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How to Install and Configure MongoDB on Ubuntu 18.04 LTS

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## How to Install and Configure MongoDB on Ubuntu 18.04 LTS

MongoDB is a NoSQL database that offers high performance, high availability and automatic scaling of the enterprise level database. MongoDB is a NoSQL database, so you cannot use SQL (Structured Query Language) to insert and retrieve data, and it does not store data in tables like MySQL or Postgres. The data is stored in a "document" structure in JSON format (called BSON in MongoDB). MongoDB was introduced in 2009 and is currently being developed by MongoDB Inc.

MongoDB only offers packages for 64-bit LTS (long-term support) Ubuntu versions. For example 14.04 LTS (trusty), 16.04 LTS (xenial), 18.04 LTS (bionic) and so on.

In this tutorial I will install MongoDB 4.0 on Ubuntu 18.04 LTS.

### Prerequisites

- Ubuntu Server 18.04 - 64 bit
- Root privileges

#### What we will do in this tutorial:

- Install MongoDB
- Configure MongoDB
- Conclusion

## Install MongoDB on Ubuntu 18.04 LTS

### Step 1 - Importing the Public Key

GPG keys of the software distributor are required by the Ubuntu package manager apt (Advanced Package Tool) to ensure the consistency and authenticity of the package. Execute this command to import MongoDB keys to your server.

```
sudo apt-key adv --keyserver hkp://keyserver.ubuntu.com:80 --recv 68818C72E52529D4
```

#### This tutorial exists for these OS versions

- **Ubuntu 18.04 (Bionic Beaver)**
- [Ubuntu 16.04 \(Xenial Xerus\)](#)
- [Ubuntu 14.04 LTS \(Trusty Tahr\)](#)

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## Step 2 - Create source list file MongoDB

Create a MongoDB list file in `/etc/apt/sources.list.d/` with this command:

```
sudo echo "deb http://repo.mongodb.org/apt/ubuntu bionic/mongodb-org/4.0 multiverse" | sudo tee /etc/apt/sources.list.d/mongodb-org-4.0.list
```

## Step 3 - Update the repository

update the repository with the apt command:

```
sudo apt-get update
```

## Step 4 - Install MongoDB

Now you can install MongoDB by typing this command:

```
sudo apt-get install -y mongodb-org
```

The MongoDB apt installer created a `mongod.service` file for Systemd automatically, so there is no need to create it manually anymore.

Start MongoDB and add it as a service to be started at boot time:

```
sudo systemctl start mongod
sudo systemctl enable mongod
```

Now check that MongoDB has been started on port 27017 with the netstat command.

```
sudo netstat -plntu
```

```
root@server1:~# systemctl start mongod
root@server1:~# systemctl enable mongod
Created symlink /etc/systemd/system/multi-user.target.wants/mongod.service - /lib/systemd/system/mongod.service.
root@server1:~# netstat -plntu
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:27017           0.0.0.0:*               LISTEN      2902/mongod
tcp        0      0 0.0.0.0:53:53          0.0.0.0:*               LISTEN      500/systemd-resolve
tcp        0      0 0.0.0.0:22             0.0.0.0:*               LISTEN      803/sshd
tcp6       0      0 :::22                  :::*                    LISTEN      803/sshd
udp        0      0 0.0.0.0:53:53          0.0.0.0:*               LISTEN      500/systemd-resolve
root@server1:~#
```

## Configure MongoDB username and password

When the MongoDB packages are installed you can configure username and password for the database server:

### Step 1 - Open mongo shell

Before you set up a username and password for MongoDB, you need to open the MongoDB shell on your server. You can login by typing:

```
mongo
```

If you get error *Failed global initialization: BadValue Invalid or no user locale set. Please ensure LANG and/or LC\_\* environment variables are set correctly*, try the command:

```
export LC_ALL=C
mongo
```

## Step 2 - Switch to the database admin

Once you're in the MongoDB shell, switch to the database named admin:

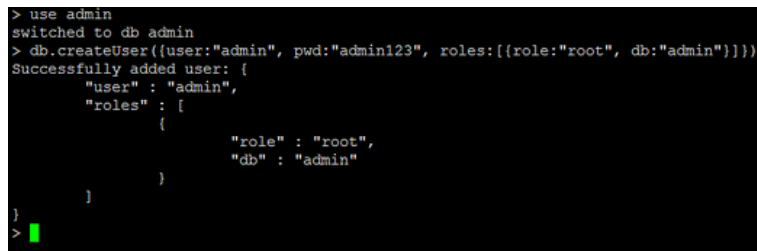
```
use admin
```

## Step 3 - Create the root user

Create the root user with this command :

```
db.createUser({user:"admin", pwd:"admin123", roles:[{role:"root", db:"admin"}]})
```

**Desc:** Create user *admin* with password *admin123* and have the permission/role as root and the database is admin.



```
> use admin
switched to db admin
> db.createUser({user:"admin", pwd:"admin123", roles:[{role:"root", db:"admin"}]})
Successfully added user: {
  "user" : "admin",
  "roles" : [
    {
      "role" : "root",
      "db" : "admin"
    }
  ]
}
```

Now type *exit* to exit from MongoDB shell.

```
exit
```

And you are back on the Linux shell.

## Step 4 - Enable MongoDB authentication

Edit the mongodb service file `'/lib/systemd/system/mongod.service'` with your editor.

```
sudo nano /lib/systemd/system/mongod.service
```

On the 'ExecStart' line 9, add the new option '--auth'.

```
ExecStart=/usr/bin/mongod --auth --config /etc/mongod.conf
```

Save the service file and exit nano.

Reload the systemd service:

```
sudo systemctl daemon-reload
```

## Step 5 - Restart MongoDB and try to connect

Now restart MongoDB and connect with the user created.

```
sudo service mongod restart
```

and connect to the MongoDB shell with this command:

```
mongo -u admin -p admin123 --authenticationDatabase admin
```

and you will see the output like this:

```
root@server1:~# sudo systemctl daemon-reload
root@server1:~# sudo service mongod restart
root@server1:~# mongo -u admin -p admin123 --authenticationDatabase admin
MongoDB shell version v3.6.4
connecting to: mongodb://127.0.0.1:27017
MongoDB server version: 3.6.4
Server has startup warnings:
2018-04-27T16:37:36.112+0200 I STORAGE [initandlisten]
2018-04-27T16:37:36.112+0200 I STORAGE [initandlisten] ** WARNING: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine
2018-04-27T16:37:36.112+0200 I STORAGE [initandlisten] ** See http://dochub.mongodb.org/core/pednotes-filesystem
> show dbs
admin 0.000GB
local 0.000GB
> exit
bye
root@server1:~#
```

## Enable external access and configure the UFW Firewall

UFW is the default firewall in Ubuntu. In this chapter, I will show how to configure UFW to allow external access to MongoDB.

Check the UFW status

```
sudo ufw status
```

When the result is:

```
Status: inactive
```

Enable UFW with this command and open the SSH port first if connected by SSH:

```
sudo ufw allow ssh
sudo ufw enable
```

before you proceed with the next steps.

For security reasons, you should allow access to the MongoDB port 27017 only from IP addresses that need to access the database. By default, localhost is always able to access it, so no need to open the MongoDB port for IP 127.0.0.1.

### UFW Firewall Syntax

```
sudo ufw allow from <target> to <destination> port <port number>
```

## Open MongoDB Port in UFW

To allow access from external IP 192.168.1.10 to MongoDB, use this command:

```
sudo ufw allow from 192.168.1.10 to any port 27017
```

Replace the IP address in the above command with the external IP you want to allow access to MongoDB.

If you want to open the MongoDB port for any IP, e.g. in case you run it in a local network and all systems in that network shall be able to access MongoDB, then use this command:

```
sudo ufw allow 27017
```

Check the status of the UFW firewall with this command:

```
sudo ufw status
```

MongoDB listens to localhost by default, to make the database accessible from outside, we have to reconfigure it to listen on the server IP address too.

Open the mongod.conf file in nano editor:

```
sudo nano /etc/mongod.conf
```

and add the IP address of the server in the bind\_ip line like this:

```
# network interfaces
net:
  port: 27017
  bindIp: 127.0.0.1,192.168.1.100
```

Replace 192.168.1.100 with the IP of your server, then restart MongoDB to apply the changes.

```
sudo service mongod restart
```

Now you can access the MongoDB database server over the network.

## Virtual Machine image

This tutorial is available as a ready to use virtual machine in OVA / OVF format for Howtoforge subscribers. The VM format is compatible with VMWare and Virtualbox and other tools that can import the ova or ovf format. You can find the download link in the right menu on the top. Click on the filename to start the download.

The login details of the VM are:

### SSH Login

Username: administrator

Password: howtoforge

The administrator user has sudo permissions.

Please change the passwords after the first boot.

The VM is configured for the static IP 192.168.1.100. Instructions on how to change the static IP can be found [here](#).

## Conclusion

MongoDB is a well-known NoSQL database that offers high performance, high availability and automatic scaling. It differs from RDBMS such as MySQL, PostgreSQL and SQLite because it does not use SQL to set and retrieve data. MongoDB stores data in `documents` called BSON (binary representation of JSON with additional information). MongoDB is only available for the 64-bit long-term support Ubuntu release.

### About Muhammad Arul

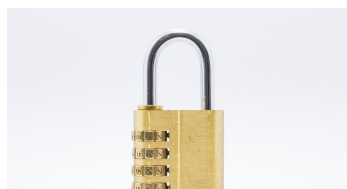
Muhammad Arul is a freelance system administrator and technical writer. He is working with Linux Environments for more than 5 years, an Open Source enthusiast and highly motivated on Linux installation and troubleshooting. Mostly working with RedHat/CentOS Linux and Ubuntu/Debian, Nginx and Apache web server, Proxmox, Zimbra Administration, and Website Optimization. Currently learning about OpenStack and Container Technology.

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**By:** Alex **at:** 2018-05-04 18:12:40

Reply

Excellent guide, very easy!, thank you!

**By:** Freek **at:** 2018-05-14 08:45:29

Reply

How can I install version 3.2.19 on Ubuntu 18?

**By:** David Sol **at:** 2018-05-15 06:28:56

Reply

I can't install the enterprise edition in Ubuntu 18.04 because of a conflict between libcurl3 and libcurl4:

```
sudo apt-get install mongodb-enterprise-server
```

```
Reading package lists... Done
```

```
Building dependency tree
```

```
Reading state information... Done
```

Some packages could not be installed. This may mean that you have requested an impossible situation or if you are using the unstable distribution that some required packages have not yet been created or been moved out of Incoming.

The following information may help to resolve the situation:

The following packages have unmet dependencies:

```
mongodb-enterprise-server : Depends: libcurl3 (>= 7.16.2) but it is not going to be installed
```

```
E: Unable to correct problems, you have held broken packages.
```

Seems it is a problem affecting several 3rd party applications.

Maybe you can fix it when you make the bionic repository?

Thanks

**By:** Benjamin Balogun **at:** 2018-05-21 15:51:32

Reply

Workaround is to replace libcurl4 with libcurl3, so

```
sudo apt-get install -y libcurl3
```

that should get functional version then

```
sudo apt-get install -y xxxx
```

where xxxx is all other depends that arise, that should install them correctly

then once no more unmet dependencies go back and run your mongodb-org

```
sudo apt-get install -y mongodb-org
```

or whichever one you used before that gave the initial error



**By: David Sol at: 2018-05-26 00:57:46**

[Reply](#)

Thanks, but... wouldn't that "break" all other programs that depend on libcurl4?

**By: Ashish at: 2018-10-20 16:59:53**

[Reply](#)

Reading package lists... Done Building dependency tree      Reading state information... Done libcurl4 is already the newest version (7.58.0-2ubuntu3.3). libcurl4 set to manually installed. You might want to run 'apt --fix-broken install' to correct these. The following packages have unmet dependencies: mongodb-org-server : Depends: libcurl3 (>= 7.16.2) but it is not going to be installed E: Unmet dependencies. Try 'apt --fix-broken install' with no packages (or specify a solution).

This is what i find every now and then.. help!

**By: Shashika at: 2018-05-15 09:23:49**

[Reply](#)

Superb tutorial... made my work so easy..!!!

**By: BartNg at: 2018-07-16 15:02:46**

[Reply](#)

It's work for me,thank you!

**By: Josh at: 2018-08-24 18:21:09**

[Reply](#)

I have used this like 10 times to set up mongo. Great info and concise!

**By: Herbert at: 2018-09-02 11:59:20**

[Reply](#)

Exellent tutorial keep it please

**By: ftw at: 2018-10-02 16:45:17**

[Reply](#)

thnks you, excellent guide about configure a root user on mongodb. was very helpfull

**By: Sudheeran at: 2018-11-18 06:48:40**

[Reply](#)

Nice article,thank you ...

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Author: Muhammad Arul  
Last updated: Sep 15, 2018  
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