

Weighing Motion System

INSTALLATION AND CONFIGURATION

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2 Revision History

Version No	Date	Author	Change Log
1	24/02/2024	Gautham D	

3 Setting Up a UBUNTU Virtual Machine

3.1 VM Update

- `sudo apt update`
- `sudo apt dist-upgrade`
- `sudo apt autoremove`
- `sudo apt autoclean`

3.2 Software Installation

- `sudo apt install npm`
- `sudo apt install python3-pip`
- `sudo apt install nginx`
- `sudo apt install ufw`
- `sudo apt install git`
- `sudo apt install mysql-server`
- `sudo apt install nodejs`
 - if the old version is installed do the following
 - `sudo npm cache clean -f`
 - `sudo npm install -g n`
 - `sudo n stable`
 - `node --version` (Should be - 18.04)
- `sudo apt install mosquitto`
- `sudo apt-get install python3-mysqldb libmysqlclient-dev python3-dev`
- `sudo pip3 install django` (Version- 4.2)
- `sudo pip3 install djangorestframework`
- `sudo pip3 install django-cors-headers`
- `sudo pip3 install xmltodict`
- `sudo pip3 install dict2xml`
- `sudo pip3 install gunicorn`

3.3 Configure MySQL

- `sudo mysql`
 - `ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'password';`
 - `exit`
- `sudo mysql_secure_installation` (Password: 'M3r1tT#ch@123')
- `mysql -u root -p`
 - `ALTER USER 'root'@'localhost' IDENTIFIED WITH auth_socket;`
 - `exit`
- `sudo mysql`
 - `create database weighing;`
 - `CREATE USER 'merit'@'localhost' IDENTIFIED BY 'M3r1tT#ch';`
 - `GRANT ALL PRIVILEGES ON weighing.* TO 'merit'@'localhost' WITH GRANT OPTION;`
 - `FLUSH PRIVILEGES;`
 - `exit`
- `sudo systemctl restart mysql.service`
- `sudo systemctl status mysql.service`

3.4 Clone Software and Link to Database

- `git clone <Merit-Cloud-Software GitHub repository link>`
- `cd Merit-Cloud-Software`
 - `python3 manage.py makemigrations`
 - `python3 manage.py migrate`
 - `python3 manage.py createsuperuser`
 - username: Merit
 - password: M3rit@1234

3.5 Configure and Enable Ngnix

- `cd`
- `sudo mkdir /var/www/Merit/`
- `sudo cp -r Merit-Cloud-Software/* /var/www/Merit/`
- `sudo nano /etc/systemd/system/gunicorn.socket`
 - [Unit]
 - Description=gunicorn socket
- [Socket]
- ListenStream=/run/gunicorn.sock
- [Install]
- WantedBy=sockets.target
- Check gunicorn location using “which gunicorn” <GUNICORN LOCATION>
- `sudo nano /etc/systemd/system/gunicorn.service`
 - [Unit]
 - Description=gunicorn daemon
 - Requires=gunicorn.socket
 - After=network.target
 - [Service]
 - User=www-data
 - Group=www-data
 - WorkingDirectory=/var/www/Merit
 - ExecStart=<GUNICORN LOCATION>\
 - --access-logfile - \

- --timeout 300 \
- --workers 3 \
- --bind unix:/run/gunicorn.sock \
- merit_cloud.wsgi:application
- [Install]
- WantedBy=multi-user.target
- sudo nano /etc/nginx/sites-available/merit.conf
 - server {
 - listen 443;
 - server_name merit merit.com;
 - location = /favicon.ico { access_log off; log_not_found off; }
 - location /static/ {
 - root /var/www/Merit/frontend/build;
 - }
 - location / {
 - include proxy_params;
 - proxy_pass http://unix:/run/gunicorn.sock;
 - }
 - }
- sudo systemctl daemon-reload
- sudo systemctl start gunicorn.socket
- sudo systemctl enable gunicorn.socket
- sudo rm /etc/nginx/sites-enabled/default
- sudo ln -s /etc/nginx/sites-available/merit.conf /etc/nginx/sites-enabled/
- sudo nginx -t
- sudo systemctl restart nginx
- sudo systemctl restart gunicorn.service

3.6 Configure Mosquitto

- sudo nano /etc/mosquitto/mosquitto.conf
 - pid_file /var/run/mosquitto.pid
 - persistence true
 - persistence_location /var/lib/mosquitto/
 - log_dest file /var/log/mosquitto/mosquitto.log
 - include_dir /etc/mosquitto/conf.d
 - allow_anonymous true
 - listener 1883
 - protocol mqtt
 - listener 80
 - protocol websockets
- sudo systemctl restart mosquitto.service
- sudo systemctl restart nginx.service gunicorn.service gunicorn.socket

3.7 (Optional) Enable Firewall

- sudo su
- ufw enable
- ufw allow 'Nginx Full'
- ufw status
- exit

4 Admin Controls

- Add a new user for weighment.
- Add a new weighbridge station.

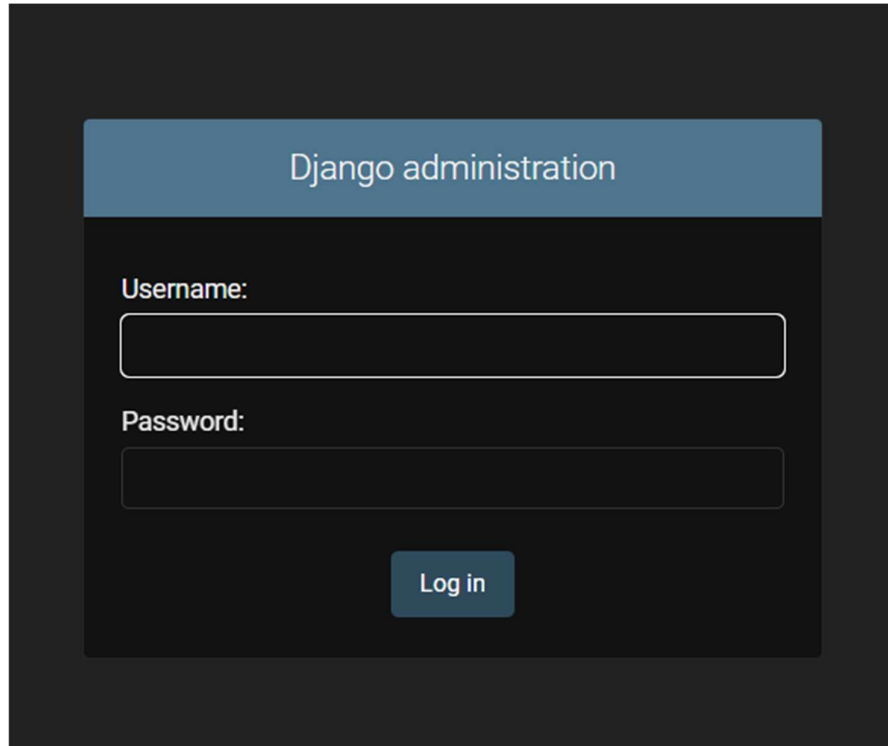
5 Admin Guides

Admin users will be created when setting up the virtual machine.

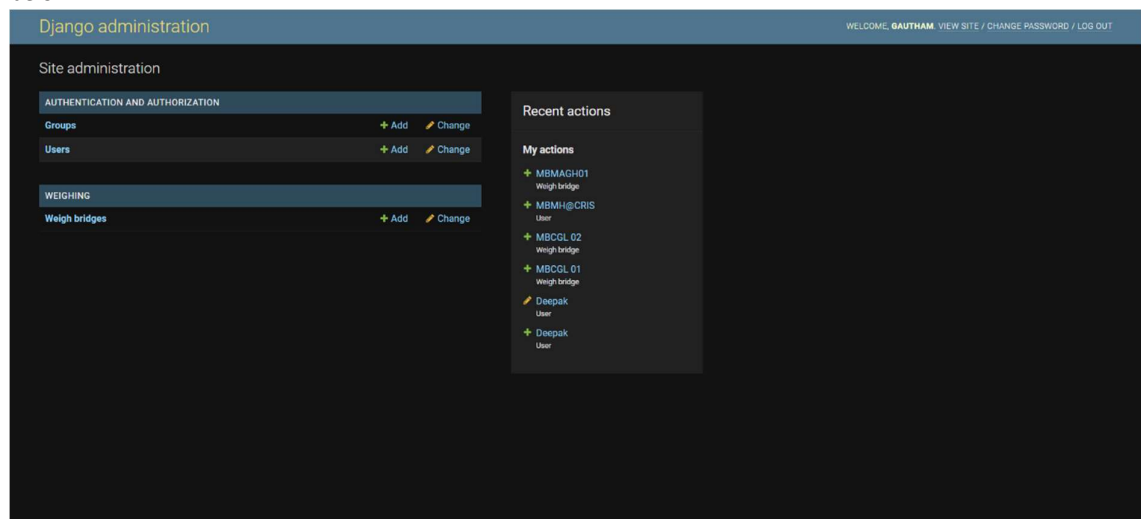
5.1 Guide for adding a new user

5.1.1 Step 1: Login

- Admin page can be accessed by `http://<IP Address>:<Port No>/admin`
 - Example <http://192.168.1.200:443/admin>

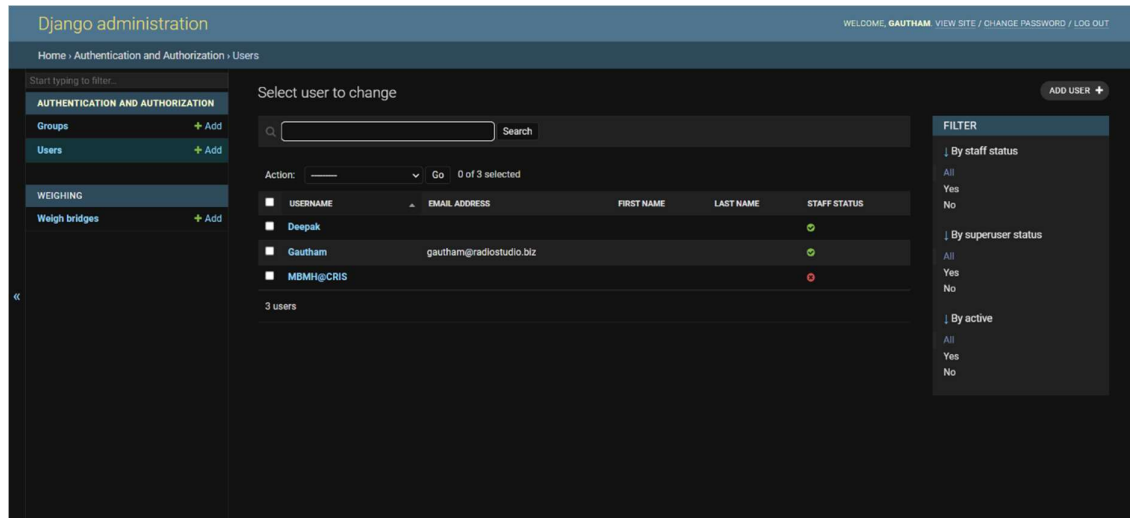


- Login using the admin credentials. When successful, the page redirects to the admin home as shown below



5.1.2 Step 2: Adding New User

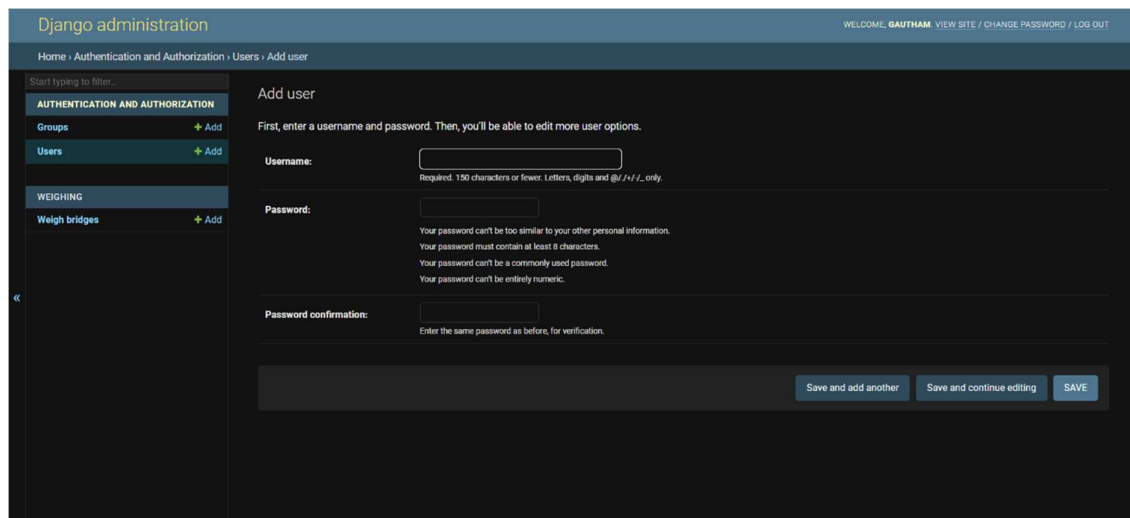
- Under the Authentication and Authorization menu click on the Users sub-menu, the page redirects to the Users page, and the list of available users is shown below



The screenshot shows the Django administration interface for the 'Users' section. The left sidebar contains a tree view with 'AUTHENTICATION AND AUTHORIZATION' expanded, showing 'Groups' and 'Users' (both with '+ Add' links). Below this is the 'WEIGHING' section with 'Weigh bridges' and a '+ Add' link. The main content area is titled 'Select user to change' and features a search bar, an 'Action:' dropdown, and a table of users. The table has columns for 'USERNAME', 'EMAIL ADDRESS', 'FIRST NAME', 'LAST NAME', and 'STAFF STATUS'. Three users are listed: 'Deepak', 'Gautham' (with email 'gautham@radiostudio.biz'), and 'MBMH@CRIS'. A '+ Add USER' button is in the top right. A 'FILTER' sidebar on the right allows filtering by staff status, superuser status, and active status.

USERNAME	EMAIL ADDRESS	FIRST NAME	LAST NAME	STAFF STATUS
Deepak				Yes
Gautham	gautham@radiostudio.biz			Yes
MBMH@CRIS				No

- Click on the username you want to edit or for adding a new user click on the ADD USER button located on the Top-Right of the page and it moves to the next page as shown below

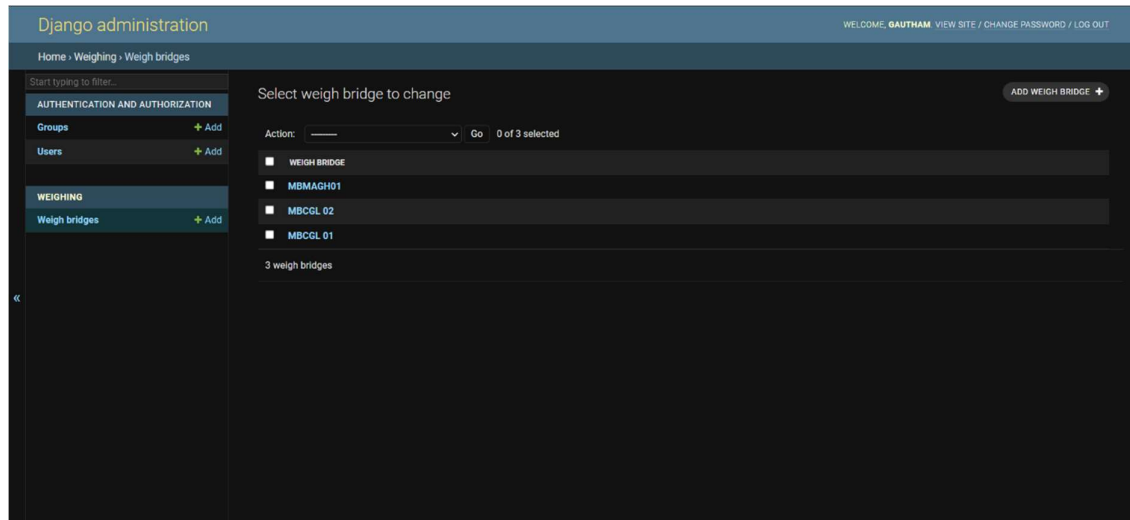


The screenshot shows the 'Add user' form in the Django administration interface. The left sidebar is identical to the previous screenshot. The main content area is titled 'Add user' and includes instructions: 'First, enter a username and password. Then, you'll be able to edit more user options.' The form has three input fields: 'Username:', 'Password:', and 'Password confirmation:'. The 'Password:' field has several validation messages: 'Your password can't be too similar to your other personal information.', 'Your password must contain at least 8 characters.', 'Your password can't be a commonly used password.', and 'Your password can't be entirely numeric.' The 'Password confirmation:' field has a message: 'Enter the same password as before, for verification.' At the bottom right, there are three buttons: 'Save and add another', 'Save and continue editing', and 'SAVE'.

- Add the username and password and click save.

5.1.3 Step 3: Adding New WeighBridge

- Under the Weighing menu click on the Weigh Bridges sub-menu, the page redirects to the Weigh Bridges page, and the list of available WeighBridgeIDs is shown below



- Click on the ADD WEIGH BRIDGE button and the add weigh bridge page will be shown below

- Fill the wgid and location fields alone and click save. The remaining fields will be automatically updated when the Track Logic Controller scripts start in the weighbridge station.
 - Example
 - Wgid: MBMAGH01
 - Location: MAGH

6 References