Extronics Location Engine (ELE)
User Manual

For Version 1.2

iTAG X Range

Document Number X131488(1) (See DDM for the latest Version)

For warranty information, refer to Terms and Conditions at http://www.extronics.com

Contents

1 Installation

To install the Extronics Location Engine, users should first locate the installer application sent from Extronics. Make sure to run the application as administrator.

Upon running the installer, please read the End-User License Agreement in full, as shown in Figure 1.1. Once that has been read and understood, click the button to accept the agreement and click next.

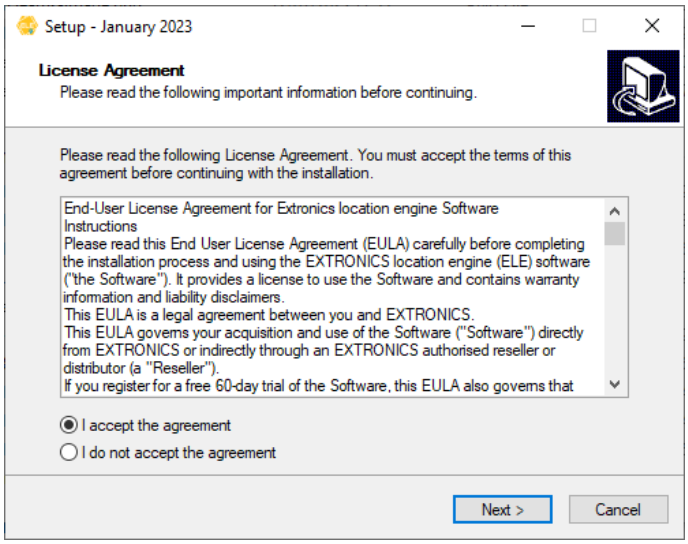


Figure 1.1

On the next screen, seen in Figure 1.2, input a TCP command port. This should be a number between 1023 and 65535 and will be the port that ELE will host its' services on. There is some text below the input box to show whether the number that has been entered is valid or not. If the selected port is valid, click next.

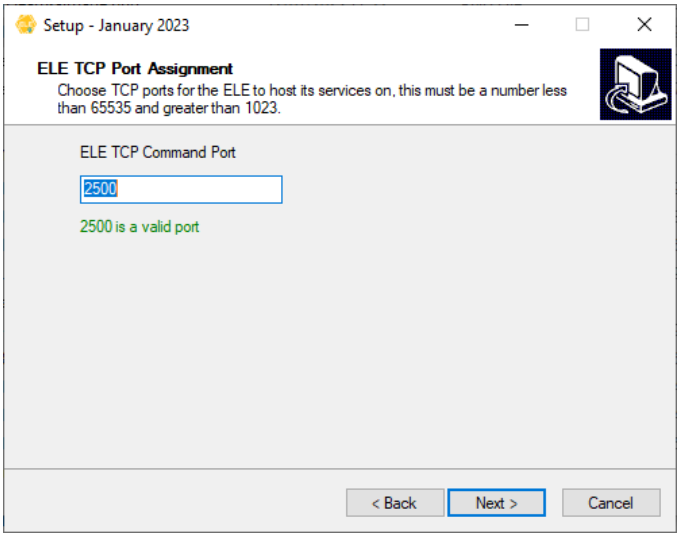


Figure 1.2

Then, users should select the location on the PC where the ELE is to be saved. The folder to be used should have at least 500MB free and by default is set to C:\Program

Files (x86)\Extronics\ELE, which we do not recommend changing. After clicking next shown by the red box in Figure 1.3, users can decide whether they want to create a desktop shortcut or not, shown in Figure 1.4.

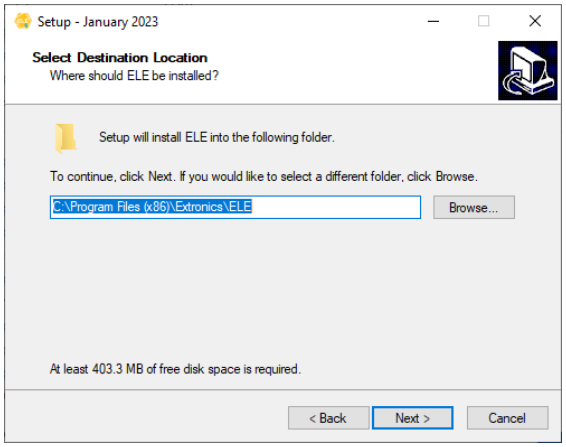


Figure 1.3

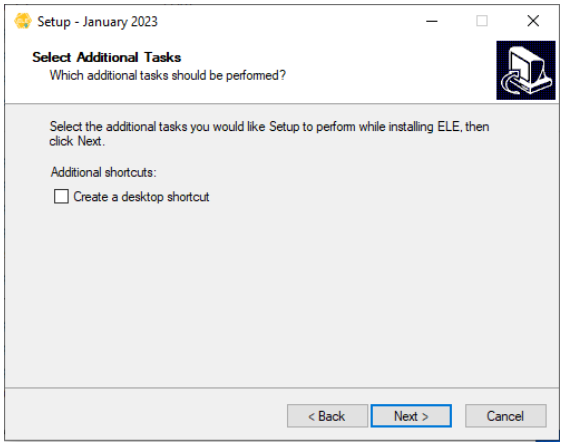


Figure 1.4

After clicking next, the final stage to change the setup appears. Make sure the screen in Figure 1.5 looks correct and the destination location is correct and click install. This will set up the ELE on the system.

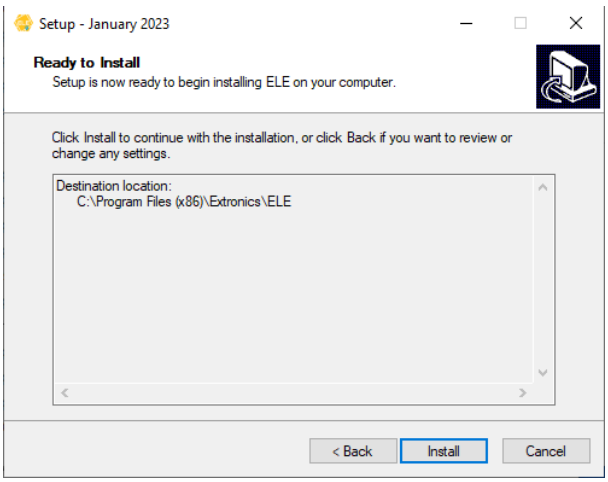


Figure 1.5

2 ELE Admin

2.1 Login

For the first time loading ELE Admin, Figure 2.1.1 the user will need to use the administrator login:

Username: ELEAdmin
Password: ExtronicsELE1!

Users can click and hold the eye icon on the right-hand side to view the text in the password text box.

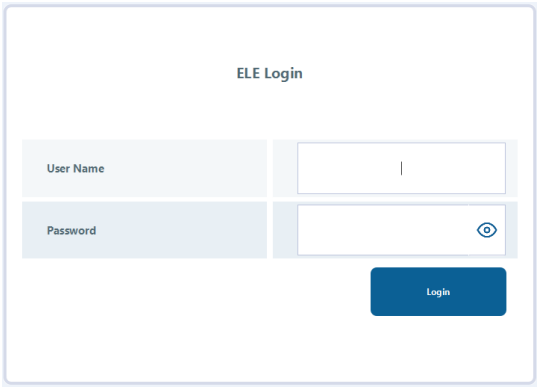


Figure 2.1.1

2.1.1 First Login Selection

The first login to the ELE system will present a selection between two options, shown in Figure 2.1.1.1. If this system is the first one to be set up, users should select “Create new system”. However, if there is an ELE already running and this engine is being started to join the high availability network, users should select “Join High Availability Network”. For information on how to create a High Availability Network, go to Section 2.5.3.

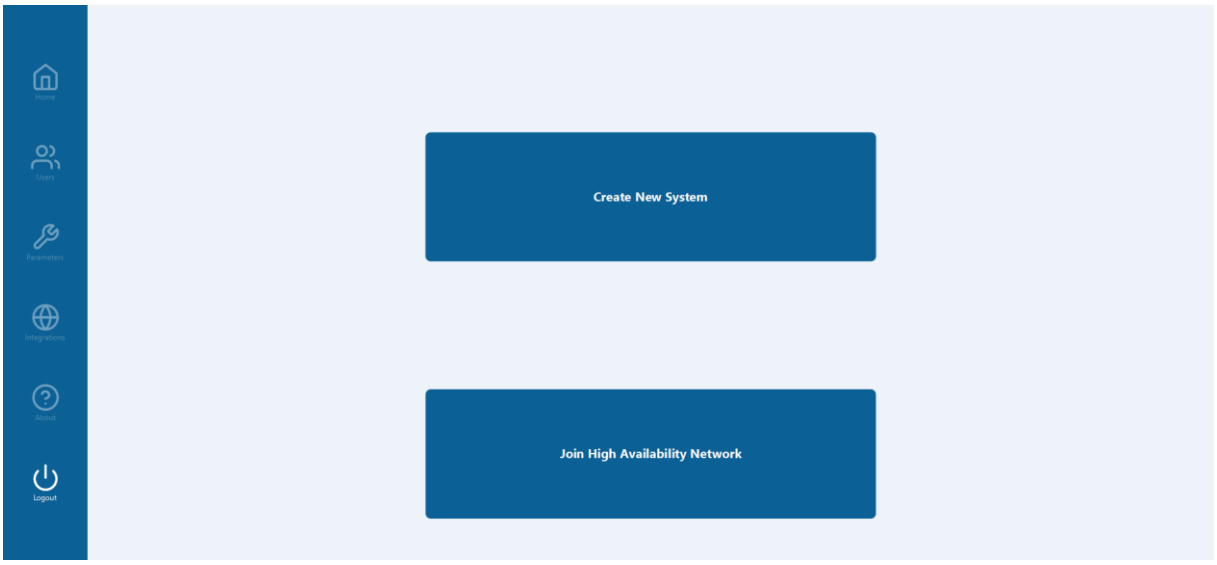


Figure 2.1.1.1

2.1.2 Initial Database Setup

On first login, the system will require users to set up the database by using the screen in Figure 2.1.1.1. This will be where all information used by the ELE will be stored. The server address, username and password will be the same as the ones used to log in to the SQL database that should already be set up, however the database name should be a new name that is not already in use on the SQL Server. Once all the information has been entered, click the “Create” button and your database will be created.

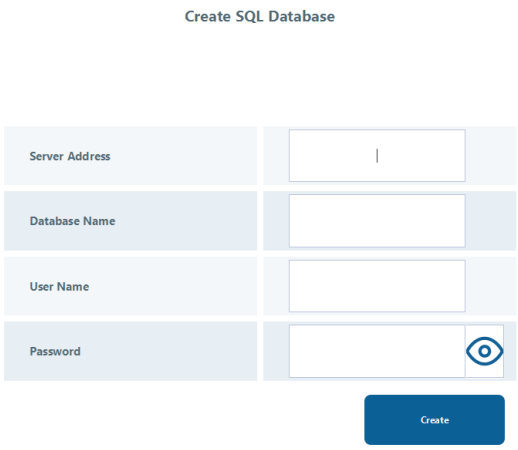


Figure 2.1.2.1

2.2 Home Screen

The home screen, Figure 2.2.1 is the first thing the user will see when logging in to the ELE. This screen gives an overview of the ELE instance and shows the services that are currently integrated with the ELE. On first load, the buttons “Backup” and “Restore” should be disabled due to the services running. If users want to enable those buttons, they should first stop the services.

Figure 2.2.1

2.2.1 Details Tables

The tables at the top of the screen in Figure 2.2.1 show information about the ELE instance. Users should use these to check that database information is correct

2.2.2 Services Table

The services table at the bottom of the screen in Figure 2.2.1 shows users the current services that are integrated with the current instance of the ELE. These include the APIs provided by Extronics, as well as the ELEWeb service. To ensure that these services are working, the “last check in” column should be frequently updated, the status should be “running”, and it is a good sign if the hit count is larger than 0, though it can be 0 in certain circumstances.

2.2.3 Backup

By default, the ELE will produce a backup every day. However, the ELE Admin home screen also has functionality to trigger a backup at any time. To do this, users first must stop the services using the button on the home screen. Once all services have stopped, the backup button will be enabled as shown in Figure 2.2.3.1.

Figure 2.2.3.1

Once the backup button is clicked, a file explorer will appear. Users must select a folder to save the backup to. Once the folder has been found, click “select folder” in the bottom right of the window as shown in Figure 2.2.3.2. This will trigger the backup to start. You will know the backup has been successful if you see the popup in Figure 2.2.3.3, indicating success.

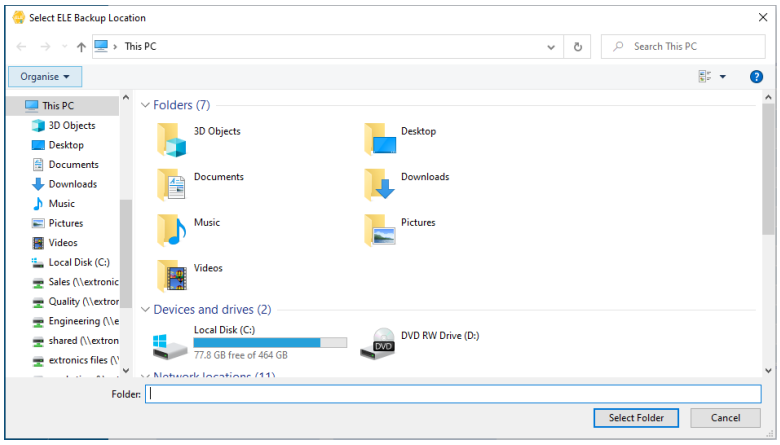


Figure 2.2.3.2

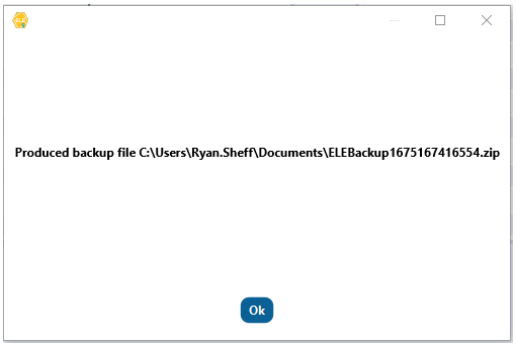


Figure 2.2.3.3

2.2.4 Restore

If your ELE is running into some issues or there has been some errant data entered, a good option is to restore the instance to a previous time. This is done by using saved backups. As with the backup button, the restore button as seen in Figure 2.2.3.1 will only be enabled if all services have stopped running.

Once the restore button is clicked, you will be shown a file explorer like the one in Figure 2.2.4.1. Use this window to navigate to the saved backup that the ELE should restore. Once found, click it once and then click the “Open” button on the bottom right of the window. The ELE will then be restored to that backup. After a moment, the popup window in Figure 2.2.4.2 should show that the restore was successful.

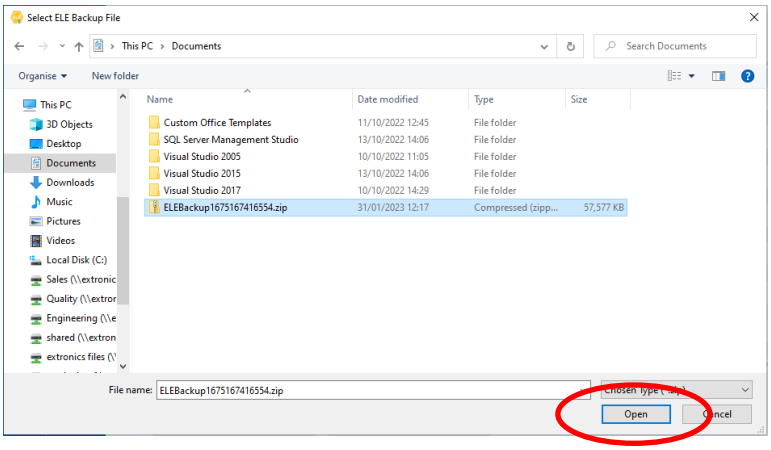


Figure 2.2.4.1

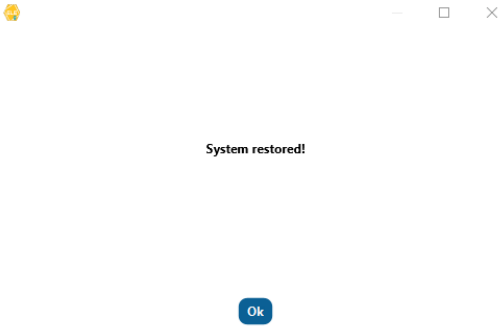


Figure 2.2.4.2

Once this popup shows, users should also note that the services will be automatically started again.

2.3 Users

The “Users” screen as seen in Figure 2.3.1 is used to manage users' information in the ELE. This screen can be used to create and delete users, update users' roles and reset users' passwords. Users will note that you can click on users in this table, but there is also a multi-select function by holding the control key on the keyboard and clicking multiple users.

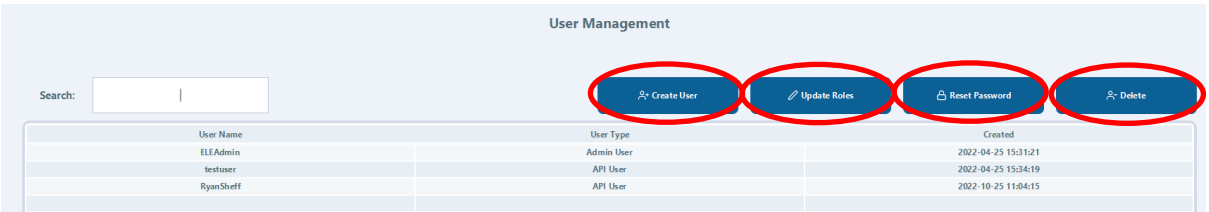


Figure 2.3.1

2.3.1 Create User

To create a user, click the “create user” button at the top of the screen in Figure 2.3.1. This will bring up the create user popup, shown in Figure 2.3.1.1.

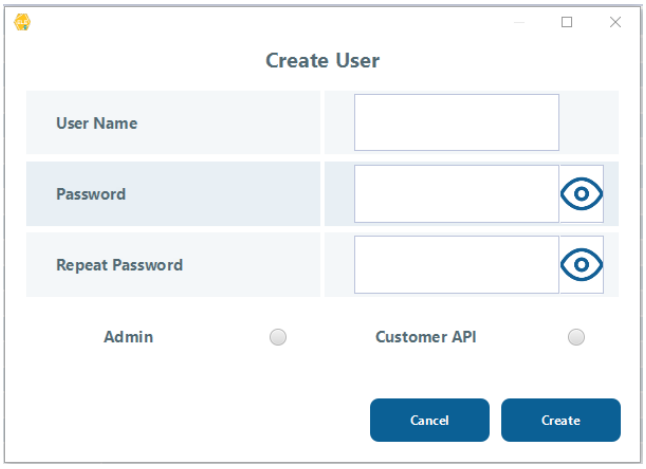


Figure 2.3.1.1

Input the data of the new user and then decide whether the new user needs Admin access or customer API access. We recommend that all users who are not an administrator of the system should have customer API access. Click on the appropriate button for Admin or Customer API, then click create. A popup should appear signalling successful user creation and the new user should appear in the table on the users screen. If done correctly, the screen should look like the one in Figure 2.3.1.2.

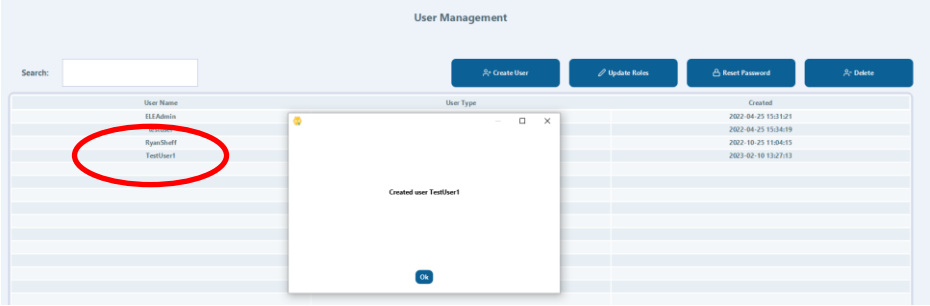


Figure 2.3.1.2

2.3.2 Update Roles

The update roles function is used to change the user type of a user. This function only works for one user at a time, so make sure to only select one user before clicking the “update roles” button from Figure 2.3.1.

Once clicked, the update user roles popup will appear. This should look like the image shown in Figure 2.3.2.1.

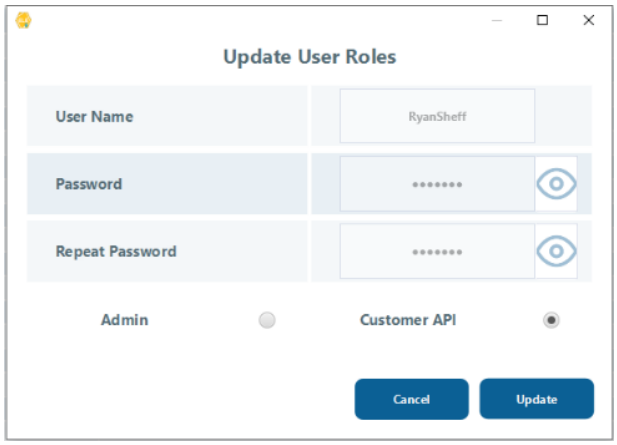


Figure 2.3.2.1

Note that the username and password cannot be changed, only the selection at the bottom. Choose the correct user type, then click the “update” button in the bottom right. The popup in Figure 2.3.2.2 should appear showing that the user has been successfully updated.

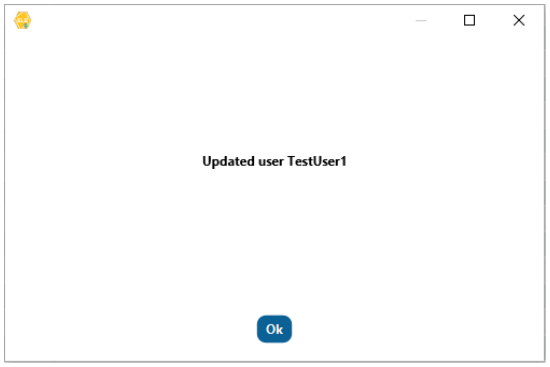


Figure 2.3.2.2

2.3.3 Reset Password

The reset password function only works for one user at a time, like the update roles function in 2.3.2. Make sure only one user is selected and click “Reset Password.” The reset user password popup seen in Figure 2.3.3.1 should appear.

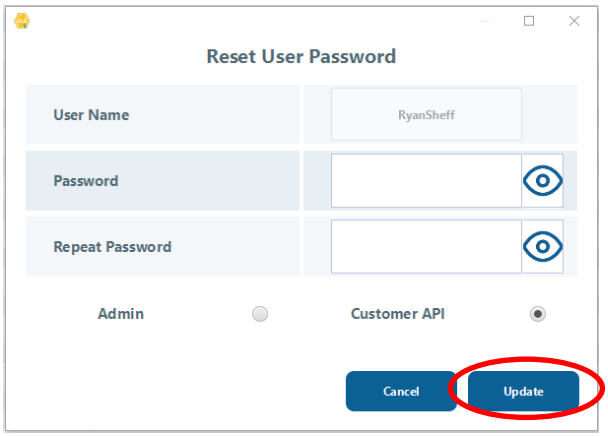


Figure 2.3.3.1

Input the new password into both boxes and click “Update.” The ELE will check if the passwords are the same and if they are, a popup will appear stating that the user has been updated, which will look the same as the popup in Figure 2.3.2.2. If the passwords do not match, a popup will indicate that the update failed which looks like Figure 2.3.3.2. Once “OK” is clicked on that popup, the reset user password will reappear.

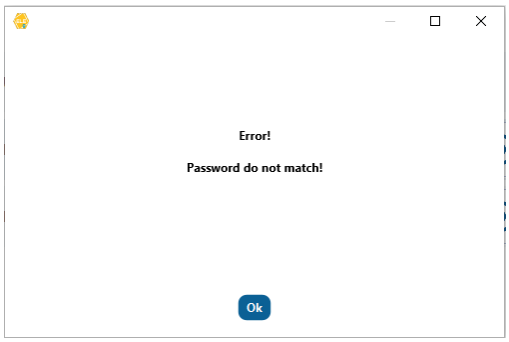


Figure 2.3.2.2

2.3.4 Delete User

To delete a user, first select which user or users in the table you would like to delete. For only one user, simply click their row on the table and click “Delete User” in the top right. For multiple users, hold the control key on the keyboard while clicking different rows. Note that each selection gets highlighted. Then click “Delete User” in the top right of the screen in Figure 2.3.1.

When the “Delete User” button has been clicked, a popup window that looks similar to Figure 2.3.3.3 will ask if the correct users have been selected for deletion. Please make sure the list of users is correct before clicking the “yes” button in the bottom left of the popup. If not, be sure to click “no” in the bottom right in the popup and amend the selection.

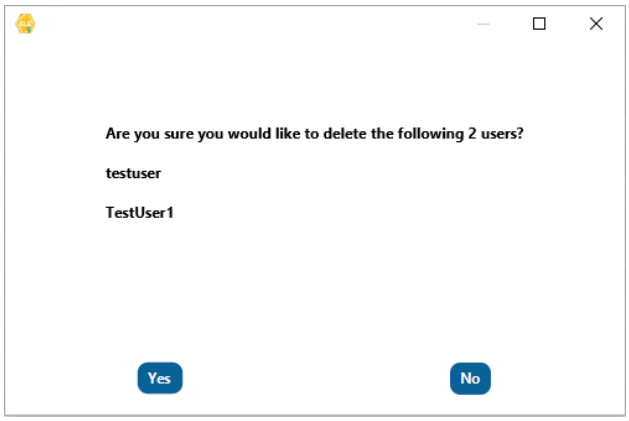


Figure 2.3.3.3

2.4 System Parameters

The system parameters screen, seen in Figure 2.4.1, is used to alter the way your ELE works and allow users to configure things like web ports, data management, google maps integration and much more. Below is an overview of the parameters and what they do. There is also an explanation of each parameter if users click the “i” button on the left side of the screen in line with the parameter in question.

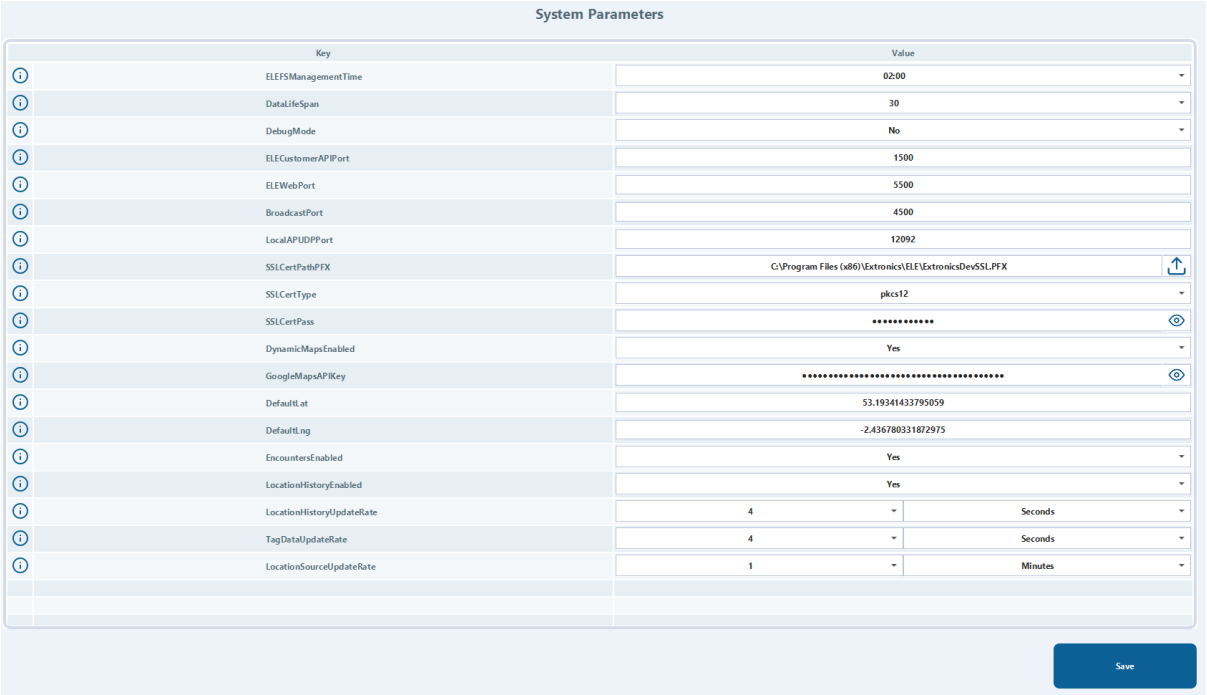


Figure 2.4.1

- **ELEFSManagementTime**: This is the time of day that the automatic daily backup occurs. Change this if the time of the ELE backup is not suitable.
- **DataLifeSpan**: How long, in days, that any data in the system will be kept for. This does not count for things like access points or BLE beacons but will instead remove any location information in the system that has been there longer than the number of days specified in this parameter.

- **DebugMode**: Only switch on if there is an issue with the ELE. Will give more detailed logs and information for use when discussing bugs with Extronics.
- **ELECustomerAPIPort**: The port used by the Customer API. Only change this if there is a conflict of ports.
- **ELEWebPort**: The port used by ELEWeb. Only change this if there is a conflict of ports.
- **BroadcastPort**: The port used for the WebSocket connection. Only change this if there is a conflict of ports.
- **LocalAPUDPPort**: The port used for Access Point integrations direct to the ELE. Only change this if there is a conflict of ports.
- **SSLCertPathPFX**: The path to the PFX file used for SSL Certification. This is to avoid issues with ELE Web. Use the file location bottom on the right-hand side of the file path to locate the file. Note: This location tool will only show folders and files with the file extension “PFX”. No other files will appear.
- **SSLCertType**: The type of SSL Certificate that is given in SSLCertPathPFX.
- **SSLCertPass**: The password needed to access the SSL Certificate given in SSLCertPathPFX.
- **DynamicMapsEnabled**: Allow ELE Web to integrate with google maps. Note: If this is enables, an API key must be provided in the next parameter.
- **GoogleMapsAPIKey**: The API Key provided by google maps to allow the ELE to integrate with google maps. Please refer to the quick start guide for information on creating a google maps API Key.
- **DefaultLat**: The default latitude for google maps.
- **DefaultLong**: The default longitude for google maps.
- **EncountersEnabled**: Defines if contact tracing encounter history is enabled. We recommend this to always be enabled unless working with a smaller database than suggested.
- **LocationHistoryEnabled**: Defines if location history of tags is enabled. We recommend this to always be enabled unless working with a smaller database than suggested.
- **LocationHistoryUpdateRate**: How often the location history records are updated.
- **TagDataUpdateRate**: How often the data from the tags is updated. A shorter update rate provides a more accurate live view of tag locations.
- **LocationSourceUpdateRate**: How often the data from access points and BLE beacons is updated.

After changing any parameters, make sure to click “Save” in the bottom right of the screen to save all changes.

2.5 Integrations

The integrations screen shown in Figure 2.5.1 is used to monitor, create, and remove third party integrations with the ELE. The main screen as shown below will show the services that are currently integrated with the ELE, with the table on the right being populated with information when a service is selected from the left table.

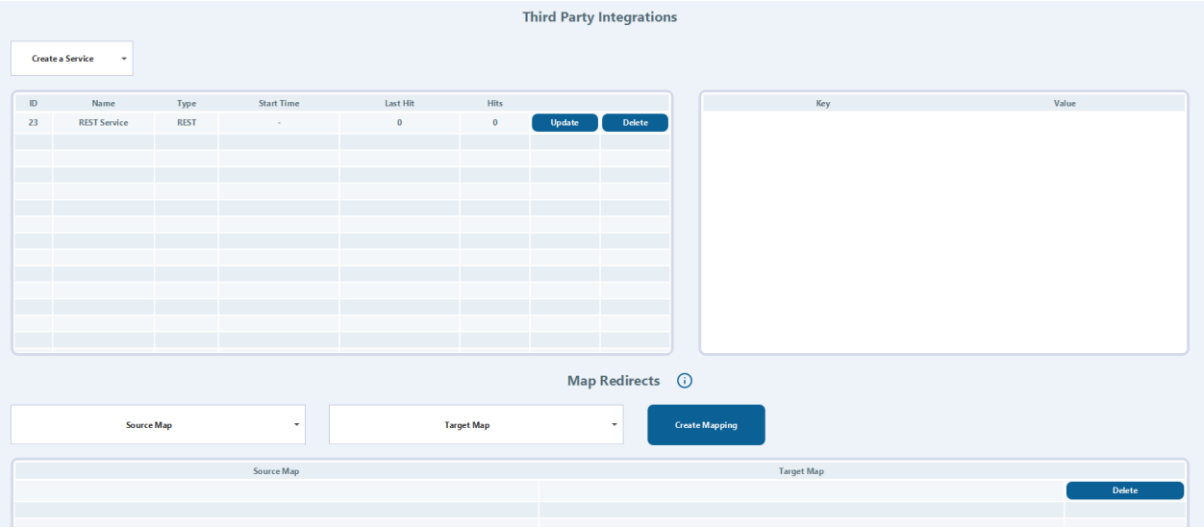


Figure 2.5.1

2.5.1 Creating a Service

To create a service, first use the dropdown menu in the top left of the screen from Figure 2.5.1. Once clicked, the user will see different types of services that can be created as shown by the dropdown menu in Figure 2.5.1.1.

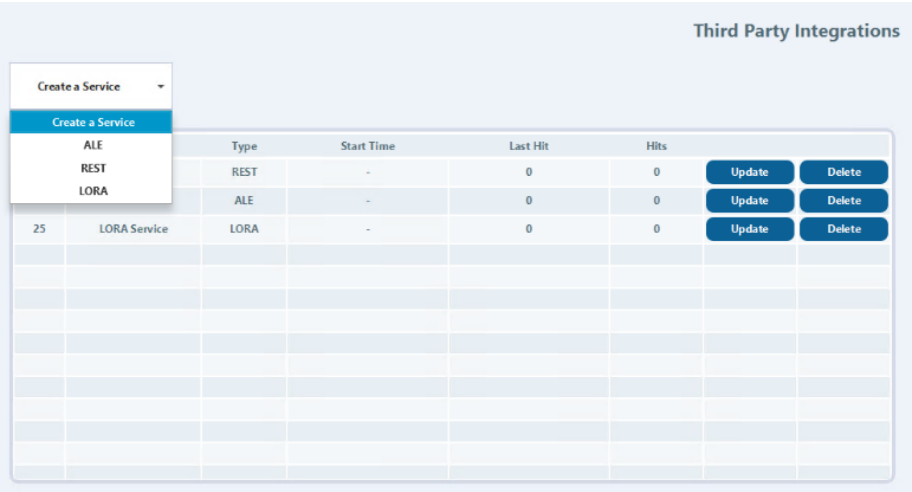


Figure 2.5.1.1

Once a service type has been selected, a popup like the one in Figure 2.5.1.2 will show asking for a service name. The text box will only accept numbers and letters, try not to use any special characters. Once a name has been input and the OK button has been clicked, the popup shown in Figure 2.5.1.3 should appear showing that the creation of the service was successful.

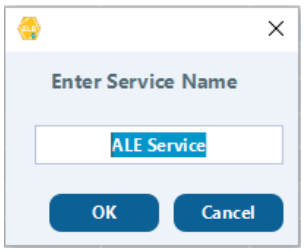


Figure 2.5.1.2

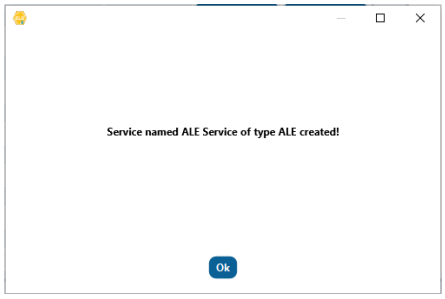


Figure 2.5.1.3

2.5.2 Updating a Service

Once a service has been created, you can update it. However, rather than clicking on the update button, users should instead click the row in the table that the service they want to update is on. This will then show information in the right-hand table on the integrations screen, shown by Figure 2.5.2.1.

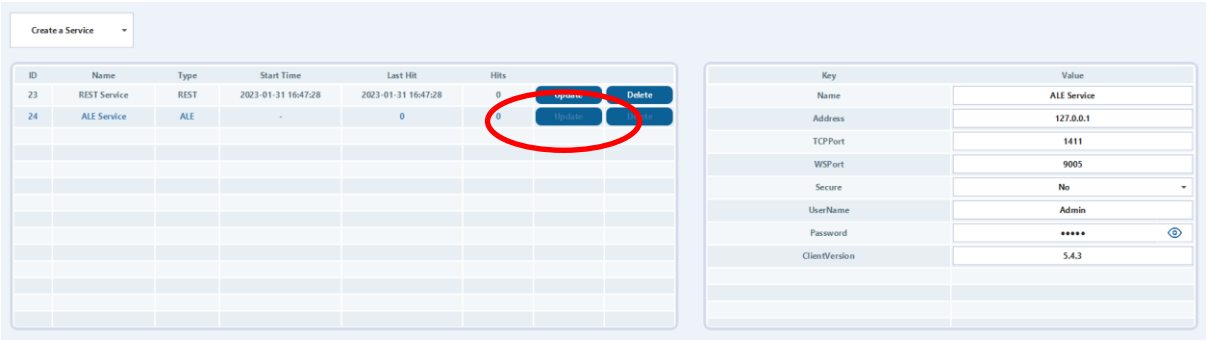


Figure 2.5.2.1

All values in the right-hand column can be edited, so users should make sure that the information in each of those parameters is right before clicking the “Update” button on the left-hand table signified by the red circle in Figure 2.5.2.1. Clicking this will save any changes you have made to the information, so make sure this is clicked before leaving the integrations screen if you want to keep these changes.

2.5.3 High Availability

High Availability is a service which is designed to eradicate downtime in the event of a system failure. There will be two systems, a primary and a secondary, to achieve this. The primary will run all services and have full access to the UI. It will also update the time on the SQL database for itself. The secondary system will watch this updated time and compare it will the current time on the system. If there is a 15 second or more discrepancy, that means that the services have stopped working on the primary system and so the secondary system will begin to load as the primary, leaving the broken system to be fixed. Once the issue has been found and solved, the broken machine will then become the secondary machine in the network and the process can happen again if another issue is created. Please remember that there will be no notification of the primary system going down, the switch to make the secondary system become the primary is done in the background and the only way to know that has happened will be to go into the system itself.

2.5.3.1 Creating a High Availability Network

To create a High Availability (HA) network, users first need to ensure that both systems that will be used in the network have the same ELE version. Failure to ensure this will lead to a HA failure. Users then need to go to the integrations screen on the primary ELE and from the “Create a Service” dropdown select “HA”, as shown in Figure 2.5.3.1.1. A popup will then appear, shown in figure 2.5.3.1.2, where the new HA service will need to be given a name. This can be left as HA Service, but it is up to the user. Then click the “OK” to create the service. It is then important to click the service in the table and click the “Update” button, then the HA service on the primary system is ready to be connected to.

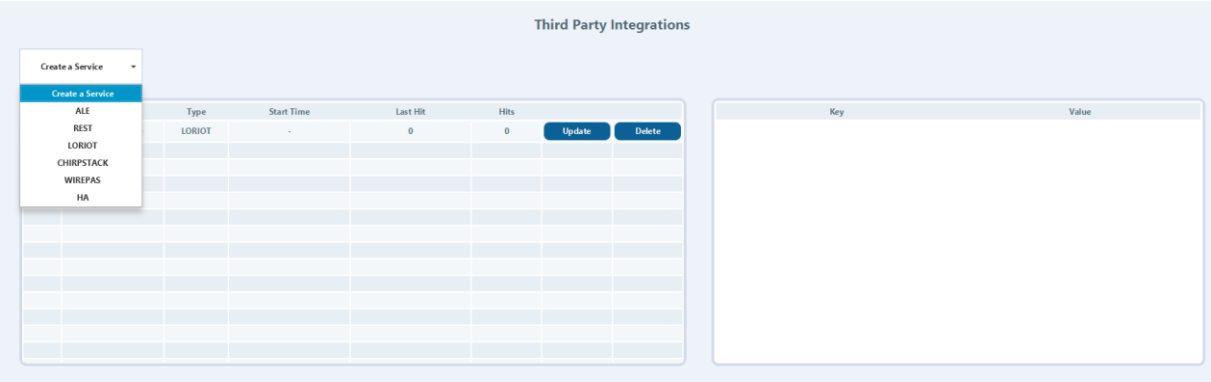


Figure 2.5.3.1.1

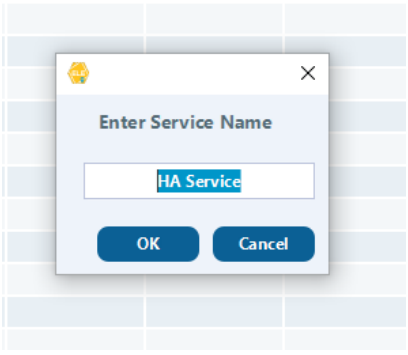


Figure 2.5.3.1.2

2.5.3.2 Joining a High Availability Network

Once a primary system has been set up, users will then need to create a secondary system to join the HA network. This will need to be done on a fresh system with no ELE currently installed. Once the engine has been installed on this secondary system, users will need to log in and will then be presented an option screen, which users should remember from Figure 2.1.1.1. Instead of creating a new system, users should select “Join a High Availability Network”.

Once selected, the screen shown in figure 2.5.3.2.1 will appear. The IP address of the database used by the primary system will need to be input into the “Address” box, the name of the database should be input into the “Name” box, then the User Name and Password should be the login for the database itself, NOT the primary ELE. From there, select “Next” and the system will try and connect to the primary system on the given port. If successful, the screen in figure 2.5.3.2.2 will appear and the HA system will be ready to go.

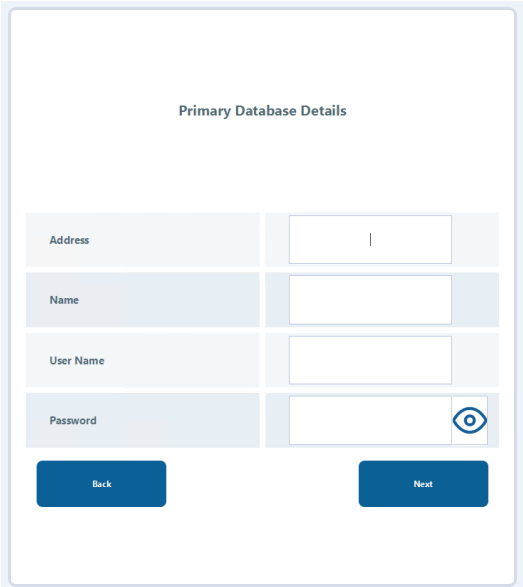


Figure 2.5.3.2.1

Figure 2.5.3.2.2

2.5.4 Map Redirects

It is possible that a user has multiple identical map images loaded into the ELE. If this is the case, map redirects will help users to put all the information from each map into one visible map. To do this, first work out which of the identical maps you want all the data to be transferred to. It does not matter which map you choose, but it must be consistent when doing all redirects for that particular map image. The map that has been chosen will be the “Target Map,” selectable from the dropdown. Users should use the “Source Map” dropdown to find one identical map image. Then, once both a source map and a target map have been selected, click the “Create Mapping” button shown in Figure 2.5.2.1. It is only possible to redirect one map at a time, so for multiple redirects users will need to go through this process multiple times.

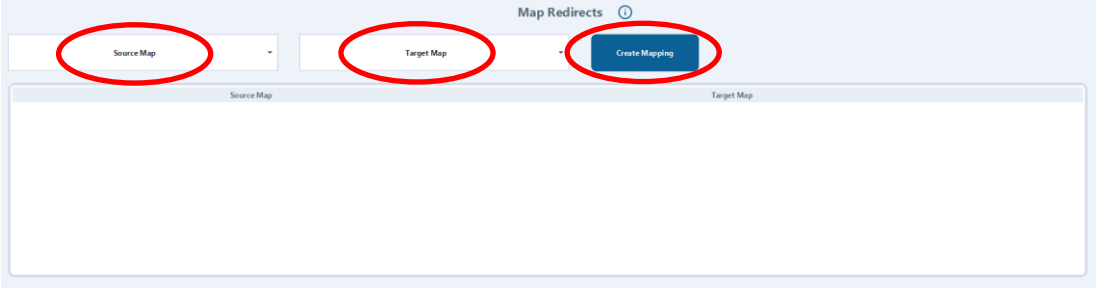


Figure 2.5.4.1

2.6 About

The about page shown in Figure 2.6.1 shows some information about your Extronics Location Engine. If there is an issue with your ELE and need to contact us, please use this page to provide us with the version of your ELE so we can more easily support you.

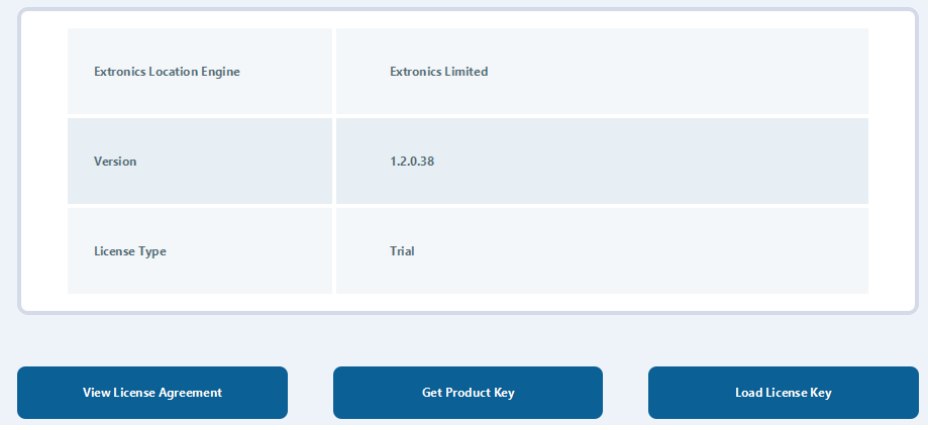


Figure 2.6.1

2.6.1 Licensing

If you need to license your ELE because the current license is running out, or you are on a trial license and have bought the full version, please follow the following steps:

1. Click on the “Get Product Key” button. Users should see the ELE Product Key popup as shown by Figure 2.6.1.1.

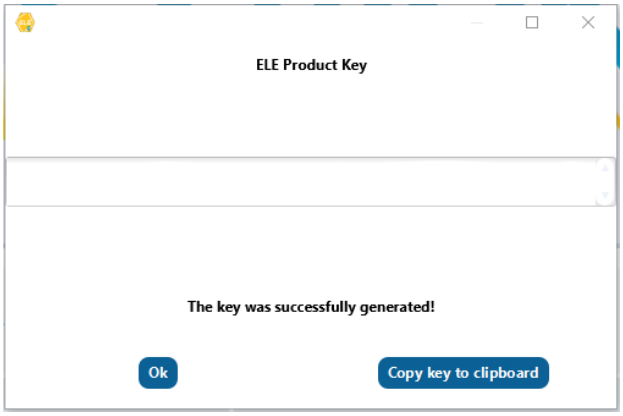


Figure 2.6.1.1

Users will see some text in the box in the middle of the screen. This is the product key to use for licensing.

2. Click the “Copy key to clipboard” button in the bottom right of Figure 2.6.1.1. This will automatically copy the product key for users to paste somewhere else
3. Email Extronics customer service asking to license the product and paste the product key from step 2 into the email.
4. Extronics will send you a license key for your engine. Once you have received this, copy the license key in full and go back to the About page in ELE, then click the “Load License Key” button in the bottom right of Figure 2.6.1. Users should see the Enter License Key popup seen in Figure 2.6.1.2.

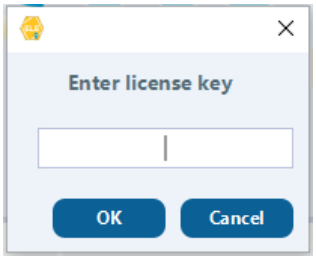


Figure 2.6.1.2

5. Paste the license key into the text box and click “OK.” Make sure to go back to the home screen and check the license expiry is correct.

3 ELE Web

This section describes the web interfaces that are provided by the ELE. All these web services are automatically deployed by the ELE installer and run automatically as services. Within the web application, the user can:

- View the server metrics and information via the dashboard.
- Setup sites, upload maps, place BLE beacons, place Access Points and create zones.
- View live data streams and diagnose location sources.

To access the ELE Web interface, navigate to the URL as shown in Figure 3.0.1.

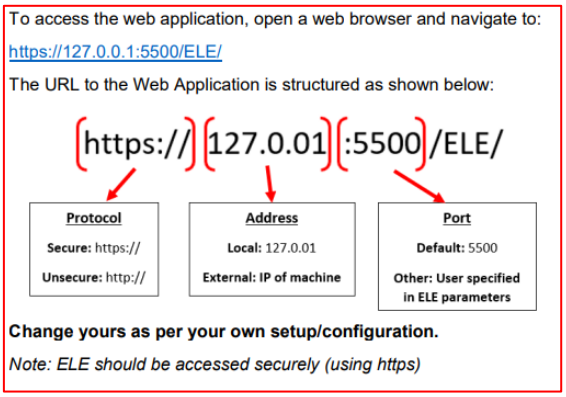


Figure 3.0.1

3.1 Login Screen

Enter the username and password that you have created using the ELE Admin application. This application accepts the use of a “API User”. Press the **login** button at the bottom of Figure 3.1.1 to load the dashboard screen.

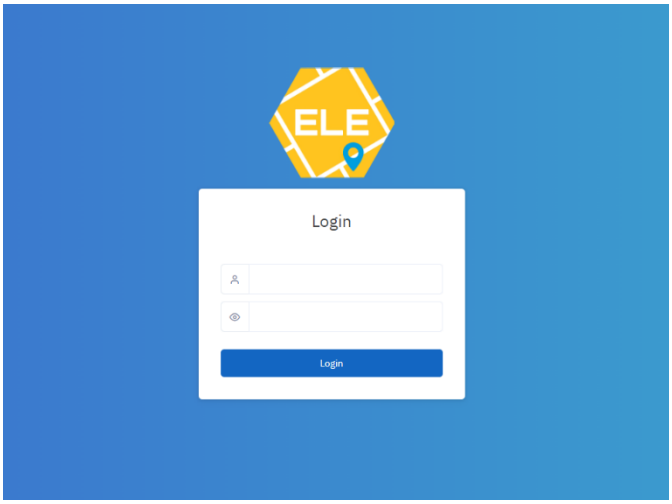


Figure 3.1.1

3.2 Dashboard

After successfully logging in, the user will be presented with the home screen. The home screen has a lot of information for the user's information, as shown in Figure 3.2.1.

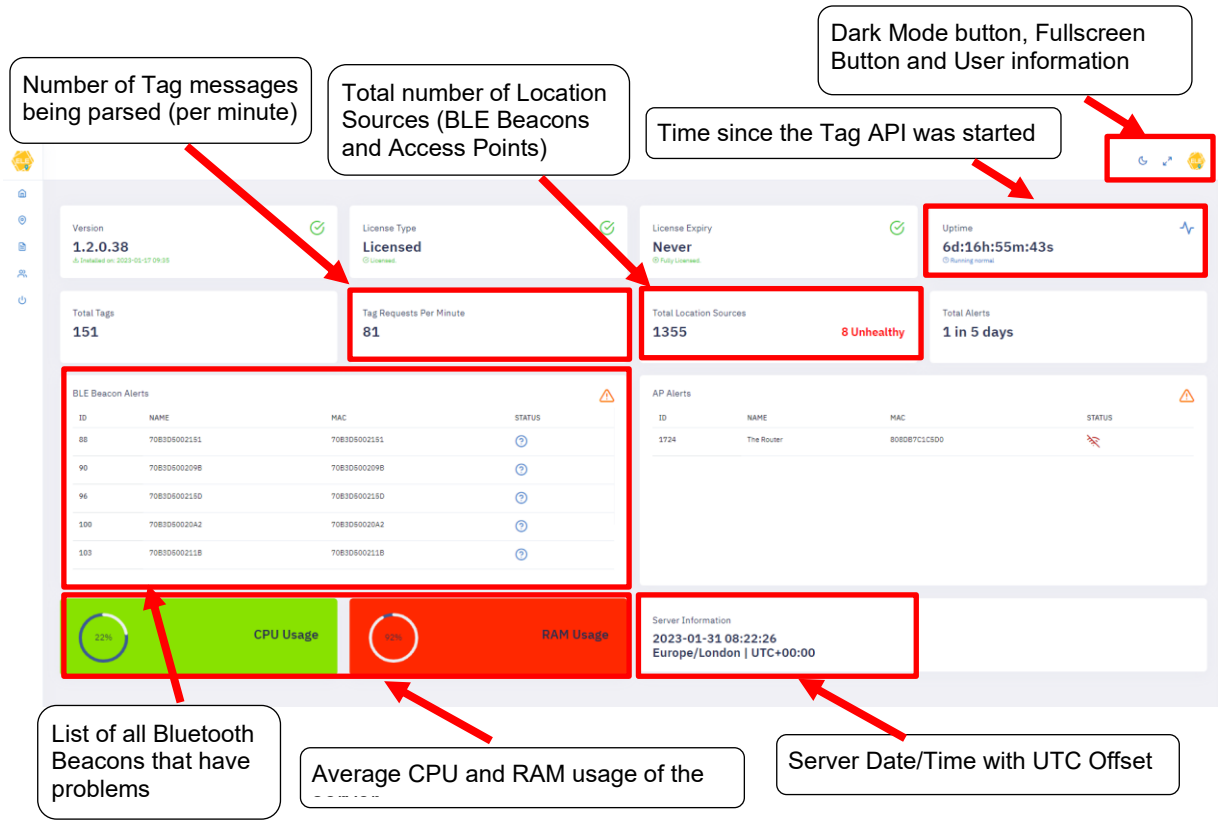
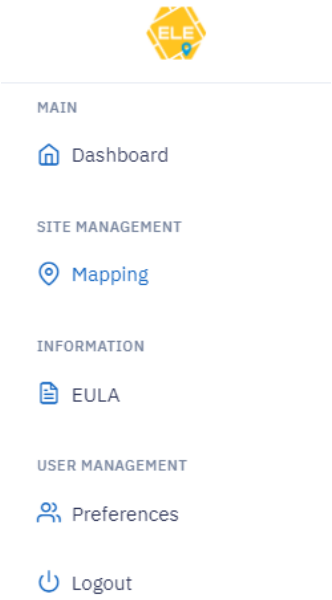


Figure 3.2.1

3.3 Navigation Pane



The navigation pane shown in Figure 3.3.1 will be minimised when not hovered over. When the mouse enters the region of the navigation pane, it will expand as shown in the image. From here, the user can access the different pages by clicking each option.
The dashboard button will take you to the Dashboard in section 3.2.
The Mapping button will open the Site Management page in section 3.4.

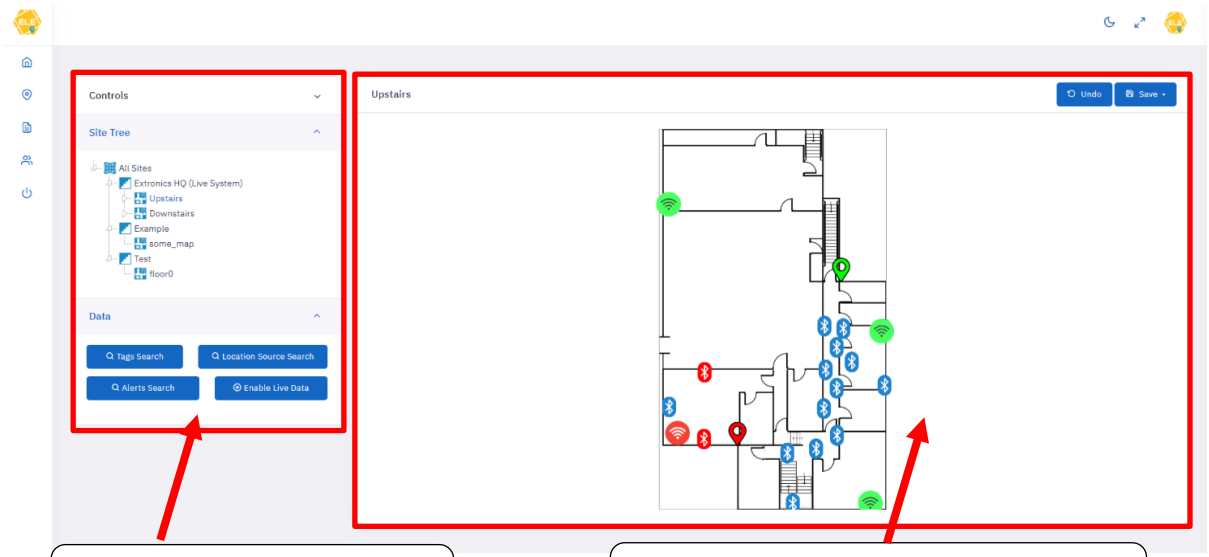
The EULA button will take you to view the EULA for the ELE.

The Preferences button will take you to the page that allows you to change your password.
The logout button will immediately logout the current user and take you back to the login screen.

Figure 3.3.1

3.4 Site Management

The site management screen shown in Figure 3.4.1 is used to configure the maps, location sources and view live data.



Note:

Bluetooth beacons that are RED have low battery

Access Points that are RED are OFFLINE

3.5 Map Controls

The map controls section in Figure 3.5.0.1 allows the user to configure the main functions on the map. This is separated into 4 sections.

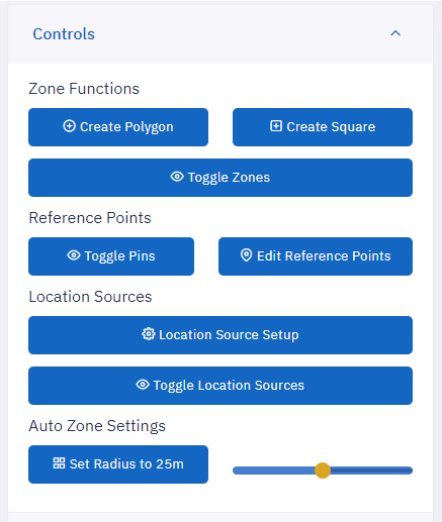


Figure 3.5.0.1

- **Zone Functions**

The **Create Polygon** and Create **Square** buttons are for drawing zones. Polygon allows the user to create a shape by clicking and dragging lines to create a shape. The square tool creates a 4-sided rectangle and allows the user to drag it into any size. The two types of zone that can be picked are described in section 3.5.1.

Toggle Zones allows the user to hide/show the drawn zones on the map.

- **Reference Points**

Toggle Pins allows the user to hide/show the reference pins that are used to map the static image to WGS84 (Lat/Long GPS) coordinates.

Edit Reference Points will show the side menu that allows the user to configure the WGS84 references. Explained in section 3.5.2.

- **Location Sources**

Location Source Setup shows the window that allows the user to configure and edit the Location Sources. Explained in section 3.5.3.

Toggle Location Sources allows the user to hide/show the location sources on the map.

- **Auto Zone Settings**

Set Radius to X button and slider allows the user to specify the capture radius of the Auto Zone builder. Explained in section 3.5.4.

3.5.1 Drawing Zones

Firstly select a Zone type, Figure 3.5.1.1.

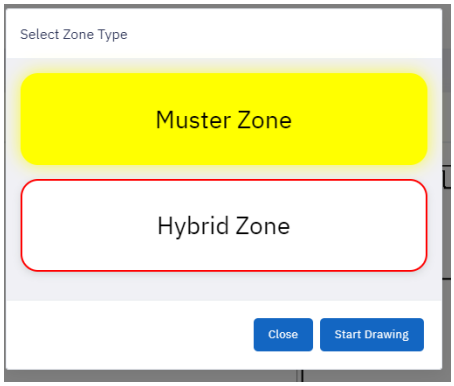


Figure 3.5.1.1

- **Muster Zone**

A muster zone should be drawn where the muster zones appear on the site like in Figure 3.5.1.2. These zones will group all tags to their centre of the zone. Ensure that you have placed **at least 2 location sources** within a muster zone to accurately muster tags. For more information on location sources, see section 3.7.2.

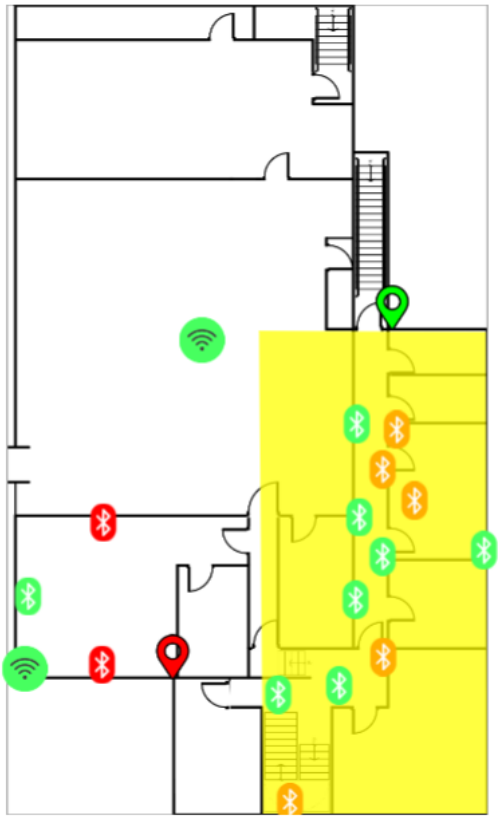


Figure 3.5.1.2

Yellow Zone = Muster

- **Hybrid Zone**

A hybrid zone should be drawn around a structure that has a high density of location sources **when you have GPS enabled tags**, as shown in Figure 3.5.1.2. This zone will force the engine to choose the location position from these locations sources instead of taking a GPS position. This should be used when a GPS position is less reliable and accurate than using fixed location sources.

Start Drawing will then allow the user to draw the zone on the map using their mouse. Once the zone has been created, the zone will appear on the map in the respective colour.

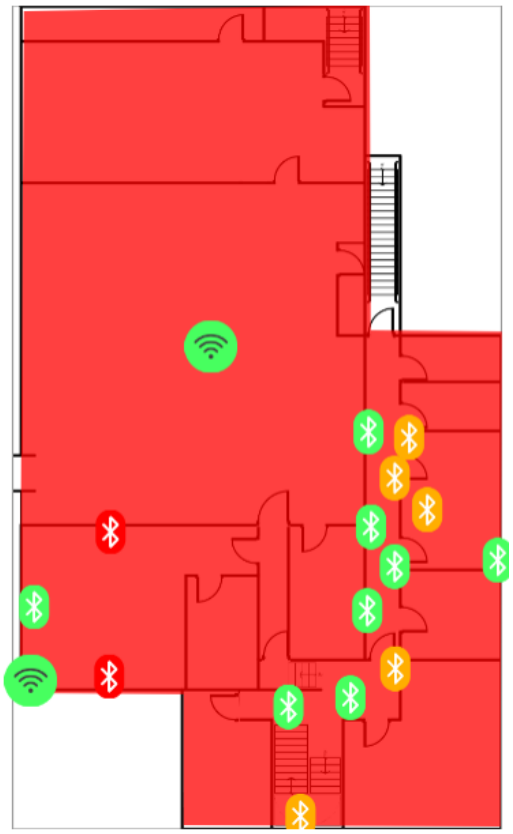


Figure 3.5.1.2

Red Zone = Hybrid

3.5.2 Edit Reference Points

The reference points are a way of mapping a static image map to the “real world” allowing the map to return local positions and also WGS84 (GPS Lat/Long) positions. **Enable Global Positioning** is used to turn on the WGS84 (GPS) feature, Figure 3.5.2.1.

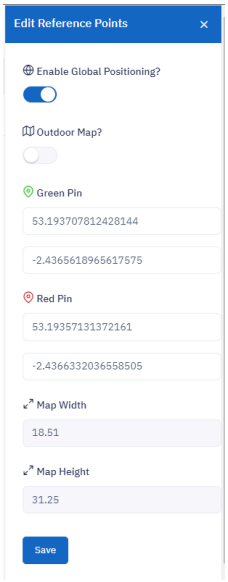


Figure 3.5.2.1

Enable Global Positioning is used to turn on the WGS84 (GPS) feature.

Outdoor Map is used to tell the engine if the map can be placed on the surface of the earth. If the map is underground or inside, then this feature would be disabled.

Green & Red Pins as shown in Figure 3.5.2.2 are used to project the local map to WGS84 coordinates when “Enable Global Positioning” is turned **ON.** These refer to the pins that can be moved and placed on the map. Once these pins have been placed, use an online map tool to find the location of those pins and input their respective Latitude and Longitude coordinates in the fields shown.

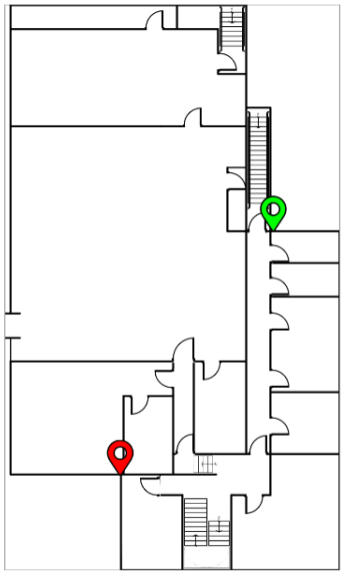


Figure 3.5.2.2

Map Width/Height is used when the map cannot be placed with WGS84 coordinates, when “Enable Global Positioning” is turned **OFF.** This allows the map to be scaled and “local” coordinates to be projected.

3.5.3 Location Source Setup

3.5.3.1 Bluetooth Beacons

The Bluetooth Beacon Profile table shown in Figure 3.5.3.1.1 lists all the Bluetooth Beacon Profiles currently saved in the ELE. From here, each beacon profile can be clicked and edited. This table can be sorted by clicking the header of the column that you want to sort by. The search box can also be used to freely search any of the fields in the table.

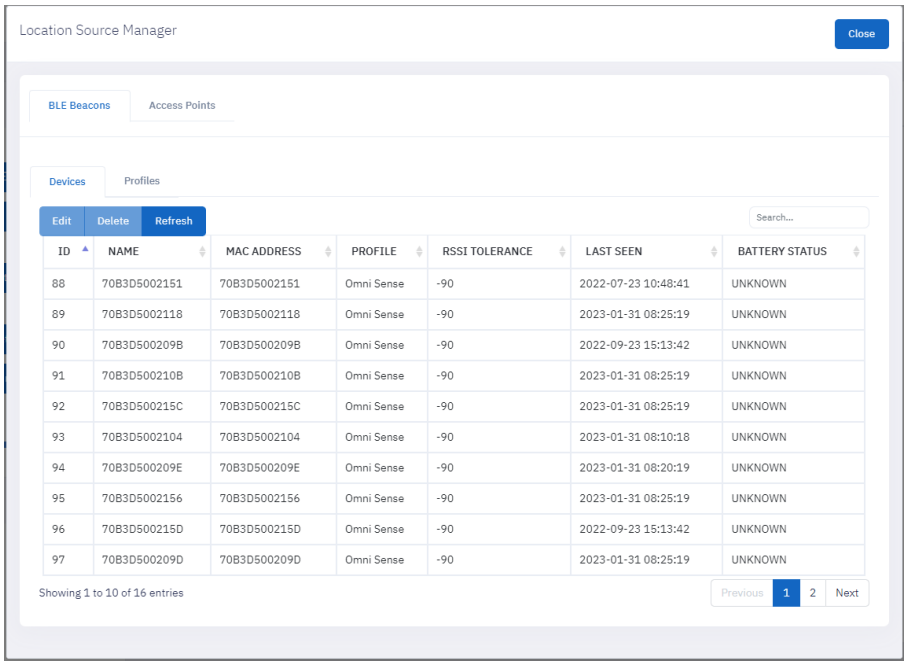


Figure 3.5.3.1.1

3.5.3.2 Bluetooth Beacon Profiles

The Bluetooth Beacon Profile table shown in Figure 3.5.3.2.1 lists all the Bluetooth Beacon Profiles currently saved in the ELE. From here, each beacon profile can be clicked and edited. This table can be sorted by clicking the header of the column that you want to sort by. The search box can also be used to freely search any of the fields in the table.

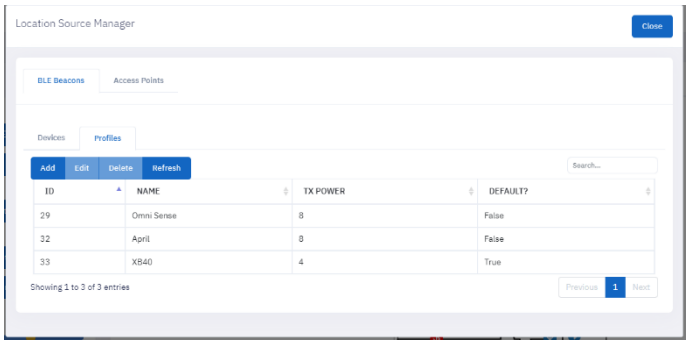


Figure 3.5.3.2.1

3.5.3.3 Access Points

The Access Point table shown in Figure 3.5.3.3.1 lists all the Access Points currently placed on the actively shown map. From here, each AP can be clicked and edited. This table can be sorted by clicking the header of the column that you want to sort by. The search box can also be used to freely search any of the fields in the table.

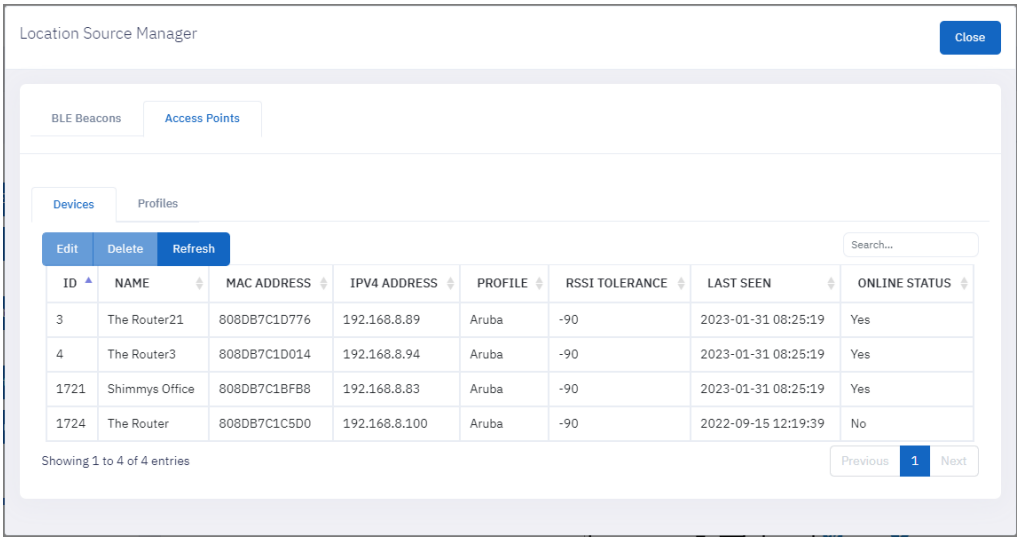


Figure 3.5.3.3.1

3.5.3.4 Access Point Profiles

The Access Point Profile table shown in Figure 3.5.3.4.1 lists all the Access Point Profiles currently saved in the ELE. From here, each AP profile can be clicked and edited. This table can be sorted by clicking the header of the column that you want to sort by. The search box can also be used to freely search any of the fields in the table.

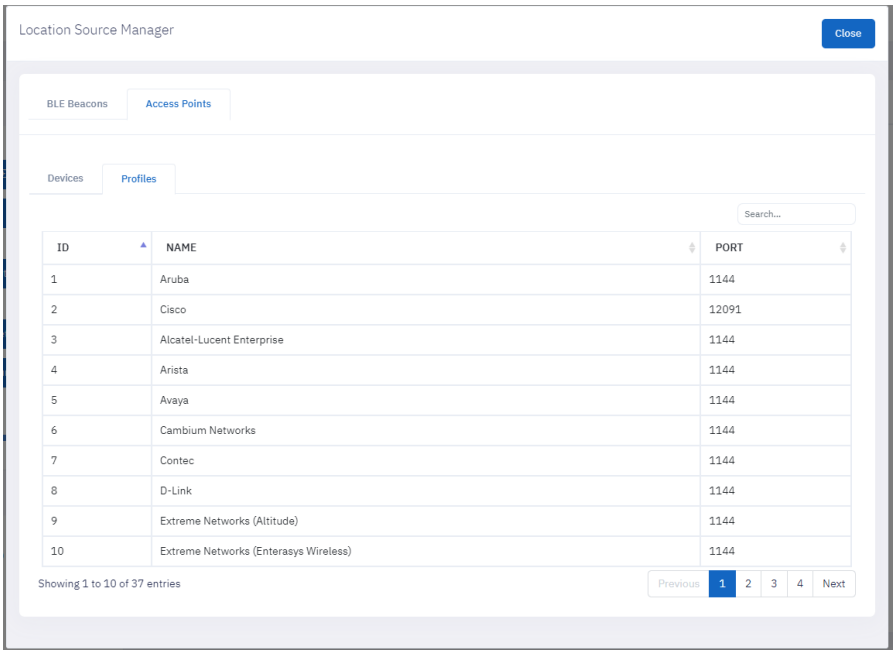


Figure 3.5.3.4.1

3.5.4 Auto Zone

The Auto Zone feature allows the user to quickly create Hybrid Zones using the location sources placed on the actively selected map. An example of a zone created using auto zone is in Figure 3.5.4.1.

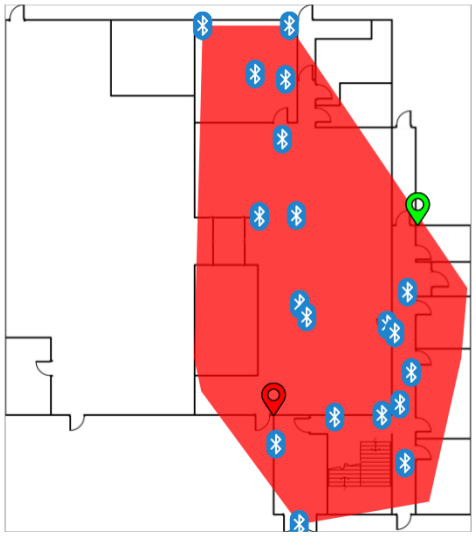


Figure 3.5.4.1.

To use this feature, you must have all your location sources placed properly on the selected map you wish to auto-generate zones on. Next, use the slider to select the detection radius from Figure 3.5.4.2.

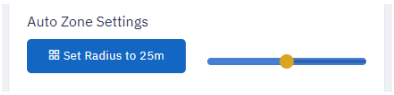


Figure 3.5.4.2

This should be set to the distance between each location source. Please note that the reference points or map scale must be set before this feature will work properly. This can be done using the reference point editor in Section 3.5.2.

3.6 Site Tree

The site tree shown in Figure 3.6.1 shows all of the sites and maps associated with the configuration of your ELE. When the ELE is first installed, the only visible section here will be “All Sites”. To begin adding sites and maps, right click the “All Sites” item and choose either “Add Map” or “Add Child”. The “Add Child” function is used to create the folder of which maps and/or more folders can be added to.

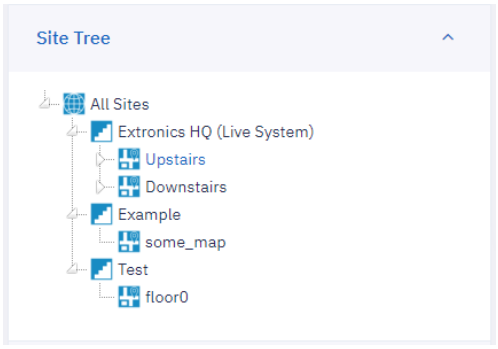


Figure 3.6.1

The image below shows all of the different menus available on the site tree. When clicking the “All Sites” element, only the Add buttons are available as shown by figure 3.6.3. When clicking a site child element, this can be removed, renamed and you are also able to add a map or a site child to this also as shown in Figure 3.6.4. When clicking a map item, this can only be renamed or deleted, shown by the menu in Figure 3.6.2.

Please note that you cannot remove a site child if it contains a map or another site child. This is to ensure that maps are not accidentally deleted. If the user wants to remove a site child, they should first ensure that it is empty, meaning that it contains no maps or other child sites.

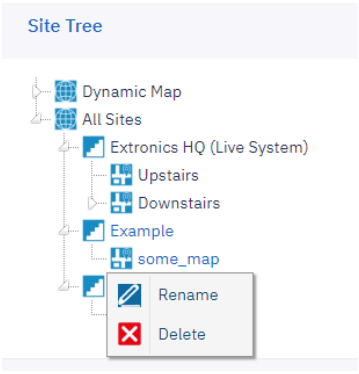


Figure 3.6.2

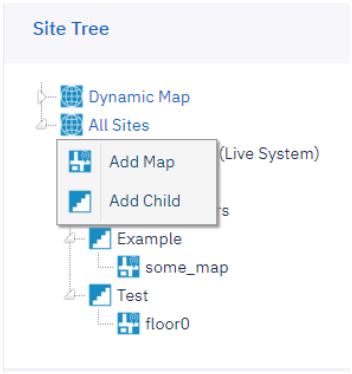


Figure 3.6.3

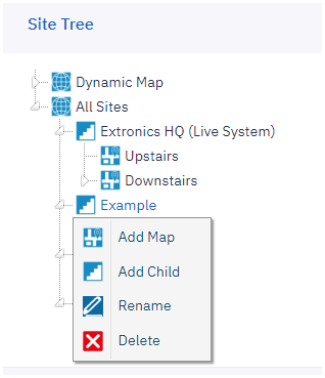


Figure 3.6.4

3.6.1 Adding Maps

To add maps to the ELE directly, right click a site element in the tree and click “Add Map”. The menus shown will be different depending on the type of site element that has been selected. If the user right clicks a site, they will see the menu in figure 3.6.1.1, however if a site child is right clicked then the menu in figure 3.6.1.2 will appear.

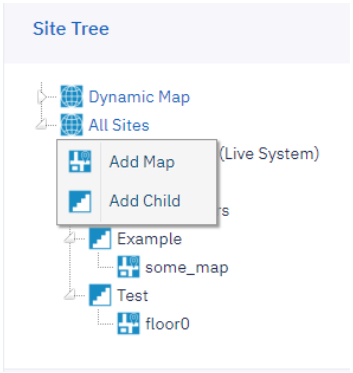


Figure 3.6.1.1

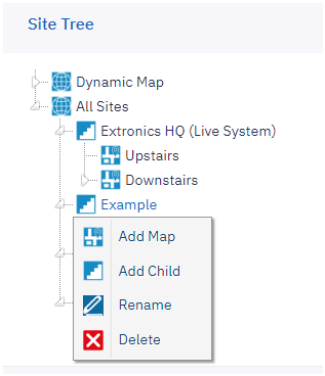


Figure 3.6.1.2

From here the user will be presented with a dialog box to input the data of the new map, seen in Figure 3.6.1.3.

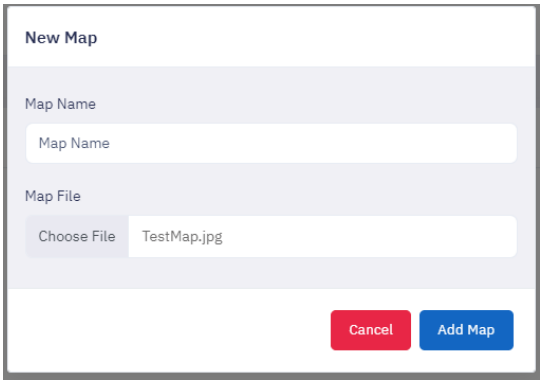


Figure 3.6.1.3

From here, you must specify a name for the map and choose the file to upload. You can upload **JPEG, JPG, PNG or GIF** files as maps here. Once you have chosen these, click “Add Map” and the map will be uploaded to the ELE and will appear in the site tree.

3.7 Data

The Data dropdown shown in Figure 3.7.0.1 gives users the ability to view key points of data stored by the system.

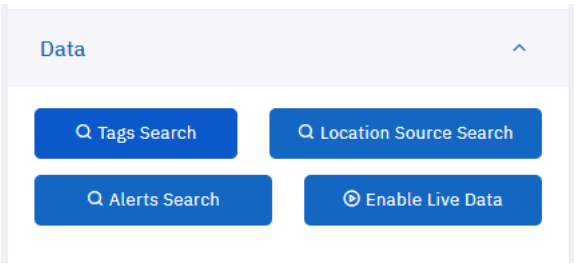


Figure 3.7.0.1

The data available to view is:

- All tags detected by the system
- All Location Sources
- Alerts Search
- Live Data Function

3.7.1 Tag Search

The tag search view shown in Figure 3.7.1.1 allows you to view all the tags that have sent messages to this instance of your ELE. From here, all information about the devices can be seen. This is useful to see battery statuses of tags and also view tags that have not been seen in a while. There are a wide range of filters at the top of this window that allow the user to filter down the list.

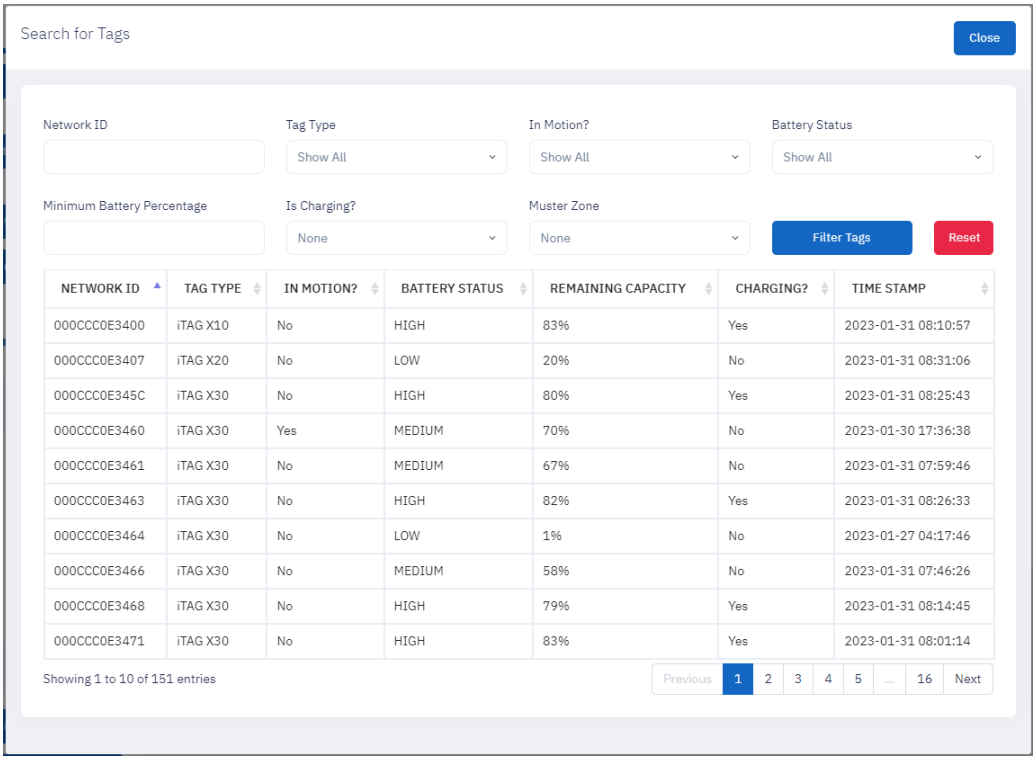


Figure 3.7.1.1

The result of this list is also the filter for the Live Data mode. When the live data mode is active, the tags listed in this list will be the ones that are rendered on the screen.

3.7.2 Location Source Search

The location source search window shown in Figure 3.7.2.1 allows the user to search through all the location sources added to the system. Like the tag search, there are lots of fields that allow you to filter the list.

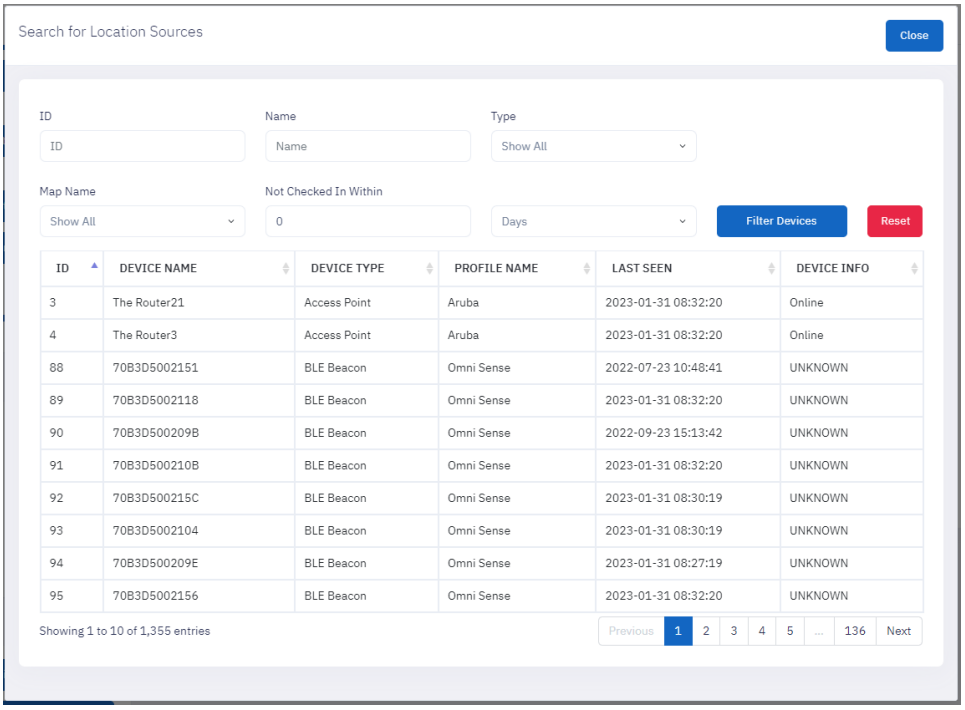


Figure 3.7.2.1

3.7.3 Alerts Search

The alerts search shown in Figure 3.7.3.1 will display all the alerts that have been recorded. This data will keep for the length of time that has been set in the ELE parameters.

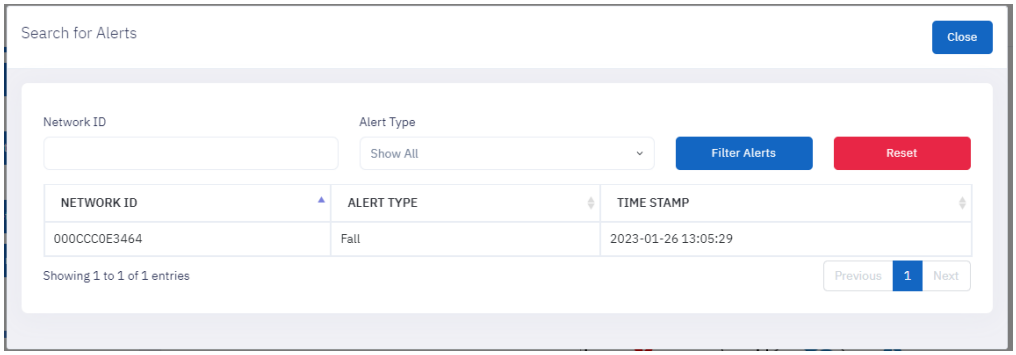


Figure 3.7.3.1

3.7.4 Live Data Mode

After enabling the Live Data feature, the tags that have been filtered in the Tag Search from Section 3.7.1 will be shown on their respective maps, as seen in Figure 3.7.4.1. This page will update every 30 seconds and is intended to see a general spread of the tags. From here, the user can hover over each tag to get its Mac Address.

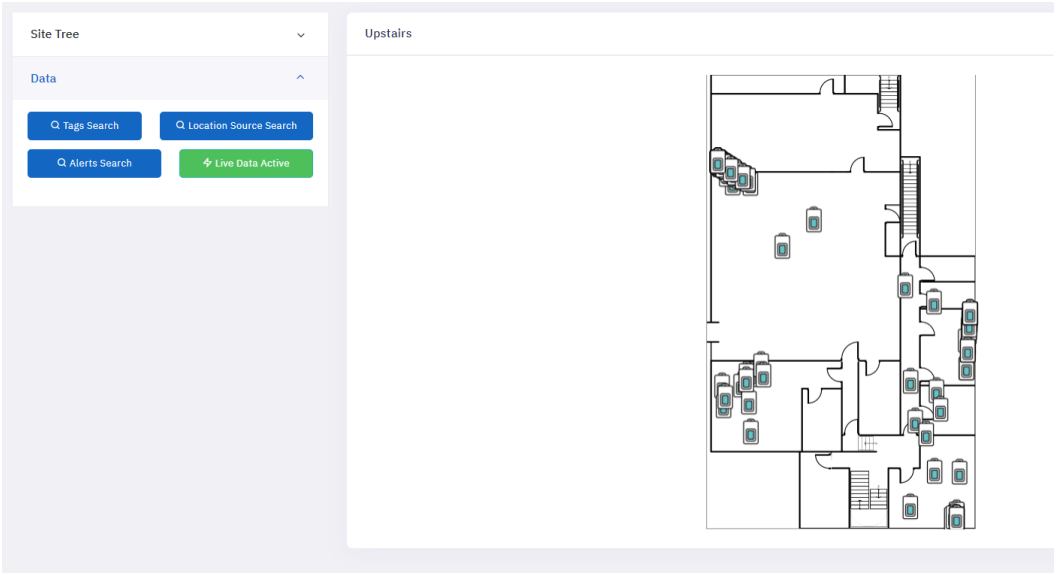


Figure 3.7.4.1

To enter Follow Mode, seen working in Figure 3.7.4.2, right click the tag you wish to follow when Live Data Mode is active. After you have clicked “Follow Tag”, a WebSocket connection will be opened and the page will be constantly updating with a live feed from the tag. This is a great feature to use when testing the positioning and configuration of location sources. From here, you can see the exact position of the tag on screen. On each message, the message will show in the tab on the left and each location source that contributed a location will also be displayed on the map. Please note, users may only follow one tag at a time.

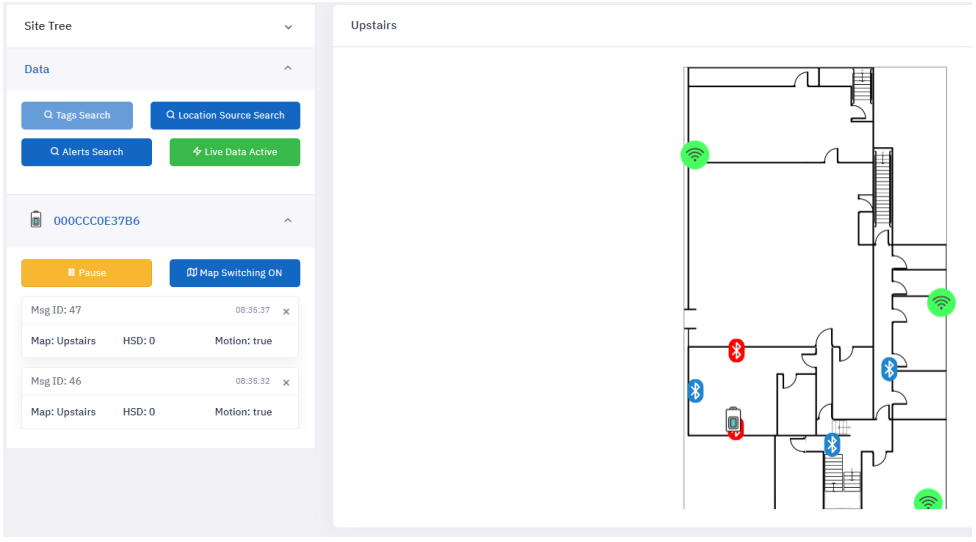


Figure 3.7.4.2

3.8 User Preferences

The user preferences screen shown in Figure 3.8.1 currently only has the function for the user to change their password.

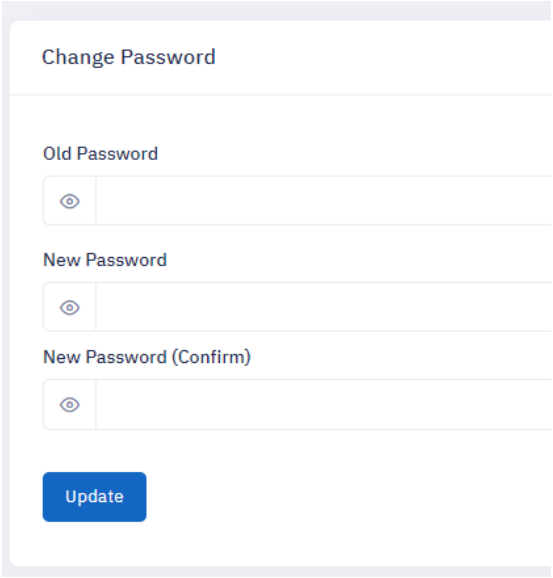


Figure 3.8.1

4 Configuring Google Map (optional)

To begin, you must first have a google account that will be used to manage the API key and the billing information.

Important note: Google gives you free credit to use each month. This credit will allow you to use the maps API for free essentially. The API charges you per hit, which is every time the page refreshes, and the credit gives you approx. 28,000 hits for free, making the integration essentially free. See https://mapsplatform.google.com/pricing/ for more information.

Once you've made an account and added billing information, navigate to:

https://console.cloud.google.com/cloud-resource-manager

From here, create a new project for the ELE as shown in Figure 4.1, giving it an appropriate name as shown in Figure 4.2.

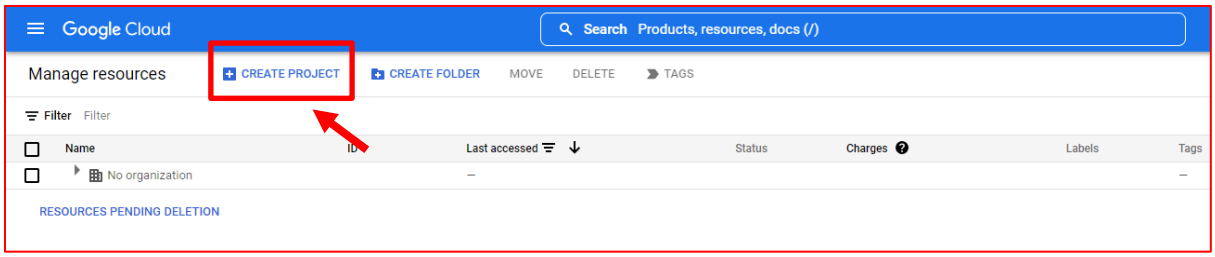


Figure 4.1

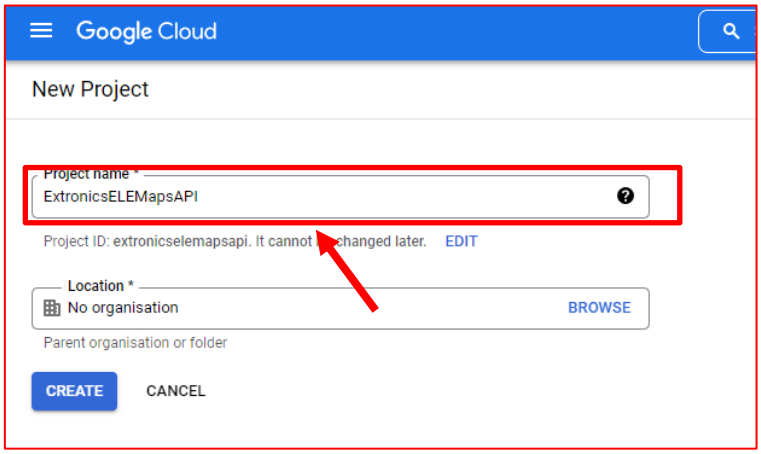


Figure 4.2

Once the project has been created, head to the Google Cloud APIs dashboard by following the link below:

https://console.cloud.google.com/apis/dashboard

From here, click 'Enable APIs and Services' at the top as shown in Figure 4.3.

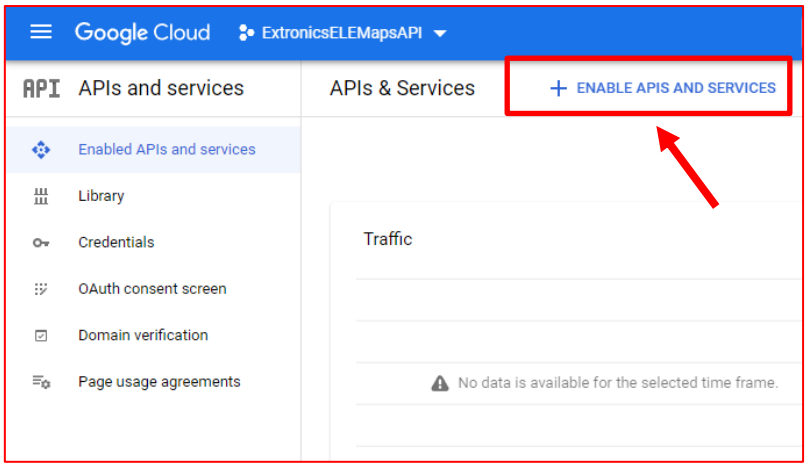


Figure 4.3

Locate the ‘Maps JavaScript API’, shown by the red box in Figure 4.4. This should be on the home page (as highlighted). If not, search for “Maps JavaScript API” using the search function on the page.

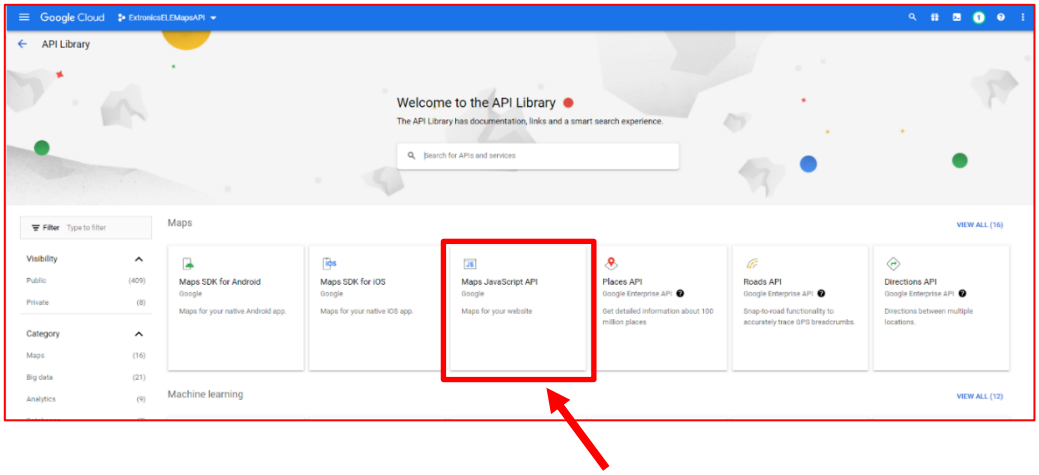


Figure 4.4

Click this item and click the “ENABLE” button pointed out in Figure 4.5.

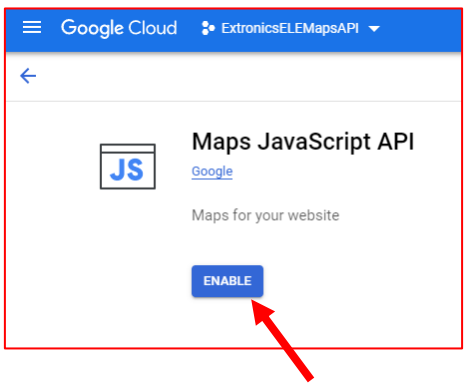


Figure 4.5

Click the “Manage” button shown in Figure 4.6.

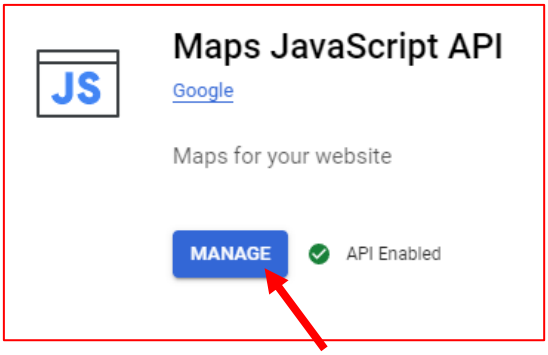


Figure 4.6

From this page, click the ‘Credentials’ tab on the left, shown in Figure 4.7.

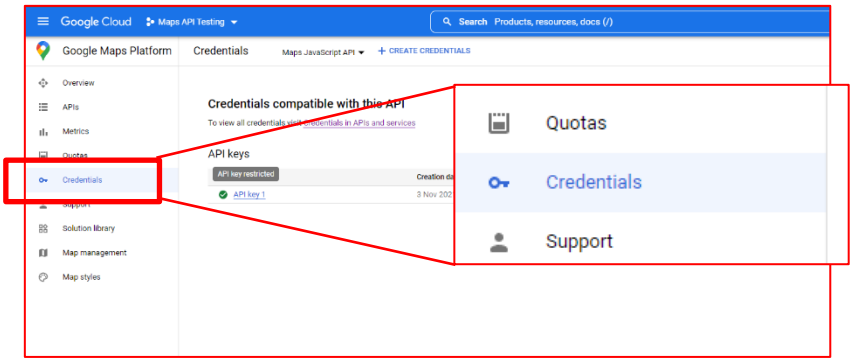


Figure 4.7

Once on the credentials screen, create a new API key using the ‘Create Credentials’ button show by Figure 4.8 and choose “API key” shown in Figure 4.9.

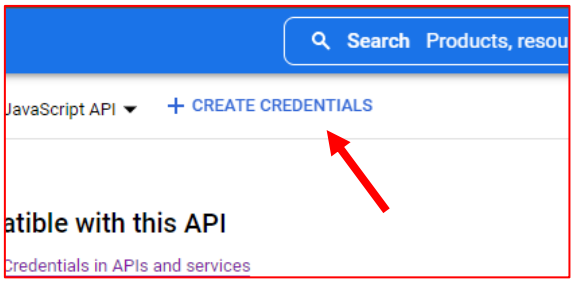


Figure 4.8

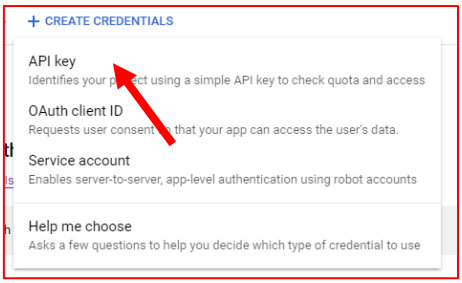


Figure 4.9

Once the key has been created, **save it somewhere secure to use it later**.

You can now close the API creation window.

If desired, you can set restrictions for the key, just make sure that the key is enabled for the Maps JavaScript API and you have billing information setup.

Go back to the ELE Admin desktop application and open the 'Parameters' screen.

Find "GoogleMapsAPI" key from the list and paste the key from earlier into the box to the right shown by Figure 4.10.

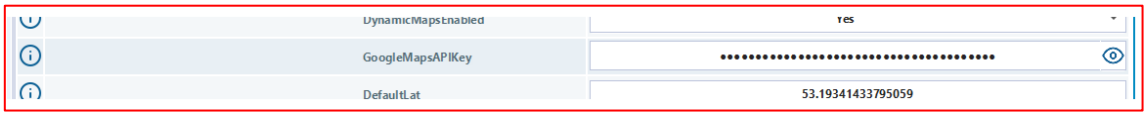


Figure 4.10

Now, set "DynamicMapsEnabled" to "**Yes**" using the drop-down menu and hit the **save** button, which users can find in the bottom right of Figure 4.11.

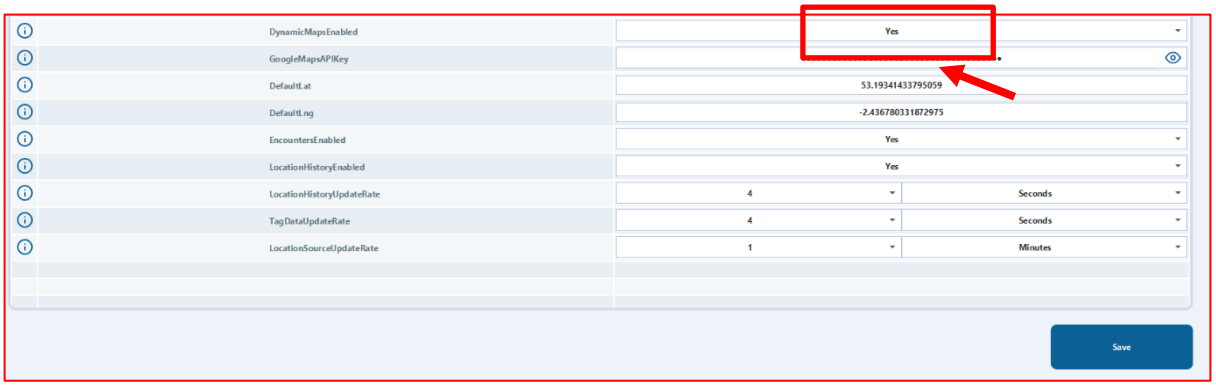


Figure 4.11

The Dynamic Maps option should now be visible and work from the web application.

5 System Requirements

	ELE Server	SQL Database
Screen Resolution	1366 x 768	
Physical Memory	Minimum: 8GB Recommended: 16GB	8GB
Cores	Minimum: 4 Recommended: 6	2
Minimum CPU Speed	2.2 GHz	
Disk Space	50GB	125GB
Operating System	Windows Server 2012 and above	2012 and above Minimum: Express (Express and Location History OFF) Recommended: Standard
ALE Compatibility	Version 5.6 MR1 and above	
LAN Connection	Gigabit	

6 ELE Topology