An aerial photograph of a mountain range. The peaks are covered in snow and partially obscured by low-hanging clouds. The slopes are densely forested with evergreen trees. The sky is a clear, pale blue.

**Guide on Climsoft Database Installation and  
Configuration on LINUX (MySQL / MariaDB Server)  
(case of LINUX UBUNTU)**

**October 2019**

### Prerequisite:

- The Linux server should be connected to the internet to be able to download and install required packages;
- The installation of packages is done with the **sudo** or **root** privilege (In my case I have used the root user to install and configure);
- Though the Linux Ubuntu was used to produce this guide, the same procedure is applied to other type of Linux Operating Systems.
- MySQL is almost similar to Mariadb server, the latter is a forked of MySQL.

### Case 1: mysql - Server

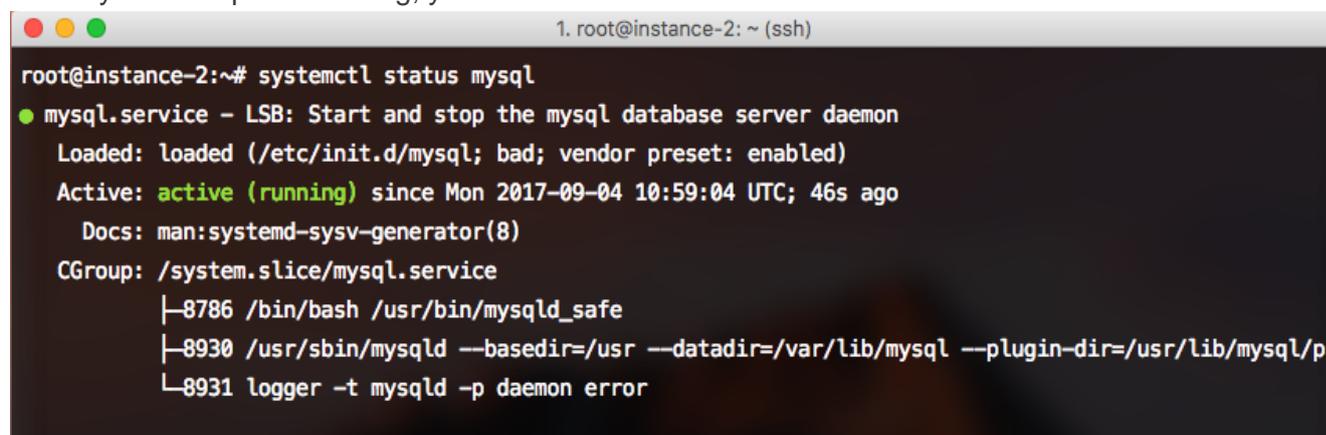
#### Step 1. Install mysql-server by using the following command:

1. # apt update
2. #apt install mysql-server

MySQL should now be installed and running. To check if mysql is now up and running, use the command:

3. # systemctl status mysql

If the system is up and running, you will see a screen similar to the one below:



```
1. root@instance-2: ~ (ssh)
root@instance-2:~# systemctl status mysql
● mysql.service - LSB: Start and stop the mysql database server daemon
   Loaded: loaded (/etc/init.d/mysql; bad; vendor preset: enabled)
   Active: active (running) since Mon 2017-09-04 10:59:04 UTC; 46s ago
     Docs: man:systemd-sysv-generator(8)
   CGroup: /system.slice/mysql.service
           └─8786 /bin/bash /usr/bin/mysqld_safe
           └─8930 /usr/sbin/mysqld --basedir=/usr --datadir=/var/lib/mysql --plugin-dir=/usr/lib/mysql/p
           └─8931 logger -t mysqld -p daemon error
```

#### Step 2. Secure mysql (create the password for mysql root user) by using the following command and instructions below:

##### # mysql\_secure\_installation

- This will ask you for the MySQL **root** password that you set during installation. Type it in and press ENTER. Now you'll answer a series of **yes** or **no** prompts. Let's go through *them*:
- Next you'll be asked if you want to change the **root** password. Since we just created the password when we installed MySQL, we can safely skip this. Hit **ENTER** to continue without updating the password.
- The rest of the prompts can be answered **yes**. You will be asked about removing the **anonymous** MySQL user, disallowing remote **root** login, removing the **test** database,

and reloading privilege tables to ensure the previous changes take effect properly. These are all a good idea. Type **Y** and hit **ENTER** for each.

### Step 3. Open mysql connection:

**# mysql -u root -p**

- Run the **climsoft database script** in mysql environment to create both **Climsoft operation** and **test database** as follow:

**mysql> source /path** (e.g.: source /home/wmo/Downloads/mariadb\_climsoft\_db\_v4\_all)

### Step 4. Grant the Global privilege to the user

- Grant the global privileges (%) to the user to allow this user to be able to login remotely from any Client PC (Windows or Linux OS) as follow; In MySQL environment, type the 2 commands in bold:

**Mysql> GRANT ALL PRIVILEGES ON \*.\* TO '[user-name]'@'%' IDENTIFIED BY '[new-password]';**

**Mysql> FLUSH PRIVILEGES;**

### Step 5. Allow Remote Access Login into the Linux Server

To enable Remote access users from clients PC (running windows and having Climsoft installed), follow the step below to edit the Linux server network configuration file (see below example for the case of Ubuntu):

- The Network configuration file (mysqld) path to edit with sudo or root privilege [case of mysql]:  
**Vi /etc/mysql/mysql.conf.d/mysqld.cnf**

- Comment the default bind-address = 127.0.0.1 in the configuration file shown in the path below (i.e. # bind-address = 127.0.0.1 and add a line of bind-address to the server IP address. (e.g.: bind-address = 192.168.1.100).

- Save the file and quit editing mode;

### Step 6. Test Connection via any of the database administration tool

- Connect from the Client PC using any Database Administration tool (in my case, I have used HeidiSQL) to see if you can access remotely the server;

- Login in Climsoft on the Client side by setting database connection to the **server IP address**, **database** and **port number** to test if the connection is well established. **END**

## Case 2: Mariadb - Server

### Step 1. Install mariadb-server by using the following command:

1. # apt update
2. #apt install mariadb-server

Mariadb-server should now be installed and running. To check if mysql is now up and running, use the command:

3. # systemctl status mariadb

If the system is up and running, you will see a screen similar to the one below:

```
wmo@wmo-ProLiant-ML310e-Gen8: ~
File Edit View Search Terminal Help
● mariadb.service - MariaDB 10.1.38 database server
   Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset:
   Active: active (running) since Tue 2019-02-26 10:05:38 EAT; 6h ago
     Docs: man:mysqld(8)
           https://mariadb.com/kb/en/library/systemd/
   Process: 1119 ExecStartPost=/bin/sh -c systemctl unset-environment _WSREP_START
   Process: 1113 ExecStartPost=/etc/mysql/debian-start (code=exited, status=0/SUC
   Process: 834 ExecStartPre=/bin/sh -c [ ! -e /usr/bin/galera_recovery ] && VAR=
   Process: 826 ExecStartPre=/bin/sh -c systemctl unset-environment _WSREP_START
   Process: 812 ExecStartPre=/usr/bin/install -m 755 -o mysql -g root -d /var/run
   Main PID: 909 (mysqld)
   Status: "Taking your SQL requests now..."
     Tasks: 27 (limit: 9444)
   CGroup: /system.slice/mariadb.service
           └─909 /usr/sbin/mysqld
```

### Step 2. Secure mariadb (create the password for mariadb root user) by using the following command and instructions below:

#### # mysql\_secure\_installation

- This will ask you for the Mariadb **root** password that you set during installation. Type it in and press ENTER. Now you'll answer a series of **yes** or **no** prompts. Let's go through *them*:
- Next you'll be asked if you want to change the **root** password. Since we just created the password when we installed Mariadb, we can safely skip this. Hit **ENTER** to continue without updating the password.
- The rest of the prompts can be answered **yes**. You will be asked about removing the **anonymous** Mariadb user, disallowing remote **root** login, removing the **test** database, and reloading privilege tables to ensure the previous changes take effect properly. These are all a good idea. Type **Y** and hit **ENTER** for each.

### Step 3. Open mariadb connection:

#### # mysql -u root -p

- Run the **climsoft database script** in mysql environment to create both **Climsoft operation** and **test database** as follow:

mariadb> **source /path** (e.g.: source /home/wmo/Downloads/mariadb\_climsoft\_db\_v4\_all)

### Step 4. Grant Global privilege to the user

Grant the global privileges (%) to the user to allow this user to be able to login remotely from any Client PC (Windows or Linux OS) as follow; In MySQL environment, type the 2 commands in bold:

```
Mariadb> GRANT ALL PRIVILEGES ON *.* TO '[user-name]'@'%' IDENTIFIED BY '[new-  
password]';
```

```
Mariadb> FLUSH PRIVILEGES;
```

### **Step 5. Allow Remote Access Login into the Linux Server**

To enable Remote access users from clients PC (running windows and having Climsoft installed), follow the step below to edit the Linux server network configuration file (see below example for the case of Ubuntu):

- Change the network configuration file as follow: Login with root or sudo privileges;

**Vi /etc/mysql/mariadb.conf.d/50-server.cnf** (and edit the file as follow: Comment the default IP address and add the static IP address of the server.

E.g.: # bind-address = 127.0.0.1 and add a line of bind-address to the server IP address. i.e.:

bind-address = 192.168.1.100

- Save and quit editing mode

### **Step 6. Test Connection via any of the database admin tool**

- Connect from the Client PC using any Database Administration tool (in my case, I have used HeidiSQL) to see if you can access remotely the server;

- Login in Climsoft on the Client side by setting database connection to the **server IP address, database** and **port number** to test if the connection is well established. **END**

### **Congratulations!**

For any question or further clarifications, contact the Climsoft Helpdesk at: [support@climsoft.org](mailto:support@climsoft.org)