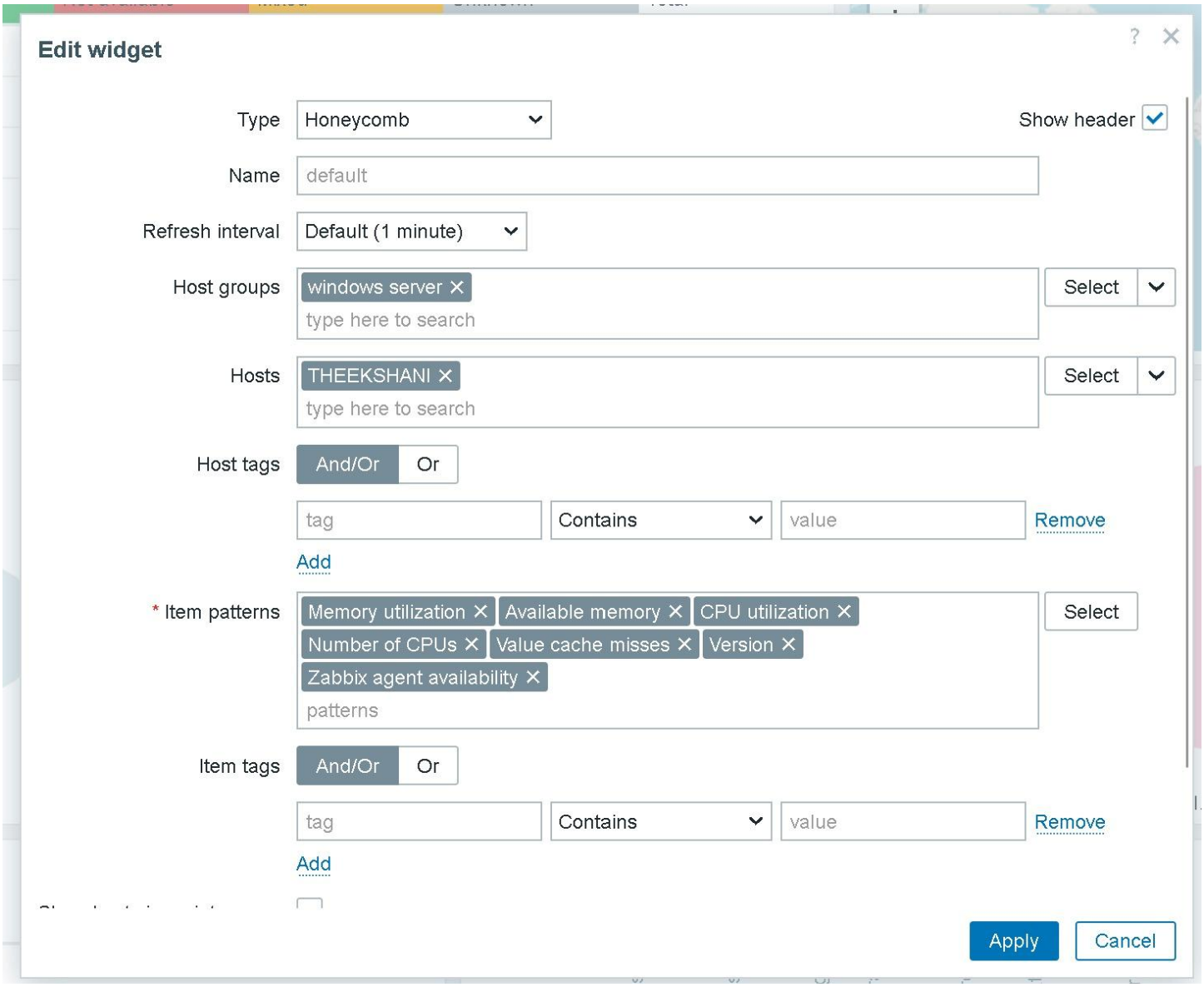

Zabbix Agent (64-bit) v7.0.5 Setup
Zabbix Agent service configuration
Please enter the information for configure Zabbix Agent
ZABBIX
Host name:
THEEKSHANI
Zabbix server IP/DNS:
192.168.89.242
Agent listen port:
10050
Server or Proxy for active checks:
192.168.89.242
Enable PSK
Add agent location to the PATH
Back
Next
Cancel

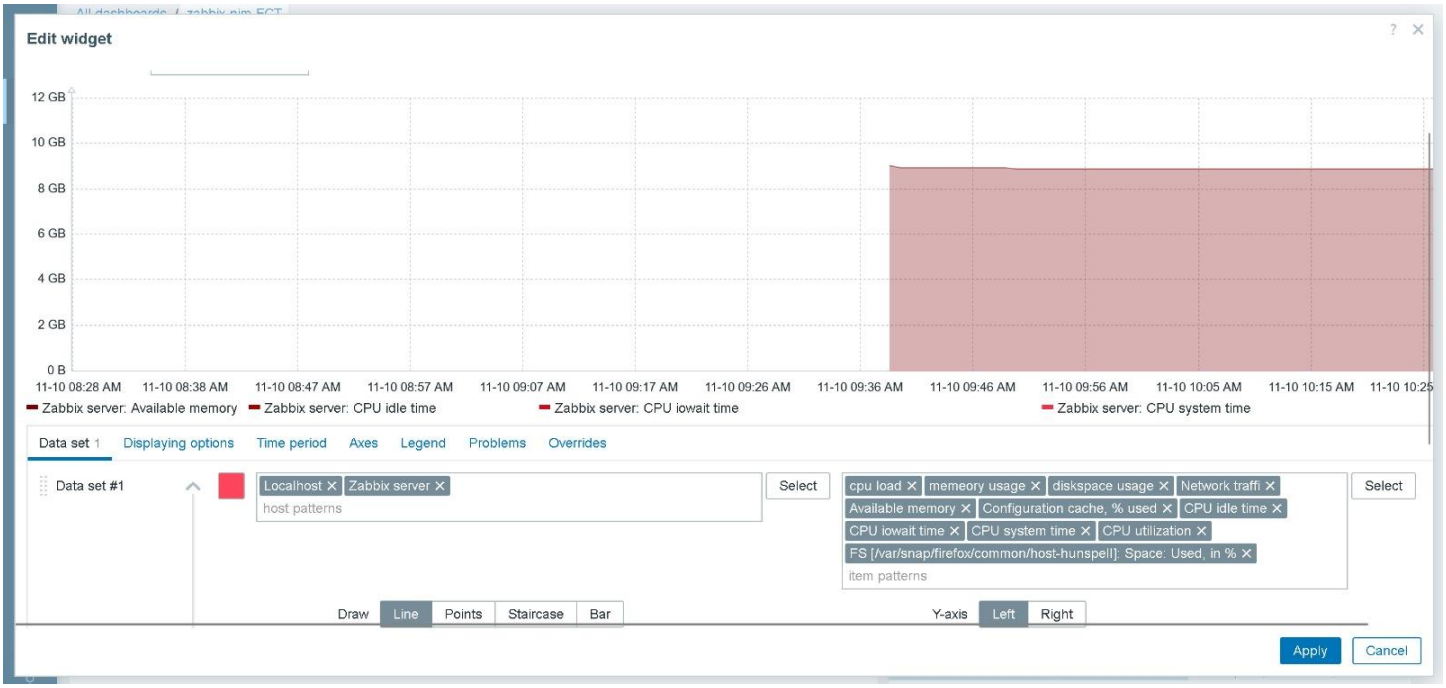
View Monitoring Data: Use the "Monitoring" tab to see real-time and historical data, track performance, and check the health of hosts.




Edit widget
Type
Honeycomb
Show header
Name
default
Refresh interval
Default (1 minute)
Host groups
windows server
type here to search
Select
Hosts
THEEKSHANI
type here to search
Select
Host tags
And/Or
Or
tag
Contains
value
Remove
Add
* Item patterns
Memory utilization
Available memory
CPU utilization
Number of CPUs
Value cache misses
Version
Zabbix agent availability
patterns
Select
Item tags
And/Or
Or
tag
Contains
value
Remove
Add
Apply
Cancel


Edit widget
12 GB
10 GB
8 GB
6 GB
4 GB
2 GB
0 B
11-10 08:28 AM
11-10 08:38 AM
11-10 08:47 AM
11-10 08:57 AM
11-10 09:07 AM
11-10 09:17 AM
11-10 09:26 AM
11-10 09:36 AM
11-10 09:46 AM
11-10 09:56 AM
11-10 10:05 AM
11-10 10:15 AM
11-10 10:25
Zabbix server: Available memory
Zabbix server: CPU idle time
Zabbix server: CPU iowait time
Zabbix server: CPU system time
Data set 1
Displaying options
Time period
Axes
Legend
Problems
Overrides
Data set #1
Localhost
Zabbix server
host patterns
Select
cpu load
memeory usage
diskspace usage
Network traffi
Available memory
Configuration cache, % used
CPU idle time
CPU iowait time
CPU system time
CPU utilization
FS [/var/snap/firefox/common/host-hunspell]: Space: Used, in %
item patterns
Select
Draw
Line
Points
Staircase
Bar
Y-axis
Left
Right
Apply
Cancel

# zabbix-nim-FCT

Edit dashboard

Scheduled report created

All dashboards / zabbix-nim-FCT

Zoom out 2024-11-10 08:28:09 – 2024-11-10 10:28:12

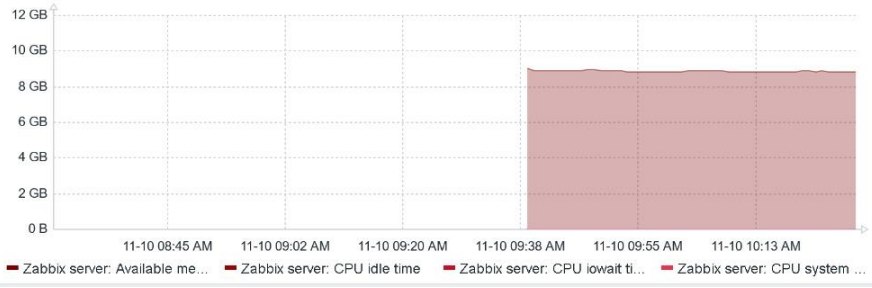
From 2024-11-10 08:28:09

To 2024-11-10 10:28:12

Apply

| | | | |
|---|---|---|---|
| Last 2 days | Yesterday | Today | Last 5 minutes |
| Last 7 days | Day before yesterday | Today so far | Last 15 minutes |
| Last 30 days | This day last week | This week | Last 30 minutes |
| Last 3 months | Previous week | This week so far | Last 1 hour |
| Last 6 months | Previous month | This month | Last 3 hours |
| Last 1 year | Previous year | This month so far | Last 6 hours |
| Last 2 years | | This year | Last 12 hours |
| | | This year so far | Last 1 day |

## Graph



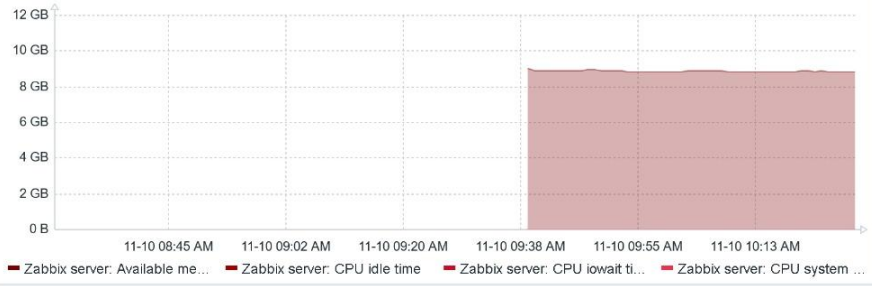

## Local

2024-11-10

10:30:51

Colombo

## Graph




## Local

2024-11-10

10:31:24

Colombo

## Host availability

| | Available | Not available | Mixed | Unknown | Total |
|---|---|---|---|---|---|
| Total Hosts | 1 | 0 | 0 | 0 | 1 |
| Agent (active) | 0 | 0 | - | 0 | 0 |
| Agent (passive) | 1 | 0 | 0 | 0 | 1 |
| SNMP | 0 | 0 | 0 | 0 | 0 |
| JMX | 0 | 0 | 0 | 0 | 0 |
| IPMI | 0 | 0 | 0 | 0 | 0 |

## Geomap

## Honeycomb

THEEKSHANI
5.57 %

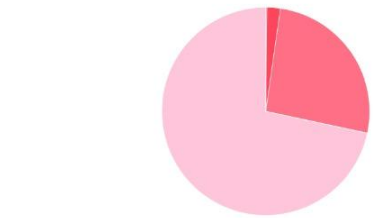
THEEKSHANI
54.16 %

THEEKSHANI
available (1)

## Host navigator

THEEKSHANI 2

## Pie chart




## System information

| Parameter | Value | Details |
|---|---|---|
| Zabbix server is running | Yes | localhost:10051 |
| Zabbix server version | 7.0.5 | Up to date |
| Zabbix frontend version | 7.0.5 | Up to date |
| Number of hosts (enabled/disabled) | 3 | 3 / 0 |
| Number of templates | 318 | |
| Number of items (enabled/disabled/not supported) | 436 | 425 / 0 / 11 |
| Number of triggers (enabled/disabled [problem/ok]) | 292 | 292 / 0 [7 / 285] |
| Number of users (online) | 2 | 1 |
| Required server performance, new values per second | 6.78 | |

## Data overview

| Hosts | 0 C: E:: Average disk rea... | 0 C: E:: Average disk writ... | 0 C: E:: Disk average que... | 0 C: E:: Disk read rate | 0 C: E:: Disk read reques... | 0 C: E:: Disk utilization by... | 0 C: E:: Disk write rate | 0 C: E:: Disk write reques... | Cache bytes | Context switches per sec... | CPU DPC time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| THEEKSHANI | 0.001351 | 0.008831 | 0.01667 | 1.4882 r/s | 0.26ms | 0.8449 % | 18.7343 w/s | 1.49ms | 237.5 MB | 6592.73 | 0.776 |

# Challenges

**1. Challenge: Forgotten SQL Password**

• Scenario: During the setup process, you forgot the MySQL root password, which prevented further configuration.

• Solution Steps:

1. Stop MySQL service: sudo systemctl stop mysql

2. Start MySQL in safe mode: sudo mysqld_safe --skip-grant-tables &

3. Access MySQL without a password: mysql -u root

4. Reset root password:

ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'new_password';

5. Flush privileges and exit: FLUSH PRIVILEGES; , EXIT;

6. Restart MySQL service: sudo systemctl start mysql

• Explanation: This process bypassed the password requirement, allowing access to reset the root password, then restored normal MySQL operations.

**2. Challenge: Incompatible Zabbix and Ubuntu Versions**

• Scenario: Initially, Ubuntu 24.04 was selected, but Zabbix 7.0.0 had compatibility issues with this version.

• Solution Steps:

Check Zabbix Version: Use the following command to determine the installed Zabbix version:

zabbix_server -V

1. Switch to Ubuntu 22.04, a version known to be compatible with Zabbix 7.0.0.

2. Install Zabbix dependencies carefully on the compatible OS version.

3. Verify compatibility: Check Zabbix and system requirements in the official documentation.

• Explanation: Downgrading to a compatible OS version eliminated errors and ensured Zabbix dependencies and libraries aligned correctly.

**3. Challenge: MySQL Not Configuring Correctly During Zabbix Installation**

• Scenario: During database configuration, PostgreSQL was initially set up, but MySQL was required.

• Solution Steps:

1. Install MySQL server: sudo apt install mysql-server

2. Configure Zabbix server to use MySQL:

DBHost=localhost

DBName=zabbix

DBUser=zabbix

DBPassword=zabbix_password

3. Update Zabbix configuration file (/etc/zabbix/zabbix_server.conf) with the correct DB settings.

4. Restart Zabbix: sudo systemctl restart zabbix-server

• Explanation: Switching from PostgreSQL to MySQL and adjusting Zabbix configuration ensured the database connection was properly established.

**4. Challenge: Account Temporarily Blocked on Zabbix Web Interface**

• Scenario: After multiple failed login attempts, the Zabbix Admin account became temporarily blocked.

• Solution Steps:

1. Log into MySQL: mysql -u root -p zabbix

2. Reset failed attempts for Admin user:

UPDATE users SET attempt_failed=0, attempt_clock=0 WHERE username='Admin';

3. Exit MySQL and attempt logging in again.

• Explanation: This reset the failed login attempts counter for the Admin user, allowing immediate access without waiting for the temporary block to expire.

**5. Challenge: Configuring Database Connection in Zabbix Setup**

• Scenario: During Zabbix installation, the database connection details were not set up correctly, causing errors.

• Solution Steps:

1. Database Details:

▪ Database Host: localhost

▪ Database Name: zabbix

▪ Username: zabbix

▪ Password: (Zabbix database password)

2. Configuration File: Ensure that these settings are updated in /etc/zabbix/zabbix_server.conf.

• Explanation: Providing the correct database connection details ensures that Zabbix can communicate with the database backend during setup.

**6. Challenge: Zabbix Server Service Failing to Start**

• Scenario: The Zabbix server service failed to start due to configuration or permission issues.

• Solution Steps:

1. Check service status: sudo systemctl status zabbix-server

2. Inspect log files for errors: tail -f  /var/log/zabbix/zabbix_server.log

3. Adjust permissions on configuration files or directories if required.

4. Restart service: sudo systemctl restart zabbix-server

• Explanation: Checking logs helped diagnose and address specific issues preventing the service from running, such as incorrect permissions or configuration errors.

**7. Challenge: Configuring Zabbix Frontend Settings**

• Scenario: Incorrect Zabbix frontend configuration caused display or access issues.

• Solution Steps:

1. Set Zabbix server name in the frontend to match your server.

2. Choose timezone according to your region.

3. Set theme (optional) for preferred UI customization.

• Explanation: Correct frontend configuration ensures that the Zabbix interface functions correctly, reflecting the proper server and timezone settings.

**8. Unable to Ping between Windows Host and Virtual Machine**

• Scenario: During the Zabbix setup process, a network connectivity issue was encountered. The Windows host machine could not successfully ping the virtual machine (VM), and vice versa

• Solution Steps:

1. Adjust Network Adapter Settings:

Open the virtual machine’s settings and navigate to the network settings.

Set the network adapter to Bridged mode. This mode allows the VM to share the host's network interface, giving it an IP address on the same network as the Windows host.Choose timezone according to your region.

2. Allow ICMP Traffic on Linux VM:

Open a terminal in the VM and run the following command to allow ICMP (ping) requests:  sudo ufw allow icmp

This command configures the firewall to accept incoming ping requests on the Linux system.

3. Enable ICMP Requests on Windows:

On the Windows host, go to Control Panel > Windows Defender Firewall > Advanced Settings.

Under Inbound Rules, find and enable the rule for File and Printer Sharing (Echo Request - ICMPv4-In). This allows the Windows firewall to accept ping requests.

Explanation: By adjusting the network adapter settings and configuring firewall permissions, both systems could successfully ping each other, restoring the necessary network connectivity for Zabbix monitoring functions.