Helix Server

Installation and User manual

Version 3.0.0

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Preface

This user manual is designed for the management and proper use of Helix-Server by Vaxtor.

About this manual

This manual is intended for administrators and users of the Vaxtor Helix-Server application and is applicable to Version 1.5. It covers the installation, configuration and operation aspects of Helix-Server.

The most recent version of this document is available at www.vaxtor.com.

Before using Helix-Server it is recommended that you read through the entire manual at least once.

Section 9 of this manual explains in detail the different configurations that can be used as a starting point for more complex scenarios.

Table of contents

Introduction

Helix-Server by Vaxtor is a Back Office application which can centrally manage ANPR reads transmitted from ALPR cameras performing access control, parking or traffic applications in any environment. Once set up, ALPR reads will be received and processed (e.g. checking for White llsts, generating alarms, controlling barriers etc.)
This manual allows the user to explore the full functionality of Helix-Server.

Helix-Server can be used with the Vaxtor licence plate reading products:

- VaxALPR On Camera
- VaxALPR PC
- VaxALPR Android

... and with the Vaxtor traffic monitoring products:

- RedLight
- IllegalTurns

Helix-Server provides total control of vehicle traffic not only by recording vehicle movements through established control points, but also by automating access to restricted areas, issuing alerts for selected vehicles (using blacklists), generating reports with images and acting as the main application for real-time monitoring and control of vehicles across a site.

From the most basic management of a private car park to the control of traffic across a city, Helix-Server facilitates enforcement management, access control to restricted areas, average speed control of a vehicle between two points and average speed data transmission to LED Signs, etc.

New API Application Program Interface

Helix-Server has a new Application Program Interface (API) with which applications and third-party systems can obtain information in a simple way by receiving events, queries to databases and queries to devices etc.

New SQL Platform

Helix-Server now uses Postgres as the database manager providing enterprise class performance with many new functions. PostgreSQL is a powerful, open source object-relational database system that uses the SQL language to store data.

Dynamic and real-time information updating

The new communication architecture between modules and the technology of the software components used allows Helix-Server to automatically and instantly display new plate reads in addition to updating any user screen layout modifications (made by another user) to any part of the system. Helix-Server extends its capabilities to the end user, being both a management and a real-time monitoring tool.

Multi-platform and responsive user interface

Helix-Server comes with a modern user interface making it possible to use it from any device as the Graphic User Interface (GUI) automatically adapts to the equipment from which it is being used, be it a PC, tablet or smartphone.

Enhanced permissions management

The management of user permissions have also been improved. This feature is now completely transparent to the user who will only see the information relevant for him or her.
Seamless integration of 'VaxALPR On Camera'

Helix-Server incorporates the configuration and setup functions of 'VaxALPR On Camera' that previously could only be managed from the camera interface or in the configuration menu of each camera. It is now possible to manage how the on-board software saves the images directly from Helix-Server.

In summary

Helix-Server offers customers a powerful tool to manage the Vaxtor licence plate reading systems, maintaining and improving the existing functionality with a comprehensive interface compatible with almost any device. The new optimised architecture improves performance and allows future expansion at the same time interacting with third party systems and applications.

Requirements

Minimum PC Requirements

- Windows 10
- 32 bits (x86) or 64 bits (x64) processor at 2 GHz or higher
- 16 GB RAM
- 256GB (32-bit) or 20GB (64-bit) of hard disk space available.
- Microsoft .NET Framework 4.5.2 or higher

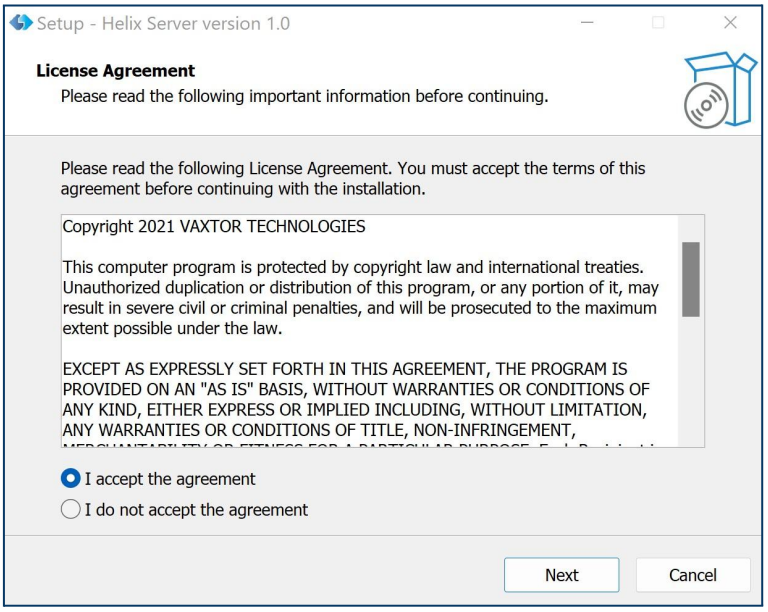
Database requirements

Postgres is the included database manager and does not need any additional components.

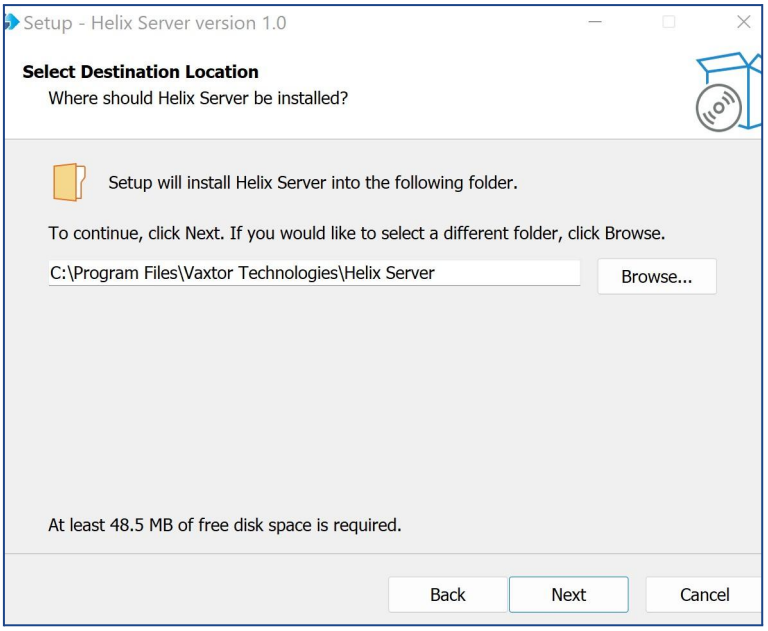
PostgreSQL is a powerful, open source object-relational database system that uses the SQL language to store data.

Software installation

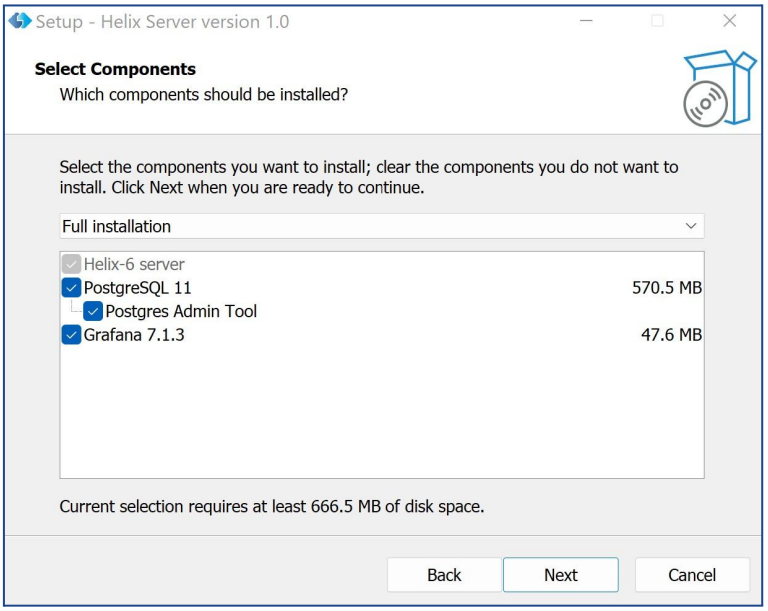
- Run **`HelixServer-setup.exe`** as an administrator. In the first window, you will be prompted to accept Vaxtor's License Agreement:



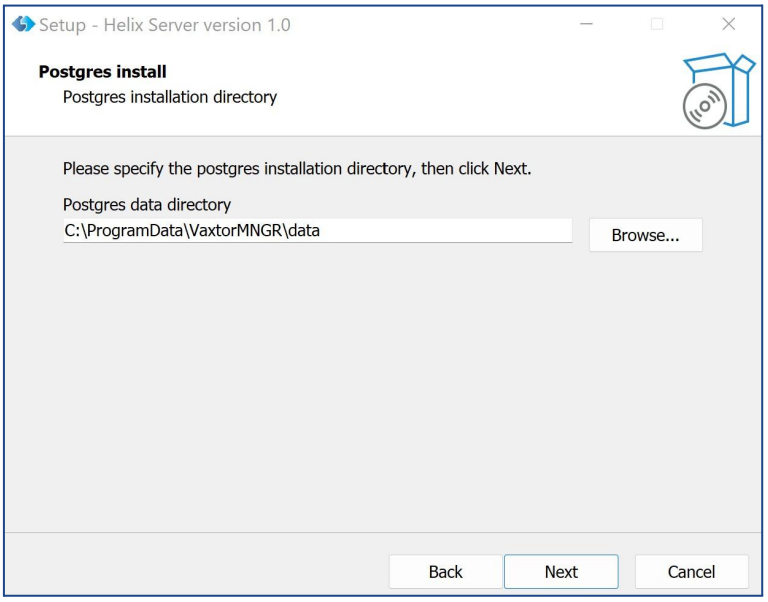
- After agreeing you will be prompted for the location where you want to install this program. Leave the default path and click **`"Next"`**:



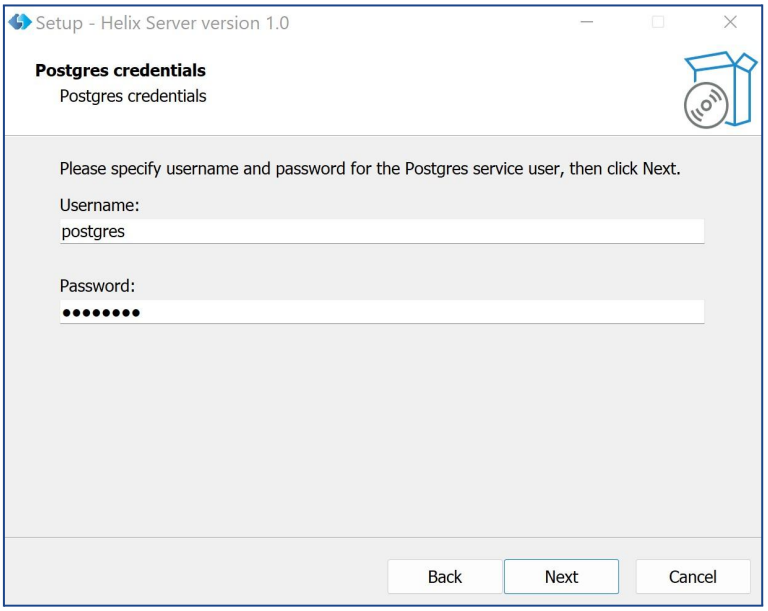
- Leave the default “Full installation” and click “Next”:



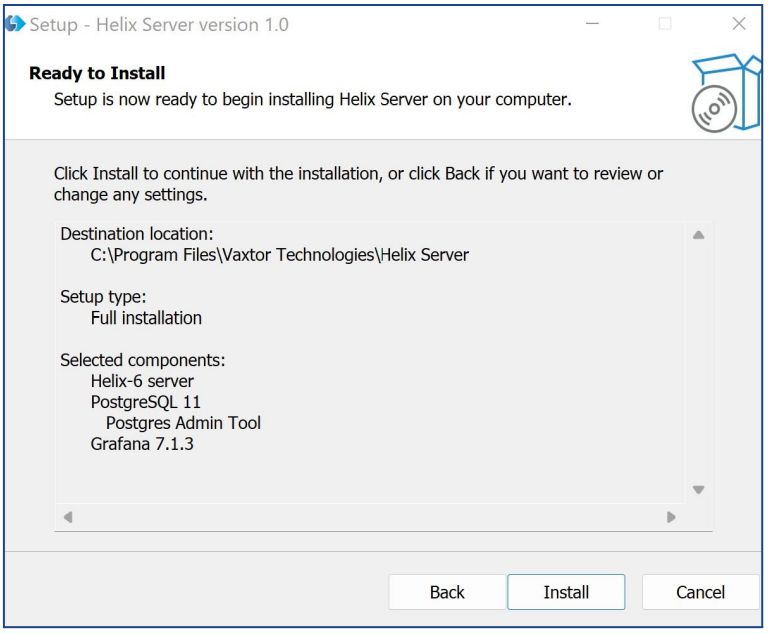
- Leave the postgres installation directory as the default:



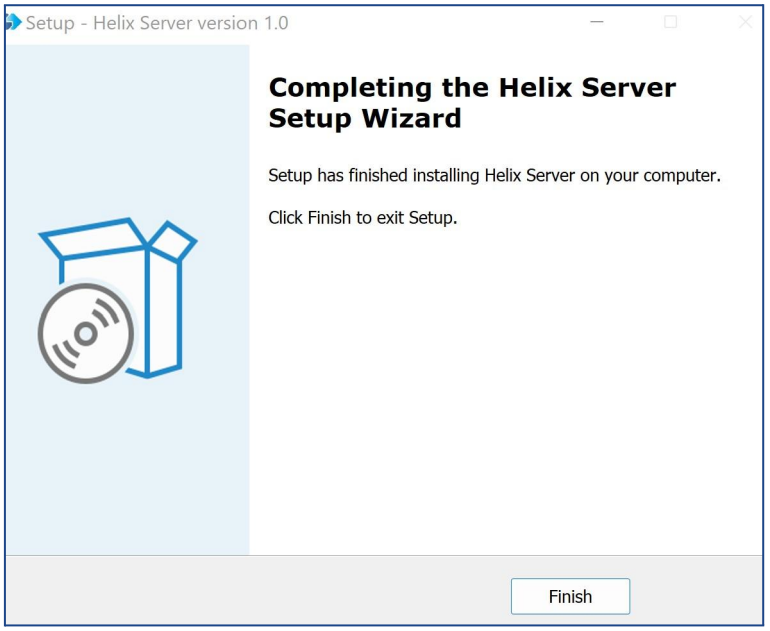
- Leave the default values for the username and password:



- In the next window of the wizard you can begin the installation by pressing the "**`Install`**" button:



- Once the installation is complete, click the "**`Finish`**" button:



- A new service called "**`VaxtorMNGR`**" will be installed and automatically started.

The Application

After installation, Helix-Server can be accessed by the URL http://serverip:8080/Helix6, where serverip is the IP address of the machine where Helix-Server is installed. If accessing from the same PC then this would be **127.0.0.1/8080/helix6** or **localhost:8080/helix6**

Basic Configuration

This configuration can be changed by editing the file config.xml stored in the directory **c:\programdata\VaxtorMNGR** and adding to it a new Helix-Server Port tag.

Example (using SQLite database):

```
<Config>
  <SslPort>9898</SslPort>
  <BindAddress>*</BindAddress>
  <EnableSsl>False</EnableSsl>
  <ApiKey>29bb7fac5eed46edb4fb2833db89ecec</ApiKey>
  <AuthenticationMethod>Forms</AuthenticationMethod>
  <Helix6Port>30000</Helix6Port>
</Config>
```

Valid tags and values for **config.xml** file:

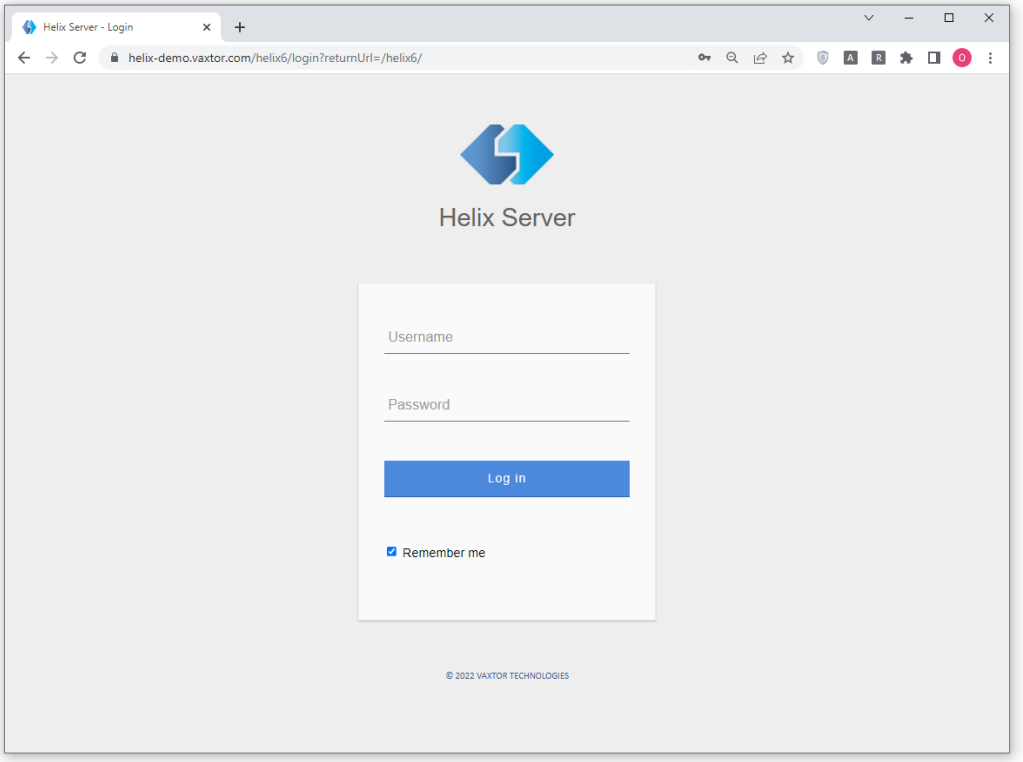
Field	Description	Mandatory
BindAddress	Default value "*"	M
Helix6BaseUrl	Default value: **/Helix-Server**	Op
Helix6Port	Default value: **8080**	Op
Helix6Environment	Default value: **Vaxtor**	Op
Helix6DB	Valid values: **SQLserver | Postgres | SQLite**. Default value: **SQLite**	Op
if **Helix6DB** equal **SQLite**		
DBAdminUser	Default value ""	Op
DBAdminPassword	Default value ""	Op
if **Helix6DB** equal **Postgres**		
PostgresDBName	Example: **helix**	M
PostgresDBHost	Example: **127.0.0.1**	M
PostgresDBUser	Example: **admin**	M
PostgresDBPassword	Example: **vaxtor**	M

if **Helix6DB** equal **sqlserver**		
SQLServerDataSource	Example: **192.168.0.236**	M
SQLServerUserId	Example: **admin**	M
SQLServerPassword	Example: **vaxtor**	M
SQLServerInitialCatalog	Example: **Helix-Server**	M
SQLServerIntegratedSecurity	Default value: **false**	M
NOTE: If **Helix6DB** equal to **sqlite** does not have any additional configuration parameters		
ApiKey	Valid API key	M
EnableSsl	default value: **False**	M
NOTE: If **EnableSsl** is **True**, review this article: https://docs.microsoft.com/en-us/dotnet/framework/wcf/feature-details/how-to-configure-a-port-with-an-ssl-certificate		
AuthenticationMethod	Valid values **none|Basic|Forms** Default value: **Forms**	M
LogLevel	Valid values: **Info | Debug | Trace**. Default value **Info**	Op

Important!
That you must restart the service to apply any changes.

Login

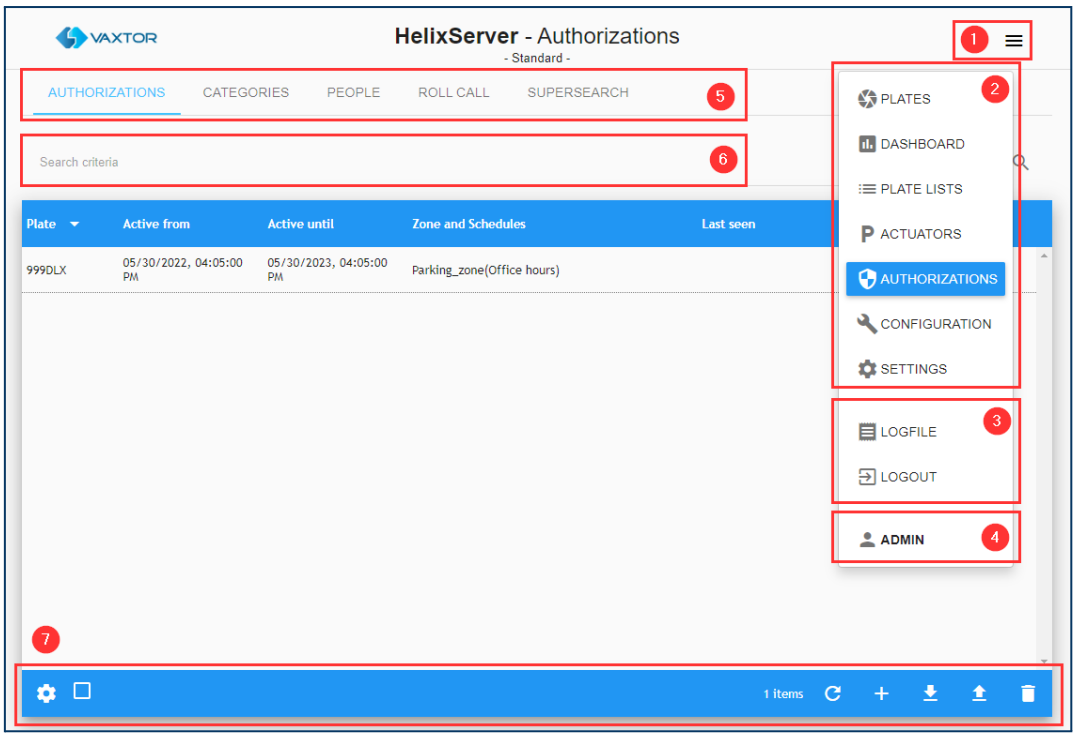
The Helix-Server login screen will be displayed in the browser, asking for the username and password:



Helix-Server creates the default user "admin" with password "admin" when no other users have been added to the system.

If you wish, you can select the "Remember me" option so that the system saves your credentials for one week.

Helix-Server Application Layout



Main Menu

To access the main menu, click the **Main menu** button **(1).**

- Here you can access the following features **(2)**:
  - PLATES
  - DASHBOARD
  - PLATE LISTS
  - ACTUATORS
  - AUTHORIZATIONS
  - CONFIGURATION
  - SETTINGS
- Tools **(3)**:
  - LOGFILE: Select to view the HelixServer log file(s).
  - LOGOUT
- **Current user** button **(4)** – default: `ADMIN`.

Secondary Menus

The **Secondary Menus (5)** show more options for each Main Menu option:

- DASHBOARD
  - Dashboard
  - Dashboard Setup

- PLATE LISTS
  - Plates

- List

- ACTUATORS
  - Actuators
  - Actuator Links

- AUTHORIZATIONS
  - Authorizations
  - Categories
  - People
  - Roll Call
  - Supersearch

- CONFIGURATION
  - Zones
  - Cameras
  - Schedule
  - Sections
  - Capacity

- SETTINGS
  - Settings
  - Users
  - Audit
  - GDPR

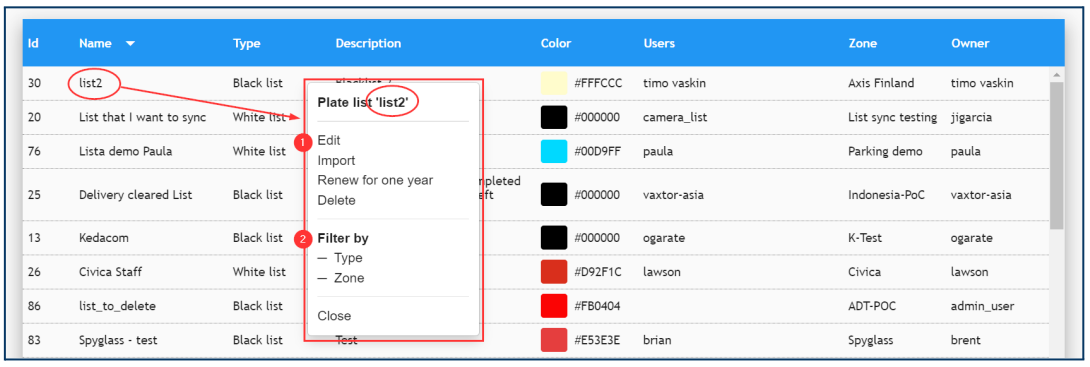
Search area

Some features have a **Search criteria (6)** area where various fields can be searched.

Toolbar

Some menus have additional tools such as columns configuration, reload, create, download file, upload file, delete etc. These tools are displayed in the **Toolbar (7) .**

Contextual menu

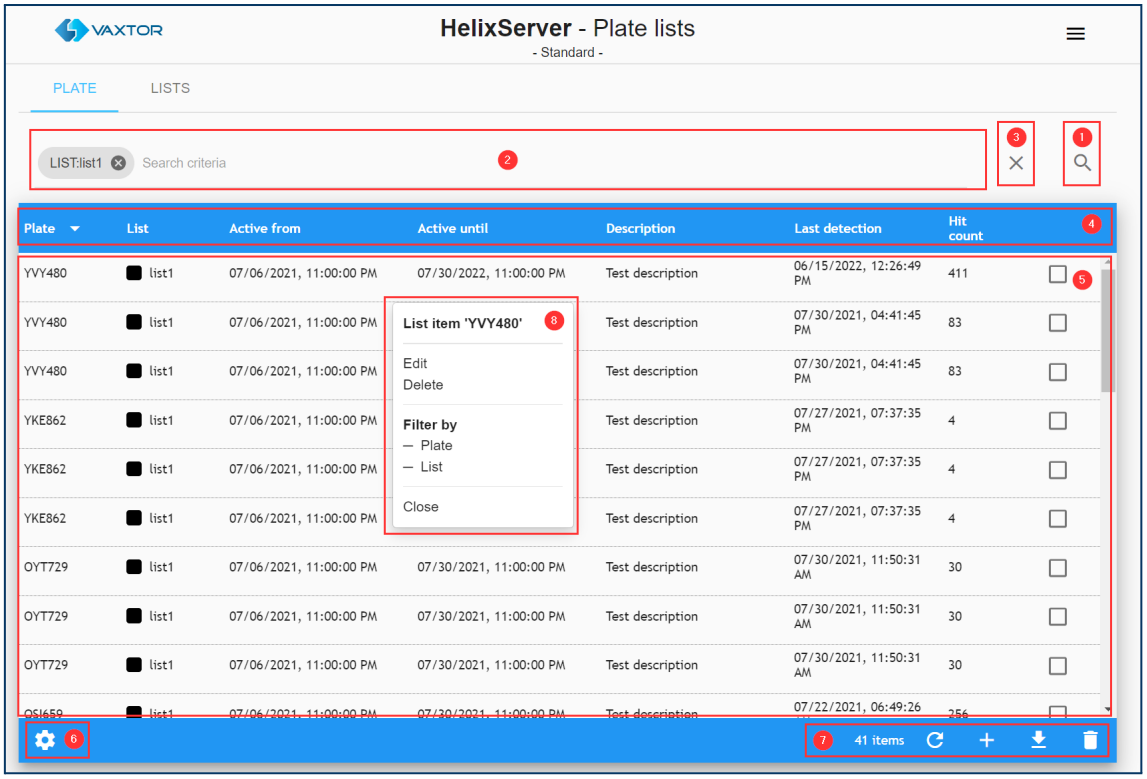


To access the features associated with each list item, you can use the contextual menu by clicking the mouse over each list item.

The contextual menu has two areas: The actions area (**1**) which includes item actions such as Edit, Delete etc. and the filter area (**2**) which includes a comprehensive list of specific filters.

An example of the List Management secondary menu:

Note:
Search options are available for PLATES, LIST/Plates and SETTINGS/Audit.

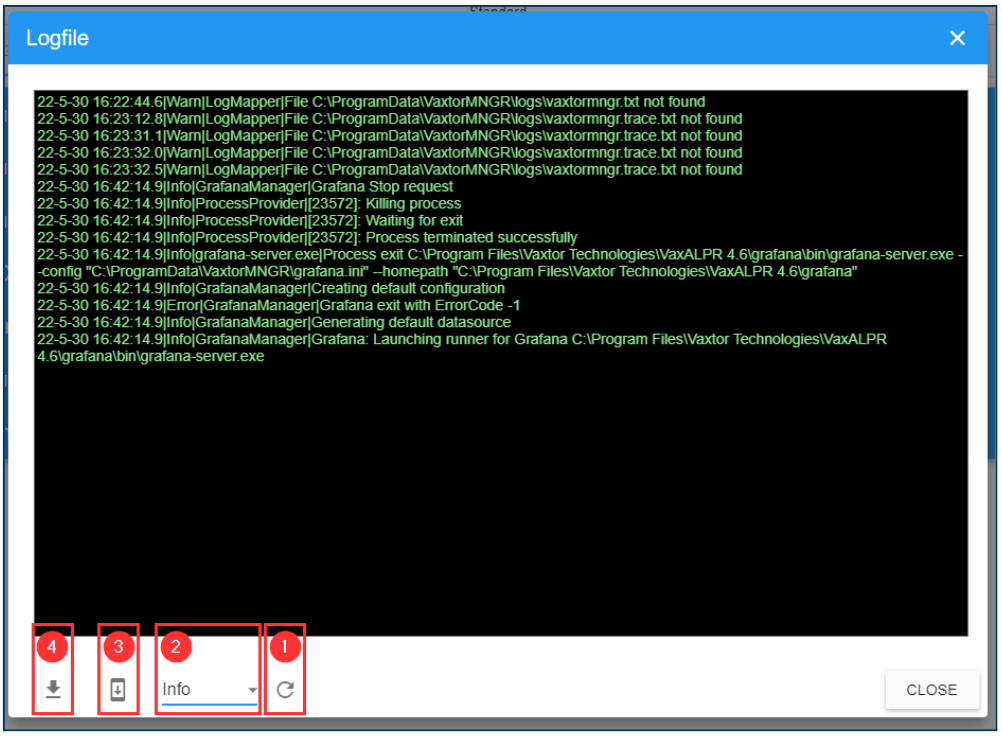


Description:

- **Search** button (**1**).
  This button opens the Search dialogue box.
- **Search Filters area (2)**
  This search area allows you to quickly add search criteria. It includes a **Clear search options button (3)**.
- **Table header (4)**.
- **Table data area (5)**.
- **List view configuration button (6)**.
  (see 'How to configure your personal view' below)
- **List tools area (7)**. This could include:
  - An items counter 4 items,
  - Reload button ,
  - Add item button
  - Download button
- **Contextual Menu (8)**

Show logfile option

The Users with administration rights, are able to review the HelixServer log file. To do this, click the LOGFILE menu option in the menu (see (3) in the Main Menú)



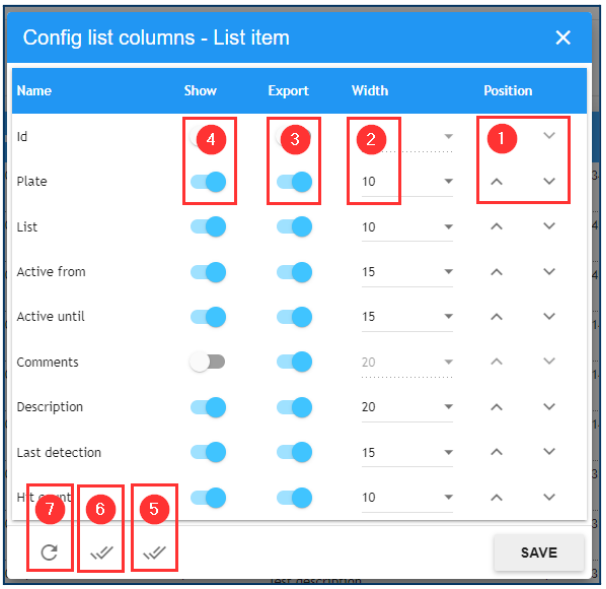
Description:

- Reload the latest log file (**1**)
- Select file type (**2**):
  This depends on what you have configured (see Configuration of Server)
- Scroll to the end of the file (**3**)
- Download the log file (**4**)

How to customise screens for each user

The Helix-Server GUI can be configured to show only the data that each user wants to see.

To do this, in most tables you will see a settings icon  at the bottom left of the screen which allows you to configure the fields that you want to display. Click on the icon and a pop-up window will appear as shown below. In this example the Plate Lists/Plate column configuration is shown :



Description:

- Shows each item in the list display **(4)**,
- Includes item in the export file **(3)** This column will be included only in tables with the export file option.
- Set column width **(2)**,
- Set column position **(1)**,

- Reload default configuration **(7)**,
- Select all columns **(6)**,
- Select all columns for Export **(5)**,

The user can simply enable or disable any of the fields as required by using the sliders. These can be used for the PC web environment or when being accessed from tablet or mobile devices.

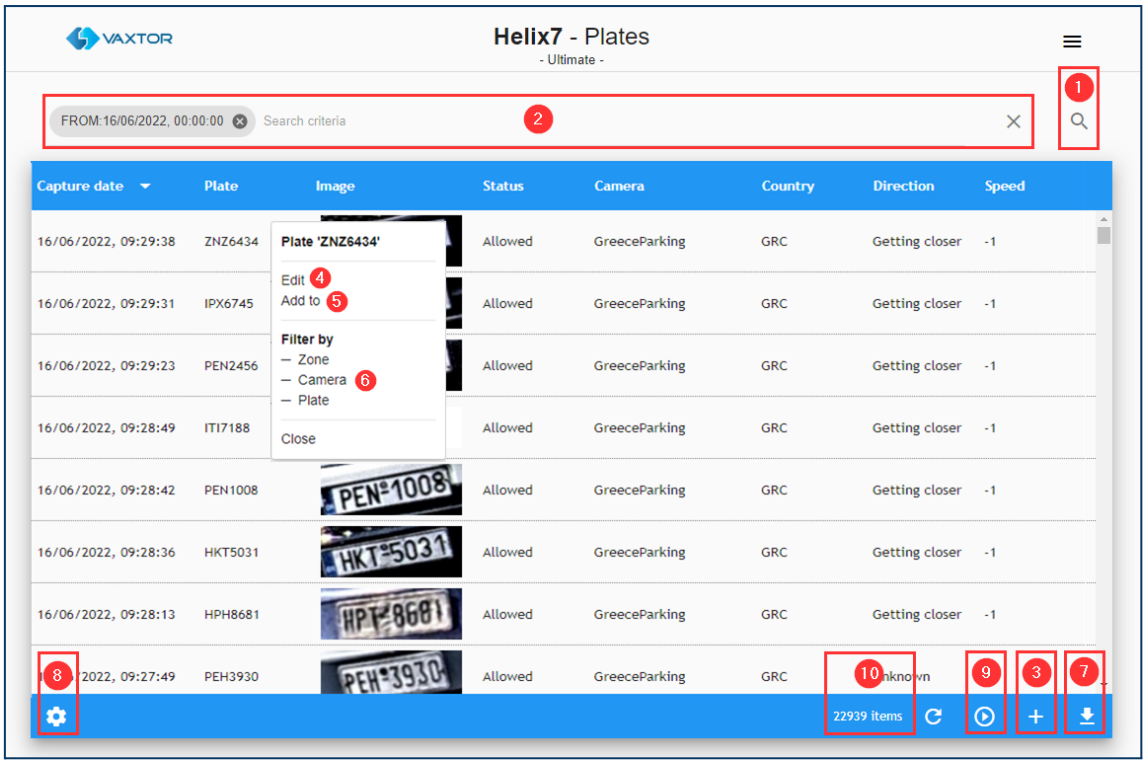
You can adjust the width of each column and modify its position on the grid.

At the bottom of the pop-up window you can restore the default values by clicking on the Default config **(7)** button or save your new configuration by pressing the Save button..

PLATES: Licence plates

Plates table

Clicking **PLATES** will display a list of licence plates recently received.



Note: *that any new plates received will NOT be displayed until you press the Play icon (**9**), bottom right (See Real-time view).*

This is where plate reads from remote VaxALPR recognition systems appear showing the following default fields:

- **Capture Date:**
  Date and time that the plate was captured.
- **Plate:**
  The ASCII interpretation of the Licence plate.
- **Image**:
  The image of the licence plate. (The 'Plate Patch')
- **Status:**
  This indicates whether the vehicle is "Authorized", "Pending", "Confirmed" or "Cancelled". (These states are discussed later in the manual.)
- **Camera:**
  The name of the camera that detected the licence plate.
- **Country:**
  Indicates the country of origin of the recognized plate (if known).
- **Direction:**
  Indicates the direction the vehicle was travelling. This can be: "Getting closer", "Getting farther", "Unknown" or "Stopped".
- **Speed:**
  This field displays the instant speed or the average speed of the detected

vehicle if available. If both measurements are available, the "instant speed" will be used (if known and configured).

- .. and various other configurable options such as OCR processing time, Multiplate rate etc.

Licence plate details

If you click on any of the plates in the list, the small associated context menu will appear. If you then click the action **Edit** of the context menu (see **(4)** of the Plates table), the following pop-up window will appear with the associated metadata of the reading including the source image and a small zoom tool to view the image in more detail.

This pop-up window includes the tabs **PLATE IMAGES**, **DETAILS** and **ADD TO**, and a common header with the with the most relevant data of the capture:

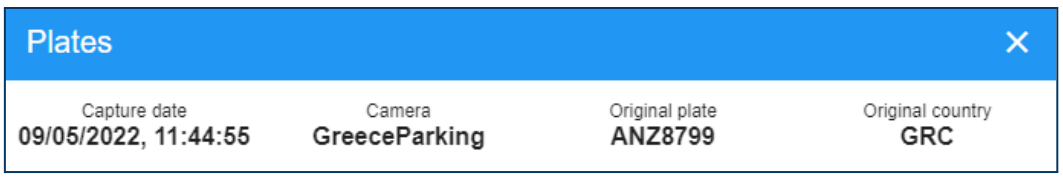


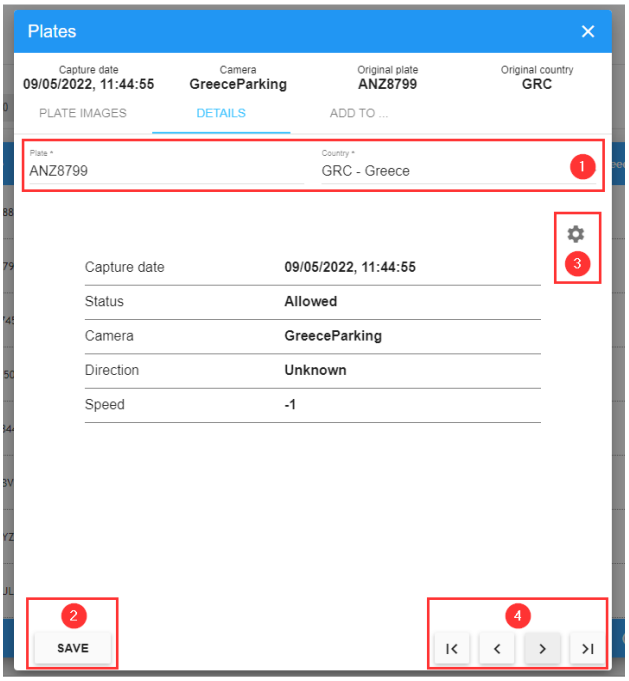
Plate Images tab

PLATE IMAGES allows you to view the different images provided by the cameras. (Some ALPR cameras can send both an ALPR image AND an environment/contextual image to Helix). These can be downloaded and locked to prevent them from being deleted by Helix-Server housekeeping tasks.

Description:

- Select the Main ALPR camera **(1)**,
- Select the Environment camera if present **(2)**,
- Download images **(3)**,
- Lock current image **(4)**.
- To use the zoom **(5)** tool simply move the cursor over the image and the image will automatically zoom in on the area you are focussing on.

Details tab



In the **DETAILS** tab you can make changes or correct the fields ***Plate*** and ***Original Country*** **(1)**. Click the Save button **(2)** to store the change.

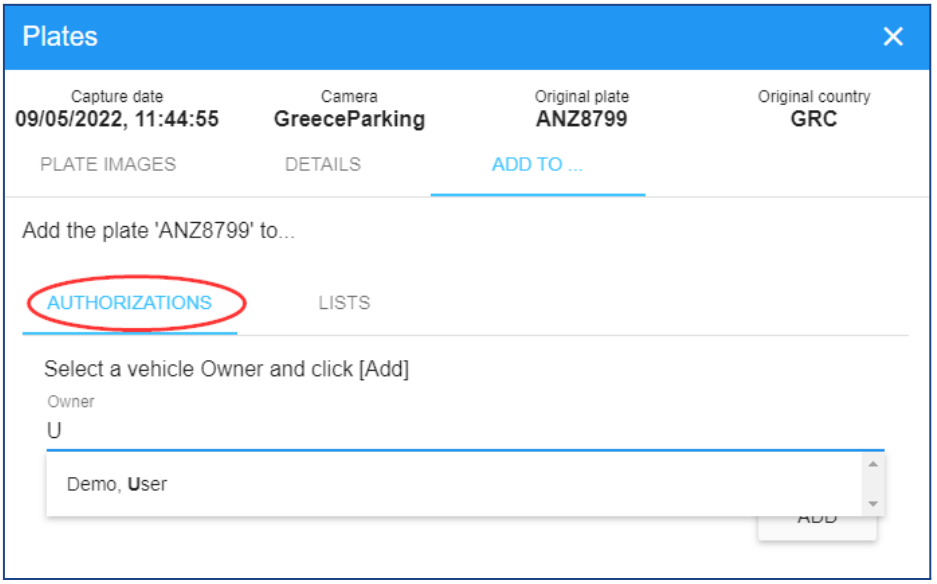
Click the configuration button **(3)** to configure what fields to show.

In the lower right area of the pop-up there are navigation buttons **(4)** to move through the different records without leaving the pop-up window.

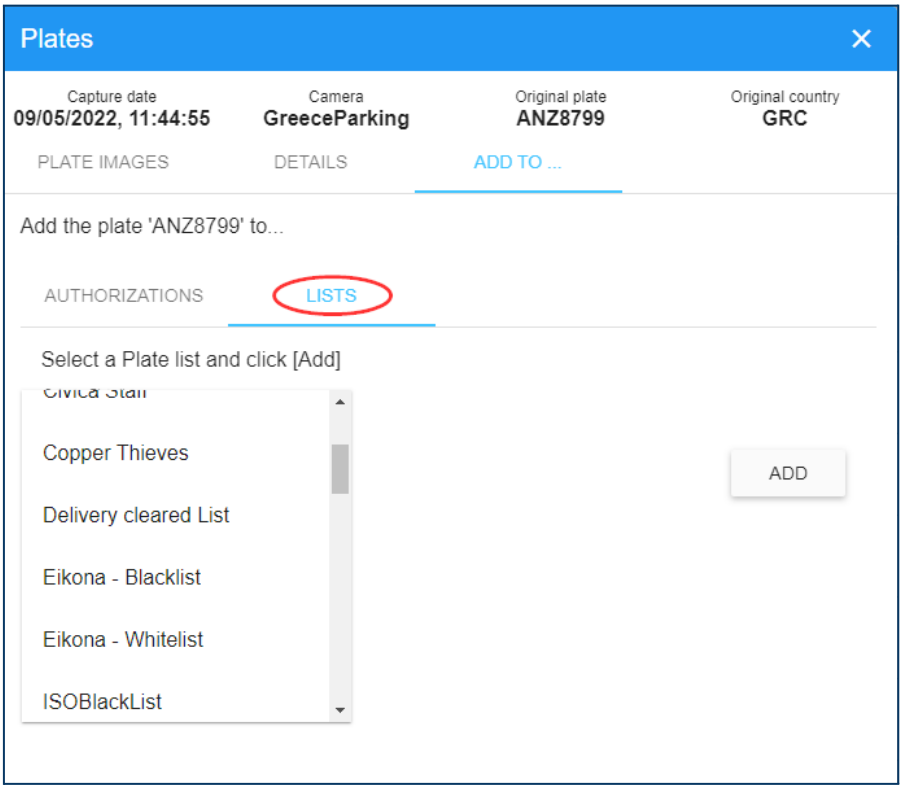
'Add to' tab

In the tab **ADD TO...** you can:

- Associated the plate with a Owner (see **Authorization** section):



- Add the Plate to a Black or White list (see **List** section):



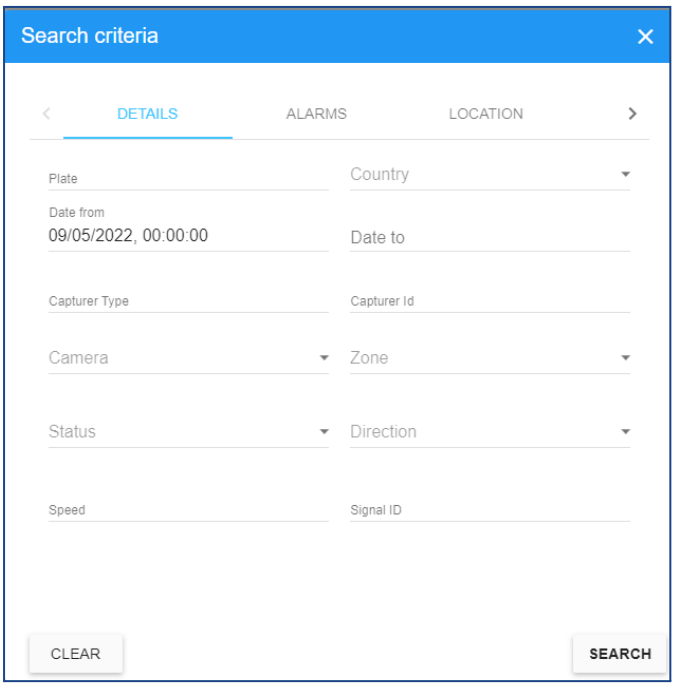
NOTE: To fast access to the *Add to...* click the action **Add to** in the context menu (see (5) of the Plates table).

Search Plates

Search criteria dialog

In the upper right corner of the table there is a small magnifying glass icon (see **(1)** of Plate table). When clicked, a popup window appears where you select from various search filters.

The Search criteria popup window is divided into four sections: `DETAILS`, `ALARMS`, `LOCATION` and `INFO`.



DETAILS search tab.

Search criteria	Description
`Plate`	Here you can search through all the plates using the wildcards "*****" and "**?**" to refine the search (you can also use **_** in place of **?** and **%** in place of *): • "*****" replaces any number of characters (including no characters). • "**?**" replaces a single character in the search
`Country`	Filter the results by the country of origin of the plate selected from a combo box from the configured countries.
`Date from`	In this field, you can search from any date simply by clicking in the field. A pop-up window appears where you can select the start date + time of the search.
`Date to`	As in the previous field, you can search for plates up to a specific date again by clicking in the field. The pop-up window appears where you can select the "To" date + time and then press [**OK**]
`Capture Type`	Filter the results by a specific Capturer type
`Camera ID`	Filter the results by a specific Camera ID.
`Camera`	Filter the results by a particular camera selected from a combo box from the configured cameras for the current user.
`Zone`	Filter the results by zone from a combo box from the configured zones for the current user. NOTE: Cameras can be allocated to a zone – e.g. a car park with several entrances so a search would produce a list of vehicles currently in that zone.

Status	Filter the results by the selected vehicle status from a combo box including: `OK, Pending, Confirmed, Cancelled, Exported, Prescribed, NoAuth, SanctionPending, NoAuthExceed, Ignored`
Direction	Filter the results by the selected vehicle direction from a combo box including `Unknown, GettingCloser, GettingFarther, Stopped`
Speed	Available as an add-on. Only vehicles moving faster than the selected speed will be shown.
Signal ID	Filter the results by a specific Signal ID.

ALARMS search tab.

Search criteria	Description
Filter by alarm	Filter the results if plates have triggered an alarm, not triggered an alarm or Both
Exit filter	Filter the result if Vehicle has exited, not exited, or Both

LOCATION search tab.

Search criteria	Description
Minimum latitude	Filter the results if the capture latitude is great or equal than the value
Maximum latitude	Filter the results if the capture latitude is less or equal than the value
Minimum longitude	Filter the results if the capture longitude is great or equal than the value
Maximum longitude	Filter the results if the capture longitude is less or equal than the value

INFO search tab.

Search criteria	Description
Make *	Filter the results by vehicle Make
Model *	Filter the results by vehicle Model
Colour *	Filter the results by vehicle Colour
Category	Filter the results by the specified vehicle Category
Classification	Filter the results by the specified vehicle Classification
Region	Filter the results by the specified Camera ROI

(*) These are only available with the optional MMC add-on which attempts to analyse images and report the Make, Model & Colour.

Filter Plates

The Helix-Server **PLATES** page includes a quick way to use filters by adding your own search criteria as a text string (area **(2)** of the Plate list) into the search filter bar. You can add or remove search filters, also you can use the **Filter by** option in the context menu (see **(9)** of the Plate list).
The search filter syntax is: **`Token:FilterValue`**, where:

Token	filterKey	filterValue
CAMERA	camera	Camera ID or camera name
COUNTRY	country	Three letter Country code
DIRECTION DIR	direction	`Unknown, GettingCloser, GettingFarther, Stopped`
PLATE	plate	p.e. `M4616WZ`
STATUS	status	`OK, Pending, Confirmed, Cancelled, Exported, Prescribed, NoAuth, SanctionPending, NoAuthExceed, Ignored`
ZONE	zone	Zone ID or Zone name
CAPTURERID CAPID	capturerId	Capturer ID
CAPTURERTYPE CAPTYPE	capturerType	Capturer Type
ALARM	alarm	`true` or `false`
MAXLATITUDE MAXLAT	maxlatitude	Max latitude (double)
MINLATITUDE MINLAT	minlatitude	Min latitude (double)
MAXLONGITUDE MAXLON	maxlongitude	Max longitude (double)
MINLONGITUDE MINLON	minlongitude	Min longitude (double)
DATEFROM FROM	dateFrom	DateTime format `dd/MM/yyyy hh:mm:ss`, example: `08/01/2018 10:22:29`
DATETO TO	dateTo	DateTime format `dd/MM/yyyy hh:mm:ss`, example: `08/01/2018 10:22:29`
SPEED	speed	Speed (integer)
SIGNALID	signalId	Signal ID (integer)
VEHICLEMAKER	vehicleMaker	Vehicle marker (text)
VEHICLEMODEL	vehicleModel	Vehicle model (text)
VEHICLECOLOR	vehicleColor	Vehicle colour (text)

VEHICLECLASS	vehicleClass	Vehicle class
CATEGORY	category	Category
REGION	region	Region
ALARM	alarm	If it is an alarm (boolean)
EXIT	exit	If it is an exit (boolean)

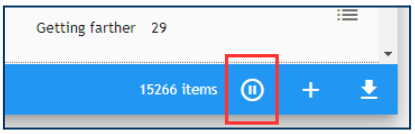
*Note: To clear the search criteria use button [**X**] located at the right of the Filter bar.*

Real-time view

Click the **Play** button (button **(9)** of Plate table) to see plate reads as they arrive in real time.

When this option is enabled all the plate reads received from the ALPR readers will be displayed immediately in the main screen with the most recent at the top.

If you want to stop the real time view, you must click the pause button that replaced the play button. This can be useful if you want to search or examine plates received without them scrolling as new plates arrive..



Note: This only works if the current user has been authorised.

Do this by selecting CONFIGURATION then select the ZONES main Tab. Click on the appropriate zone and select which users receive real time events for this zone. Do this by selecting the appropriate user from the users list and double click on the user name to move it across to the right-hand box (assigned users). This user now can see the view with real-time information. Alternatively, single click and use the arrow icons in the centre.

Note: The reason this is not set as a default is there may be a massive amount of information being received from many readers which would overload the system.

Download Plates

To download a Plate list, click the *download* button (button **(7)** of Plate table) at the bottom-right of the plate list page:

Before downloading consider:

- The columns to include into the **`.csv`** file. Using the columns configurator (button **(8)** of Plate table) you can select which columns to be included. (for additional details, review How to configure your personal view)
- The number of plates in your current search (area **(10)** of Plate table), in this example nearly **`15,300`**. Keep this to a reasonable number by using more Search Filters to avoid a massive download that could lock your system up.

Two files are downloaded: a **.csv** file containing a list of plates from the search results and a corresponding **.zip** file containing all of the images of the vehicles. The files appear at the bottom of the screen and are downloaded to your Windows download directory.

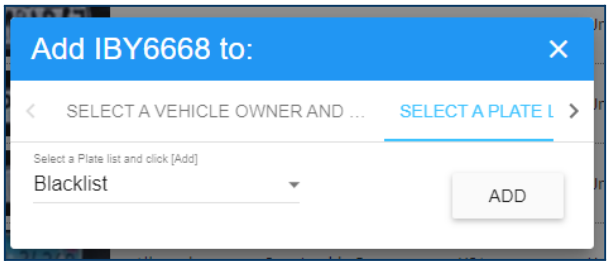
The Downloaded file is a CSV format file (with **;** as a separator). It includes a header and selected columns from this list:

Field	Type	Example
id	Integer	1
cameraId	Integer	1
zoneId	Integer	1
cameraName	String	"Camera #1"
latitude	Float	12.1234
longitude	Float	12.1234
plateNumber	String	"M4616WZ"
originalPlateNumber	String	"M4616WZ"
country	String	"ESP"
originalCountry	String	"ESP"
takenOn	DateTime as String	"2017-12-19T11:38:33.12Z"
status	Status	OK, Pending, Confirmed, Canceled, Exported, Prescribed, NoAuth, SanctionPending, NoAuthExceed, Ignored
direction	VehicleDirection	Unknown, GettingCloser, GettingFarther, Stopped
speed	Integer	0
confidence	Integer	89
envImageIds	List of Integer	[12300, 12302, 12303]
ocrImageId	Integer	12301
signaled	Boolean	false
avgDigitsHeight	Integer	16
multiplateRate	Integer	2
processingTimeOCR	Float	72.817330121994019
capturerId	Integer	1
capturerType	String	

isAlarm	Boolean	`false`
kamikazeAlarm	Boolean	`false`
timeInZoneAlarm	Boolean	`false`
blacklistAlarm	Boolean	`true`
alarmListIds	List of Integer	`[ 20, 21 ]`
speedAlarm	Boolean	`false`
prowlingAlarm	Boolean	`false`
vehicleMaker	String	`“BMW”`
vehicleModel	String	`“M5”`
vehicleColor	String	`“UNKNOWN”`
crosstime	Float	`0`
hasExit	Boolean	false
signalId	String	`1`
authorized	Boolean	false
category	String	
vehicleClass	String	
region	Sting	

Add to

If you are working with Authorizations and/or Lists, you can associate the current Plate to an owner (see PEOPLE tab) or to add to a List (see LIST: Black an White Lists), simply click on the action Add to of the context menu (see (**5**) of Plate List items table). Then, the following popup window will appear:



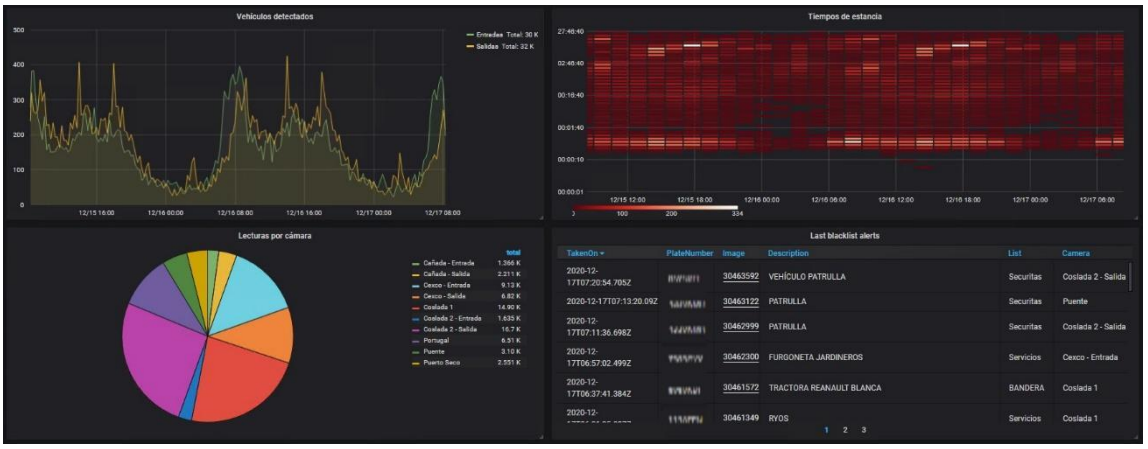
For additional information, review Add to tab.

DASHBOARD: Grafana Plugin

Helix includes a version of Grafana which is an open source analytics and monitoring solution for databases. This allows you to query, visualise and alert on your site metrics.

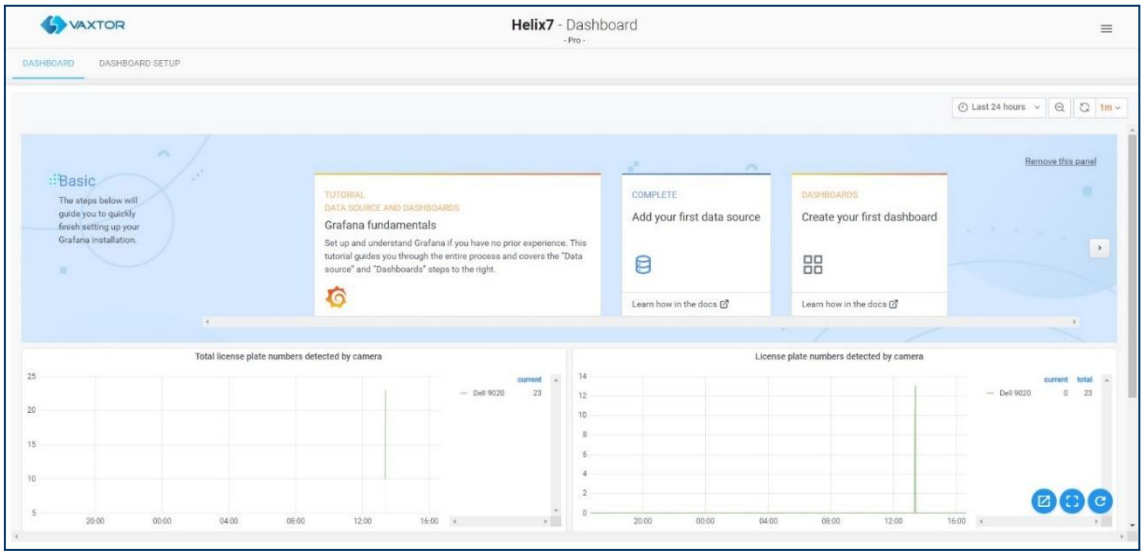
It works with the plate reads data stored within Helix to provide tailored reports of traffic volume and area capacities including maps of plates read if they have accompanying GPS data.

Note that Grafana is a third-party open source product and as such we are not able to offer support for its functionality. See www.grafana.com for details and full documentation. There are some very good third-party YouTube videos on its usage.

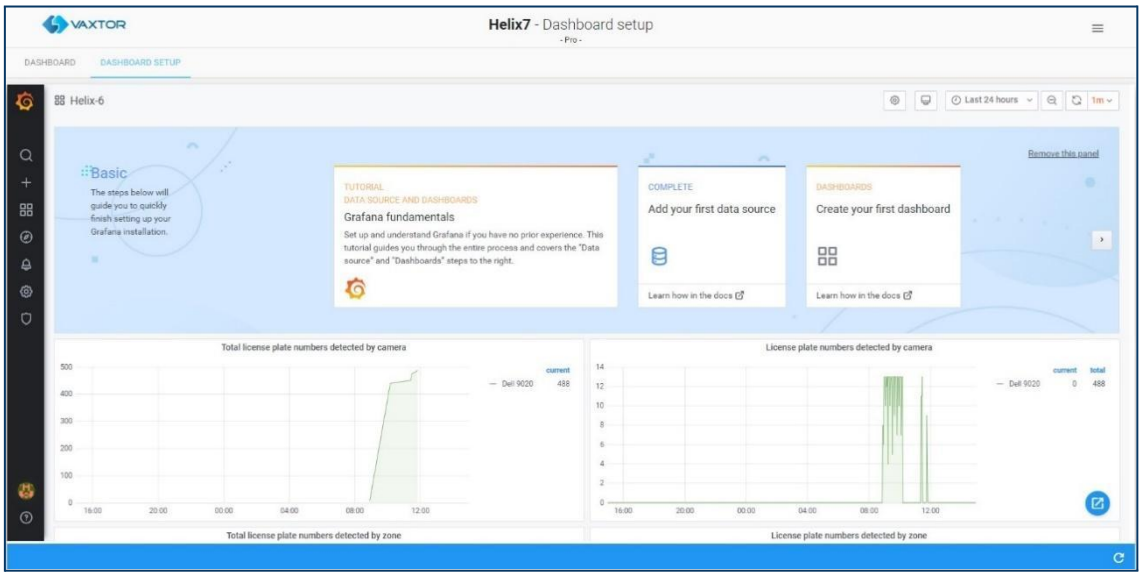


Vaxtor does offer a paid-for service where we will build custom dashboards for you if you are unable to do this yourself. Contact Vaxtor for more information.

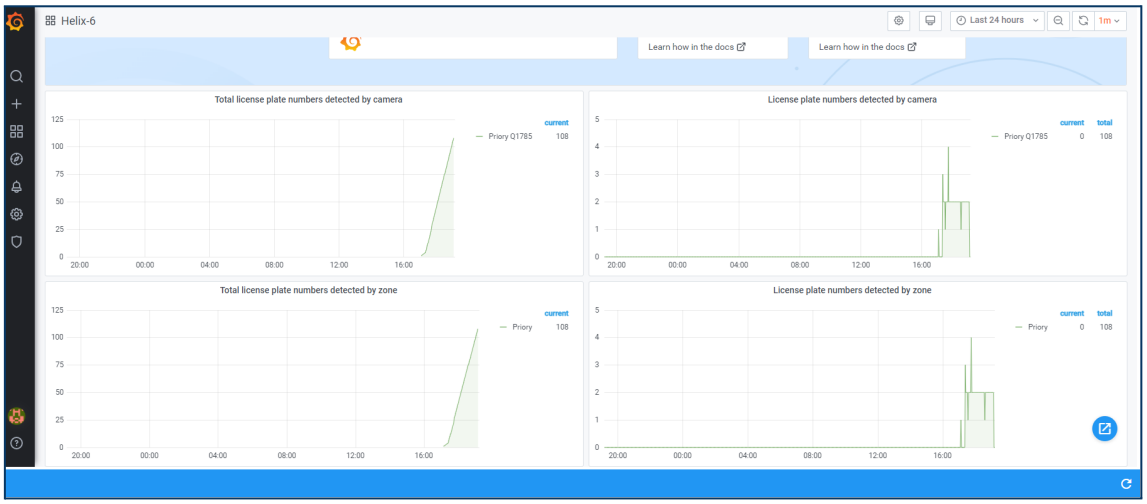
Selecting DASHBOARD causes the main menu to be displayed:



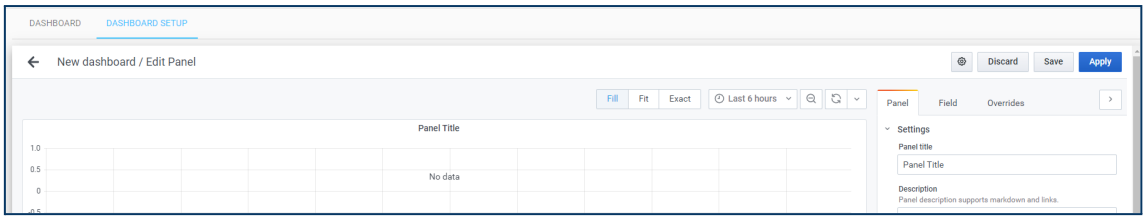
Click on **DASHBOARD SETUP** to start connecting your data.



A default dashboard will be loaded with four simple graphs from your connected ALPR cameras.



Click on the **[+]** in the left hand column to create a new folder if required, to save your dashboards into.
Next create a dashboard and add a new panel. The new blank panel will appear:



LISTS: Black and White Lists

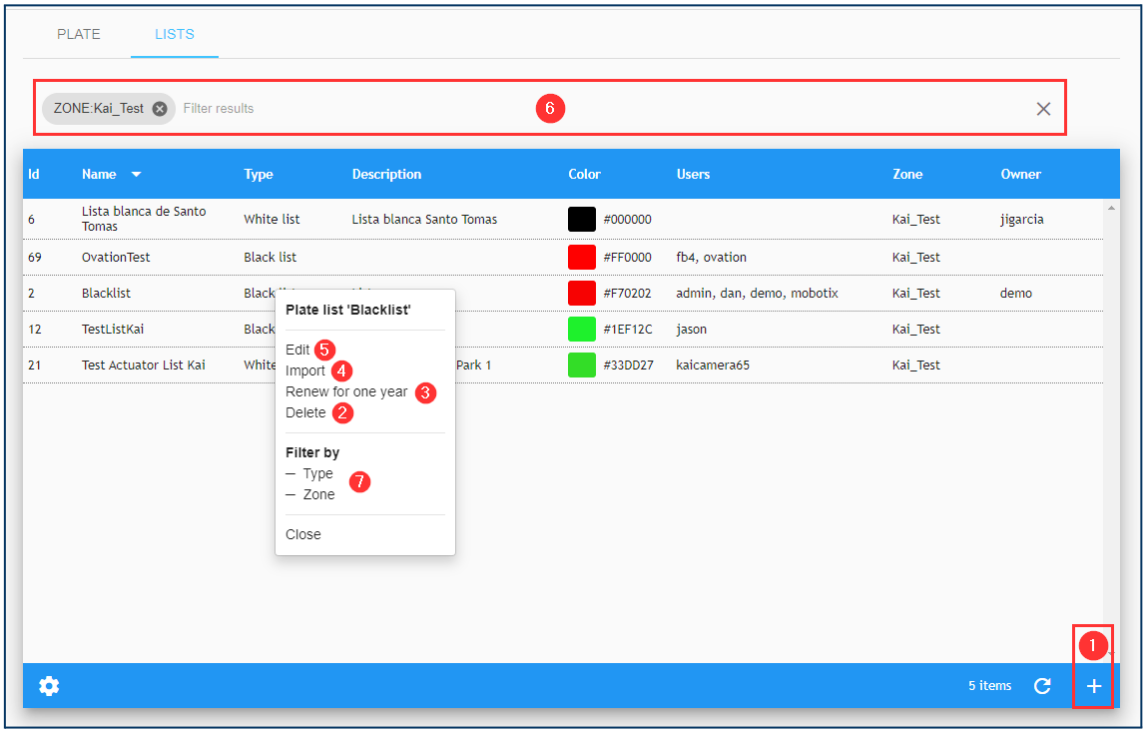
Selecting LISTS from the Main dropdown Menu allows the user to create multiple whitelists or blacklists. Vehicles (plates) that appear on a whitelist are **always** authorised to enter an associated zone and can trigger an Actuator (relay). Vehicles on a blacklist will create an alarm in the system if the plate is detected in an associated zone. When a zone is a parent of another zone, the lists are always inherited.

Note that when setting up Actuator Links (see later), you can select the Event Type which includes Authorised and Blacklist. A vehicle in a Blacklist can therefore trigger a relay (e.g. to sound an audible alarm).. A Whitelist plate is always authorised and so you should select "Authorised" to trigger the actuator in this case.

Plate Lists tab

Plate Lists table

This area shows all lists created. You can add, edit or delete any of them.



In the main window of this menu you can see the name of the list, the type of list, description, a colour marker code of the list, the user and zone associated with it and also the owner.

There are toolbar icons to import the list from a file, to renew the from-to dates of the list and finally an icon to delete the list (see below for more details).

Note that the Columns displayed can be configured by pressing the Settings icon (bottom left)

Search Filters

Helix-Server includes a fast way to search a List by adding search criteria as a text string (see **(6)** of the Lists table). To enable this, a Filter to the Results can be added or removed. You can also use the **Filter by** option in the context menu (see **(7)** of the Lists table). Search filter syntax is: **`Token:FilterValue`**, where:

Token	filterKey	filterValue
ID	id	List `ID`
NAME	name	List `name`
TYPE	type	`blacklist` | `whitelist`
DESCRIPTION DESC	description	Description
ZONE	zone	Zone `ID` or list `name`

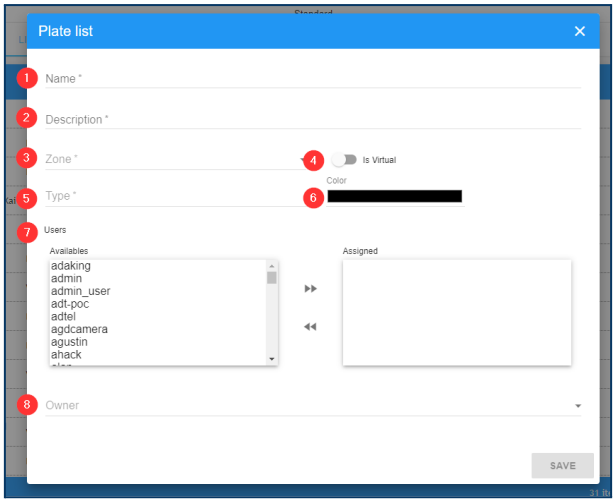
Notes:

1. To clear the search criteria use button **`[X]`** located at right of the filter bar.
2. The ZONE filter must include an exact value (`ID` or list `name`) because it is a relation, not a List attribute.

Add a new list

At the bottom right of the screen there is a **`[+]`** button (see **(1)** of Lists table) to add a new list to the system.

This opens a pop-up window with various options listed below:



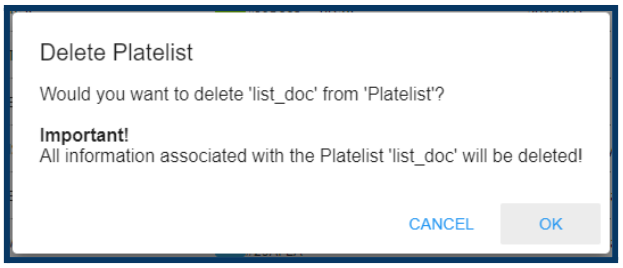
Description:

- **Name** **(1)**
  Insert a name for the list.
- **Description** **(2)**
  Insert a description of the list.
- **Zone** **(3)**
  Insert the zone associated with the list.
- **Is Virtual** **(3)**
  This kind of list will just be stored in memory, not into the database. If the application is stopped, this list will be removed from memory.
- **Type** **(5)**
  Set the list to be a blacklist or whitelist.
- **Colour** **(6)**
  Choose a reference colour for the new list. Once clicked, you will see a colour palette where you can select a colour using the cursor. The field will automatically display the associated RGB hexadecimal colour code.
- **Users** **(7)**
  Defines the user who will receive events linked to the list.
- **Owner** **(8)** This field is automatically filled with the user who created the list.

Delete a list

To delete a list, simply click on the action **Delete** in the contextual menu (see (**2**) of Lists table).

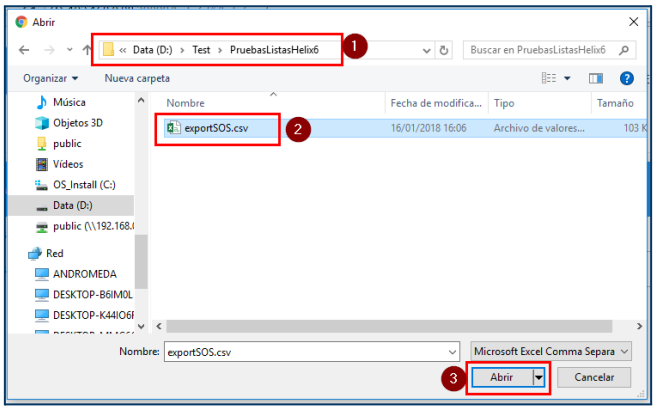
Once this button is pressed, a confirmation window will appear asking you if you want to delete the list.



If you are sure, press the "OK" button and the list will then be deleted, otherwise Cancel.

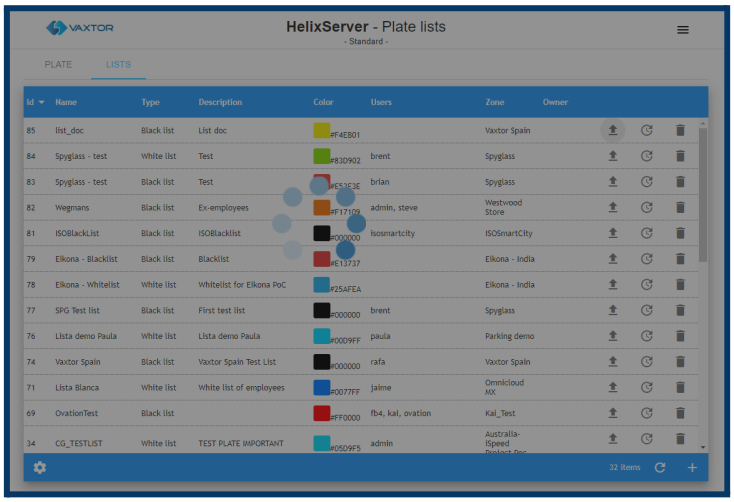
Import a Plate List from a CSV file

To import a plate list from a CSV file, simply click the action **Import** in the contextual menu (see (**4**) of Lists table). A selection file window is opened:

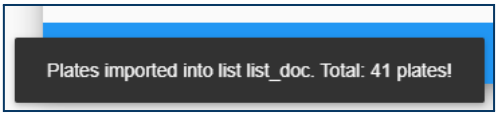


Description
- Select folder (**1**)
- Select file (**2**)
- Open file (**3**)

Select a *folder and file* and click *Open*. File opening times will vary depending on the size of the files.



Finally, a Toast message (one that will automatically disappear) is displayed (at the bottom left corner of the window) showing how many Plates have been imported:



Note: You can then review the imported data in the List list items screen (see next section).

The CSV file format is defined as follows:

Field	Type	Example
plate *	String	"0933BFF"
activefrom *	DateTime as String	"2017-01-01T00:00:00.00Z"
activeuntil *	DateTime as String	"2017-12-31T23:59:59.00Z"
Comments *	String	"Comments"
Description *	String	"Description"
Hitcount	Integer($int32)	5
lastDetection	DateTime as String	"2017-12-19T11:38:33.12Z"

(*) *Required*

So, for example, a file might contain the following data:

```
plate;activefrom;activeuntil;comments;description
ABC123;2019-01-01T00:00:00.00Z;2020-01-01T00:00:00.00Z;Comment 1;description 1
XYZ234;2019-01-01T00:00:00.00Z;2020-01-01T00:00:00.00Z;Comment 2;description 1
LAW345;2019-01-01T00:00:00.00Z;2020-01-01T00:00:00.00Z;Comment 3;description 1
```

Important!

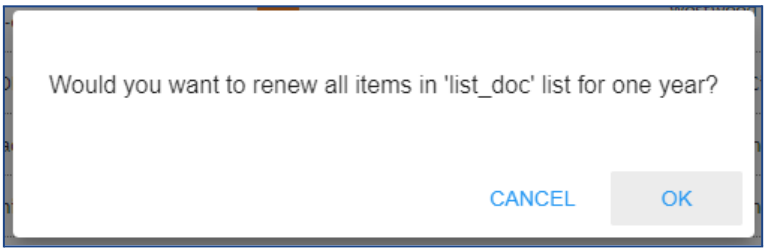
- The CSV file must include a header with column names.

- The CSV file uses a semicolon (;) as a column field separator.
- The CSV header must include **plate**, **activefrom, activeuntil, Comments** and **Description** columns.
- **DateTime** fields are UTC time in ISO-8601 format - encapsulated in the String format: "`YYYY-MM-DDTHH:MI:SS.SSZ`" with HH in 24h format.

Note: Fields **hitCount** and **lastDetection** help when exporting or importing lists from different Helix-Server installations.

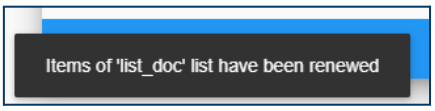
Renew the List

To renew the list for one year, click the action **Renew for one year** in the contextual menu (see (**3**) of Lists table). Then, this pop-up windows is opened:



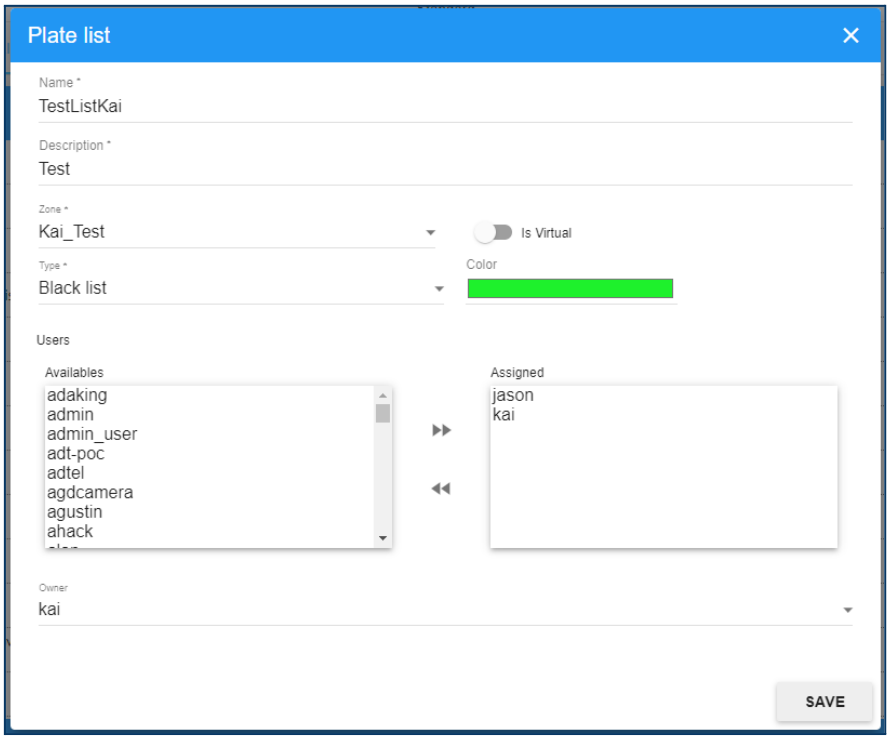
If you are sure, press the `[OK]` button and the list will then be renewed, otherwise Cancel.

Finally, a Toast message is displayed (at the bottom left corner of the window) showing the renewing confirmation:



Edit a list item

To edit a list, simply click the action **Edit** in the contextual menu it (see (**5**) of Lists table), this pop-up window is opened:

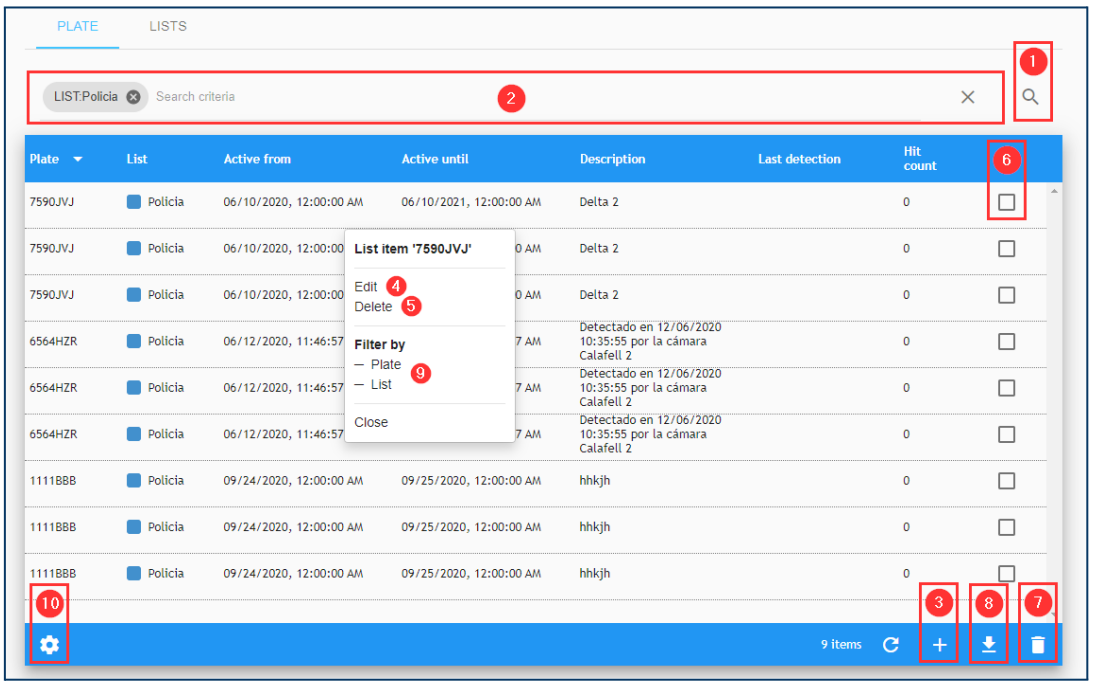


Note: For more details, review the previous section Add a new list.

Plate List items tab

In LISTS, PLATES, you are able to see all of the individual plates and their associated lists that have been setup.

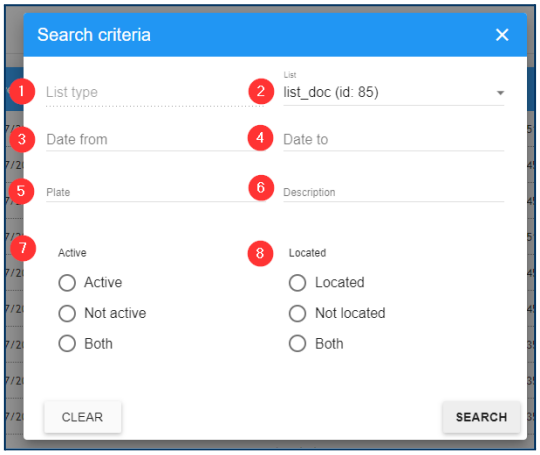
You can see each list's details, when it was added and its validity period, the vehicle plate, how many times it has been detected in the validity period, the last sighting, the description of the list and also a small trash can icon to delete individual plates.



Search Plate list items

Search criteria

In the upper right corner of the table there is a small magnifying glass icon (**1**). If you click on it a popup window will appear where you can select from the following search filters:



- **Active** (7)
  Show only the plates that are active, inactive or both at this moment.

Description:

- **List type** (1)
  This option limits the search to the selected list type: **Blacklist** or **Whitelist**
- **List** (2)
  the results by list or multiple lists.
- **Date from** (3)
  Shows only the plates detected since the selected date.
- **Date until** (4)
  Shows only the plates detected up until the selected date.
- **Plates** (5)
  The plate number of a specific vehicle. *
- **Description** (6)
  Filter by the description. *
- **Located** (8)
  Show plates that have been detected at least once, never detected or both.

* Wildcards are allowed.

Search filter

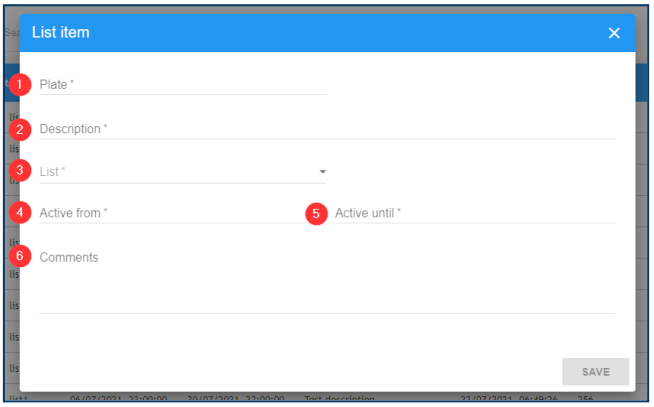
Helix-Server includes a fast way to search a List by adding search criteria as a text string (see (2) of Plate List items table). To enable this, includes a Search Filter where Search Filters can be added or removed, also you can use the **Filter by** option in the context menu (see (9) of Plate List items table). The Search filter syntax is: **`Token:FilterValue`**, where:

Token	filterKey	filterValue
LISTIDS LIST	listIds	List ID or List name, separated with comma (,)
TYPE	type	`blacklist` or `whitelist`
ACTIVE	active	`true` or `false`
PLATE	plate	p.e. `M4616WZ`
LOCATED	located	`true` or `false`
DATEFROM FROM	dateFrom	DateTime format `dd/MM/yyyy hh:mm:ss`, example: `08/01/2018 10:22:29`
DATETO TO	dateTo	DateTime format `dd/MM/yyyy hh:mm:ss`, example: `08/01/2018 10:22:29`
DESCRIPTION DESC	description	Description

Note: To clear the search criteria use button **`[X]`** located at right of the filter bar.

Add a licence plate to a list

Click on the **`[+]`** symbol located at the bottom right corner of the screen (see (3) of Plate List items table).



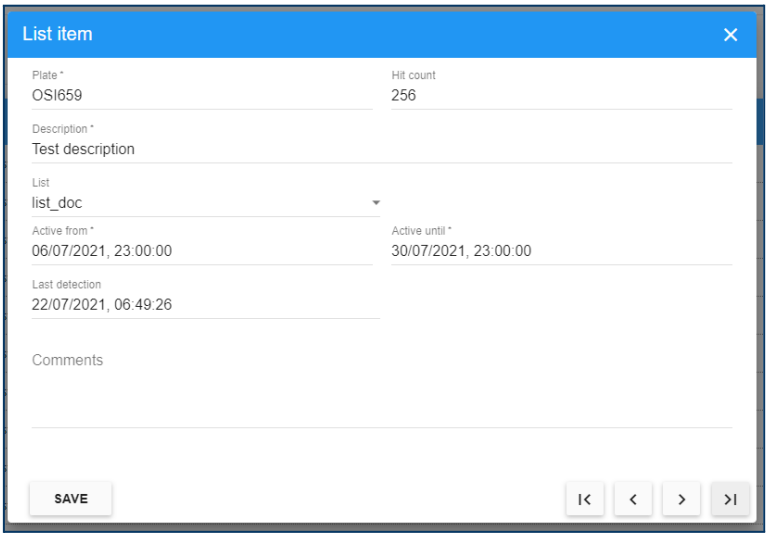
Description:

- **Plate** (1)
  The licence plate to add to the list.
- **Description** (2)
  Add a description in this field.
- **List** (3)
  Select a list to add the plate to.
- **Active from** (4)
  Starting date of the plate in the list. (validity period)
- **Active until** (5)
  Finish date of the plate in the list.
- **Comments** (6)
  Freeform text comment to be associated with the plate.

All fields in this pop-up menu marked with an asterisk are required. To add a record, press the [Save] button. The window will close automatically and the record will be added.

Edit Plate list item

To edit a list, simply click on the action **Edit** of the context menu (see (4) of Plate List items table), this pop-up window is opened:



Note: For more details, review the previous section Add a licence plate to a list.

Delete a Plate list item

To delete Plate list items, the action **Delete** of the context menu or use the multiple delete option, selecting the associated checkbox (see **(5)** of Plate List items table).

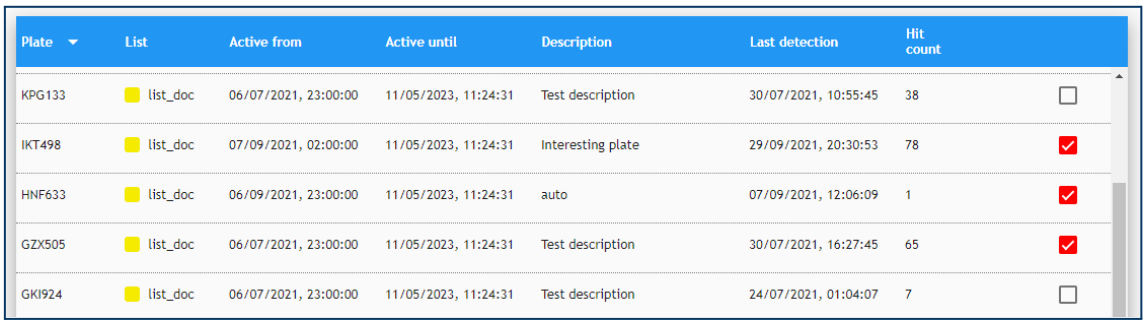
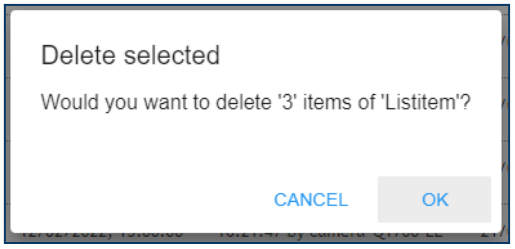


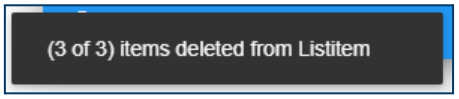
Plate	List	Active from	Active until	Description	Last detection	Hit count	
KPG133	list_doc	06/07/2021, 23:00:00	11/05/2023, 11:24:31	Test description	30/07/2021, 10:55:45	38	☐
IKT498	list_doc	07/09/2021, 02:00:00	11/05/2023, 11:24:31	Interesting plate	29/09/2021, 20:30:53	78	☑
HNF633	list_doc	06/09/2021, 23:00:00	11/05/2023, 11:24:31	auto	07/09/2021, 12:06:09	1	☑
GZX505	list_doc	06/07/2021, 23:00:00	11/05/2023, 11:24:31	Test description	30/07/2021, 16:27:45	65	☑
GKI924	list_doc	06/07/2021, 23:00:00	11/05/2023, 11:24:31	Test description	24/07/2021, 01:04:07	7	☐

Once the checkbox or checkboxes are selected, press the delete button (see **(6)** of Plate List items table), and a confirmation window will appear asking you if you want to delete the list items:



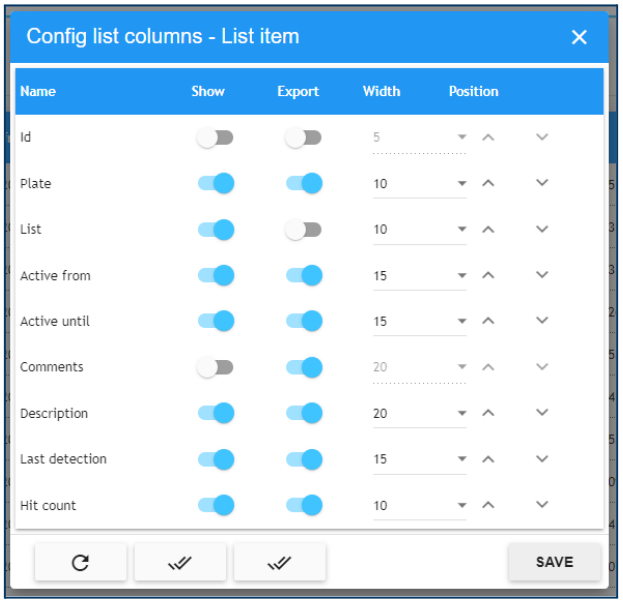
If you are sure, press the `[OK]` button and the list will then be deleted, otherwise Cancel.

Finally, a Toast message is displayed (at bottom left corner of the window) showing the deleting confirmation:



Export all Plates in Lists

To export all of the plates, first choose which fields are to be exported by pressing the Settings icon (see **(10)** of Plate List items table). You will see a list of available fields and as we have already seen, we can select which should be displayed on the screen, – but we can also use the 'Export' slider to add them to the **.csv** output file (for more details, see How to configure your personal view).



Select the CSV File Download icon (see **(3)** of Plate List items table) to start the export.

Note: For more details about available columns to download, review the previous section Export all Plates in Lists.

The exporter tool will use the active search filters, in order to download just the required list items.

The exported file, named **exportListitem.csv**, will be saved to the standard Download folder – and is shown at the bottom of your screen.

Opening as flat text shows the file:

```
Plate;ActiveFrom;ActiveUntil;Comments;Description;HitCount;LastDetection
YVY480;2021-07-06T21:00:00.000+00:00;2022-07-30T21:00:00.000+00:00;this is where we
would put more information about this plate.;Test
description;388;2022-05-10T07:10:51.946+00:00
YKE862;2021-07-06T21:00:00.000+00:00;2021-07-30T21:00:00.000+00:00;;Test
description;4;2021-07-27T17:37:35.847+00:00
OYT729;2021-07-06T21:00:00.000+00:00;2021-07-30T21:00:00.000+00:00;Unpaid parking
ticket.;Test description;30;2021-07-30T09:50:31.810+00:00
...
```

ACTUATORS

ACTUATORS tab

Introduction

An actuator, otherwise known as a relay, is normally an opto-isolated device used for triggering external devices such as car park barriers or traffic lights.

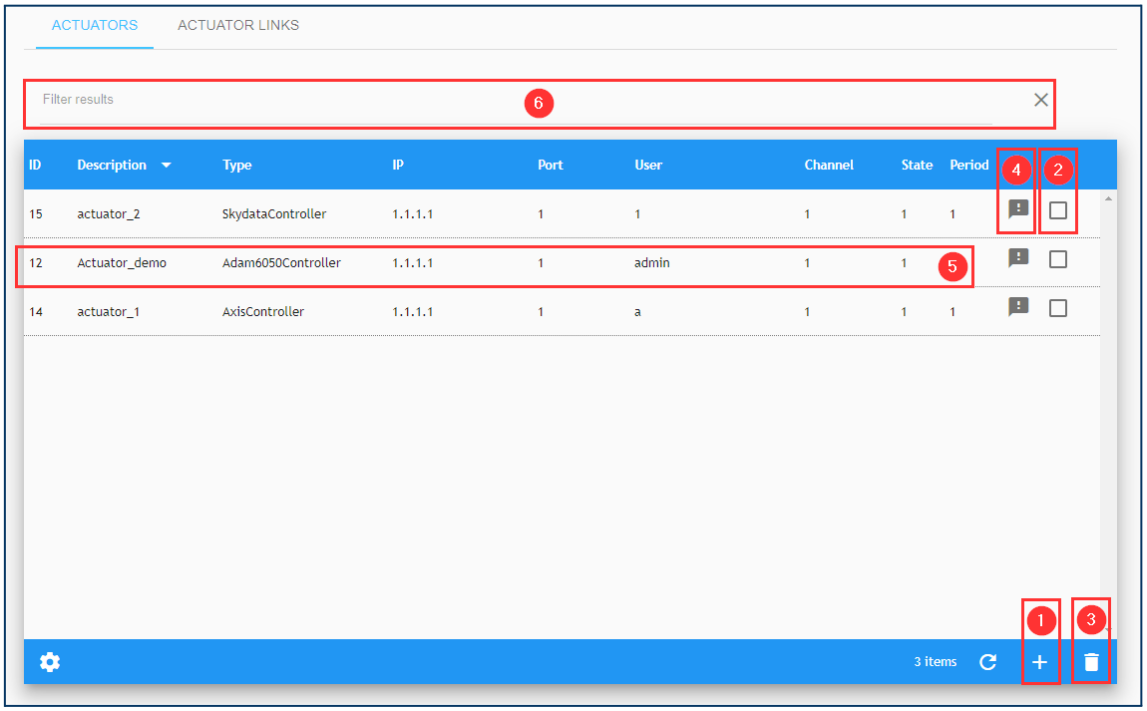
Helix can be configured to trigger an actuator on various conditions such as a plate being in a Blacklist, – or a plate being authorized (see later).

Note that when setting up Actuator Links (see later) you can select the Event Type which includes Authorised and Blacklist. A vehicle in a Blacklist can therefore trigger a relay. A Whitelist plate is always authorized and so you should select "Authorised" to trigger the actuator in this case.

Various standard devices are supported but the most common is the ADAM 6000 series from Advantech. The 6266 model for example is IP controlled and has four separate output channels meaning that four devices can be controlled from each unit. The advantage of an IP relay device is that it can be sited remotely from Helix-Server. It could even be in a different City and a centralised Helix-Server Back Office is then able to remotely open barriers.

(Note that if the device is not on the same local network then a fixed IP should be used to remotely address it).

Actuators table



Before attempting to add an actuator to the system, check by using the relay manufacturer's software that it is connected and functioning correctly.

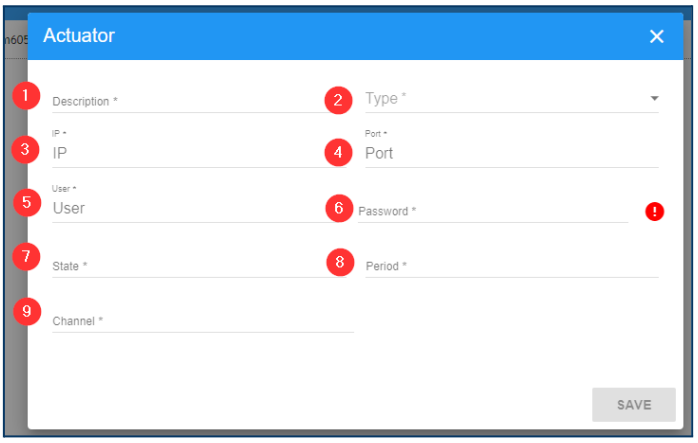
Filter Actuators

The Filter result area (see **(4)** of the Actuators table) allows you to filter the current listed Actuators. To enable this, a Filter to the Results can be added or removed. In addition you can use the **Filter by** option in the context menu (see **(8)** of the Actuators table). The filter syntax is: **`Token:FilterValue`** where:

Token	filterKey	filterValue
ID	id	List `ID`
DESC **DESCRIPTION**	description	Actuator `description`
TYPE	type	Based on `/actuator/validtypes`

Add a new Actuator

Click **Edit** **(1)** of the context menu of the Actuators table, to add a new actuator. A window will appear where you can set up the device.



Description:

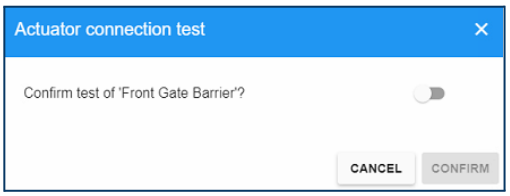
- Enter a descriptive name **(1)** for the device being controlled
- Select the type of device **(2)** from the dropdown list of supported actuators.
- IP address **(3)**
- Port number **(4)**
- Username **(5)** *
- Password **(6)** *
- State **(7)**: 0 or 1, this is what you want the device to be switched to
- Period **(7)**: in Milliseconds is the relay latch time. (the time that the relay is closed for). In the case of the Adam relay you can set this time directly by accessing the relay via its IP address or utility software. Most barriers operate on a minimum pulse time of 200ms
- Channel **(8)**: is the relay number within the device. In the case of the 6266 it can be set from 1 to 4 to trigger each relay within the device..

(*) Username and Password to access the device. The default Adam password is: 00000000

Test Actuator

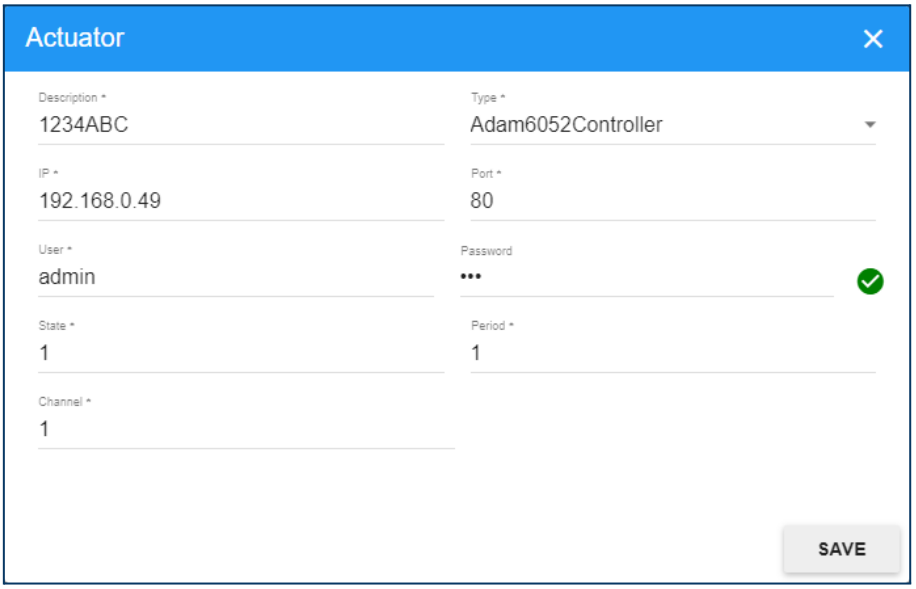
Once added you can test the relay by clicking **Actuator connection text** (6) of the context menu of the Actuators table.

A window appears asking you to confirm the test. Use the slider and then click CONFIRM. A success or failure message is then displayed.



Edit an Actuator

To edit an Actuator, simply click **Edit** (5) of the context menu of Actuators table, this pop-up window is opened:

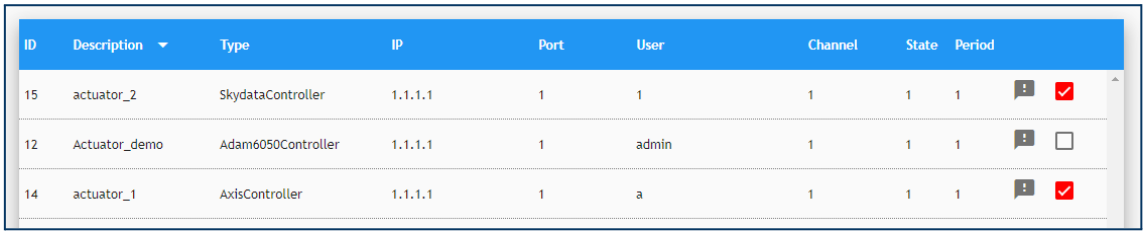


Note: For more details, review the previous section Add a new Actuator.

Delete an Actuator

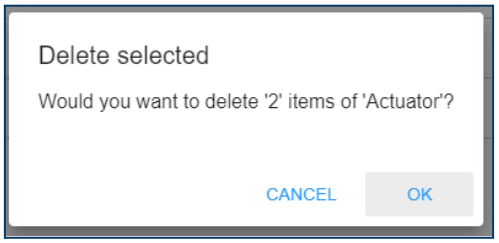
To delete an Actuator, click **Delete** (7) of the context menu of the Actuators table

Alternatively use the multiple delete selecting the actuator to delete, a confirmation window will appear asking you if you want to delete the actuator:



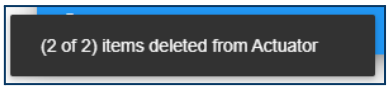
ID	Description	Type	IP	Port	User	Channel	State	Period	
15	actuator_2	SkydataController	1.1.1.1	1	1	1	1	1	
12	Actuator_demo	Adam6050Controller	1.1.1.1	1	admin	1	1	1	
14	actuator_1	AxisController	1.1.1.1	1	a	1	1	1	

And click the (3) button of the Actuators table. Then a confirmation window is opened:



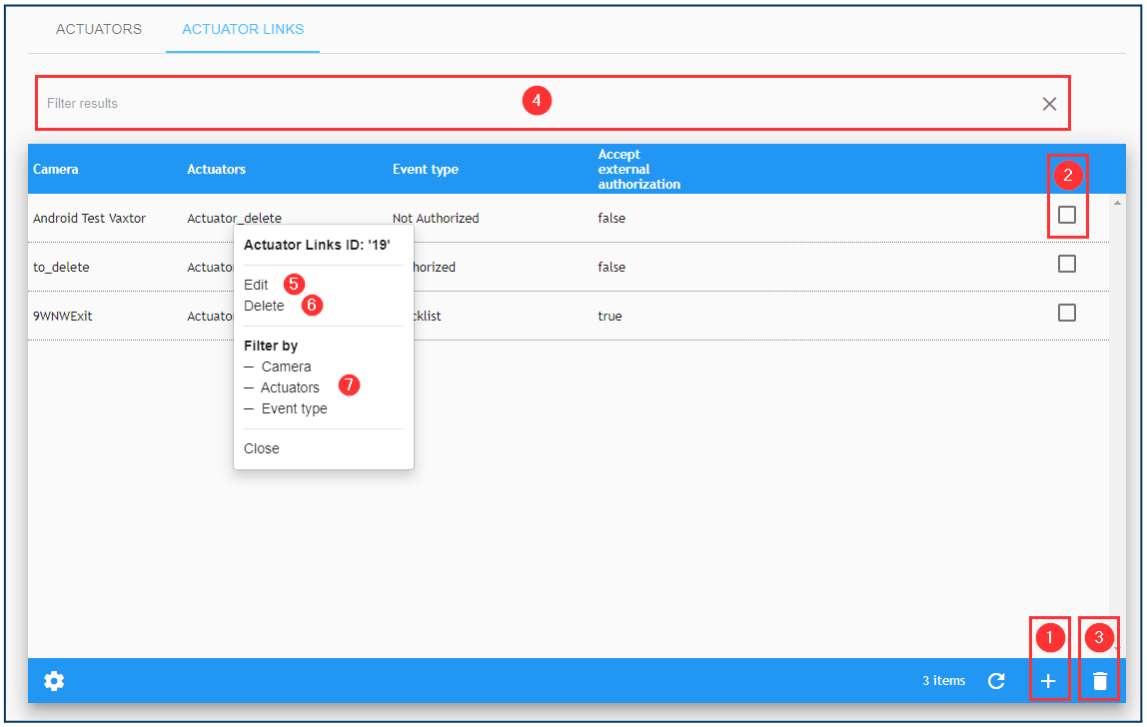
If you are sure, press the [OK] button and the Actuator will then be deleted, otherwise Cancel.

Finally, a Toast message is displayed (at bottom left corner of the window) showing the deleting confirmation:



ACTUATOR LINKS tab

Actuator links table



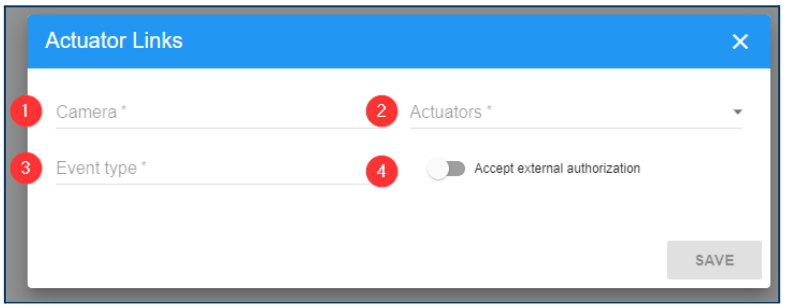
Filter Actuator links

The Filter result area (see **(4)** of the Actuator links table) allows users to filter current listed Actuator links. To enable this, a Filter to the Results can be added or removed, also you can use the **Filter by** option in the context menu (see **(7)** of the Actuators table). The filter syntax is: **`Token:FilterValue`** where:

Token	filterKey	filterValue
ID	`id`	Actuator link `id`
CAMERA	`camera`	Camera `id` or Camera `name`
ACTUATOR	`actuator`	Actuator `id` or Actuator `name`
EVENT **EVENTYPE**	`eventtype`	Event type

Add a new Actuator link

Click on the plus icon (see **(1)** of the Actuator links table), to add a new actuator link. A window will appear where you can set up the device.



Description

- **Camera (1)**: select from the configured Cameras (see Cameras)
- **Actuator (2)**: select from the configured Actuators (see Actuators)
- **Event type (3)** *
- **Accept an external authorization (4)**

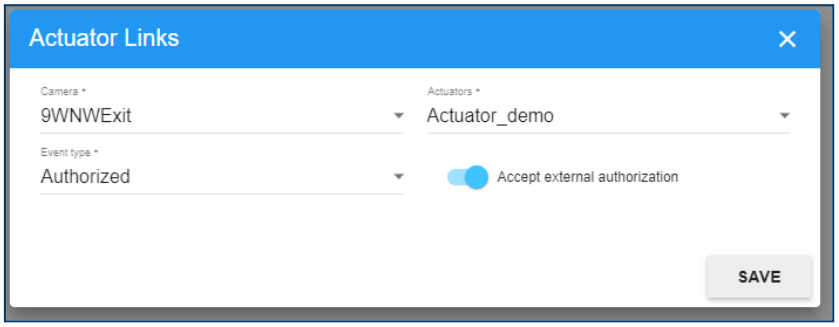
(*) Event type could be:

- Authorised
- Blacklist
- Not Authorised +
- Not Authorised - Capacity Exceed +
- Capacity is full +
- Capacity not full +

(+) if Access Control is licensed)

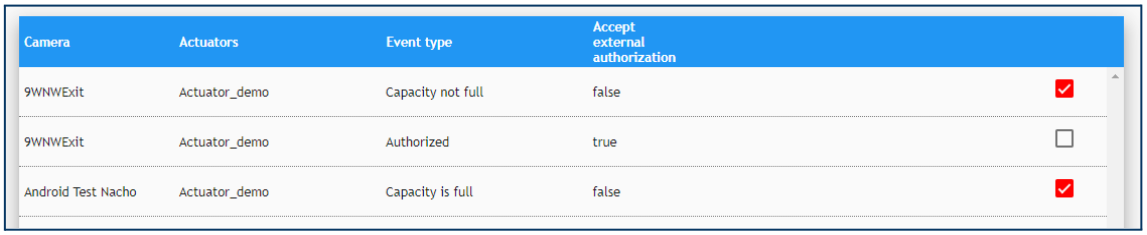
Edit an Actuator link

To edit an Actuator, simply click the action **Edit (5)** of the context menu of the Actuator links table.



Delete an Actuator link

To delete an Actuator, click the action **Delete** (2) of the context menu of Actuator links table or use the multiple Actuator links delete option.

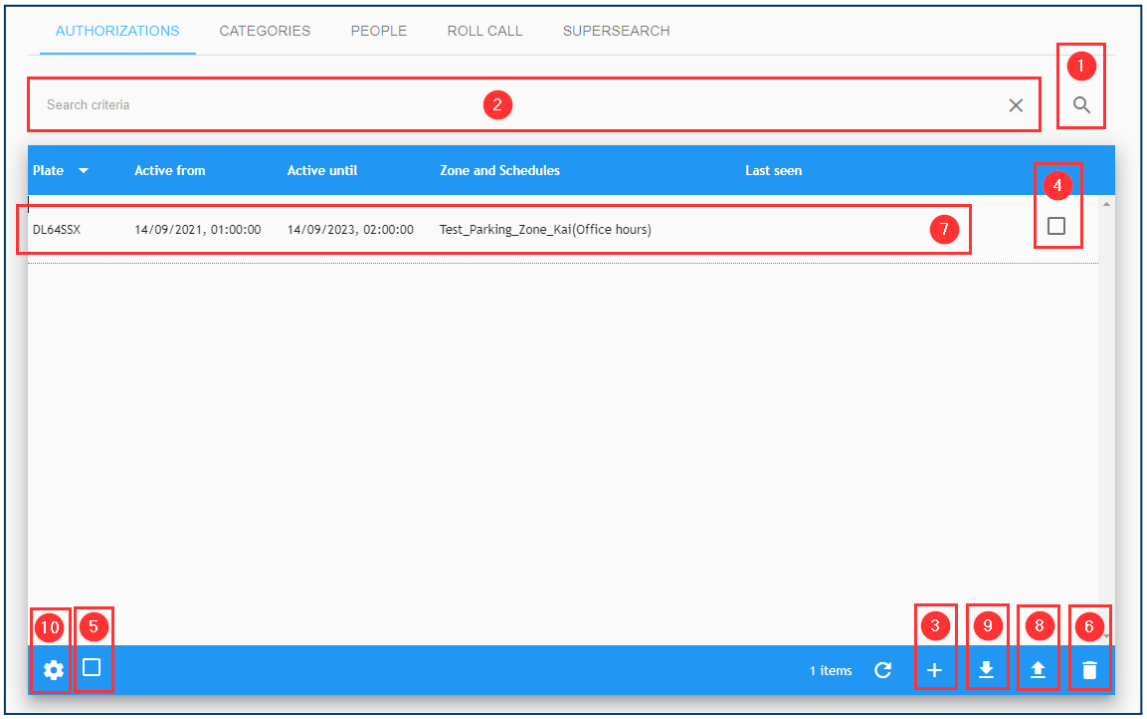


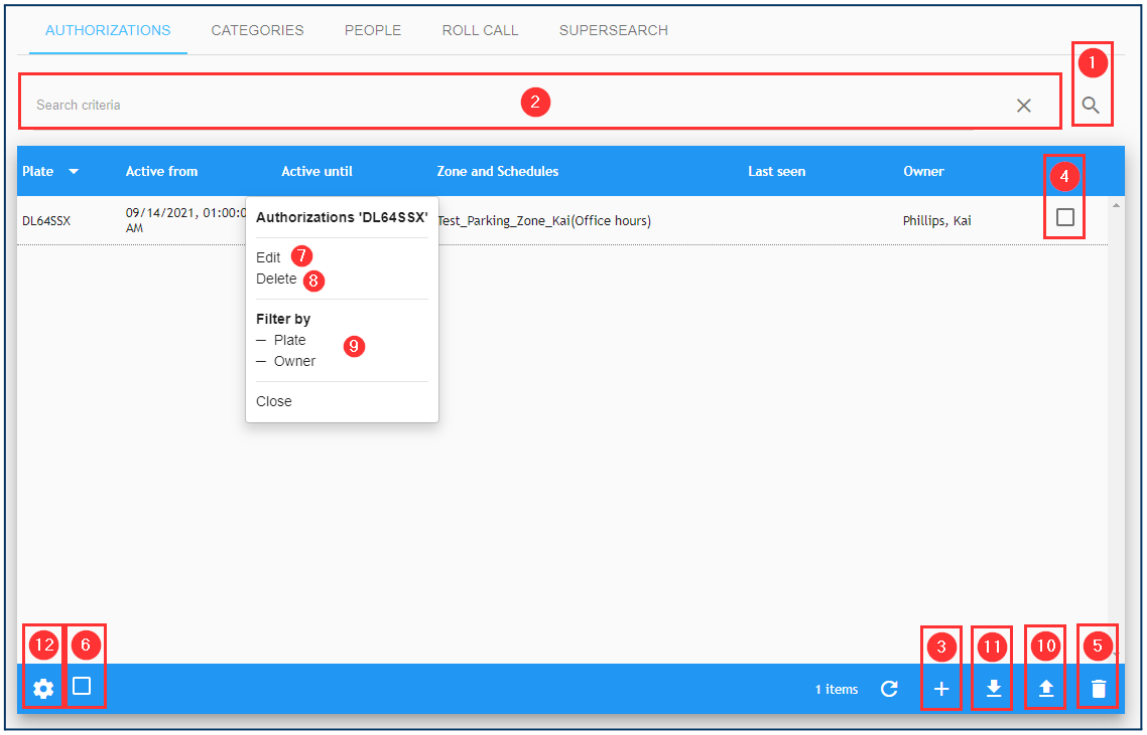
AUTHORIZATIONS

AUTHORIZATION tab

An authorized plate is one that can be allowed into a zone or past a fixed camera. This section allows the user to view, create, edit and delete the authorized plates in the system. The fields show the licence plate of the vehicle, its authorized date range, zone and enabled schedules.

Authorization table

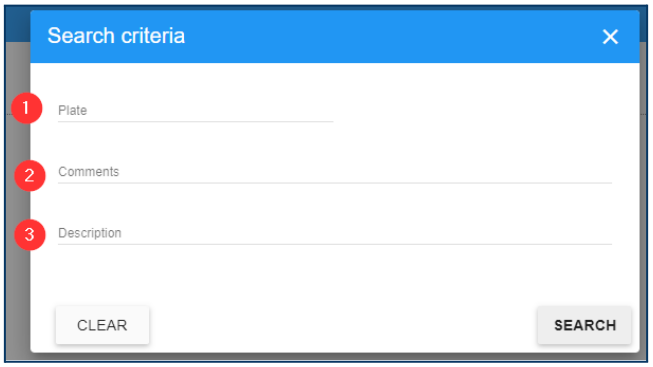




Search Authorizations

Search criteria

In the upper right corner of the table there is a small magnifying glass icon (see **(1)** of Authorization table). If you click on it a popup window will appear where you can select from the following search filters:



Description:

- **Plate** (1)
- **Comments** (2)
- **Description** (3)

Search Filters

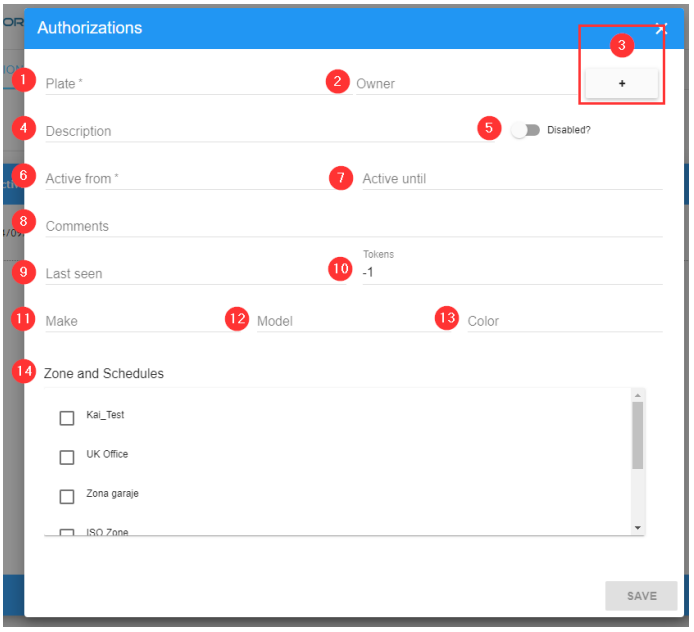
The fast way to search Authorizations is by adding search criteria as a text string (see **(2)** and **(9)** of the Authorization table). To enable this, includes a Search Filter where Search Filters can be added or removed. The Search filter syntax is: **`Token:FilterValue`**, where:

Token	filterKey	filterValue

PLATE	plate	p.e. `M4616WZ`
DESCRIPTION DES	description	Description
COMMENTS COMM	comments	Comments
PERSON OWNER PERSONID	personId	Person ID

Add a new plate authorization

To create a new authorization, press the add [+] button (see (3) of the Authorization table). A pop-up window will appear in which the following parameters must be entered:



Description:

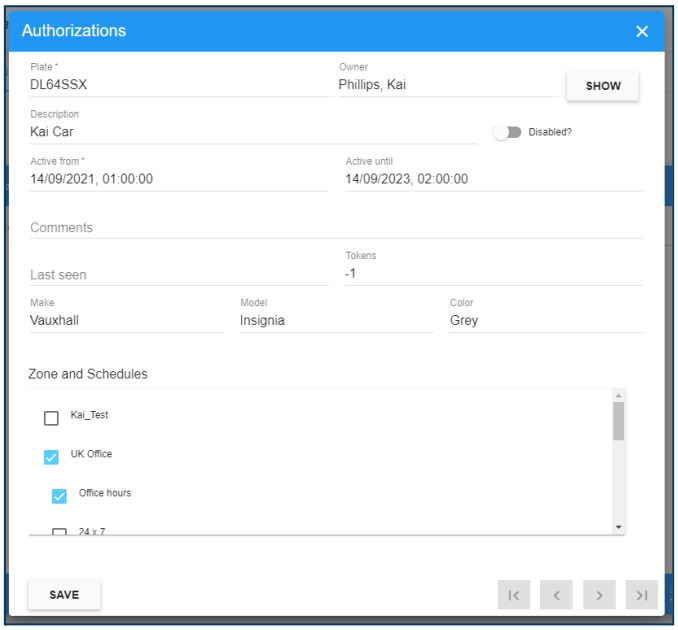
- **Plate** (1): Enter the registration number you want to authorise.
- **Owner**(2)
- **Description** (4)
- **Disabled** (5)
- **Active from** (6): Enter the starting date for the plate to be authorised.
- **Active until** (7): Enter the end date for the authorization period.
- **Comments** (8)
- **Last seen** (9)
- **Token** (10)
- **Make** (11)
- **Model** (12)
- **Color** (13)
- **Zones** and **Schedules** (14) *
- The button [+] (3) next to the Owner field allows to create on the fly a new person as owner of this licence plate. See the People section to get additional info.

(*) Select the zone for which the vehicle will be authorised, and if applicable, the timetable for the authorization.

- First level is **Zones** (e.g. *"UK Office"*)
- Second level is **Schedules** (e.g. *"Office hours"*)

Edit an Authorization

To edit an Authorization, simply click on the action **Edit** (7) of the context menu of the Authorization table.



Delete an Authorization

To delete an Authorization, click the action **Delete** (**8**) of the context menu the Authorization table or using multiple delete option, includes the checkbox (**5**) of Authorization table to select all Authorizations to delete.

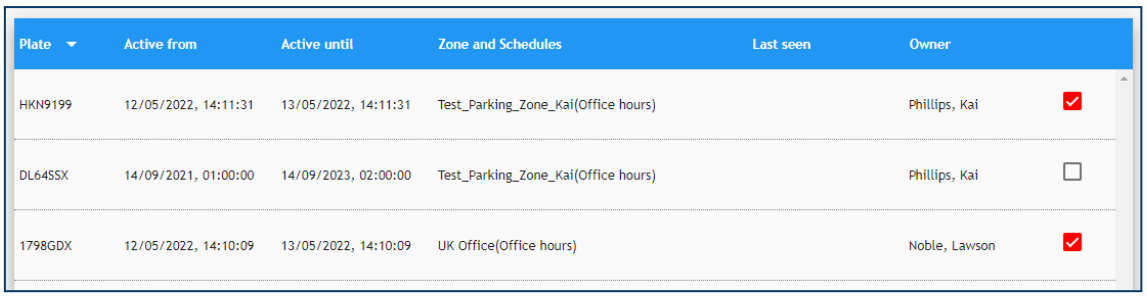


Plate	Active from	Active until	Zone and Schedules	Last seen	Owner	
HKN9199	12/05/2022, 14:11:31	13/05/2022, 14:11:31	Test_Parking_Zone_Kai(Office hours)		Phillips, Kai	☑
DL64SSX	14/09/2021, 01:00:00	14/09/2023, 02:00:00	Test_Parking_Zone_Kai(Office hours)		Phillips, Kai	☐
1798GDX	12/05/2022, 14:10:09	13/05/2022, 14:10:09	UK Office(Office hours)		Noble, Lawson	☑

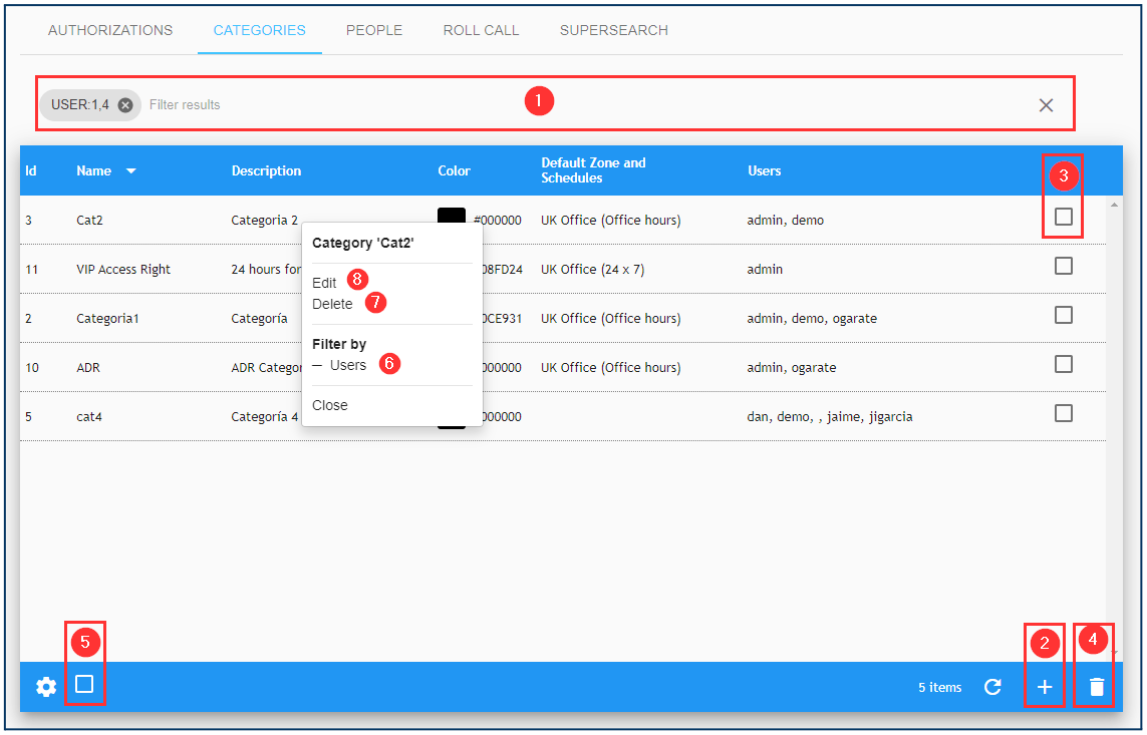
CATEGORIES tab

When you set up an authorization for an individual plate, you can add a description and specify what zones and at what times (schedules) that the plate will be authorised to enter.

Another way of doing this is to define a category where you can define default zones and schedules and also assign the category to a system user.

You can then set up People (e.g. drivers - see next section) and allocate a category to each person giving them access rights.

Categories table



Filter Categories

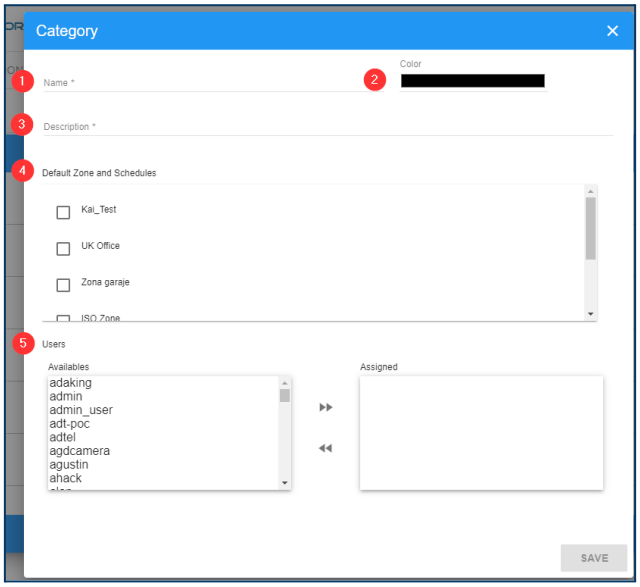
The Filter result area (see **(1)** of the Categories table) allows to filter current listed Categories. To enable this, a Filter to the Results can be added or removed, also you can use the **Filter by** option in the context menu (see **(6)** of the Actuators table). The filter syntax is: **`Token:FilterValue`** where:

Token	filterKey	filterValue
ID	id	Category `ID`
NAME	name	Category `name`
DESC **DESCRIPTION**	description	Category `description`
USER	userIds	User `id` or User `username`

Note: To clear the search criteria use button **`[X]`** located at right of the filter bar.

Add a new Category

To add a new Category, click the button **(2)** of the Categories table

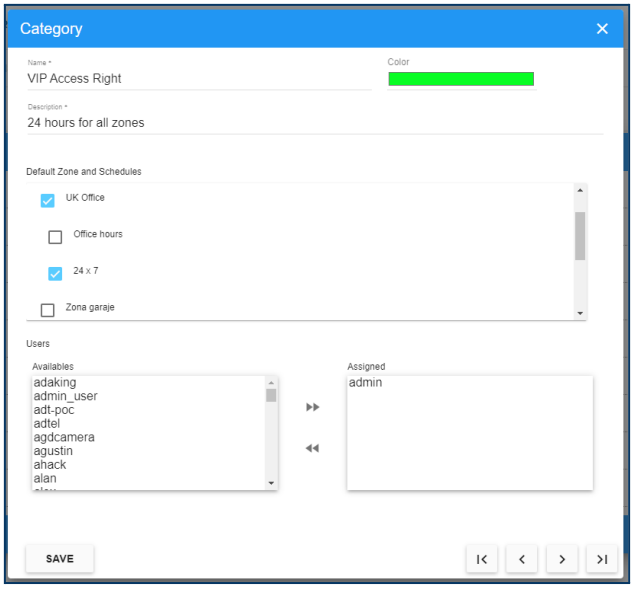


Description:

- **Name** (1)
- **Color** (2)
- **Description** (3)
- Default **Zone** and **Schedule** (4)
  See (**14**) of Add a new plate authorization
- **Users** (5)

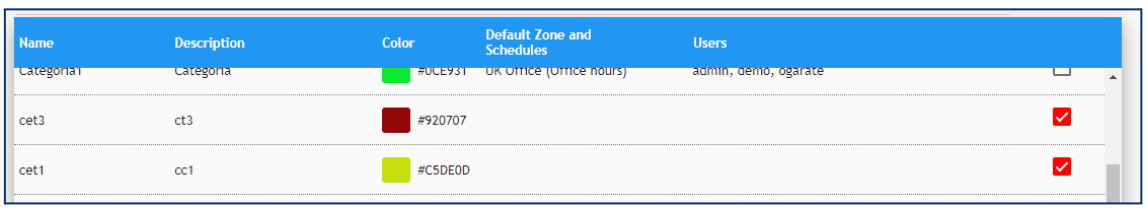
Edit a Category

To edit a Category, simply click to the action **Edit** (**8**) of the context menu of the Categories table.



Delete a Category

To delete a Category, simply click to the action **Delete** (**7**) of the context menu of the Categories table, or use the multiple Categories delete option.

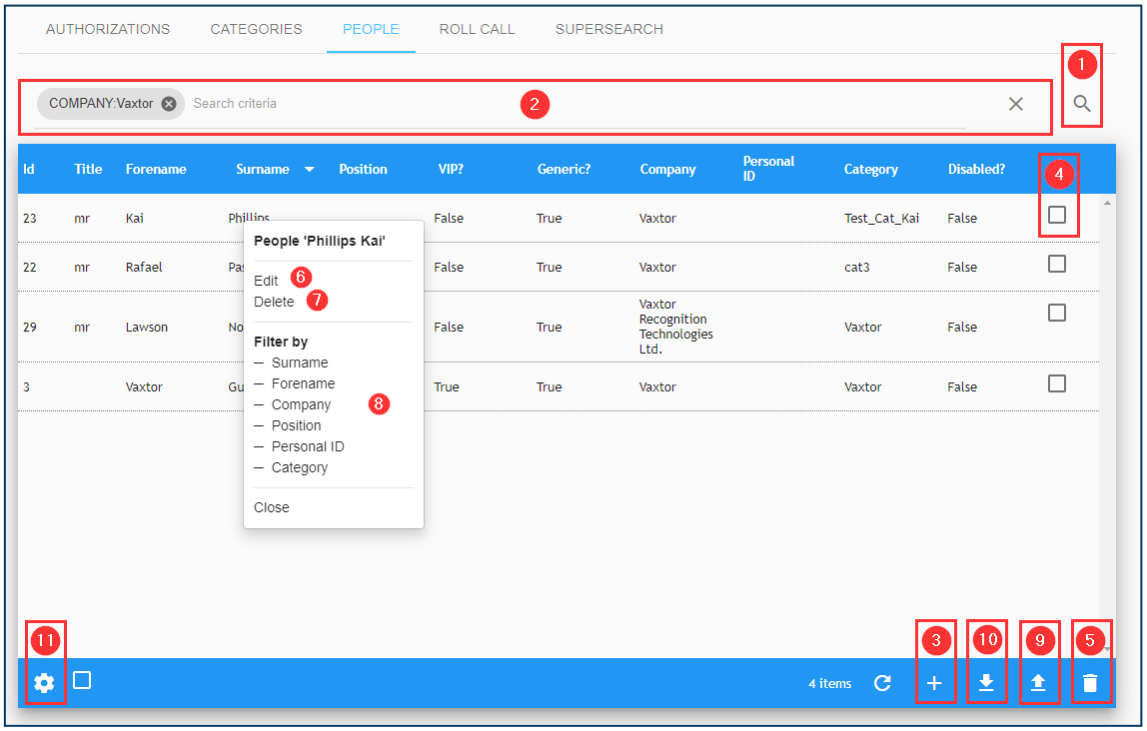


PEOPLE tab

'People' are essentially drivers or owners of vehicles and in this section you can add people to the database. Data can be entered against each person e.g. Name, Company etc. and there are several user-defined (empty) fi=elds that could be used for say a staff or badge number.

An authorization can then be added to each person so here you can enter a plate (i.e. their car(s) and any zones and schedules to give them access to various areas at various times.

People table



Filter People

The Filter result area (see **(2)** of the People table) allows users to filter current listed People. To enable this, a Filter to the Results can be added or removed, also you can use the **Filter by** option in the context menu (see **(8)** of the Actuators table). The filter syntax is: **`Token:FilterValue`** where:

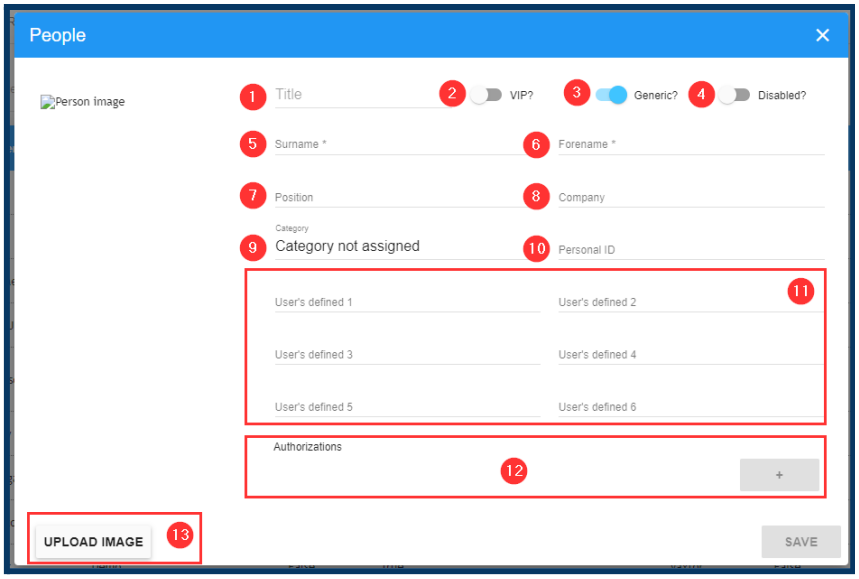
Token	filterKey	filterValue
SUR **SURNAME**	surname	Person `surname`
FORE **FORENAME**	forename	Person `forename`
COMPANY	company	Person company
PERSONAL **PERSONALID**	personalID	Person personal ID

POSITION	position	Person position
CATEGORY **CATEGORYID**	categoryId	Category `Id` or Category `name`

Note: To clear the search criteria use button `[X]` located at right of the filter bar.

Add a new Person

To add a new Person, click the button (**3**) of the People table.

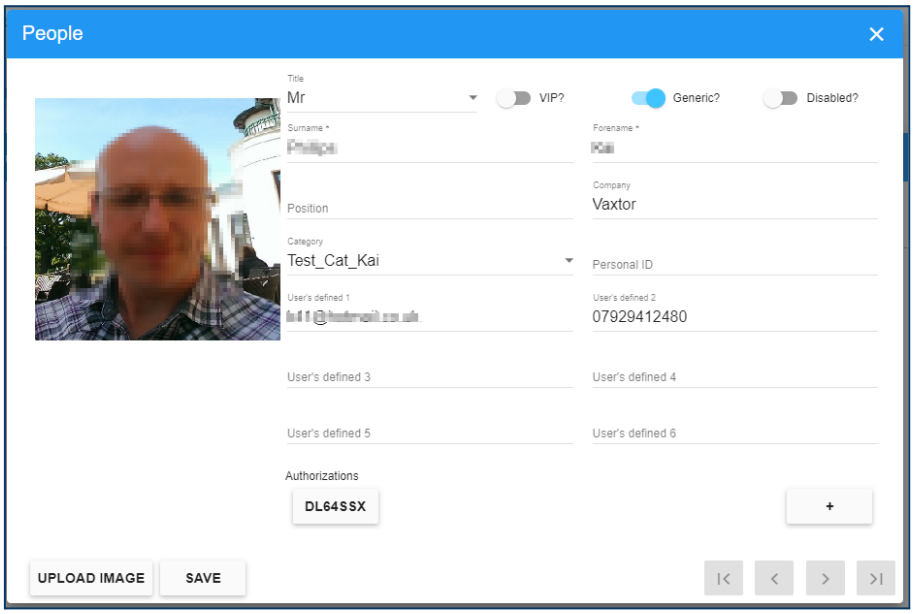


Description

- **Title** (**1**): Mrs | Mr | Ms
- Is it **VIP?** (**2**)
- Is it **Generic?** (**3**)
- Is it **Disabled?** (**4**)
- **Surname** (**5**)
- **Forename** (**7**)
- **Position** (**7**)
- **Company** (**8**)
- **Category** (**9**)
- **Personal ID** (**10**)
- **User's defined** fields(**11**)
- **Authorizations** (**12**)
- **Upload image** (**13**)

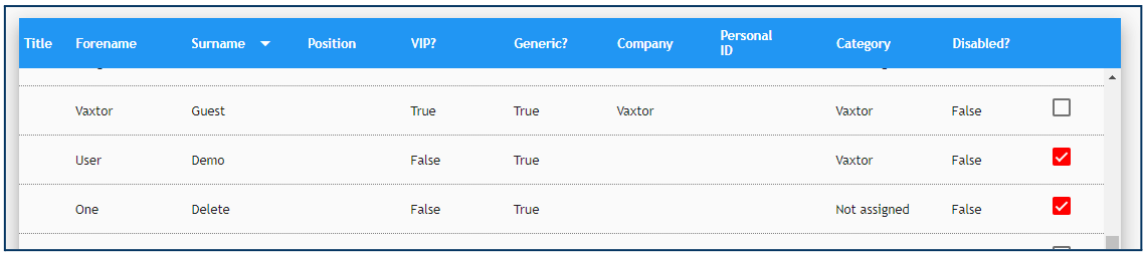
Edit a Person

To add a new Person, click the action **Edit** (**6**) of the context menu of the People table.



Delete Person

To delete a Person, simply click to the action **Delete** (**7**) of the context menu of the People table, or use the multiple People delete option.

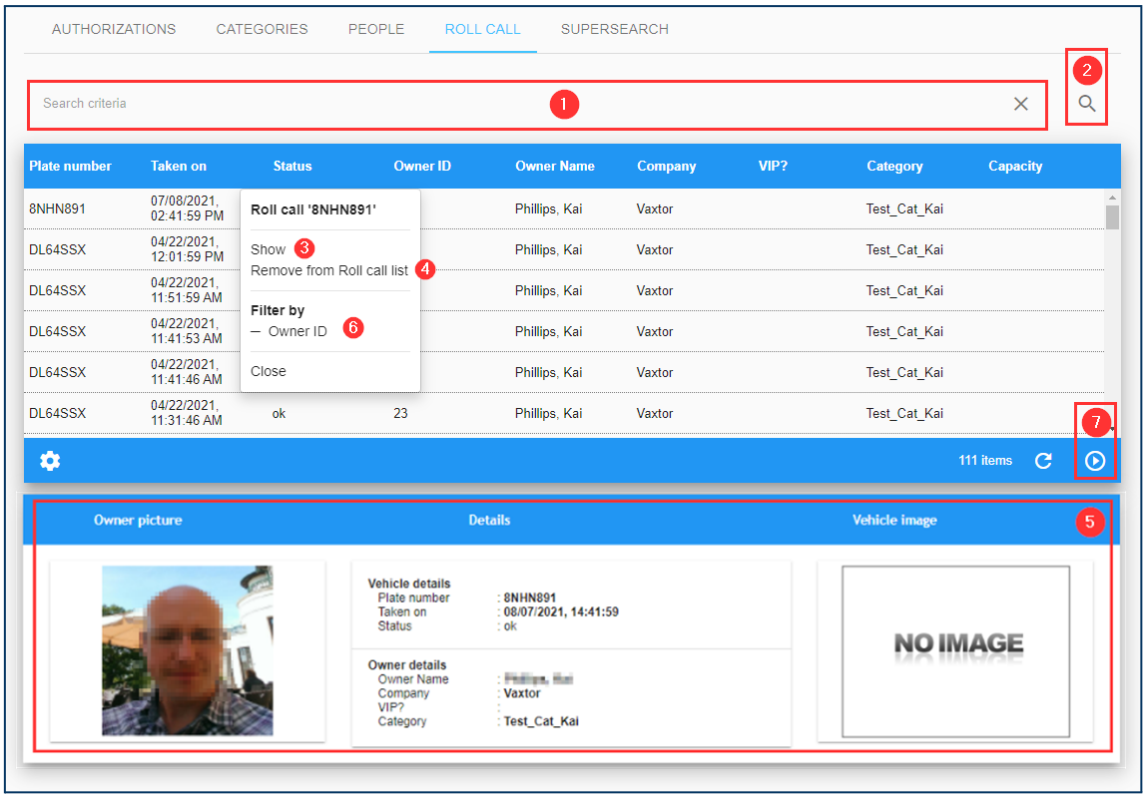


ROLL CALL tab

Roll Call is a function which allows you to determine which plates are currently in say a car park. In Helix, an area can be defined with a capacity (how many vehicles are permitted to enter - (See the Configuration section later in this manual).

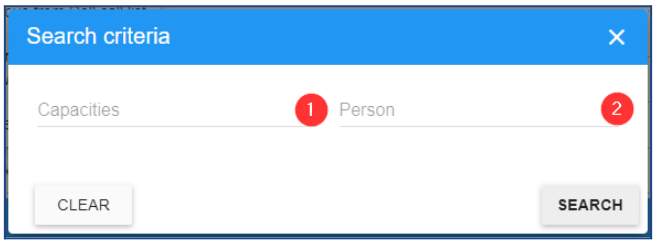
Users can then search these 'capacities' for an individual person - or all the people in that area.

Roll call table



Search Roll call

In the upper right corner of the table there is a small magnifying glass icon (see **(2)** of the Roll call table). If you click on it a popup window will appear where you can select from the following search filters:



Description:

- **Capacities (1)**
- **Person (2)**

Search Filters

The quick way to search Roll call is by adding search criteria as a text string (see **(1)** of the Roll call table) or click the Filter by option in the context menu (see **(6)** of the Roll call table). To enable this, includes a Search Filter where Search Filters can be added or removed. Search filter syntax is: **`Token:FilterValue`**, where:

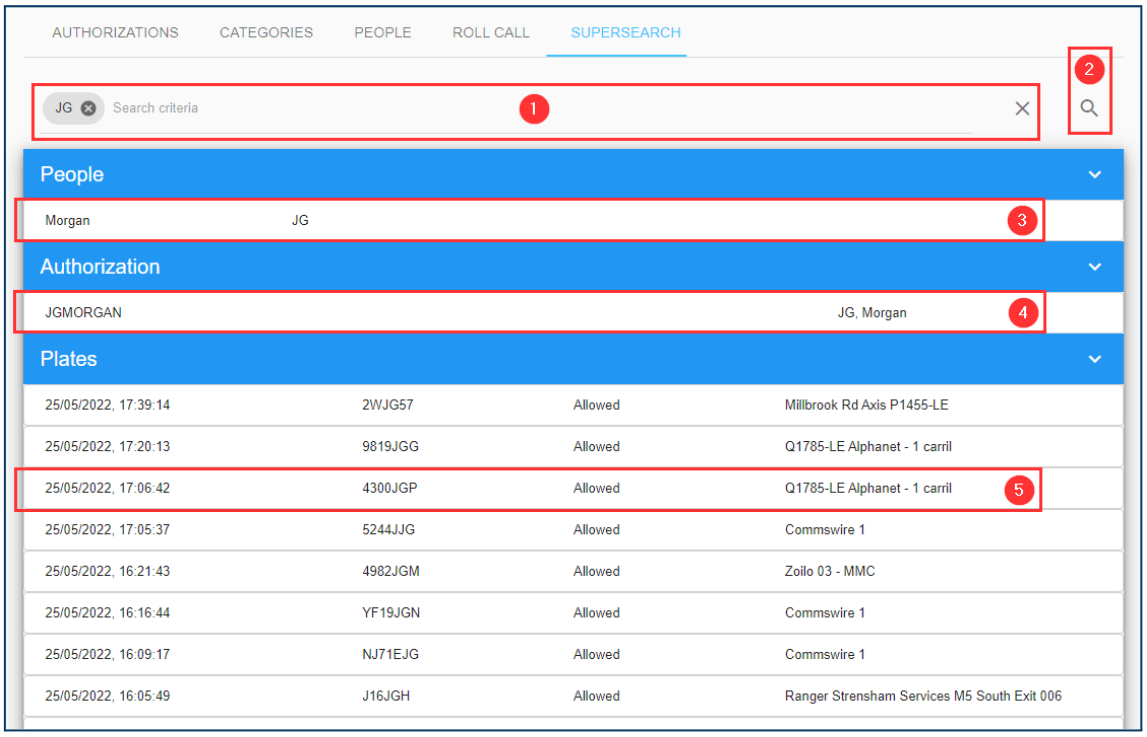
Token	filterKey	filterValue
AFOROIDS **AFORO**	aforoId	Capacity `id` or Capacity `name`

PERSONID **PERSON**	userIds	Person `id` or Person `name`

SUPERSEARCH tab

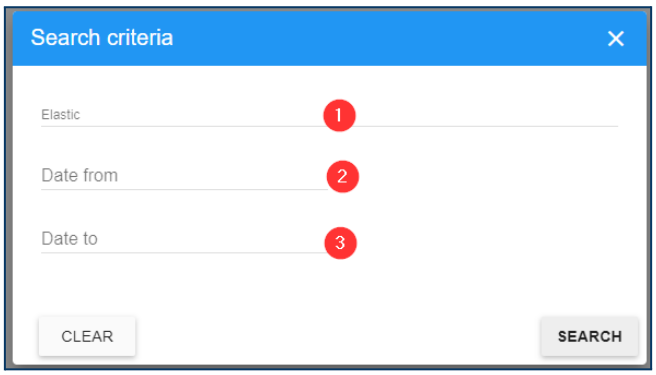
The Supersearch tab is where a user can perform a general search on any fields associated with a plate. For example you could enter a plate or partial plate (using wildcards), a user (someones name) or maybe their ID that you entered in one of the user defined fields. All references to the search text will then be displayed in sections such as: People, Authorizations, Plates etc.

Supersearch table



Search criteria

In the upper right corner of the table there is a small magnifying glass icon (see **(2)** of the Supersearch table). If you click on it a popup window will appear where you can select from the following search filters:



Description:

- **Elastic** (1)
  Free text to search People, Plates and Authorizations inside columns Plate Number, Surname, and Forename.
- **Date from** (2)
- **Date to** (3)

View Supersearch result details

To see a Person, Plate or Authorization, simply click to the selected row (**3**), (**4**) or (**5**) of the shown result in the Supersearch table.

For detailed information of each pop-up, review Add a Person, License Plate details or Add a new plate authorization.

CONFIGURATION

This section allows the user to view, create, modify and delete the zones, cameras, schedules, sections and capacity counting areas. Chapter 11 of this document contains a few configuration examples for the most common scenarios.

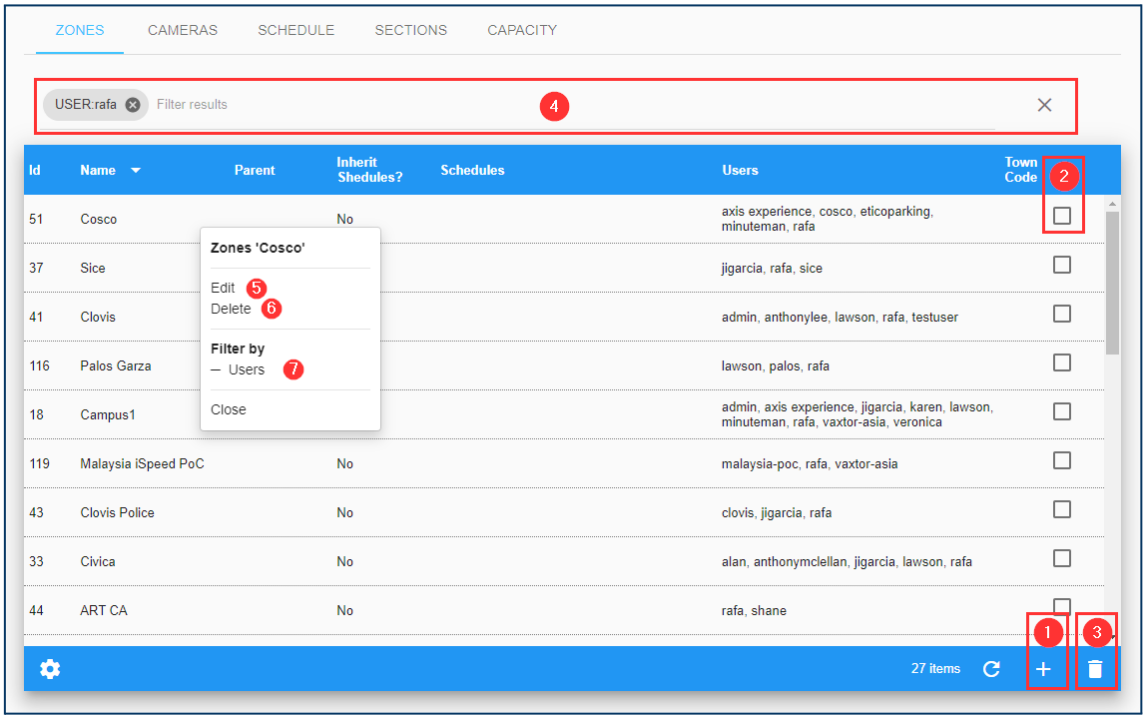
ZONES tab

In Helix-Server, a zone is a user-defined area that may include other zones and / or cameras. When a plate is sent to Helix-Server by an ANPR camera, that plate is assigned to the zone in which the camera has been configured.

Helix-Server will process each plate according to the zone's rules, checking if the vehicle is authorized, has generated an alarm, etc. It is possible for a zone to inherit the schedules of its parent zone.

Review the examples in chapter 11 for further details.

Zones table



Filter Zones

Helix-Server includes a quick way to search a Zone by adding search criteria as a text string (see **(4)** of the Zones table). To enable this, a Filter to the Results can be added or removed, also you can use the **Filter by** option in the context menu (see **(7)** of the Zones table). Search filter syntax is: **`Token:FilterValue`**, where:

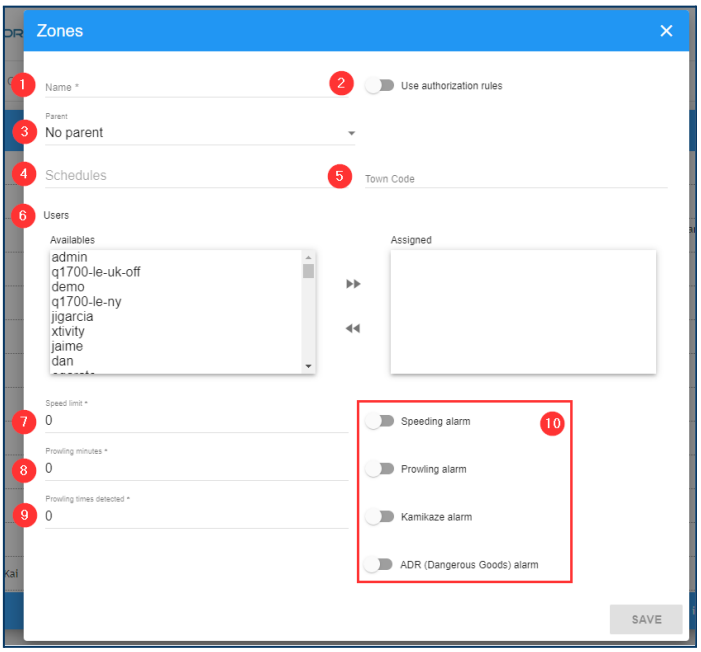
Token	filterKey	filterValue
ID	id	Zone `ID`

NAME	name	Zone `name`

Note: To clear the search criteria use button `[X]` located at right of the filter bar.

Create a Zone

To add a new Zone, press the button **(1)** of the Zones table. A pop-up window will appear in which you can define the following parameters.



Description:

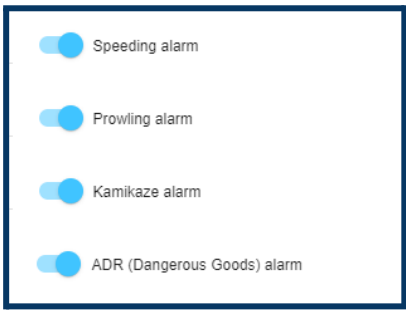
- **Name (1)**:
  Name for the zone.
- **Use Authorization rules (2)**:
- **Parent (3)**:
  Select the parent zone (if any). Once a parent zone is selected it can inherit any schedule set.
- **Schedules (4)**:
  Select the schedules that apply to this zone. If a zone has no schedules associated with it, then all the vehicles are authorized by default.
- **Town code (5)**
- **Users (6)**:
  Select which users can see this zone and receive real time events generated by it. *
- **Speed limit (7)**
- **Prowling minutes(10)**
- **Prowling times detected(10)**
- **Alarms (10)** **

(*) **Users**:

- Enable users to view cameras in a zone or receive alarms for that zone etc. by selecting the appropriate user from the users list and double clicking on the user to move it across to the right-hand box (assigned users).
- This user can now view any real-time information for that zone.
- The reason this is not set as a default is there may be a massive amount of information being received from many readers which would overload the system.

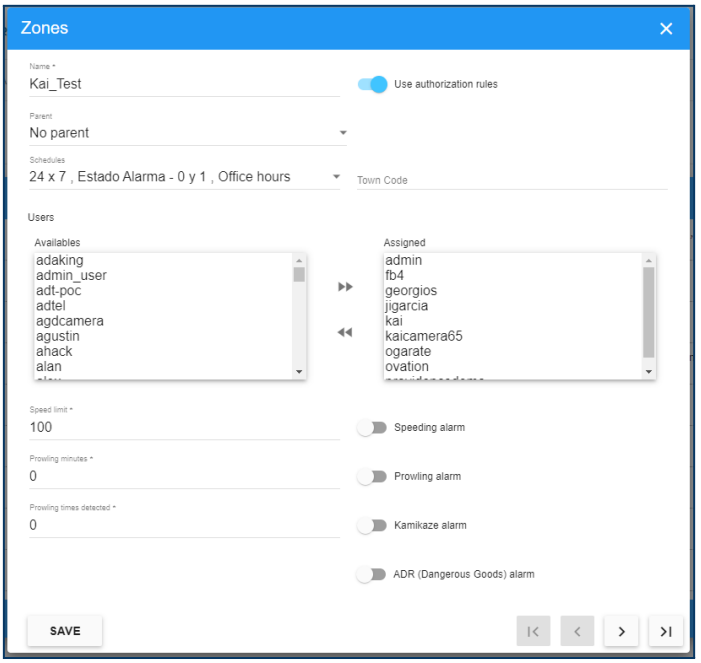
(**) **Alarms**:

- **Speeding alarm**: If activated, an alarm will be generated if a vehicle goes over the preset speed limit.
- **Prowling alarm**: (Frequent Visitors) If activated, an alarm will be generated if the same vehicle is detected ***x*** times in that zone within ***y*** minutes / hours / days (where ***x & y*** are user defined).
- **Kamikaze alarm**: If activated, an alarm will be generated if a vehicle is travelling in the opposite direction to that specified. (see 9.2.1 Add a camera where you can enter the expected direction)
- **ADR (Dangerous Goods) alarm**: If activated, an alarm will be generated if the detected vehicle includes an ADR tag.



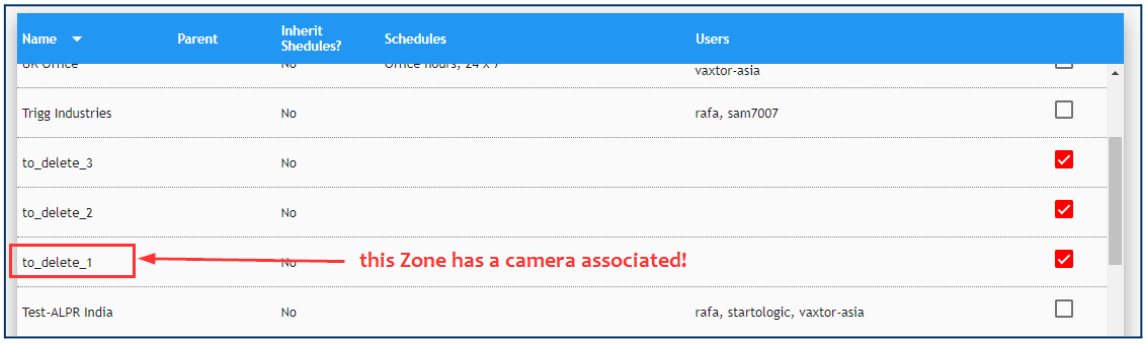
Edit a zone

To edit a Category, simply click to the action **Edit** (**5**) of the context menu of the Zones table.

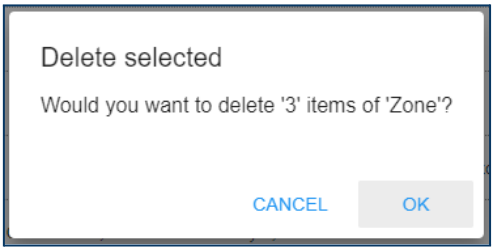


Delete a zone

To delete a Zone, simply click to the action **Delete** (**7**) of the context menu of the Zones table, or use the multiple Zone delete option:

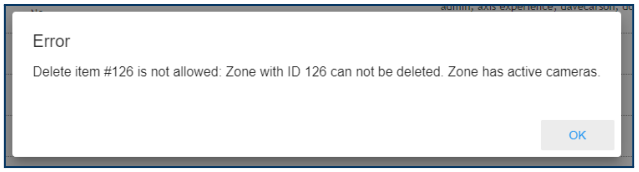


Once the checkbox or checkboxes are selected, press the delete button (see (**3**) of the Zones table), and a confirmation window will appear asking you if you want to delete the listitems:

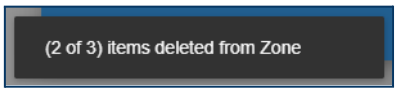


If you are sure, press the `[OK]` button and the list will then be deleted, otherwise Cancel.

As ***`to_delete_1`*** zone has a camera associated, an error message is displayed:



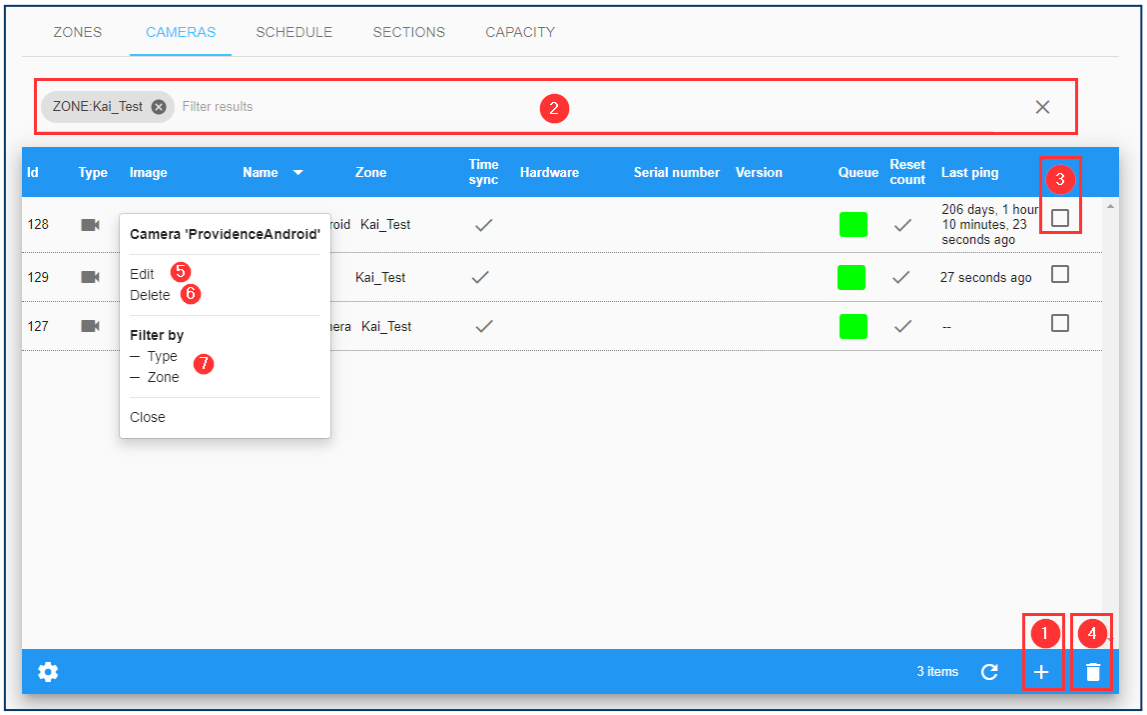
Finally, a Toast message is displayed (at bottom left corner of the window) showing the deleting confirmation. In this case, two Zones have been deleted:



CAMERAS tab

This area shows all active cameras defined in Helix-Server including environment (colour contextual) cameras.

Cameras table



Filter Cameras

Helix-Server includes a quick way to filter a Camera by adding search criteria as a text string (see **(2)** of the Cameras table) or using the fast Filter by options in the context menu (see **(7)** of the Cameras table). To enable this, a Filter to the Results can be added or removed. Search filter syntax is: **`Token:FilterValue`**, where:

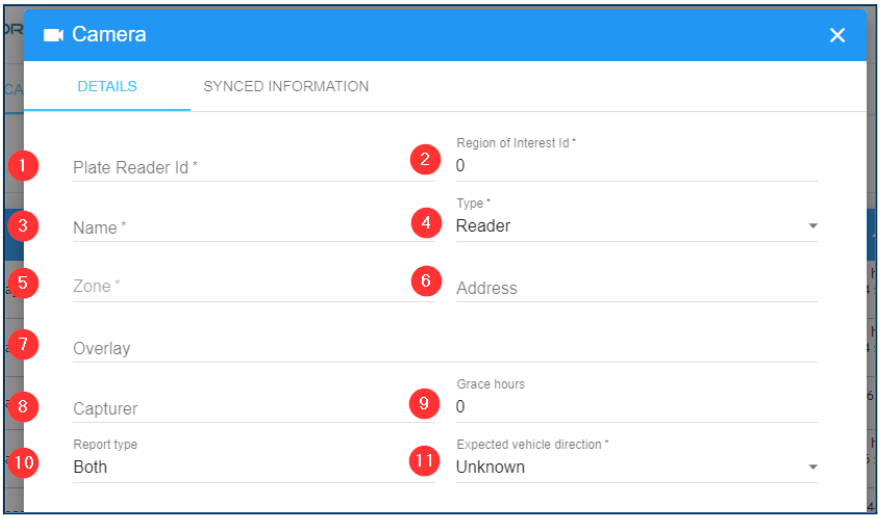
Token	filterKey	filterValue
ID	id	Camera `ID`
CAMERA NAME	name	Camera `name`
TYPE	type	Camera type
ZONE	zoneId	Zone `ID` or Zone `name`

Notes:

1. To clear the search criteria use button **`[X]`** located at right of the filter bar.
2. The ZONE filter must include an exact value (`ID` or list `name`) because it is a relation, not a camera attribute.

Add a camera

To add a new camera to the system, press the button (**1**) of the Cameras table.



Details tab

Description:

- **Plate Reader Id** (**1**) This is a unique identifier defined by the plate reading software (VaxALPR On Camera, VaxALPR for PC, VaxALPR for Android etc.).
- **Region of interest ID**(**2**)
- **Name** (**3**) User defined name to help identify the camera.
- **Type** (**4**) Camera type:
  - *Reader*: Select this option if the camera is an ANPR camera.
  - *Environment*: Select this option if the camera is linked to a plate reader but is not the camera capturing the plate. i.e. this is a (colour) contextual camera.
    (Use the same Plate Reader Id as this is the associated colour contextual camera for the IR camera setup in VaxALPR)
- **Zone** (**5**) Select the area in which you want to register the camera.
- **Address** (**6**) User defined address of the camera.
- **Overlay** (**7**) User defined text to appear as a watermark on the saved image (top left)
- **Capturer** (**8**) User defined name for this server. This field is used in the replication process (when servers are being linked).
- **Grace hours** (**9**) This is the time interval between camera health checks.
- **Report type** (**10**) Select when Helix-Server should store the result.
  - *Freeflow*: Store the plate only if it has been detected in freeflow mode.
  - *Signalled (Triggered)*: Store the plate only if it has been detected due to an external trigger.
  - *Both*: Store the plate if either of the above occur (so always store the plate).
- **Expected Vehicle Direction** (**11**) Alarms can be generated if a plate is travelling the wrong way. VaxALPR attempts to determine the direction of each plate read and passes this onto Helix-Server. Values can be:
  - Getting *closer. Plates are expected to approach the* camera.
  - *Getting farther. Plates are expected to be moving away from the camera.*
    Note that if the camera is positioned very low for example, *i.e. below the height of a plate, then the direction can be mis-reported.*

Synched Information tab

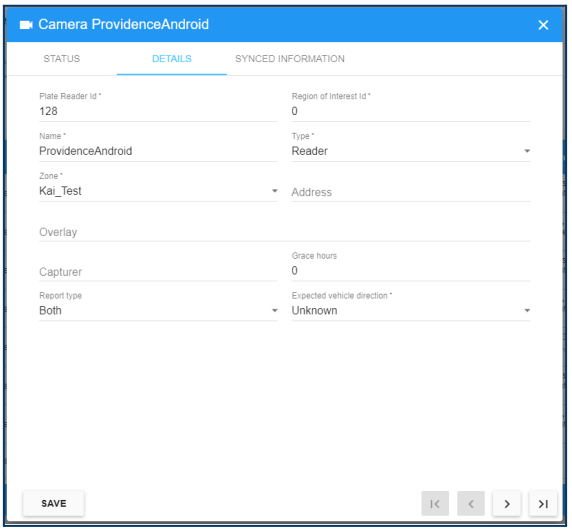
Remote cameras can be monitored by Helix and certain information can be synchronised between the camera and the Helix Server.

- **Longitude** (12) and **latitude** (13) The GPS coordinates where the camera is located. If defined on the camera, all the plates read by this camera will be assigned to this location.
- **Serial number** (14) Camera serial number.
- **Camera brand** (15) Camera brand
- **Camera model** (16) Camera model
- **Remarks** (17) Additional remarks
- **Reset count** (18) This shows how many times the cameras or software has restarted. This can be reset to zero here.
- **Download config** (19)
- **Update frame timeout**(20)
- **Update frame quality**(21)
- **Enable maintenance alarms** (22)

Fields marked with an asterisk are required. Once you have filled in all the data click the "**Save**" button to save the changes.

Edit a Camera

To edit a Camera, simply click to the action **Edit** (5) of the context menu of the Cameras table.



Delete a Camera

To delete a Camera, simply click to the action **Delete** (**6**) of the context menu of the Cameras table. Or use the multiple Cameras delete option.

SCHEDULE tab

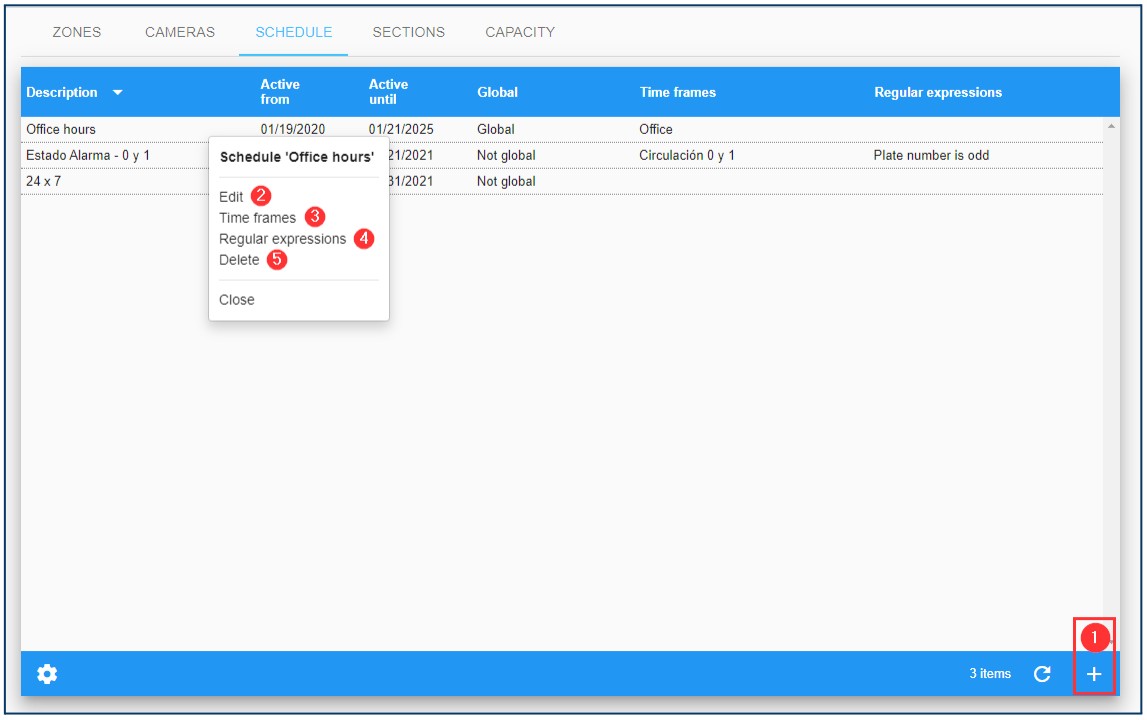
A schedule defines the authorized date ranges for each plate captured.

If the capture date of the plate is within a schedule, then the authorization rules defined for that schedule are applied.

Only three exceptions are applied:

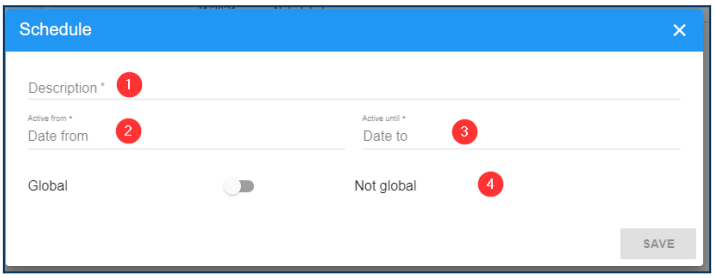
- If a zone has no schedules linked to it, then all the vehicles are authorized.
- If a vehicle is on a whitelist linked to the zone, then that vehicle is always authorized in that zone.
- If a schedule is global, then all the vehicles detected in that schedule are authorized.

Schedule table



Edit or create a new Schedule

Press the add (+) button (**1**) at the bottom right of the Schedule table. A pop-up window will appear in which you can define the following parameters.



- **Description** (1): User defined description for the schedule.
- **Active from** (2)**:** Enter the date from which the schedule will be activated.
- **Active until** (3): Enter the end date for the active schedule.
- **Global** (4)**:** Indicate whether the schedule is global or not.

Note: To edit a Schedule, click the action **Edit** (2) in the context menu

Delete a Schedule

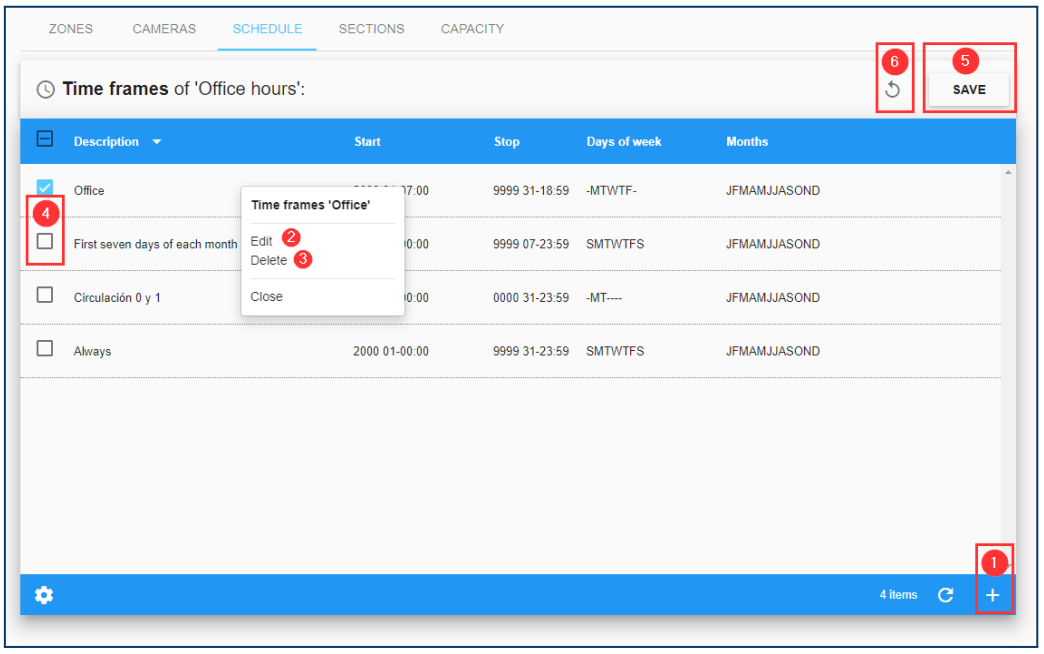
To delete a Schedule, click on the action **Delete** (5) in the context menu of the Schedule table. Once pressed, a confirmation window will appear. A schedule cannot be deleted if it has been associated with a zone.

Linking Time frames to a Schedule

Usually schedules need to be more flexible than just a start and end date. Different times frames can be defined and associated with a schedule.
Once you have created your schedule, click the action **Timeframe** (3) in the context menu of the Schedule table to access the Time frames window.

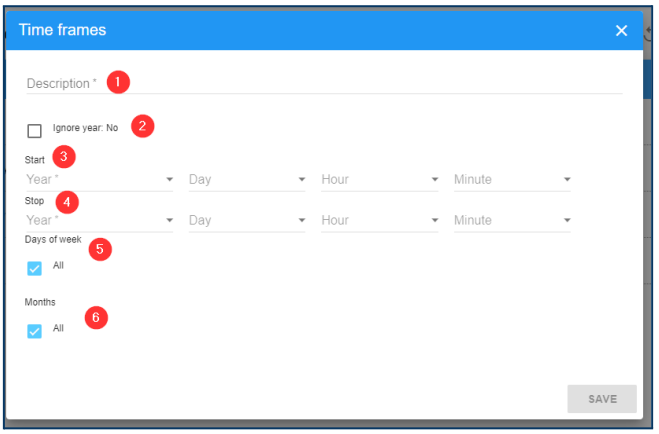
Here you can select the different preconfigured Time frames, or create a new one by pressing the add button (+) located at the bottom right of the window.

Timeframe table



Add or modify Time frames

Press the add (+) button (**1**) at the bottom right of the Timeframe table. A pop-up window will appear in which you can define the following parameters.



Description:

- **Description** (**1**): User defined description.
- **Ignore year** (**2**): Select this option if you want the timeframe to be valid for any year.
- **Start** (**3**): Start values for the time frame.
- **Stop** (**4**): Finish values for the time frame.
- **Day of the week** (**5**): Days of the week when this timeframe will be active.
- **Months** (**6**): Months when this timeframe will be active.

When you have finished setting the new Time frame press the "Save" button and you will return to the list.

NOTE: Modifying preconfigured Time Frames is NOT recommended.

Note: To modify a Time frame, click the action **Edit** (**2**) in the context menu

Assign a Timeframe

To assign the new timeframe to the schedule (see the Timeframe table.): enable it (**4**) and press "Save" (**5**). Otherwise, click (**6**) to return without changes.

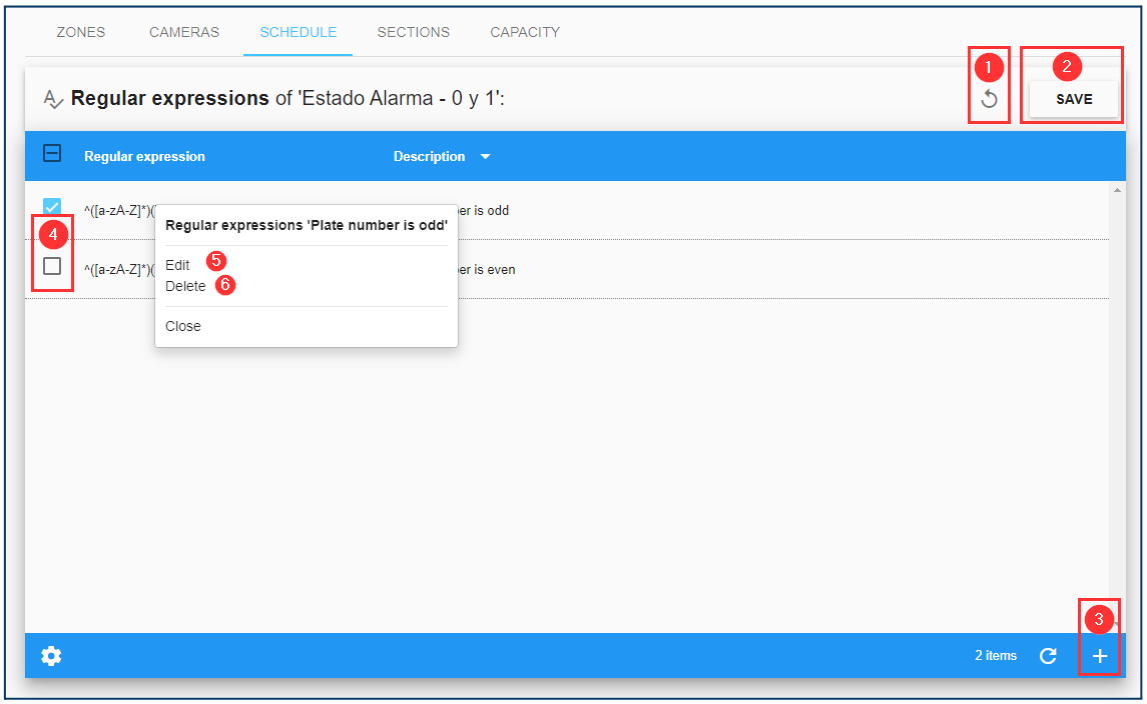
Delete a Time frame

To delete a Time frame, click on the action **Delete** of the context menu. A confirmation window will appear to delete the selected entry. A Time frame cannot be deleted if it is associated with a Schedule.

Linking Regular expressions to a Schedule

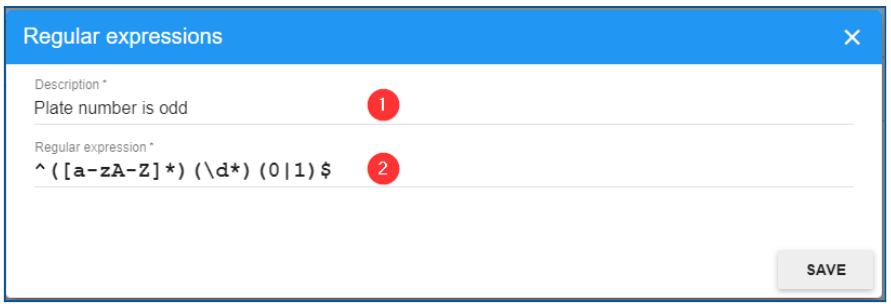
Once you have created your schedule, click the action **Regular Expressions** (**3**) in the context menu of the Schedule table to access the Regular Expressions window.

Regular expressions table



Once inside this menu, you can select previously configured Regular expressions, or create a new one by pressing the add button (+) (**3**) at the bottom right of the Regular expressions table.

Add or modify 'Regular Expressions'



A Regular Expression is a mathematical formula or logic expression used for say selecting odd plates (sometimes used in city congestion schemes) or ones containing certain character combinations.

To edit fields:

- **Description** (**1**): User defined description.
- **Regular Expression** (**2**): Fill with an appropriate Regular Expression formula.

Note: To modify a Regular expression, click the action **Edit** (**5**) in the context menu

Assign a Regular expression.

When you have finished setting the new 'Regular Expression', press the "Save" button (**2**), you will return to the list.

To assign the new 'Regular Expression' to the Schedule (see the Regular expressions table) enable it (**4**) and press "Save" (**2**). Otherwise, click (**1**) to return without changes.

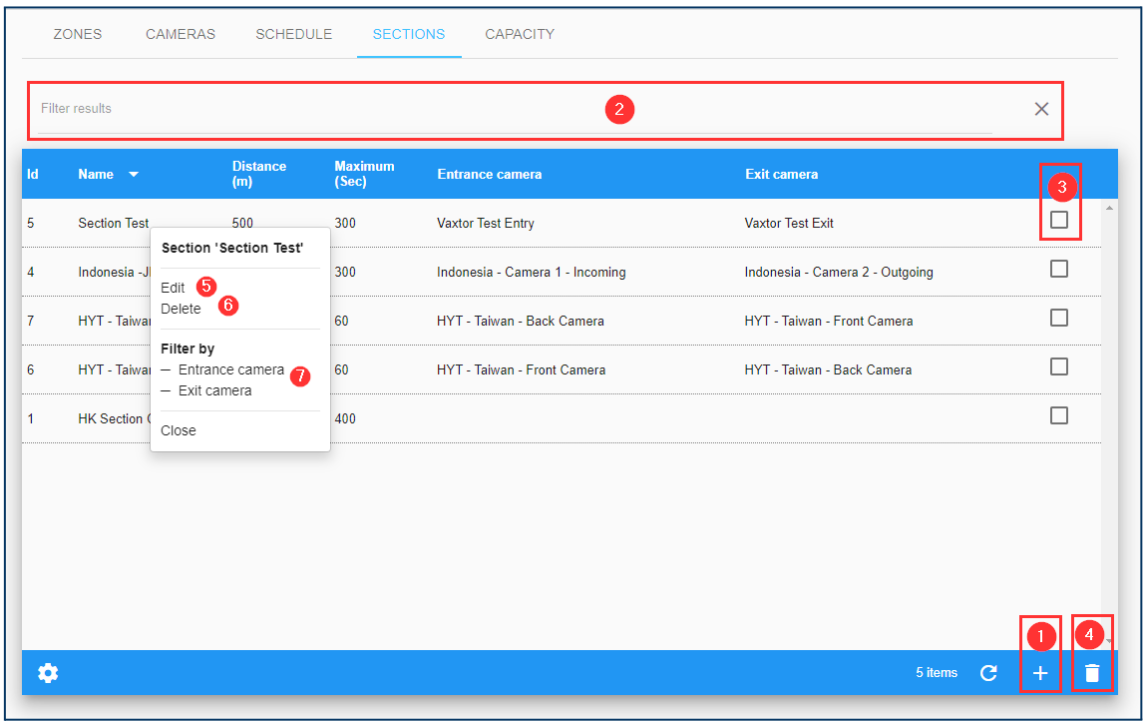
Delete a Regular expression

To delete a 'Regular Expression', click the action **Delete** (**6**) in the context menu of the Regular expressions table. Once pressed, a confirmation window will appear. A Regular expression cannot be deleted if it is associated with a Schedule.

SECTIONS Tab - and Average Speed Alerts

Lengths of road between any two cameras may be defined as a section. This could be part of a road network, part of a large car park or even a long entrance lane into an industrial estate where speed is to be monitored.

Section table



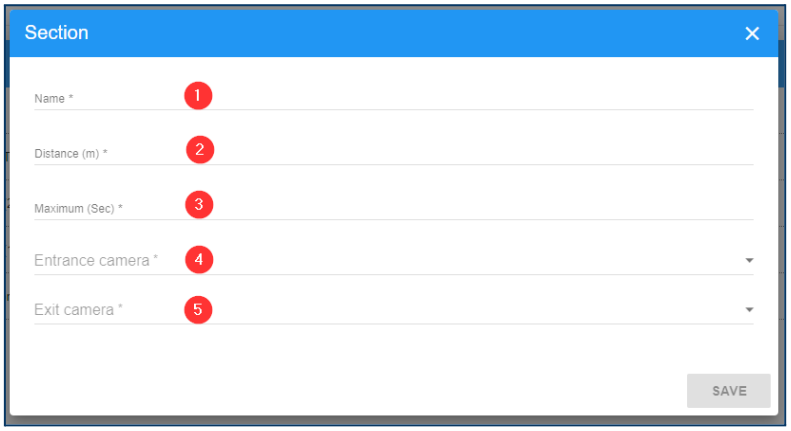
Filter sections

Helix-Server includes a quick way to filter a Section by adding search criteria as a text string (see **(2)** of the Section table) or using the fast **Filter by** options in the context menu (see **(7)** of the Section table). To enable this, a Filter to the Results can be added or removed. Search filter syntax is: **`Token:FilterValue`**, where:

Token	filterKey	filterValue
ID	`id`	Section `ID`
NAME	`name`	Section `name`
ENTRANCE	`entranceCameraId`	Section entrance camera
EXIT	`exitCameraId`	Section exit camera

Create a new Section

Press the add (+) button (see **(1)** of the Section table) at the bottom right of the menu.



Description:

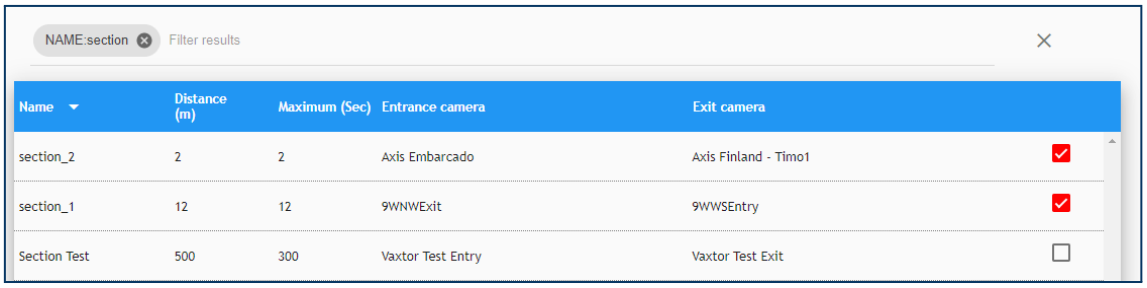
- **Name** (1): User defined name for the section of road.
- **Distance** (2): Distance between the entry camera and the exit camera of that section.
- **Maximum** (3): Number of seconds to abort the calculation. If a vehicle takes longer than the specified number of seconds then the speed is not calculated. This can remove outliers.
- **Entrance camera** (4)**:** Entrance camera for the section.
- **Exit Camera** (5): Exit camera for the section

NOTES:

- The length of the section (the distance between the two cameras) may be defined in metres and the maximum target time to complete the journey is in seconds. This can be considered as the average speed limit for the section. By setting these parameters then when a vehicle passes between the two defined cameras in less than the set time - an alert is generated and displayed on the user screen.
- The speed is stored against every vehicle passing the second camera and can be seen using the PLATES / SEARCH facility.
- Plates read by the first camera are shown with a speed of -1. Plates read can be searched by those generating alerts and these alerts can also be sent by email – see later in this guide.

Delete a Section

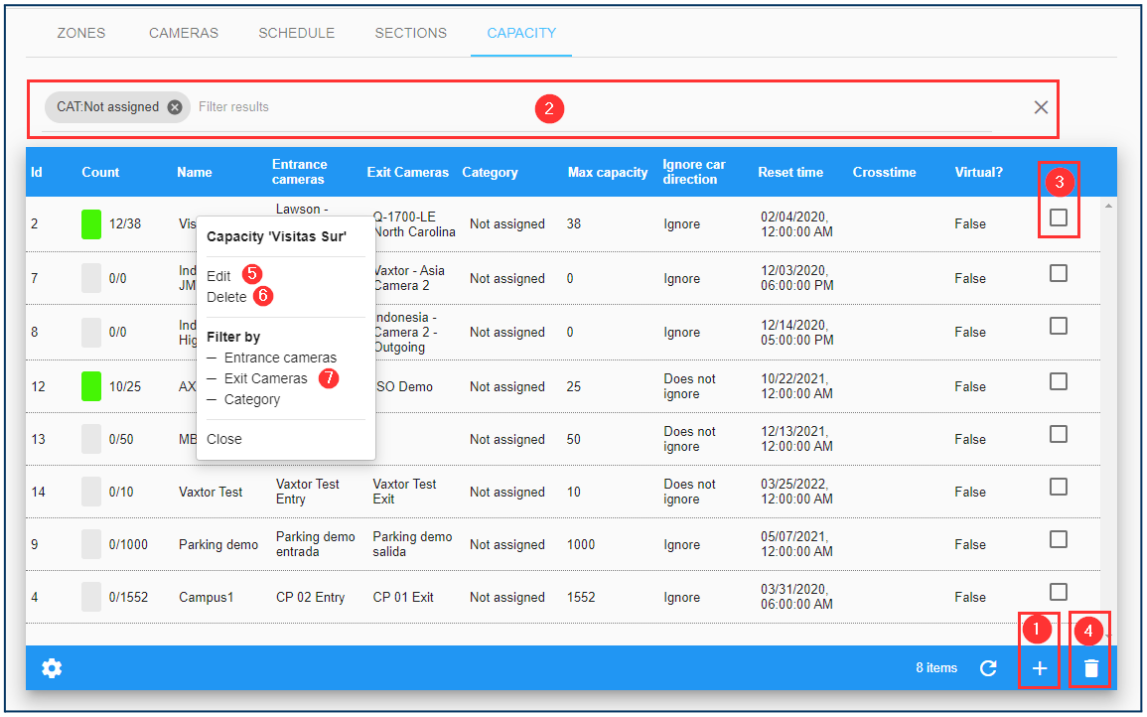
To delete a Section, click the action **Delete** (6) in the context menu of the Section table. Once pressed, a confirmation window will appear. Also, you can use the multiple Sections delete option.



CAPACITY Tab - Vehicle Count, also known as 'AFORO'

Helix-Server can track the capacity (vehicle count) within a defined area.

Capacity table



Filter Capacity

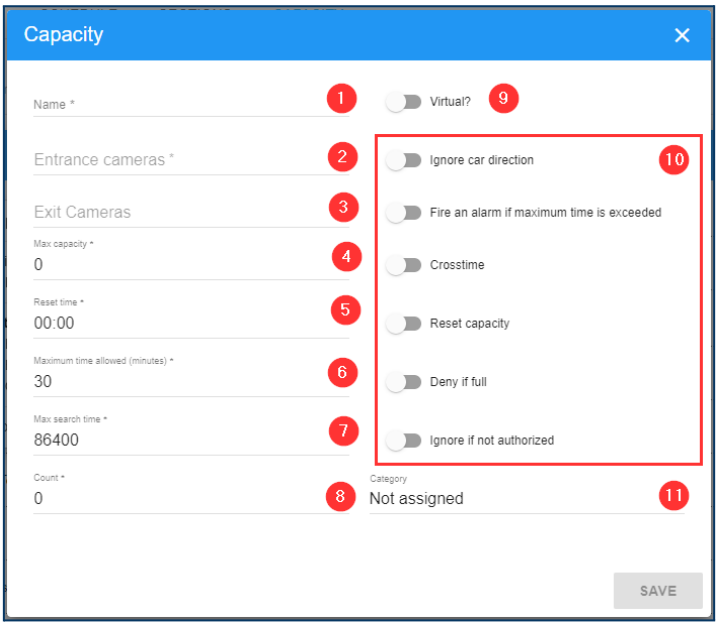
Helix-Server includes a quick way to filter Capacity by adding search criteria as a text string (see **(2)** of the Capacity table) or using the fast **Filter by** options in the context menu (see **(7)** of the Capacity table). To enable this, a Filter to the Results can be added or removed. Search filter syntax is: **`Token:FilterValue`**, where:

Token	filterKey	filterValue
ID	id	Aforo `ID`
NAME	name	Aforo `name`
ENTRANCE	entranceCameraIds	Aforo `entranceCameraIds`
EXIT	exitCameraIds	Aforo `exitCameraIds`
CATEGORY	categoryId	Category `ID` or Category `name`

Create a Capacity / Count Area

Press the add (+) button (see **(2)** of the Capacity table) at the bottom right of the menu.

A pop-up window will appear where you can define the area:



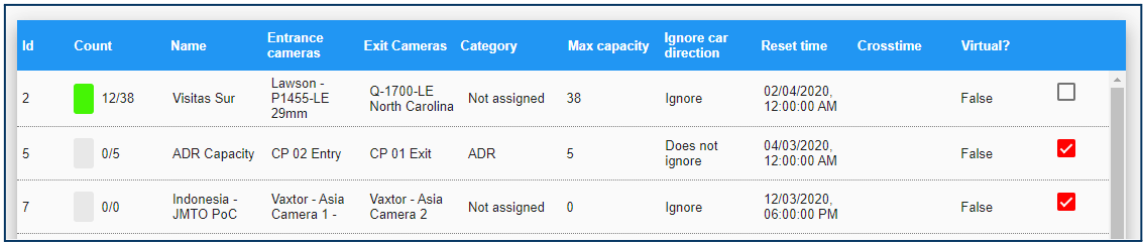
Description:

- **Name** (1): User defined name for the Capacity / Count area.
- **Entrance camera** (2)**:** Entrance camera for the section.
- **Exit Camera** (3): Exit camera for the section
- **Max Capacity** (4): The maximum number of vehicles allowed in the Capacity / Count area.
- **Reset time** (5): The time at which the count is automatically reset to zero. E.g. 23:00.
- **Maximum time allowed** (6): by vehicle.
- **Maximum search time** (7): by vehicle.
- **Count** (8): Vehicles inside Capacity / Count area.
- **Virtual?** (9)
- Flags (10)
    - **Ignore Car direction:** The user can choose to ignore the direction of travel.
    - **Fire an alarm if maximum time is exceeded**.
    - **Crosstime**.
    - **Reset capacity**.
    - **Deny if full**.
    - **Ignore if not authorized**.
- **Category** (11)

Delete a Capacity

To delete a Capacity, click the action **Delete** (6) in the context menu of the Capacity table. Once pressed, a confirmation window will appear.

Also, a multiple Capacity delete option is available.



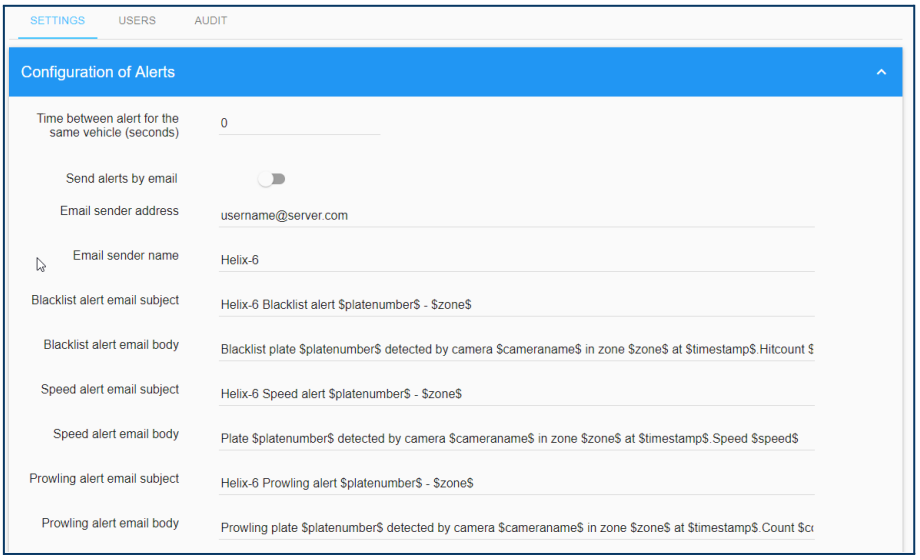
Id	Count	Name	Entrance cameras	Exit Cameras	Category	Max capacity	Ignore car direction	Reset time	Crosstime	Virtual?	
2	12/38	Visitas Sur	Lawson - P1455-LE 29mm	Q-1700-LE North Carolina	Not assigned	38	Ignore	02/04/2020, 12:00:00 AM		False	☐
5	0/5	ADR Capacity	CP 02 Entry	CP 01 Exit	ADR	5	Does not ignore	04/03/2020, 12:00:00 AM		False	☑
7	0/0	Indonesia - JMTO PoC	Vaxtor - Asia Camera 1 -	Vaxtor - Asia Camera 2	Not assigned	0	Ignore	12/03/2020, 06:00:00 PM		False	☑

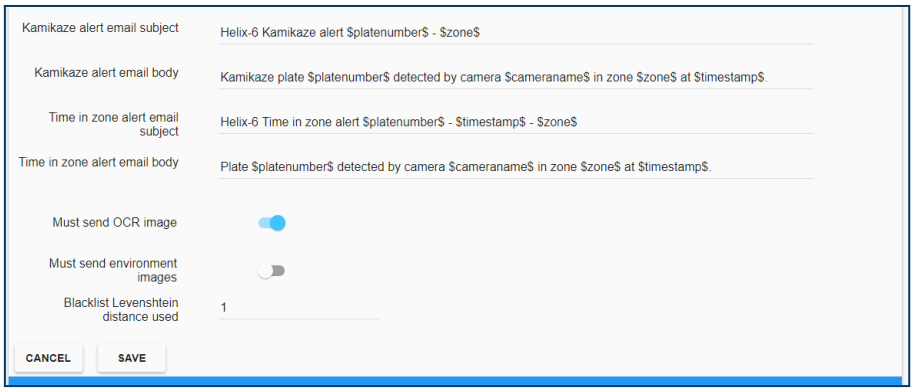
SETTINGS

The settings area is only available for administrators. In this section, it is possible to view and modify the main settings for the server.
Do not modify the values in this section if you have not read and fully understood this manual.

SETTINGS Tab

Configuration of Alerts



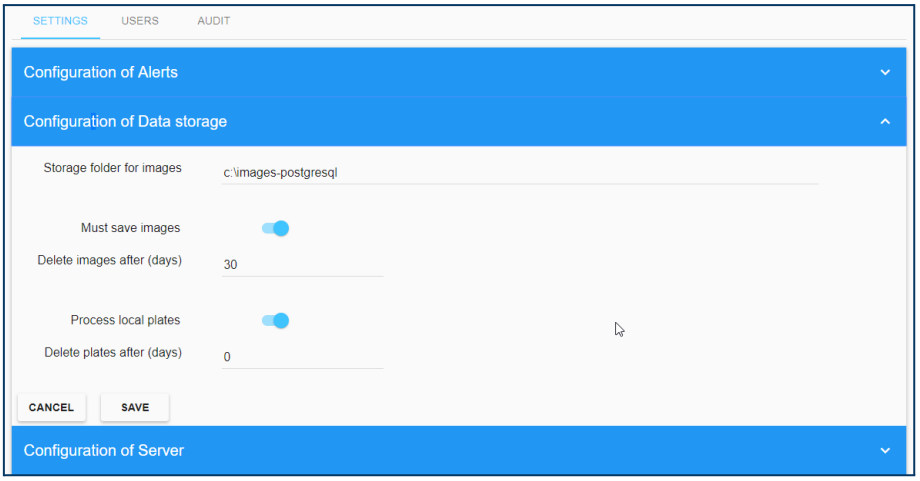


Click on the blue bars to show or hide the options.

- **Time between alerts for the same vehicle (seconds)**: Set the minimum time between blacklist alerts for the same vehicle.

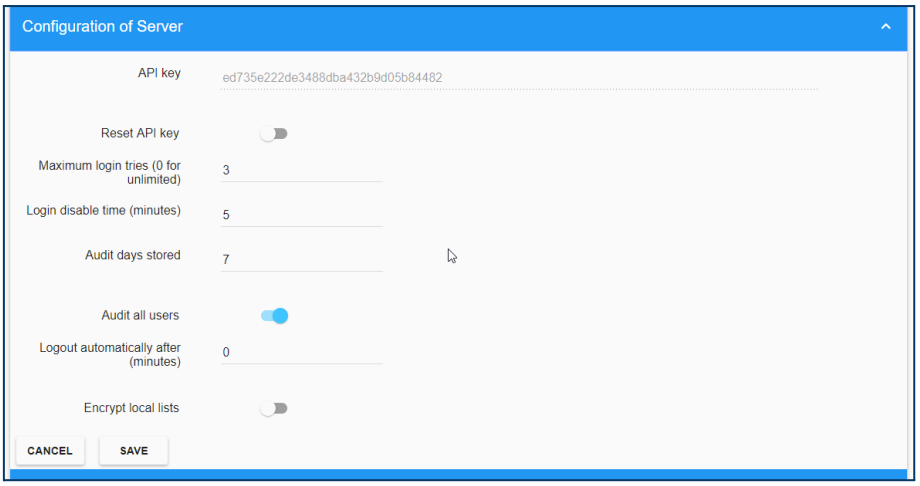
- **Send alerts by email**: Enable this option to send emails to specified users when an alert is triggered by the system.
- **Email sender address**: Insert the sender's email address for all the alerts.
  This is how it should appear in the received email message – and needn't be the actual email address used (smtp) as set up below.
- **Email sender name**: Enter the name of the sender that will appear in the sent emails.
- **Blacklist alert email subject**: Set the email subject for blacklist alerts. It is possible to use special words that will be replaced by the real-time information in the email. The allowed values are described in the appendix of this document.
- **Blacklist alert email body**: Set the email body for blacklist alerts. It is possible to use special words that will be replaced by the real-time information in the email. The allowed values are described in the appendix of this document.
- **Speed alert email subject**: Set the email subject for overspeed alerts. It is possible to use special words that will be replaced by the real-time information in the email. The allowed values are described in the appendix of this document.
- **Speed alert email body**: Set the email body for overspeed alerts. It is possible to use special words that will be replaced by the real-time information in the email. The allowed values are described in the appendix of this document.
- **Prowling alert email subject**: Set the email subject for prowling alerts. It is possible to use special words that will be replaced by the real-time information in the email. The allowed values are described in the appendix of this document.
- **Prowling alert email body**: Set the email body for prowling alerts. It is possible to use special words that will be replaced by the real-time information in the email. The allowed values are described in the appendix of this document.
- **Kamikaze alert email subject:** Set the email subject for Kamikaze alerts. It is possible to use special words that will be replaced by real-time information in the email. The allowed values are described in the appendix of this document.
- **Kamikaze alert email body:** Set the email body for Kamikazee alerts. It is possible to use special words that will be replaced by real-time information in the email. The allowed values are described in the appendix of this document.
- **Time in zone alert email subject:** Set the email subject for time in zone alerts. It is possible to use special words that will be replaced by real-time information in the email. The allowed values are described in the appendix of this document.
- **Time in zone alert email body**: Set the email body for time in zone alerts. It is possible to use special words that will be replaced by real-time information in the email. The allowed values are described in the appendix of this document.
- **Time in zone plate distance**: This is the plate match accuracy (Levenshtein distance) of a plate entering and leaving a zone for them to be considered the same plate.
  Example: if the reader at the entrance reports 1234ABC and the reader at the exit reports 1235ABC and the distance is 1, then system will mark 1234ABC as out.
- **Must send OCR image**: Enable this option to append the OCR image to the emails.
- **Must send environment images:** Enable this option to append the environment images to the emails.
- **Blacklist Levenshtein distance used:** This is the Blacklist Match Accuracy which is the number of characters that may differ between the plate read and the plate on the blacklist to trigger an alert.

Configuration of Data storage



- **Storage folder for images**: Helix-Server will store all the images in the directory specified. The directory **MUST already exist.**
- **Must save images**: Enable this option if you want to save the images.
- **Delete images after (days)**: Helix-Server will remove (purge) any image older than the amount of days selected here. Set this value to 0 if you want to disable this feature.
- **Process local plates**: Usually this option should be enabled. Disable this option only if Helix-Server should only process new plates inserted by the REST API.

Configuration of Server



- **API Key**: Displays the master API Key assigned to the system.
- **Reset API key**: Enable this option to generate a new random API Key for the server.
- **Maximum login tries**: The maximum number of attempts to access Helix-Server before the account is locked. (incorrect login credentials)
- **Login disable time**: Set the number of minutes that an account is locked for after the maximum number of login tries has been exceeded.
- **Audit days stored**: Enter how many days the audit trail logs will be stored on the system.
- **Audit all users**: When enabled, all the actions of all the users are stored in the audit system. When disabled, only the actions of the users that have been selected for audit are stored.

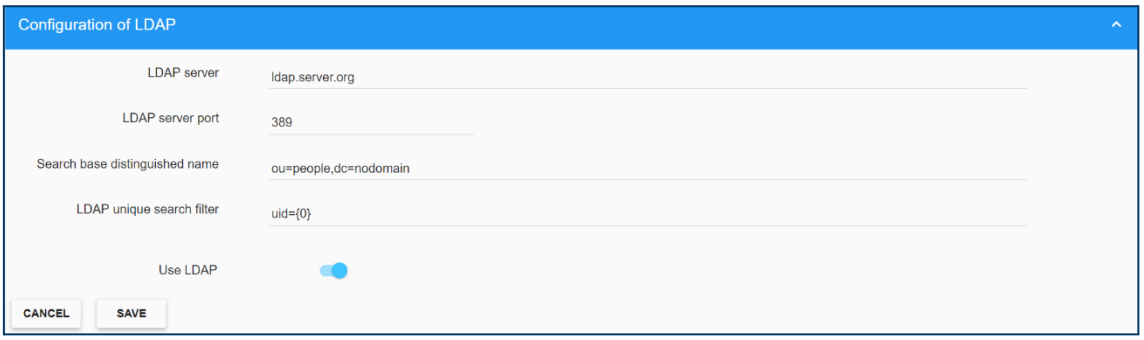
- **Logout automatically after**: Set the number of minutes that a user can be idle before Helix-Server logs them out and they are requested to login again.
- **Encrypt local lists**: Select this option to encrypt all lists on the system using RSA 256 bit encryption. Note that the program currently uses a Postgres database which is already encrypted so this extra layer is not needed.
- **Password expiration**: Set the number of days before the user is requested to change their password.
- **Default time for quick add to list (hours)**: There is a button to quickly authorise a plate on the system for an extra 2 hours. Set this value here - normally 24 hours.

Configuration of LDAP

Helix-Server can use a LDAP server (version 3) to authenticate users. When LDAP integration is active the user login is performed on the LDAP server.

If the authentication fails, the user will not be allowed to login to the system.

Only users with "Admin" rights will be logged in using the local credentials in cases where the LDAP authentication fails.



- LDAP server: LDAP server domain name or IP address.
- LDAP server port: LDAP server port. 389 by default.
- Search base distinguished name: LDAP base search storage to be used when searching for users on the LDAP server.
- LDAP unique search filter: Filter used to find the desired user. This filter **must** find unique users based on the LDAP configuration.
- Use LDAP: Activate the LDAP integration

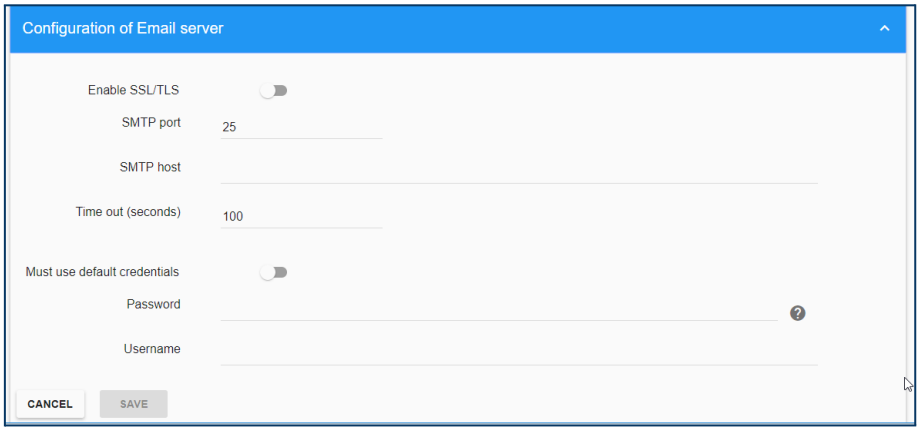
Telegram

Telegram is a free and open source, cross-platform, cloud-based instant messaging App and associated software. Telegram can be installed on Android and iOS hand-held devices, smart watches or on PC and Mac platforms.

The Telegram Plugin enables Vaxtor's Helix Back Office to monitor hundreds of remote ALPR cameras and send all real-time alerts (Blacklist, Speed, Prowling, Wrong-way, Time in Zone, Dangerous Goods, Camera not responding etc.) as secure instant Telegram messages to individuals or groups of individuals.
Once a message is received there are various messages that the user can send back to authorise entry to a site entrance for say 2 hours or add a vehicle to a centralised Blacklist so that it can be tracked. For example, if a vehicle licence plate is captured on any ALPR camera and the vehicle is on a watch list or is a vehicle of interest, then Helix can send an instant secure alert to a local security team to respond.
A car may have entered a private car park without a valid permit – and any parking wardens that might be in the area can be instantly alerted to speak with the driver before he leaves the site.

Search for Helix7bot on Telegram (it has the Vaxtor icon)

Configuration of Email server



If you require the system to send out email alerts (as defined above for various alarm conditions) then you must set up and configure an email account for the system to use.

- **Enable SSL / TLS**: Enable this option if you want to enable SSL or TLS protocol.
- **SMTP port**: Enter the port number to use to connect to the server, default: 25.
- **SMTP host**: Enter the IP address or the host name of the SMTP server.
- **Time out**: Set the maximum time for sending the email, if the response to the request exceeds that time the system will not send the information.
- **Must use default credentials**: Enable this option to use the windows user credentials with the SMTP server.
- **Password**: SMTP user password.
- **Username**: SMTP username. Eg. Helix@mycompanyemail.com

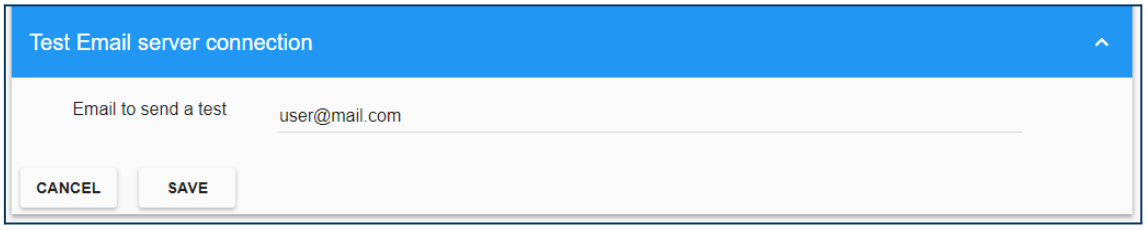
After enabling and completing all email configuration parameters, click the "Save" button and you will be asked to confirm the password:

NOTE: The button changes from “Cancel” to “Confirm” when the password has been input correctly.

Remember to set up the receiving email address. This can be setup for each user – see Section 10.2.1

Test Email server connection

To test the email server connection, enter a valid email address and click the “Save” button. If your configuration is correct then you will receive an email in your mailbox.

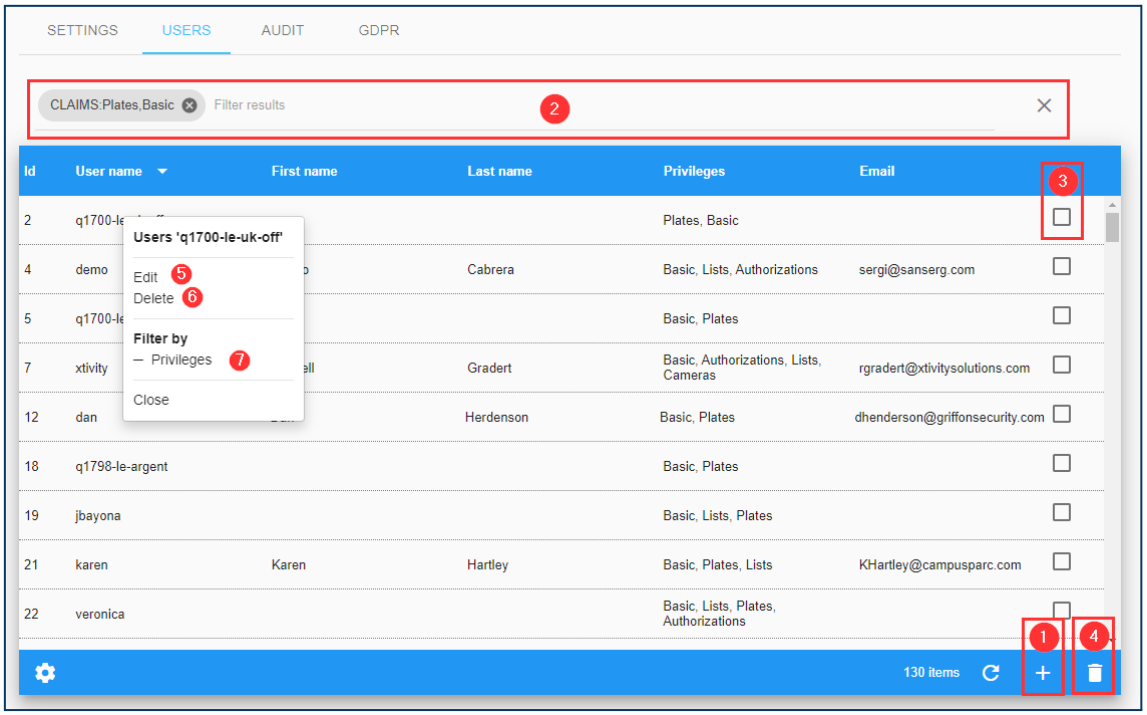


Remember to set the permanent target email address up when you set up users in section 10.2.1. Even the admin account should have one.

USERS Tab

This area shows the active users defined in Helix-Server.
It is possible to view, add, modify or delete any user.

Users table



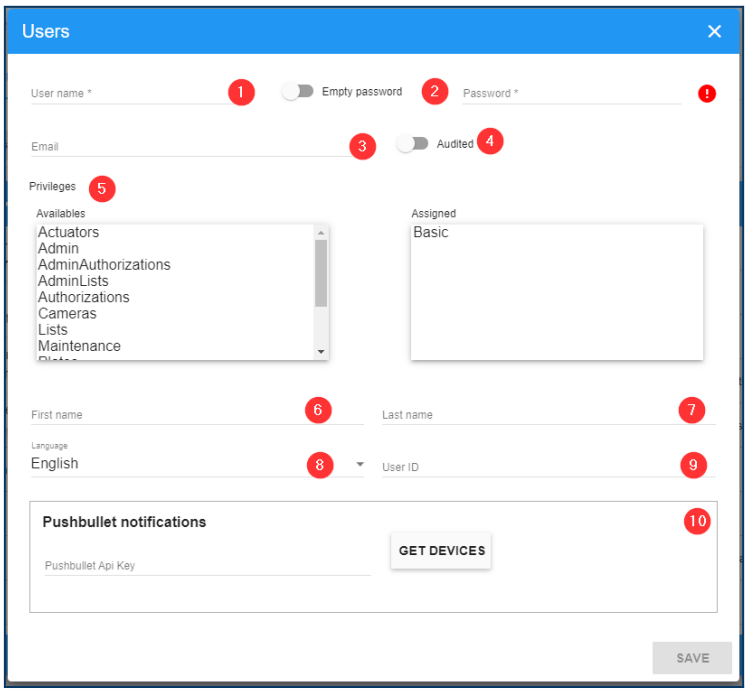
Filter users

Helix-Server includes a quick way to filter the User list by adding filter criteria as a text string (see **(4)** of the Users table) or using the fast **Filter by** options in the context menu (see **(7)** of the Users table). To enable this, a Filter to the Results can be added or removed. Search filter syntax is: **`Token:FilterValue`**, where:

Token	filterKey	filterValue
ID	`id`	User `ID`
USER **USERNAME**	`username`	User `username`
FIRST **FIRSTNAME**	`firstName`	User `firstname`
LAST **LASTNAME**	`lastName`	User `lastname`
EMAIL	`email`	User `email`

Create new user

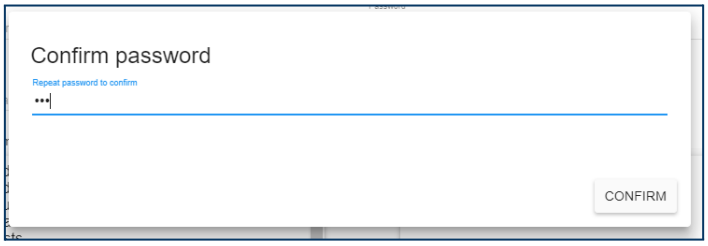
Press the add (+) button (see (**1**) of the Users table). A popup window will appear to create a new user.



Description:

- **Username** (**1**): Username for the new user.
- **Empty password** (**2**)
  - If enabled the user will not be able to login in the system and his password will be deleted. Apikey access will still work. **This option has no effect if LDAP is enabled.**
  - **Password**: Default password for the new user.
- **Email**(**3**): Enter the user's email address. This email is used to receive system alerts and allows each user to receive their own email alerts.
- **Audited** (**4**): Activate this option to add this user to the audit trail.
- **Claims** (**5**): Set the privileges assigned to the user. Do this by double clicking on an item in the list to move it over to the user column (on the right)
  Allowed privileges are:
  - ***Actuators***: The user can set up and configure actuators (relays).
  - ***Admin***: Full privileges.
  - ***Admin Lists*:** The user can create, modify and delete any lists in the system.
  - ***Authorizations***: The user can view, create, modify or delete authorizations.
  - ***Basic***: The user can view data for zones, cameras, calendars, licence plates and images.
    The user will only be able to see the information if it is also added for a user in the desired zone.
  - ***Cameras***: The user can create and modify cameras.
  - **Lists**: The user can create, modify and delete only his own lists.
  - ***Plates***: The user can modify plates read and protect images.
  - ***Schedules***: The user can create, modify and delete schedules and timeframes.
  - ***Users***: The user can create, modify and delete users.
  - ***Zones***: The user can create, delete and modify zones.
- **First Name** (**6**): First name of the user.
- **Last Name** (**7**): Last name of the user.
- **Language** (**8**): User interface language.
- **User ID** (**9**): An optional ID normally used by the Police when plates are exported.
- **Pushbullet API Key** (**5**): Used with the Pushbullet software which is used for communicating with mobile devices. The system can be set up to send alarms to such a mobile device.

To create (or change) a new password, see below:

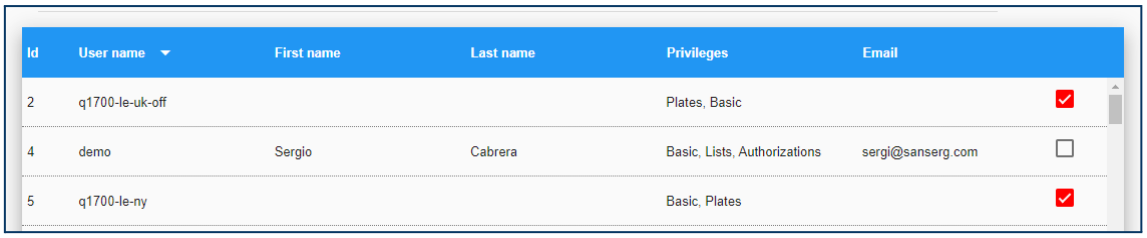


NOTE: The button changes from “Cancel” to “Confirm” when the password has been entered correctly.

Delete a user

To delete a user, click the action **Delete** (**6**) in the context menu of the Users table. Once pressed, a confirmation window will appear.

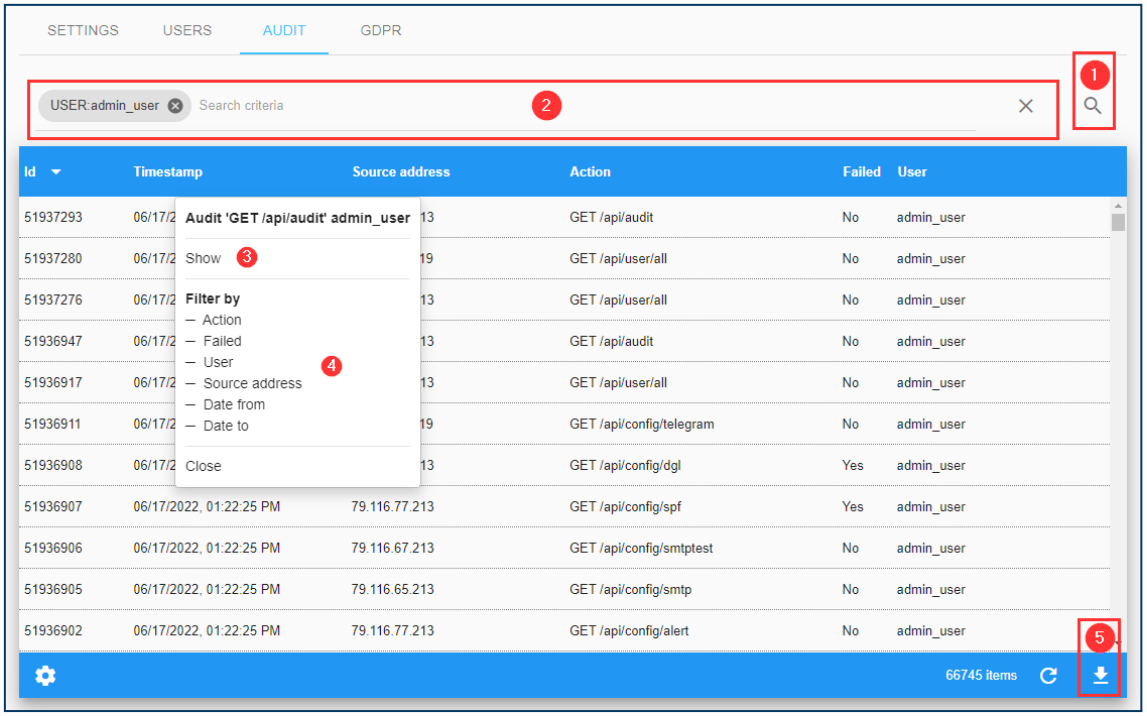
Also, a multiple User option is available.



AUDIT Tab

All the actions performed on the system are stored by default in the audit trail log. You can monitor exactly what each user is using the system for.

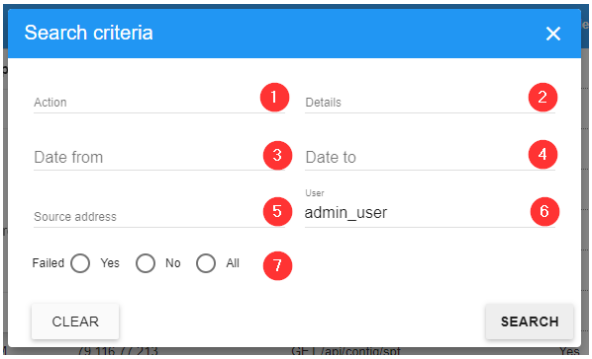
Audit table



Search Audit records

Search criteria

In the upper left corner (see (**1**) of the Audit table). When clicked, a pop-up window appears where you can choose from the following search filters:



Description

- **Action** (**1**): Helix-Server action recorded.
- **Details** (**2**): Text details of the action are recorded.
- **Date from** (**3**): Will show only the activity since the selected date + time.
- **Date to** (**4**): Will show only the activity until the selected date + time.
- **Source address** (**5**): IP address of the user that has performed a Helix-Server action.
- **User** (**6**): User who has performed the Helix-Server action
- **Failed** (**7**): Shows if the action failed or not.

Search Filters

Helix-Server includes a quick way to filter the Audit list by adding search criteria as a text string (see **(4)** of the Audit table) or using the fast **Filter by** options in the context menu (see **(7)** of the Audit table). To enable this, a Filter to the Results can be added or removed. Search filter syntax is: **`Token:FilterValue`**, where:

Token	filterKey	filterValue
ACTION	action	Action Example: *ACTION:GET /api/user/all*
DETAILS	details	Text included in the Details attribute.
FROM **DATEFROM**	dateFrom	DateTime format dd/MM/yyyy hh:mm:ss, example: *08/01/2018 10:22:29*
TO **DATETO**	dateTo	DateTime format dd/MM/yyyy hh:mm:ss, example: *08/01/2018 10:22:29*
FAILED	failed	True of False
USER **USERID**	userId	User id or Username
SOURCE	sourceAddress	Source address

Note: To clear search criteria use button **x** located at the right of the Search Filter bar.

REST API

It is possible to communicate directly with Helix via the REST API which facilitates functions such as pushing Blacklists or Whitelists directly into the Helix SQL databases (PUT) or receiving plate reads or images back (GET).

Definitions

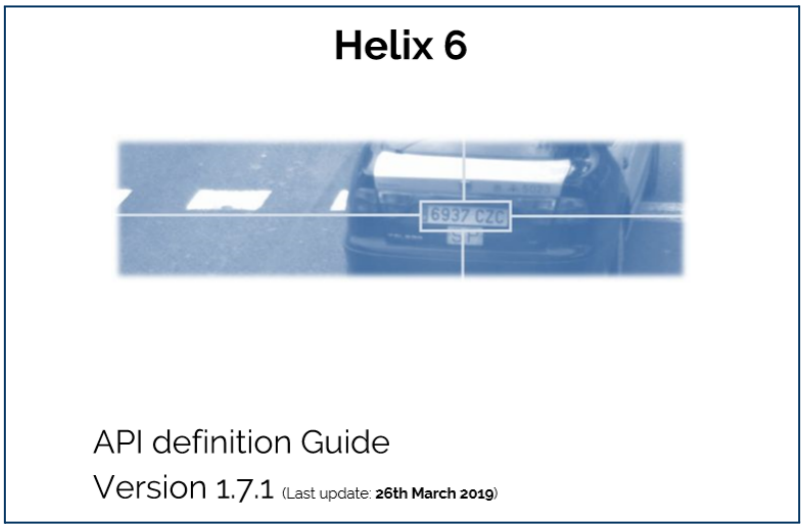
API – Application Programming Interface.
This allows an external or remote piece of software to communicate directly with Helix

REST - Representational State Transfer (sometimes written as ReST)
REST is an architectural style for providing standards between computer systems on the web., making it easier for systems to communicate with each other.
REST-compliant systems, often called RESTful systems, are characterised by how they are stateless and separate the concerns of client and server.

So, a REST API defines a set of functions which developers can use to perform requests and receive responses via HTTP protocol such as GET and POST.
Because REST APIs use HTTP, they can be used by practically any programming language and are easy to test. It is a requirement of a REST API that the client and server are independent of each other allowing either to be coded in any language.

Helix 6 REST API Complete Definition

See separate manual: ***Helix6 – API Definition – v1.7.1*** *or later.*



To request a copy of the API Definition Guide please contact Vaxtor via the website form or directly from info.eu@vaxtor.com

Configuration Examples

This section will cover how to configure the system for different common scenarios.

Configuration based on a schedule

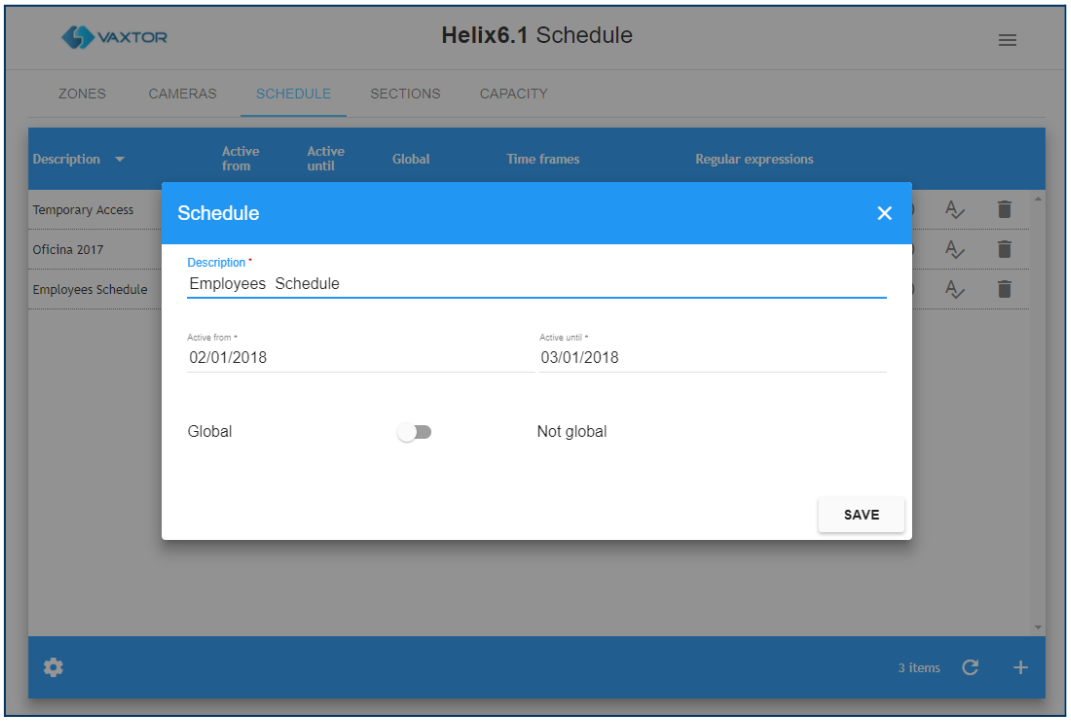
Scenario conditions:

- Helix-Server system setup for access control.
- Employees of the company shall be allowed to enter the parking lot during office hours.
- Service staff of the company shall be allowed to enter the parking lot at the weekends at any time.

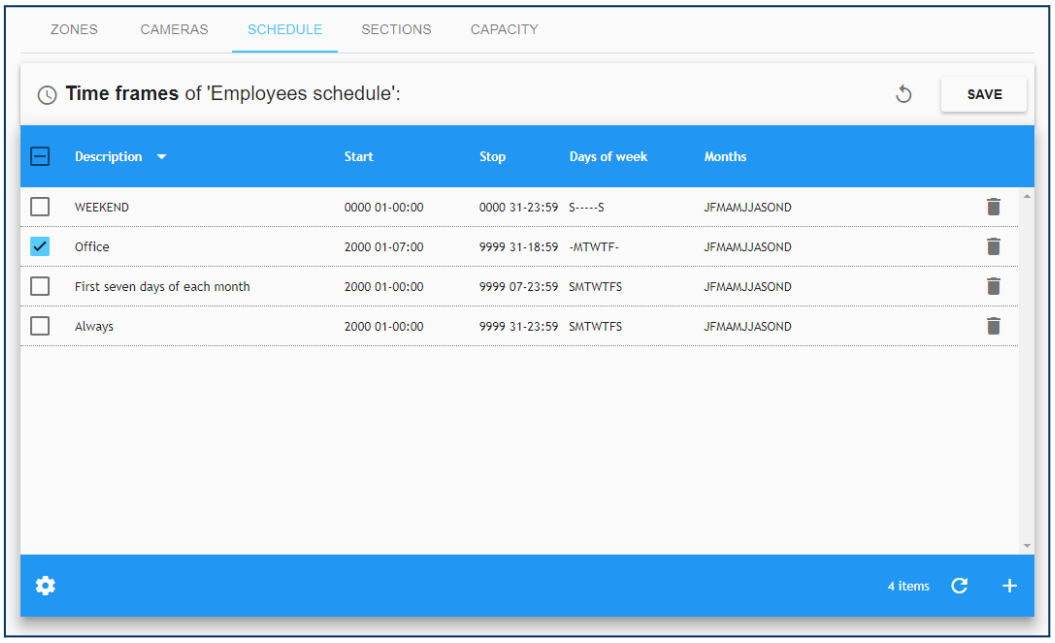
Configuration: Known delivery vehicles are to be permitted access during business hours.

This scenario will be configured with a general zone, which has two cameras, one for the entry lane and one for the exit lane.

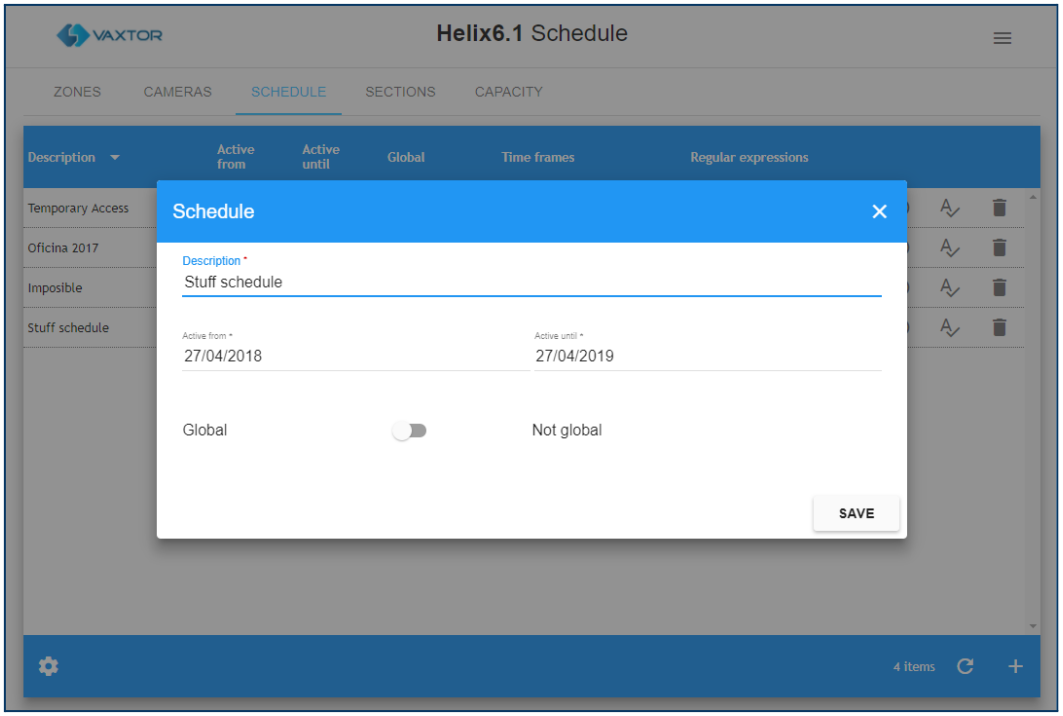
- Create a new general zone. We will call this zone “Default zone”.
- Create two cameras and assign them to the new zone.
- Create a new schedule. We will call this Schedule “Employees Schedule”.
    - Give the schedule the desired duration. In this example, it will be this year.
    - Set the schedule as not global.
    - Click “Save”.



- Click on the “Clock” icon in the “Employees schedule” row to open the timeframe interface.



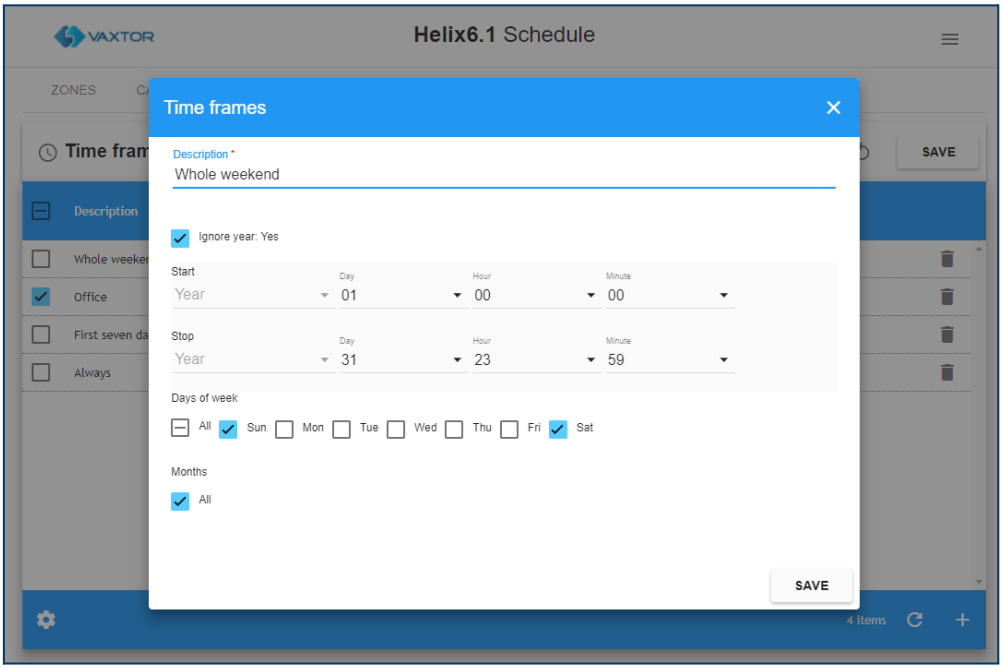
- Select the "Office" default timeframe and click "Save".
- Create a new schedule for the service staff. We will call this schedule "Staff schedule".
    - Give the schedule the desired duration. In this example, it will be this year.
    - Set the schedule as not global.
    - Click "Save"



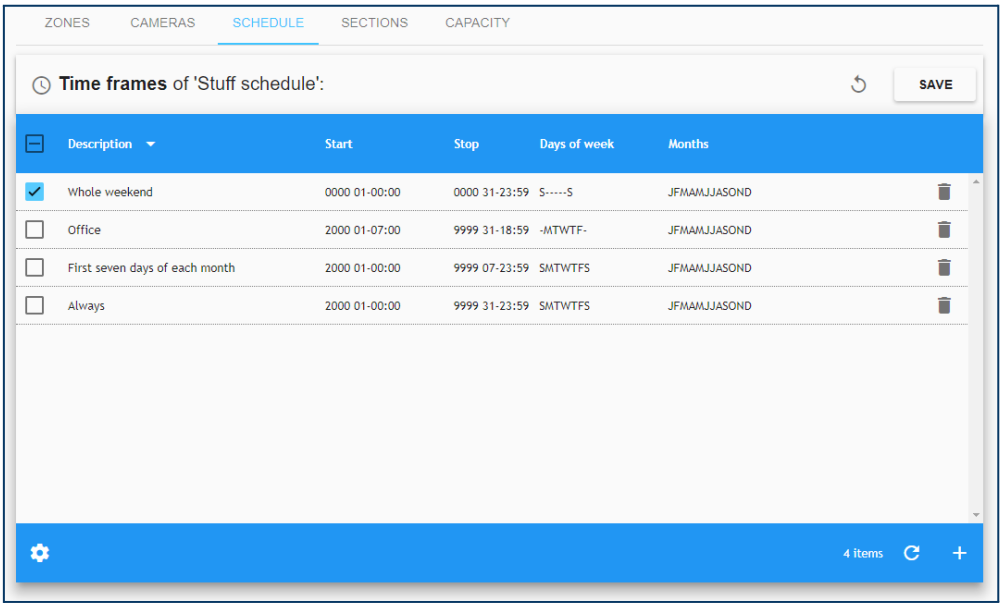
- Click on the "Clock" icon in the "Staff schedule" row to open the timeframe interface.
- Create a new time frame that covers the whole weekend.
    - Set the description as "Whole weekend"
    - Enable ignore year.
    - Set days from 01 to 31.
    - Set hours from 00 to 23.
    - Set minutes from 00 to 59.

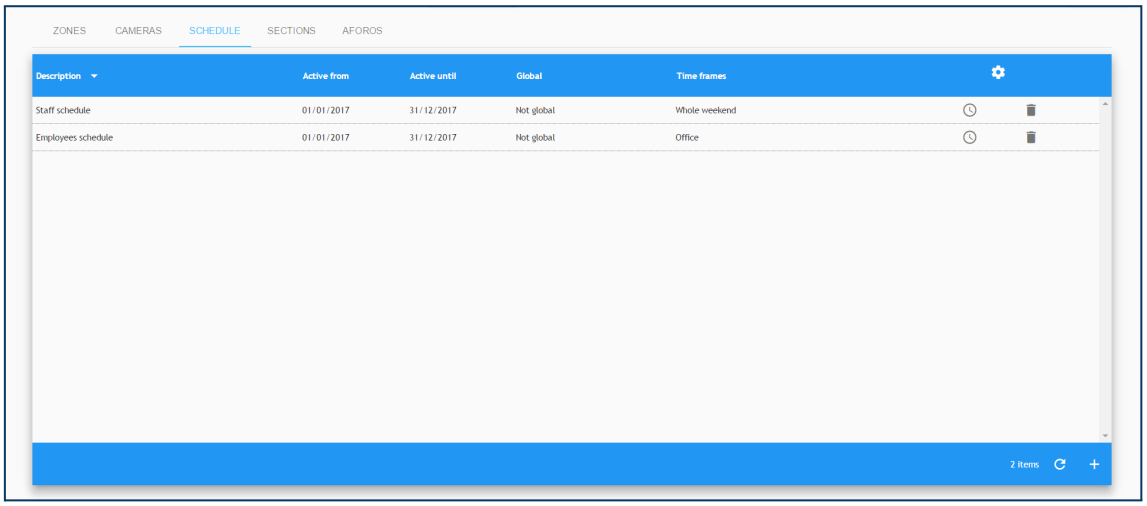
- Set Days of Week to “Sun” and “Sat” only.
- Set Months to All.

- Click “Save”

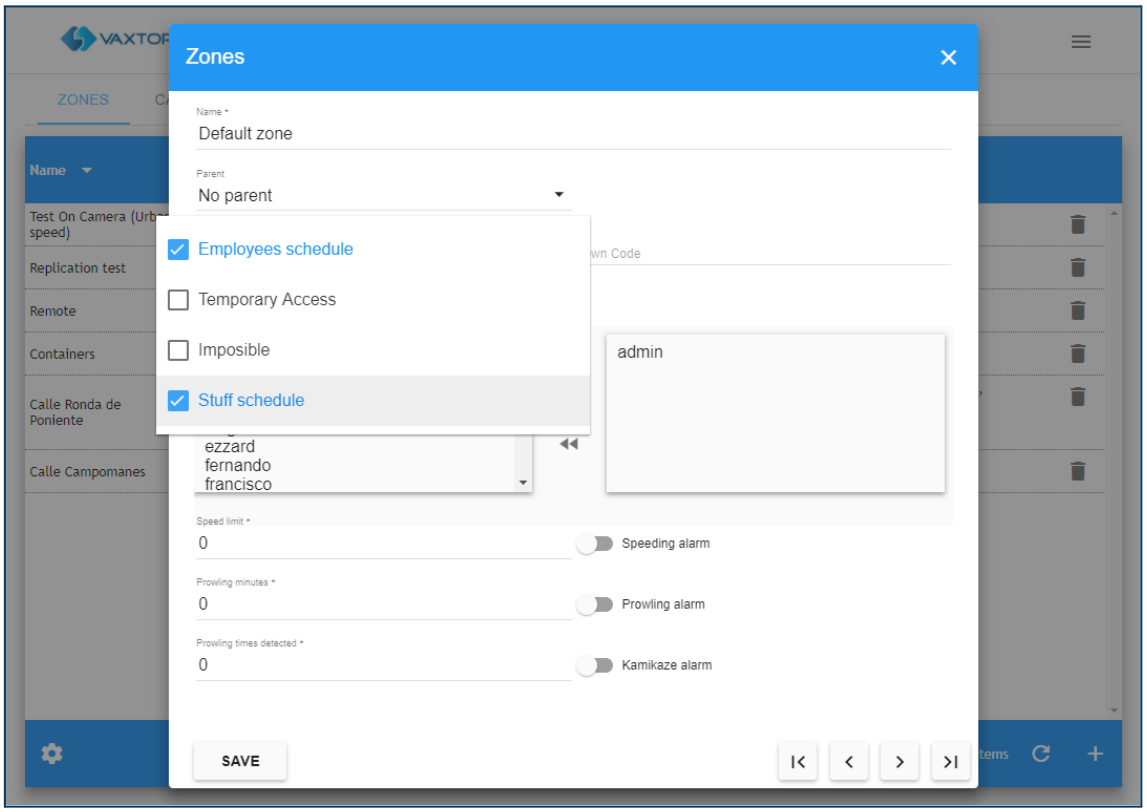


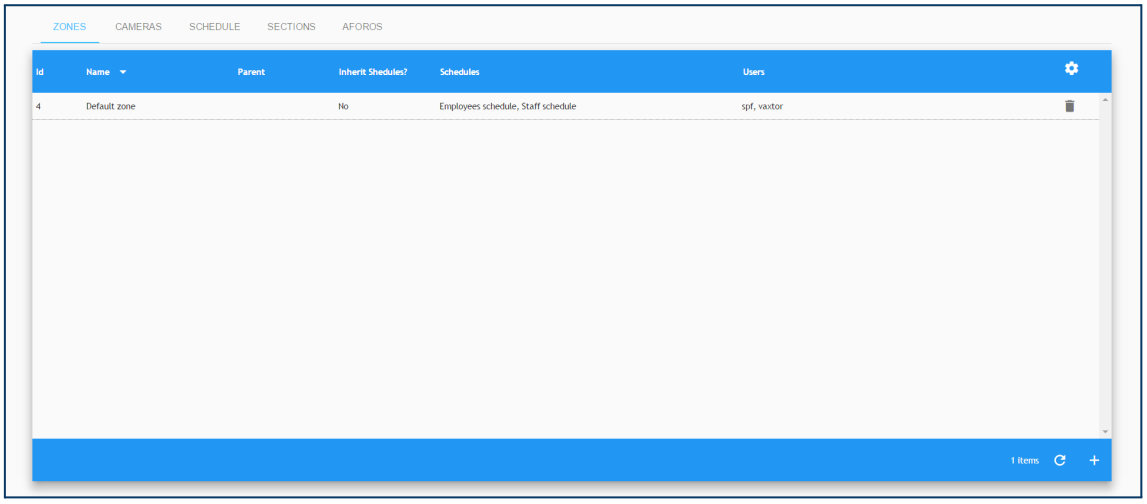
- Enable “Whole weekend” timeframe for the “Staff Schedule” and click “Save”.





- Go to “Zones” inside the “Configuration” menu and edit “Default zone” (click on it).
- Enable both schedules on the zone and click “Save”.

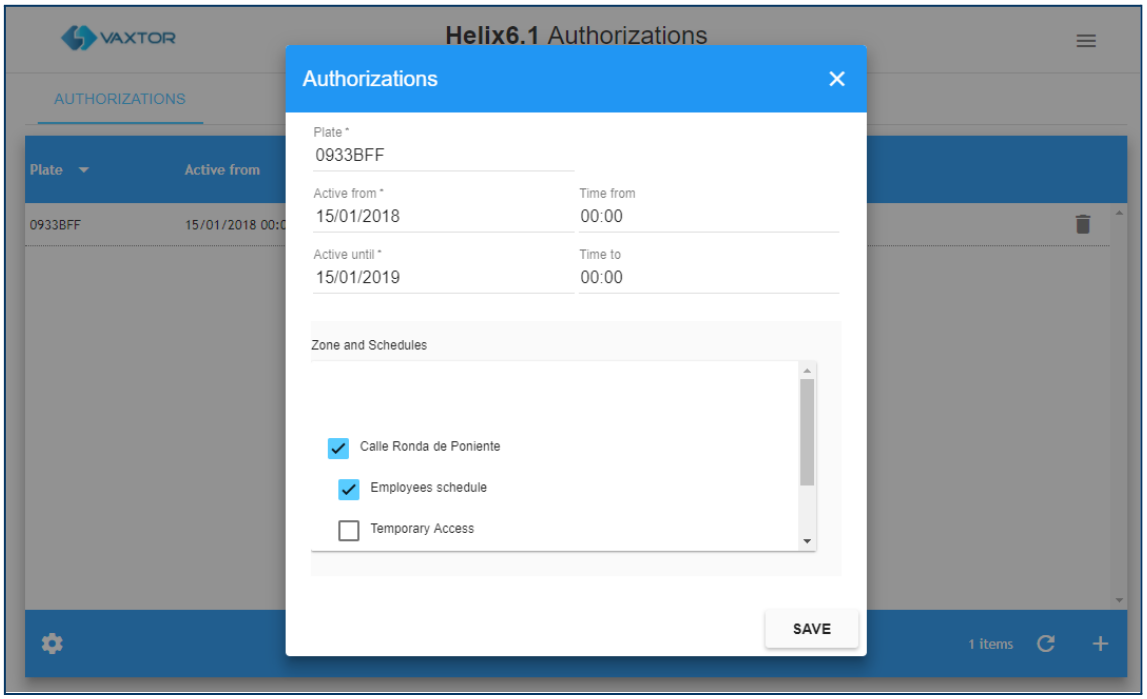




Now we need to create the authorizations associated with the users. We will create two authorizations. User "Tom" will be an employee with plate number "ANM7386" and user "Brenda" will be service staff with plate number "PNG123". User "Max" is both an employee and a service staff user with plate number "2345ZZW"

- Go to the Authorization menu to create a new authorization.
- Add a new Authorization for the plate "ANM7386".
    - On the Zone and Schedule menu enable "Default zone" and "Employees schedule"
- Click Save.

- Repeat the operation for the user "Brenda".



- Repeat the operation for user "Max".

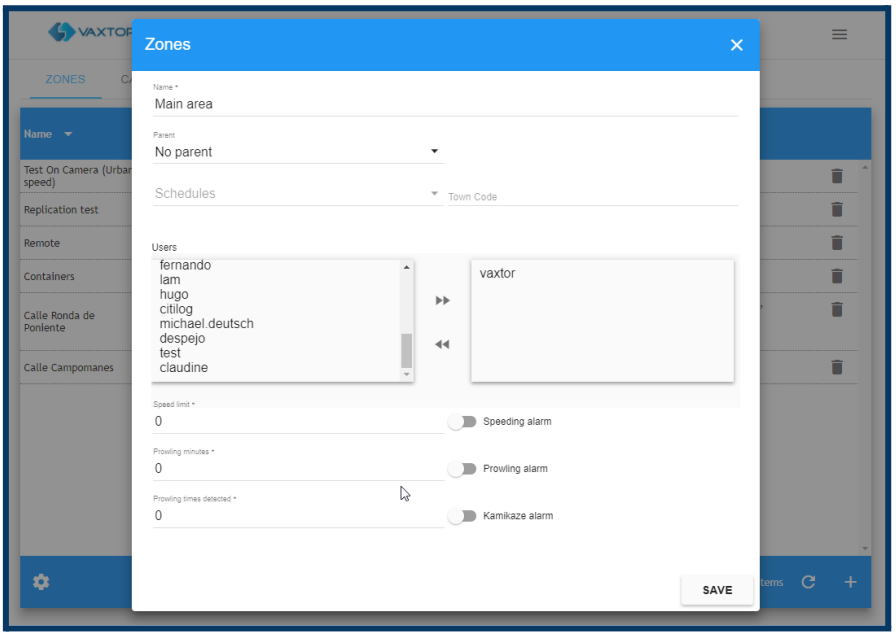
Configuration based on a zone

Scenario conditions:

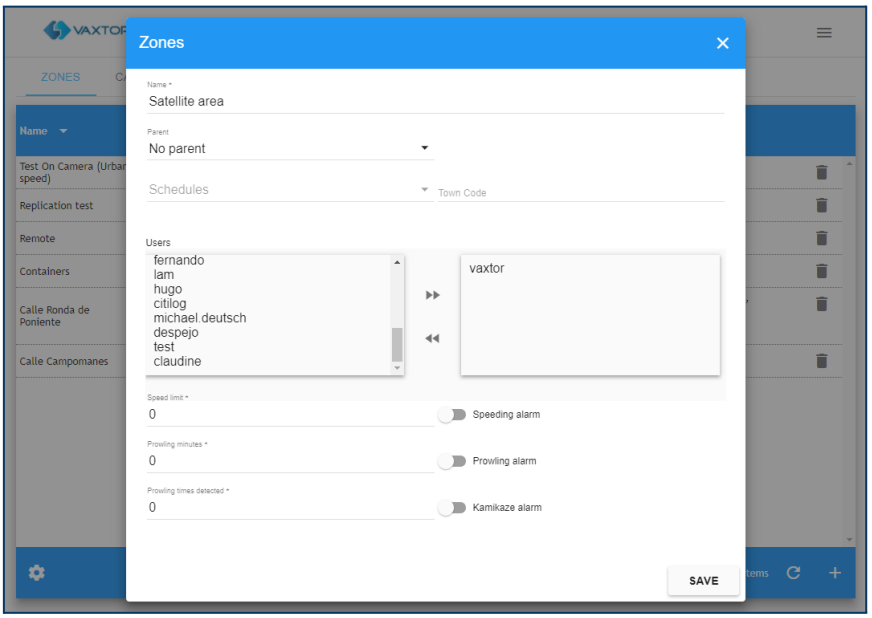
- Helix-Server system will be used as an access control system.
- There is a main area where every car shall be allowed to pass during office hour.
- There is a satellite (nest) area where only “Employees” shall be allowed to enter.

Configuration:

- Create a new zone. We will call it “Main Area”. Click “Save”

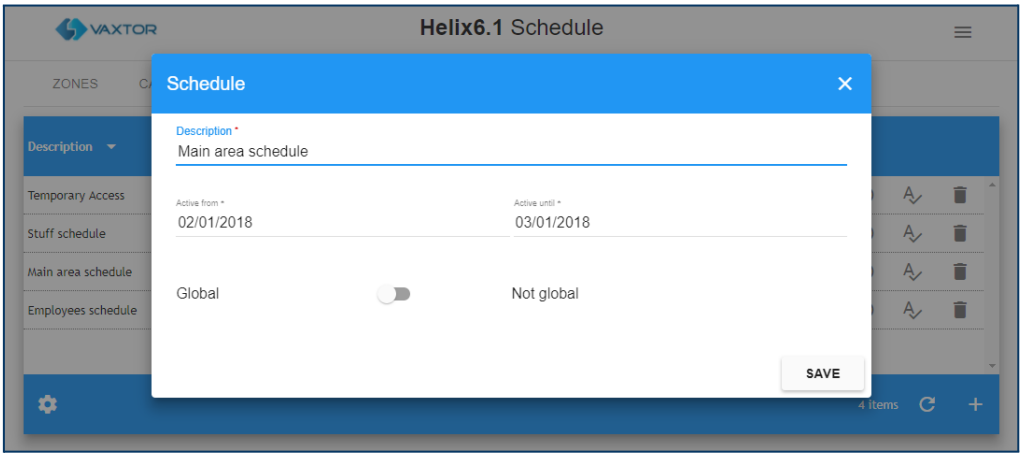


- Create another zone. We will call it “Satellite area”. Click “Save”

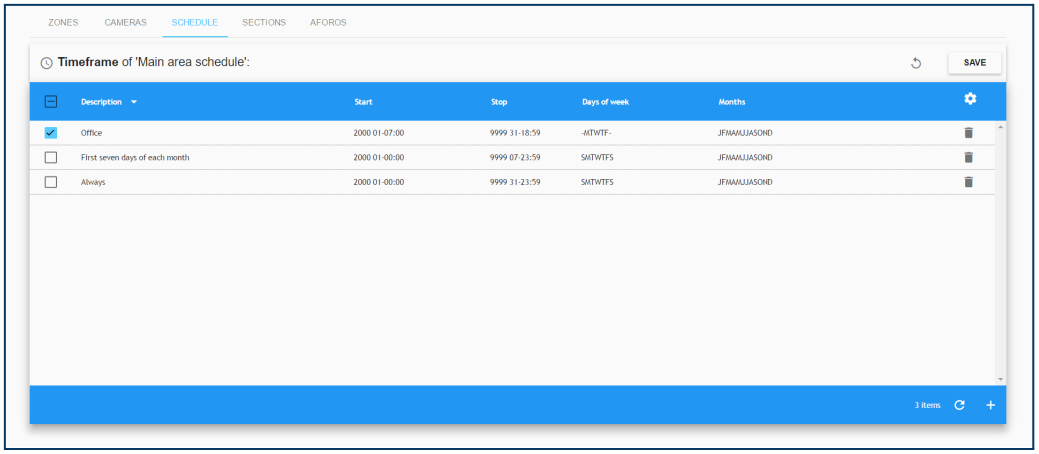


- Create the desired cameras and assign them to the zones.
- Create a new schedule. We will call it “Main area schedule”.
    - Define the duration from 2017 to 2020.

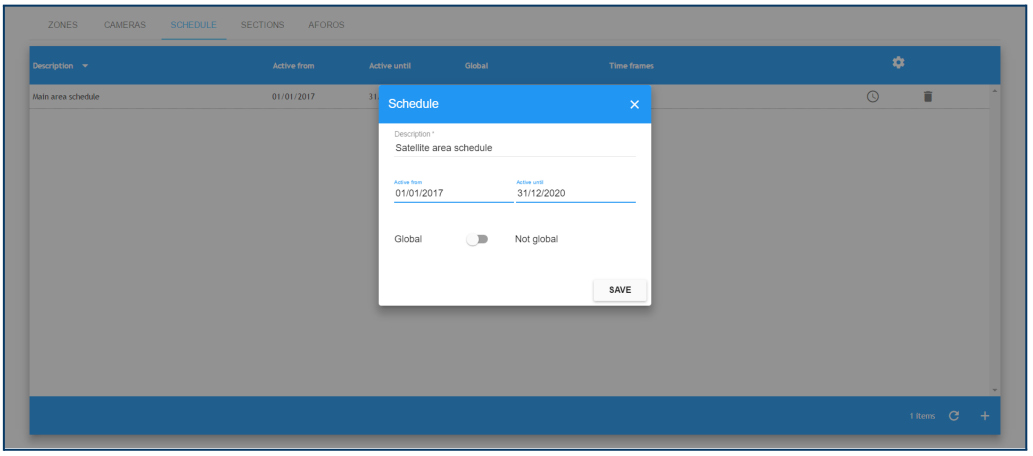
- Set the schedule as global.
- Click “Save”.



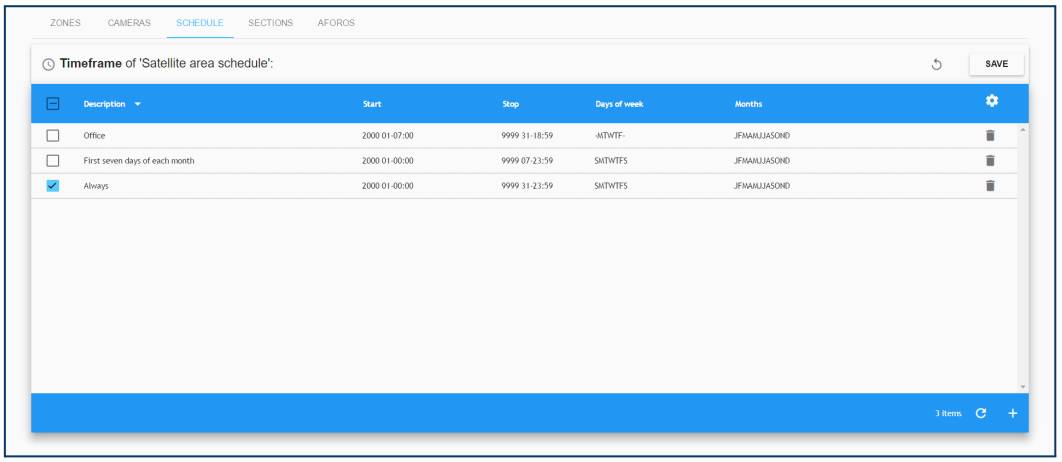
- Click on the timeframe icon and enable the “Office” timeframe. Click “Save”.



- Create a new schedule. We will call it “Satellite area schedule”.
  - Set the direction until 2020.
  - Make this schedule not global.
  - Click “Save”.



- Click on the timeframe icon for the new schedule and enable the “Always” timeframe. Click “Save”.



- Assign the schedule “Main area schedule” to the zone “Main area”.
- Assign the schedule “Satellite area schedule” to the zone “Satellite area”.
- Create the desired authorizations for the “Employees” on the Satellite area.

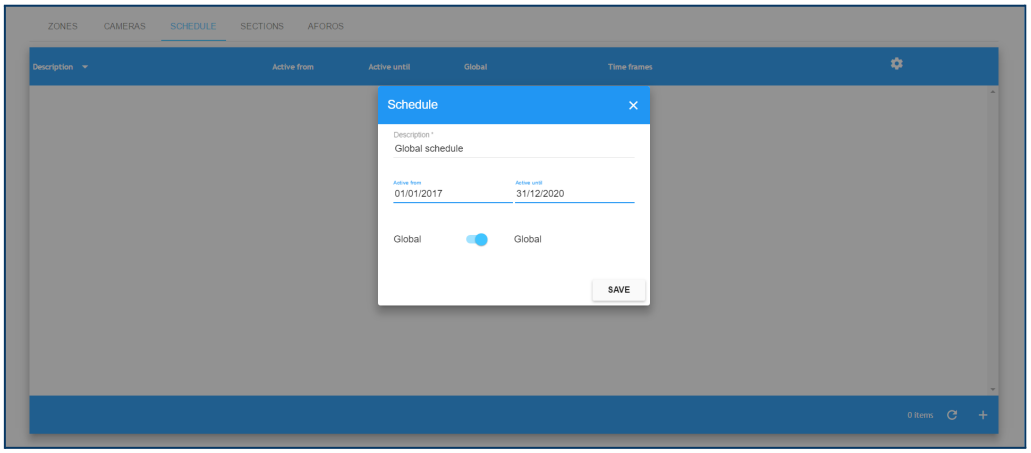
Configuring different zones inheriting programming

Scenario conditions:

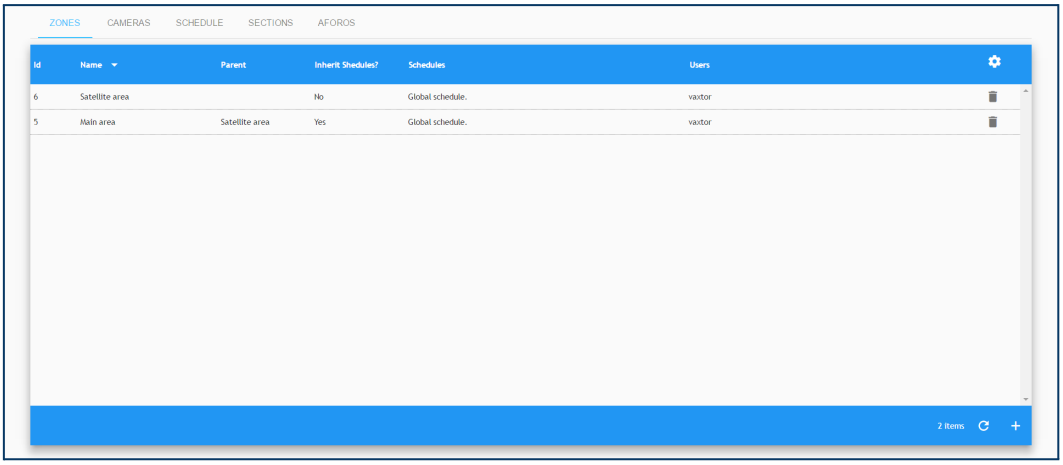
- Helix-Server will be used as an access control.
- There is a main area where every “Employee” and “Manager” car shall be allowed to pass.
- There is a satellite area where only “Manager” cars shall be allowed to enter.

Configuration:

- Create a new global schedule. We will call it “Global schedule”.
  - Define the duration from 2017 to 2020.
  - Set the schedule as not global.



- Create a new zone called “Satellite area”.
  - Assign the “Global schedule” created to it.
- Create a new zone called “Main area”.
  - Assign the “Global schedule” created to it.
  - Assign “Satellite area” as a parent of this area.
  - Enable Inherit Schedules.



The main difference in this scenario is that any authorization given for the satellite area will also apply to the Main area, even if it is not specifically enabled for this zone by the authorization itself.

APPENDIX

When configuring the alerts via email, there are several reserved words allowing you to customise the message:

$timestamp$	Sequence of characters denoting the time and date the reading event occurred, the format is "yyyy-MM-ddTHH:mm:sszzz"
$platenumber$	Returns the license plate number read.
$cameraname$	Indicates the name of the camera that made the recognition.
$cameraid$	Returns camera ID.
$confidence$	Provides the trust data of the read-in license plate.
$charheight$	Indicates the height of the character on the license plate.
$latitude$	Returns the latitude coordinates of the read plate.
$longitude$	Returns the logitute coordinates of the read plate.
$speed$	It returns the speed of the vehicle registered by the recognition system.
$zone$	Returns the area in which the plate was read.
$zoneid$	Return zone ID in which the plate was read.
$description$	Adds the alarm description in case of a blacklist trigger.
$comments$	Adds the comments of the alarm from a blacklist trigger.
$hitcount$	Shows the number of the hits for this plate on the blacklist.