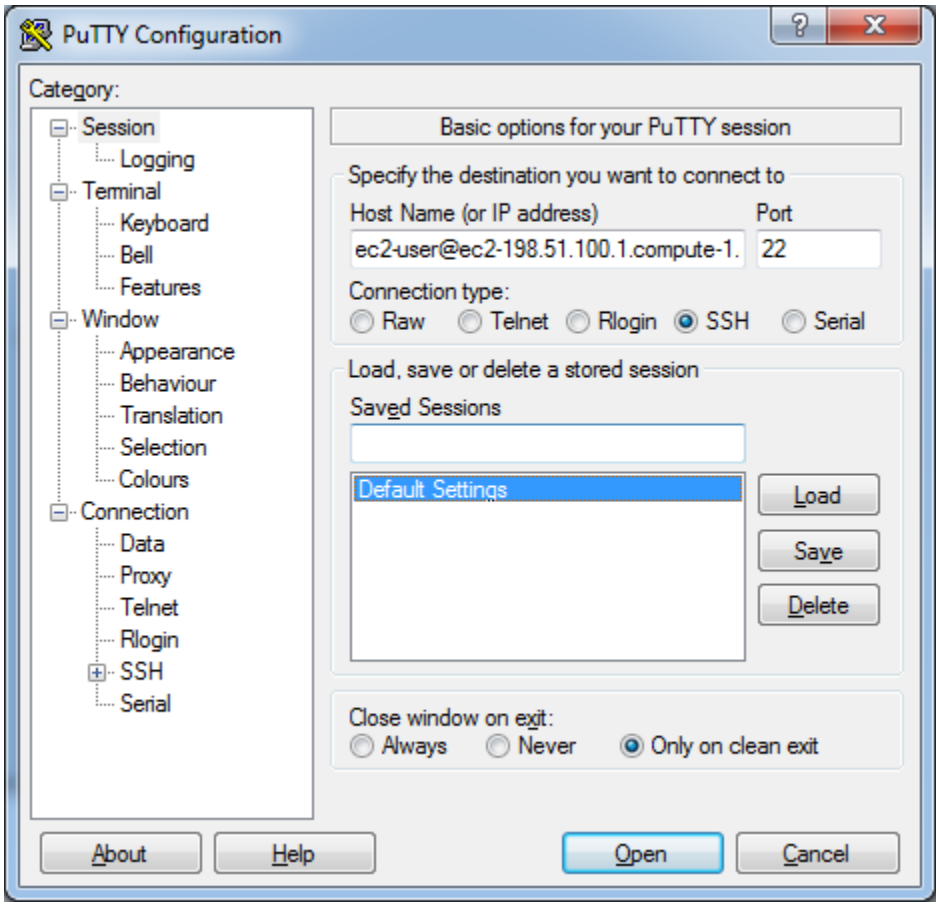
CalSPEED Documentation

LibreSpeed installation and configuration

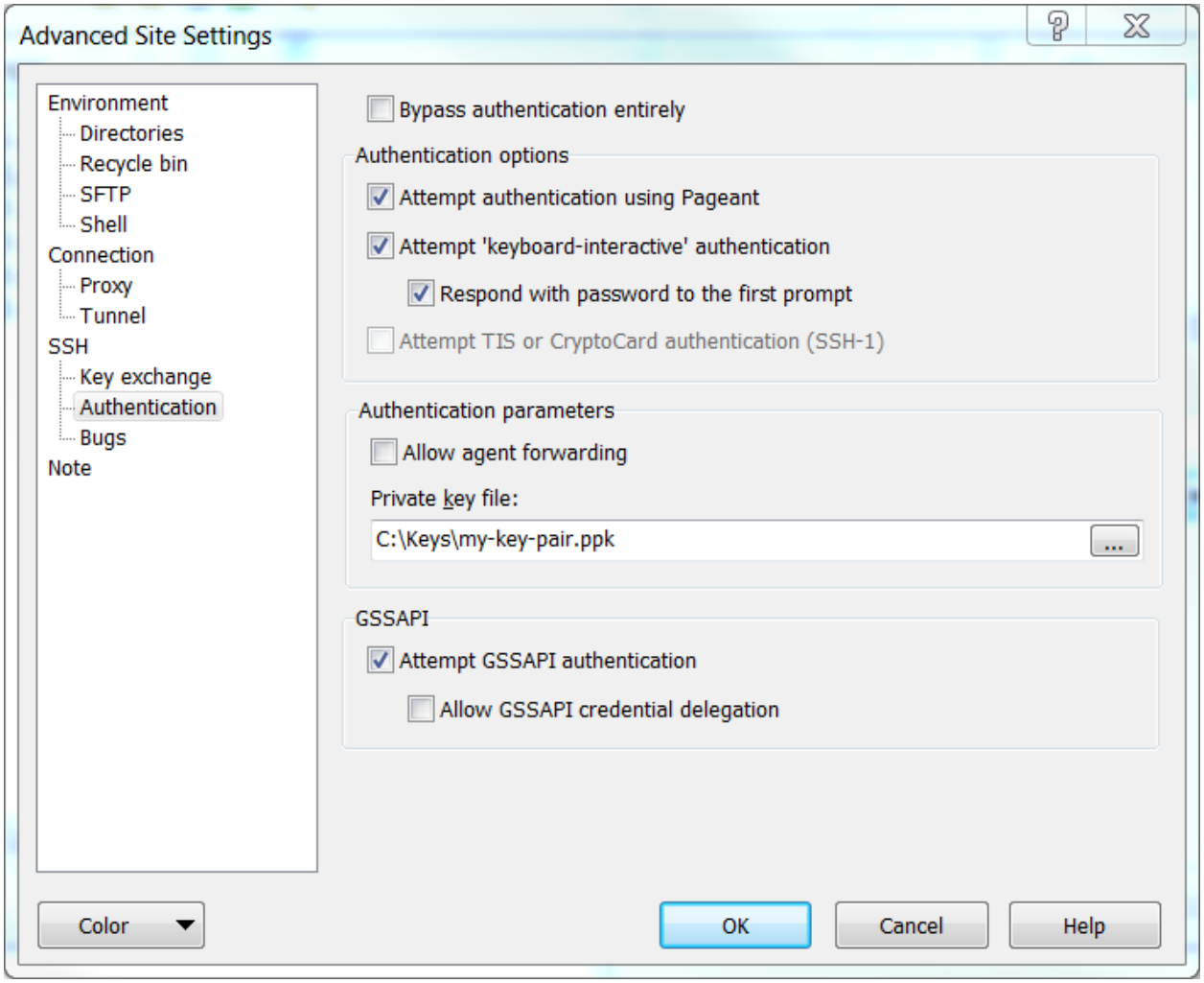
Pre-requisites: Amazon Linux 2 EC2 instance.

Step 1: Before we do anything, we need to gain access to our EC2 instance via a terminal directly using SSH or using a program like Putty. When you have an EC2 instance you can create a key value pair that acts as an authenticator so that you can connect to your EC2 instance from different devices via SSH. The key value pair can be created in .PPK file extension for Putty or .PEM for SSH.

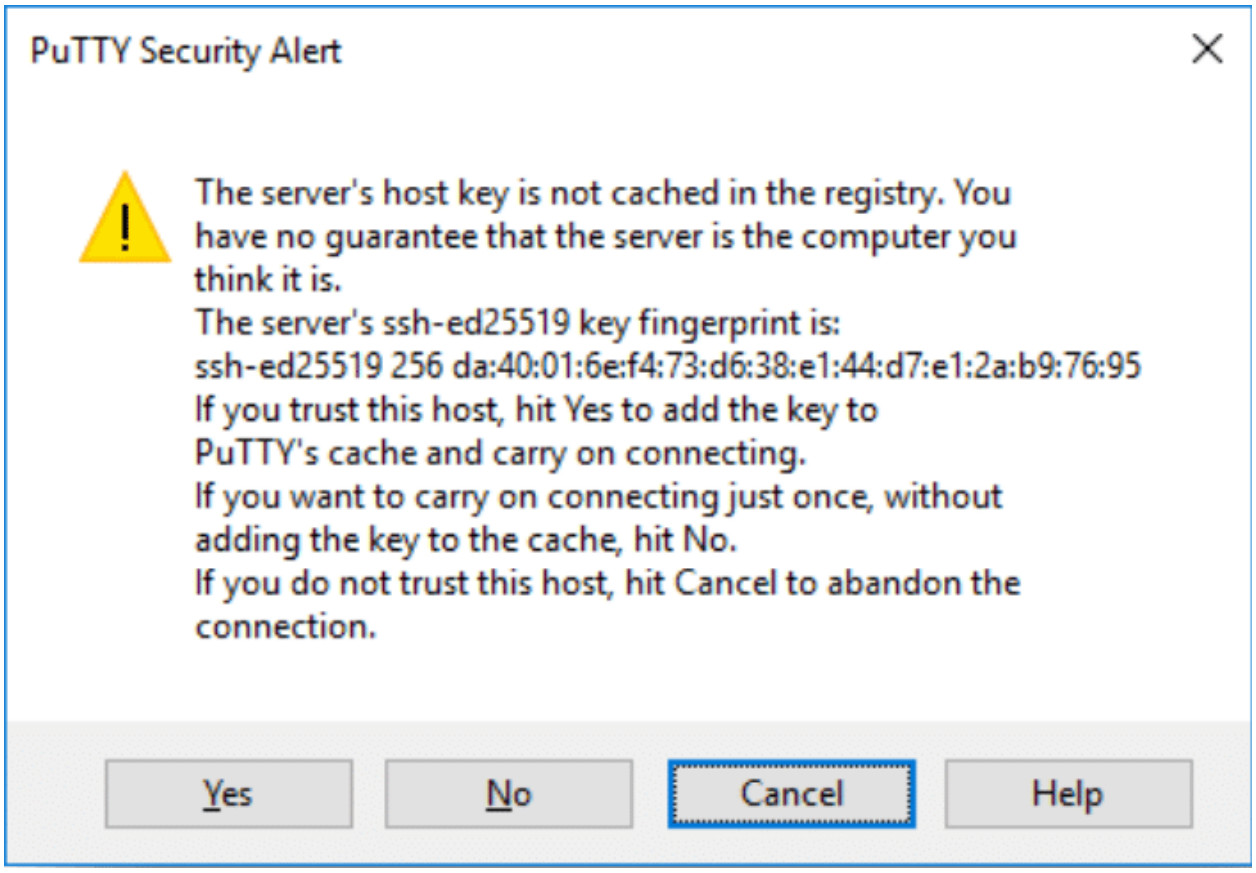


Once you have Putty, you would need to input the hostname, usually ec2-user@ip_address of the server. The Port would be 22 and select SSH from connection type. Then you would need the .PPK file that you generated and downloaded from the EC2 instance. In Putty, on the left

side navigation, navigate to SSH/authentication. On this window, you will select the path to the PPK file, under Authentication parameters -->private key file.

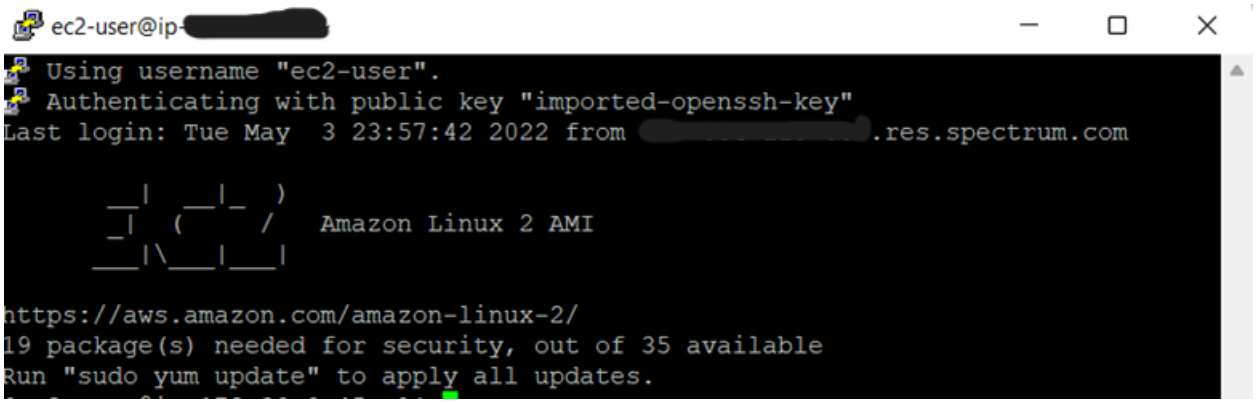


Once you have all of that information on Putty then you are ready to log into your EC2 instance. Simply go back to the initial window or session window and click on open. Then you would see something like this below, click yes

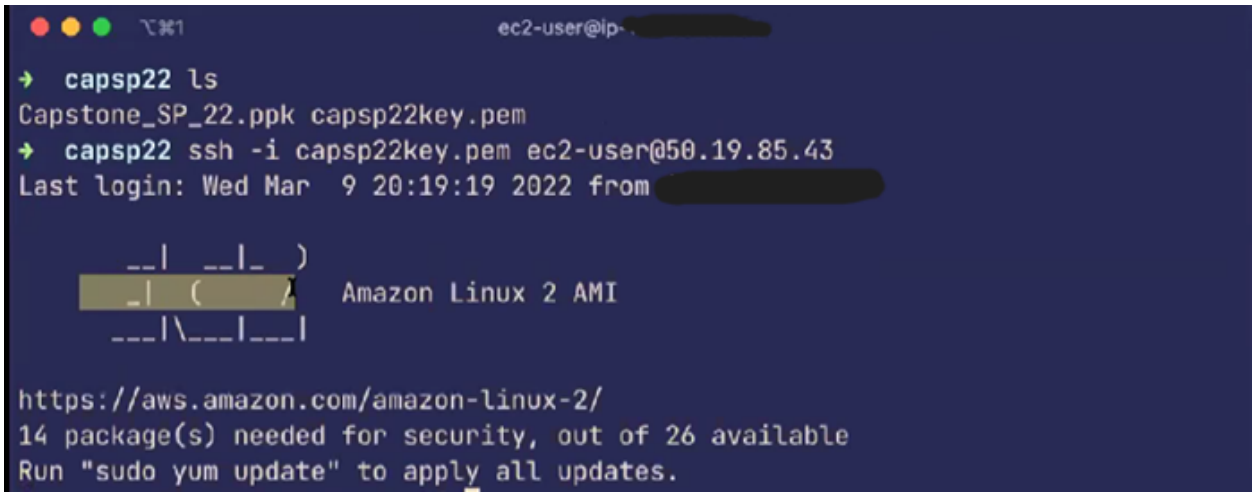


.

Then you would be brought to this screen. Congratulations you have now access to the EC2 instance!



If you have a Mac OS you can connect to the EC2 instance using your terminal, the steps are similar to putty, you still need the key pair but this time, we would use the .PEM keys. Once you access your terminal you would type the following: SSH -i keypairfile hostname@ip_address. Notice how in this example the key is placed under the capsp22 directory and since the key is in this directory we can just add the keypair file name otherwise we would add the path where the key pair is located. It's recommended that you also update your Ec2 instance as mentioned below.



Step 2: We need to install an Apache web server, PHP programming language and an SQL database such as MariaDB. There is also a package called LAMP stack which includes Apache, PHP, and MariaDB. Then after that we will install Librespeed on our EC2 instance.

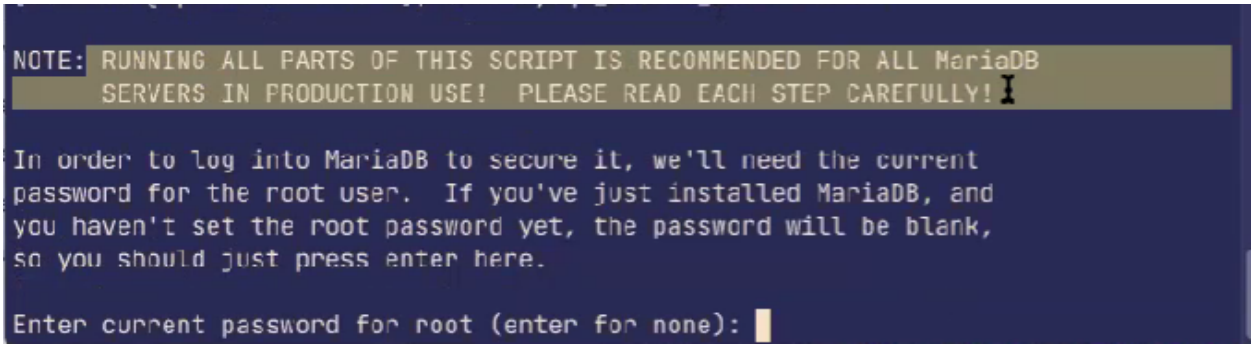
Step 3:

configuring Mariadb server

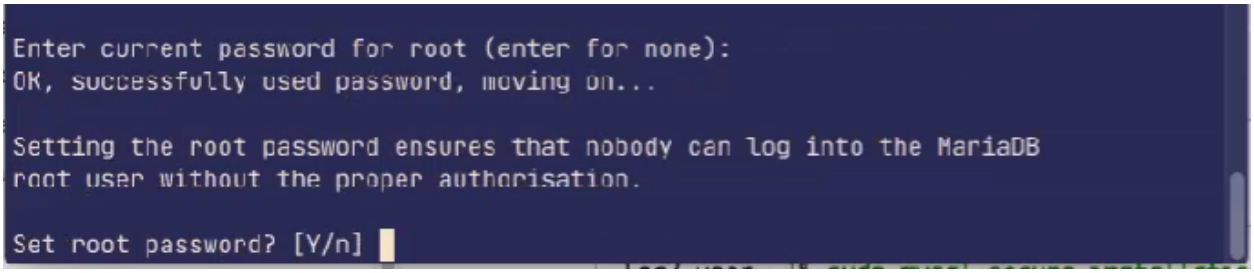
Now we want to start and secure the MariaDB server. Let's begin by starting the server and configuring with the following commands:

```
[ec2-user ~]$ sudo systemctl start mariadb
[ec2-user ~]$ sudo mysql_secure_installation
```

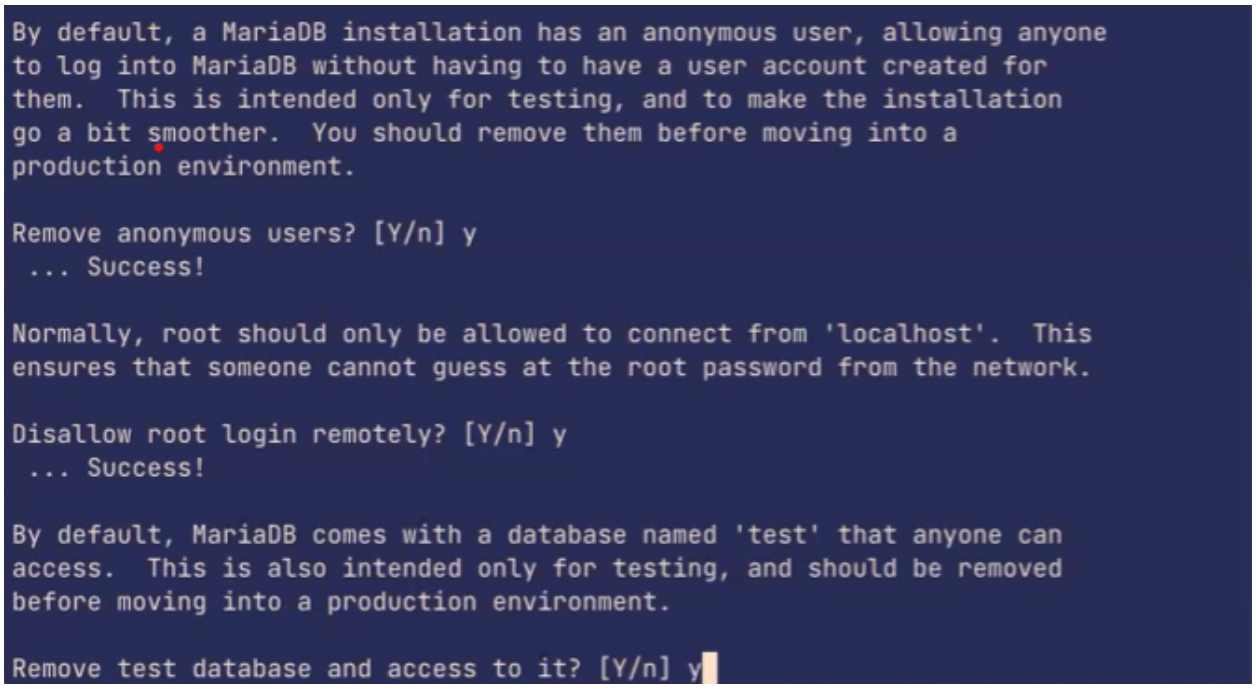
You would see the following screen:

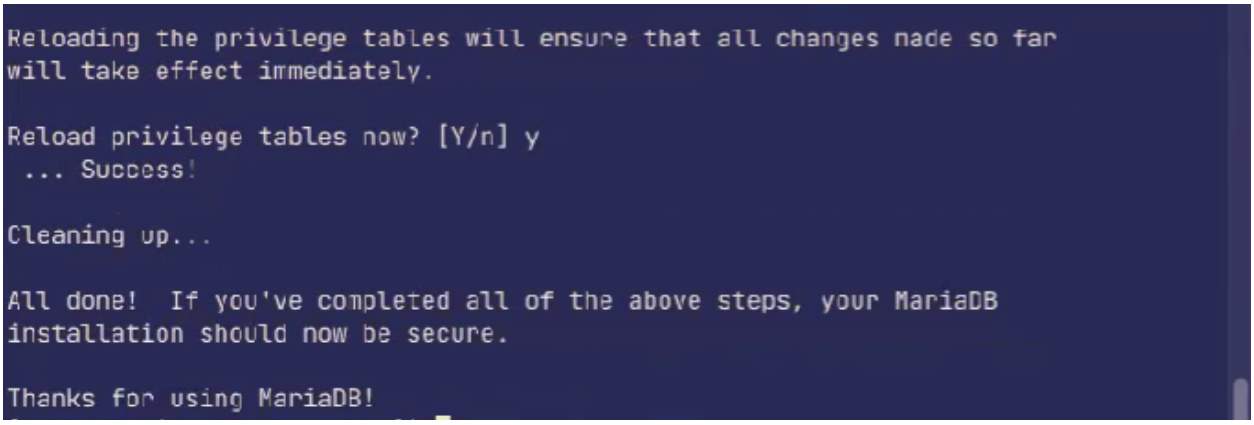


Since we don’t have a password at this moment we would press enter. The next screen would guide you to set up your root password.



After setting your password you would be prompted with some questions, type yes to all. We want to configure MariaDB to increase security.





MariaDB should be secure now. You can now stop the server with this command:

```
[ec2-user ~]$ sudo systemctl stop mariadb
```

This command is optional but would start the Mariadb server at bootup

```
[ec2-user ~]$ sudo systemctl enable mariadb
```

Installing PHPmyadmin

Follow these commands to start installing phpmyadmin.

1. Install the required dependencies.

```
[ec2-user ~]$ sudo yum install php-mbstring php-xml -y
```

2. Restart Apache.

```
[ec2-user ~]$ sudo systemctl restart httpd
```

3. Restart `php-fpm`.

```
[ec2-user ~]$ sudo systemctl restart php-fpm
```

4. Navigate to the Apache document root at `/var/www/html`.

```
[ec2-user ~]$ cd /var/www/html
```

5. Select a source package for the latest phpMyAdmin release from https://www.phpmyadmin.net/downloads. To download the file directly to your instance, copy the link and paste it into a wget command, as in this example:

```
[ec2-user html]$ wget
https://www.phpmyadmin.net/downloads/phpMyAdmin-latest-all-
languages.tar.gz
```

(note change "latest" to the latest version of phpmyadmin)

11. Create a phpMyAdmin folder and extract the package into it with the following command.

```
[ec2-user html]$ mkdir phpMyAdmin && tar -xvzf
phpMyAdmin-latest-all-languages.tar.gz -C phpMyAdmin
--strip-components 1
```

12. Delete the phpMyAdmin-latest-all-languages.tar.gz tarball.

```
[ec2-user html]$ rm phpMyAdmin-latest-all-languages.tar.gz
```

13. (Optional) If the MySQL server is not running, start it

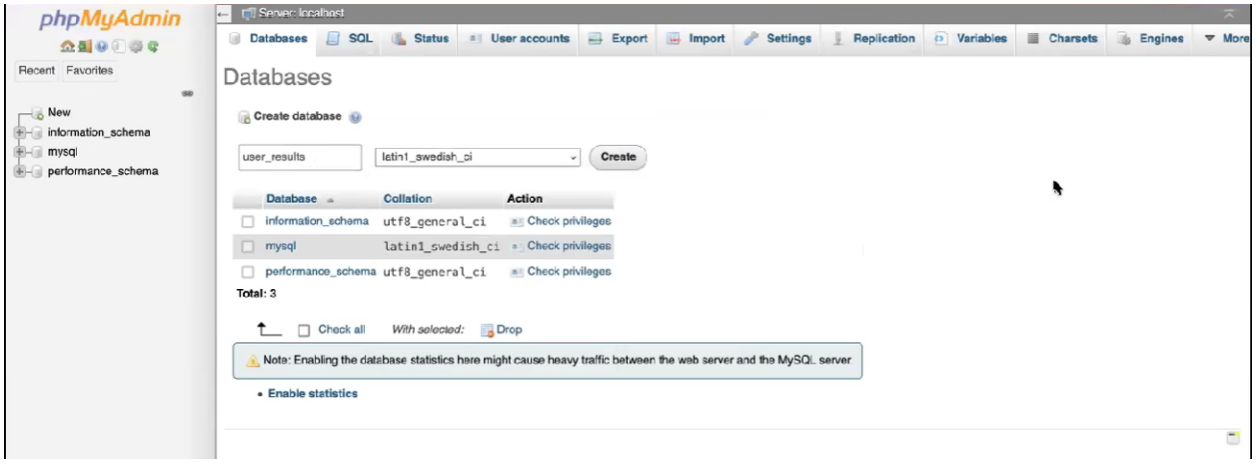
```
[ec2-user ~]$ sudo systemctl start mariadb
```

14. In a web browser, type the URL of your phpMyAdmin installation. This URL is the public DNS address (or the public IP address) of your instance followed by a forward slash and the name of your installation directory. For example: http://EC2_IPadress/phpMyAdmin

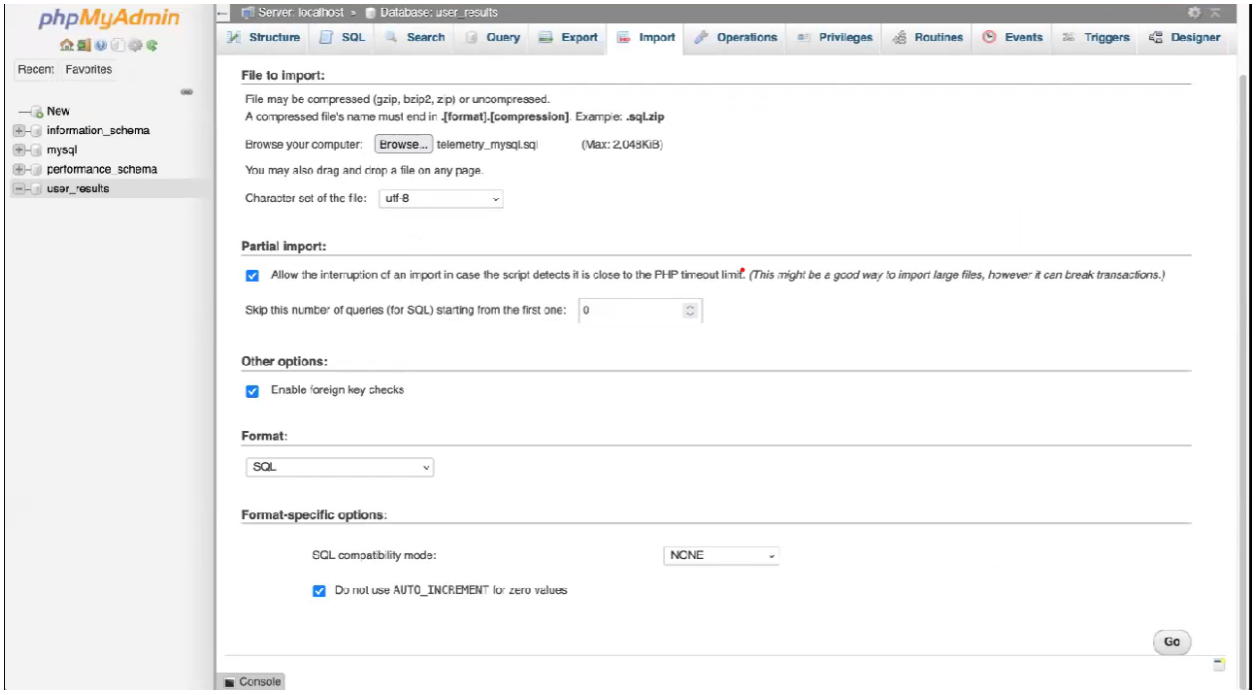
You should see the phpMyAdmin login page:

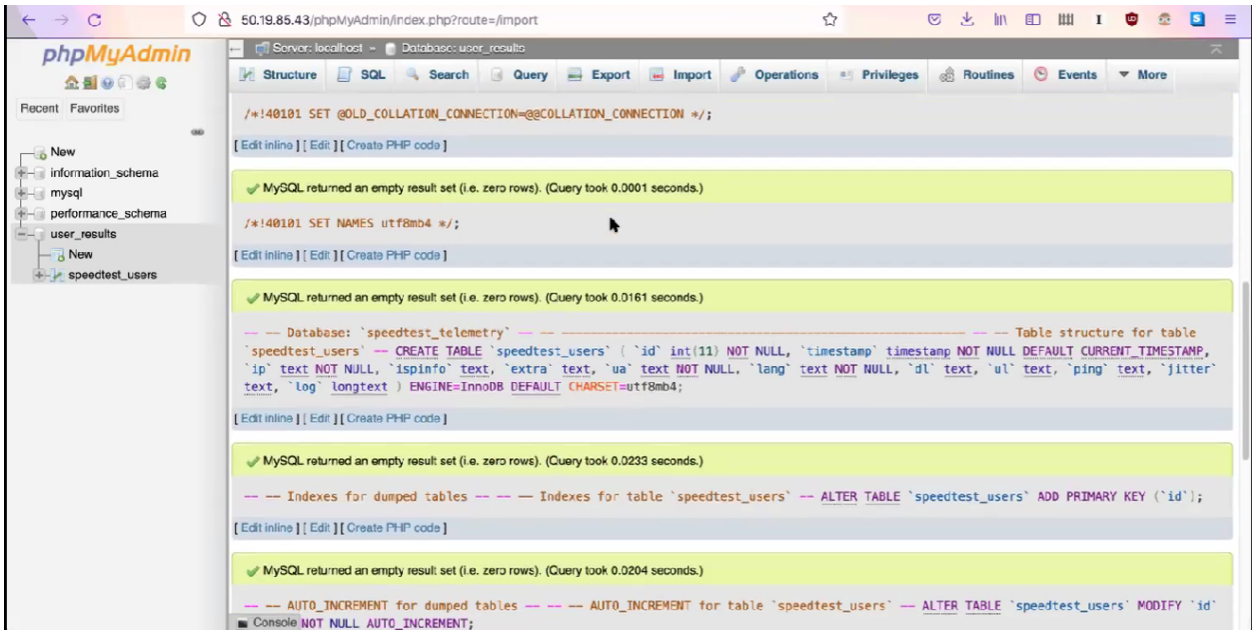
Configuring phpmyadmin to create a database with tables.

Once you are logged into PHPMyAdmin, go to the database tab and create a database. In this case, we name it user_results but you can name it whatever you want, leaving default values.

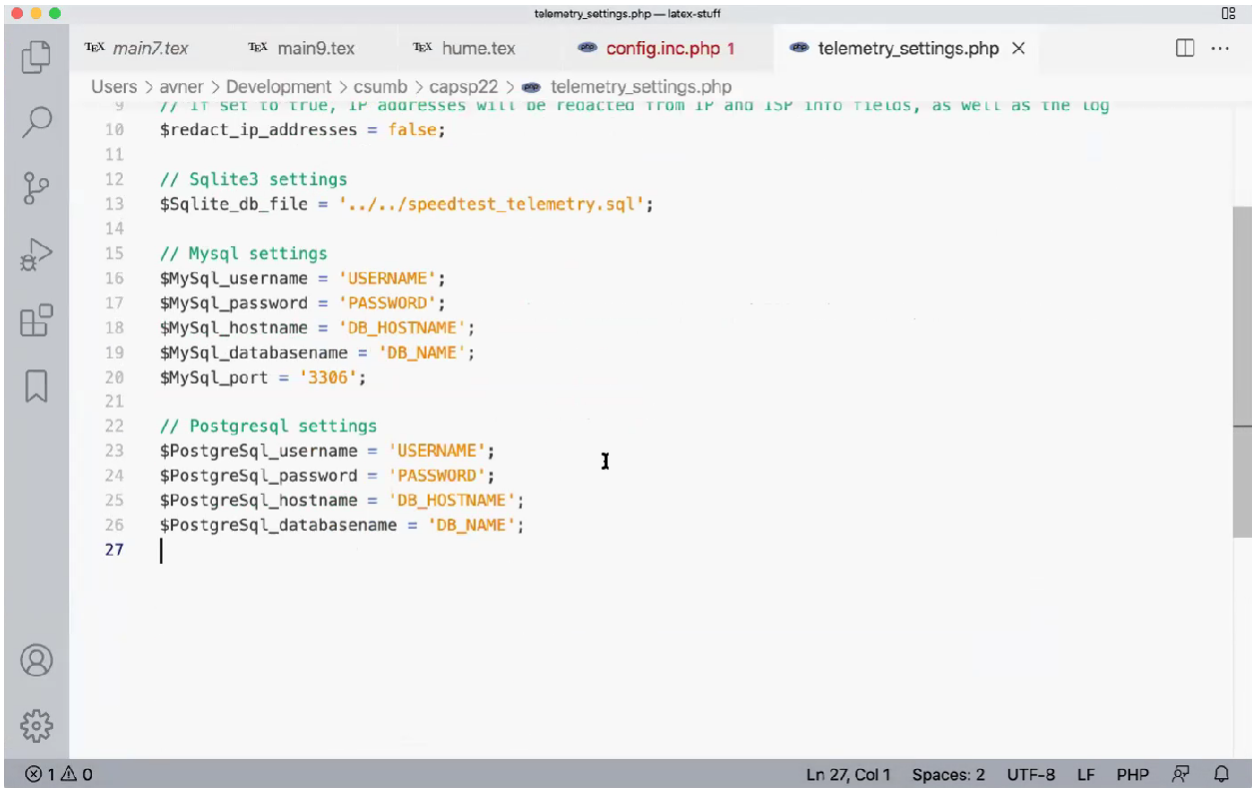


After you created the database it is time to import the necessary tables to build our database. Go to Librespeed Github and download the telemetry_mysql.sql file and import it into PHPMyAdmin. To import it go to the import tab and import the downloaded SQL file. Leave everything else as default and click go. Now you have the database tables imported. For more information visit doc.md file on Librespeed Github.


phpMyAdmin
Recent Favorites
New
information_schema
mysql
performance_schema
user_results
Server: localhost » Database: user_results
Structure SQL Search Query Export Import Operations Privileges Routines Events Triggers Designer
File to import:
File may be compressed (gzip, bzip2, zip) or uncompressed.
A compressed file's name must end in .[format].[compression]. Example: .sql.zip
Browse your computer: Browse... telemetry_mysql.sql (Max: 2,048KiB)
You may also drag and drop a file on any page.
Character set of the file: utf-8
Partial import:
Allow the interruption of an import in case the script detects it is close to the PHP timeout limit. (This might be a good way to import large files, however it can break transactions.)
Skip this number of queries (for SQL) starting from the first one: 0
Other options:
Enable foreign key checks
Format:
SQL
Format-specific options:
SQL compatibility mode: NONE
Do not use AUTO_INCREMENT for zero values
Go
Console


50.19.85.43/phpMyAdmin/index.php?route=/import
phpMyAdmin
Recent Favorites
New
information_schema
mysql
performance_schema
user_results
New
speedtest_users
Server: localhost » Database: user_results
Structure SQL Search Query Export Import Operations Privileges Routines Events More
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
[Edit inline] [Edit] [Create PHP code]
MySQL returned an empty result set (i.e. zero rows). (Query took 0.0001 seconds.)
/*!40101 SET NAMES utf8mb4 */;
[Edit inline] [Edit] [Create PHP code]
MySQL returned an empty result set (i.e. zero rows). (Query took 0.0161 seconds.)
-- -- Database: `speedtest_telemetry` -- -- -- Table structure for table `speedtest_users` -- CREATE TABLE `speedtest_users` (`id` int(11) NOT NULL, `timestamp` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP, `ip` text NOT NULL, `ispinfo` text, `extra` text, `ua` text NOT NULL, `lang` text NOT NULL, `dl` text, `ul` text, `ping` text, `jitter` text, `log` longtext) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
[Edit inline] [Edit] [Create PHP code]
MySQL returned an empty result set (i.e. zero rows). (Query took 0.0233 seconds.)
-- -- Indexes for dumped tables -- -- -- Indexes for table `speedtest_users` -- ALTER TABLE `speedtest_users` ADD PRIMARY KEY (`id`);
[Edit inline] [Edit] [Create PHP code]
MySQL returned an empty result set (i.e. zero rows). (Query took 0.0204 seconds.)
-- -- AUTO_INCREMENT for dumped tables -- -- -- AUTO_INCREMENT for table `speedtest_users` -- ALTER TABLE `speedtest_users` MODIFY `id` NOT NULL AUTO_INCREMENT;
Console

Now let's navigate back into Librespeed [Github](#) under results download the telemetry_settings.php file and open it in a text editor like notepad. We want to make a couple of changes to this file. Once on this file make sure that $db_type: mysql. Delete Postgresql and Sqlite3 settings.



Connecting EC2 instance to Database.

Travel back to your Ec2 instance terminal and type this command:

```
[ec2-user ~]$ cd /var/www/html
```

You will see these files, these files should of being installed in step 2 of the guide:

Under the html directory make a new directory called results and enter the results directory using cd command:

```
[ec2-user ~]$ Mkdir results
```

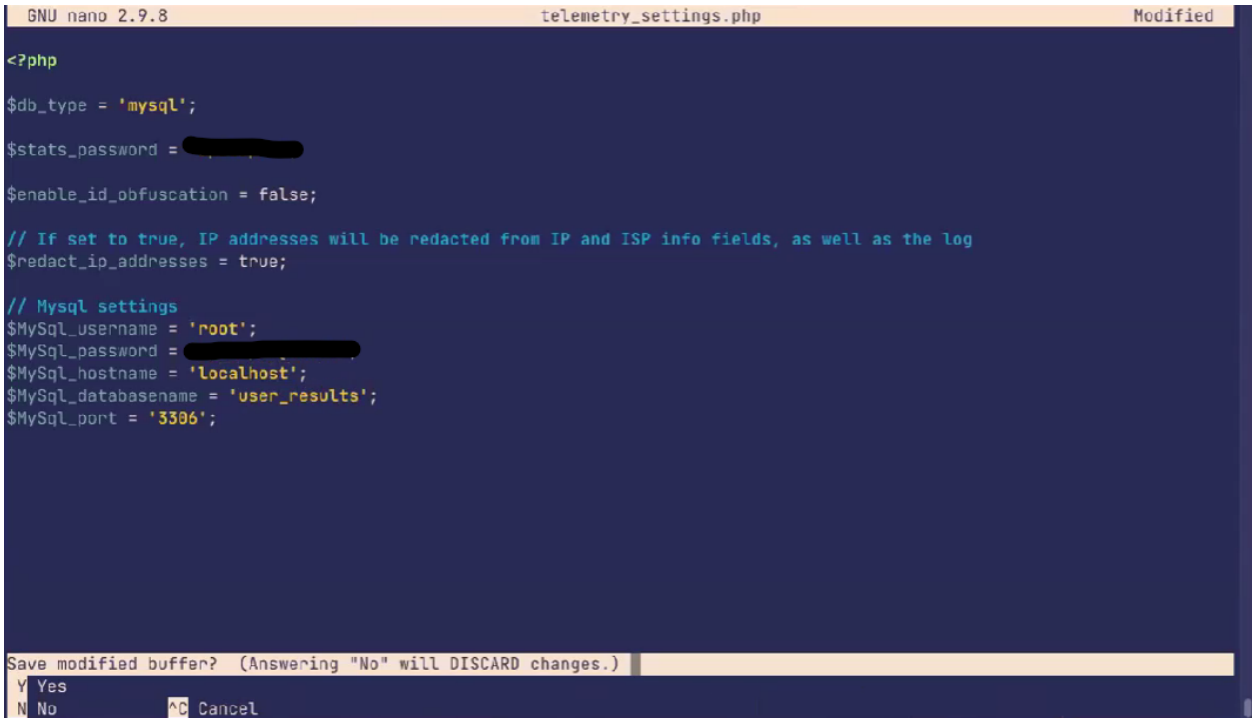
```
[ec2-user@ip-          html]$ mkdir results
[ec2-user@ip-          html]$ ls
backend  index.html  phpMyAdmin  results  speedtest.js  speedtest_worker.js
```

```
[ec2-user ~]$ cd results
```

Once under results, make a file with this command:

```
[ec2-user ~]$ nano telemetry_settings.php
```

Once nano is open, copy and paste the contents of the file we edited (telemetry_settings.php) into this newly created file . Make sure to include your phpmyadmin username, password, hostname and database name under mysql settings. Also set a password for stats_password as well. Save the changes and exit nano.

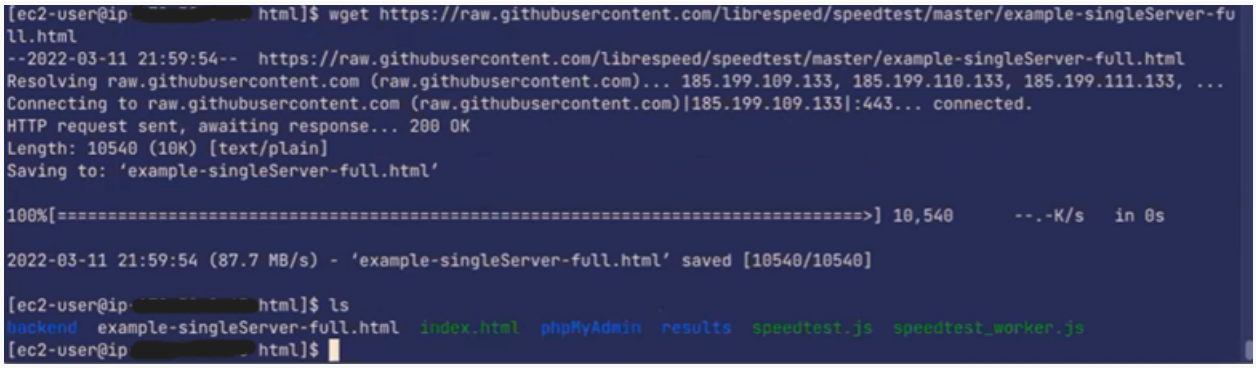


Gathering all the necessary files to run applications and gather data.

Now go to the Librespeed github repository and go to [example-singleServer-full.html](). Copy the url and paste into this command (note make sure you are under html directory) :

```
[ec2-user ~]$ Wget https://raw.githubusercontent.com/librespeed/speedtest/master/example-singleServer-full.html
```

you should see the file under html directory now:



Now remove index.html and copy example-singleServer-full.html into index.html

```
[ec2-user ~]$ Rm index.html
```

```
[ec2-user ~]$ Mv example-singleServer-full.html  index.html
```

(note when you move a file to a destination that doesn't exist it would be create it)

Now you should have example-singleSever-full.html in index.html.

The next step is to copy the json.php, stats.php, telemetry.php, idObfuscation.php , index.php, telemetry_db.php files which are located in the Librespeed github repository under results. We need to copy this file on our Ec2 instance under the results directory (make sure you change directories html->results) . In order to copy the files we use the same method as a single server full. Execute one at a time.

```
[ec2-user ~]$ Wget https://raw.githubusercontent.com/librespeed/speedtest/master/results/json.php
```

```
[ec2-user ~]$ Wget https://raw.githubusercontent.com/librespeed/speedtest/master/results/stats.php

[ec2-user ~]$ Wget https://raw.githubusercontent.com/librespeed/speedtest/master/results/telemetry.php

[ec2-user ~]$ Wget https://raw.githubusercontent.com/librespeed/speedtest/master/results/idObfuscation.php

[ec2-user ~]$ Wget https://raw.githubusercontent.com/librespeed/speedtest/master/results/index.php

[ec2-user ~]$ Wget https://raw.githubusercontent.com/librespeed/speedtest/master/results/telemetry_db.php
```

After copy the files you should see them under the results directory (note that telemetry_db is not listed below but should be there):

Now we can run the speedtest and see if any data is being collected. Go to your EC2 ip address and run the speedtest. You can see the results either in phpmyadmin or you can go to https://ec2Ip/results/stats.php, you would need to log in with the password you set before (stats_password).

Step 5: virtualization/local environment
Prerequisites: Install Virtualbox and make a virtual machine using Ubuntu as your operating system.
Follow this video: https://fdossena.com/?p=speedtest/quickstart_v5_ubuntu.frag

Extras: using Winscp to transfer files from EC2 instances into local storage.

Virtualization

You would need virtualbox, a Lunix OS, most version of ubuntu work,

https://fdossena.com/?p=speedtest/quickstart_v5_ubuntu.frag

How to use winsp to transfer files from ec2 instance to personal computer

https://winscp.net/eng/docs/guide_amazon_ec2