

Genie Lite ANPR Server Manual



Contents

1 – Set Up	3
2 – Programming	4
3 – Maintenance	19
4 – User Admin	20
5 – Operation	25

1 - Basic Mechanical Set Up

Before starting make sure you have the following:

- 1- Genie Lite ANPR Server
- 2- GANPR Camera(s) and Overview Camera(s)
- 3- An Internet Connection via LAN, if Remote Support is required (advisable).
- 4- Power for all the units above
- 5- USB Keyboard and Mouse

Connect Monitor (not provided), Keyboard and Mouse to the Genie Lite ANPR Server.

Connect Internet connection (Broadband) to enable remote support.

Connect GANPR Camera(s) to BNC 1 and 2 – Please remember the ability of the system to read number plates accurately depends heavily on the cameras, so here are a few simple rules of thumb to consider when setting up the GANPR camera(s):

- The field of view should be as narrow as possible; ideally less than 2 metres.
- A camera is used for each lane ingress and egress location.
- The number plates need to be clearly seen, and fill around a minimum of 25-30% of the horizontal screen size.
- The number plates need to be as square on to the camera as possible.
- Avoid obstructions.
- Avoid sweeping bends, where number plates drift across the screen.
- Avoid having too much height, thus distorting number plates.
- As a basic rule of thumb, if you cannot clearly see the number plate the system will be unable to read it.
-

Connect Overview Cameras, if required, to BNC 3 and 4 connectors on the rear of the unit.

Important: Please make sure that the GANPR and Overview (if fitted) Cameras are mounted at the optimum height and have the correct field of view – as specified in the camera manuals.

2 - Programming

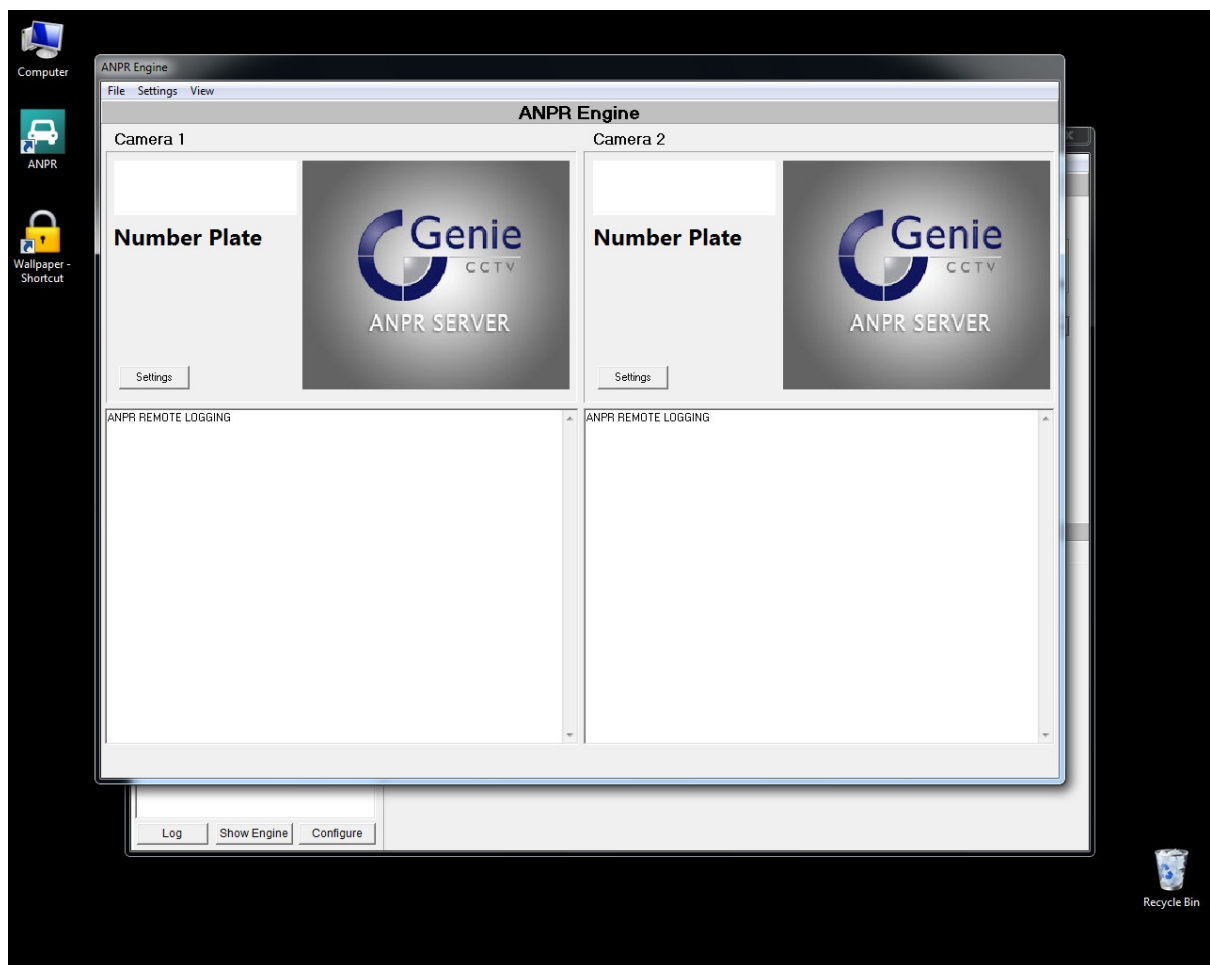
Camera Settings

If you look at the Main Screen there are a few things to get familiar with. The basic operation runs as follows.

An ANPR video feed is fed into the central unit. As a plate passes through the image two things happen. Firstly, the car overview camera (if used) displays a picture of the car in the Genie Lite ANPR SERVER pane. Secondly, a reading of the number plate shows in the ANPR REMOTE LOGGING pane. The accuracy of the read depends on a number of settings:

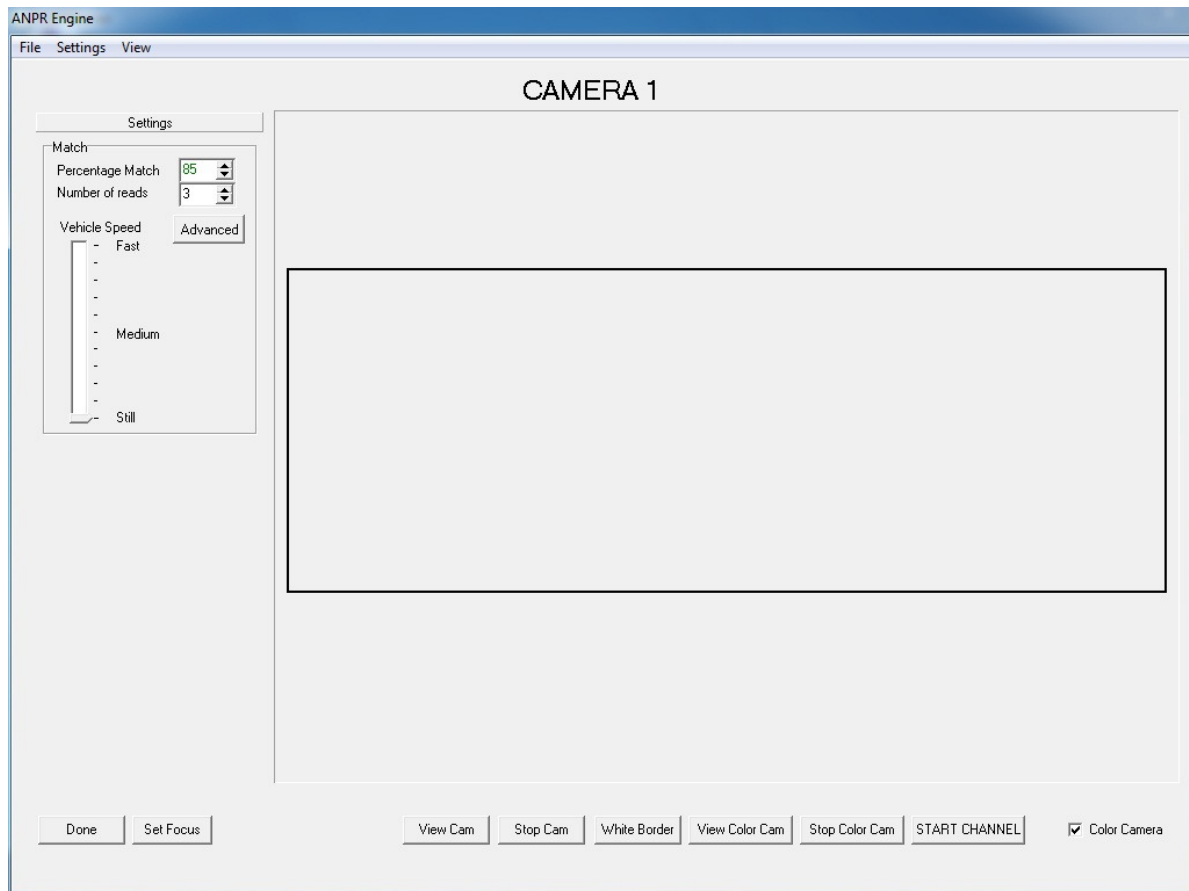
- 1- GANPR camera set up.
- 2- Channel Settings; as per the settings icon.
- 3- Local training to read number plates based on local site conditions (angle of camera etc.).

All of these issues need to be programmed correctly before accurate readings can be attained.



Main Screen Page

Next comes the Camera Settings screen.



Camera 1 Settings Page

There are a number of buttons available here.

- View Cam -** Clicking this allows live view of the GANPR camera to verify number plates are being seen, and are at the right angle etc.
- Stop Cam -** Freezes the image from the View Cam.
- White Border -** Toggles between white and black to give the read area of the picture for the Genie Lite ANPR Server (see set focus function).
- View Colour Cam -** Allows you to view the Overview Camera(s) (if used).
- START CHANNEL -** Re-starts the settings after each review and change you make.
- Set Focus -** This button allows you to select the size of the area to be focused on. This needs to be as large as possible.
- Done -** Accepts the set focus functions.

Colour Camera - By selecting this tab you gain the overview from a colour camera connected to the same frame grabber card, or in some cases an additional PCI video card.

The default sequence is (on the rear of the system):

Camera 1 - GANPR Camera

Camera 2 - GANPR Camera

Camera 3 - Colour Camera

Camera 4 - Colour Camera

Note: If you're using the GANPR camera both for recognition and overview, the "Color Camera" tick box MUST be deselected.

Basic Configuration

This is where we look at the speed of the vehicles, and the accuracy we try and work to in the system. Remember, it's very difficult to read 100% of number plates with 100% accuracy in all conditions, hence why we've this blend of settings to hone the accuracy of the system.

Percentage Match - This gives an idea on the Server's degree of certainty that a character it sees is a character it knows, so the higher the number the more certain it has to be. You need to be careful with the number added here. We advise using a number around 85% as it gives the best option between high accuracy and speed of reads. Remember some "no reads" are caused when the Server does not recognise a character to the degree of certainty within the time it saw the plate. So, if you set the number too high it may not have the accuracy and certainty, via the learning process, to read every time.

Number of Reads - The number of times, given the percentage match, the number gets read the same before it's certain that's the number it throws up on screen. The higher the number, the more times it has to read the same number. Therefore, again if set too high it may not read the number plate and seem to miss the plate completely. Usually a number around 3 works best here.

Note:

- Fast moving vehicles - Lowest number of reads (1)
- Slow moving vehicles - Low number of reads (2)
- Vehicle coming to a stop - High number of reads (3 or 4)
-

Vehicle Speed - An approximation of the expected speed of the vehicles in front of the GANPR Camera; usually set around low to middle for site entrances etc.

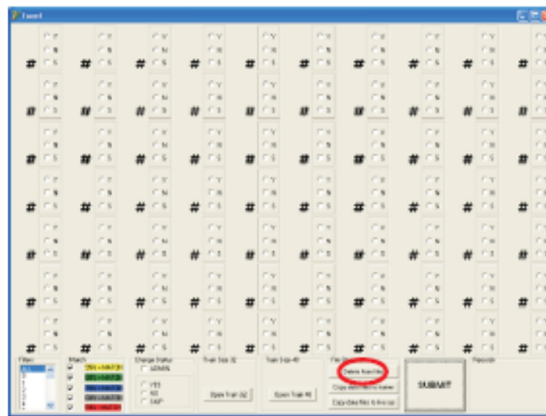
The basic accuracy of the read is a blend of the learning process, the settings and of course the quality of the images from the GANPR camera. As a rule of thumb, the better the images, the better the accuracy.

Training

Remember. A half trained system gives half the accuracy; so please ensure your system training is done correctly and diligently. Arrangements can be made to help should you require assistance in the system training. This should only be attempted by qualified personnel.

First start the Training. Open the Training application by pressing the 'Training' button in the main GANPR application.

GANPR Training Tutorial



Click on the button 'Delete Training Files' in the training application to remove old Training files from the live system. Close the Training application. You can now open the Training program again, as described above, to start a new Training session. Use the advanced global settings page to enable the Training function. The password to access the Advanced Menu is 9949. This gives you the ability to switch Training on.

As you come out of the advanced setting menu (of the GLOBAL Settings menu) you must then go to whichever camera you wish to "train" and enter the settings page.

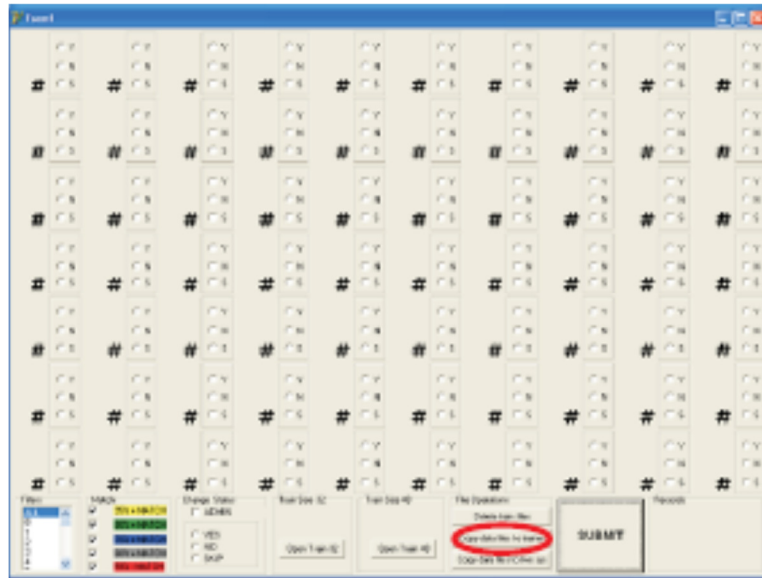
Important: You must now press STOP CHANNEL (using the admin password to do this) and then RESTART CHANNEL. This starts new t32layers1.dat, t32layers2.dat, t16x32layers1.dat and t16x32layers2.dat files growing as plates are read in the main GANPR directory. Depending on the traffic levels you may have to wait several hours, or even days, to collate enough data to do a thorough Training session for the system channel. The whole accuracy of the system depends on Training being done. Where number plates are missed, or letters like 'D' or '0' are misread, then this is a classic scenario for adding more Training.

Other classic misreads include - B and 8, Q and 0, A and 4 and so on.

Time spent here will reward you with a very high accuracy reading system of LEGAL licence plates. Remember if you can't read the plate yourself from the JPEG then the system has little or no chance of reading it either.

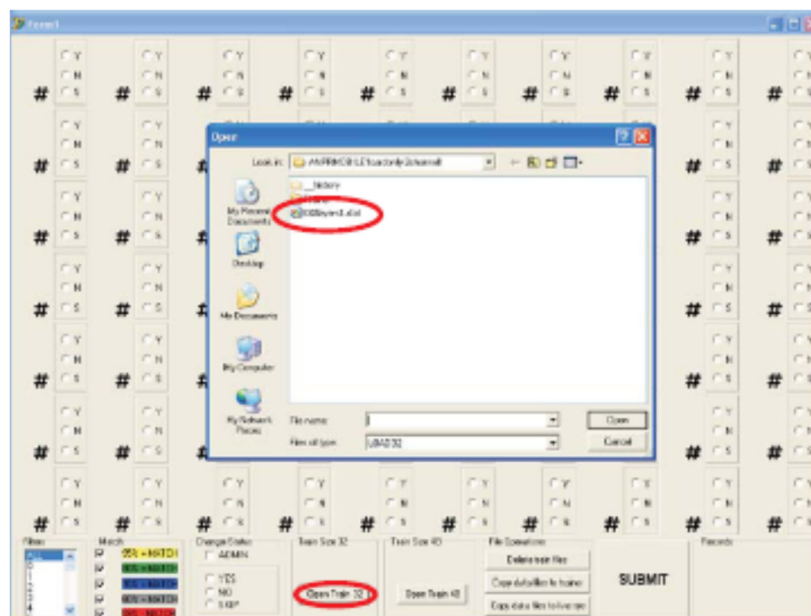


First you need to ensure you have the latest live recognition data available for the Training session. Press the 'Copy data files to trainer' button to copy the live data files to the training directory. Confirm the delete of the old recognition data. Now restart the training application to ensure the latest recognition database is loaded.



The 'Open Small' button is not normally needed, unless no I's or 1's have been trained before. Most systems come pre-trained with the 1's and I's, and therefore shouldn't need further training. Of more importance is the 'Open Medium' button. This has the biggest impact on reads as it contains all the other letters.

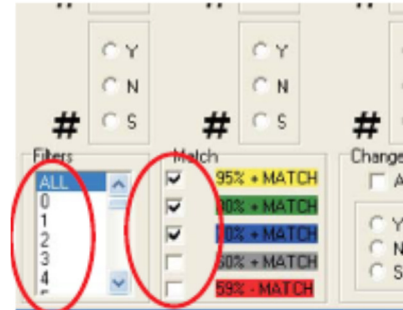
Back in the Training Application, start by loading the Small or Medium size training file by pressing the 'Open Small' or 'Open Medium' button. Browse to where the live system is installed on the computer and open the file called 't16x32layers1.dat' for Small or 't32layers1.dat' for Medium.



To reduce the number of garbage images to scroll through we recommend you deselect the 85% and 90% match fields (green and yellow). Using 90% and 85%

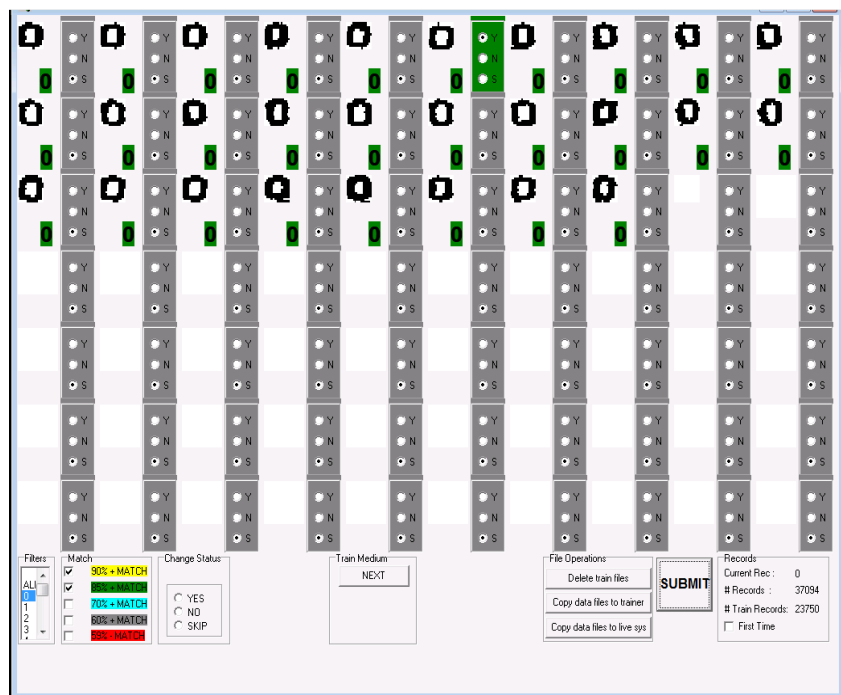
lists everything, instead of only those which were not read properly. You only use 90% and 85% when training a new database. Usually you'll already have a pre-trained database as part of your system.

You can also Train the system a letter at a time. Do this by selecting the character in the 'Filter' list and then press the load Small or load Medium button. 'All' goes through all the letters in the Training file.

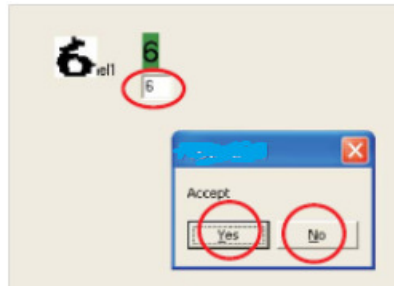


Once opened, you should see the number of records shown in the 'Record' box in the bottom right hand corner. Now press the next button, and the window should now fill up with possible letters.

You can now use the tick boxes next to the possible letters to either Train the letter as correct by clicking 'Y' or correct the letter by clicking 'N' and entering the correct letter in the edit box that appears, or skip the letter altogether by clicking 'S'. Once all the letters are inspected and assigned click the 'Submit' button. It's important to only click 'Y' to absolute certain matches on the letter otherwise the system accuracy is affected.

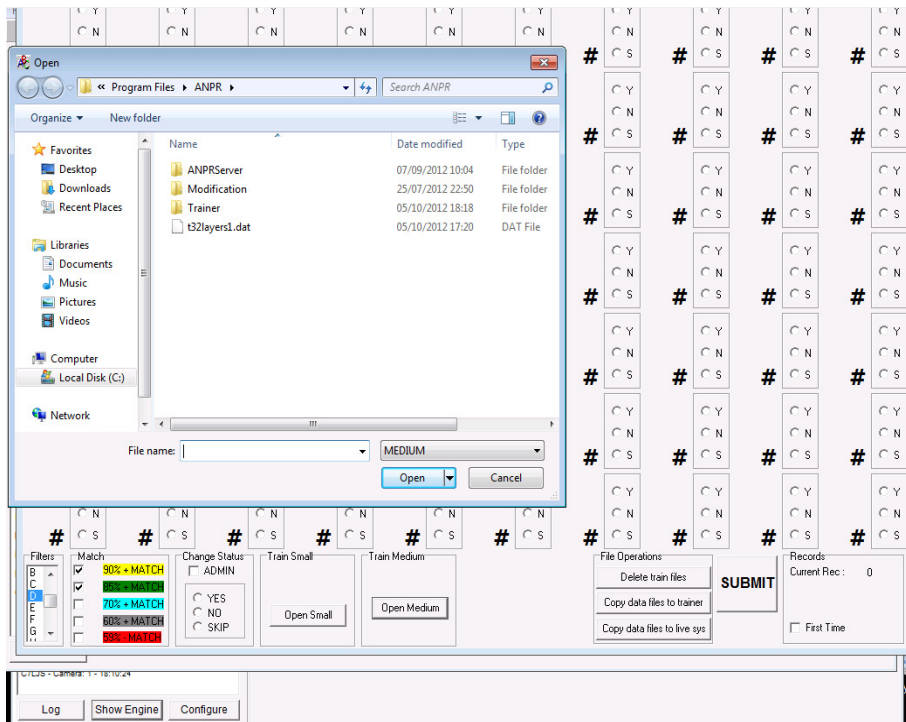


You will now be presented with a dialogue box asking if you want to accept the changes you made to the letters. You get this dialogue box for every letter you selected to ensure that letters are correctly Trained. If a letter's match turns up yellow (or above 89%) do not Train this letter as there are already letters in the database which match the letter perfectly. Please make sure that the letter in the edit box is correct before pressing the 'Yes' button. If in doubt, it's better to select 'No' to ensure no incorrect letters are Trained.



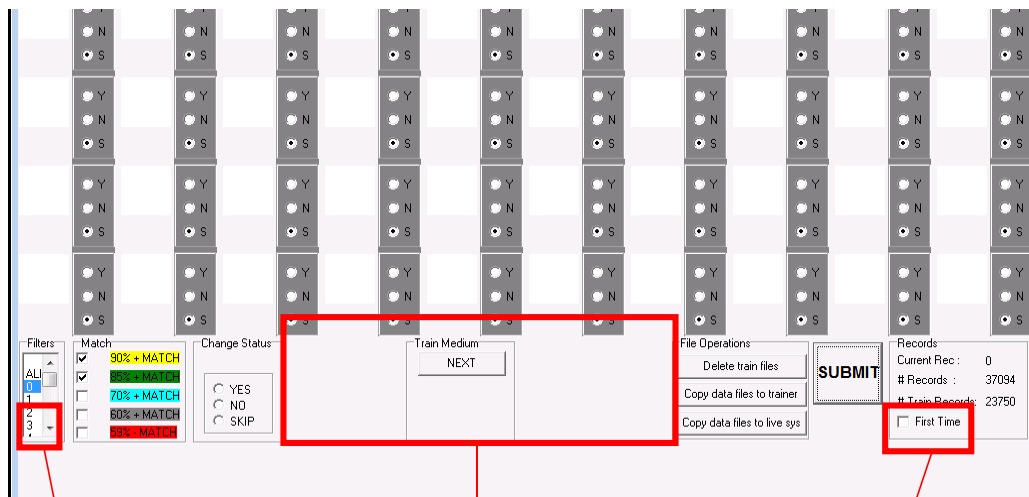
Once you've accepted all the letters selected press the 'Next' button to load the next set of letters. The next set of letters are all assigned the default '**S**' (skip) selection. Continue this process until no letters are loaded into the letter image boxes; clicking the 'Load Small' button.

Once all the Small size letters are Trained continue the process with the Medium size letters by pressing the 'Open Medium' button and opening the file 't32layers1.dat' or 't32layers2.dat'. You follow the same instructions as for Small size letters.



Once all the Training is complete exit the Training application. This is to ensure the number database is properly sorted and closed. Go into the Training application again and press the 'Copy data files to live sys' button. This now copies the newly Trained data to the live system. Be sure to close the Training application and to restart the GANPR application (by exiting the program through the admin password permission) to ensure the new recognition data is used in the GANPR application.

Special Modifications to GANPR Training Software



Training specific weaknesses in reading a letter or number correctly

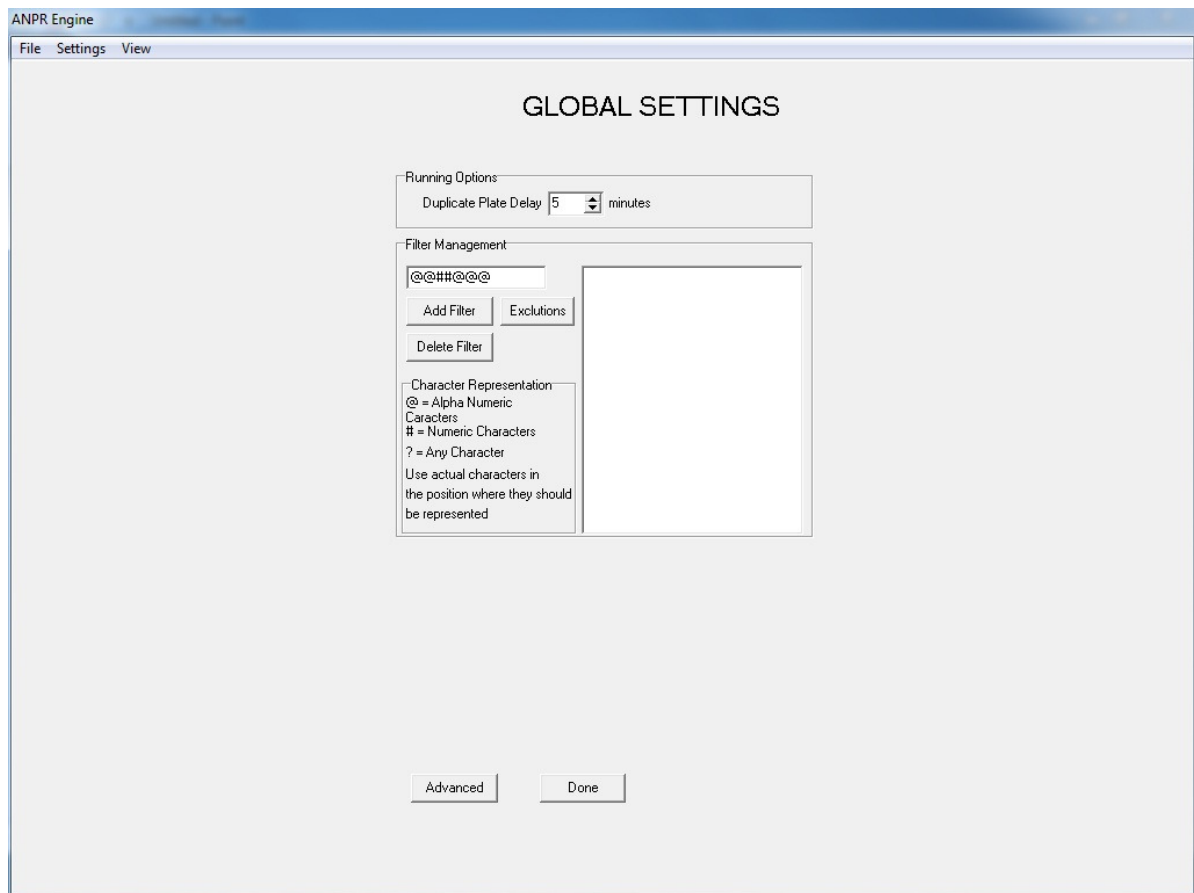
Small and Medium number size individual training

First Time Use (not needed here as the database comes pre-programmed)

Special Character - Any character not found in the drop down list can be entered here.

First Time Use - This must be selected for the first individual training session if no database is fitted. The Genie Lite ANPR system comes with a pre- configured data base so this function should not be used at all.

Global Settings



This screen allows the set-up of types of number plates to look for e.g. AB123XYT as conventional UK plate nomenclature dictates. This comes preset so there should be no need to change anything here. Please call us if you have any strange configurations you wish to add to the system.

Hot Plates

Hot plates are known number plates that can be used in a number of ways. You can use a hot plate to do the following –

- Open a barrier for a known vehicle.
- Flash an alarm for a known vehicle.
- Keep a log of what plates belong to what drivers.

They are programmed using the hot plate screen shown below.

The screenshot shows a software window titled "ANPRServer" with a menu bar containing "File", "Tools", and "Views". The main area is titled "Configuration Screen" and contains a table labeled "Hot Plates". The table has columns for "HotPlate", "DateAdded", "CarMake", "CarModel", "CarColour", and "OwnerName". Below the table is a search bar and buttons for "Find Plate", "Show All", "Delete", "Modify", and "Add". At the bottom, there is a "Hot Plate Details" section with input fields for "Number Plate", "Reason Added", "Date Added", "Instruction", "Car Make", "Car Model", "Car Colour", "Car Reg #", "Owner", "I.D. Number", and "Address". A "Close" button is located at the bottom right of the window.

HotPlate	DateAdded	CarMake	CarModel	CarColour	OwnerName
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Hot Plate Details

Number Plate

Reason Added

Date Added

Instruction

Car Make

Car Model

Car Colour

Car Reg #

Owner

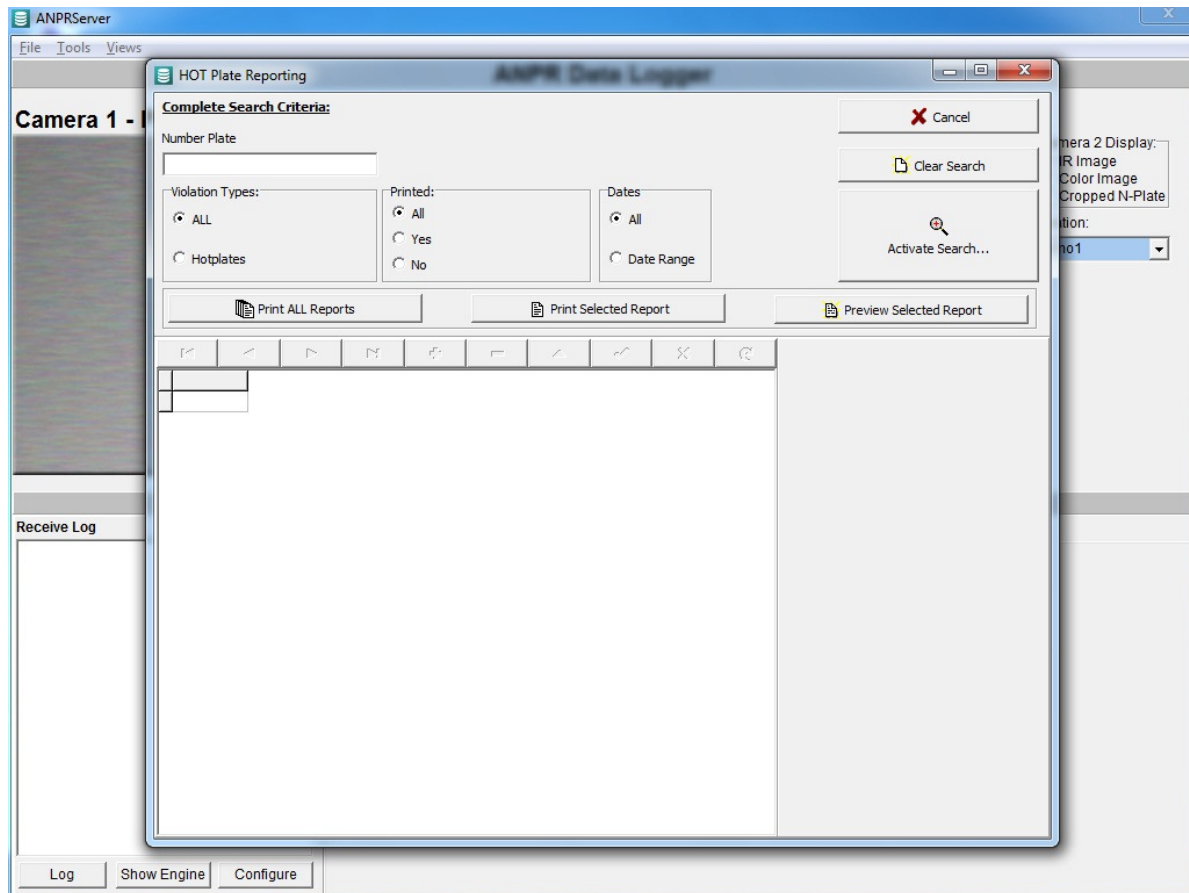
I.D. Number

Address

Find Plate Show All Delete Modify Add Close

Hot Plate Programming Screen

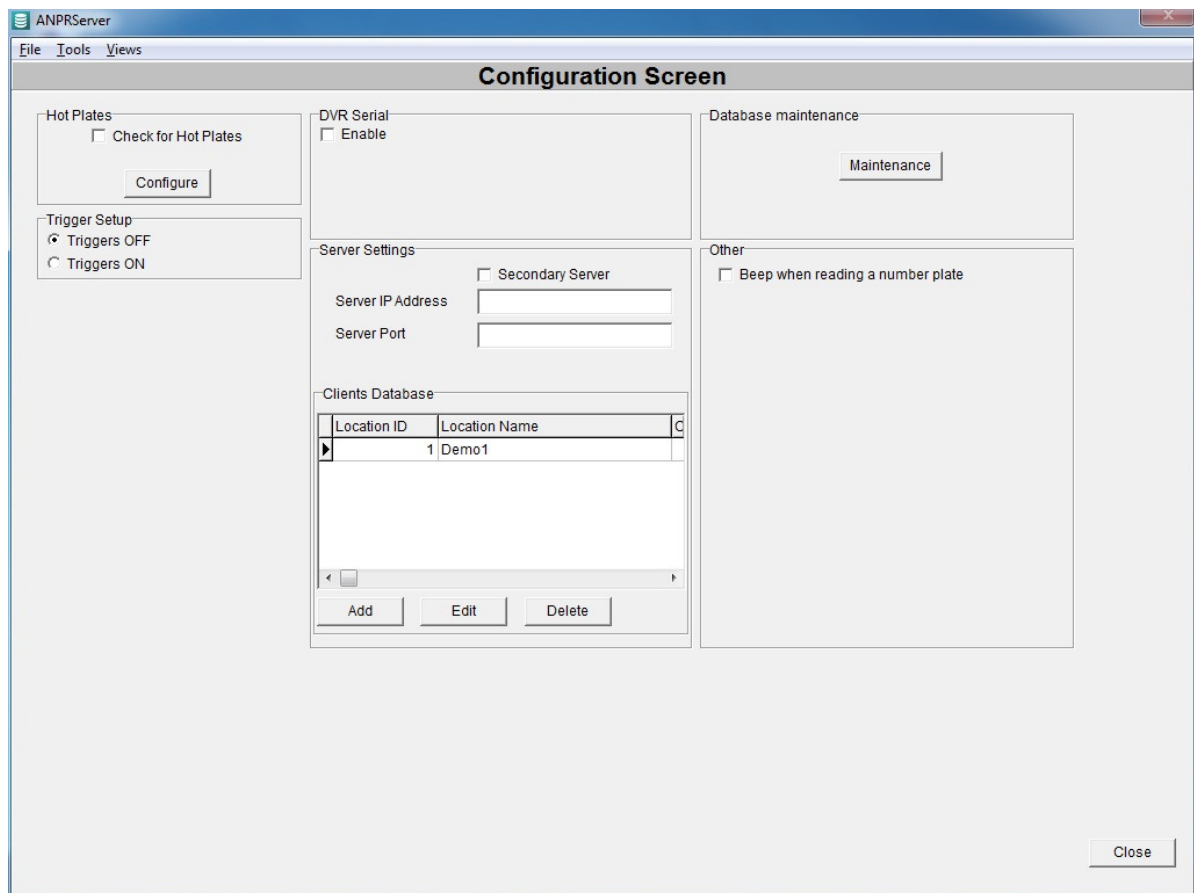
Hot plates are reported using the reporting screen, and by filling in the boxes you can get any amount of information you require from your system.



Hot Plate Reporting Screen

Configuration Screen

This screen is used to program the unit and for database maintenance.



Configuration Screen

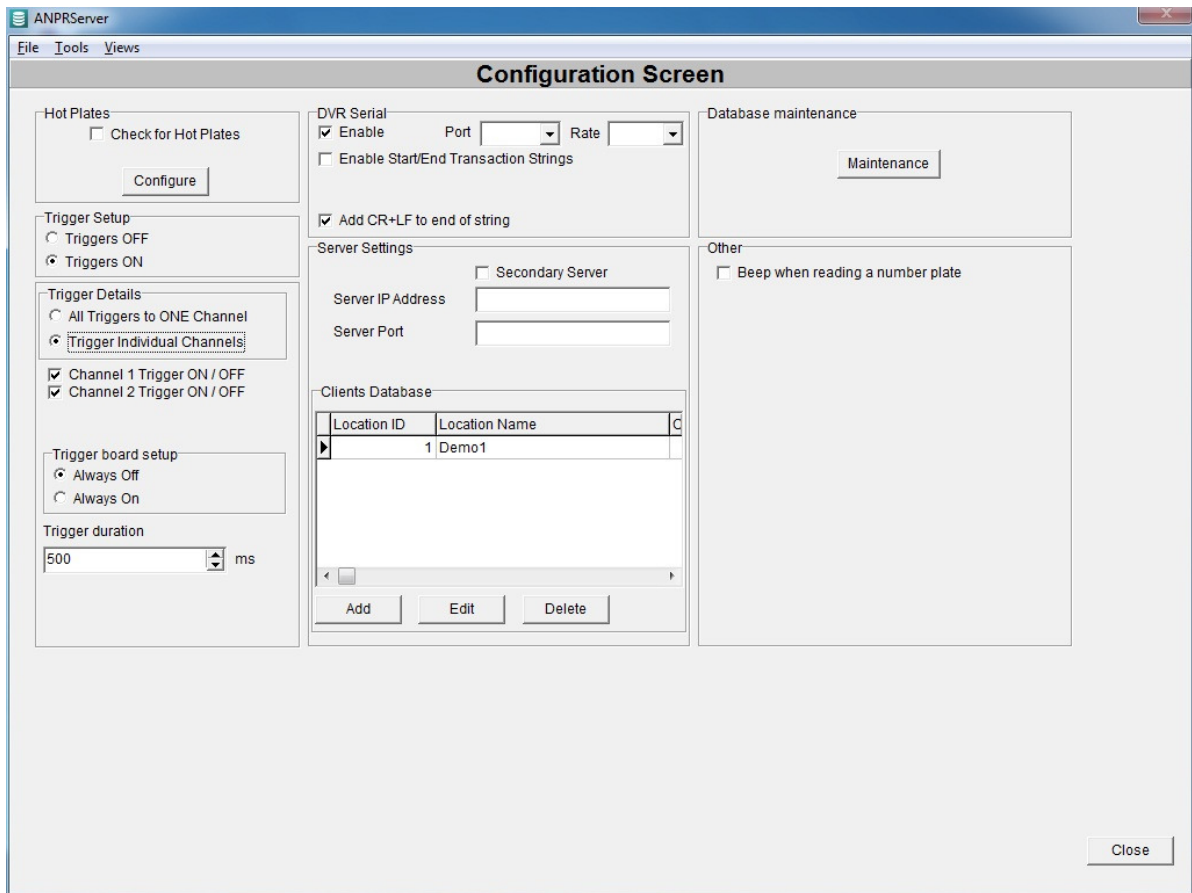
Hot Plates - If you're using this function it should be checked, and then programmed, as previously mentioned. If a barrier needs to be raised to enter or exit a site, then the Hot Plates will be programmed to interact with triggers.

DVR Serial - It's possible, with certain DVR's, to have a text overlay of the captured number plates.

Server Settings - This normally comes pre-programmed.

Other - Allows a beep each time a plate is read.

Triggers - If an alarm output, such as opening a barrier, is required then this function needs to be enabled, as well as the trigger card being installed in the system.



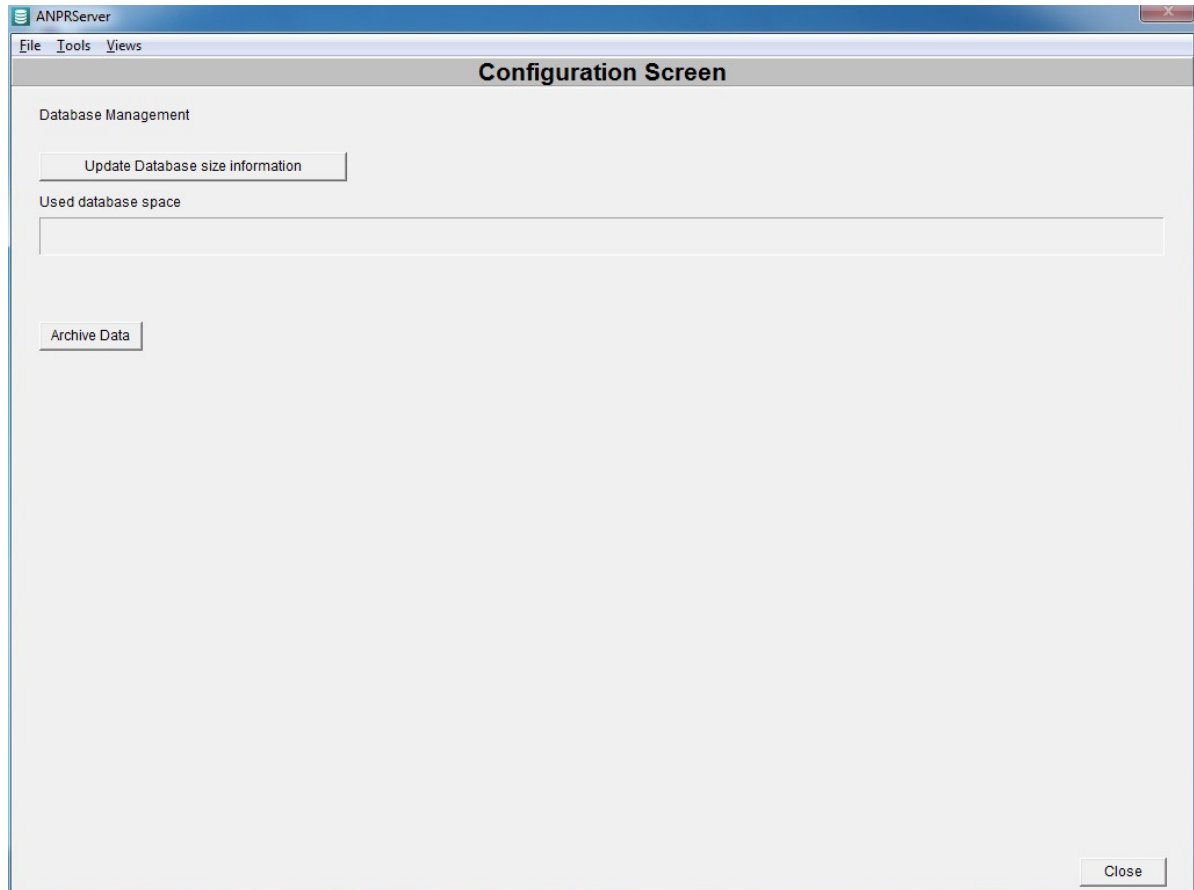
The configuration gives the polarity of the contact and the duration of the closure or opening on alarm or trigger. Please call us for more details.

Database Maintenance - As described below, but used for the archiving of data from the system. This should be aligned with traffic volume and storage requirements and done on a regular basis where possible.

3 - Maintenance

Database Maintenance

Done to archive database on set occasions



Simply click on the Update button and then press Archive Data and follow the specific instructions to archive the system data.

4 - User Admin

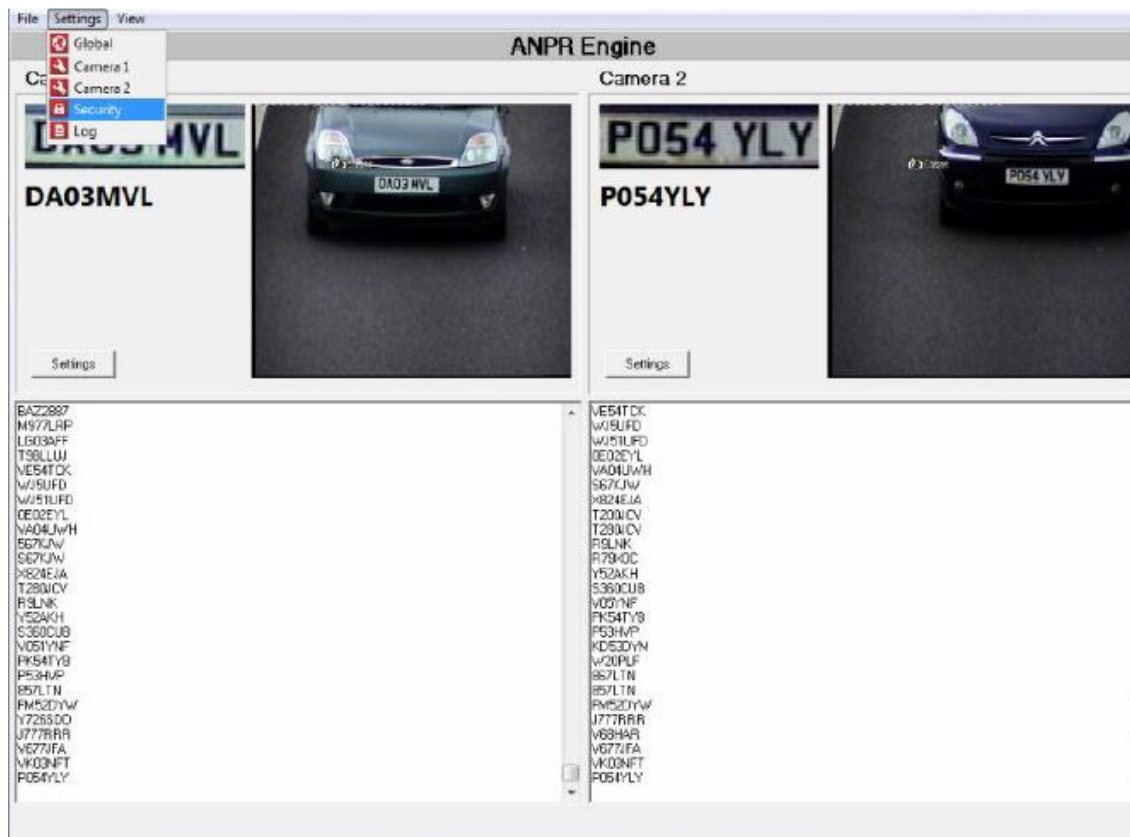
Security Access

The ANPR unit has two operator levels which can be programmed by an ADMINISTRATOR level password. These are either ADMIN (full system access) or STOP/START (just stop/start plate reading access). These are programmed via the SECURITY menu; from the drop down screen on the ANPR ENGINE pane.

Select SECURITY from the drop down menu:

Two levels of user are available:

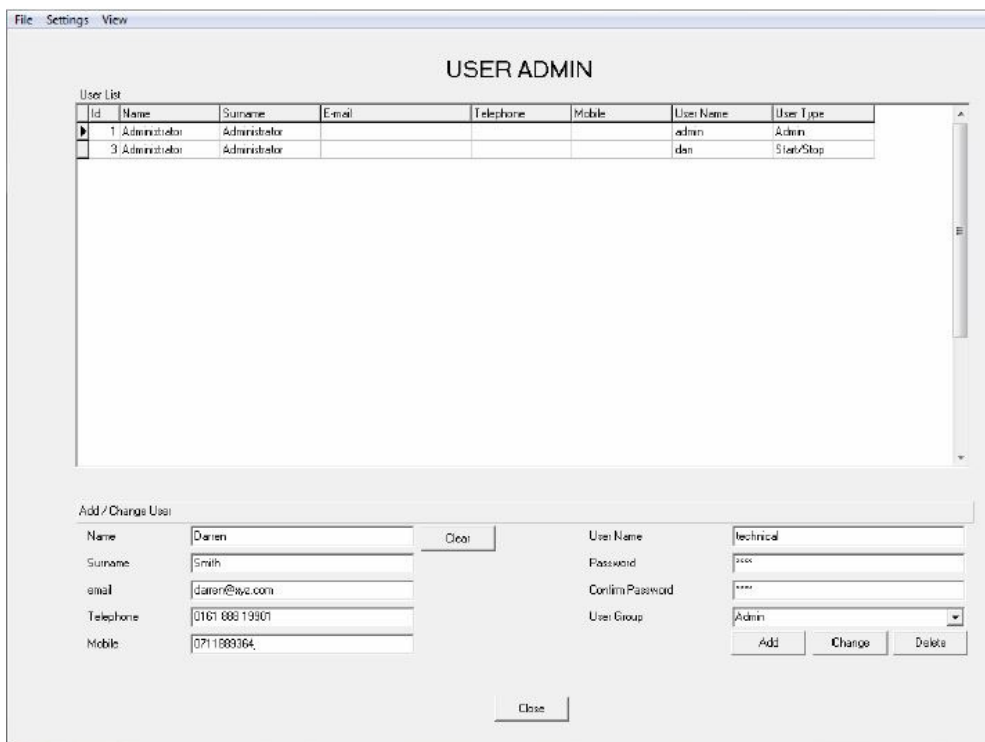
- 1) ADMINISTRATOR – This gives full access to all areas of the ANPR program; including exit to Windows. The use of the password should be strictly controlled and is designed that way to prevent misuse.
- 2) STOP/START – This level allows the user to STOP and START the ANPR channels in the SETTINGS menu. This may well be at periods of time where ANPR may or may not be required on a specific lane. This user may NOT exit to Windows or change any of the settings. It is very much designed along the lines of a basic operator.



To access the SECURITY menu you need to have a password of ADMINISTRATOR status. Once the password is successfully entered the user can program new users and passwords.



To add a new User, fill in the fields and add the Password twice in the required fields.



When entering the fields is complete, simply select the required USER GROUP, either ADMIN or START/STOP, from the drop down menu.

USER ADMIN

User List

Id	Name	Surname	Email	Telephone	Mobile	User Name	User Type
1	Administrator	Administrator				admin	Admin
3	Administrator	Administrator				den	Start/Stop

Add / Change User

Name:

Surname:

email:

Telephone:

Mobile:

User Name:

Password:

Confirm Password:

User Group: (dropdown menu open showing: Start/Stop, Admin, Start/Stop)

Once this is done click ADD.

USER ADMIN

User List

Id	Name	Surname	Email	Telephone	Mobile	User Name	User Type
1	Administrator	Administrator				admin	Admin
3	Administrator	Administrator				den	Start/Stop

Add / Change User

Name:

Surname:

email:

Telephone:

Mobile:

User Name:

Password:

Confirm Password:

User Group: (dropdown menu open showing: Start/Stop, Admin, Start/Stop)

The User should appear in the list of Users.

The screenshot shows a web application window titled "USER ADMIN" with a menu bar containing "File", "Settings", and "View". The main content area is titled "User List" and contains a table with the following data:

Id	Name	Surname	E-mail	Telephone	Mobile	User Name	User Type
1	Administrator	Administrator				admin	Admin
3	Administrator	Administrator				dan	Start/Stop
4	Darren	Smith	daren@vz.com	0161 888 19901	0711889364	technical	Start/Stop

Below the table is a form titled "Add / Change User" with the following fields and controls:

- Name: Darren (with a "Clear" button)
- Surname: Smith
- email: daren@vz.com
- Telephone: 0161 888 19901
- Mobile: 0711889364
- User Name: technical
- Password: [password field]
- Confirm Password: [password field]
- User Group: Start/Stop (dropdown menu)
- Buttons: Add, Change, Delete
- Close button at the bottom center.

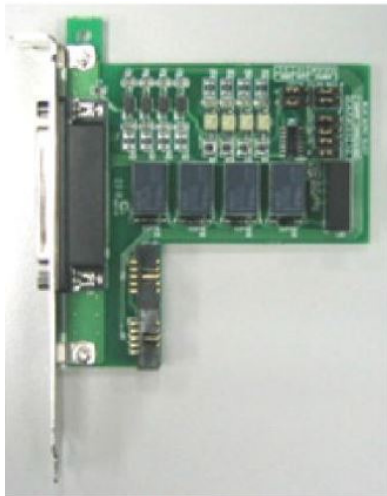
Alarm Output Board

The Alarm Output Board gives two outputs. Each trigger relates to a channel.

Video Channel 1 – Trigger 1
Video Channel 2 – Trigger 2

The board is mounted inside the PC and does not normally need adjusting.

Please Note: Any interference with this board may invalidate the warranty, and thus any adjustments should only be carried out by authorised Service Technicians.



ANPR ALARM TRIGGER BOARD (Fitted inside your ANPR PC)

If Hot Plates are set to trigger on a registered number plate - perhaps to raise a barrier - then the relevant trigger output is used to perform the function.

The output is a low power relay output. We suggest using a relay module (not supplied) for switching external equipment – make sure the relay is suitably rated and matched to the load of the equipment to be switched e.g. barrier or sounder.

Use the pinouts, as shown below, from the 25-way D type connector. This allows you to produce a closed going open (NC) or open going closed (NO) stimulus, depending on what's needed to operate the external equipment.



PIN	SIGNAL	TRIGGER
9	Relay 1	Trigger 1
10	Relay 1 Common	Trigger 1
11	Relay 2	Trigger 2
12	Relay 2 Common	Trigger 2

4 – Operation

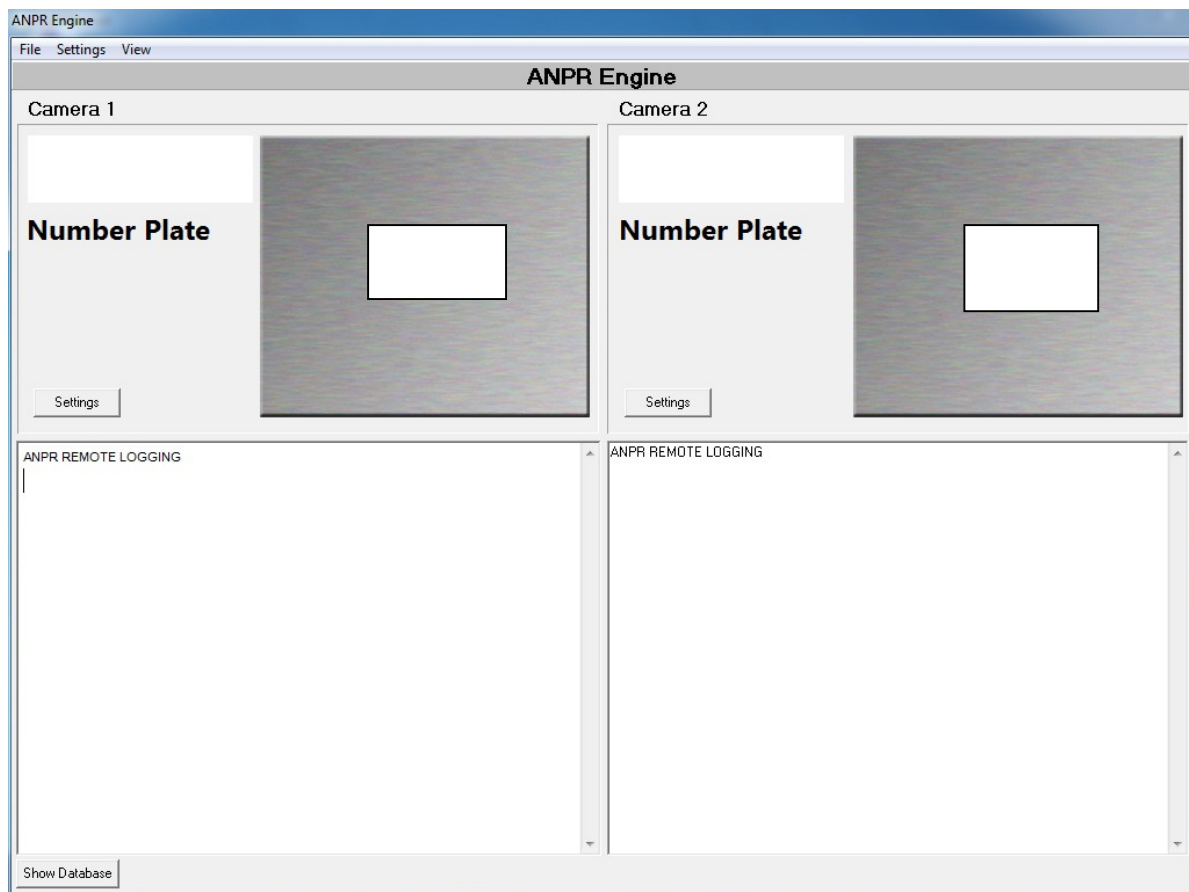
Using the GANPR System

There are two modes in which the system can be used.

- 1- Main Screen mode
- 2- Log Screen mode

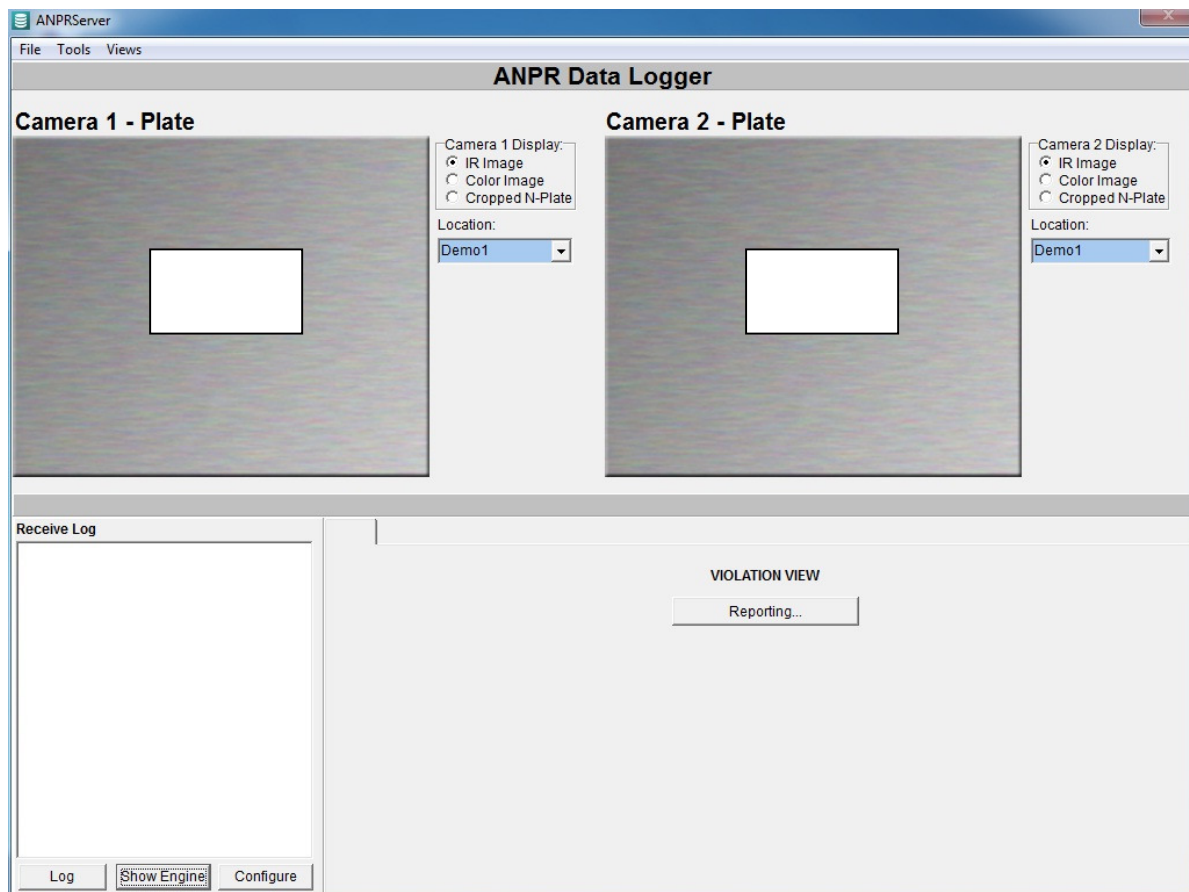
Both ways are passive and in the main no operator interaction is required, unless you have hot plates set.

As an aside, in essence ANPR is a relatively passive form of surveillance. When correctly set up and Trained it should sit quietly and record number plate details. There shouldn't be any need to actively track vehicles on a daily basis; especially once hot plates are programmed.



Main Screen Mode

In this mode the plates are read and appear as a list in the bottom pane. The number plate read appears where the Genie Lite ANPR logo usually resides.



Data Logger Mode

In this mode the receive log clocks up read number plates and data, whilst you can choose the picture you wish to see from the buttons in the pane.

IR Image - Gives an overview of the front of the vehicle (including the plate).

Colour Image - Gives an overview picture.

Cropped Number Plate - Gives a cropped image of the number plate.

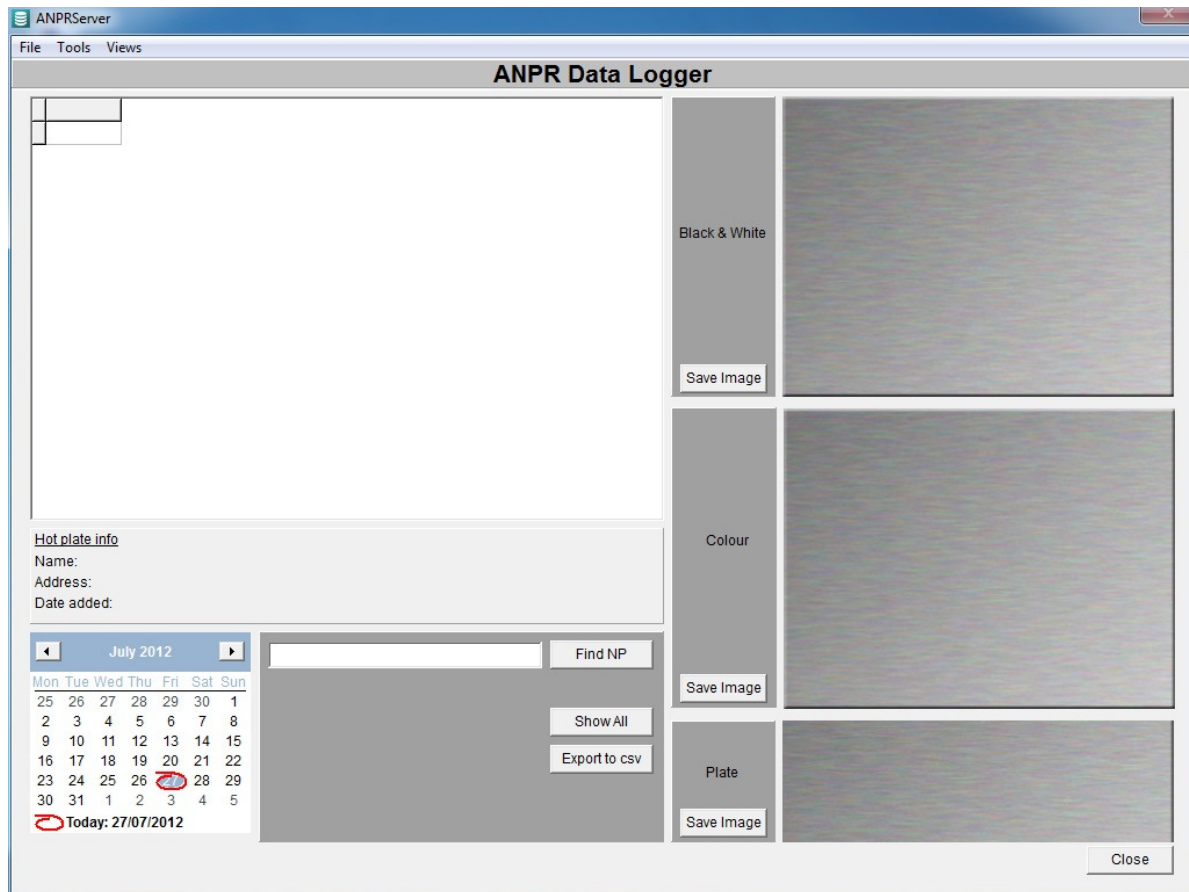
Violations or Hot Plate alarms appear in the reporting pane. Clicking Reporting takes you to the Hot Plate section.

Therefore this screen is used if there needs to be interaction between the GANPR unit operator and the Alarms presented to them.

The other buttons work as follows –

- Log - Takes you to the area to search the database.
- Show Engine - Takes you back to the Main Screen.
- Configure - Takes you to the Configuration Screen.

Log



This screen allows you to find number plates. To do this type in full or partial details and wait a few seconds (database size dependant) for the system to come back with its findings; presented as a list. Start the search by selecting a date and go from there.

Simply click on an entry to view it and the number plate details, together with data and picture, are displayed. You can either show all entries or export them in a csv file format.

Important: When you exit this section click the Close button (bottom right of the screen) to fully close the program down (rather than the red X button at the top right of the screen).

Windows Keylock (GenieLok)

In addition to the User accounts previously mentioned in the manual we also provide a free Windows keylock called "GenieLok" that allows Installers/ System Administrators the ability to lock down the Windows Operating System when the ANPR PC is being monitored by a non admin user IE Security guard. To use the program:



1. Run the program
2. Type "resetlock"
3. default password is now "0000"
4. Once you enter it will prompt you for a new password.
5. Once you have set the password please make a note of it. If the password is lost then you just need to reset the password again.

GenieLok leaves any running programs in the foreground but hides the Windows desktop, start button and "task manager" if "ctrl, alt, del" is pressed. It's only designed to run in a Win7 environment. To unlock type in the password and click the unlock button. Run the program again anytime you want to lock the PC from general access.