

# Zabbix Installation and Configuration Complete Guide



For more information 🖱️ <https://www.zabbix.com/>

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## Introduction

Welcome to Zabbix Monitoring Solution. This document will provide you a comprehensive guide to the installation and configuration of the Zabbix server software and also install Zabbix agents on the hosts. If you are new to Zabbix, then this guide is for you.

Zabbix is an Enterprise Monitoring solution which helps to tracking the status and performance of IT infrastructure, services, applications and devices in real-time. It is scalable from small environments with few devices as well as large complex networks with thousands of devices. Zabbix provide real-time monitoring also incorporated with comprehensive and detailed overview of the hosts or devices connected to it.

This powerful software tool is widely used in server monitoring in large enterprises since it is compliance with security guidelines and powered with reliable and real-time monitoring. A few use cases of Zabbix can be mentioned as server monitoring, network monitoring, cloud monitoring, database monitoring and application monitoring.

Zabbix frontend is secured with SSL (Secure Socket Layer) ensuring protection between users and servers. It also uses TLS (Transport Layer Security) v.1.2 and v.1.3 guaranteeing no unauthorized access to the data transmitted between two services. These factors provide added security to the services provided by Zabbix and also make trust of the software.

This also employes for distributed monitoring as well. High availability and zero maintenance give more reliable and flexible control over the systems and devices.

Since most of the large ISPs are compliance with and has begun to align with IPv6, Zabbix also supports with IPv6 for hybrid or native IPv6 environments. Moreover, the tool has inbuilt well-equipped dashboard and a separate section for visualization of data that makes the use of software more convenient and reliable. Easy to understand and self-describing features are also incorporated with this tool since a variety of community is using this popular software tool in most of the enterprises. Since Zabbix is an open-source software, it has a great community for the development and maintenance which actively seeking for any bugs and immediately provide updates to the software. Therefore, Zabbix is well known for very reliable, secure, high performance enterprise monitoring tool which enhances the efficiency of maintenance IT infrastructure.

In the following sections, we will be discussing how to download and install Zabbix server and monitor some devices using Zabbix.

## Installation of Ubuntu

### Download and install a Virtual Box into your computer

Although it is possible to run Zabbix natively on windows computer, it is recommended to run Zabbix server and Zabbix frontend in a Linux-based environment because it works well with Linux systems. On the other hand, the process of working in a windows environment for software like these might be complicated due to additional configurations have to be done (such as installing Cygwin). Zabbix compliance with LAMP (Linux, Apache, MySQL/MariaDB, PHP/Perl) stack is another reason for using Linux based environment for monitoring purposes.

Download Oracle Virtual Box from the following link.

👉 <https://www.virtualbox.org/wiki/Downloads>

Double click on the .exe file you downloaded and follow the prompt, so you can easily install Virtual Box on your computer.

### Download and install Ubuntu Desktop in the Virtual Box

👉 <https://ubuntu.com/download/desktop>

Once downloaded, open the Oracle Virtual Box.

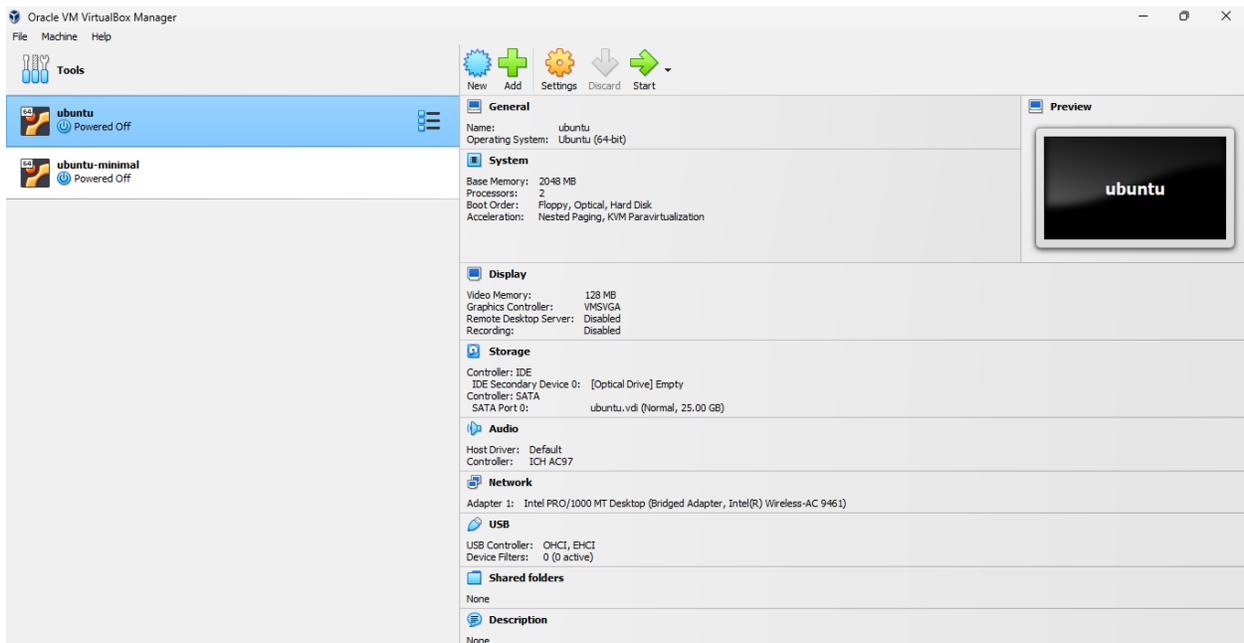


Figure 01 : Oracle virtual box

Click on New icon.

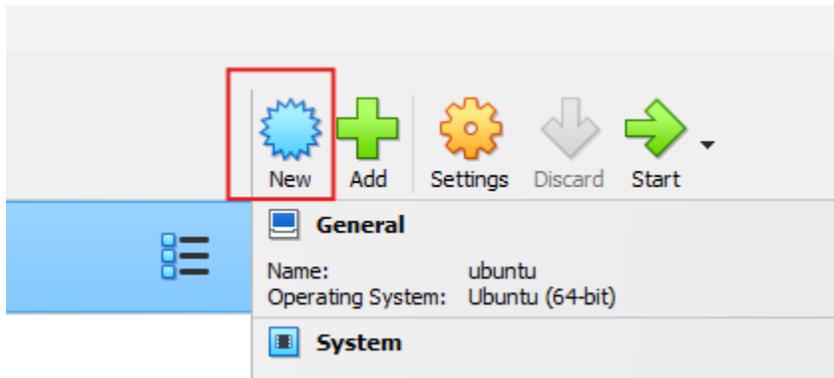


Figure 02 : Create new virtual machine

A new window will pop up to create a new virtual machine. Enter the details as follows. You may see the 'Type' parameter automatically change to Linux once you entered the name as 'Ubuntu'. Please note that not to add any iso image yet, because we will be doing that in the latter part. Also note that you can't enter a name that is already added to the virtual box. Click next and enter other details such as base memory, number of processors as you wish that is convenient for your computer.

It has default values that are not harm to the computer, so better to keep going with default values as recommended. Once you clicked finished, you can change the other settings now.

While your newly created virtual machine being selected, click on the Settings icon (yellow color gear icon). Now the settings window will open as follows. Goto storage section.

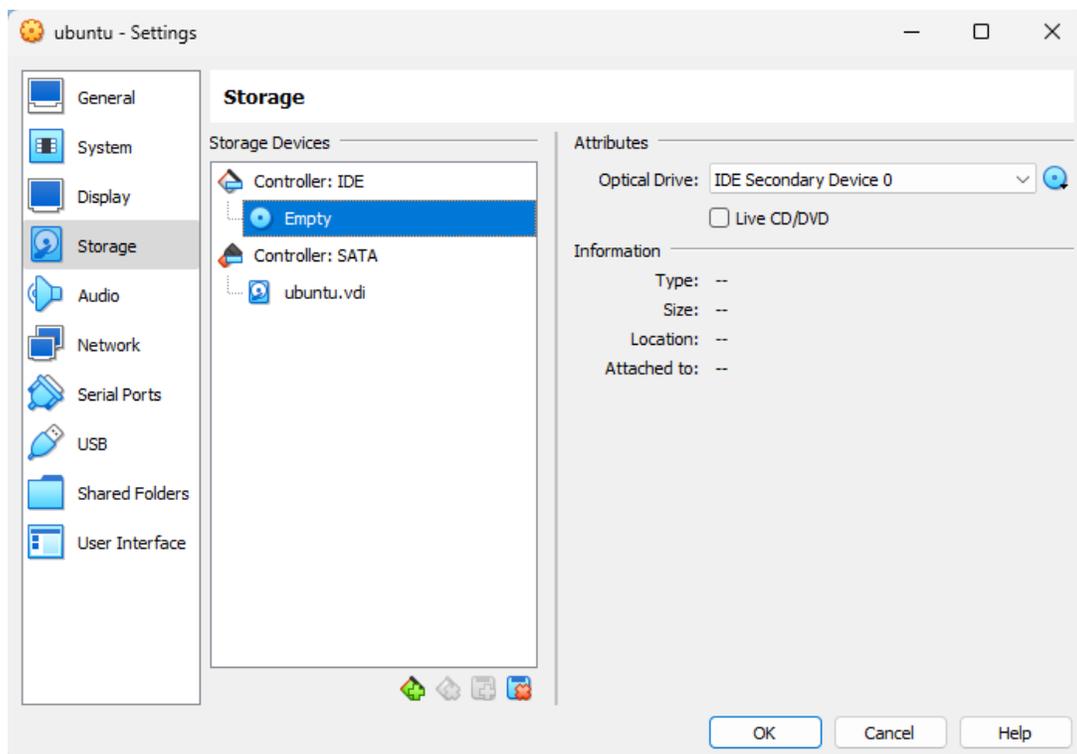


Figure 03 : Virtual machine – settings page

On the right-hand side, in the Optical Drive pane, there is a disk like icon to the right side of the window. Click on that and browse for your downloaded Ubuntu iso file and add it. Now click OK and start the virtual machine.

NOTE :

Still ubuntu is not installed on your virtual machine. This first boot up will install it and automatically removes the disk image which is the iso file. If it is not removed automatically, you have to manually remove it from the storage. Otherwise, you will be prompted to install ubuntu again and again when you start the virtual machine.

Installation of Ubuntu might take some time. You only have to proceed with the guidelines given by itself so you don't want to worry about the other settings and no changes will be made to your private files since newly created machine is virtualized.

## Install Ubuntu minimal version

Now you have installed ubuntu on your virtual machine in the oracle virtual box. But, having ubuntu desktop is not enough for monitoring purposes. We need another virtual machine, but this time, we install ubuntu minimal version, instead of ubuntu desktop. Ubuntu minimal is a lightweight version of ubuntu which provides only a terminal window with essential components. You can download and install ubuntu minimal from the following link.

Download ubuntu minimal

👉 <https://help.ubuntu.com/community/Installation/MinimalCD>

Goto ' Status of the Minimal ISO image ' section. Under that, there are two links, click on amd64.

### Status of the Minimal ISO image

**Ubuntu 18.04 LTS was the last Ubuntu release which "mini.iso" images were produced for.** These images, which Canonical and the Ubuntu project never officially supported, were always limited to BIOS booting on the amd64 and i386 platforms only. They existed as a by-product of building the old server installer (based on "debian-installer"; later called "alternative installer").

Ubuntu 18.04 LTS mini.iso:

1. [amd64 \(checksums and signatures\)](#) ← Click on amd64
2. [i386 \(checksums and signatures\)](#)

NOTE :

Most of the time, people get difficulty in finding iso file for the ubuntu minimal version. Sometimes, the link provided above may also have broken. We will provide you an alternative download link, but an older version. You can upgrade to latest version after installation.

Alternative Download

👉 [Ubuntu - minimal.iso](#)

After download, create a new virtual machine as mentioned before. Since now we are going to install ubuntu minimal on this new virtual machine, you may select base memory (RAM) about 2GB when creating the virtual machine. Now after creating the virtual machine, go to settings and then storage section.

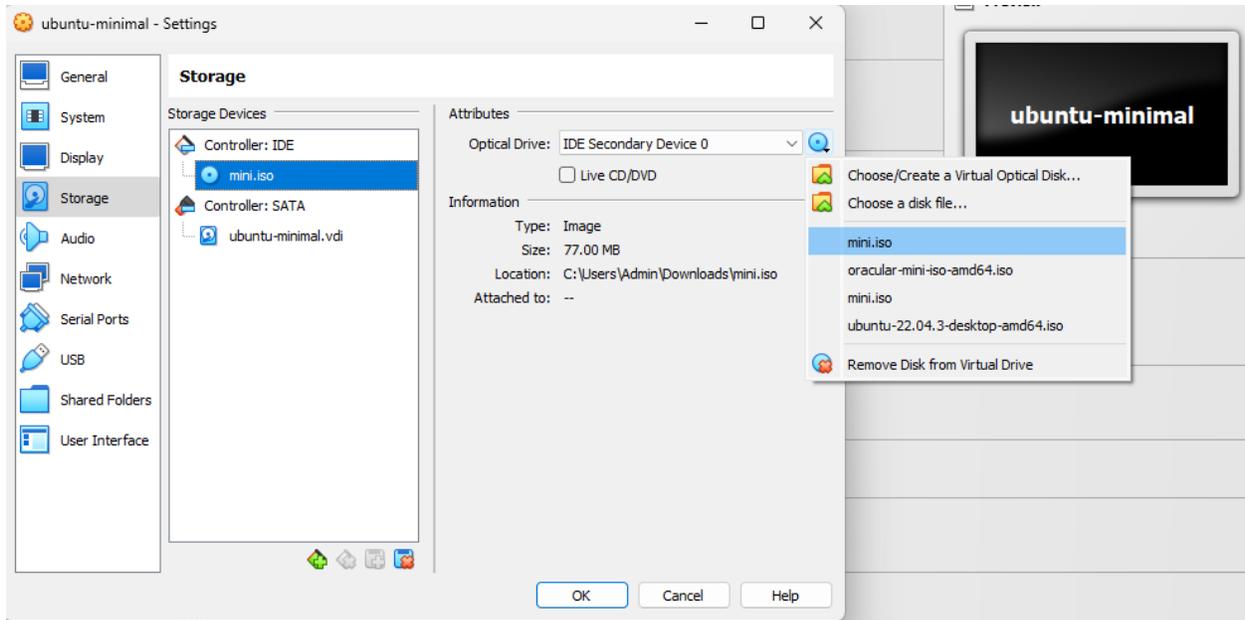


Figure 04 : Virtual machine – select the iso image

Locate the minimal iso file you recently downloaded. Then start the virtual machine so you can proceed with the installation process. It will prompt for several options as follows.



Figure 05 : Ubuntu minimal

Select Install and proceed with the installation. Most of the time you have to go with default settings like selecting language and time zone.

## Configure the Network Adapter of the virtual box

Now you have created two virtual machines in the virtual box and installed ubuntu on them. Now to keep these two virtual machines in the same network, we have to change the Network Adapter of each virtual machine from NAT (Default) to Bridge Adapter.

Select ubuntu desktop and then click on settings.

Goto Network section. Change the adapter to Bridge as follows.

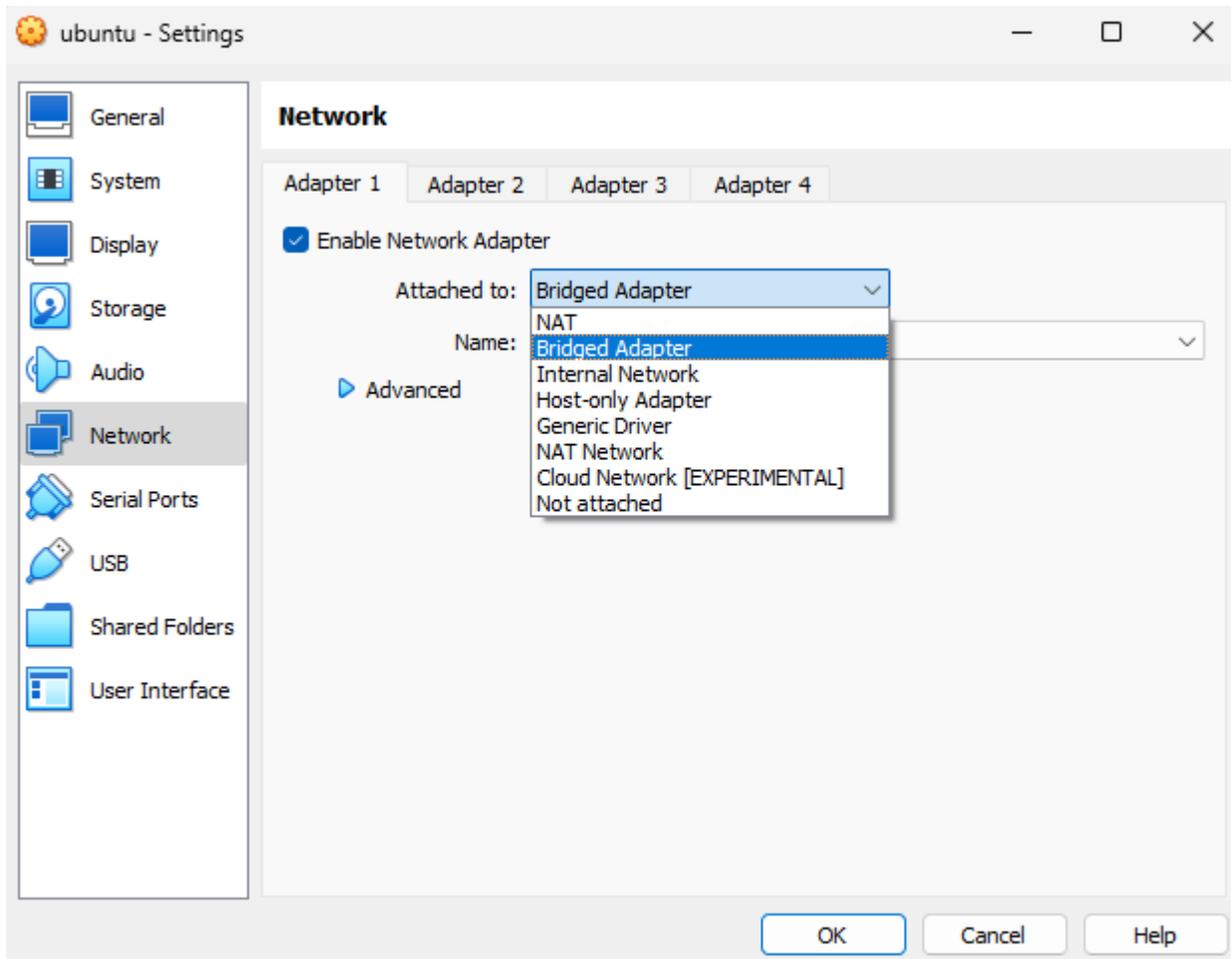


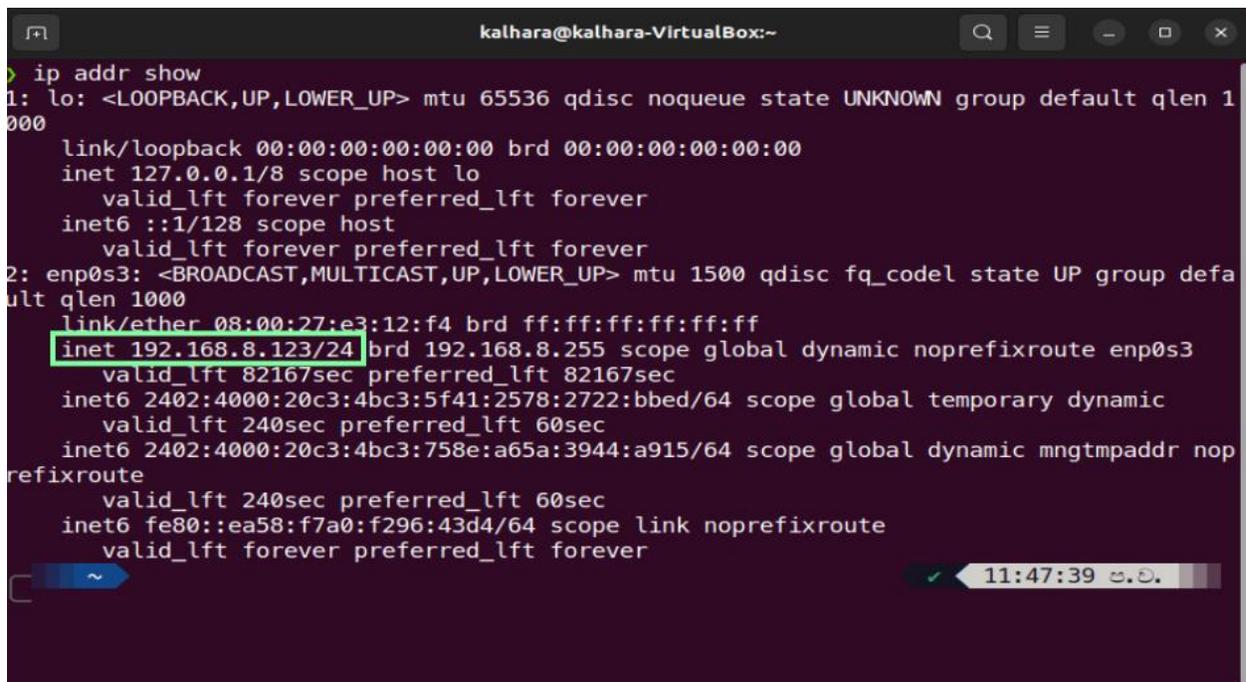
Figure 06 : Change the network adaptor

## Finalizing the configuration of Virtual machines.

After changing the network adapters to bridge mode in both the virtual machines properly, your virtual machines are in the same network. Now you should be able to see their IP addresses are in the same subnet. Let's check on them.

Start your virtual machines. Open the terminals and enter the following commands.

```
>> ip addr show
```



```
kalhara@kalhara-VirtualBox:~  
> 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  
        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:e3:12:f4 brd ff:ff:ff:ff:ff:ff  
    inet 192.168.8.123/24 brd 192.168.8.255 scope global dynamic noprefixroute enp0s3  
        valid_lft 82167sec preferred_lft 82167sec  
    inet6 2402:4000:20c3:4bc3:5f41:2578:2722:bbcd/64 scope global temporary dynamic  
        valid_lft 240sec preferred_lft 60sec  
    inet6 2402:4000:20c3:4bc3:758e:a65a:3944:a915/64 scope global dynamic mngtmpaddr noprefixroute  
        valid_lft 240sec preferred_lft 60sec  
    inet6 fe80::ea58:f7a0:f296:43d4/64 scope link noprefixroute  
        valid_lft forever preferred_lft forever
```

Figure 07 : Check the IP address of the virtual machine

In the above image, the green color highlighted IP is the IP address of the virtual machine. If you didn't configure the Network Adapter to the bridge mode, you will see something like 10.0.0.4/24

Here is the ip address of the ubuntu minimal version. Note that both the virtual machines are in the same subnet. (192.168.8.x /24) Now we know that our two virtual machines are in the same network.

```
kalhara@ubuntu-minimal:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
    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
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel
    link/ether 08:00:27:ab:dd:4a brd ff:ff:ff:ff:ff:ff
    inet 192.168.8.161/24 metric 100 brd 192.168.8.255 scope global
        valid_lft 86376sec preferred_lft 86376sec
    inet6 2402:4000:20c3:4bc3:a00:27ff:feab:dd4a/64 scope global
        valid_lft 276sec preferred_lft 96sec
    inet6 fe80::a00:27ff:feab:dd4a/64 scope link
        valid_lft forever preferred_lft forever
kalhara@ubuntu-minimal:~$ _
```

Figure 08 : Check the IP address of ubuntu minimal virtual machine

If you want to be more familiar with ubuntu CLI and how Linux commands are working , refer to the following document and get familiar with Linux commands.

👉 [Download Ubuntu CLI cheat sheet](#)

## Download and install Zabbix software

### Download Zabbix

Now you have configured your virtual machine and ready to install Zabbix Software. To install it, you have to go to Zabbix Official website and choose the package that matches your operating system and version. You also have to choose what database and server you need to install.

Start your virtual machine and open Firefox web browser. Goto following link.

[Download Zabbix](#)

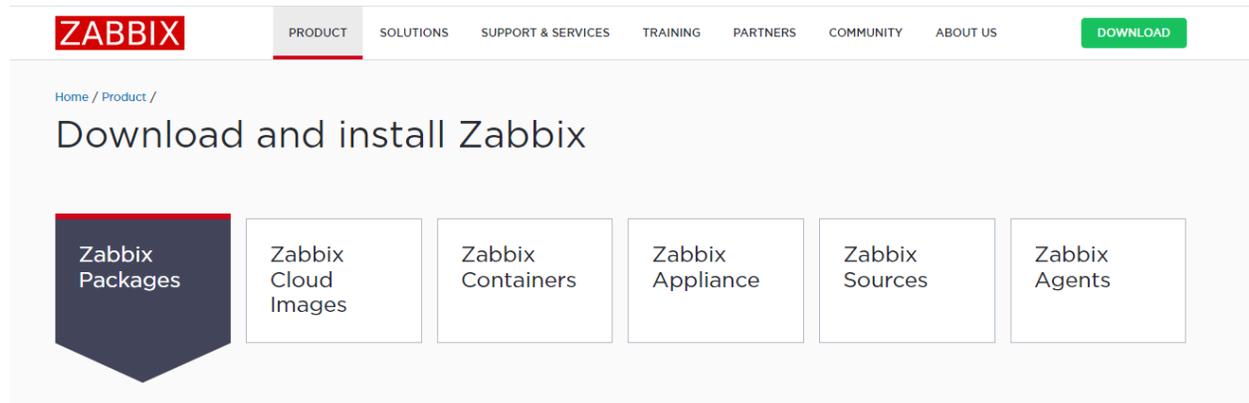


Figure 09 : Zabbix - webpage

Choose the platform you need. An example is given below.

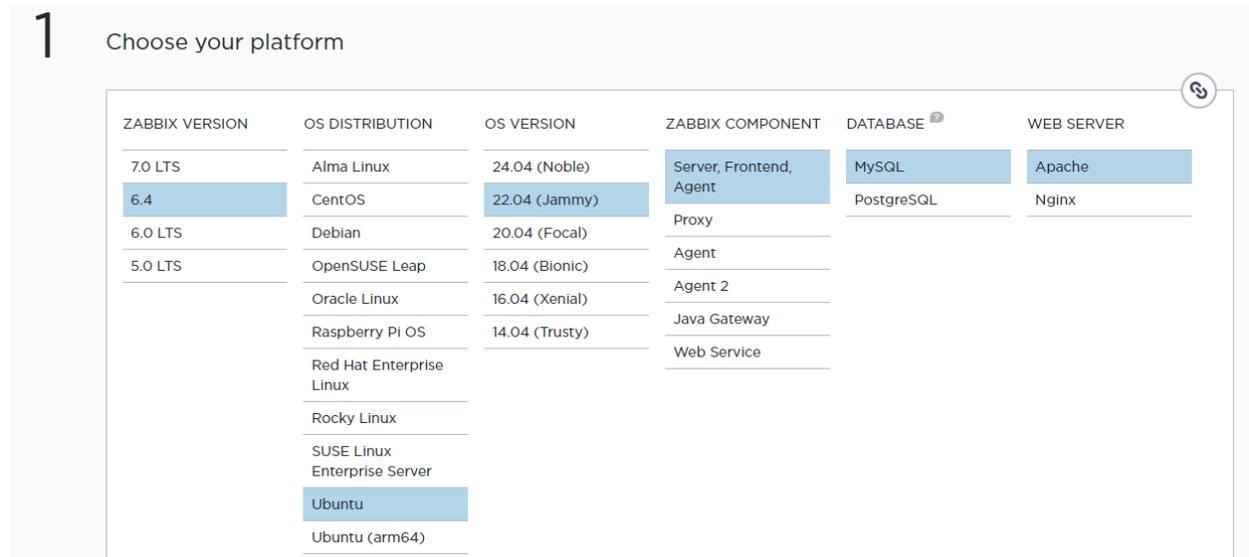
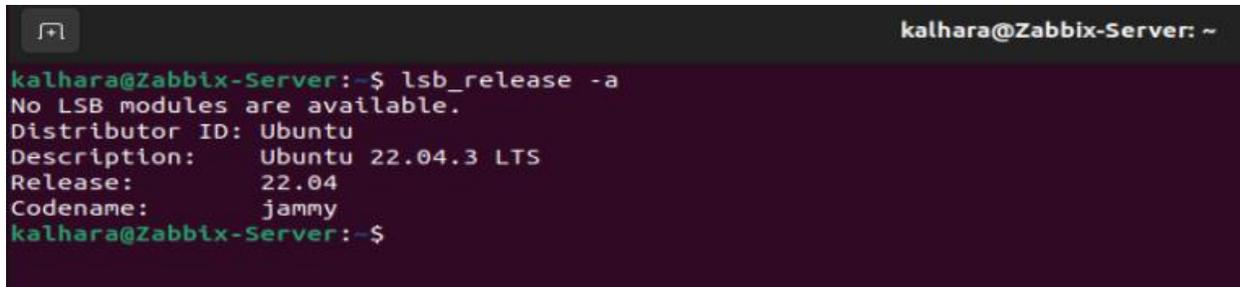


Figure 10 : Select the preferred Zabbix version

If you can't find what is your operating system (OS) version, run the following command in the terminal.

```
>> lsb_release -a
```



```
kalhara@Zabbix-Server:~$ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description:   Ubuntu 22.04.3 LTS
Release:      22.04
Codename:     jammy
kalhara@Zabbix-Server:~$
```

Figure 11 : Check the OS release

After you have selected the package, scroll down the web page. There you will find all the commands that need to be entered in the ubuntu terminal.

## 2 Install and configure Zabbix for your platform

### a. Become root user

Start new shell session with root privileges.

```
$ sudo -s
```

### b. Install Zabbix repository

[Documentation](#)

```
# wget https://repo.zabbix.com/zabbix/6.4/ubuntu/pool/main/z/zabbix-release/zabbix-release_6.4-1+ubuntu22.04_all.deb
# dpkg -i zabbix-release_6.4-1+ubuntu22.04_all.deb
# apt update
```

### c. Install Zabbix server, frontend, agent

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

Figure 12 : Commands in the Zabbix page for selected Zabbix version

Now let's follow the commands. First we have to log in as a root user. We will use the command `sudo` (stands for superuser do).

```
>> sudo -s
```



```
root@Zabbix-Server: /home/kalhara
kalhara@Zabbix-Server:~$ sudo -s
[sudo] password for kalhara:
root@Zabbix-Server: /home/kalhara#
```

Figure 13 : Change the user to root

Now you can see, the file path and the username changed. ( `root@Zabbix-Server : /home/kalhara#` in this image) But this is not recommended. The usual way to run a command with root privileges is typing 'sudo' at the beginning of the command, but not logging in as root user.

Add the selected Zabbix repo to the package list.

```
>> wget https://repo.zabbix.com/zabbix/6.4/ubuntu/pool/main/z/zabbix-release/zabbix-release_6.4-1+ubuntu22.04_all.deb
```



```
root@Zabbix-Server: /home/kalhara# wget https://repo.zabbix.com/zabbix/6.4/ubuntu/pool/main/z/zabbix-release/zabbix-release_6.4-1+ubuntu22.04_all.deb
```

Figure 14 : Add selected Zabbix repo to package list

Result will look like as follows after executing this command.



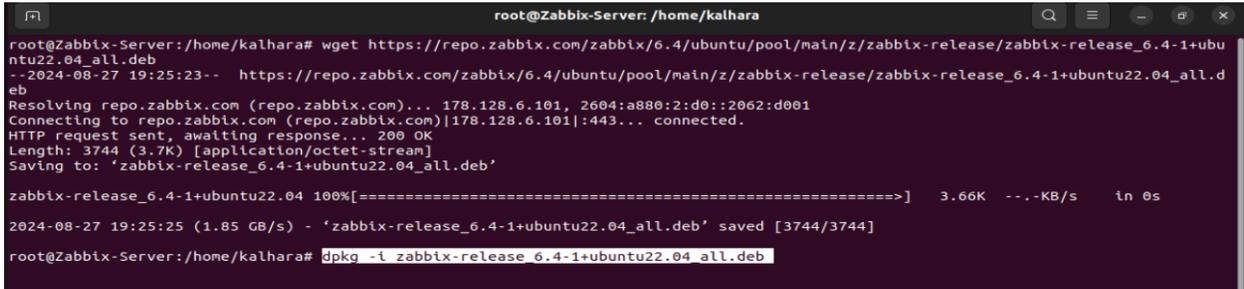
```
root@Zabbix-Server: /home/kalhara# wget https://repo.zabbix.com/zabbix/6.4/ubuntu/pool/main/z/zabbix-release/zabbix-release_6.4-1+ubuntu22.04_all.deb
--2024-08-27 19:25:23-- https://repo.zabbix.com/zabbix/6.4/ubuntu/pool/main/z/zabbix-release/zabbix-release_6.4-1+ubuntu22.04_all.deb
Resolving repo.zabbix.com (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... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3744 (3.7K) [application/octet-stream]
Saving to: 'zabbix-release_6.4-1+ubuntu22.04_all.deb'

zabbix-release_6.4-1+ubuntu22.04 100%[=====>] 3.66K --KB/s in 0s
2024-08-27 19:25:25 (1.85 GB/s) - 'zabbix-release_6.4-1+ubuntu22.04_all.deb' saved [3744/3744]
root@Zabbix-Server: /home/kalhara#
```

Figure 15 : Repo added to the package list

Enter the next command to install the Zabbix repository added.

```
>> dpkg -i zabbix-release_6.4-1+ubuntu22.04_all.deb
```



```
root@Zabbix-Server: /home/kalhara
root@Zabbix-Server:/home/kalhara# wget https://repo.zabbix.com/zabbix/6.4/ubuntu/pool/main/z/zabbix-release/zabbix-release_6.4-1+ubuntu22.04_all.deb
--2024-08-27 19:25:23-- https://repo.zabbix.com/zabbix/6.4/ubuntu/pool/main/z/zabbix-release/zabbix-release_6.4-1+ubuntu22.04_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... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3744 (3.7K) [application/octet-stream]
Saving to: 'zabbix-release_6.4-1+ubuntu22.04_all.deb'

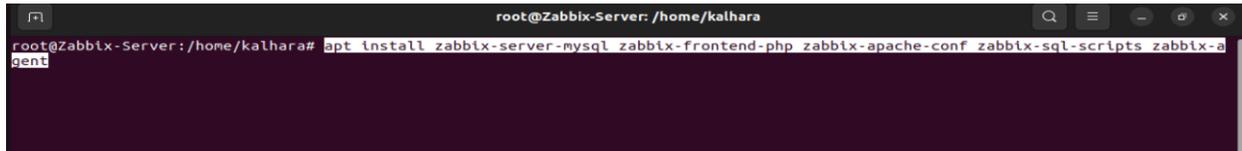
zabbix-release_6.4-1+ubuntu22.04 100%[=====] 3.66K --.-KB/s in 0s
2024-08-27 19:25:25 (1.85 GB/s) - 'zabbix-release_6.4-1+ubuntu22.04_all.deb' saved [3744/3744]
root@Zabbix-Server:/home/kalhara# dpkg -i zabbix-release_6.4-1+ubuntu22.04_all.deb
```

Figure 16 : Install repository

## Installing Zabbix Packages

```
>> apt update
```

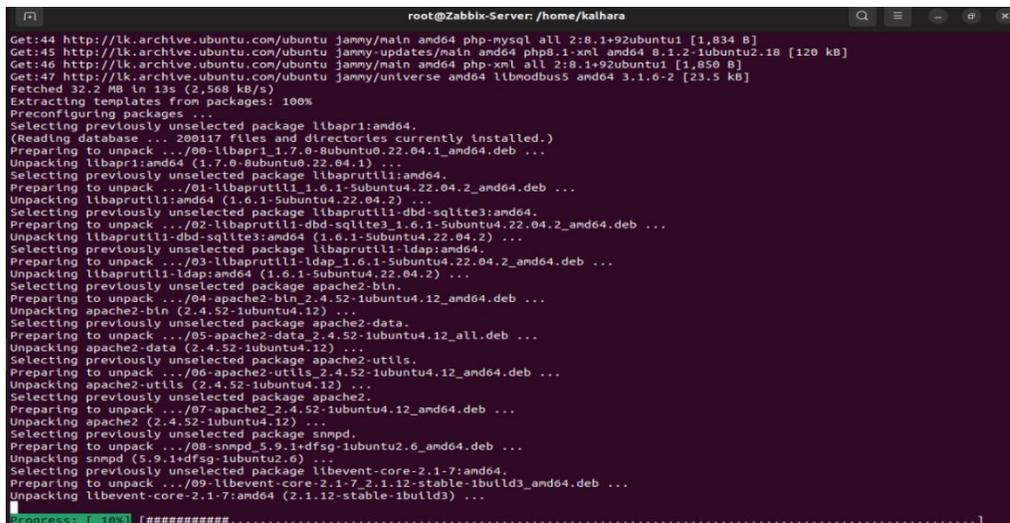
```
>> apt install zabbix-server-mysql zabbix-frontend-php zabbix-apache-conf zabbix-sql-scripts zabbix-agent
```



```
root@Zabbix-Server: /home/kalhara
root@Zabbix-Server:/home/kalhara# apt install zabbix-server-mysql zabbix-frontend-php zabbix-apache-conf zabbix-sql-scripts zabbix-agent
```

Figure 17 : Install Zabbix packages

Now it will install the selected packages such as Zabbix-server-mysql, frontend, apache etc.



```
root@Zabbix-Server: /home/kalhara
Get:44 http://lk.archive.ubuntu.com/ubuntu jammy/main amd64 php-mysql all 2:8.1+92ubuntu1 [1,834 B]
Get:45 http://lk.archive.ubuntu.com/ubuntu jammy-updates/main amd64 php8.1-xml amd64 8.1.2-1ubuntu2.18 [120 kB]
Get:46 http://lk.archive.ubuntu.com/ubuntu jammy/main amd64 php-xml all 2:8.1+92ubuntu1 [1,850 B]
Get:47 http://lk.archive.ubuntu.com/ubuntu jammy/universe amd64 librodbuss amd64 3.1.6-2 [23.5 kB]
Fetched 32.2 MB in 13s (2,568 KB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
Selecting previously unselected package libapr1:amd64.
(Reading database ... 209117 files and directories currently installed.)
Preparing to unpack .../00-libapr1_1.7.0-8ubuntu0.22.04.1_amd64.deb ...
Unpacking libapr1:amd64 (1.7.0-8ubuntu0.22.04.1) ...
Selecting previously unselected package libaprutil1:amd64.
Preparing to unpack .../01-libaprutil1_1.6.1-5ubuntu4.22.04.2_amd64.deb ...
Unpacking libaprutil1:amd64 (1.6.1-5ubuntu4.22.04.2) ...
Selecting previously unselected package libaprutil1-dbd-sqlite3:amd64.
Preparing to unpack .../02-libaprutil1-dbd-sqlite3_1.6.1-5ubuntu4.22.04.2_amd64.deb ...
Unpacking libaprutil1-dbd-sqlite3:amd64 (1.6.1-5ubuntu4.22.04.2) ...
Selecting previously unselected package libaprutil1-ldap:amd64.
Preparing to unpack .../03-libaprutil1-ldap_1.6.1-5ubuntu4.22.04.2_amd64.deb ...
Unpacking libaprutil1-ldap:amd64 (1.6.1-5ubuntu4.22.04.2) ...
Selecting previously unselected package apache2-bin.
Preparing to unpack .../04-apache2-bin_2.4.52-1ubuntu4.12_amd64.deb ...
Unpacking apache2-bin (2.4.52-1ubuntu4.12) ...
Selecting previously unselected package apache2-data.
Preparing to unpack .../05-apache2-data_2.4.52-1ubuntu4.12_all.deb ...
Unpacking apache2-data (2.4.52-1ubuntu4.12) ...
Selecting previously unselected package apache2-utils.
Preparing to unpack .../06-apache2-utils_2.4.52-1ubuntu4.12_amd64.deb ...
Unpacking apache2-utils (2.4.52-1ubuntu4.12) ...
Selecting previously unselected package apache2.
Preparing to unpack .../07-apache2_2.4.52-1ubuntu4.12_amd64.deb ...
Unpacking apache2 (2.4.52-1ubuntu4.12) ...
Selecting previously unselected package snmpd.
Preparing to unpack .../08-snmpd_5.9.1+dfsg-1ubuntu2.6_amd64.deb ...
Unpacking snmpd (5.9.1+dfsg-1ubuntu2.6) ...
Selecting previously unselected package libevent-core-2.1-7:amd64.
Preparing to unpack .../09-libevent-core-2.1-7_2.1.12-stable-1build3_amd64.deb ...
Unpacking libevent-core-2.1-7:amd64 (2.1.12-stable-1build3) ...
```

Figure 18 : Installing Zabbix packages

Next step is creating the initial database. Execute the next mentioned command.

```
>> mysql -uroot -p
```

```
root@Zabbix-Server: /home/kalhara
root@Zabbix-Server:/home/kalhara# mysql -uroot -p
Enter password:
ERROR 2002 (HY000): Can't connect to local MySQL server through socket '/var/run/mysqld/mysqld.sock' (2)
root@Zabbix-Server:/home/kalhara#
```

Figure 19 : Create the database

If you have a newly installed linux machine which is a fresh computer that has no software installed other than the basics, you will encounter an error like this. This is just a simple case because the command is unable to find mysql server or it hasn't been installed properly or installed with a different name in the system. Check whether your database server up and running.

```
>> systemctl status mysql
```

```
root@Zabbix-Server: /home/kalhara
root@Zabbix-Server:/home/kalhara# mysql -uroot -p
Enter password:
ERROR 2002 (HY000): Can't connect to local MySQL server through socket '/var/run/mysqld/mysqld.sock' (2)
root@Zabbix-Server:/home/kalhara# systemctl status mysql
Unit mysql.service could not be found.
root@Zabbix-Server:/home/kalhara#
```

Figure 20 : Check for database availability

You have to install mysql server manually.

```
>> apt update
```

```
>> apt install mysql-server
```

Run the above 2 commands. It will install mysql server. Then check whether the database is running properly.

```
>> systemctl status mysql
```

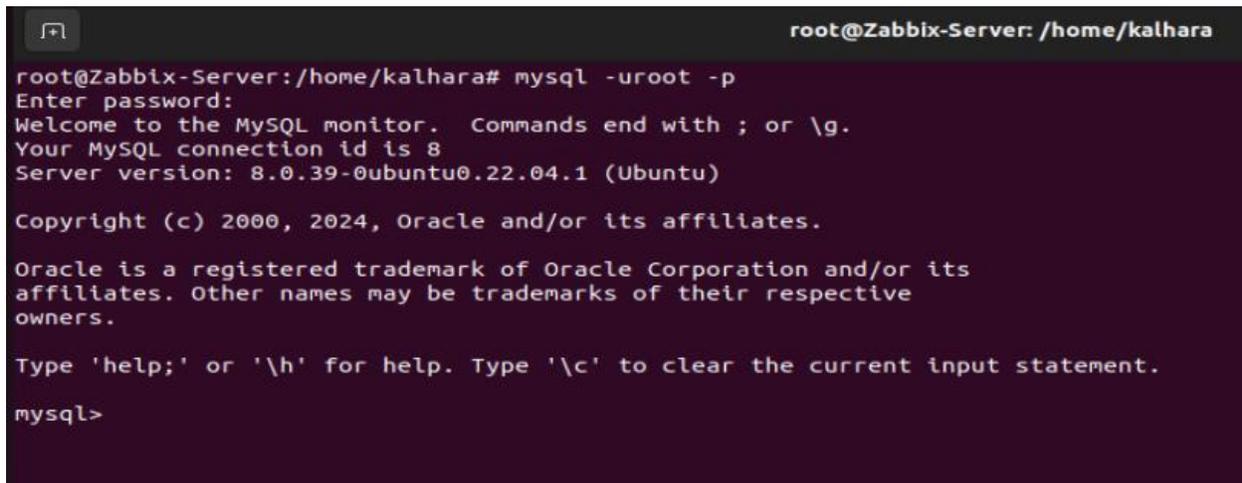
```
root@Zabbix-Server: /home/kalhara
root@Zabbix-Server:/home/kalhara# systemctl status mysql
● mysql.service - MySQL Community Server
   Loaded: loaded (/lib/systemd/system/mysql.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2024-08-28 02:01:12 +0530; 1min 10s ago
     Process: 20041 ExecStartPre=/usr/share/mysql/mysql-systemd-start pre (code=exited, status=0/SUCCESS)
    Main PID: 20049 (mysqld)
      Status: "Server is operational"
        Tasks: 37 (limit: 2272)
       Memory: 363.2M
          CPU: 2.058s
      CGroup: /system.slice/mysql.service
             └─20049 /usr/sbin/mysqld

aug28 02:01:09 Zabbix-Server systemd[1]: Starting MySQL Community Server...
aug28 02:01:12 Zabbix-Server systemd[1]: Started MySQL Community Server.
root@Zabbix-Server:/home/kalhara#
```

Figure 21 : Check the database status

Now you can proceed with remaining steps.

```
>> mysql -uroot -p
```

A terminal window with a dark background and light text. The prompt is 'root@Zabbix-Server: /home/kalhara'. The user has entered 'mysql -uroot -p'. The output shows the MySQL monitor welcome message, including the connection ID (8), server version (8.0.39-0ubuntu0.22.04.1), and copyright information. The prompt is now 'mysql>'.

```
root@Zabbix-Server: /home/kalhara# mysql -uroot -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.39-0ubuntu0.22.04.1 (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 statement.
mysql>
```

Figure 22 : Create the database

```
mysql> create database zabbix character set utf8mb4 collate
utf8mb4_bin;
```

```
mysql> create user zabbix@localhost identified by 'password';
mysql> grant all privileges on zabbix.* to zabbix@localhost;
mysql> set global log_bin_trust_function_creators = 1;
mysql> quit;
```

```
>> zcat /usr/share/zabbix-sql-scripts/mysql/server.sql.gz | mysql --
default-character-set=utf8mb4 -uzabbix -p zabbix
```

NOTE :

Remember, this command will execute for some time. Please wait and do not interrupt the process until the execution is over. Otherwise, the zabbix server will not be installed properly and you will encounter problems in the coming steps.

```
>> mysql -uroot -p
```

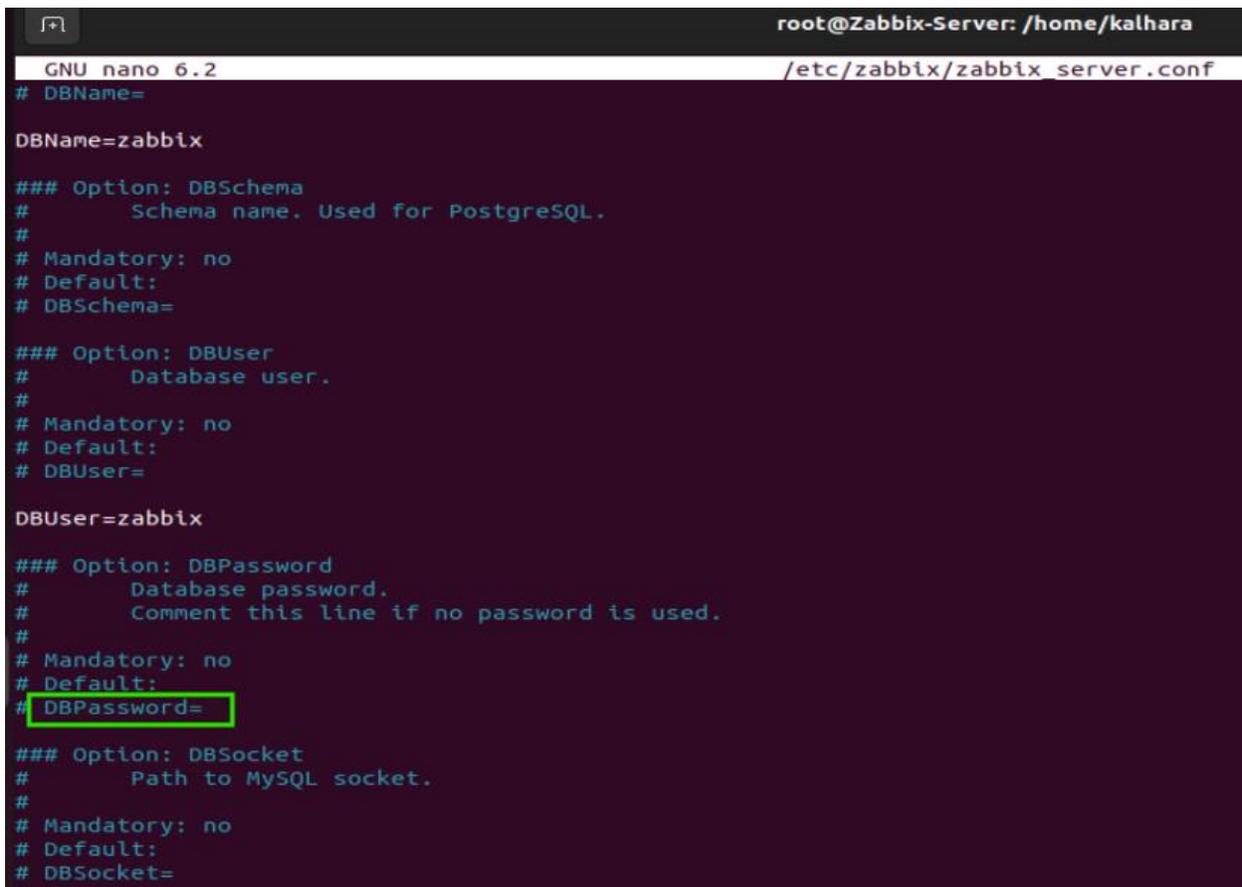
```
mysql> set global log_bin_trust_function_creators = 0;
mysql> quit;
```

Then it asks to edit and configure the Zabbix\_server.conf file located in the /etc/zabbi/zabbix\_server.conf

To edit the file, we will be using the nano editor. You can also use an editor like vim.

```
>> nano /etc/zabbix/zabbix_server.conf
```

Then it will open the Zabbix\_server.conf file and you can now change the password here by uncommenting the DBPassword line. Just remove the '#' mark at the beginning of the line and enter a new password.



```
root@Zabbix-Server: /home/kalhara
GNU nano 6.2 /etc/zabbix/zabbix_server.conf
# DBName=
DBName=zabbix
### Option: DBSchema
# Schema name. Used for PostgreSQL.
#
# Mandatory: no
# Default:
# DBSchema=
### Option: DBUser
# Database user.
#
# Mandatory: no
# Default:
# DBUser=
DBUser=zabbix
### Option: DBPassword
# Database password.
# Comment this line if no password is used.
#
# Mandatory: no
# Default:
# DBPassword=
### Option: DBSocket
# Path to MySQL socket.
#
# Mandatory: no
# Default:
# DBSocket=
```

Figure 23 : Configure the Zabbix – server file

In the above file, you can also see the database name and also the user. If you are using nano editor, enter a password, ('password' in this case) and press CTRL + X. Then enter 'y' and press Enter.

Then execute the remaining commands to proceed.

```
>> systemctl restart zabbix-server zabbix-agent apache2
```

```
>> systemctl enable zabbix-server zabbix-agent apache2
```



Now this is the interface we can see when Zabbix starts.

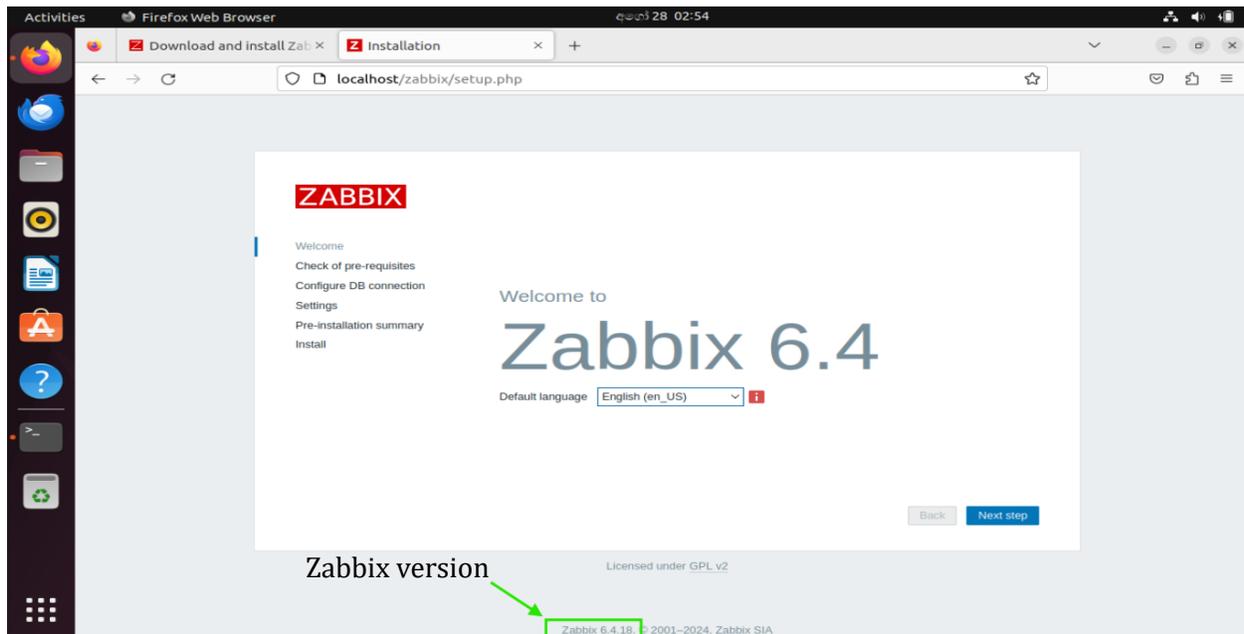


Figure 26 : Zabbix server interface

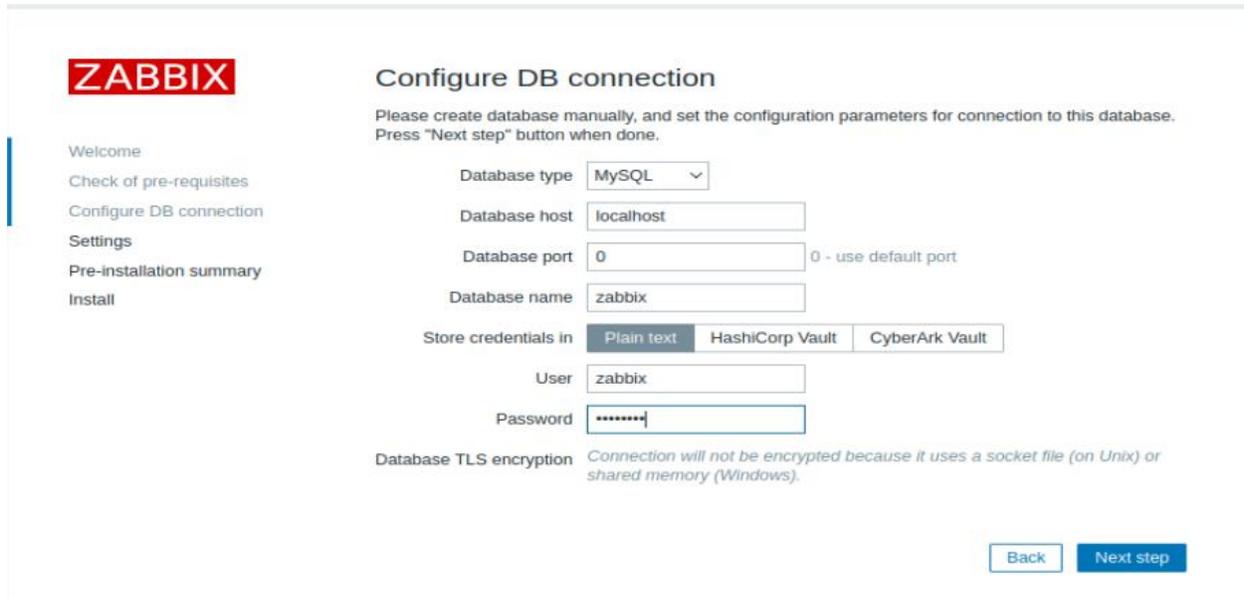


Figure 27 : Configure the Zabbix server settings

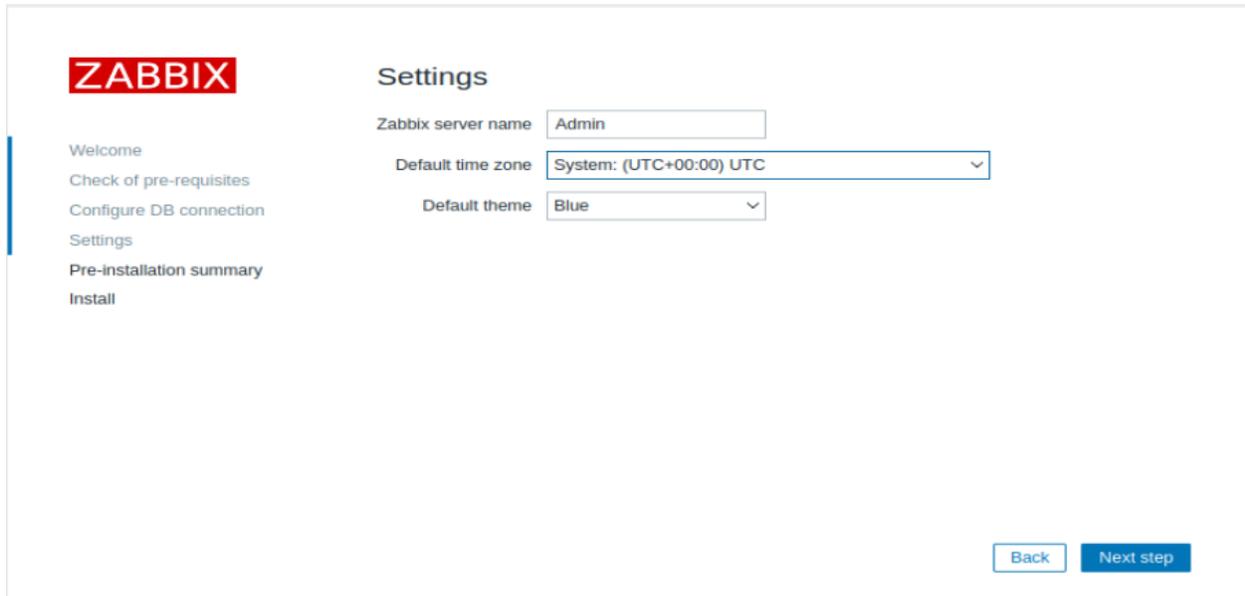


Figure 28 : Configure the Zabbix server settings

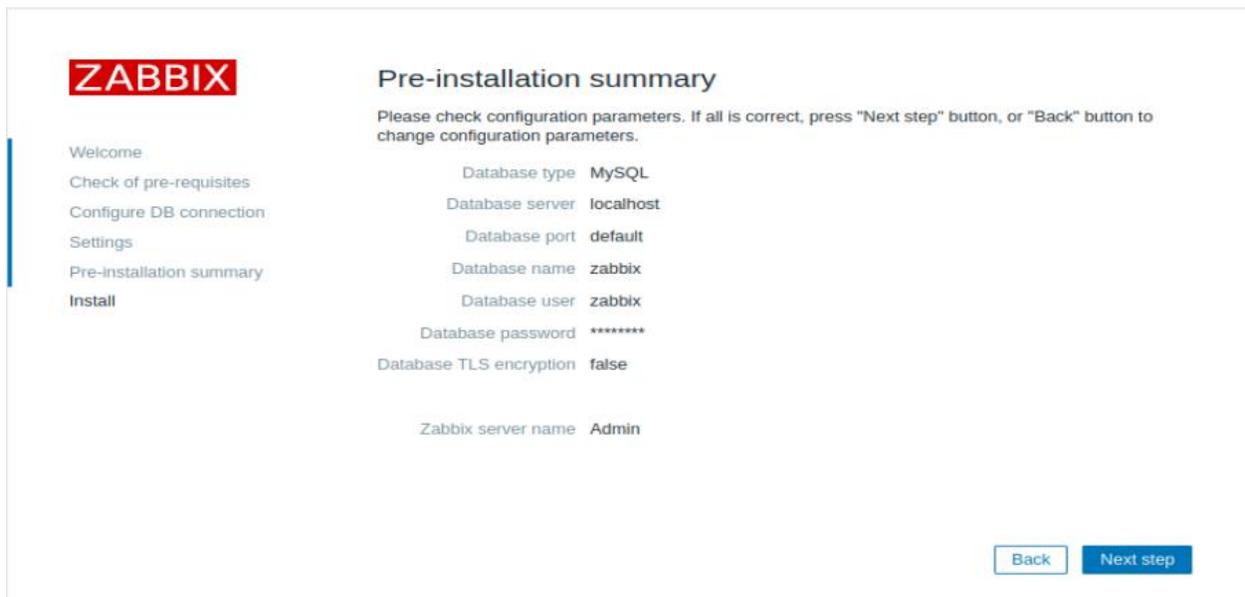


Figure 29 : Configuration complete

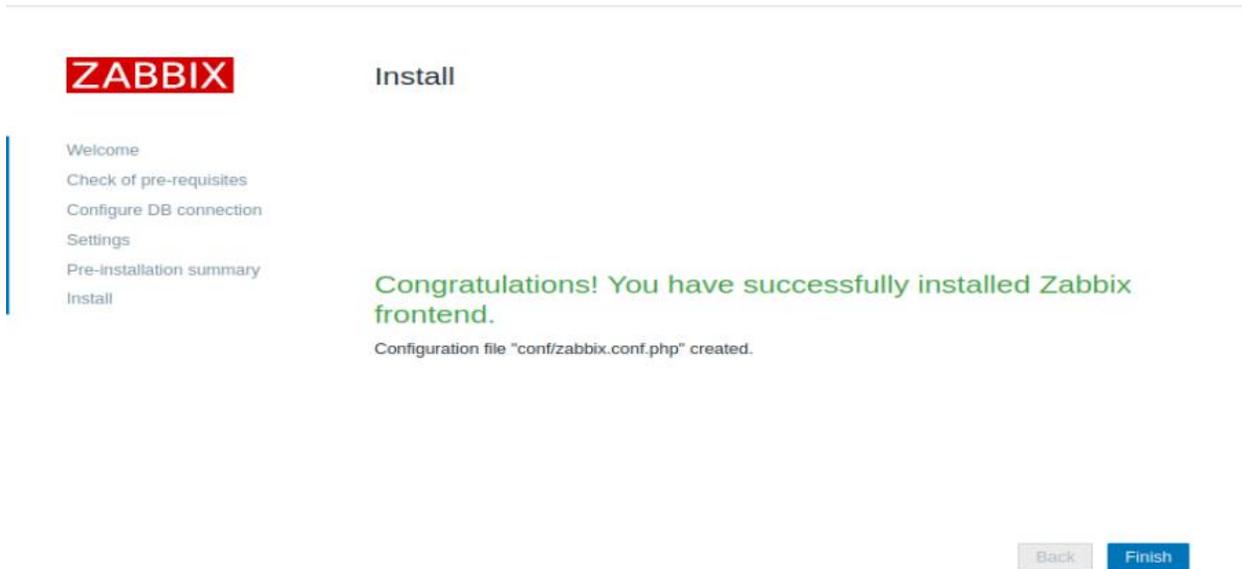


Figure 30 : Zabbix installation complete

In the following forum, you have to enter '**Admin**' as username and '**zabbix**' as default password.

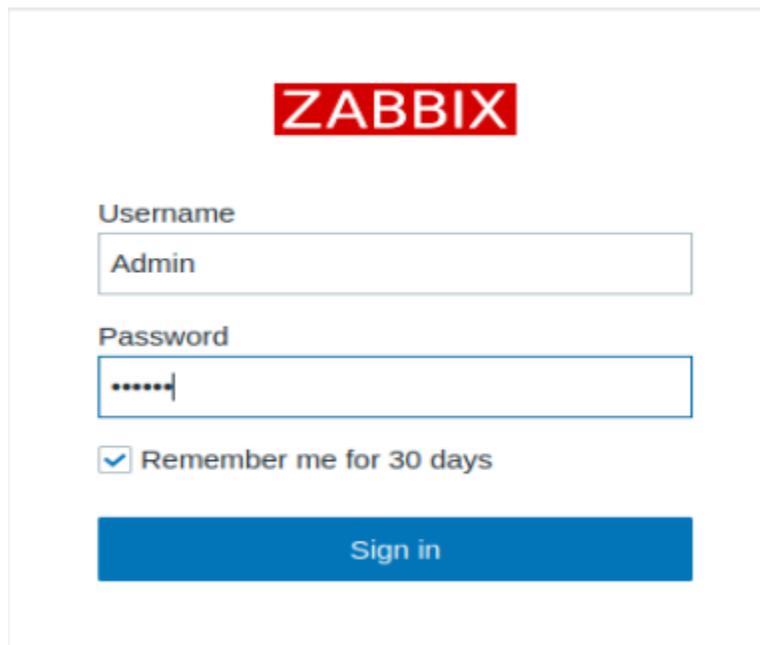


Figure 31 : Log into Zabbix server

## Ensure Zabbix server is running.

Finally, the zabbix dashboard will prompt and it looks like this.

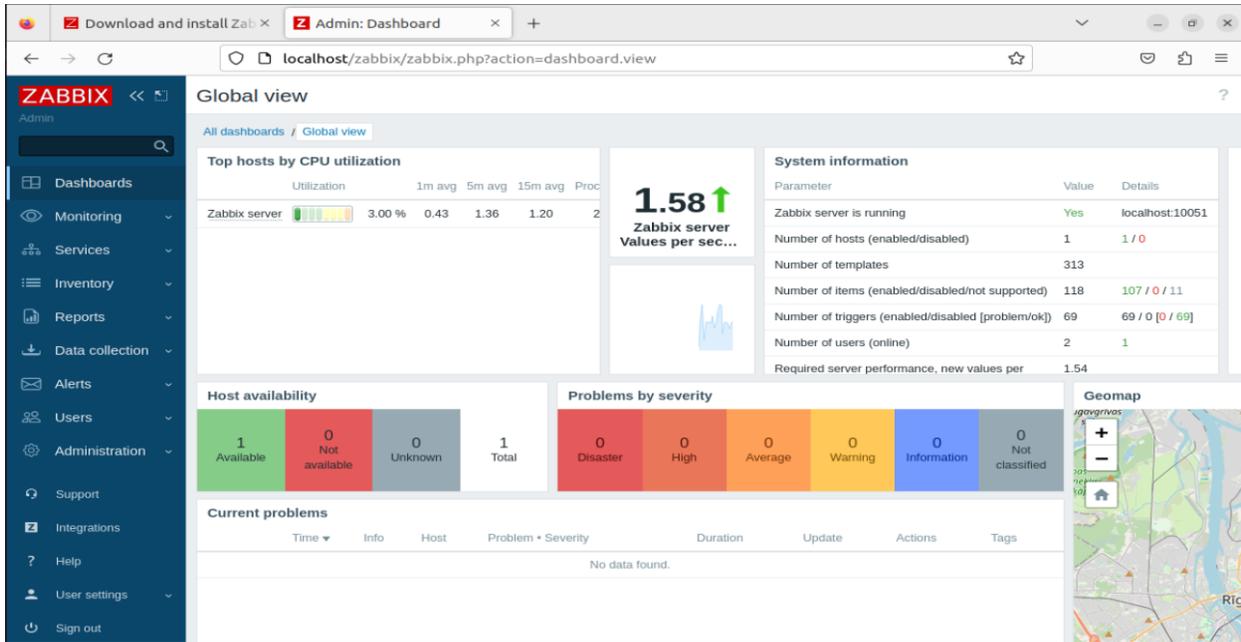


Figure 32 : Zabbix dashboard

You can see the Zabbix server is up and running. Now the zabbix server installation and configuration part is totally complete.

## Install Zabbix Agent on another Linux Virtual Machine

For installing Zabbix agent, we use a linux virtual machine with ubuntu minimal version. We prepared a separate virtual machine with ubuntu minimal in a previous step. We will be using that virtual machine for this purpose. Select that virtual machine and start it.

Log in with user credentials.

```
Ubuntu 20.04.6 LTS ubuntu-mini2 tty1
ubuntu-mini2 login: kalhara-mini2
Password:
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.4.0-193-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro
Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your Internet connection
or proxy settings

Last login: Wed Aug 28 23:30:16 +0530 2024 on tty1
kalhara-mini2@ubuntu-mini2:~$ _
```

Figure 33 : Log into ubuntu minimal

Start by upgrading packages.

```
>> sudo apt update
```

```
>> sudo apt upgrade -y
```

The next step is to install zabbix agent repository. To find the relevant zabbix agent repository that matches your zabbix version, visit the following URL.

👉 [Zabbix Official Repository](https://repo.zabbix.com/zabbix/6.4/ubuntu/pool/main/z/zabbix-release/zabbix-release_6.4-1+ubuntu20.04_all.deb)

```
>> wget https://repo.zabbix.com/zabbix/6.4/ubuntu/pool/main/z/zabbix-
release/zabbix-release_6.4-1+ubuntu20.04_all.deb
```

```
Last login: Thu Aug 29 07:36:44 +0530 2024 on tty1
kalhara-mini2@ubuntu-mini2:~$ wget https://repo.zabbix.com/zabbix/6.4/ubuntu/pool/main/z/zabbix-rele
ase/zabbix-release_6.4-1+ubuntu20.04_all.deb
--2024-08-29 07:40:45-- https://repo.zabbix.com/zabbix/6.4/ubuntu/pool/main/z/zabbix-release/zabbix
-release_6.4-1+ubuntu20.04_all.deb
Resolving repo.zabbix.com (repo.zabbix.com)... 2604:a880:2:d0::2062:d001, 178.128.6.101
Connecting to repo.zabbix.com (repo.zabbix.com)|2604:a880:2:d0::2062:d001|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3752 (3.7K) [application/octet-stream]
Saving to: 'zabbix-release_6.4-1+ubuntu20.04_all.deb'

zabbix-release_6.4-1+ubu 100%[=====] 3.66K --.-KB/s in 0s
2024-08-29 07:40:47 (214 MB/s) - 'zabbix-release_6.4-1+ubuntu20.04_all.deb' saved [3752/3752]
kalhara-mini2@ubuntu-mini2:~$
```

Figure 34 : Get the Zabbix agent repository

Now if you type 'ls' command in the current folder, you will see the downloaded zabbix-agent repository. The red colored package in the following image.

The next step is to install the downloaded repository. Enter the following command.

```
>> sudo dpkg -i zabbix-release_6.4-1+ubuntu20.04_all.deb
```

```
kalhara-mini2@ubuntu-mini2:~$  
kalhara-mini2@ubuntu-mini2:~$ ls  
zabbix-release_6.4-1+ubuntu20.04_all.deb  
kalhara-mini2@ubuntu-mini2:~$ sudo dpkg -i zabbix-release_6.4-1+ubuntu20.04_all.deb  
[sudo] password for kalhara-mini2:  
Selecting previously unselected package zabbix-release.  
(Reading database ... 71539 files and directories currently installed.)  
Preparing to unpack zabbix-release_6.4-1+ubuntu20.04_all.deb ...  
Unpacking zabbix-release (1:6.4-1+ubuntu20.04) ...  
Setting up zabbix-release (1:6.4-1+ubuntu20.04) ...  
kalhara-mini2@ubuntu-mini2:~$ _
```

Figure 35 : Install Zabbix agent repository

Now we should update our package list since we added the zabbix-agent repository.

```
>> sudo apt update
```

Everything should work fine if you followed the guideline up to this point as it is mentioned. Now we can install our zabbix-agent on our virtual machine. Run the following command.

```
>> sudo apt install zabbix-agent
```

```
kalhara-mini2@ubuntu-mini2:~$  
kalhara-mini2@ubuntu-mini2:~$ sudo apt install zabbix-agent  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following additional packages will be installed:  
  libasn1-8-heimdal libbrotli1 libcurl4 libgssapi3-heimdal libhcrypto4-heimdal  
  libheimbase1-heimdal libheimntlm0-heimdal libhx509-5-heimdal libkrb5-26-heimdal libldap-2.4-2  
  libldap-common libmodbus5 libroken18-heimdal librtmp1 libsasl2-2 libsasl2-modules  
  libsasl2-modules-db libssh-4 libwind0-heimdal  
Suggested packages:  
  libsasl2-modules-gssapi-mit | libsasl2-modules-gssapi-heimdal libsasl2-modules-ldap  
  libsasl2-modules-otp libsasl2-modules-sql  
The following NEW packages will be installed:  
  libasn1-8-heimdal libbrotli1 libcurl4 libgssapi3-heimdal libhcrypto4-heimdal  
  libheimbase1-heimdal libheimntlm0-heimdal libhx509-5-heimdal libkrb5-26-heimdal libldap-2.4-2  
  libldap-common libmodbus5 libroken18-heimdal librtmp1 libsasl2-2 libsasl2-modules  
  libsasl2-modules-db libssh-4 libwind0-heimdal zabbix-agent  
0 upgraded, 20 newly installed, 0 to remove and 0 not upgraded.  
Need to get 2,115 kB of archives.  
After this operation, 7,115 kB of additional disk space will be used.  
Do you want to continue? [Y/n] y
```

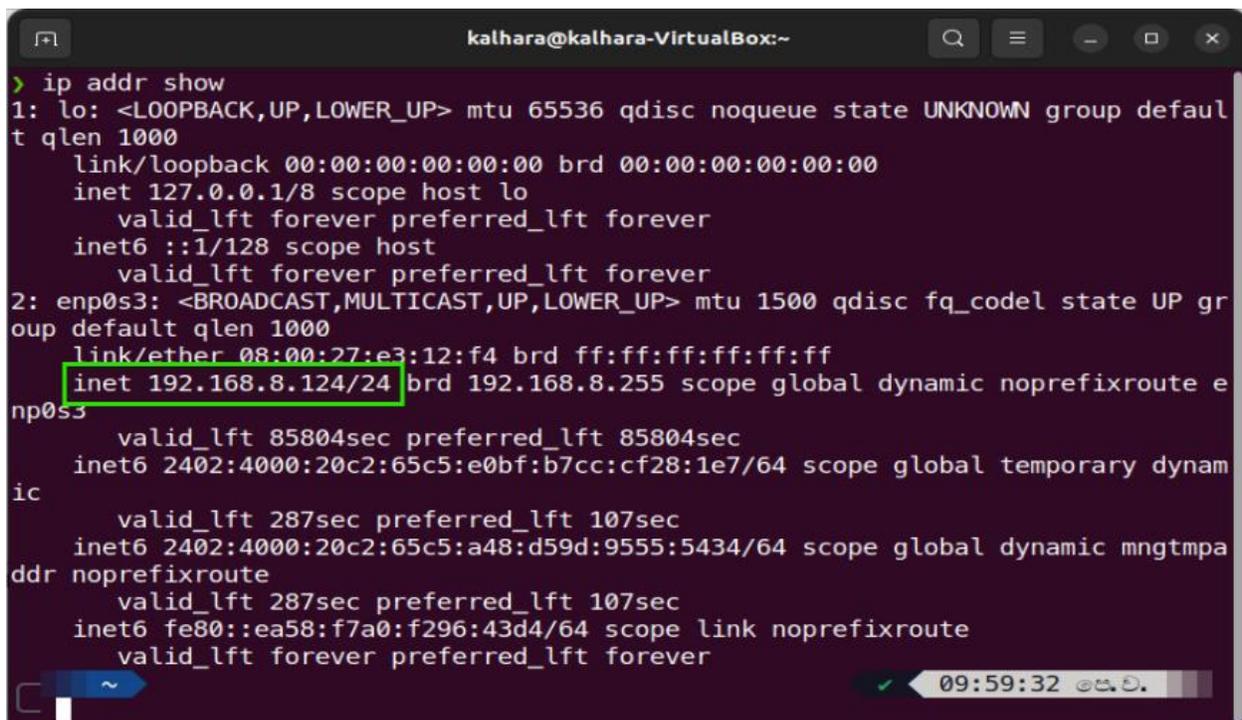
Figure 36 : Install Zabbix agent

The zabbix-agent installation part is over. Now it is time to configure the Zabbix-agent such that the server is able to monitor the host through the agent. For that, we have to tell the agent, which we recently installed on this Ubuntu minimal, to where it should report by indicating the IP address of the zabbix-server.

Now we have to start our previously configured ubuntu virtual machine where zabbix-server is installed and determine its IP address.

Open the terminal in the ubuntu virtual machine (not in the minimal version) and enter the following command to find its IP address.

```
>> ip addr show
```

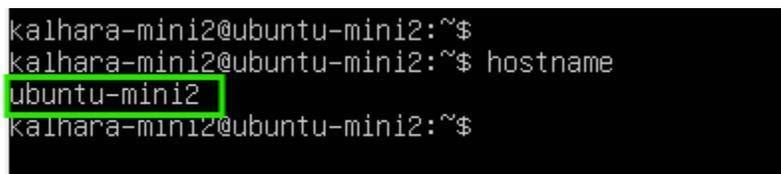


```
kalhara@kalhara-VirtualBox:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        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:e3:12:f4 brd ff:ff:ff:ff:ff:ff
    inet 192.168.8.124/24 brd 192.168.8.255 scope global dynamic noprefixroute enp0s3
        valid_lft 85804sec preferred_lft 85804sec
    inet6 2402:4000:20c2:65c5:e0bf:b7cc:cf28:1e7/64 scope global temporary dynamic
    inet6 2402:4000:20c2:65c5:a48:d59d:9555:5434/64 scope global dynamic mngtppaddr noprefixroute
        valid_lft 287sec preferred_lft 107sec
    inet6 fe80::ea58:f7a0:f296:43d4/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
```

Figure 37 : Check the IP address of the server

We also need to determine the hostname of the host machine, in this case the virtual machine where ubuntu minimal is installed. Now navigate to ubuntu minimal and enter the command below.

```
>> hostname
```



```
kalhara-mini2@ubuntu-mini2:~$ hostname
ubuntu-mini2
kalhara-mini2@ubuntu-mini2:~$
```

Figure 38 : Check the hostname of ubuntu minimal

Now we are in the ubuntu minimal, where our zabbix-agent is installed. We collected all the details that are needed to configure the zabbix-agent. We are left with entering the data to the script and configure the zabbix-agent. Enter the command below to navigate to the configuration script.

```
>> sudo nano /etc/zabbix/zabbix_agentd.conf
```

```
GNU nano 4.8 /etc/zabbix/zabbix_agentd.conf
# This is a configuration file for Zabbix agent daemon (Unix)
# To get more information about Zabbix, visit http://www.zabbix.com

##### GENERAL PARAMETERS #####

### Option: PidFile
# Name of PID file.
#
# Mandatory: no
# Default:
# PidFile=/tmp/zabbix_agentd.pid
PidFile=/run/zabbix/zabbix_agentd.pid

### Option: LogType
# Specifies where log messages are written to:
# system - syslog
# file - file specified with LogFile parameter
# console - standard output
#
# Mandatory: no
# Default:
# LogType=file

### Option: LogFile
# Log file name for LogType 'file' parameter.
#
# Mandatory: yes, if LogType is set to file, otherwise no
# Default:
# LogFile=
LogFile=/var/log/zabbix/zabbix_agentd.log

[ Read 554 lines ]
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos M-U Undo
^X Exit ^R Read File ^_ Replace ^U Paste Text ^T To Spell ^_ Go To Line M-E Redo
```

Figure 39 : Configure the Zabbix agent file

Scroll down and find the line where server IP is required. Enter the IP address of the zabbix-server we obtained before. Then scroll down and change the ServerActive IP address and hostname.

```
"
# Mandatory: yes, if StartAgents is not explicitly set to 0
# Default:
# Server=

Server=192.168.8.124_

### Option: ListenPort
#     Agent will listen on this port for connections from the server.
#
# Mandatory: no
# Range: 1024-32767
# Default:
# ListenPort=10050
#
# Mandatory: no
# Default:
# ServerActive=

ServerActive=192.168.8.124_

### Option: Hostname
#     List of comma delimited unique, case sensitive hostnames.
#     Required for active checks and must match hostnames as configured on the server.
#     Value is acquired from HostnameItem if undefined.
#
# Mandatory: no
# Default:
# Hostname=

Hostname=ubuntu-mini2

### Option: HostnameItem
#     Item used for generating Hostname if it is undefined. Ignored if Hostname is defined.
#     Does not support UserParameters or aliases.
"
```

Figure 40 : Configure the Zabbix agent file

After making relevant changes, (Server, ServerActive and Hostname) press Ctrl + X and then Enter.

Start and enable the zabbix-agent using following commands.

```
>> sudo systemctl start zabbix-agent
>> sudo systemctl enable zabbix-agent
>> sudo systemctl status zabbix-agent
```

```

kalhara-mini2@ubuntu-mini2:~$ sudo systemctl start zabbix-agent
[sudo] password for kalhara-mini2:
kalhara-mini2@ubuntu-mini2:~$ sudo systemctl enable zabbix-agent
Synchronizing state of zabbix-agent.service with SysV service script with /lib/systemd/systemd-sysv-
install.
Executing: /lib/systemd/systemd-sysv-install enable zabbix-agent
kalhara-mini2@ubuntu-mini2:~$
kalhara-mini2@ubuntu-mini2:~$ sudo systemctl status zabbix-agent
• zabbix-agent.service - Zabbix Agent
  Loaded: loaded (/lib/systemd/system/zabbix-agent.service; enabled; vendor preset: enabled)
  Active: active (running) since Thu 2024-08-29 08:06:55 +0530; 2h 15min ago
  Main PID: 1465 (zabbix_agentd)
  Tasks: 6 (limit: 2292)
  Memory: 5.9M
  CGroup: /system.slice/zabbix-agent.service
          └─1465 /usr/sbin/zabbix_agentd -c /etc/zabbix/zabbix_agentd.conf
             └─1466 /usr/sbin/zabbix_agentd: collector [idle 1 sec]
                └─1467 /usr/sbin/zabbix_agentd: listener #1 [waiting for connection]
                   └─1468 /usr/sbin/zabbix_agentd: listener #2 [waiting for connection]
                      └─1469 /usr/sbin/zabbix_agentd: listener #3 [waiting for connection]
                         └─1470 /usr/sbin/zabbix_agentd: active checks #1 [idle 1 sec]

Aug 29 08:06:55 ubuntu-mini2 systemd[1]: Starting Zabbix Agent...
Aug 29 08:06:55 ubuntu-mini2 systemd[1]: Started Zabbix Agent.
kalhara-mini2@ubuntu-mini2:~$ _

```

Figure 41 : Check the status of Zabbix agent

Finally, we have to configure the firewall such that the port 10050 is allowed for the communication with the Zabbix-server. This is not essential if your firewall is not active. But it is a good practice to only allow the ports that are needed.

```

>> sudo ufw allow 10050/tcp
>> sudo ufw status

```

```

kalhara-mini2@ubuntu-mini2:~$
kalhara-mini2@ubuntu-mini2:~$ sudo ufw allow 10050/tcp
Rule added
Rule added (v6)
kalhara-mini2@ubuntu-mini2:~$ sudo ufw status
Status: active

To Action From
--
161 ALLOW Anywhere
10050/tcp ALLOW Anywhere
161 (v6) ALLOW Anywhere (v6)
10050/tcp (v6) ALLOW Anywhere (v6)

kalhara-mini2@ubuntu-mini2:~$ _

```

Figure 42 : Check the firewall status

The zabbix-agent installation and configuration part is complete now. We are ready for the monitoring part through the zabbix-server using agent. Now we can monitor the host where ubuntu minimal is installed through the zabbix-agent installed on it. We will discuss about the monitoring part in the coming chapters. Before that, we have to do one more thing, adding the host we created in the ubuntu minimal to the zabbix-server software.

## Adding host to the Zabbix-server

Start the ubuntu virtual machine which the zabbix-server is installed. Open the web browser and go to zabbix dashboard as we did before.

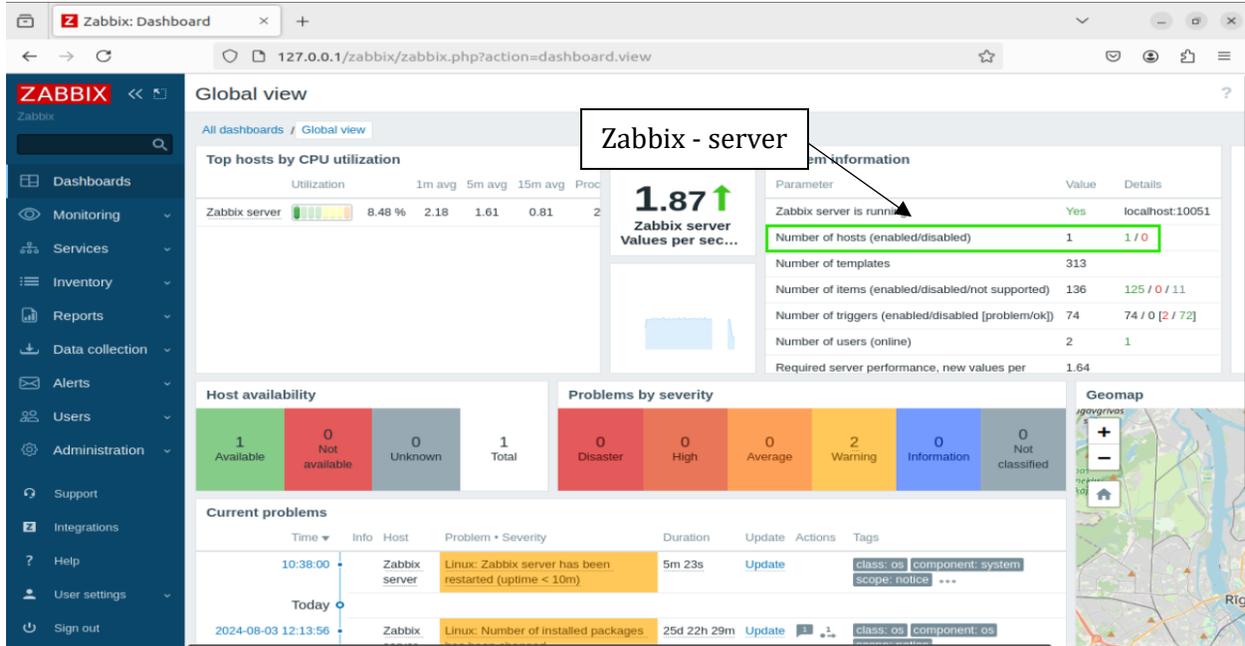


Figure 43 : Zabbix dashboard

There you can see, to the upper right corner of the window, the number of hosts (enabled) is 1. This is the Zabbix-server itself. Since we haven't added any hosts to the Zabbix dashboard.

On the left part, there is a navigation bar. Click on Data Collection tab (sometimes in older versions of Zabbix, this may named as Configurations) and then click Hosts.

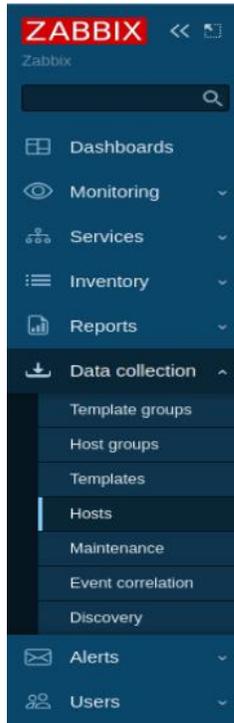


Figure 44 : Zabbix dashboard – settings panel

You will get the window as below.

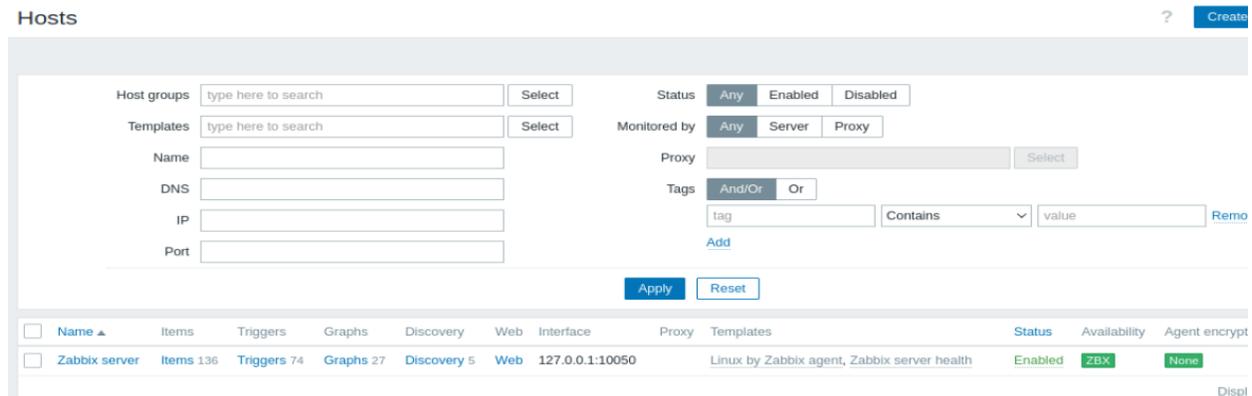


Figure 45 : Hosts in Zabbix server

There you can see the Zabbix-server is running and the status is indicating as Enabled in green color. Note that the IP address or the interface is containing the localhost IP (127.0.0.1) and the PORT is 10050.

Now in the top right corner, Click on Create Host button. Since we are going to add the ubuntu minimal virtual machine that we configured in a previous step as a host, we should enter the details of that host. Refer the image below.

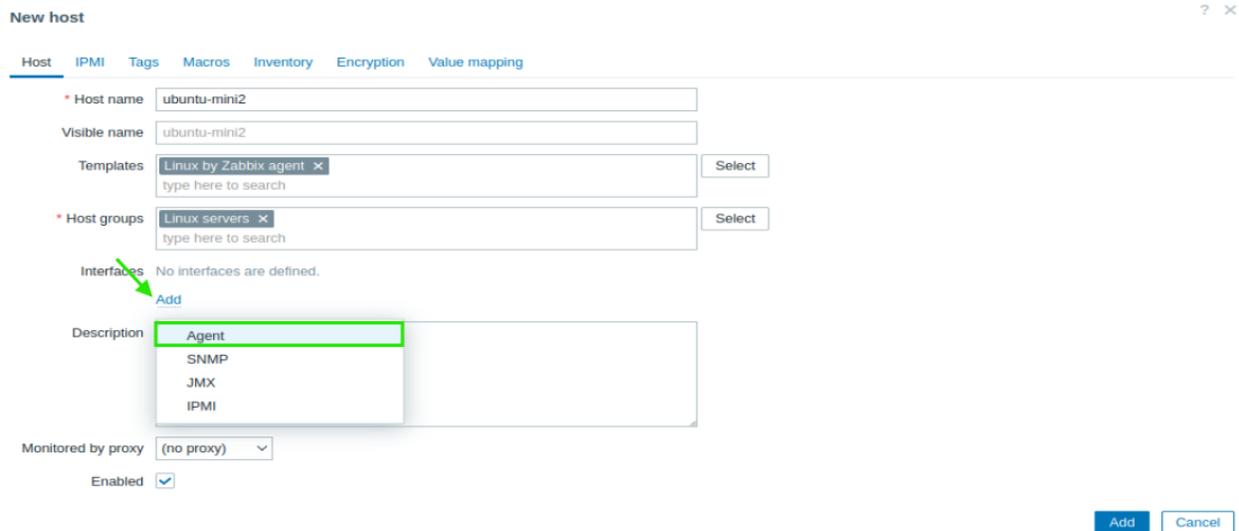


Figure 46 : Add an interface to the new host

For the hostname, the hostname of the virtual machine which we determined entering the command 'hostname' in the terminal. Template is 'Linux by Zabbix agent' because we have configured our host through an agent. Host groups should be set as 'Linux Servers'. Click on the Add button near the Interfaces label to add an interface. Then in the drop-down menu, click on 'Agent' as indicated in the above image.

Now we have to determine the IP address of the agent, which is our ubuntu minimal installed virtual machine. Remember, to monitor the agent, the two virtual machines should simultaneously run. Navigate to the ubuntu minimal terminal and determine the IP address by entering the command we previously used.

```
kalhara-mini2@ubuntu-mini2:~$ 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
       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:ff:fc:ea brd ff:ff:ff:ff:ff:ff
   inet 192.168.8.119/24 brd 192.168.8.255 scope global dynamic enp0s3
       valid_lft 72436sec preferred_lft 72436sec
   inet6 2402:4000:20c2:65c5:a00:27ff:feff:fcea/64 scope global dynamic mngtmpaddr noprefixroute
       valid_lft 291sec preferred_lft 111sec
   inet6 fe80::a00:27ff:feff:fcea/64 scope link
       valid_lft forever preferred_lft forever
kalhara-mini2@ubuntu-mini2:~$
```

Figure 47 : Check the IP address of ubuntu minimal

Enter the details as below in the Zabbix server.

**New host** ? X

Host IPMI Tags Macros Inventory Encryption Value mapping

Visible name:

Templates:    
type here to search

\* Host groups:    
type here to search

Interfaces

Type	IP address	DNS name	Connect to	Port	Default
Agent	<input type="text" value="192.168.8.119"/>	<input type="text"/>	<input checked="" type="radio"/> IP <input type="radio"/> DNS	<input type="text" value="10050"/>	<input checked="" type="radio"/> Remove

Description:

Monitored by proxy: (no proxy)

Enabled

Figure 48 : Settings for new host

Now you should see something like this.

<input type="checkbox"/>	Name	Items	Triggers	Graphs	Discovery	Web	Interface	Proxy	Templates	Status	Availability	Agent encryp
<input type="checkbox"/>	ubuntu-mini2	Items 43	Triggers 15	Graphs 8	Discovery 3	Web	192.168.8.119:10050		Linux by Zabbix agent	Enabled	ZBX	None
<input type="checkbox"/>	Zabbix server	Items 136	Triggers 74	Graphs 27	Discovery 5	Web	127.0.0.1:10050		Linux by Zabbix agent, Zabbix server health	Enabled	ZBX	None

Displ

Figure 49 : New host has been added

Note that the availability button is not still green. It takes some time to make the connection. So be patient and wait until it becomes green. After sometime, refresh the page. This will turn into green color if you have correctly done all the steps mentioned in the guide.

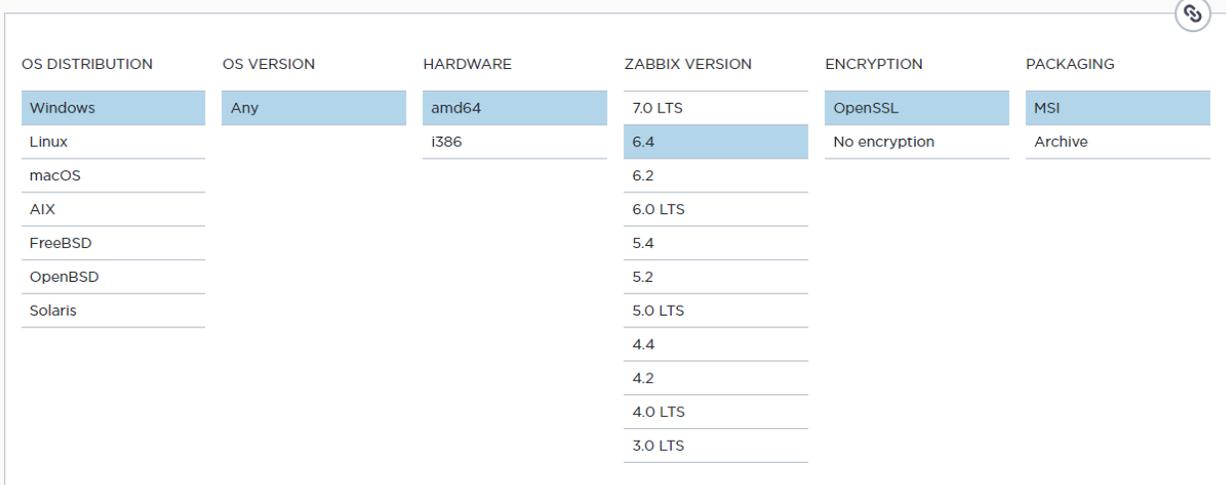
<input type="checkbox"/>	Name	Items	Triggers	Graphs	Discovery	Web	Interface	Proxy	Templates	Status	Availability	Agent encryp
<input type="checkbox"/>	ubuntu-mini2	Items 50	Triggers 20	Graphs 10	Discovery 3	Web	192.168.8.119:10050		Linux by Zabbix agent	Enabled	ZBX	ZBX
<input type="checkbox"/>	Zabbix server	Items 136	Triggers 74	Graphs 27	Discovery 5	Web	127.0.0.1:10050		Linux by Zabbix agent, Zabbix server health	Enabled	ZBX	ZBX

Figure 50 : New host is now active

## Install Zabbix Agent on Windows machine

We can monitor not only Linux machines, but also windows machines as well, using Zabbix software. To do that, we have to install an agent on windows as we did before in Linux machines. Follow the link below and download the Zabbix agent for windows.

[Download Zabbix Agent for Windows](#)



OS DISTRIBUTION	OS VERSION	HARDWARE	ZABBIX VERSION	ENCRYPTION	PACKAGING
Windows	Any	amd64	7.0 LTS	OpenSSL	MSI
Linux		i386	6.4	No encryption	Archive
macOS			6.2		
AIX			6.0 LTS		
FreeBSD			5.4		
OpenBSD			5.2		
Solaris			5.0 LTS		
			4.4		
			4.2		
			4.0 LTS		
			3.0 LTS		

Figure 51 : Select the Zabbix agent for windows

Note that the Zabbix Release should be matched with your Zabbix server. You can find the Zabbix Release from the Zabbix server dashboard as shown in figure 00 in page 19. Click on the green color Download button.



Zabbix Release:

**Zabbix agent v6.4.18** [Read manual](#)

Packaging: MSI  
Encryption: OpenSSL  
Linkage: Dynamic

Checksum: sha256: 38637bda6d32b38b0fbd3fefc800e6e5829f744836257ae2027d660a7ae2419b  
sha1: b164678d2eaedf2f4fead79cd6ac010a0d1d091e  
md5: ab6d5d08254d742d951f85fc414a46ca

[DOWNLOAD](#) [https://cdn.zabbix.com/zabbix/binaries/stable/6.4/6.4.18/zabbix\\_agent-6.4.18-windows-amd64-openssl.msi](https://cdn.zabbix.com/zabbix/binaries/stable/6.4/6.4.18/zabbix_agent-6.4.18-windows-amd64-openssl.msi)

Figure 52 : Details about the selected Zabbix agent

Execute the downloaded file by double clicking on it. Then it will ask to run it. Click on run.

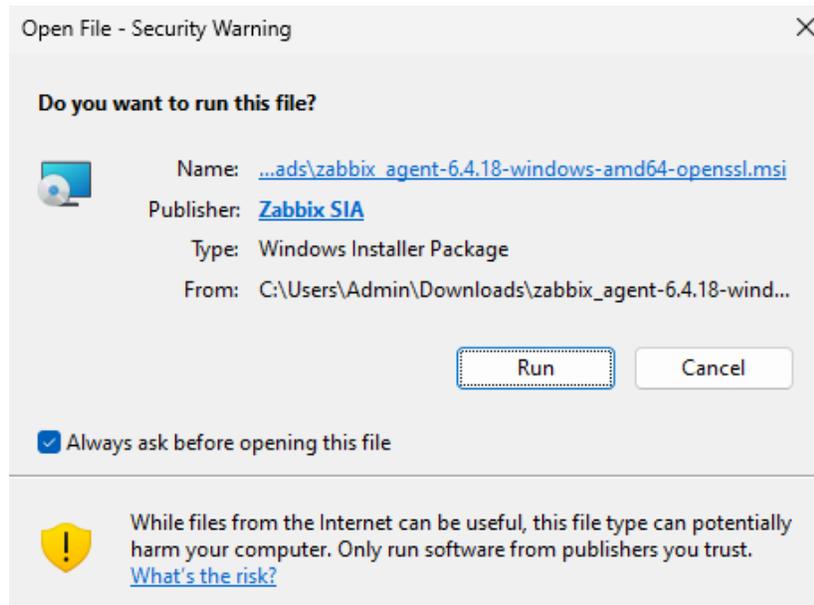


Figure 53 : Execute the downloaded file

Zabbix Agent window will appear now.

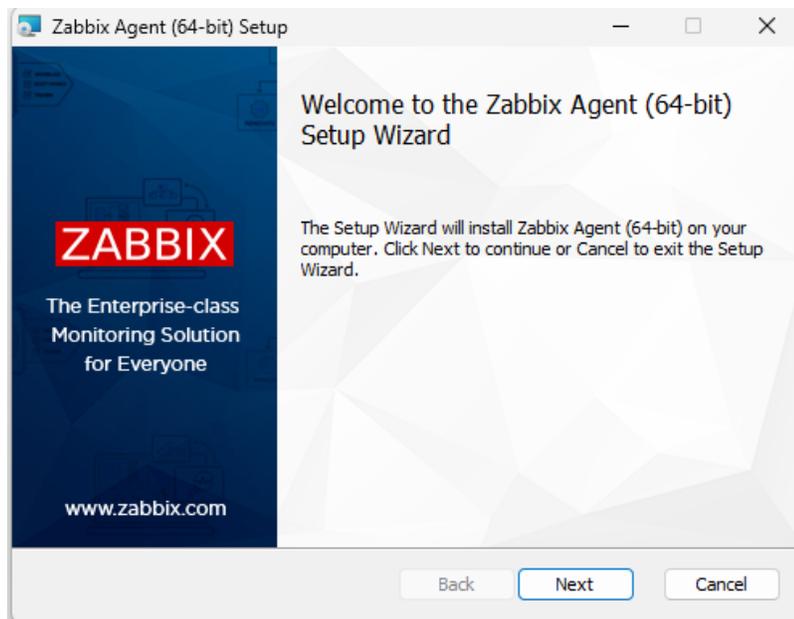


Figure 54 : Zabbix - Windows agent installation wizard

Put the tick on License agreement and click next.

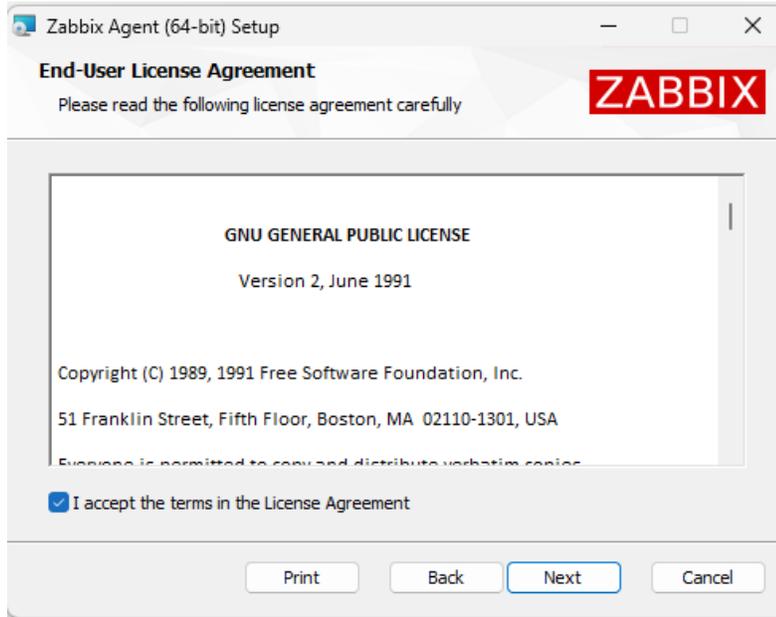


Figure 55 : Zabbix agent – Installation wizard

While it is now being selected Zabbix Agent (64-bit) , click next.

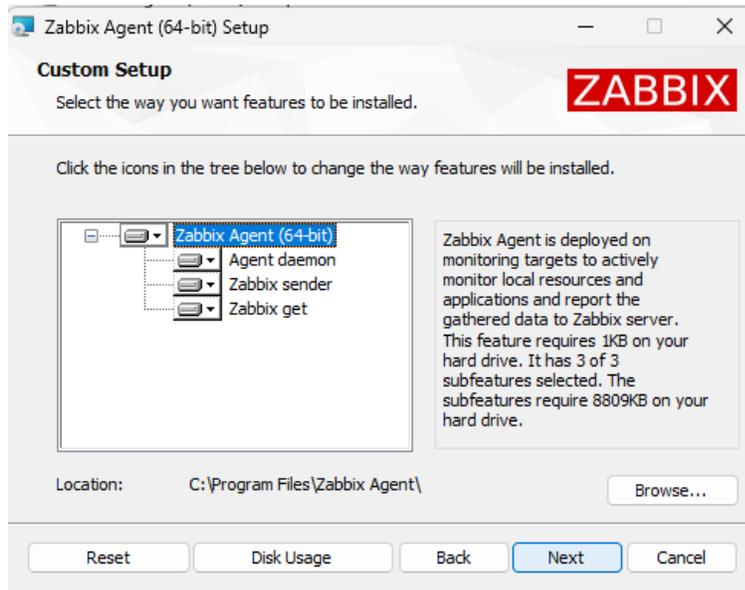


Figure 56 : Zabbix agent – Installation wizard

In the next window, you have to enter the hostname of the windows machine, but most of the time it is automatically filled by the system. If you can't find the hostname of the machine, just simply run the following command in the command line.

>> hostname

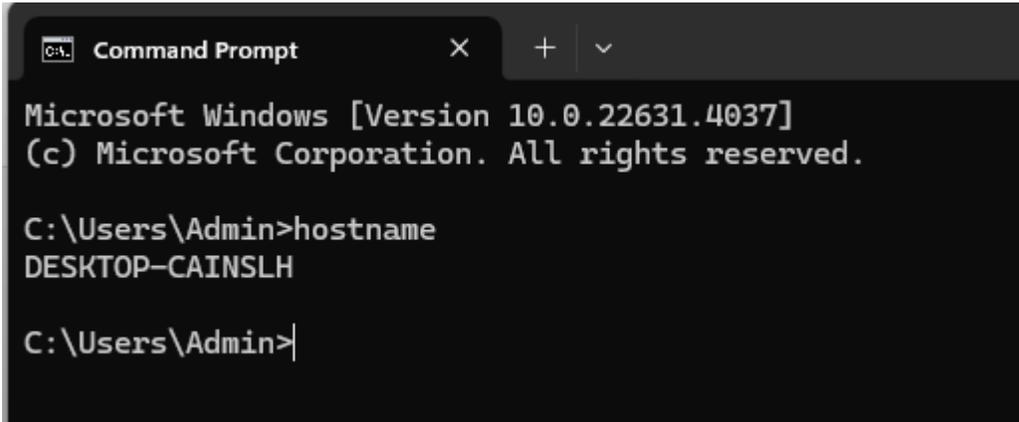


Figure 57 : Check the windows hostname

For the Zabbix server IP, you have to enter the IP address of the ubuntu virtual machine where we installed the Zabbix server. Remember, when working with Zabbix in virtual box, you have to set the Network Adapter of the virtual machines to Bridge Adapter. Otherwise, neither server nor the agent will detect your virtual machine. In this case, our windows machine is directly connected to the router, (Not virtualized) we don't have to do anything with that.

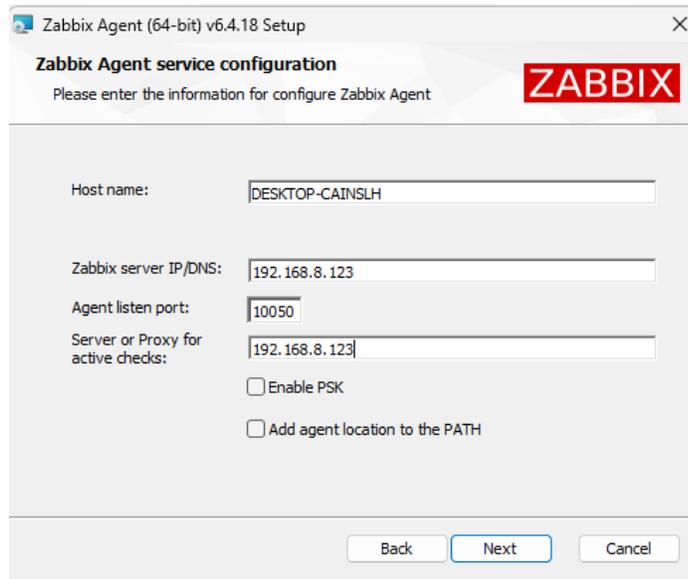


Figure 58 : Zabbix installation wizard

Finally, Click on Install button. Then it will install Zabbix agent for windows. Now go to Zabbix server in the ubuntu virtual machine. Open the Data Collection tab (sometimes it may appear as Configurations). Then click hosts. We are going to add the windows host to our server.

On the upper right corner, click on Create host as we did before when adding Linux hosts. There are no big differences between adding Linux hosts and windows hosts, just some simple configurations may differ from that of Linux.

Figure 59 : Add interface for Zabbix windows host

You have to set the ‘Templates as Windows by Zabbix agent’ because we installed an agent on windows. Then change Host groups or groups to Linux Servers. Set the IP address of the windows machine. Type the ‘ipconfig’ command in the windows command line. Check for IPv4. That is your windows IP address.

After adding the host by clicking on add button, it will take some time to change the color of the availability button to green.

Name	Items	Triggers	Graphs	Discovery	Web	Interface	Proxy	Templates	Status	Availability
DESKTOP-CAINSLH	Items 129	Triggers 98	Graphs 13	Discovery 4	Web	192.168.8.171:10050		Windows by Zabbix agent	Enabled	<span style="color: green;">ZBX</span>

Figure 60 : Successfully added windows host

Now we have successfully installed and added the windows host to the Zabbix server.

## Notes