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ISO 9001:2015 & ISO 14001:2015

ESBHA001 Server User Manual

Version: 0.3

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Prepared by	Alan Henry
Reviewed By	Veena G
Approved By	
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1.0 ESBHA001 Server Manual

1.1 Login Page

To access the ESBHA001 server, enter a valid IP address: https://IP-address:port-number. It then redirects to the login page of the server.

Fig-1.1 - Login

1) Enter username
2) Enter password
3) Login

1.2 Home

Fig-1.2 - Home

1) To select navigation bar (refer *fig 1.2*)
2) To view data analysis
3) To view dashboard

Navigation bar comprises of:

Module	Description
Home	directs to the home page
Live data	directs the homepage to the data analysis page.
Alarm management	directs to the alarm management page.
Active alarms	directs to the active alarms page.
Device management	directs to device management page.
User management	directs to user management page.
API FAQ	directs to API-FAQ page

1.3 Dashboard

The dashboard helps to view device's information, Air Quality Index (AQI) and its corresponding graph. To view the data of a device, click on the location marker in the map, such that it shows the data like device location ,average, min, max and graph of each parameter. Color coding of each parameter is based on CPCB (Central Pollution Control Board) guidelines.

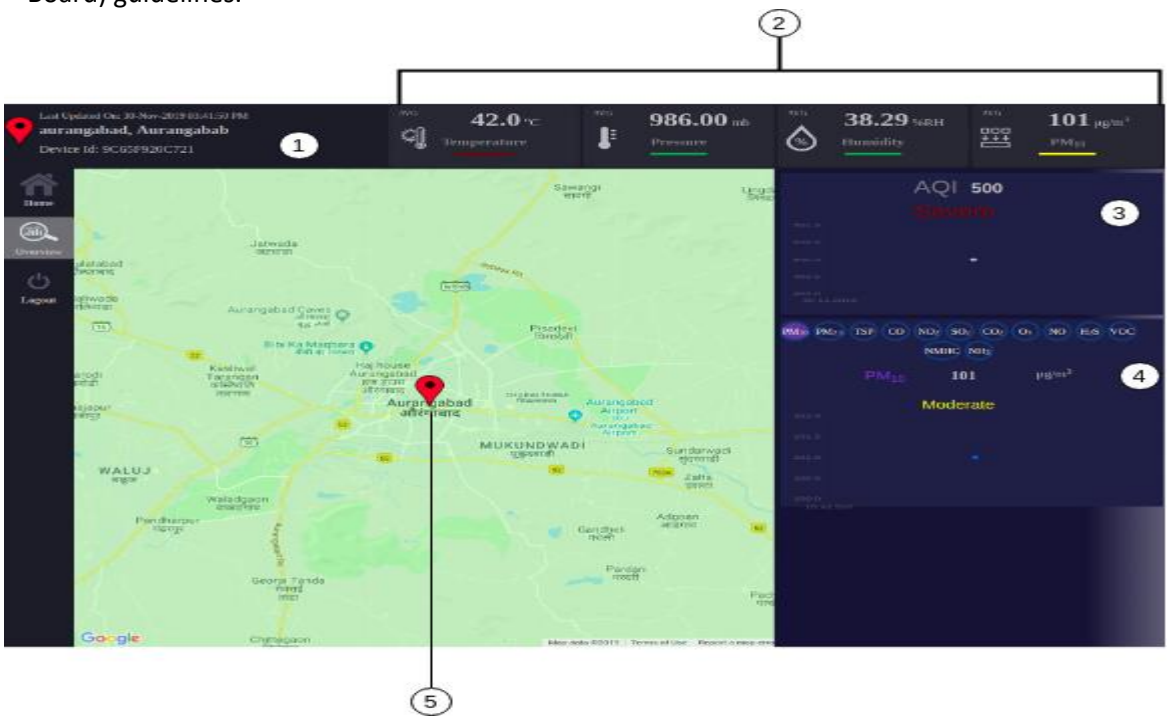

Fig-1.3 - Dashboard

1) Device Id and location of the device
2) Max, min and average values of parameters
3) Air Quality Index (AQI) and its graph
4) Parameter's graph
5) Location marker of the selected device in the map

1.4 Data analysis

Data analysis contains the following subsections:

1) Device status table

The device status table indicates the Device Id, Family, Subtype, City, Landmark and shows whether the device is live or not. To see each device's raw data (live data), click on a device row in the device status table, thus the data appears in the raw data table and data statistics table.

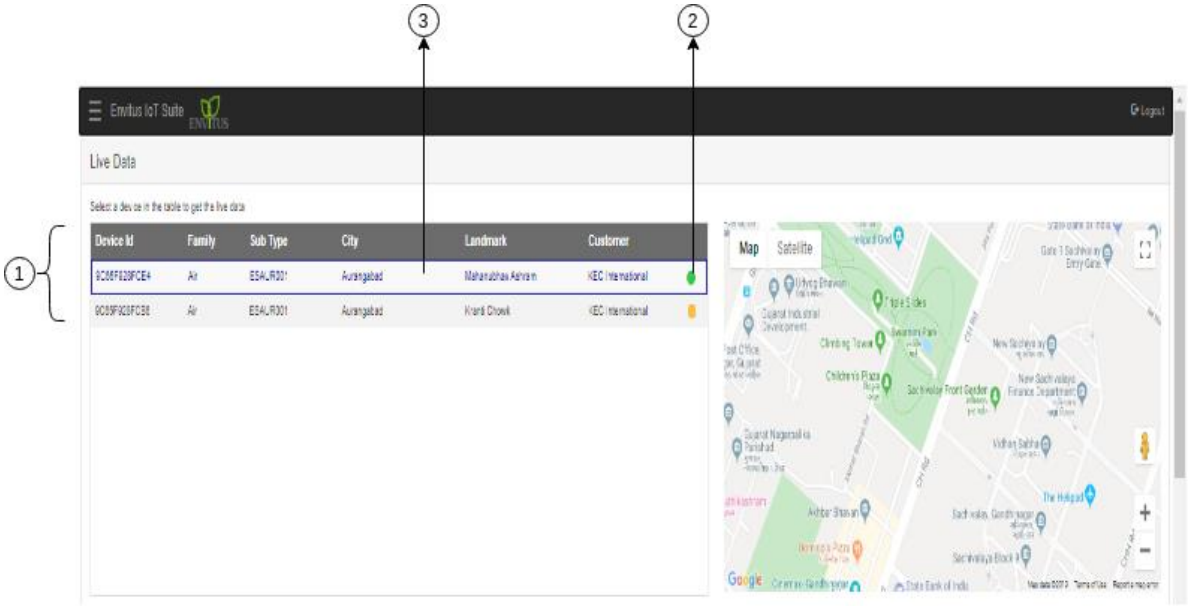

Fig 1.4(a) - Live data

1) Device status table
2) Shows whether the device is live or not. If yellow (●) is indicated, the device is offline. If its green(●) color, then the device is online
3) The selected device is highlighted

2) Raw data

For a selected device in the device status table, the raw data section allows the user to look at the individual data of each parameter. If no date is specified, then the data will be the latest data sent by the sensor.
Raw data encompasses three sections:

a) Raw data table view:

Raw data table exhibits different parameters values and their units. It also displays the AQI (Air Quality Index) values of each device.

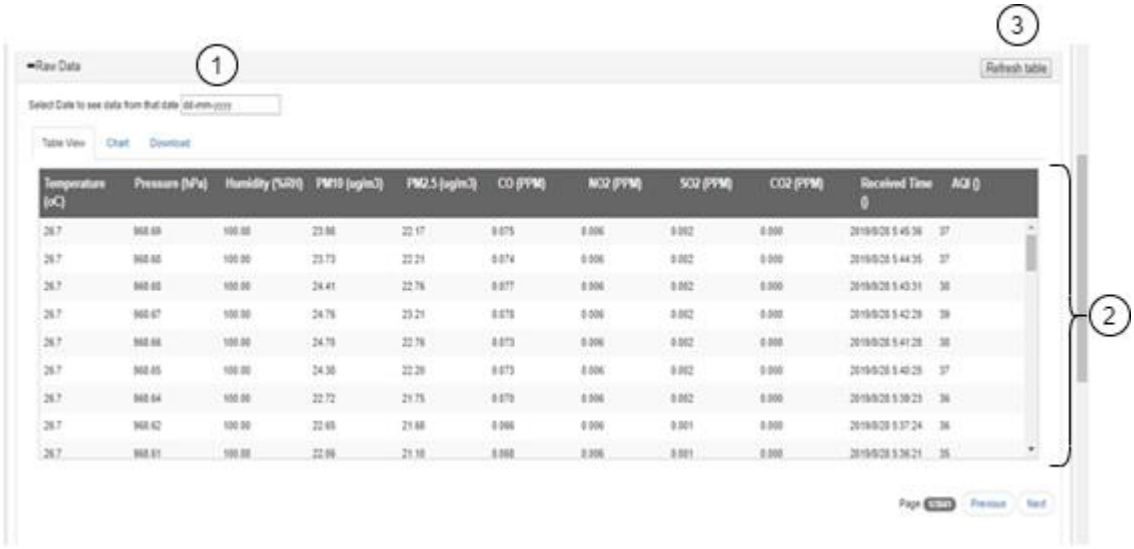

Fig-1.4(b) – Raw data table

1) Date selection text box: By selecting a specific date, the table shows the data on that date. In case, if the data on specified date is not available, then the table shows the date in which the previous data has arrived.
2) Raw data table
3) Refresh table button

b) Raw data chart view:

It gives the graphical representation of the raw data based on the parameter selection option. Depending on the parameter, the graph varies.

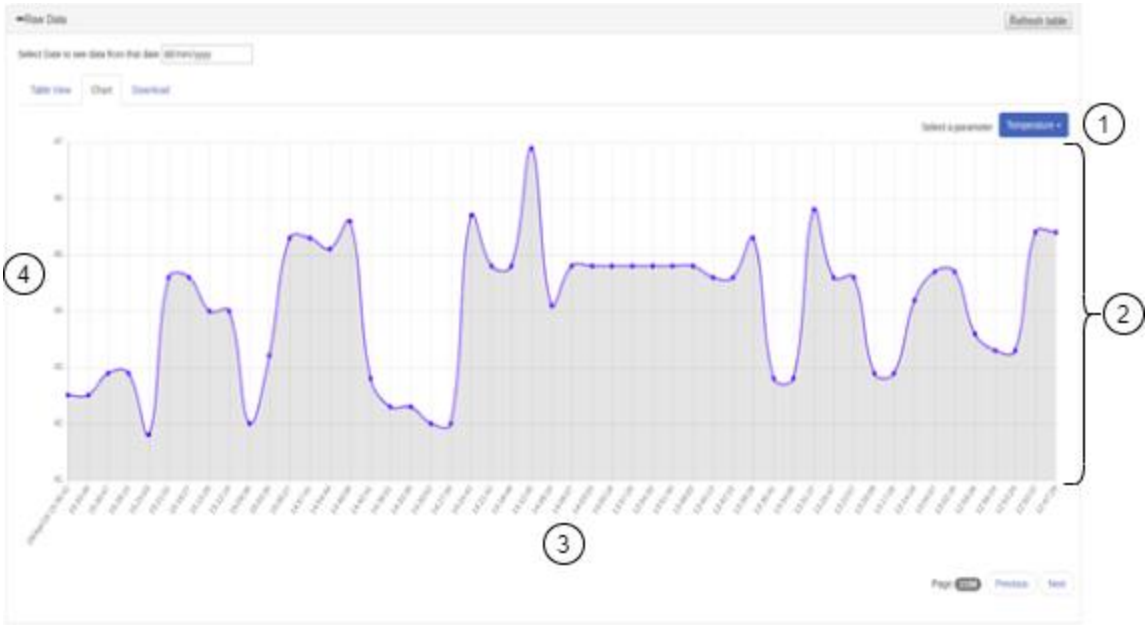

Fig-1.4(c) – Raw data chart

1) Parameter selection dropdown
2) Graph-based on the parameter selection
3) X-axis shows Received time
4) Y-axis shows Parameters Raw data

c) Raw data download:

Data can be downloaded by specifying the start date and end date. Downloaded data will be in CSV (Comma Separated Value) file format.

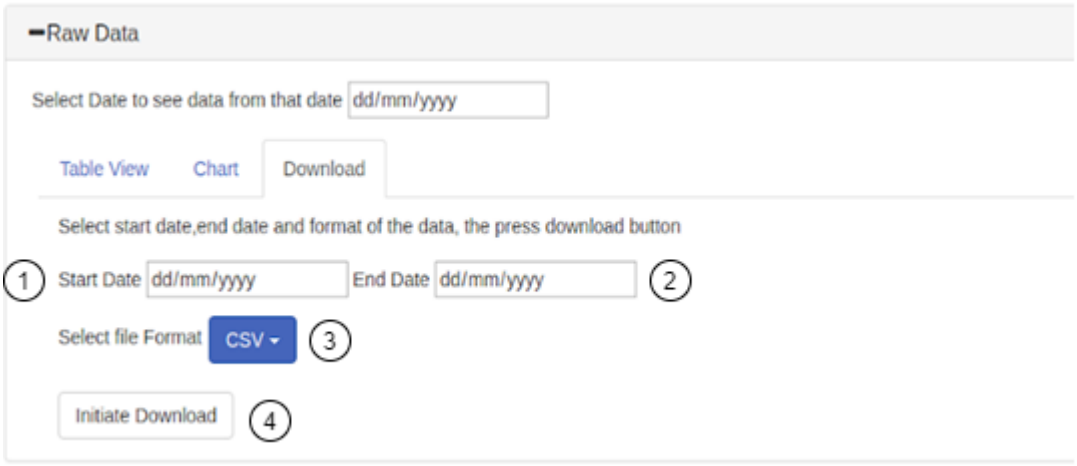

Fig-1.4(d) – Raw data download

1) Start date
2) End date
3) File format selection
4) Download

3) Data statistical value

The statistical data of the selected device in specific time frame can be viewed in:

Data statistics table:

It illustrates different parameters and their statistical values such as max, min, average and sample count of a parameter. Time frame comprises of:
a) daily: shows the statistical data on daily basis
b) monthly: shows statistical data on monthly basis
c)yearly: shows the statistical data on yearly basis

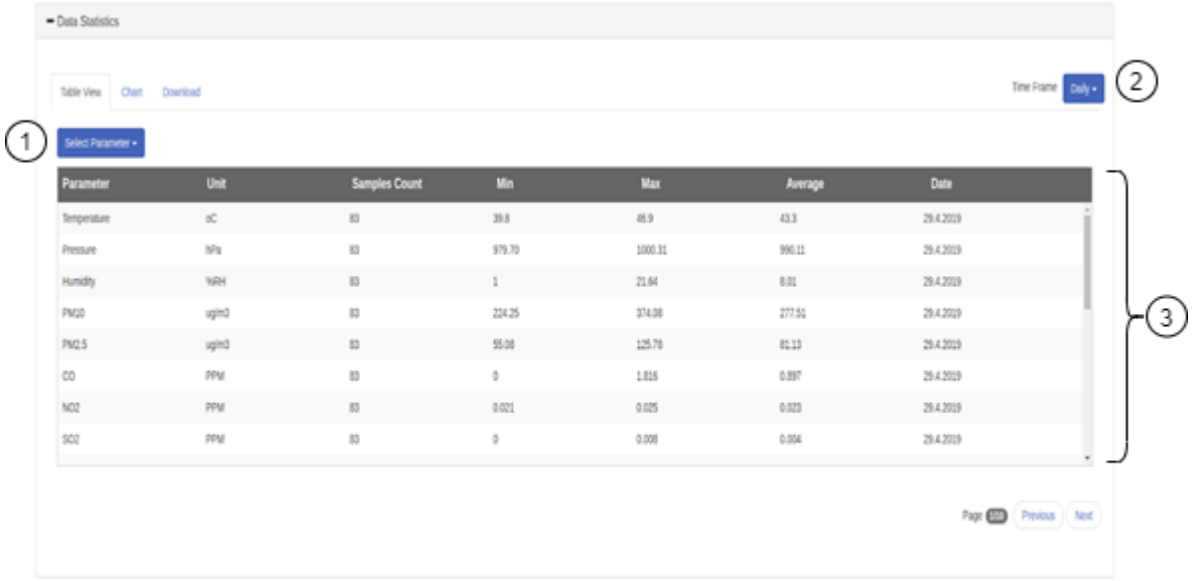

Fig 1.4(e) – Statistics table

1) To select parameter in order to show their statistical data
2) To select a time frame
3) Data statistics table

a) Data statistics chart

It gives the graphical representation of the statistical data. Graphs are shown based on the parameter selected. The time frame option is used to select the data on daily, monthly or yearly basis. The select function consists of:
a) count
b) max
c) min

d) average

Based on the option selected from the select function dropdown, it shows different graphs.

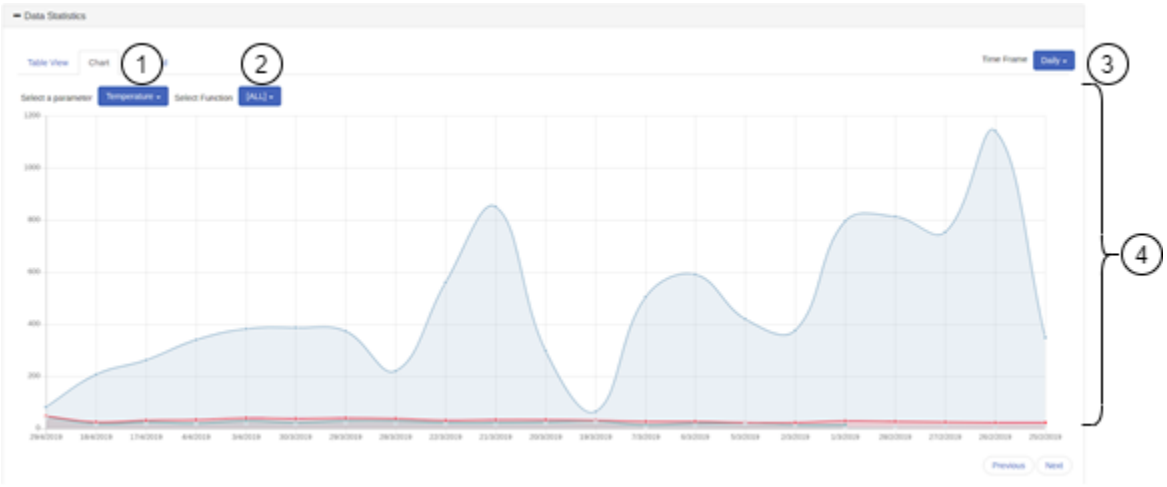

Fig 1.4(f) – Statistics chart

1) Parameter selection dropdown
2) Select function dropdown: To select max, min, average or count
3) To select time frame options
4) Graph based on the parameter selection and select function dropdown

b) Download in CSV (Comma Separated Value) format

Data can be downloaded by specifying the start date and end date. Downloaded data will be in CSV (Comma Separated Value) format.

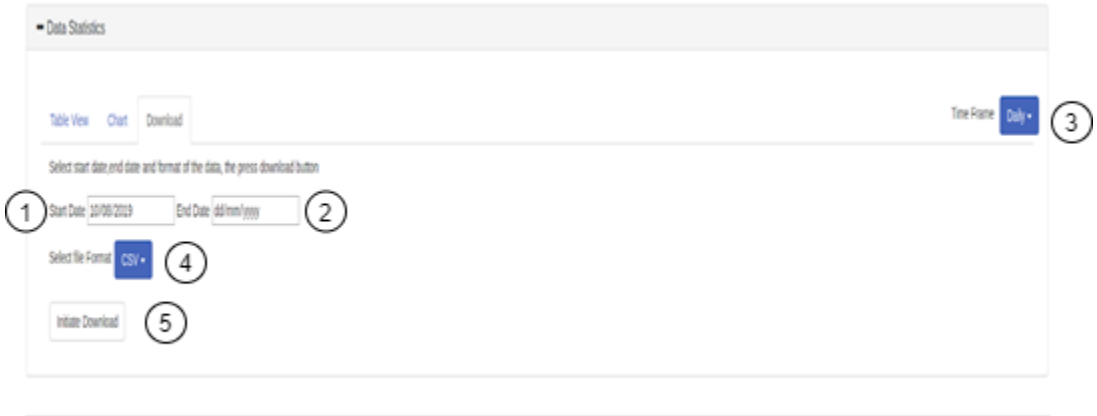

Fig 1.4(g) – Statistics download

1) To select a specific start date
2) To select a specific end date
3) To select time frame
4) File format selection
5) Download

1.5 Alarm management

The main purpose of alarm management is to manage alarms and to spawn or delete alarm rules. Each data is then compared with the threshold value set by the authorized user. If the value exceeds or less than the threshold value, then an alarm will be generated**.** There are two types of clearing modes:

i. Time-based mode: Time-based clearing mode makes an alarm active within the time interval given by the users in seconds.
ii. Manual mode: Manual clearing mode makes an alarm active until an user clears an alarm on an active alarms page.

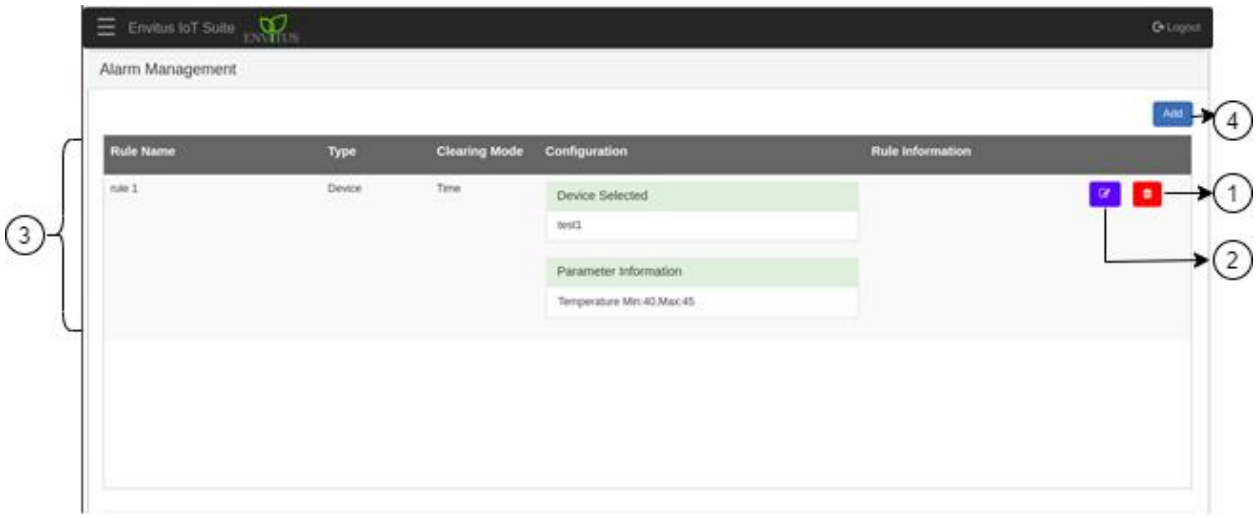

Fig 1.5(a) – Alarm management

1) To delete an alarm rule
2) To edit an alarm rule information
3) An alarm rule is highlighted
4) To add a new alarm rule

To add a new alarm rule in alarm management:

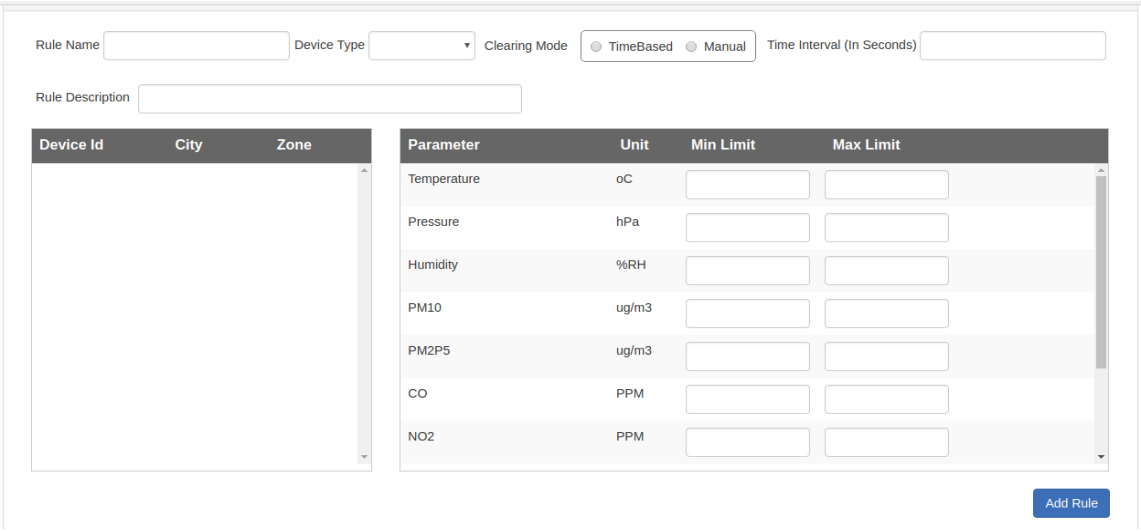

Fig 1.5(b) – Rule adding section

Steps:
1) Enter rule name
2) Select device type
3) Select a clearing mode option
4) Enter time in seconds, if the clearing mode is time-based
5) Give a brief description about rule
6) Set minimum and maximum threshold for different parameters
7) Click add rule button
8) Select the device where the alarm rule should be applicable

1.6 Active Alarms

This page gives the alarms that are generated based on comparing the posted data with the threshold value. The clear option is available in order to clear an alarm. It gives the information about the device's location, device id and the alarm generated. The filter option is available to filter out alarms based on the alarm names. If the filter option is not specified, then it shows all the alarms generated.

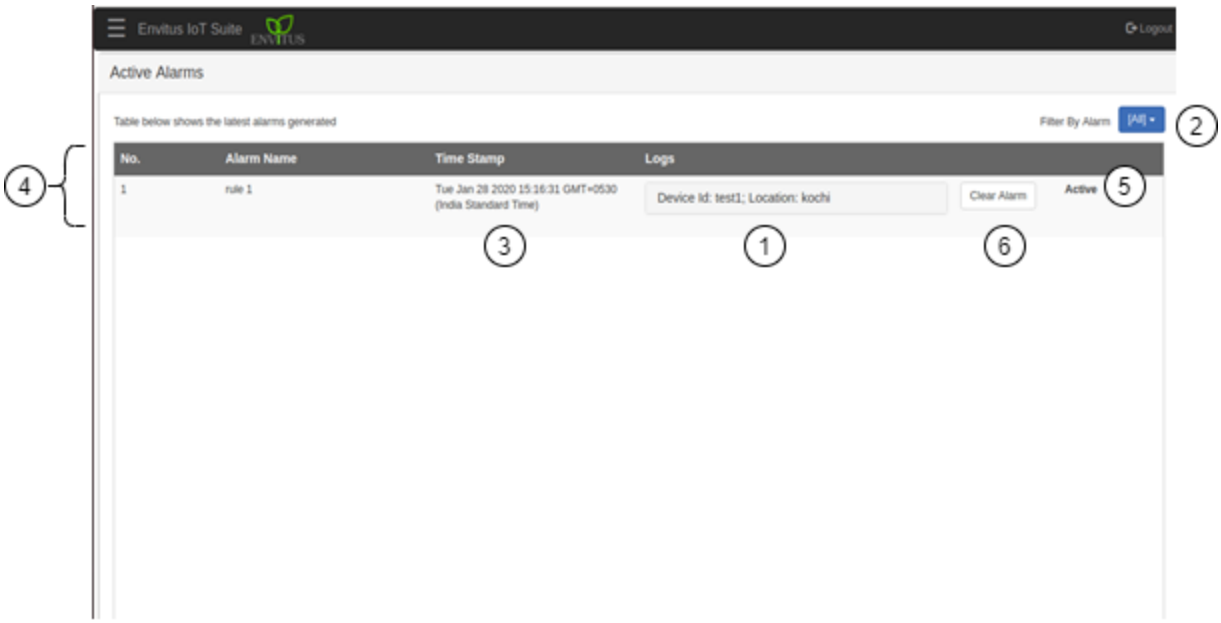

Fig 1.6 – Active alarms

1) Gives device Id and device location
2) Filter option
3) Timestamp at which alarm is generated
4) A generated alarm rule
5) Status of alarm
6) Clear alarm option

1.7 Device management

The main feature of device management is to add, edit or delete devices.
Consist of two subsections:

a) Installed devices

It's a table that encompasses values such as device id, type, family, subtype, remove and edit button.

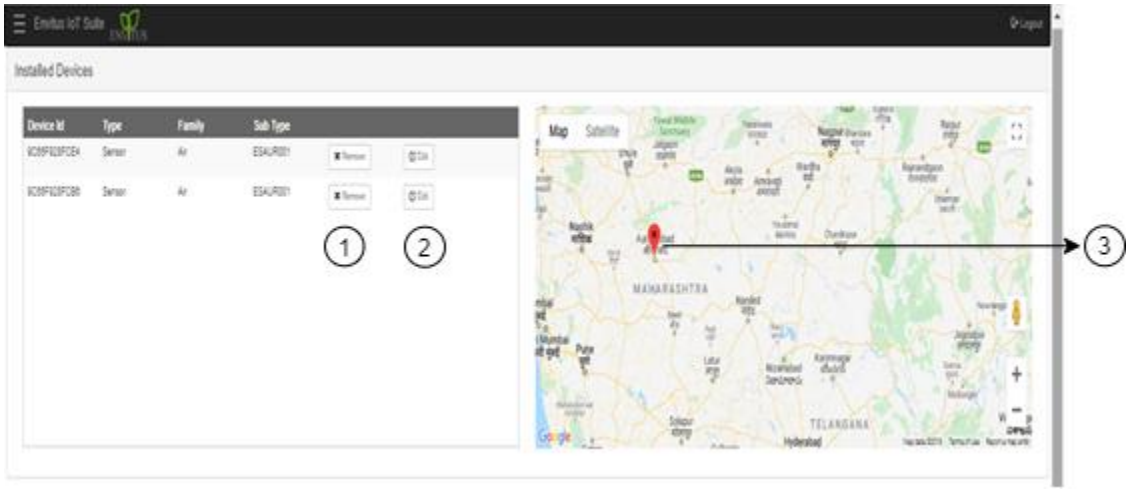

Fig 1.7(a) – Device management

1) To remove a device from the server
2) To edit device information
3) Device location

b) Device adding

Devices can be added to the server by giving information such as device Id, subtype, family, etc. Device adding section comprises of two sections:

1) Device deployment settings

2) Device parameter settings

The device deployment details section is used to add details of customer name, landmark, city, latitude, and longitude.

To add a new device:

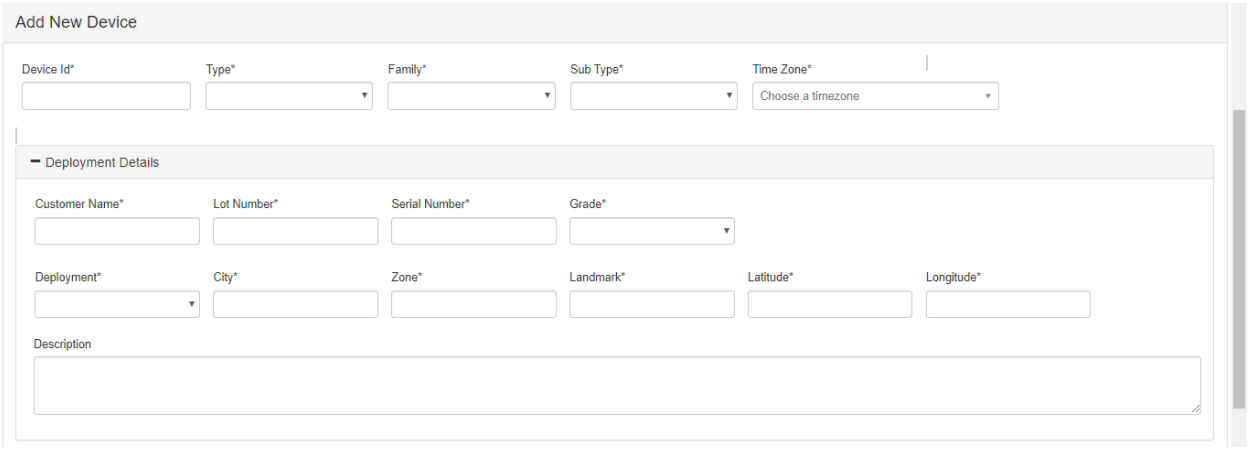

Fig 1.7(b) – device adding to the server

Steps to add a new device to the server:

1) Device Id can contain alphanumeric characters (A-Z, a-z,0-9) and space. It must be between 3 to 20 characters long.
2) Select a type
3) Pick a suitable family type
4) Select the subtype
5) Select the time zone
6) Customer name can contain alphabets (A-Z, a-z). Must be between 3 to 20 characters long.
7) Lot number
8) Serial number
9) Select the grade and deployment
10) Enter city, landmark, zone. It can contain alphabets (A-Z, a-z), space and can be 3 to 20 characters long.
11) Enter the latitude and longitude. Latitude and longitude accept numbers only.
12) Click the add device button to save the device details to the server.

1.8 User management

1) Users can add and delete user information.
2) User roles supported will be administrator, supervisor, and operator.

User privileges:

Modules	Admin	Supervisor	Operator
Dashboard	✓	✓	✓
Home page	✓	✓	✓
Live data	✓	✓	✓
Alarm management	✓	✓	✗
Active alarms	✓	✓	✓
Device management	✓	✓	✗
User management	✓	✗	✗
API-FAQ	✓	✓	✓

Table 1.8 – User privileges

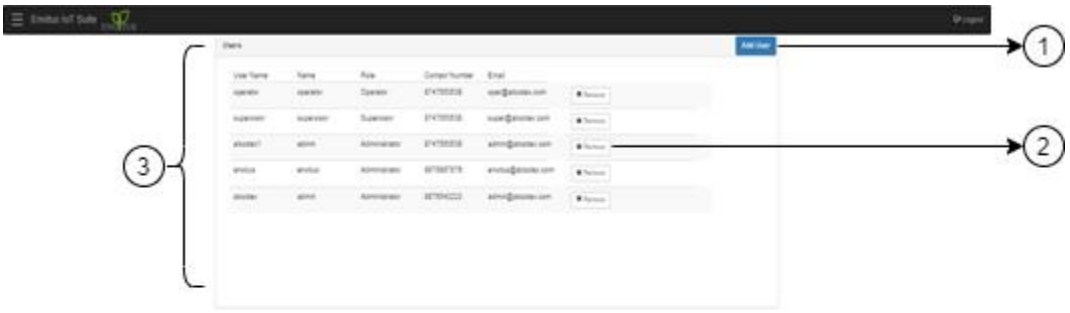

Fig 1.8(a) – User management

1)To add a new user
2)To remove user
3)User table

To add a new User:

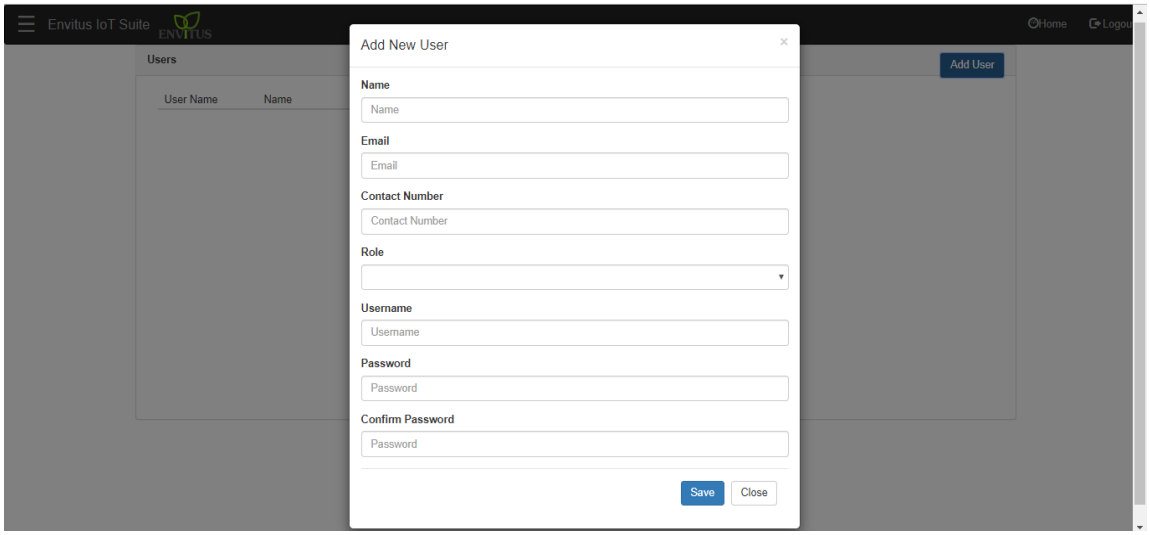

Fig 1.8(b) -user management

Steps:

1) Enter the name of the user. Name can contain capital and small alphabets. Limit of the name should be between 3 to 20
2) Enter a valid email
3) Provide a 10-digit valid contact number of the user
4) Select the role of the user, for further details refer *Table 1.8*
5) Enter the username. Username can contain capital or small alphabets and maximum length should be greater than 5.
6) Enter password. Password Length should be greater than 6.
7) Confirm password
8) Press the Save button to save the user to the server.

1.9 API-FAQ

API-FAQ gives the description of the APIs (Application Programming Interface) that the approved users can access.

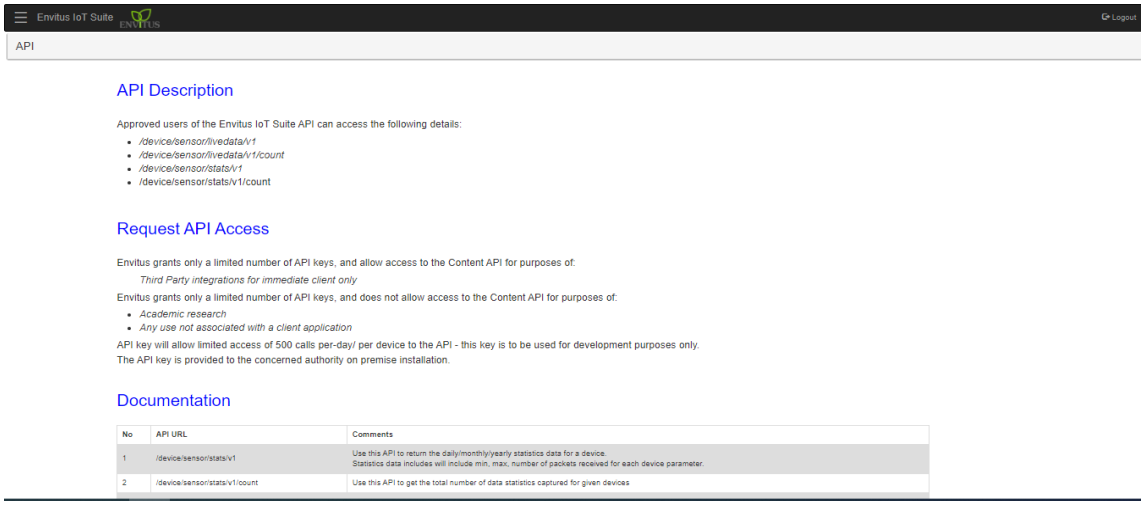

Fig1.9 - API-FAQ