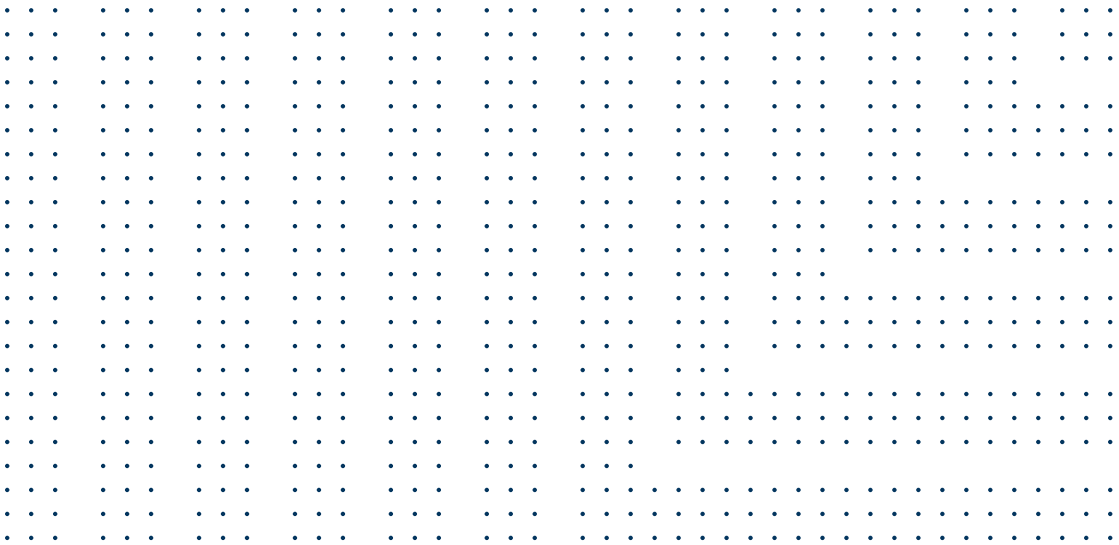
AutoVu Cloudrunner.™

Safer communities – day and night, rain or shine



Identifying a vehicle used in a crime often unlocks a case. But without the right data, witness testimonials can be insufficient, slowing case progress.

AutoVu Cloudrunner is a vehicle-centric investigation system that provides you with access to the critical evidence you need to identify suspect vehicles. This means cases progress faster, helping you make tomorrow safer.

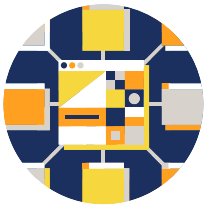
Genetec™

Key benefits



Solve cases faster

The right evidence is key to solving cases. Cloudrunner collects a wealth of information, like vehicle characteristics and driving behaviors, allowing investigators to rapidly narrow down the pool of potential suspects.



Improve your workflow

Every organization operates differently. Cloudrunner lets users customize the information shown on-screen based on case needs. By focusing on the relevant data, closing cases is much easier.



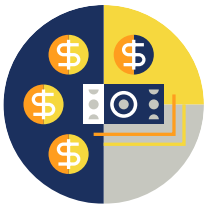
Minimize disruptions

Time spent learning how to use new software is time not spent following up on leads. Cloudrunner makes lead investigation easy with its intuitive interface. Investigators can quickly get to work and take advantage of its features to close cases faster.



Be proactive

Identifying a lead is not enough to solve a case – you need to apprehend the suspect. Cloudrunner detects vehicles and plates at the edge, quickly notifying you when a vehicle of interest is detected so you can take immediate action.



Make your budget go further

Cloudrunner packages everything you need in a single subscription, allowing you to easily adjust system scale based on your needs and budget. Focus on closing cases rather than resource allocation.

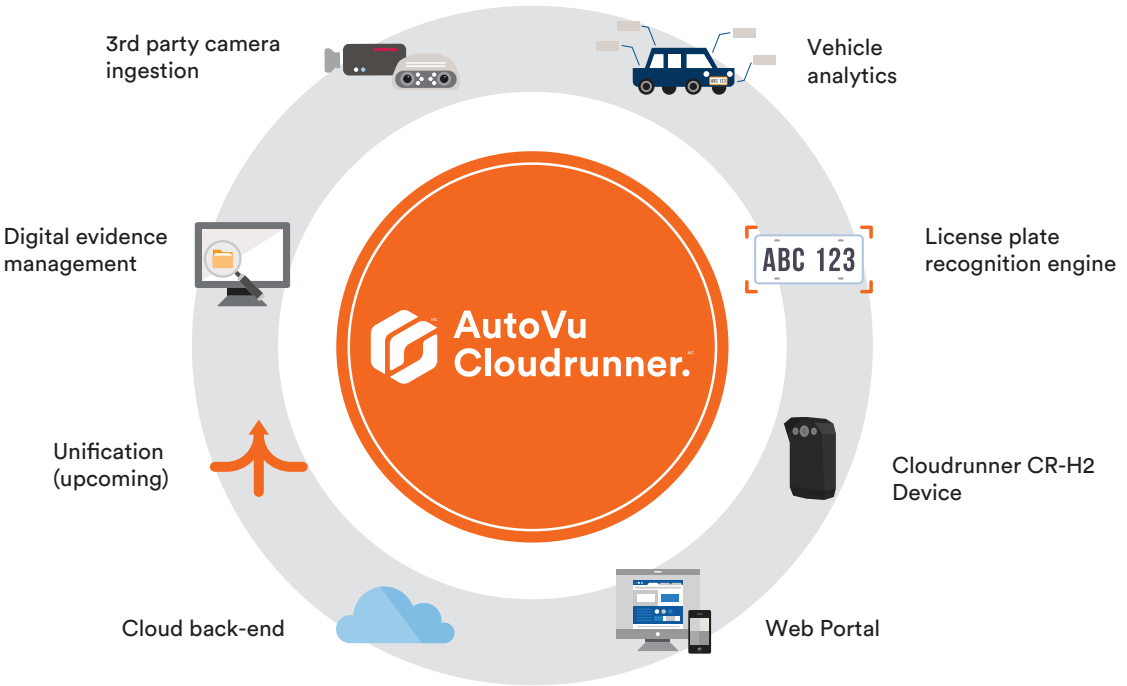


Keep an eye out 24/7

Be on the lookout day and night with Cloudrunner. Collect accurate data under all conditions thanks to its high performing cameras built for just that. It has powerful machine learning capabilities and strong analytics to always keep data meaningful.

Everything you need to close cases faster

Rapidly closing cases is crucial. That's why Cloudrunner is designed to enable collaboration with both local partners working to protect your community, as well as with external evidence gathering solutions. It combines the benefits of cloud solutions with edge-based vehicle detection to provide you with the best of both worlds, allowing you to access meaningful data quickly. With its cloud-based architecture, Cloudrunner is also easily scalable to your organizational needs.



The advantages of cloud

Cost savings

Being cloud-based alleviates your IT maintenance costs. Genetec takes care of ensuring that your Cloudrunner solution is up and running properly and will update the software as new features become available to you.

Security

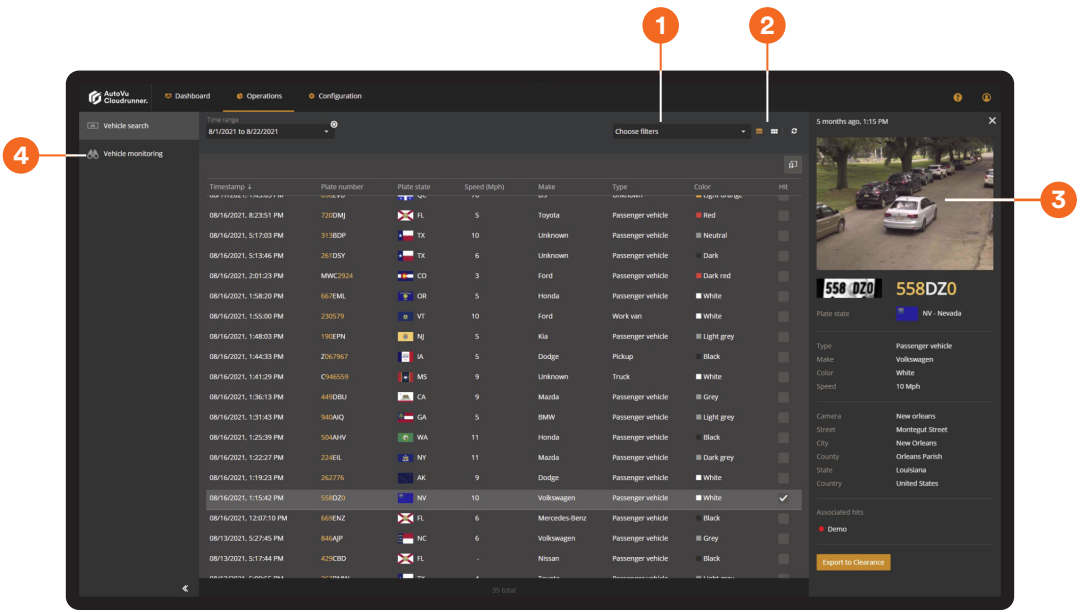
A cloud back-end means that Genetec is constantly making sure that security is up to the highest standards. Only authorized users can have access to the solution based on their varying security rights.

Flexibility

The cloud-based approach of Cloudrunner provides easy access and deployment. The solution is accessible on a web browser through any device.

Find vehicles of interest quickly

AutoVu Cloudrunner collects the data your team needs to find valuable leads. Search by license plate number or use witness accounts to filter for vehicle characteristics. And if no one comes forward, Cloudrunner helps you identify drivers with unusual behavior. Your team has a variety of options to narrow down the pool of suspects and close cases faster. With Cloudrunner, you can combine filters in just a few clicks to easily parse through data relevant to your case.



1 Customizable filters

Data can be viewed according to investigator needs. Relevant information can be displayed by combining filters and rearranging columns based on preference.

2 List and tile view

Parse large lists of vehicle reads with the list view, or get more context-relevant information with the tile view. Toggle between both based on your needs.

3 Context image panel

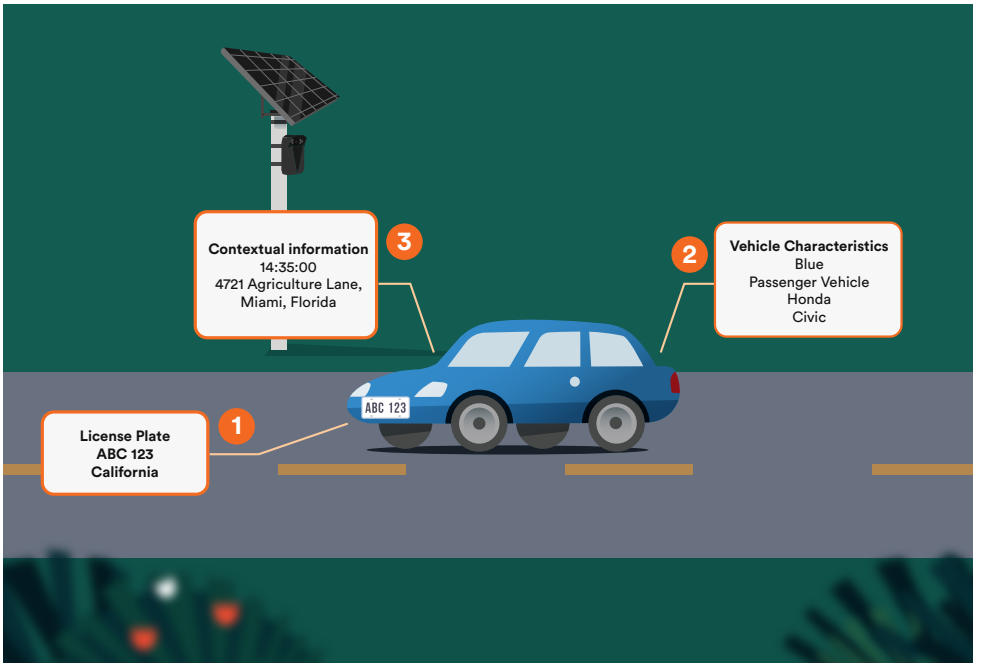
Dive deeper and highlight specific reads by reviewing a context image and additional vehicle-relevant details with the context image panel.

4 Live vehicle monitoring

Maintain a virtual stakeout and get hotlist hits highlighted, providing your team with case context so they can take appropriate action quickly.

Go beyond the license plate

Whether you're trying to find a lead or go from testimonial to action, Cloudrunner has the vehicle-based evidence you need. Advanced analytics let you go from partial vehicle information to locating a lead.



1 License plate information

Every Cloudrunner read provides accurate license plate information, including the license plate number, and origin, such as the state and country.

2 Vehicle Characteristics

Witnesses usually only provide partial vehicle information. Cloudrunner collects data like type, color, make, model, and even added accessories like trailer hitches and more so you can narrow down your search easily.

3 Live vehicle monitoring

Maintain a virtual stakeout and get hotlist hits highlighted, providing your team with case context so they can take appropriate action quickly.

Cloudrunner key features

Investigative filters
By collecting a wide variety of vehicle characteristics and behavioral data, Cloudrunner allows you to filter the displayed data based on your investigative needs.

Accessible from anywhere
The Cloudrunner software is web-based allowing it to be accessible on any device and browser. Because no installation is required, deployment is quick and hassle free so you can focus on your mission.

Live monitoring
Live monitoring allows investigators to track and follow perpetrators in real time. This provides a proactive approach to case solving.

List and tile view
Multiple views are available to allow operators to view the data in the way they best see fit. List view allows for full data display, whereas tile view provides a context image for each read.

Vehicle watchlist management
Use local hotlists or upload your own to get notified when there is a hit on the suspect's vehicle. Manage lists and provide access and privileges to users based on your organization's needs.

End-to-end data security and privacy
Cloudrunner is hosted in a government approved cloud, complying with government information security requirements, and applying the latest best practices to ensure your data is secure.

Hybrid analytics design
Cloudrunner provides the advantage of edge-based processing with the power and flexibility of cloud computing. It detects vehicles in real-time so evidence is quickly available and constantly optimizes its output to provide the most accurate data.

Extend your network
With data sharing, go beyond the data collected by your Cloudrunner cameras by connecting with neighboring communities and other evidence-gathering solutions.

Cloud-based solution
Cloudrunner's cloud-based architecture means there is no need for a software solution, or server maintenance, allowing for reduced IT costs and quicker deployment.

Extensive vehicle analytics
Get access to a complete suite of vehicle analytics including characteristics and behavior. Filter through vehicle color, type, make, model, license plate state, and more.

Comprehensive feature list

Cloudrunner System

- Cloud-based vehicle-centric investigation system (VCIS)
- Detects and analyses vehicle data
- Secure storage for highly accurate vehicle identification data
- Supports public safety investigations

Architecture

- Cloud-based offering
- Built from the ground up following privacy by design principles
- Compatible with Cloudrunner CR-H2 and AutoVu SharpV
- Compatible with select 3rd party camera data
- Embedded health monitoring and reporting engines
- Supports Microsoft Azure Active Directory as an identity provider
- Distributed multi-tenant architecture leveraging Microsoft Azure.

Advanced Analytics Filters

- Timestamp (Time and date)
- License plate number (partial or full)
- License plate state
- Vehicle make
- Vehicle type
- Vehicle color
- Camera (filter which camera reads to view)
- Read location
- Hotlist hits (view hits only)

User experience and interface

- Single task-based application for monitoring and reporting
- Intuitive, easy-to-use web portal
- Ability to export reads to Excel
- Rich, detailed context images when paired with the Cloudrunner CR-H2 or AutoVu SharpV cameras
- Export reads to Genetec Clearance™ (upcoming)

Vehicle watchlist management (hotlist)

- NCIC support
- Custom hotlist upload
- Local or remote file import
- Manual or scheduled automatic list imports
- Email alert on hotlist hit

Investigation modes

- Real-time (live) monitoring
- Post-investigation database search

Data retention

- Default retention: 90 days
- Optional retention: up to one (1) year

Cloudrunner CR-H2 Camera

- High-performance solar-powered ALPR camera
- Superior performance day and night
- Hybrid processing for reduced power consumption
- Flexible installation: can be installed anywhere
- Can be externally powered by 12Vdc

Start collecting vehicle evidence today

Getting started with Cloudrunner is a simple 3-step process:

1 Locate where you want to gather evidence

Capturing relevant and useful evidence is crucial. Consider locations like:

- The entrances and exits of your community to see who's coming and going
- On a corporate or education campus to know what vehicles are on-site
- Street corners where is crime is most prevalent in your community to catch perpetrators in near-real time
- High traffic locations like your community's main street to never miss a suspected vehicle on the move

2 Order the hardware you need

Whether you are looking for a fixed solution or a flexible one with high quality capture at all times, both options are available to you. You can even mix and match hardware based on your needs.

	Cloudrunner CR-H2	SharpV
Power	Solar or 12V	Hardwired: 24V or PoE++
Processing	Hybrid	Edge-based
Installation	Flexible	Fixed
Procurement	Subscription only	Perpetual or subscription

3 Power up your cameras

That's it. With Cloudrunner up and running, you automatically get access to:

- Configuration – ensure optimal data collection
- Software updates – get the latest features
- Support – access a Genetec specialist when needed
- Hardware upgrades – get the latest hardware if needed
- ...and more.

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UPT-13-10-2022

AutoVu SharpV

Automatic License Plate Recognition System

Crystal clear automatic license plate recognition in all conditions

Whether you want to scan vehicles on busy roadways, or to keep track of those accessing your facilities, you need a reliable system that performs in challenging conditions. The Genetec AutoVu™ SharpV provides crisp, full HD captures at all times. Day or night, in slow local streets, or on fast multi-lane highways, you can rest easy that it's gathering the insights you need when you need it most.

The SharpV goes beyond license plate identification. Its suite of vehicle analytics supports your investigations and helps you close cases faster. And thanks to its simplified design, it can be up and running in no time, letting you focus on your mission.



Key features

- Superior performance and new analytics with high-performance onboard machine learning
- See everything clearly with two ultra-wide sensors that provide quality images and capture data across multiple lanes*
- Excellent night-time performance with high power pulsed illuminators and global shutter
- Reduce installation and maintenance costs with motorized lenses with auto-focus for remote zoom & focus configuration
- Deploy anywhere with built-in 4G/LTE cellular radio option*
- Integrate with induction loops using its onboard I/O

Key benefits

Intelligence at the Edge – With hardware-accelerated processing on-board, the SharpV doesn't rely on remote servers for analysis. This eliminates latency and reduces the impact of ALPR on your network. And since it doesn't rely on external hardware, it provides uninterrupted performance – even when connectivity is unavailable.

Simplify design & deployment – Don't limit your ability to gather necessary data based on local infrastructure. With its embedded 4G/LTE communication option, motorized lenses with auto-focus, and support for both 24Vdc and PoE++ power, deploying the SharpV is easy and free of headaches.

Tap other systems – Combine ALPR data with video surveillance, access control, and more with Genetec Security Center. Break down the silos between your systems to increase operational intelligence and situational awareness, and do more with your ALPR system.

Gather data when it matters most – Not all crimes happen in broad daylight. With its built-in illuminators, global shutter, and high-resolution sensors, the SharpV leads the industry in performance at night and in challenging conditions.

* To verify 4G/LTE and dual-lane feature availability in your region, contact your Genetec representative.

Specifications

ALPR camera sensor
1920 × 1200 @ 30 fps; monochrome; global shutter

Capture range
9–148* ft (3–45* m)

Dimensions
Height: 63 mm (2.5 in), 68.6 mm (2.7 in) high with sunshield for black version; 101.6 mm (4.0 in) high with front antenna
Width: 192 mm (7.6 in)
Length: 214 mm (8.5 in)

Weight
5.53 lb (2.51 kg)

Illuminator
Pulsed LED illuminator for effective use in 0 lux (total darkness) environments
940nm, 850nm, 740nm, and 590nm illumination wavelengths available

Context camera sensor
1920 × 1200 @ 30 fps; color; global shutter

Available color(s)
Security White / Black

Operating temperature
-40°F to 149°F (-40°C to 65°C) ambient
Storage Temperature: -40°F to 185°F (-40°C to 85°C)

On-board analytics
Vehicle type, vehicle color, speed estimation, direction of travel, virtual loop, plate origin (state and country**), etc.

Power supply
PoE++ (Power over Ethernet) 802.3bt Type 3: 27 W typical, 40 W max
24 V input option: 24 V dc +/-15%, 25 W typical consumption, 37 W max

Satellite positioning***
GPS, Glonass, Beidou, Galileo, QZSS

Sealing (water/dust protection)
IEC 60529: IP66/IP67

Still image compression
JPEG compression for ALPR and Context still images

Data interface
LAN: 1 × 10/100/1000 Base-T Ethernet port
WWAN (select models and territories): 4G/LTE Category 4

Video streaming
H.264 @ up to 30 fps

Vibration & shock
IEC 60068-2-64: 5~100Hz | 0.5 g rms
IEC 60068-2-27: 10g | 16ms half-sine
MIL-STD-810H §514.8
Category 4 – Composite two-wheeled trailer

Impact
IEC 62262: IK09

Electromagnetic immunity & emissions
FCC | ICES-003 Issue 4 | CISPR32 / EN55032 | CISPR35 / EN55035

EMC directive (CE marking)
2014/30/EU

Safety
IEC/EN 62471. Photobiological safety of lamps and lamp systems. Exempt group.

External I/Os
2 inputs / 2 outputs (opto-isolated)

Mounting
Pole and wall mount included

* Contact Genetec for additional details
** Available only for some regions and services. Talk to your Genetec representative for details.
*** Requires 4G/LTE option.





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UPDATED: 26 NOV 2021

STATE OF CALIFORNIA

STANDARD CONFIGURATION DETAILS

AUTOMATIC LICENSE PLATE READER AND SOLAR PANEL SYSTEM (DIRECT EMBED SYSTEM)

INDEX OF SHEETS

SHEET	DESCRIPTION	REV
T-1	TITLE SHEET	0
S-1	GENERAL NOTES & POLE ASSEMBLY DETAIL	0
S-2	EQUIPMENT DETAILS	0
S-3	FOUNDATION DETAILS	0
R-1	FROST DEPTH INFORMATION	0

PROJECT INFORMATION:

STANDARD CONFIGURATION DETAILS (DIRECT EMBED SYSTEM) AUTOMATIC LICENSE PLATE READER AND SOLAR PANEL SYSTEM

PLANS PREPARED BY:

Kimley»Horn

817 WEST PEACHTREE STREET, NW, SUITE 601, ATLANTA, GA 30308
PHONE: (404) 419-8700
WWW.KIMLEY-HORN.COM

REV: DATE: ISSUED FOR: BY:

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0	12/12/22	CONSTRUCTION	MLO

LICENSER:

LICENSED PROFESSIONAL ENGINEER
MICHAEL LADD OGLESBY
C 82179
CIVIL
STATE OF CALIFORNIA

12/19/22
Exp. 03/31/24

KHA PROJECT NUMBER:

014681000

DRAWN BY:	CHECKED BY:
GJV	MLO

SHEET TITLE:

TITLE SHEET

SHEET NUMBER:

T-1

K:\RAL_Wireless\Flock Safety\KHRAL-18539 (CA) (12-ft Direct Embed)\CAD\FLOCK POLE_12-FT DIRECT EMBED (CA)_R0.dwg ---- 12/12/22 4:28 PM by: greg.vanmaren

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DESIGN NOTES

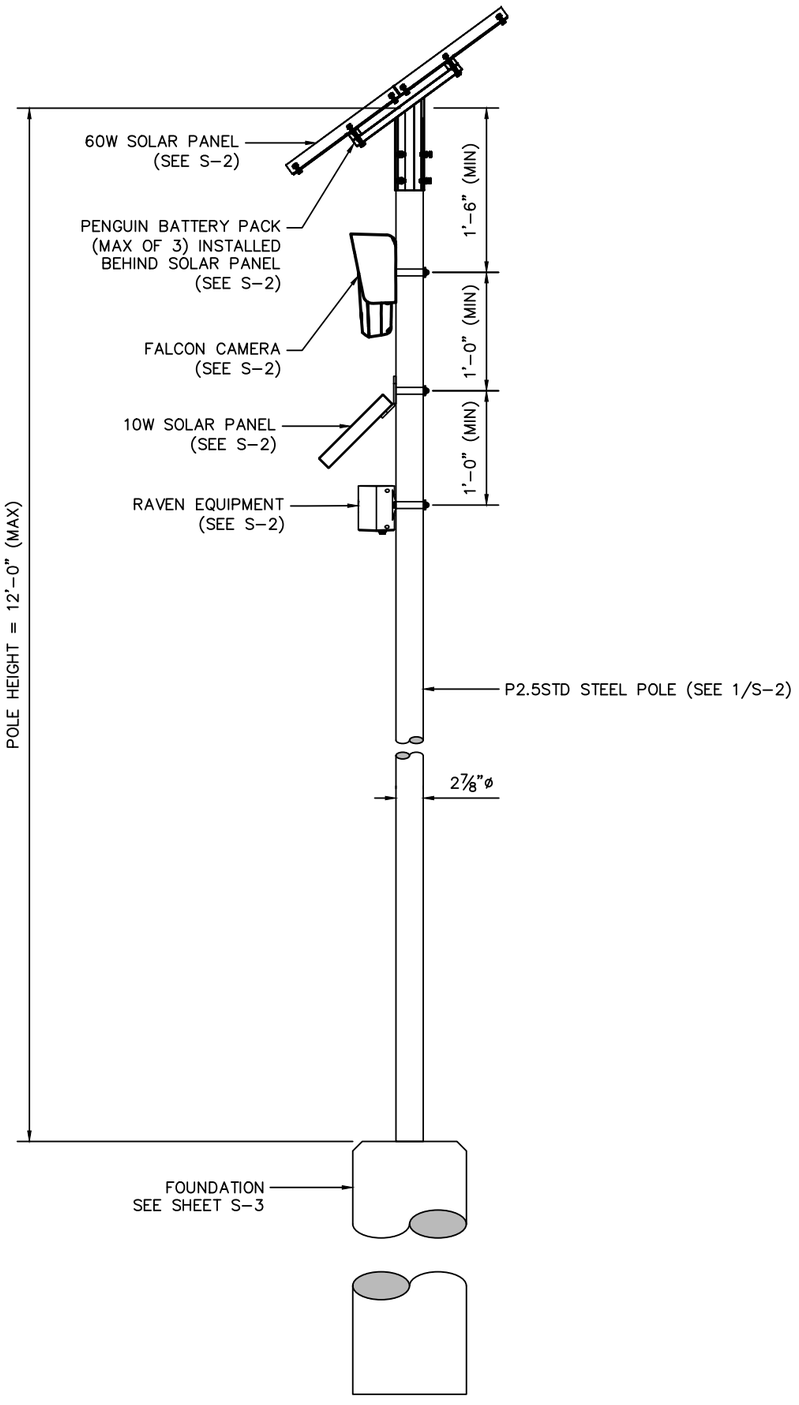
1. POLE AND FOUNDATIONS ARE DESIGNED IN ACCORDANCE WITH THE FOLLOWING CODES:
   - 1.1. 2019 CALIFORNIA BUILDING CODE (2018 INTERNATIONAL BUILDING CODE)
   - 1.2. AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORT FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 2015 EDITION.
2. POLE ANALYSIS AND FOUNDATION DESIGN ARE BASED ON THE FOLLOWING CRITERIA:
   - 2.1. DESIGN WIND SPEED (Vult): 110 MPH (MAXIMUM)
   - 2.2. RISK CATEGORY: II
   - 2.3. EXPOSURE CATEGORY: C
   - 2.4. TOPOGRAPHIC CATEGORY: 1
   - 2.5. SEISMIC DESIGN CRITERIA:
     - 2.5.1. SOIL SITE CLASS: D (ASSUMED)
     - 2.5.2. SPECTRAL RESPONSE, Ss: 2.500g (MAXIMUM)
     - 2.5.3. SPECTRAL RESPONSE, S1: 1.250g (MAXIMUM)
     - 2.5.4. SEISMIC DESIGN CATEGORY: D
   - 2.6. STRUCTURE BASE REACTIONS ARE CALCULATED AS FOLLOWS:
     - ULTIMATE BASE MOMENT: 2,600 LB–FT
     - ULTIMATE BASE SHEAR: 300 LB
     - ULTIMATE BASE AXIAL: 200 LB
   - 2.7. SHOULD ANY OF THE SITE–SPECIFIC PARAMETERS BE HIGHER THAN WHAT IS NOTED ABOVE, THE EOR SHALL BE CONTACTED TO PROVIDE A REVISED DESIGN.
3. THE TOP OF THE FOUNDATION OUTSIDE OF THE PIPE FOOTPRINT SHALL BE SLOPED BETWEEN 1° AND 3° TO ALLOW FOR ADEQUATE DRAINAGE.
4. THE PROPOSED DETAILS OF THIS DRAWING SHALL NOT BE USED WHERE SOILS CONSIST OF SOFT CLAY, PEAT, OR SOIL WHERE A SMALL DIAMETER REBAR (#5 OR SMALLER) OR METAL PROBE PENETRATES EASILY INTO THE SOIL BY MORE THAN 6" WHEN THE FULL WEIGHT OF A PERSON IS APPLIED. IF UNEXPECTED SOIL IS FOUND ON SITE, THE CONTRACTOR SHALL CONTACT THE EOR FOR DIRECTION.

GENERAL & CONSTRUCTION NOTES

1. CONTRACTOR SHALL CONTACT DESIGNATED AGENCY TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL APPLY AND OBTAIN AN APPROVED TRAFFIC CONTROL PLAN IN ACCORDANCE WITH MUTCD AND LOCAL JURISDICTION STANDARDS.
3. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO ORIGINAL SITE CONDITION TO THE SATISFACTION OF STATE DEPARTMENT OF TRANSPORTATION AND LOCAL JURISDICTION.
4. ALL WORK SHALL CONFORM TO APPLICABLE ELECTRICAL CODES EXCEPT WHEN STATE DEPARTMENT OF TRANSPORTATION OR LOCAL JURISDICTION STANDARDS SUPERSEDE.
5. POLE AND PROPOSED EQUIPMENT SHALL BE CONNECTED TO SOLID BARE BOND GROUND AND GROUNDING ROD IN POLE FOUNDATION.
6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH SPECIFICATIONS DEFINED BY THE STATE DEPARTMENT OF TRANSPORTATION OR LOCAL JURISDICTION, UNLESS SPECIFICALLY STATED OR SHOWN OTHERWISE HEREIN.

ADA COMPLIANCE NOTES

1. ALL SIDEWALK CONSTRUCTION SHALL BE IN ACCORDANCE WITH ADA TITLE II, STATE DEPARTMENT OF TRANSPORTATION, AND LOCAL JURISDICTION STANDARDS.
2. STATE DEPARTMENT OF TRANSPORTATION CURRENT EDITION STANDARDS SHALL BE USED FOR PEDESTRIAN CONTROL PLANS WHEN CLOSURE OF SIDEWALK IS REQUIRED FOR CONSTRUCTION.
3. MINIMUM CLEAR PEDESTRIAN ACCESS ROUTE (PAR) SHALL BE 48" WIDE.
4. NO OBSTRUCTION IS PERMITTED ALONG THE WIDTH OF THE SIDEWALK, UP TO AN ELEVATION OF 7'–0" ABOVE GRADE.



1 / S-1 POLE ELEVATION DETAIL

SCALE: N/A

flock safety

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SHEET TITLE:

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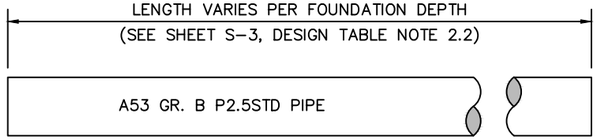
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S-1

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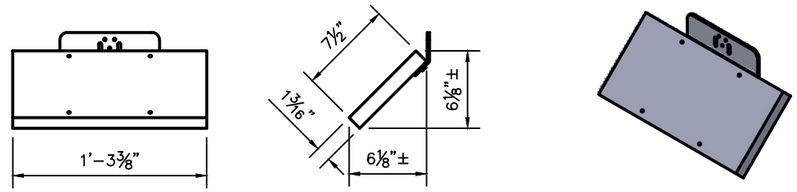
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PIPE SHALL BE HOT DIP GALVANIZED

PIPE DETAIL

10 WATT SOLAR PANEL WEIGHT = 3 LB. (APPROX.)

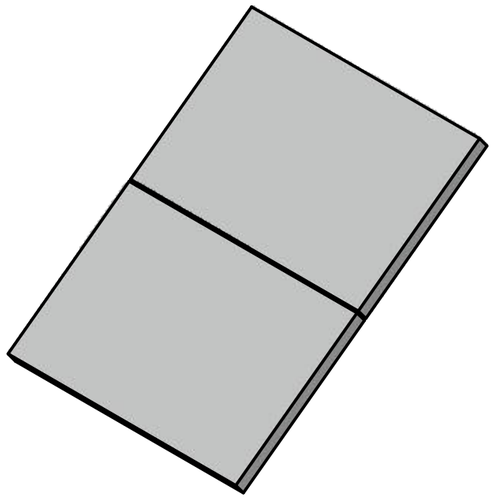


FRONT SIDE ISOMETRIC

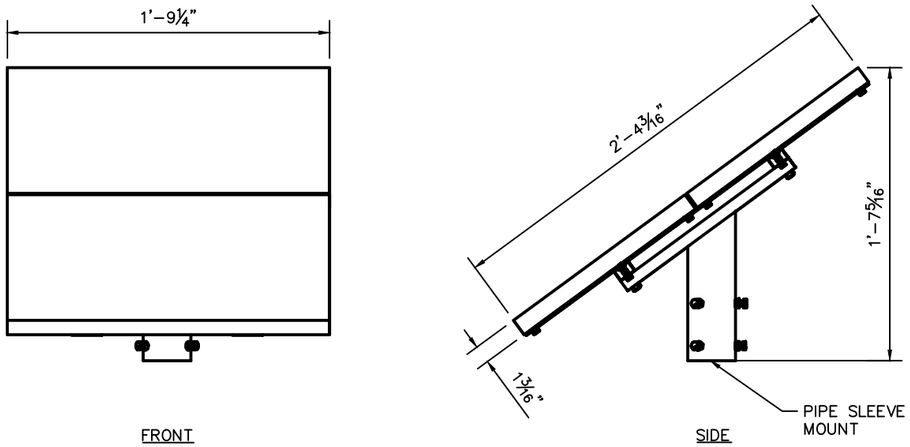
10 WATT SOLAR PANEL DETAIL

MOUNTING HARDWARE TO BE PROVIDED BY FLOCK SAFETY

60 WATT SOLAR PANEL WEIGHT = 30 LB. (APPROX.)



ISOMETRIC

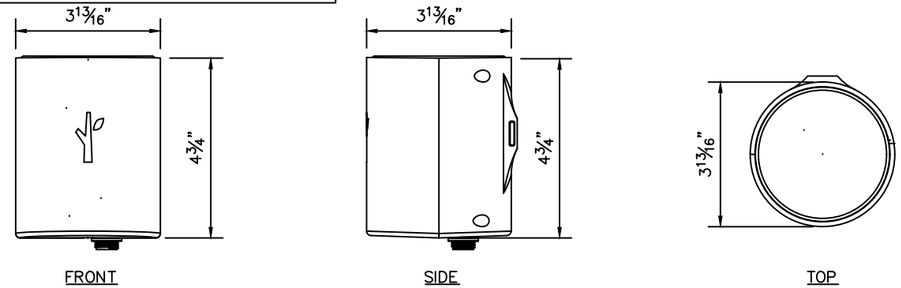


FRONT SIDE

MOUNTING HARDWARE TO BE PROVIDED BY FLOCK SAFETY

60 WATT SOLAR PANEL DETAIL (TOP MOUNTED)

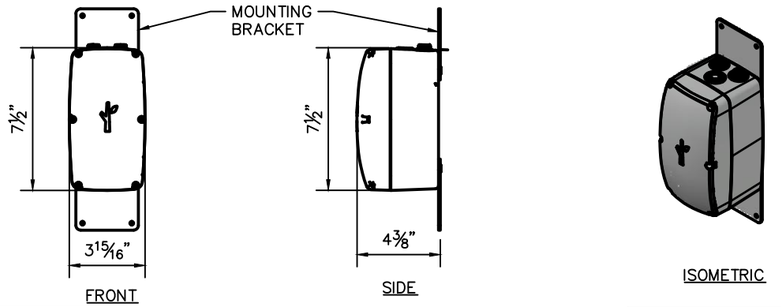
"RAVEN" EQUIPMENT WEIGHT = 2 LB. (APPROX.)



FRONT SIDE TOP

"RAVEN" EQUIPMENT

MOUNTING HARDWARE TO BE PROVIDED BY FLOCK SAFETY

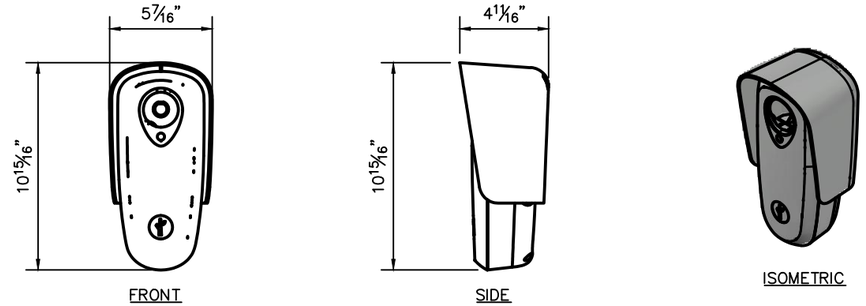


FRONT SIDE ISOMETRIC

"PENGUIN" BATTERY PACK WEIGHT = 5 LB. (APPROX.)

"PENGUIN" BATTERY PACK

BATTERY PACKS TO BE MOUNTED BEHIND 60W SOLAR PANEL



FRONT SIDE ISOMETRIC

"FALCON" CAMERA WEIGHT = 5 LB. (APPROX.)

FLOCK SAFETY "FALCON" CAMERA

MOUNTING HARDWARE TO BE PROVIDED BY FLOCK SAFETY

flock safety

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LICENSER:

LICENSED PROFESSIONAL ENGINEER
MICHAEL LADD OGLESBY
C 82179
CIVIL
STATE OF CALIFORNIA
12/19/22
Exp. 03/31/24

KHA PROJECT NUMBER:

014681000

DRAWN BY:	CHECKED BY:
GJV	MLO

SHEET TITLE:

EQUIPMENT DETAILS

SHEET NUMBER:

S-2

K:\RAL_Wireless\Flock Safety\KHRAL-18539 (CA) (12-ft Direct Embed)\CAD\FLOCK POLE_12-FT DIRECT EMBED (CA)_R0.dwg ---- 12/12/22 4:28 PM by: greg.vanmaaren

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FOUNDATION DESIGN NOTES

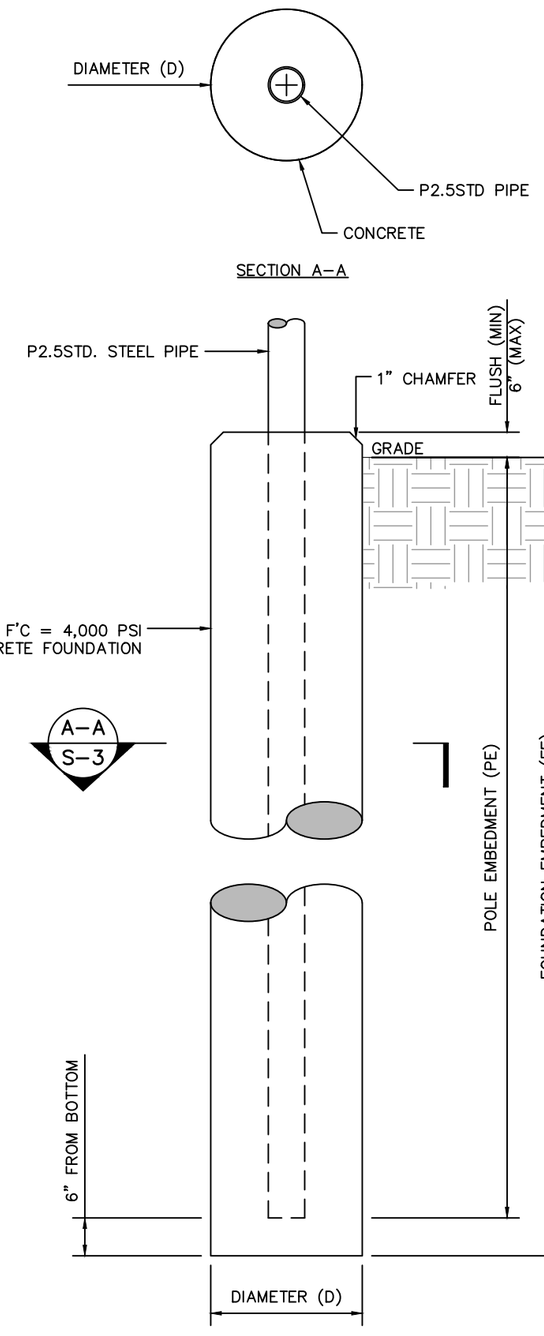
1. FOUNDATION DESIGN REACTIONS ARE BASED ON INTERNAL CALCULATIONS BY KIMLEY–HORN. ANALYSIS CRITERIA CAN BE FOUND ON SHEET S–1.
2. FOUNDATION MAY BE CAST–IN–PLACE, OR PRECAST.
3. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI
   - 3.A. MIX DESIGN TO BE IN ACCORDANCE WITH ACI 318, CHAPTER 26
   - 3.B. COARSE AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33 SIZE #57
   - 3.C. COLD WEATHER PLACEMENT SHALL COMPLY WITH ACI 306.1
   - 3.D. HOT WEATHER PLACEMENT SHALL COMPLY WITH ACI 305 R
4. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 1"
5. CONTRACTOR SHALL VERIFY THAT THE PROPOSED FOUNDATION CAN BE BUILT AS SHOWN. CONTRACTOR SHALL OBTAIN EOR APPROVAL FOR ANY CHANGES TO THE PROPOSED DESIGN.
6. CONTRACTOR SHALL FIELD VERIFY THE PRESENCE OF GROUNDWATER IN THE TOP 10–FT OF SOIL PRIOR TO CONSTRUCTION. IF GROUNDWATER IS ENCOUNTERED, ONE OF THE FOLLOWING METHODS SHALL BE IMPLEMENTED:
   - 6.A. THE CONTRACTOR SHALL PUMP EXCESS WATER OUT OF A BORE HOLE THROUGHOUT INSTALLATION PROCESS.
   - 6.B. THE FOUNDATION MAY BE INSTALLED INSIDE INSIDE OF A SONOTUBE THAT EXTENDS TO THE FULL EMBEDMENT DEPTH. SOIL BACKFILL SHALL BE PROPERLY COMPACTED TO A MINIMUM OF 95% OF STANDARD MAXIMUM DENSITY (ASTM D 698, 100 PCF MINIMUM).
   - 6.C. A PL¼" TEMPORARY CASING MAY BE USED DURING INSTALLATION. THE CASING SHALL BE EXTRACTED AS THE CONCRETE IS PLACED SUCH THAT A HEAD OF CONCRETE IS MAINTAINED ABOVE THE BOTTOM OF THE CASING TO PREVENT WATER INTRUSION INTO THE CONCRETE MIX.

FOUNDATION DESIGN TABLE

DIAMETER (D)	FOUNDATION EMBEDMENT (FE)	POLE EMBEDMENT (PE)
12"Ø	5'–0" (SEE NOTE 2)	4'–6" (SEE NOTE 2.1)

DESIGN TABLE NOTES:

1. DRAWINGS DENOTE A GENERIC FOUNDATION CONFIGURATION AND ARE NOT TO SCALE. REFER TO DIMENSIONS AND BILL OF MATERIALS FOR MATERIAL SIZES AND QUANTITIES.
2. FOUNDATION EMBEDMENT (FE) SHALL BE THE MAXIMUM OF THE DIMENSIONS SPECIFIED, OR 6" BELOW THE FROST DEPTH APPLICABLE TO THE SITE LOCATION. CONTRACTOR SHALL VERIFY FROST DEPTH PRIOR TO CONSTRUCTION. SEE SHEET R–1 FOR ADDITIONAL INFORMATION.
   - 2.1. POLE EMBEDMENT (PE) SHALL BE 6" LESS THAN THE FOUNDATION EMBEDMENT (FE) FOR ALL FINAL CONFIGURATIONS.
   - 2.2. FINAL PIPE LENGTH SHALL BE 12–FT PLUS THE REQUIRED POLE EMBEDMENT (PE) TO MEET FROST DEPTH REQUIREMENTS. FINAL PIPE SIZES MAY VARY ACCORDINGLY, FIELD CUT TO LENGTH AS REQUIRED.



1 / S-3 FOUNDATION DETAIL

SCALE: N/A

flock safety

PROJECT INFORMATION:

STANDARD CONFIGURATION DETAILS (DIRECT EMBED SYSTEM) AUTOMATIC LICENSE PLATE READER AND SOLAR PANEL SYSTEM

PLANS PREPARED BY:

Kimley»Horn

817 WEST PEACHTREE STREET, NW, SUITE 601, ATLANTA, GA 30308
PHONE: (404) 419–8700
WWW.KIMLEY–HORN.COM

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KHA PROJECT NUMBER: 014681000

DRAWN BY:	CHECKED BY:
GJV	MLO

SHEET TITLE: FOUNDATION DETAILS

SHEET NUMBER: S-3

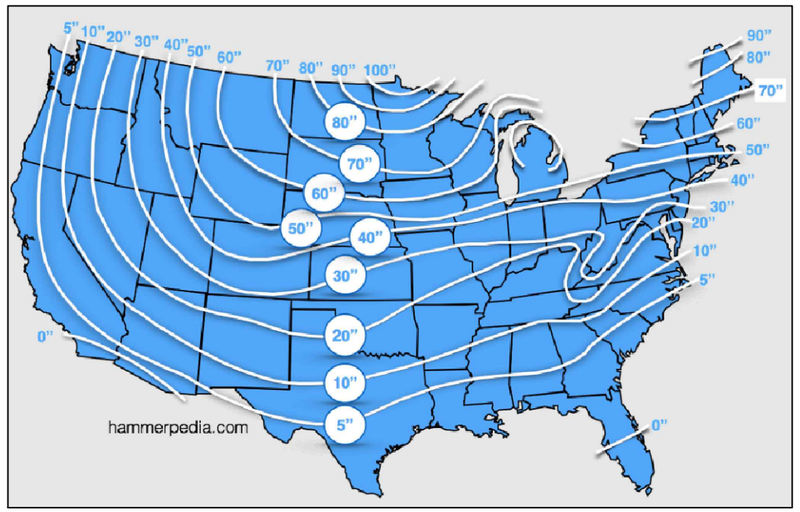
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FROST DEPTH NOTES

1. ESTIMATED FROST DEPTHS FOR VARIOUS COUNTIES ARE LISTED IN THE PROVIDED TABLES.
2. CONTRACTOR IS RESPONSIBLE FOR VERIFYING FROST DEPTHS WITH THE LOCAL JURISDICTION REQUIREMENTS.



State	County	Design Frost Depth (in.)
CA	ALAMEDA	5
CA	ALPINE	10
CA	AMADOR	10
CA	BUTTE	10
CA	CALAVERAS	10
CA	COLUSA	10
CA	CONTRA COSTA	10
CA	DEL NORTE	5
CA	EL DORADO	10
CA	FRESNO	10
CA	GLENN	10
CA	HUMBOLDT	5
CA	IMPERIAL	5
CA	INYO	10
CA	KERN	10
CA	KINGS	10
CA	LAKE	5
CA	LASSEN	20
CA	LOS ANGELES	5
CA	MADERA	10
CA	MARIN	5
CA	MARIPOSA	10
CA	MENDOCINO	5
CA	MERCED	10
CA	MODOC	20
CA	MONO	10
CA	MONTEREY	5

State	County	Design Frost Depth (in.)
CA	NAPA	5
CA	NEVADA	10
CA	ORANGE	5
CA	PLACER	10
CA	PLUMAS	20
CA	RIVERSIDE	10
CA	SACRAMENTO	10
CA	SAN BENITO	5
CA	SAN BERNARDINO	10
CA	SAN DIEGO	0
CA	SAN FRANCISCO	5
CA	SAN JOAQUIN	10
CA	SAN LUIS OBISPO	5
CA	SAN MATEO	5
CA	SANTA BARBARA	5
CA	SANTA CLARA	5
CA	SANTA CRUZ	5
CA	SHASTA	10
CA	SIERRA	20
CA	SISKIYOU	10
CA	SOLANO	10
CA	SONOMA	5
CA	STANISLAUS	10
CA	SUTTER	10
CA	TEHAMA	10
CA	TRINITY	10
CA	TULARE	10
CA	TUOLUMNE	10
CA	VENTURA	5
CA	YOLO	10
CA	YUBA	10

flock safety

PROJECT INFORMATION:

STANDARD CONFIGURATION DETAILS (DIRECT EMBED SYSTEM) AUTOMATIC LICENSE PLATE READER AND SOLAR PANEL SYSTEM

PLANS PREPARED BY:

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SHEET TITLE:

FROST DEPTH REQUIREMENTS

SHEET NUMBER:

R-1

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P500 "IRIS" Series
FIXED ALPR CAMERAS

High Resolution, Motorized Lens, Dual OCR Camera for Versatile Applications

OVERVIEW:

The Neology™ IRIS multi-lane camera is a cost- effective and easy-to-deploy ALPR camera that expands license plate recognition capabilities by providing superior recognition accuracy.

The IRIS camera has simultaneous dual channel OCR (IR and color), a high-quality color overview in low light, and a video streaming functionality in one self-contained environmentally sealed enclosure.

Incorporating a remotely adjustable zoom lens with a wide field of view and long focal range, the IRIS camera is a versatile ALPR solution covering a variety of end user applications. The IRIS camera incorporates a quad core OCR processor providing extra fire-power for faster detection with highly accurate license plate recognition. The camera can detect and read license plates in both the infrared and color overview channels. This enables the camera to detect and read license plates of variable retro-reflective quality, or that have been deliberately altered. With sufficient ambient lighting, the camera can detect and read entirely non retro-reflective license plates.



FEATURES:

- 2K and 2.5K high resolution
- Multi-lane coverage
- Wide range of focal distance
- Motorized lenses in both IR and color overview
- Dual channel OCR (IR and color)
- H264 high-resolution contextual color video streaming
- High-quality color overview in low light situation
- Powerful processing capability with quadcore CPU
- Flexible data storage
- Remotely adjustable zoom, focus, aperture and IR cut filter

BENEFITS:

- Cost effective
- Easy to deploy and redeploy
- Superior recognition accuracy in all conditions
- Detect and read license plates of variable retro-reflective quality
- One camera that covers most eventualities as deployed

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P500 "IRIS" SERIES FIXED ALPR CAMERAS

The camera is available in two sensor versions. The P520 model will cover one lane of traffic, while the P525 model will cover two adjacent lanes of traffic, based on a standard issue US license plate. The camera can capture distances from 13' to 130'. For the users of the Neology IRIS, this means that one single camera platform can cover most eventualities as deployed.

The IRIS additionally features user configurable H.264 streaming video. This minimizes the need to install a secondary CCTV camera at the same location, reducing overall site cost and installation complexity. It also facilitates ground-truthing and validation of camera performance on a site by site basis. The camera's significantly improved compression means less bandwidth usage for data transmission, including video.

The camera is available in several base options with a choice of IR wavelength, and is supplied with an installer configurable motorized zoom lens to expedite installation and commissioning. The IRIS cameras can also be easily redeployed to other locations, if required. The camera is available with integrated GPS, as well as an optional internal 4G modem and Wi-Fi functionality. On-board Wi-Fi allows configuration of the camera from the street, reducing lift truck and lane closure time.



The IRIS also supports all the existing Neology Technology fixed camera firmware options of ACS, VES-Lite, PIXI, JTMS and UTMC, allowing existing BOSS customers to accept incoming ALPR data from the camera. For customers who are facing budget cuts and reductions, the IRIS camera provides a high performance, cost effective fixed and re-deployable ALPR camera solution.

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P500 "IRIS" SERIES FIXED ALPR CAMERAS

SPECIFICATIONS (E & OE)

Dimensions (LxWxH)	13.9 x 10.7 x 7.0 inches (35.3 x 27.2 x 17.8 cm) including hood, excluding optional antennas 9.2 x 9.7 x 5.9 inches (23.3 x 24.7 x 14.9 cm) camera main body only, excluding hood and options
Weight	6.4kg (14.1lb) including hood, excluding brackets
Enclosure	IP67
OPTICAL	
IR resolution	5MP sensor; available in 2064 x 1184 pixels and 2464 x 1280 pixels
Color resolution	5MP sensor; available in 2064 x 1184 pixels and 2464 x 1280 pixels
Lens type	Configurable motorized zoom lenses, 12-50mm
IR camera lens options	Configurable motorized zoom lenses, 12-50mm
Horizontal coverage US	Up to 2 lanes (P525)
Camera working distance US	13 ft to 130 ft
Color in low light	Improved image quality under low light conditions
Integrated illuminator	Effective up to 40 m (131 ft) wavelengths: 740nm, 810nm, 850nm, 940nm factory fit options
Frame rate	50 fps (frames per second) on each channel, 100fps total
Camera inversion	Yes
External illuminator	Opto-isolated output to synchronize an external illuminator.
LEDS	Integrated pulsed illuminator, 28 high power LEDs.
OCR	Dual OCR (IR and Color) ANPR engine on board
ELECTRONIC	
Operating system	Embedded Linux
Video output	H264 encoded video available as RTP streams (RTSP URLs) Hardware MJPEG streaming of the video
CPU	Quadcore 800Mhz RAM 1 GB
Data storage	Two installer accessible SD card sockets available for an increase in data storage in line with customer requirements 32 GB SD cards are available for purchase with the camera, as a package.
COMMUNICATION	
GPS	Integrated GPS (option)
Ethernet communication	Gigabit Ethernet 10/100/1000; max 100m
Wireless communication	4G modem (Option), WiFi (option)
Protocols	UTMC, BOF, PIXI, ACS, JTMS, VES Lite
Integration	Optional integration with DSRC, radar, weigh-in-motion, or ticketing systems
Triggering mechanism	Auto triggering (off plate) plus opto-isolated input triggering, TCP triggering and serial port triggering
Cabling	1) Power & serial cable (includes trigger) 2) Ethernet cable (for wired comms) 3) Auxiliary Interface cable (optional)
Max Cable length	100m (shorter lengths available, contact factory)
Connection type	Binder
Operating temperature	-40°C to +60°C
Data security	• Security hardened system • Digital signature • User/connection authentication and session key establishment • Encrypted communications & encrypted Storage • Secure by default, Firewalling
OTHER	
Power requirement	48VDC (nominal); 40 Watts (typically)
Safety	FCC, RoSH, CE
Design life	8 years
Backward compatibility	Interface adapter box available to ensure the new camera can be used with existing Neology Technology camera installations. A range of mounting hardware available (contact factory)

All specifications subject to change without notice

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sales@neology.net www.neology.net

13520 Evening Creek Drive N. Suite 460 | San Diego California, USA 92128

V.2021.04.21

L5M MOBILE LPR CAMERA SYSTEM

With time at a premium and distractions ever-growing, officer attention needs to be prioritized. The L5M mobile license plate recognition (LPR) camera system is a high-performance solution meant for those who want to maximize detections and data collection to ensure their officers are their safest and most productive while on the road.

With a new, industry-leading image sensor, the L5M provides unprecedented low light performance for accurate license plate and vehicle make and model recognition. A global shutter ensures clear image capture of license plates moving at higher speeds than ever. And our modernized in-car user experience makes all the tools officers need to stay alert and conduct investigations easily accessible.

Paired with the powerful VLP processor, configure your systems with up to four cameras that will continuously and reliably scan day-in and day-out. Even mix and match our previous-generation cameras within a single system for added flexibility or coverage.

Like all of our license plate recognition camera systems, the L5M seamlessly connects with our suite of software solutions, including Vigilant PlateSearch where data can be further operationalized with patented search capabilities and analytics.





MOTOROLA SOLUTIONS



FOCUS YOUR ENFORCEMENT

L5M

DETECT MORE VEHICLES YOU PASS

Capture accurate license plate and make and model information on vehicles moving at high speed and in light and dark conditions.

STAY IN THE KNOW AS YOU DRIVE

Our in-car software keeps you informed at all times with real- time alerts, quick search, system monitoring and distraction-free design.

DEPLOY YOUR CAMERAS YOUR WAY

Rely on a flexible system that can be built to meet your exact needs with a variety of camera options and high-powered processing.

SCAN MORE. MAINTAIN LESS.

Patrol confidently with a system that is always up-to-date and will work as long and as hard as you do, in rain or shine, wind or snow.

AMPLIFY INSIGHT & AWARENESS

Go beyond basic alerts and searches with patented analytics and complete control over your data retention and sharing.

L5M LICENSE PLATE READER

DETECT

KEY SPECIFICATIONS

CAMERA		
Focal Length	**Optimal Capture Distance**	**Capture Range**
6 mm	9 ft	4 - 20 ft
8 mm	14 ft	6 - 27 ft
12 mm	22 ft	10 - 35 ft
16 mm	40 ft	22 - 55 ft
25 mm	70 ft	55 - 85 ft
OPTICS		
Window	Shatterproof window	
Resolution	1440x1080 Monochrome global shutter	1400x1080 Color global shutter
Capture speed maximum	150 mph (241 kph)	
Pulsed LED illumination	Zero lux environments 850nm	
VIDEO STREAMING		
ONVIF compliant	H.264/H.265, M JPEG	
HOUSING		
Size	6.9 x 4.5 x 2 in (175 x 114 x 51 mm)	
Color	Matte black	
Weight	3.5 lbs (1.59 kgs)	

ENVIRONMENTAL	
Environmental protection	IP68 / NEMA4 compliant
Operational temperature	-40°F to 140°F (-40°C to 65°C)
Connector	IP68 rated
ELECTRICAL	
Power consumption	12.95W nominal
Input voltage	POE (IEEE802.3 af PD)
CABLE MANAGEMENT	
Cable length	Up to 328 ft (100 m)
Type	Cat6 STP 22-24 AWG
Connector	10 pin circular- all-weather, impact resistant
CAMERA ACCESSORIES	
Part #	Contact your sales representative for camera accessories part numbers
Description	Magnet mounts, lightbar mounts, and make/model specific roof/trunk mounts



VLP PROCESSOR

ANALYZE



KEY SPECIFICATIONS

SYSTEM	
CPU	Intel Gen8 Core i7-8700T (12M Cache 2.4GHz up to 4.0GHz)
Memory	2 x 8GB DDR4 2400 MHz SO-DIMM
LAN chipset	9 x Intel i210-AT and 1 x i219 (iAMT9.5 w/ i5, i7 only) Gb/s Ethernet Controllers Onboard Support PXE and WOL
I/O	
Serial port	3 x RS 232/422/485 (Auto Direction Control)
USB port	4 x USB 3.0 Ports
LAN	10 x RJ45 Ports for GbE (Optional for M12 connector and 8 x PoE total Max. 120W)
Video port	3 x DP Ports
Wi-Fi adapter	802.11n/g/b
4G LTE / GPS	Sierra Wireless EM7511-Dual Sim Support
POWER REQUIREMENT	
Power input	12V DC
Power protection	Automatic Recovery - Short Circuit Protection
Power management	Remote/Ignition connection to toggle power
Power off control	Power off Delay Time Setting by BIOS and Software
SOFTWARE	
Operating System	Ubuntu 18.04 64bit

GRAPHICS	
Graphics	Intel® UHD Graphics 630
Resolution	Max Resolution (DP): 4096 x 2304 @ 60Hz
STORAGE	
Type	2 x 2.5" Drive Bay for SATA Type HDD/SSD RAID 0, 1, 5 1 x mSATA
ENVIRONMENTAL	
Operational temperature	-40°F ~ 158°F (-40°C ~ 70°C), ambient w/0.6m/s airflow
Storage temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Relative humidity	10% RH – 90% RH (non-condensing)
Vibration (random)	EC60068-2-64, random, 2.5G @ 5~500Hz,1hr/axis with SSD
Vibration operating	MIL-STD-810G, Method 514.6, Procedural, Category 4
Shock	Operating: MIL-STD-810G, Method 516.6, Procedure I, Trucks and semi-trailers=15G (11ms) with SSD
Certifications	CE, FCC Class A, E13
MECHANICAL	
Construction	Polycarbonate
Mounting	Wall-mount
Weight	11.44 lbs (5.19 kgs)
Dimensions	10.24 x 9.84 x 3.74 in (260 x 250 x 95 mm)

CARDETECTOR MOBILE

RESPOND

KEY SPECIFICATIONS

	MINIMUM HARDWARE REQUIREMENTS	RECOMMENDED HARDWARE REQUIREMENTS
HARDWARE		
Processor	Intel Core i3-8145U @ 2.10GHz (or 3,847+ PassMark Score). NOTE: x86 CPUs only, No ARM CPUs	Intel Core i7-3632QM Processor (or 6,929+ PassMark Score). NOTE: x86 CPUs only, No ARM CPUs
Memory	8 GB	16 GB
Hard Drive	256GB+ HDD @ 7200RPM	256GB+ SSD or NVME
Network Adapter	Gigaibt USB to Ethernet Adapter. NOTE: Requires USB 3.0 Port	Onboard Gigabit Ethernet Port
SOFTWARE		
Operating System	Windows 8.1 64-Bit	Windows 10 64-Bit
NETWORK		
Ports Utilized	LAN: 2000, 3000, 3310, 4000, 5000 | WAN: 443, 8888	



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BUILT TO KEEP COMMUNITIES SAFER

To do license plate recognition well, you need the right tools for the job. We provide the most flexibility and options for capturing license plate data with fixed, mobile, trailer and quick-deploy camera systems, video-based integration and even mobile apps. All of these are equipped with our in-house developed, industry-leading LPR algorithm that is relied upon by law enforcement agencies world-wide.

Beyond ensuring you can collect the data you need, our suite of software solutions, including Vigilant PlateSearch, combines robust hot list management and alerting options with patented search and data analytics to equip your team with the insights they need to close more cases, faster.

Our software also keeps you in complete control of your data and systems with group and user-based access control, agency-defined data retention and broad data sharing options with built in memorandum of understanding (MOU) templates for you and your partners.

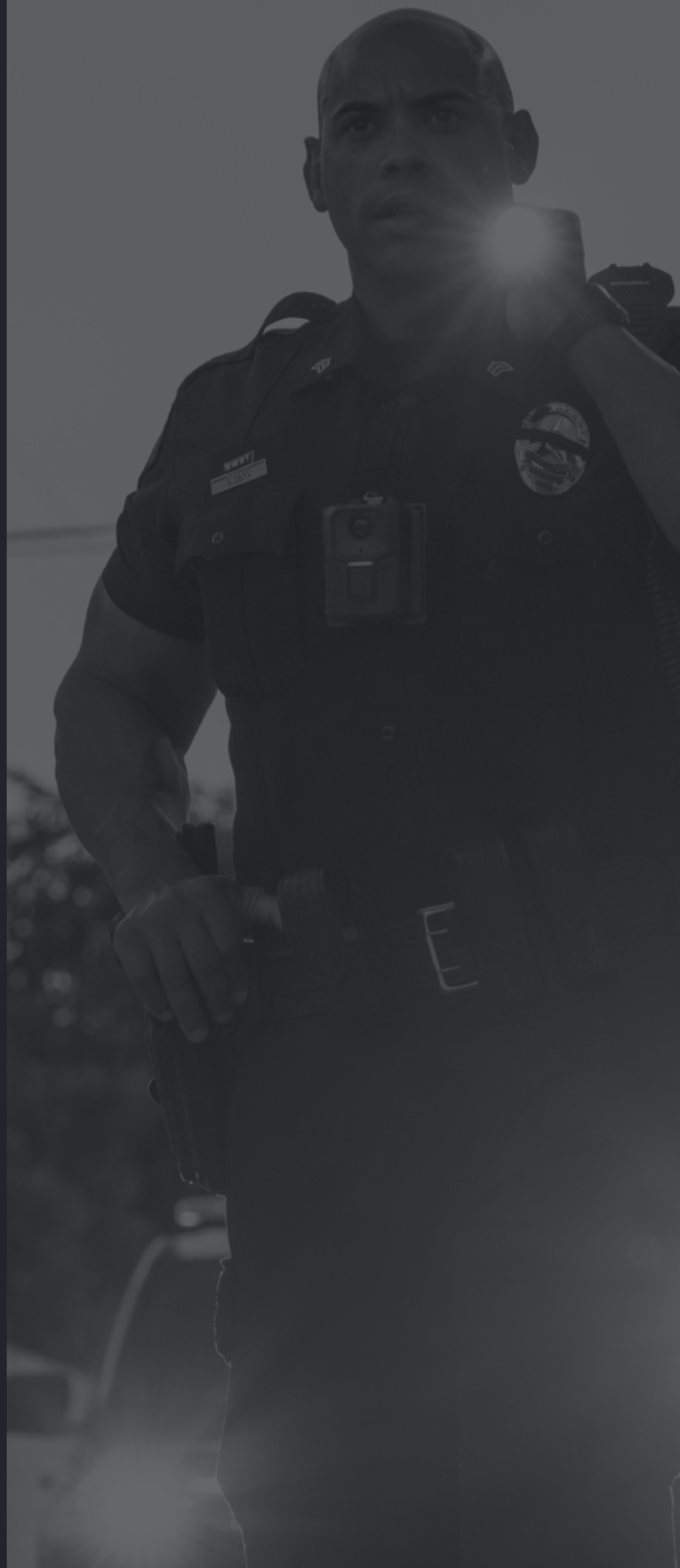
Lastly, to ensure your program is most successful, your solution is backed by a team who has built our license plate recognition portfolio to be secure and designed for responsible use from the ground up. You also have access to 24/7 support and free in-person and virtual training from our trainers, all of whom were former users and want nothing more than to help you succeed.

For more information, please visit

motorolasolutions.com/L5M

MOTOROLA SOLUTIONS

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L5M MOBILE LPR CAMERA CAPTURE RANGE



CAMERA		
Focal Length	**Optimal Capture Distance**	**Capture Range**
6 mm	9 ft	4 - 20 ft
8 mm	14 ft	6 - 27 ft
12 mm	22 ft	10 - 35 ft
16 mm	40 ft	22 - 55 ft
25 mm	70 ft	55 - 85 ft

3M Traffic Safety and Security Division
User's Manual



3M™ License Plate Capture Software

User's Manual

Version 2.7 or above

Table of Contents

Notices ... **3**
Warranty ... 3
Technical Support ... 3
Design Changes ... 3
Trademarks ... 4
Copyright ... 4
Version ... 4

1 Introduction ... **5**
1.1 Color and Infrared Camera in One Unit ... 5
1.1.1 Available Enhancements ... 5
1.2 Using This Manual ... 6

2 Quick Start Guide ... **7**
2.1 Logging On ... 7
2.2 Using the Live View Screen ... 8
2.3 Beginning the Shift ... 9
2.4 Searching and Entering Data ... 9
2.5 Ending the Shift ... 10

3 Administrator's Guide: Installation ... **11**
3.1 Minimum System Requirements ... 11
3.2 Installation Procedures ... 11
3.2.1 Installing the Software in the VP Relay/Mobile Data Computer Configuration ... 11
3.2.1.1 Installing VP Relay ... 11
3.2.1.2 Installing the 3M™ License Plate Capture Software on a Mobile Data Computer ... 12
3.2.2 Installing the Software in the Stand-Alone Configuration ... 13

4 Screen Reference ... **15**
4.1 The 3M License Plate Capture Software Login Screen ... 15
4.1.1 Logging On with the Default Administrative Account ... 15
4.2 Live View ... 16
4.2.1 Read Monitor Features ... 16
4.2.1.1 Taking a Picture ... 17
4.2.3 Other Functions Accessible from Live View ... 17
4.3 Search Entry ... 18
4.3.1 Searching for Matches ... 18
4.3.1.1 Adding a VLP Report ... 19
4.4 Review ... 20
4.4.1 Hits ... 21
4.4.1.1 Add VLP Intel ... 23
4.4.2 Reads ... 23
4.4.3 Misreads ... 24
4.4.4 Audits ... 25
4.4.5 Databases ... 25
4.4.5.1 Activating and Deactivating Databases ... 26
4.5 Begin Shift ... 26
4.6 End Shift ... 27
4.7 Cam Mode ... 27
4.8 Admin Main Menu ... 28
4.8.1 Review ... 28
4.8.2 Location ... 29
4.8.3 Cam Setup ... 30
4.8.4 Database ... 31
4.8.5 Targets ... 31
4.8.6 Admin ... 31
4.8.6.1 Sync ... 32
4.8.6.1.1 Synchronization to a Local Disk or Flash Drive ... 32
4.8.6.1.2 Wireless Synchronization with BOSS ... 33
4.8.6.1.3 Global Sync Options ... 34
4.8.6.2 Privacy ... 35
4.8.6.2.1 Never Option ... 36
4.8.6.2.2 On Startup Option ... 36
4.8.6.2.3 Purge Database Older Than Setting ... 36
4.8.6.2.4 Purge Hits Older Than Setting ... 36
4.8.6.2.5 Purge Reads Older Than Setting ... 36
4.8.6.3 Language ... 37
4.8.6.4 Location ... 37
4.8.6.5 Users ... 37
4.8.6.6 Sound ... 38
4.8.6.7 System ... 39
4.8.6.7.1 Configuring System Connection Strings ... 39
4.8.6.7.2 GPS Connection String ... 39
4.8.6.8 Rules ... 39
4.8.6.9 OCR ... 40
4.8.6.10 External ... 40
4.8.6.11 Cameras ... 41
4.8.6.12 Configs ... 44
4.8.6.12.1 Adding a Camera Configuration ... 45
4.8.6.13 Old Config ... 46
4.8.6.14 Info ... 47
4.8.7 Live View ... 47

5 Appendix: The 3M License Plate Capture Software Database File ... **48**
5.1 Interpreting the Sample File ... 48
5.1.1 The [SETTINGS] Heading ... 48
5.1.2 The [FIELD X] Heading ... 49
5.1.3 Sample INI Configuration File ... 49
5.2 Additional Development and Support ... 50

6 Appendix: Additional Procedures ... **51**
6.1 Microsoft .NET 3.5 Installation ... 51
6.2 Firewall Settings for Client-Server Installations ... 51
6.3 Mapping a Network Drive ... 51
6.4 The 3M License Plate Capture Software Version 2.7 Series Troubleshooting ... 52
6.5 Installation (Formerly BOF2) Configuration Information ... 52

Glossary ... **53**
Index ... **54**

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Notices *(continued)*

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Version

This manual documents the 2.7 series versions of the 3M License Plate Capture Software and was last updated on March 4, 2014.

1 Introduction

The 3M License Plate Capture Software provides in-car Automatic License Plate Recognition (ALPR; also called Automatic Number Plate Recognition, or ANPR). This software has been developed in collaboration with law enforcement to ensure that it meets the needs of their agencies and officers as well as the needs of other organizations, such as security and asset recovery companies, that must identify vehicles and associated license plate data.

The 3M License Plate Capture Software ALPR solution uses up to four 3M dual-channel, or dual-lens, cameras (color and Infrared [IR]) to read plates and a software program installed on the 3M™ Mobile ANPR/ALPR Processor or on a mobile data computer (MDC) such as a laptop.

The software is optimized to run on MDCs with Windows XP (SP2 or SP3), Windows Vista, Windows 7, or Windows 8 operating systems; it runs on the 3M Mobile ANPR/ALPR Processor with Microsoft Windows XP Embedded. Either a standard or touch screen monitor can be used. The larger buttons and software-based keyboard make data entry easy when using a touch screen.

The 3M License Plate Capture Software downloads the infrared plate image provided by any of the cameras along with the plate number interpreted through Optical Character Recognition (OCR) by the mobile processor. The application then searches for any matches of the plate with plates listed in the databases, or "hotlists," uploaded from the 3M Back Office System Software (BOSS) or other external sources.



WARNING: **To reduce the risks associated with impact, which if not avoided, could result in serious injury or death: DO NOT** interact with the ALPR system while driving in hazardous situations. The 3M mobile camera series and License Plate Capture Software are not intended for use in hazardous environments, so that the User and/or others are not put at risk for personal injury and/or property damage.

1.1 Color and Infrared Camera in One Unit

The 3M mobile camera series uses visible light to take color overview pictures of the vehicle and uses infrared illumination to capture the license plate's alphanumeric characters.

IR illumination offers the best capture performance of reflective license plate characters:

- License plates can be highly reflective to IR.
- Cameras using IR are not affected by, and do not depend on, visible light or the absence of natural or artificial light. Because the effects of headlight or sunlight glare and total darkness are eliminated, the system can be used 24 hours a day, seven days a week.
- IR penetrates rain and fog better than visible light.

A maximum of four 3M dual-lens cameras can be installed in one vehicle, provided the system supports the additional hardware.

1.1.1 Available Enhancements

Additional information about other 3M applications, cameras, and solutions is available on the 3M web site: http://www.3M.com/mvss.

1.2 Using This Manual

The remaining chapters of this software manual are as follows:

Chapter 2: The Quick Start Guide provides users with an overview of the 3M License Plate Capture Software procedures such as beginning and ending the shift and using the Live View screen.

Chapter 3: Administrator's Guide to Installation explains how to install and update the 3M License Plate Capture Software.

Chapter 4: Screen Reference explains every screen function in the 3M License Plate Capture Software including setup functions available to Administrators.

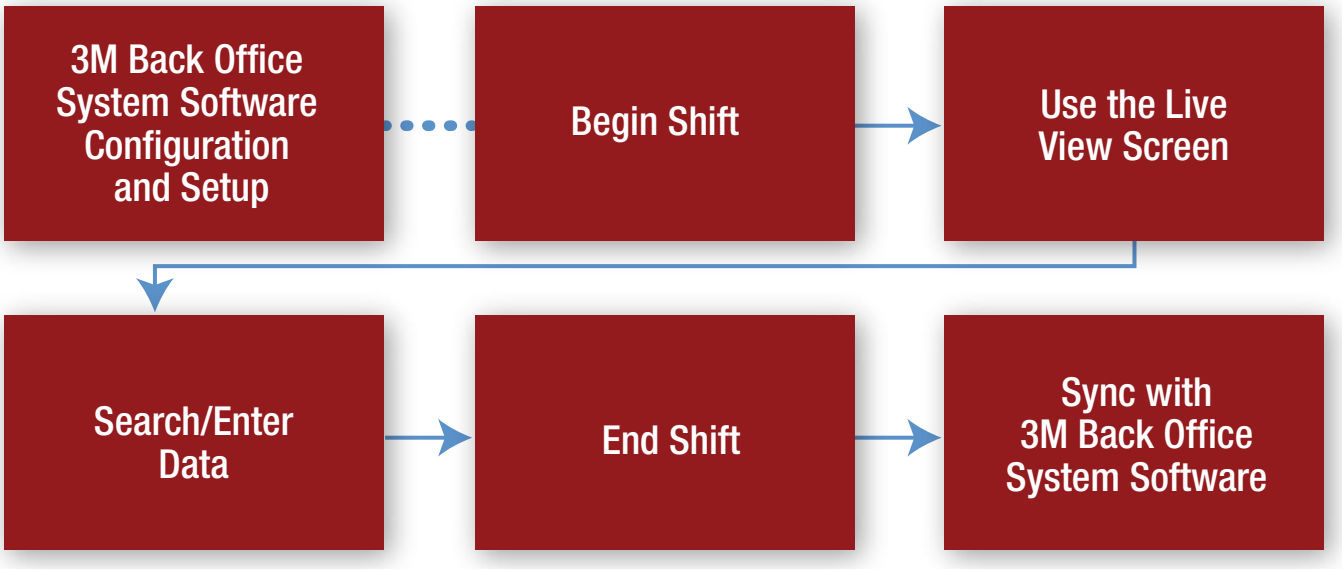
The appendices describe additional features (such as the INI file), additional procedures, and features available to international users. This manual also includes a glossary and an index.

2 Quick Start Guide

This chapter provides a “cheat sheet” for the most commonly used procedures and screens. Detailed explanations of features in this product are discussed in Chapter 4, Screen Reference.

Tip: Print this chapter and keep it where the 3M License Plate Capture Software is installed as a quick reference guide.

The flowchart below describes the basic steps performed when using the 3M License Plate Capture Software. Each time you use the 3M License Plate Capture Software, you will always have a Begin and End Shift. The step “Search/Enter Data” is optional.



2.1 Logging On

Before anyone begins using the 3M License Plate Capture Software, Administrators will have installed, configured, and set up both this software and the 3M Back Office System Software (BOSS), where databases (called “hotlists” in BOSS) and other information are maintained. Administrators will also have assigned each user a Badge No. (username) and password.

Depending on the setup of your system, you will have either (1) a laptop or other mobile data computer (MDC) loaded with the 3M License Plate Capture Software and connected to the 3M Mobile ALPR Processor, or (2) a touch screen (or keyboard and screen) connected to the software loaded directly on the mobile processor.

Again, depending on setup, you will access BOSS data either wirelessly or via a USB flash drive (also called a “memory stick” or “thumb drive”), which has been synchronized to BOSS through the Synchronize function of the 3M Back Office System Software Client Tools Utility. *See the 3M Back Office System Software User’s Manual for additional details.*

To open the Login screen:

1. Insert the USB flash drive into the MDC or the mobile processor (depending on the setup), or verify that the MDC or the mobile processor is connected to a wireless network.
2. Start the software by double-clicking the 3M License Plate Capture Software icon.

2.1 Logging On *(continued)*

3. Using the keyboard or the keypad on the touch screen, enter your badge no. (username) and password.



4. Location will either (1) display a default value, if one has been configured, (2) remain blank, or (3) be changed by the user on logon. It is not a required field.
5. Press **Login** to access the 3M License Plate Capture Software.

If you enter an incorrect username/password three times, after the third attempt, an error message will display "Login Failed," and the 3M License Plate Capture Software will close.

2.2 Using the Live View Screen

The Live View screen first appears after you log in to the 3M License Plate Capture Software. The main functions are listed and accessible via buttons across the bottom of the screen.

Search Entry – Search reads currently stored in the 3M License Plate Capture Software, check for a license plate in the databases, or add a license plate to the Manual Reports database.

Review – View the following summary statistics for that particular system: reads, hits, audits, misreads, and the databases.

Begin Shift – Press twice to begin the shift and synchronize data into the 3M License Plate Capture Software directly from the flash drive or from the 3M Back Office System Software using a wireless network.

End Shift – Press twice to end the shift and synchronize data from the 3M License Plate Capture Software directly to the flash drive or to the 3M Back Office System Software using a wireless network.

Cam Mode – Toggle between the various camera configurations as defined by the System Administrator. The default choices are **Parking** and **Traffic**.

Admin – Access the Admin Main Menu (available to Administrators only).

Log Out – Log off the system.



2.3 Beginning the Shift

3M LPCS stores data that is used during a shift in local databases. Press **Begin Shift** twice to synchronize the BOSS hotlists and other data used during the shift to the software either from the USB flash drive or wirelessly from BOSS. After the 3M License Plate Capture Software has been synced to BOSS via a wireless network, data is flagged in the database to prevent duplicate syncing.



2.4 Searching and Entering Data

Press **Search Entry** from the **Live View** screen to display the **VLP** (Vehicle License Plate) or **DL#** (Driver's License Number) search screen.

Text Box – Enter the license numbers and/or letters to search.

Key Pad – Press to activate an on-screen keypad, for use with a touch screen monitor or with a mouse.

Clear – Clear the content of the text box. **DL#** – Check the databases (BOSS hotlists) for the driver's license number entered in the text box.

2.4 Searching and Entering Data *(continued)*

Reads – Search for a match of the entered number with the reads and hits currently stored in the 3M License Plate Capture Software databases.

Add VLP – Check the databases for the entered vehicle license plate. If the plate is not found, it can then be added to the Manual Reports database.

Esc – Return to the Live View screen.

Take these steps to take to initiate a search:

- Press the **Search Entry** button on the Live View screen.
- Press **Key Pad** to activate the on-screen keypad.
- In the text box enter the alphanumeric string to search.
- To search for a driver's license number, press the **DL#** button.
- To search for a match with a read or hit currently stored in the 3M License Plate Capture Software database, press the **Reads** button.
- To search for a specific plate, press the **Add VLP** button to search the databases for matches. If a match occurs, a message displays showing that the plate is already recorded and which database(s) it has been found in. If no match occurs, the plate number can then be added to the Manual Reports database using **Add VLP Report**.

Note: Wild card searches can also be performed using the * and _ characters. The asterisk (*) designates an unknown number of characters while the underscore (_) indicates a single missing or unknown character. To search for a plate number with the characters J and 8, entering "*J_8*" will display all records containing J and 8 separated by one character.

- Press **Clear** to clear the content of the text box.
- Press **Esc** to return to the Live View screen.

2.5 Ending the Shift

Follow the same procedures to synchronize data from the 3M License Plate Capture Software whether you are syncing to a USB flash drive or directly to BOSS via a wireless network.

1. Press **End Shift** twice. This process may take a few minutes. An on-screen message will display when it is complete.
2. Press **Log Out** to log off the system. Wireless users are complete at this point. The End Shift data has gone directly to BOSS.
3. Remove the flash drive from the MDC or from the 3M Mobile ALPR Processor.
4. Follow the 3M Back Office System Software Client Tools instructions to sync the flash drive data into the 3M Back Office System Software. *See the 3M Back Office System Software User's Manual for additional details.*

3 Administrator's Guide: Installation

3.1 Minimum System Requirements

The 3M License Plate Capture Software requires the following minimum system requirements for the mobile data computer:

- Pentium-compatible PC at 1.0 GHz
- Windows Vista, Windows 7, or Windows 8
- Microsoft .NET Framework 3.5
- 8 GB of RAM
- At least 1 GB of hard drive space
- SVGA display with a minimum resolution of 800 x 600 pixels
- An available Ethernet port that will accept the following IP address: 192.168.200.200
- Keyboard and mouse, or a touch screen monitor
- NMEA-compliant GPS unit with a USB connector

3.2 Installation Procedures

If you are installing the 3M License Plate Capture Software for limited user accounts, whoever will be operating the 3M License Plate Capture Software needs to have read and write privileges for the 3M License Plate Capture Software installation directory. Otherwise, the 3M License Plate Capture Software will not be able to record data.

The 3M License Plate Software has two configurations:

1. In one, VP Relay installed on the 3M Mobile ANPR/ALPR Processor provides read information via a network connection to a version of the 3M License Plate Capture Software installed on a mobile data computer (e.g., laptop).
2. In the other, the stand-alone version of the software is installed directly on the 3M Mobile ANPR/ALPR Processor.

3.2.1 Installing the Software in the VP Relay/Mobile Data Computer Configuration

3.2.1.1 Installing VP Relay

The VP Relay application is a utility installed on the 3M Mobile ANPR/ALPR Processor that collects images from the attached cameras and GPS coordinates from a connected GPS device. VP Relay then forwards this information to the 3M License Plate Capture Software running on a connected laptop. VP Relay is initially installed on the 3M Mobile ANPR/ALPR Processor by the manufacturer before shipping. However, from time to time, updates are made to the 3M License Plate Recognition Software and a newer version of VP Relay needs to be installed on the 3M Mobile ANPR/ALPR Processor.

1. Establish a remote connection to the 3M Mobile ANPR/ALPR Processor by opening **Remote Desktop Connection** on the laptop. Click **Options** and then click on the **Local Resources** tab. Click on **More** and then expand **Drives**. Select the local drive on the laptop where the **PAGIS_Setup_2.7.x.<build number>.exe** is stored. Click **OK**.
2. Select the **General** tab. In the Computer field enter the IP address of the 3M Mobile ANPR/ALPR Processor, usually 192.168.200.201. Click on **Connect.** The Username is *pips* and the Password is *pips*.

3.2.1.1 Installing VP Relay *(continued)*

3. If this is a migration from a previous installation, change the name of the original PAGIS folder located on the 3M Mobile ANPR/ALPR Processor to **PAGIS2_Original**.
4. From the MDC, copy the file **PAGIS_Setup_2.7.x.<build number>.exe** to the 3M Mobile ANPR/ALPR Processor desktop.
5. Run the installation file. Click **Yes** on the error message "Unrecognized Operating System Windows XP Embedded Service Pack 3."
6. When the Licensing Agreement is displayed, click the check box indicating acceptance of the terms. Click **Next** to continue.
7. Select **SupeRex III Client** and the desired **Shortcuts**. Click **Next** to continue.
8. Confirm the installation location on the D:\ drive, selecting **Browse** if necessary. Click **Install** to continue.

Note: VP Relay must be installed on drive D. Drive C is locked so any files added will be removed when the 3M Mobile ANPR/ALPR Processor is rebooted.

---

9. When the "Installation Complete" message is displayed, click **Next** to continue. Then click **Finish** when the "Completing the PAGIS Setup Wizard" message is displayed.
10. Click **Yes** when the reboot message is displayed.
11. After the system reboots, confirm that the VP Relay application is running as a service. You can do this by starting **Service.msc**. If the application is not running, right click on the service. Select **Properties** and change the Startup type to **Automatic**. Click on **Start** in the Service status section. Click **Apply** and **OK** to save changes.

3.2.1.2 Installing the 3M License Plate Capture Software on a Mobile Data Computer

After you install VP Relay on the 3M Mobile ANPR/ALPR Processor, you must install the MDC version of the 3M License Plate Capture Software application on the networked laptop, using the following steps:

1. If this is a migration from a previous installation of the MDC version of PAGIS or ALPCS, confirm that an **End Shift** has been completed and there are no current reads or hits in the system. Then change the name of the application folder to **PAGIS2_Original**.
2. Transfer the installation file, **PAGIS_Setup_2.7.x.<build number>.exe**, to the laptop.
3. Run the file as an Administrator.
4. When the Licensing Agreement is displayed, click on the check box indicating acceptance of the terms. Click **Next** to continue.
5. Select **MDC PAGIS** and the desired shortcut options. Click **Next** to continue.
6. Confirm the installation location, selecting **Browse** if necessary. Click **Install** to continue.
7. When the "Installation Complete" message is displayed, click **Next** to continue. When the "Completing the PAGIS Setup Wizard" message is displayed, click **Finish**.
8. Click **No** when the reboot message is displayed.

9. If this is a migration, the following files can be copied from the PAGIS2_Original directory to the new installation directory:

   ANPR folder

   Data\attributes.db

   Synchronizer.ini

   PAGIS.exe.config

   FuzzyLogic.ini (if it exists)

   Otherwise, go to the second Admin screen and configure the application as needed. If port 8092 (the default sync port for the 3M Back Office System Software server) is unavailable, then you will need to change the connection to a supported port.

10. Install VP Relay on the 3M Mobile ANPR/ALPR Processor by following the VP Relay installation instructions.
11. Restart the laptop. Then start the 3M License Plate Capture Software and log on. Confirm that the software is receiving images from the cameras.
12. Perform a **Begin Shift** to confirm that the software is receiving all files correctly.
13. After confirming that the new installation was successful, delete the **PAGIS2_Original** directory and the **PAGIS_Setup_2.7.x.<build number>.exe**.

3.2.2 Installing the Software in the Stand-Alone Configuration

A stand-alone version of the 3M License Plate Recognition Software can be installed directly on the 3M Mobile ANPR/ALPR Processor, performing the same function as both the VP Relay and the MDC applications. The read is then stored and processed just as it is in the MDC version. Follow these steps:

1. If this is a migration from a previous installation of the MDC version of PAGIS or ALPCS, confirm that an **End Shift** has been completed and there are no current reads or hits in the system. Then change the name of the application folder to **PAGIS2_Original**.
2. Transfer the installation file **PAGIS_Setup_2.7.x.<build number>.exe** to the 3M Mobile ANPR/ALPR Processor desktop.
3. Run the installation file. Click **Yes** on the error message “Unrecognized Operating System Windows XP Embedded Service Pack 3.”
4. When the Licensing Agreement is displayed, click on the check box indicating acceptance of the terms. Click **Next** to continue.
5. Select **Stand-Alone PAGIS** and the desired shortcut options. Click **Next** to continue.
6. Confirm the installation location on the D:\ drive, selecting **Browse** if necessary. Click **Install** to continue.

Note: The stand-alone application must be installed on drive D. Drive C is locked so any files added to it will be removed when the 3M Mobile ANPR/ALPR Processor is rebooted.

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7. When the “Installation Complete” message is displayed, click **Next** to continue. When the “Completing the PAGIS Setup Wizard” message is displayed, click **Finish**.
8. Click **No** when the reboot message is displayed.

3.2.2 Installing the Software in the Stand-Alone Configuration *(continued)*

9. If this is a migration, the following files can be copied from the PAGIS2_Original directory to the new installation directory:

    ANPR folder

    Data\attributes.db

    Synchronizer.ini

    PAGIS.exe.config

Otherwise, go to the Admin\Admin section of the LPCS application and configure it as needed.

10. Restart the 3M Mobile ANPR/ALPR Processor. Start the 3M License Plate Capture Software and log on. Confirm that the software is receiving images from the cameras.
11. Perform a **Begin Shift** to confirm that the software is receiving all files correctly.
12. After confirming that the new installation was successful, delete the **PAGIS2_Original** directory.

4 Screen Reference

This chapter guides the user through the 3M License Plate Capture Software screens and the available options. Screens are grouped according to functions. When a button is grayed out, the option is not available or no information has been accrued to activate it.



4.1 The 3M License Plate Capture Software Login Screen

The 3M License Plate Capture Software allows for multiple users with individual access privileges. For users with touch screen monitors, the Key Pad button immediately to the right of any text box that accepts input gives you access to an on-screen keyboard for data entry.

Badge No. (Username)– The alphanumeric string assigned to identify the user. For law enforcement officers, this is typically their badge number.

Password – Password of the user.

Location – Location where the 3M License Plate Capture Software will be used. This is an optional field. If the Administrator has configured a default location, that location will be displayed; otherwise, it will be blank. You can manually enter a location at logon, keep the default location, or leave the location field blank.

Login – Logs the user on to the 3M License Plate Capture Software.

Exit – Quits the 3M License Plate Capture Software.

4.1.1 Logging on with the Default Administrative Account

The 3M License Plate Capture Software includes a default administrative account that can be used for the initial configuration. For the very first logon after installation, press **Login** with the Badge No. and Password fields blank.

If the 3M License Plate Capture Software is wirelessly synced to the 3M Back Office System Software and if the 3M Back Office System Software only has the default user account, then on the next login, the user must type “admin” in the Badge No. field and leave the Password field blank.

System Administrators are strongly encouraged to configure users for the 3M License Plate Capture Software soon after installation and setup. Once usernames and passwords are established by the System Administrator, the default user account will be disabled. Make sure that, when user accounts are created, at least one account has administrative privileges.

4.2 Live View

Once a user logs on, the Live View screen opens. This is the main view and all the 3M License Plate Capture Software features can be accessed from this point. It is on this screen that read images are monitored. Once a connection has been established with the mobile cameras, images will be displayed, and the system will begin capturing plates. Live View can display a still image or video (if video cameras are used) of a vehicle, its license plate with the number interpreted by the optical character reader, the Camera Mode, and Camera or Lane Name, as defined in camera configuration setup. Using this screen, you can toggle between the displayed cameras by pressing **Cam Mode** at the bottom of the screen. The display also includes the interpreted plate number and GPS information, if available. The 3M License Plate Capture Software plays an alert sound – a beep by default – each time a license plate is read.



4.2.1 Read Monitor Features

The dual-lens cameras can capture both a color and an infrared image. There are three buttons for the two cameras displayed on the Live View screen. Two of these buttons allow you to change the image from color to infrared and back again.

Col – The color view is the default image on the Live View screen. Color is also the primary image, and the display will return to the color image from an IR image when the next read occurs.

IR – If the IR button is clicked, the IR image being sent from the camera will be displayed on the Live View screen. If a read occurs while the image is in IR mode, the image will change back to color. The infrared button is visible only when an infrared camera is configured (some older cameras have color lenses only).

GPS Coordinates – Color-coded GPS coordinates appear just above the three buttons for each camera: Yellow background indicates that the coordinates have been received and the system is in the process of confirming the information. The background changes to green when the information has been confirmed. It changes to red if an error occurs while receiving the GPS information.

4.2.1.1 Taking a Picture

Use the third button below each displayed camera, **Take Pic**, to take a picture of the image displayed for that particular camera.



To take a picture from the Live View:

1. Press the **Take Pic** button to open the Take Picture screen.
2. Once the image displays for that camera, enter any desired notes in the text box using the keypad button or keyboard.

IMPORTANT: The picture will NOT be saved if a note is not entered in the text box.

3. Press **Take Pic** again.
4. Press **Save** to save the picture, or **Escape** to cancel. Either action will return you to Live View.

4.2.3 Other Functions Accessible from Live View

Six of the seven buttons across the bottom of the Live View screen take you to additional system functions: Search Entry, Review, Begin Shift, End Shift, Cam Mode, and the Admin Main Menu, described in the following sections. Pressing **Log Out**, the right-most button on the bottom of the screen, logs you out of the software and returns you to the Login screen.

4.3 Search Entry

Press **Search Entry** from the Live View screen to display the screen that lets you search the synchronized databases for license plates, reads, or driver's licenses. The same Search Entry screen is also accessible from the Database screen. Searching returns only information that is in the database(s) synced at Begin and End Shift, and in the 3M License Plate Capture Software Manual Reports database.

Text Box – Enter the alphanumeric string to search.

Key Pad – Press to activate an on-screen keypad, for use with a touch screen monitor or with a mouse.

Clear – Clear the content of the text box.

DL# – Check the databases (BOSS hotlists) for a driver's license number entered in the text box.

Reads – Search for a match of the entered number with the reads and hits currently stored in the 3M LPCS databases.

Add VLP – Check the databases for the entered vehicle license plate.

Esc – Return to the previous screen.



4.3.1 Searching for Matches

- Press the **Search Entry** button on the Live View screen.
- Press **Key Pad** to activate the on-screen keypad.
- In the text box enter the alphanumeric string to search.
- To search for a driver's license number, press the **DL#** button.
- To search for a match with a read or hit currently stored in the 3M License Plate Capture Software database, press the **Reads** button.
- To search for a specific plate, press the **Add VLP** button to search the databases for matches. If a match occurs, a message displays showing that the plate is already recorded and which database(s) it has been found in. If no match occurs, the plate number can then be added to the Manual Reports database using **Add VLP Report**.

Note: Wild card searches can also be performed using the * and _ characters. The asterisk (*) designates an unknown number of characters while the underscore (_) indicates a single missing or unknown character. To search for a plate number with the characters J and 8, entering "*J_8*" will display all records containing J and 8 separated by one character.

- Press **Clear** to clear the content of the text box.
- Press **Esc** to return to the Live View screen.

4.3.1.1 Adding a VLP Report

If a VLP query does not return a match for a searched license plate, the Add VLP Report will be displayed and can be used to add the plate to the Manual Reports database. The plate number searched will appear near the top of the screen. Under it are the following buttons, including four alert options:

Amber Alert – Flags the current entry with an Amber Alert.

Felony – Flags the current entry as used in a felony.

Stolen – Marks the current plate as a stolen vehicle.

Misc – Flags the current entry as a miscellaneous offense and can be used to classify the plate as other than Amber Alert, Felony, or Stolen in the additional information you add to the text box.

Text Box – The alert option selected will display in the text box. Additional text can be entered for documentation purposes.

Key Pad – Press to activate an on-screen keypad, for use with a touch screen monitor or with a mouse, to add information to the text box.

Esc – Returns you to the Search Entry screen.

Save – Updates the Manual Reports database with the new information.



4.3.1.1 Adding a VLP Report *(continued)*

To add a VLP report:

1. Select **Amber Alert**, **Felony, Stolen**, or **Miscellaneous** as applicable. The license plate number with the date and time stamp will now appear in the text box.

Note: The data will NOT be saved unless you select one of these four buttons.

---

2. Add to the text box any additional information associated with the license plate.
3. Press **Save** to update the Manual Reports database with the new information.
4. Press **Esc** to return to the Search Entry screen.

4.4 Review

Pressing the **Review** button opens the Review screen, which displays a summary of data collected during the shift in four categories:

- Reads shows two counts: the total number of reads synced to BOSS (in Disk Sync mode this will always be zero) and the total number of reads captured during the shift
- Hits: the total number of hits that have occurred during the shift
- Misreads: the total number of reads marked as misreads during the shift
- Audits shows two counts: the number of audits synced to BOSS (again, in Disk Sync mode, this will always be zero) and the total number of audits during the shift.



The buttons on the Review screen allow you to review the information collected in the four categories plus the available databases. On the screen for each type of information, you can scroll through every item in the category.

Hits – Displays the hit alerts for VLP reads that matched plates in the database(s).

Reads – Displays all plate detections that have occurred since the last End Shift sync.

Audits – Displays failed and successful logons, any manual data entered during the shift, and all manual license plate searches.

Misreads – Displays reads and/or hits that have been manually flagged during the shift as misreads, where the plate number in the image does not match the OCR interpretation of the plate (e.g., a letter O misread as a Q or zero).

Databases – Takes you to the Database screen and all the databases currently in the 3M License Plate Capture Software.

Esc – Returns you to the previous screen.

4.4.1 Hits



To review hits, you can access the Hits screen from the Review screen. Also, whenever a hit occurs (i.e., whenever a VLP read matches a database entry), the 3M License Plate Capture Software sounds an alarm and automatically displays the Hits screen with the database information to alert the user.

At the top of the screen there is information about the specific hit:

Camera Name – The name of the camera ("Right Park" in the screen shot) from which the hit originated.

GPS Location – The GPS coordinates for the hit. If a GPS device is not attached, the location is displayed as 0,0 for longitude and latitude.

Date and Time Stamp – The date and time when the system captured the VLP, with all associated data, and confirmed it as a hit

Patch Image – A thumbnail image of the license plate.

OCR Text – The character string that the OCR engine matched to the current plate patch. If it was a misread, you can click or tap on the text, which takes you to the on-screen keypad where you can correct the license plate and flag it as a misread.

Note: The plate will then be saved as a misread and can only be viewed from the Misreads screen.

Overview Image – An overview image of the vehicle, displayed in color when available.

Target – A person of interest associated with the plate. If a hit has associated targets, the number of targets found will display at the top of the Hits screen. The user can click on that message to display the target information. You can also access information on a target by pressing the **Target** button on the Admin Main Menu.

Database – In the center of the Hits screen, the database that the plate was found in will be listed.

4.4.1 Hits *(continued)*

Information – Any information related to the vehicle that has been extracted from the database where the VLP was found will appear in text on the right side of the screen. Information manually added by the user will appear in the large text box at the bottom of the screen.

Typically, a database can contain:

- The VLP,
- Vehicle color, make and model,
- An action to take with the vehicle,
- A reason for the action, and
- General information about the offending vehicle.

The buttons around the edges of screen (listed from the top left, down, across, and up the right side) provide other functions:

Add Intel – Here you can add information about a particular hit prior to synchronization to the BOSS. For instance, you might add information about the arrest or violation. *(see Section 4.4.1.1 Add VLP Intel)*

Misread – Pressing **Misread** will flag and confirm a hit as misread. In wireless synchronization this button will be available only until the hit has been synced to BOSS.

Esc – Returns to the previous window.

Prev – Moves to the previous record. Available if more than one hit has been recorded during the shift.

Current/Total (Records) – At the center bottom of the screen, shows the number of the record being displayed and the total number of records. For example, 15/60 means that this is the 15th hit recorded out of a total of 60 hits made during the shift.

Next – Moves to the next record. Available if more than one hit has been recorded during the shift.

Save – Preserves any changes.

Jump – Allows you to move to a specific record, within the current database, by using the keypad to enter data. For example, if there are 600 hits in the system, you can enter 550 to begin the search with that record, instead of having to scroll through all the hits.

Set Disp – By selecting **Set Disp**, you will be prompted to report on the disposition of the hit in one of the categories defined by your System Administrator (Arrest Made, Vehicle Recovered, Surveillance Established, Towed, etc.). The approved dispositions will appear in the large text box. These dispositions are reported to the BOSS system and allow for easy reporting on results (dispositions) generated by 3M License Plate Capture Software.

Next DB – Moves to the next database that produced a hit alert.

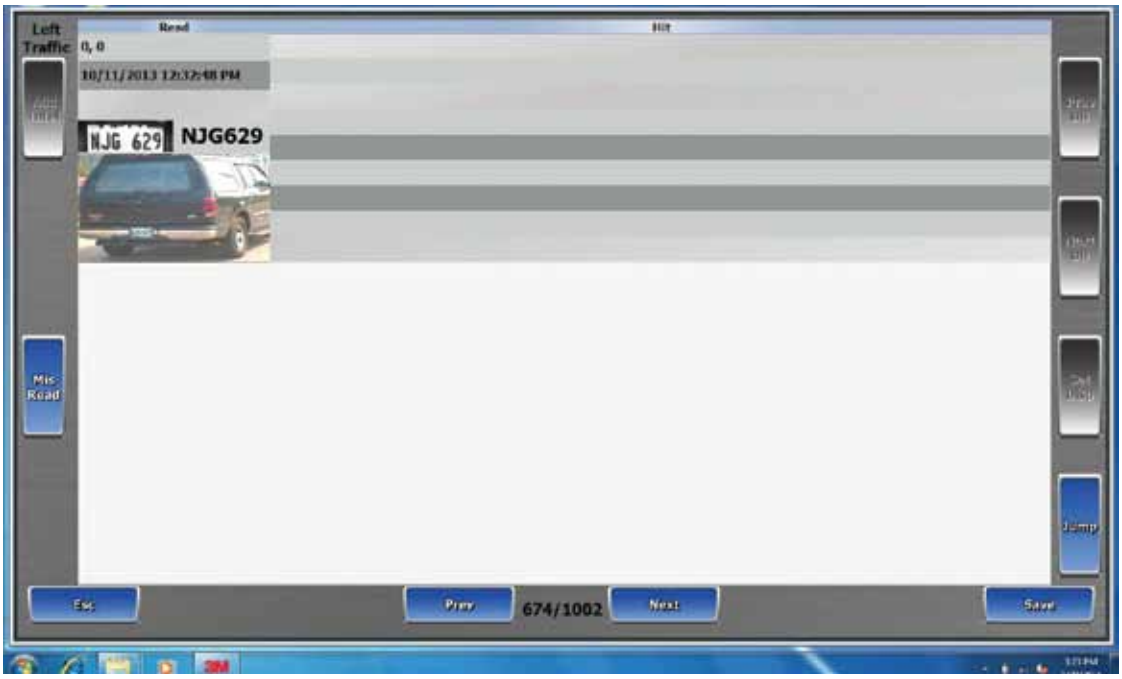
Prev DB – Moves to the previous database that produced a hit alert.

Current/Total (Databases) – At the top right of the screen, shows which database the information displayed about the hit comes from and how many databases the hit was found in. For example, 1/3 means that you are viewing information from the first of the three databases that produced hits.

4.4.1.1 Add VLP Intel

Pressing the **Add Intel** buttons opens the Add VLP Intel screen. Possible outcomes for the hit (Towed, Arrest, Not Recovered, and Misc) are listed across the top of the screen. Press the keypad to enter additional information about the hit in the text box. Press **Save** to save the data entered, which will now also appear on the Hits screen for this record. The Add Intel feature is available prior to synchronization to the BOSS.

4.4.2 Reads



To review reads you can access the Reads screen from either the Review screen or the Live View screen. The Reads screen is the general image review area.

At the top of the screen there is information about the specific read:

Camera Name – Displays the name of the camera that captured the read.

GPS Location – Your vehicle location at the time of the read. The coordinates are received from a GPS device if one is attached.

Date and Time Stamp – Displays the date and time when the vehicle image was recorded.

Patch Image – Shows a thumbnail image of the license plate.

OCR Text – The character string that the OCR engine matched to the current plate patch. If it was a misread, you can click or tap on the text, which takes you to the on-screen keypad where you can correct the license plate and flag it as a misread.

Note: The plate will then be saved as a misread and can only be viewed from the Misreads screen.

Overview Image – Displays an overview image of the vehicle, in color when available.

4.4.2 Reads *(continued)*

The buttons around the edges of screen (listed from the top left, down, across, and up the right side) provide other functions:

Add Intel – This button is grayed out (unavailable) on the reads screen because additional information doesn't need to be added to a read.

Misread – Pressing **Misread** will flag and confirm a read or hit as misread. The user is not expected to correct the read at that time. In wireless synchronization, available only until the read has been synced to BOSS.

Esc – Returns to the previous window.

Prev – Moves to the previous record.

Current/Total (Records) – These numbers, at the center bottom shows the number of the read record being displayed and the total number of reads. For example, 5/40 means that this is the fifth read recorded out of a total of 40 reads made during the shift.

Next – Moves to the next record.

Save – Preserves any changes.

Jump – Allows you to move to a specific record, within the current database, by using the keypad to enter data.

Set Disp – This button is grayed out (unavailable) on the Reads screen because, when there is not a hit, no action needs to be taken.

Next DB – This button is grayed out because reads are not found in any databases.

Prev DB – This button is grayed out because reads are not found in any databases.

4.4.3 Misreads

When a license plate hit or read has been marked as a misread, it will be listed in this screen. Using the Misreads screen, you can edit or update misreads.

Camera Name – Displays the name of the camera that captured the read.

GPS Location – The location of the 3M License Plate Capture Software vehicle at the time of the read. The coordinates are received from a GPS device if one is attached.

Date and Time Stamp – Displays the date and time when the vehicle image was recorded.

Patch Image – Shows a thumbnail image of the license plate.

OCR Text – The character string that the OCR engine matched to the current plate patch. If it was misread, you can click or tap on the text, which takes you to the on-screen keypad where you can correct the license plate.

Overview Image – Displays an overview image of the vehicle, in color when available.

Add Intel – This button is grayed out on the Misreads screen.

Misread – This button is grayed out on the Misreads screen.

Set Disp – This button is available on the Misreads screen only if the misread was originally a hit. Otherwise, it will be grayed out (unavailable).

Prev DB – This button is grayed out on the Misreads screen.

Next DB – This button is grayed out on the Misreads screen.

Jump – Allows you to move to a specific record, within the current database, by using the keypad to enter data.

4.4.4 Audits

The Audits screen provides a log of various actions taken during the current shift, including searches, synchronizations, hits, etc. Performing an End Shift or syncing the database clears the log.



4.4.5 Databases

The Database screen is opened by pressing **Database** from the Review or the Admin screen. Databases can be toggled on and off and deleted from this screen in each individual 3M License Plate Capture Software vehicle.

Database Name – Displays the name of the database (BOSS hotlist) in the field, along with the date and time stamp showing the last database synchronization.

Priority – Database priority is shown by the number in the second column (100-999), as determined by the System Administrator. The lower the number, the higher the database priority; that is, a hotlist with a priority of 100 has the highest priority. By default, the Manual Reports database created by the 3M License Plate Capture Software has a priority of 500.

Delete – Removes the database from the current session. Because databases are managed in BOSS, if the deleted database has not been removed from the BOSS deployment list , it could be added back on the next synchronization.

Trigger/No Trg – If **Trigger** is on, the software sends a signal to a port on the mobile processor and any device (such as a video camera) connected through this port.

On/Off – Database status indicator. A green **On** button indicates that the database is active. A red **Off** button shows that the database is inactive and hits will not be generated from that database.

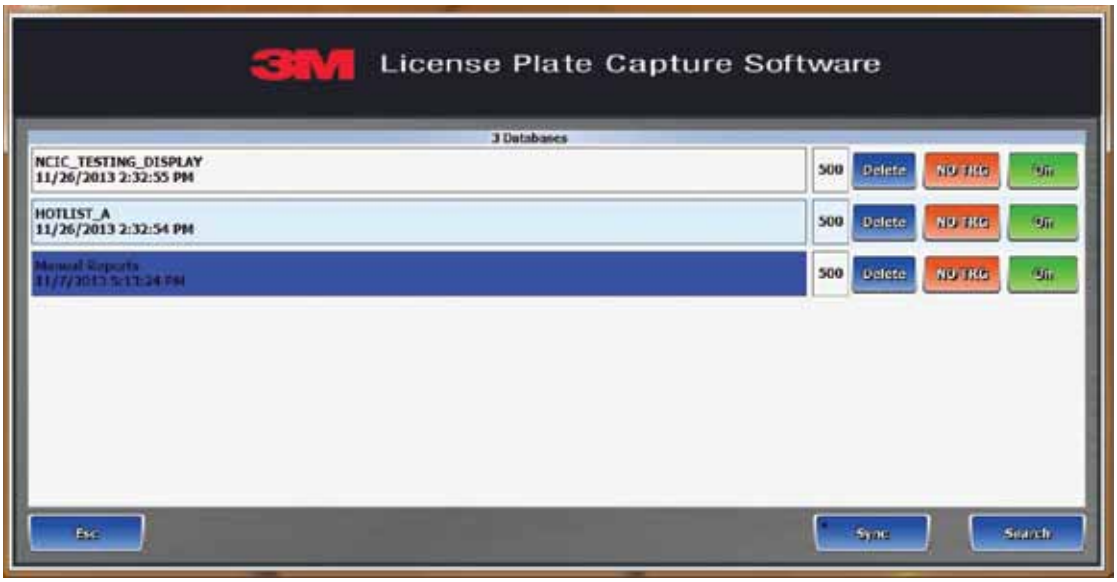
Prev – Displays the previous page of listed databases.

Next – Displays the next page of listed databases.

Esc – Returns the user to the previous screen.

Sync – Causes the 3M License Plate Capture Software to check for new data and add it to the current database. Old data is also removed from the software.

Search – Opens the Search screen.



4.4.5.1 Activating and Deactivating Databases

A database can be toggled by pressing the **On/Off** button beside the database name. If a database is active, plates will be compared against it. If a database is inactive, it will be ignored when plates are being checked. Active databases are highlighted in green. The steps are as follows:

1. From the Database screen, scroll to find the database to activate or deactivate. If there are more databases than the screen can display at once, use the **Next** and **Prev** buttons to page through them.
2. To activate or deactivate a database, click **On** or **Off** next to the database name. The button's color will change from green to red, or vice versa, to reflect the change.
3. The database can be reactivated by reversing the process.

Pressing **Delete** will remove both active and deactivated database from your current session with 3M License Plate Capture Software. The database may reappear after the software is next synced to BOSS.

4.5 Begin Shift

A "shift" typically means the user's tour of duty and/or the amount of time when he/she starts a shift and ends a shift. The 3M License Plate Capture Software imports and stores data that is used during a shift, such as BOSS hotlists, dispositions, and targets.

If the 3M License Plate Capture Software has been set by the Administrator to Disk Sync (e.g., to sync to a USB flash drive), check to confirm that you have access to the synchronization location before attempting **Begin Shift**. If the 3M License Plate Capture Software has been set up to sync over a wireless network, it will do so automatically when the application starts and when you press **Begin Shift**.

At the start of a new shift, after you have logged on and the Live View screen appears, press **Begin Shift** twice, which (1) synchronizes the 3M License Plate Capture Software with the databases and other information and (2) purges any plate numbers that have been added to the Manual Reports database. After you press **Begin Shift**, the status of any updates will be displayed.

Depending on the synchronize configuration in BOSS, whenever synchronization occurs, BOSS can transfer only the changes made to a database(s) rather than transferring the entire database(s). This is particularly important when working with very large database files because it will reduce the amount of data transferred over the network. *See the 3M Back Office System Software User's Manual for more information.*

4.6 End Shift

At the end of a shift, saved data should be exported either wirelessly or via the USB flash drive, to the central database(s) in the 3M Back Office System Software. No data is lost if the 3M License Plate Capture Software is closed without synchronizing or using the End Shift command.

To export the current data and end the shift, press **End Shift** twice. If using a USB flash drive to store the data, remove it from the MDC or from the mobile processor and follow the procedures in the 3M Back Office System Software User's Manual to download it to BOSS.

End Shift purges previous reads from the local database as well as the Manual Reports database. Pressing **End Shift**, even in a wireless setup, syncs any data not yet synced to the 3M Back Office System Software and then removes it.

If the 3M License Plate Capture Software is set to Disk Sync, check to confirm that you have access to the synchronization location before attempting an **End Shift**.

4.7 Cam Mode

Clicking the **Cam Mode** button allows you to cycle through the Camera configurations that have been added to the system. In those configurations the cameras being displayed on the Live View screen can be changed.

By default there are two configurations created, **Parking** and **Traffic**, which can be set up so that the cameras associated with those modes are displayed on the Live View screen. For example, when the system is being used to capture reads in a parking lot, the Cam Mode can be set to **Parking**. In the Parking configuration, the images could be coming from the cameras positioned in the middle or back of the car will be displayed on the Live View screen. The front cameras can be selected as the hidden cameras. Reads from the front view cameras will be captured in the database but will not be displayed on the Live View screen. The camera's current mode displays on the Cam Mode button.

4.8 Admin Main Menu

Pressing **Admin** on the Live View screen takes you to the Admin Main Menu, a central location for accessing the 3M License Plate Capture Software's functions, including all those that require administrative privileges. The Admin Main Menu also displays the cameras configured in the system, the GPS location, and if a camera is active or not.

IMPORTANT: While you can perform administrative duties from within the 3M License Plate Capture Software, the 3M Back Office System Software is used to perform these functions across multiple 3M License Plate Capture Software deployments. *Please refer to the BOSS User's Manual for additional information.*



The Device Status table provides a status of the devices connected to the Mobile Processor. The information displayed includes:

Device – a device that is connected to the Mobile Processor. It is named in the Admin\Camera configuration screen.

Active – The recent status of the device, includes the time and date of last confirmed connection between the Mobile Processor and the attached camera.

GPS – The GPS coordinates captured at the time of the last confirmed connection.

The screens available from Admin Main Menu are described in the sections that follow. Note that the Review, Live View, and Database screens have already been described in Sections 4.2 (Live View), 4.4 (Review), and 4.4.5 (Database). The **Logout** button logs the current user out of the system.

4.8.1 Review

Opens the Review screen to display all data collected during the current shift or before the user activated the **End Shift** button. *For a description of the functions available on the Review screen, go to Section 4.4.*

4.8.2 Location

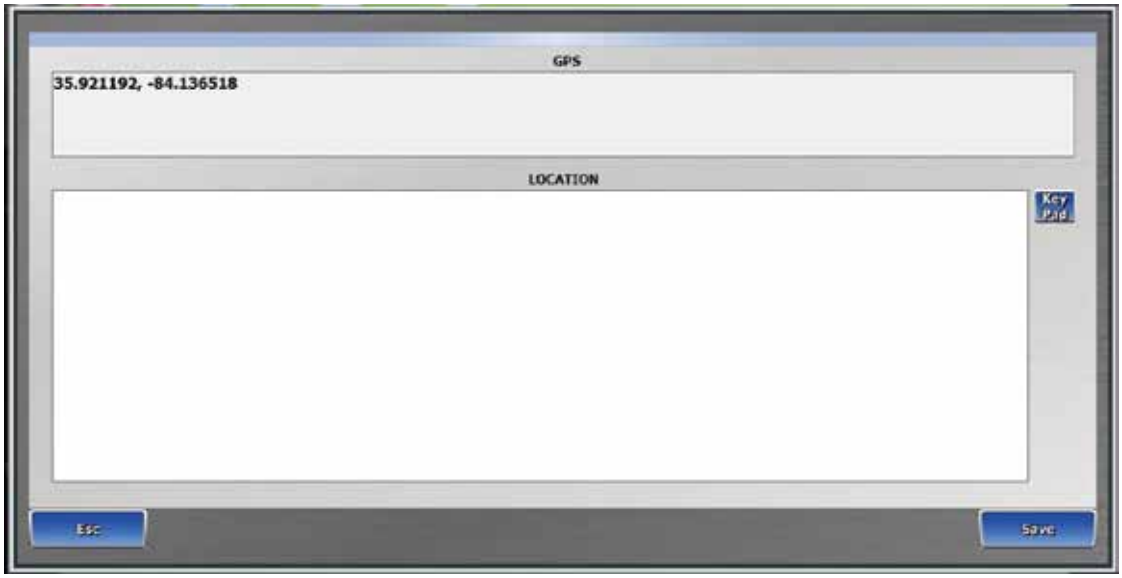
The Location screen provides an additional area where the user is able to associate the current GPS coordinates with a location. This feature is not currently used and will be redesigned in a future version.

GPS Text Box – When an attached GPS device resolves the current coordinates, they will be displayed here when the screen is opened.

Location Text Box – This is a free-text entry box. The user can enter a location description that is associated with the GPS coordinates listed in the GPS text box.

Save – Press the Save button to save the information.

Esc – Return to the Admin Menu screen.



4.8.3 Cam Setup

The Cam Setup screen lets you preview camera or lane images. The buttons allow the user to select each of the configured cameras. Administrators can also preview the camera output after adding or editing and configuring cameras *(as described in Sections 4.8.6.11 – 4.8.6.13)*. The exact preview buttons displayed on the screen will depend on the number of cameras installed and how they are configured.

IR – Displays the infrared images from the selected camera.

Color – Displays the color input from the selected camera.

Camera Name (also called Lane Name) – During camera configuration, the Administrator assigns a name to each camera. The camera name will display above the image, and a button will show for each named camera. In the screen shot example, the cameras are **Right Park, Front Right, Front Left,** and **Rear Face**.

Esc – Return to the previously viewed screen.

To verify the camera output and proper alignment of each configured camera:

1. Click **Cam Setup** to display the Cam Setup screen shown below.
2. On this screen, click a camera button to view a specific camera output.



4.8.4 Database

The Database screen displays active databases (BOSS hotlists) and allows you to turn lists on or off, search through the lists, and delete currently active lists. *The functions of the Database screen are described in Section 4.4.5.*

4.8.5 Targets

The Targets screen displays information about suspects matched with license plates. Targets are downloaded into the 3M License Plate Capture Software's Targets list from the 3M Back Office System Software.

Prev – Displays the previous entry.

Next – Displays the next entry.

Esc – Returns to the previously viewed screen.

Jump – Allows you to move to a specified record using the keypad.

4.8.6 Admin



The second Admin screen controls the 3M License Plate Capture Software options set by the Administrator, such as language, sounds, users and user privileges, GPS unit, cameras, sync folder, access to external databases and devices, configurations, and system settings. These options are explained in the following sections.

The buttons to access these functions are listed on the left side of the Admin screen. Navigational and other functional buttons on this Admin screen are:

Page Up – Displays the previous set of options.

Page Down – Displays the next set of options.

Esc – Returns to the Admin Main Menu screen.

Save – Preserves any changes made.

4.8.6.1 Sync

The 3M License Plate Capture Software stores information in local databases, which can be synchronized with other databases. If the 3M License Plate Capture Software is configured to communicate wirelessly to BOSS, the user can manually start a sync by pressing the **Begin Shift**, the **End Shift**, or the Sync button. Synchronization is also done automatically. If the software is configured to transfer information via disk sync, the files that need to be synced are stored in a synchronization folder. There are two synchronization folders: Begin Shift and End Shift. The Begin Shift folder contains data to be imported into the 3M License Plate Capture Software; the End Shift folder holds data exported at the end of a shift.

On the Sync screen Administrators can set or change the synchronization method and specify the location of the sync folder used by the 3M License Plate Capture Software to import and export data at the beginning and end of a shift. By default, the sync folder is set to the local disk. However, you can establish synchronization folders with any path name. Both synchronization to disk and wireless synchronization to the 3M Back Office System Software are available on the Sync screen. A third sync option, BOF2, or Instation, is mostly used in Europe and is described in Appendix 6.5.

Note: The changes made in the Sync screens will not take effect until the 3M License Plate Capture Software has been restarted.

4.8.6.1.1 Synchronization to a Local Disk or Flash Drive

If you choose **Disk**, with the sync folders residing on a USB flash drive, make sure the flash drive assigned to the user has adequate space to accommodate the file size of all the databases that will be imported and exported. Folder sizes vary depending upon the number of entries and the number of databases.

1. At the top of the Sync screen, select **Disk** for a local disk (on the MDC or the mobile processor) or USB flash drive.
2. On Global Sync Options follow the steps in Section 4.8.6.1.3.
3. Then press **Next**.
4. In the text box that displays, use either the keypad or the keyboard to enter the folder's location. By default, Drive C is selected.

Note: Since most customers who use the Disk mode store and transfer files on a USB flash drive, the path name would be that for the flash drive.

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5. Under Disk Options, make a choice whether to:
    a. **Delete Begin Shift data on sync:** If this option is selected, the sync folder will be deleted once all of the data has been imported into the 3M License Plate Capture Software. This option is "on" by default.
    b. **Encrypt End Shift data:** If this option is selected, the end shift files created by the 3M License Plate Capture Software will be encrypted. This option is "off" by default.
    c. **Copy End Shift data on sync:** If this option is selected, the End Shift folder will be created and the End Shift files will be stored there. This option is "on" by default.

Note: If this option is "off," the End Shift files will not be created. The shift data will be cleared, but no reads will be sent to BOSS.

4.8.6.1.1 Synchronization to a Local Disk or Flash Drive *(continued)*

d. Keep only updated databases. If this option is selected, any databases that were not updated during Begin Shift will be considered outdated and removed. This option is “off” by default.

6. Press **Save** to save these settings.
7. Press **Esc** to return to the Admin screen, or press **Prev** to return to the previous Sync screen.

4.8.6.1.2 Wireless Synchronization with BOSS

If you choose to establish BOSS as the synchronization method, the user MUST have wireless access to the network to successfully sync at the beginning and end of a shift. You must also have an IP address of the BOSS server that is reachable (i.e., able to receive a reply to a ping). After syncing with the 3M Back Office System Software, data is flagged in the database to prevent duplicate syncing.

1. At the top of the Sync screen, select **BOSS** to sync by wireless access to the 3M Back Office System Software.
2. On Global Sync Options, follow the steps in Section 4.8.6.1.3.
3. Then press **Next**.
4. In the text boxes that display under BOSS Options, use either the keypad or the keyboard to enter the primary and secondary IP addresses and the sync port of the 3M Back Office System Software server. The default is port 8092.
5. Also under BOSS Options, decide whether to:
   a. Enable data encryption by checking “Encrypt Transfers,” and
   b. To send data to BOSS when a shift ends by checking “Synchronize End Shift Data.” This option is on by default.
6. Press **Save** to save the changes.
7. Press **Esc** to return to the Admin screen, or press **Prev** to return to the previous Sync screen.

4.8.6.1.3 Global Sync Options

The 3M License Plate Capture Software can also provide usage information to the 3M Back Office System Software system so statistical reports can be generated, while allowing privacy rules to be adhered to. Because organizations differ in their privacy rules and in the types of information they want to capture, Global Sync Options on the Sync screen help meet those varying needs.



Under Global Sync Options there are two settings: **Reads** and **Hits**. Each of these has three options: **Always**, **On Endshift**, and **Never**. The option selected for Reads controls which options are available for Hits:

- Selecting **Always** means that reads and hits are always going to be synced to the 3M Back Office System Software.
- Selecting **On Endshift** means that syncing will only occur upon End Shift or Sync.
- Selecting **Never** means that information gathered in the 3M License Plate Capture Software will be "sanitized" as it is being sent to the 3M Back Office System Software.

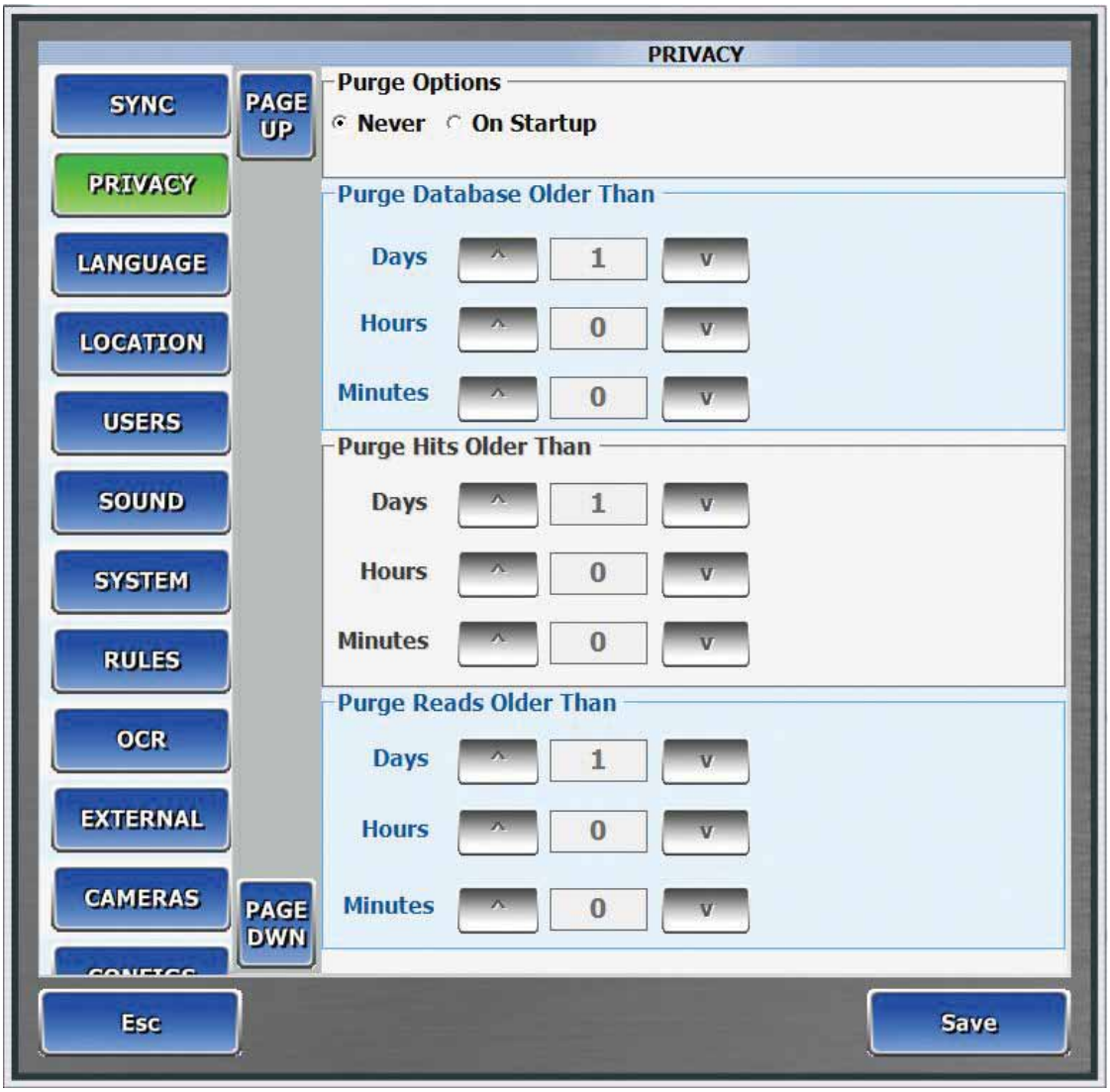
Note: If the 3M License Plate Capture Software system is configured for the disk sync type, then the **Always** and **On Endshift** functions are the same.

The Reads selection will determine the options available for hits:

For the Reads Option Selected:	**Always**	**On Endshift**	**Never**
The Available Hits Options Are:	Always	Always	Always
			On Endshift
		On Endshift	Never

Checking the "Require Dispositions before Endshift" box will require the user to enter a disposition (result or action taken) for each of the hits that occurred since the last sync.

4.8.6.2 Privacy Settings



The 2.7 series of the 3M License Plate Capture Software offers privacy settings, a new feature that allows the Administrator to ensure the validity and confidentiality of the information obtained by the ALPR system. This feature is completely configurable, providing an operationally effective means of ensuring that regulatory or procedural requirements are adhered to.

Using the settings on the Privacy screen ensures that information captured by and stored in the system can be removed or obscured ("sanitized") by the Administrator in a controlled manner. These configurable settings control the length of time, in days, hours, and minutes, that read or hit information can be maintained. Therefore, an individual's personal and identifiable information, namely their license plate image and deciphered license plate number, is removed from a saved record. These settings also permit the Administrator to control the currency and validity of the databases being used by the system.

4.8.6.2.1 Never Option

The **Never** option allows a 3M License Plate Capture Software system to continue without the influence of Privacy settings. If this option is selected, the users of the 3M License Plate Capture Software system will continue to be responsible for any actions required to protect the stored information and to ensure the validity of the databases being used.

Note: If the configurable time settings are set to 0, as they are by default, the system responds as if the Never option has been chosen.

If the **Never** option is selected, the time settings will be disabled. In the event that the Privacy settings had been previously enabled and time information had been configured, those settings will be retained even if the system is later reset to **Never**.

4.8.6.2.2 On Startup Option

Selecting **On Startup** allows the System Administrator to configure how the system manages databases, hits, and reads; these settings are described below. With **On Startup** selected, each time the 3M License Plate Capture Software application is restarted, it checks these settings and evaluates whether existing information has exceeded the allowable age.

4.8.6.2.3 Purge Database Older Than Setting

This setting allows the Administrator to control how frequently the databases stored on the system are removed. For example, if a database, "Expired Plates Hotlist," was added to the 3M License Plate Capture Software 3 days ago and the **Purge Database Older Than** settings are set to 2 days, then the next time the 3M License Plate Capture Software is restarted, "Expired Plates Hotlist" will be removed.

4.8.6.2.4 Purge Hits Older Than Setting

This setting allows the Administrator to control how frequently the hits stored in the 3M License Plate Capture Software are sanitized. For example, if any hits in the 3M License Plate Capture Software were captured during a shift a week earlier (7 days ago) and **Purge Hits Older Than** is set to 4 days and 5 hours, then the next time the 3M License Plate Capture Software is restarted, those hits will be sanitized.

4.8.6.2.5 Purge Reads Older Than Setting

This setting allows the Administrator to control how frequently the reads stored in the 3M License Plate Capture Software are sanitized. For example, if reads were captured during a shift a month earlier (30 days ago) and the **Purge Reads Older Than** settings are set to 25 days, the next time the 3M License Plate Capture Software is restarted, reads more than 25 days old will be sanitized.

IMPORTANT: Once reads and hits have been sanitized, they can no longer be viewed in the 3M License Plate Capture Software. However, they are retained in the system until an **End Shift** or **Sync** is performed.

4.8.6.3 Language

The Language screen lets you change the language assignment used in the 3M License Plate Capture Software. Available languages are listed in the drop-down box and are added during the installation process.

4.8.6.4 Location

Any name entered in the location field is listed as the default system location. The information is not tied to the GPS location.

4.8.6.5 Users

The Users screen lets you add users, set their privileges, and delete users from the 3M License Plate Capture Software.

IMPORTANT: Adding new users through the 3M License Plate Capture Software should be limited to those customers who are not syncing to the 3M Back Office System Software.

For customers deploying both the 3M License Plate Capture Software and BOSS, user accounts created in the 3M License Plate Capture Software will be overwritten by the users defined in the 3M Back Office System Software during the next sync.

You can scroll through the user list by pressing **Page Up** and **Page Down**.

Account information for each user is listed in unlabeled rows with the following fields:

Badge No. (Username) – Add a new username or badge number for an existing user. The username field will accept up to 15 alphanumeric characters.

Password – Enter a password to associate with the username. The password field will accept up to 15 alphanumeric characters.

Key Pad – Displays an on-screen keypad.

Privileges – Select the privileges associated with the entered username by clicking on the buttons defined below. After a privilege is activated, the button changes to green.

- **Sync** – Allows the user to synchronize files.
- **Ext** – Allows the user to access external databases.
- **Adm** – Allows the user to configure the 3M License Plate Capture Software, add and remove users, and change the options.
  DO NOT choose the Adm button unless the user is being granted administrative rights.

Del – Remove a user from the list. The user is deleted the second time the Del button is pressed.

Add – Add a new user with the options selected.

Save – Add the new user to the database.

Esc – Return to the previous screen without saving changes.

The available combinations of privilege options are shown in the table (next page) according to the area of function to which the privilege applies.

4.8.6.5 Users *(continued)*

	Sync Only	Ext Only	Adm Only	Ext + Adm	Sync + Ext	Sync + Adm	Sync + Ext + Adm*
Begin Shift	•	x	x	x	•	•	•
End Shift	•	x	x	x	•	•	•
Admin	x	x	•	•	x	•	•
Sync	•	x	x	x	•	•	•

• = The user has privilege X = The user doesn't have the privilege

**Sync + Ext + Adm are the privileges pre-set for the default logon setting (username = admin; password blank).*

Note: Creating a new user in the 3M License Plate Capture Software deactivates the default user account. (See Section 4.1.1.)

4.8.6.6 Sound

The Sound screen associates available sound files with specific alerts and actions. You can also toggle sounds off and on by pressing **On** or **Off**. Sounds are active when the button is **On** (green) and deactivated when the button is **Off** (red).

Choosing sounds is an optional feature. Sounds are preset in the 3M License Plate Capture Software and may be modified by an Administrator. By default, the 3M License Plate Capture Software will play a sound to notify the user when an event or "hit" is triggered. Sound files (.wav file format) are stored in the Sounds folder in the 3M License Plate Capture Software directory.

Tip: Custom sound files (.wav file format) may be uploaded into the Sounds folder of the 3M License Plate Capture Software directory by the Administrator. The user may identify the nature of the hit more easily if distinctive sounds are associated with different types of hits or events.

To disable or enable sounds:

1. Press **Sound** to open the Sound screen.
2. To toggle a sound to **On**, press the button showing **Off**. The button will changed from red to green, and the sound will be on.
3. To test the sound, press **Play**.
4. To toggle a sound to **Off**, press the button showing **On**. The button will change from green and red and the sound will be off.

To change a sound associated with a specific predefined event:

1. Choose an event by scrolling through the list using **Page Up** or **Page Down** on the right side of the screen.
2. Select a new sound by pressing the ellipses **(...)** button to browse to and select a new sound file from the sound folder in the 3M License Plate Capture Software directory.
3. You can preview the sound by pressing the **Play** button.
4. Press **Save** to apply the changes.

4.8.6.7 System

The System screen determines external system connections and assigns connection string ports to cameras and to the external GPS unit. The GPS connection string refers most commonly to the COM port, although it may also refer to the IP address or serial port IP_Address:TCP_Port.

You can change the computer, ports, and GPS connection strings by clicking in the text box and entering the text using the keyboard or the keypad. Press the **Save** button to save changes. You must exit and restart the 3M License Plate Capture Software for any changes to take effect.

4.8.6.7.1 Configuring System Connection Strings

To set the COM ports:

1. From the System screen, verify that the appropriate system type is chosen. If necessary, choose the system type by clicking the button next to the desired type. When using the 3M Mobile ANPR/ALPR Processor, the default setting is “Default.”
2. Verify that the GPS Connection String is correct (see next section). The default setting is “5.”
3. Press **Save** to save the changes or **Esc** to return to the previous screen and cancel any modifications.
4. Restart the 3M License Plate Capture Software to activate any changes.

4.8.6.7.2 GPS Connection String

The GPS Connection String field is available when the Default, Microbus MPC2, or Motorola MW-810 system is selected. The GPS Module is a standard feature in the 3M License Plate Capture Software. The 3M License Plate Capture Software should be configured to work with the system-supplied GPS Module.

The GPS Connection String is blank when you are running client/server installation. The GPS Connection String is set to “5” when the 3M License Plate Capture Software is running on a mobile data computer, such as a laptop, or “6” when it is running on the 3M Mobile ANPR/ALPR Processor.

4.8.6.8 Rules

Rules provide a way to check for a commonly misread character and the read character as both options for a database match. For instance, “8” and “B” are sometimes mistaken. If the OCR engine reports a plate as ABC123, you might check both ABC123 and A8C123 against all databases to find a match. While you are less likely to miss a hit, the process can also produce more false hits. Verify that the plate read and the database match is the same.

To add a new rule on the Rules screen:

1. Click **Add** and enter a single character instance (the letter “O,” for example), and enter a list of similar characters (letter “O”, number “0”, and letter “Q” in this example).
2. With this rule defined, anytime the system reads an “O”, it will run the query for matching purposes as “O,” “0,” and “Q.” The system will not do the same when it reads a “Q.” Another rule would have to be entered to accomplish that.
3. The rule will be saved by clicking **Save**.

4.8.6.9 OCR

The OCR screen is used to enable inverse and square plate reads, to disable duplicate plate reads (if multiple cameras pick up the same plate), to show diagnostics, and to disable read correction. Each check box toggles the options: if a check mark appears, the option is active. If the box is empty, the option is disabled.

These options are explained in the table below.

Option	Action
JPEG Images	Use compressed .jpg images instead of full-resolution bitmaps. **On** by default. When this feature is activated, it minimizes storage requirements for collected data.
Inverse Plates	This feature can be useful for plates with a dark background and light lettering. **Off** by default. This option increases the processing load and therefore should remain disabled until it is needed due to the region.
Square Plates	Adjusts the read area for plates that are square instead of rectangular. Off by default.
Show Diagnostics	Shows a diagnostic screen if an error occurs. **Off** by default.
Disable Duplicate Read	Turns off duplicate reads. If the same plate is read by more than one camera within a short time frame, the duplicate is ignored. This minimizes storage requirements for the collected data and improves system metrics related to the number of reads. **On** by default.

4.8.6.10 External

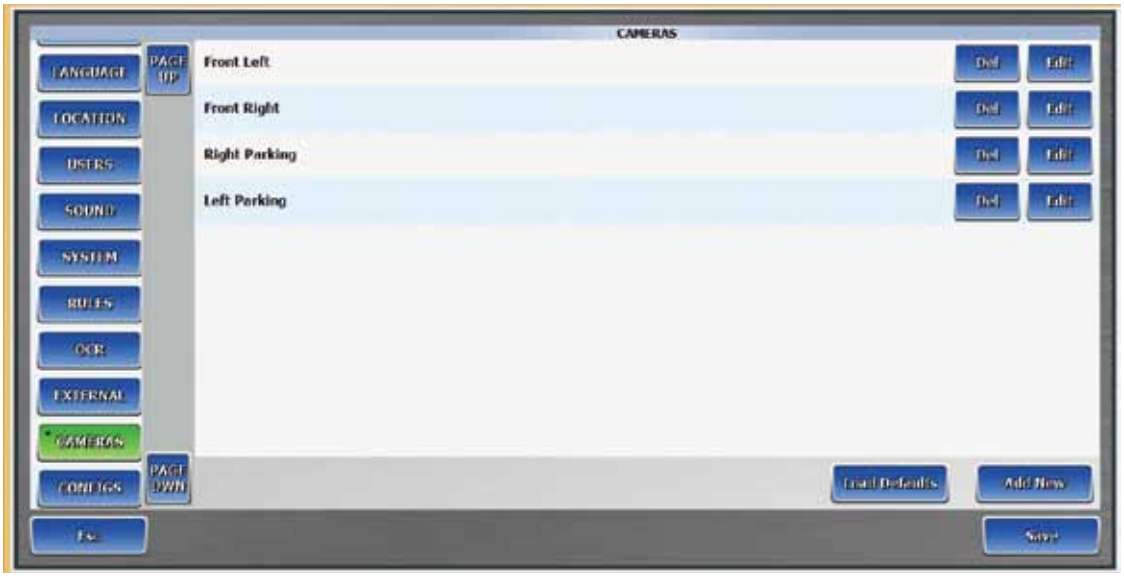
The External screen lets you connect the 3M License Plate Capture Software to an external database or device. To make this connection, click the red **Off** button to change it to a green **On** button and then press **Save**. Any changes made on this screen will take place after the 3M License Plate Capture Software is restarted.

Use the **Page Up** and **Page Down** buttons to scroll through the list of available databases and devices.

4.8.6.11 Cameras

The Cameras screen lets you add and identify specific cameras for use with the 3M License Plate Capture Software. Because the camera configurations setup using the Configs screen are associated with Camera or Lane Names, cameras must be identified or named. Otherwise, no options will be available in the drop-down boxes for Display and Hidden cameras on the Configs screen.

On the 3M License Plate Capture Software setup, the Cameras screen displays the default Camera Names. From this screen you can delete cameras, edit the Camera names, and add new cameras. Pressing **Load Defaults** on the Cameras screen will add sample cameras to the Cameras screen and sample configurations to the Configurations screen.



Adding cameras involves identifying or naming the cameras and configuring them. The following steps describe how to add a new camera from the Cameras screen. The steps must be repeated for each camera you add:

1. Press **Load Defaults**. Loading a default setting provides a base configuration to modify and is based upon a standard four-camera system. The defaults can also be used for testing purposes. Choosing a default also loads associated configuration files, which appear in the Configs screen. Select an **Edit** button to configure a camera.

Whether you are adding a new camera, or editing an active one, go through Steps 2 – 15 below to complete the setup.

2. Either click the **Edit** button on a default camera, or click **Add New** to open the Camera Type screen, which will display the list of cameras supported by the 3M License Plate Capture Software: P362, Sony, Digital Eye Witness, CCTV, IR, TSS, and P632 Slate cameras.
3. Select the button for the type of camera to be used and then press **Next** to open the Camera Settings screen (shown on page 42).
4. On the Camera Settings screen, enter a Camera (or Lane) Name. You can use the default names (Right Traffic, Left Parking, etc.) or use the keypad to type in a new one.

Note: The Camera Name must be 11 characters or less in length. Otherwise, the positional indicators and the device status information will be incomplete.

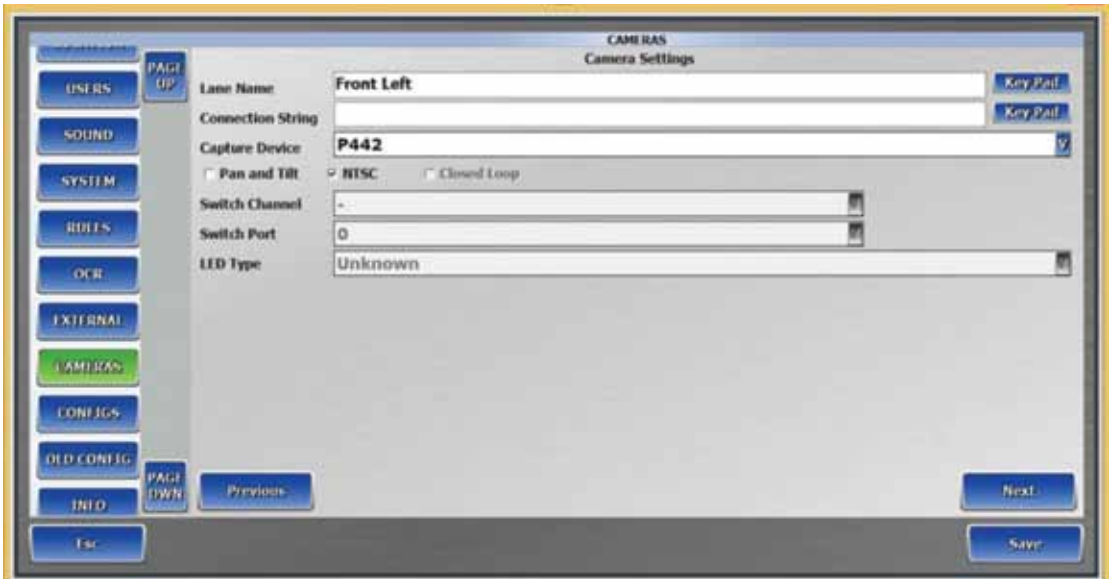
---

5. Enter the device Connection String, if necessary.
6. Enter the Capture Device, using the options available in the drop-down menu. P442 is the default.

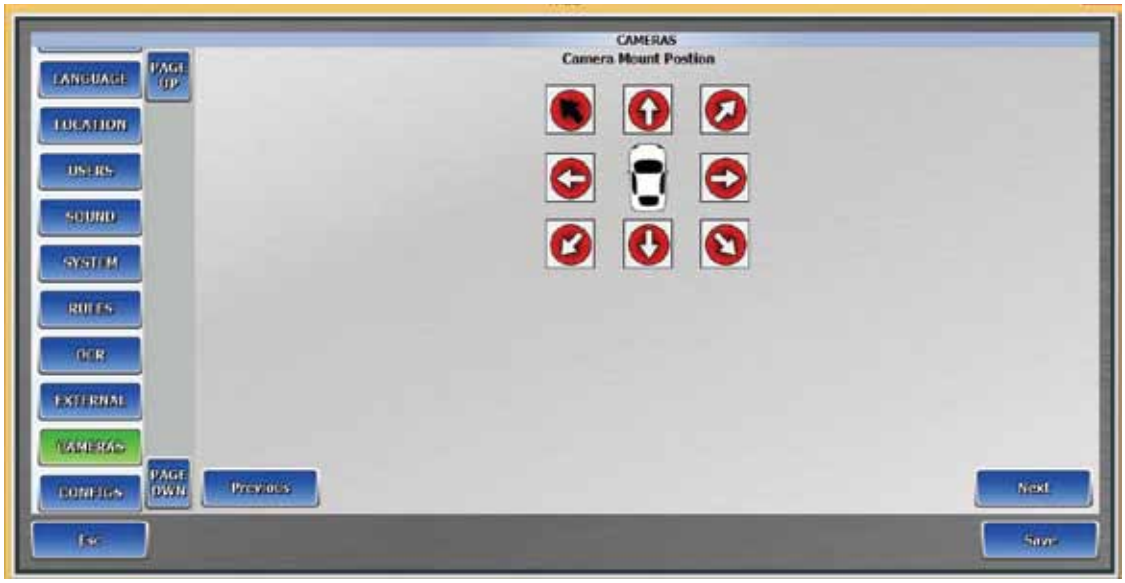
4.8.6.11 Cameras *(continued)*

7. The Switch Channel and Switch port are network options. The LED type is related to the camera. By default these options are not available to change.

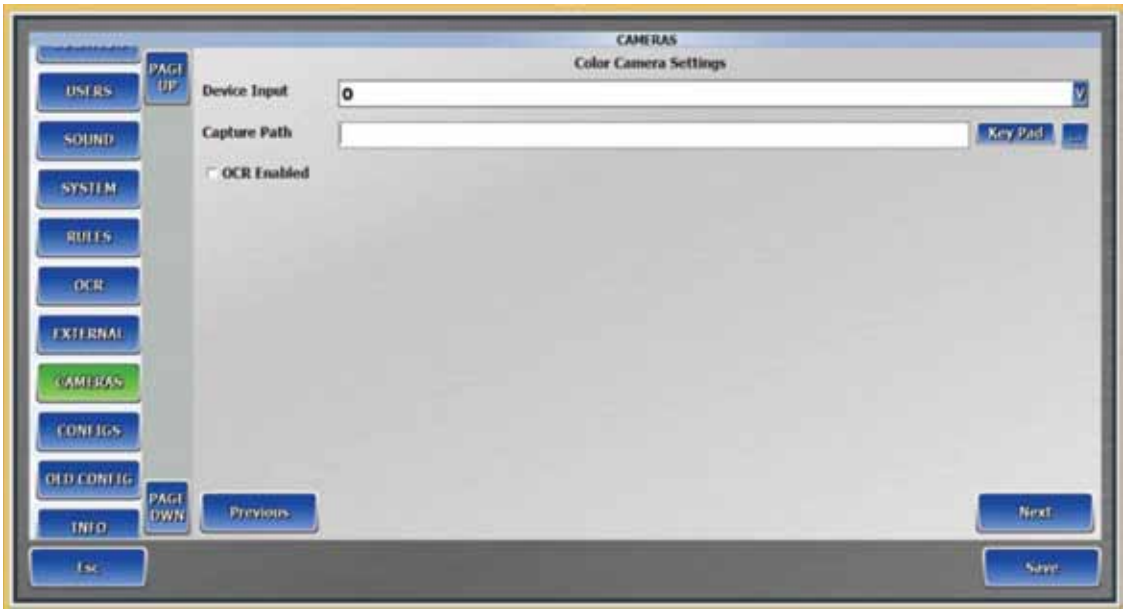
8. Press **Next** to open the Camera Mount Position screen.



9. On the Mount Position screen, these directional arrows represent the location of each Cameras and the direction they are pointing. Choose the desired option for the camera you are configuring by pressing one of the directional buttons. The arrow showing the chosen direction will appear in the display for that camera on the Live View screen when a hit has been detected.



10. Press **Next** to open the Color Camera Setting screen.



11. Select the device input option. For the first camera loaded select "0" for the Device Input value.
12. Using the keypad, enter a Capture Path for the camera, or press the ellipses (...) button to browse available paths. This is an optional step.
13. If the camera has a color lens only (and no IR lens), check "OCR enabled." The likelihood of a Color Lens only is very rare but is still addressed.

Note: Check the OCR Enabled box only for the IR lens of a 3M mobile camera. For certain states that do not have retro-reflective plates, optical character recognition may be performed from the image captured by the color lens of the camera. When OCR is performed on a color image, the processing requirements increase and the accuracy will be somewhat diminished relative to OCR from the infrared image.

---

14. Press **Next** to open the IR Camera Setting screen.
15. The IR Settings screen has the same options as the Color Setting screen. Repeat Steps 11-13. It is important to ensure that the "OCR Enabled" is checked for the IR camera.
16. Press **Save** to save the changes and return to the Cameras screen.

    Repeat these steps for each camera you are adding or editing.

4.8.6.12 Configs

The Configs screen allows you to define how the configured cameras are displayed on the Live View screen and to set the region of the country where the Mobile System is deployed. You can also use the Configs screen to set up multiple camera configurations for parking or traffic monitoring to replicate a particular driving environment. Up to four ALPR cameras can be activated, each with color overview and infrared. Each configuration provides customized settings for cameras and lanes.



If you have loaded a default camera setup, the Configs screen will be populated with the two default configurations: Traffic and Parking.

The buttons on the Configs screen are as follows:

Del – Removes the current configuration from the 3M License Plate Capture Software.

Edit – Opens the Edit Configs screen where you can modify settings for the selected configuration, including selecting a region and selecting which cameras to display and to hide.

Add New – Adds a new configuration to the 3M License Plate Capture Software and opens the Add Config screen.

Save – Preserves changes to the configurations.

Esc – Returns to the Main Menu.

When adding or editing a new configuration, you can assign each of the cameras you set up on the Cameras screen to Display 1, Display 2, Hidden 1, and Hidden 2, using drop-down boxes in each field on the second Configs screen (shown on page 45). While only two cameras may be displayed simultaneously on the MDC or monitor, all cameras can be processing and checking plates against the databases. When a defined “hidden” camera receives a database hit, an alert gives the user audible and visual confirmation of the hit, the Camera Name that captured the hit, and the positional arrow for that camera (if configured) as defined in Section 4.8.6.11 Step 9.



Config Name: The name of the configuration mode for the displayed and hidden cameras. When selected, this will be displayed on the Live screen's **Cam Mode** button. You can also define the region (e.g., entire US, a region, a given state), which will determine the options used by the OCR engine to interpret a captured license plate number.

Display 1: This camera is always displayed on the left-hand side of the Live View screen.

Display 2: This camera is always displayed on the right-hand side of the Live View screen.

Hidden 1 and 2: When populated, these cameras are functioning and performing OCR, but the images are not visible to the user. Hits and reads will still be generated by these cameras.

4.8.6.12.1 Adding a Camera Configuration

1. From the Configs screen press **Add New**.
2. Enter a Config Name in the text box: **Right Parking**, **Left Traffic**, **Parking**, **Traffic**, etc.
3. Choose the appropriate OCR Region from the drop-down box. The OCR engine for your region or state will already have been installed.
4. Choose options from the drop-down boxes for **Display 1**, **Display 2**, **Hidden 1**, and **Hidden 2**. The cameras configured/ listed on the Cameras screen are listed in the drop-down boxes. No matter how many ALPR cameras comprise your specific system, you have the option to have all of them processing data simultaneously if you list the cameras as "hidden."
5. Press **Save** to save the settings.

Repeat Steps 1 through 5 for any additional configurations.

6. Press **Esc** to return to the previous screen.

After the cameras have been configured, verify the camera input and proper alignment on the Cam Setup screen, as explained in Section 4.8.3. This screen provides a preview of camera output for each of the configured cameras.

4.8.6.13 Old Config

The Old Config screen provides all-in-one access to the camera and configuration settings for configurations imported from previous 3M License Plate Capture Software installations. This screen is not meant for setting up new configurations.

When the 3M License Plate Capture Software is upgraded, the old configurations from the prior version appear in the Old Configs screen. These configurations can still be used. The Old Configs screen format is the same as prior versions with all information for a configuration available on one screen.

While these instructions will create a working configuration, the Configs screen is the recommended and simpler method.

To use the Old Config screen:

1. Enter a name for the configuration.
2. Select the OCR Region.

Steps 3 through 13 should be repeated for each camera. For a traffic configuration, you will repeat the steps twice, once for the front left camera and again for the front right camera.

3. Select the Lane to configure from the Lane drop-down box.
    a. **Display 1** refers to the camera that will be displayed on the left-hand side of the Live View screen.
    b. **Display 2** refers to the camera that will be displayed on the right-hand side of the Live View screen.
    c. **Hidden 1** and **2** refer to cameras that perform OCR, but are not displayed on the Live View screen; hits and reads will still be generated by the hidden camera(s).
4. In the Lane Name text box, provide a name that will be displayed to the user when a hit occurs. In a traffic configuration mode, you might use “Left” or “Right” which refers to the traffic camera on the left (Driver’s side) and the traffic camera on the right (Passenger side).
5. Select the camera type to be associated with the lane.
6. In the Connection String box, enter a COM port to serially control the camera or the IP:Port to control the camera over TCP/IP.

Steps 7 through 14 should be repeated for each lens (infrared and color) that will be a part of the lane. If you are using a 3M mobile camera, there are two lenses. If you are using a Sony or DEW camera, there is only an overview lens.

7. In the Camera drop-down box select the lens type you wish to configure. Choose OV for the color overview lens, and IR for the infrared lens.
8. Select the capture device in the Device drop-down.
9. In the drop-down box, select the appropriate input number for the device you are using. The appropriate input number varies with the type of capture device.
10. If Client or AVI Files are chosen for the device type, enter a path.
11. Check the Enabled box to activate the camera.
12. Check the OCR box if optical character recognition will be performed with this camera.

Tip: Check the OCR Enabled box only for the IR lens of a 3M mobile camera. For certain states that do not have retro-reflective plates, optical character recognition may be performed from the image captured by the color lens of the camera. When OCR is performed on a color image, the processing requirements increase and the accuracy will be somewhat diminished relative to OCR from the infrared image.

13. If the camera supplies video in the NTSC signal format, check the NTSC box.
14. After the cameras have been configured, verify the camera input and proper alignment on the Cam Setup screen, as explained in Section 4.8.3.

4.8.6.14 Info

The Info screen displays additional information including the version number of the current installation. This information may be helpful when calling Technical Support.

4.8.7 Live View

Captured live images can be viewed on the Live View screen, which is described in Section 4.2.

5 Appendix: The 3M License Plate Capture Software Database File

This information is useful when the 3M License Plate Capture Software is used without the 3M Back Office System Software, or when it is used in Data Sync mode.

The only file format that the 3M License Plate Capture Software supports for importing data into the vehicles for the purpose of matching against the capture license plate is a CSV (comma-separated value) file. This format is a standard ASCII text file that is platform independent and understood by many of the common spreadsheets such as Microsoft Excel as well as by any text editor such as Notepad. The 3M License Plate Capture Software will support CSV files with any number of columns, called fields, as long as the first field is the VLP (Vehicle License Plate).

Example CSV 1

```
ABC123, Red, Ford, Explorer, 1996, WANTED
XYZ456, Blue, Audi, A4, 2001, MURDER
```

Example CSV 2

```
45ABC234, Vehicle wanted in associated with a kidnapping on 12/5/2005
995BD233, Vehicle reported stolen from Liz's Lounge at 6am on 12/1/2005
```

Example CSV 3

```
UIO223
ABC123
```

The 3M License Plate Capture Software calls files in pairs: a database is created using two files, a CSV file and an INI configuration file. Without that file, the database will not load. If, for instance, the file that a police agency is trying to import into the 3M License Plate Capture Software is called `stolen.csv` (again, recall that CSV files are the only format supported by the 3M License Plate Capture Software) then the corresponding INI file would be called `stolen.ini`. The 3M License Plate Capture Software will only load a CSV file for a database if it has the same name as the INI configuration file.

5.1 Interpreting the Sample File

Lines that appear in brackets [] are called Headings. The lines that appear between the headings are called values. Values will always contain an equal sign (=). If a line starts with a semicolon, it is considered to be a comment and is not read by the system. There can be any number of comments in the INI file.

5.1.1 The *[SETTINGS]* Heading

Under the Settings heading there are the values NumFiles, DbName, DbColor, Priority, Covert, Alarm, and NumFields. The *NumFiles* value tells the system how many database files the system should split the specified hotlist into. Generally a value of 1 is acceptable, but for larger hotlists (200,000 +), a number of 2 – 5 may be desirable.

The *DbName* value tells the 3M License Plate Capture Software what the displayed name of the hotlist should be.

The *DbColor* value tells the 3M License Plate Capture Software the display color of the hotlist. This is merely an esthetic setting and not a functional setting. The right-hand side of the equal sign is the HEX value representing the ARGB values for the color. If you do not know what this means, you should simply leave this line out of the file.

The *Priority* value designates the priority of this hotlist in relation to other hotlists in the system. The highest priority database is 1 and the lowest is 999.

The *Covert* value determines whether standard 3M License Plate Capture Software users are alerted when a hit is made from the database. Covert database can be used for hotlists that are included for information-gathering purposes rather than eliciting user intervention. The system can also be configured to notify via email or SMS message when a hit is made from a covert hotlist.

The *Alarm* value tells the system whether a Low, Medium, or High audible alarm should be played when a hit is made from the hotlist. Values for Alarm are LOW, MED, HIGH.

The *NumFields* values tells the system how many fields (or columns) are in the CSV file. If this value is less than the actual number of fields in a file, then additional fields are placed in the general information area. This value also determines the number of headings of the [Field x] will be present in the file. For instance if NumFields=2 then there will be two additional headings, [Field 0] and [Field 1].

Creation = The timestamp when the hotlist was added to the Begin Shift file.

5.1.2 The *[FIELD X]* Heading

Under the Field heading, there are two configurable values: Name and PAGIS:

- The Name value tells the system what the name of this field is. If no name is specified, then there is no name given to the field. The format is *Name = <field>*.
- The PAGIS value tells the system how to display the field in the GUI (graphical user interface, the Windows application). If no value is defined, then the field is placed as general information. Values 1 – 5 represent special fields for 3M License Plate Capture Software that translate to the information being displayed in a box of its own when a hit is recorded. A value of 6 represents an ID number to cross reference the vehicle from this hotlist with a person from the wanted list. A value of 7 is identical to leaving the value undefined.

5.1.3 Sample INI Configuration File

```
[Settings]

NumFiles=1

DbName=Stolen Vehicles

DbColor=ffffff00

Priority=5

Covert=False

Alarm=MED

NumFields=8

;PAGIS Values
;0 is VRM / VLP (Not User Definable, always Field 0)
;1 is Special Field 1
;2 is Special Field 2
;3 is Special Field 3
;4 is Special Field 4
;5 is Special Field 5
;6 is ID Number (PNC ID, Drivers License, Social Security Number, etc.)
;7 is General Info (Default for all undefined fields)

[Field 0]
PAGIS=VRM
```

5.1.3 Sample INI Configuration File *(continued)*

```
[Field 0]
Name=VRM

[Field 1]
Name=Color
PAGIS=3

[Field 2]
Name=Make
PAGIS=1

[Field 3]
Name=Model
PAGIS=2

[Field 4]
Name=Action
PAGIS=4

[Field 5]
Name=Warning
PAGIS=5

[Field 6]
Name=PNCID
PAGIS=6

[Field 7]
Name=Intelligence
PAGIS=7
```

5.2 Additional Development and Support

Additional development by the 3M Traffic Safety and Security Division will be required in order to support additional data formats. Contact Technical Support at the address below for further information.

Phone: 877-777-3571

Email: ALPRSupportUS@mmm.com

Web: www.3M.com/mvss

Fax: 800-591-9293

3M Center

Building 235-3A-09

St. Paul, MN 55144

6 Appendix: Additional Procedures

6.1 Microsoft .NET 3.5 Installation

The 3M License Plate Capture Software requires Microsoft .NET Framework 3.5. If your computer does not have .NET, it can be downloaded from the Microsoft website. If you are using Windows 7, the 3.5 Framework is already part of the operating system, even though it does not show up in Add/Remove Programs.

6.2 Firewall Settings for Client-Server Installations

For client-server installations, the appropriate settings need to be added to Windows Firewall to allow the two processors to communicate. If your systems are maintained by a Network Administrator, you should contact the Administrator before making changes to the firewall.

1. Open a command prompt by going to Start -> Run and typing **cmd** and clicking **OK**.
2. From the command prompt, run the following 10 commands. When the commands are successful, the word OK will appear.
   a. `netsh firewall delete allowedprogram "C:\Program Files\PIPS Technology, Inc\PAGIS2\VPRelay.exe"`
   b. `netsh firewall delete allowedprogram "D:\PAGIS\VPRelay.exe"`
   c. `netsh firewall delete allowedprogram "C:\Program Files\PIPS Technology, Inc\PAGIS2\PAGIS.exe"`
   d. `netsh firewall delete allowedprogram "D:\PAGIS\PAGIS.exe"`
   e. `netsh firewall add portopening TCP 9000 PIPS _ ViewFinder`
   f. `netsh firewall add portopening TCP 10000 PIPS _ Images`
   g. `netsh firewall add portopening UDP 10010 PIPS _ Ping`
   h. `netsh firewall add portopening TCP 32023 PIPS _ Config`
   i. `netsh firewall add portopening TCP 32024 PIPS _ GPS`
   j. `netsh firewall add portopening TCP 32025 PIPS _ GPS2`
3. Restart the computer.

6.3 Mapping a Network Drive

The instructions below provide basic directions for mapping a network location to a drive. Please contact your System Administrator for assistance.

1. Open a file browser and browse to the folder you wish to use.
2. Right-click on the folder and choose Map Network Drive from the contextual menu or use the Tools > Map Network Drive command. If the Map Network Drive option is not available, try selecting a folder higher up in the directory structure.
3. Choose an available drive letter for the drive to be mapped.

6.4 The 3M License Plate Capture Software Version 2.7 Series Troubleshooting

ISSUE REPORTED	EXPLANATION	STEPS TO CORRECT
Error message displayed "Could not connect to remote host!"	The connection between VP Relay and the MDC version of LPCS has been lost.	- Confirm that VP Relay is running on the 3M Mobile ALPR Processor. - Confirm that the MDC running the 3M License Plate Capture Software is able to ping the 3M Mobile ALPR Processor. - Confirm the IP settings for both applications match the IPs for the MDC and the 3M Mobile ALPR Processor. The software stores the 3M Mobile ALPR Processor IP in the file PAGIS.exe.config, in the 'DEWG3.ConnectionString' field. VP Relay stores the MDC IP in the file anpr2.ini, in the '[Send] Address' field. - Confirm the port settings for both applications match. The 3M License Plate Capture Software stores the port in the file PAGIS.exe. config, in the 'ANPR.Location' field. VP Relay stores the port in the file VPRELAY.exe.config, in the 'ConfigPort' field. - If the connection still cannot be made, the installation needs to be escalated
Reads are not syncing to BOSS. There is an error message in the log file indicating that the end point cannot be reached related to the REST API.	This is an issue seen when the port settings are not correct.	- Confirm that the port has been set correctly in the Admin/Sync/ BOSS3 section. - Confirm that the port has been set correctly for the REST API on the Network Port Settings screen in the BOSS3 Controller. - Confirm that the firewall is open for the port being used by the 3M License Plate Capture Software.

6.5 Instation (formerly BOF2) Configuration Information

The Instation software (formerly known as BOF2) is a back office program used in the European market that was written by a company called Anite. It is a web-based software that provides similar features to the 3M Back Office System Software (BOSS), like hotlist management.

Instation configuration options in the BOF2 options screen:

End Point – The IP address of the Instation website. The format must be **<IP Address>:<Port>**.

Force – A unique code assigned to each police force.

Location – A unique number assigned to each mobile unit within a force. For example, if a force has 20 vehicles, in each of the mobile units the force numbers would be identical, but the Locations would be 1–20.

Patch – The image of the plate that is pulled from the read. It is checked by default; the Patch image will be sent to Instation.

Overview – The image captured for the read. It is checked by default; the Overview image will be sent to Instation.

Compact – Select if the communication packet being sent to Instation needs to be minimize. This will cause the application to create communication packets without images included. This is not checked by default. If checked it will uncheck the Patch and/or Overview settings.

To Reset Hotlists after Save: Instation tracks what hotlists have been sent to a 3M License Plate Capture Software system. When a hotlist update is available, Instation is then able to send only the information that the software system has not yet received.

At any time a 3M License Plate Capture Software system can decide to collect fresh hotlists, and the current ones can be deleted. If the "reset hotlists after save" flag is set, when the software system syncs to Instation, it will send a message indicating that the hotlist version tracking needs to be reset. Instation will now send all of the full hotlists.

Glossary

Term	Definition
ALPR/ANPR	Automatic License Plate Recognition/Automatic Number Plate Recognition
GPS	Global Positioning System
Hotlist	A database or list that contains vehicle license plates of interest
IR	Infrared
License plate	Also called a tag or number plate
MDC	Mobile data computer
OCR	Optical character recognition
OS	Operating system
USB flash drive	Also called a thumb drive or memory stick
VLP	Vehicle License Plate
Whitelist	In the 3M Back Office System Software (BOSS), a whitelist hit is the opposite of a hotlist hit. When a license plate does not exist in an enabled whitelist database, the same Hits (Alert) screen will be displayed

Index

A

Adding a New Camera Configuration · 45
Admin Main Menu · 28
ALPR · 5, 53
ANPR · 5, 53
Audits · 25

B

The 3M Back Office System Software · 5
Beginning the Shift · 9, 26
BOF2 *See Instation*

C

Cam Setup · 30
Cameras · 41
Computer Configuration · 11
Configuring System Connection Strings · 39

D

Databases · 25

E

Ending the Shift · 10, 27
External · 40

F

Firewall Settings for Client-Server Installations · 51

G

Global Sync Options · 34
GPS · 39

H

Hits · 21

I

Info · 47
Installation · 11
Instation (formerly BOF2) · 52
Introduction · 5

L

Language · 37
The 3M License Plate Capture Software Database File · 48
Live View · 16
Location · 29, 37
Logging On · 7, 15
Logging on with the Default Administrative Account · 15

M

Microsoft .NET · 51
Minimum System Requirements · 11
Misreads · 24

O

OCR · 40

P

Privacy Settings · 35

R

Reads · 23
Review · 20
Rules · 39

S

Searching and Entering Data · 9, 18
Sound · 38
Sync · 32
Synchronization to a Local Disk or Flash Drive · 32
System Requirements · 11

T

Taking a Picture · 17
Targets · 31
Technical Support · 3, 50

U

Users · 37
Using the Live View Screen · 8

W

Wireless Synchronization with BOSS · 33

Notes:

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Email: MVSSALPR@mmm.com
www.3M.com/mvss

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75-0302-4351-5



Police ALPR Graphical Interface Software (PAGIS)

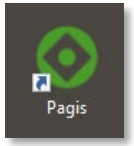
User / Admin Training

Presenter: Michael Roth

PAGIS Ver. 2.14

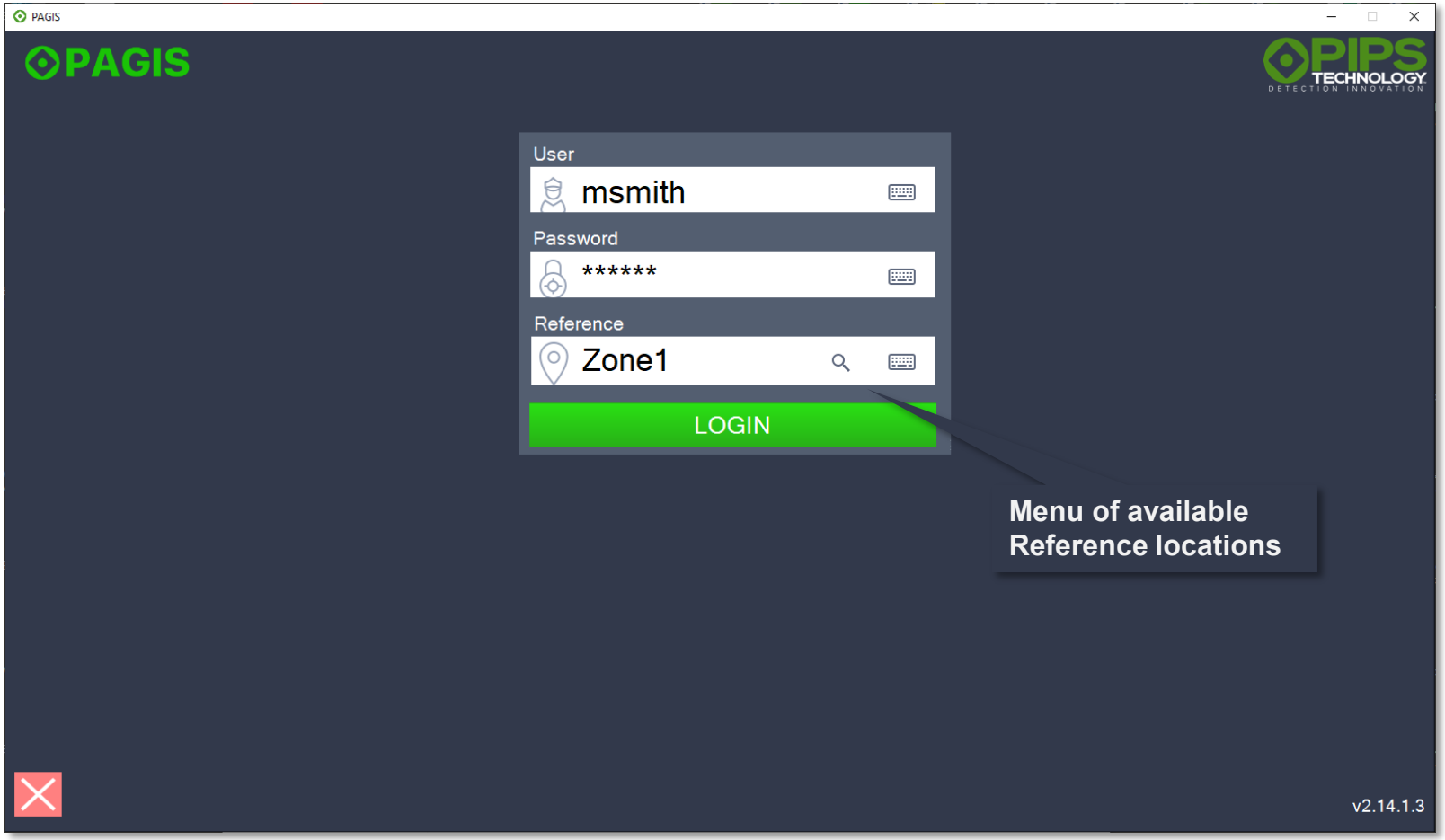
4/21/21

Starting PAGIS



To start, double click the **PAGIS** icon on desktop.

- **User-** Enter assigned username.
- **Password-** Enter password. Depending on Boss setting this may or may not be required.
- **Reference-** Select or Enter department, location or activity specific reference. Each license plate Read will have this label associated with it when the field is populated, this field can be used as an additional search filter to sort data in BOSS.
- **KeyPad-** Available throughout PAGIS where keyboard symbol is present.
- **LOGIN-** Initiate login.

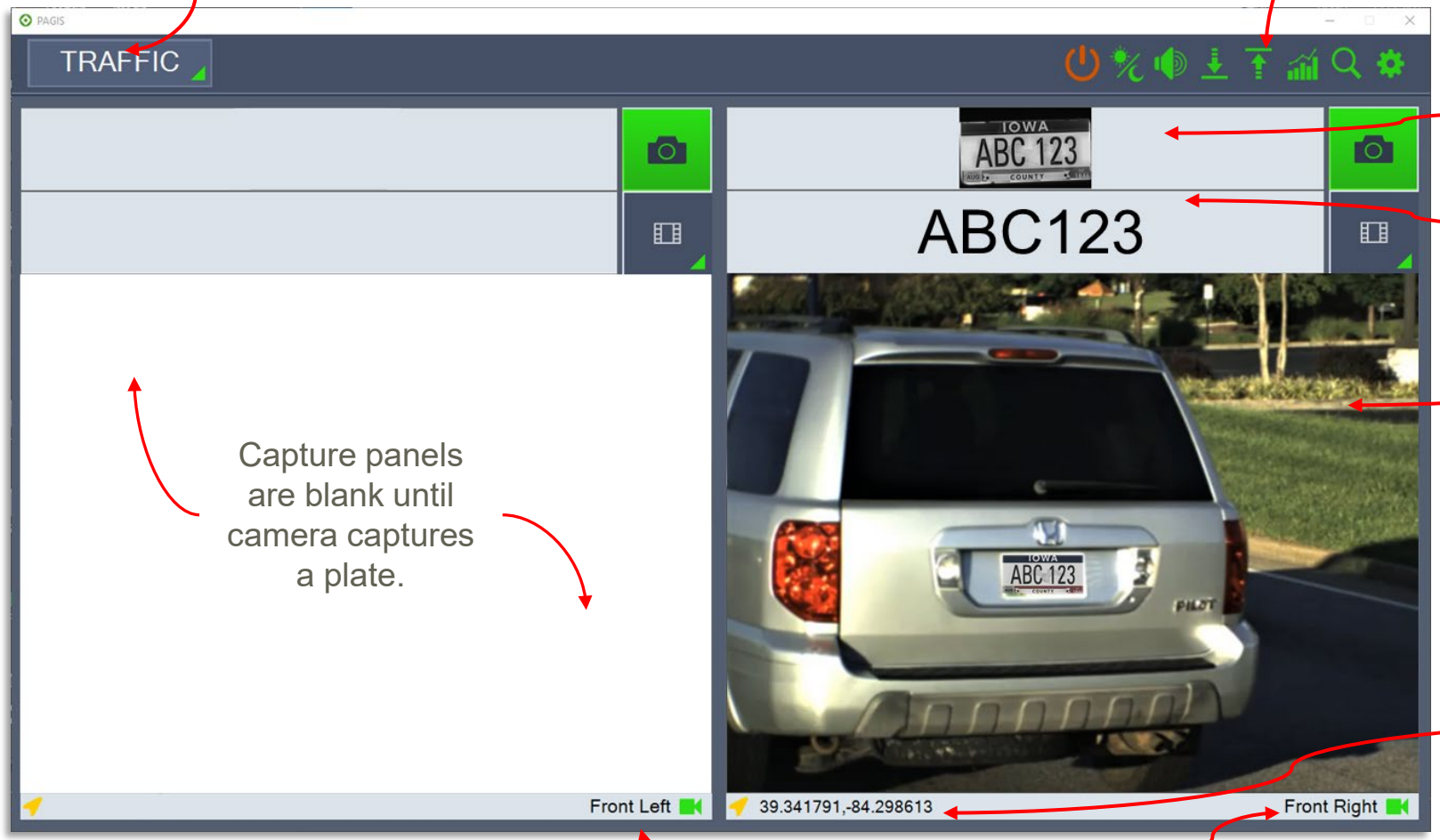


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Main View Screen

PAGIS defaults to two Camera Display Panels. “Cam Mode” controls what's currently being displayed on screen.

PAGIS System Control Features.



Infrared plate patch
(IR plate Read or “patch”)

OCR text translation of IR plate patch.

Color Overview
Captures are displayed as static images.

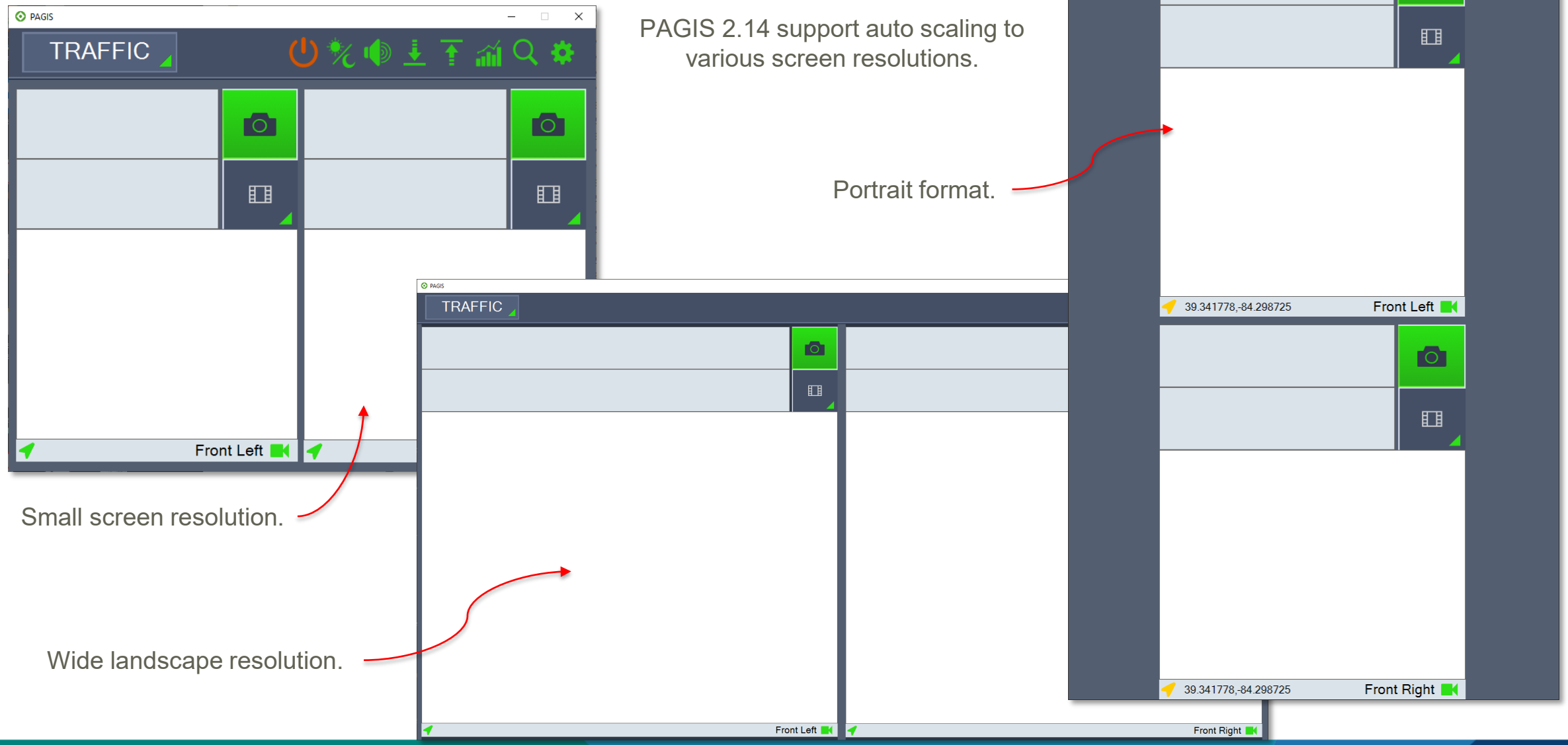
GPS Coordinates

Camera Title

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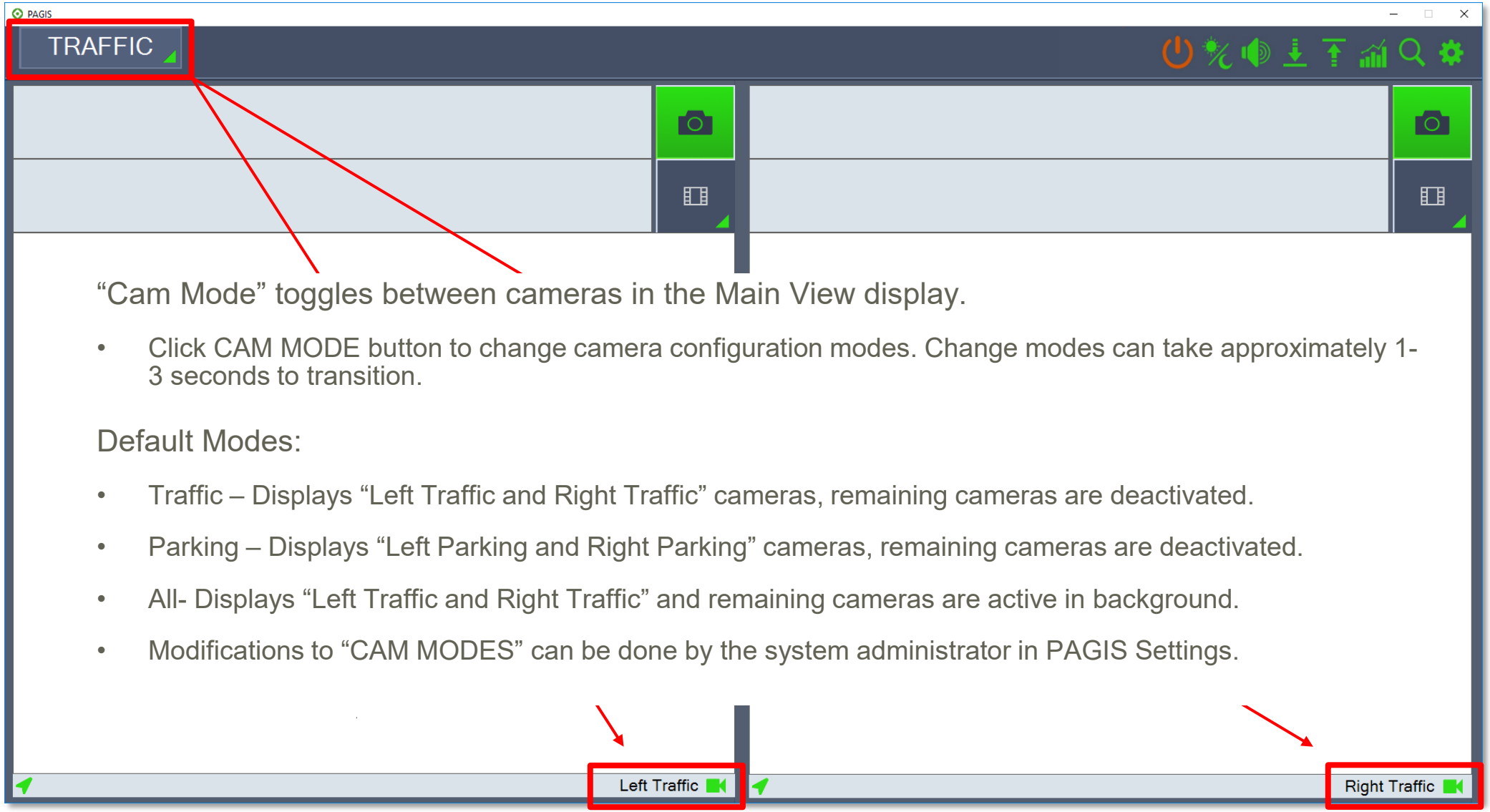
Auto Screen Scaling

PAGIS 2.14 support auto scaling to various screen resolutions.



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Camera Mode



"Cam Mode" toggles between cameras in the Main View display.

- Click CAM MODE button to change camera configuration modes. Change modes can take approximately 1-3 seconds to transition.

Default Modes:

- Traffic – Displays "Left Traffic and Right Traffic" cameras, remaining cameras are deactivated.
- Parking – Displays "Left Parking and Right Parking" cameras, remaining cameras are deactivated.
- All- Displays "Left Traffic and Right Traffic" and remaining cameras are active in background.
- Modifications to "CAM MODES" can be done by the system administrator in PAGIS Settings.

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Camera Controls



Take Pic: Just above the Camera View Selector button is the “Take Pic” button. This button allows the user to quickly take a picture from the camera currently viewed.

Static View: This is the default state at login showing the Static View of captured events.
(NOTE: PAGIS does not automatically display a live feed.)

Color View: Clicking the Camera View selector button once, will switch to the Color View Mode. This displays the current live view of the color camera and will time out after 60 seconds or until the next capture event, which ever occurs first.

IR View: Clicking the Camera View Selector button twice, will switch to the Infrared (IR) View Mode. This displays the current live view of the IR camera and will time out after 60 seconds or until the next capture event, which ever occurs first.

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Take Picture

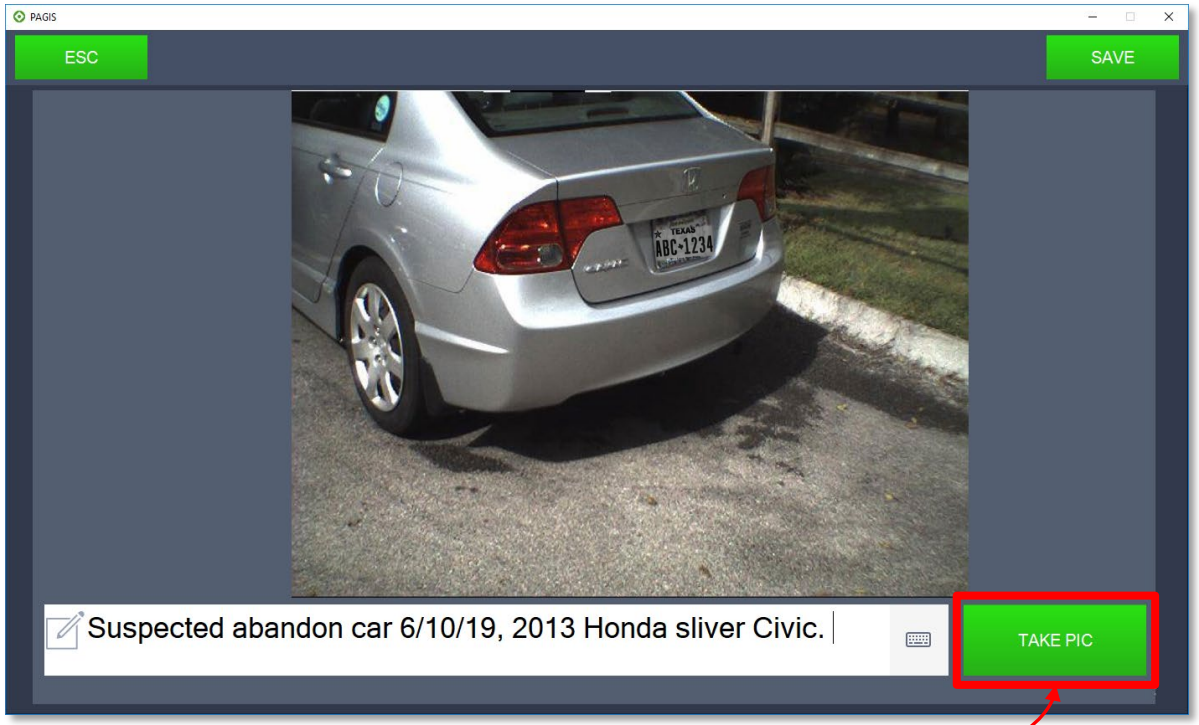
Take a Picture:

- From the Main View Screen, press the Take Pic button from the desired camera.
- The image taken will be displayed.
- Enter a description of the picture in the text field at the bottom of the screen.
- To save picture click the SAVE button, ESC to cancel. Either action will return you to Main View Screen.

NOTE: The picture will not be saved if a description note is not entered in the text box.

View the Saved Images:

- Navigate to the Review menu in PAGIS.
- Select Audits.
- The user will be able to see a thumbnail of the image and the saved text/note.
- In order to review the saved images beyond a shift, the user will need to run the Audit Image Report from BOSS.



Toggle “Take Pic” button to activate live and capture mode.

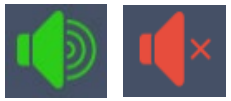
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System Controls





Logoff button: Located in the upper right of the window. When selected, the user will be logged out of PAGIS and return to the login screen. When Auto-login is enabled this will close PAGIS.



Sound button: When selected, this button with toggle the PAGIS Read capture sound On or Off, alert sounds will remain activated.



Day/Nite mode: Switch PAGIS between day & night mode screen skins.



Begin Shift / Download button: When activated, this begins downloading assigned data from the BOSS server.



End Shift / Upload button: When selected, this will upload any previously unsent Reads/Hits, images, and Audits to the BOSS server.



Statistics/Review button: When selected the user can review Alert list, Reads, Hits, Targets, and other PAGIS information.



Search button: When selected the user can research all available Reads/Hits as well as manually add a license plate to PAGIS's local alert list "Manual Reports".



Settings button: This button is only viewable to Admin level users and allows for system configuration changes and setup.



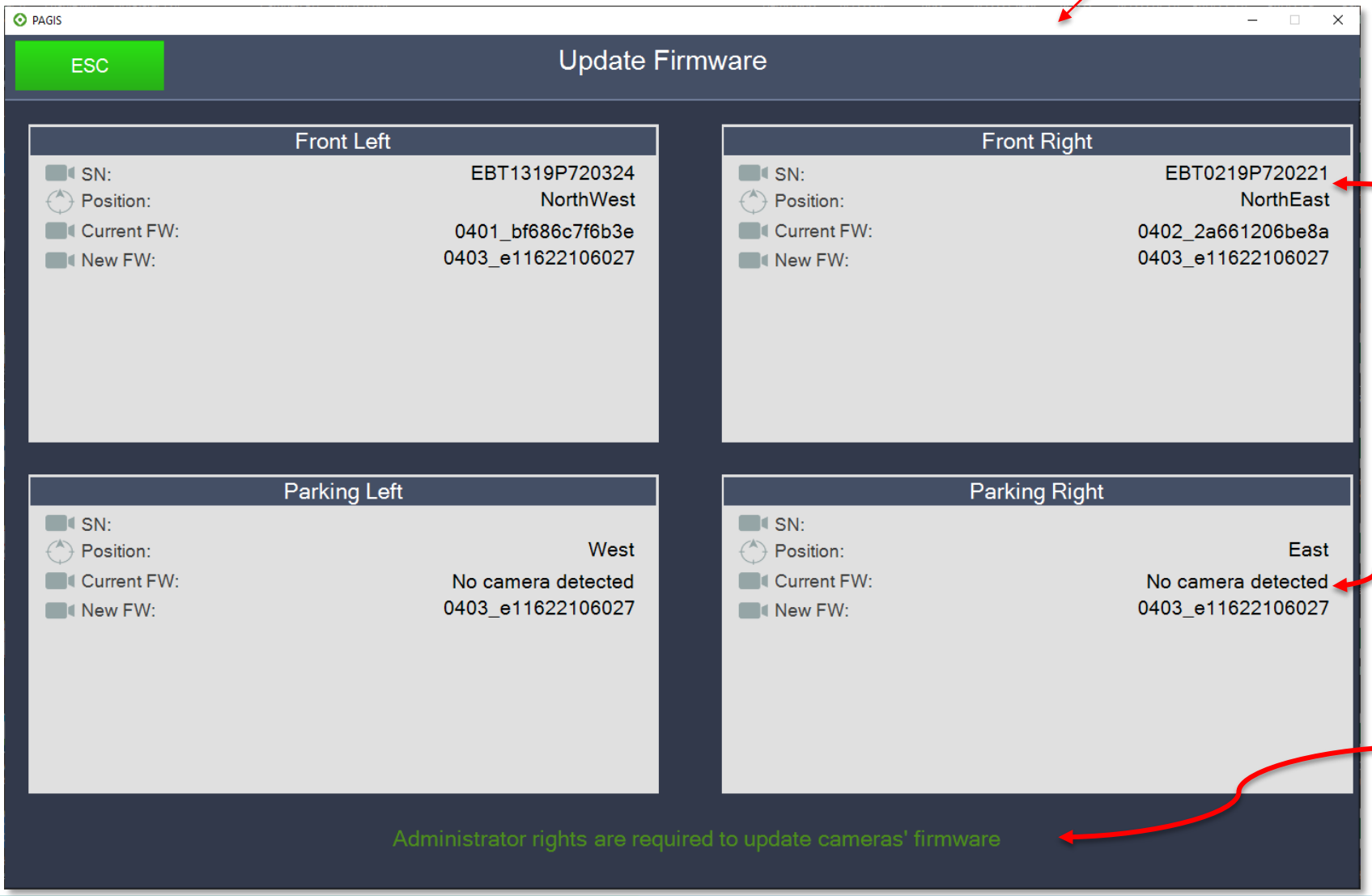
Firmware update: This icon will atomically appear when PAGIS detects a new firmware is available for the P720 mobile cameras. All user types are notified, but only Admins can apply the update.

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Camera Firmware Update

(Restricted Users)





Camera firmware update provides a means for PIPS to update the camera software to enhance and or correct camera performance.

Firmware Updater Window List.

- Title “Camera Name”.
- Camera serial number.
- Position.
- Current FW version,
- New FW version available.

The firmware update process only updates camera that are attached and function on the mobile processor.

Restricted PAGIS users are only notified and displayed update information. Administrator must log into PAGIS and apply the FW update.

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Night Mode Screens

Day/Night mode changes PAGIS user interface skins to a darker appearance to reduce illuminating the vehicle interior.



Night mode examples

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Data Synchronization

Data synchronization can be configured one of three ways depending on usage type. Its important to understand which option PAGIS is configured for as they dictate different user interaction.

USB Sync- This method of synchronization requires that the PAGIS user manually activate the upload/download button to send/retrieve data from external USB drive.

Boss Sync without Purge- When “Boss-Sync” is enabled all data will be automatically synchronization between PAGIS and BOSS, this included Users, Alert-List, Reads/Hits & Audit data. The exception in this option is that locally stored data remains accessible in PAGIS, this includes Reads/Hits & Manual Reports entries. Reads/Hits & Manual Reports will remain local until the Upload button is activated upon which those data sets will be purged from PAGIS.

Boss Sync with Purge- When “Boss-Sync” is enabled all data will be automatically synchronization between PAGIS and BOSS, this included Users, Alert-List, Reads/Hits and Audit data. With the Purge setting enabled it is not necessary for the PAGIS user to manually activate the Upload button to purge locally stored data as this will be maintained by PAGIS based on Purge settings configured, purging occurs each time PAGIS is launched.



Typ. Download Status Messages

- Performing beginshift synchronization...
- Session started, checking for updates!
- Retrieving plates for COUNTY WARRANTS

Typ. Upload Status Messages

- Exporting endshift read data at event 0 of 28...
- Purging audit data. This may take a while, please do not power off!
- Endshift synchronization succeeded!

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First Time PAGIS Activation



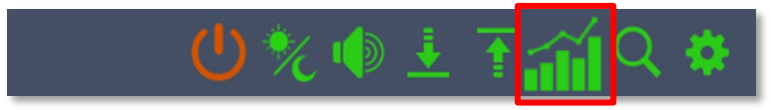
Unlike the fixed cameras the mobile system only needs to communicate with BOSS3 or BOSS4 to register its existence, plate data packet not required.

- PAGIS auto sync cycle can accomplish this automatically once the primary BOSS IP has been entered and saved, typically auto sync will occur around 10-20 seconds after setting was applied. Sync status messages are not displayed on-screen during an auto sync event.
- Activating the download button will manually initiate communication with BOSS, during this process the user will see sync status messages. First time synchronization BOSS will acknowledge the communication with a rejection message titled “HttpStatusCode Unauthorized” signifying BOSS has seen the request, created the device listing but rejects the communicated pending user activation in BOSS.

BOSS acknowledgement and rejection message	Failure to communicate with BOSS message
Performing beginshift synchronization...	Performing beginshift synchronization...
Error Synchronizing Data. Please check log for more information.	Error Synchronizing Data. Please check log for more information.
HttpStatusCode Unauthorized; unable to get data	Error syncing data with BOSS. Please check wireless connection and try again.

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Review



Click Review from the Main View screen to display additional options for reviewing data.

- **Total Reads-** Shows the total number of Reads/Hits collected and the amount synced.
- **Reads-** Shows only the total number of collected Reads.
- **Hits-** Shows only the total number of collected Hits.
- **Misreads-** Shows only the total number of Reads marked as misreads.
- **Audits-** Shows the total number of collected Audits and the number that have synced with BOSS.
- **Targets-** Shows only the number of targets downloaded, they do not sync as they originated from the Boss application.

Note: When PAGIS is setup for Disk-Sync the “Sync” column dose not apply.

Reads- Review all plate detections that have occurred since the last upload or data purge cycle.

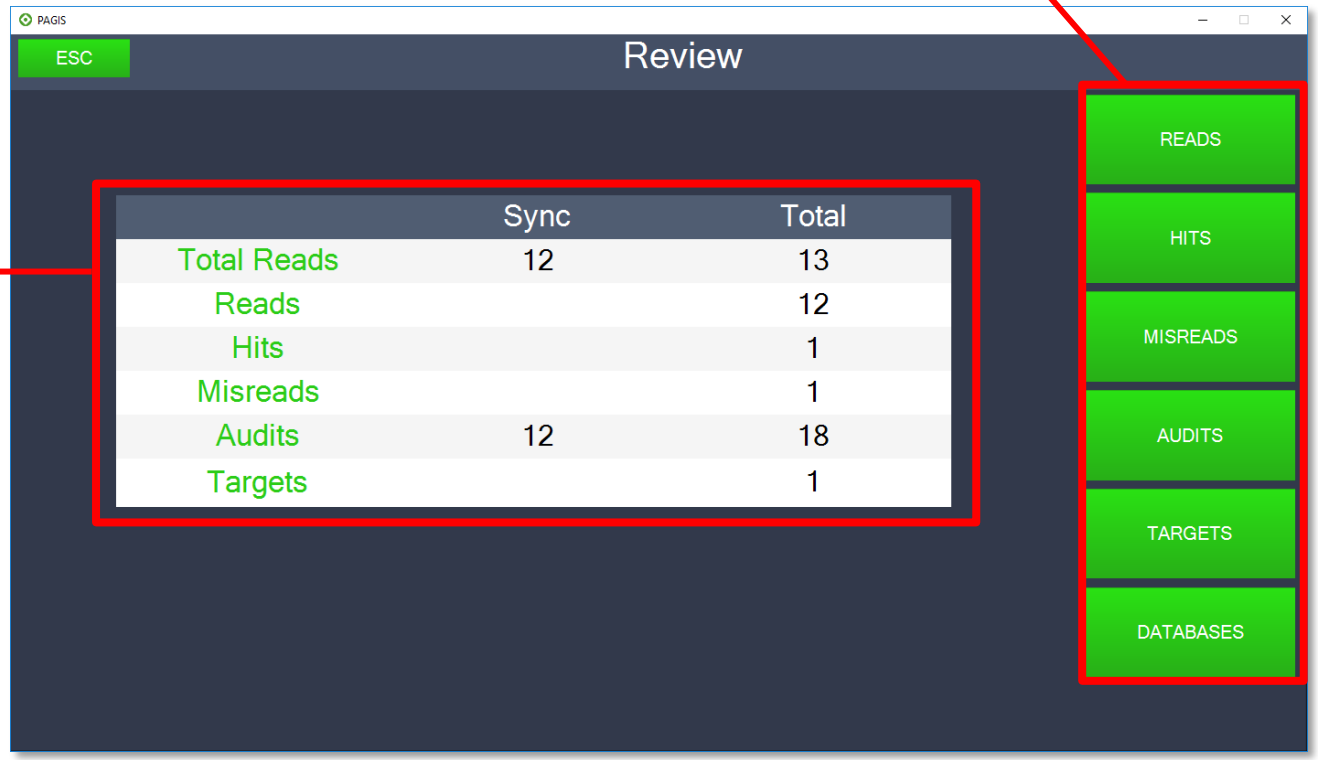
Hits- Review Hit alerts that occurred since the last upload or data purge cycle.

Misreads- Review Reads that have been manually flagged during the shift as misreads.

Audits- Review failed and successful login’s, any manual data entered during the shift, pictures taken and all manual license plate searches.

Targets- Review targets that have been synchronized from Boss.

Databases- Review the all the databases currently in PAGIS.



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Review- Reads

READS

Save changes or Esc to return to Main View.
(Typ. thought out review screens)

Current view / Total Reads.
Prev. & Next

Options not available in
Reads review screen.

IR “Plate Patch”
Clicking Plate Patch will result in larger view
Of image for 4sec.

OCR translation of “Plate Patch”
Click OCR Patch to correct a misread.

- Address based on GPS
- GPS
- Time/Date
- Camera Name

Color Camera “Overview” image
Clicking Overview Patch will result in larger view
Of image for 4sec.



Active Map w/
map controls

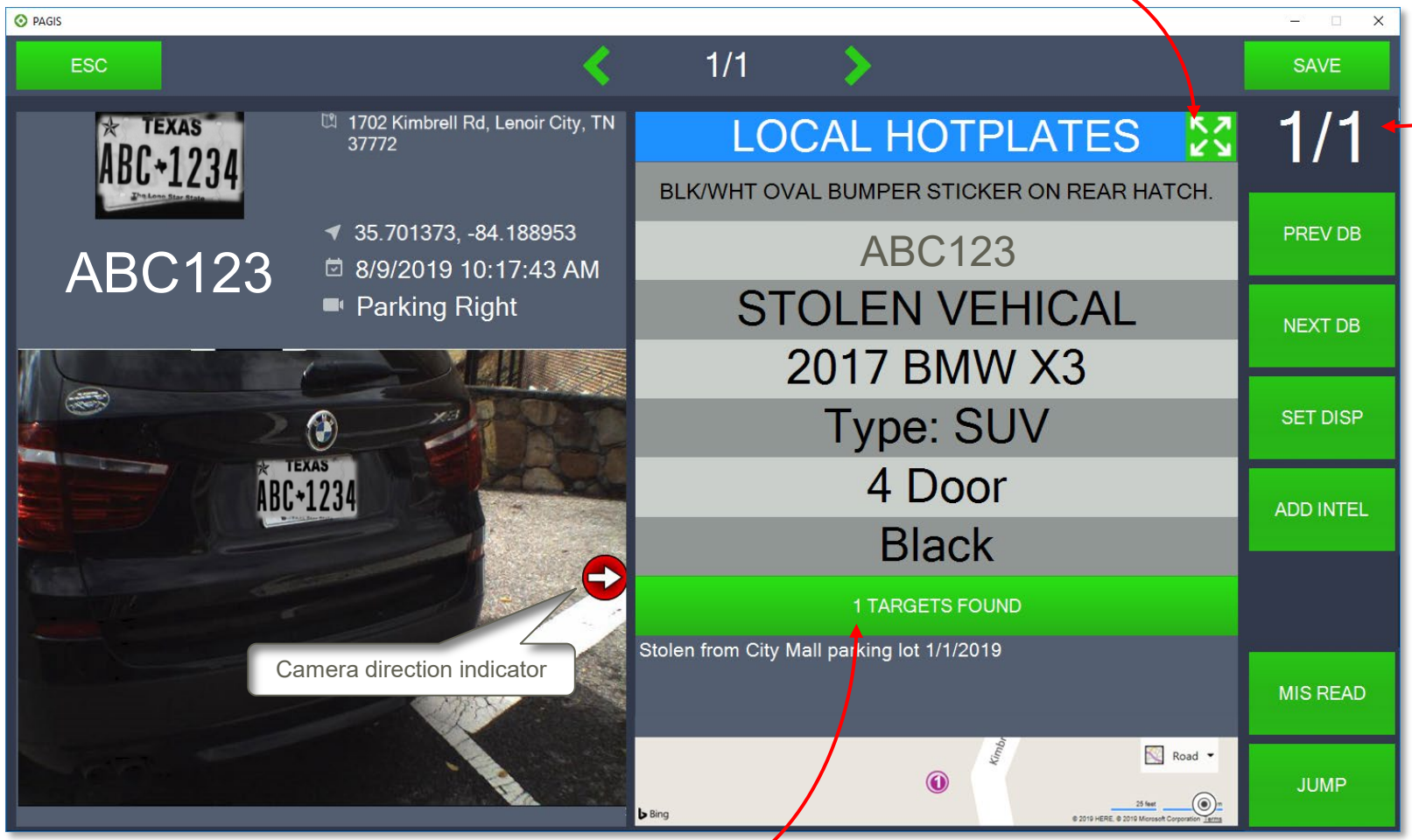
Jump –Move to a specific record.

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Review- Hits

Current/Total (Databases) – Shows how many Alert List the Hit has registered against. For example, 1/3 means that you are viewing information from the first of the three databases that produced Hits on this plate capture.

Expand full Map

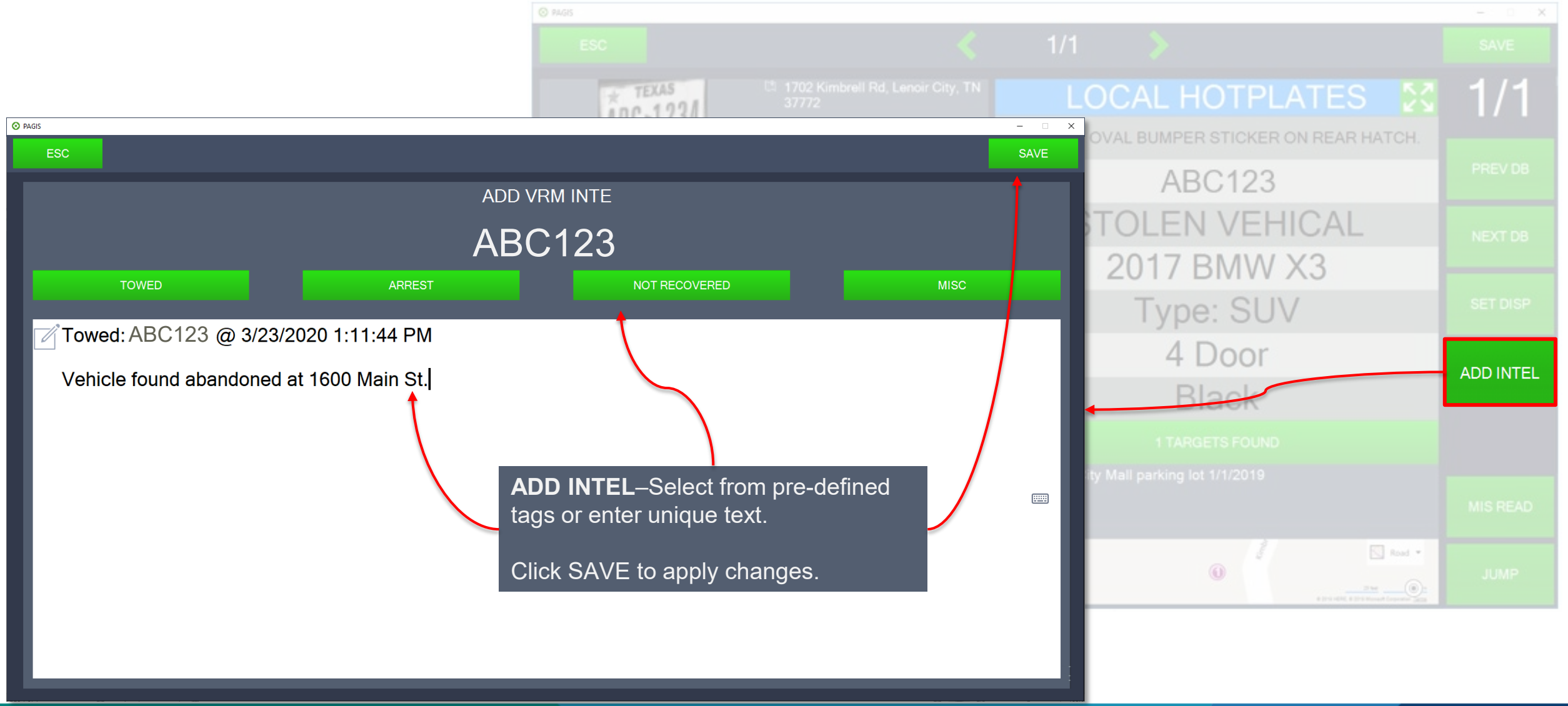


Target Profile Found
Click to view

- **Prev DB** – Moves to the previous Alert List that produced a Hit alert with current plate number.
- **Next DB** – Moves to the next Alert List that produced a Hit alert with current plate number.
- **Set Disp** –Report the disposition of a Hit in one of the categories defined by your Boss system administrator, *(Arrest Made, Vehicle Recovered, Surveillance Established, Towed, etc.)*. Dispositions appear in sperate selection window, these dispositions are reported to BOSS and allow for more detailed classification when running a Hit reports.
- **Add Intel** – Add information about a particular Hit prior to synchronization to BOSS. For instance, you might add information about the arrest or violation.

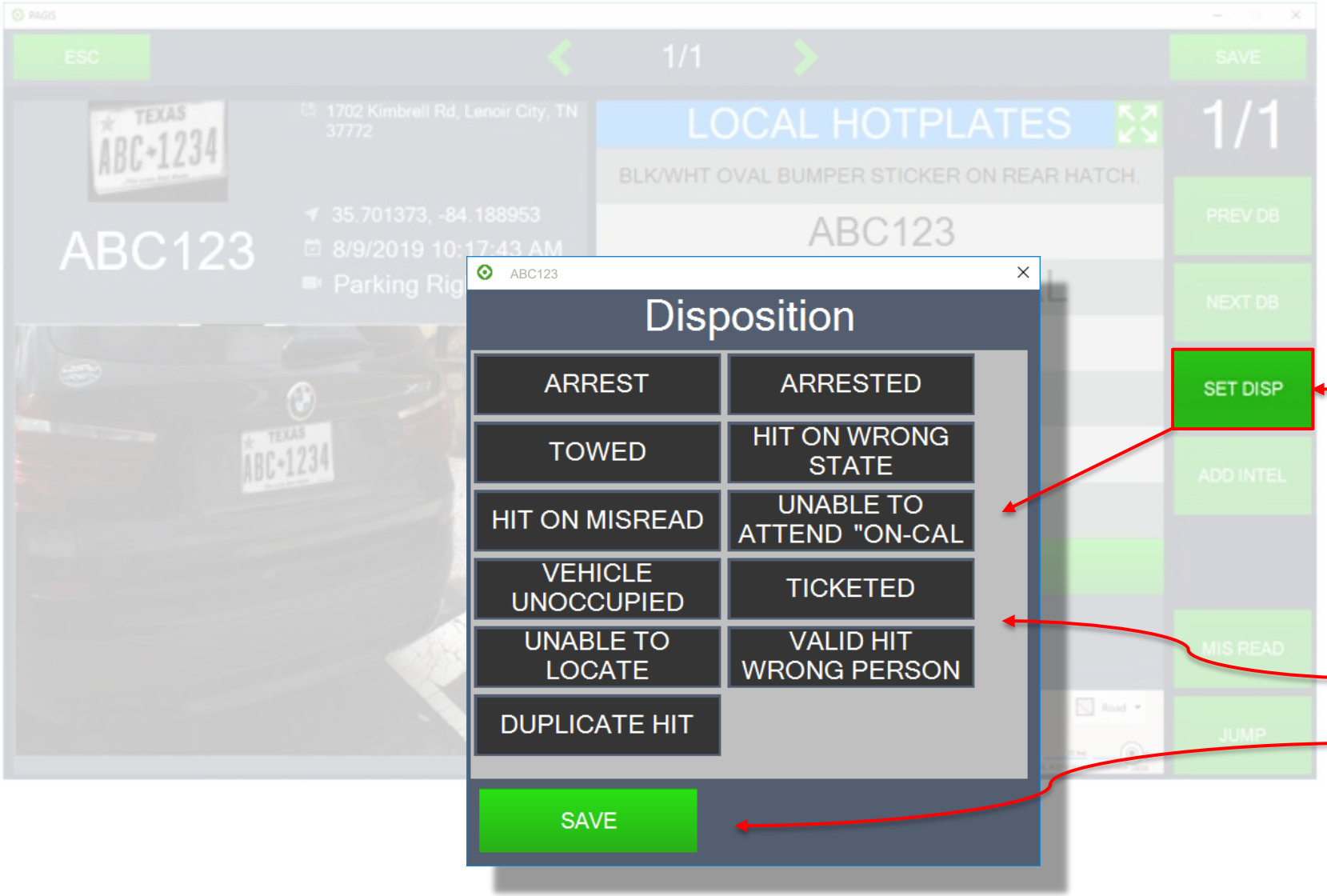
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Review- Hits- Add Intel



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Review- Hits- Disposition



Set Disp –Report on the disposition of the Hit from the deployed categories.
Note: Dispositions are managed by BOSS, additions or edits must be done by system admins.

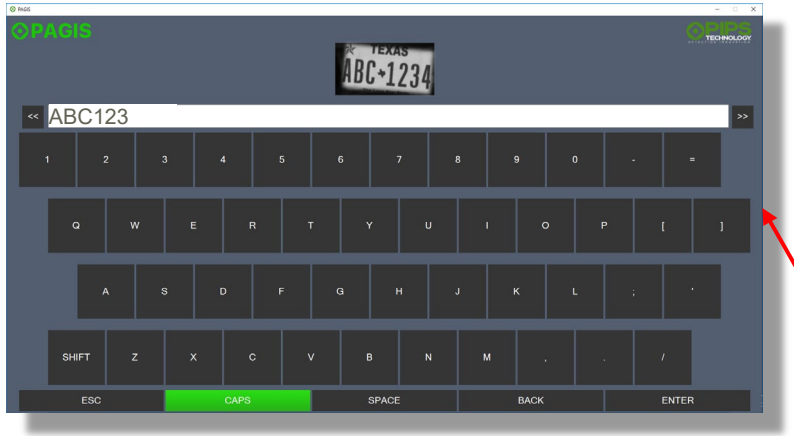
Select one or multiple.

Save to apply.

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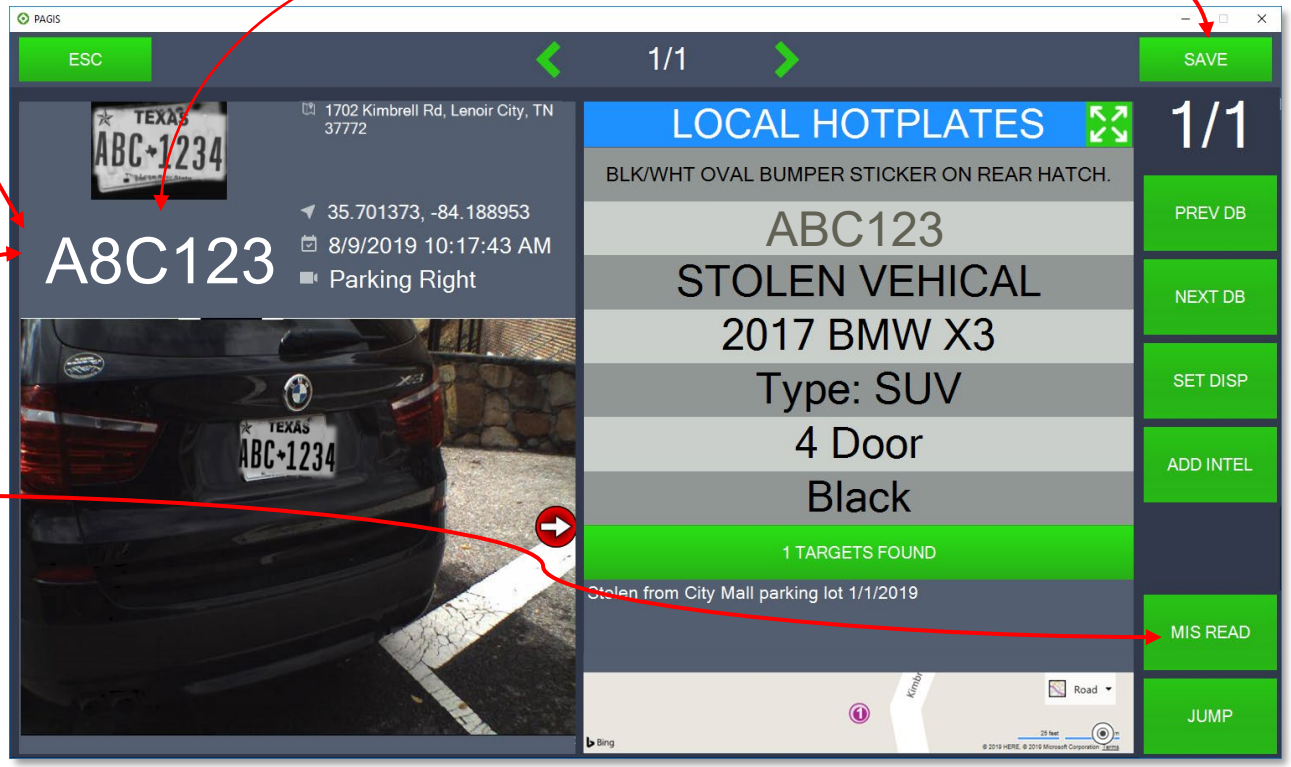
Misread Correction

HITS MISREAD



Misread Hit.

Save changes



Correct or tag Read/Hit that have been misread.

- *Click OCR Patch to manually correct a misread, "ENTER" to save.*
- *Click* MISREADS *button to instantly tag event as "Misread" without editing "SAVE" to apply.*
- *Hits tagged as misread are demoted to Read and no longer counted as Hit.*

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Review- Targets

TARGETS

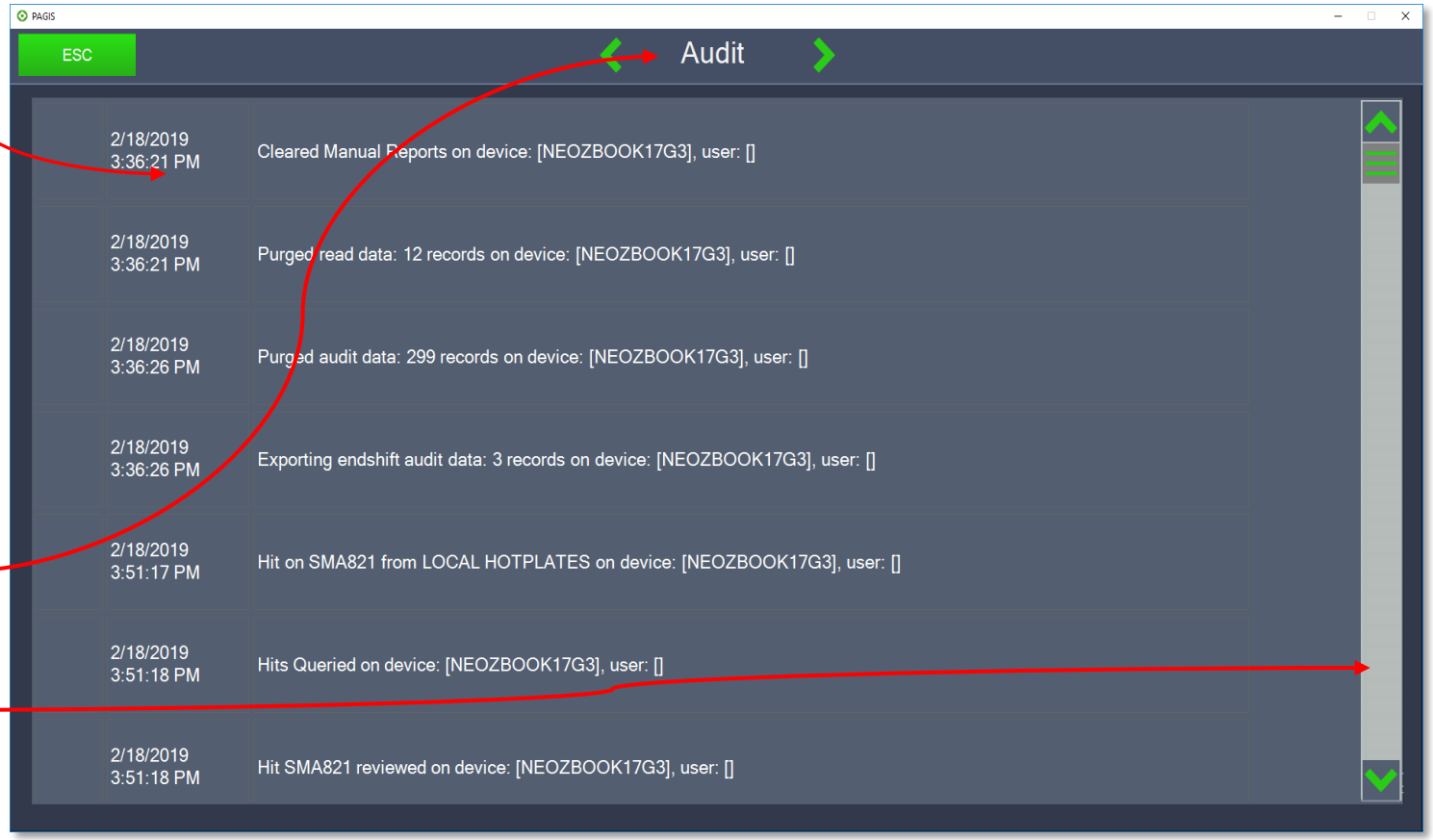
- **Target Profile**–Target screen displays information about suspects matched with a license plates. Targets are downloaded into PAGIS Targets list from the Back Office System Software (BOSS).
- Targets review also available through associated Hits, see example on Slide 11.
- **Jump**- Move to a specific record
- **Close** – Returns to previous screen.



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Review- Audits

- The Audits screen provides a log of various actions taken during the current session, including searches, synchronizations, Hits, etc. Audit trail is reset during Upload or Auto purge cycle.
- Audit logs are transmitted back to BOSS during Auto-Sync or during a manual Upload cycles.
- **Esc-** Return to previous screen.
- **Prev / Next-** Cycle thought all available audit log by page.
- **Scroll-** Scroll thought all available Audits.



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Review- Databases

Database Name – Displays the name and color code of the Alert List, along with Date\Time showing the last synchronization update.

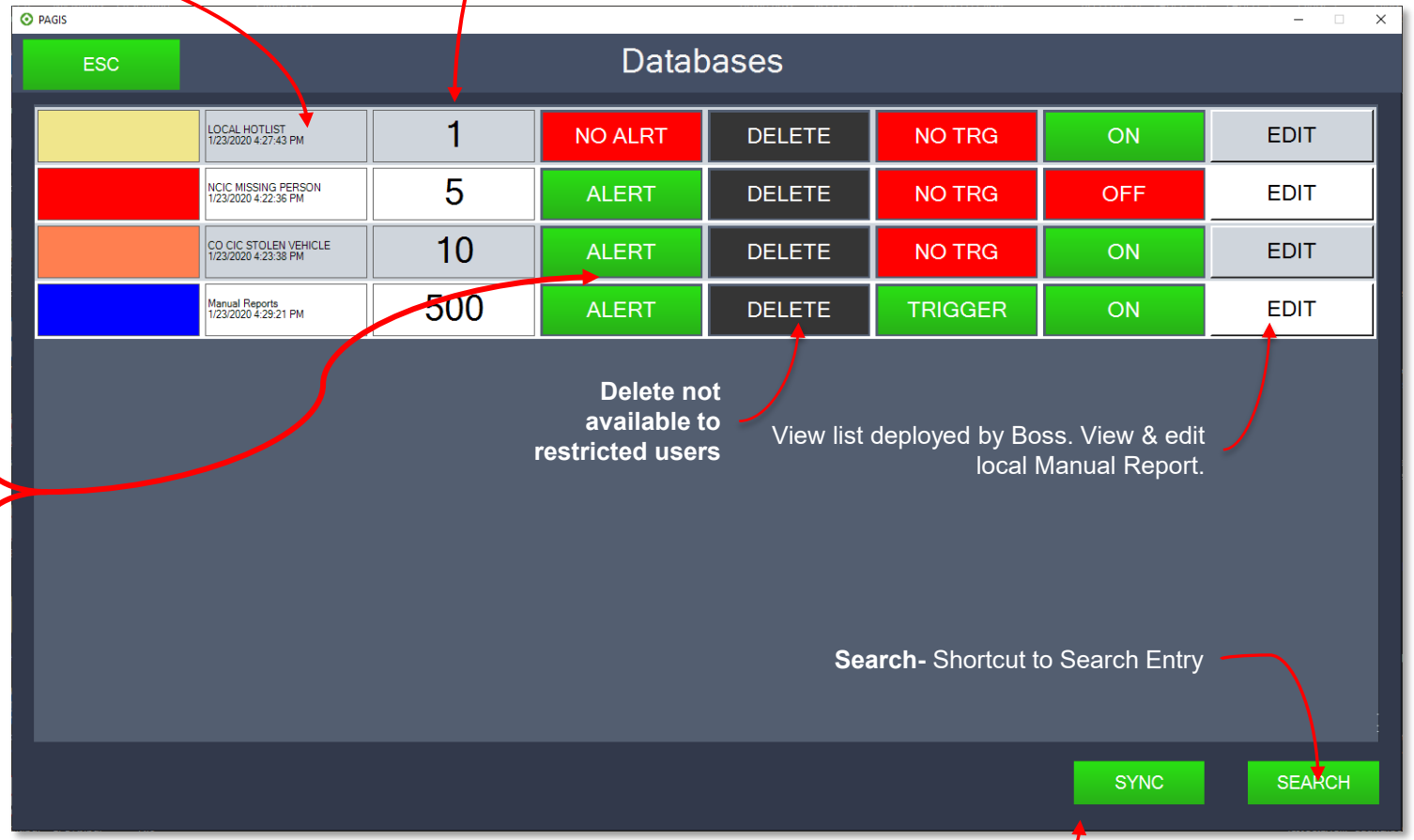
Alert/No Alert - When this button is clicked it will switch from “Alert” or to “No Alert” depending on its previous state. “Alert” means the PAGIS user will be alerted if a Hit occurs. If “No Alert” is displayed the PAGIS user will not be notified of alert, but the alert will still register.

Delete – Removes the Alert List from the current session. Because some databases may be managed in BOSS, if deleted and has not been removed from the BOSS deployment list, it will be added back on the next synchronization via Auto-Sync or during the next Download cycle.

Trigger/No TRG – If Trigger is on, the software sends a signal to a com port on the mobile processor and any device (such as a light or siren) connected through this port will active the device during an alert.

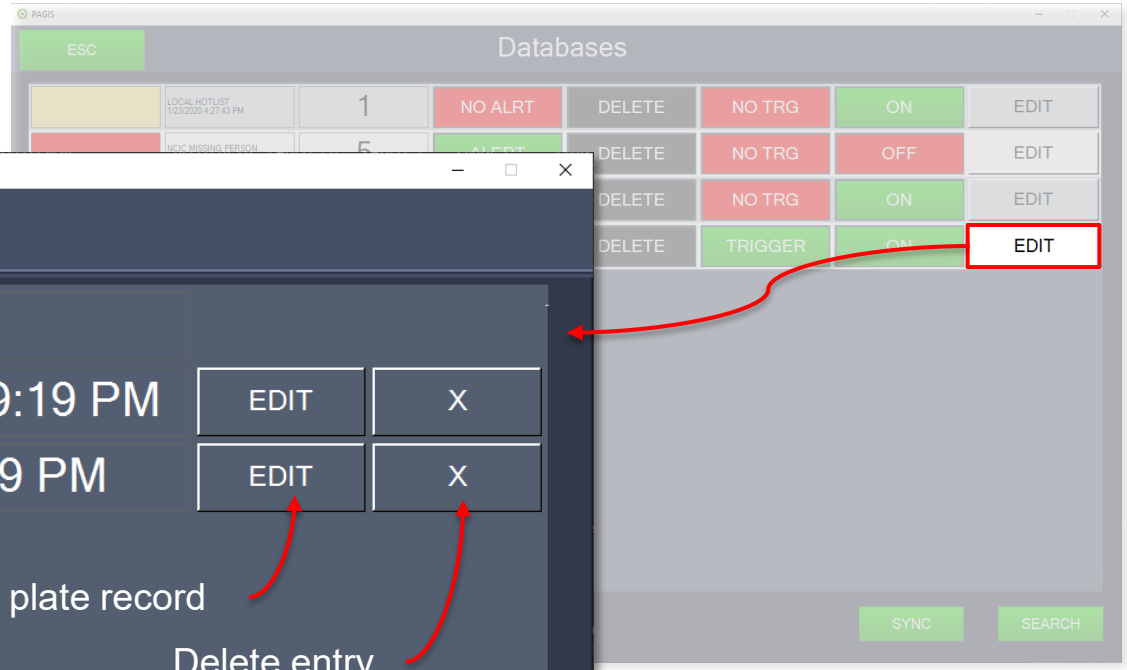
On/Off – Database status indicator. A green On button indicates that the Alert List is active. A red Off button shows that the Alert List is inactive, and Hits will not be generated from that Alert List in PAGIS.

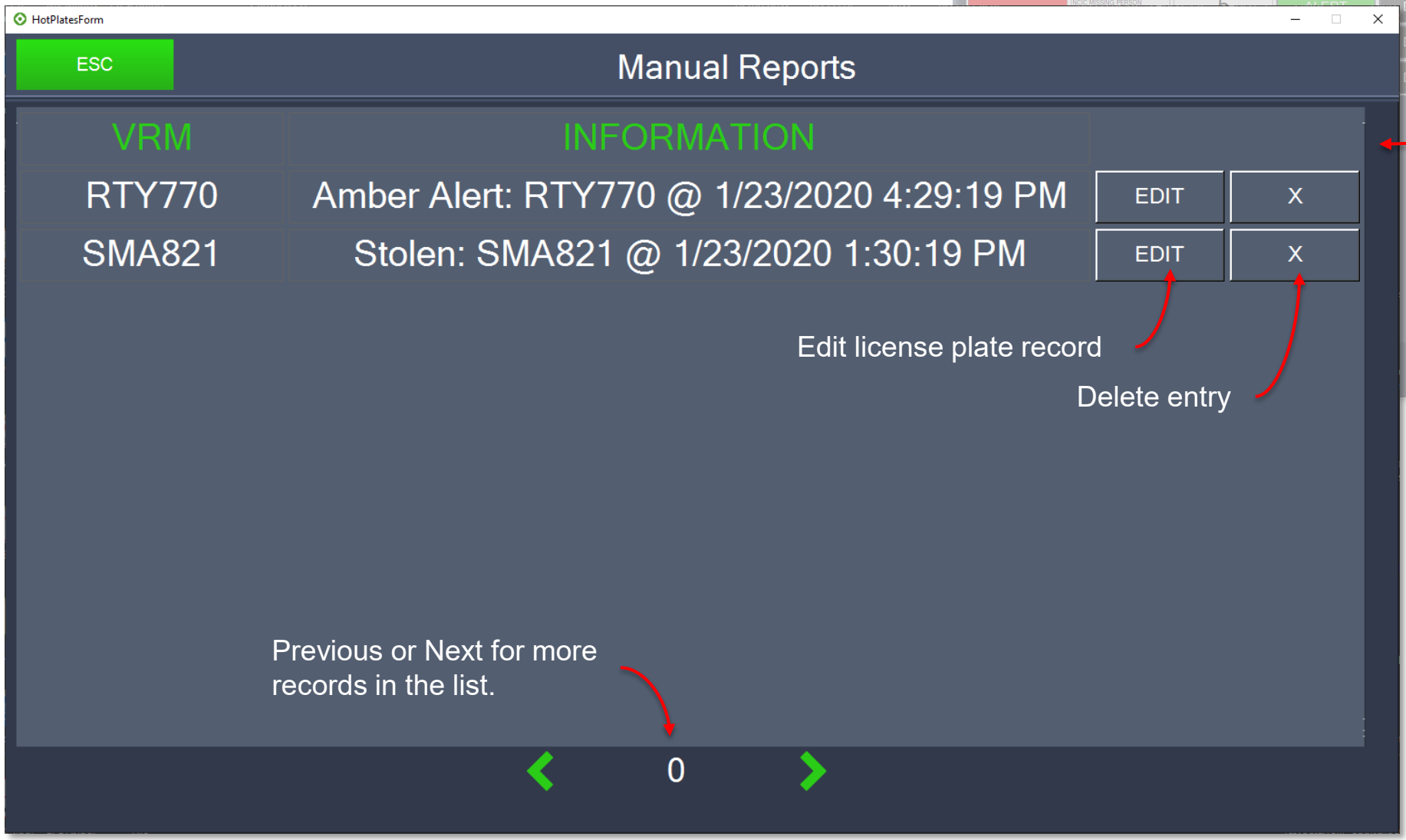
Priority – Database priority provides PAGIS a means of displaying Hits with higher priority first if multiple Hits occurs from a single event. Values can be (1-999) as determined by BOSS System Administrator. The lower the number, the higher the Alert List priority. By default, the “Manual Reports” Alert List created by PAGIS has a priority of 500.



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Review- Edit Database



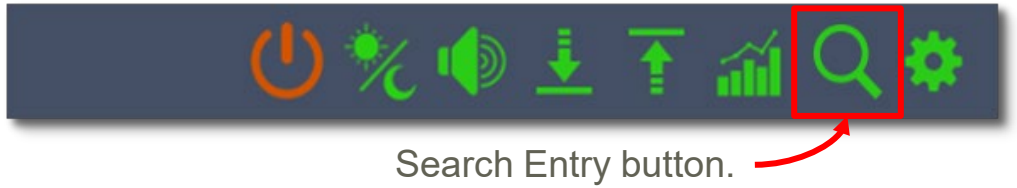


EDIT – Editing Hotlist has two function based on origin of hotlist.

- Hotlist deployed to PAGIS via BOSS cannot be edited, only the hotplates list can be viewed. Editing/updates are indented to be managed via BOSS.
- Hotlist created in PAGIS, i.e., “Manual Reports” can be managed by PAGIS users, allowing for changes or deletion of the hotplates contained within the hotlist.

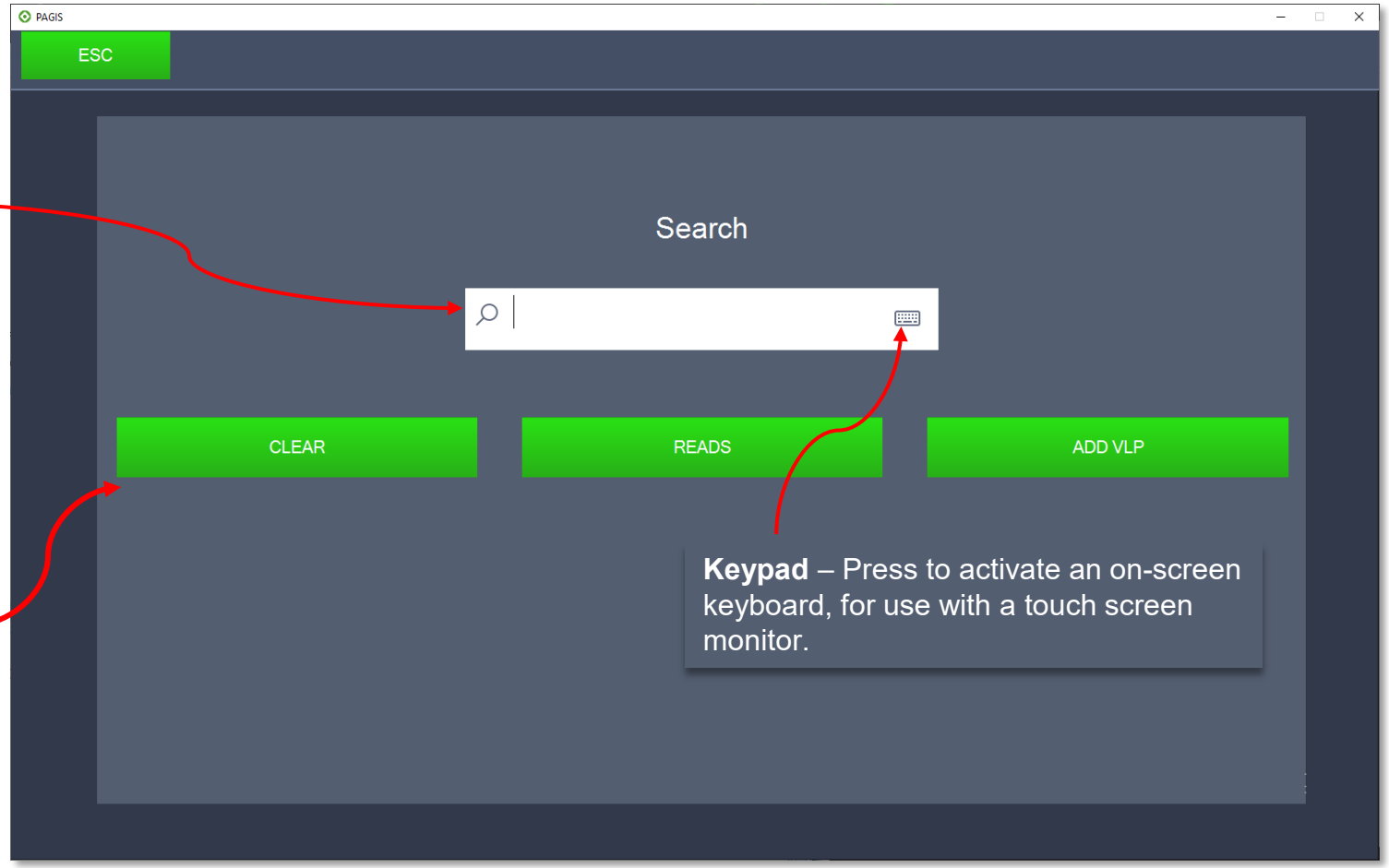
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Search Entry



Click Search Entry from the Main View screen to display Search features.

- **Text Field** – Enter the alphanumeric string to search. Accepted wildcards are Asterisk “*” or Underscore “_”.
- **Clear** – Clear the content of the text box.
- **Reads** – Search for plate number with the Reads and Hits currently stored in the PAGIS.
- **Add VLP** – Add plate to “Manual Reports” Alert List or check existing databases for the entered license plate. Partial plates or wildcards not accepted.
- **Esc** – Return to the previous screen.



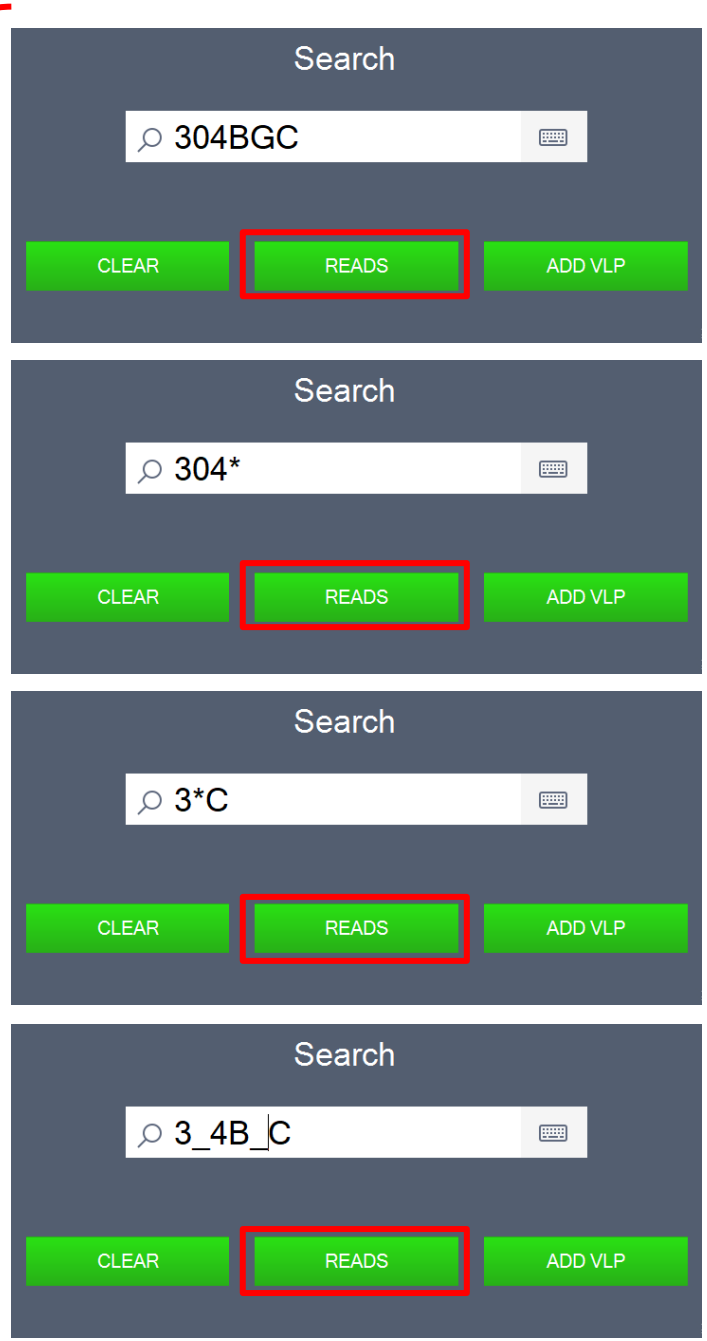
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Search Entry- Reads

READS Searching against collected license plate data in PAGIS.

- Search criteria can include exact text or text and wildcards. Wildcards are special characters that represent any / all potential characters and can be used in searches and queries.

- Wildcard searches can be performed using the * and _ characters. The asterisk (*) designates an unknown number of characters while the underscore (_) indicates a single missing or unknown character. To search for a plate number with the characters 3 and C, entering *3_C* will display all records containing 3 and C separated by one character.



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Search Entry- Reads

READS

Current / Total Reads.
Prev. & Next

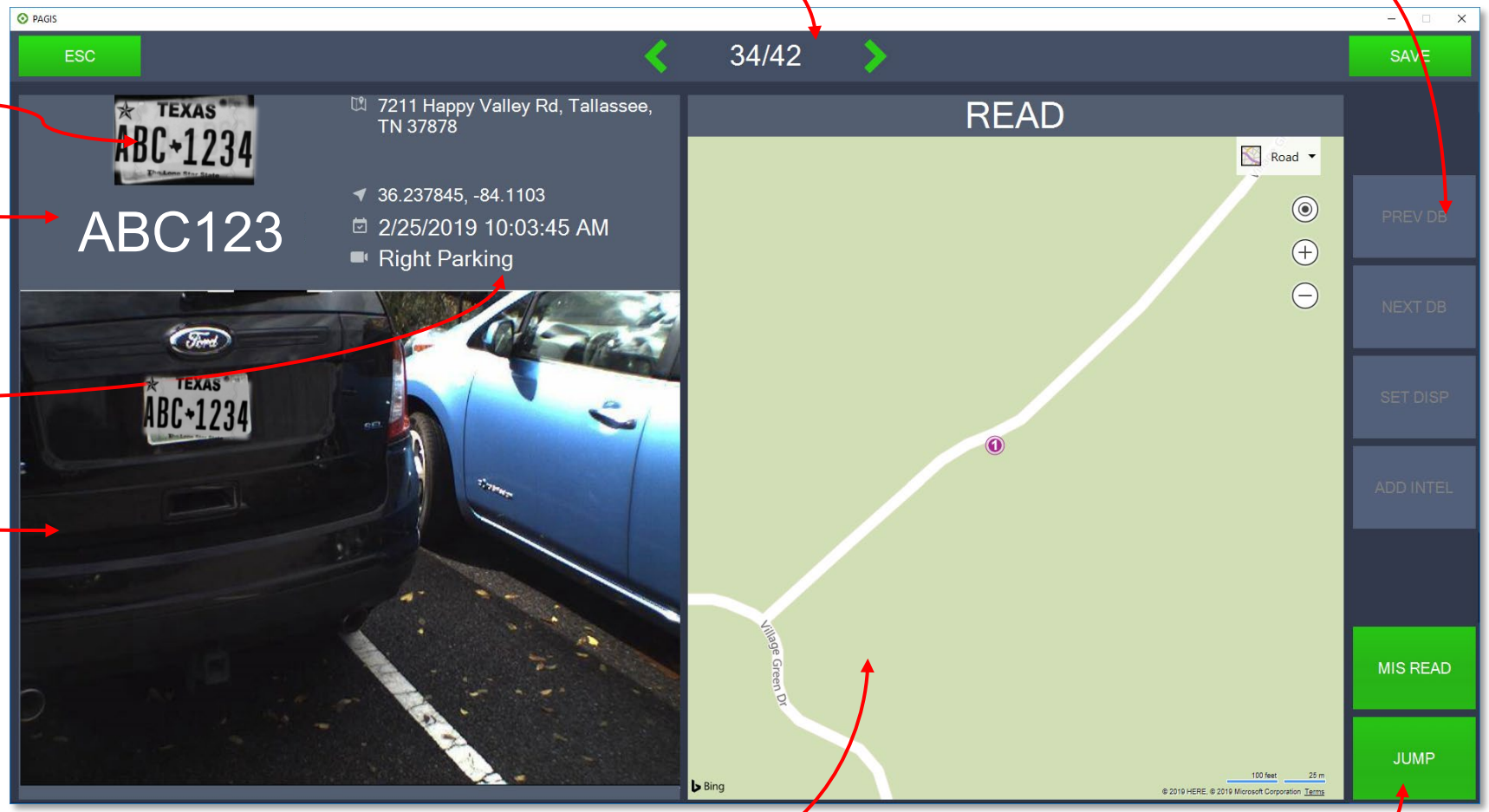
Options not available in Read review screen.

IR “Plate Patch”
Clicking Plate Patch will result in larger view Of image for 4sec.

OCR translation of “Plate Patch”
Click OCR Patch to correct a misread.

- Capture Address
- GPS
- Time/Date
- Camera Name

Color Camera “Overview” image
Clicking Overview Patch will result in larger view Of image for 4sec.



Active Map

Jump –Move to a specific record.

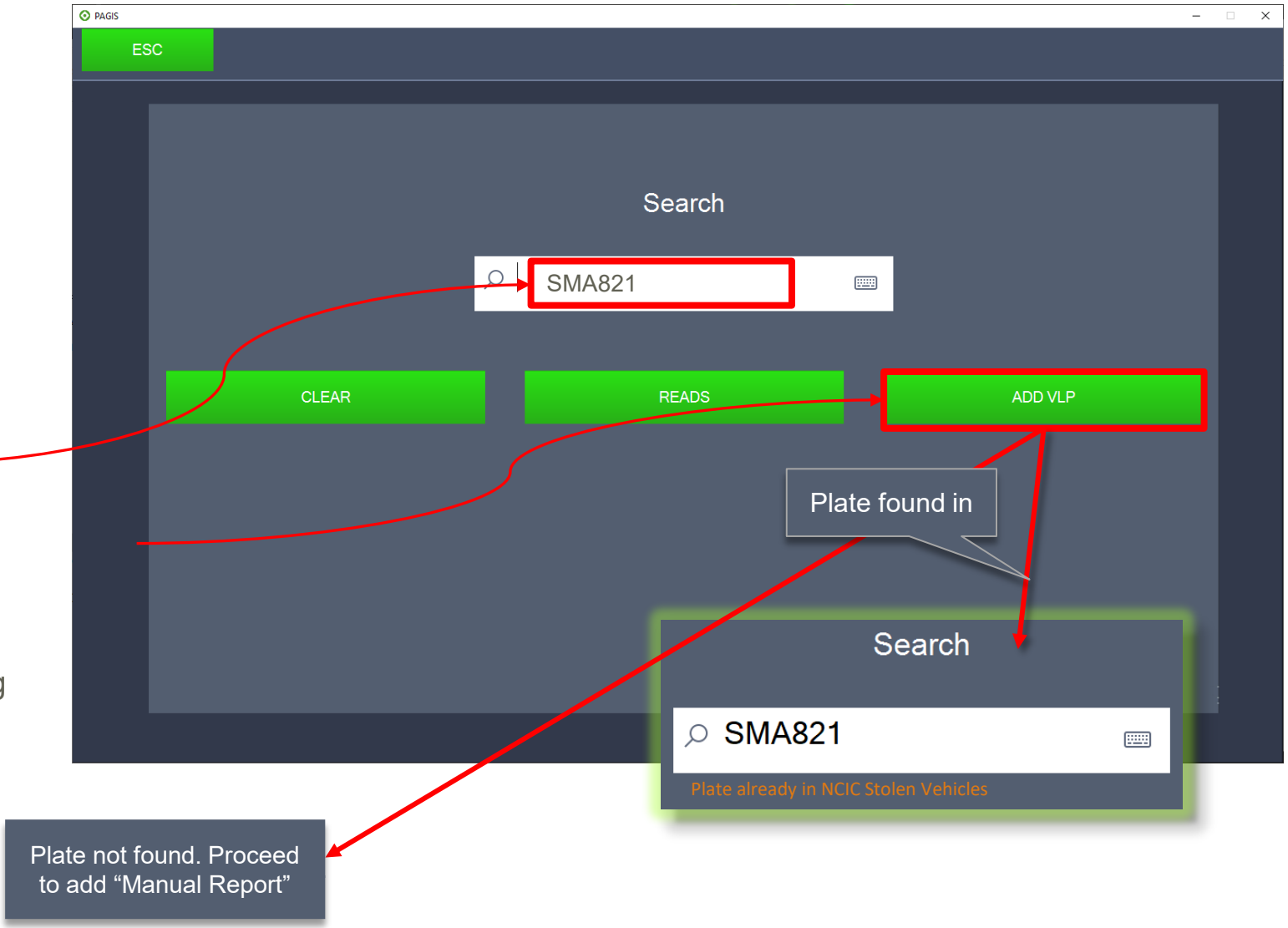
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Search Entry- ADD VLP

ADD VLP

Add a plate to “Manual Reports” Alert List or check for existence of plate in Alert List download from Boss.

- Manual Reports is PAGIS standalone Alert List designed for manual entries by the PAGIS operator.
- Manual Reports Alert List do not transfer to Boss or other mobile units utilizing PAGIS.
- Manual Reports Alert List are cleared out during a manual “upload” or Purge cycle.
- Enter plate into the text field, click “Add VLP”.
- If plate already exist, a message will applier indicating the Alert List it was found in. Otherwise, you will be prompted in the next screen to classify your entry.
- Wildcards or partial plates not accepted when adding VLP’s.



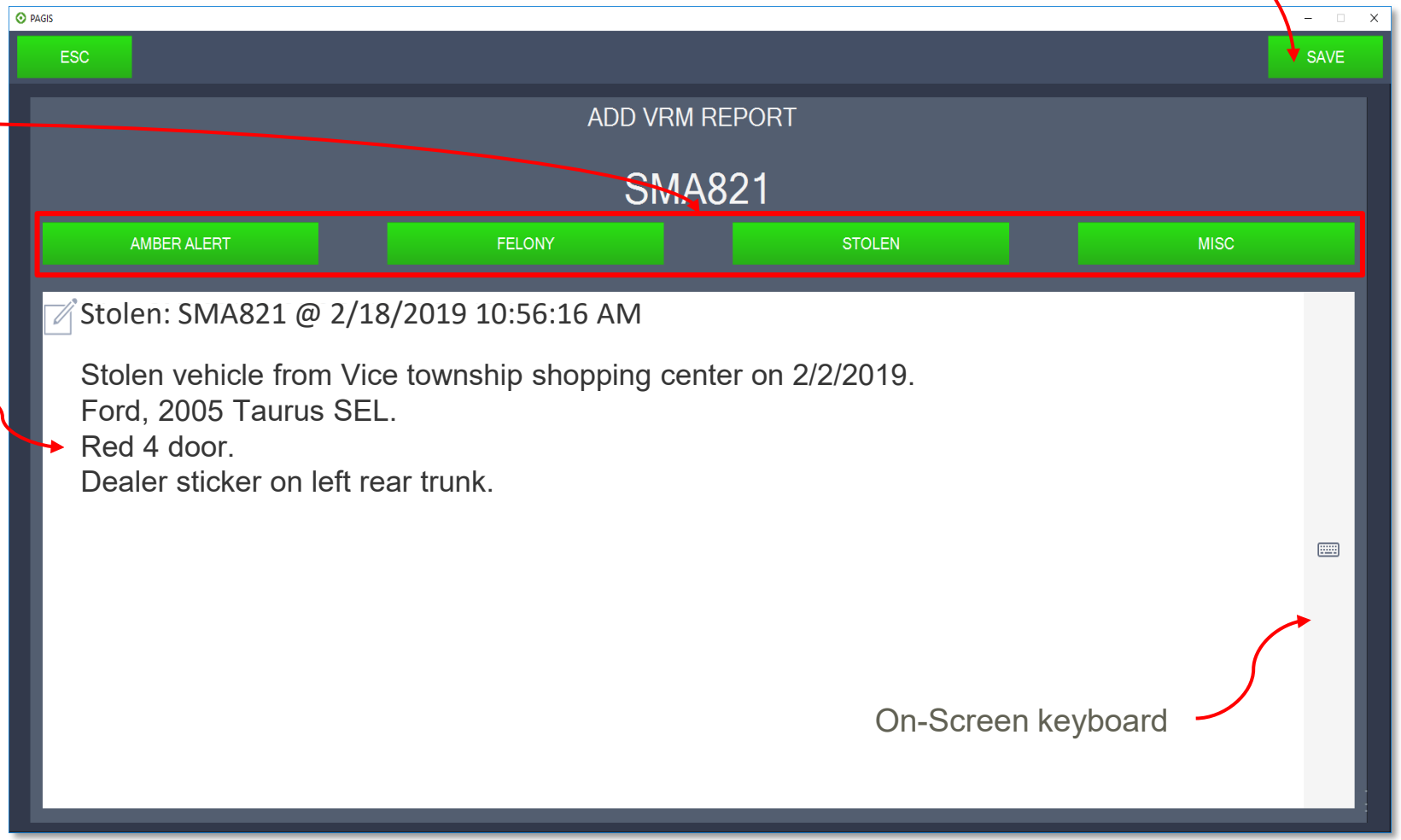
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Search Entry- ADD VLP

ADD VLP

ADD VLP Report:

- Select one of the four pre-defined classifications.
- Type in additional information about the vehicle.
- There is no limit to the number of manual entries that can be added to the Manual Report Alert List.
- Entries can be edited or deleted individually in the review Database section.
- All entries in the Manual Report Alert List will be discarded when a manual End Shift is performed.



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End of PAGIS User Training



Thank you

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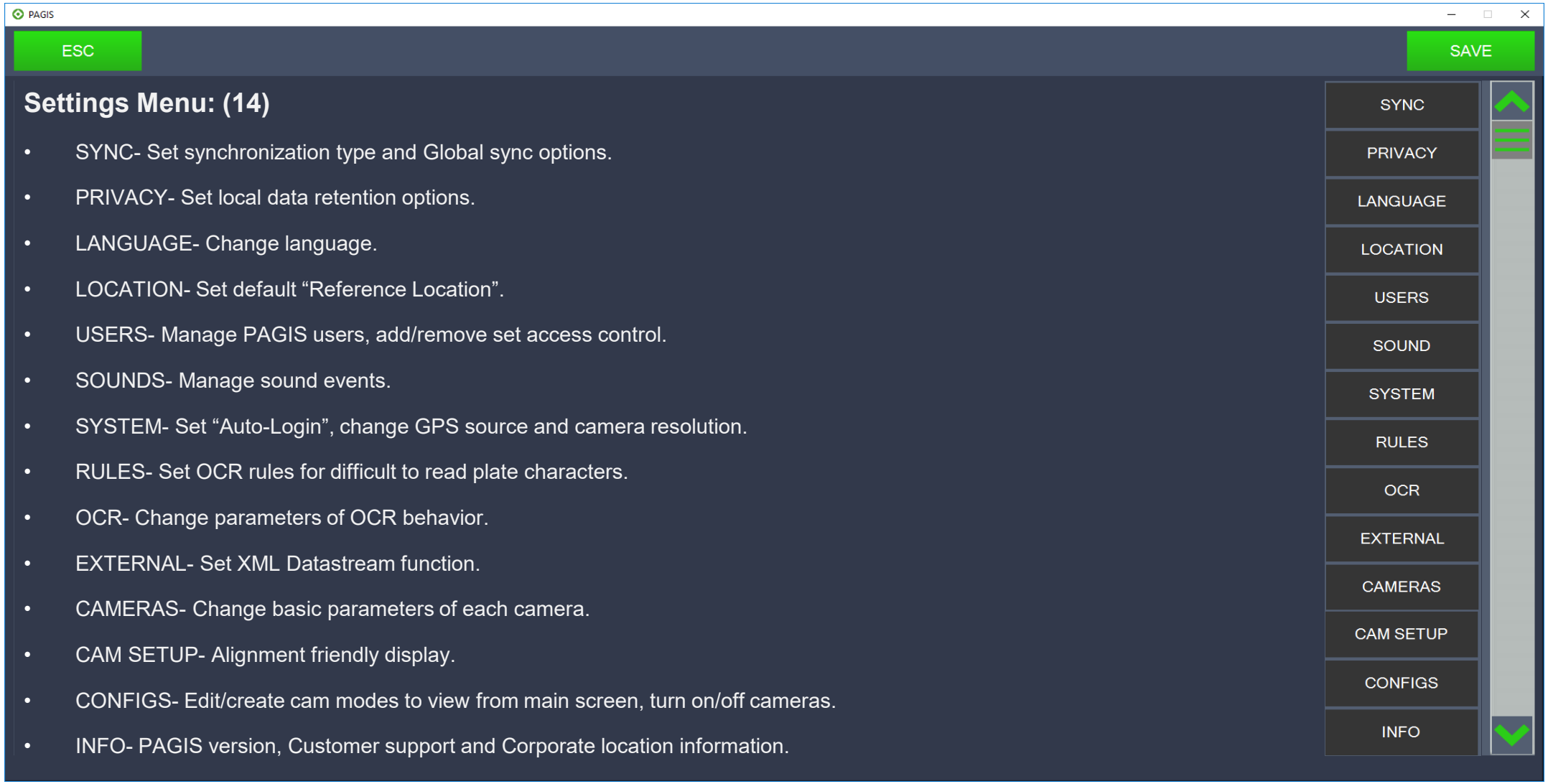
Administration Training

PAGIS Settings

Settings- Section Definitions



Setting button from Main View screen.



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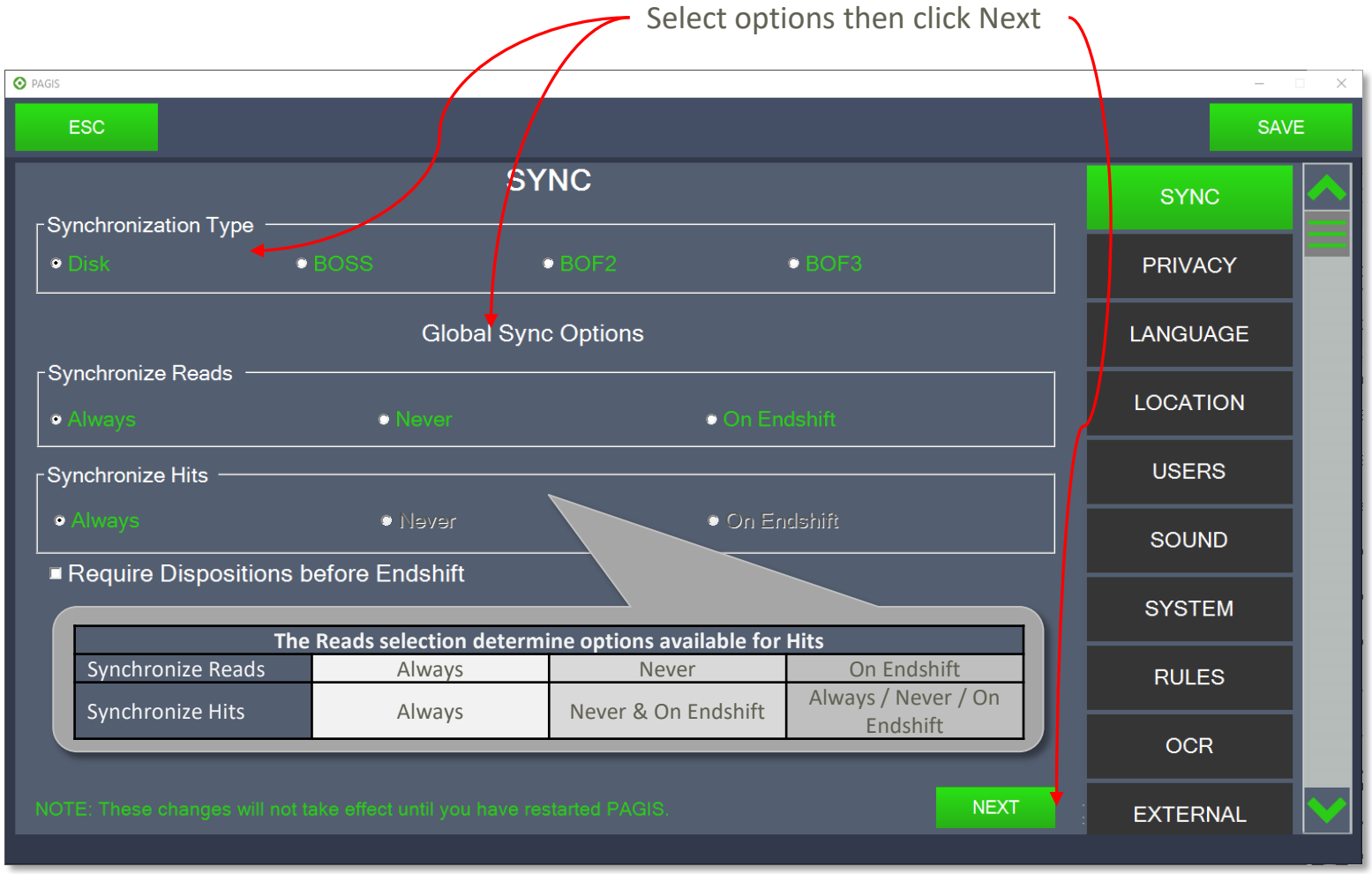
Synchronization

PAGIS Sync Type:

- **Boss-** Configure PAGIS communication to BOSS via TCP/IP. Once established communication to Boss can occur automatically or manually via the Upload/Download features.
- **Disk-** Configure synchronization via USB thumb drive.
- **BOF2,3-** Used for European Boss version (Instation).
- **Next-** Proceeds to next configuration screen based on option selected above.

Global Sync Options: (Synchronize Reads / Hits)

- Selecting "**Always**" means that Reads and Hits are always going to be synced to the Back Office System Software.
- Selecting "**On Endshift**" means that syncing will only occur upon Upload or Sync.
- Selecting "**Never"** means that information gathered in the PAGIS Software will be "Sanitized" during a manual Upload operation, Data WILL NOT be sent to its destination.
- Checking the "Require Dispositions before Endshift" box will require the user to select a disposition for each of the Hits that has occurred before a manual Upload can complete.



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Sync-Disk

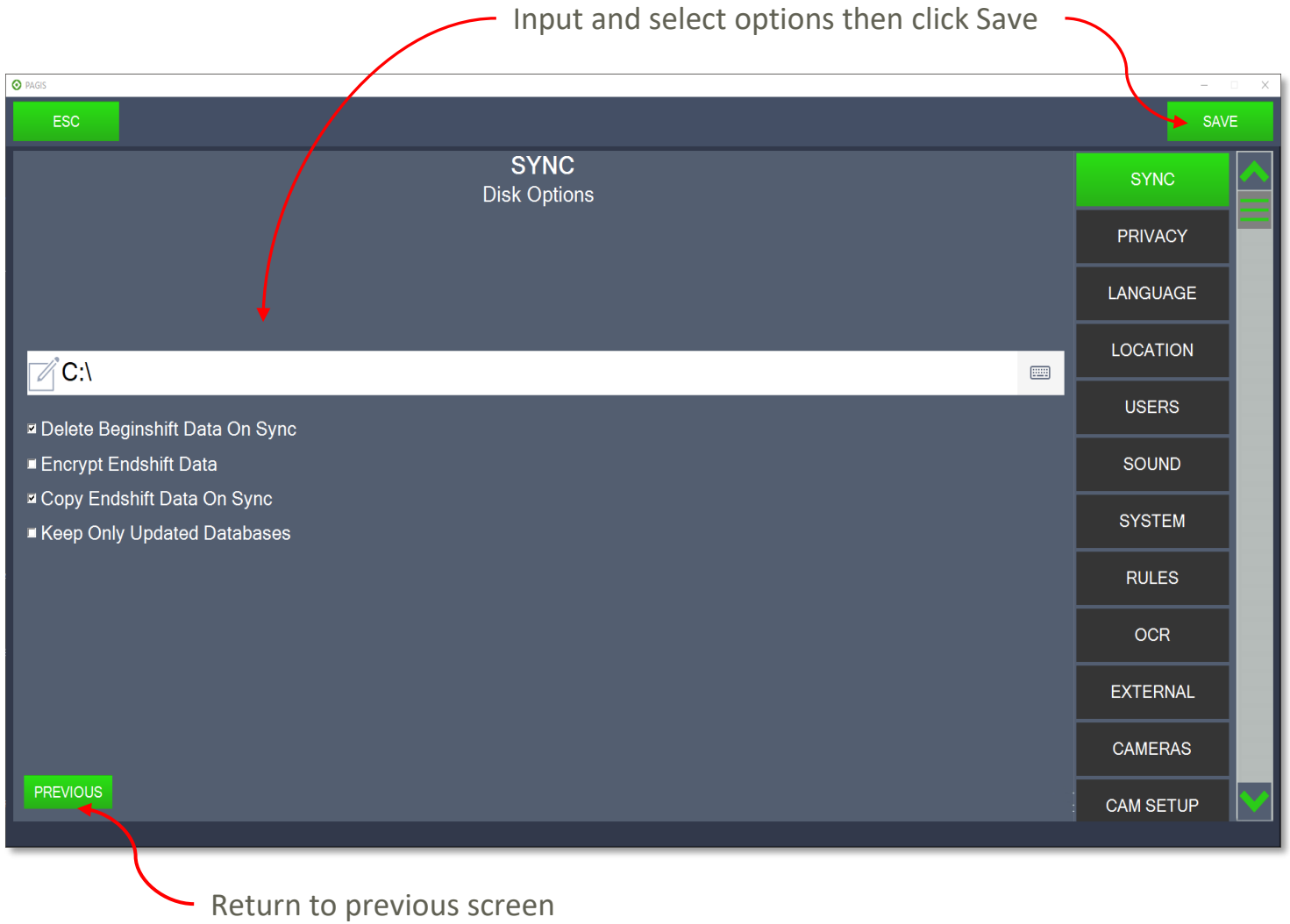
Synchronization to Disk:

If choosing Disk, with the sync folders residing on a USB flash drive, make sure the flash drive assigned to the user has adequate space to accommodate the file size of all the databases that will be imported and exported. Folder sizes vary depending upon the number of entries and the number of databases but typically a 4Gb drive will work for most.

- **Text Field-** Enter the drive letter only, do not use folder paths as PAGIS will automatically manage Begin Shift and End Shift folders creation and deletion.

Disk Sync Options:

- **Delete Begin Shift data on sync-** If this option is selected, the sync folder will be deleted once all of the data has been imported into the PAGIS Software. This option is “on” by default.
- **Encrypt End Shift data-** If this option is selected, the End Shift files created by PAGIS will be encrypted. This option is “off” by default.
- **Copy End Shift data on sync-** If this option is selected, the End Shift folder will be created, and the End Shift files will be stored. This option is “on” by default. If off files will not transfer to drive.
- **Keep only updated databases-** If this option is selected, any databases that were not updated during Begin Shift will be considered outdated and removed. This option is “off” by default.



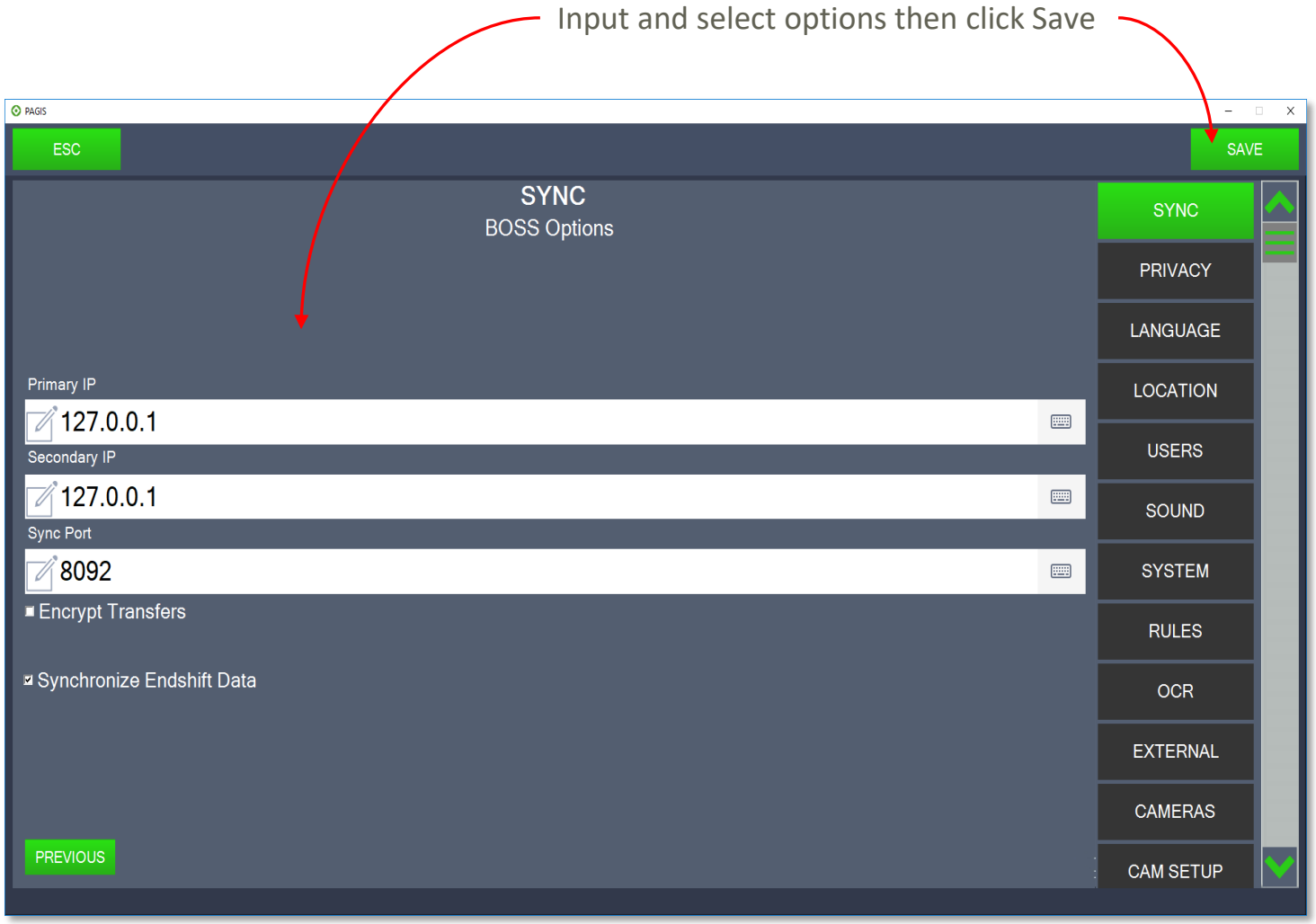
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Sync-Boss

Synchronization to Boss:

If choosing to establish BOSS as the synchronization method, PAGIS must have a network connection to successfully communicate with BOSS. You must also have an IP address of the BOSS server that is reachable via TCP/IP port 8092.

- **Primary IP-** Enter IP or Domain name of Boss server, used for primary network connection. PAGIS utilize TLS-1.0 as its communication security protocol.
- **Secondary IP:** Enter IP or Domain name of Boss server, used for alternate network connection if switching from Cellular to Wifi. Leave default or clear if not utilizing.
- **Sync Port-** Default port is 8092, this port can be customized but you must make sure the Boss “RestAPI” port matches the new custom port.
- **Encrypt Transfers-** If this option is selected, the end shift files created by the PAGIS Software will be encrypted. This option is “off” by default.
- **Synchronize End Shift Data-** When selected all Read/Hit data will be synchronized with Boss during its automatic communications cycle and during manual End Shift.



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Privacy

Privacy settings ensure data compliance and prevents locally storage data from filling up local disk space. These configurable settings control the length of time in days, hours, and minutes that Reads, Hits, Local Alert List and Audit information is to be saved locally.

- **Never-** Privacy Settings disabled.
- **On Startup-** With On Startup selected, each time PAGIS is started, it checks privacy settings and evaluates whether existing information has exceeded the allowable age.

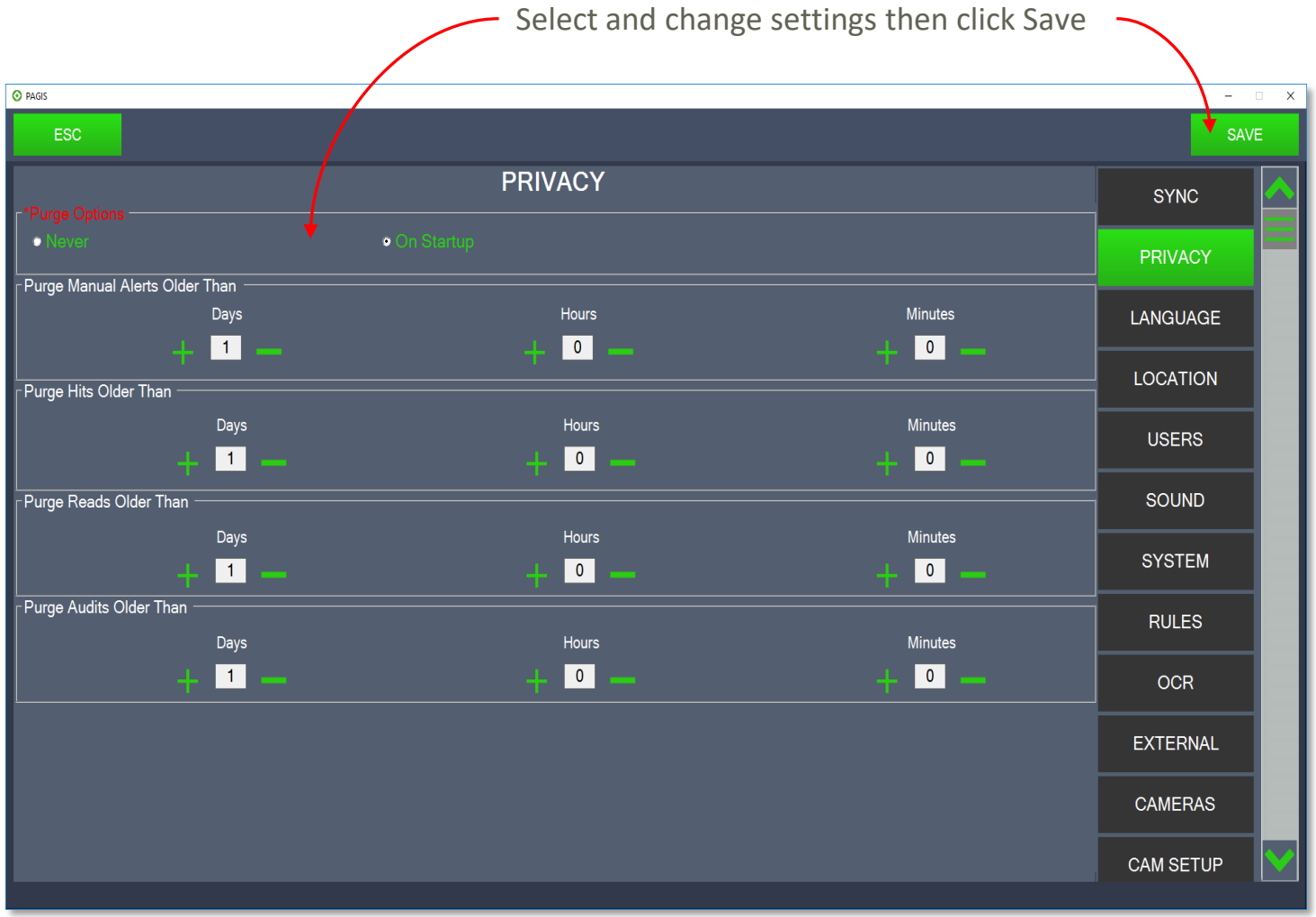
Purge Manual Alerts Older Than:
Control how frequently the Alert List databases stored on PAGIS is purged. Purging occurs when the timestamp on the Alert List exceeds the retain settings. This setting applies to all Alert List, but Alert List deployed to PAGIS by BOSS will be re-synchronized.

Purge Hits Older Than:
Control how frequently the Hits stored in the PAGIS Software are purged. Any Hits exceeding the specified duration will be purged from PAGIS.

Purge Reads Older Than:
Control how frequently the Reads stored in PAGIS are purged. Any Reads exceeding the specified duration will be purged from PAGIS.

Purge Audits Older Than:
Controls how frequently Audits are purged from PAGIS.

If PAGIS Sync is set to BOSS, purging will not apply to data that has been synchronized.

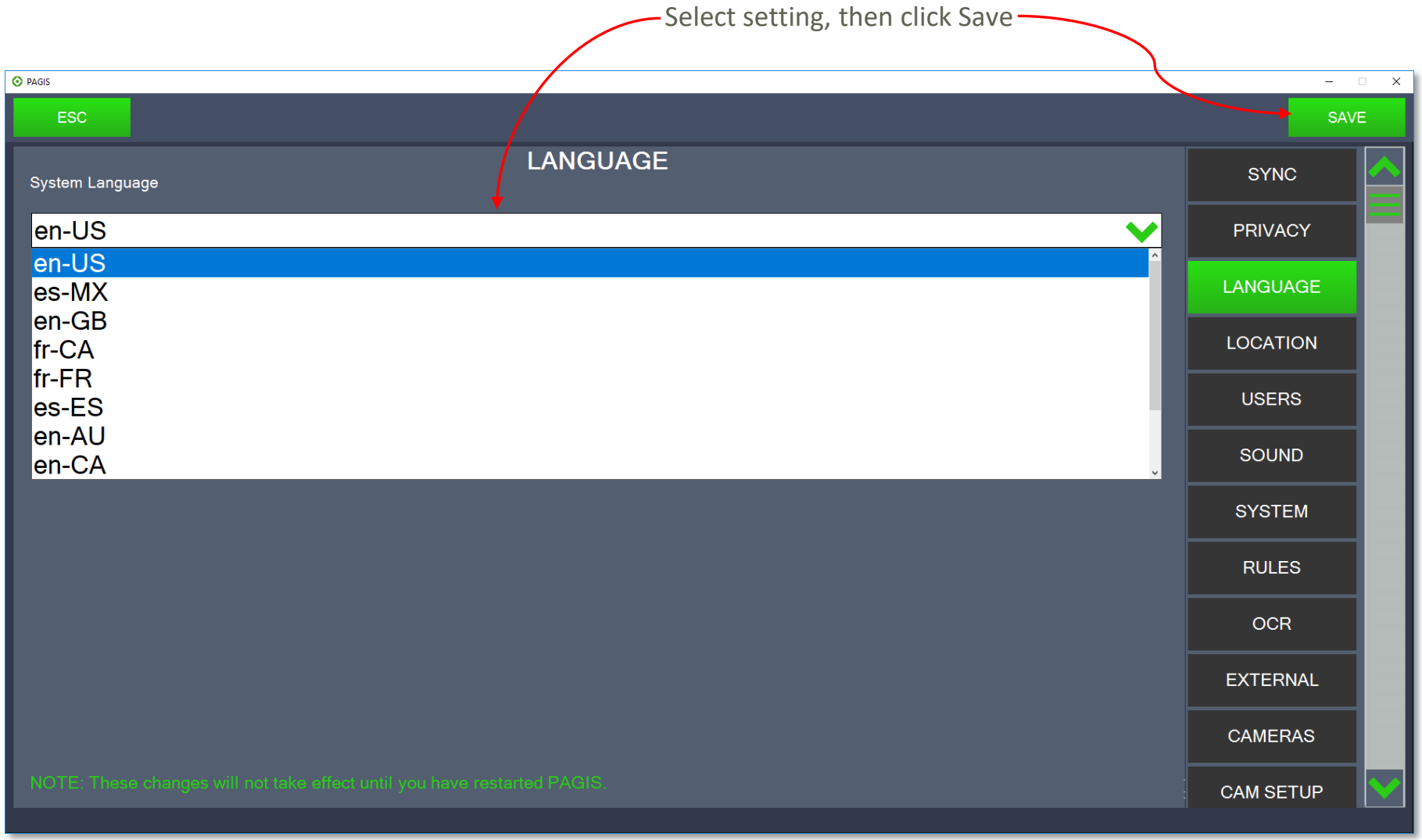


Note: Once Reads and Hits have been sanitized, they can no longer be viewed in PAGIS.

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Language

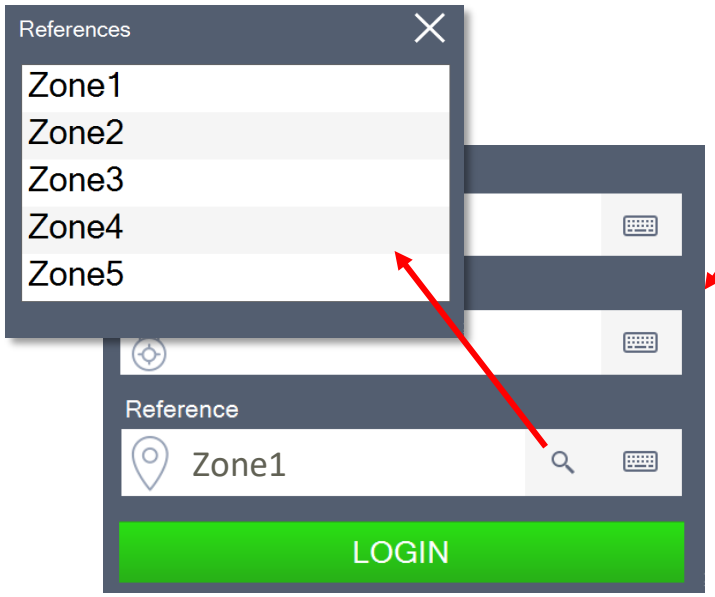
Language- Change the language assignment used in the PAGIS Software. Available languages are listed in the drop-down menu, Change are applied after PAGIS restart.



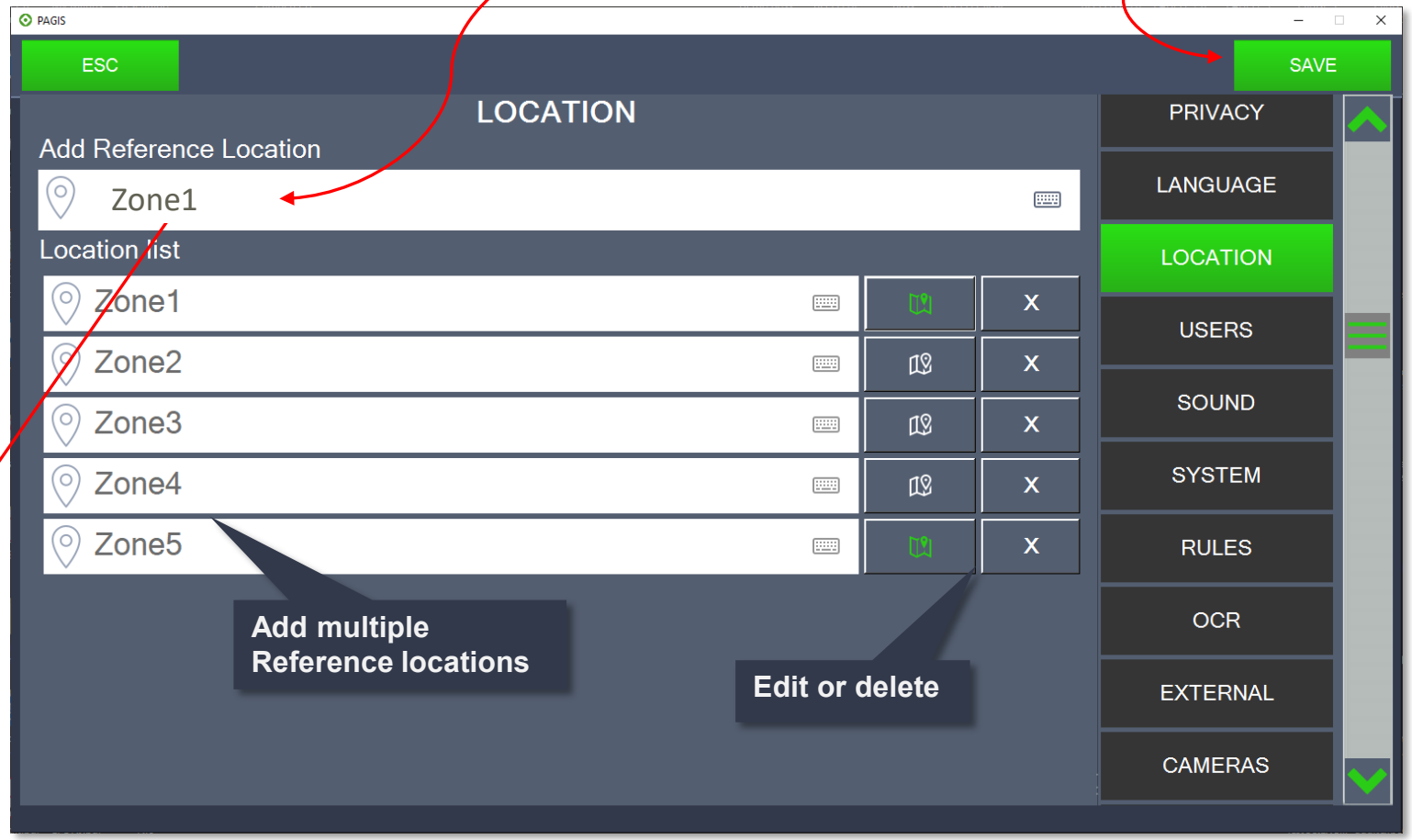
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Reference Location

Reference Location- Any name entered in the reference field is listed as the default system location at the login screen. The location name will be assigned with every Read/Hit capture by PAGIS, this information is not tied to the GPS location.



Reference listed at Login Screen



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Users

IMPORTANT: Adding new users through the PAGIS Software should be limited to those customers who are not syncing to the Back Office System Software as BOSS will override any users added manually during the next sync.

User – Add a new user. The username field will accept up to 15 alphanumeric characters.

Password – Enter a password to associate with the username. The password field will accept up to 15 alphanumeric characters.

Privileges – Select the privileges associated with the user by, active privileges turn green.

- **Sync** – Allows the user to synchronize files.
- **Ext** – Allows the user to import external Alert List.
- **Adm** – Allows the user to access PAGIS Settings.
- **Del** – Remove a user from the list. Click “DEL” (Turn Green”), click “SAVE” to delete.

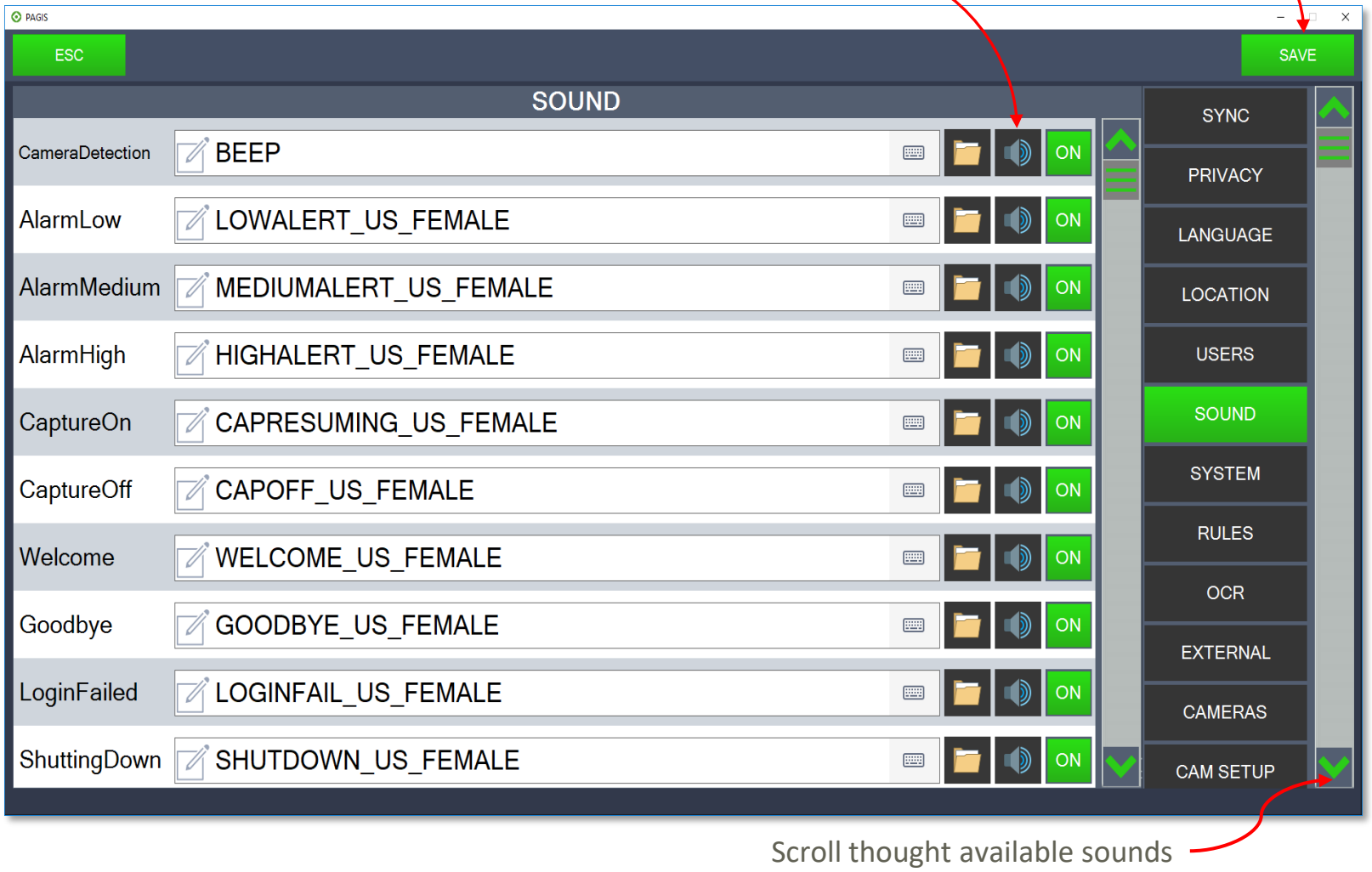


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Sounds

The Sound screen associates available sound files with specific alerts and actions.

- **On or Off-** Sounds are active when the button is On (green) and deactivated when the button is Off (red).
- Choosing sounds is an optional feature. Sounds are preset in the PAGIS Software and may be modified by an Administrator. By default, the PAGIS Software will play a sound to notify the user when an event or "Hit" is triggered. Sound files (.wav file format) are stored in the Sounds folder in the PAGIS Software directory.
- To select new sound files, select  button to open Windows File Explorer.
- All sound changes are Global and apply to all uses in PAGIS.
- Scroll bar thought available options.



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System

The System screen determines configurations for Auto login, GPS connection and custom camera resolution.

- **Auto Login-** This feature enables PAGIS to forgo prompting user to login. This feature is helpful for unattended use such as speed-trailer applications and with “drop and go” deployments.
- *Note: Deployed uses from BOSS must be stopped for Auto Login to work.*

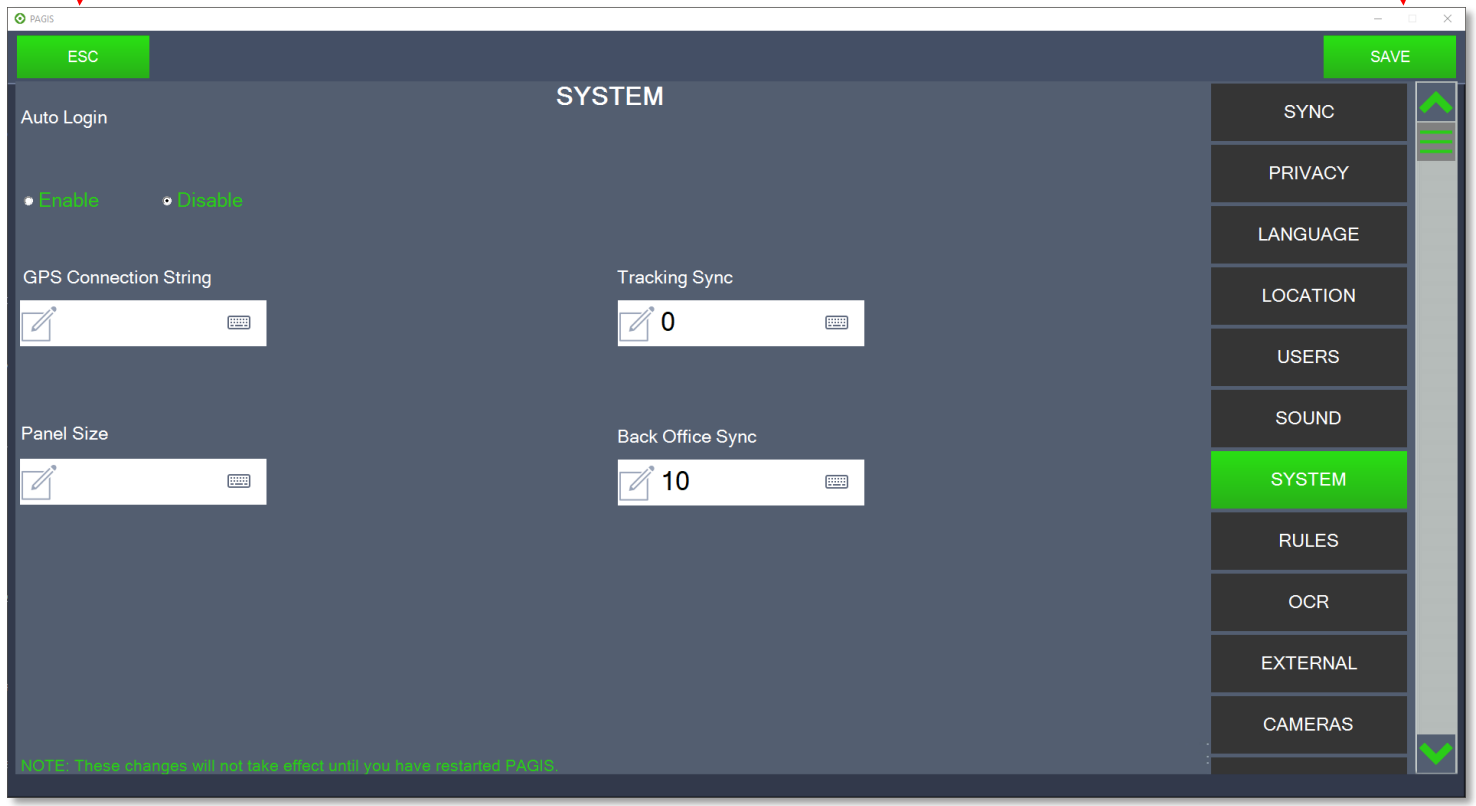
- **GPS Connection String-** The GPS string is utilized to redirect PAGIS to acquire GPS feed from different source. Defaults for PIPS ALPR system are no entry for MDC installed PAGIS and 6 for Standalone version. The GPS connection string defaults to a COM port value, although it may also refer to TCP/IP: Port option if IP is included in the connection string, example (127.0.0.1:8080).

- **Panel Size-** This feature controls the color image resolution PAGIS displays in the camera panels in Main View screen. By default, PAGIS controls the aspect resolution. Custom resolutions may be entered to help with non-standard screen size to fill in the spaces. Value format is Width x Length.

- **Tracking Sync-** Controls the sync intervals in (Sec.) that PAGIS communicates with Boss4 to update tracking status. Default off=Zero, values can range from 1-9999.

- **Back Office Sync-** This setting controls the sync timing that PAGIS sends data back to BOSS3/BOSS4, Timing is in (Sec.), default is 10sec, values can range from 0-9999.

Click Save to apply changes or Esc to return to the previous screen and cancel any modifications.
Restart PAGIS Software to activate any changes.



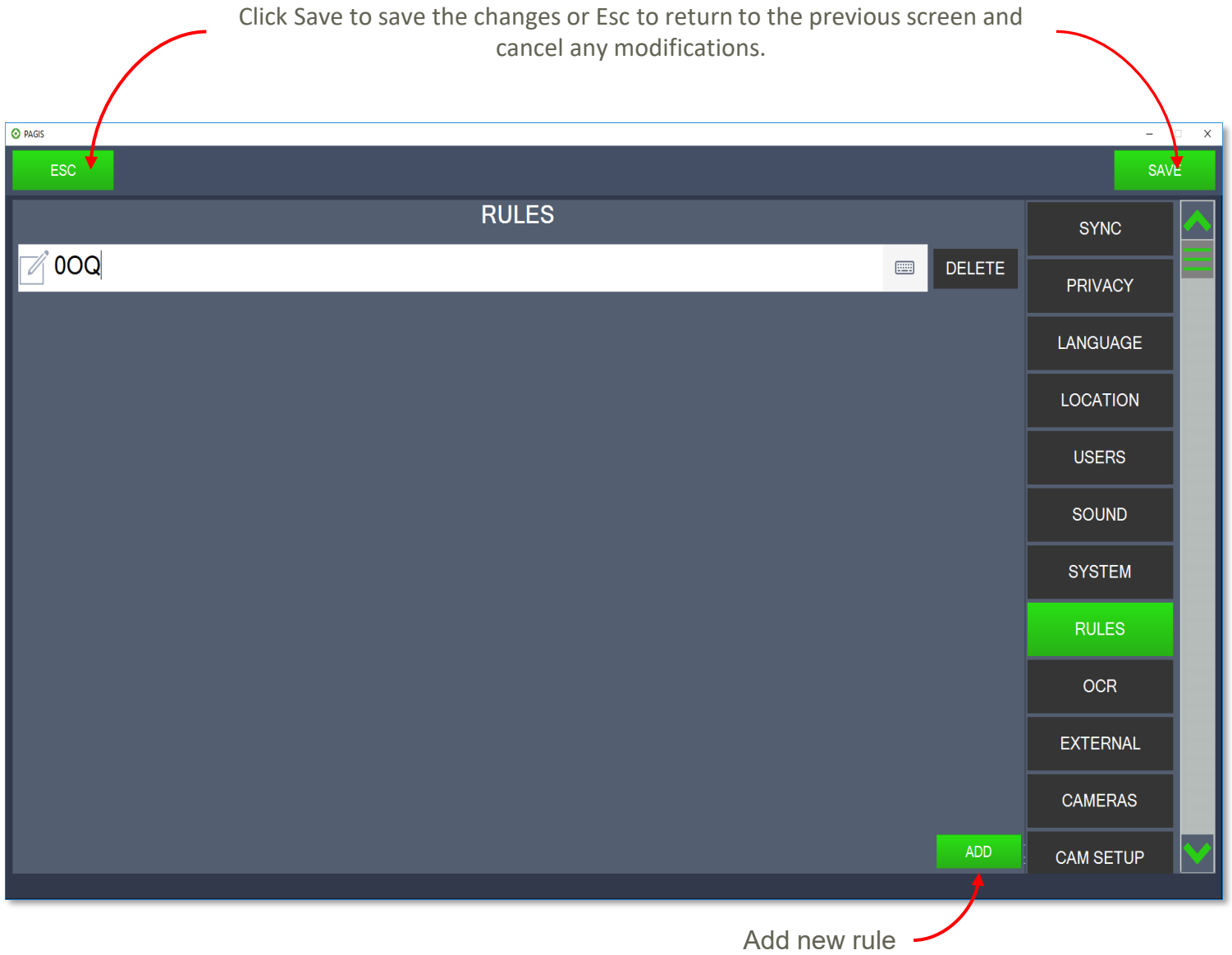
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Rules

Rules provide a way to check for commonly misread character by creating a set of rules for checking against available Alert List. For instance, “8” and “B” are sometimes mistaken. If the OCR engine reports a plate as ABC123, you might want PAGIS to check both ABC123 and A8C123 against all Alert List to find a match. While PAGIS is less likely to miss a Hit, the process can also produce more false Hits.

Add a new Rule:

- **Add-** Click Add and enter a single character instance (the letter “O,” for example), and enter a list of similar characters (letter “O”, number “0”, and letter “Q” in this example).
- With this rule defined, anytime the system Reads an “O”, it will run the query for matching purposes as “O”, “0”, and “Q”.
- **Delete-** Click and highlight the “Delete” button then save to delete a rule.
- **Save-** Click to save changes.



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OCR

Click Save to save the changes or Esc to return to the previous screen and cancel any modifications.



The OCR screen is used to enable inverse and square plate Reads, to disable duplicate plate Reads and control image output. Each check box toggles the options: if a check mark appears, the option is active. If the box is empty, the option is disabled.

JPEG Images- Use compressed .jpg images instead of full-resolution bitmaps. On by default. When this feature is activated, it minimizes storage requirements for collected data.

Inverse Plates- This feature can be useful for plates with a dark background and light lettering. Off by default. This option increases the processing load and therefore should remain disabled until it is needed due to the region.

Square Plates- Adjusts the Read area for plates that are square instead of rectangular. Off by default.

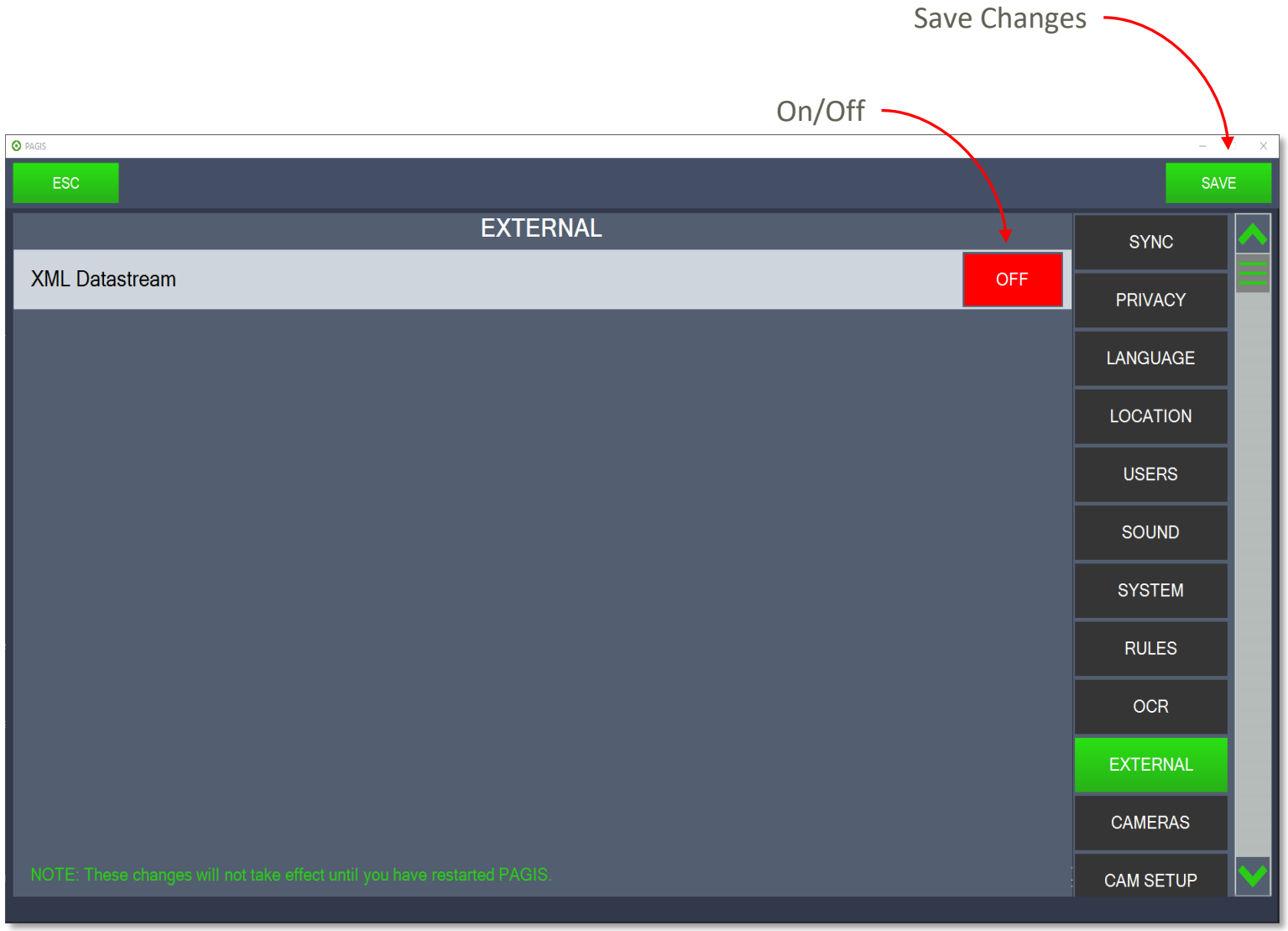
Disable Duplicate Read- Turns off duplicate Reads. If the same plate is Read by more than one camera within a short time frame (4Sec), the duplicate is ignored. This minimizes storage requirements for the collected data and improves system metrics related to the number of Reads, on by default.

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External

The PAGIS datastream can be used to Read current data from a running PAGIS system. The data available via the datastream includes Reads, Hits and images. The connection to the datastream is TCP/IP (default port: 10100). Metadata is passed in real time and images are pushed periodically.

- To make this connection, click the red OFF button to change it to a green On button and then press Save. Any changes made on this screen will take place after the PAGIS Software is restarted.
- PAGIS Manual has detailed connection protocol and XML header format information.



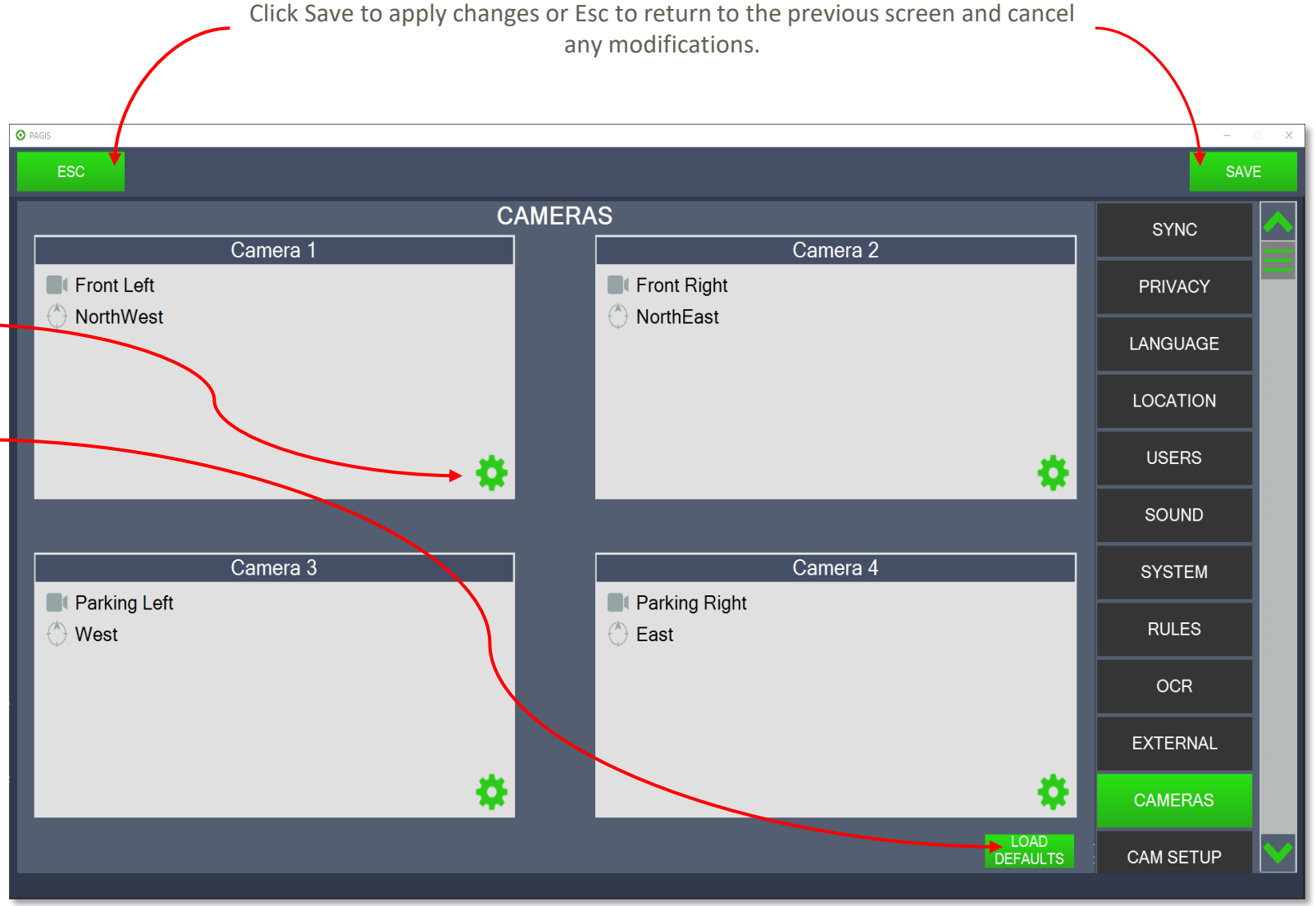
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Cameras

The Camera setting panels are a software representation of the physical camera ports located on the mobile processor. Each camera panel has its own unique settings that can be altered to accommodate custom application.

- **Camera Settings-** Edit camera name, location reference symbol, mobile device type, video capture path and OCR utilization.
- **Load Defaults-** Loading a default setting provides a baseline configuration reset and is based upon a standard four- camera system. Choosing default removes all existing Camera & Configs settings and resets them to factory default.

Pro Tip- When entering the “Cameras” settings PAGIS will initialize a confirmation check with the mobile process for existence. If the connection check fails PAGIS will report a “Could not connect to remote host!” message then proceed to load camera setting panels with no values, if this occurs double check and make sure all communication requirements are meet for PAGIS and mobile processor.



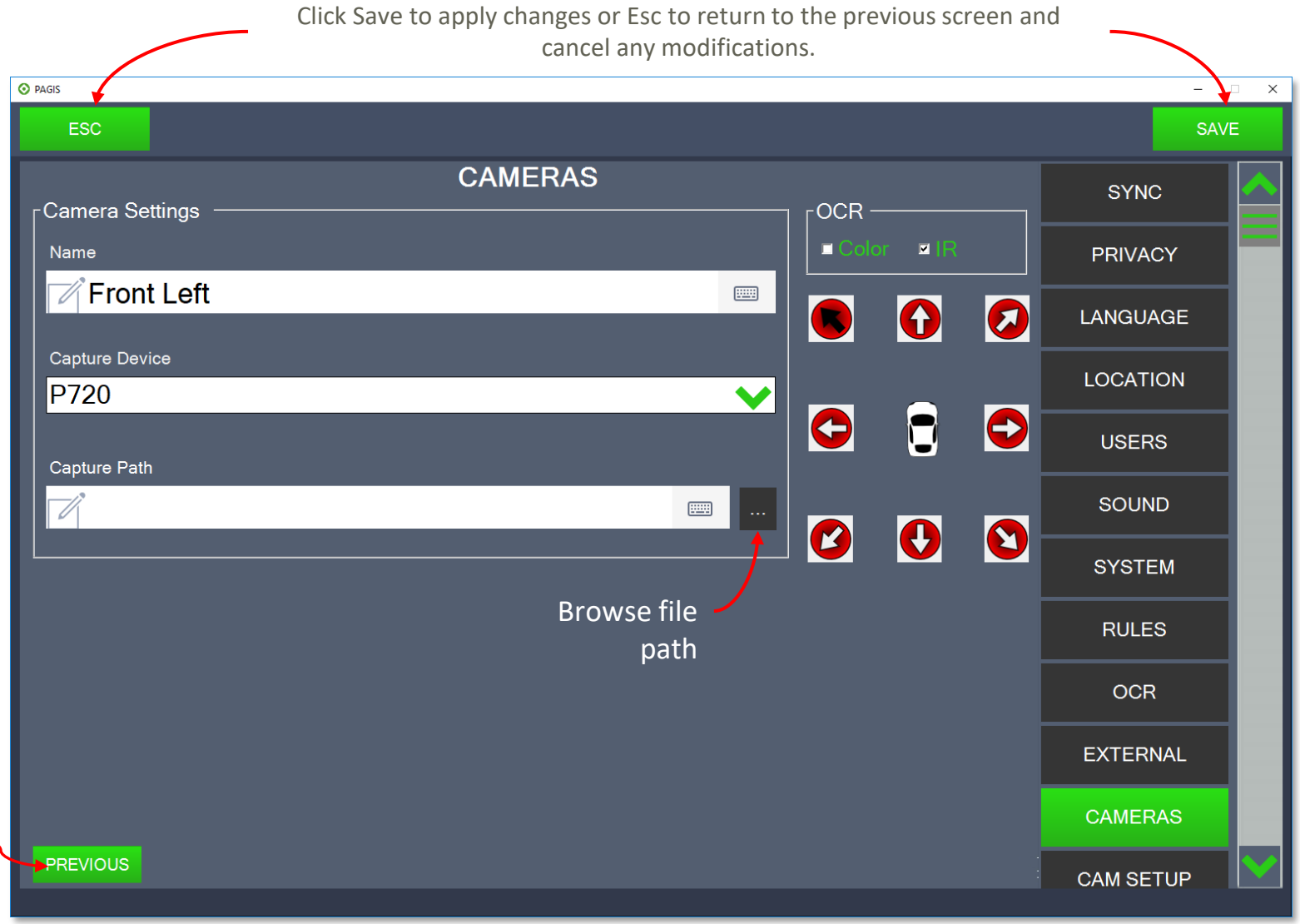
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Cameras Settings

Edit Camera Settings

Change the below setting as needed, PIPS camera setting are pre-loaded and typically do not need alterations.

- **Name-** The Camera Name field accepts 50 characters, but PAGIS will only display 11 characters on the Main View screen.
- **Capture Device-** The connected mobile processor delivers the device type to PAGIS when entering the “Camera” settings section, options are P720 for SX4e and P442 for SX4 models.
- **Capture Path-** Configure PAGIS to aspect video feed from video file, AVI files only.
- **OCR-** Active OCR for Color or IR or both.
- **Camera Position-** Symbol indicator for alert screen to indicated camera placement direction.



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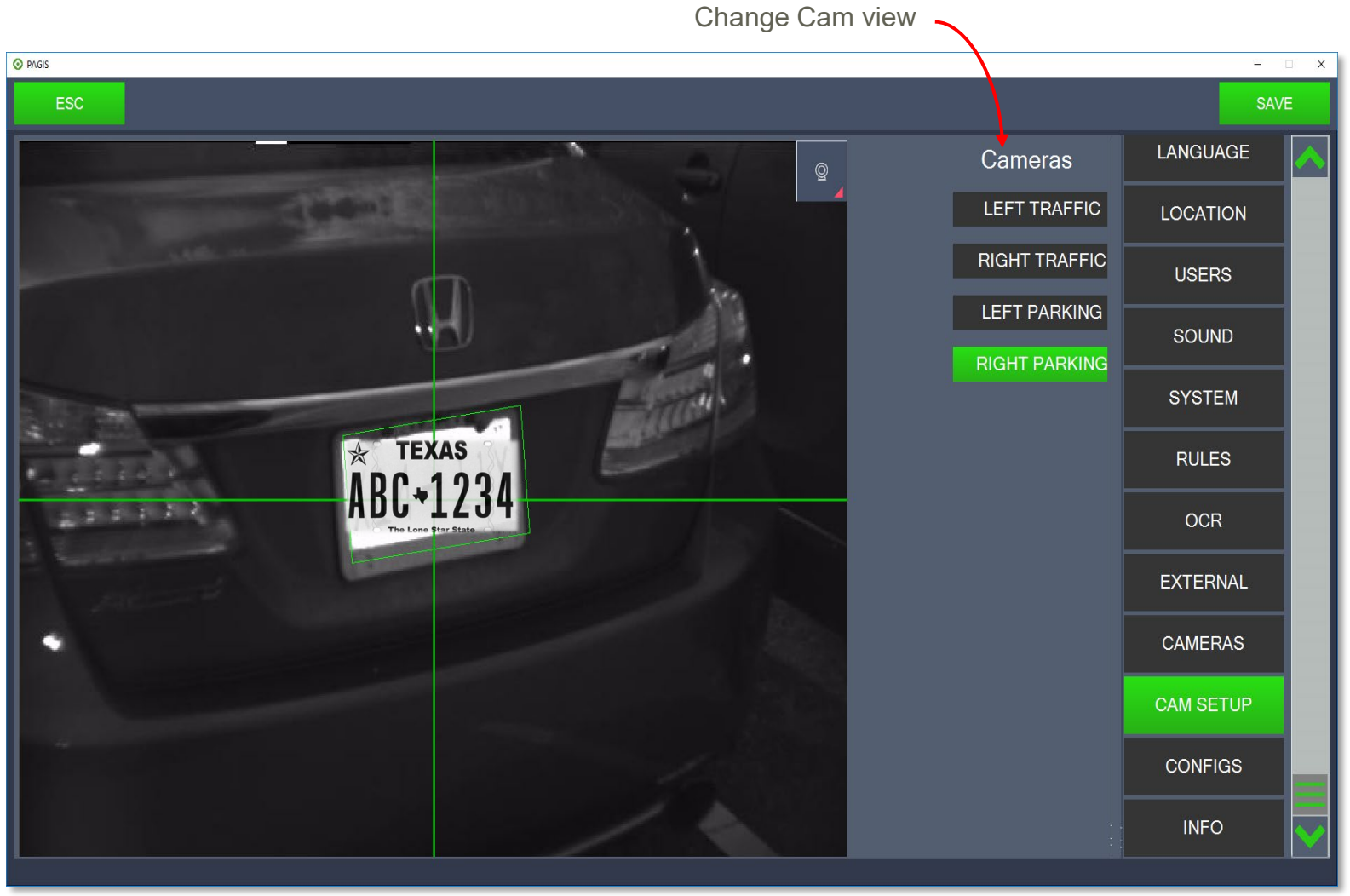
Cam Setup

The Cam Setup Screen presents Administrators with a live preview of the configured cameras. This section also allows for switching view modes from Color to IR to ensure the system is functioning properly and to assist in camera alignment.

Cam Setup Features:

- **Alignment Grid-** The alignment grid provide a basis for camera alignment based on placement.
- **Color View-** The Color View Mode is the default view when entering Cam Setup. This displays a live preview of the color camera video feed.
- **IR View-** By clicking on the Camera View Selector button, this will switch to the Infrared (IR) View Mode. This displays a live preview of the IR camera video feed.

NOTE: Typically, the IR camera is performing the plate analyses for capture. It is recommended to align the cameras using the IR video feed.



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Configs

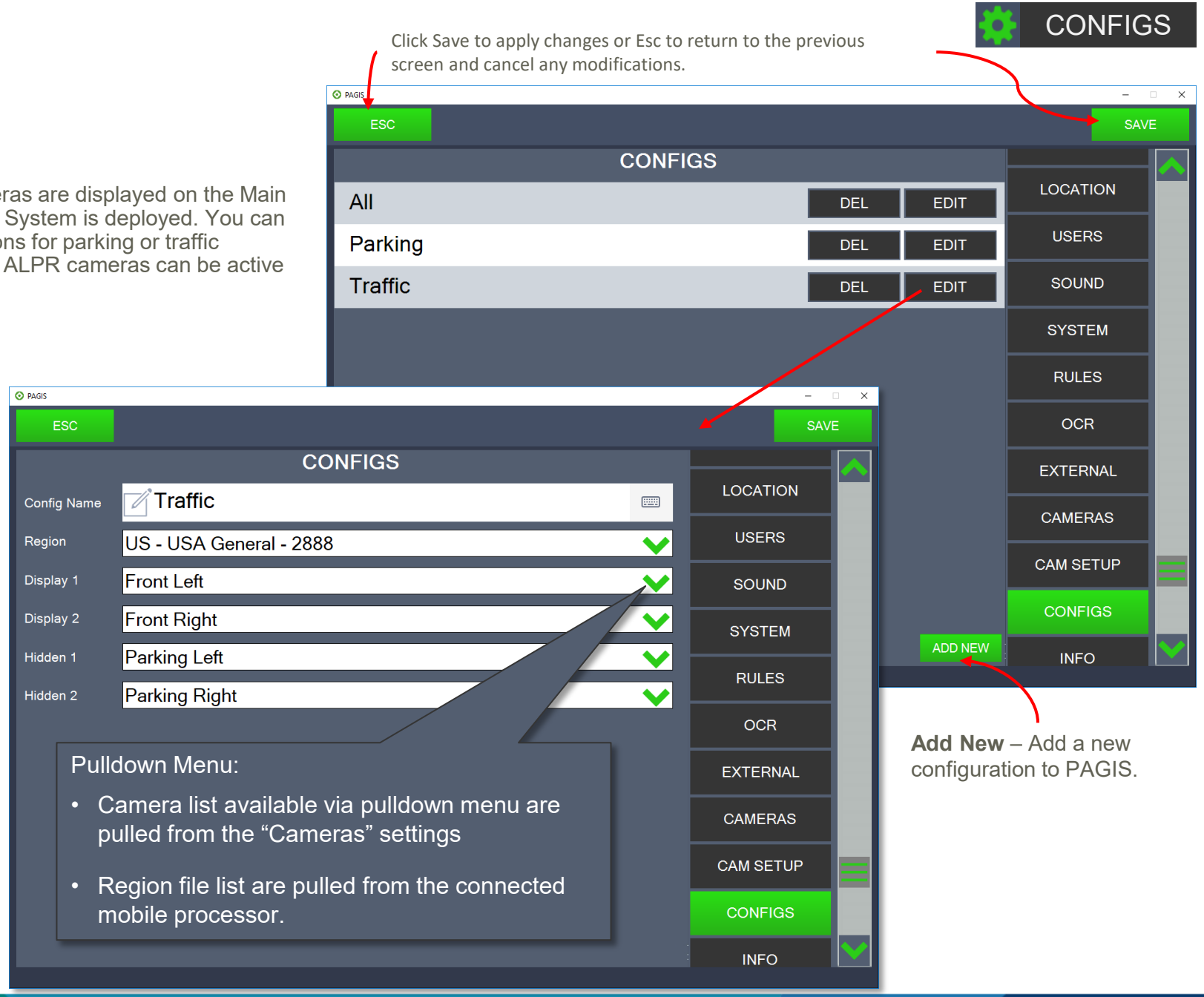
The Configs screen allows you to define how the configured cameras are displayed on the Main View screen and to set the region of the country where the Mobile System is deployed. You can also use the Configs screen to set up multiple camera configurations for parking or traffic monitoring to replicate a particular driving environment. Up to four ALPR cameras can be active in each mode.

Config buttons:

- **Del** – Removes the current configuration from the PAGIS Software.
- **Edit** – Opens the Edit Configs screen where you can modify settings for the selected configuration, including selecting a region and selecting which cameras to display or hide.

Configs Settings:

- **Config Name-** The name of the configuration mode.
- **Region-** Select region file to be used, these are preloaded at time of purchase. This setting must be applied on first setup or cameras will not capture data.
- **Display 1-** This camera is always displayed on the left-hand side of the Main View screen.
- **Display 2-** This camera is always displayed on the right-hand side of the Main View screen.
- **Hidden 1 and 2-** When populated, these cameras are functioning and performing OCR, but the images are not visible to the user. Hits and Reads will still be generated by these cameras and alert still notify users.



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INFO

PAGIS Information:

- PAGIS version and ORC engine versions.
- Technical Support email address.
- Neology offices and phone numbers.

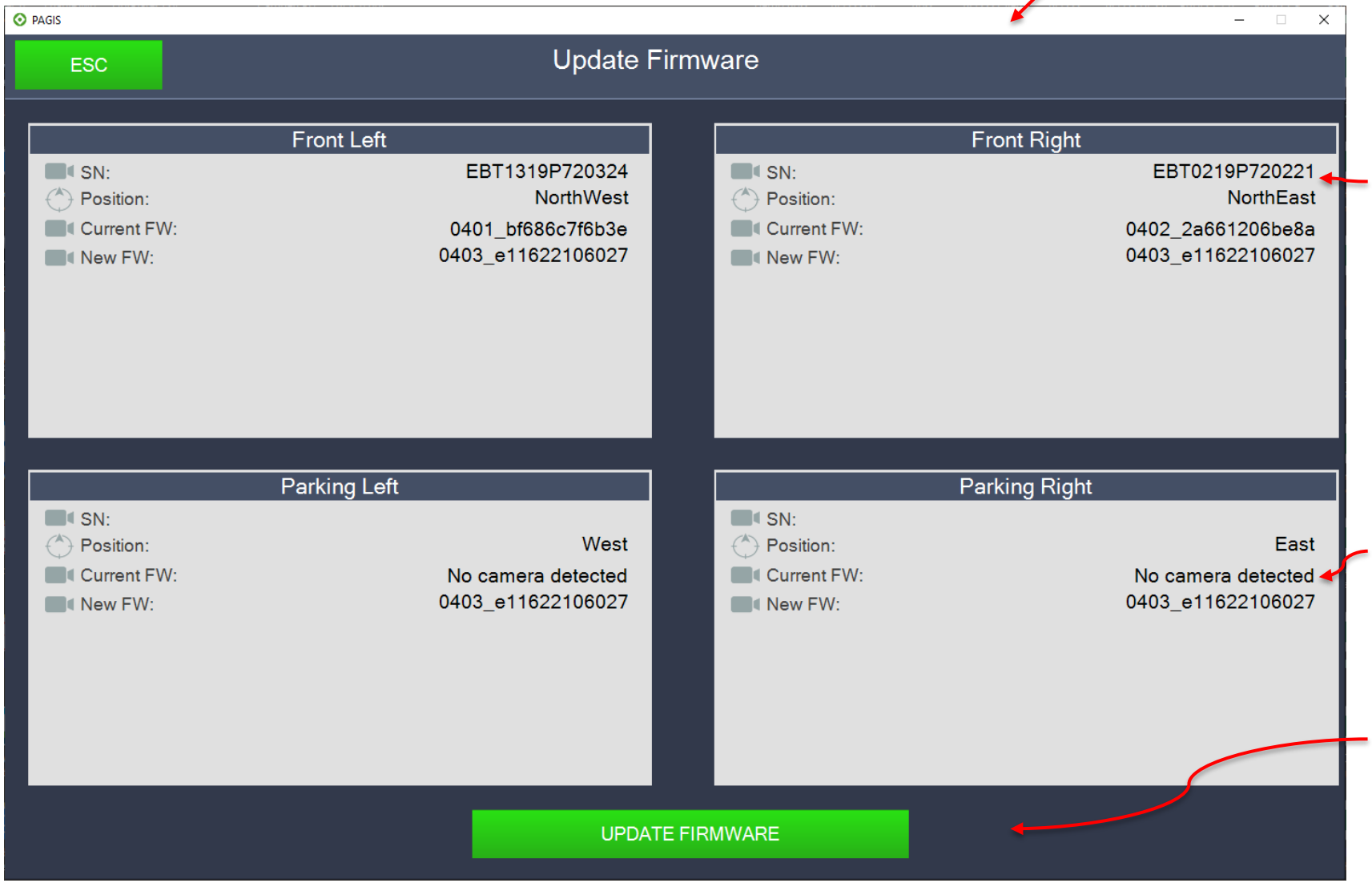


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Camera Firmware Update

(Admin Users)





Camera firmware updates provides a means for PIPS to update the camera software to enhance and or correct camera performance.

Firmware Updater Window List.

- Camera serial number.
- Position.
- Current FW version,
- New FW version available.

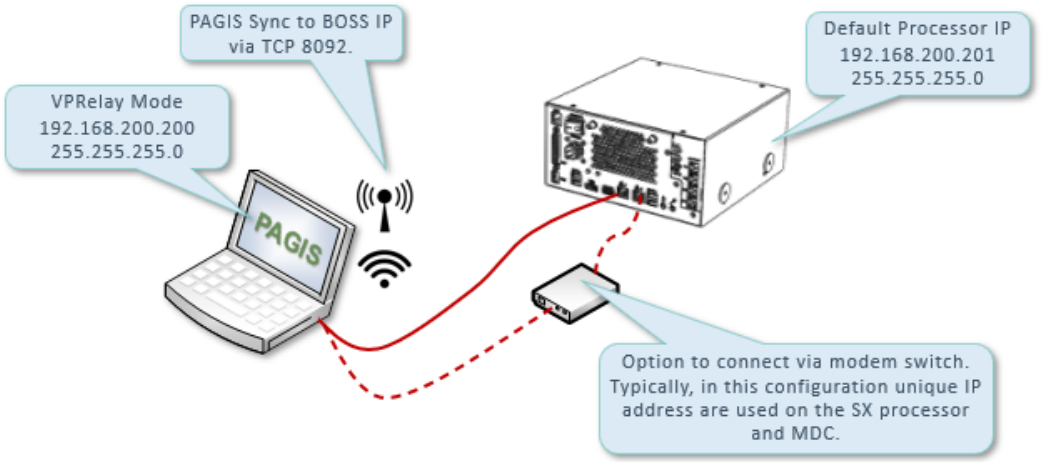
The firmware update process only updates camera that are attached and function on the mobile processor.

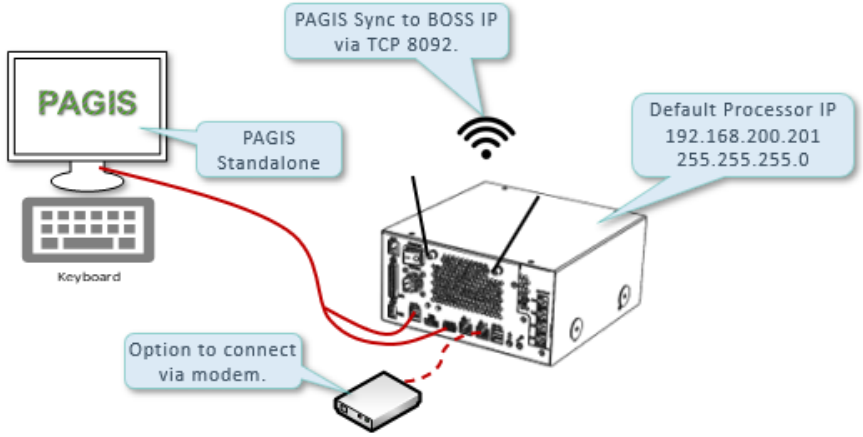
Administrator must log into PAGIS and apply the FW update. The update process takes around 4min and can not be interrupted or risk permanently damaging the cameras.

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PAGIS

Operation Mode Requirements Installation



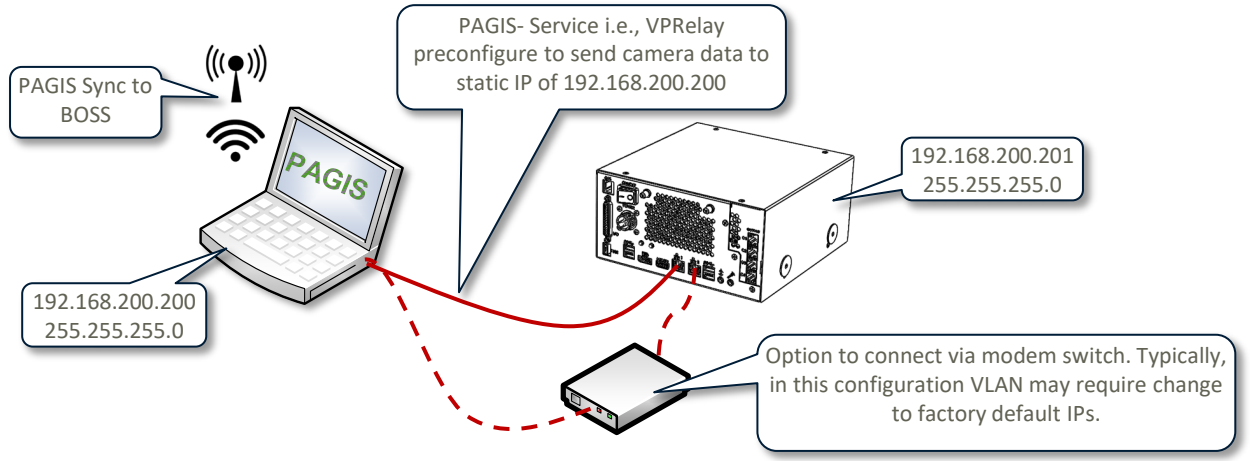


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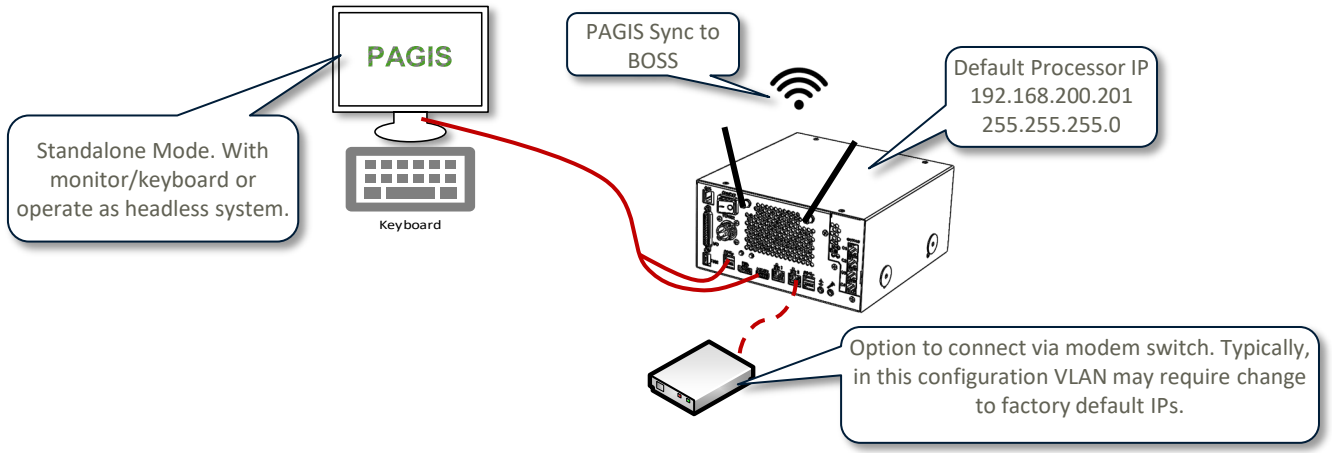
PAGIS Operation

PAGIS Operation Modes
The Neology ALPR Mobile SX Processor can be configured in two distinct ways.

Client/Server (VPRelay) Mode
The Client/Server configuration consists of a Mobile ALPR Processor, up to four ALPR cameras with mounting brackets, and a network connection to a Mobile Data Computer (MDC)/laptop in the front of the vehicle. The ALPR processor collects images and data for license plate recognition and relays it to the MDC over a static network connection. The primary advantage of the Client/Server configuration is that it allows a user to be notified of “alerts” while operating the vehicle. This is done through mobile ALPR software called “PAGIS” running on the laptop/MDC and displaying the ALPR data inside the vehicle.



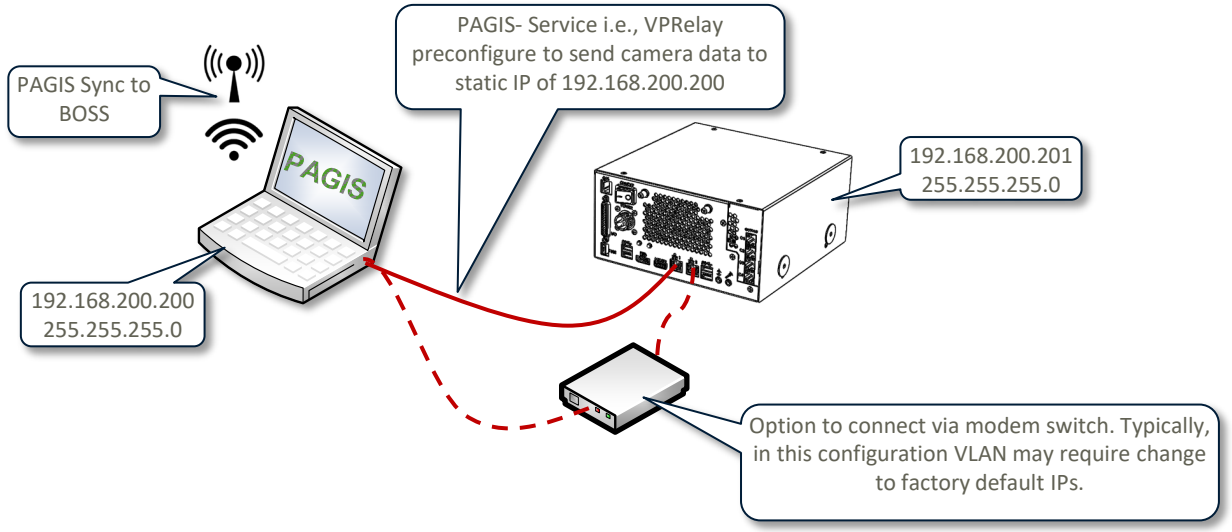
Stand-Alone Mode
The Stand-Alone configuration consists of a Mobile ALPR Processor, up to four mounted ALPR cameras, and a touchscreen monitor. The self-contained system performs all plate recognition and runs its own copy of the PAGIS software. The primary advantage of the Stand-Alone configuration is its deployment flexibility as it does not require the agency to own and maintain MDCs/laptops. Some utilization examples are speed trailers, parked covert vehicles, or in manned patrol units (when equipped with touchscreen monitors and a hotspot/cellular data network).



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PAGIS Prerequisites

Mobile Data Computer (MDC)



PAGIS System Requirements

The PAGIS Software requires the following minimum system requirements for the mobile data computer:

- Intel I3 CPU at 2.0 GHz or higher.
- Windows Operating System (Win7-Win10).
- Microsoft .NET Framework 3.5.
- 8 GB of RAM.
- At least 1 GB of free disk space.
- SVGA display with a minimum resolution of 800 x 600 pixels.
- Available 10/100 Ethernet port.
- Keyboard and mouse, or a touch screen monitor.
- Internet access needed for mapping and Firmware update.

PAGIS Prerequisites

Prerequisites:

1. Ability to install software.
2. Ability to configure the network adapter.
3. PAGIS 2.12 and above are only compatible with SX4 and SX4e Processors.

Network Adapter Settings (MDC):

Neology's mobile processor operates based on a static IP and is preassigned the IP address of 192.168.200.201. When connecting laptop/MDC to the mobile processor your computer must adopt 192.168.200.200 for the MDC installed PAGIS to connect to the mobile processor and receive data from the ALPR cameras. Below are the steps to configure your computer.

1. Navigate to Adapter Options in Windows and right click on the adapter and select properties.
2. Click to select IPv4 and click Properties
3. Click the radio button “Use the following IP Address” to set the Static IP address.
4. Enter 192.168.200.200 in “IP address” section.
5. Enter 255.255.255.0 in “Subnet mask” section.
6. Either leave the “Default gateway” blank or enter 192.168.200.201.
7. Click OK to save changes.

NOTE: The Mobile processor is pre-configured to relay its camera data connection to the .200 IP address, using alternative IPs on Laptops will result in the software’s failure to communicate with the cameras unless further change are made on the mobile processor, see PAGIS manual.

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PAGIS Installation

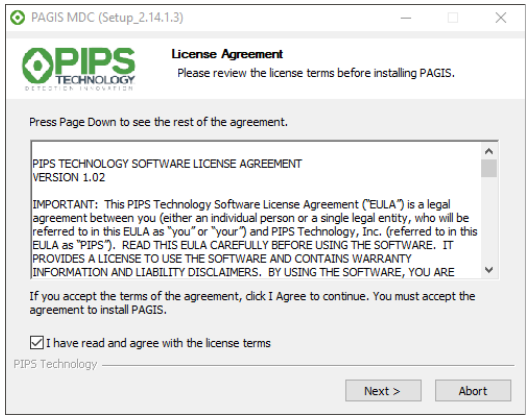
Mobile Data Computer (MDC)



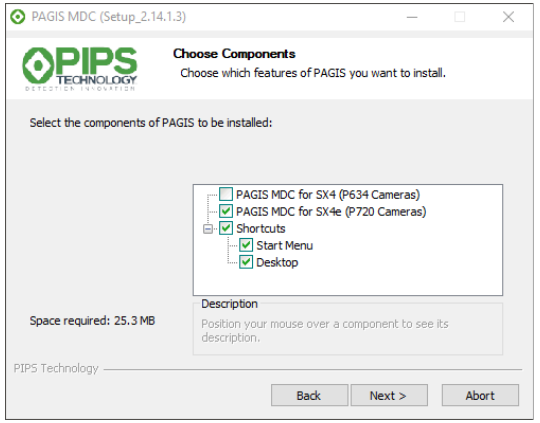
4. Place the PAGIS installer on your computer's desktop, "PAGIS_Setup_MDC_2.14.x.x.exe".
5. Right click the PAGIS installer executable and select "Run as administrator".

PAGIS Software Installation (MDC)

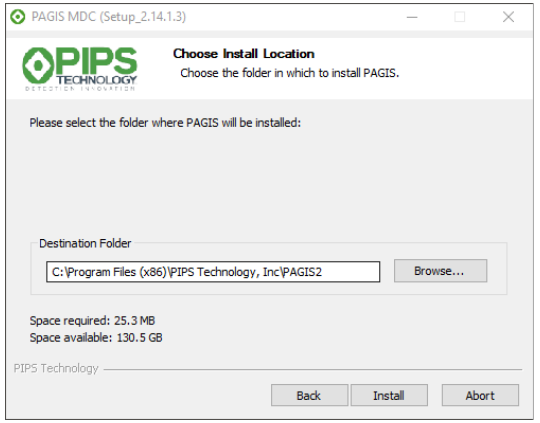
1. If PAGIS exist on your computer, it must be version 2.9 or 2.12 for installer to update. If your version of PAGIS is older it is recommended you "EndShift" any existing data, then uninstall PAGIS.
2. It is recommended you "EndShift" any existing data if upgrading a previous version of PAGIS.
3. Prior to software installation, take the time to figure out what version of PIPS mobile processor you have as the software installation requires you to select so it can properly configure the camera settings based on processor type. PAGIS version 2.14 supports processor versions SX4 & SX4e only, you can either look at the product tag located on the processor or look at the camera IO ports on the back of the processor, if the 4 camera IO ports are vertically arranged RJ45's then it's a SX4e, if they are vertically arranged circular shaped "LEMO" connectors then it's a SX4. Horizonal arranged circular shaped "LEMO" connectors are SX3 and is not compatible with PAGIS 2.14.



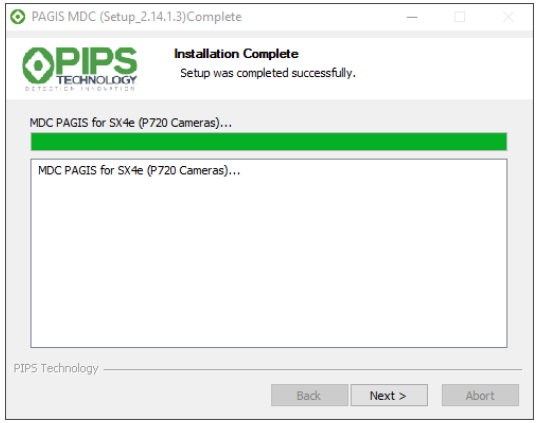
6. Check the license agreement box, then click Next.



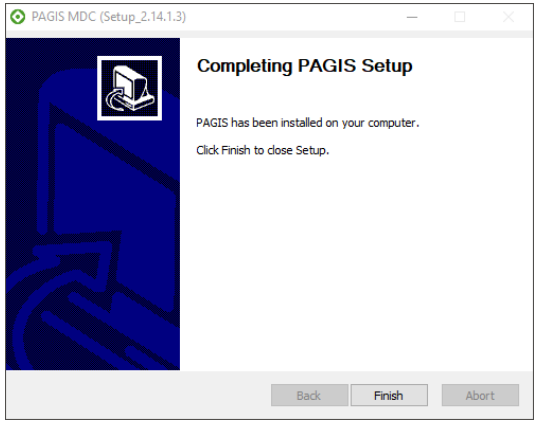
7. Select the mobile processor type and alter "Shortcuts" if needed. Next to continue.



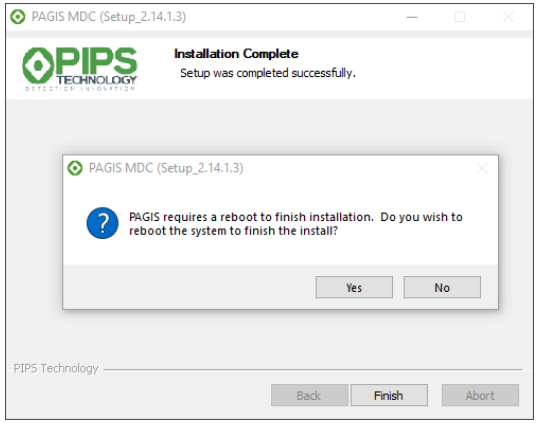
8. Confirm path if upgrading, click Install to proceed.



9. Installation Compete, Next to proceed.



10. Click Finish.

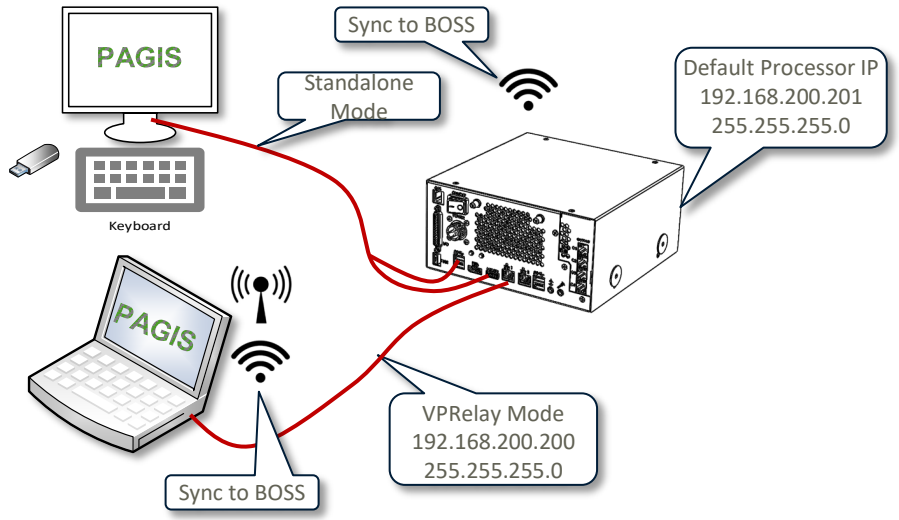


11. Click Yes to reboot if you would like to test PAGIS auto start at login if selected during installation, otherwise click No as its not required for PAGIS to run.

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PAGIS Updater

Mobile Processor, SX4 & SX4e

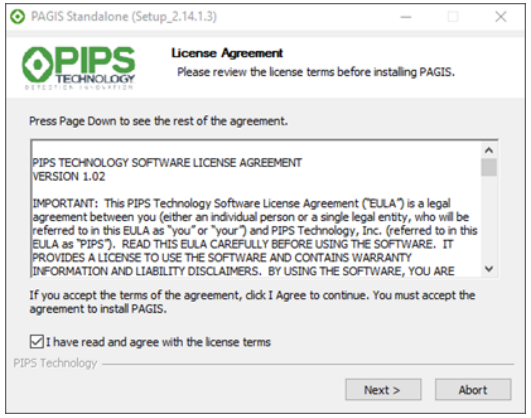


PAGIS Software updater (Mobile Processor)

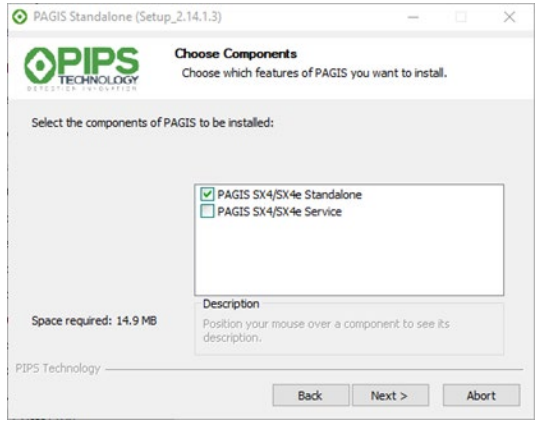
- PAGIS v2.14.x.x updater is only compatible with PIPS mobile processors SX4 & SX4e.
- The PAGIS updater only updates existing versions of PAGIS that reside on the mobile processor, version 2.9 and newer.
- Update required for both “Standalone” & “VPRelay” to support some of the newer features.
- The processor must be in its respective mode to update that option as the folder paths are hidden when not active, see “Change Mode” in SX4 or SX4e manual.



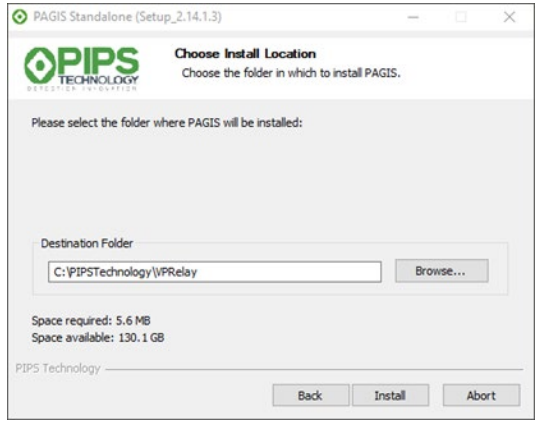
1. Remote desktop into processor or utilize attached monitor/keyboards with USB drive.
2. Place the updater in C:\PIPSTechnology folder on the PIPS mobile processor.
3. Execute PAGIS Updater.



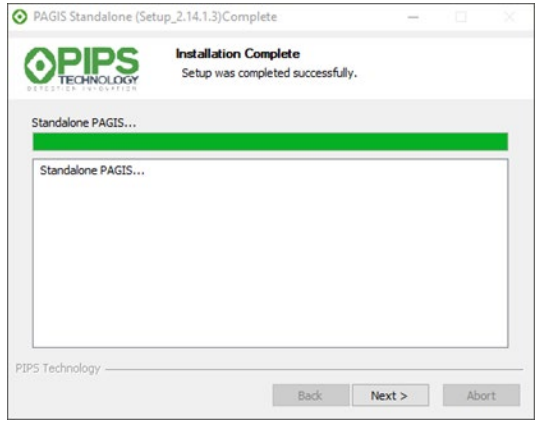
4. Check the license agreement box, then click Next.



5. Select option to update, next to continue.
- Standalone= PAGIS login from Processor.
- Service= PAGIS login from Laptop..



6. Change the default path presented by updater, see below.
- For “Service” C:\PIPSTechnology\VPRelay
- For “Standalone” C:\PIPSTechnology\Standalone



7. Installation Compete, Next to proceed.
8. Click Finish.
9. Click Yes to reboot.

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Thank you

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PAGIS User & Administrator Training

Police ALPR Graphical Interface Software

PAGIS Ver. 2.15

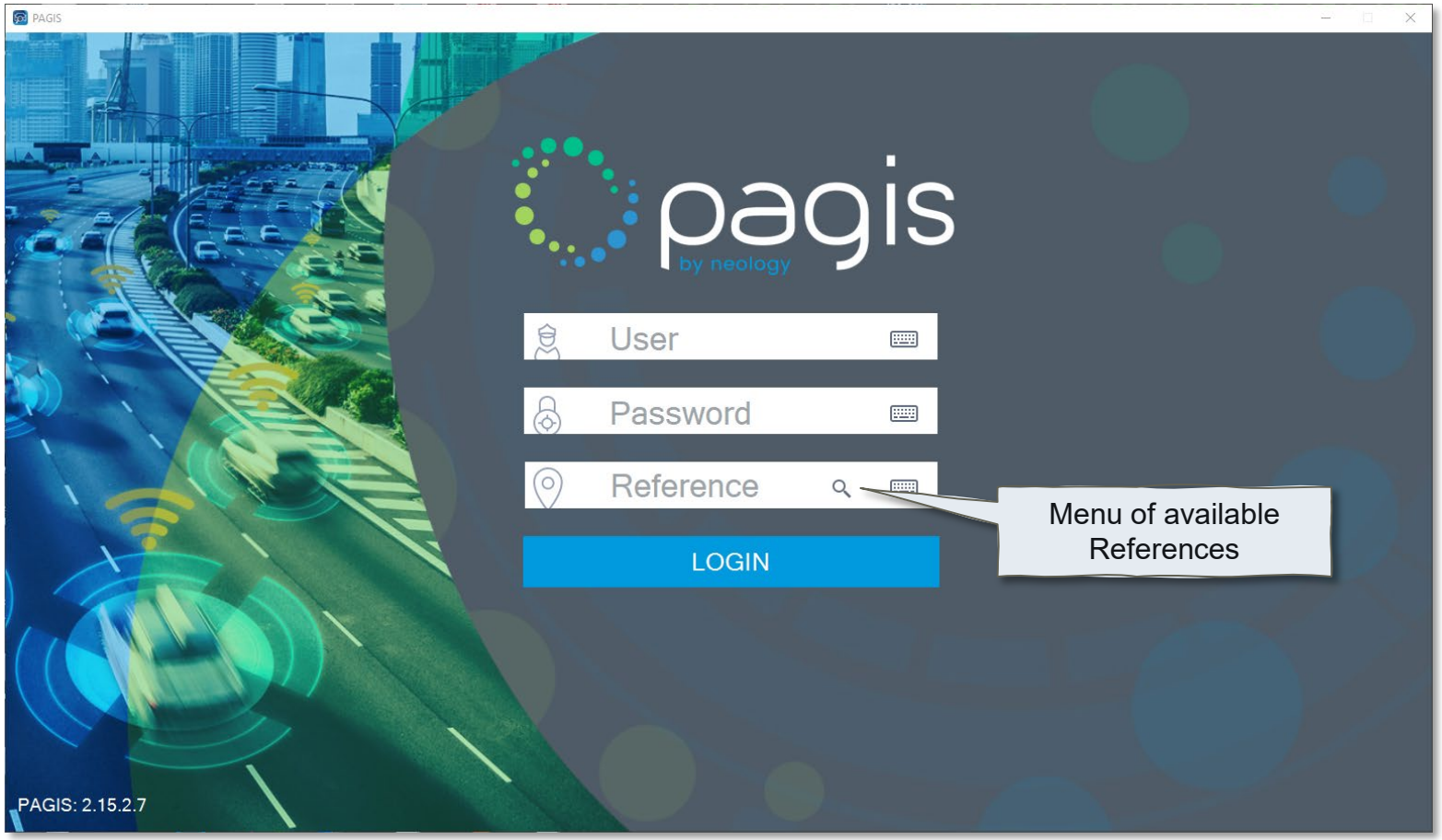
Rev. 06/20/22

Starting PAGIS



To start, double click the **PAGIS** icon on desktop.

- **User-** Enter assigned username.
- **Password-** Enter assigned password.
- **Reference-** Select or Enter department, location or activity specific reference. Each license plate read will have this label associated with it when the field is populated, this field can be used as an additional search filter to sort data in BOSS reports.
- **Keypad-** Available throughout PAGIS where keyboard symbol is present.
- **LOGIN-** Initiate login.



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Main View Screen

PAGIS System Control Features.

Infrared plate patch
(IR plate Read or “patch”)

OCR text translation of
plate patch.

NTP GPS Lock/Unlocked
watermark.

Color Overview
Captures are displayed as static
images.

GPS Status/Coordinates and
Camera Name



Capture panes are
blank until camera
captures plate.

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Watermark- About

GPS Locked displayed on images that have confirmed GPS signal.

GPS Not Locked displayed on images that have lost GPS signal.

Watermark stamp is placed on both IR & Color images patch.

Color Patch Watermark Contains:

I. NTP Status: Locked or Not Locked.

II. UTC format: M/DD/YYYY HH:mm:ss.fff.

III. GPS Coordinates Locked or Not Locked.

IV. Computer name of PAGIS client and the mobile processor serial number.

IR Patch Watermark Contains:

I. M/DD/YYYY HH:MM:SS.

II. OCR Plate number & Confidence level.

III. NTP Locked or Not Locked status.

IR patch watermark not shown in live view, only shown in review. See below image.



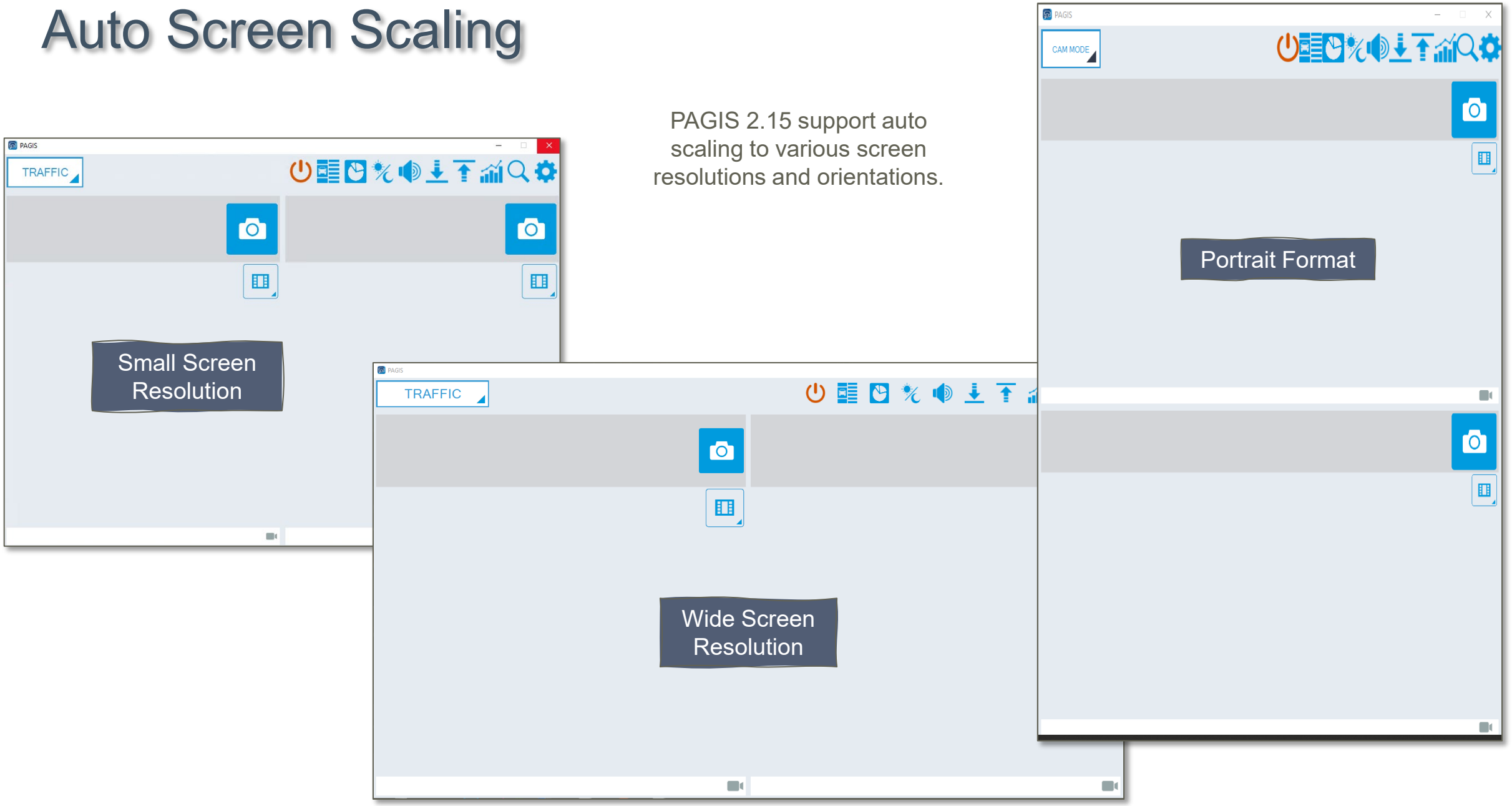
IR Watermark as seen in review.



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Auto Screen Scaling

PAGIS 2.15 support auto scaling to various screen resolutions and orientations.



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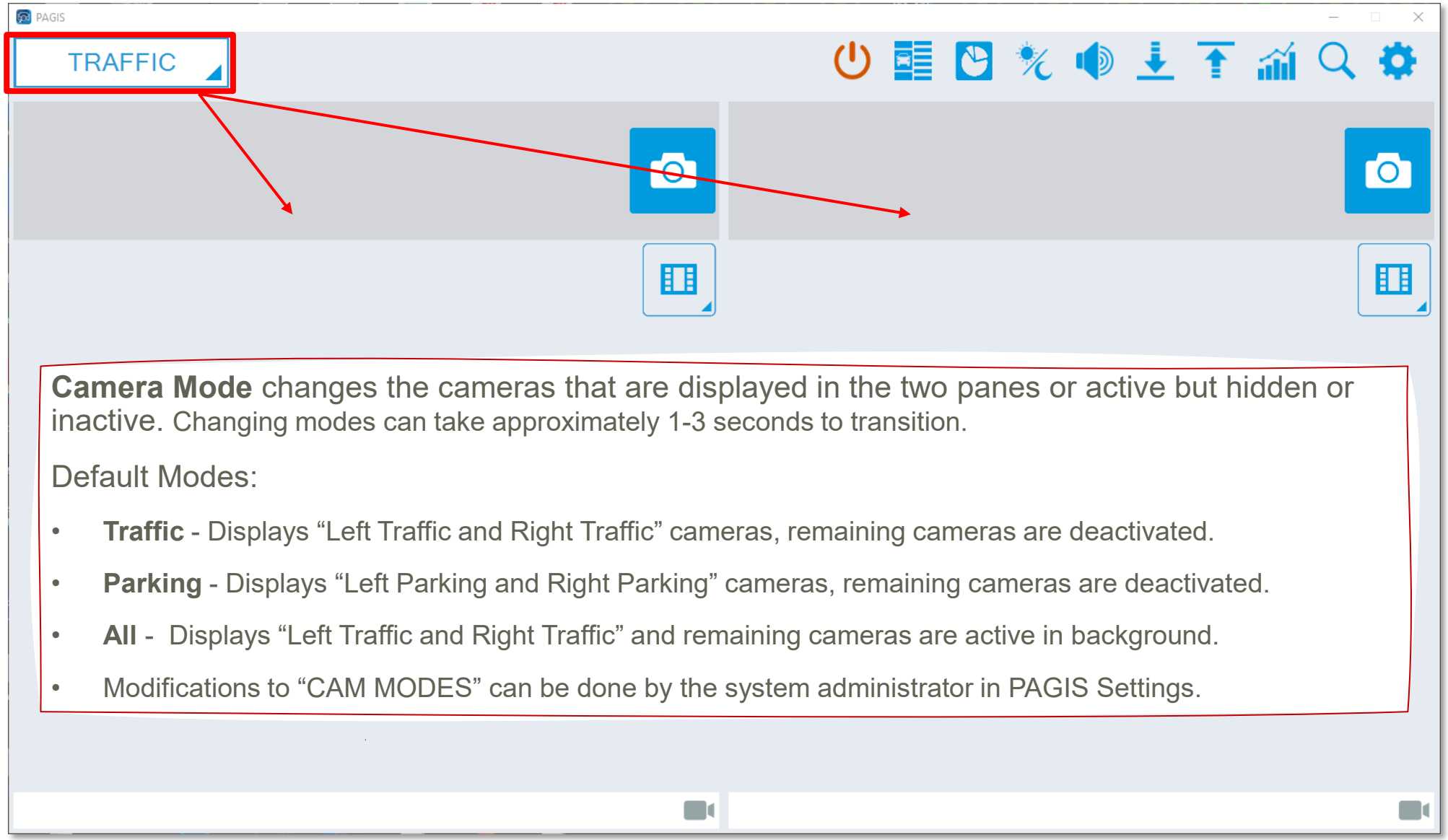
System Controls



	**Logoff button:** When selected, the user will be logged out of PAGIS and return to the login screen. When Auto-login is enabled, this will close PAGIS.
	**Panel Mode:** Switch between Dule or Single panel modes in main live view screen.
	**System Status:** The system status screen provides an area where users can check on the available resources that effect PAGIS performance.
	**Day/Nite mode:** Switch PAGIS between day & night mode screen skins.
	**Sound button**: When selected, this will toggle the PAGIS Read capture sound On or Off, alert sounds will remain active.
	**Begin Shift / Download button:** Performs an BeginShift sequence that downloads Hotlist, Hotplate, Users credentials and targets from the Host. **End Shift / Upload button:** Performs an Endshift sequence that uploads captured Reads, Hits and PAGIS Audit information to the connected Host.
	**Statistics/Review button:** When selected the user can review Alert list, Reads, Hits, Targets, and other PAGIS information.
	**Search button**: Research all available Reads/Hits as well as manually add hotplates to PAGIS's local Hotlist list known as "Manual Reports".
	**Settings button:** Available to Users with administrator rights to modify PAGIS configurations.
	**Firmware & Software update:** This icon will appear when PAGIS detects a new software or camera firmware version is available. All user types are notified, but only Admins can apply the update.

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Camera Mode – Dule Pane Mode



Camera Mode changes the cameras that are displayed in the two panes or active but hidden or inactive. Changing modes can take approximately 1-3 seconds to transition.

Default Modes:

- **Traffic** - Displays “Left Traffic and Right Traffic” cameras, remaining cameras are deactivated.
- **Parking** - Displays “Left Parking and Right Parking” cameras, remaining cameras are deactivated.
- **All** - Displays “Left Traffic and Right Traffic” and remaining cameras are active in background.
- Modifications to “CAM MODES” can be done by the system administrator in PAGIS Settings.

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Camera Panel Controls

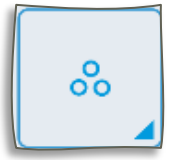




Take Pic: Just above the Camera View Selector button is “Take Pic”. This button allows the user to quickly take a picture from the camera in the current view.



Static View: This is the default state at login showing the Static View of captured events.
(NOTE: PAGIS does not automatically display a live feed.)



Color View: Clicking the Camera View selector button once, will switch to the Color feed. This displays the current live view of the color camera and will time out after 60 seconds or until the next capture event, which ever occurs first.



IR View: Clicking the Camera View Selector button twice, will switch to the Infrared (IR) feed. This displays the current live view of the IR camera and will time out after 60 seconds or until the next capture event, which ever occurs first.

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Take Picture

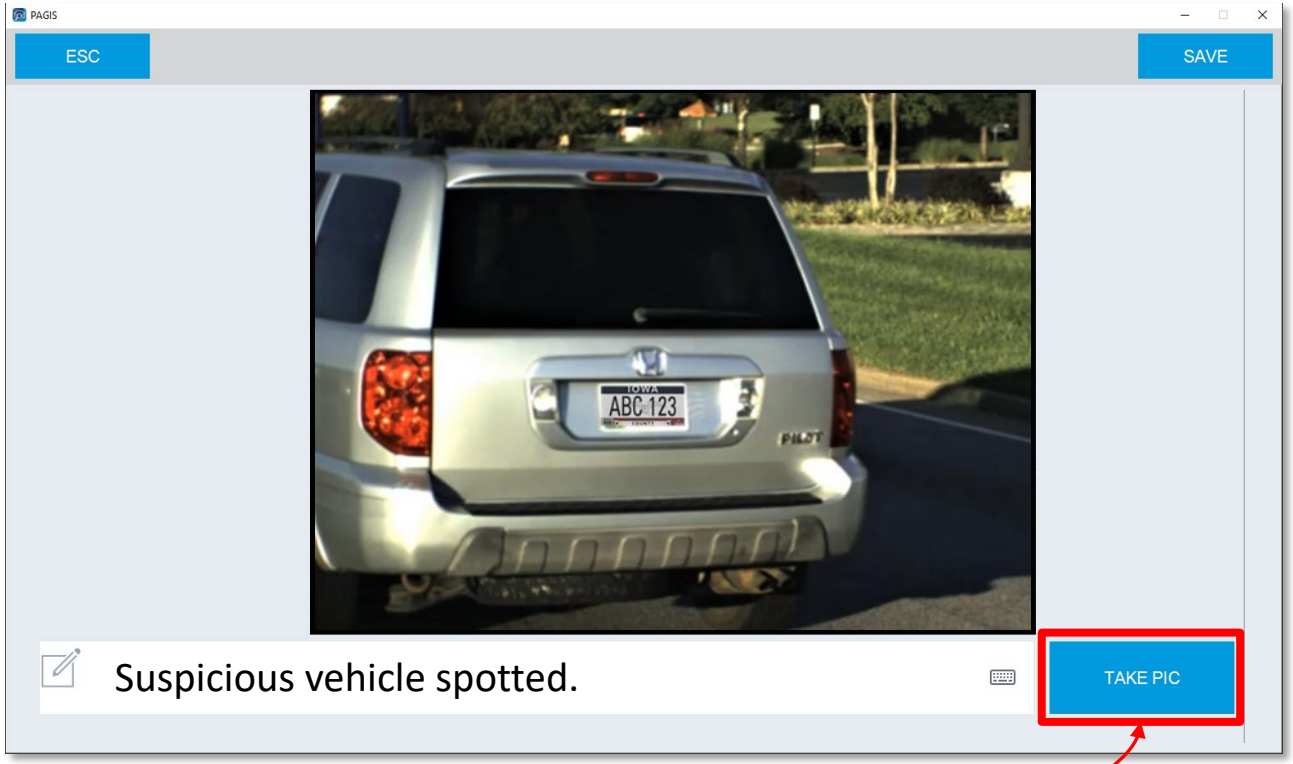
Take a Picture:

- From the Main View Screen, press the Take Pic button from the desired camera.
- The image taken will be displayed.
- Enter a description of the picture in the text field at the bottom of the screen.
- To save picture click the SAVE button, ESC to cancel. Either action will return you to Main View Screen.

NOTE: The picture will not save if a description is not entered into the text box.

View Saved Images:

- Navigate to the Review menu in PAGIS.
- Select Audits.
- The user will be able to see a thumbnail of the image and the saved notes.
- In order to review the saved images after purge, the user will need to run the Audit Image Report from BOSS.



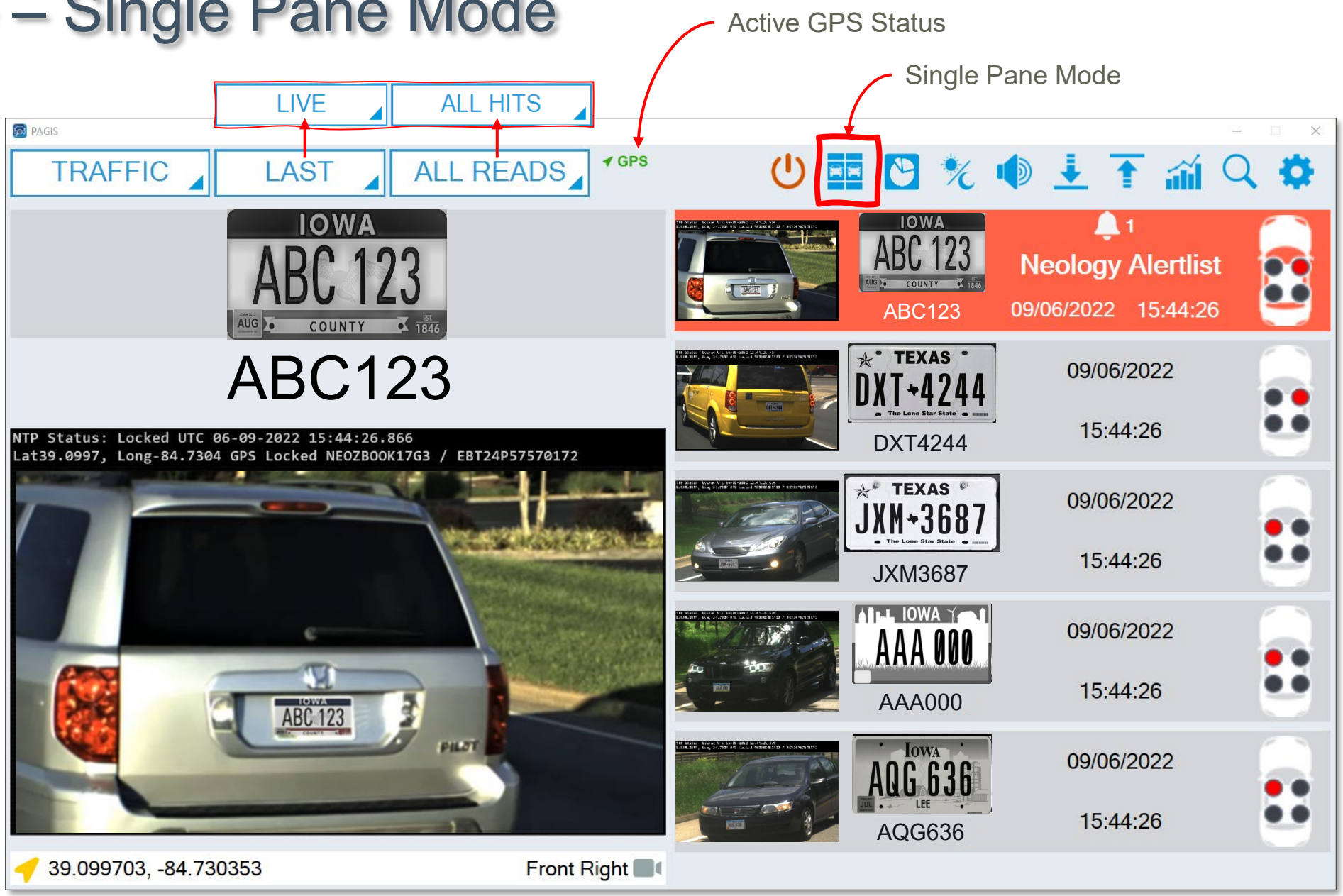
Toggle “Take Pic” button to activate live and capture mode.

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Camera Mode – Single Pane Mode

Single Pane: The single pane displays has one large active capture area on the left of the screen, this area will display all current captures in real-time. The panel on the right show you past captures, updates populate from the top down.

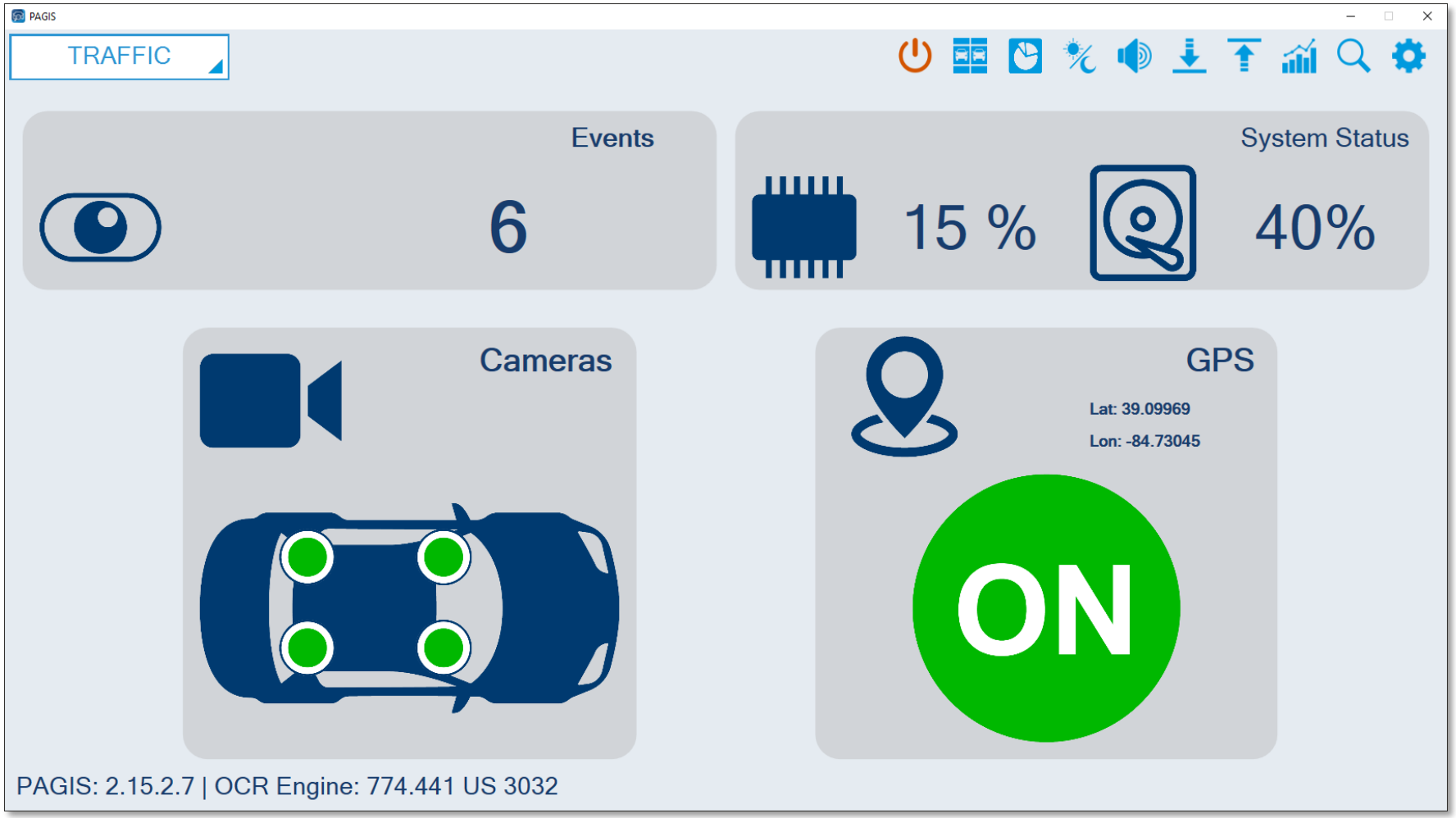
- **Cam Mode:** Controls which cameras are active in the main display.
- **Last / Live:** Set the active capturer panel to static or live view. The Live mode alters the panel arrangement slightly, showing only two primary cameras on the left w/ no image patches.
- **All Reads / Hits:** Toggles to show only hits or reads in the history panel.



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PAGIS Status View





Status View

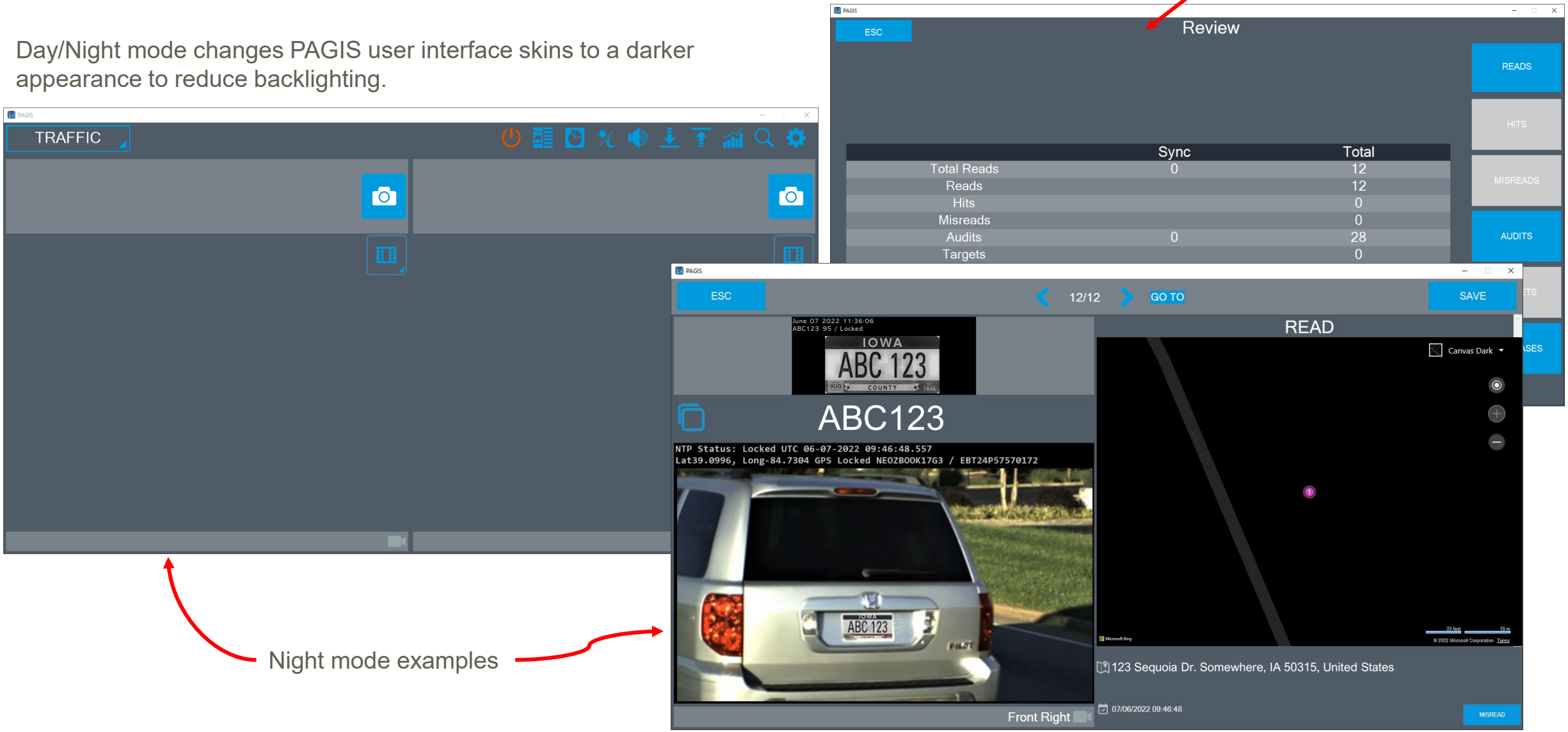
The status panel provides a means of monitoring key system resources important to PAGIS operations.

- **Events-** The events show the current number of captured plates in PAGIS.
- **System Status-** Displays the amount of RAM & DISK usage of the computer PAGIS is running on.
- **Cameras-** This indicates which cameras are active from the selected “CAM MODE”.
- **GPS-** Displays if PAGIS currently has an active GPS signal.
- PAGIS and OCR Engine versions shown in bottom left.

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Night Mode Screens

Day/Night mode changes PAGIS user interface skins to a darker appearance to reduce backlighting.



Night mode examples

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Data Synchronization



Data synchronization can be configured one of three ways depending on usage type. Its important to understand which option PAGIS is configured, as they dictate different user interaction.

USB Sync- This method of synchronization requires that the PAGIS user manually activate the upload/download button to send/retrieve data from an external USB drive.

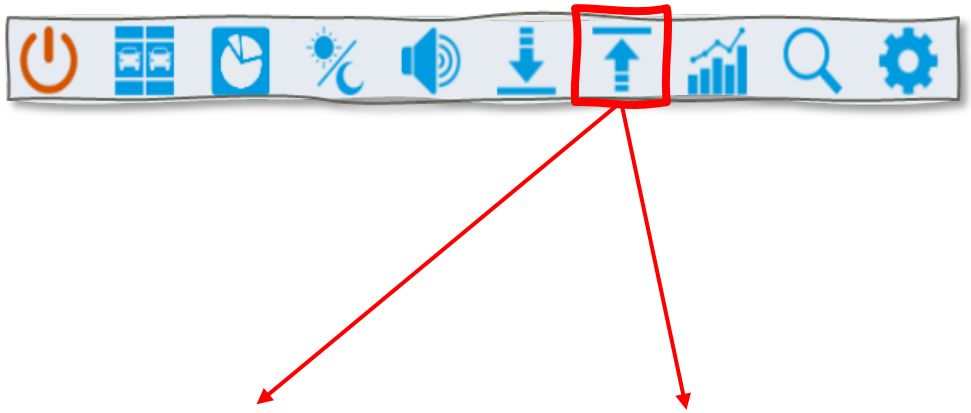
Boss Sync without Purge- When “Boss-Sync” is enabled all data will be automatically synchronization between PAGIS and BOSS, this included Users, Alert-List, Reads/Hits & Audit data. The exception in this option is that locally stored data remains accessible in PAGIS, this includes Reads/Hits & Manual Reports entries, they will remain local until the Upload button is activated upon which those data sets will be purged from PAGIS.

Boss Sync with Purge- When “Boss-Sync” is enabled all data will be automatically synchronization between PAGIS and BOSS, this included Users, Alert-List, Reads/Hits and Audit data. With the Purge setting enabled it is not necessary for the PAGIS user to manually activate the Upload button to purge locally stored data as this will be maintained by PAGIS based on purge Privacy settings configured, purging occurs each time PAGIS is started.

Typ. Download Status Messages	Typ. Upload Status Messages
Performing beginshift synchronization...	Exporting endshift read data at event 0 of 28...
Session started, checking for updates!	Purging audit data. This may take a while, please do not power off!
Retrieving plates for COUNTY WARRANTS	Endshift synchronization succeeded!

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First Time PAGIS Activation



Newly activated mobile devices must be enabled and configured at the BOSS software once the primary host IP has been entered and saved into PAGIS.

- Activating the download button will manually initiate communication with BOSS, during this process the user will see sync status messages. First time synchronization BOSS will acknowledge the communication with a rejection message titled “HttpStatusCode Unauthorized” signifying BOSS has seen the request, created the device listing but rejected the communicated pending user activation in BOSS.
- The PAGIS auto sync feature will also attempt communication with BOSS on a reoccurring cycle, about once every 10-20 seconds, the device listing will still appear in BOSS, but the PAGIS user will not see any dialog box’s indicating the status.

BOSS acknowledgement and rejection message	Failure to communicate with BOSS message
Performing beginshift synchronization...	Performing beginshift synchronization...
Error Synchronizing Data. Please check log for more information.	Error Synchronizing Data. Please check log for more information.
HttpStatusCode Unauthorized; unable to get data	Error syncing data with BOSS. Please check wireless connection and try again.

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Review Section



Click Review from the Main View screen to display additional options for reviewing data.

- **Total Reads-** Shows the total number of Reads/Hits collected and the amount synced.
- **Reads-** Shows only the total number of collected Reads.
- **Hits-** Shows only the total number of collected Hits.
- **Misreads-** Shows only the total number of Reads marked as misreads.
- **Audits-** Shows the total number of collected Audits and the number that have synced with BOSS.
- **Targets-** Shows only the number of targets downloaded, they do not sync as they originated from the Boss application.

Note: When PAGIS is setup for Disk-Sync the “Sync” column dose not apply.

Reads- Review all plate detections that have occurred since the last upload or data purge cycle.

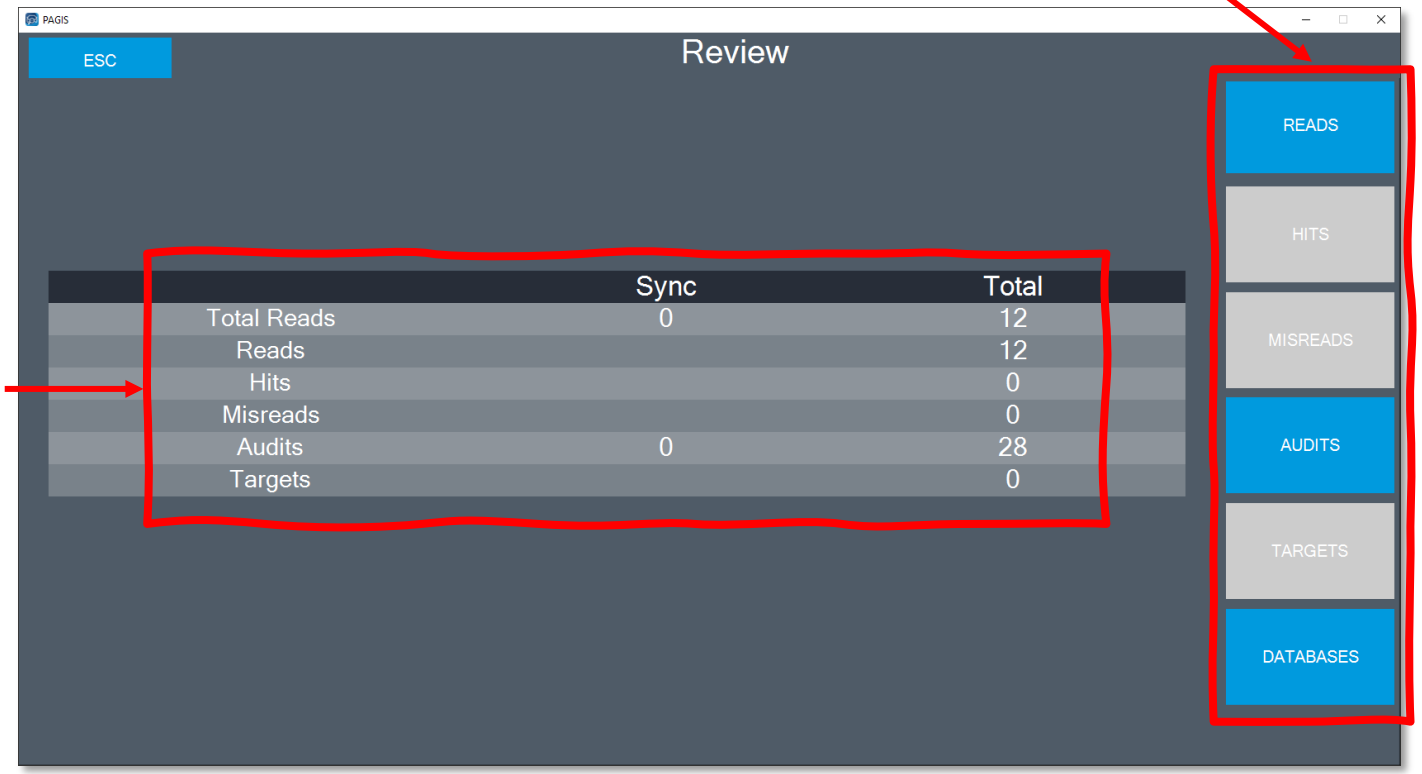
Hits- Review Hit alerts that occurred since the last upload or data purge cycle.

Misreads- Review Reads that have been manually flagged during the shift as misreads.

Audits- Review failed and successful login’s, any manual data entered during the shift, pictures taken and all manual license plate searches.

Targets- Review targets that have been synchronized from Boss.

Databases- Review the all the databases currently in PAGIS.



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Review - Reads

Save changes or Esc to return to Main View.
(Typ. thought out review screens)

Current view / Total Reads.
Prev. & Next

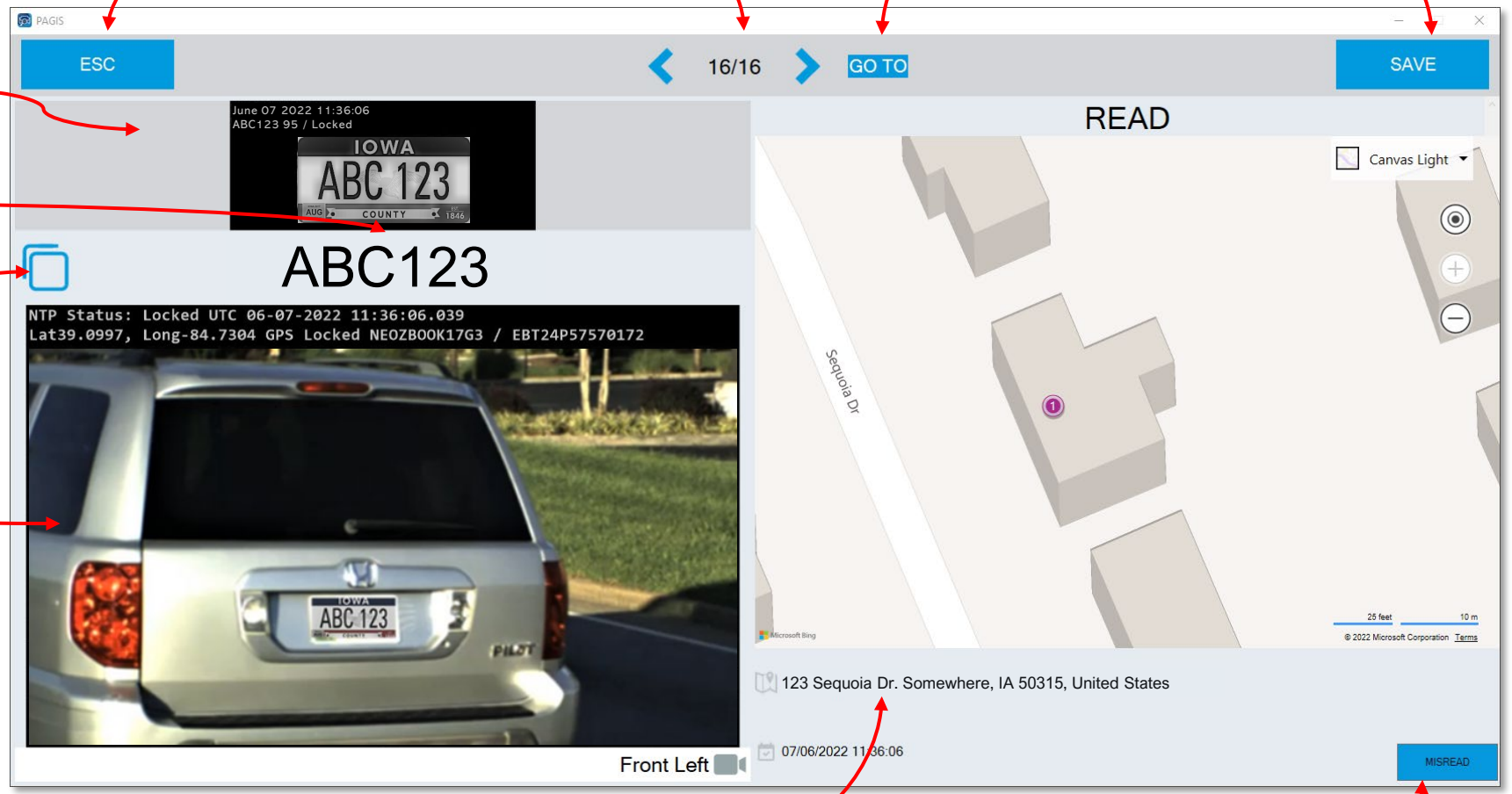
Jump to specific read.

IR “Plate Patch” w/ NTP watermark
Clicking Plate Patch will result in larger view Of image.

OCR translation of “Plate Patch”
Click OCR Patch to correct a misread.

Copy plate number to clipboard

Color Camera “Overview” *w/ NTP status watermark.*
Clicking overview Patch will result in larger view of image.



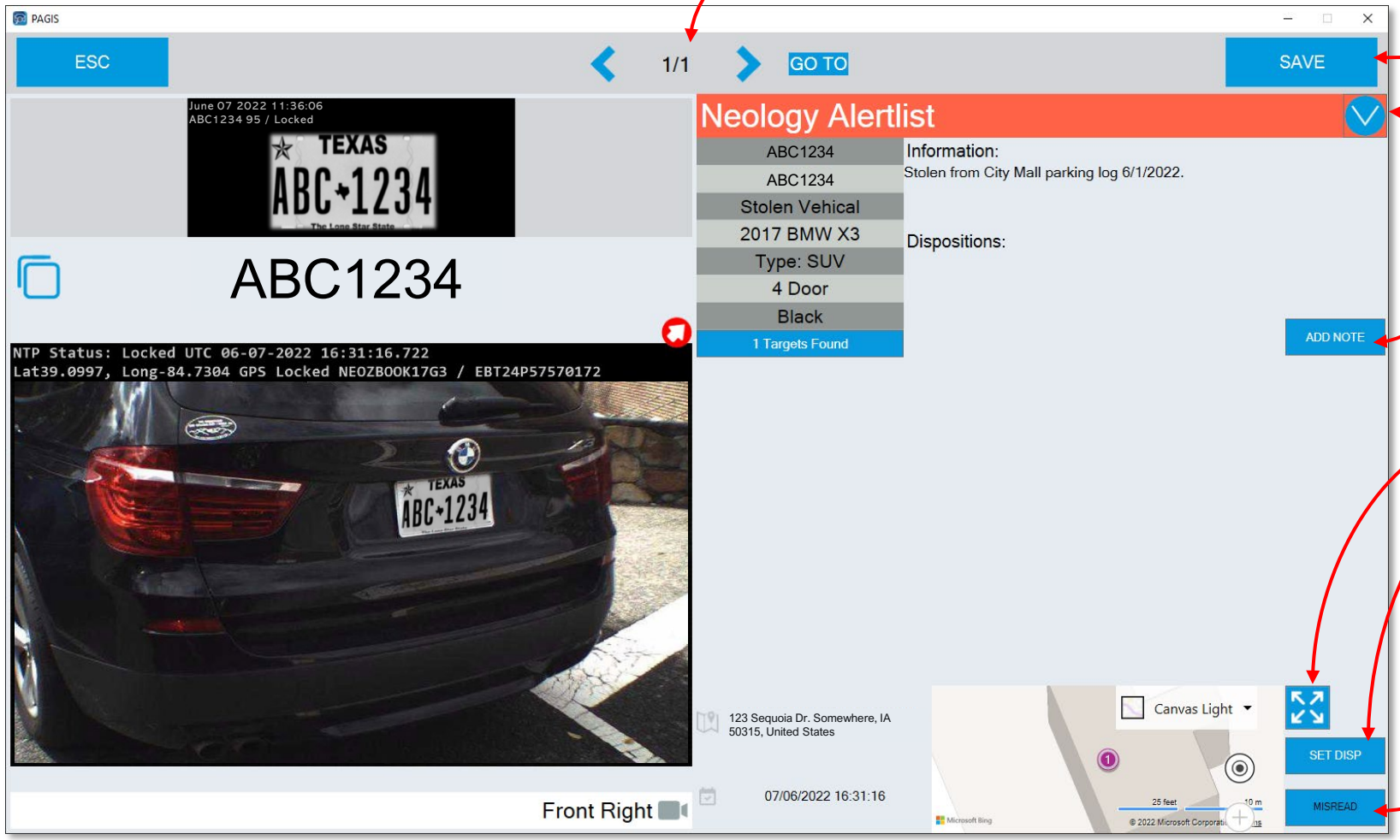
Active Mapping with address translation.

Jump –Move to a specific record.

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Review - Hits

The **Current / Total** indicates which HIT out of all totals you are reviewing, clicking the arrows on the left or right will let you flip between other registered HITS.



SAVE changes made to notes, dispositions or misread corrections.

Hide/Show hit information.

ADD NOTES – Add information about a particular Hit prior to synchronization to BOSS. For instance, you might add information about the arrest or violation.

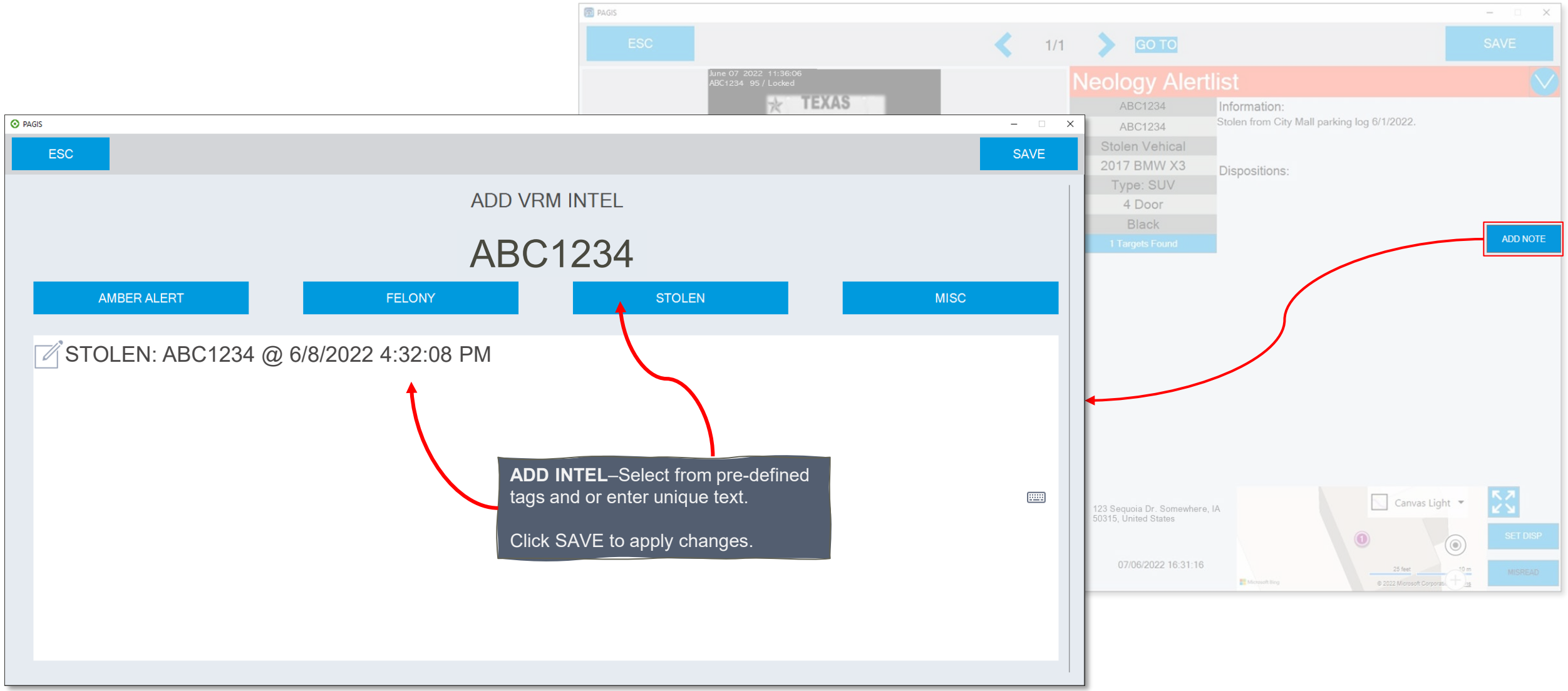
Expand MAP

SET DISP –Report the disposition of a Hit in one of the categories defined by your Boss system administrator, *(Arrest Made, Vehicle Recovered, Surveillance Established, Towed, etc.)*. Dispositions appear in sperate selection window, these dispositions are reported to BOSS and allow for more detailed classification when running a Hit reports.

MISREAD– Add information about a particular Hit prior to synchronization to BOSS. For instance, you might add information about the arrest or violation.

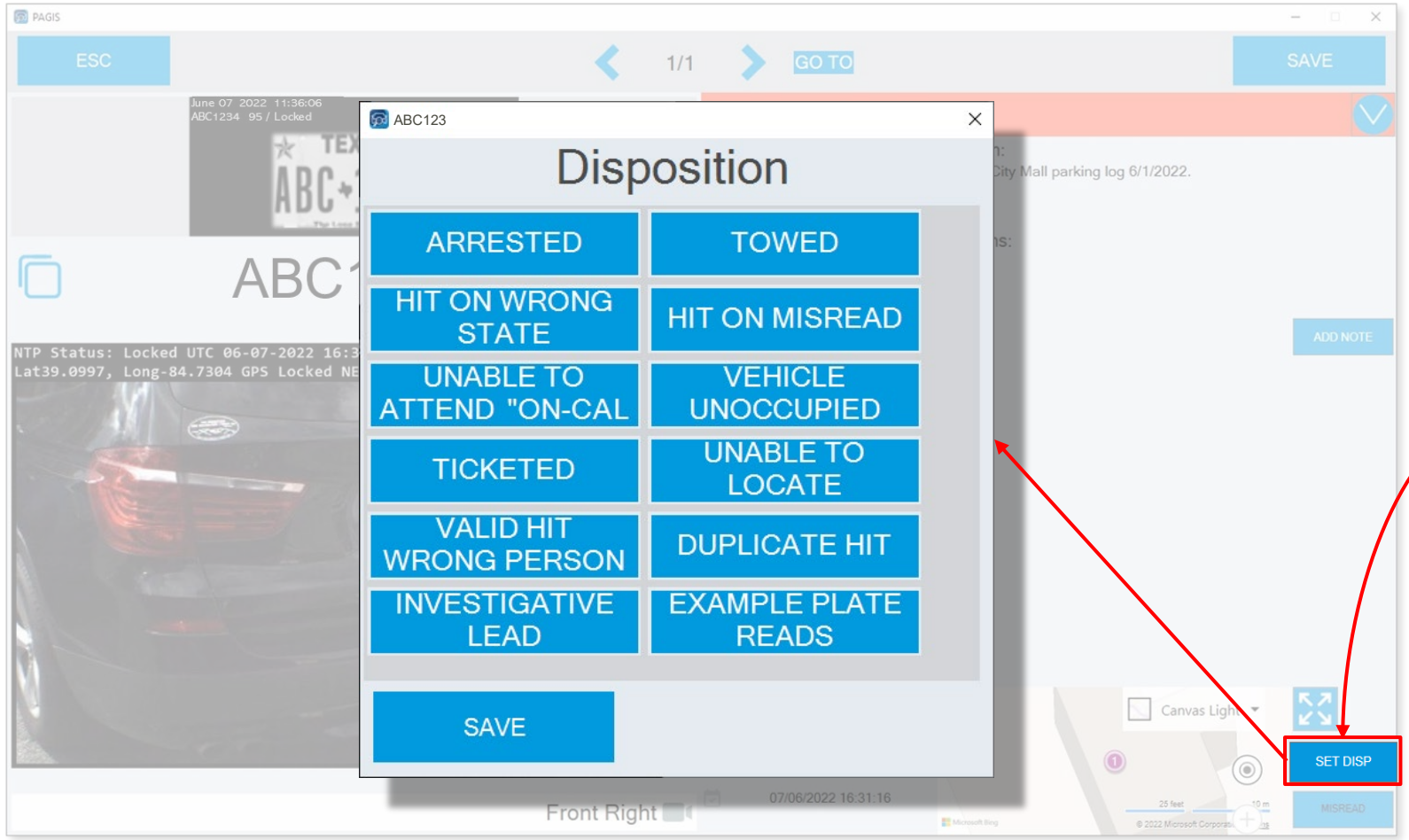
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Review- Hits- Add Notes



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Review- Hits- Disposition

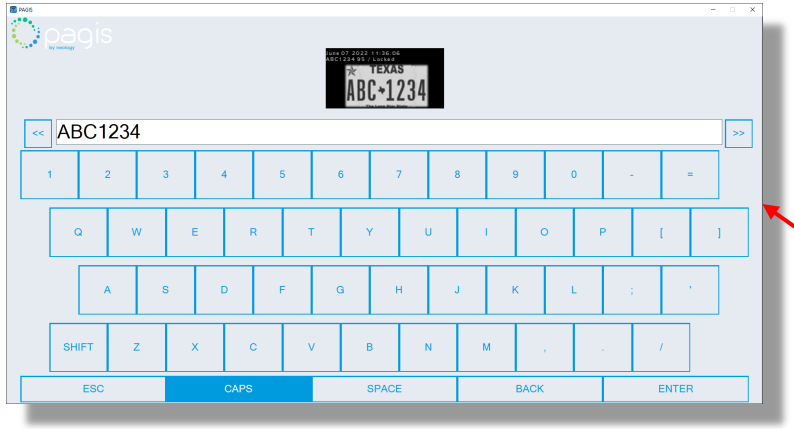


Set Disp –Report on the disposition of the Hit from the deployed categories.
Note: Dispositions are managed by BOSS, additions or edits must be done by system admins.

- Select **One** or **Multiple**.
- **SAVE** to apply selection.

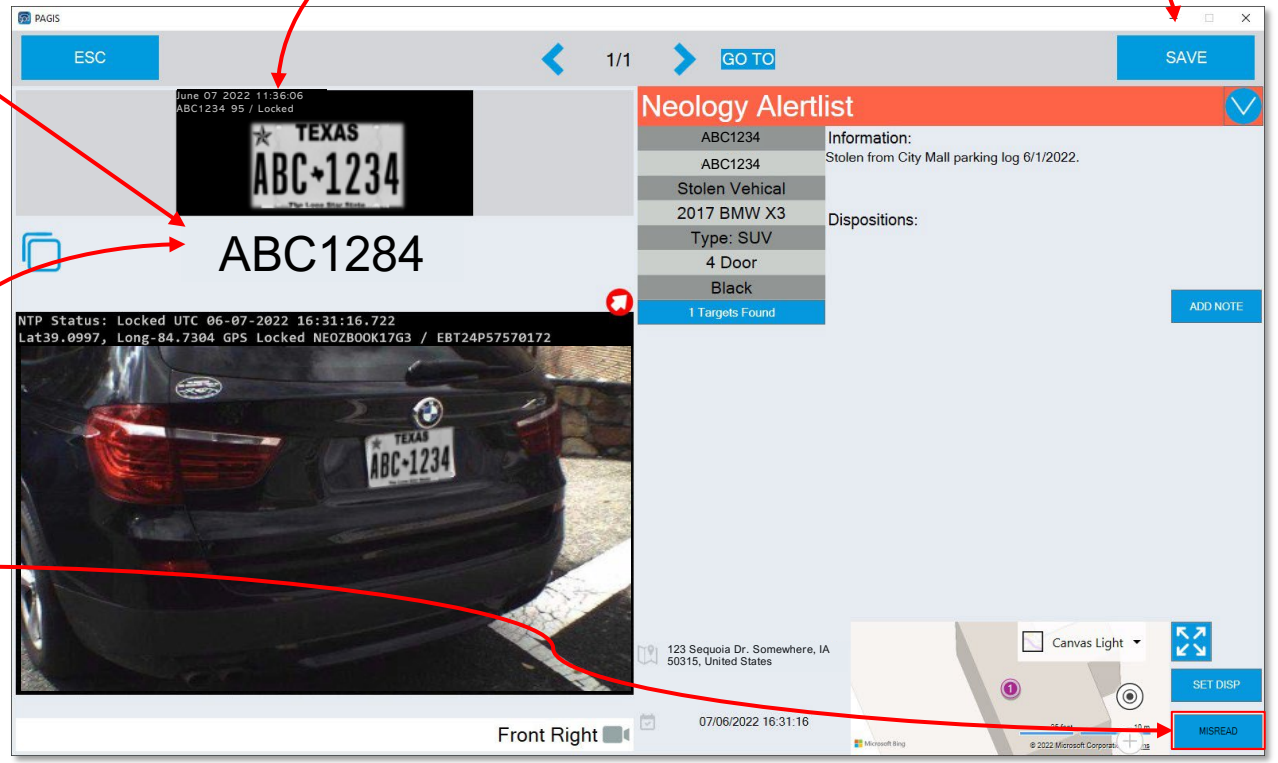
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Review- Hits/Reads- Misread Correction



"Misread Plate"

Save changes



Correct or tag Read/Hit that have been misread.

- *Click OCR Patch to manually correct a misread, "ENTER" to save.*
- *Click* MISREAD *button to instantly tag event as "Misread" without editing plate number "SAVE" to apply changes.*
- *Hits tagged as misread are demoted to Read and no longer counted as Hit.*

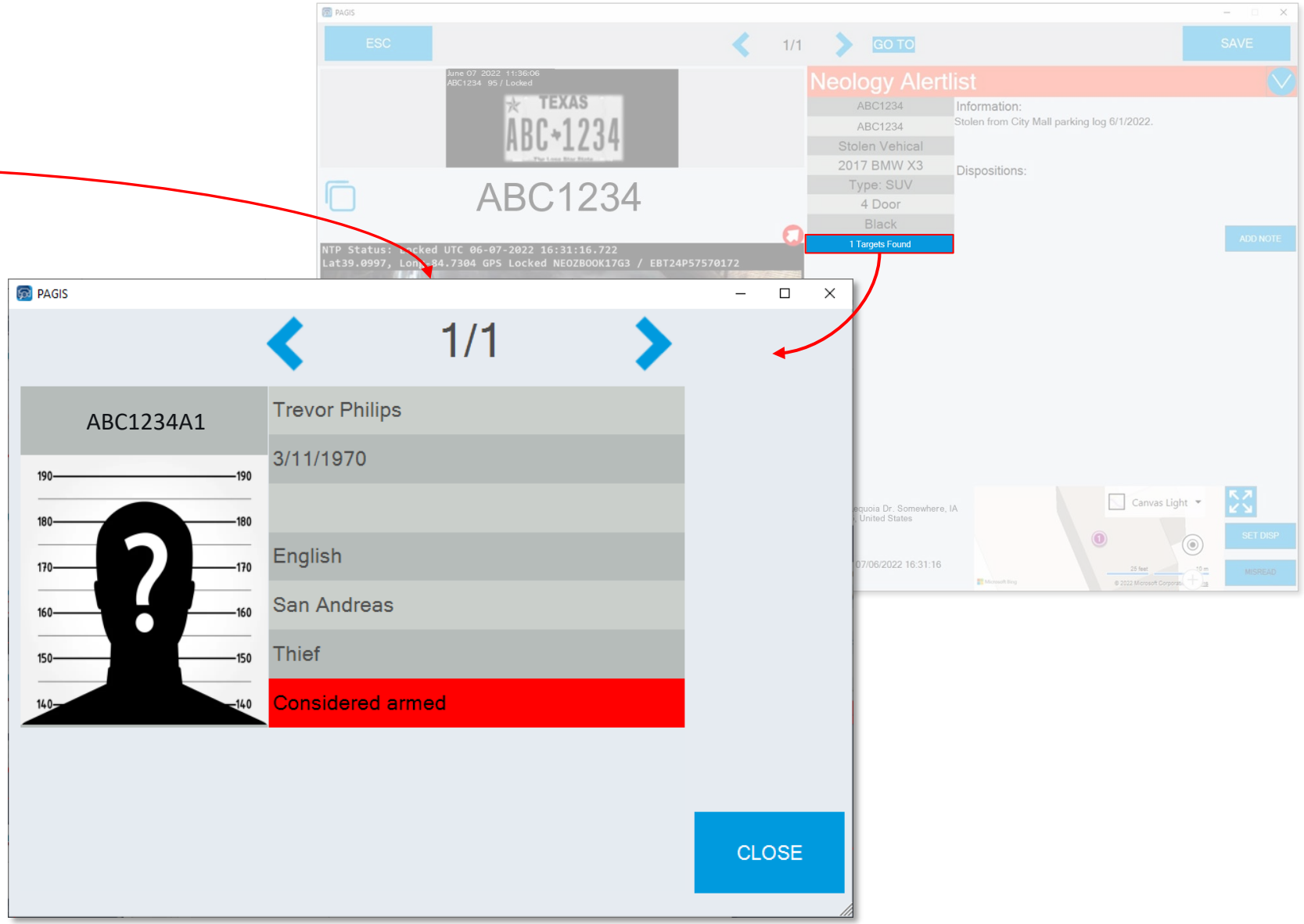
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Review- Hits-Targets

- **Target Profile**–Target screen displays information about suspects matched with a license plates. Targets are downloaded into PAGIS from the Back Office System Software (BOSS).

- < 1/2 > Click left or right arrows to view additional targets associated with this hit. Number to left is current view, number to right is total targets available.

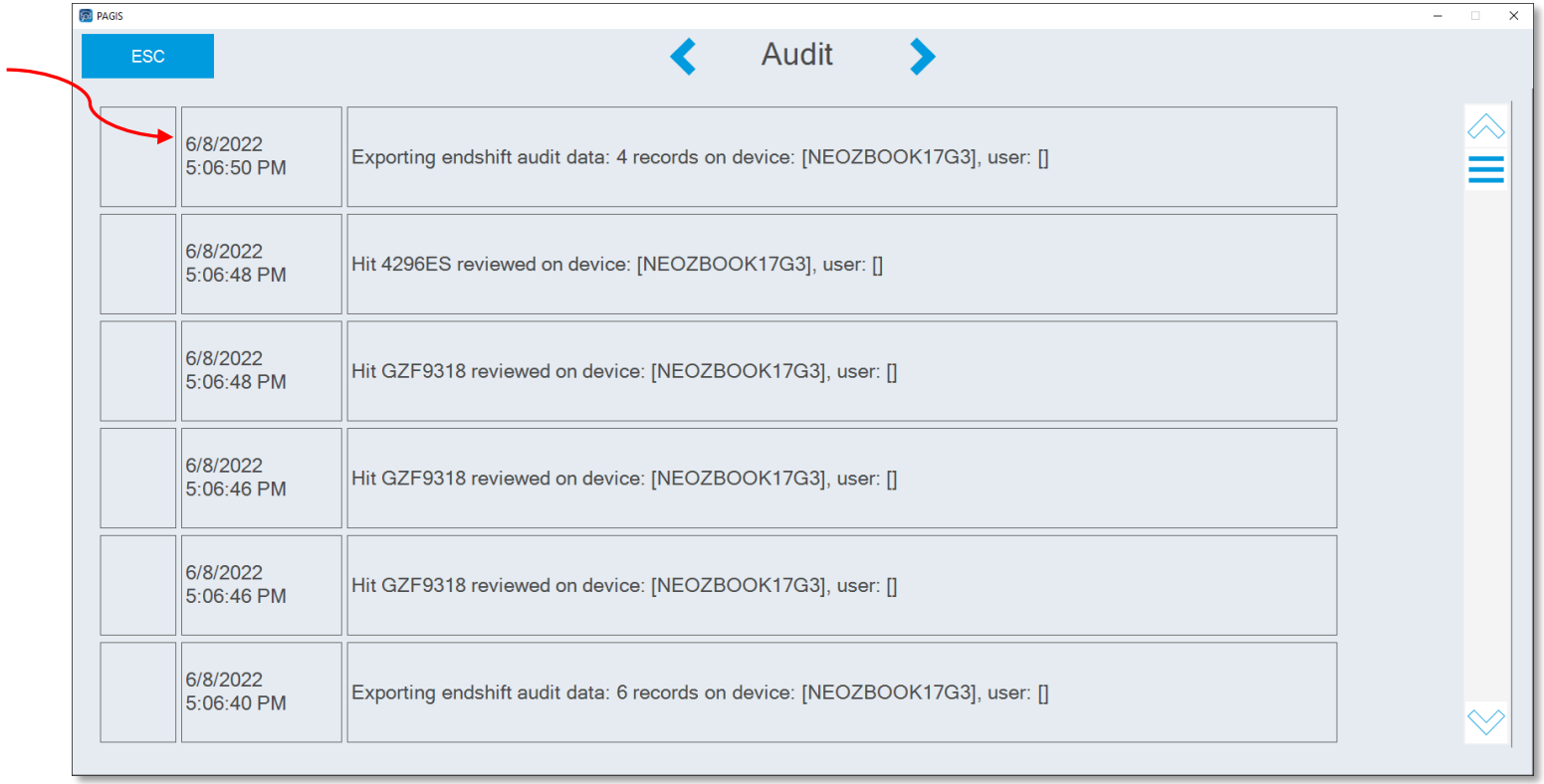
- **Close** – Returns to previous screen.



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Review- Audits

- The Audits screen provides a log of various actions taken during the current PAGIS session, including searches, synchronizations, Hits, etc. The Audit logs are transmitted back to BOSS during PAGIS Auto-Sync or during a manual Upload cycles. The Audit trail is reset during Upload or Auto purge cycle.
- **Esc-** Return to previous screen.
- **< >-** Cycle thought all available audit log by page, left arrow is previous, right arrow is next.
- **Scroll-** Scroll up/down thought all available Audits.



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Review- Databases 1 of 2

Database Name – Displays the name and color code of the Alert List, along with Date\Time showing the last synchronization update.

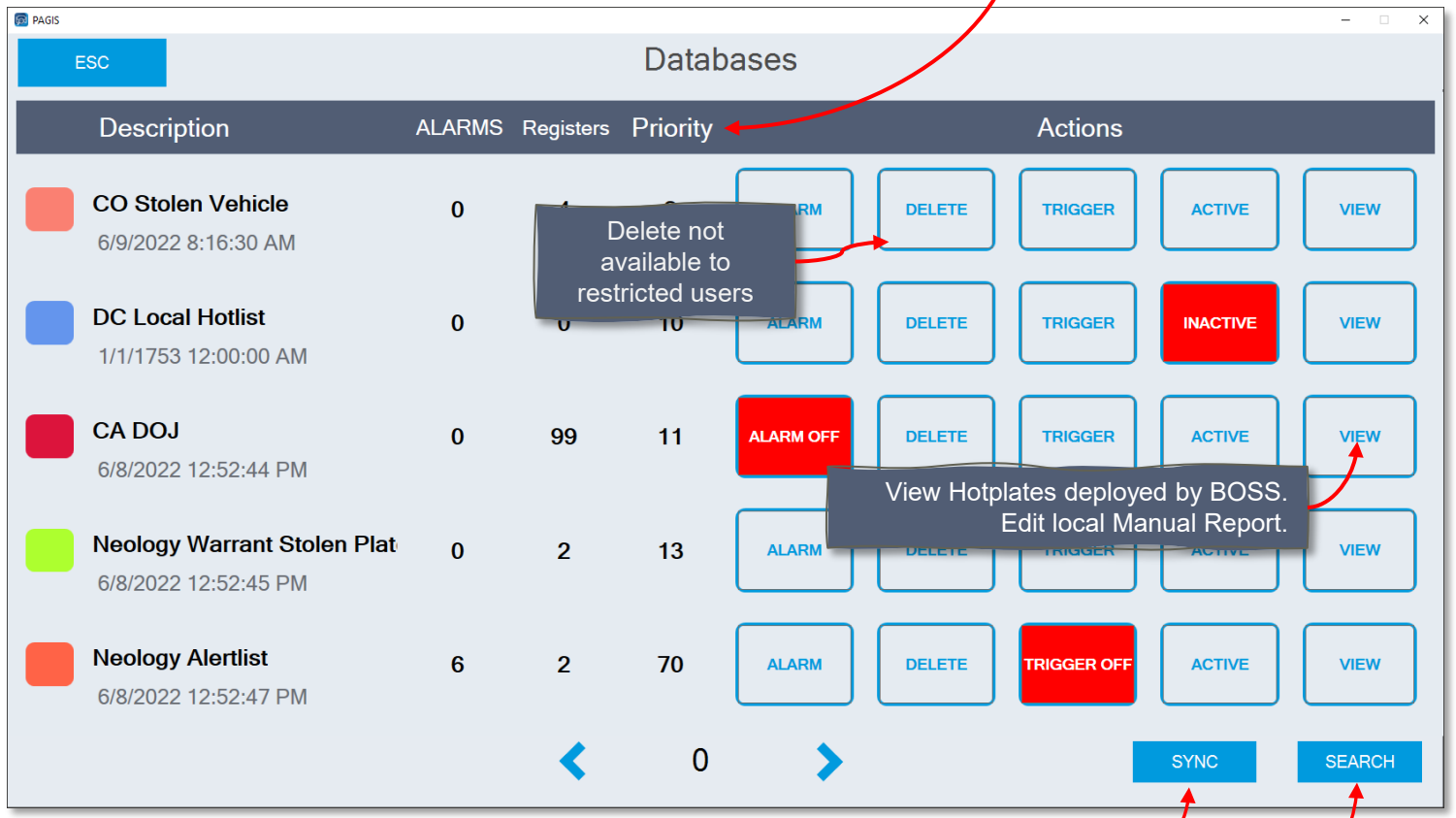
Alarm / Alarm Off- When this button is clicked it will switch from “Alarm” or to “Alarm off” depending on its previous state. “Alarm” means the PAGIS user will be alerted if a Hit occurs. If “Alarm off” is displayed the PAGIS user will not be notified of alert, but the alert will still register.

Delete – Removes the Hotlist from the current session. Because some databases may be managed in BOSS, if deleted and has not been removed from the BOSS deployment list, it will be added back on the next synchronization via Auto-Sync or during the next Download cycle.

Trigger / Trigger Off– If Trigger is on, the software sends a signal to a data com port on the mobile processor and any device (such as a light or siren) connected through this port will active the device during an alert.

Active / Inactive– Database status indicator. A red button shows that the Alert List is inactive, and Hits will not be generated from that Alert List in PAGIS.

Priority – Database priority provides PAGIS a means of displaying Hits with higher priority first if multiple Hits occurs from a single event. Values can be (1-999) as determined by BOSS System Administrator. The lower the number, the higher the Alert List priority. By default, the “Manual Reports” Alert List created by PAGIS has a priority of 500.

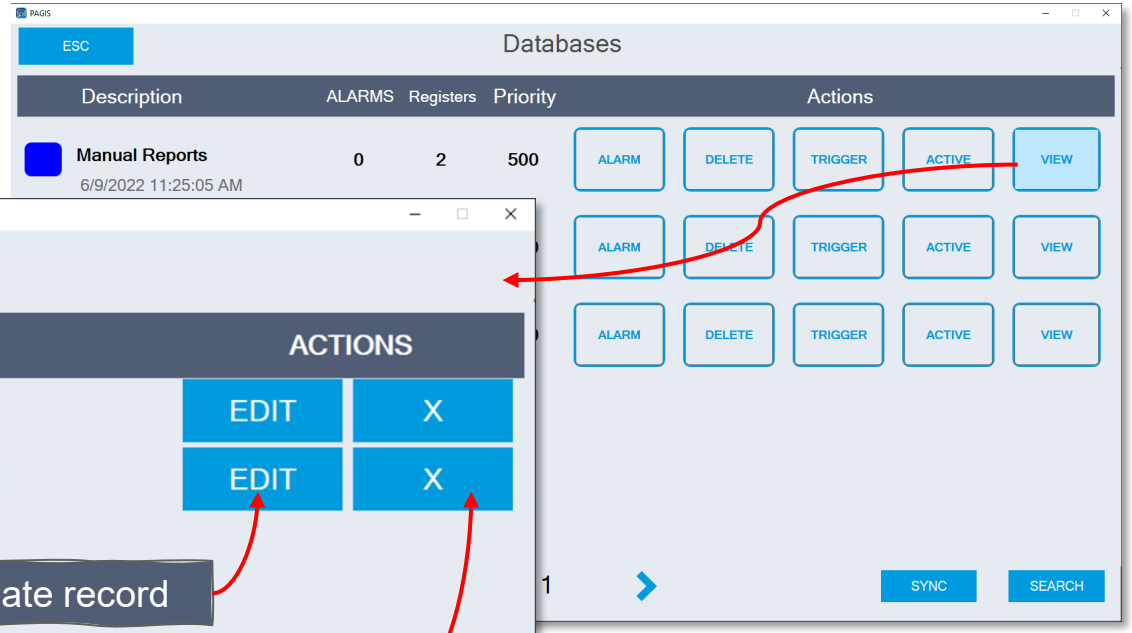


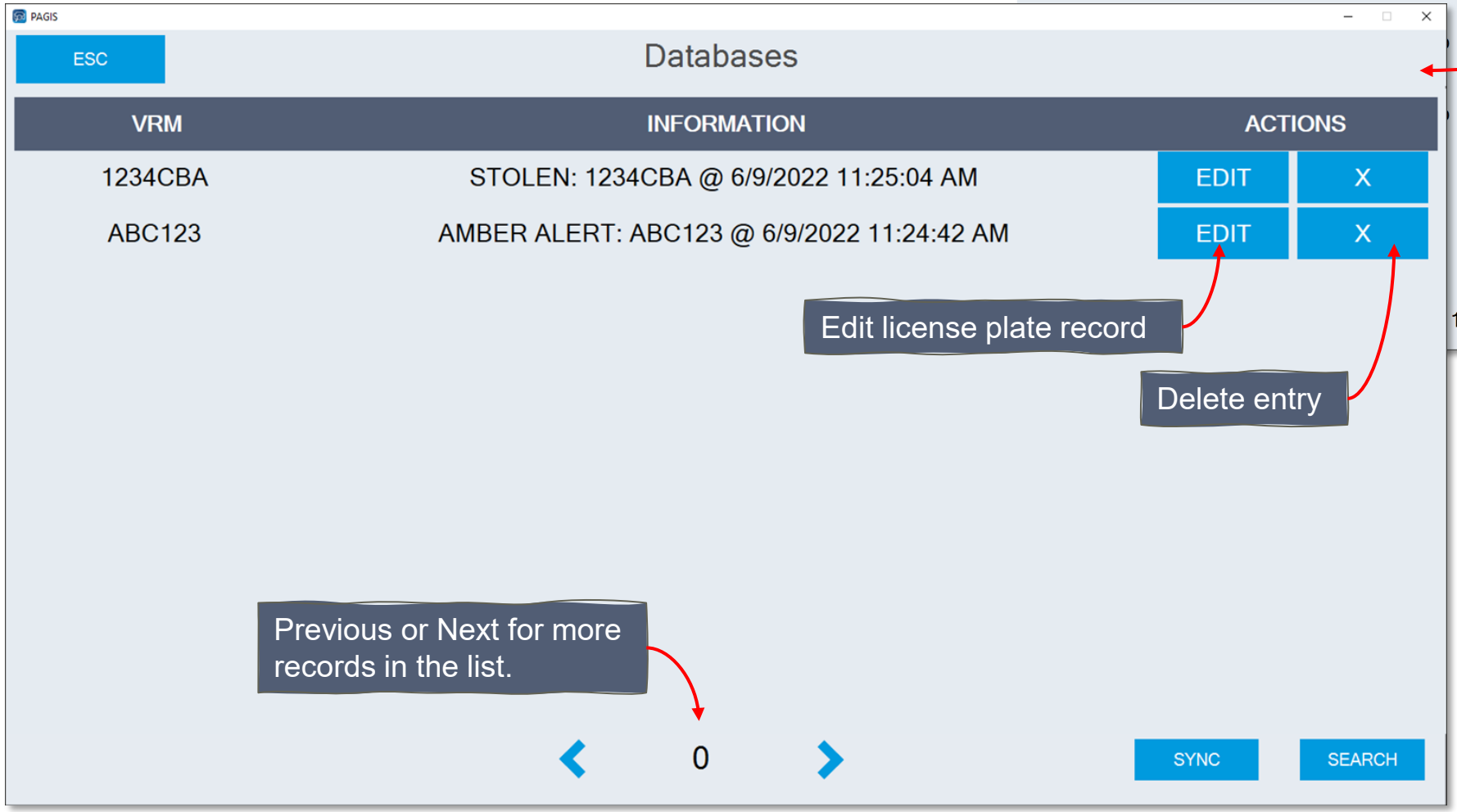
Sync- Begin/End Shift combined without data purge.

Search- Shortcut to Search Entry

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Review- Edit Database 2 of 2





VIEW –Hotlist has two function based on origin of hotlist.

- Hotlist deployed to PAGIS via BOSS cannot be edited, only the hotplates list can be viewed. Editing/updates are indented to be managed via BOSS.
- Hotlist created in PAGIS, i.e., “Manual Reports” can be managed by PAGIS users, allowing for changes or deletion of the hotplates contained within the hotlist.

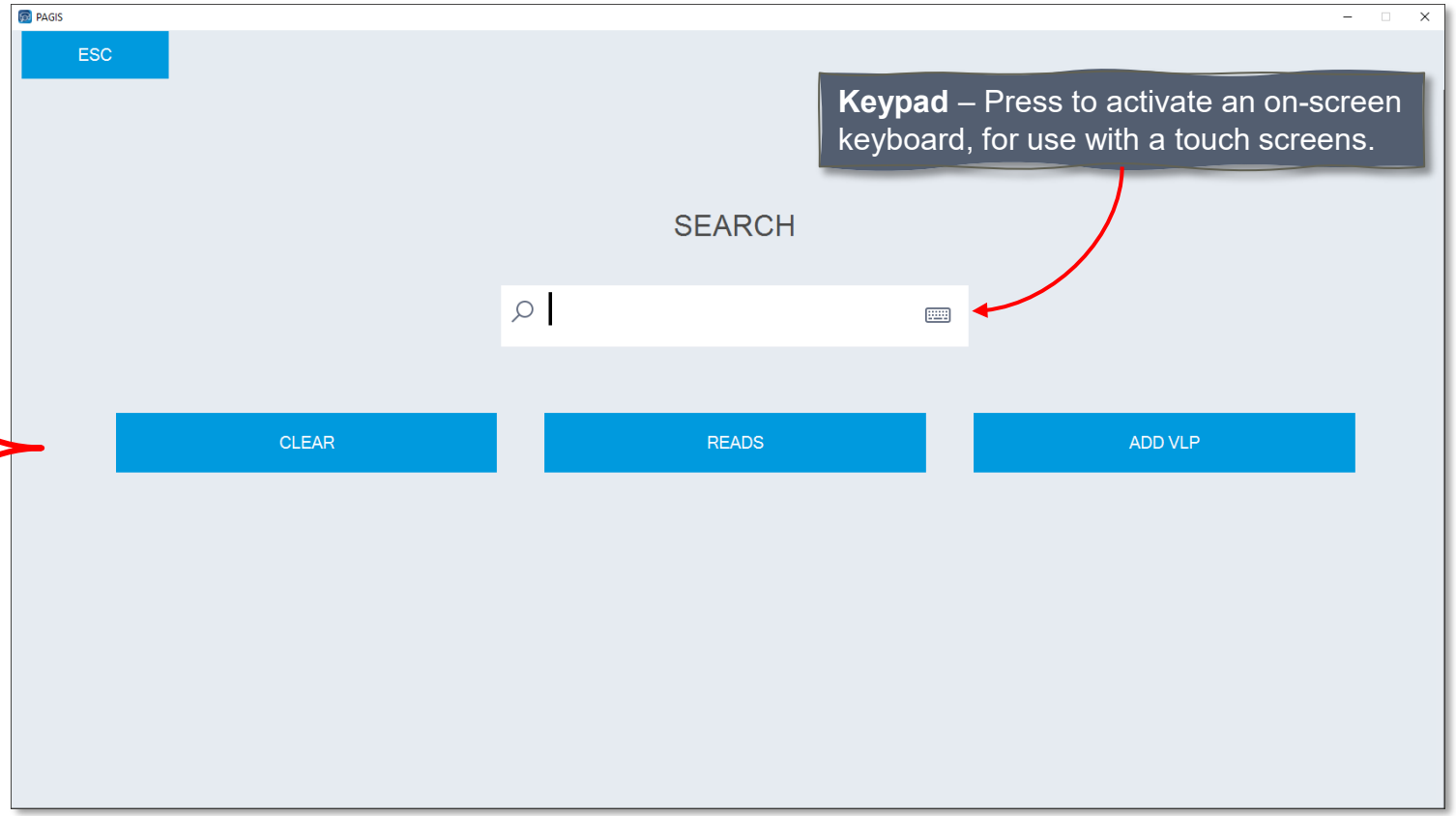
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Search Entry 1 of 3



Click Search Entry from the Main View screen to display Search features.

- **Text Field** – Enter alphanumeric string to search. Accepted wildcards are Asterisk "*" or Underscore "_".
- **Clear** – Clear the content of the text box.
- **Reads** – Search for plate number with Reads and Hits currently stored in the PAGIS.
- **Add VLP** – Add hotplate to "Manual Reports" Alert List or check existing hotlist for the entered license plate. Partial plates or wildcards not accepted.
- **Esc** – Return to the previous screen.



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Search Entry- Reads 2 of 3

READS Searching against collected license plate data in PAGIS.

- Search criteria can include exact text or text and wildcards. Wildcards are special characters that represent any / all potential characters and can be used in searches and queries.

- Wildcard searches can be performed using the * and _ characters. The asterisk (*) designates an unknown number of characters while the underscore (_) indicates a single missing or unknown character. To search for a plate number with the characters 3 and C, entering *3_C* will display all records containing 3 and C separated by one character.



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Search Entry- Reads 3 of 3

Save changes or Esc to return to Main View.
(Typ. thought out review screens)

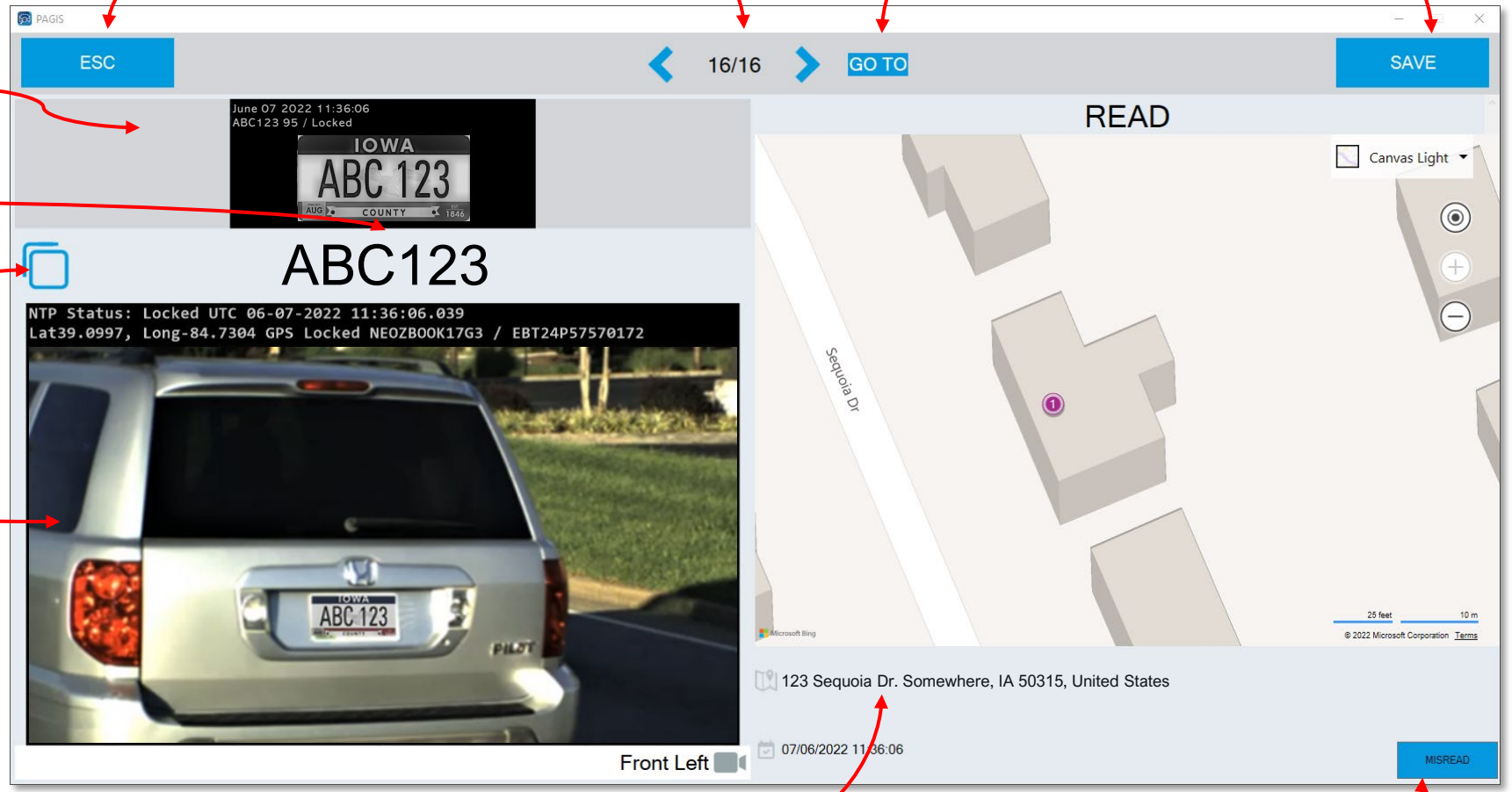
Current view / Total Reads.
Prev. & Next

Jump to specific read.

IR “Plate Patch” w/ NTP watermark
Clicking Plate Patch will result in larger view Of image.

OCR translation of “Plate Patch”
Click OCR Patch to correct a misread.

Copy plate number to clipboard



Color Camera “Overview” *w/ NTP status watermark.*
Clicking overview Patch will result in larger view of image.

Active Mapping with address translation.

Jump –Move to a specific record.

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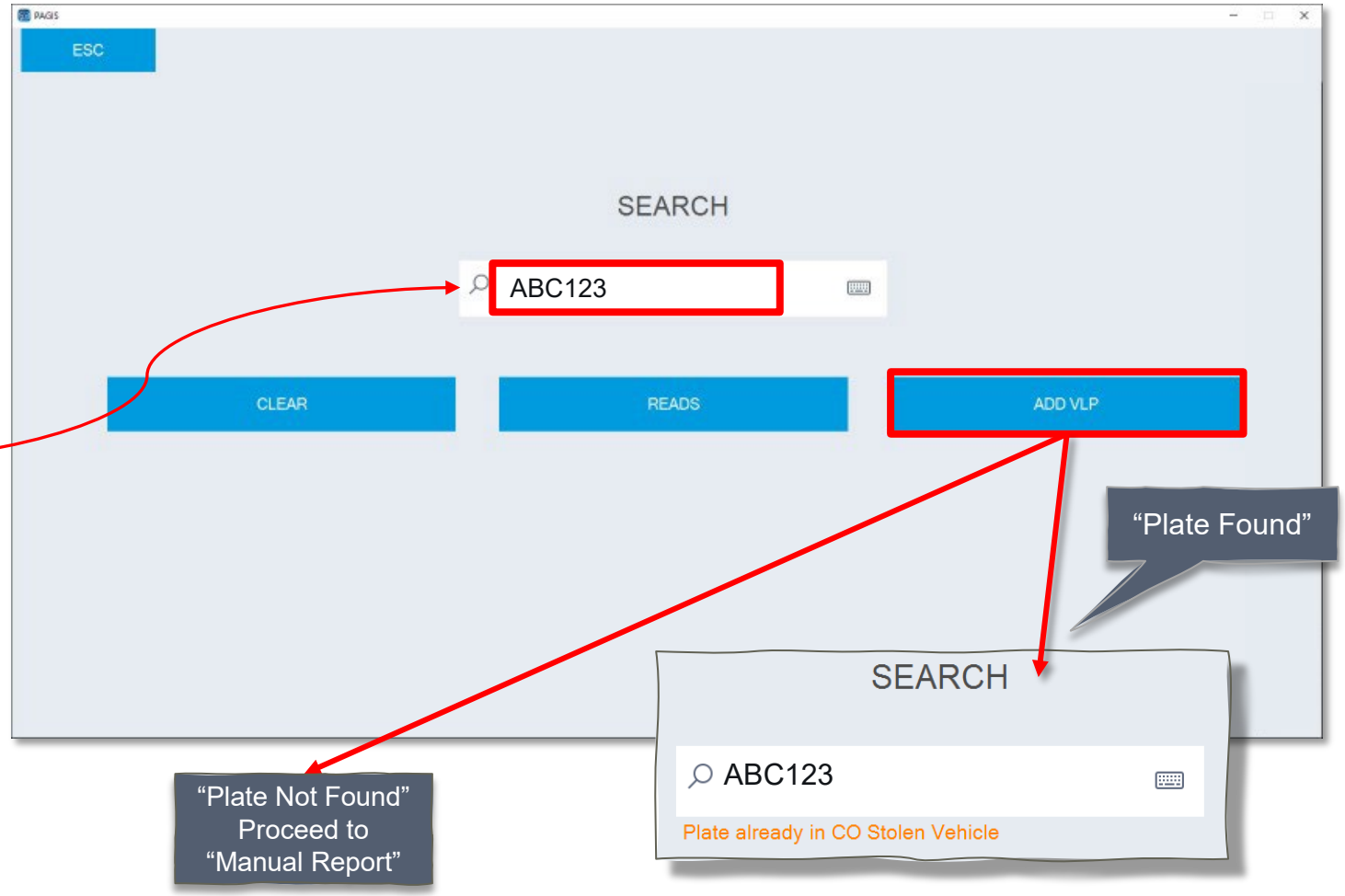
Search Entry- ADD VLP 1 of 2

Add a plate to “Manual Reports” Hotlist or check for existence of plate in Hotlist download from BOSS.

- Manual Reports is a PAGIS standalone Alert List designed for manual entries by the PAGIS operator.
- Manual Reports Alert List do not transfer to BOSS or other mobile units utilizing PAGIS.
- Manual Reports Alert List are cleared out during a manual “upload” or during Purge cycle.

Enter plate into the text field, click “Add VLP”.

- If plate already exist, a message will applier indicating the Alert List it was found in. Otherwise, you will be prompted in the next screen to classify your entry.
- Wildcards or partial plates not accepted when adding hotplates.

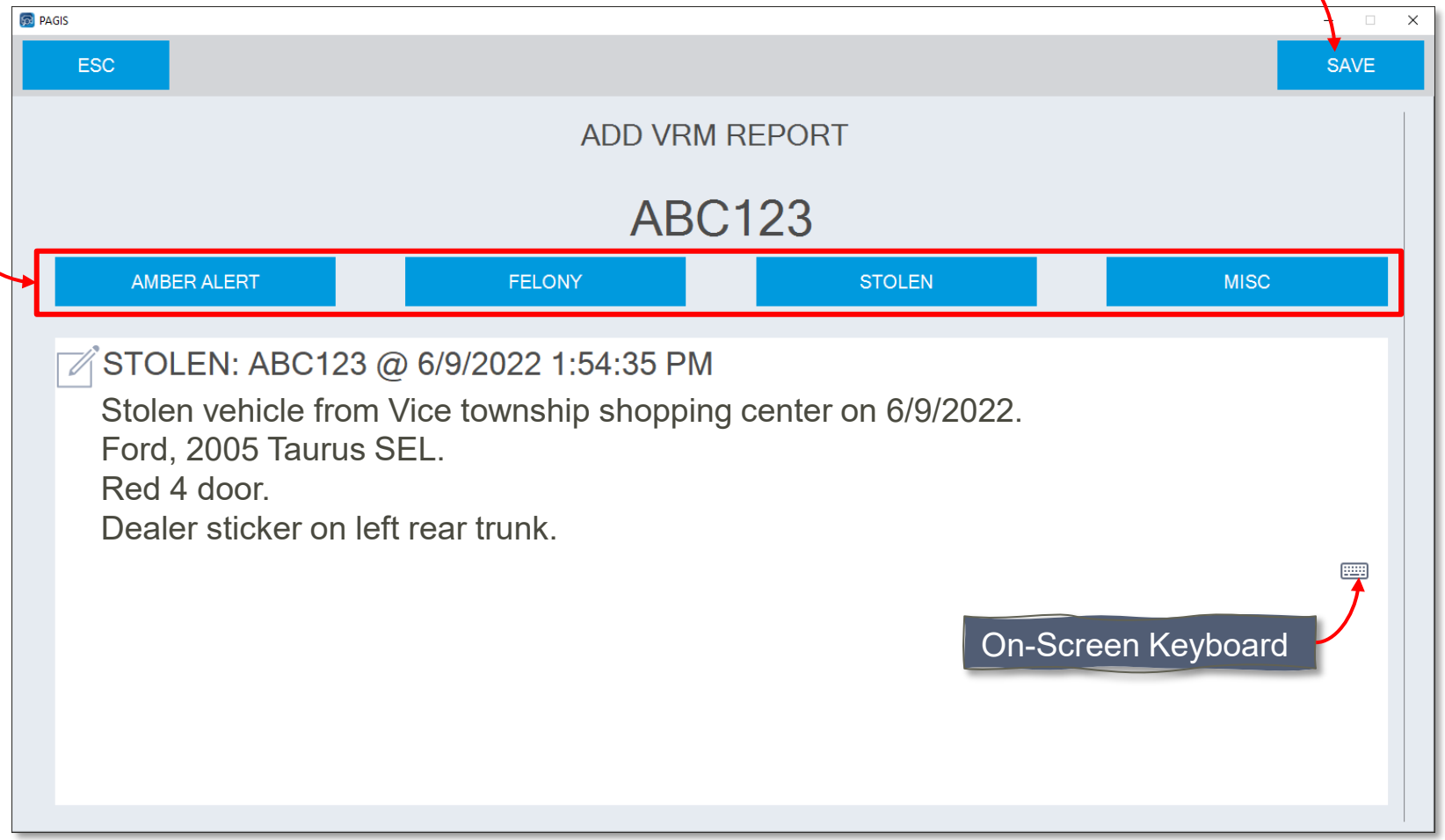


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Search Entry- ADD VLP 2 of 2

ADD VLP Report:

- Select one of the four pre-defined classifications.
- Type in additional information about the vehicle.
- There is no limit to the number of manual entries that can be added to the Manual Report Alert List.
- Entries can be edited or deleted individually in the review Database section.
- All entries in the Manual Report Alert List will be discarded when a manual End Shift is performed.



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End of PAGIS User Training



Thank you

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Click to add text

497 Series ALPR Camera - Product Overview

Preliminary Information pack - Subject to change without notice

PRESENTER'S NAME

DATE

497 Series ALPR Camera Overview

Overview

Fully integrated ALPR camera with On-Board Optical Character Recognition (OCR)



Performance

Optimised for Urban Environments
High Resolution (1920x720) Daylight and IR



Features

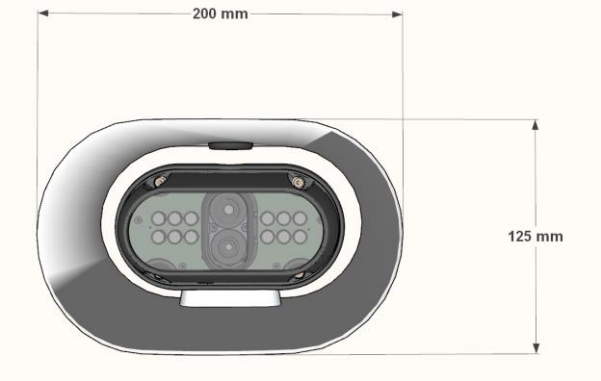
Fast Single Cable installation
Secure Data Management
Integrated Neology OCR
AI Analytics Compatible

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Preliminary

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Compact Design

- Reduced visibility in urban environments
- Optional hood colours (Black/white)
- Minimal footprint with ‘No hood’ operation for covert operations





497 (on left) compared to IRIS camera

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Fast and Easy Install



Ethernet Connectivity



Single Cable, glanded or connectorized options



Accessories; Cables, Termination Boxes, Brackets and modem options



Rapid deployment with pre configured lenses and config management tools

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497 Series ALPR Camera – Optional Accessories

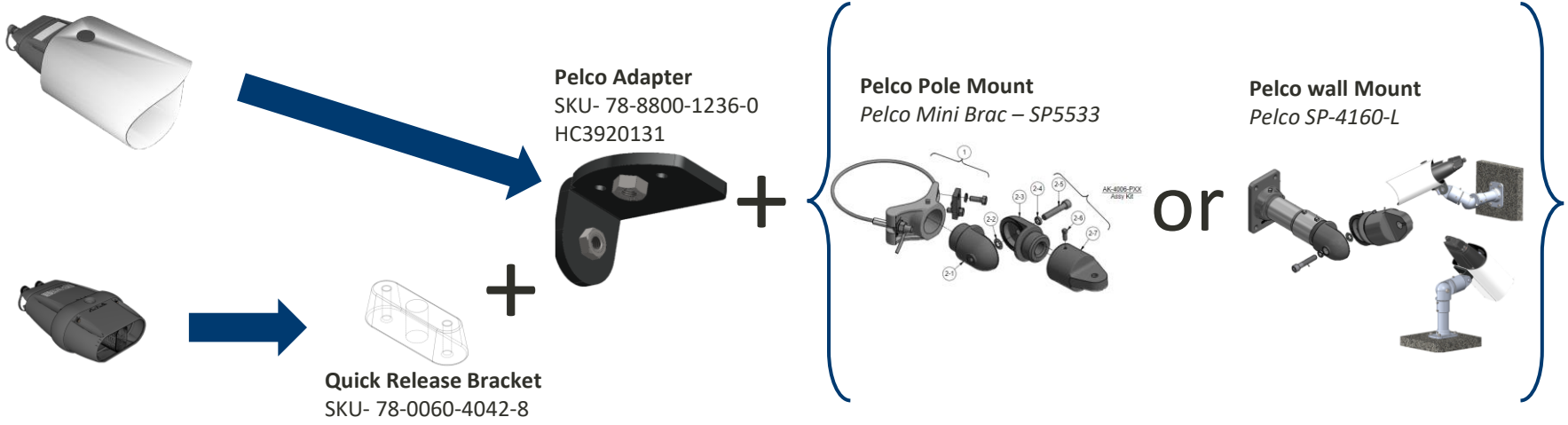
Preliminary Information pack - Subject to change without notice

PRESENTER'S NAME

DATE

Available accessories – Brackets

- Based on Pelco range of brackets for universal operation
- Option for mounting without hood for covert installs



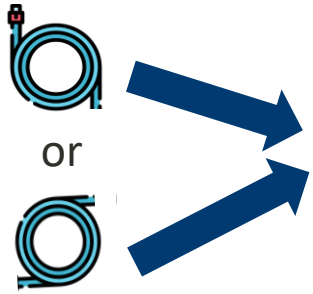
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Available accessories – T-Box and Cables (USA)

- 1 or 2 Camera T-Box Options
- Separately Ordered Cable Options – Raw & Terminated Options

Cable 100 ft, terminated camera end



or

Cable 100 ft, unterminated

+

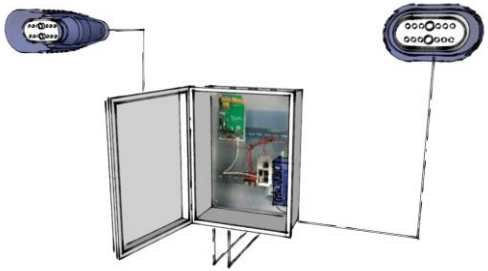
Single camera T-box



Includes mounting brackets

or

Dual camera T-box



Includes mounting brackets

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497 Series ALPR Camera - Capability Reference

Performance benchmarks and primary feature list - Preliminary

PRESENTER'S NAME

DATE

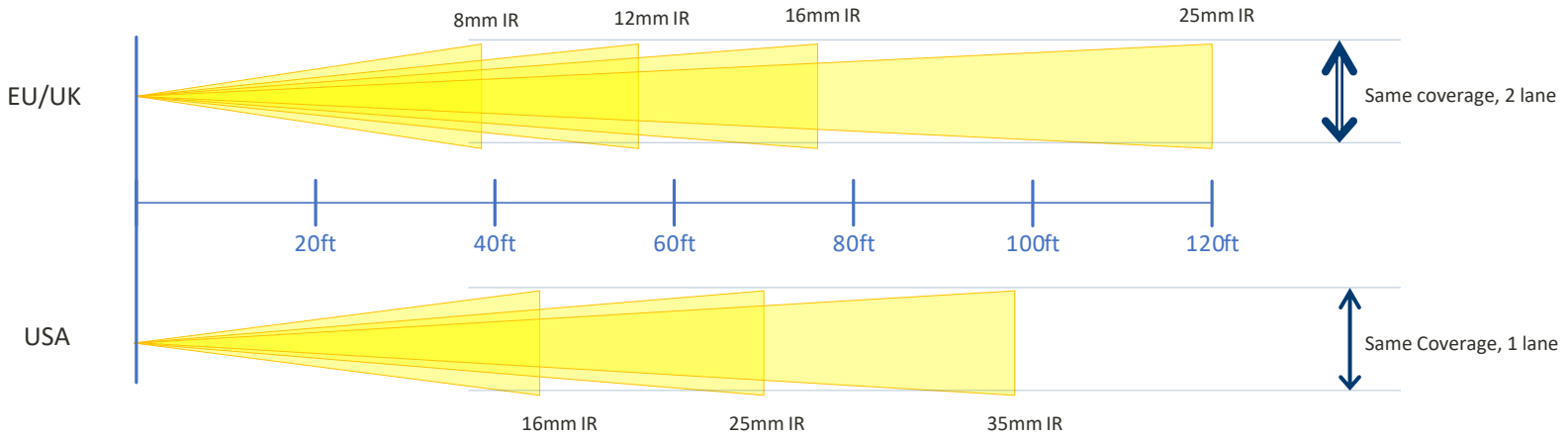
Performance Envelope – key metrics

Imaging	Parameter	Notes
Resolution	1920x720	Dual sensor IR, DL, both same resolution
Lane coverage	2 UK, 1 USA	See Lane coverage chart on next page
Lenses	Fixed focal length, factory fitted	See separate lens table
Working distance	5-35m,	Set by LED lens and Optical lens selection at manufacture *See Lane coverage chart on next page*
Illumination		
Integrated Illuminator	Yes	IR, wavelength defined at factory fit
Operational range	>35m	Subject to region, lens, and LED choice
Wavebands	810nm, 850nm	740nm, 940nm build options TBC
Triple flash	yes	Triple plate exposure, with automatic exposure tracking
Triple beams	No – fixed beam width	Factory set, based on specified working distance

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Performance Envelope – lane Coverage



Lens Focal Length (IR/DL)	UK/EU Working Distance* 850nm, 2 lane	US Working Distance* 810nm, 1 lane	Notes
35/25	Not Available	29.7m (97.3ft)	Option**
25/16	36.1m (118.5ft)	21.2m (69.5ft)	Preferred (UK/US)
16/12	23.1m (75.8ft)	13.6m (44.5ft)	Preferred (UK/US)
12/8	17.3m (56.9ft)	10.2m (33.4ft)	Preferred (UK)
8/6	11.6m (37.9ft)		Option

*Based on example of 120pix/plate, and a coverage of Uk = 8.3m (27.3ft), US = 16ft (4.8 m)
** Will be fitted with long front body sub assembly

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Performance Envelope – Key Metrics

ALPR performance	Parameter	Notes
Illumination	0lux	IR flash enables 0lux ANPR operation
Accuracy	On board OCR exceeds NASP detection/accuracy	Cardet and region dependant, IR single channel read.
Plate capture	4 plates per image	
Throughput	1800 Lane/Hr	
Burst Rate	2 /second burst (10sec)	With event encryption/signatures disabled,
Vehicle speeds	0-140mph	
Hazard plates	N/A	Hazard and 'A plates' are not supported
VMD	N/A	Vehicle detection not Supported
List Processing	Yes	On camera hot list processor, >750k entry capability
Image processing		
Dual channel OCR:	No	Single Channel IR OCR, on camera
CARDET	497 specific cardet required	Ported from IRIS on demand (request with order)
Frame rate	50FPS (Frames per second)	Plate finder operates on all frames
DLOCR	Yes, called as an external webservice	Subject to round trip of <3sec on web service call, subject to regional model availability
MANTIS	Yes, called as an external webservice	Subject to round trip of <3sec on web service call, subject to regional model availability
Low light	IR Filters not removable	Improved low light over 492 generation
Embedded Edge Ai	No	Embedded edge AI not available

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Performance Envelope – Storage and Data Security

Data Security	Parameter	Notes
Disk encryption	Yes	AES256 event store. Standard throughput only, not burst speed
Firewall	Yes	Includes IP address whitelisting
Image Signatures	Yes	Standard throughput only, not burst speed
TLS	Yes	Secure socket connections (TLS1.3) available
Enforcement mode	Partial	NTP, SW tamper. *HW tamper & GPS lock not supported*
Signed Updates	Yes	All app and cardet updates are signed for authenticity
Storage		
SD Card	8Gbx1 default fit	Internal, non-replaceable, high reliability
Encryption	Yes	Not available at stated 'burst' speed
Event storage, typical	>13,500 event capacity	Based on 8Gb, (see slide notes) includes images and metadata, based on IRIS, 497 TBC

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Performance Envelope – Video and image capture

Video		
H.264	no	
JPEG stream	yes	MJPEG viewfinder streaming protocol @1920x720 variable frame rate
Images		
Event images	BMP, JPG	BMP plate patch only. JPEG standard Q,

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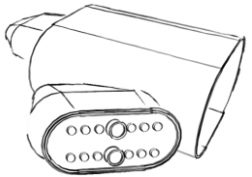
Performance Envelope – Experimental Features

Feature	Parameter	Notes
Spot speed estimate	Yes – Beta release	For EU/US standard plates only; +-20% accuracy typical
Light meter	Yes – Beta release; service use only	Rough estimate of scene illumination (lux),

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Performance Envelope – Hardware Features 1

Data Connections	Parameter	Notes
Ethernet	10/100BaseT	3pair only wiring
Mobile/Cell	No	Use external modem/wifi accessory option
Serial (RS232)	Yes, 2 Com ports	Com1 For maintenance only (‘brick mode’ recovery)
Wifi	No	
GPS	No	
Physical		
Dimensions (LxWxH)	15 x 7.9 x 4.9 in 10.6 x 6.6 x 3.7 in	With Hood Without Hood (+1.2in / 29mm length for 35mm lens)
Weight	5.6 lbs. 3.6 lbs.	With Hood Without Hood
Environmental	-40 to 60degC	When fitted with metal hood and neology bracket
Power		
PoE	No (15VDC)	Use Separate Power Supply w/Common PiPS Cable
Volts	12-24 Volts DC; abs max 25Vdc	15V or 18V nominal supply recommended
Watts	Typical 15W, abs max	



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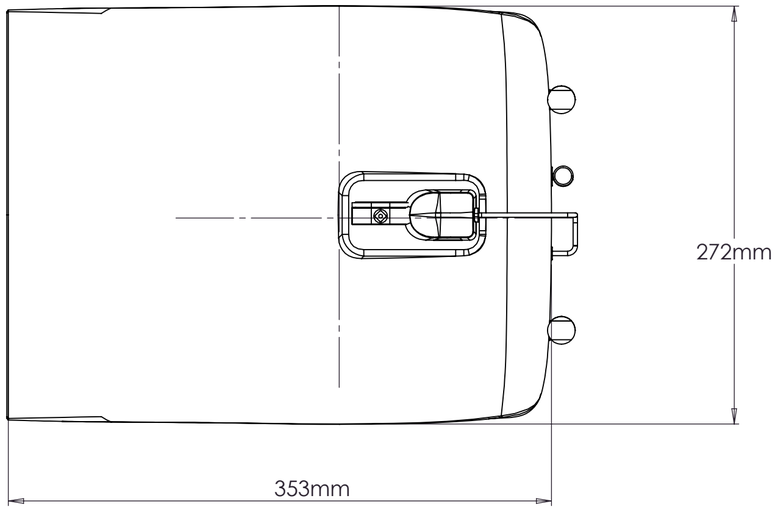
Performance Envelope – Hardware features 2

Other interfaces		
Hardware Trigger	Yes	In/Out as per 492
Cabling	Single cable	Utilises Neology multicore cable
Connectors	Glanded/Binder	Factory fit of glanded or Binder cable entry (request at order)
Mounting		
Bracket options	Pole, wall, surface, traffic light	Integral memory bracket, used with ‘Pelco’ mounting hardware

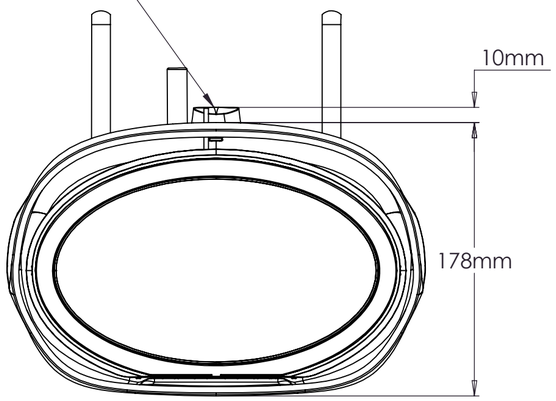
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Preliminary

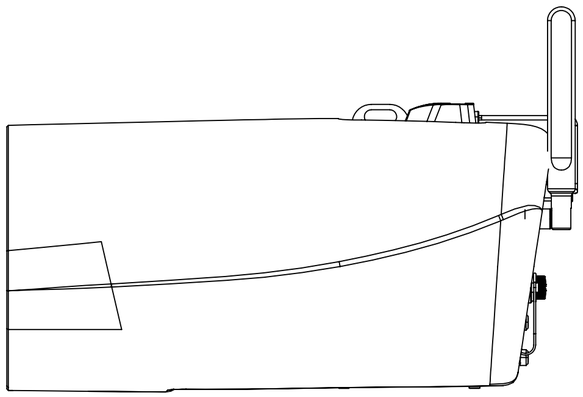
subject to change without notice

REVISION RECORD				
REV	DATE	DESCRIPTION	DRFT	CHKD
A	2018-05-02	1ST- DRAWN	IDH	
B	2019-07-05	ADDED WIND LOADING INFO	IDH	
C	2019-11-22	UPDATED CAD MODEL	IDH	

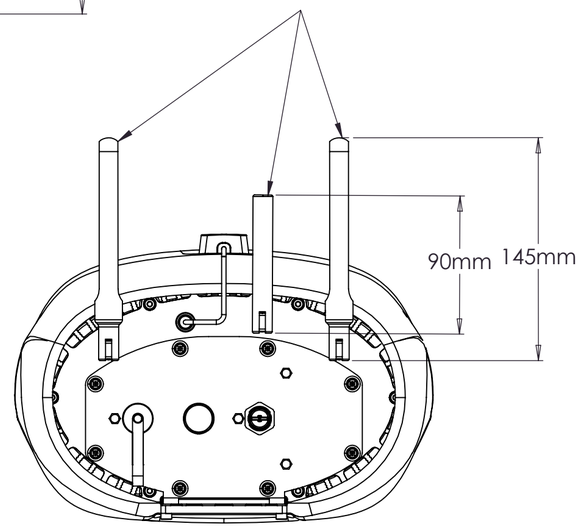


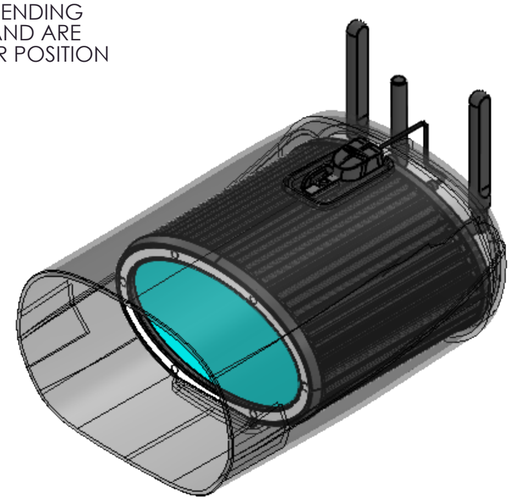
NOTE:
AS WITH THE OTHER ANTENNAS THE GPS ANTENNA IS OPTIONAL DEPENDING UPON BUILD SPECIFICATIONS

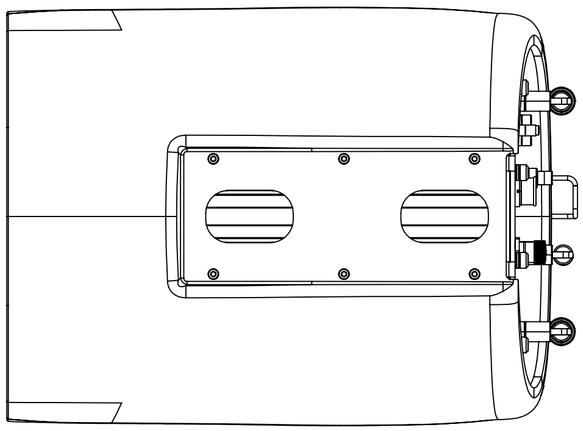


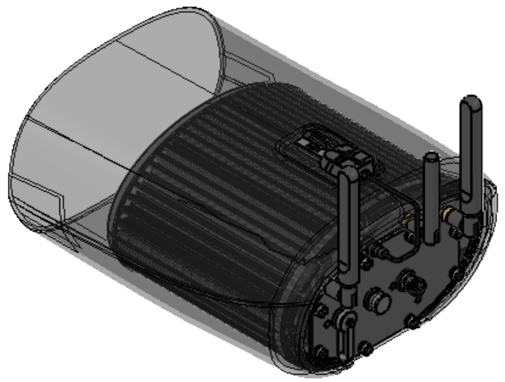


NOTE:
ANTENNAS ARE OPTIONAL DEPENDING UPON BUILD SPECIFICATIONS AND ARE ALSO HINGED ALLOWING THEIR POSITION TO BE ALTERED.









NOTE:
ALL DIMENSIONS & WEIGHTS ARE APPROXIMATE.

1. MASS OF CAMERA AND HOOD = 6.4kg

2. DIMENSIONS
X = 272mm (W)
Y = 178mm (H)
Z = 353mm (L)

3. FOR APPROXIMATE GUIDANCE ONLY, CONSIDER A WIND LOAD OF 15.4KG AT 100MPH.

NOTE: SITE SPECIFIC CALCULATIONS SHOULD BE PERFORMED BY AND REMAIN THE RESPONSIBLITY OF THE CUSTOMER/DEPLOYMENT INTEGRATOR OR BY A THIRD PARTY FOR THEIR INDEPENDENT APPROVAL.

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DESIGN REF

DETACHED LISTS

MM(INCH)
25.4MM=1 INCH

TOLERANCES EXCEPT AS NOTED

MM		INCHES	
0 ±	0.5	.0 ±	0.02
.0 ±	0.1	.00 ±	0.015
.00 ±	0.05	.000±	0.005

ANGLES ± 0.5°

MATERIAL N/A

FINISH N/A

DFTG	I Drabik-Hamshare	DATE 2019-11-22
CHKD		DATE
QUAL		DATE
MFG		DATE
APPVL		DATE

[X] Each homogenous material in this part meets the substance restrictions of EU RoHS Directive 2011/65/EU and its Annex II. Each part complies with the conditions of the current REACH SVHC Candidate List and Annex XVII of EC 1907/2006.

SCALE :

THIRD ANGLE PROJECTION

PIPS TECHNOLOGY

PIPS Neology UK Ltd

MODEL P500

TITLE

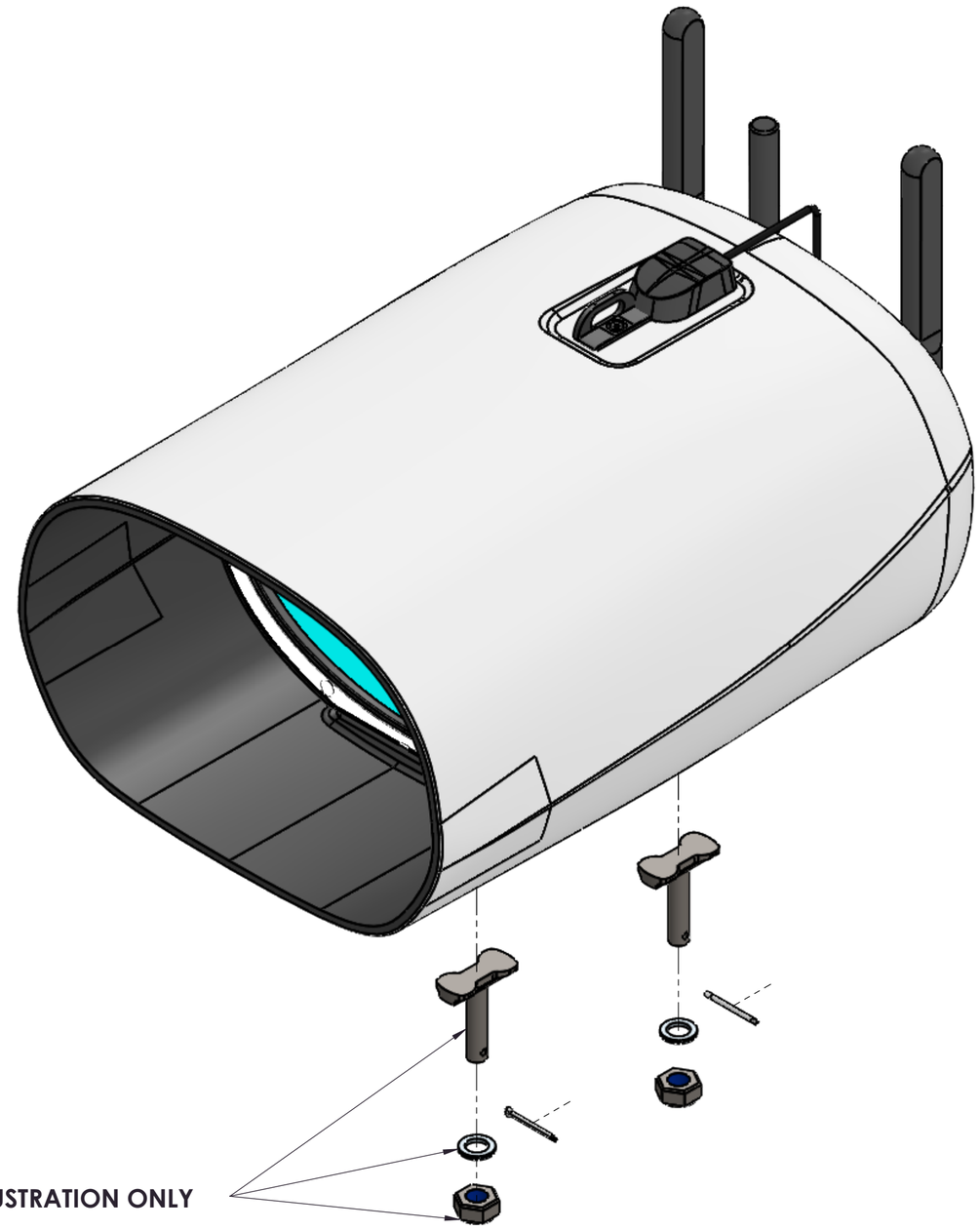
P500 LONG HOOD PHYSICAL CHARACTERISTICS

FSCM NO.	SIZE	DRAWING NO.	REV
	C	THEIA-11-101	C

DO NOT SCALE DRAWING | DET LISTS ☐ YES ☒ NO | SHT 1 OF 3

DRAWING NO.

		REVISION RECORD		
REV	DATE	DESCRIPTION	DRFT	ECR/ECO
C		SEE SHEET 1	IDH	



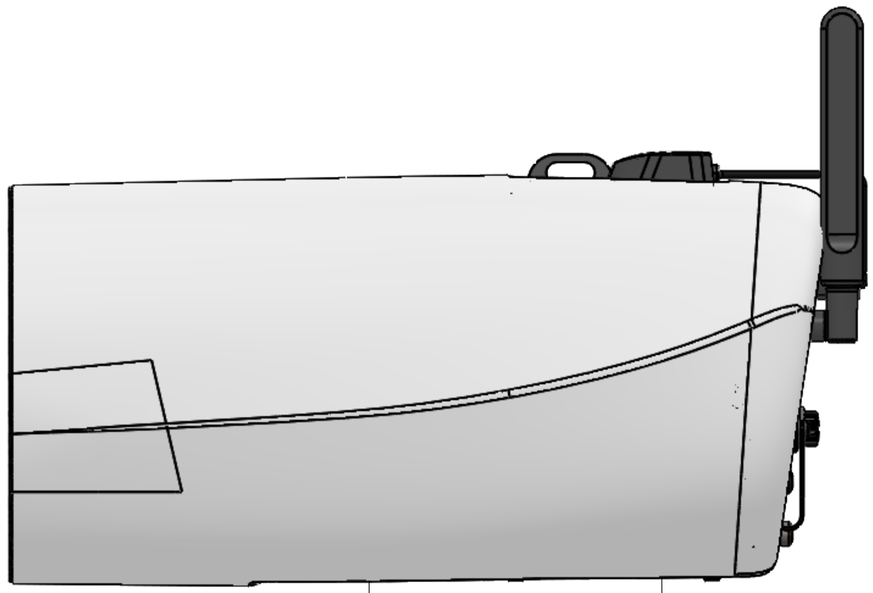
FIXINGS SHOWN FOR ILLUSTRATION ONLY
SUPPLIED SEPARATELY.

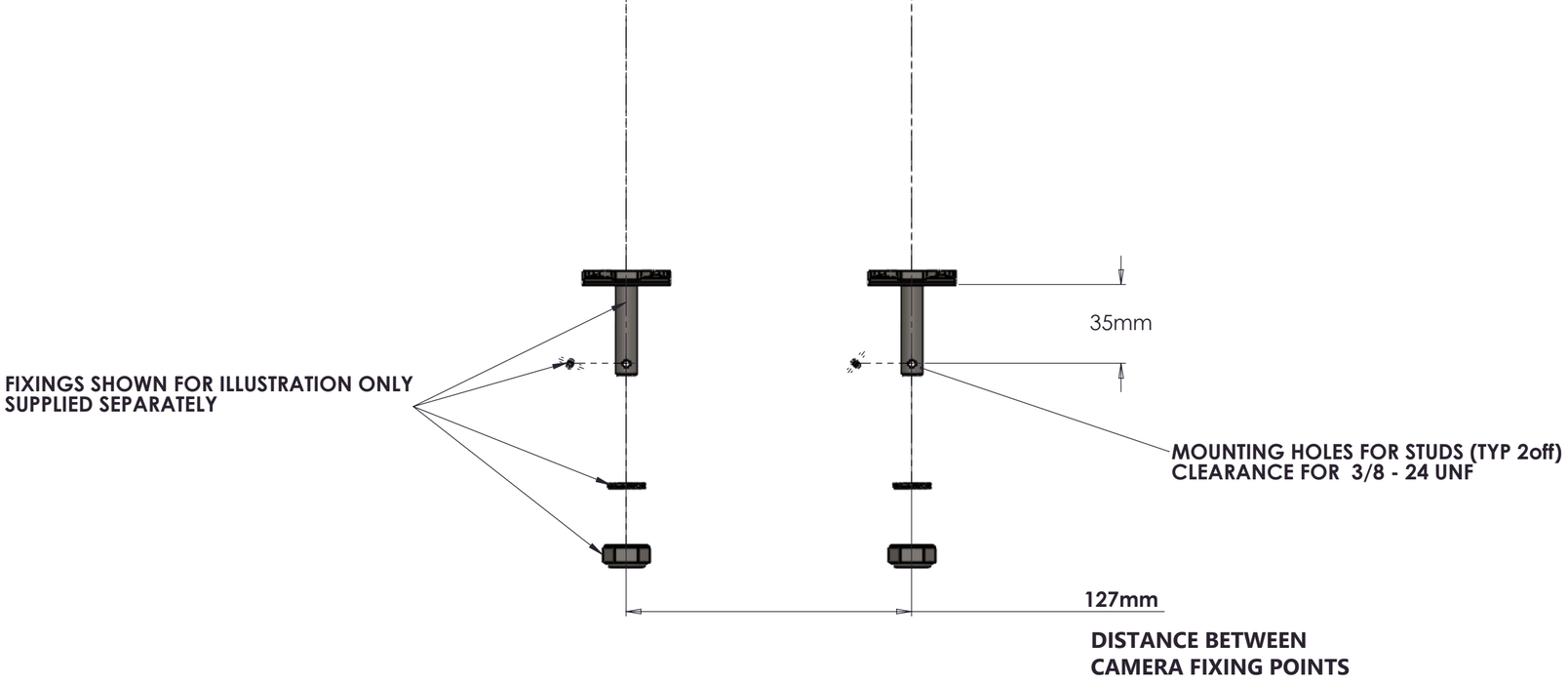


DRAWING NO.

FSCM NO.	SIZE	DRAWING NO.	REV
	C	THEIA-88-101	C
DO NOT SCALE DRAWING	DET LISTS ☐ YES ☒ NO	SHT 2 OF 3	

		REVISION RECORD		
REV	DATE	DESCRIPTION	DRFT	ECR/ECO
C		SEE SHEET 1	IDH	





DRAWING NO.

FSCM NO.	SIZE	DRAWING NO.	REV
	C	THEIA-88-101	C

DO NOT SCALE DRAWING | DET LISTS ☐ YES ☒ NO | SHT 3 OF 3

P720

MOBILE CAMERA & SX4e PROCESSOR



Extended Field of View

- 2 lane coverage
- FOV increased by 42%
- 1280 x 720 @ 60fps
- New sensors for better image quality

Longer Capture Range

- Up to 45ft - 50% increase
- Improved low-light capability

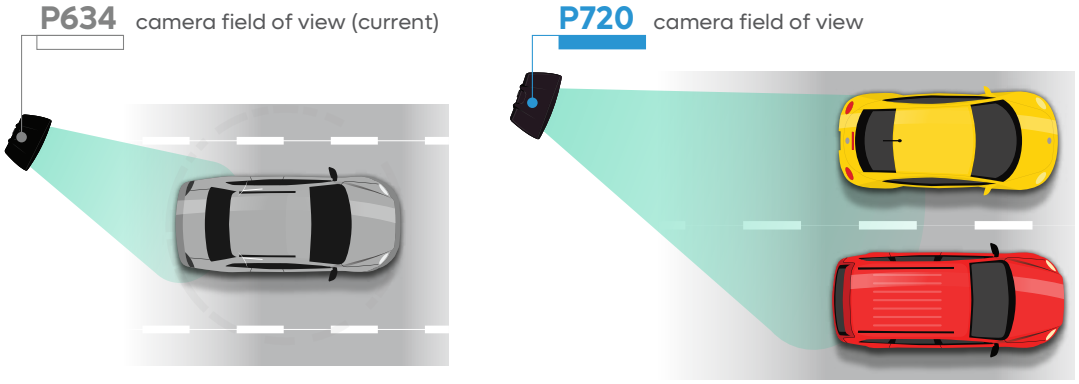
Minimal Upgrade Barrier

- Same low profile and small footprint as the P634 mobile camera
- Backward compatible with current Neology™ brackets

Easy / Flexible Installation

- POE cable available in 15 ft to 100 ft
- Metal IP67 sealed connectors
- IP67 housing for outdoor operation

Increase Your Vision



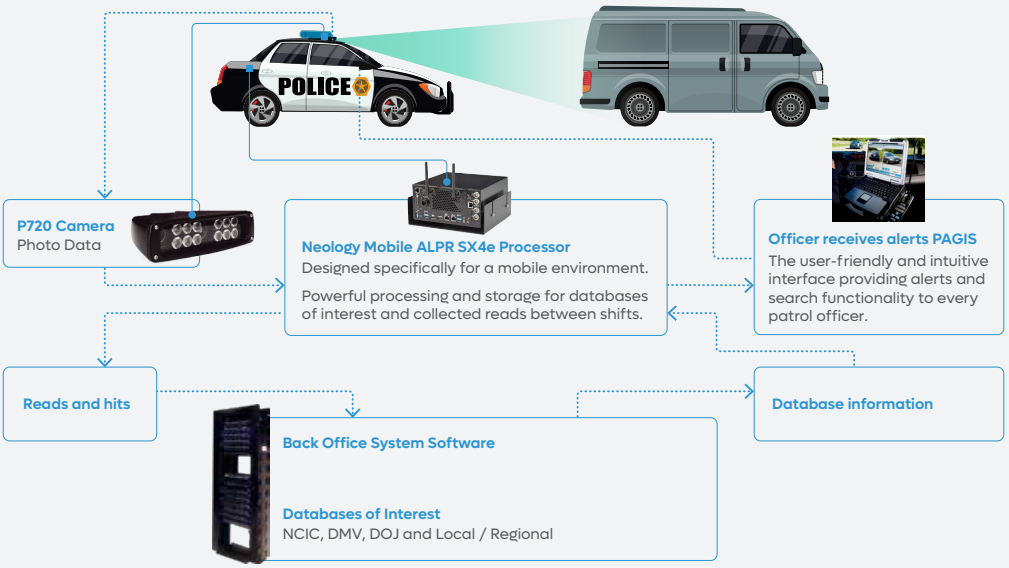
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MOBILE ALPR SYSTEMS

Mobile ALPR Systems assist on-street patrol officers checking for criminal activity by capturing and analyzing license plates against known databases. This compact, rugged system has been IP67 certified and mounts securely below the lightbar for limited visual interference.

The Neology ALPR Solution is a force multiplier that increases officer productivity and safety with every deployment.



Applications

On-street enforcement of:

- Stolen Vehicles
- Amber Alerts
- Unregistered Vehicles
- Wanted Criminals
- Parking Violations
- Be on the Lookout (BOLO)

Features & Benefits

- Offers high resolution coverage for a full lane of traffic with up to two concurrent vehicles in the field of view.
- Instantly checks captured plates against one or more databases of interest to immediately alert officers of hits.
- Increases spatial awareness for improved officer safety.
- Enhances proactive, preventative enforcement by enabling more intelligent investigations and data sharing across jurisdictions.
- Back Office System Software (BOSS) stores all collected data in a central location to support data analysis, data queries and reporting for law enforcement investigations (in accordance with each jurisdiction's data retention policy).

Accelerating Your Vision

At Neology, we re-imagine mobility to accelerate your vision of a smart city and safer communities.

By closely collaborating with our customers, we connect existing infrastructure assets with next-generation technology to modernize the way people move. Backed by a culture of innovation, we help create safer, cleaner, more efficient mobility experiences that support sustainable growth and help communities thrive.

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13520 Evening Creek Drive N. Suite 460 | San Diego California, USA 92128

V.2021.04.21

3M Traffic Safety and Security Division

3M™ License Plate Capture Software

User Training – Knoxville Plant

September 17th, 2014



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Introduction

3M License Plate Capture Software

- Amber / Silver alerts
- Wants, warrants & BOLO
- Sexual predator monitoring
- Stolen vehicle detection
- Drug enforcement
- Debt collection / Scofflaw
- Investigations and data analysis
- Any database associated with vehicle license plates



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Introduction

3M License Plate Capture Software

- Mobile (in car) application
- Easy, intuitive GUI
- Allow for matching against multiple databases:
  - NCIC
  - Local hotlist
  - AMBER alerts
  - Others
- Audible and visual alerts on HITS

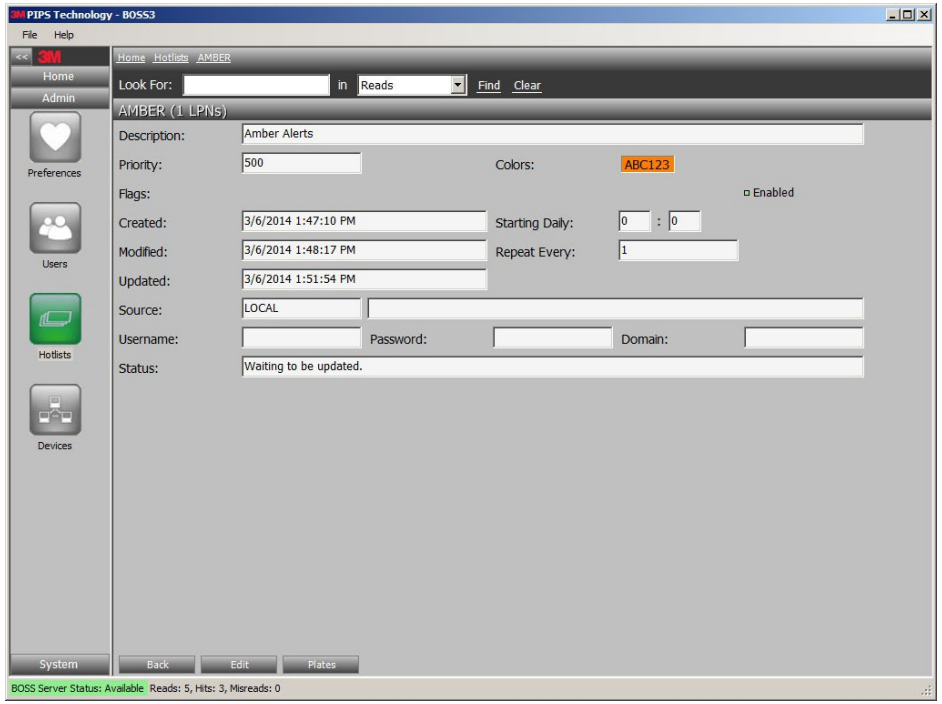


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Introduction

3M License Plate Capture Software – 3M™ Back Office System Software

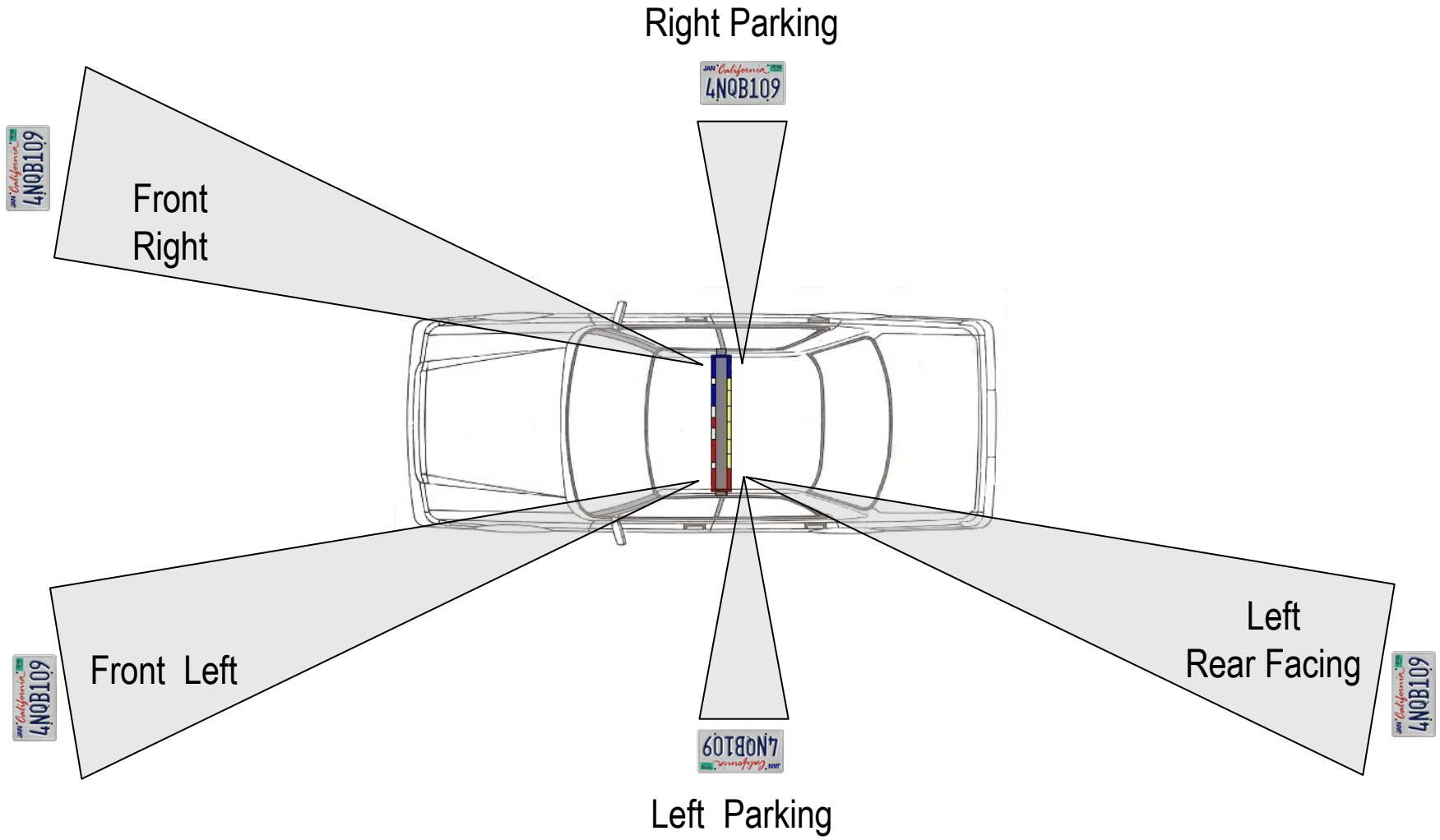
- Synchronization of hotlists to 3M License Plate Capture Software
- Hotlist management
- Crimes analysis query and data mining of software reads and hits, mapping
- Remote notification of HITS
- Covert database capability



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Introduction

3M License Plate Capture Software



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Introduction

3M Plate Capture Software – Cleaning

- At the beginning of each shift, inspect the cameras for obstructions on the lenses and clean each camera with a mild detergent and a soft cloth. **DO NOT** use cleaners containing alcohol or ammonia.



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Startup

3M License Plate Capture Software

- Start the vehicle ignition.
- Turn on your MDT (laptop) and login to Windows.
- Start all software.

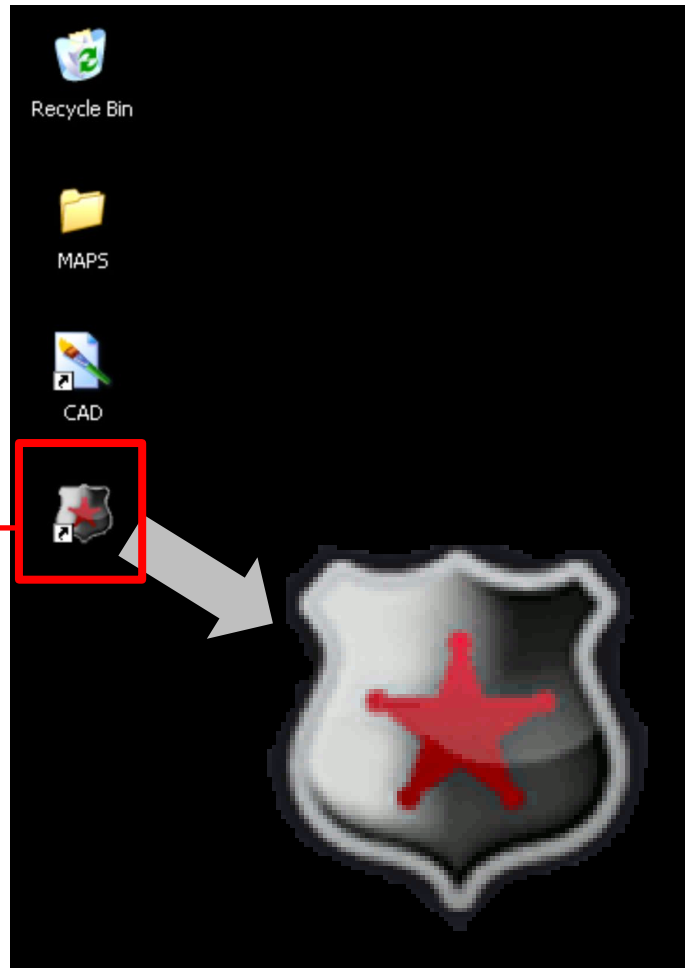


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Startup

3M License Plate Capture Software

- To start software, double click the **SHIELD (LPCS)** icon on the desktop – Icon may change but currently, it is the 3M Logo.

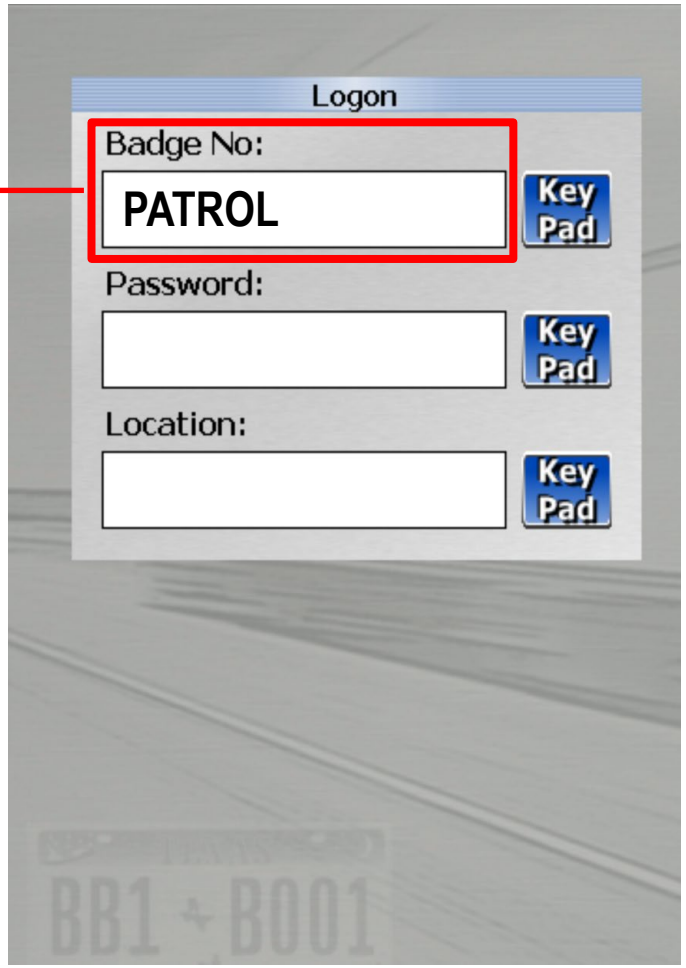


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Startup

3M License Plate Capture Software

- Enter
  - Your Username (Badge Number or Other)

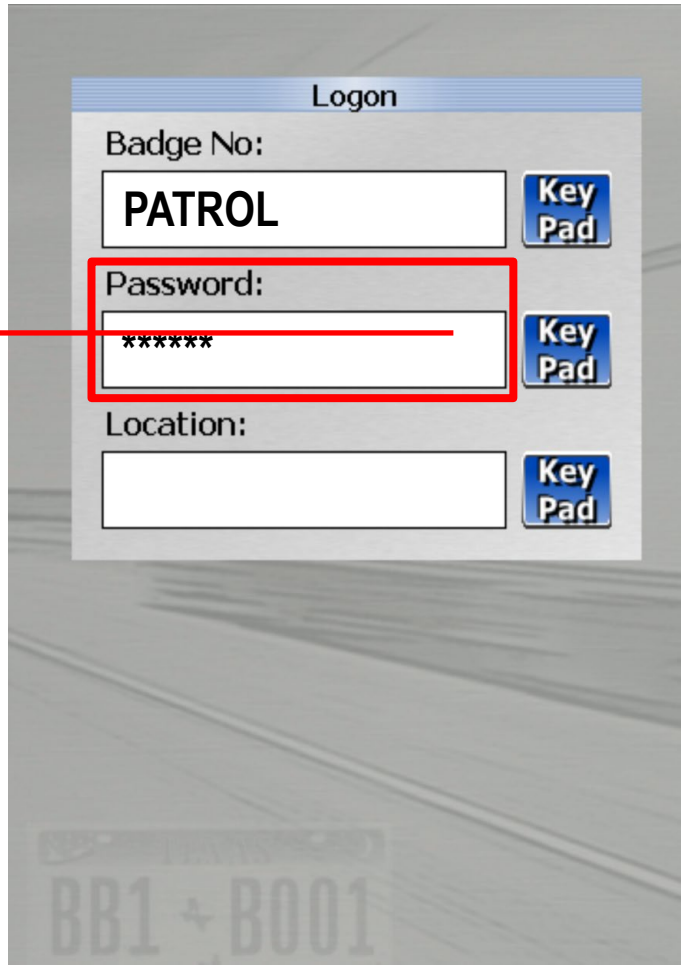


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Startup

3M License Plate Capture Software

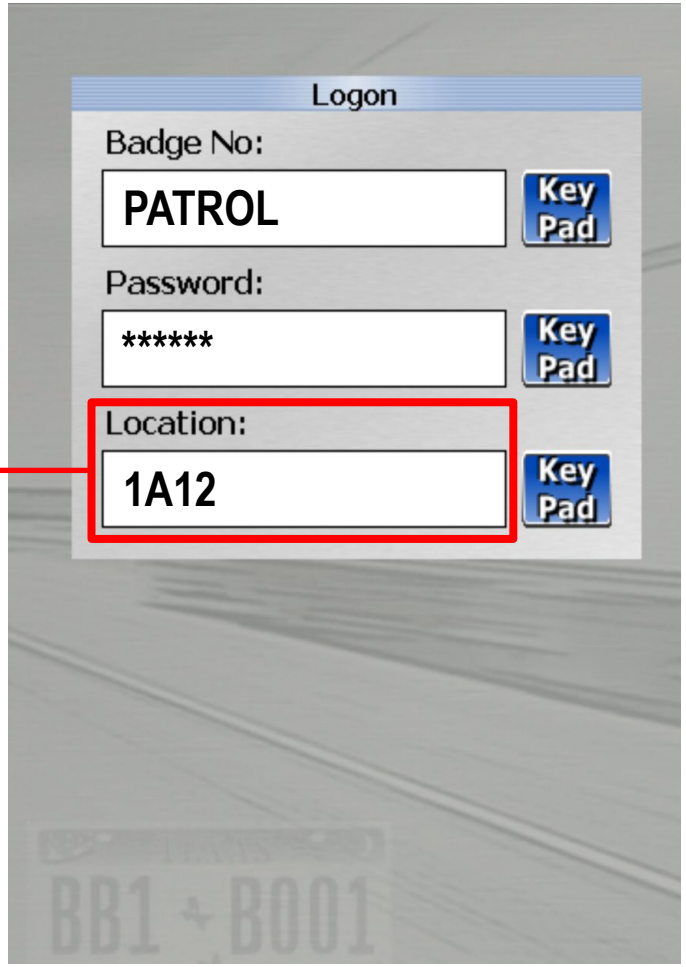
- Enter
  - Your Password
    - The password will be assigned by the License Plate Capture Software Administrator.



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3M License Plate Capture Software

- Enter
  - Location / Unit Number or Other
    - Location is an *Optional* Text label. Each license plate read will have this label associated with it when this field is populated. The label can be used for the Back Office System Software reporting purposes.

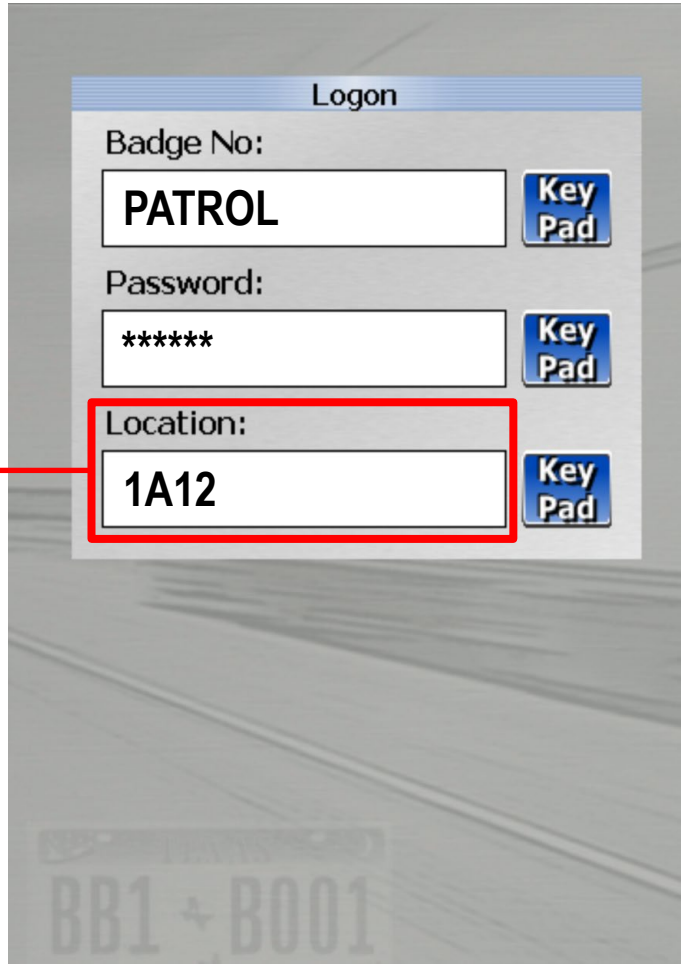


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Startup

3M License Plate Capture Software

- Enter
  - Location can be entered as:
    - The vehicle unit number - 1A12.
    - A label identifying a task force or operation.
    - A label for a Check Point - DL Check 3/18/14
    - A label for a special event:
      - Park concert
      - Fire on a particular street or location
      - Sporting events
      - Catastrophic event

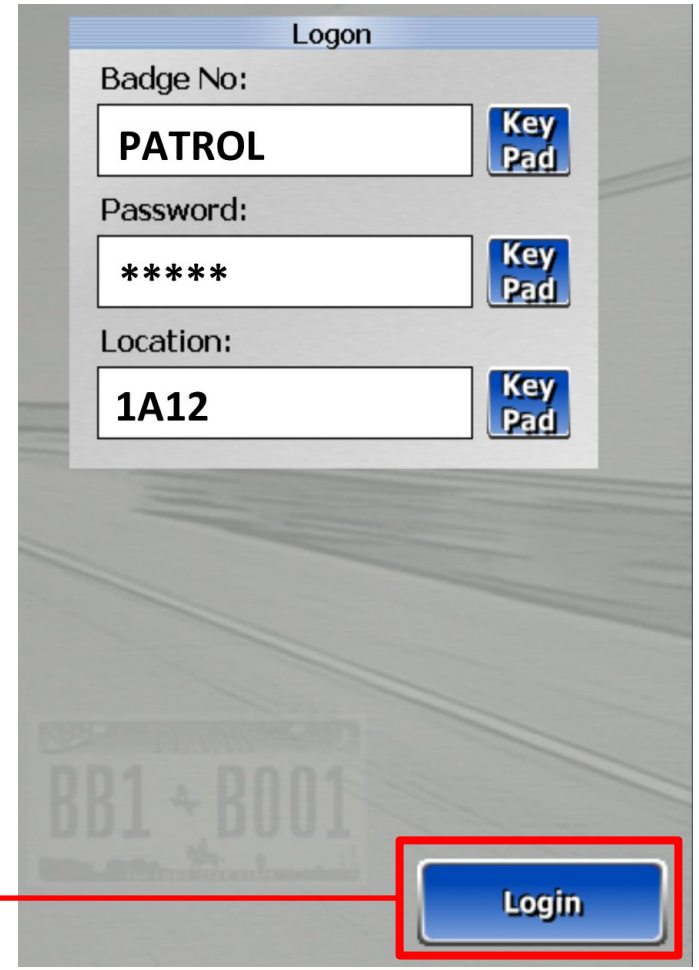


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Startup

3M License Plate Capture Software

- Press **LOGIN** to start software.

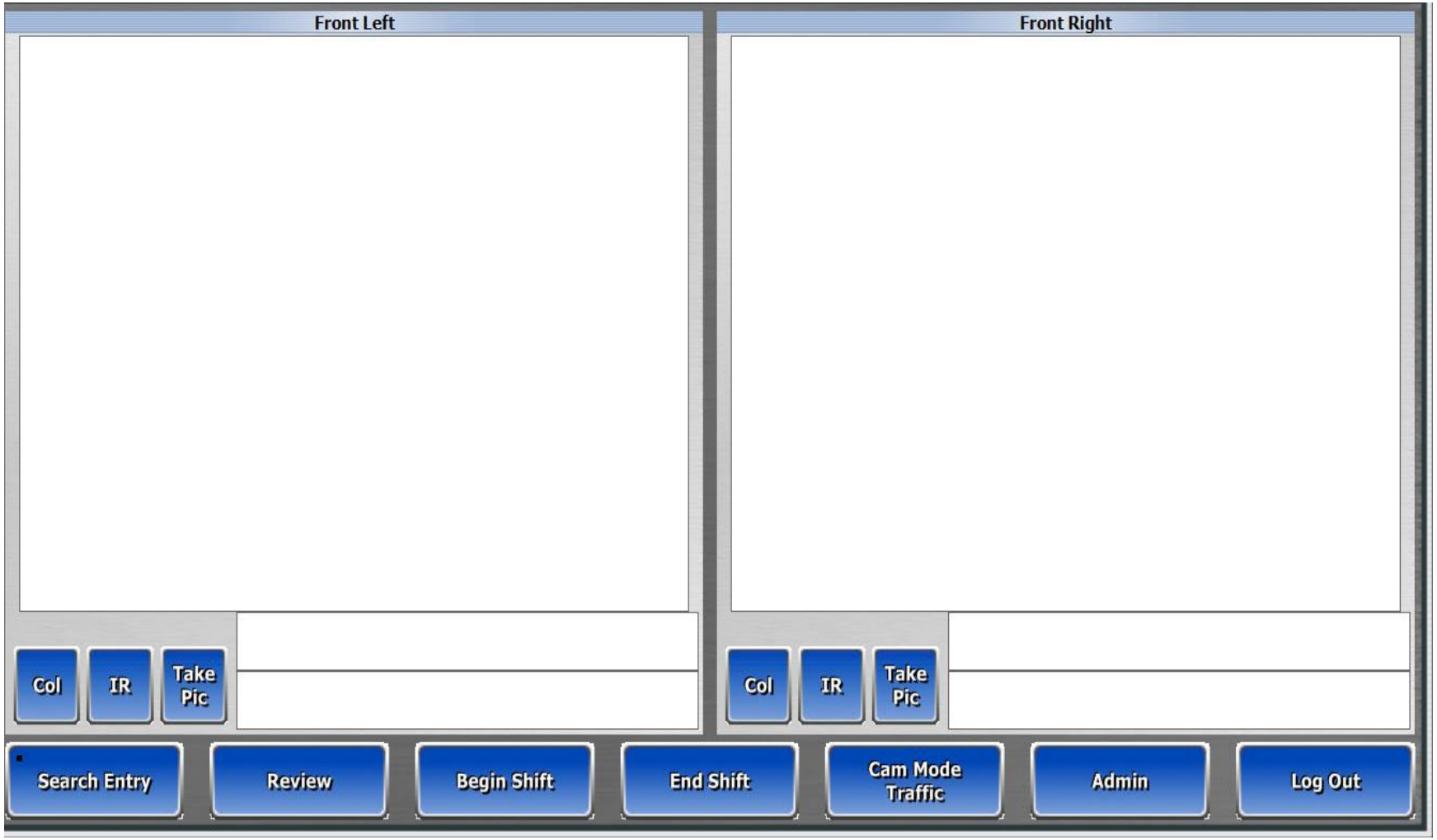


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Startup

3M License Plate Capture Software

- Main screen *or* Live View Screen



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Startup – Hot List Databases

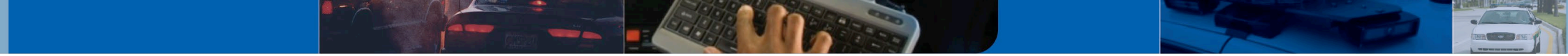
3M License Plate Capture Software

- In the U.S., hotlist databases used by the system are derived from NCIC, state, and local sources.

  These databases may consist of:

  - NCIC Hotlists
    - Stolen vehicles
    - Stolen license plates
    - Stolen Canadian license plates
    - Wanted persons
    - Protection orders
    - Missing persons
    - Violent gangs and terrorist organizations
    - Supervised release (Parole)
    - Sex Offender Registry
    - Immigration violator

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Startup – Hotlist Databases

3M License Plate Capture Software

- State Hotlists
  - Expired registrations,
  - Revoked registrations,
  - Expired or cancelled vehicle insurance,
  - Any database associated with license plates.
- Local Hotlists
  - Parking violations,
  - Task force hotlists,
  - Known gang members,
  - Local stolen vehicles,
  - Local wanted people for questioning,
  - Any database associated with license plates.

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Begin Shift

3M License Plate Capture Software

- **BEGIN SHIFT** synchronizes the hotlist databases to update the 3M License Plate Capture Software with new hotlist databases and also transfers collected license plates from the 3M License Plate Capture Software to the 3M Back Office System Software server.
- The synchronization of the most recent “hotlist” information from the Back Office System Software server into the License Plate Capture Software will be performed in one of two ways, depending on the system’s configuration:
  - Using a USB Memory Stick / Thumbdrive
  - Wireless connection (Wi-Fi or cellular modem) server.
- The Back Office System Software is scheduled for a complete redesign, Q4

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Begin Shift

3M License Plate Capture Software

- For vehicles **NOT** equipped for 802.11 Wi-Fi or cellular communications:
  - Go to the PC or Server equipped with 3M Back Office System Software as instructed by your system administrator.
  - Insert USB thumb drive into assigned USB port on PC or Server.
  - Access client tools by right clicking on client tools icon in system tray as shown (green teardrop with yellow “swoosh”).
  - Select SYNCHRONIZE / BEGIN SHIFT.
  - Select location of thumb drive; Administrator will most likely have set this to be the first option.
  - Wait for “Synchronization Complete” message, remove thumbdrive.
  - Proceed to vehicle where the LPCS is installed.

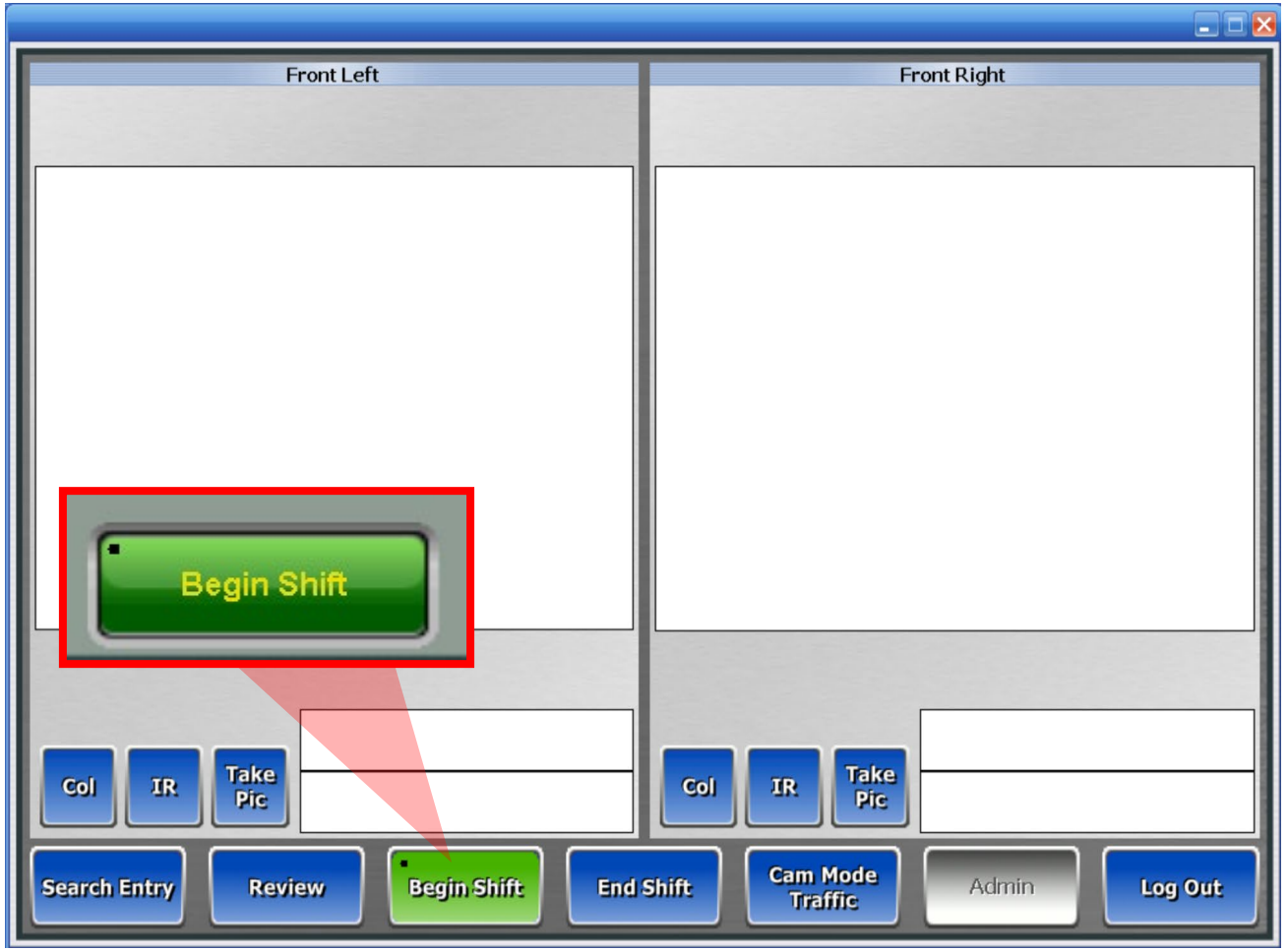


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Begin Shift

3M License Plate Capture Software

- For vehicles **NOT** equipped for data transfer via 802.11 Wi-Fi or cellular:
  - Insert thumbdrive with latest hotlist data into designated USB port on your MDC or laptop computer.
    - For All Vehicles:
      - Press **BEGIN SHIFT** button twice to synchronize all hotlist data to vehicle's processor.
      - Wait for synchronization window to disappear from screen.
      - Software is now operational.

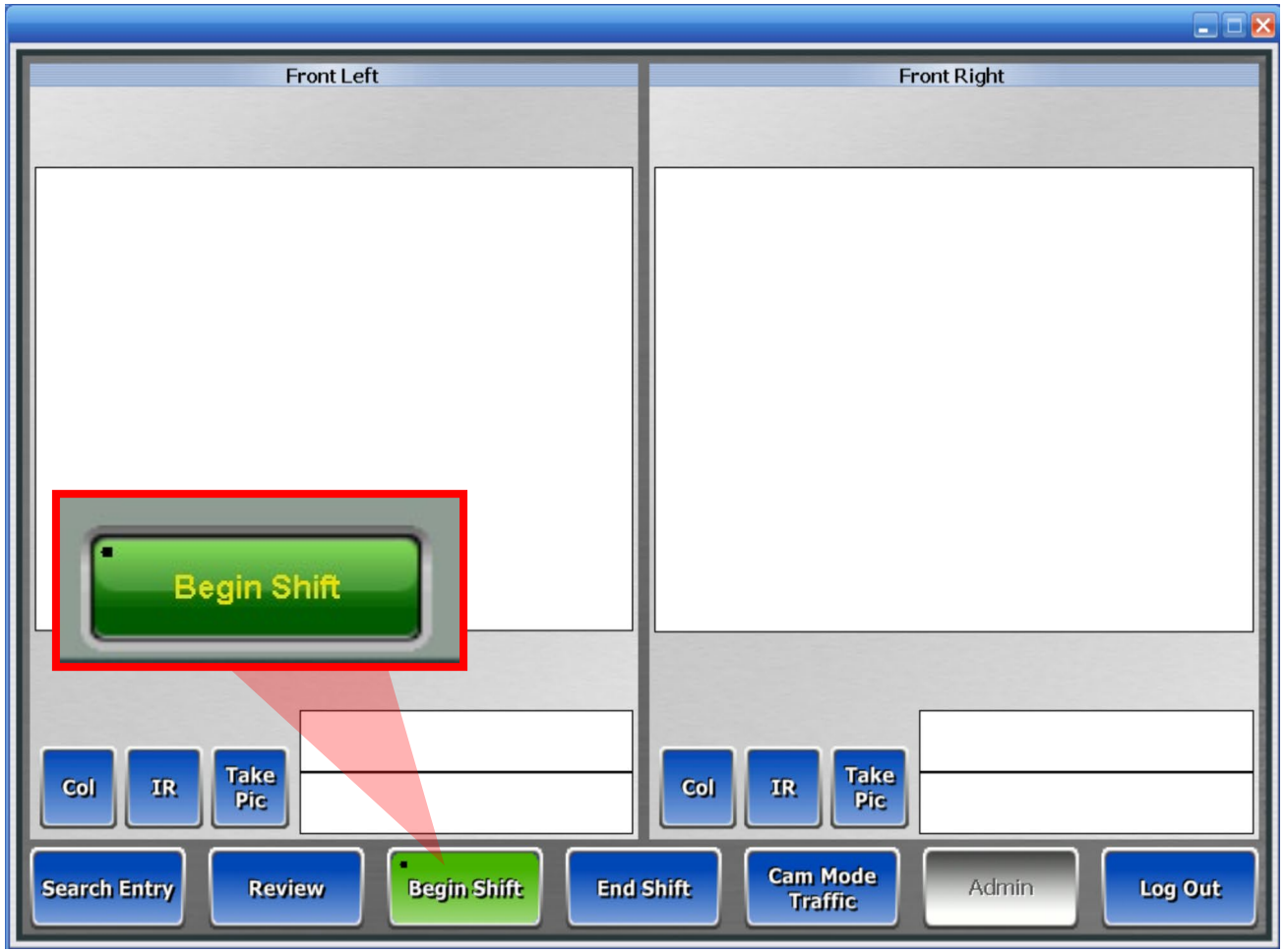


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Begin Shift

3M License Plate Capture Software

- The **BEGIN SHIFT** process first copies the collected reads, hits, and audit data from the License Plate Capture Software to the Back Office System Software.
  - The data is not removed from the License Plate Capture Software so it is available for queries during the shift.

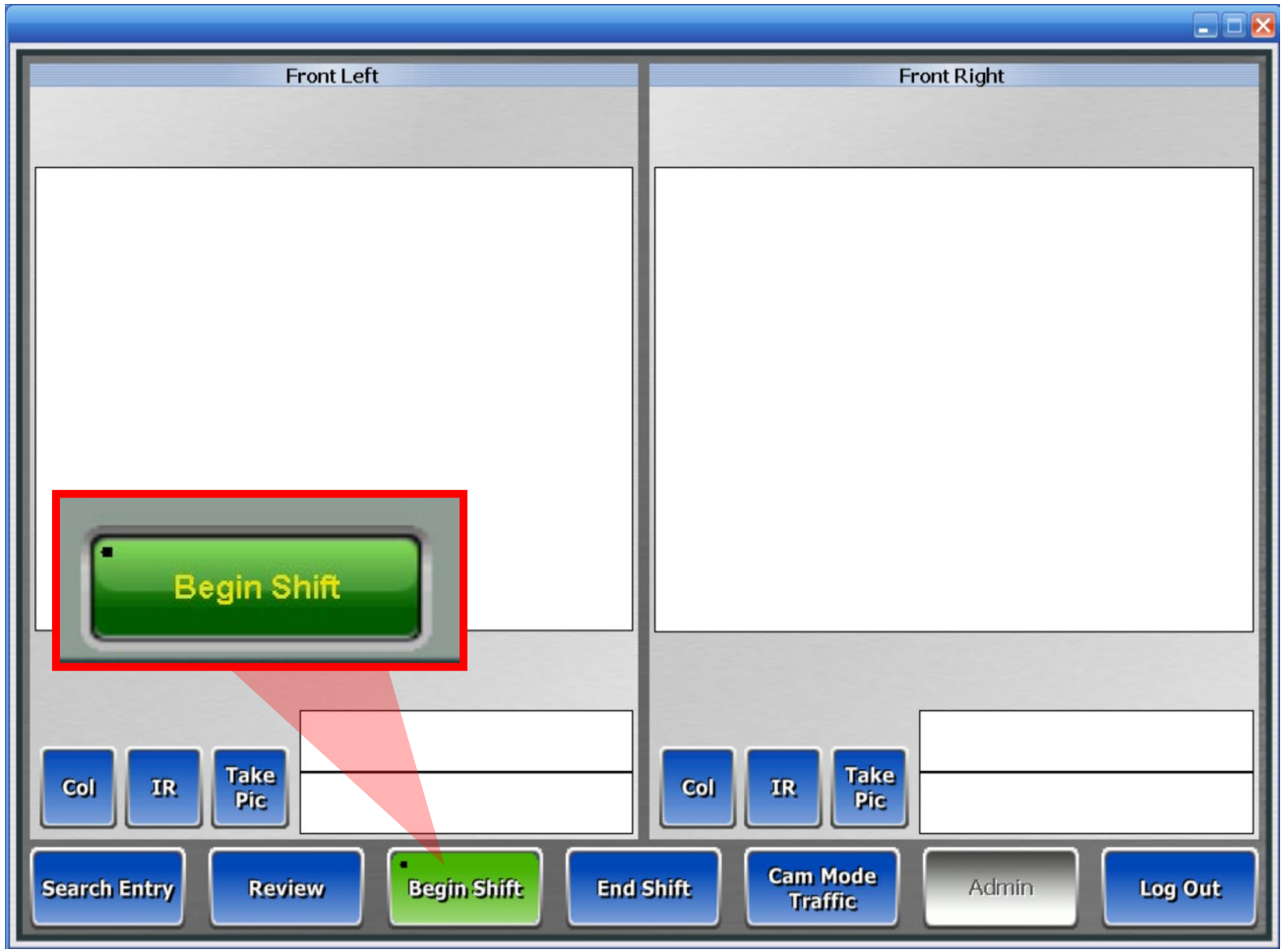


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Begin Shift

3M License Plate Capture Software

- After the collected data has been updated in the Back Office System Software, the data hotlist database is downloaded into the License Plate Capture Software.
  - Once the data transfer is complete, the main screen will be displayed.
  - To start the Begin Shift operation, select the **BEGIN SHIFT** button and press twice.

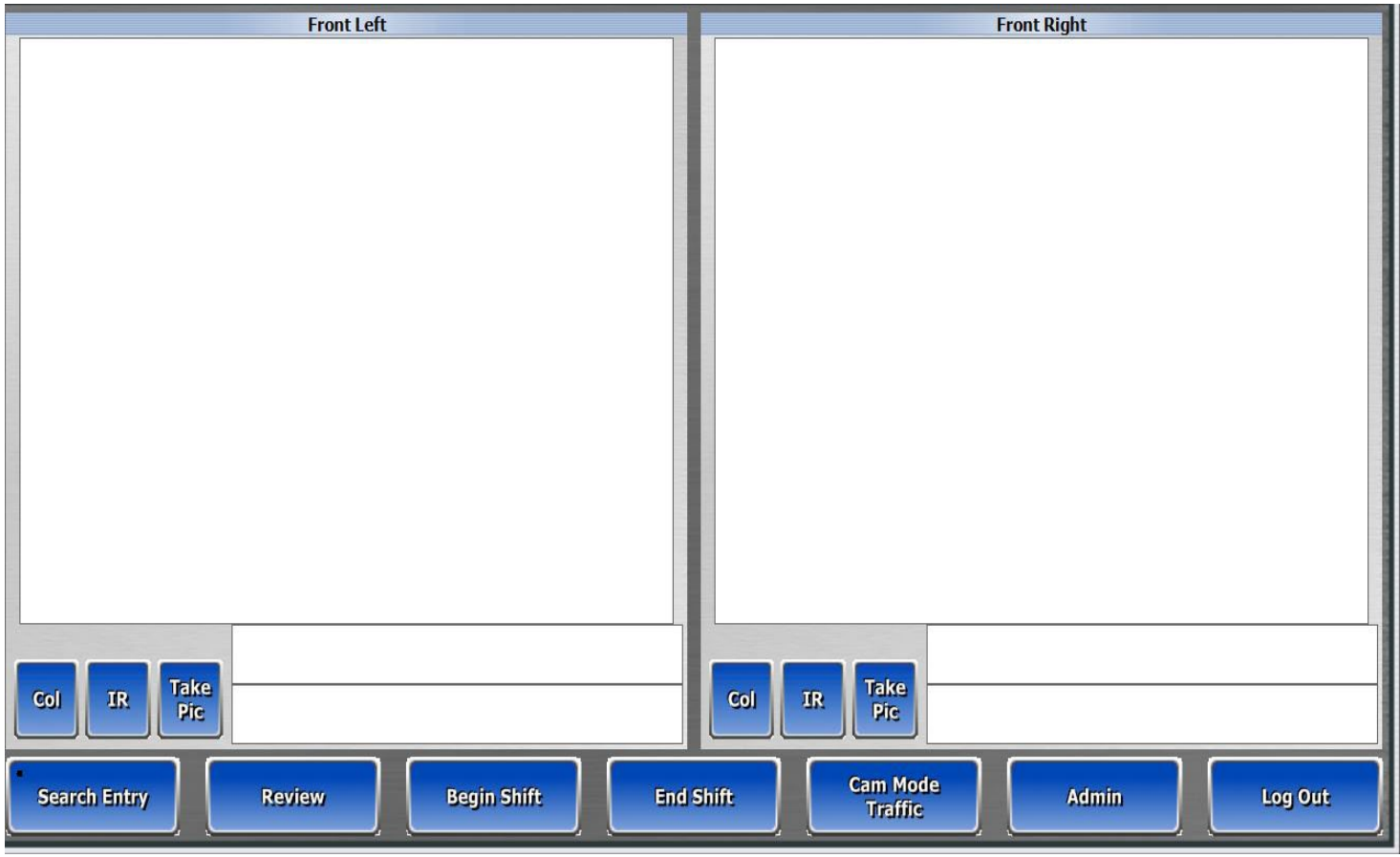


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Begin Shift

3M License Plate Capture Software

- After completion of the hotlist database update, the screen will automatically return to the main screen (Live View Screen)
- The system is now ready for operation.



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End Shift

3M License Plate Capture Software

- During a ten-hour shift in a metropolitan area, the system will collect between 4,500 to 6,000 license plate reads (may vary considerably depending on a number of factors-*discuss*).
  - All of the collected information for each license plate read (referred to as the Data Packet).
  - Any hotlist db matches are transferred to the Back Office server.



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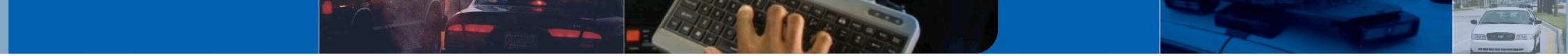
End Shift

3M License Plate Capture Software

- After completing a shift, the collected data (reads and hits) need to be transferred to the Back Office server (the host for the Back Office Software).
- The data is transferred either wirelessly or by a USB thumbdrive.



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End Shift

3M License Plate Capture Software

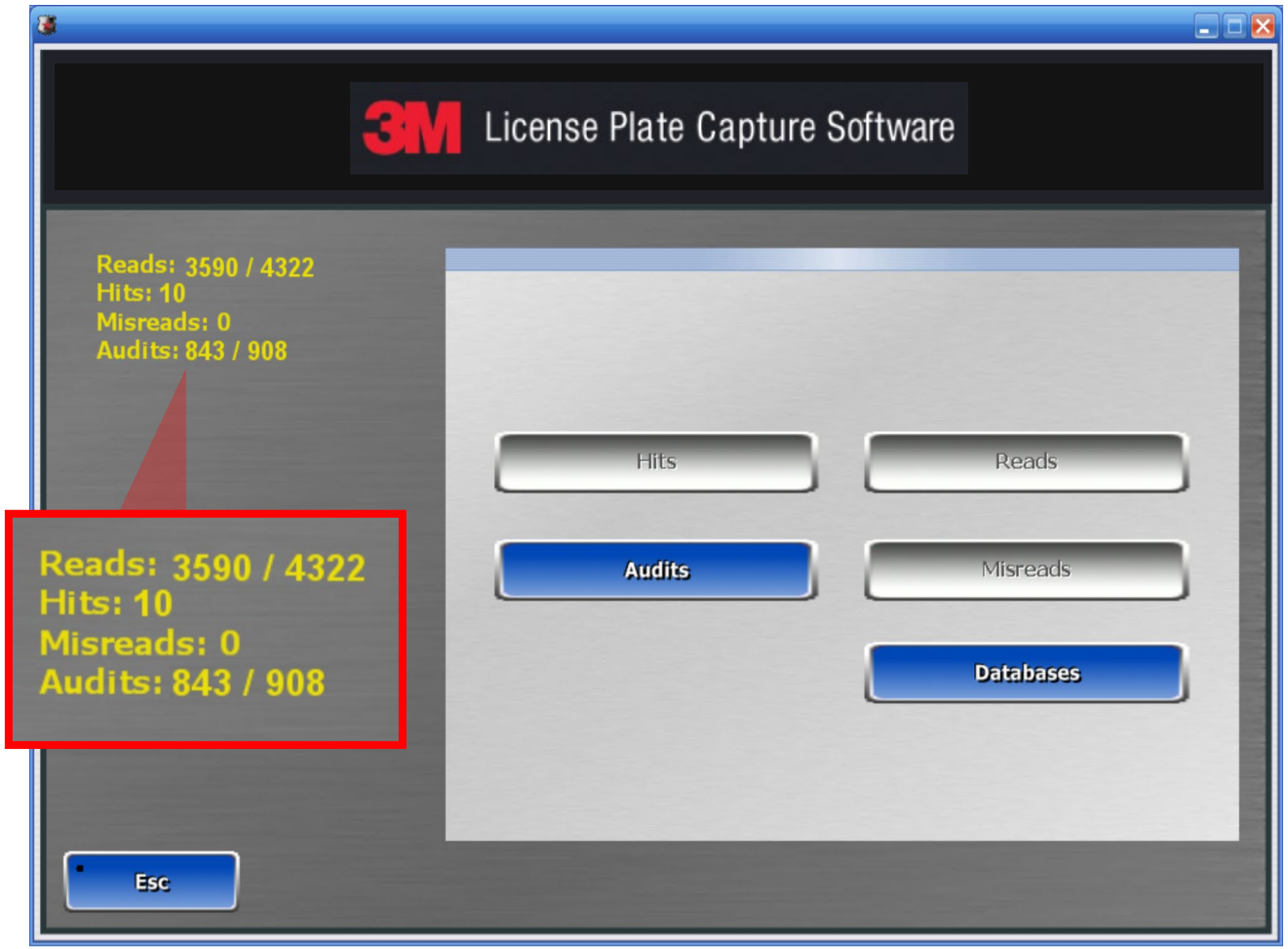
- If the License Plate Capture Software is wirelessly connected to the Back Office System Software, the data is automatically transferred periodically throughout the shift.
- When an **END SHIFT** is manually performed, a small differential of reads and hits remain in the LPCS which have not been transferred since the last data transfer.

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End Shift

3M License Plate Capture Software

- The highlighted box indicates 3,590 reads have been moved to the Back Office server out of a total of 4,322 reads. This leaves a difference of 732 reads, 10 hits, and 65 audits to be transferred to the server with a manual (button press) **END SHIFT**.



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End Shift

3M License Plate Capture Software

- To initiate a manual data transfer (upload) to server, select the **END SHIFT** button and press twice.

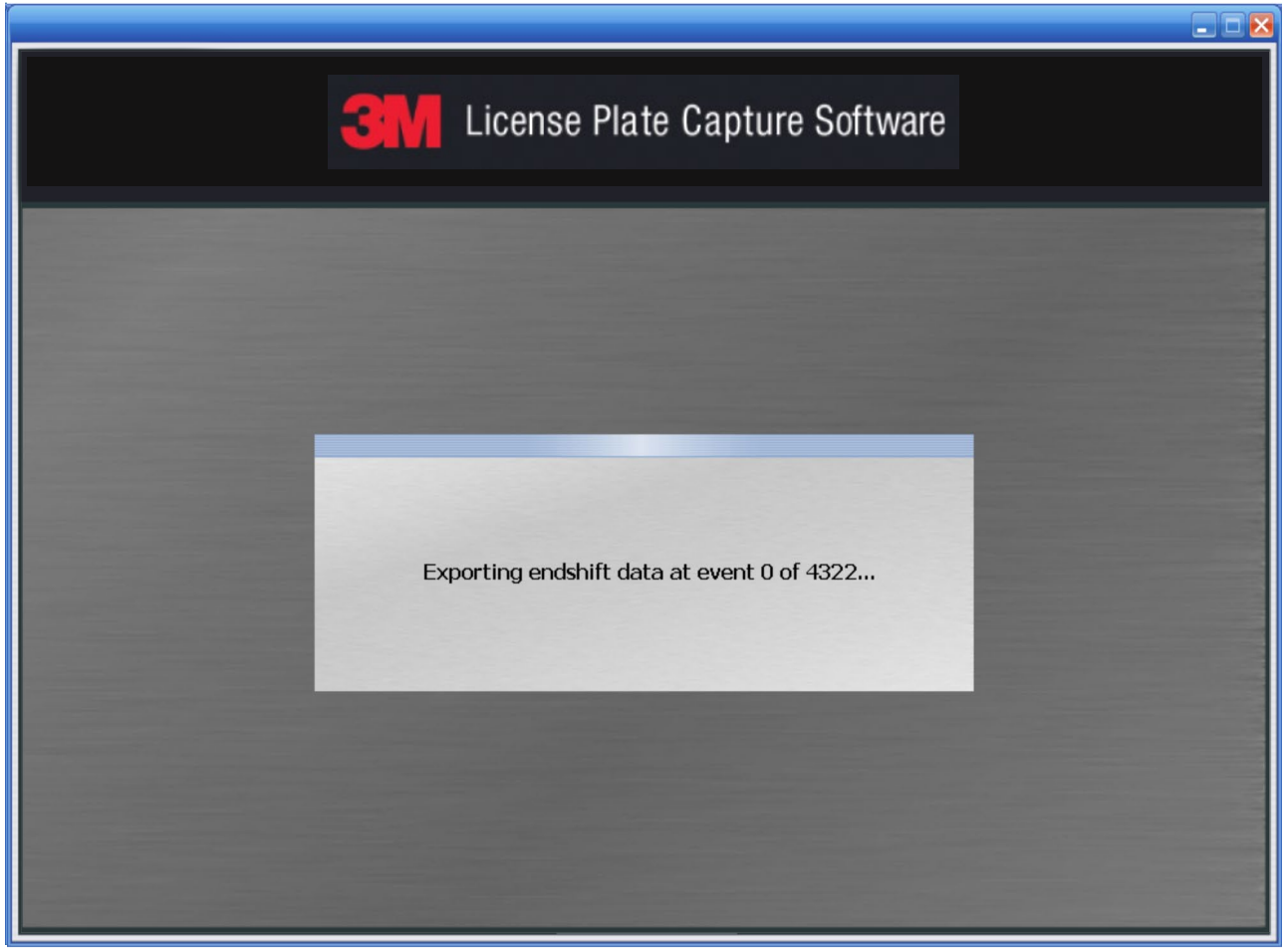


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End Shift

3M License Plate Capture Software

Any text in window?

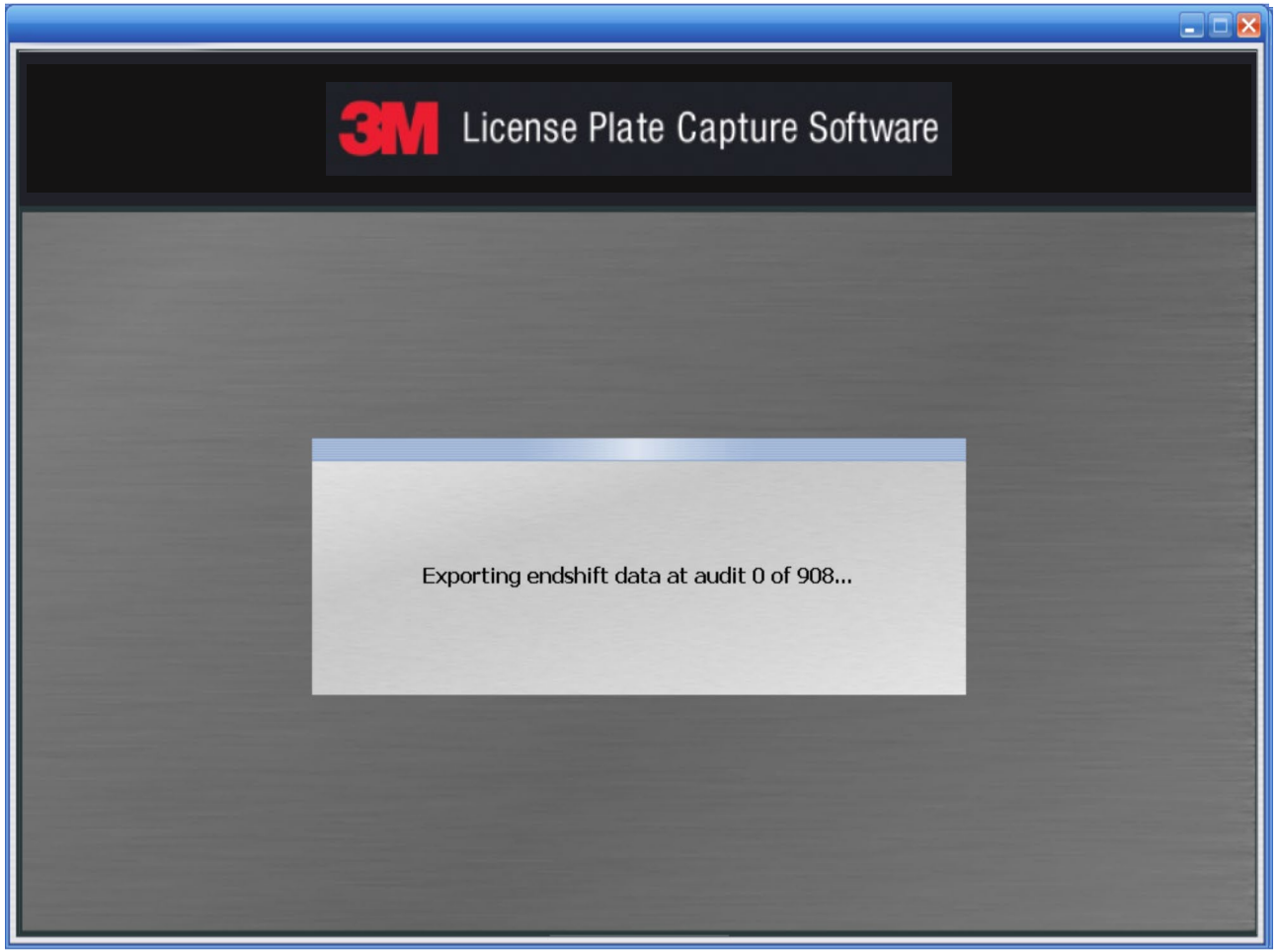


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End Shift

3M License Plate Capture Software

Any text in window?

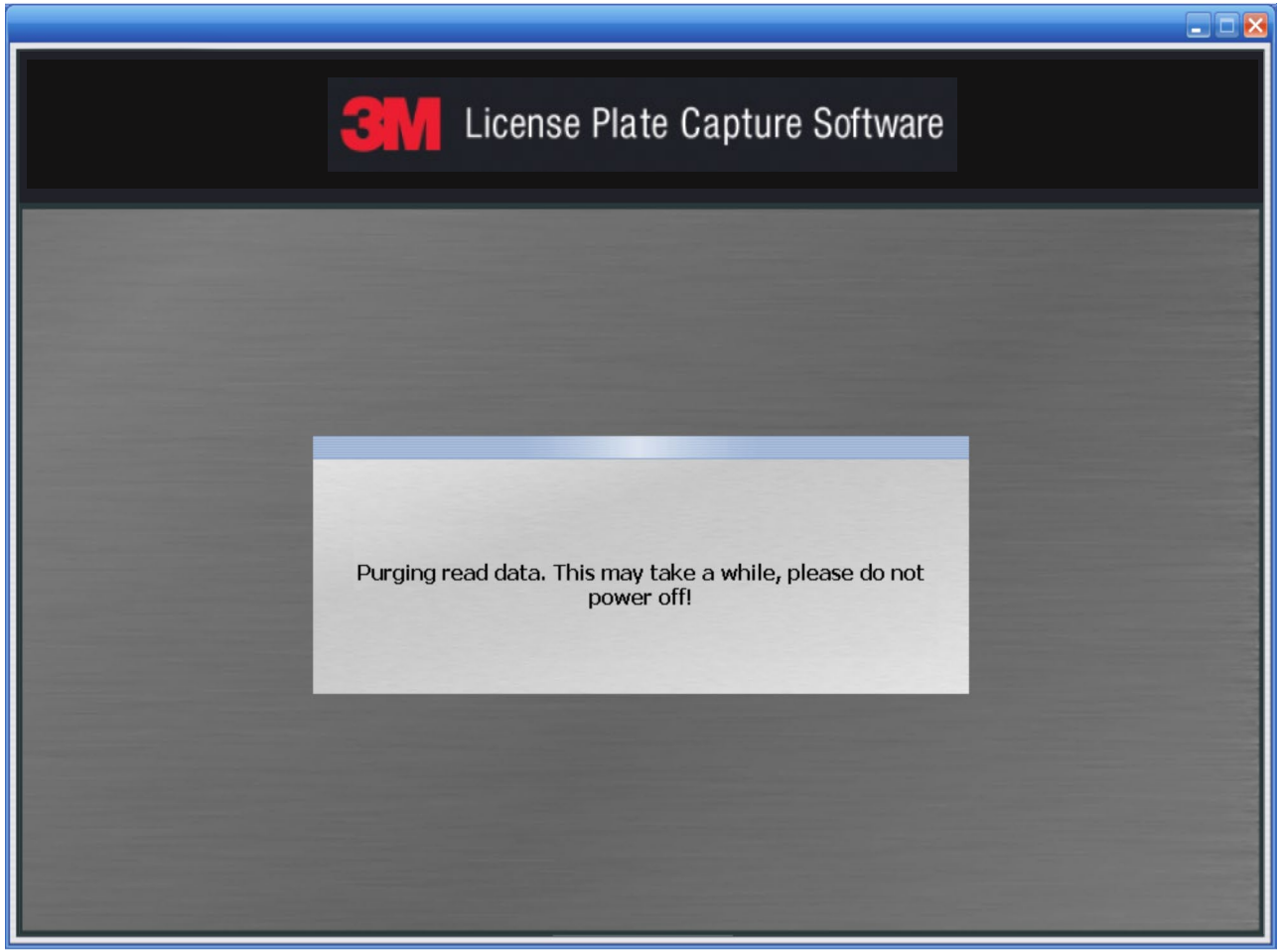


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End Shift

3M License Plate Capture Software

Any text in window?

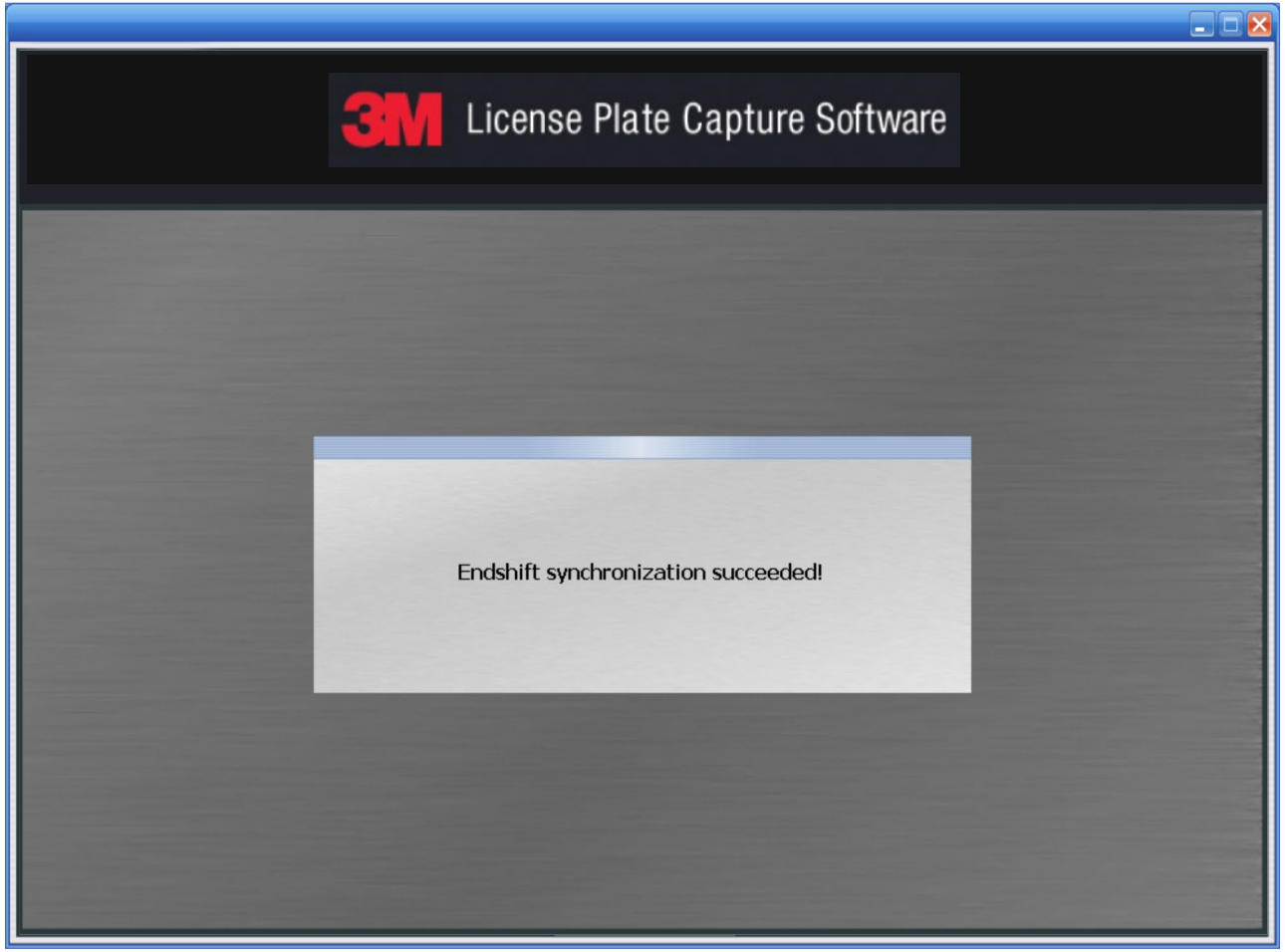


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End Shift

3M License Plate Capture Software

Any text in window?

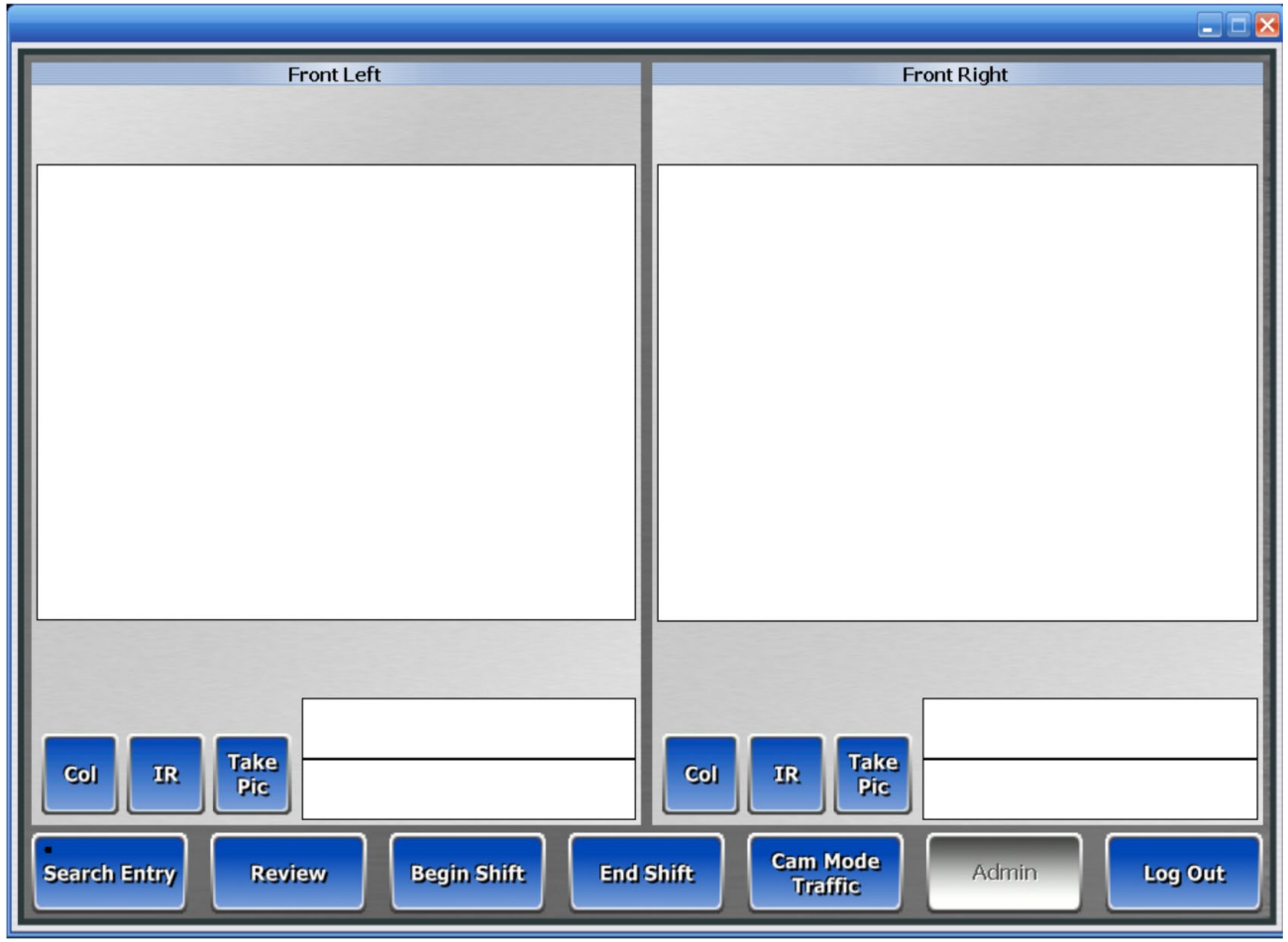


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End Shift

3M License Plate Capture Software

- When data transfer is complete, the License Plate Capture Software returns control to the Live View screen. This is the main view and all the 3M License Plate Capture Software features can be accessed from this point.

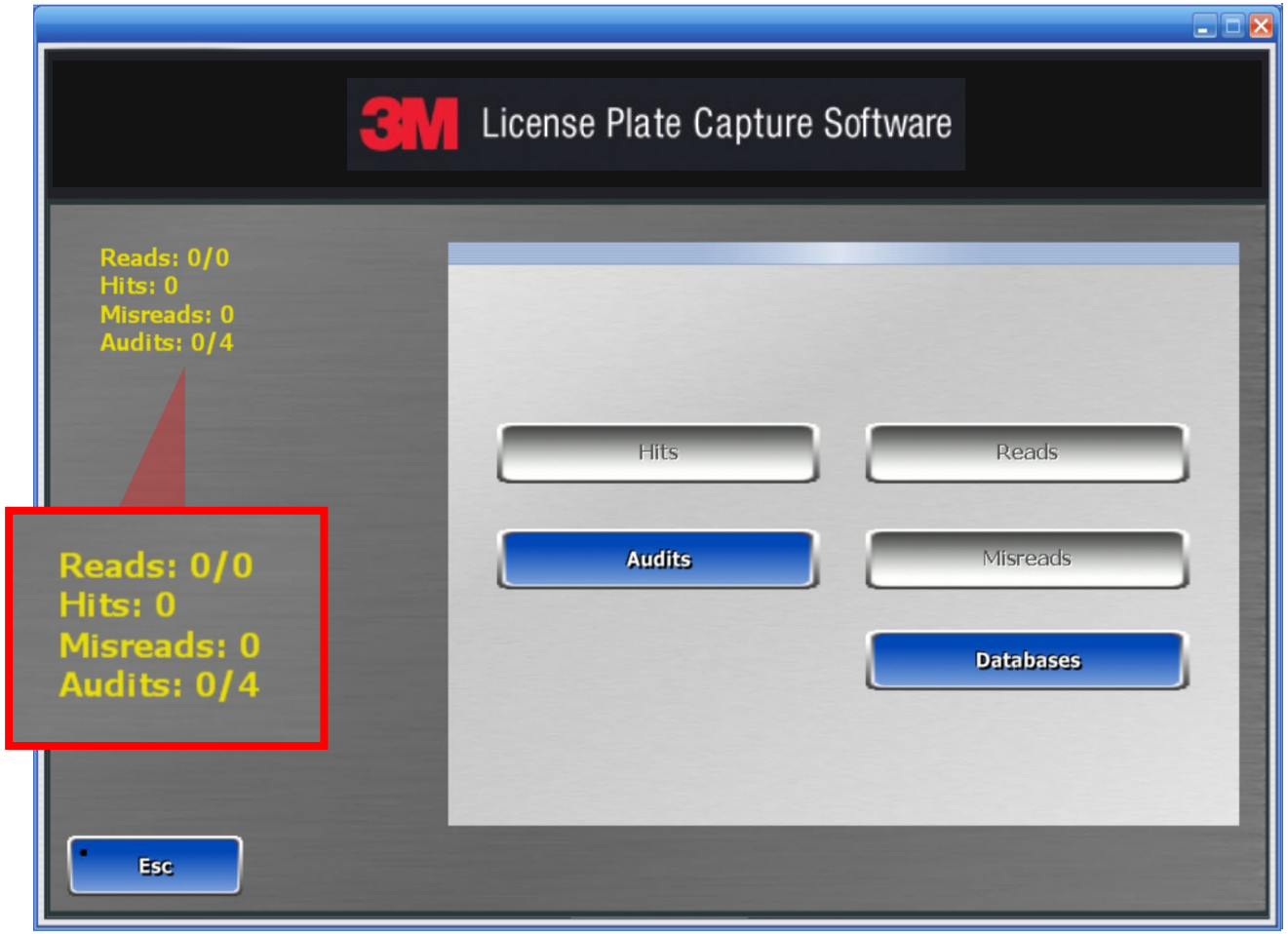


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End Shift

3M License Plate Capture Software

- A quick review shows that all of the reads, hits, misreads, and audits have been cleared from the LPCS.
- Note that some audit information remains in the LPCS.



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End Shift – USB Data Drive

3M License Plate Capture Software

- For vehicles NOT equipped for data transfer via 802.11 Wi-Fi or cellular:
  - Ensure that your data drive is securely inserted into the designated USB port on your MDC.
    - For all vehicles:
      - Press the **END SHIFT** button TWICE to synchronize all data from the vehicle's ALPR processor either using the thumbdrive or directly back to server using 802.11 Wi-Fi or cellular.
      - Wait for the synchronization window to disappear from your screen.



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End Shift – USB Data Drive

3M License Plate Capture Software

- ONLY for vehicles that are NOT equipped for 802.11 Wi-Fi or cellular communications:
  - Go to the PC equipped with Server Client Tools as instructed by your system administrator.
    - Insert your USB thumbdrive into an open USB port on the PC.
    - Access Client Tools by right clicking on the **CLIENT TOOLS** icon in the system tray as seen at right. (green teardrop with yellow “swoosh”)
    - Select **SYNCHRONIZE / END SHIFT**
      - Select the location of your thumbdrive; your administrator will most likely have this set to be the first option.
      - Wait for “Synchronization Complete” message and remove the thumbdrive.
      - You’re finished!

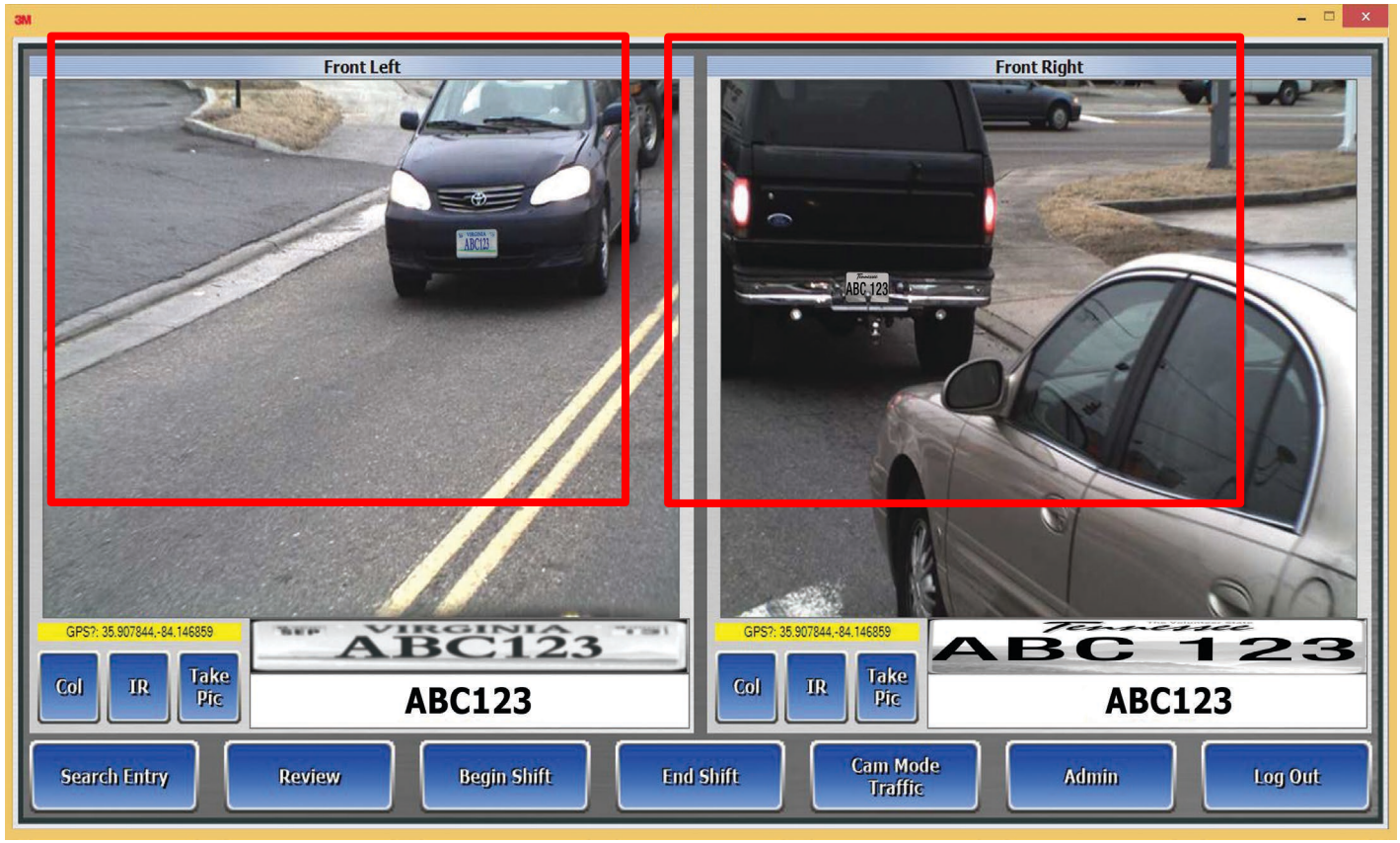


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View Finders

3M License Plate Capture Software

- The view finder displays for the active camera for the associated / corresponding camera label:
  - A color STILL image of the last ALPR read
  - Live video from the color camera (until next ALPR read)
  - Live video of the infrared camera (until next ALPR read)

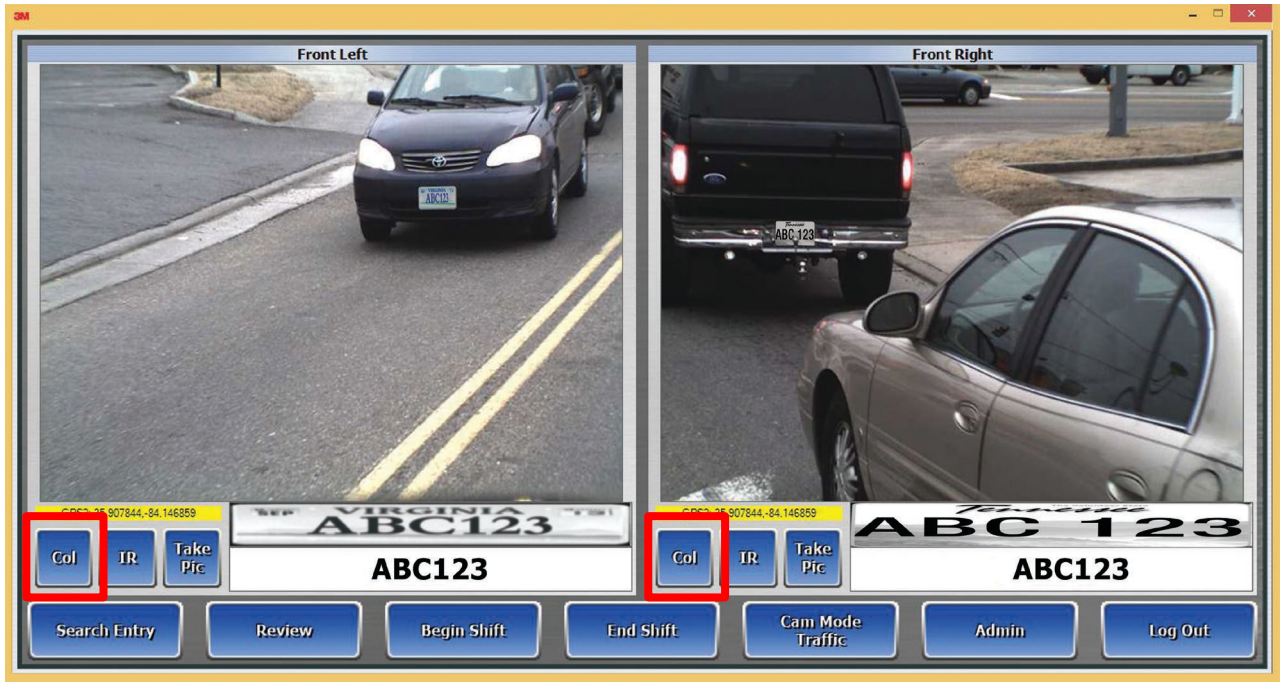


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Camera Controls

3M License Plate Capture Software

- **COL**
  - Select a live view of the color camera indicated in the camera label above the view finder. The view will remain until a “still” color image is displayed for the last ALPR read.

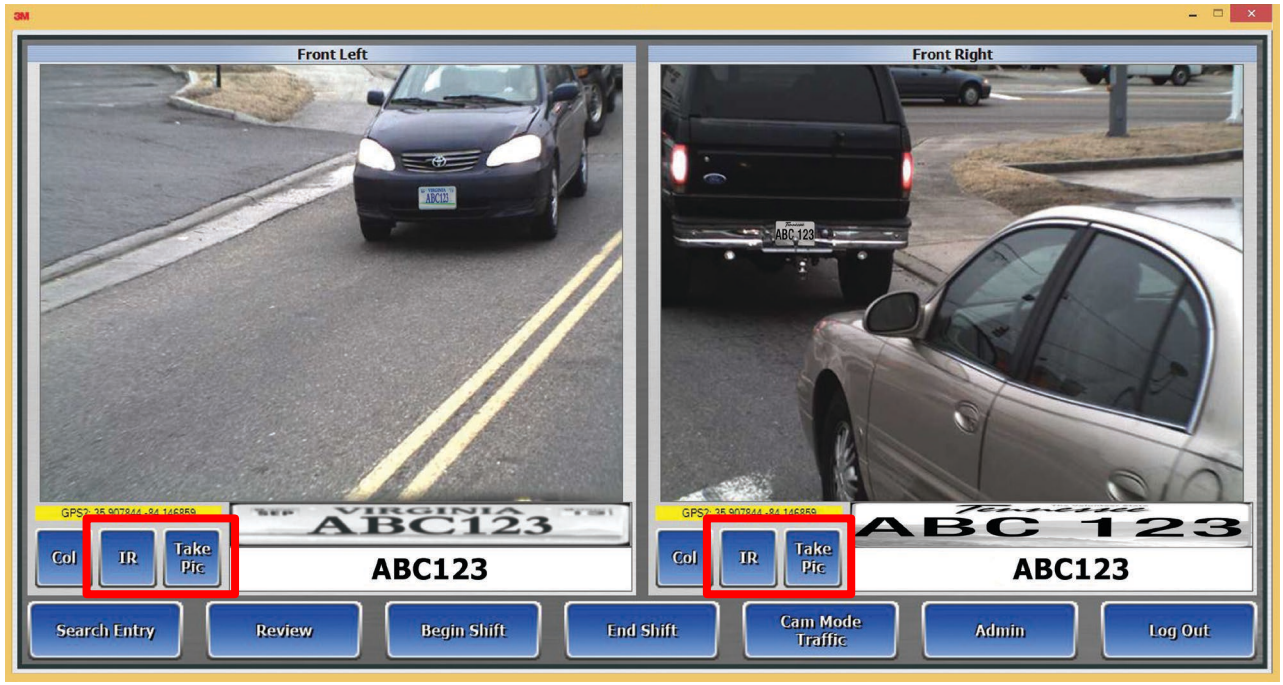


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Camera Controls

3M License Plate Capture Software

- **IR**
  - Select a live view of the infrared camera indicated in the camera label above the view finder. The view will remain until a “still” color image is displayed for the last ALPR read.
- **TAKE PIC**
  - Take a digital photograph of the color image in the view finder above the control.



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Camera Controls

3M License Plate Capture Software

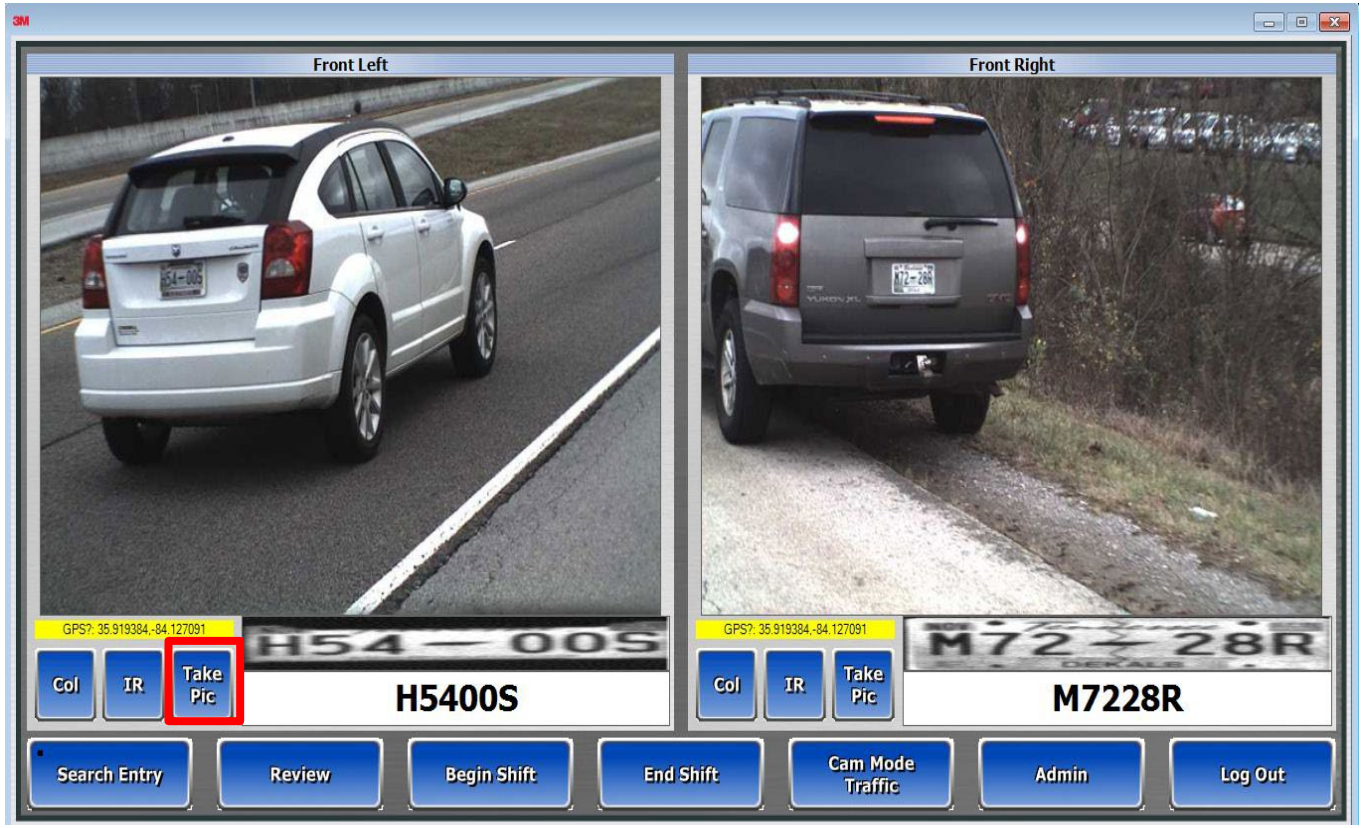


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Take Picture

3M License Plate Capture Software

- The Take Picture button for the corresponding Camera is indicated in the view finder.

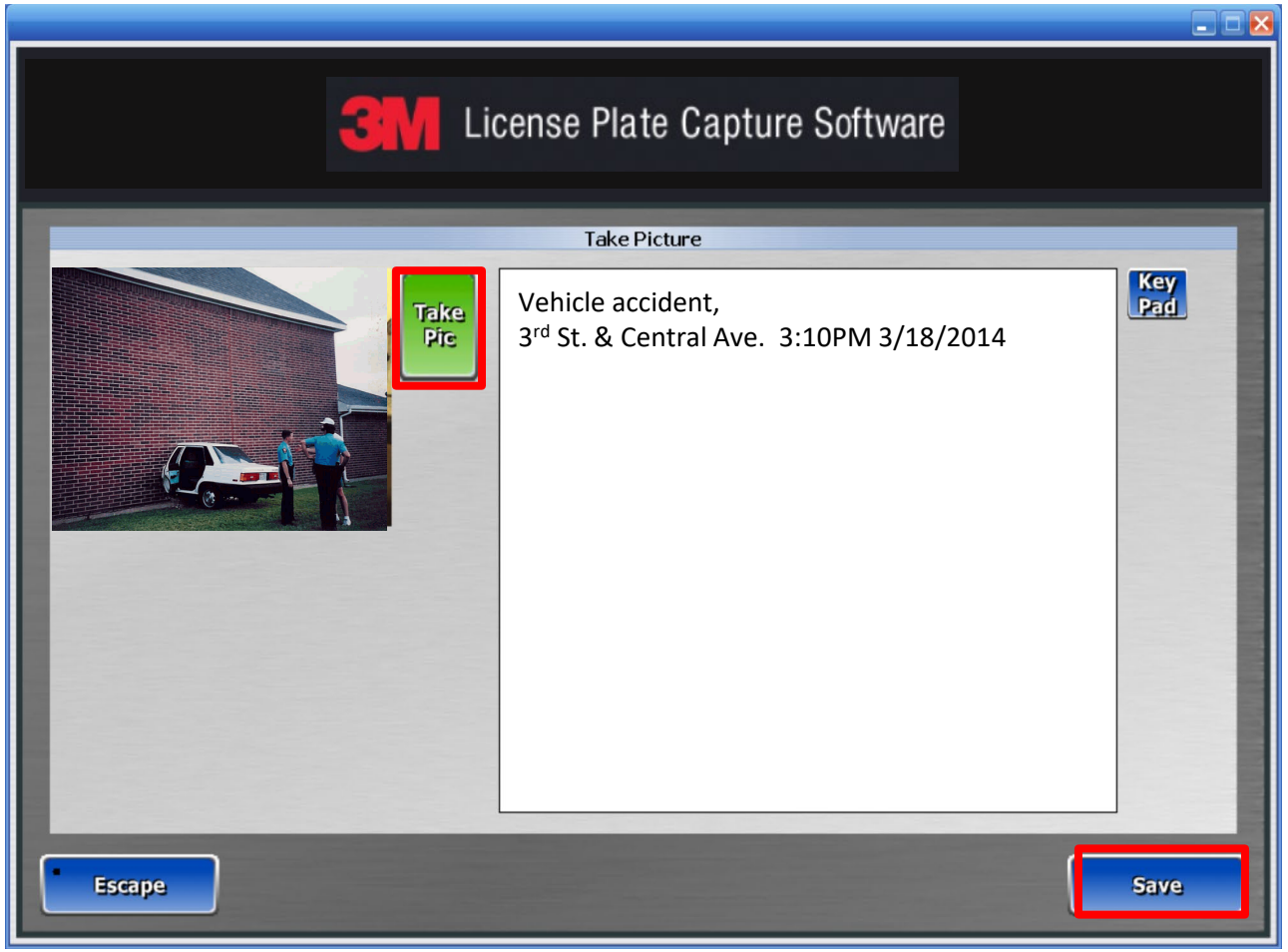


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Take Picture

3M License Plate Capture Software

- Take a digital photograph of the color image in the view finder.
- Press **TAKE PIC** for a live view to align image.
- Press **TAKE PIC** (button is now green) to capture image.
- Enter notes – text must be entered or image will not be saved.
- Press **SAVE** to record image and text in the database.

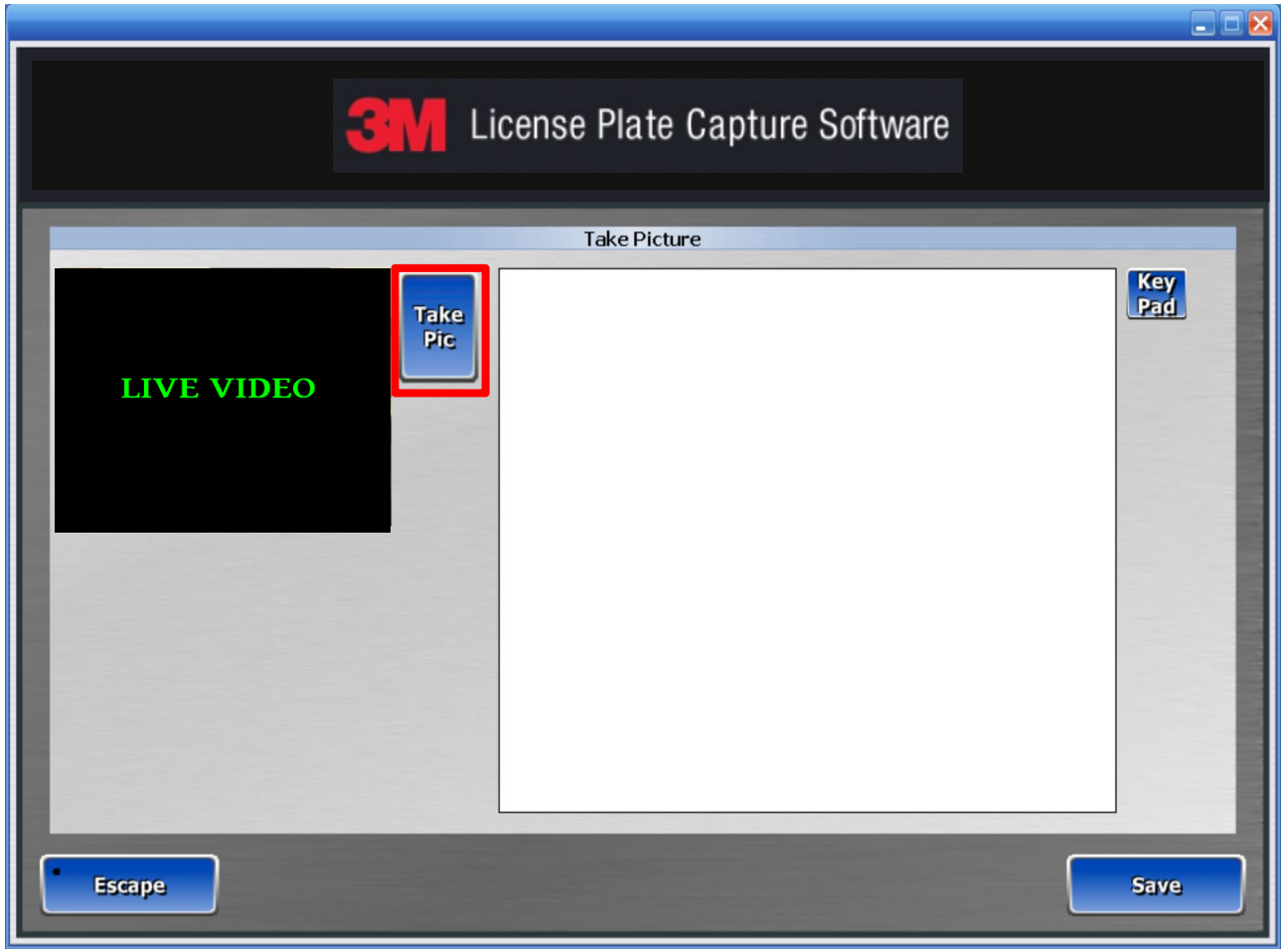


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Take Picture

3M License Plate Capture Software

- To change the image, click the **TAKE PIC** button. Align the new content in the view finder, then click the **TAKE PIC** button. This is accomplished by changing the position of the vehicle's Camera.



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Main Screen Overview – ORC / License Plate Reads

3M License Plate Capture Software

- License Plate Read:
  - Displays the image captured by the infrared camera indicated in the camera label above the section (license plate “patch”).
- OCR TRANSLATION:
  - The Optical Character Recognition (OCR) translation of the infrared image. The OCR translation is the text used to compare or match against the hotlist database of suspect vehicles / license plates.

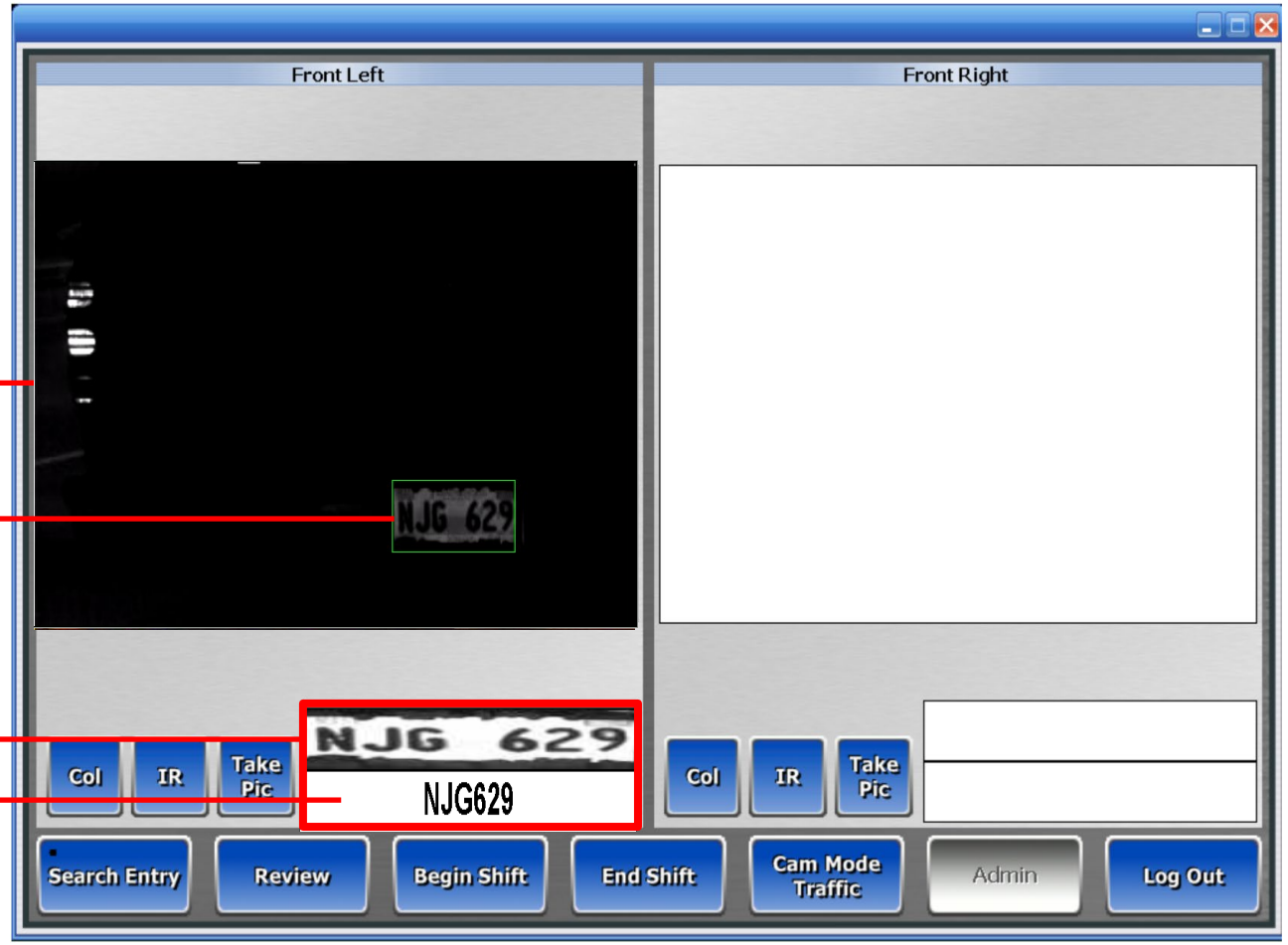


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Main Screen Overview

3M License Plate Capture Software

- Color overview image
- Infrared plate read
  (Note green capture box)
- Infrared plate patch
  (IR plate read or “patch”)
- OCR text translation of IR plate patch



Note: Image taken in total darkness.

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Main Screen Overview – System Controls

3M License Plate Capture Software

- **SEARCH ENTRY**
  - Search prior reads, manually check a plate, or make a manual entry into the LPCS database.
- **REVIEW**
  - View summary statistics, review reads and hits, view pictures, intelligence, and reports.
- **BEGIN SHIFT**
  - Download hotlist databases to the Back Office System Software.



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Main Screen Overview – System Controls

3M License Plate Capture Software

- **END SHIFT**
  - Upload ALL collected plate data to the Back Office server.
- **CAM MODE**
  - Toggles the modes for systems using two or more cameras displayed in the view finder (displays the various camera configurations).



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Main Screen Overview – System Controls

3M License Plate Capture Software

- **ADMIN**
  - Access the ADMIN menu (administrative users only-word of caution about these features in the ADMIN menu).
- **LOG OUT**
  - Log off the current software user and return to the software logon screen.



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Search Entry – Reads and Wildcards

3M License Plate Capture Software

- To search for a license plate against collected plates (reads) using an exact match, select the **SEARCH ENTRY** button.



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Search License Plate Reads

3M License Plate Capture Software

- Search against collected license plates for suspect vehicles.
  - Search criteria can include exact text or text and wildcards.
    - Wildcards are special characters that represent any / all potential characters and can be used in searches and queries.
    - Wildcard searches can also be performed using the * and _ characters. The asterisk (*) designates an unknown number of characters while the underscore (_) indicates a single missing or unknown character. To search for a plate number with the characters J and 8, entering **J_8** will display all records containing J and 8 separated by one character.

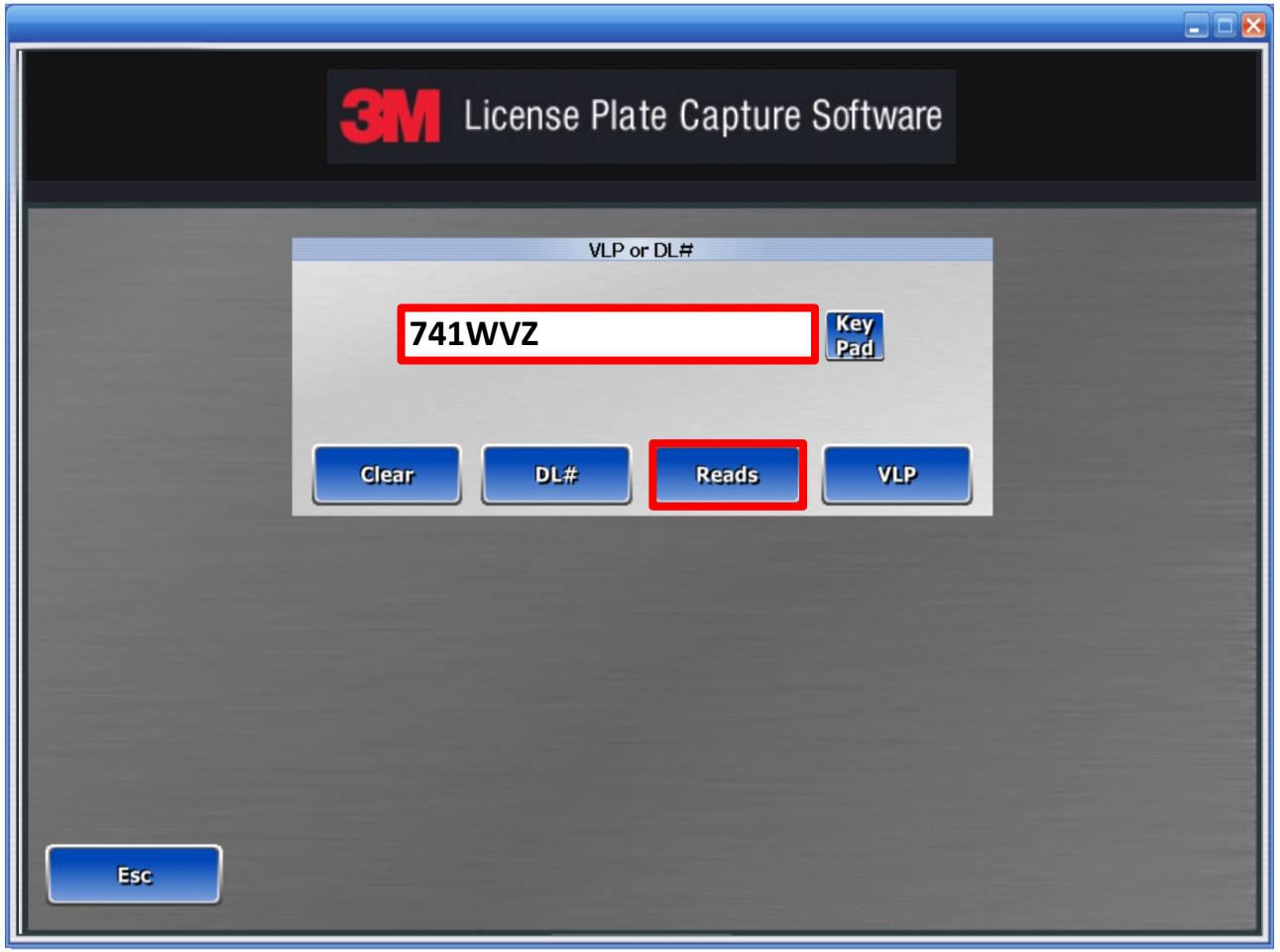


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Search License Plate Reads

3M License Plate Capture Software

- Enter the text of the license plate to be searched.
  - The search is performed against the database of license plate data collected by the ALPR vehicle.
    - The database contains license plate data collected since the last End Shift was performed.

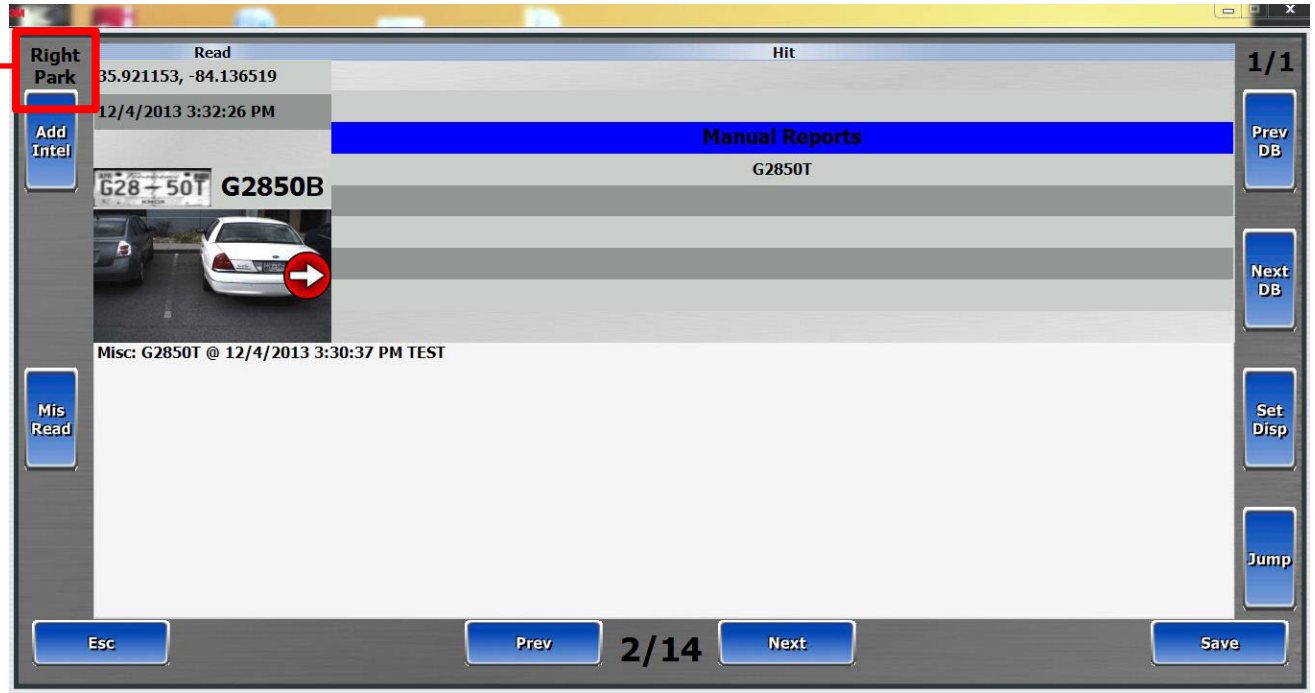


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Search Entry – Reads

3M License Plate Capture Software

- Active Camera for ALPR capture

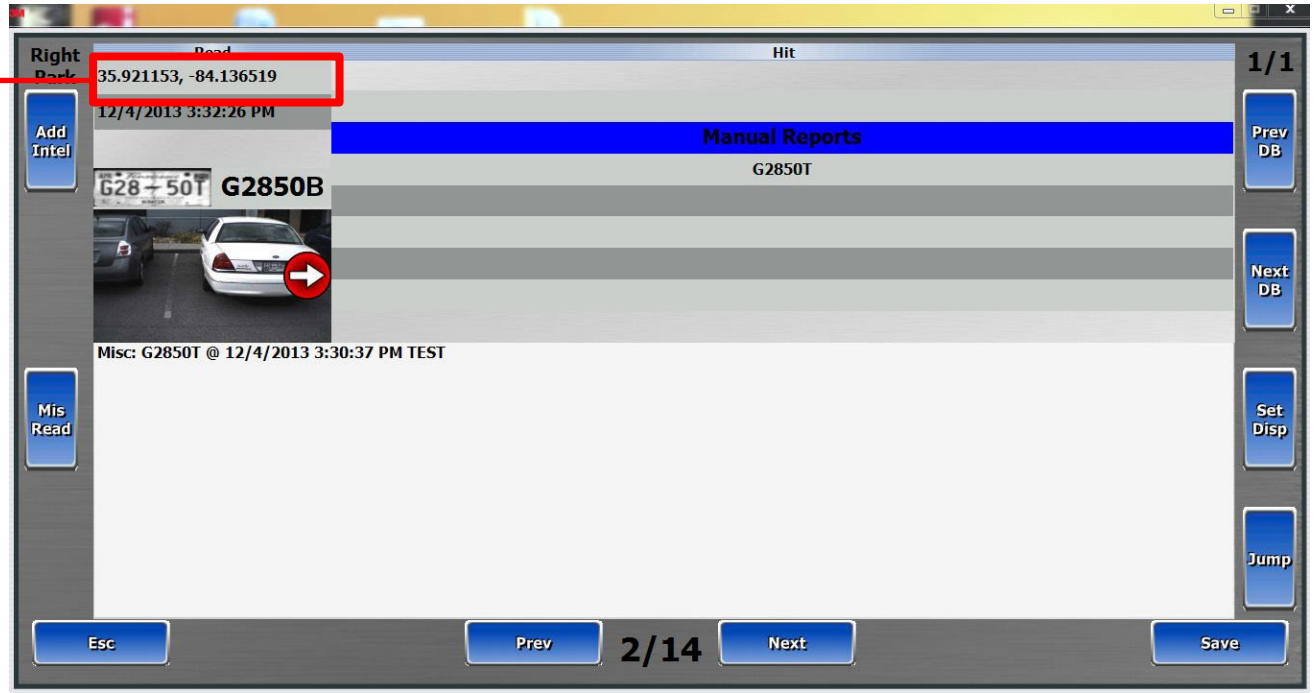


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Search Entry – Reads

3M License Plate Capture Software

- Active Camera for ALPR capture
- GPS coordinates

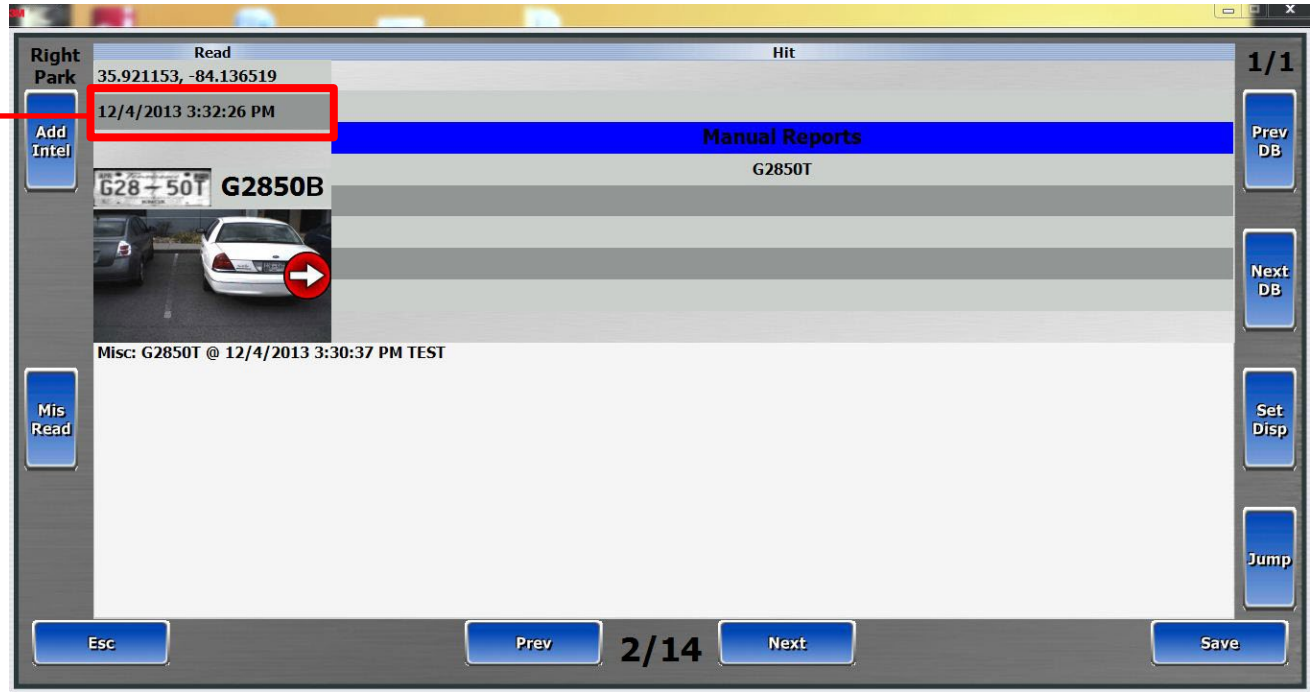


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Search Entry – Reads

3M License Plate Capture Software

- Active Camera for ALPR capture
- GPS coordinates
- Date and time stamp

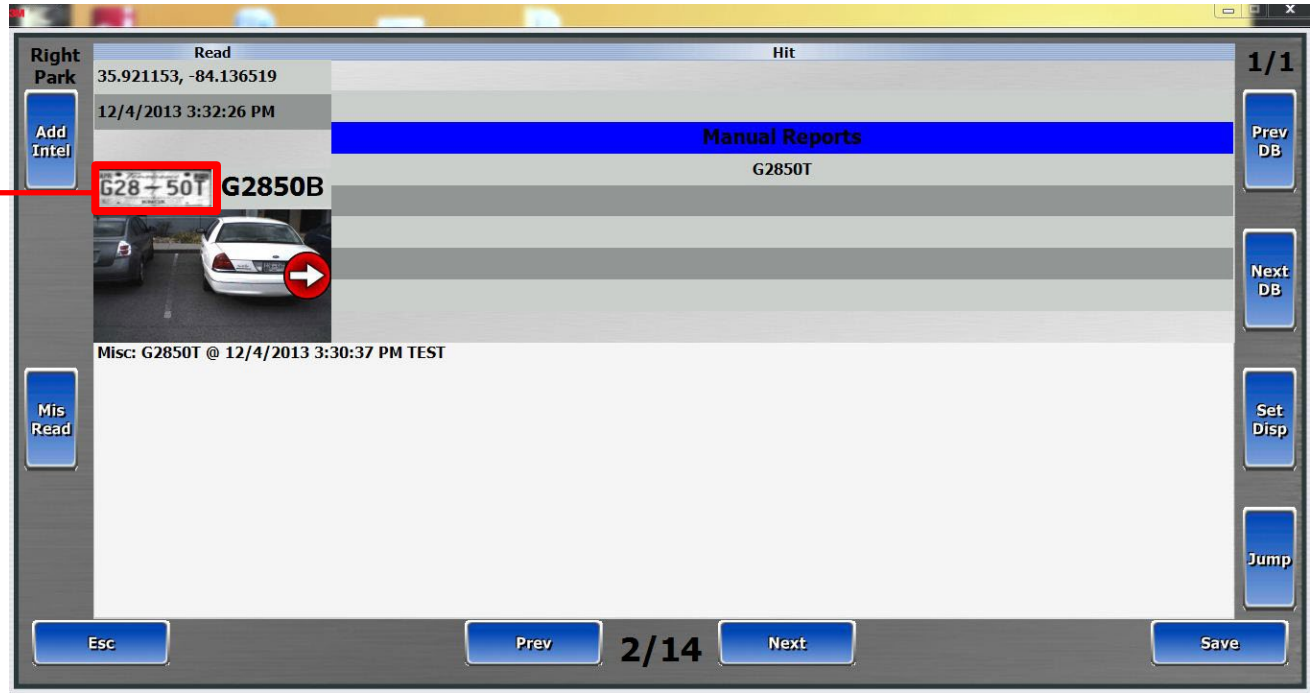


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Search Entry – Reads

3M License Plate Capture Software

- Active Camera for ALPR capture
- GPS coordinates
- Date and time stamp
- IR “Plate Patch” from ALPR

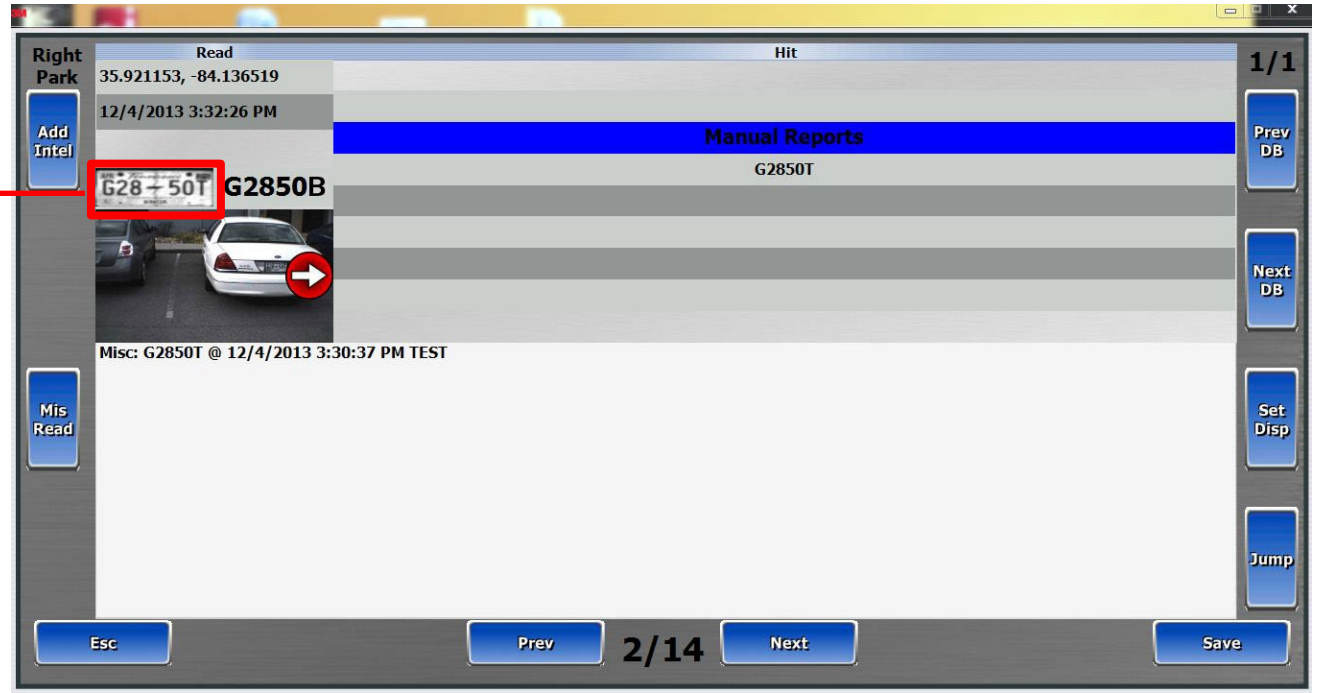


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Search Entry – Reads

3M License Plate Capture Software

- Click on the “Plate Patch” to display the image full screen.

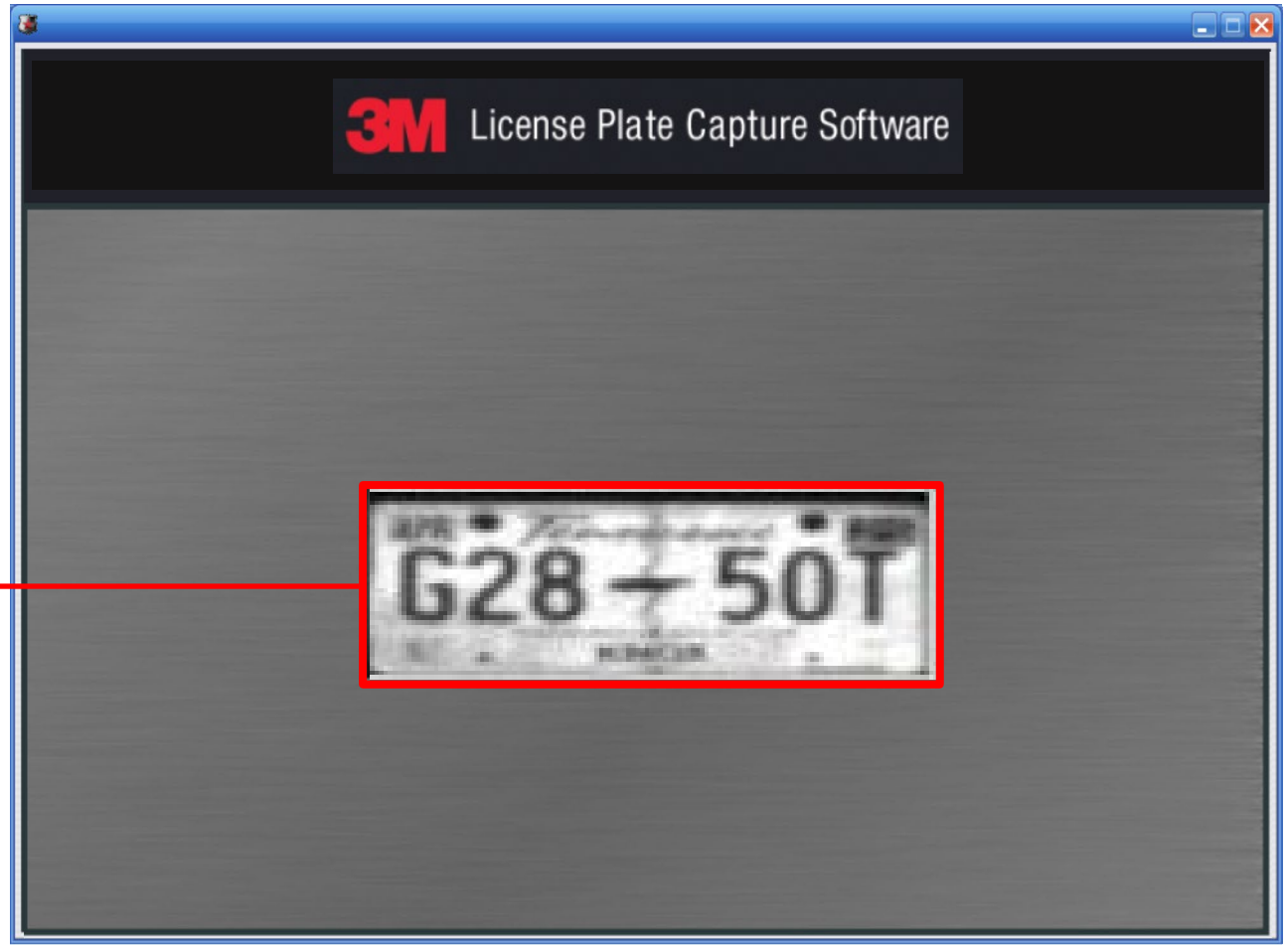


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Search Entry – Reads

3M License Plate Capture Software

- The image will remain full screen for approximately seven seconds and then returns to the READS screen.

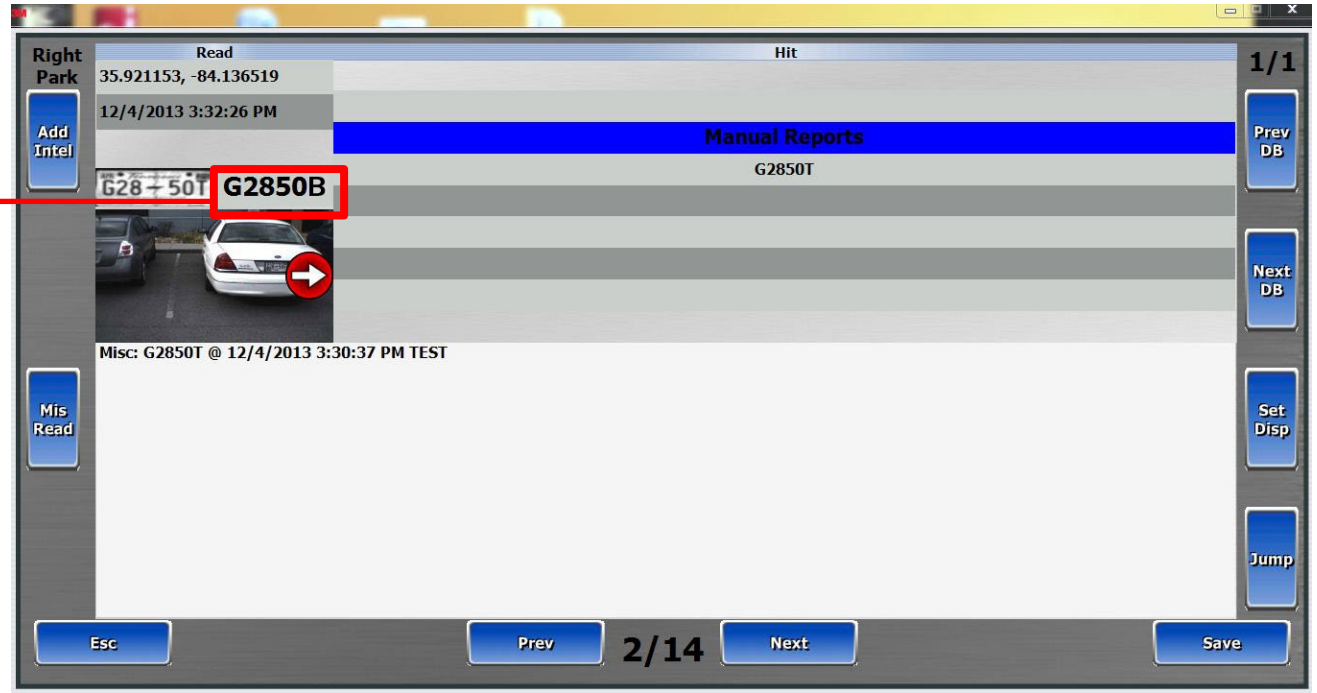


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Search Entry – Reads

3M License Plate Capture Software

- Active Camera for ALPR capture
- GPS coordinates
- Date and time stamp
- IR “Plate Patch” from ALPR
- OCR translation of “Plate Patch”

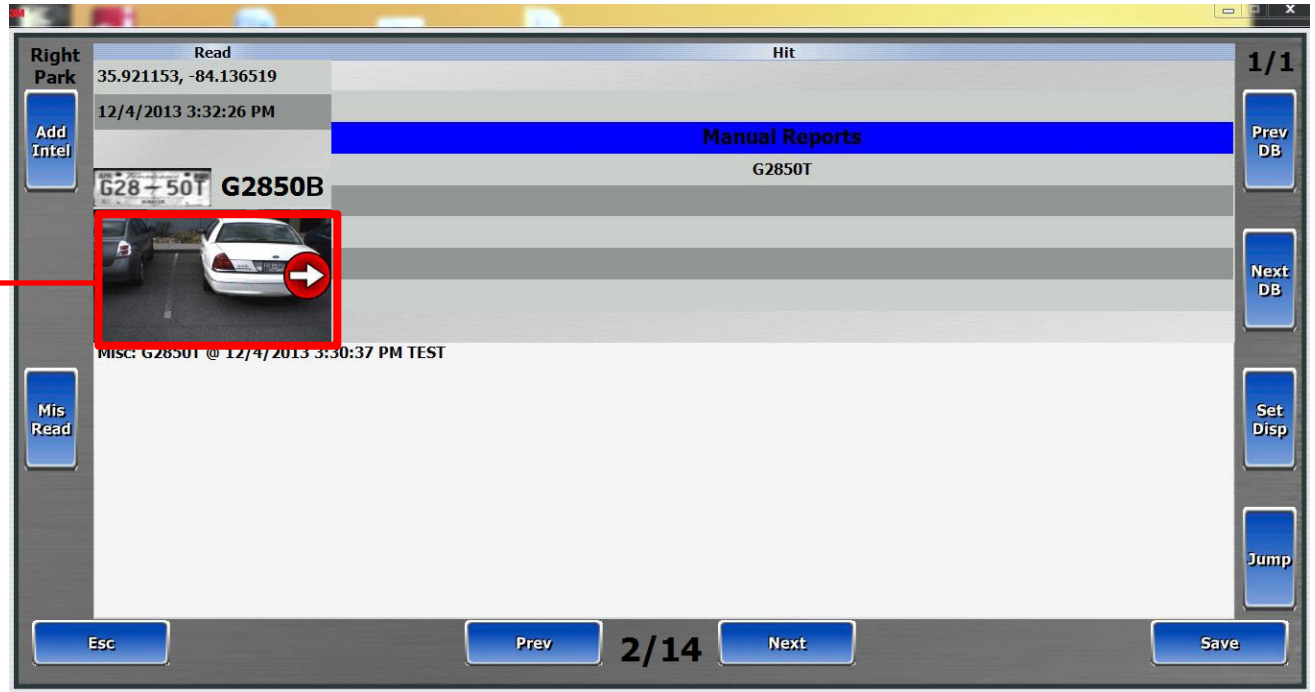


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Search Entry – Reads

3M License Plate Capture Software

- Active Camera for ALPR capture
- GPS coordinates
- Date and time stamp
- IR “Plate Patch” from ALPR
- OCR translation of “Plate Patch”
- Color Camera “Overview” image
- Comprises the Data Packet

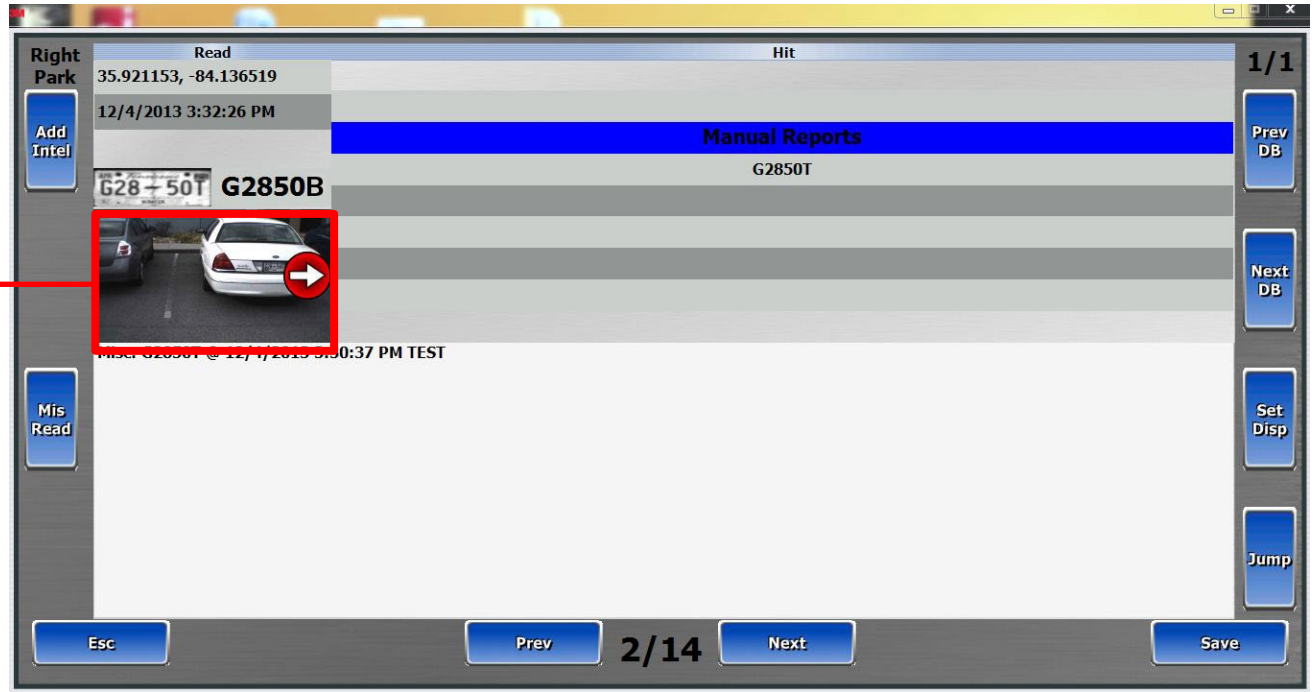


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Search Entry – Reads

3M License Plate Capture Software

- Active Camera for ALPR capture
- GPS coordinates
- Date and time stamp
- IR “Plate Patch” from ALPR
- OCR translation of “Plate Patch”
- Color Camera “Overview” image



Click on color image to display image full screen

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Search Entry – Reads

3M License Plate Capture Software

- The image will remain full screen for approximately seven seconds and then returns to the READS screen.

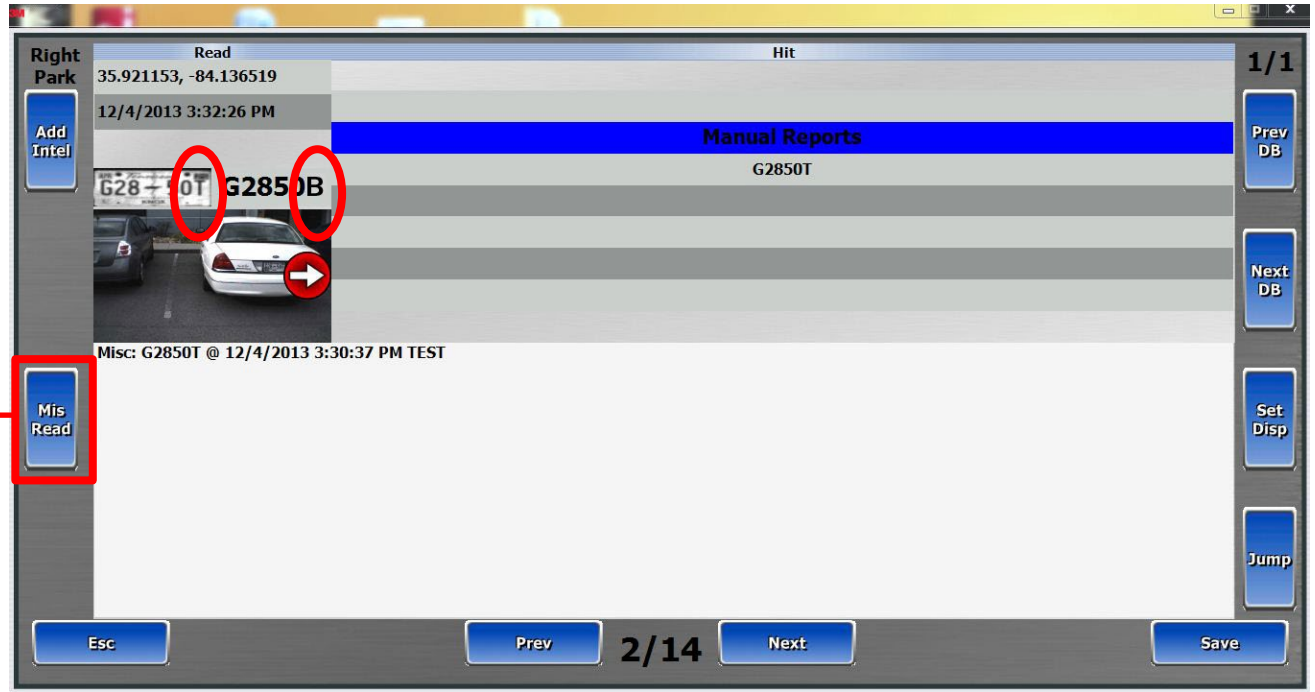


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Search Entry – Misreads

3M License Plate Capture Software

- Mark this read as a **MISREAD** – indicating the IR “Plate Patch” does not match the OCR translation.

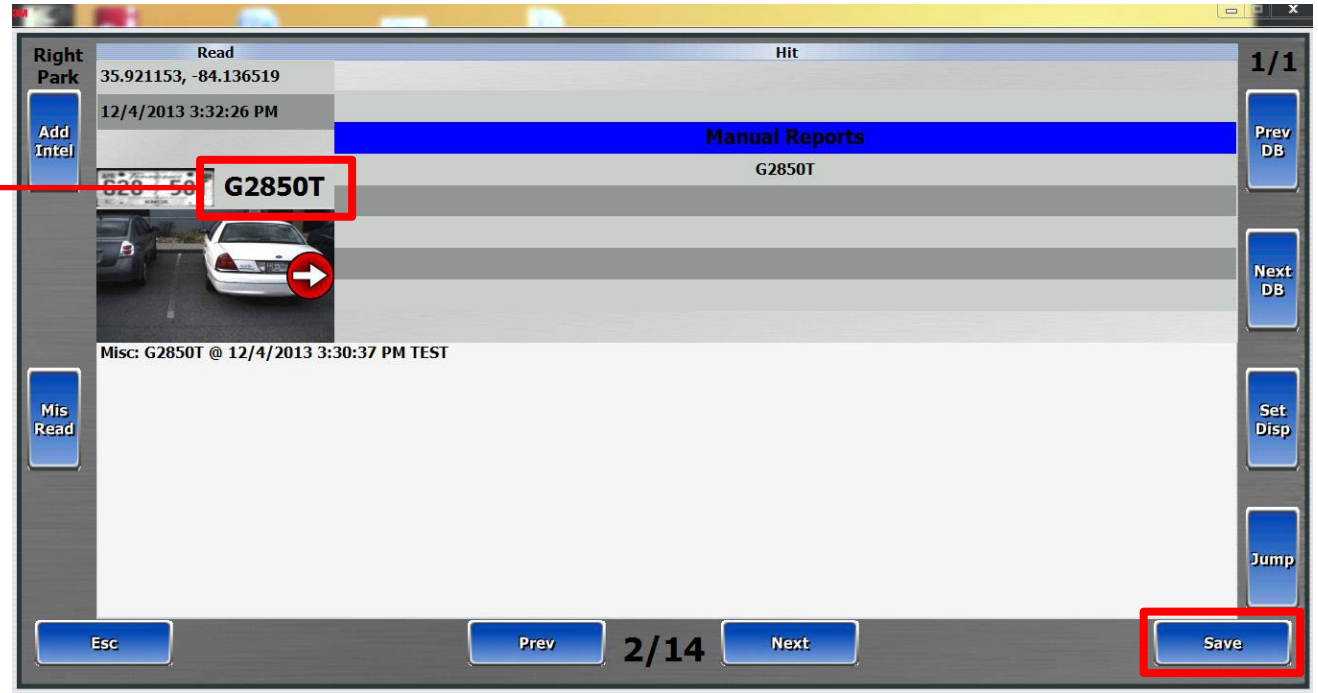


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Search Entry – Misreads

3M License Plate Capture Software

- Click on the OCR translation to edit the text, if desired. After editing the text, press **SAVE**.

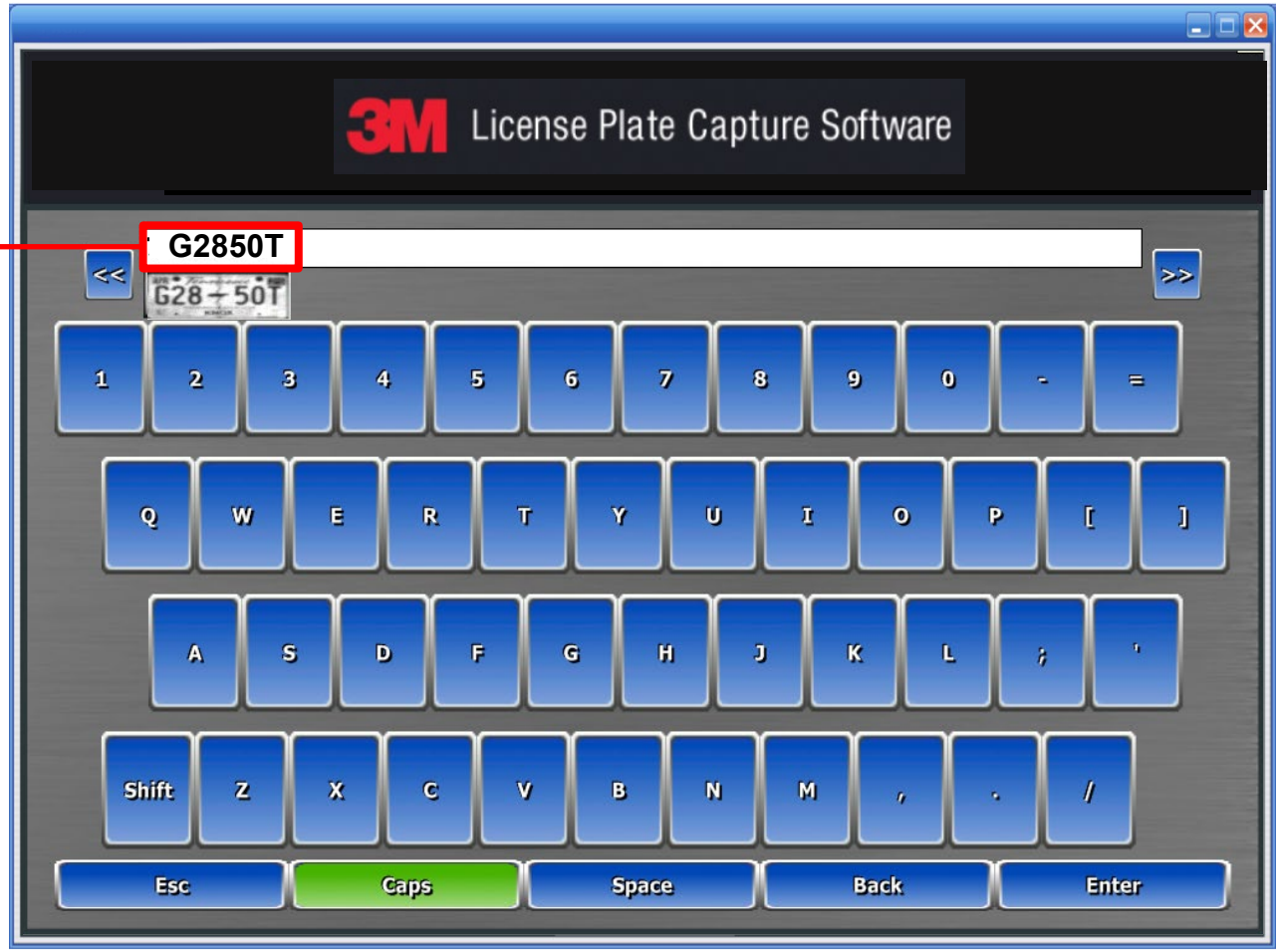


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Search Entry – Misreads

3M License Plate Capture Software

- Edit the text to correct the Misread.

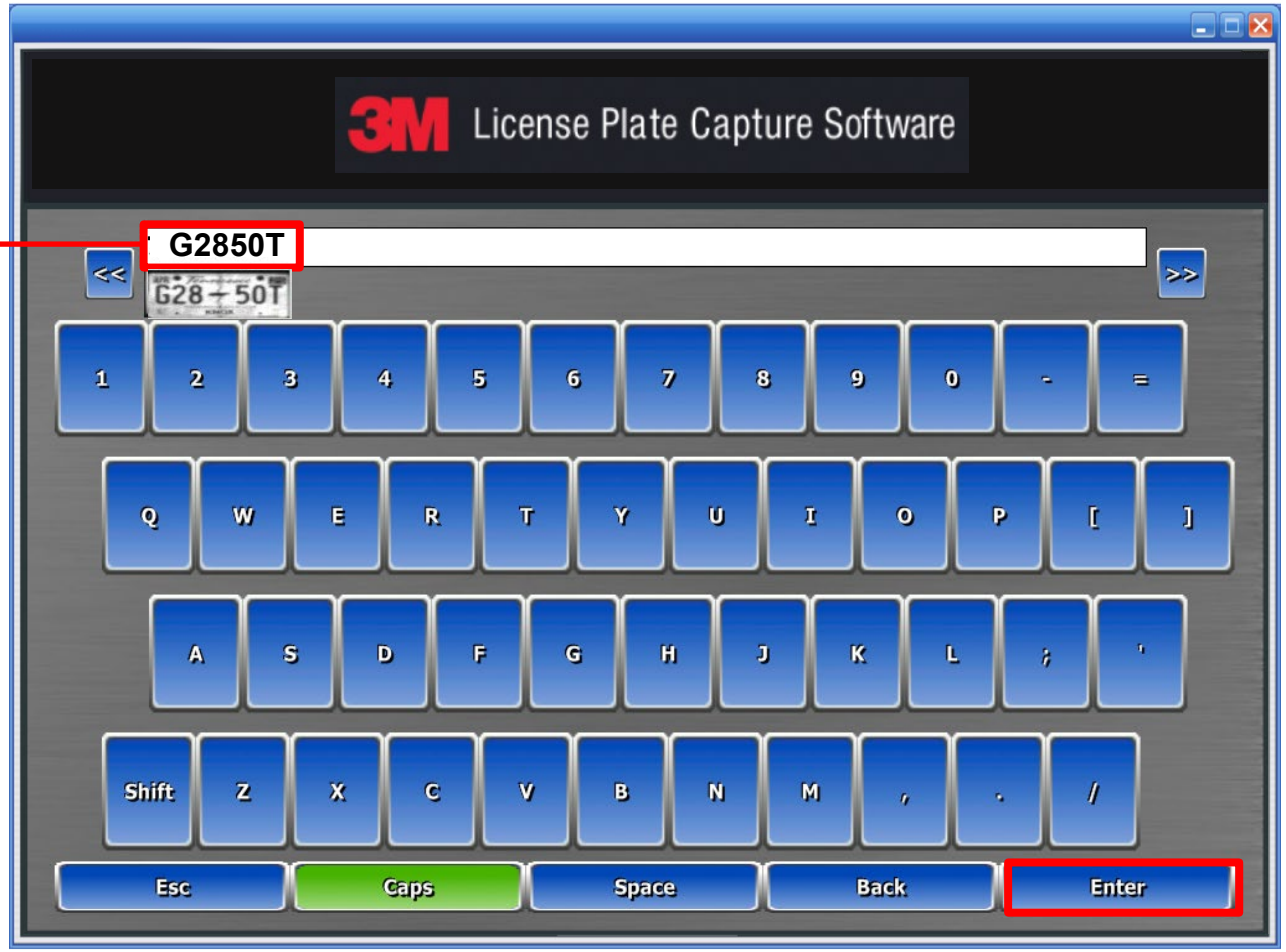


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Search Entry – Misreads

3M License Plate Capture Software

- Once the text is corrected, press **ENTER**.

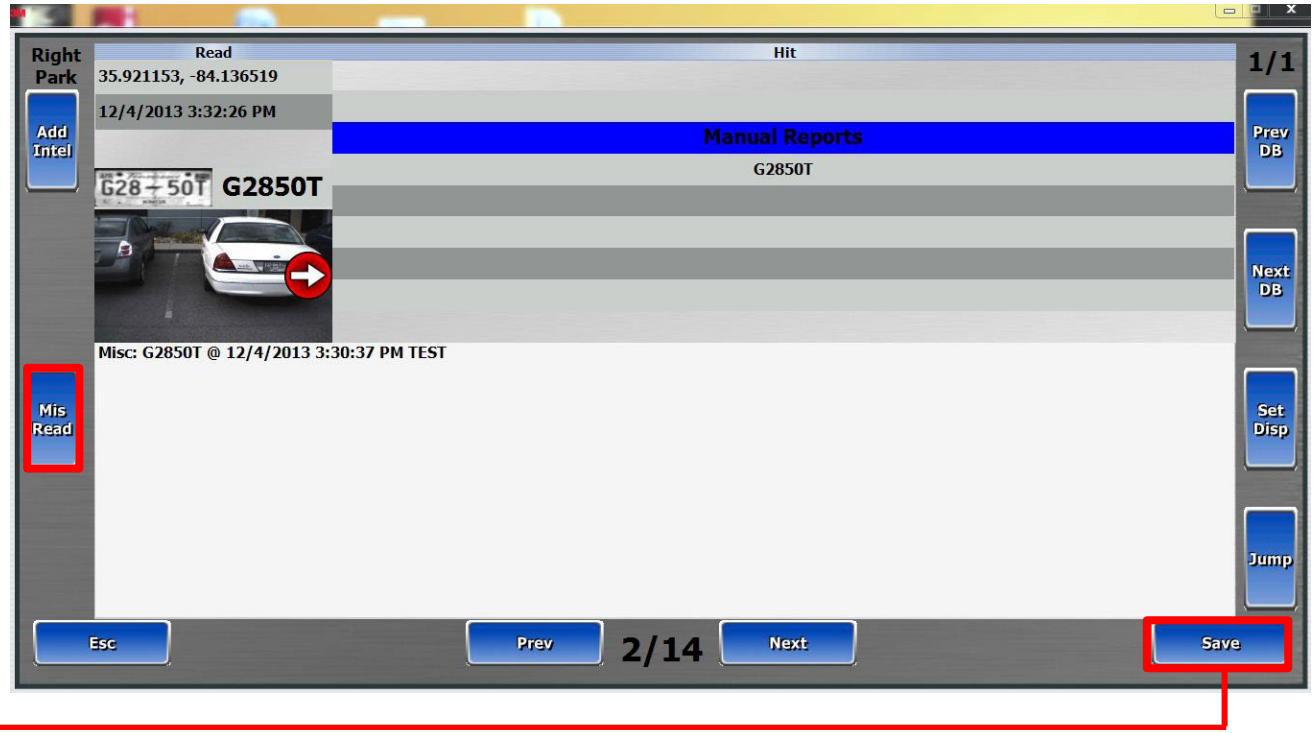


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Search Entry – Misreads

3M License Plate Capture Software

- After editing the text, press **SAVE**.

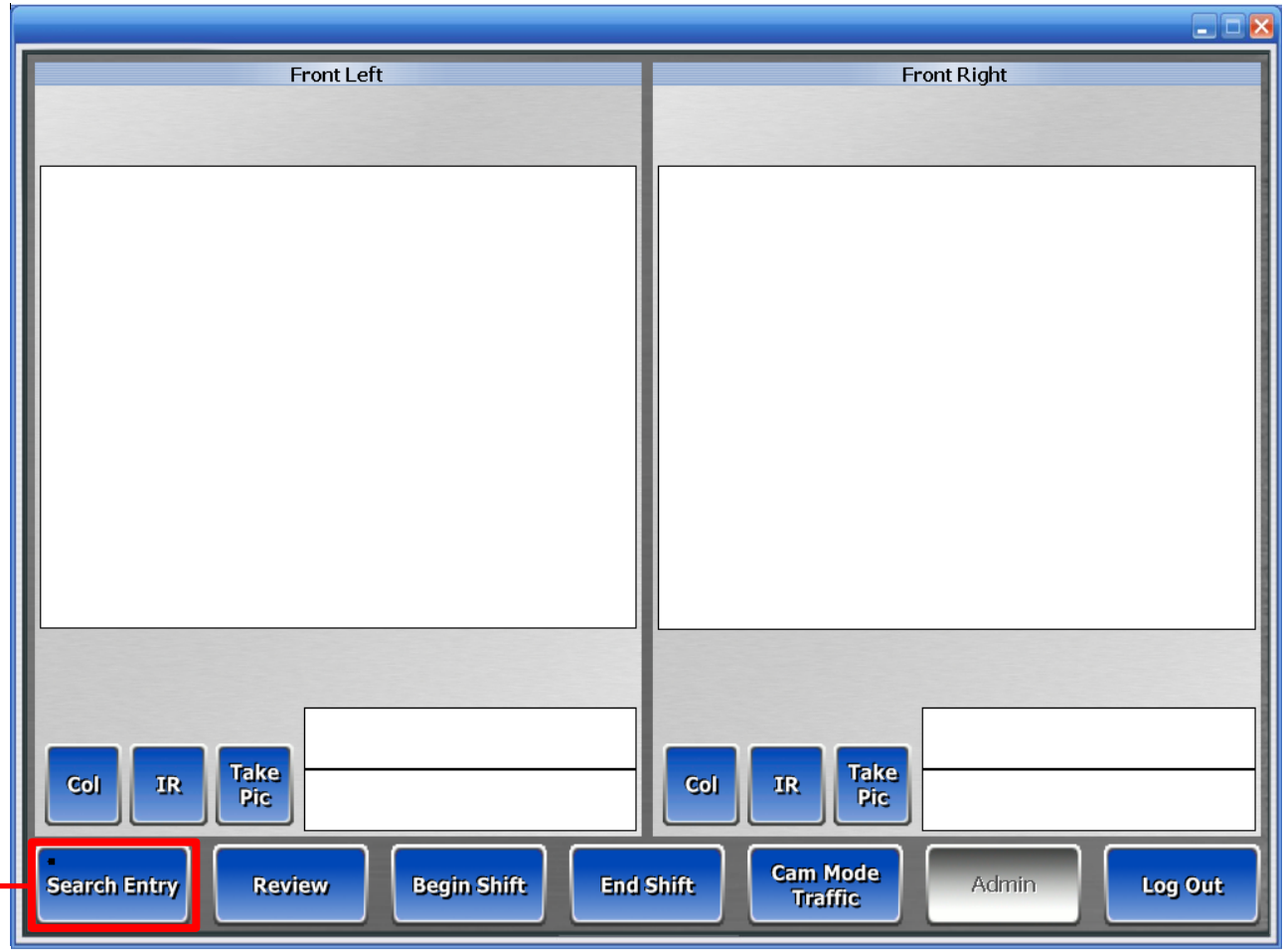


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Search Entry – Reads and Wildcards

3M License Plate Capture Software

- To search for a license plate against collected plates (reads) using wildcard search, select the **SEARCH ENTRY** button.

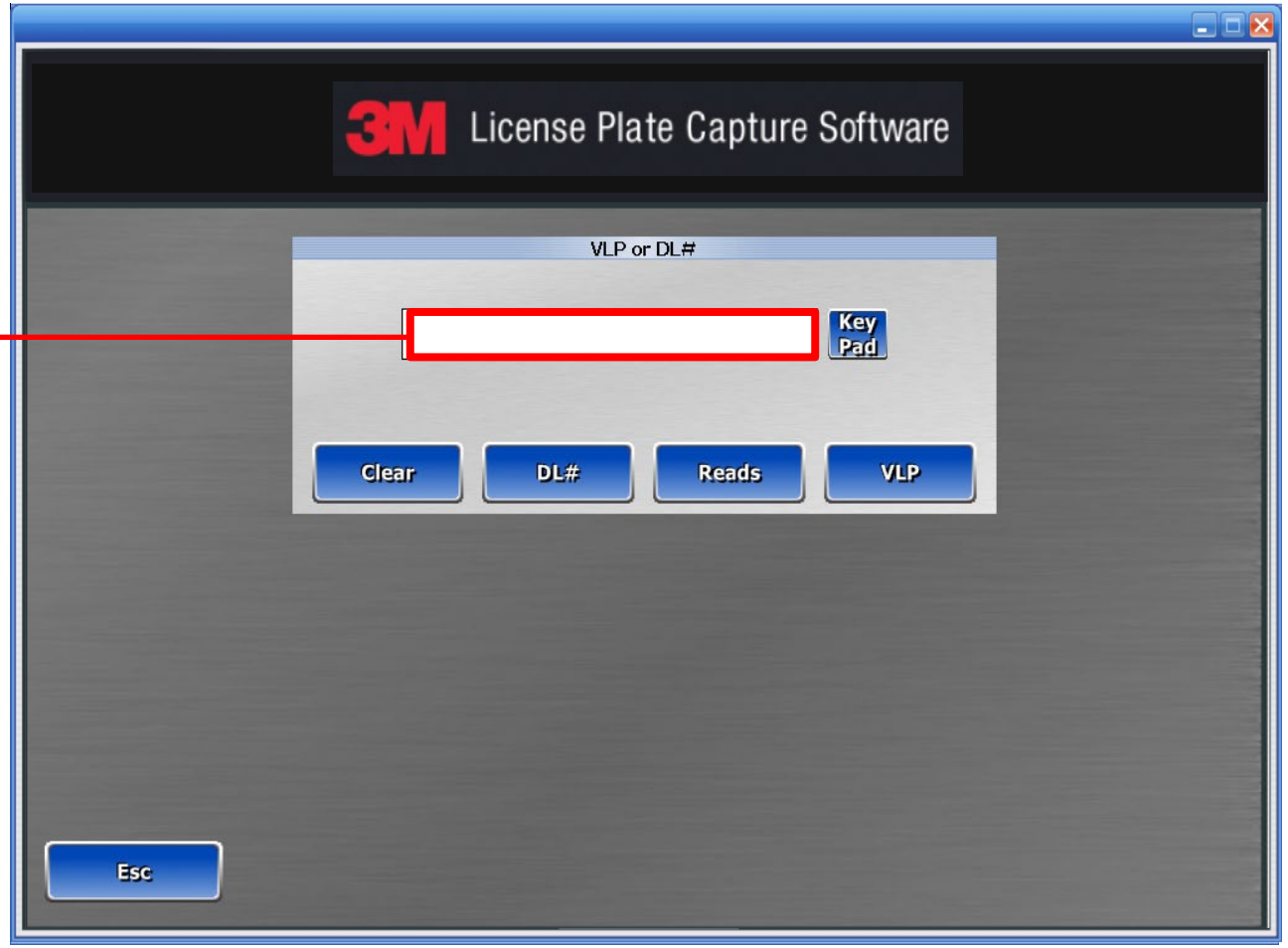


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Search Entry – Reads and Wildcards

3M License Plate Capture Software

- Search License Plate Reads
  - The wildcards available in the software are:
    - Wildcard searches can also be performed using the * and _ characters. The asterisk (*) designates an unknown number of characters while the underscore (_) indicates a single missing or unknown character. To search for a plate number with the characters J and 8, entering **J_8** will display all records containing J and 8 separated by one character.



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Search Entry – Wildcards

3M License Plate Capture Software

- Wildcard examples:
  - Wildcards use:
    - Use the % or * to search for A in any position in a license plate: *A* or %A% would result in plates ABC123, QWA123, 123ABA.
    - Use the _to search for an unknown single character in a license plate: ABC_23 would result in ABC123, ABC223, ABC323, ABCZ23.
    - Use the [ ] to search multiple characters in a single position: To search O, 0, Q, C and U in the third position of AB?123 enter AB [O0QCU] 123.

Wildcard Examples:

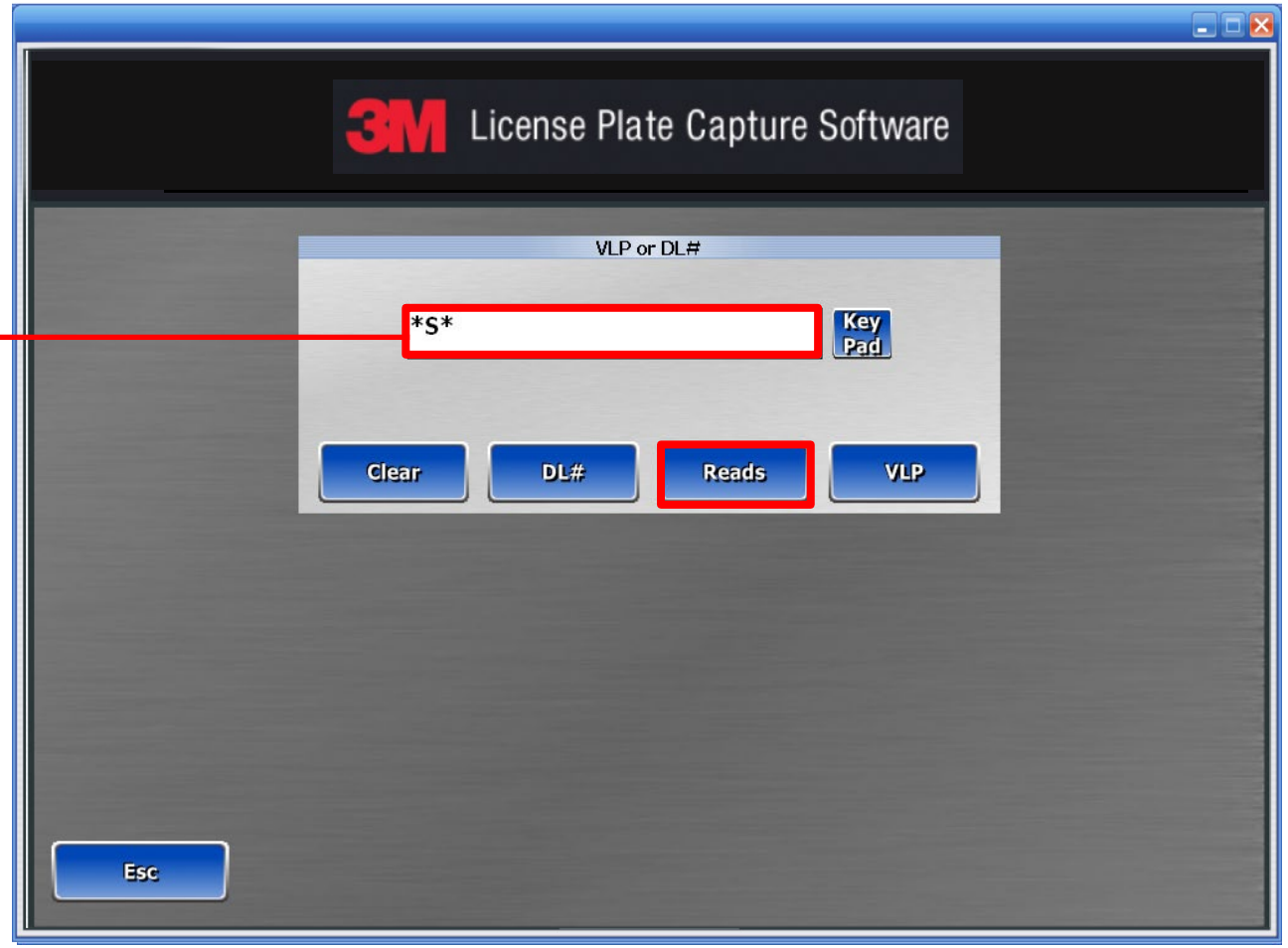
Wildcard use	Represents
a%	Any values that start with the letter "a"
a	Any values containing "a"
%	Any/all values
a_	Any values that are exactly two characters long and start with "a"
_a*b	Any values that have "a" as the second letter and end with "b"
[abc]*	Any values that start with "a", "b" or "c".

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Search Entry – Reads and Wildcards

3M License Plate Capture Software

- Search License Plate Reads with a Wildcard:
  - Enter text of the license plate to be searched with wildcard(s).
  - Search is performed against database of license plates collected by ALPR vehicle.
  - Database contains license plates collected since last End Shift was performed.
  - Press **READS** to start search.

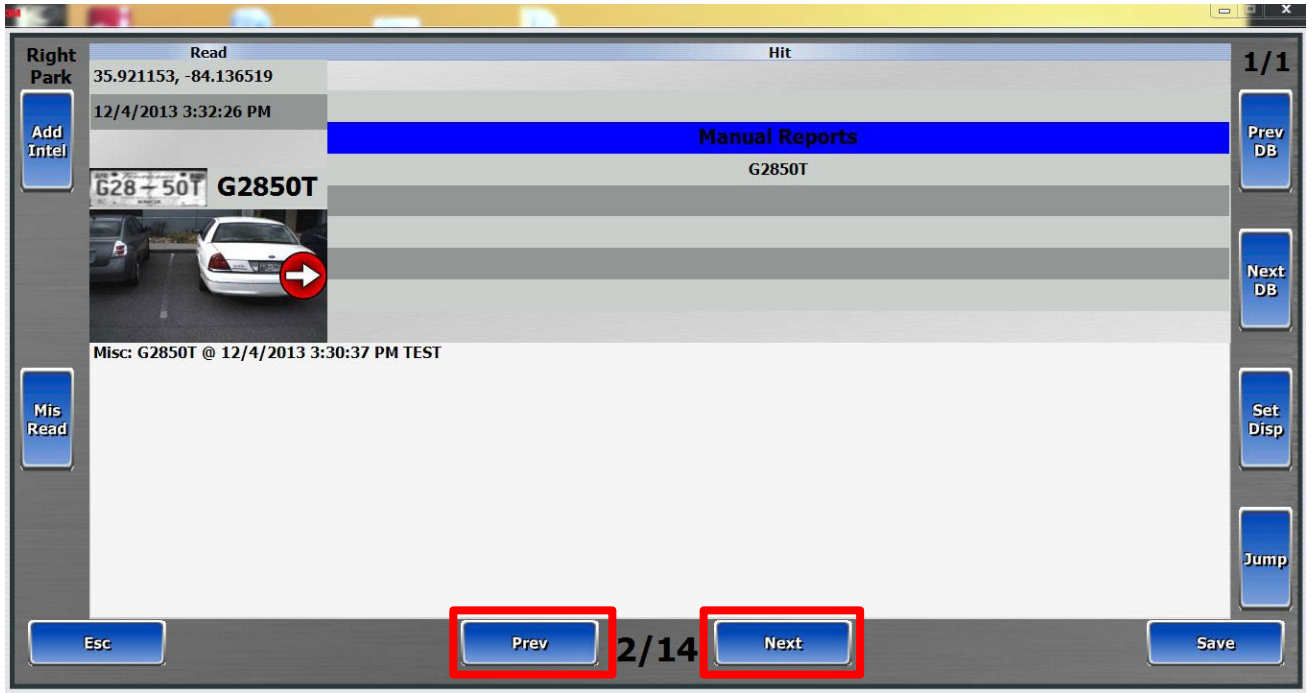


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Search Entry – Reads

3M License Plate Capture Software

- To navigate between multiple reads, use the **NEXT** or **PREVIOUS** buttons.

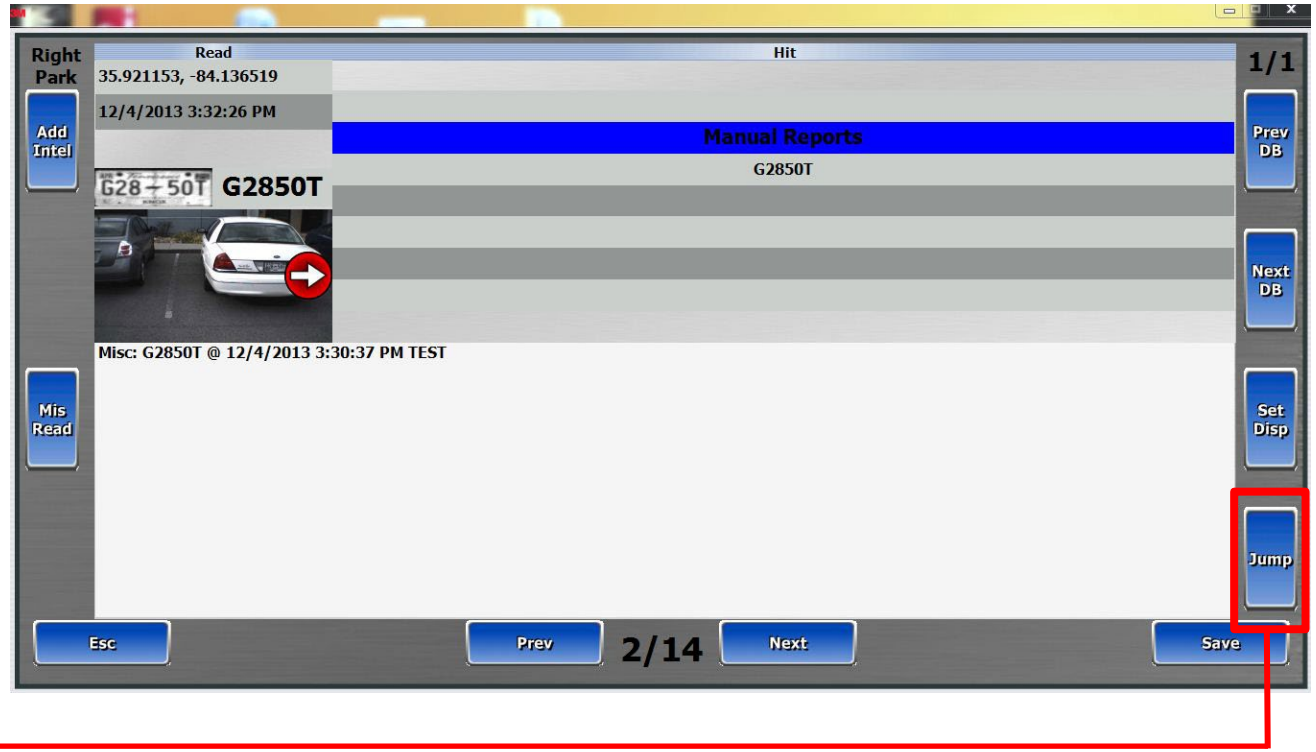


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Search Entry – Reads - Jump

3M License Plate Capture Software

- To move to a specific record (license plate) in the database, select **JUMP**.

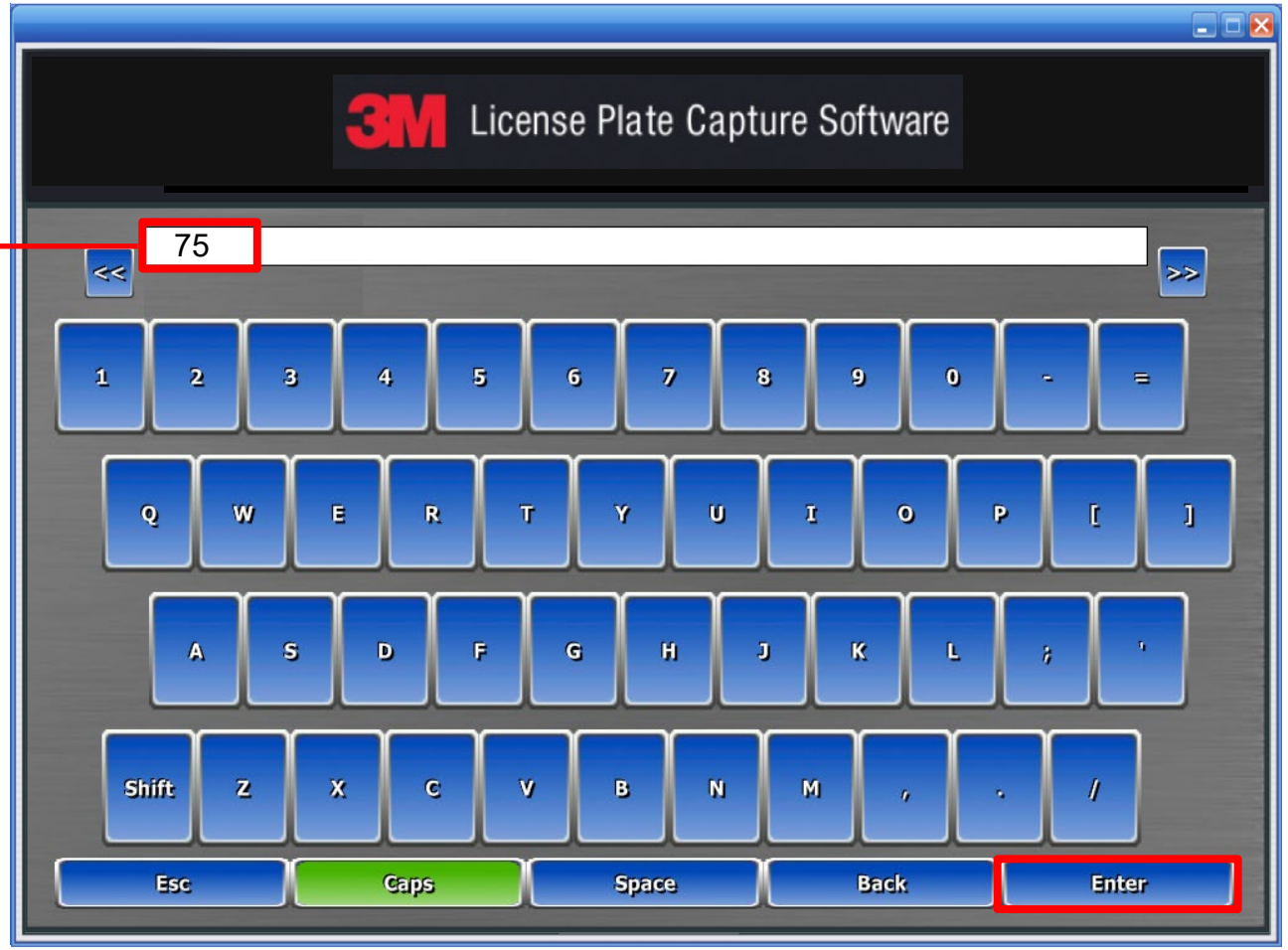


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Search Entry – Reads - Jump

3M License Plate Capture Software

- Enter the number of the record to be searched, then press **ENTER**.

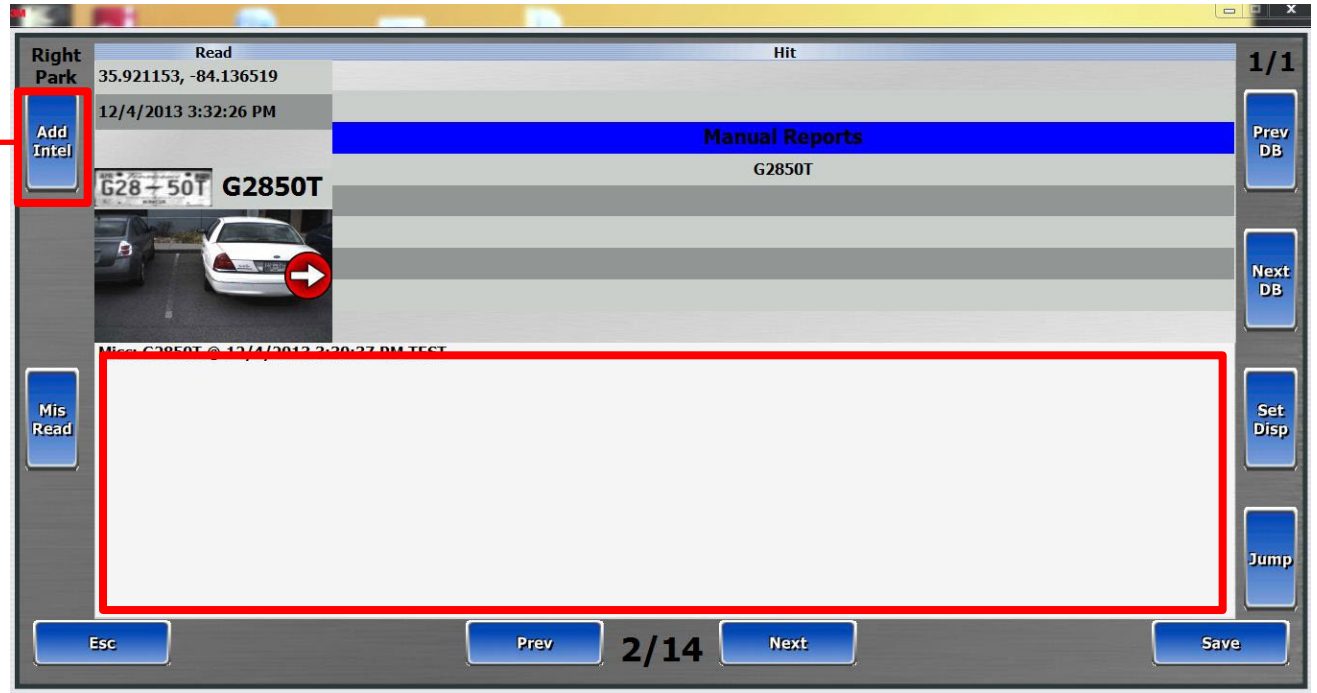


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Search Entry – Reads - Add INTEL

3M License Plate Capture Software

- To add notes (INTEL) to the narrative text field, select the **ADD INTEL** button.

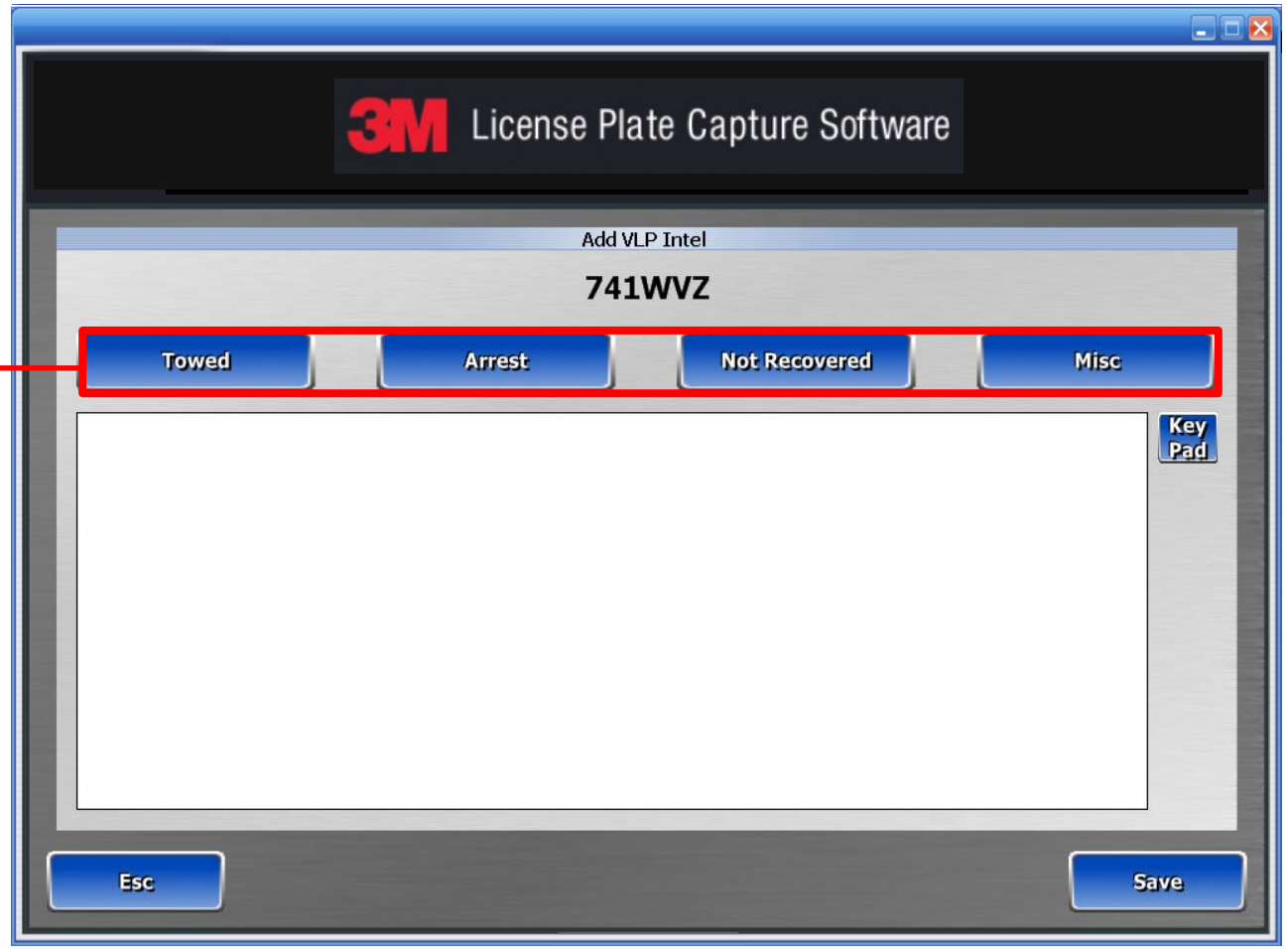


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Search Entry – Reads - Add INTEL

3M License Plate Capture Software

- Select one of the category buttons.

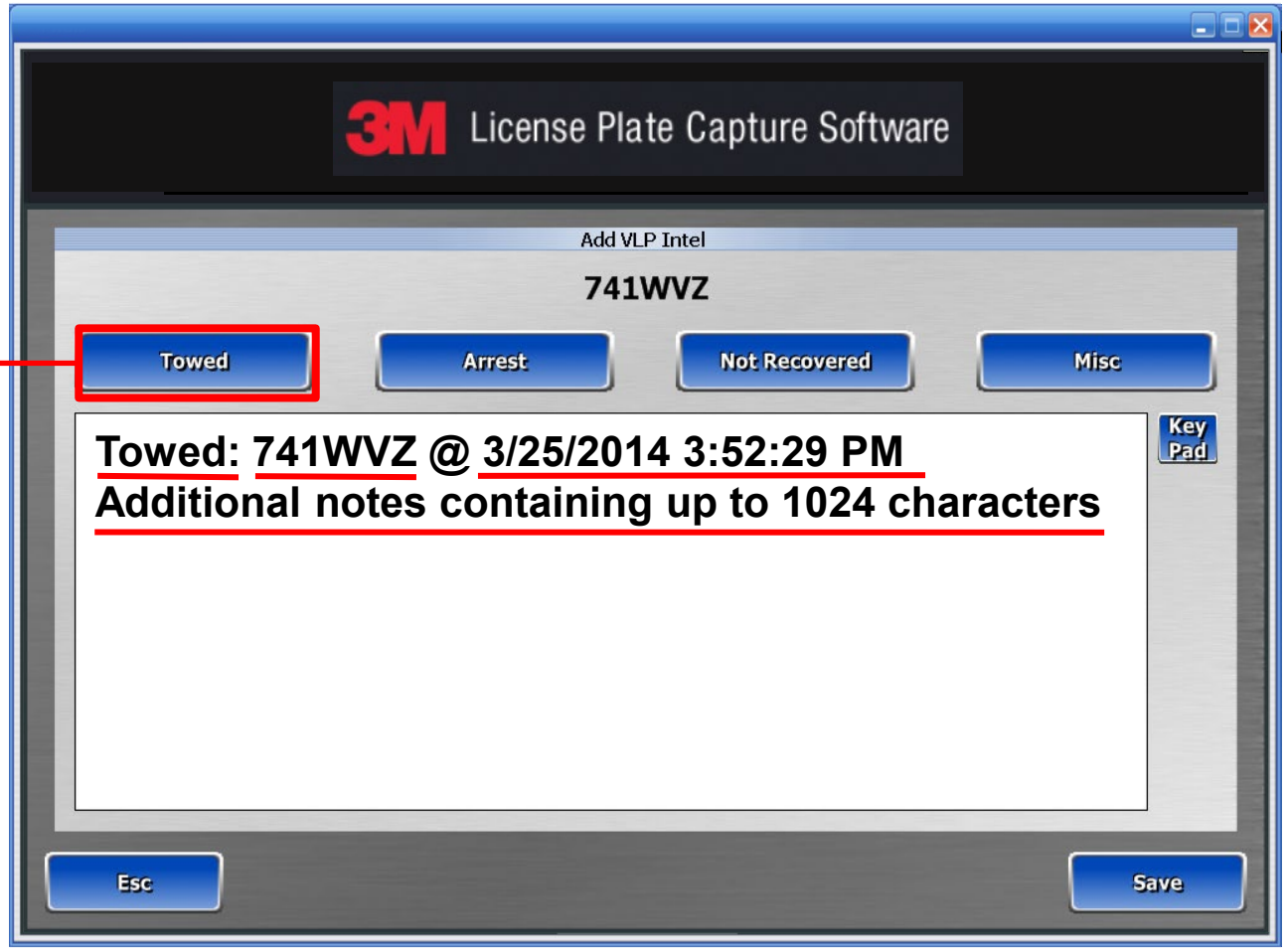


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Search Entry – Reads - Add INTEL

3M License Plate Capture Software

- Select a category (**TOWED** in this example). An annotation is added in the narrative text field containing:
  - Category
  - License plate number
  - Date and time the annotation was added
  - Additional notes as entered by the user



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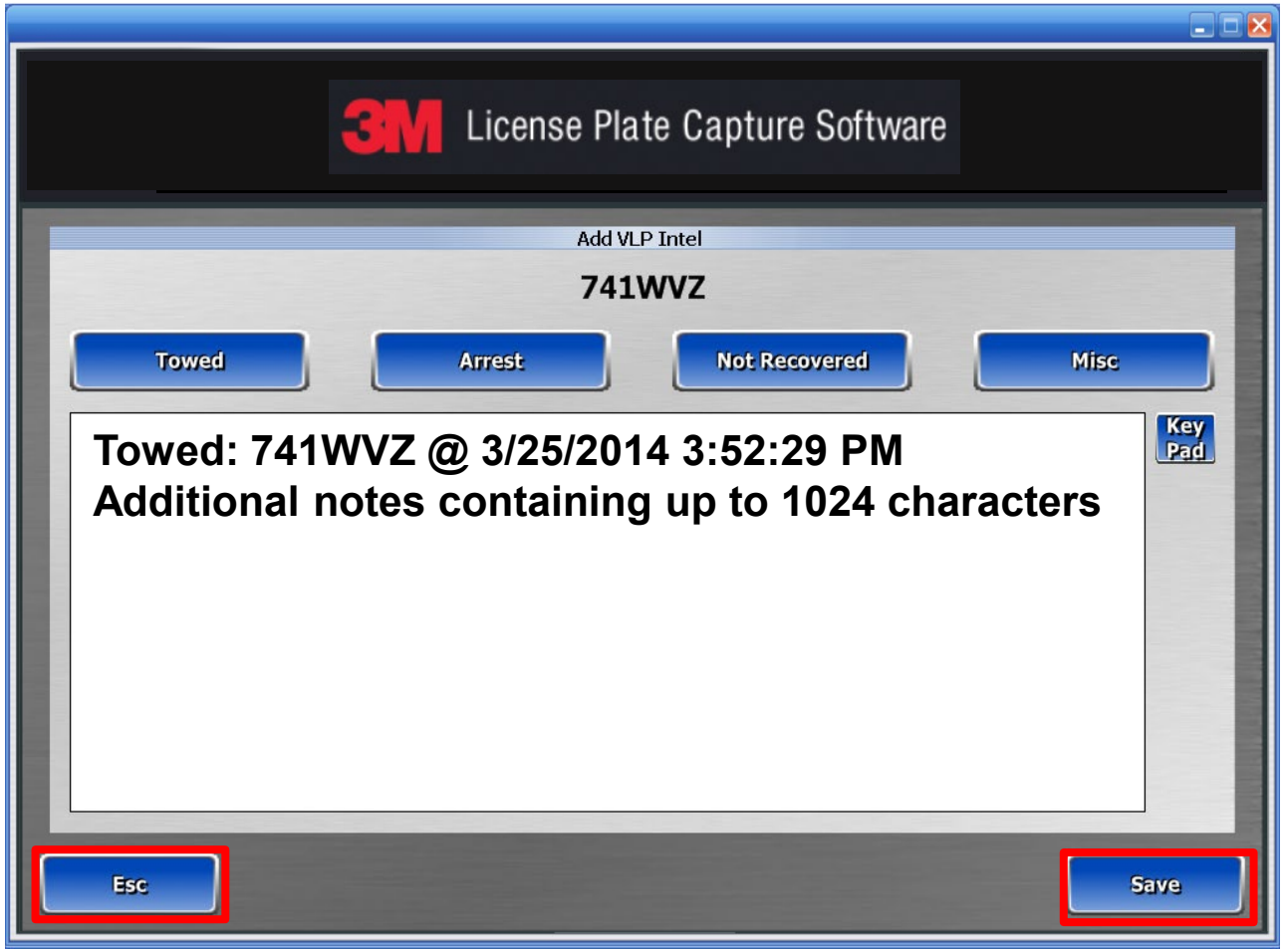
Search Entry – Reads - Add INTEL

3M License Plate Capture Software

- Select **SAVE** to save the added INTEL and return to the reads screen

OR

- Select **ESC** to discard the added INTEL and return to the reads screen.



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Search Entry – Hotlist Search

3M License Plate Capture Software

- Search a license plate against hotlist database(s):
  - The ALPR system does not read the license plate of the vehicle directly in front of the ALPR vehicle.
  - A license plate can be manually entered into the 3M License Plate Capture Software to be searched against hotlist database(s).

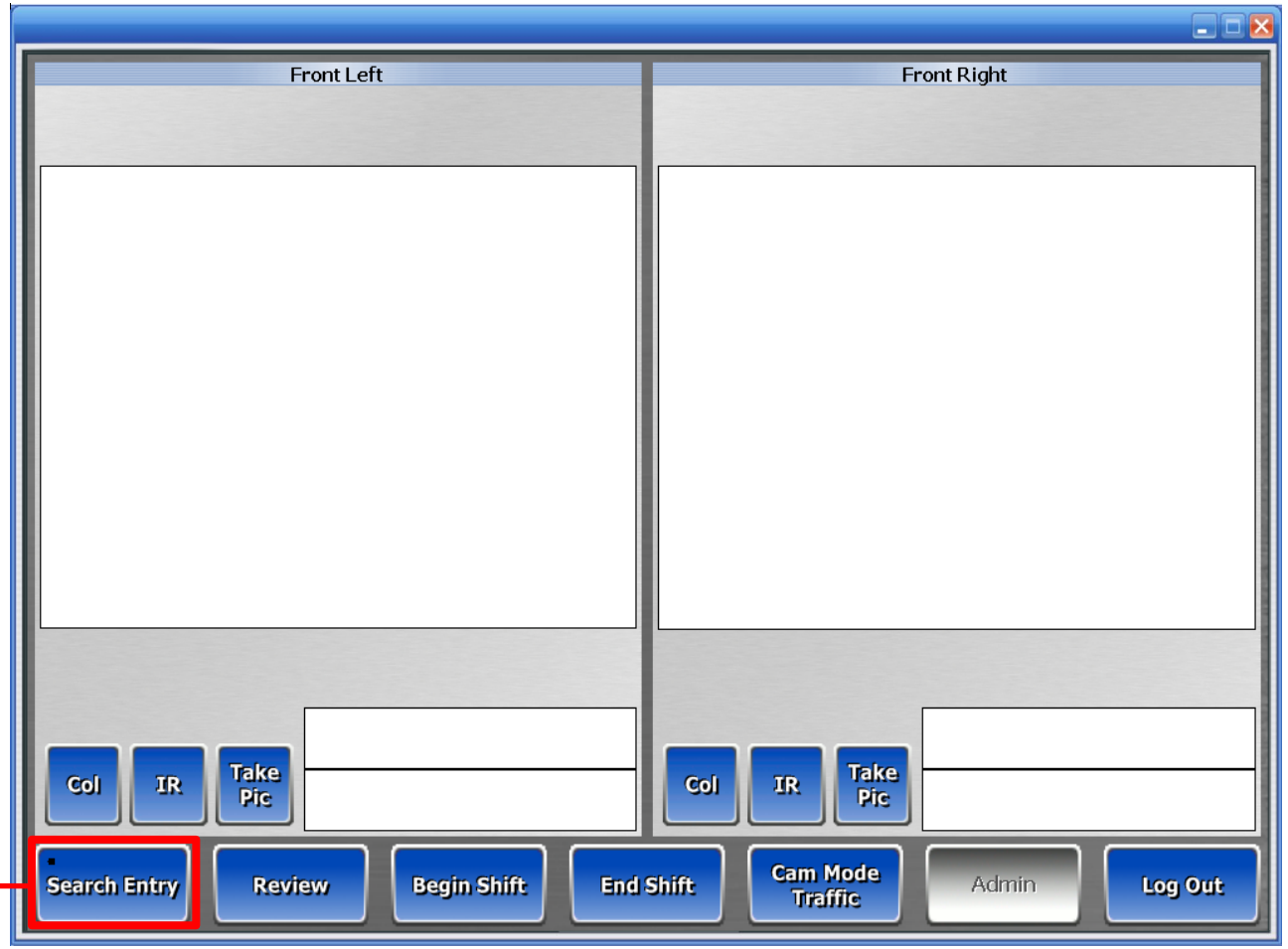


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Search Entry – VLP

3M License Plate Capture Software

- To search for a license plate in a hotlist or to add a license plate to a temporary hotlist, select the **SEARCH ENTRY** button.

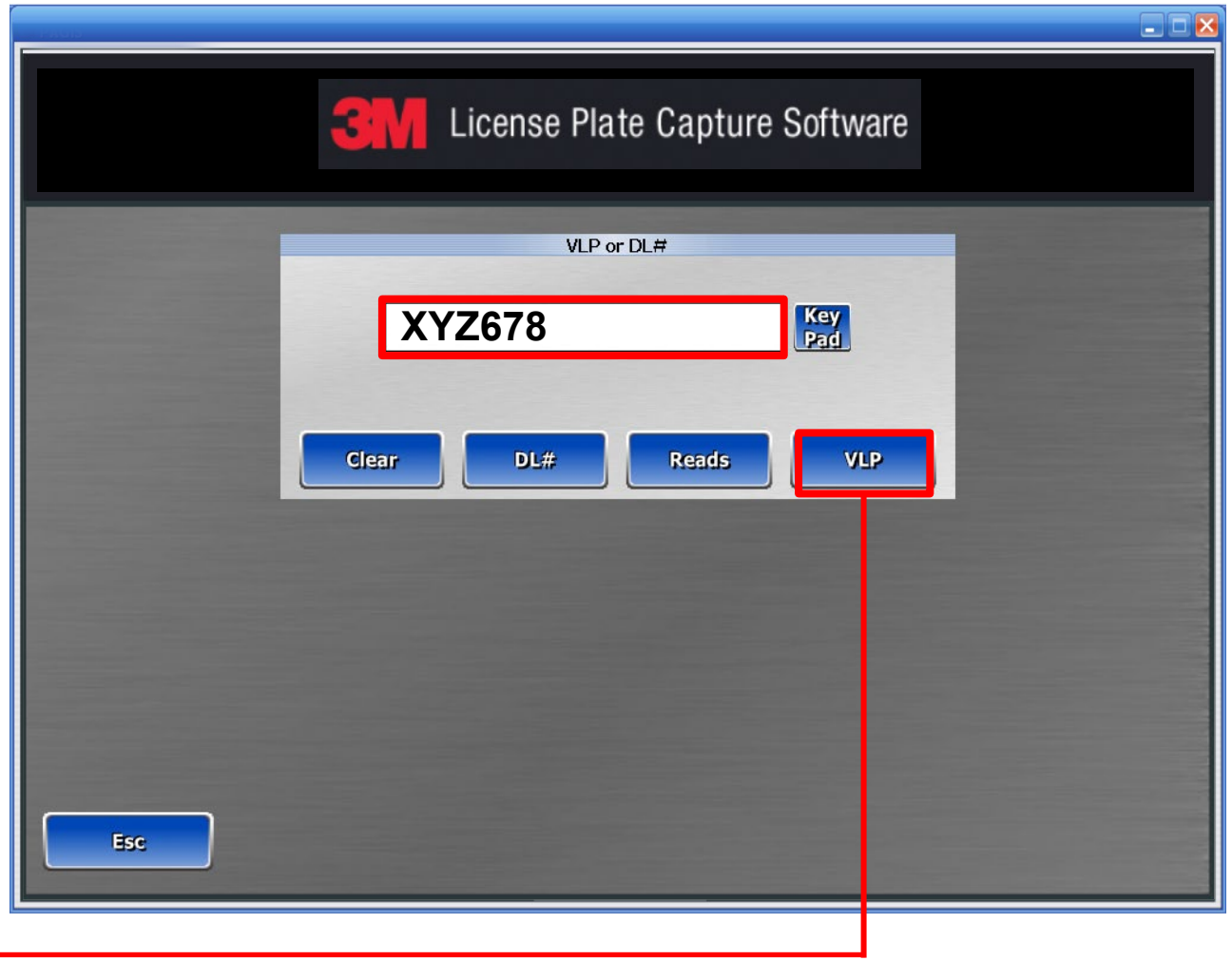


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Search Entry – VLP or Driver's License Number

3M License Plate Capture Software

- Search a license plate against hotlist databases:
  - To search a license plate against the hotlist database for NCIC, local hotlist, and various other data sources (added by the Hotlist Administrator), enter suspect license plate and select **VLP**.
  - Plate number will be compared to hotlist databases in the software.

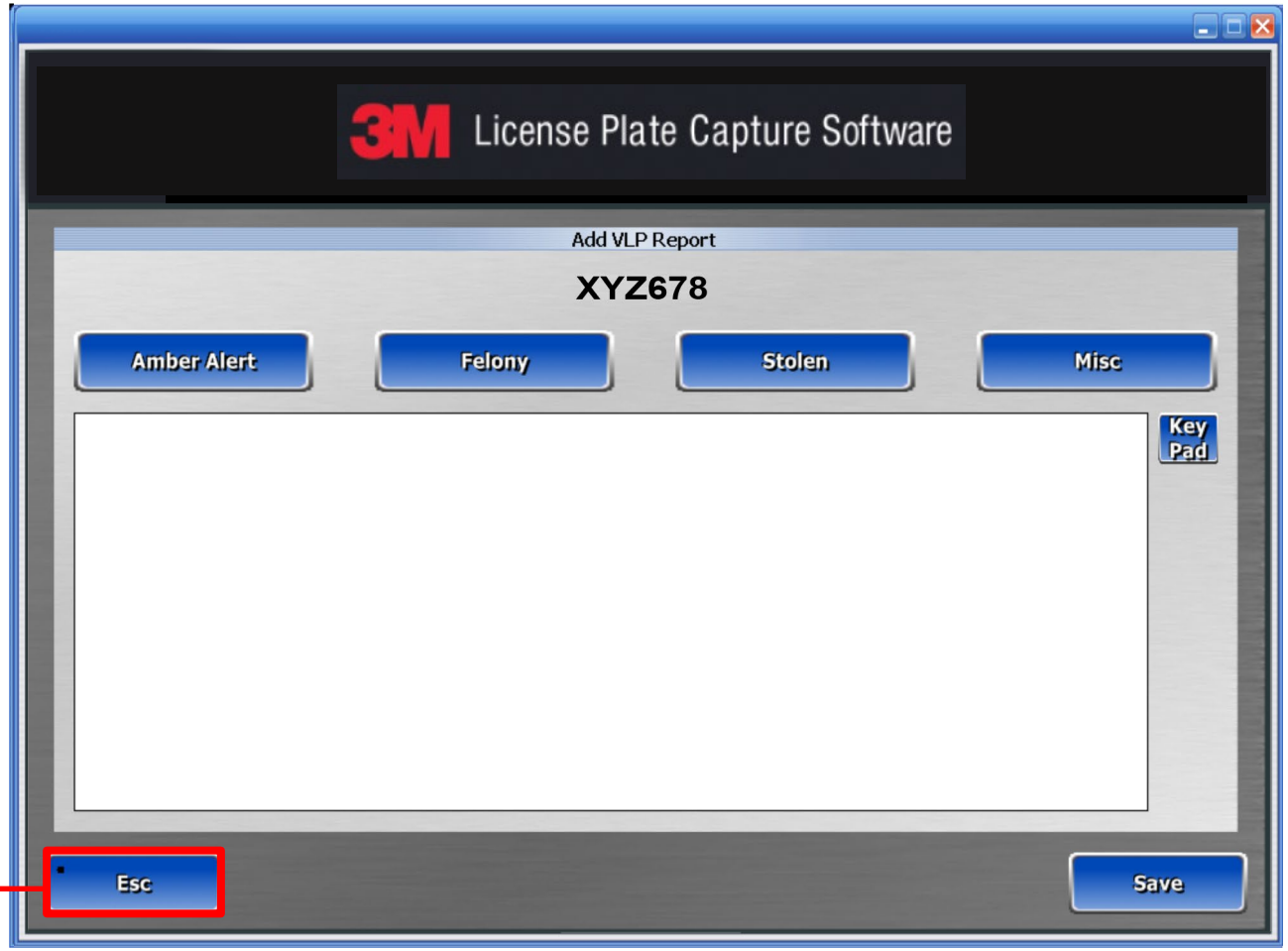


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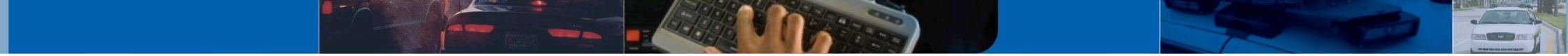
Search Entry – Add VLP Report

3M License Plate Capture Software

- Press **ESC** to return to the main screen since no match was found.



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Search Entry – VLP Manual Reports Database

3M License Plate Capture Software

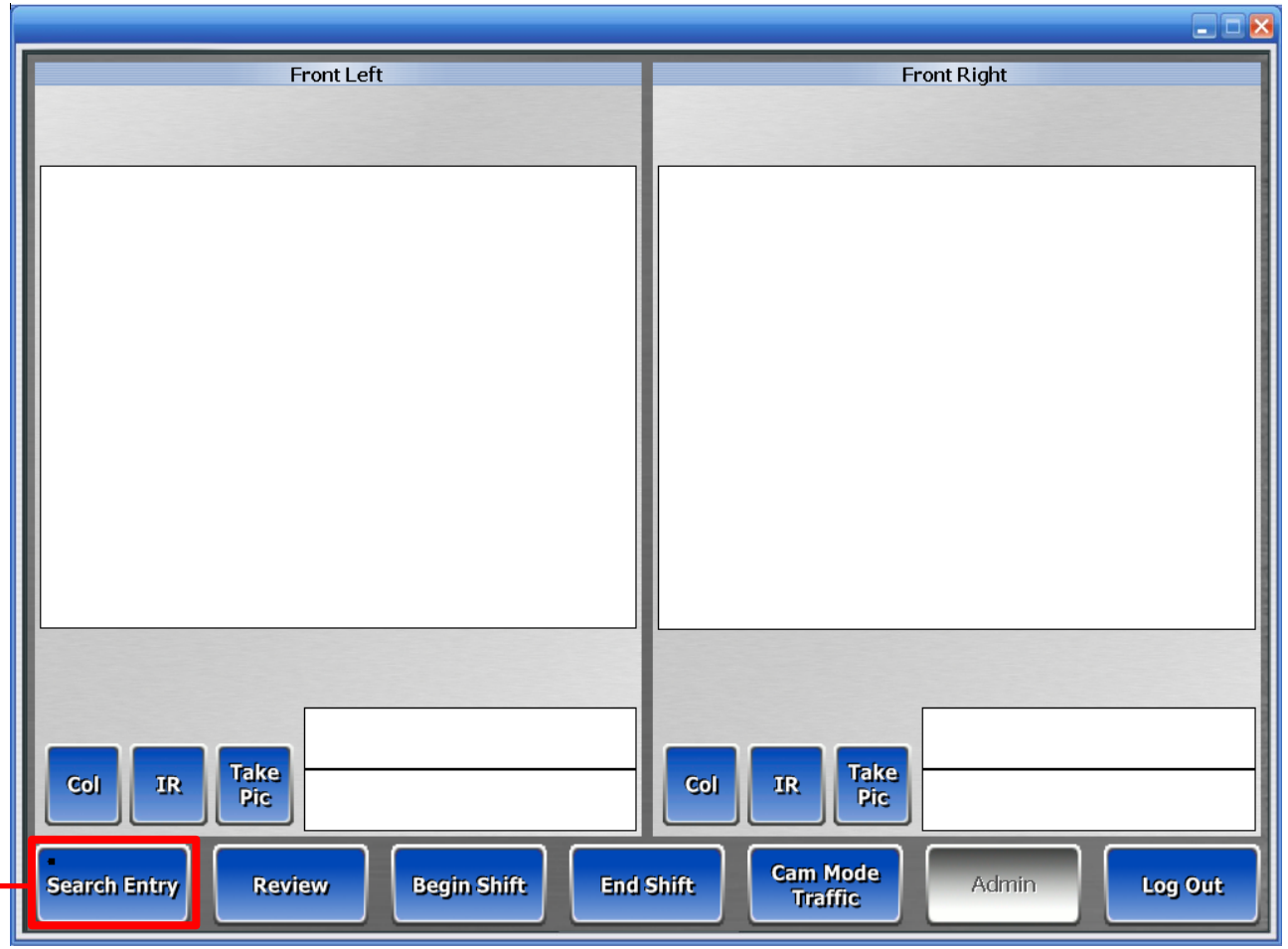
- Add a license plate to a Manual Reports database:
  - 3M License Plate Capture Software contains a Manual Reports database.
  - Enter a license plate into this database for the software to search during the current shift.
  - All entries into the Manual Reports database are temporary and will be discarded when END SHIFT is performed.

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Search Entry – VLP

3M License Plate Capture Software

- To add a license plate to a Manual Reports database, select the **SEARCH ENTRY** button.

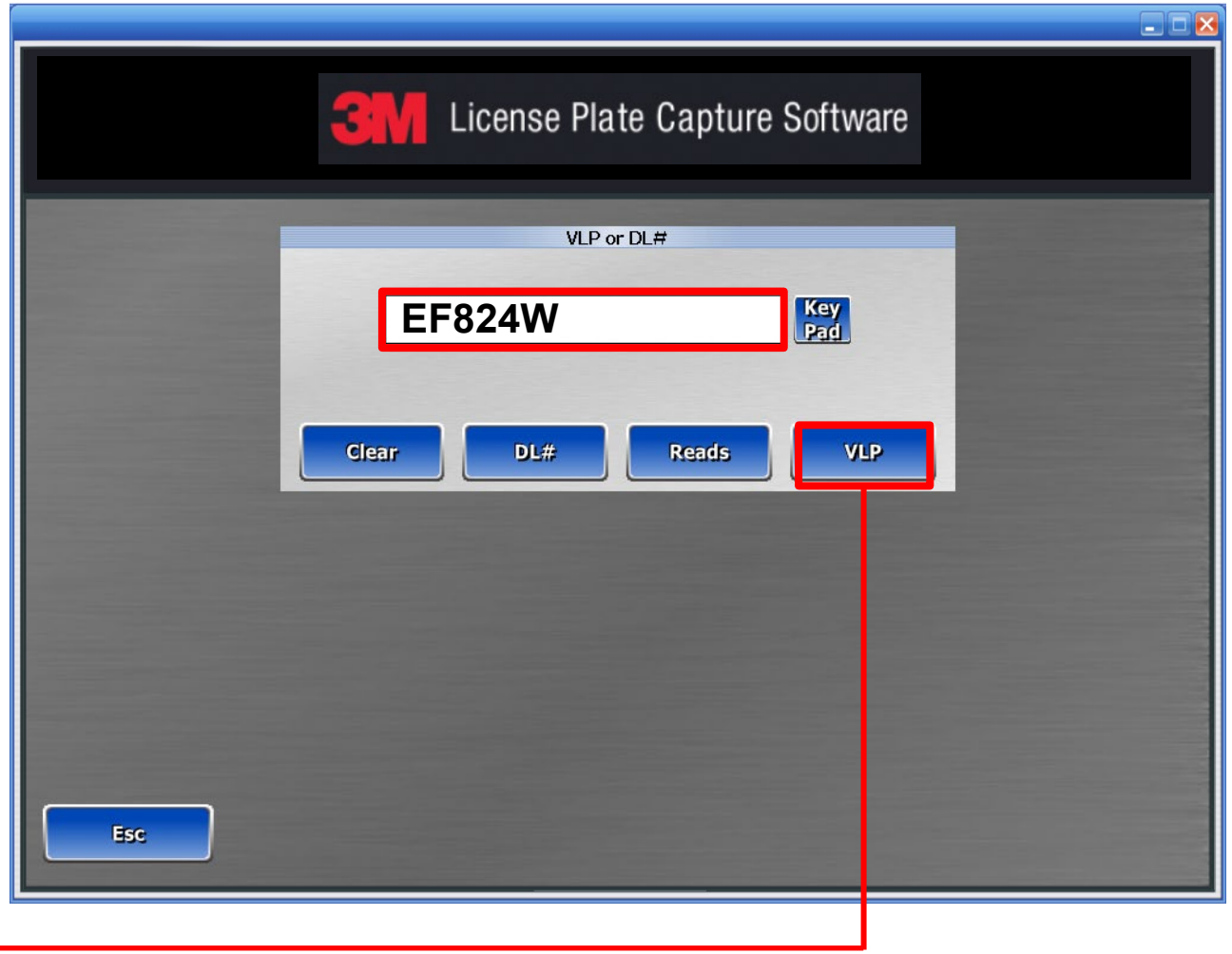


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Search Entry – VLP or Driver's License Number

3M License Plate Capture Software

- To add a license plate to the Manual Reports database:
  - Enter the suspect license plate and select **VLP**.

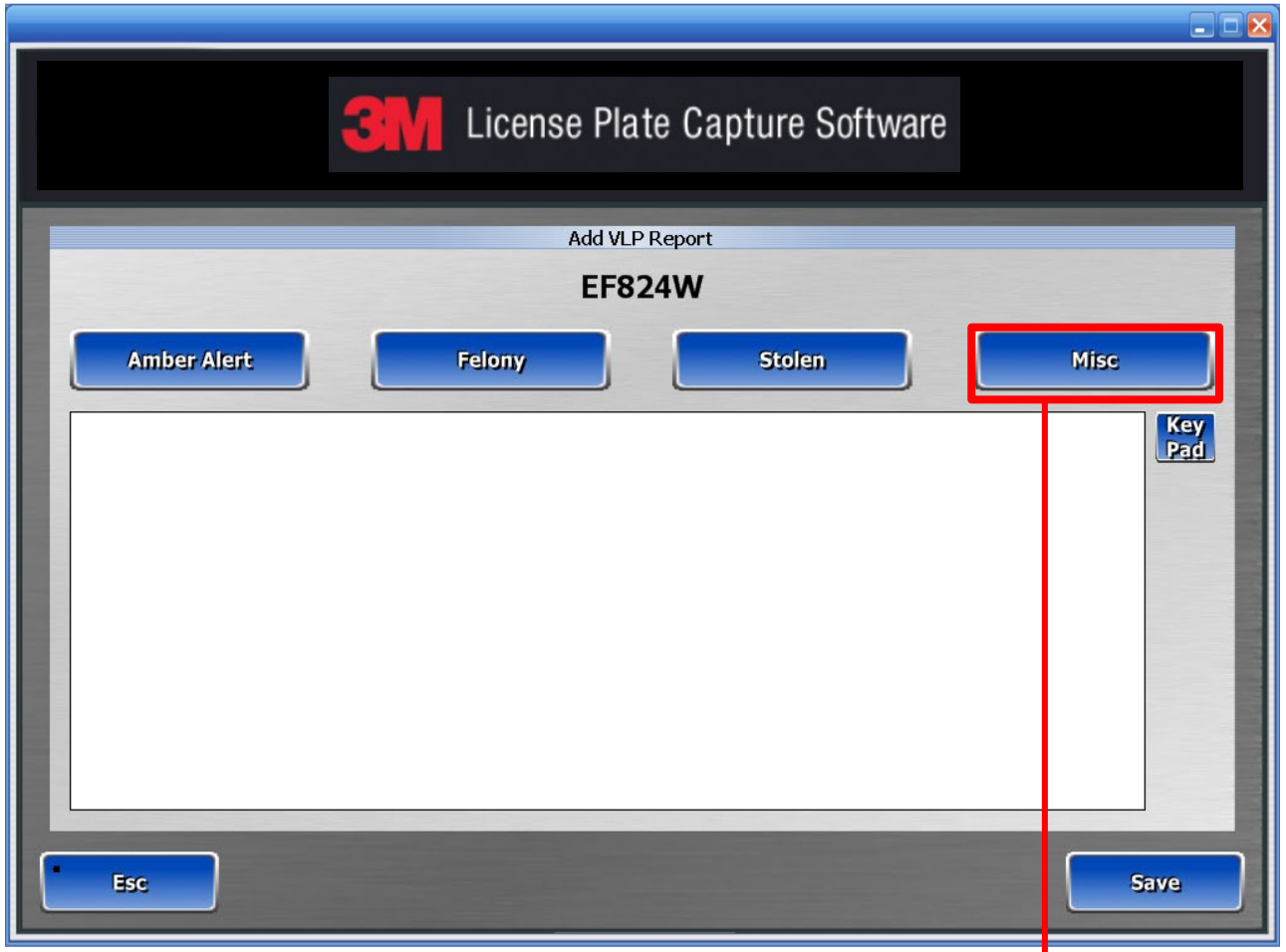


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Search Entry – VLP - Manual Entries

3M License Plate Capture Software

- If no match can be found after adding a license plate to the Manual Reports database, select one of the predefined categories:
  - Amber alert
  - Felony
  - Stolen
  - **MISC**

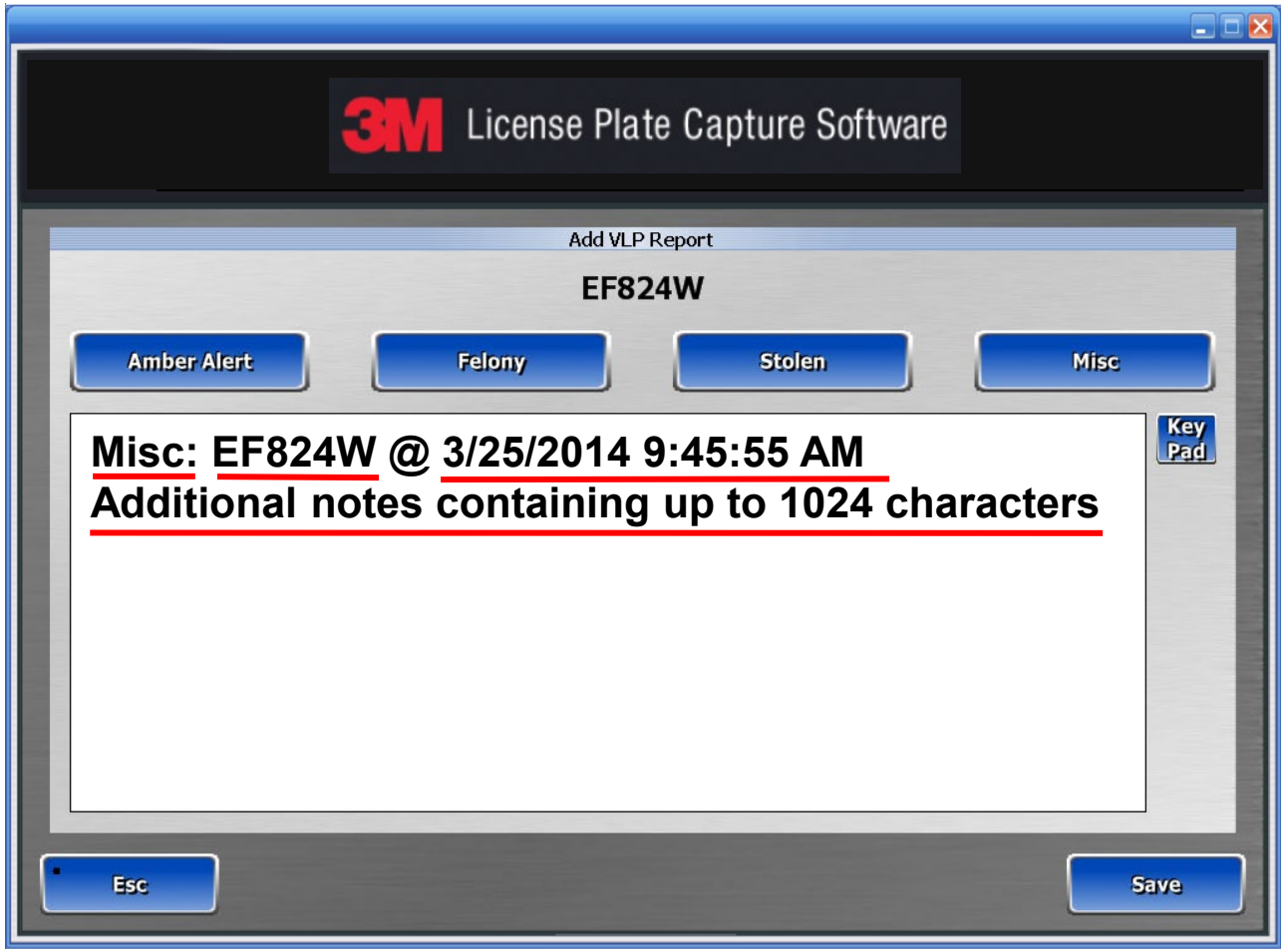


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Search Entry – VLP - Manual Reports

3M License Plate Capture Software

- An annotation is added containing:
  - The category
  - The license plate number
  - The date and time the annotation was added
  - Additional notes may be added by the user



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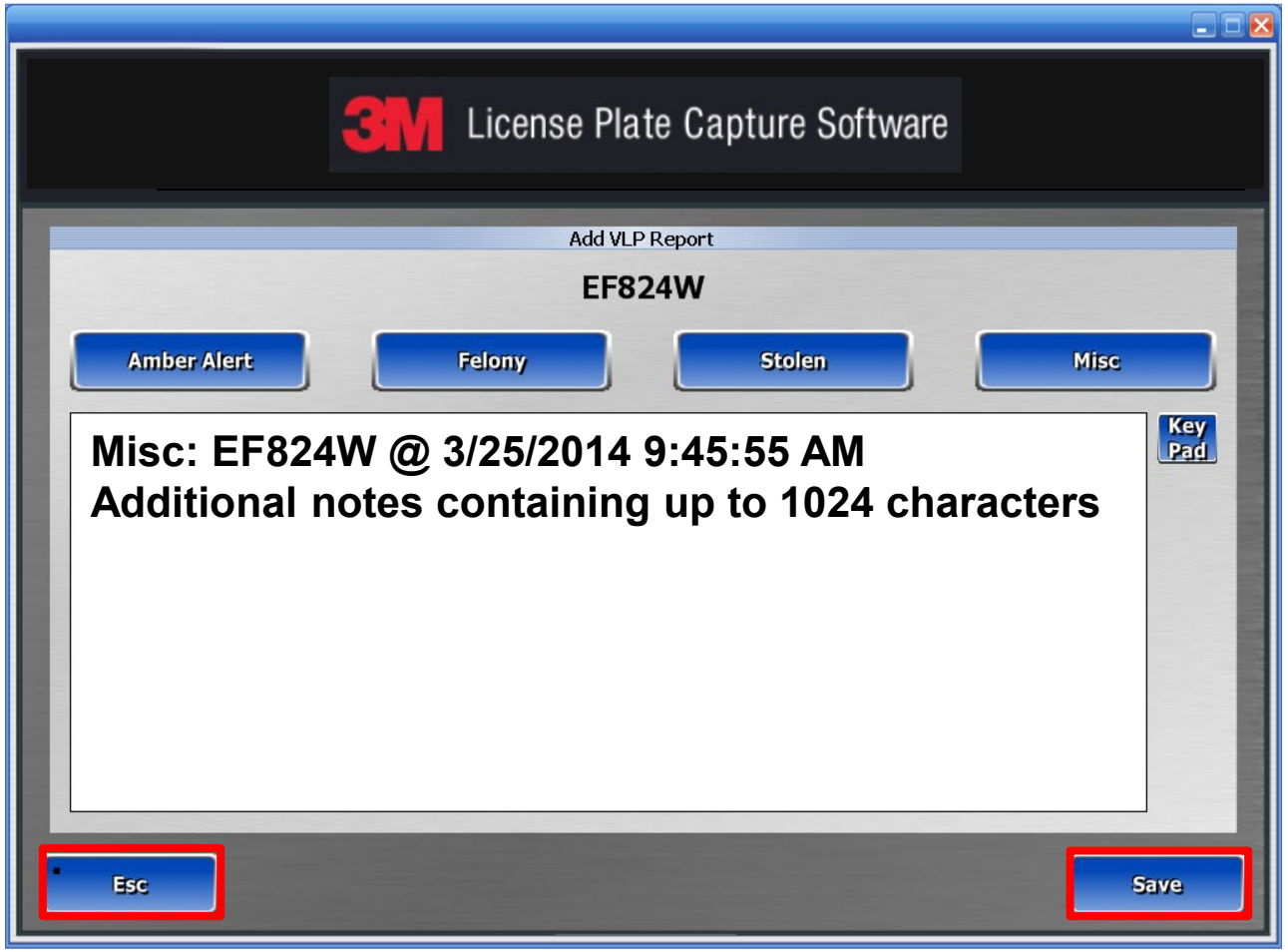
Search Entry – VLP - Manual Entries

3M License Plate Capture Software

- Select **SAVE** to save the Manual Report and return to the READS screen

OR

- Select **ESC** to discard the Manual Report and return to the READS screen.

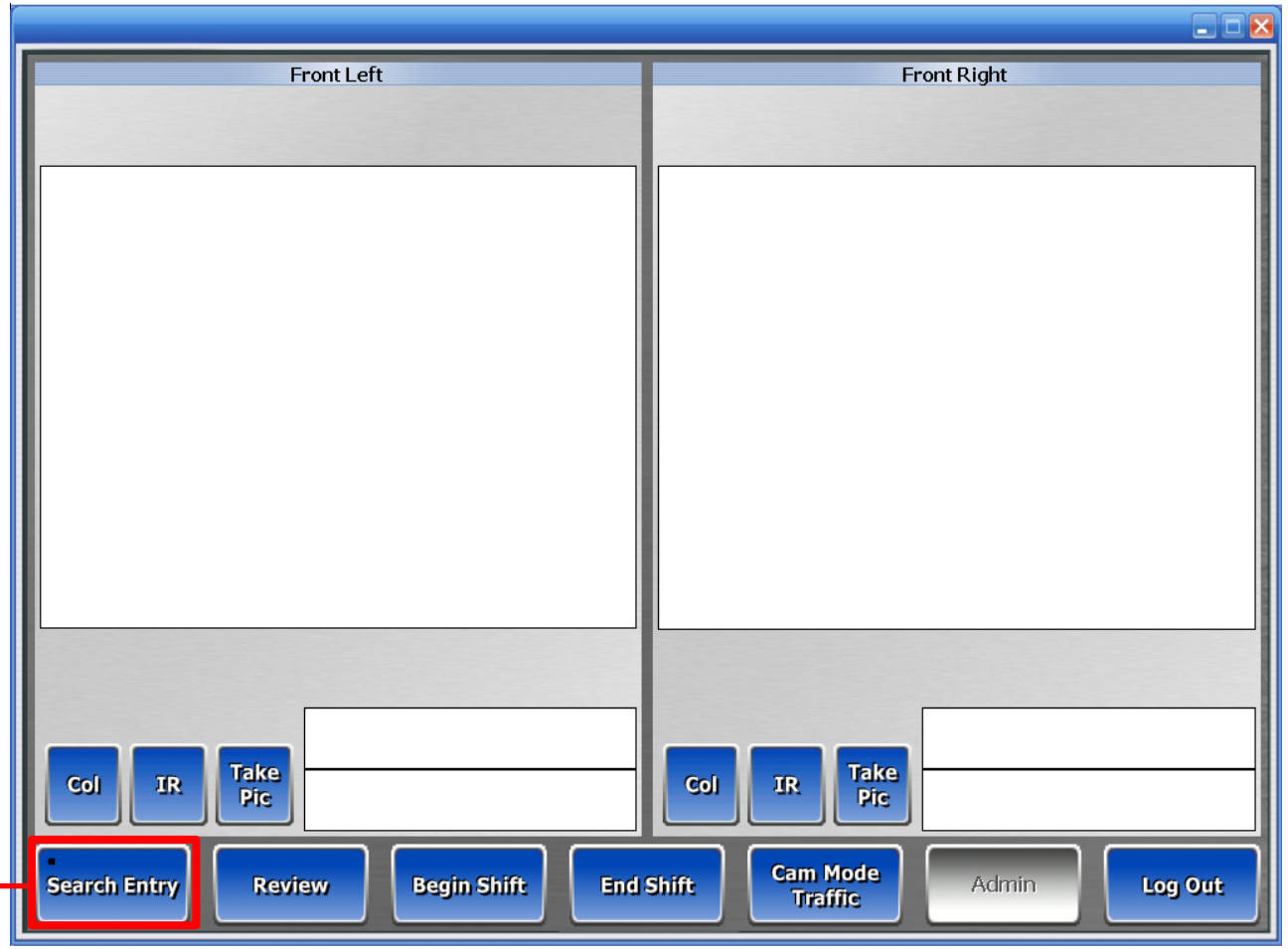


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Search Entry – Driver's License Number

3M License Plate Capture Software

- **SEARCH ENTRY** contains controls to search based on a driver's license number (in the UK and some European countries to date).

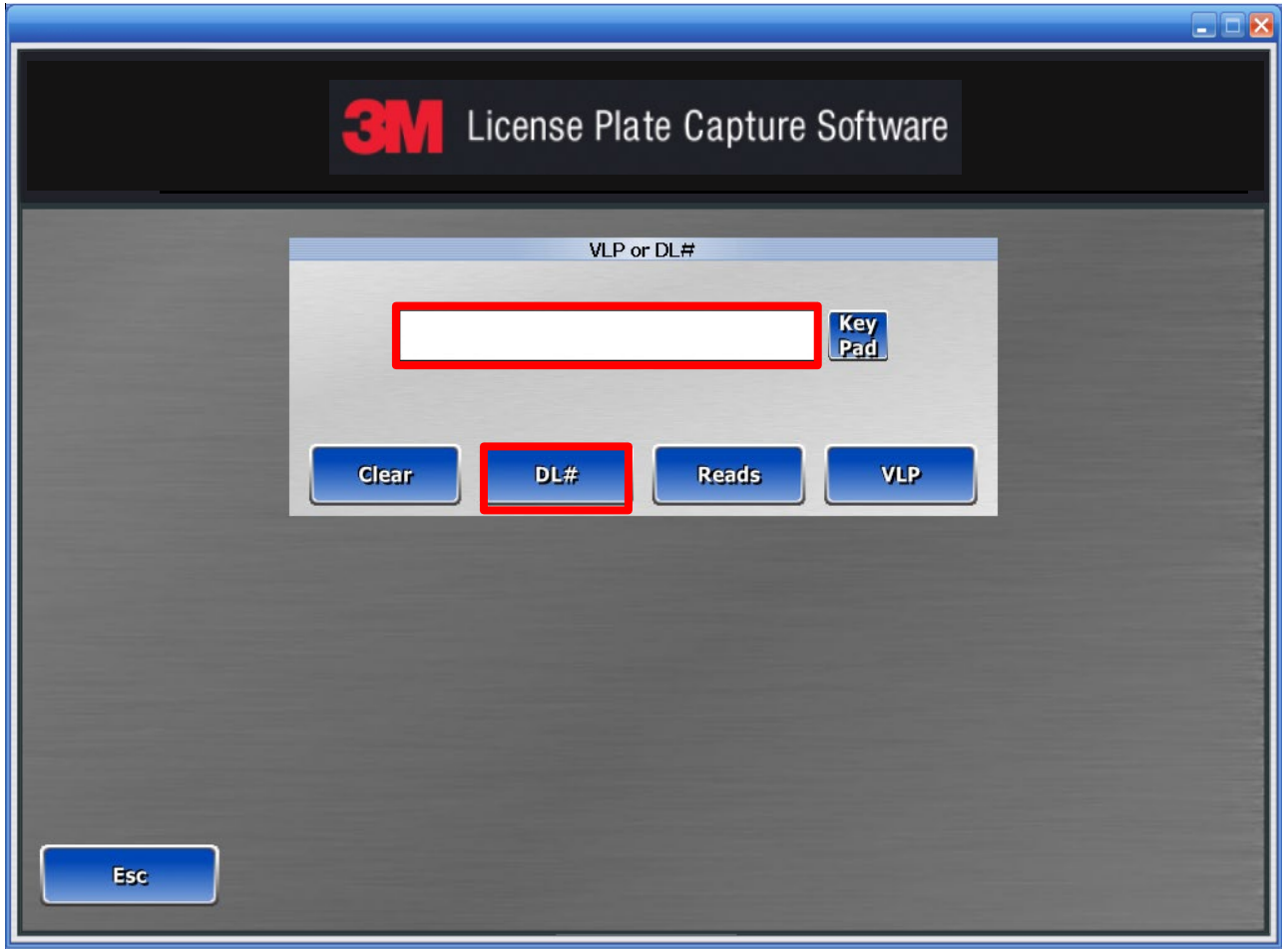


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Search Entry – Driver's License Number

3M License Plate Capture Software

- A search based on a driver's license number is currently used in the UK and some European countries.
  - The driver's license number and license plate number are assigned to an individual and entered into the same databases for cross reference.

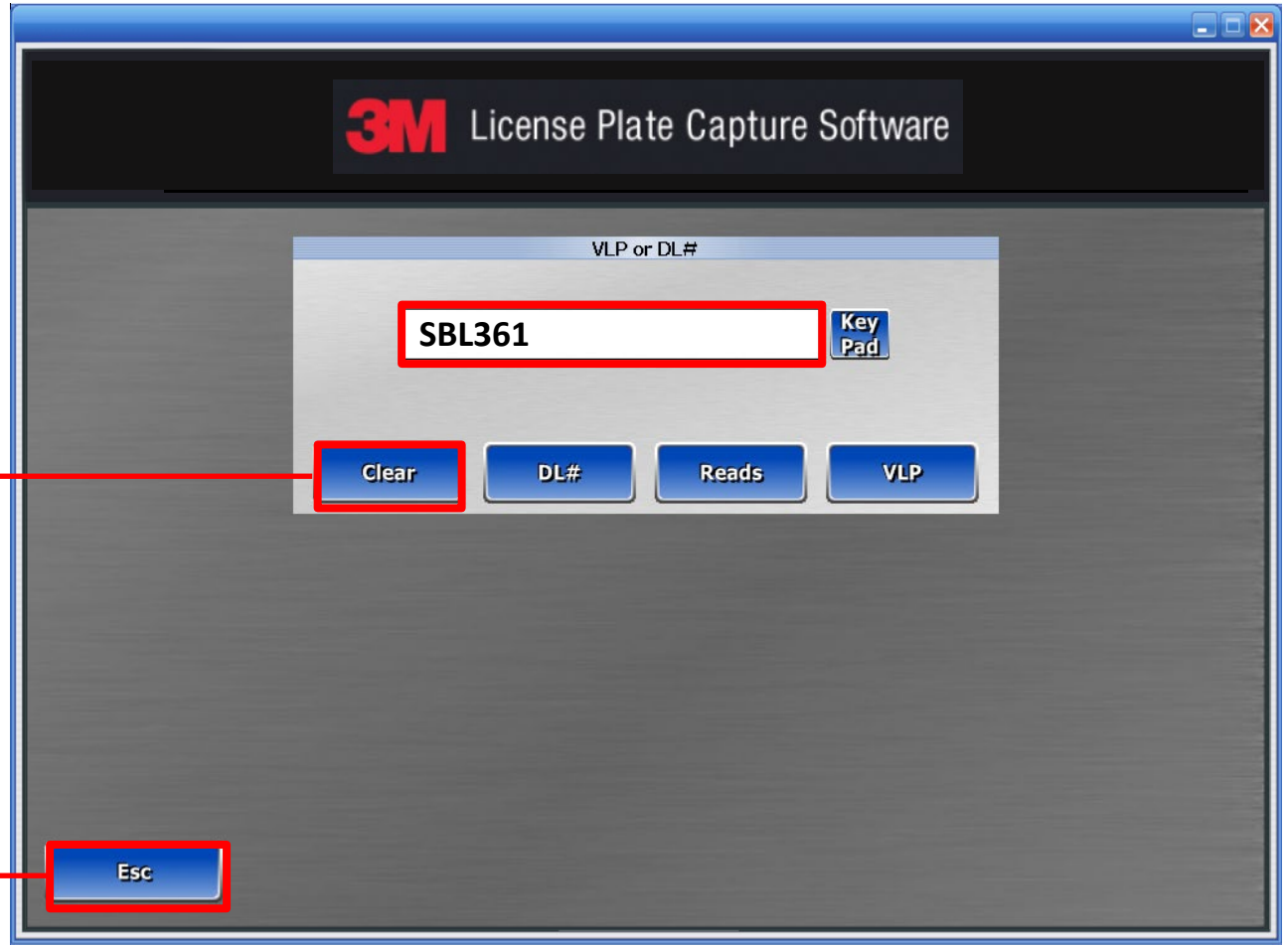


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Search Entry

3M License Plate Capture Software

- The **CLEAR** button removes the text from the text box.
- Press **ESC** to return to the main screen.

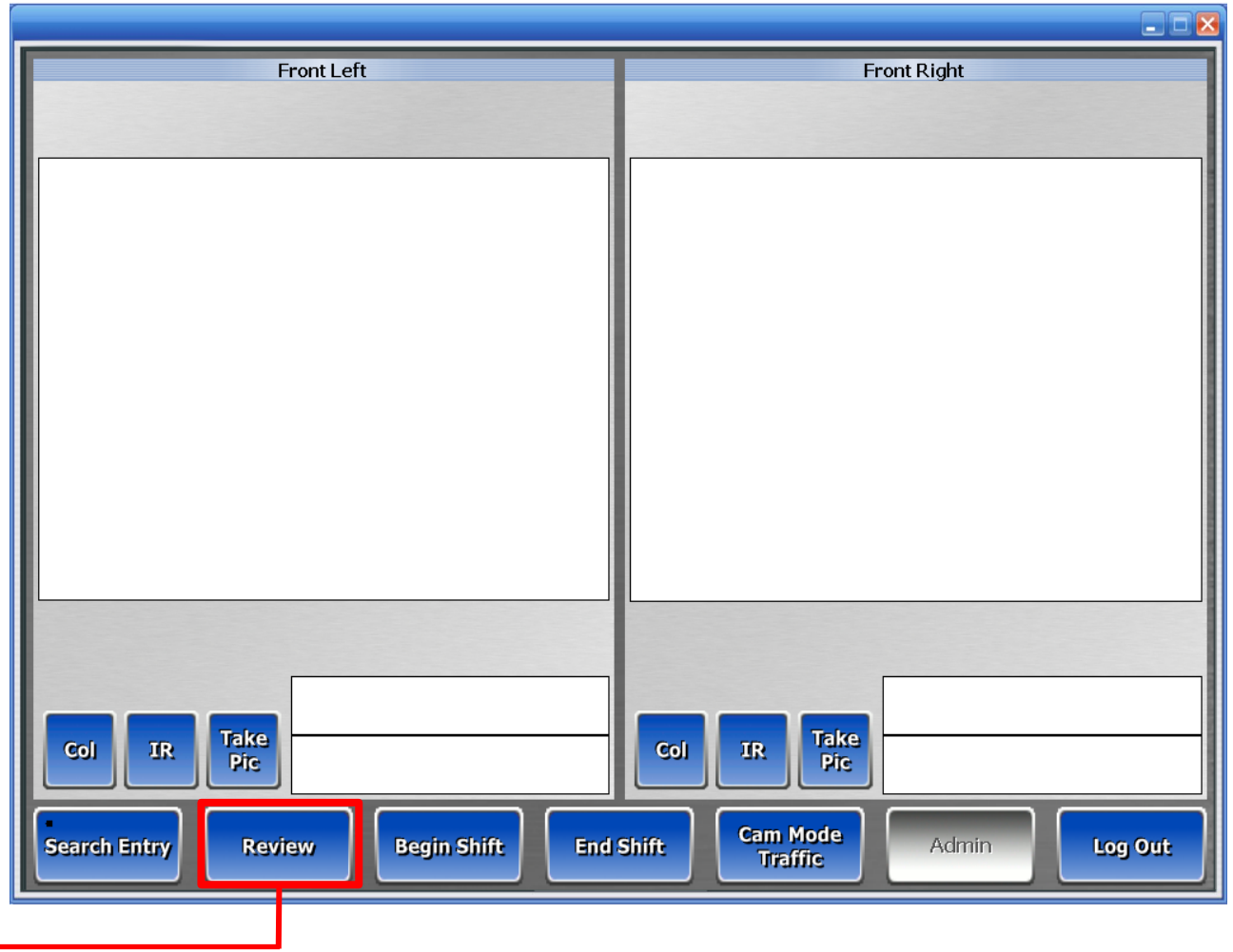


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Review

3M License Plate Capture Software

- Review collected reads and hit data.
  - License plate data collected by the ALPR vehicle since the previous End Shift may be reviewed by pressing the **REVIEW** button.



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Review – Summary Statistics

3M License Plate Capture Software

- Summary Statistics provide information on system data collection:
  - **Reads: 2656 / 4257** – The 3M License Plate Capture Software retains the total reads (4257) but continually uploads data to the back office software on a wireless connection. 2656 indicates the number of reads which have been uploaded to the back office software on a wireless connection, and 4257 indicates the total number of reads since last End Shift.
  - **Hits: 2** – The total number of hits (hotlist database matches) since last End Shift.



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Review – Summary Statistics

3M License Plate Capture Software

- Summary Statistics provides information on system data collection:
  - **Misreads: 0** – Indicates the number of hits or reads which have been marked as a Misread by the user.
  - **Audits: 0/25** – The software maintains an audit log of logins. Any photographs taken with the Take Pic function on the main screen are also stored in Audits. The fraction 0/25 indicates the number of audits which have been moved to the back office software on a wireless connection (the total number of audits in the software program since the last End Shift.

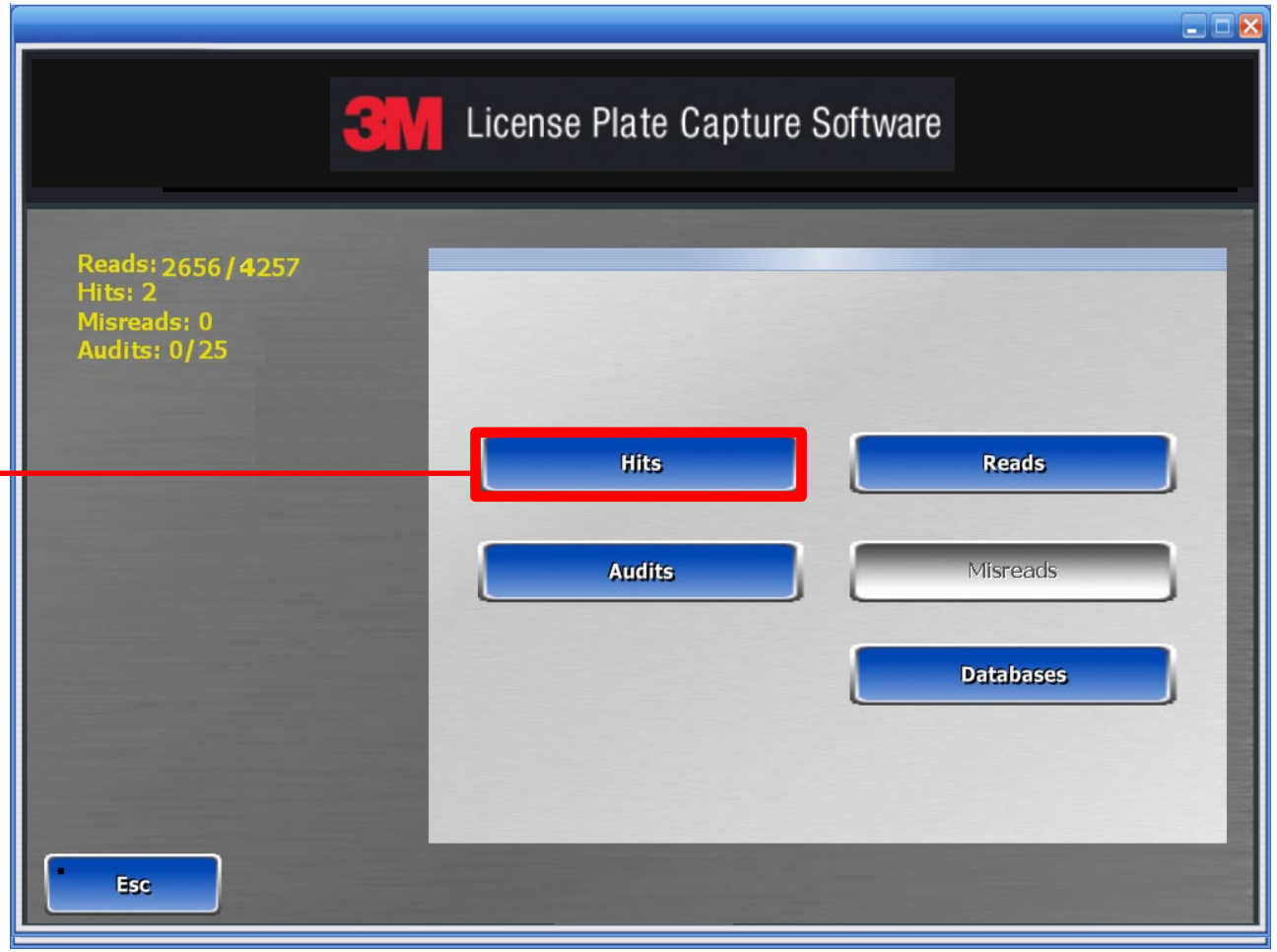


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Review – Summary Statistics

3M License Plate Capture Software

- Hits: Select **HITS** to view the number of database matches (hits) the ALPR system has detected since the last End Shift.
- The review screen displays a summary of data collected during the shift in four categories: Reads, Hits, Misreads, and Audits.

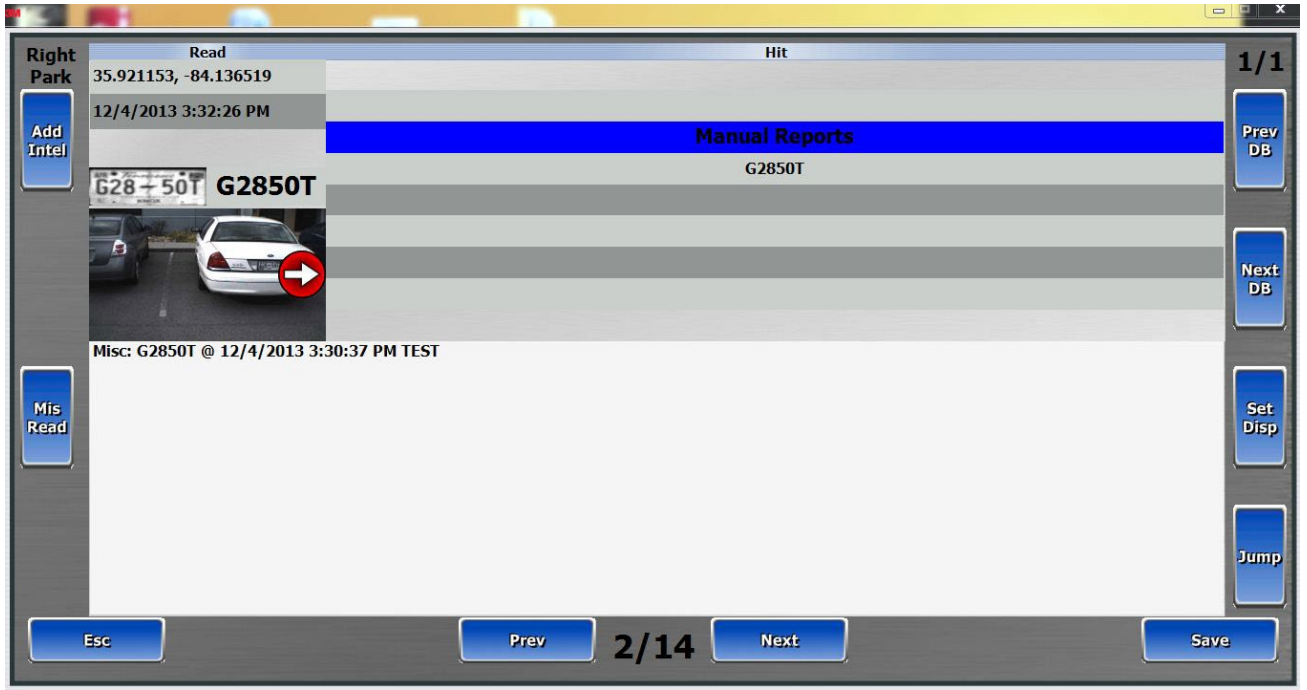


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Review – Summary Statistics

3M License Plate Capture Software

- HITS: The corresponding matching or hit information is displayed in a cumulative format.

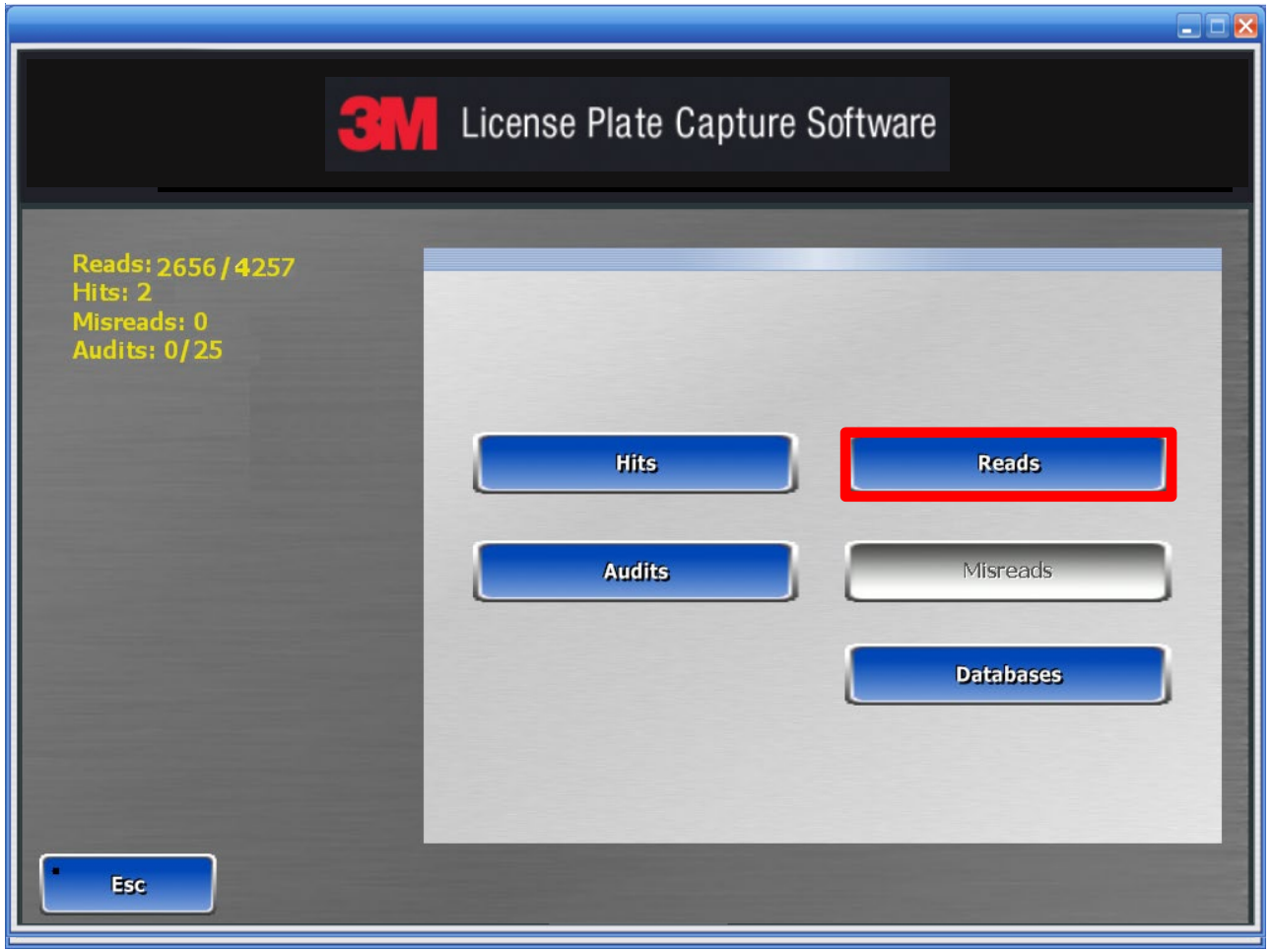


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Review – Summary Statistics

3M License Plate Capture Software

- READS: Select **READS** to view the collected license plate reads since the last End Shift.

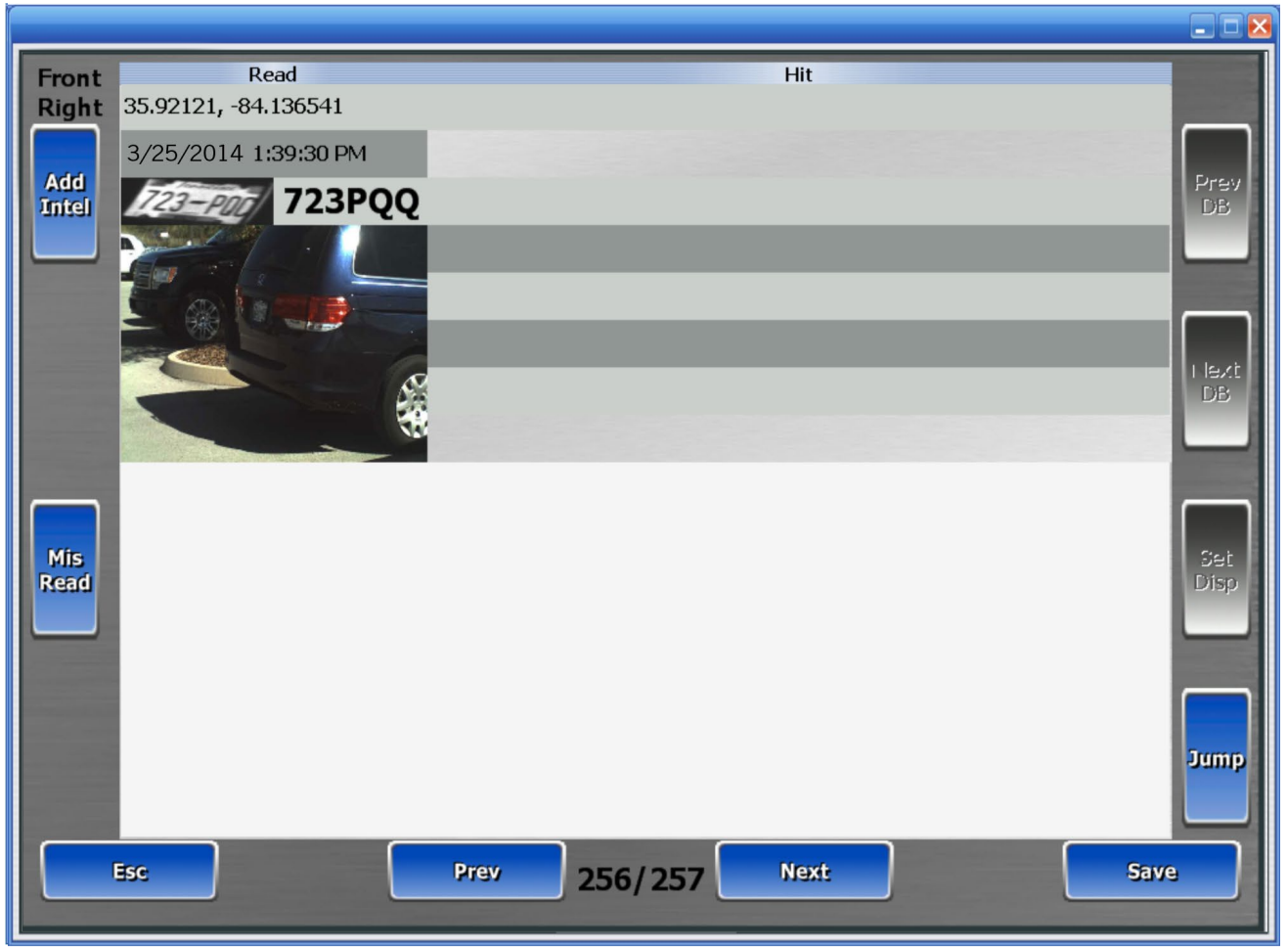


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Review – Summary Statistics

3MLicense Plate Capture Software

- READS: Displays all plate detections that occurred since the last End Shift sync.

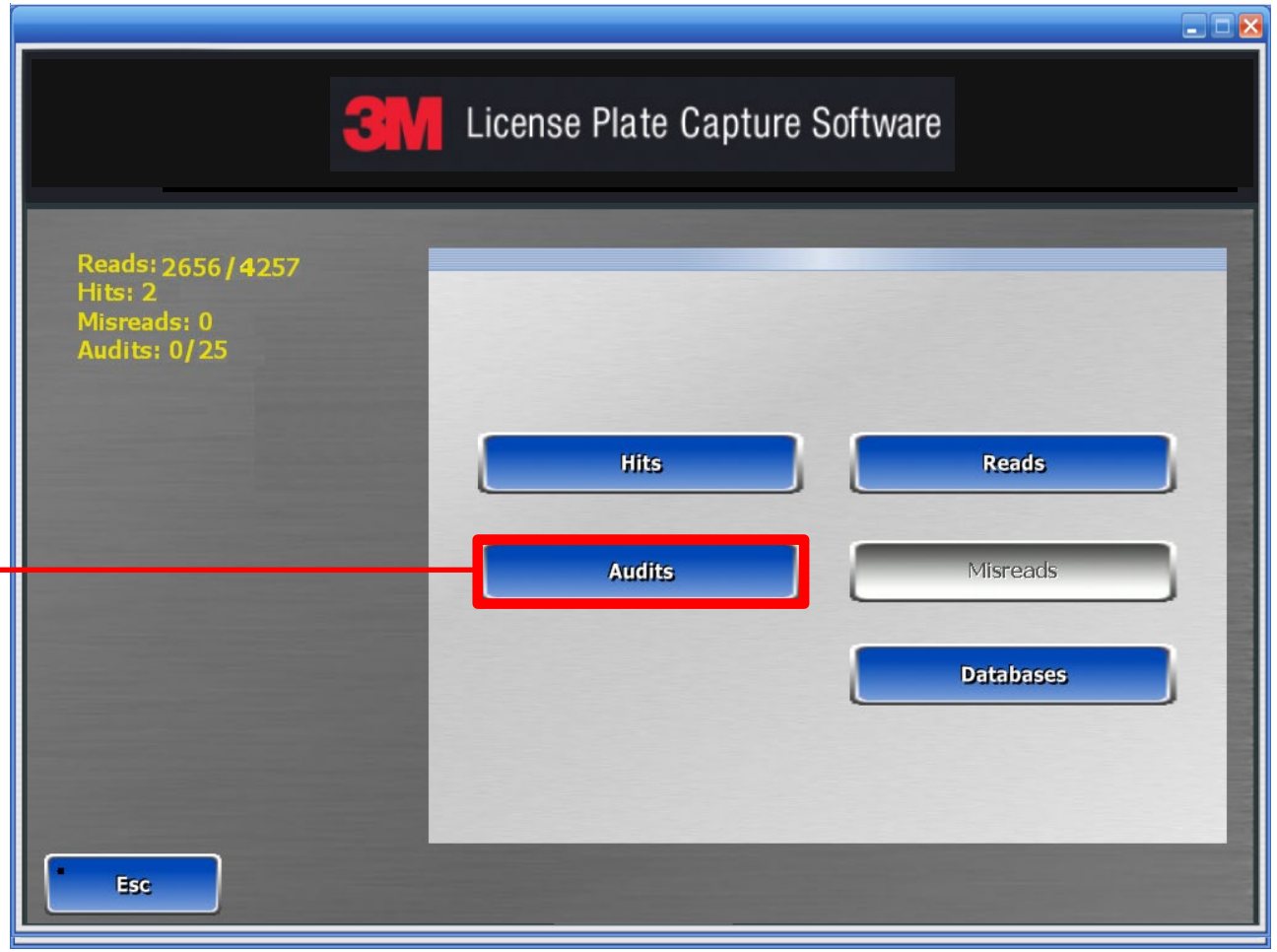


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Review – Summary Statistics

3M License Plate Capture Software

- Audits: Select **AUDITS** to view the audit log of logins and any photographs taken with the **TAKE PIC** function on the main screen of the software.

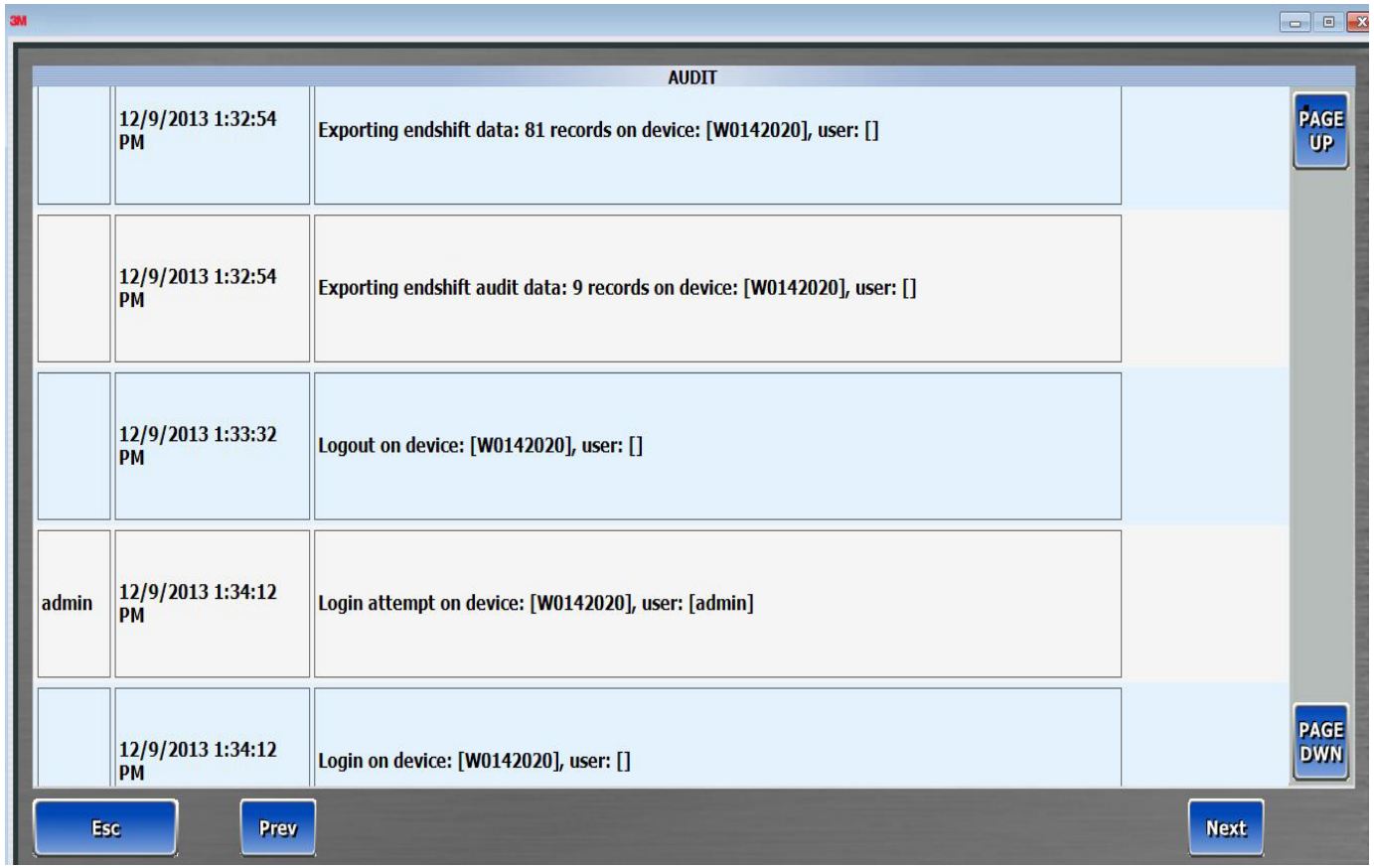


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Review – Summary Statistics

3M License Plate Capture Software

- AUDITS: Displays failed and successful logons, any manual data entered during the shift, and all manual license plate searches.

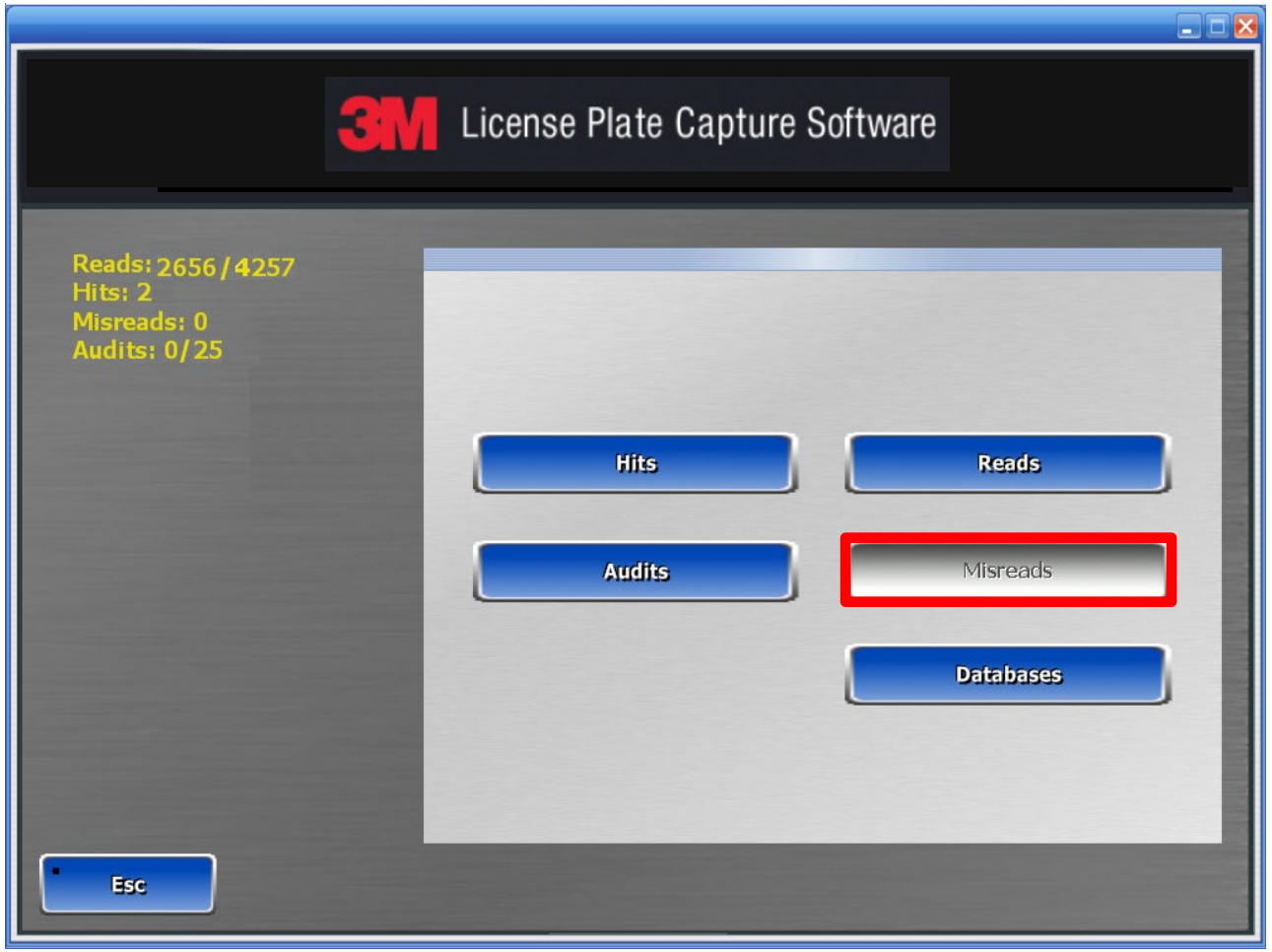


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Review – Summary Statistics

3M License Plate Capture Software

- Misreads: Select **MISREADS** to view the Hits and Reads which have been marked as Misread by the user.

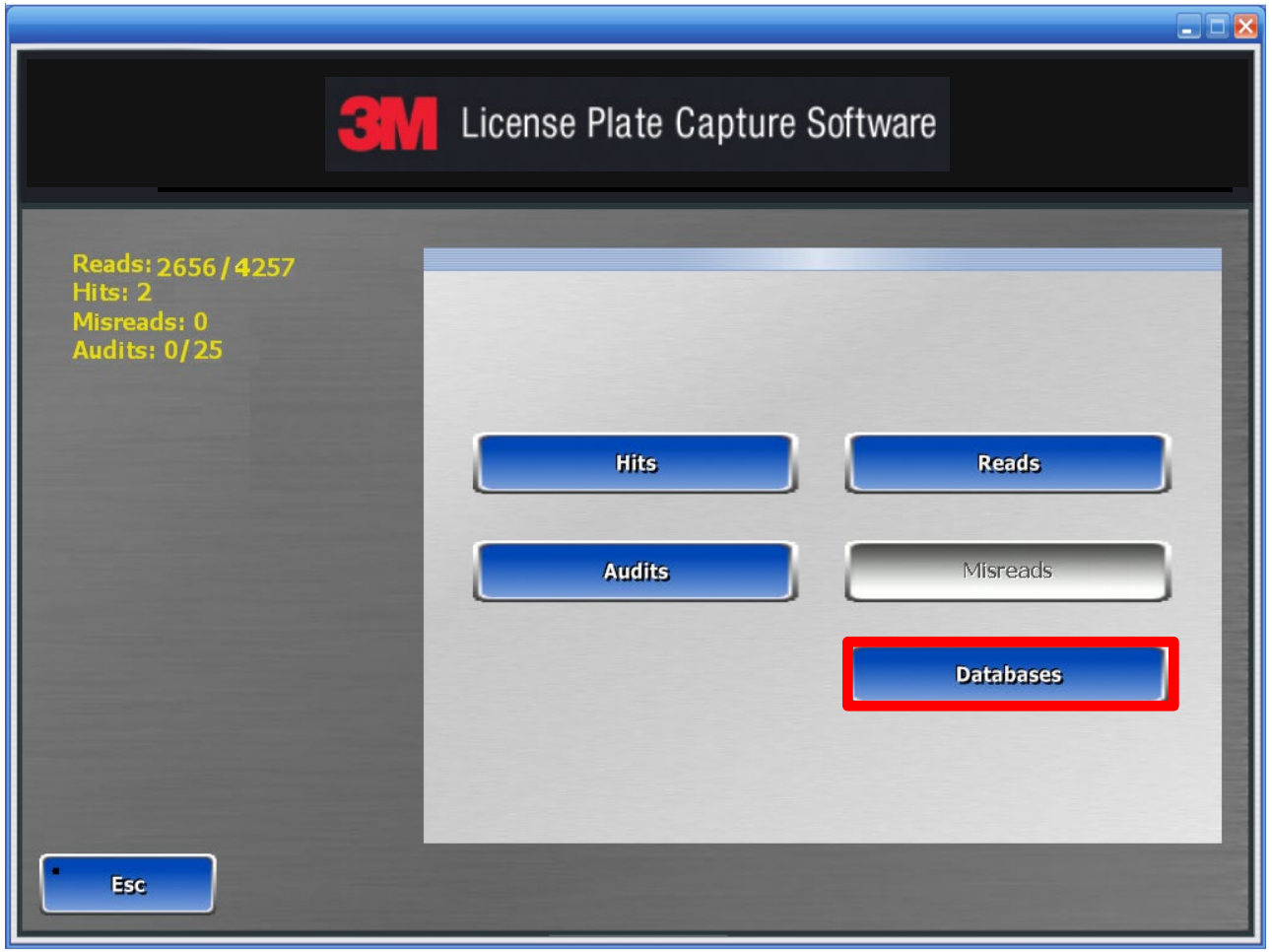


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Review – Summary Statistics

3M License Plate Capture Software

- Databases: Select **DATABASES** to view and manage the hotlist databases downloaded from the Back Office System software.

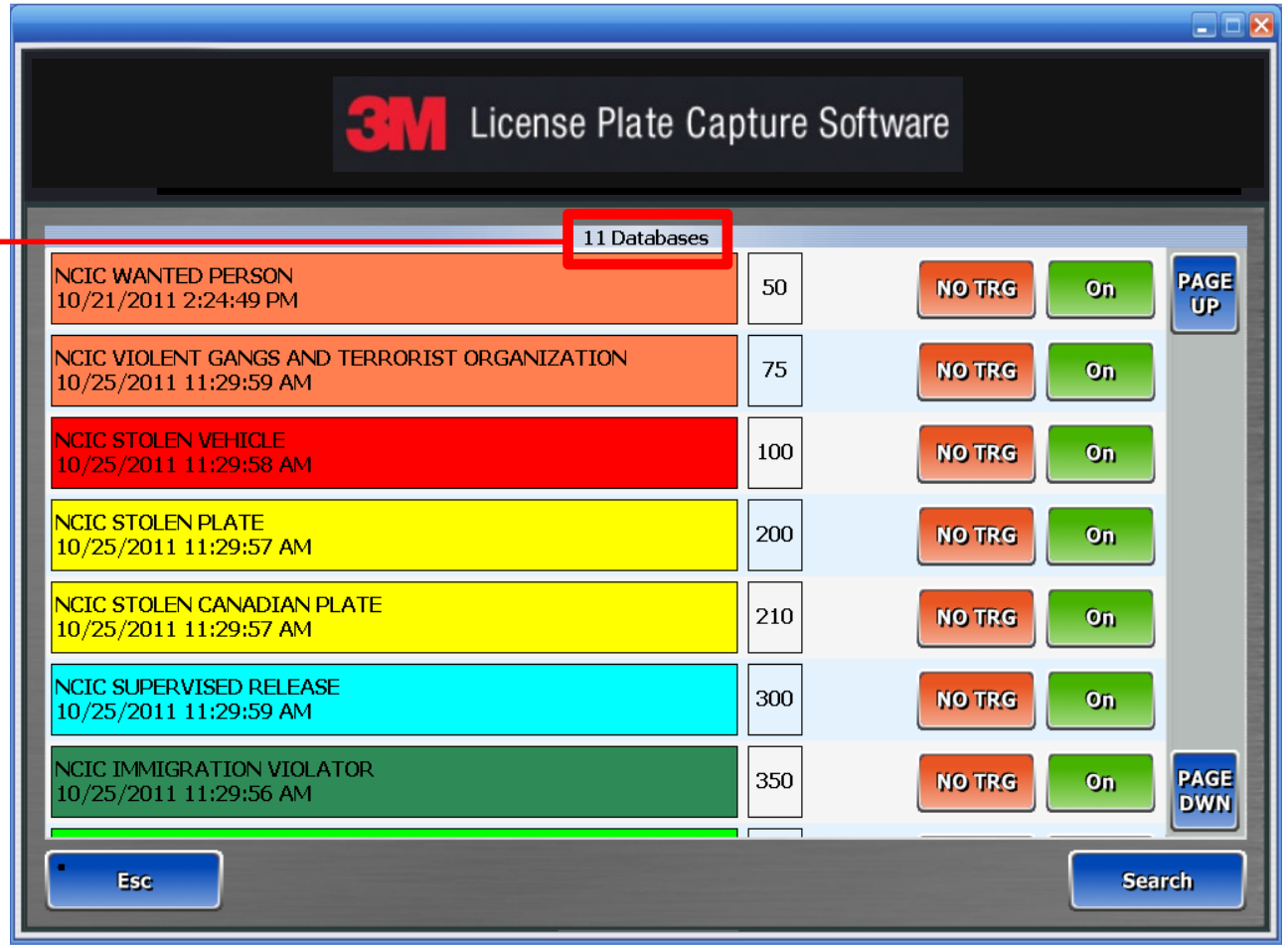


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Review – Databases

3M License Plate Capture Software

- Displays the number of hotlist databases available for comparison to license plates reads by the ALPR system.
- A match of the license plate text with an entry in one or more of these hotlists will result in a HIT.

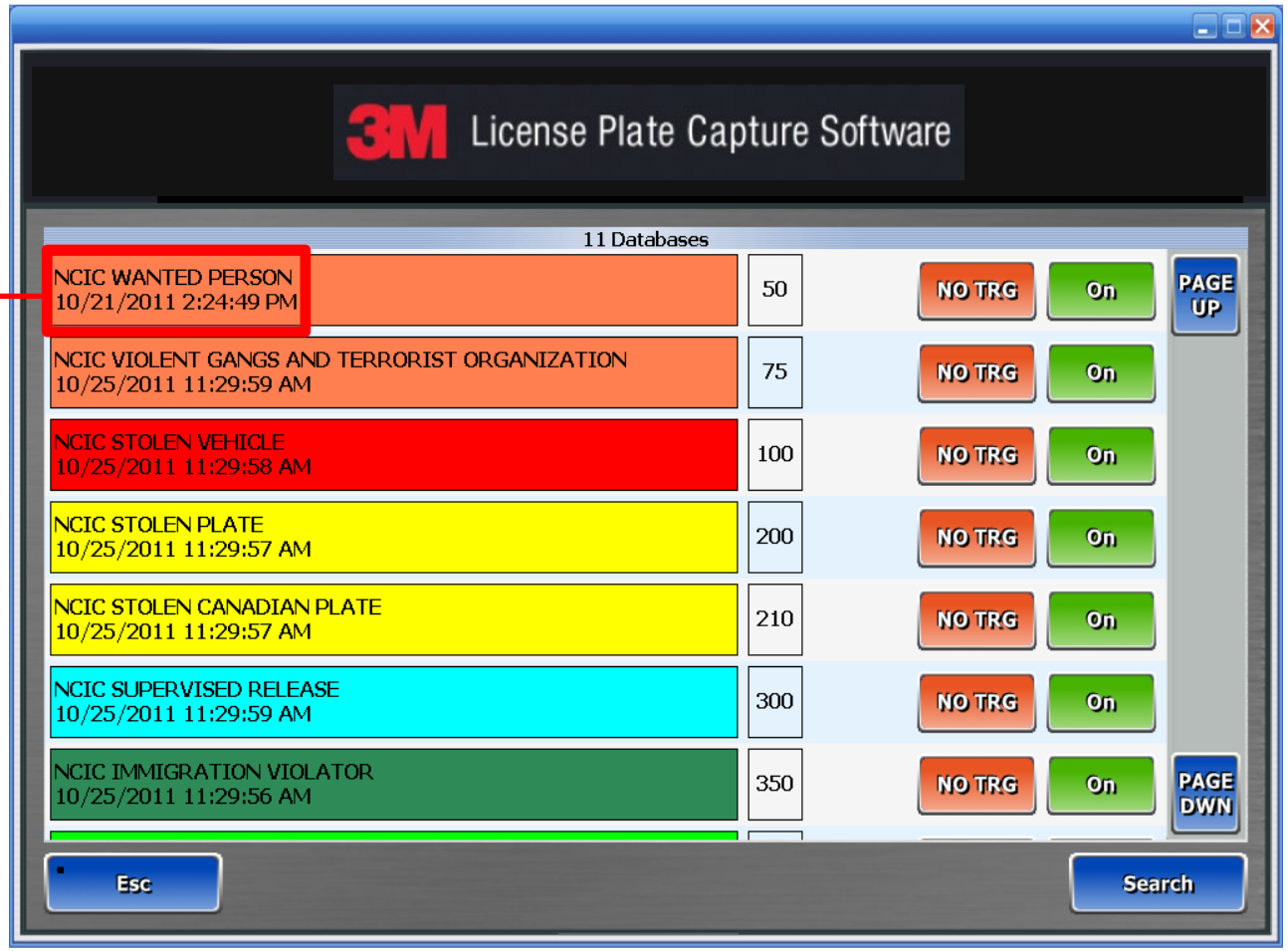


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Review – Databases

3M License Plate Capture Software

- Displays the hotlist databases with the name, date, and time the hotlist was last updated in the software.

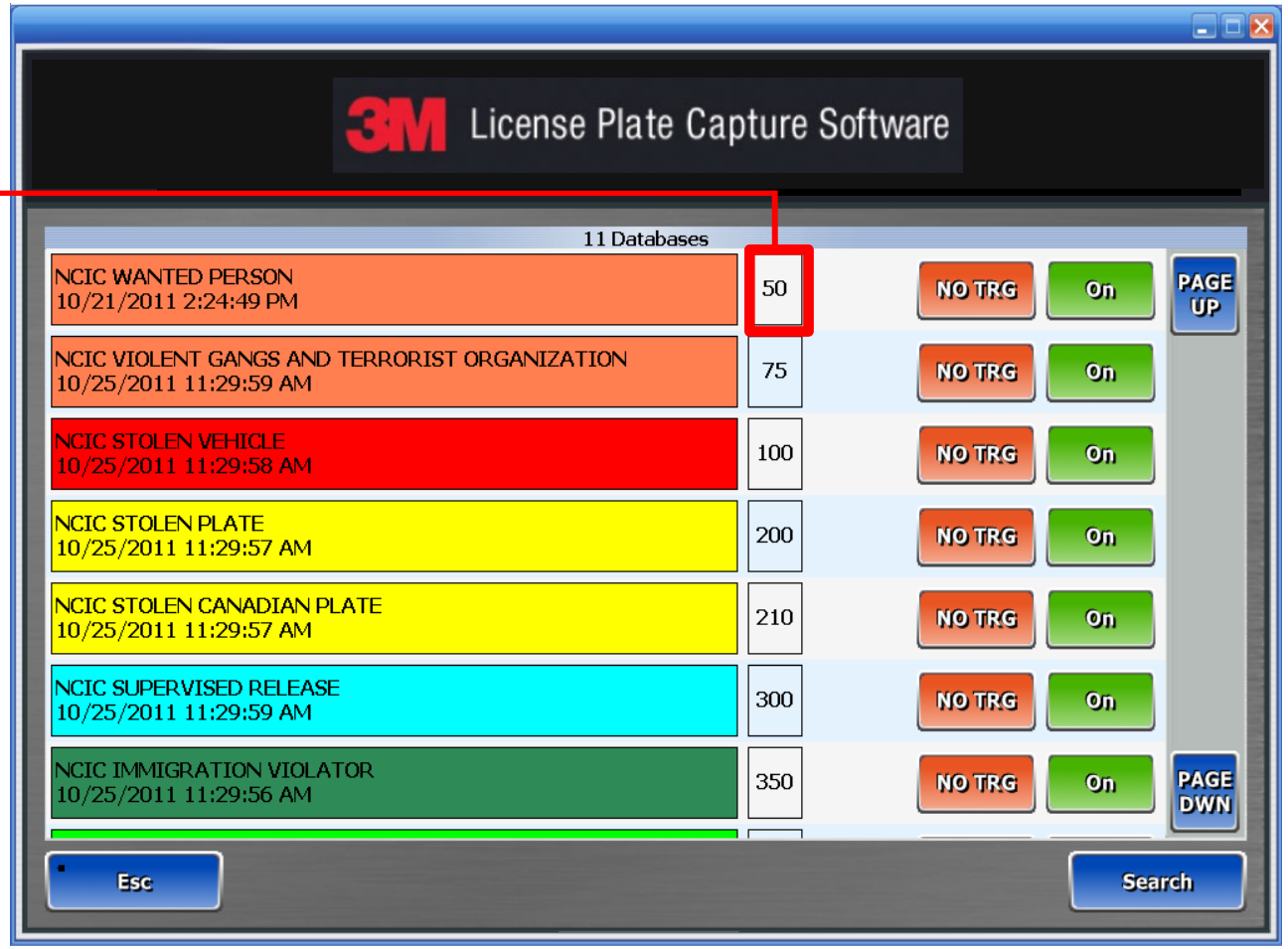


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Review – Databases

3M License Plate Capture Software

- Indicates the **PRIORITY LEVEL** of the hotlist database.
- If a match occurs in two or more hotlists, the hotlist with the lowest number has the highest priority and will be displayed in front of the hotlist with higher number.
- By default, the Manual Reports database has a priority of 500



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Review – Databases

3M License Plate Capture Software

- Hotlist databases can be toggled active or inactive by pressing **ON / OFF**.
- The toggle status affects only the mobile camera application in the vehicle from which the command was entered.

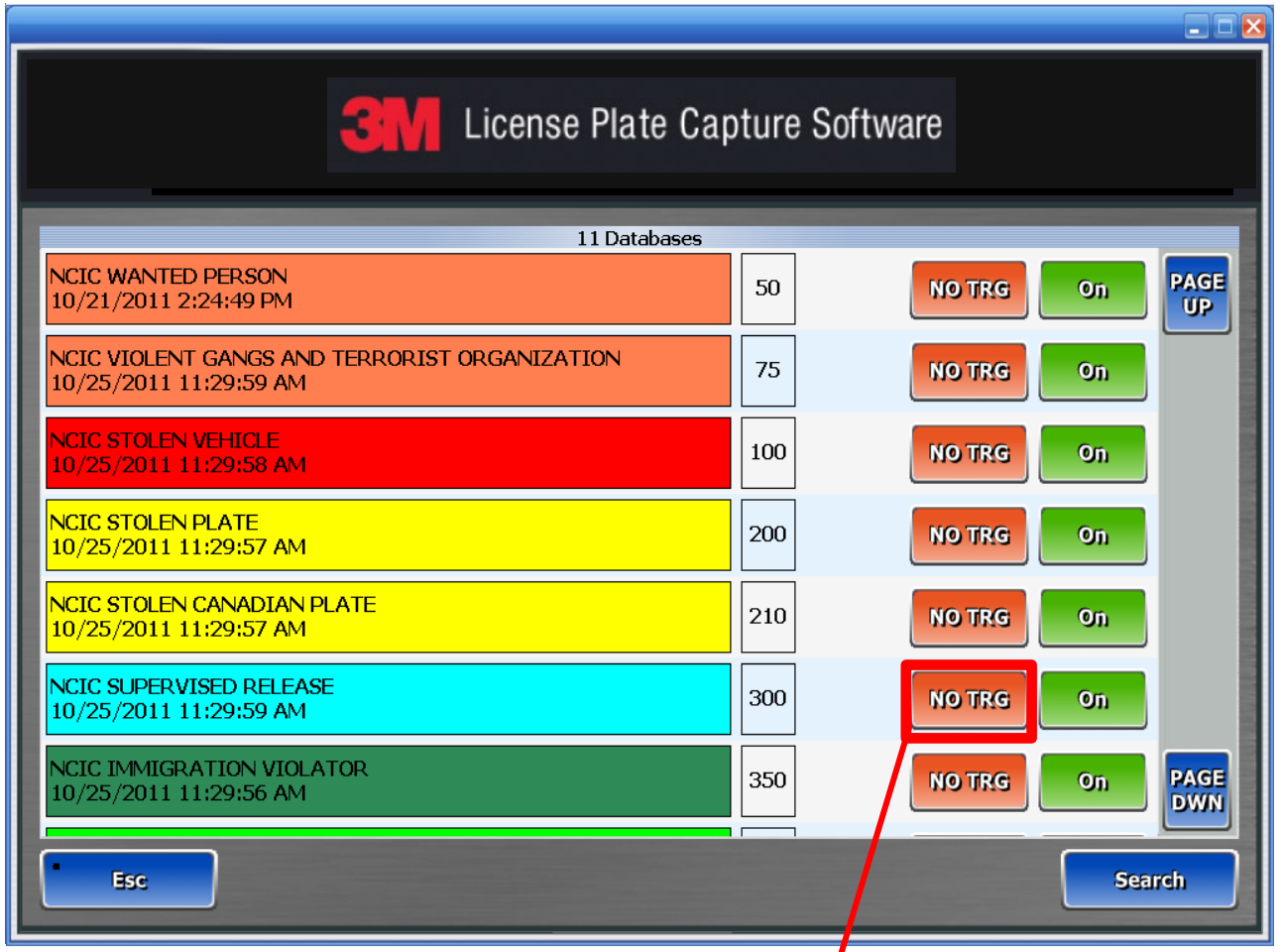


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Review – Databases

3M License Plate Capture Software

- Hotlist databases can trigger external devices such as digital in-car video systems.
- If a Trigger is on, the software sends a signal to a port on the mobile ALPR processor and any device (such as an in-car video system) connected through this port.

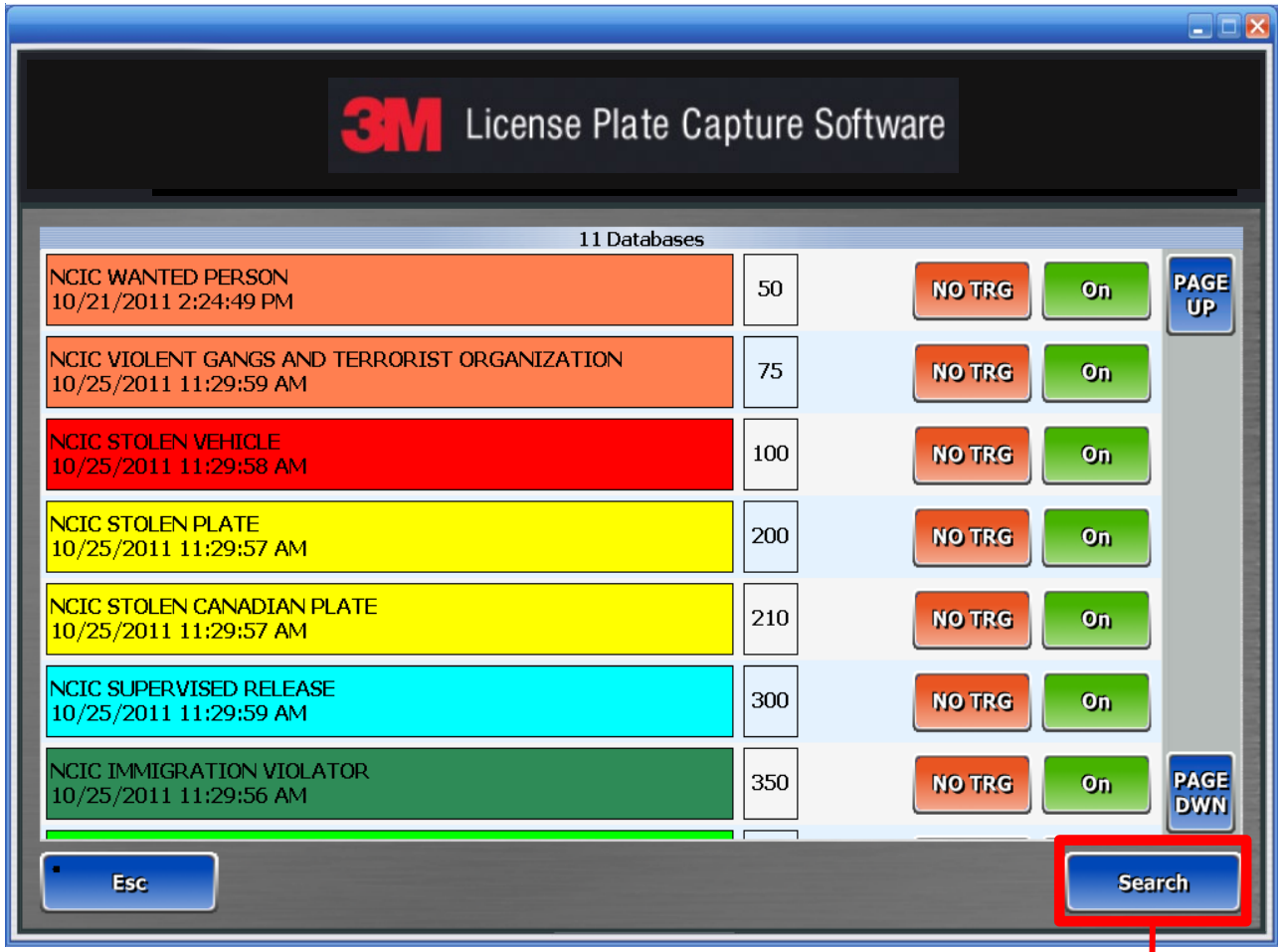


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Review – Databases

3M License Plate Capture Software

- **SEARCH** is the same as the Search Entry button on the main screen.
- A license plate can be manually compared against the hotlist databases.

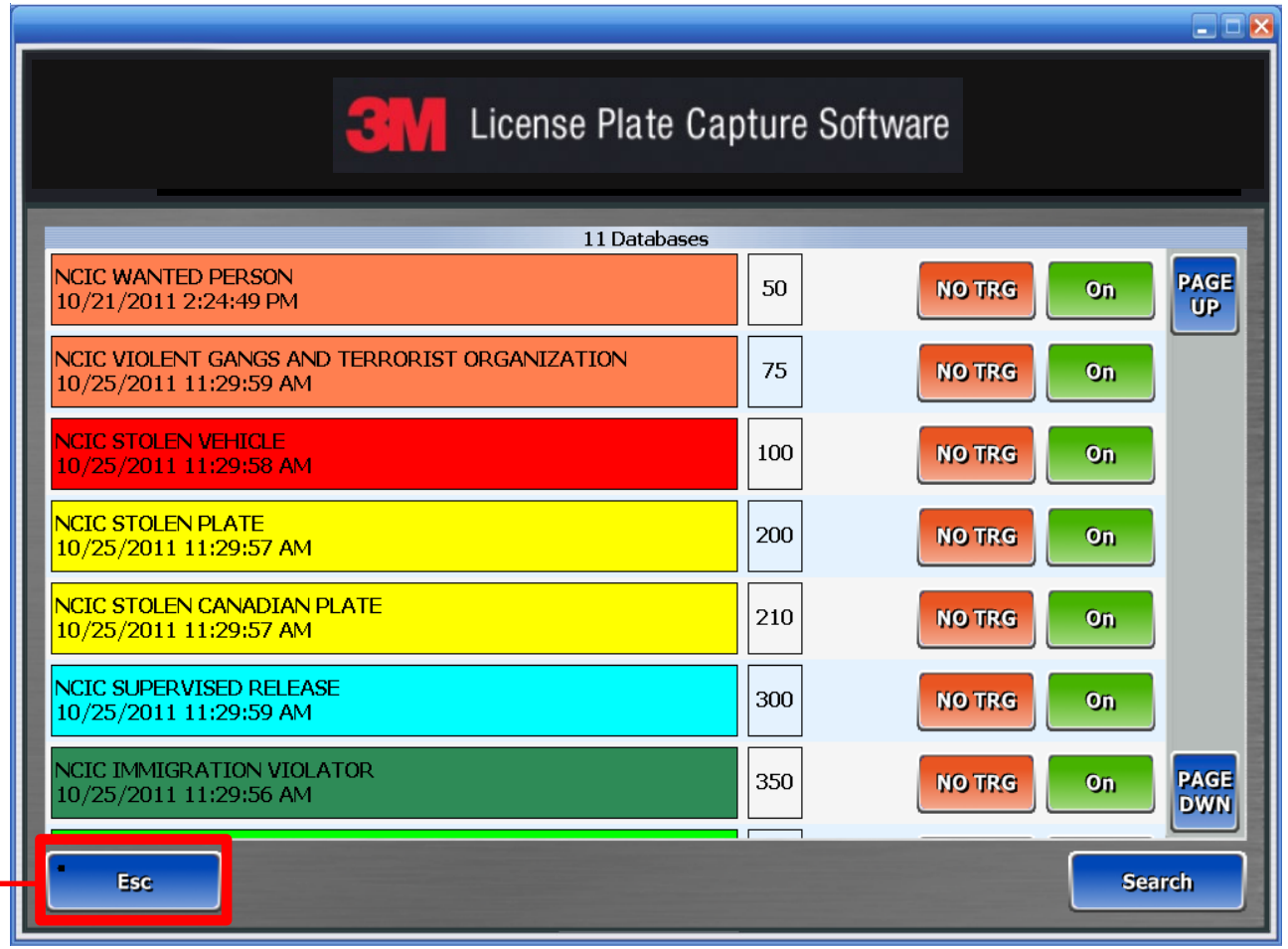


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Review – Databases

3M License Plate Capture Software

- Press **ESC** to return to the main screen.

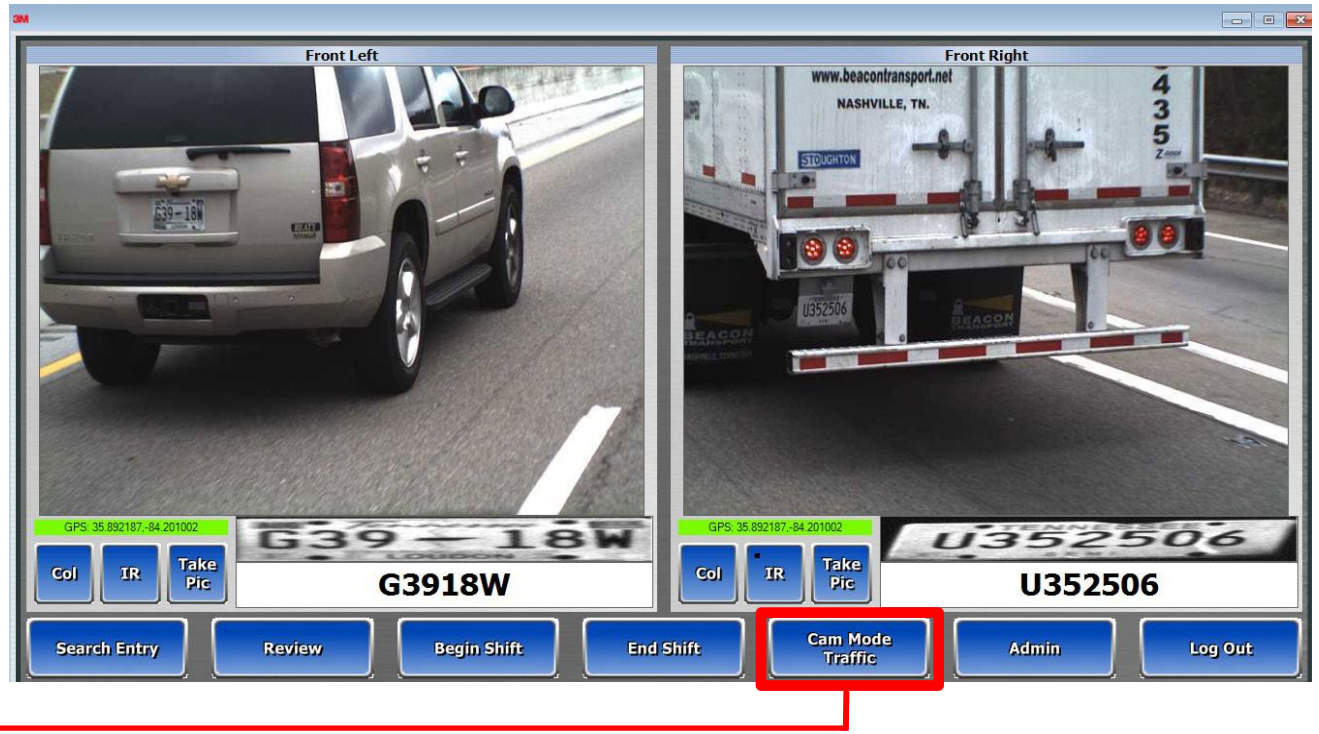


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Camera Mode

3M License Plate Capture Software

- CAMERA mode toggles between camera configurations.
- Press and release the **CAM MODE** button. The camera configuration takes approximately four seconds to transition.

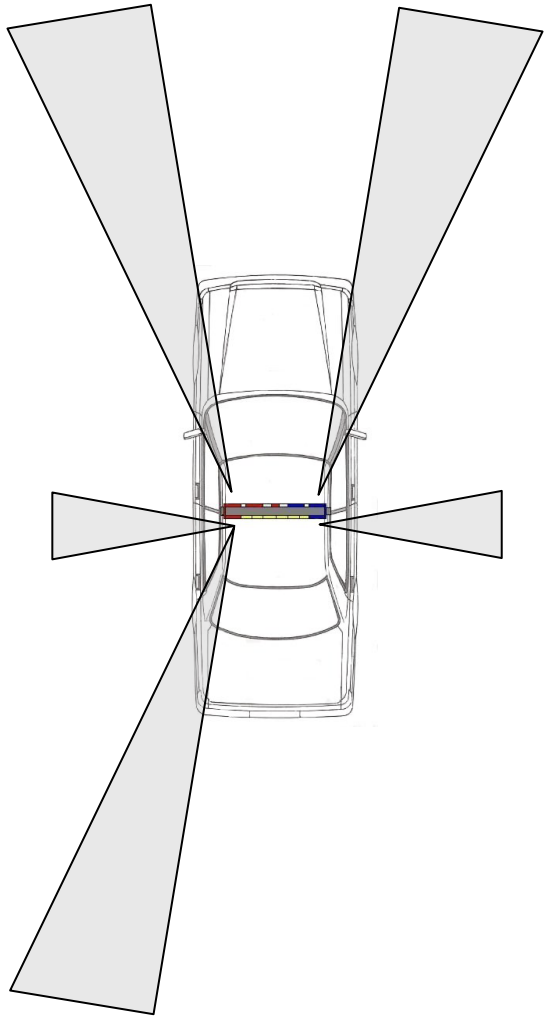


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Camera Mode

3M License Plate Capture Software

- ALPR systems with three (3) or four (4) cameras will display only *two (2) cameras* simultaneously. However, all cameras can be made active.
- Cameras not displayed in the view finder are referred to as “hidden” but are active and will provide notifications upon a database match (HIT).

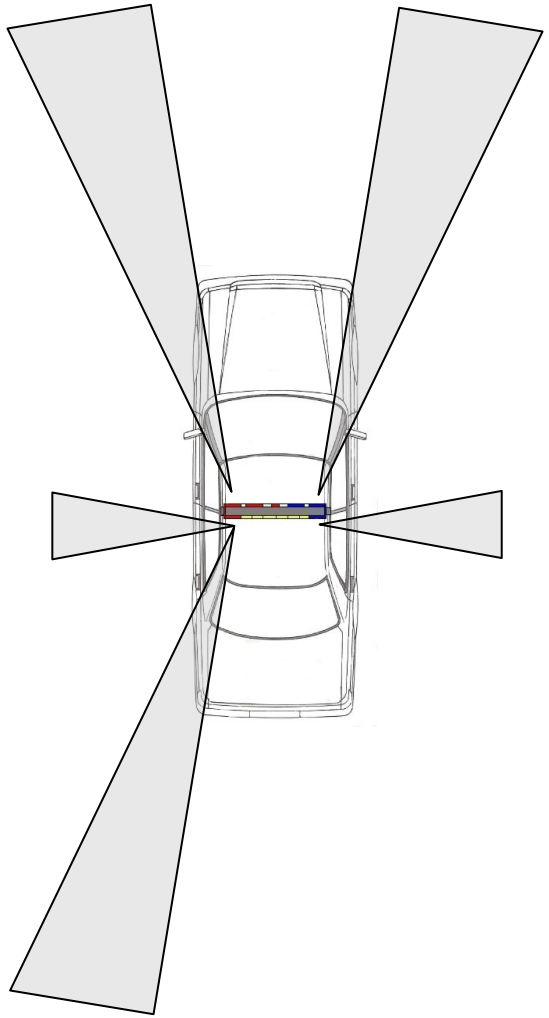


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Camera Mode

3M License Plate Capture Software

- Three (3) default camera modes are available:
  - Traffic - Front left and front right
  - Traffic Rear - Left rear and front right
  - Parking - Front right and right parking **OR** left parking and right parking

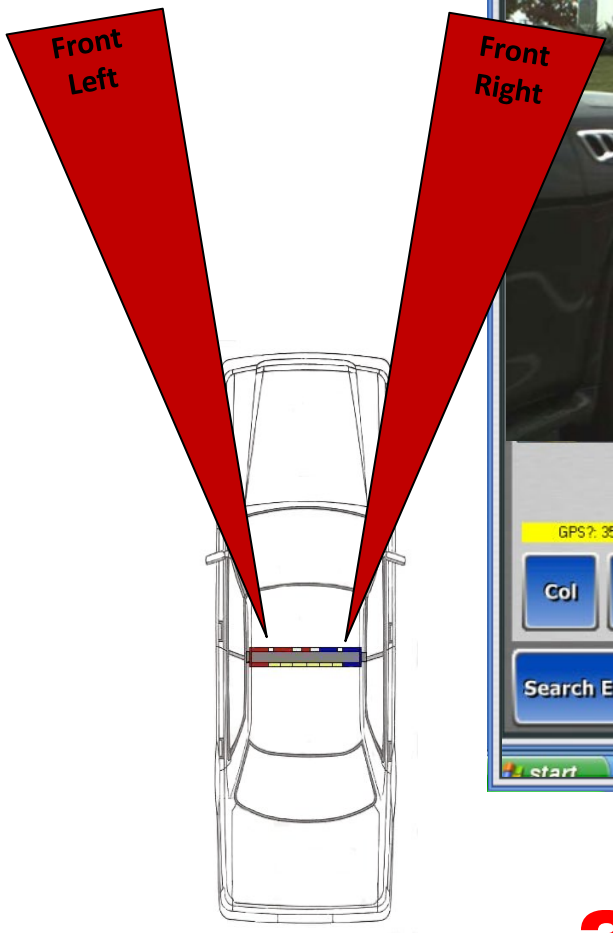


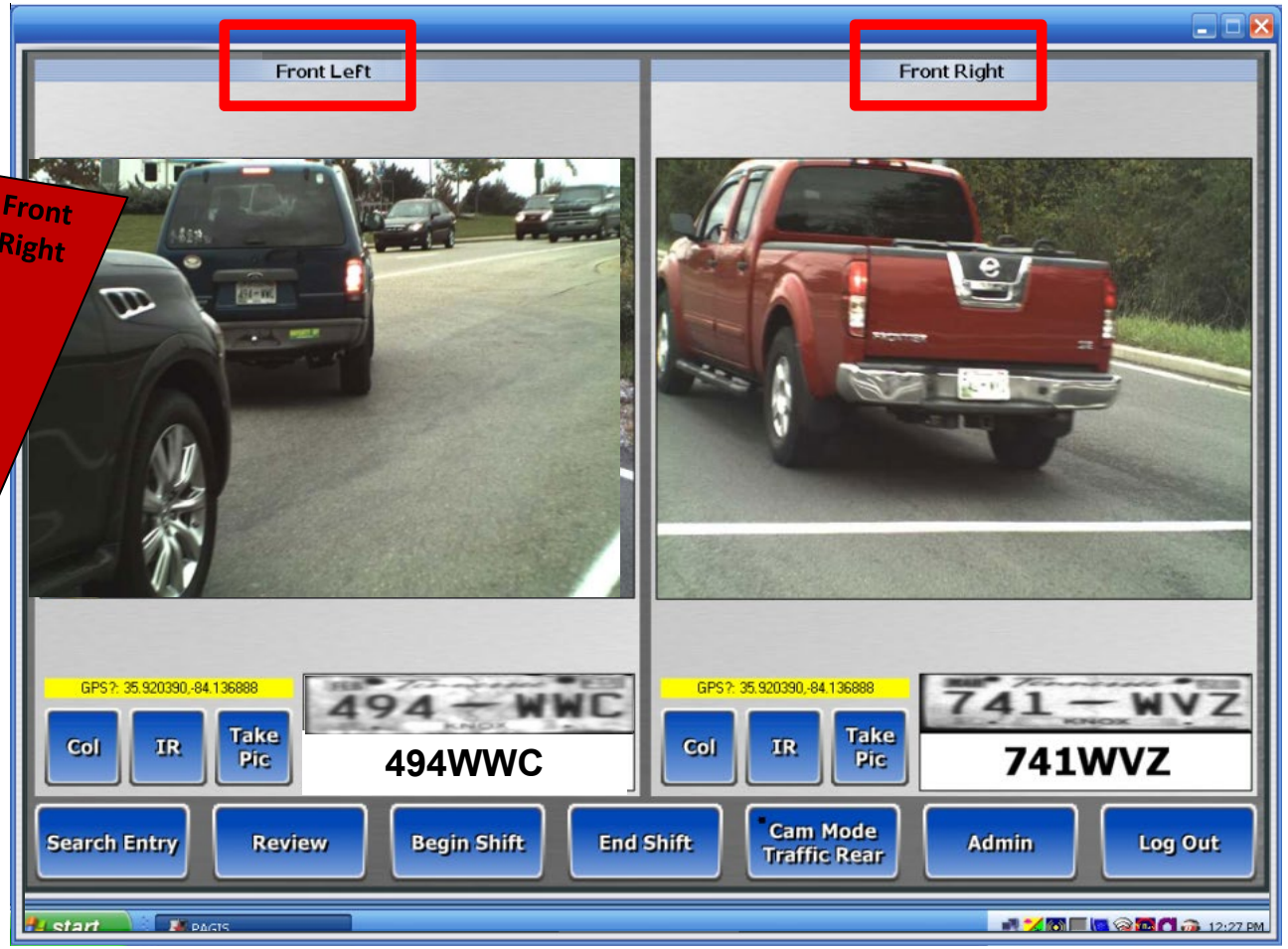
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Camera Mode – Traffic

3M License Plate Capture Software

- In TRAFFIC mode, two (2) cameras are active. The FRONT LEFT and FRONT RIGHT cameras are displayed in the view finders.



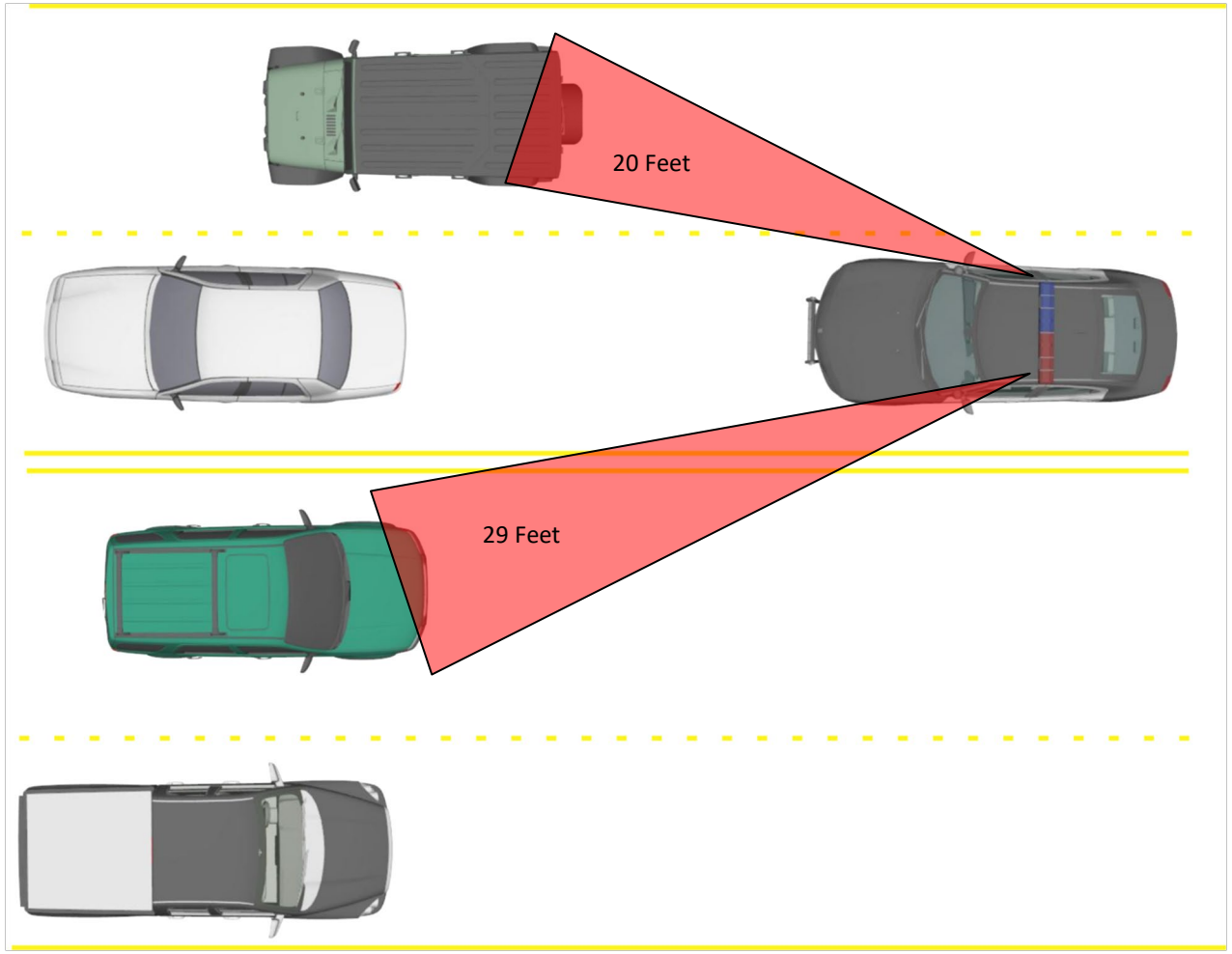


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Camera Mode – Traffic

3M License Plate Capture Software

- Example of a long traffic camera and a short traffic camera.

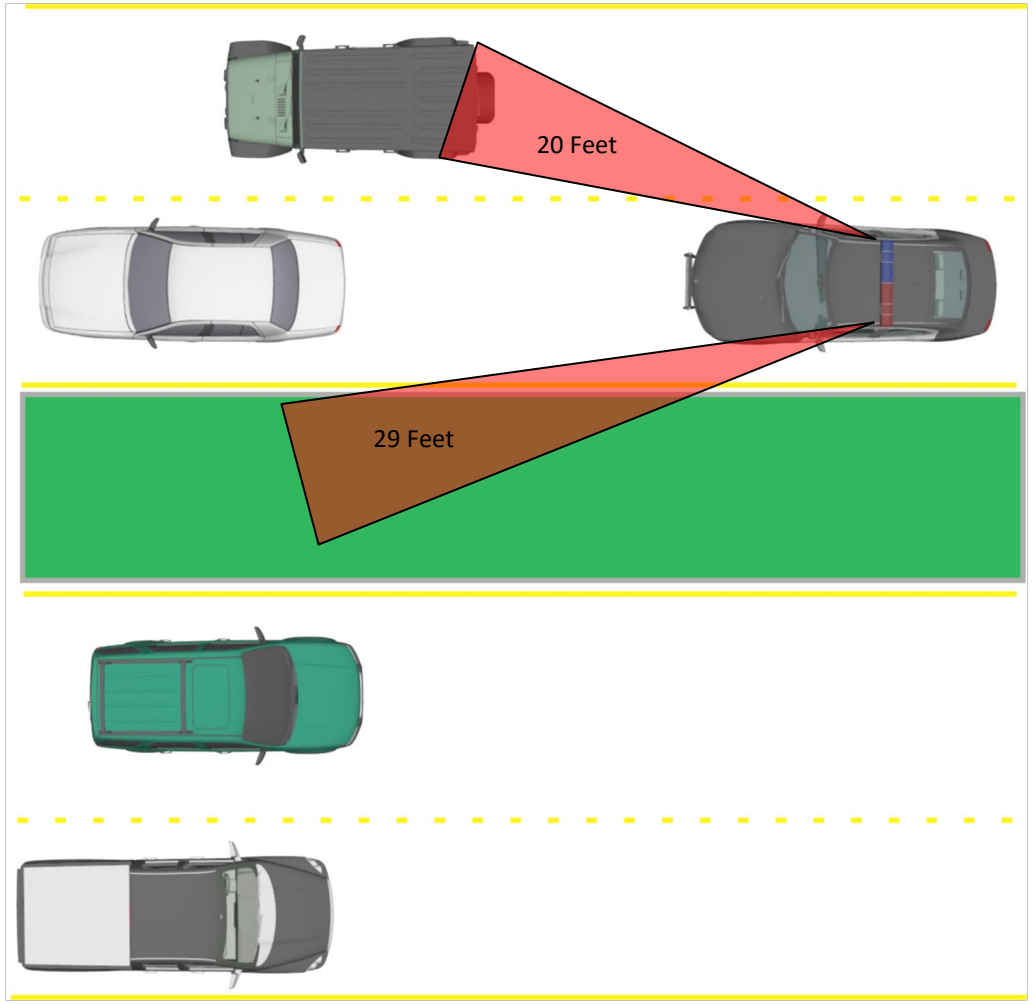


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Camera Mode – Traffic

3M License Plate Capture Software

- When operating the ALPR system on multi-lane roadways with a divided median, the long range camera on the driver's side of the vehicle is not aligned to read across the median.

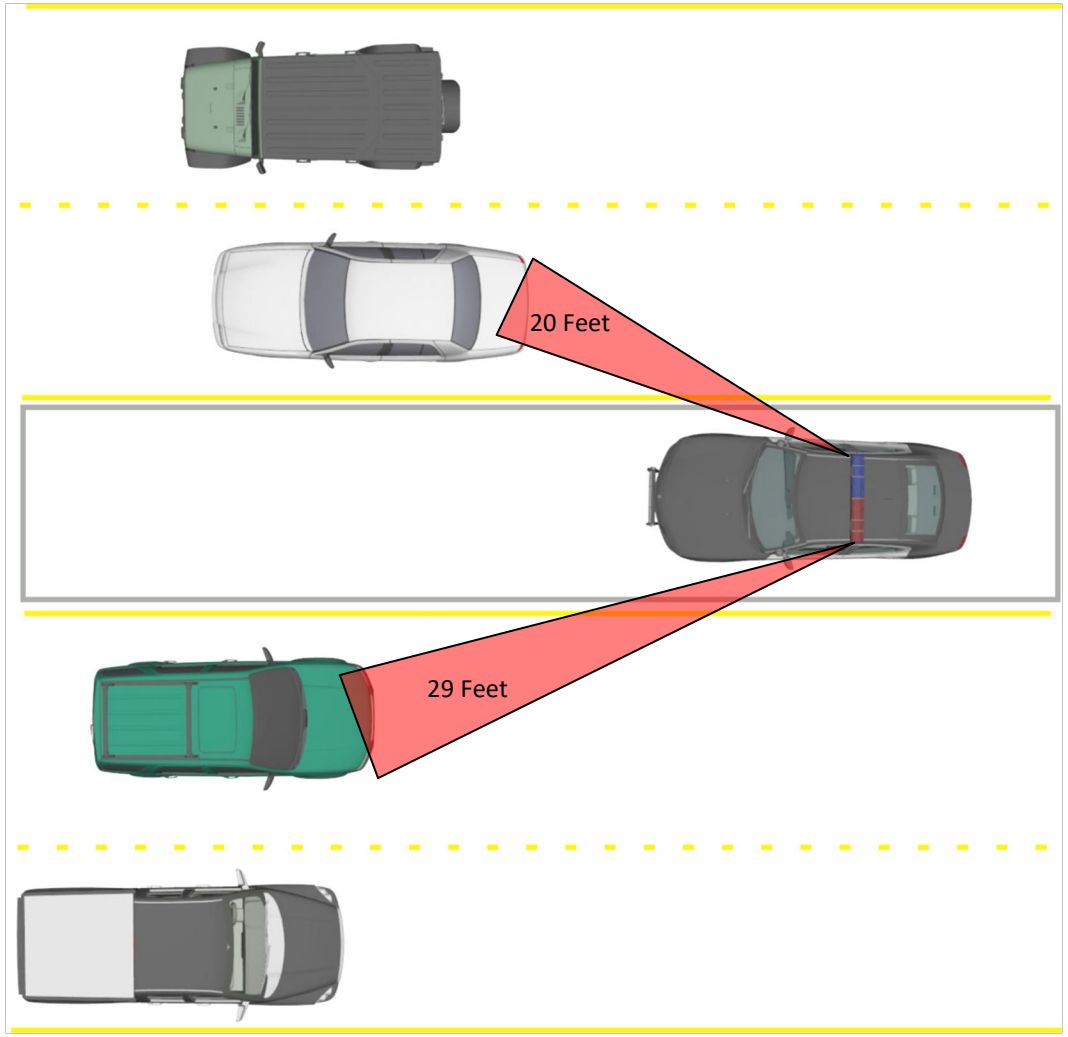


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Camera Mode – Traffic

3M License Plate Capture Software

- When parking in the median, traffic can be read in the adjacent lanes traveling in both directions (for states requiring front license plates).

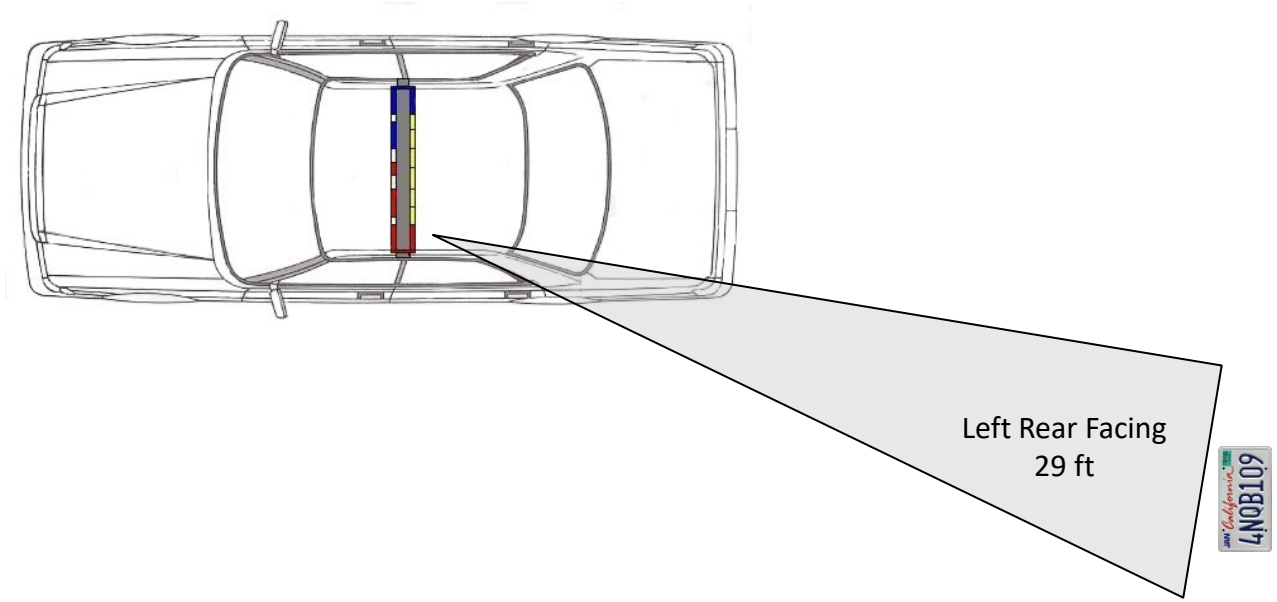


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Camera Mode – Traffic

3M License Plate Capture Software

- Example of a rear facing traffic camera.



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Camera Mode – Parking

3M License Plate Capture Software

- To toggle to the PARKING mode, press and release the **CAM MODE** button. The camera configuration takes approximately four seconds to transition.

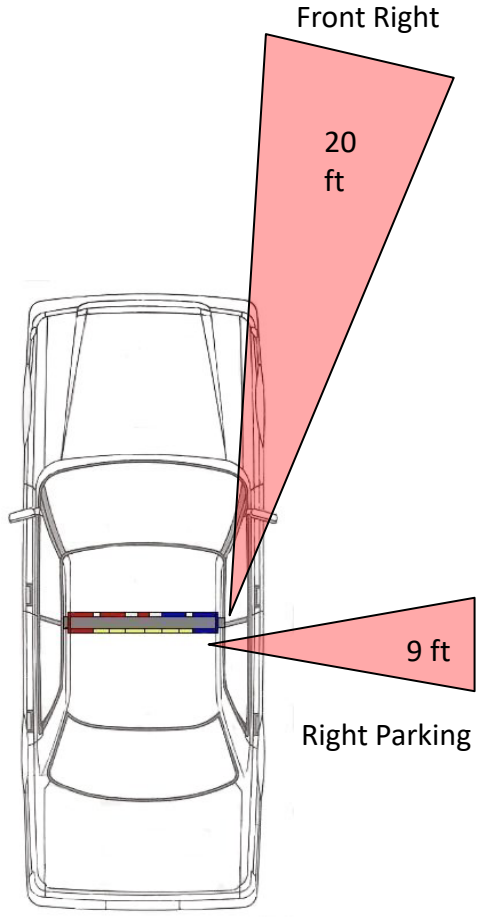


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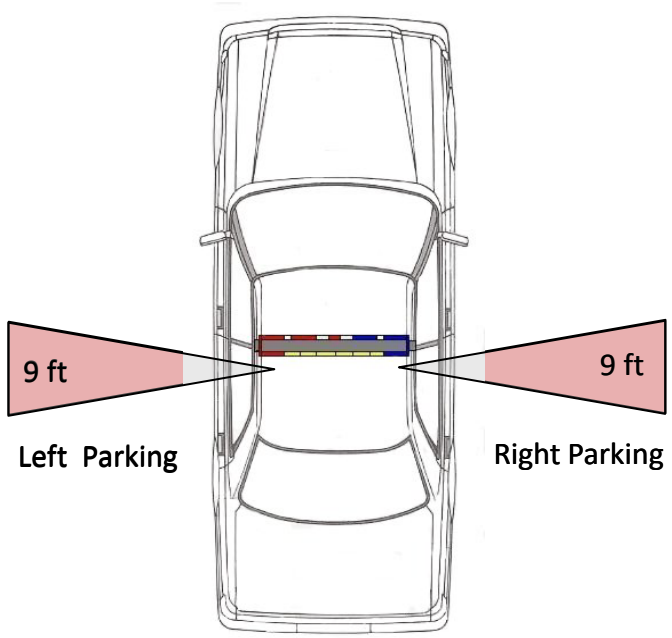
Camera Mode – Parking

3M License Plate Capture Software

- Examples of parking mode.



Three (3) Camera ALPR System



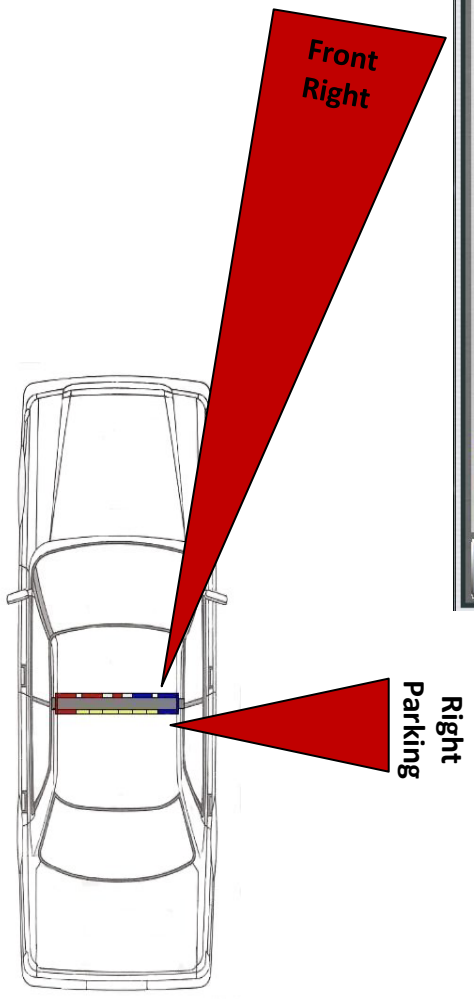
Four (4) Camera ALPR System

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Camera Mode – Parking/Three-Camera System

3M License Plate Capture Software

- In the PARKING mode, two (2) cameras are active. The Front Right and Right Parking cameras are displayed in the view finders.



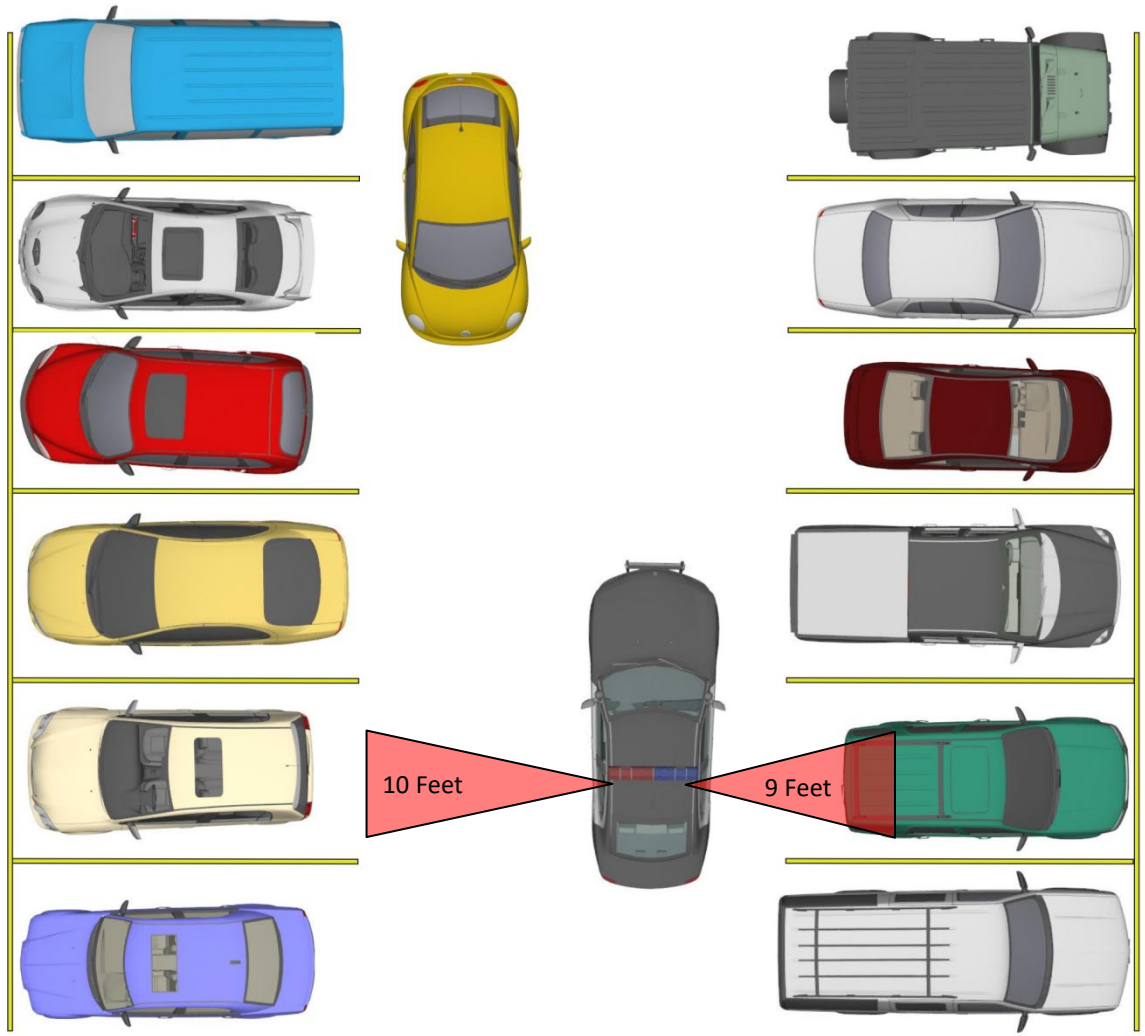


588DF

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Camera Mode – Parking

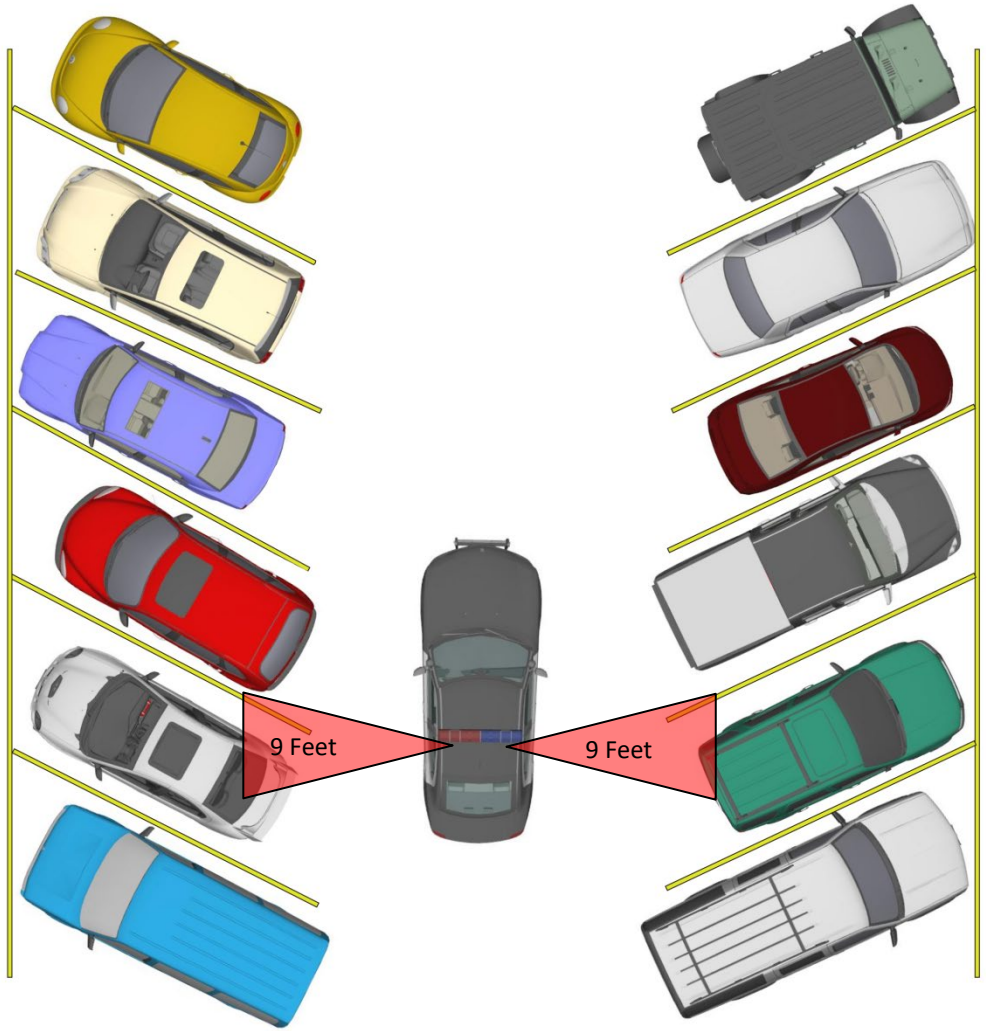
3M License Plate Capture Software



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Camera Mode – Parking

3M License Plate Capture Software

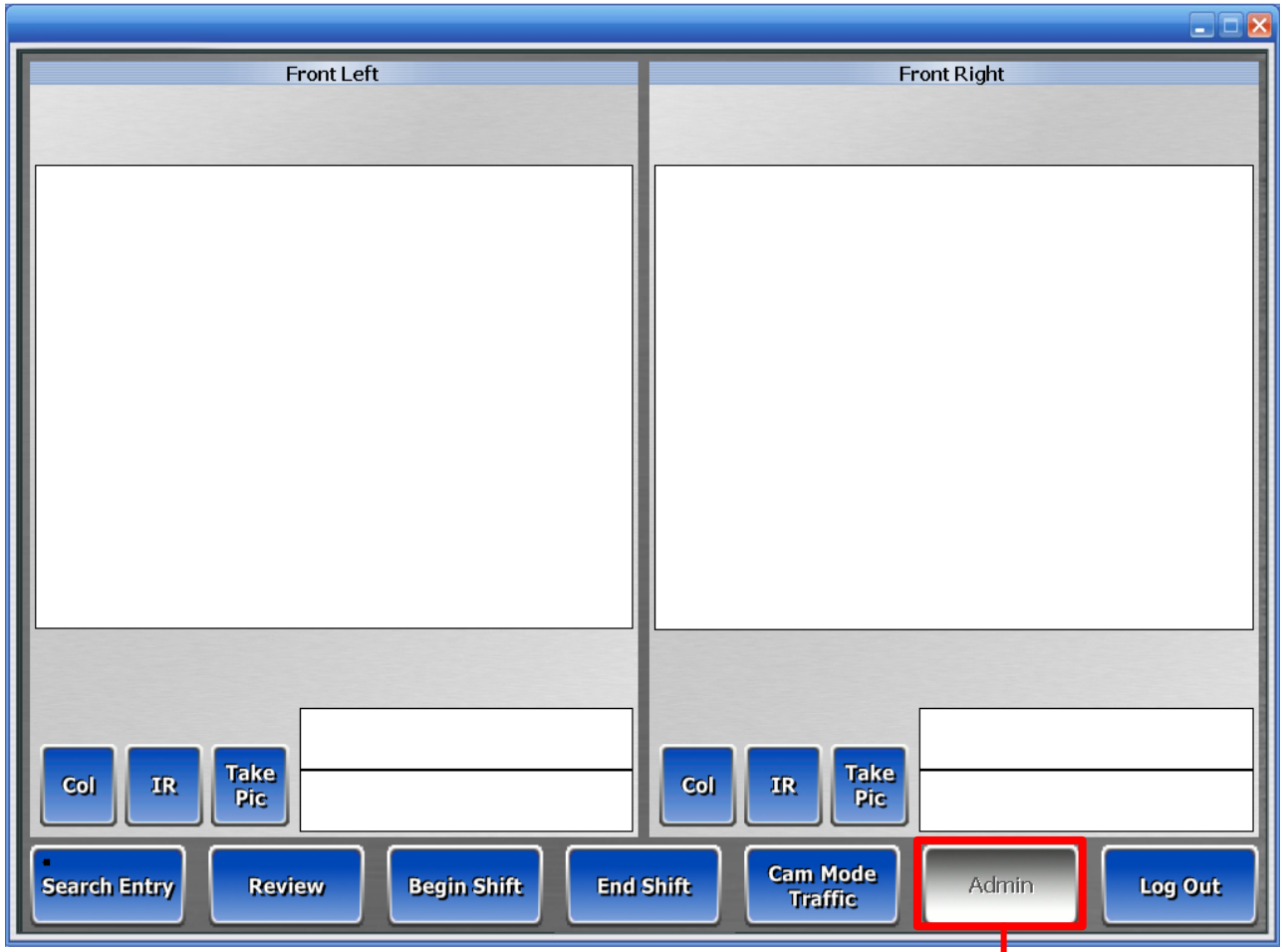


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Admin

3M License Plate Capture Software

- The **ADMIN** function is for use by the system administrator to setup, modify, and maintain the 3M License Plate Capture Software.
- For non-administrative users, this function is disabled.

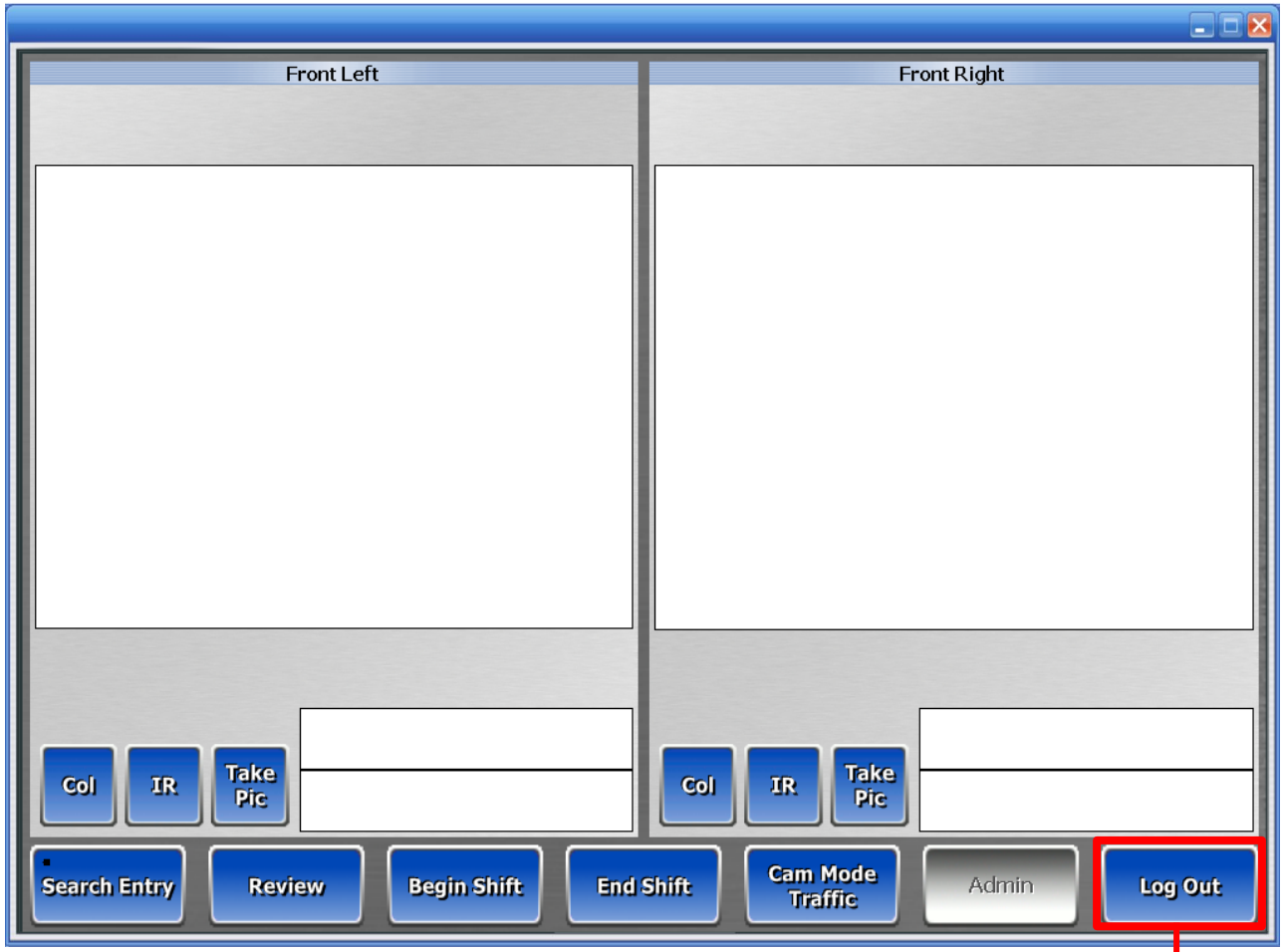


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Admin

3M License Plate Capture Software

- Press the **LOG OUT** button to exit the 3M License Plate Capture Software and log out the current user.
- The user is returned to the Login screen.

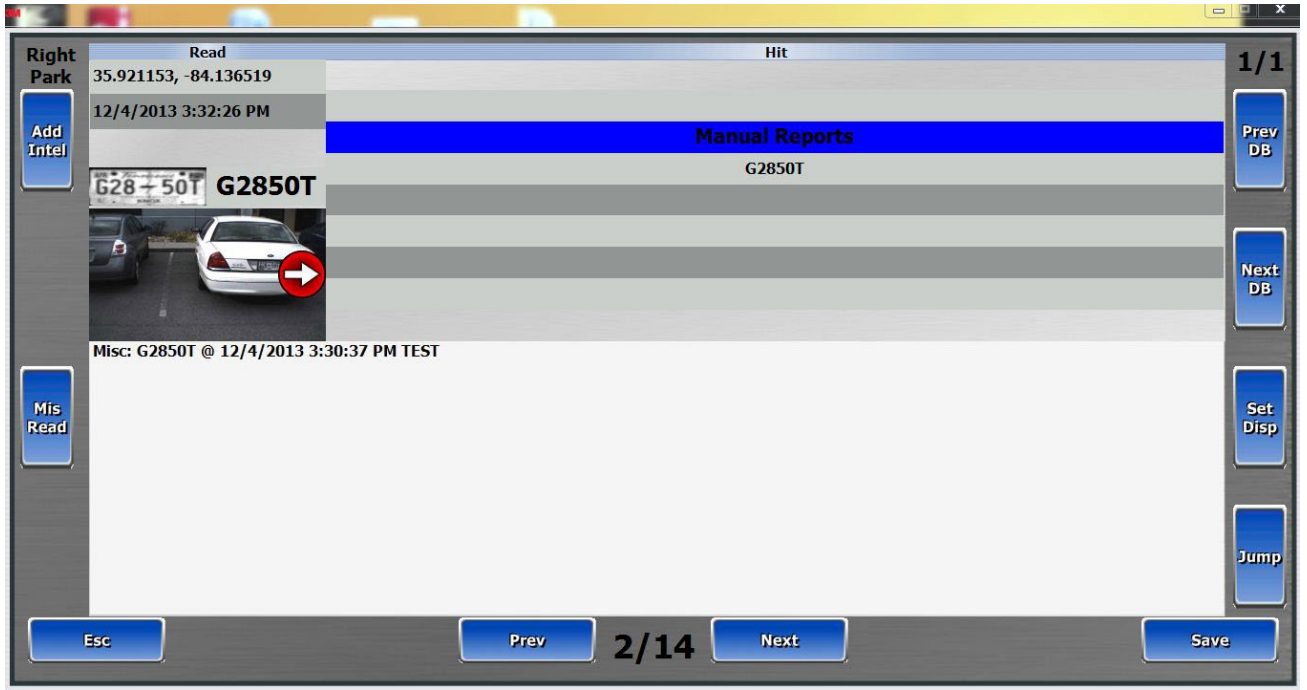


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ALPR System Operation

3M License Plate Capture Software

- Hotlist database match
- Note that this match or hit is derived from the Manual Reports, a VLP entered by the user for that database.

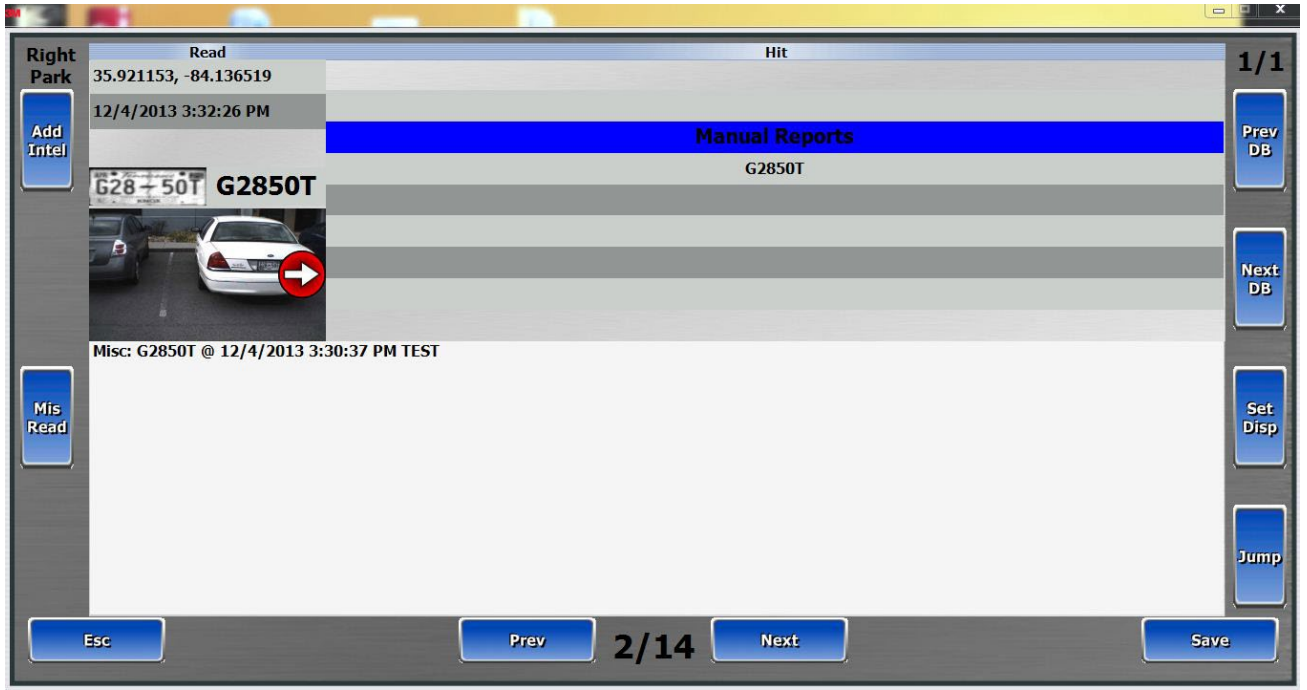


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ALPR Hotlist Database Match (HIT)

3M License Plate Capture Software

- A match of a license plate read by the ALPR system to one or more of the hotlist database(s) is a HIT.
- When a HIT is encountered, visual and audible alerts are presented.

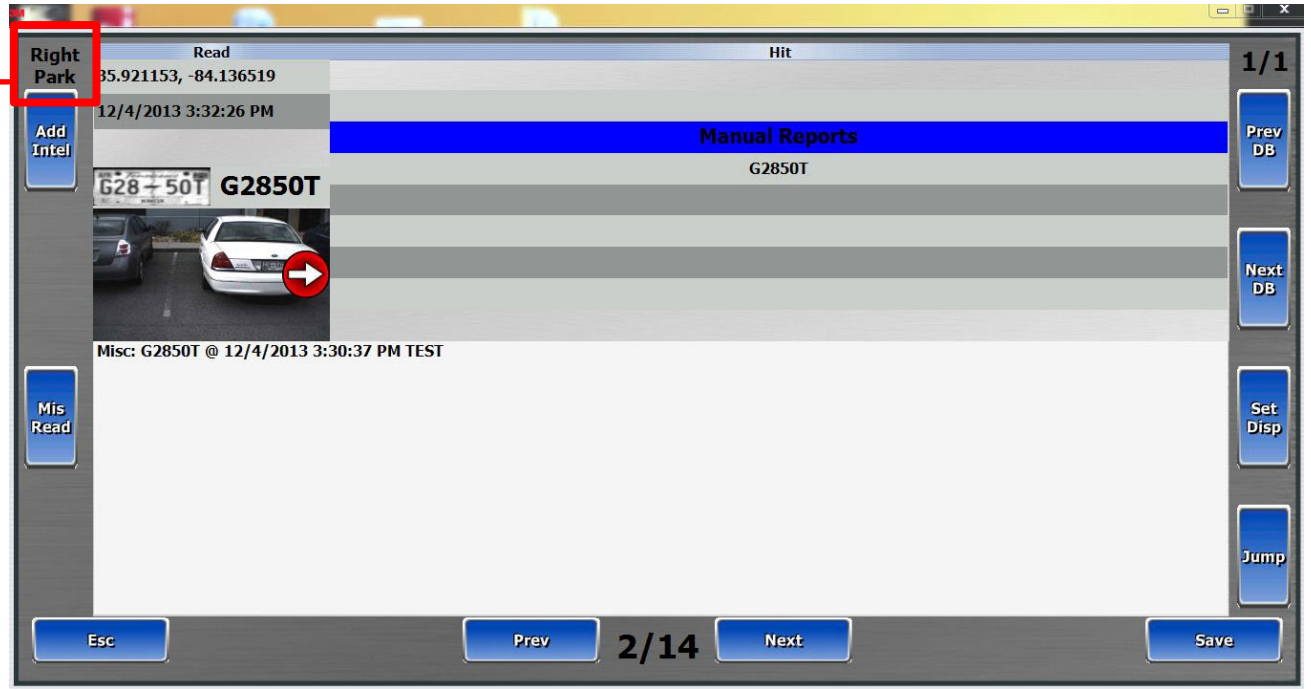


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System Operation – Hotlist Match - HIT!

3M License Plate Capture Software

- Active camera for ALPR capture

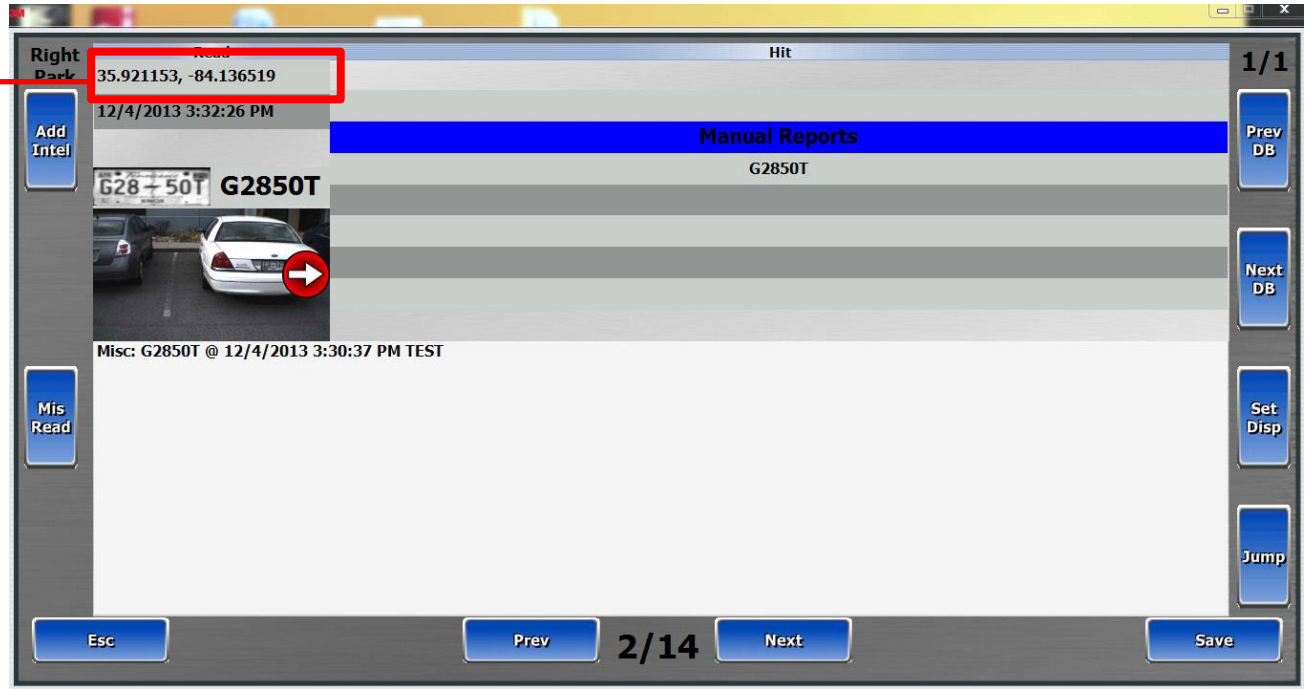


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System Operation – Hotlist Match - HIT!

3M License Plate Capture Software

- Active Camera for ALPR capture
- GPS coordinates

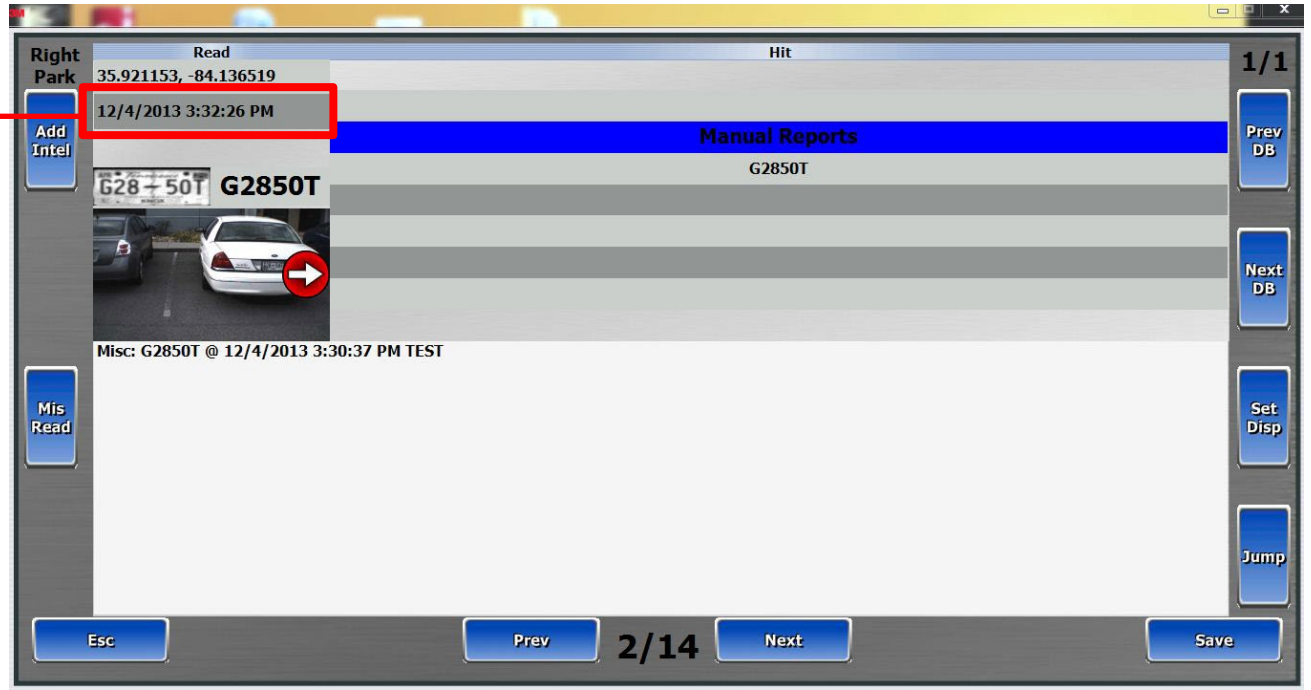


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System Operation – Hotlist Match - HIT!

3M License Plate Capture Software

- Active Camera for ALPR capture
- GPS coordinates
- Date and time stamp

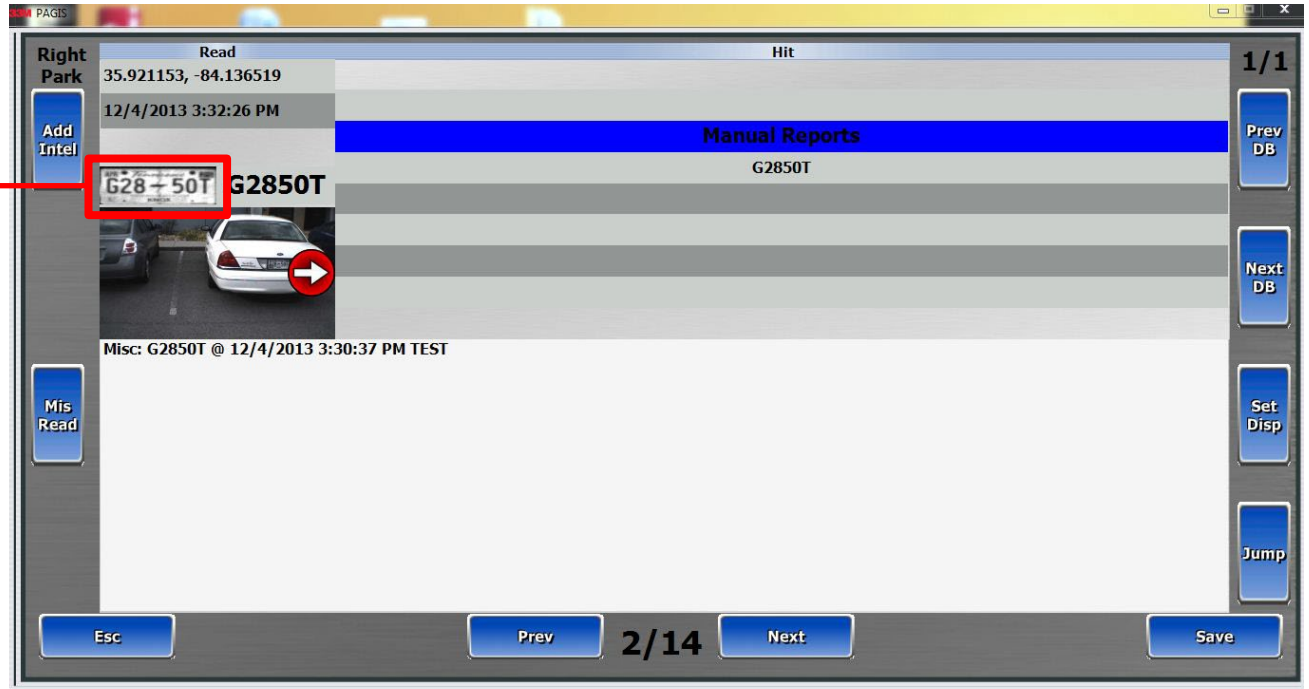


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System Operation – Hotlist Match - HIT!

3M License Plate Capture Software

- Active Camera for ALPR capture
- GPS coordinates
- Date and time stamp
- IR “Plate Patch”

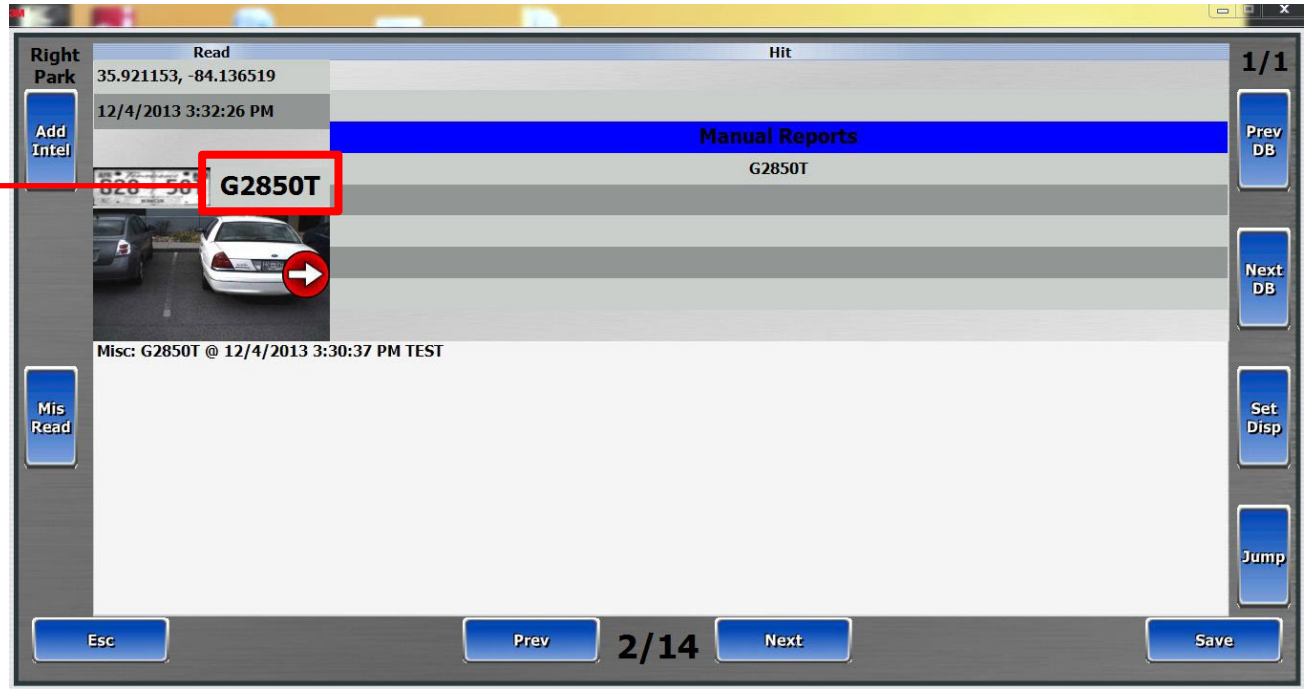


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System Operation – Hotlist Match - HIT!

3M License Plate Capture Software

- Active Camera for ALPR capture
- GPS coordinates
- Date and time stamp
- IR “Plate Patch” from ALPR
- OCR translation of “Plate Patch”
- This cumulative information is referred to as a Data Packet.

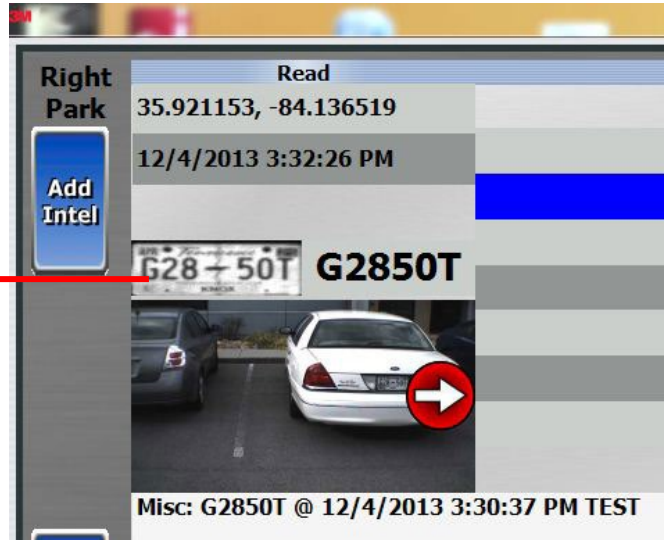


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System Operation – Hotlist Match - HIT!

3M License Plate Capture Software

- Plate patch and text comparison:
  - When a HIT occurs it is very important that the plate patch and the license plate text be compared for accuracy. Check to verify the text on the plate image matches the license plate text.
- ALPR is not State specific *as of this date*:
  - ALPR systems cannot identify the State. When a HIT occurs, check the plate patch against the system read and verify the State is correct for the suspect license plate.







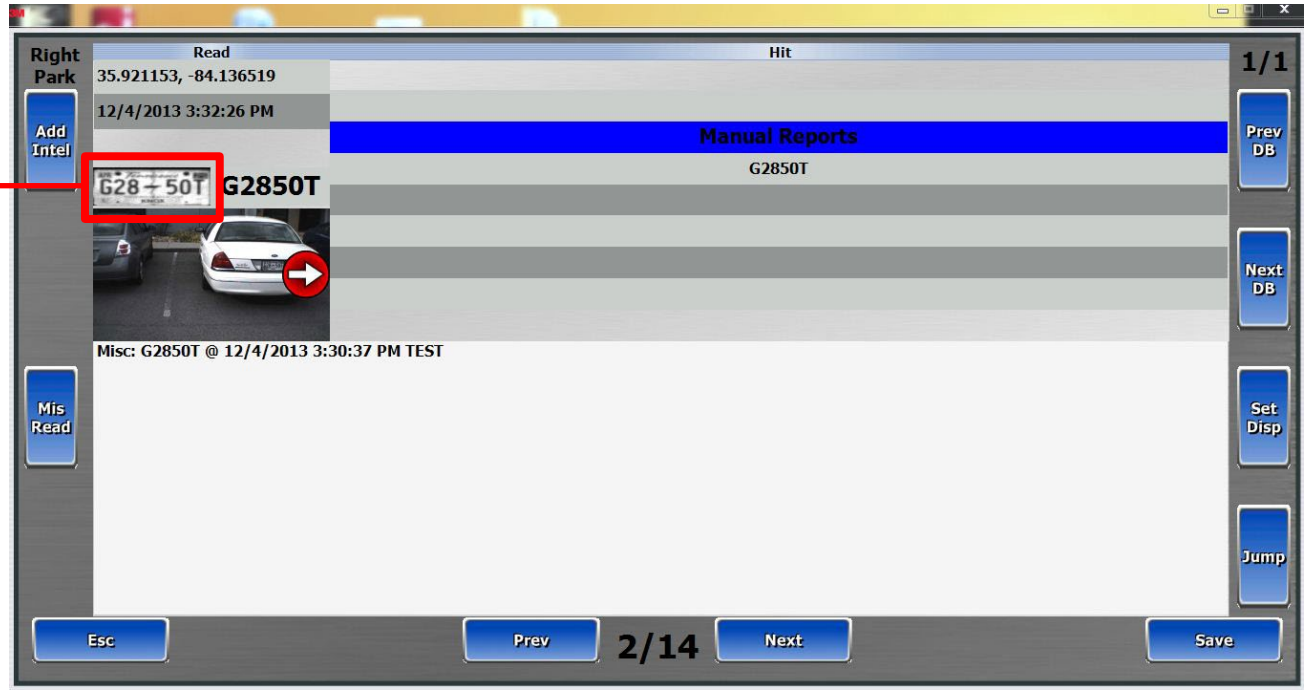


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System Operation – Hotlist Match - HIT!

3M License Plate Capture Software

- Click on the “Plate Patch” to display the image full screen.
- The image will remain full screen for approximately seven seconds and then returns to the READS screen.

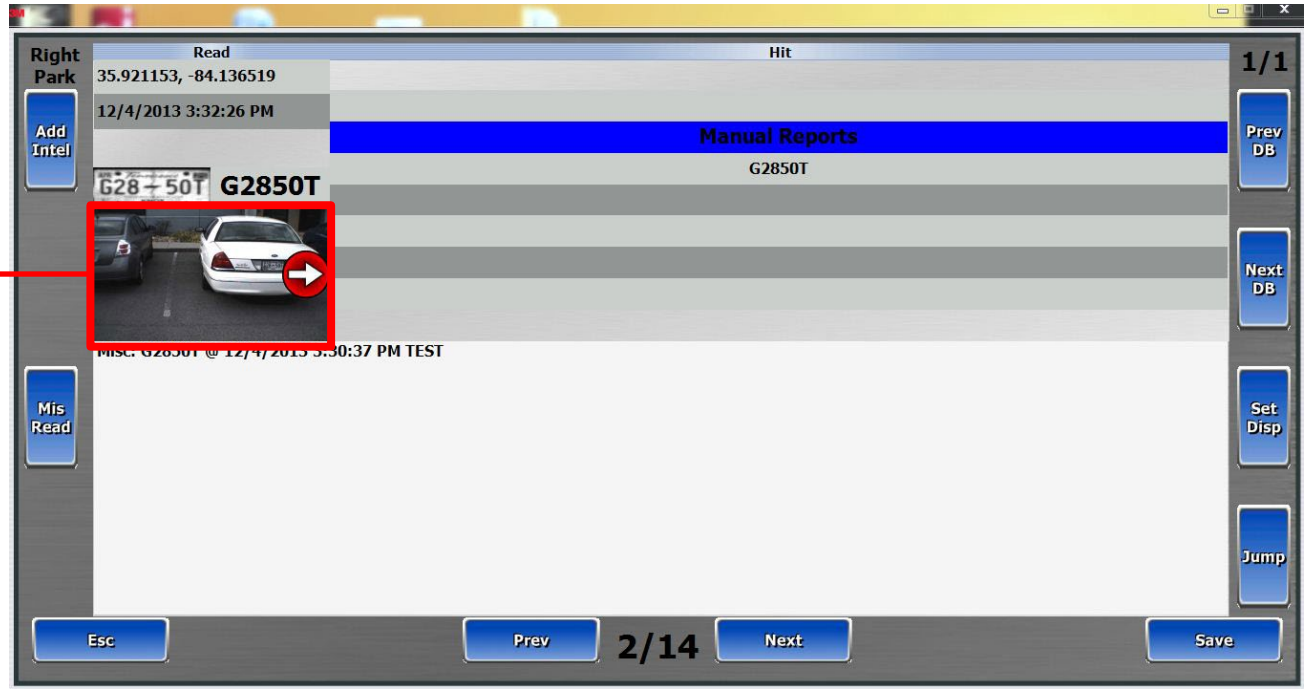


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System Operation – Hotlist Match - HIT!

3M License Plate Capture Software

- Active Camera for ALPR capture
- GPS coordinates
- Date and time stamp
- IR “Plate Patch” from ALPR
- OCR translation of “Plate Patch”
- Color Camera “Overview” image

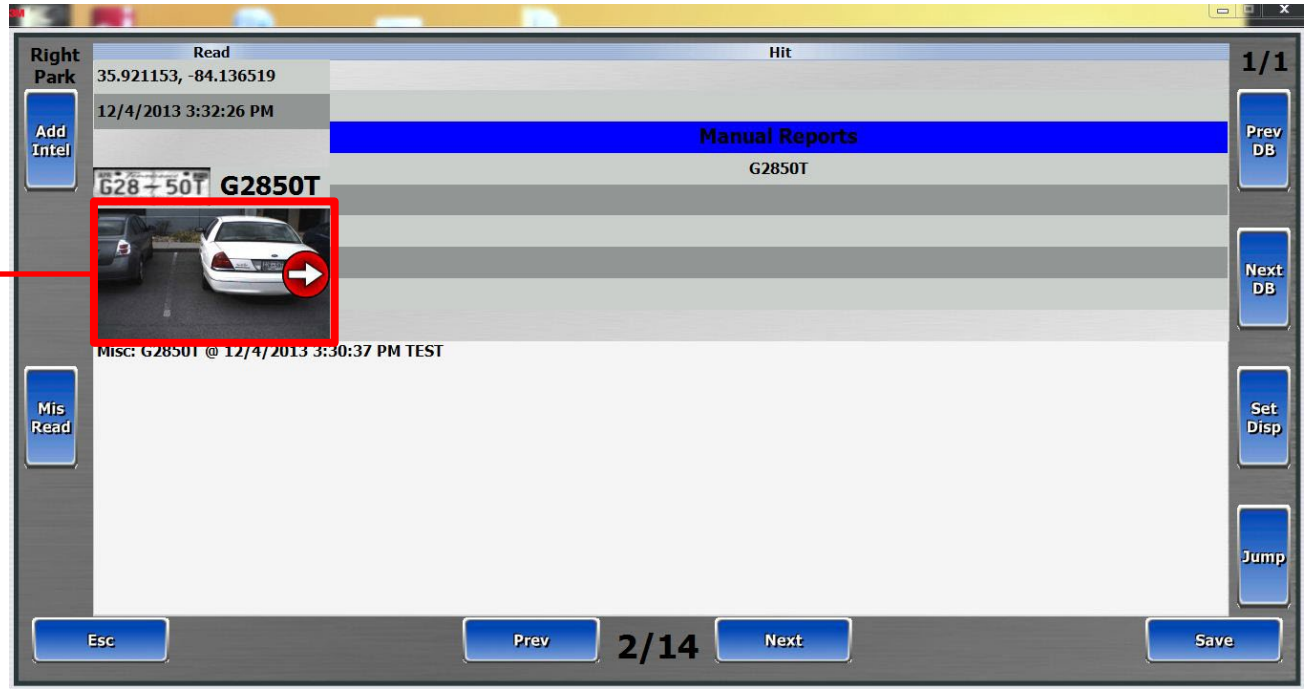


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System Operation – Hotlist Match - HIT!

3M License Plate Capture Software

- Active Camera for ALPR capture
- GPS coordinates
- Date and time stamp
- IR “Plate Patch” from ALPR
- OCR translation of “Plate Patch”



Click on color image to display image full screen.

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System Operation – Hotlist Match - HIT!

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- The image will remain full screen for approximately seven seconds and then returns to the READS screen.

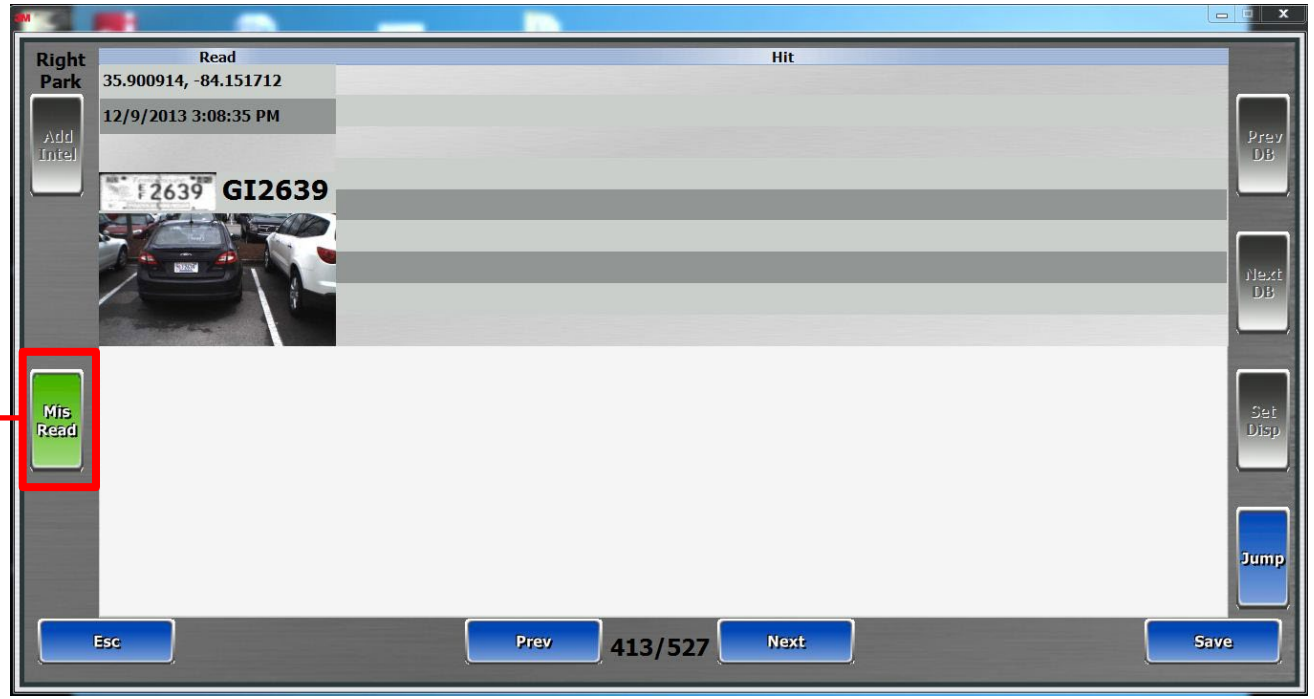


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System Operation – Hotlist Match - HIT!

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- To mark this HIT as a Misread (indicating the IR “Plate Patch” does not match the OCR translation), press the **MISREAD** button.

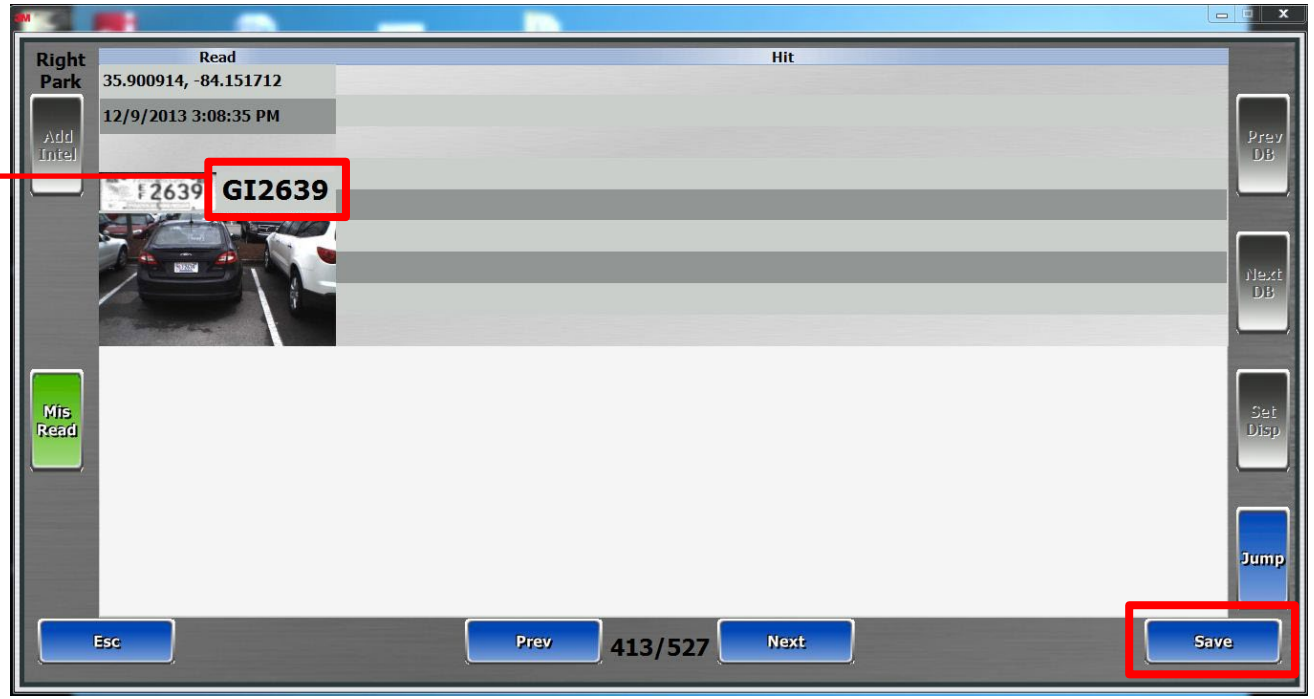


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System Operation – Hotlist Match - HIT!

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- Click on the OCR translation to edit the text, if desired. After editing the text, click **SAVE**.

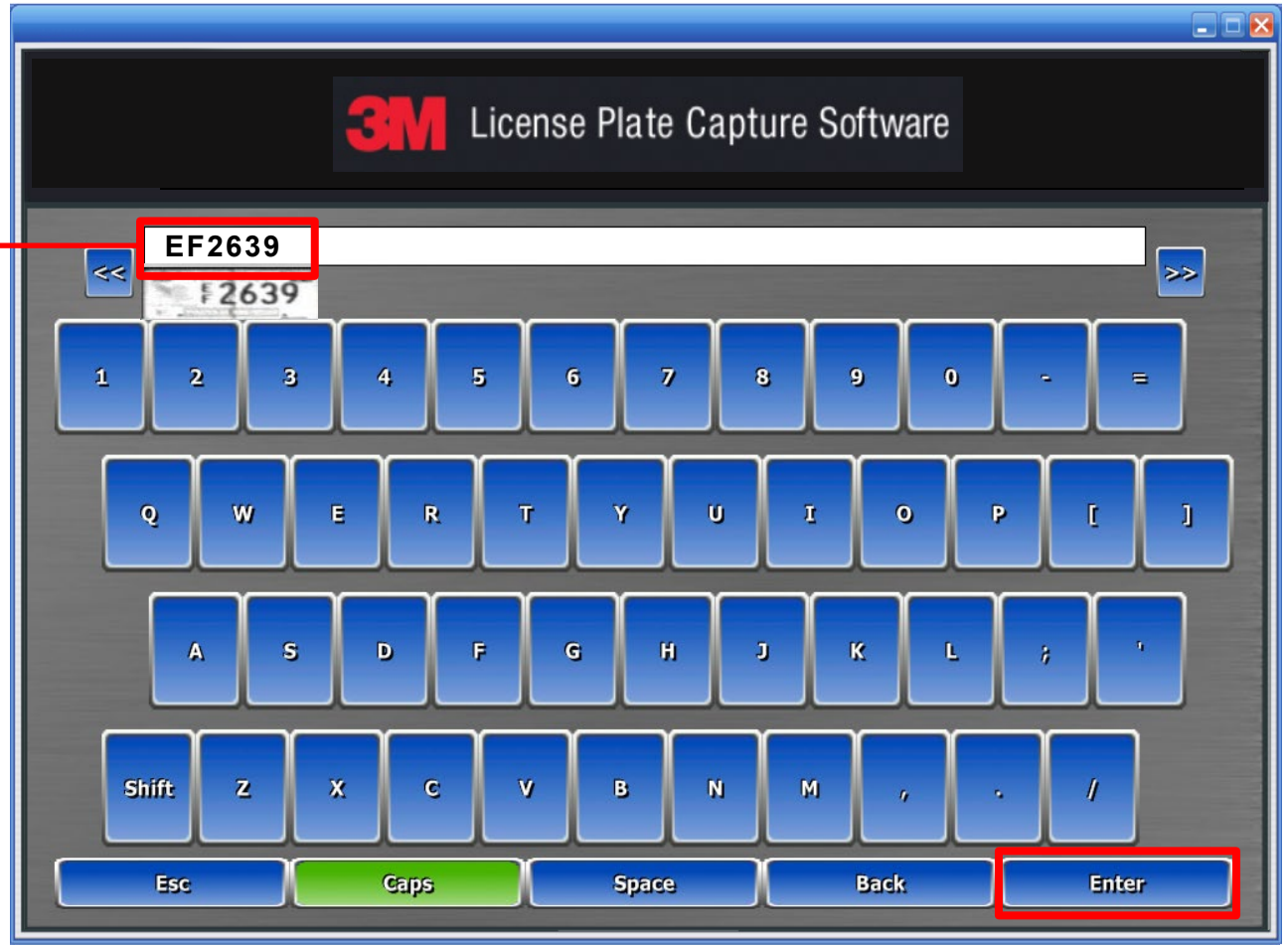


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System Operation – Hotlist Match - HIT!

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- Edit the text to correct the Misread.
- Once text is correct, click **ENTER**.
- After editing the text, click the **SAVE** button.



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System Operation – Hotlist Match - HIT!

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- Name of hotlist database

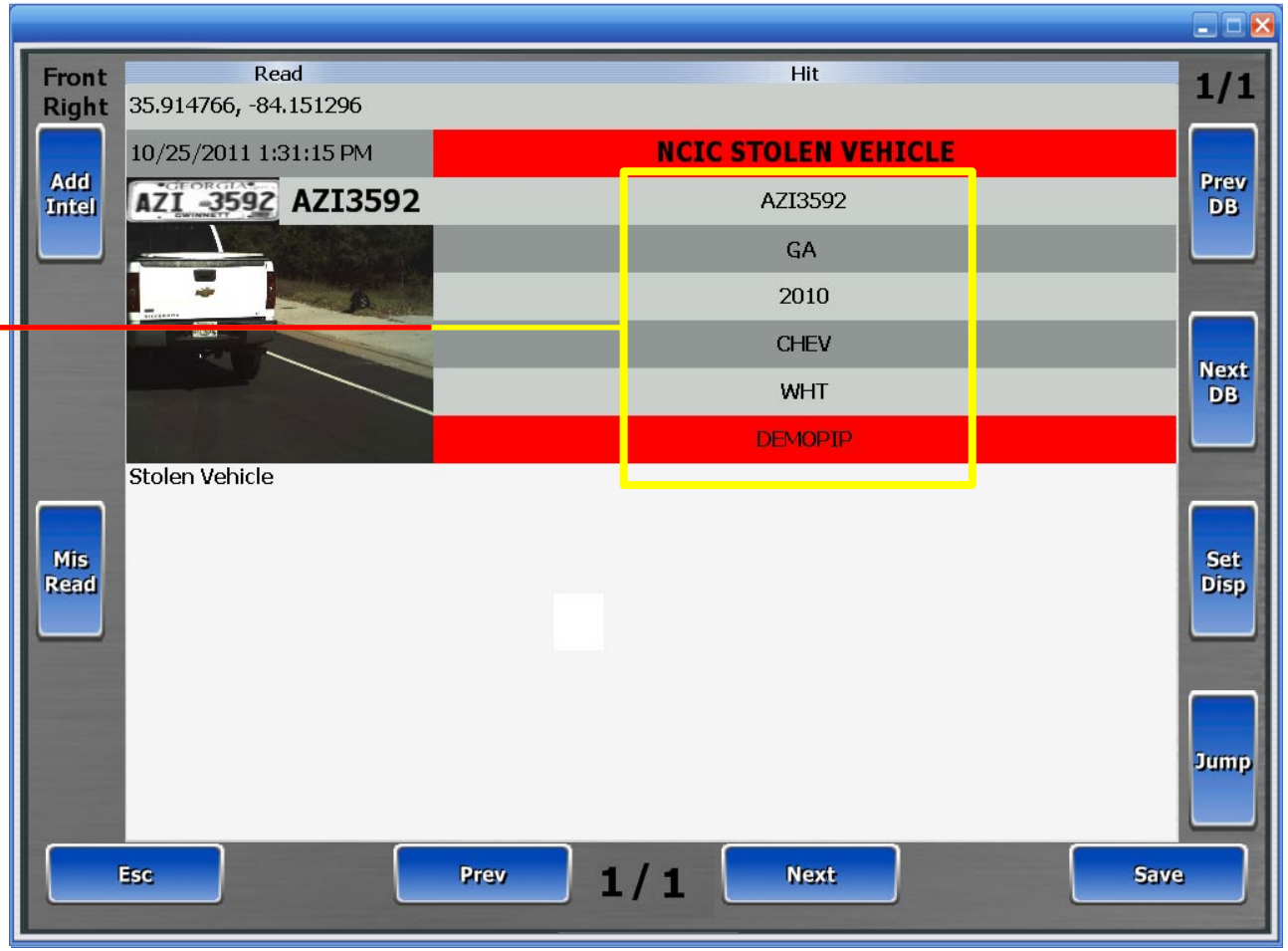


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System Operation – Hotlist Match - HIT!

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- Name of hotlist database
- Information from hotlist database



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System Operation – Hotlist Match - HIT!

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- Name of hotlist database
- Information from hotlist database
- Notes from hotlist database



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Search Entry – Reads - Add INTEL

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- To add notes (INTEL) to the note field, select the **ADD INTEL** button.

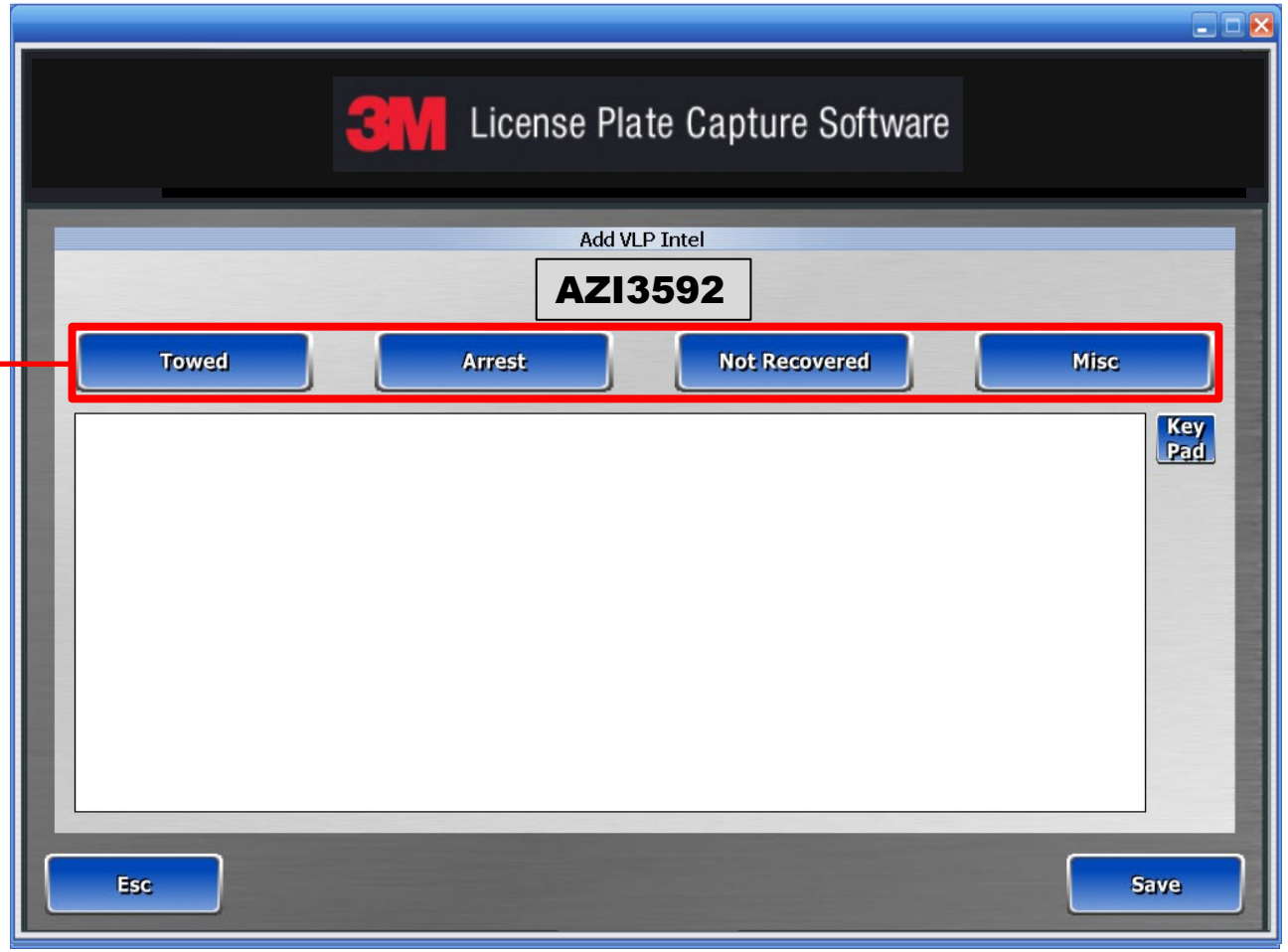


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Search Entry – Reads - Add INTEL

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- Select one of the category buttons.

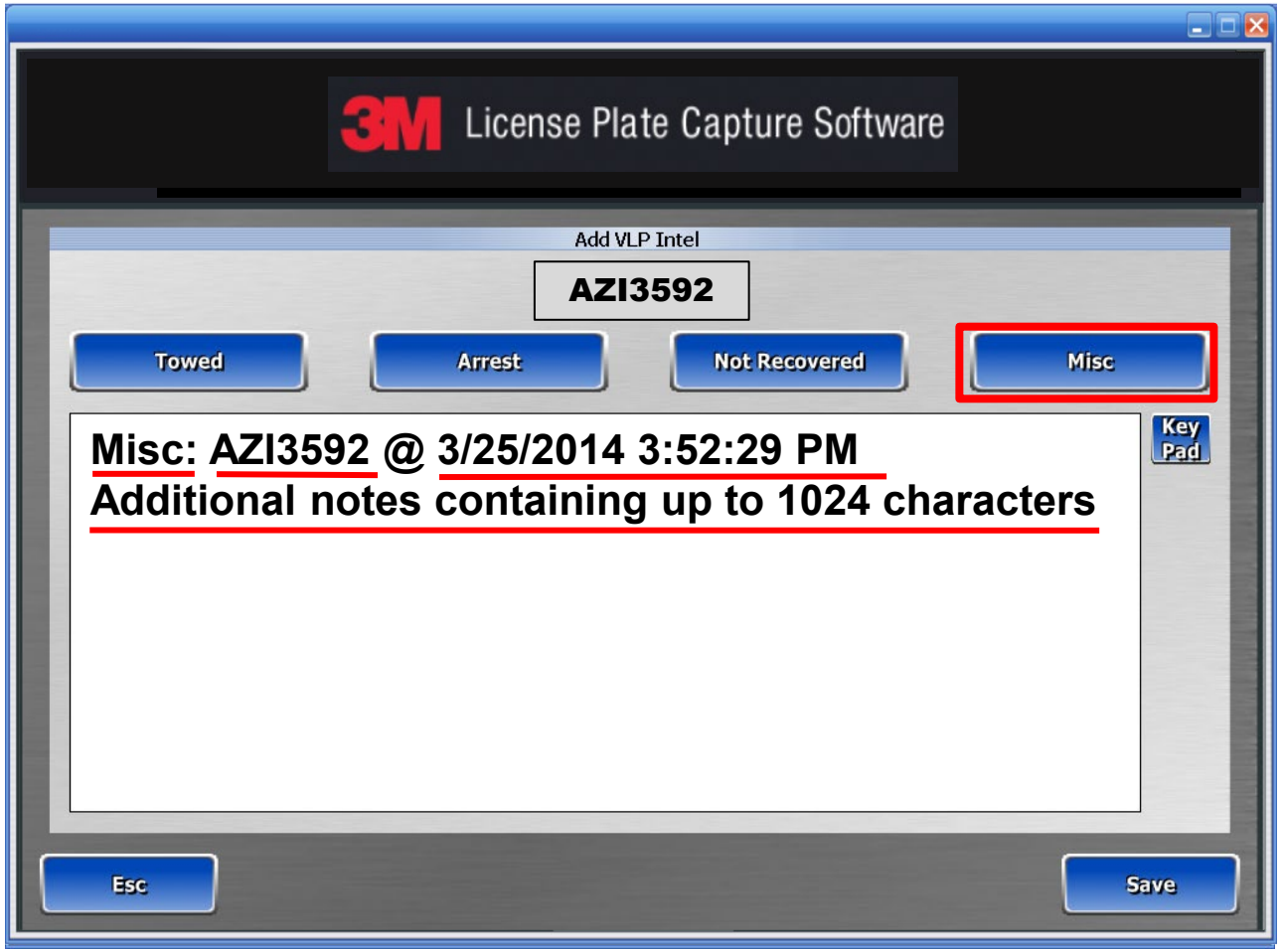


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Search Entry – Reads - Add INTEL

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- Select a category button, **MISC** in this example.
- An annotation is added containing:
  - The category,
  - The license plate number,
  - The date and time the annotation was added,
  - Additional notes.



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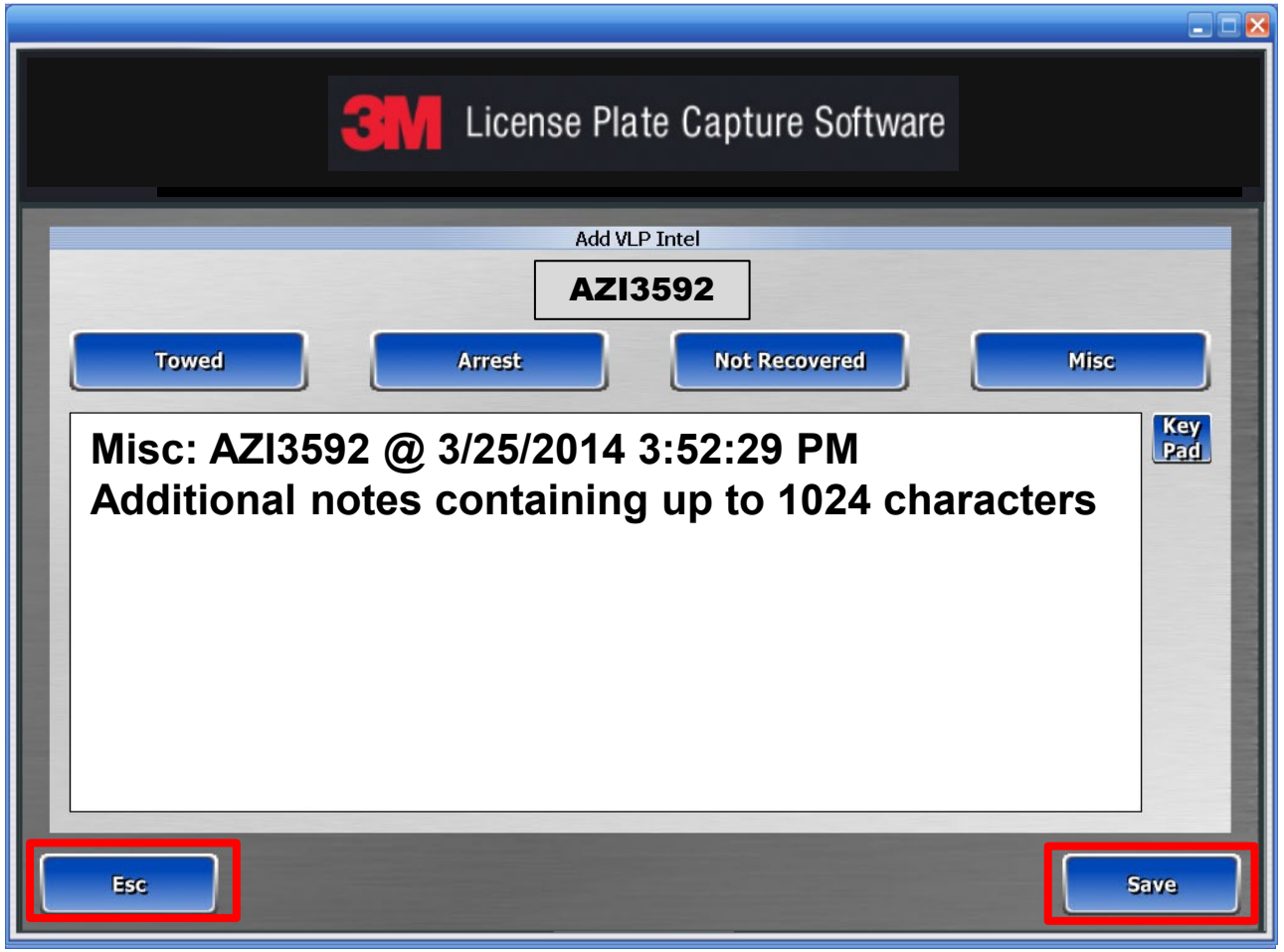
Search Entry – Reads - Add INTEL

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- Select **SAVE** to save the added INTEL and return to the READS screen

OR

- Select **ESC** to discard the added INTEL and return to the READS screen.



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System Operation – Hotlist Match - HIT!

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- **SET DISPOSITION**: Select the disposition (status) of the HIT.



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System Operation – Disposition of a Hit

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- **SET DISPOSITION**: Select the disposition (status) of the HIT from the dropdown menu, then click **SAVE**.
- The disposition of a Hit is defined by the system administrator.
- The disposition is saved to the database for use in the 3M Back Office System Software.



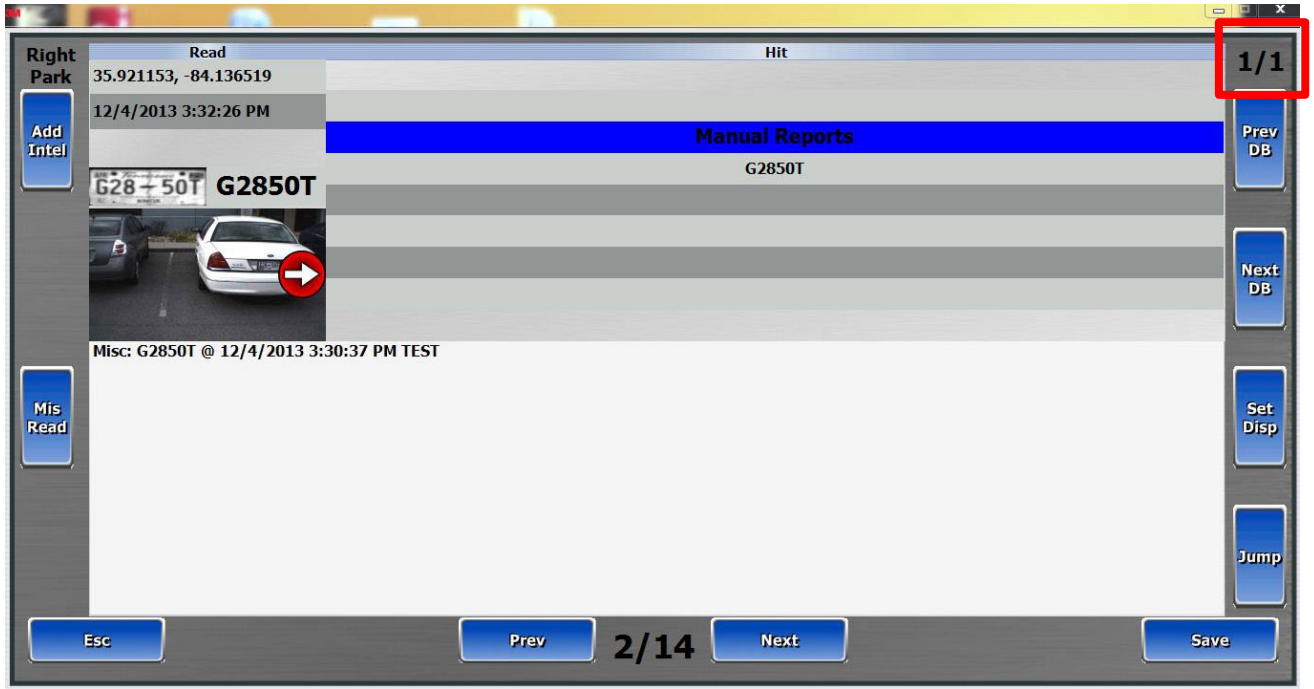
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System Operation – Hotlist Match - HIT!

3M License Plate Capture Software

- If a match (HIT) is made on multiple hotlist databases, the number of vehicles and databases matched against are displayed as:

The Number of Hits / The Number of Hotlist Databases (1 / 1).

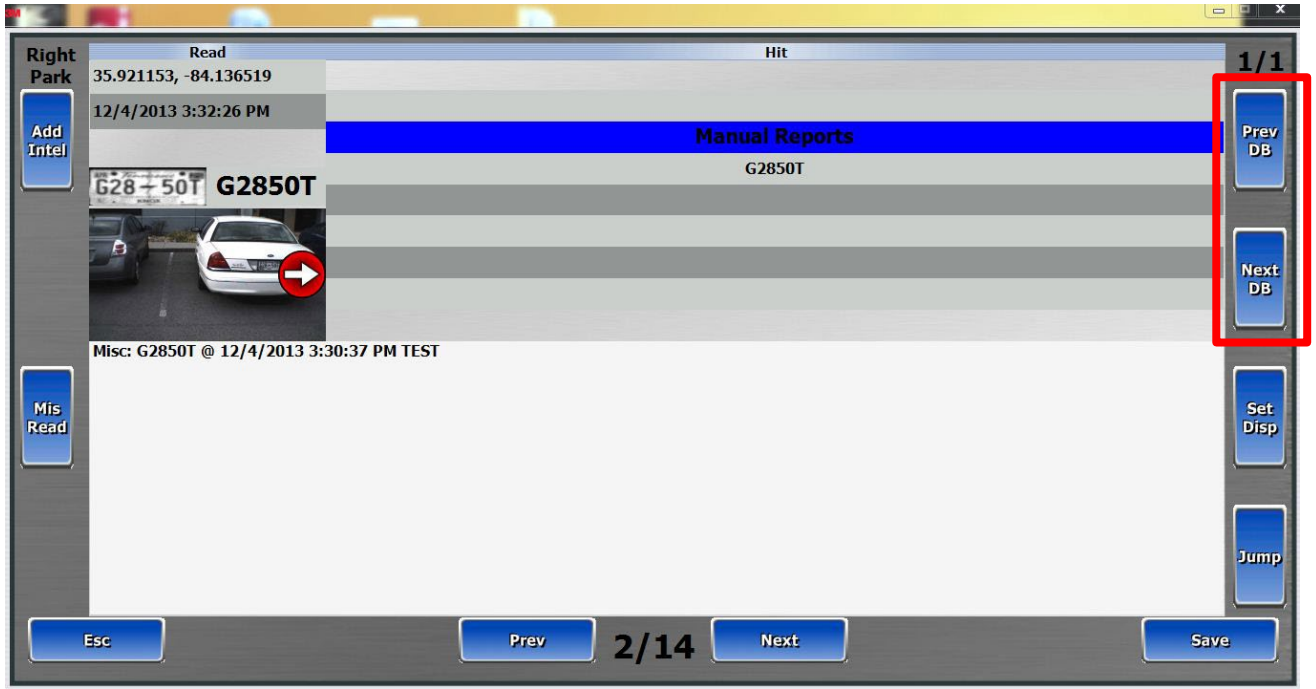


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System Operation – Hotlist Match - HIT!

3M License Plate Capture Software

- To view additional hotlist databases for each match, use the **PREVIOUS DATABASE** or **NEXT DATABASE** buttons.

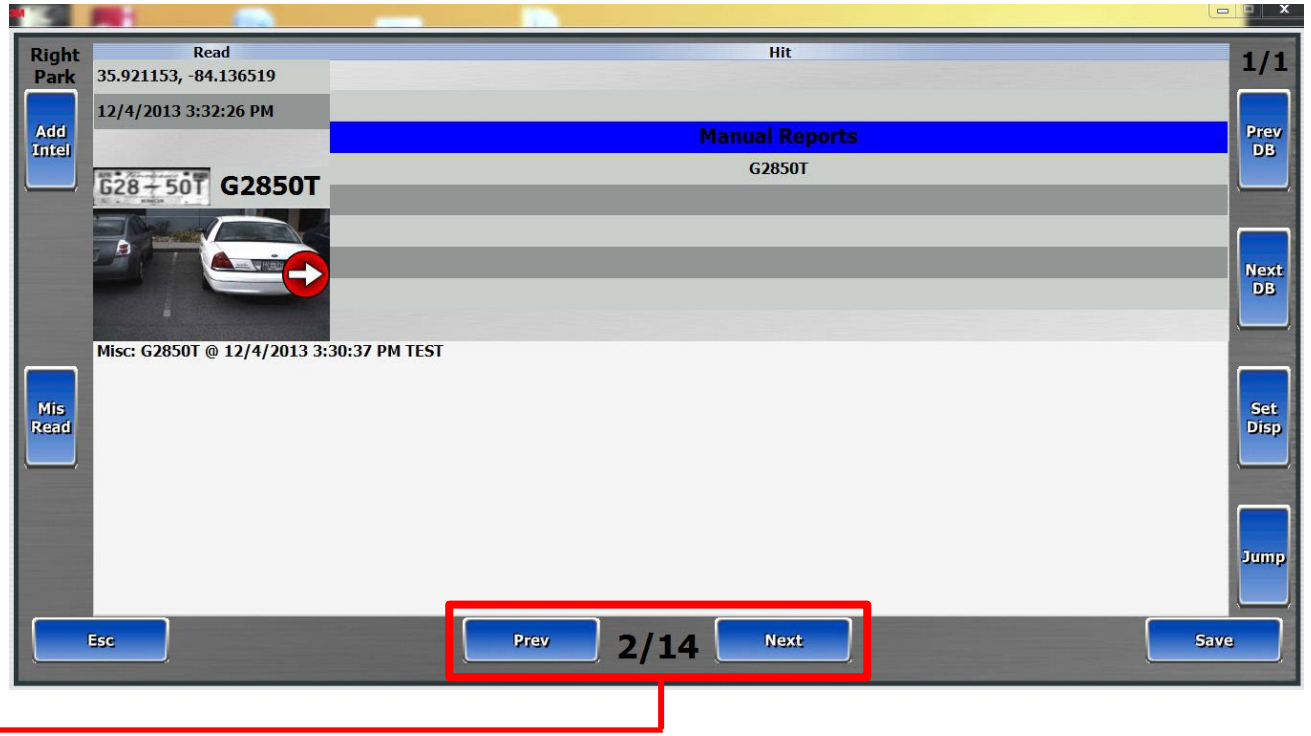


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System Operation – Hotlist Match - HIT!

3M License Plate Capture Software

- Navigate between current HITS and previous HITS, displayed **as CURRENT MATCH HIT/TOTAL NUMBER OF HITS**.

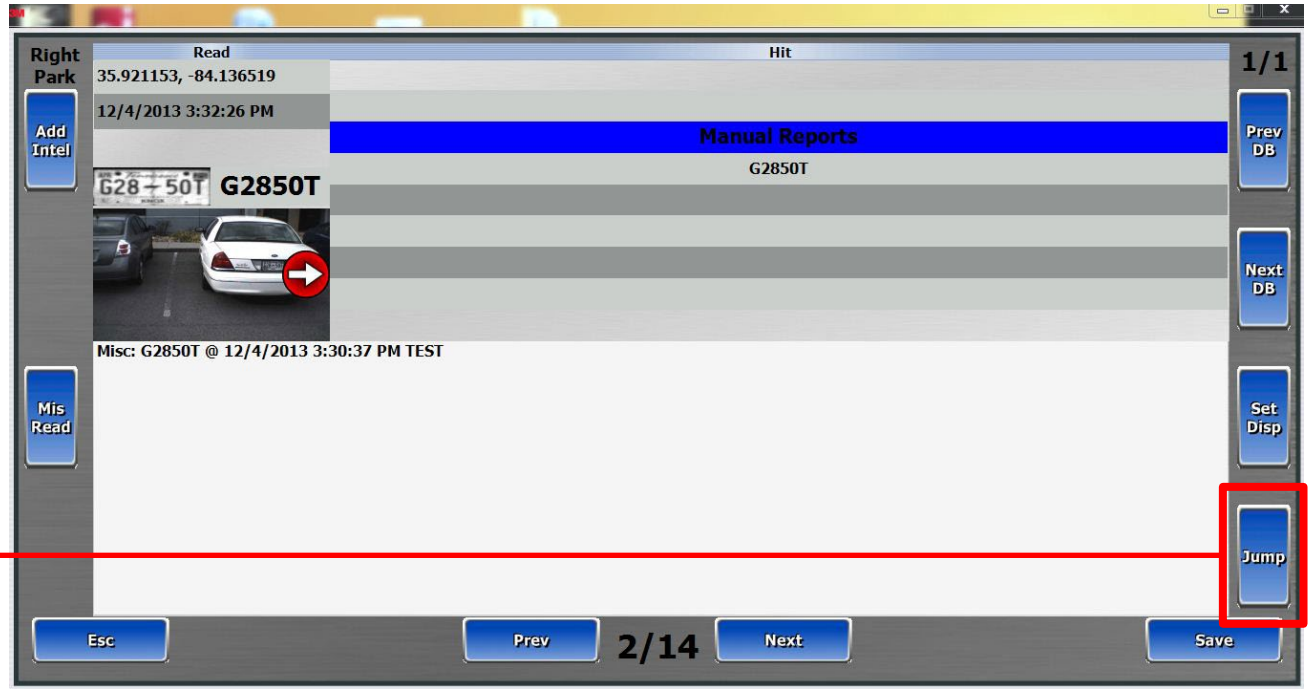


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System Operation – Hotlist Match - HIT!

3M License Plate Capture Software

- **JUMP**: Navigate to an exact record number.



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Privacy Settings

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- Version 2.7 and above of the 3M LPCS offers Privacy Settings to ensure validity and confidentiality.
- This feature is completely configurable to meet changing regulatory requirements.
- These configurable settings control the length of time in days, hours, and minutes that read or hit information is to be saved.



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Privacy Settings – Never and On Startup

3M License Plate Capture Software

- If the Never option is selected, the Privacy Settings do not apply and the timed settings will be disabled.
- Selecting On Startup allows the System Administrator to configure how the system manages databases, hits, and reads. With On Startup selected, each time the 3M LPCS application is restarted, it checks these settings and evaluates whether existing information has exceeded the allowable age.

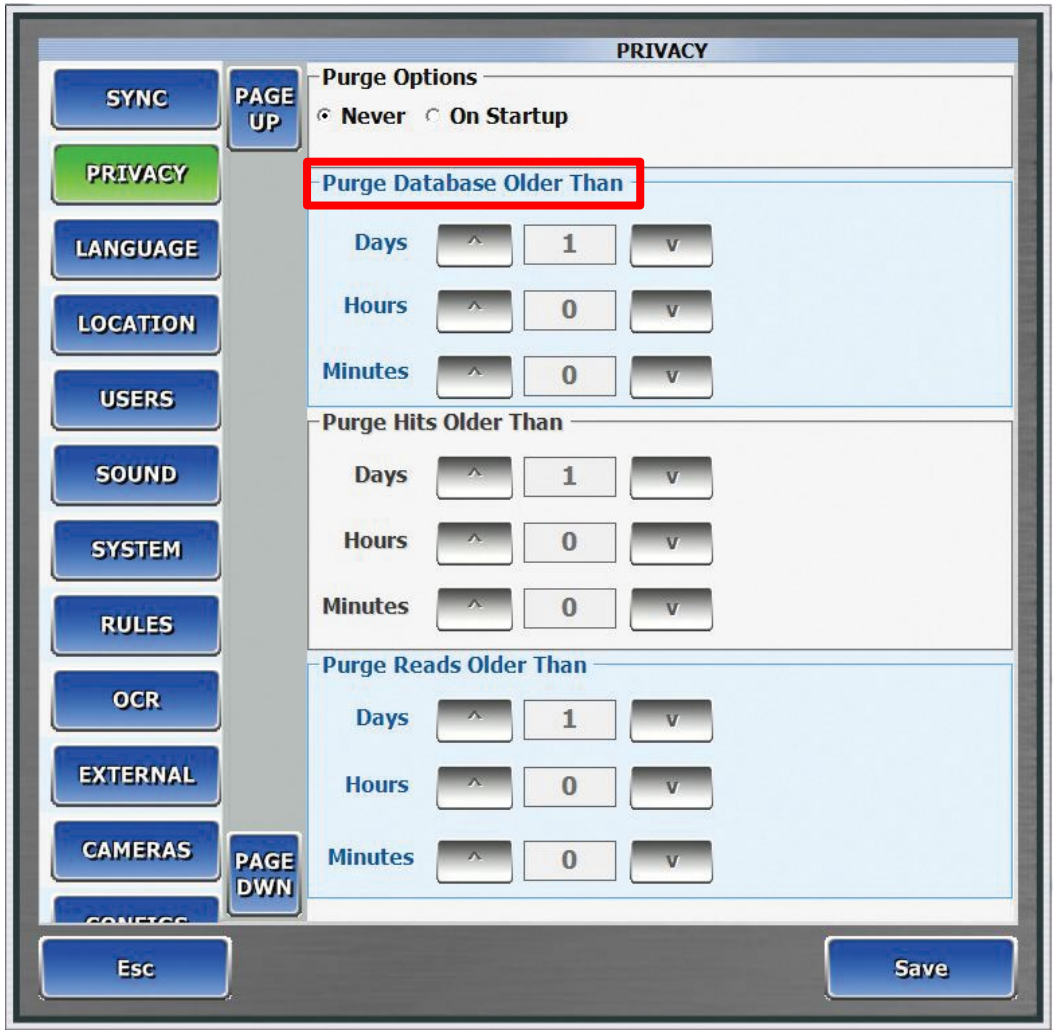


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Privacy Settings – Purge Database Older Than Setting

3M License Plate Capture Software

- This setting allows the Administrator to control how frequently the databases stored on the system are removed. For example, if a database, “Expired Plates Hotlist,” was added to the 3M LPCS 3 days ago and the Purge Database Older Than settings are set to 2 days, then the next time the 3M LPCS is restarted, “Expired Plates Hotlist” will be removed.

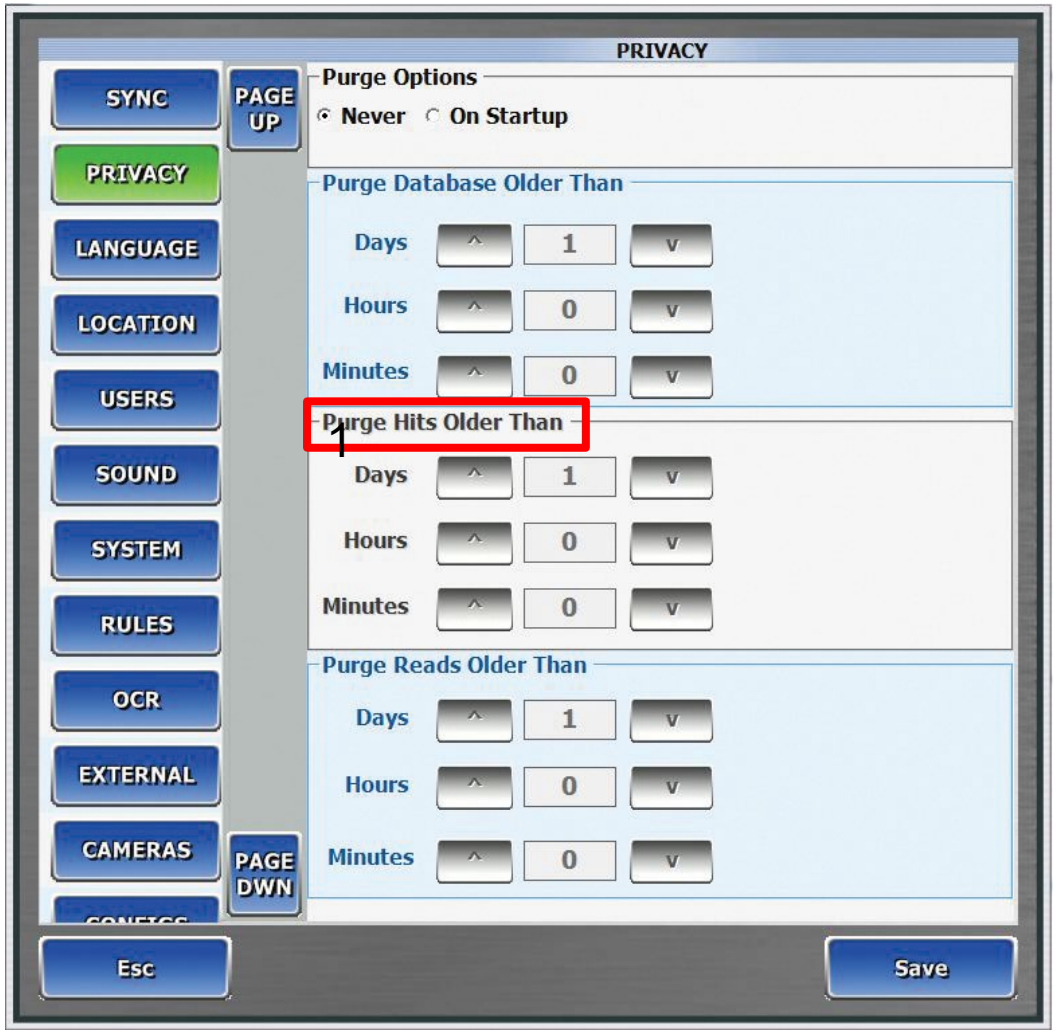


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Privacy Settings – Purge Hits Older Than Setting

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- This setting allows the Administrator to control how frequently the hits stored in the 3M LPCS are sanitized. For example, if any hits in the 3M LPCS were captured during a shift a week earlier (7 days ago) and Purge Hits Older Than is set to 4 days and 5 hours, then the next time the 3M LPCS is restarted, those hits will be sanitized.



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Privacy Settings – Purge Reads Older Than Setting

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- This setting allows the Administrator to control how frequently the reads stored in the 3M LPCS are sanitized. For example, if reads were captured during a shift a month earlier (30 days ago) and the Purge Reads Older Than settings are set to 25 days, the next time the 3M LPCS is restarted, reads more than 25 days old will be sanitized.
- IMPORTANT: Once reads and hits have been sanitized, they can no longer be viewed in the 3M LPCS. However, they are retained in the system until an End Shift or Sync is performed.



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Questions and Answers

3M License Plate Capture Software



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PIPS TECHNOLOGY™

DETECTION INNOVATION



PAGIS
User's Manual

Version 2.9 or above

NEOLOGY™ MOBILITY TECHNOLOGIES

Table of Contents

Notices 3
Warranty 3
Technical Support 3
Design Changes 3
Trademarks 3
Copyright 3
Version 3

1 Introduction 4
1.1 Color and Infrared Camera in One Unit 4
1.1.1 Available Enhancements 4
1.2 Using This Manual 4

2 Screen Reference 6
2.1 The PAGIS Software Login Screen 6
2.1.1 Logging On with the Default Administrative Account 6
2.2 Main Screen- Live View 7
2.2.1 Camera Control Features 8
2.2.1.1 Taking a Picture 9
2.2.2 Other Functions Accessible from Live View 9
2.3 Search Entry 9
2.3.1 Searching for Matches 10
2.3.1.1 Adding a VLP Report 11
2.4 Review 12
2.4.1 Hits 13
2.4.1.1 Add VLP Intel 14
2.4.2 Reads 15
2.4.3 Misreads 15
2.4.4 Audits 17
2.4.5 Databases 17
2.4.5.1 Activating and Deactivating Databases 18
2.5 Begin Shift 19
2.6 End Shift 19
2.7 Cam Mode 19
2.8 Admin Main Menu 19
2.8.1 Review 20
2.8.2 Location 20
2.8.3 Cam Setup 21
2.8.4 Database 22
2.8.5 Targets 23
2.8.6 Admin 23
2.8.6.1 Sync 24
2.8.6.1.1 Synchronization to a Local Disk or Flash Drive 24
2.8.6.1.2 Wireless Synchronization with BOSS 25
2.8.6.1.3 Global Sync Options 26
2.8.6.2 Privacy 27
2.8.6.2.1 Never Option 27
2.8.6.2.2 On Startup Option 28
2.8.6.2.3 Purge Database Older Than Setting 28
2.8.6.2.4 Purge Hits Older Than Setting 28
2.8.6.2.5 Purge Reads Older Than Setting 28
2.8.6.3 Language 28
2.8.6.4 Location 28
2.8.6.5 Users 28
372.8.6.6 Sound 29
2.8.6.7 System 30
2.8.6.7.1 Configuring System Connection Strings 30
2.8.6.7.2 GPS Connection String 30
2.8.6.8 Rules 31
2.8.6.9 OCR 31
2.8.6.10 External 31
2.8.6.11 Cameras 32
2.8.6.12 Configs 35
2.8.6.12.1 Adding a Camera Configuration 36
2.8.6.13 Old Config 37
2.8.6.14 Info 37

3 PAGIS Installation Guide 38
3.1 Minimum System Requirements 38
3.2 Installing PAGIS 38
3.3 Updating PAGIS 39
3.3.1 Upgrading PAGIS Software Mobile processor 39
3.4 PAGIS Camera Setup 39
3.5 PAGIS Sync Setup 42
3.6 Testing PAGIS Connection to BOSS 44
3.7 Enable Mobile Systems in BOSS 44
3.7.1 Enable new mobile device in BOSS 44
3.7.2 Assigning User Groups to a Device 45
3.7.3 Assigning Hotlist to Device 45
3.8 Troubleshooting & Tips 46

4. Appendix: The PAGIS SoftwareDatabase File 47
4.1 Interpreting the Sample File 47
4.1.1 The [SETTINGS] Heading 47
4.1.2 The [FIELD X] Heading 48
4.1.3 Sample INI Configuration File 48
4.2 Additional Development and Support 49

5 Appendix: Additional Procedures 50
5.1 Microsoft .NET 3.5 Installation 50
5.2 Firewall Settings for Client-Server Installations 50
5.3 Mapping a Network Drive 50
5.4 The PAGIS Software Version 2.9 Series Troubleshooting 51
5.5 Installation (Formerly BOF2) Configuration Information 51
Glossary 52

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For the U.S/Can and all other areas: Support Request Email: support@pipstechnology.com
For Europe, Middle East and Africa: Support Request Email: support@pipstechnology.co.uk
Web: www.pipstechnology.com
Fax: 858-391-0264
Address: 13520 Evening Creek Drive
Suite 460. San Diego, CA 92128

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Version

This manual documents the 2.9 series versions of the Neology / PIPS Technology PAGIS Software and was last updated on July, 2018.

1 INTRODUCTION

The PIPS PAGIS Software provides in-car Automatic License Plate Recognition (ALPR; also called Automatic Number Plate Recognition, or ANPR). This software has been developed in collaboration with law enforcement to ensure that it meets the needs of their agencies and officers as well as the needs of other organizations, such as security and asset recovery companies, that must identify vehicles and associated license plate data.
The PAGIS Software ALPR solution uses up to four PIPS dual-channel, or dual-lens, cameras (color and Infrared [IR]) to read plates and a software program installed on the PIPS™ Mobile ANPR/ALPR Processor or on a mobile data computer (MDC) such as a laptop.

The software is optimized to run on MDCs with Windows XP (SP2 or SP3), Windows Vista, Windows 7, or Windows 8 operating systems; it runs on the PIPS Mobile ANPR/ALPR Processor with Microsoft Windows XP Embedded. Either a standard or touch screen monitor can be used.
The larger buttons and software-based keyboard make data entry easy when using a touch screen.

The PAGIS Software downloads the infrared plate image provided by any of the cameras along with the plate number interpreted through Optical Character Recognition (OCR) by the mobile processor. The application then searches for any matches of the plate with plates listed in the databases, or "hotlists," uploaded from the PIPS Back Office System Software (BOSS) or other external sources.



WARNING: **To reduce the risks associated with impact, which if not avoided, could result in serious injury or death: Do Not** interact with the ALPR system while driving in hazardous situations. The PIPS mobile camera series and License Plate Capture Software are not intended for use in hazardous environments, so that the User and/or others are not put at risk for personal injury and/or property damage.

1.1 Color and Infrared Camera in One Unit

The PIPS Technology mobile camera series uses visible light to take color overview pictures of the vehicle and uses infrared illumination to capture the license plate's alphanumeric characters.
IR illumination offers the best capture performance of reflective license plate characters:

- License plates can be highly reflective to IR.
- Cameras using IR are not affected by, and do not depend on, visible light or the absence of natural or artificial light. Because the effects of headlight or sunlight glare and total darkness are eliminated, the system can be used 24 hours a day, seven days a week.
- IR penetrates rain and fog better than visible light.

A maximum of four (4) PIPS dual-lens cameras can be installed in one vehicle, provided the system supports the additional mounting hardware.

1.1.1 Available Enhancements

Additional information about other PIPS Technology applications, cameras, and solutions is available on the PIPS web site: http://www.pipstechnology.com

1.2 Using This Manual

The remaining chapters of this software manual are as follows:

Chapter 2: Screen Reference explains every screen function in the PAGIS Software including setup functions available to Administrators.

Chapter 3: Administrator's Guide to Installation explains how to install and update the PIPS PAGIS Software.

The appendices describe additional features (such as the INI file), additional procedures, and features available to international users. This manual also includes a glossary and an index.

2 SCREEN REFERENCE

This chapter guides the user through the PAGIS Software screens and the available options. Screens are grouped according to functions. When a button is grayed out, the option is not available or no information has been accrued to activate it.



2.1 The PAGIS Software Login Screen

The PAGIS Software allows for multiple users with individual access privileges. For users with touch screen monitors, the Key Pad button immediately to the right of any text box that accepts input gives you access to an on-screen keyboard for data entry.

Badge No. (Username)– The alphanumeric string assigned to identify the user. For law enforcement officers, this is typically their badge number.
Password – Password of the user.

Location – Location where the PAGIS Software will be used. This is an optional field. If the Administrator has configured a default location, that location will be displayed; otherwise, it will be blank. You can manually enter a location at logon, keep the default location, or leave the location field blank.

Login – Logs the user on to the PAGIS Software.

Exit – Quits the PAGIS Software.

2.1.1 Logging on with the Default Administrative Account

- The PAGIS Software includes a default administrative account that can be used for the initial configuration. For the very first logon after installation, press **Login** with the Badge No. and Password fields blank.

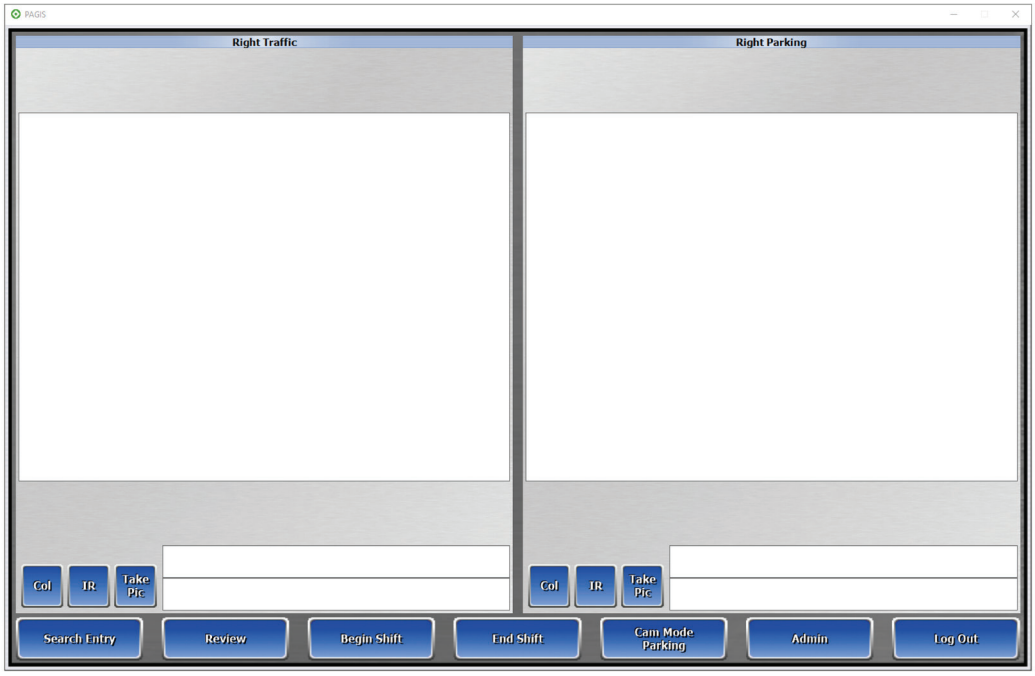
- If the PAGIS Software is wirelessly synced to the Back Office System Software (BOSS) and if BOSS only has the default user account, then on the next login, the user must type “admin” in the Badge No. field and leave the Password field blank.

System Administrators are strongly encouraged to configure users for the PAGIS Software soon after installation and setup. Once usernames and passwords are established by the System Administrator, the default user account will be disabled. Make sure that, when user accounts are created, at least one account has administrative privileges.

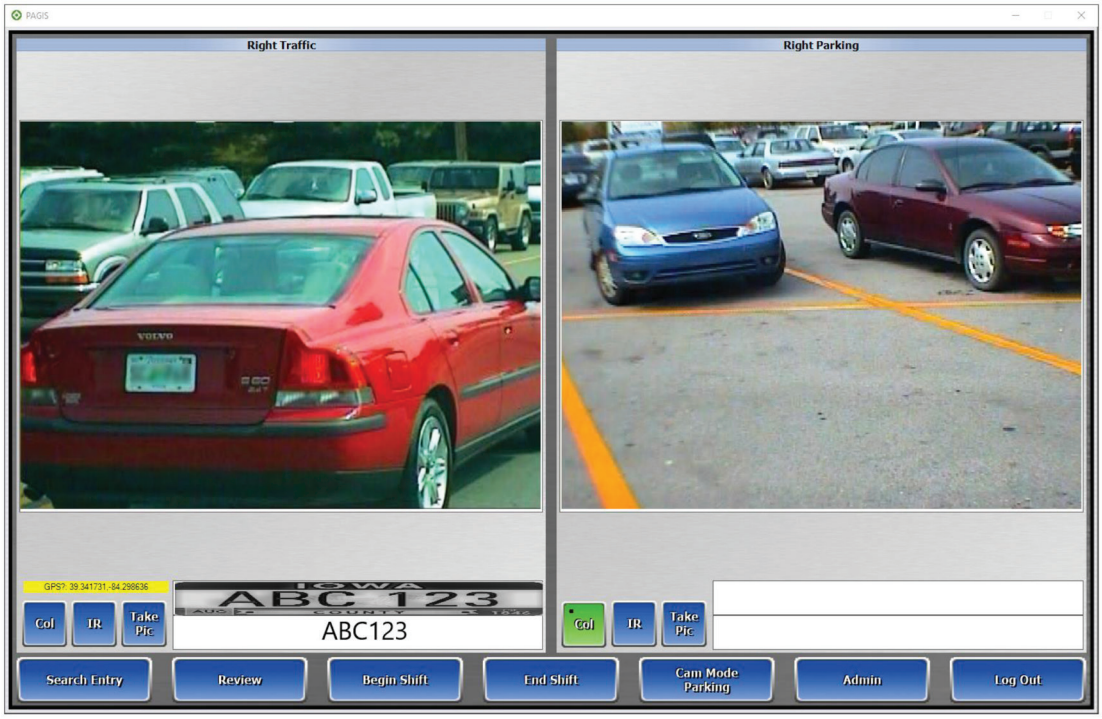
2.2 Main Screen- Live View

Once a user logs on, the Main screen opens. This is the primary view of all the PAGIS Software features that can be accessed from this point. It is on this screen that read images are monitored. Once a connection has been established with the mobile cameras, images will be displayed, and the system will begin capturing plates.

PAGIS supports live view of only two cameras at any given time, change this view can be accomplished by clicking the “Cam Mode” button- see “Cam Mode” further down in this manual.



PAGIS operates as a static view, meaning images will not appear in the camera panels until a plate has be captured. Once a plate is seen then captured by a camera it will display the captured information in the corresponding camera panel that captured the plate. By default, each plate capture is accompanied by a quick “Beep” sound.



2.2.1 Camera Control Features

The dual-lens cameras can capture both a color and an infrared image. There are three buttons for the two cameras displayed on the Main Live View screen. Two of these buttons allow you to change the image from color to infrared and back again.



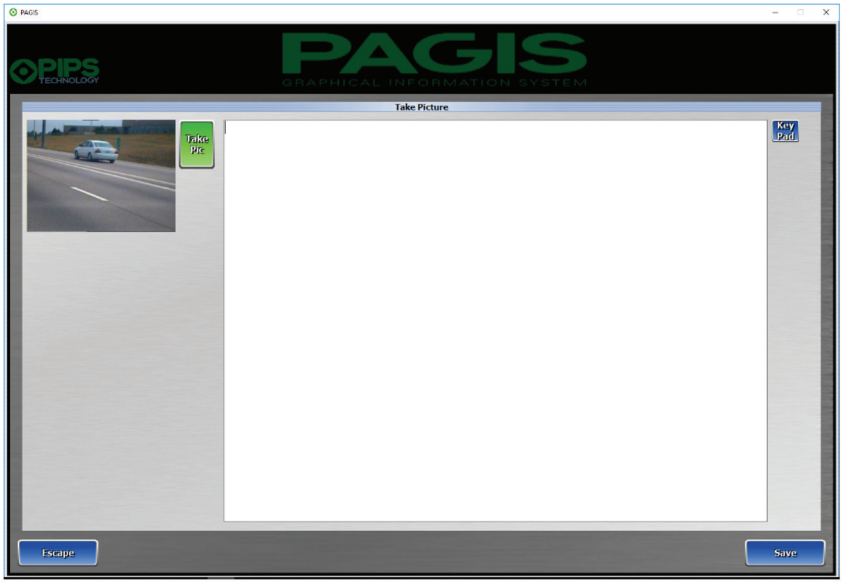
Col – Click the "COL" button to view live color camera feed, this live feed will stay active for 45sec or until the next plate capture for that camera.

IR – If the IR button is clicked, the IR image being sent from the camera will be displayed on the Live View screen. If a read occurs while the image is in IR mode, the image will change back to static color image.

GPS Coordinates – Color-coded GPS coordinates appear just above the three buttons for each camera. Yellow background indicates that the coordinates have been received and the system is in the process of confirming the information. The background changes to green when the

2.2.1.1 Taking a Picture

Take Pic- Take a picture of the image displayed for that particular camera.



To take a picture from the Live View:
1. Press the **Take Pic** button to open the Take Picture screen.
2. Once the image displays for that camera, enter any desired notes in the text box using the keypad button or keyboard.

IMPORTANT: The picture will NOT be saved if a note is not entered in the text box.

---

3. Press **Take Pic** again.
4. Press **Save** to save the picture, or **Escape** to cancel. Either action will return you to Live View.

2.2.2 Other Functions Accessible from Live View

Six of the seven buttons across the bottom of the Live View screen take you to additional system functions:



Search Entry, Review, Begin Shift, End Shift, Cam Mode, and the Admin Main Menu, described in the following sections. Pressing **Log Out**, the right-most button on the bottom of the screen, logs you out of the software and returns you to the Login screen.

2.3 Search Entry

Press Search Entry from the Live View screen to display the screen that lets you search the synchronized databases for license plates, reads, or driver's licenses. The same Search Entry screen is also accessible from the Database screen. Searching returns only information that is in the database(s) synced at Begin and End Shift, and in the PAGIS Software "Manual Reports" database.

Text Box – Enter the alphanumeric string to search.

Key Pad – Press to activate an on-screen keypad, for use with a touch screen monitor or with a mouse.

Clear – Clear the content of the text box.

DL# – Check the databases (BOSS hotlists) for a driver's license number entered in the text box, (Not available in some country's).

Reads – Search for a match of the entered number with the reads and hits currently stored in the PAGIS databases.

Add VLP – Add plate number to "Manual Reports" database or check the databases for the entered vehicle license plate.

Esc–Return to the previous screen.



2.3.1 Searching for Matches

Press the Search **Entry** button on the Live View screen.

- Press **Key Pad** to activate the on-screen keypad.
- In the text box enter the alphanumeric string to search.
- To search for a driver's license number, press the **DL#** button.
- To search for a match with a read or hit currently stored in the PAGIS Software database, press the **Reads** button.
- To search for a specific plate, press the **Add VLP** button to search the databases for matches. If a match occurs, a message displays showing that the plate is already recorded and which database(s) it has been found in. If no match occurs, the plate number can then be added to the Manual Reports database using **Add VLP Report**.

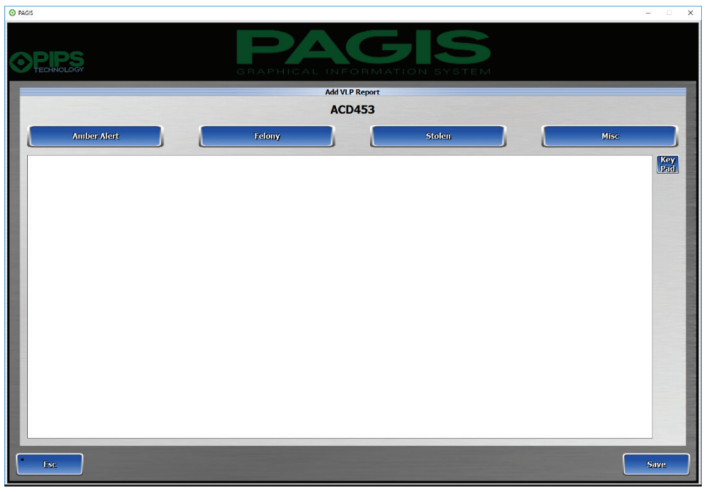
Note: Wild card searches can also be performed using the * and _ characters. The asterisk (*) designates an unknown number of characters while the underscore (_) indicates a single missing or unknown character. To search for a plate number with the characters J and 8, entering "*J_8*" will display all records containing J and 8 separated by one character.

- Press **Clear** to clear the content of the text box.
- Press **Esc** to return to the Live View screen.

2.3.1.1 Adding a VLP Report

If a VLP query does not return a match for a searched license plate, the Add VLP Report will be displayed and can be used to add the plate to the Manual Reports database. The plate number searched will appear near the top of the screen. Under it are the following buttons, including four alert options.

- **Amber Alert –** Flags the current entry with an Amber Alert.
- **Felony –** Flags the current entry as used in a felony.
- **Stolen –** Marks the current plate as a stolen vehicle.
- **Misc –** Flags the current entry as a miscellaneous offense and can be used to classify the plate as other than Amber Alert, Felony, or Stolen in the additional information you add to the text box.
- **Text Box –** The alert option selected will display in the text box. Additional text can be entered for documentation purposes.
- **Key Pad –** Press to activate an on-screen keypad, for use with a touch screen monitor or with a mouse, to add information to the text box.
- **Esc –** Returns you to the Search Entry screen.
- **Save –** Updates the Manual Reports database with the new information.



To add a VLP report:

1. Select **Amber Alert**, **Felony, Stolen**, or **Miscellaneous** as applicable. The license plate number with the date and time stamp will now appear in the text box.

Note: The data will NOT be saved unless you select one of these four buttons.

2. Add to the text box any additional information associated with the license plate.
3. Press **Save** to update the Manual Reports database with the new information.
4. Press **Esc** to return to the Search Entry screen.

2.4 Review

Pressing the Review button opens the Review screen, which displays a summary of data collected during the shift in four categories:

• Reads- shows two counts: the total number of reads synced to BOSS (in Disk Sync mode this will always be zero) and the total number of reads captured during the shift.

• Hits- the total number of hits that have occurred during the shift.

• Misreads- the total number of reads marked as misreads during the shift.

• Audits- shows two counts: the number of audits synced to BOSS (again, in Disk Sync mode, this will always be zero) and the total number of audits during the shift.



The buttons on the Review screen allow you to review the information collected in the four categories plus the available databases. On the screen for each type of information, you can scroll through every item in the category.

Hits – Displays the hit alerts for VLP reads that matched plates in the database(s).

Reads – Displays all plate detections that have occurred since the last End Shift sync.

Audits – Displays failed and successful logons, any manual data entered during the shift, and all manual license plate searches.

Misreads – Displays reads and/or hits that have been manually flagged during the shift as misreads, where the plate number in the image does not match the OCR interpretation of the plate (e.g., a letter O misread as a Q or zero).

Databases – Takes you to the Database screen and all the databases currently in the PAGIS Software.

Esc – Returns you to the previous screen.

2.4.1 Hits



To review hits, you can access the Hits screen from the Review screen. Also, whenever a hit occurs (i.e., whenever a VLP read matches a database entry), the PAGIS Software sounds an alarm and automatically displays the Hits screen with the database information to alert the user.

At the top of the screen there is information about the specific hit:

Camera Name – The name of the camera ("Right Park" in the screen shot) from which the hit originated.

GPS Location – The GPS coordinates for the hit. If a GPS device is not attached, the location is displayed as 0,0 for longitude and latitude.

Date and Time Stamp – The date and time when the system captured the VLP, with all associated data, and confirmed it as a hit.

Patch Image – A thumbnail image of the license plate.

OCR Text – The character string that the OCR engine matched to the current plate patch. If it was a misread, you can click or tap on the text, which takes you to the on-screen keypad where you can correct the license plate and flag it as a misread. Note: The plate will then be saved as a misread and can only be viewed from the Misreads screen.

Overview Image – An overview image of the vehicle, displayed in color when available.

Target – A person of interest associated with the plate. If a hit has associated targets, the number of targets found will display at the top of the Hits screen. The user can click on that message to display the target information. You can also access information on a target by pressing the Target button on the Admin Main Menu.

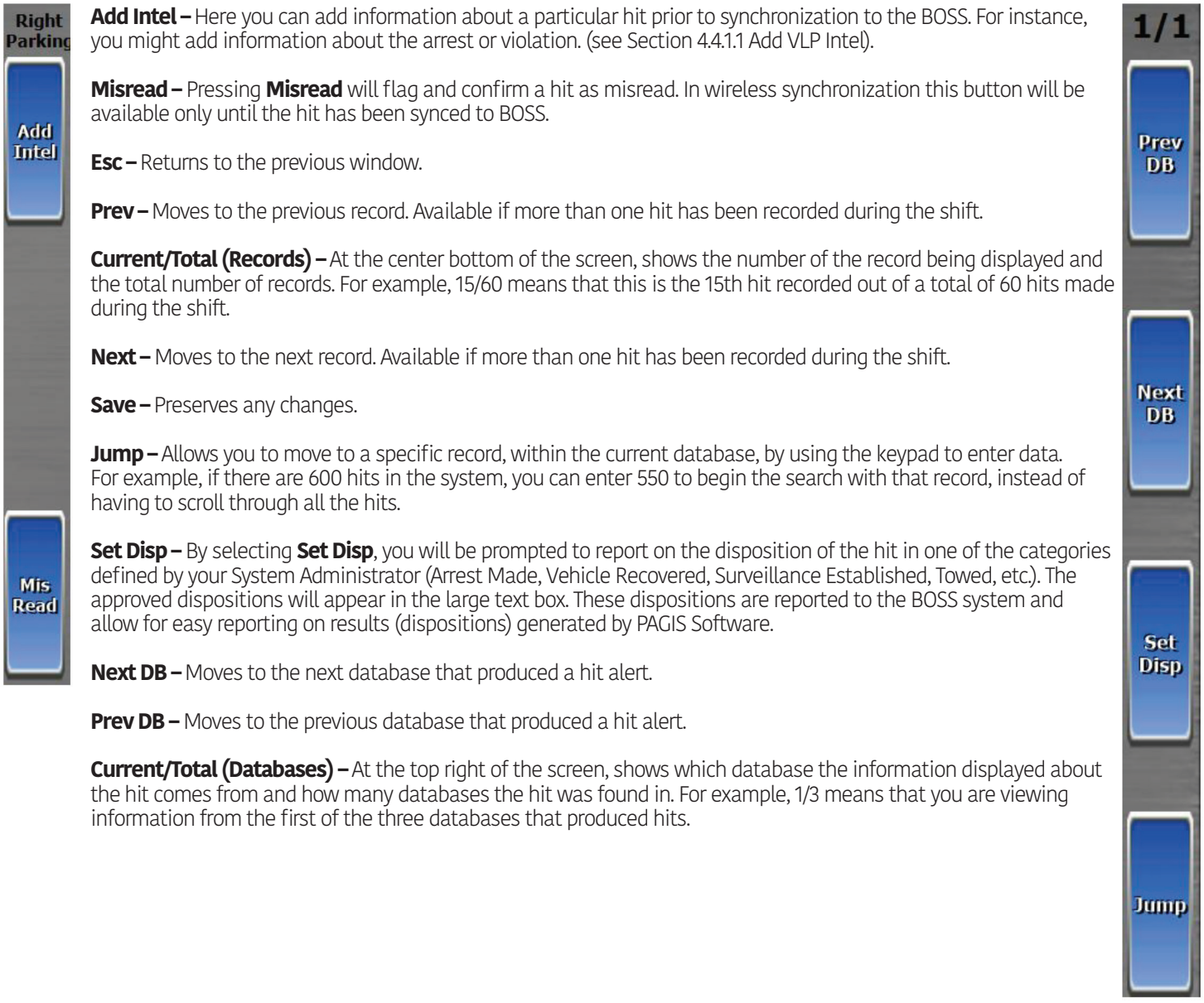
Database – In the center of the Hits screen, the database that the plate was found in will be listed.

Information – Any information related to the vehicle that has been extracted from the database where the VLP was found will appear in text on the right side of the screen. Information manually added by the user will appear in the large text box at the bottom of the screen.

Typically, a database can contain:

- The VLP.
- Vehicle color, make and model.
- An action to take with the vehicle, a reason for the action, and general information about the offending vehicle.

The buttons around the edges of screen (listed from the top left, down, across, and up the right side) provide other functions:



Add Intel – Here you can add information about a particular hit prior to synchronization to the BOSS. For instance, you might add information about the arrest or violation. (see Section 4.4.1.1 Add VLP Intel).

Misread – Pressing **Misread** will flag and confirm a hit as misread. In wireless synchronization this button will be available only until the hit has been synced to BOSS.

Esc – Returns to the previous window.

Prev – Moves to the previous record. Available if more than one hit has been recorded during the shift.

Current/Total (Records) – At the center bottom of the screen, shows the number of the record being displayed and the total number of records. For example, 15/60 means that this is the 15th hit recorded out of a total of 60 hits made during the shift.

Next – Moves to the next record. Available if more than one hit has been recorded during the shift.

Save – Preserves any changes.

Jump – Allows you to move to a specific record, within the current database, by using the keypad to enter data. For example, if there are 600 hits in the system, you can enter 550 to begin the search with that record, instead of having to scroll through all the hits.

Set Disp – By selecting **Set Disp**, you will be prompted to report on the disposition of the hit in one of the categories defined by your System Administrator (Arrest Made, Vehicle Recovered, Surveillance Established, Towed, etc.). The approved dispositions will appear in the large text box. These dispositions are reported to the BOSS system and allow for easy reporting on results (dispositions) generated by PAGIS Software.

Next DB – Moves to the next database that produced a hit alert.

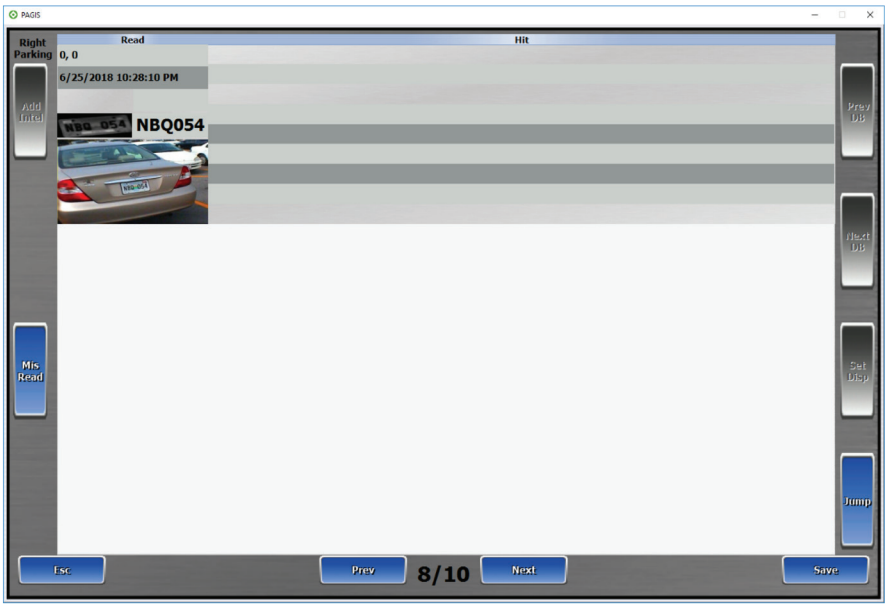
Prev DB – Moves to the previous database that produced a hit alert.

Current/Total (Databases) – At the top right of the screen, shows which database the information displayed about the hit comes from and how many databases the hit was found in. For example, 1/3 means that you are viewing information from the first of the three databases that produced hits.

2.4.1.1 Add VLP Intel

Pressing the Add Intel buttons opens the **Add VLP** Intel screen. Possible outcomes for the hit (Towed, Arrest, Not Recovered, and Misc) are listed across the top of the screen. Press the keypad to enter additional information about the hit in the text box. Press **Save** to save the data entered, which will now also appear on the Hits screen for this record. The Add Intel feature is available prior to synchronization to the BOSS.

2.4.2 Reads



To review reads you can access the Reads screen from either the Review screen or the Live View screen. The Reads screen is the general image review area.

At the top of the screen there is information about the specific read:

Camera Name – Displays the name of the camera that captured the read.

GPS Location – Your vehicle location at the time of the read. The coordinates are received from a GPS device if one is attached.

Date and Time Stamp – Displays the date and time when the vehicle image was recorded.

Patch Image – Shows a thumbnail image of the license plate.

OCR Text – The character string that the OCR engine matched to the current plate patch. If it was a misread, you can click or tap on the text, which takes you to the on-screen keypad where you can correct the license plate and flag it as a misread.

Note: The plate will then be saved as a misread and can only be viewed from the Misreads screen.

Overview Image – Displays an overview image of the vehicle, in color when available.

The buttons around the edges of screen (listed from the top left, down, across, and up the right side) provide other functions:

Add Intel – This button is grayed out (unavailable) on the reads screen because additional information doesn't need to be added to a read.

Misread – Pressing Misread will flag and confirm a read or hit as misread. The user is not expected to correct the read at that time. In wireless synchronization, available only until the read has been synced to BOSS.

Esc – Returns to the previous window.

Prev – Moves to the previous record.

Current/Total (Records) – These numbers, at the center bottom shows the number of the read record being displayed and the total number of reads. For example, 5/40 means that this is the fifth read recorded out of a total of 40 reads made during the shift.

Next – Moves to the next record.

Save – Preserves any changes.

Jump – Allows you to move to a specific record, within the current database, by using the keypad to enter data.

Set Disp – This button is grayed out (unavailable) on the Reads screen because, when there is not a hit, no action needs to be taken.

Next DB – This button is grayed out because reads are not found in any databases.

Prev DB – This button is grayed out because reads are not found in any databases.

2.4.3 Misreads

When a license plate hit or read has been marked as a misread, it will be listed in this screen. Using the Misreads screen, you can edit or update misreads.

Camera Name – Displays the name of the camera that captured the read.

GPS Location – The location of the PAGIS Software vehicle at the time of the read. The coordinates are received from a GPS device if one is attached.

Date and Time Stamp – Displays the date and time when the vehicle image was recorded.

Patch Image – Shows a thumbnail image of the license plate.

OCR Text – The character string that the OCR engine matched to the current plate patch. If it was misread, you can click or tap on the text, which takes you to the on-screen keypad where you can correct the license plate.

Overview Image – Displays an overview image of the vehicle, in color when available.

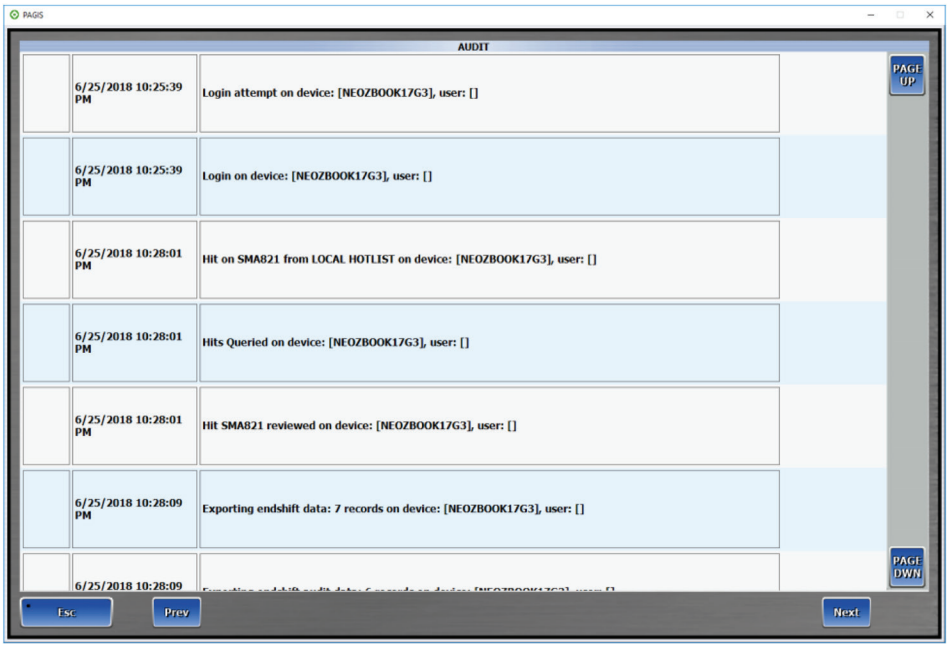
Add Intel – This button is grayed out on the Misreads screen.

Misread – This button is grayed out on the Misreads screen.

Set Disp – This button is available on the Misreads screen only if the misread was originally a hit. Otherwise, it will be grayed out (unavailable).

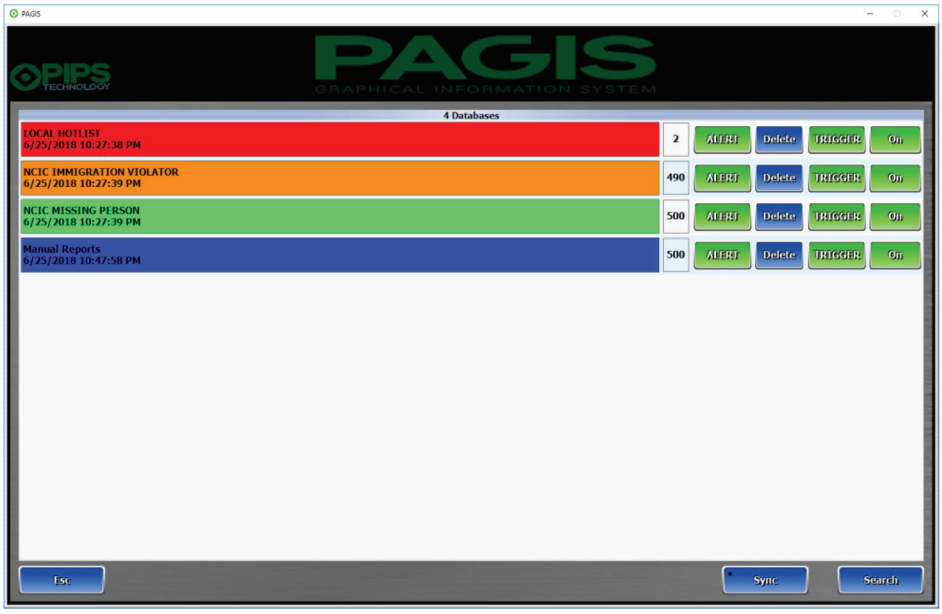
2.4.4 Audits

The Audits screen provides a log of various actions taken during the current shift, including searches, synchronizations, hits, etc. Performing an End Shift or syncing the database clears the log.



2.4.5 Databases

The Database screen is opened by pressing **Database** from the Review or the Admin screen. Databases can be toggled on and off and deleted from this screen in each individual PAGIS Software vehicle.



Database Name – Displays the name of the database (BOSS hotlist) in the field, along with the date and time stamp showing the last database synchronization.

Priority – Database priority is shown by the number in the second column (100-999), as determined by the System Administrator.

The lower the number, the higher the database priority; that is, a hotlist with a priority of 100 has the highest priority. By default, the Manual Reports database created by the PAGIS Software has a priority of 500.
Delete – Removes the database from the current session. Because databases are managed in BOSS, if the deleted database has not been removed from the BOSS deployment list, it will be added back on the next synchronization either via the atomically sync cycle every 30sec or during begin shift.

Trigger/No Trg – If **Trigger** is on, the software sends a signal to a com port on the mobile processor and any device (such as a video, light or siren) connected through this port will active the device during an alert.

On/Off – Database status indicator. A green On button indicates that the database is active. A red **Off** button shows that the database is inactive and hits will not be generated from that database in PAGIS.

Alert/No Alert- When this button is clicked it will switch from "Alert" or to "No Alert" depending on its previous state. "Alert" means the PAGIS user will be alerted if a hit is triggered. If "No Alert" is displayed the PAGIS user will not be notified of alert but the alert will still occur in BOSS. This setting is not available by default in PAGIS, the administrator must alter the "PAGIS.exe.config" file and set <add key="AllowDisabledAlerts" value="true"/>, PAGIS must be restarted for changes to take effect.

Prev – Displays the previous page of listed databases.

Next – Displays the next page of listed databases.

Esc – Returns the user to the previous screen.

Sync – Causes the PAGIS Software to check for new data and add it to the current database. Old data is also removed from the software.

Search – Opens the Search screen.

2.4.5.1 Activating and Deactivating Databases

A database can be toggled by pressing the On/Off button beside the database name. If a database is active, plates will be compared against it. If a database is inactive, it will be ignored when plates are being checked. Active databases are highlighted in green. The steps are as follows:

1. From the Database screen, scroll to find the database to activate or deactivate. If there are more databases than the screen can display at once, use the **Next** and **Prev** buttons to page through them.
2. To activate or deactivate a database, click **On** or **Off** next to the database name. The button's color will change from green to red, or vice versa, to reflect the change.
3. The database can be reactivated by reversing the process.

Pressing Delete will remove both active and deactivated database from your current session in PAGIS. The database will reappear after the software is next synced to BOSS.

2.5 Begin Shift

A “shift” typically means the user’s tour of duty and/or the amount of time when he/she starts a shift and ends a shift. The PAGIS Software imports and stores data that is used during a shift, such as BOSS hotlists, dispositions, and targets.
If the PAGIS Software has been set by the Administrator to Disk Sync (e.g., to sync to a USB flash drive), check to confirm that you have access to the synchronization location before attempting **Begin Shift**. If the PAGIS Software has been set up to sync over a wireless network, it will do so automatically when the application starts and when you press **Begin Shif**t.

At the start of a new shift, after you have logged on and the Live View screen appears, press **Begin Shift** twice, which synchronizes PAGIS with BOSS downloading any new or updated database information including users and dispositions. After you press **Begin Shift**, the status of any updates will be displayed.

Depending on the synchronize configuration in BOSS, whenever synchronization occurs, BOSS can transfer only the changes made to a database rather than transferring the entire database. This is particularly important when working with very large database files because it will reduce the amount of data transferred over the network. *See the PIPS Back Office System Software User’s Manual for more information.*

2.6 End Shift

At the end of a shift, saved data should be exported either wirelessly or via the USB flash drive, to the central databases in the Back Office System Software. No data is lost if the PAGIS Software is closed without synchronizing or using the **End Shift** command.

To export the current data and end the shift, press **End Shift** twice. If using a USB flash drive to store the data, remove it from the MDC or from the mobile processor and follow the procedures in the Back Office System Software User’s Manual to download it to BOSS.

End Shift purges previous reads from the local database as well as the Manual Reports database. Pressing **End Shift**, even in a wireless setup, syncs any data not yet synced to the Back Office System Software and then removes it.
If the PAGIS Software is set to Disk Sync, check to confirm that you have access to the synchronization location before attempting an **End Shift**.

2.7 Cam Mode

Clicking the **Cam Mode** button allows you to cycle through the Camera configurations that have been added to the system. In those configurations the cameras being displayed on the Live View screen can be changed.

By default, there are two configurations created, **Parking** and **Traffic**, which can be set up so that the cameras associated with those modes are displayed on the Live View screen. For example, when the system is being used to capture reads in a parking lot, the Cam Mode can be set to **Parking**. In the Parking configuration, the images could be coming from the cameras positioned in the middle or back of the car will be displayed on the Live View screen. The front cameras can be selected as the hidden cameras. Reads from the front view cameras will be captured in the database but will not be displayed on the Live View screen. The camera’s current mode displays on the Cam Mode button.

2.8 Admin Main Menu

Pressing **Admin** on the Live View screen takes you to the Admin Main Menu, a central location for accessing the PAGIS Software's functions, including all those that require administrative privileges. The Admin Main Menu also displays the cameras configured in the system, the GPS location, and if a camera is active or not. The camera status windows only displays active cameras that have recently captured a plates.



The Device Status table provides a status of the devices connected to the Mobile Processor. The information displayed includes:

Device – a device that is connected to the Mobile Processor. It is named in the Admin\Camera configuration screen.
Active – The recent status of the device, includes the time and date of last confirmed connection between the Mobile Processor and the attached camera.
GPS – The GPS coordinates captured at the time of the last confirmed connection.
The screens available from Admin Main Menu are described in the sections that follow. Note that the Review, Live View, and Database screens have already been described in Sections 4.2 (Live View), 4.4 (Review), and 4.4.5 (Database). The **Logout** button logs the current user out of the system.

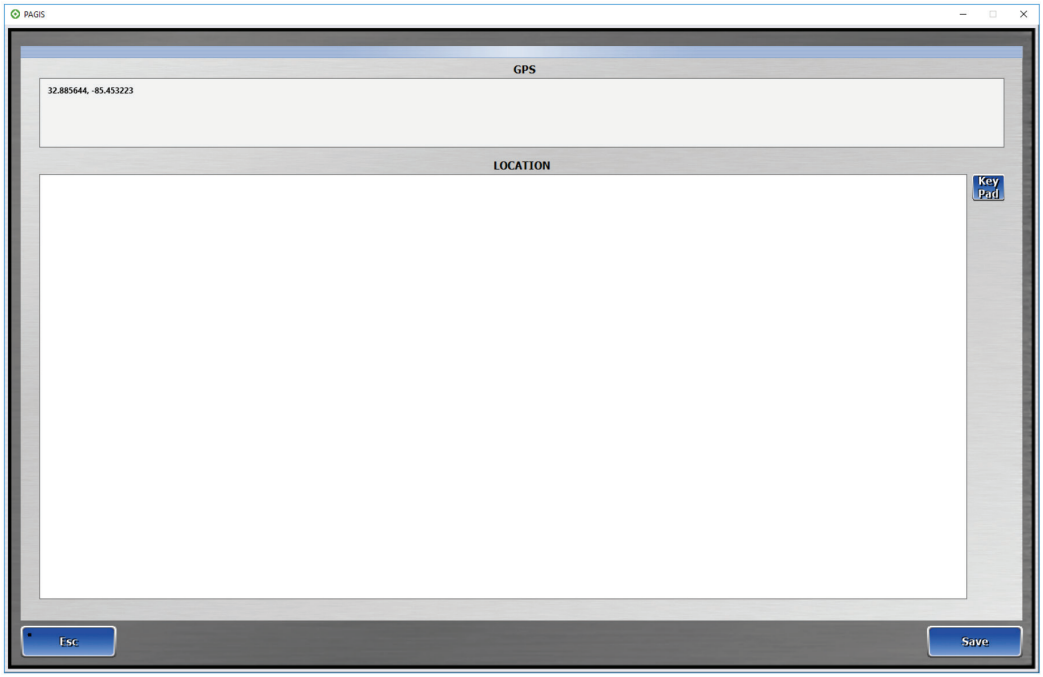
2.8.1 Review

Opens the Review screen to display all data collected during the current shift or before the user activated the **End Shift** button. *For a description of the functions available on the Review screen, go to Section 4.4.*

2.8.2 Location

The Location screen provides an additional area where the user is able to associate the current GPS coordinates with a location. This feature is not currently used and will be redesigned in a future version.

GPS Text Box – When an attached GPS device resolves the current coordinates, they will be displayed here when the screen is opened.
Location Text Box – This is a free-text entry box. The user can enter a location description that is associated with the GPS coordinates listed in the GPS text box.
Save – Press the Save button to save the information.
Esc – Return to the Admin Menu screen.



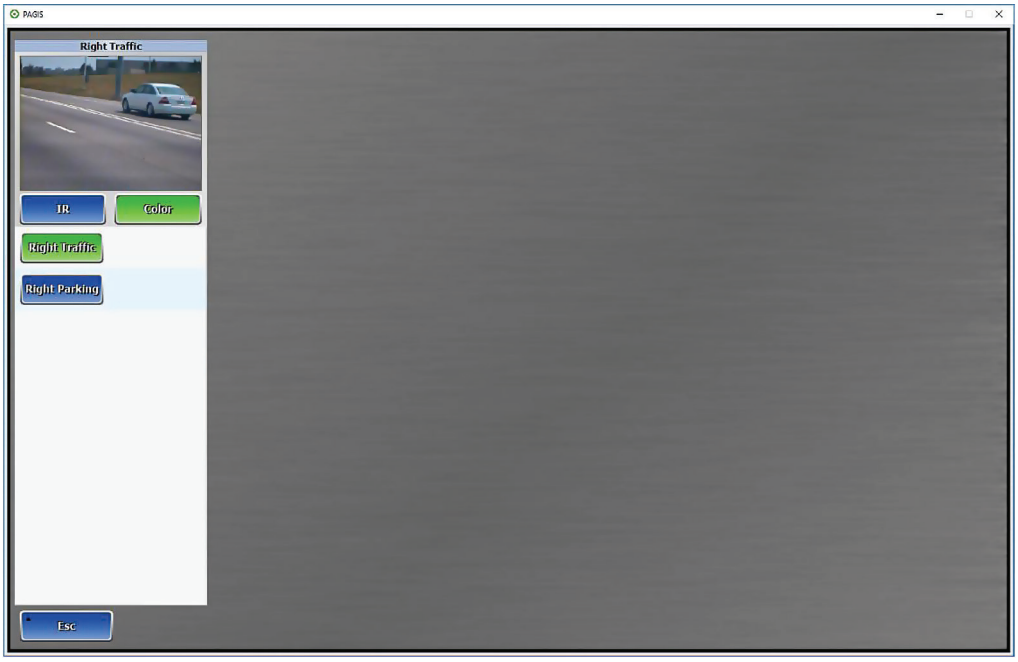
2.8.3 Cam Setup

The Cam Setup screen lets you preview camera or lane images. The buttons allow the user to select each of the configured cameras. Administrators can also preview the camera output after adding or editing and configuring cameras *(as described in Sections 4.8.6.11 – 4.8.6.13)*. The exact preview buttons displayed on the screen will depend on the number of cameras installed and how they are configured.

IR – Displays the infrared images from the selected camera.
Color – Displays the color input from the selected camera.
Camera Name (also called Lane Name) – During camera configuration, the Administrator assigns a name to each camera. The camera name will display above the image, and a button will show for each named camera.
Esc – Return to the previously viewed screen.

To verify the camera output and proper alignment of each configured camera:

1. Click Cam Setup to display the **Cam Setup** screen shown below. The same task of aligning the cameras can also be done in the Main live view screen by clicking the “COL” and “IR” live feed buttons.
2. On this screen, click a camera button to view a specific camera output.

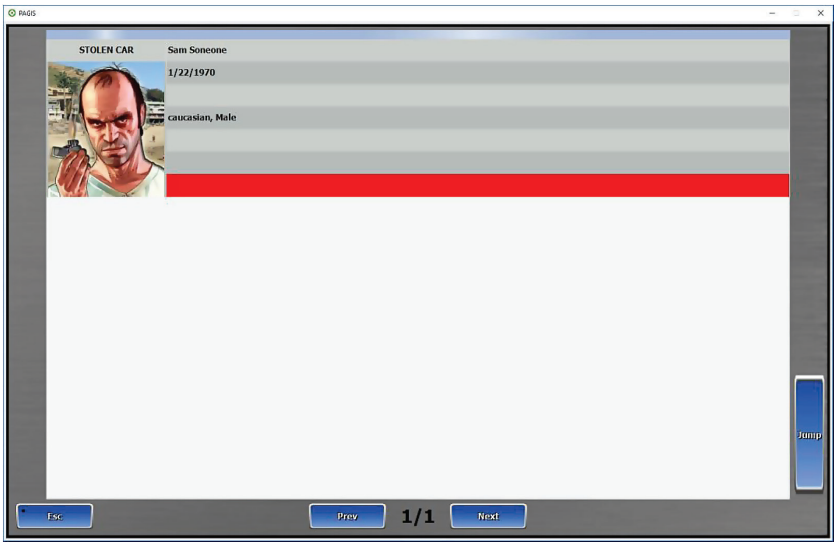


2.8.4 Database

The Database screen displays active databases (BOSS hotlists) and allows you to turn lists on or off, search through the lists, and delete currently active lists. *The functions of the Database screen are described in Section 4.4.5.*

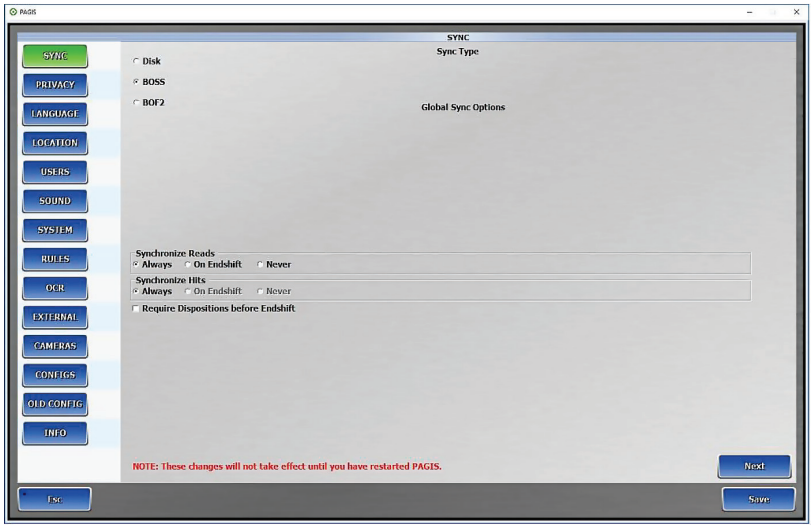
2.8.5 Targets

The Targets screen displays information about suspects matched with license plates. Targets are downloaded into the PAGIS Software's Targets list from the Back Office System Software.



Prev – Displays the previous entry.
Next – Displays the next entry.
Esc – Returns to the previously viewed screen.
Jump – Allows you to move to a specified record using the keypad.

2.8.5 Targets



The second Admin screen controls the PAGIS Software options set by the Administrator, such as language, sounds, users and user privileges, GPS unit, cameras, sync folder, access to external databases and devices, configurations, and system settings. These options are explained in the following sections.
The buttons to access these functions are listed on the left side of the Admin screen. Navigational and other functional buttons on this Admin screen are:

Page Up – Displays the previous set of options.

Page Down – Displays the next set of options.

Esc – Returns to the Admin Main Menu screen.

Save – Preserves any changes made.

2.8.6.1 Sync

The PAGIS Software stores information in local databases, which can be synchronized with other databases. If the PAGIS Software is configured to communicate wirelessly to BOSS, the user can manually start a sync by pressing the **Begin Shift**, the **End Shift**, or the Sync button. Synchronization is also done automatically. If the software is configured to transfer information via disk sync, the files that need to be synced are stored in a synchronization folder. There are two synchronization folders: Begin Shift and End Shift. The Begin Shift folder contains data to be imported into the PAGIS Software; the End Shift folder holds data exported at the end of a shift.

On the Sync screen Administrators can set or change the synchronization method and specify the location of the sync folder used by the PAGIS Software to import and export data at the beginning and end of a shift. By default, the sync folder is set to the local disk. However, you can establish synchronization folders with any path name. Both synchronization to disk and wireless synchronization to the PIPS Back Office System Software are available on the Sync screen. A third sync option, BOF2, or Instation, is mostly used in Europe and is described in Appendix 6.5.

Note: The changes made in the Sync screens will not take effect until the PAGIS Software has been restarted.

2.8.6.1.1 Synchronization to a Local Disk or Flash Drive

If you choose Disk, with the sync folders residing on a USB flash drive, make sure the flash drive assigned to the user has adequate space to accommodate the file size of all the databases that will be imported and exported. Folder sizes vary depending upon the number of entries and the number of databases.

1. At the top of the Sync screen, select **Disk** for a local disk (on the MDC or the mobile processor) or USB flash drive.
2. On Global Sync Options follow the steps in Section 4.8.6.1.3.
3. Then press **Next**.
4. In the text box that displays, use either the keypad or the keyboard to enter the folder's location. By default, Drive C is selected.

Note: Since most customers who use the Disk mode store and transfer files on a USB flash drive, the path name would be that for the flash drive.

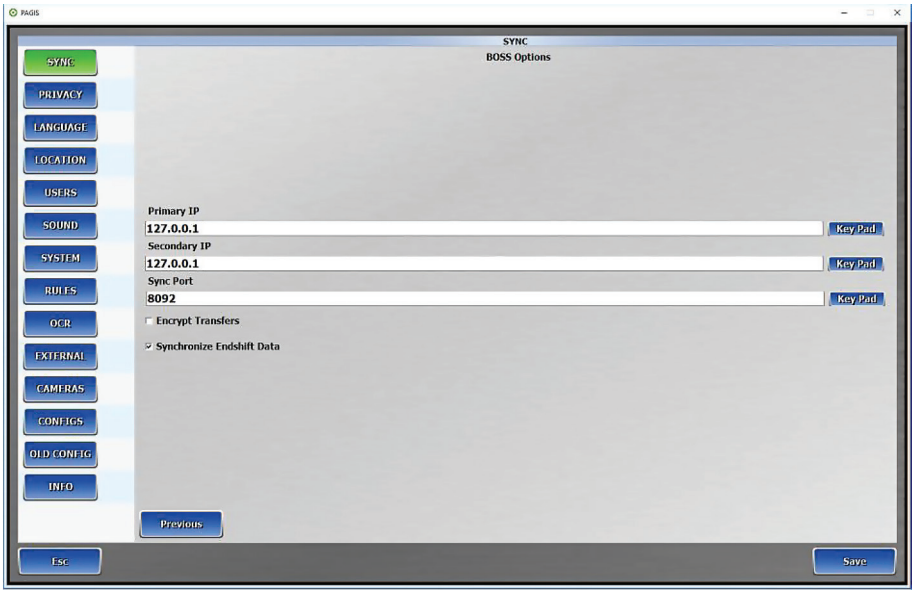
5. Under Disk Options, make a choice whether to:
   a. Delete Begin Shift data on sync: If this option is selected, the sync folder will be deleted once all of the data has been imported into the PAGIS Software. This option is "on" by default.
   b. Encrypt End Shift data: If this option is selected, the end shift files created by the PAGIS Software will be encrypted. This option is "off" by default.
   c. Copy End Shift data on sync: If this option is selected, the End Shift folder will be created and the End Shift files will be stored there. This option is "on" by default.

Note: If this option is "off," the End Shift files will not be created. The shift data will be cleared, but no reads will be sent to BOSS.

   d. Keep only updated databases. If this option is selected, any databases that were not updated during Begin Shift will be considered outdated and removed. This option is "off" by default.
6. Press Save to save these settings.
7. Press Esc to return to the Admin screen, or press Prev to return to the previous Sync screen.

2.8.6.1.2 Wireless Synchronization with BOSS

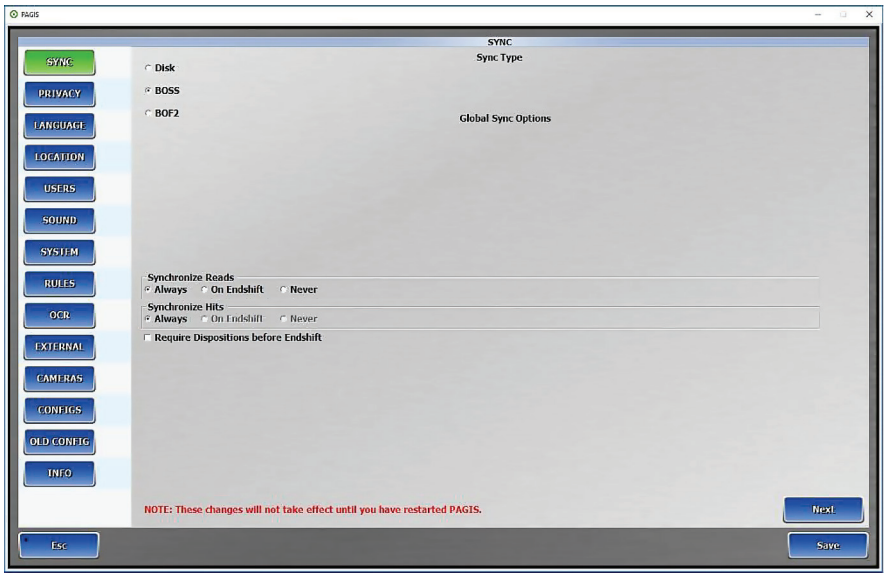
If you choose to establish **BOSS** as the synchronization method, the user MUST have wireless access to the network to successfully sync at the beginning and end of a shift. You must also have an IP address of the BOSS server that is reachable via port 8092. After syncing with the Back Office System Software, data is flagged in the database to prevent duplicate syncing.



1. At the top of the Sync screen, select **BOSS** to sync by wireless access to the PIPS Back Office System Software.
2. On Global Sync Options, follow the steps in Section 2.8.6.1.3.
3. Then press **Next**.
4. In the text boxes that display under BOSS Options, use either the keypad or the keyboard to enter the primary and secondary IP addresses and the sync port of the Back Office System Software server. The default is port 8092.
5. Also under BOSS Options, decide whether to:
   a. Enable data encryption by checking “Encrypt Transfers,” and
   b. To send data to BOSS when a shift ends by checking “Synchronize End Shift Data.” This option is on by default.
6. Press **Save** to save the changes.
7. Press **Esc** to return to the Admin screen, or press **Prev** to return to the previous Sync screen.

2.8.6.1.3 Global Sync Options

The PAGIS Software can also provide usage information to the Back Office System Software system so statistical reports can be generated, while allowing privacy rules to be adhered to. Because organizations differ in their privacy rules and in the types of information they want to capture, Global Sync Options on the Sync screen help meet those varying needs.



Under Global Sync Options there are two settings: **Reads** and **Hits**. Each of these has three options: **Always**, **On Endshift**, and **Never**. The option selected for Reads controls which options are available for Hits:

- Selecting **Always** means that reads and hits are always going to be synced to the Back Office System Software.
- Selecting **On Endshift** means that syncing will only occur upon End Shift or Sync.
- Selecting **Never** means that information gathered in the PAGIS Software will be "sanitized" as it is being sent to the Back Office System Software.

Note: If the PAGIS Software system is configured for the disk sync type, then the Always and On Endshift functions are the same.

The Reads selection will determine the options available for hits:

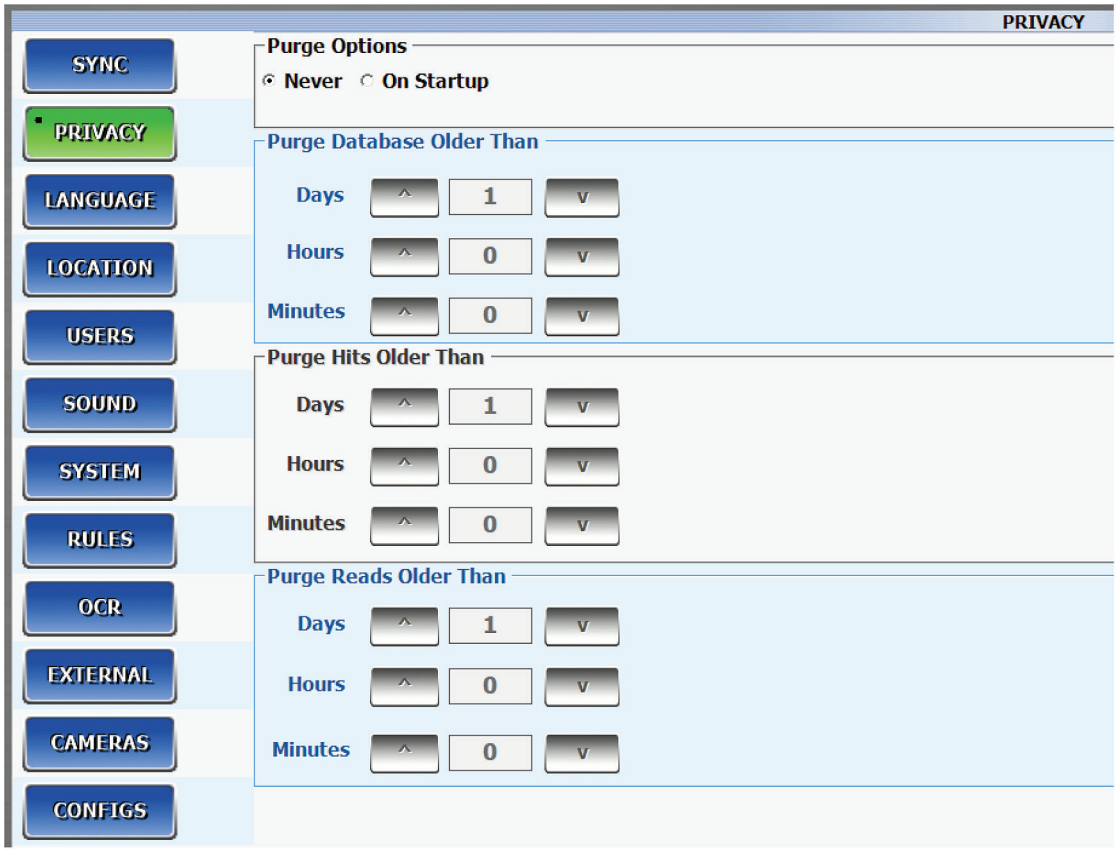
For the Reads Option Selected:	**Always**	**On Endshift**	**Never**
The Available Hits Options Are:	Always	Always On Endshift	Always On Endshift Never

Checking the "Require Dispositions before Endshift" box will require the user to enter a disposition (result or action taken) for each of the hits that occurred since the last sync.

2.8.6.2 Privacy Settings

PAGIS Software offers privacy settings, a new feature that allows the Administrator to ensure the validity and confidentiality of the information obtained by the ALPR system. This feature is completely configurable, providing an operationally effective means of ensuring that regulatory or procedural requirements are adhered to.

Using the settings on the Privacy screen ensures that information captured by and stored in the system can be removed or obscured ("sanitized") by the Administrator in a controlled manner. These configurable settings control the length of time, in days, hours, and minutes, that read or hit information can be maintained. Therefore, an individual's personal and identifiable information, namely their license plate image and deciphered license plate number, is removed from a saved record. These settings also permit the Administrator to control the currency and validity of the databases being used by the system.



2.8.6.2.1 Never Option

The Never option allows a PAGIS Software system to continue without the influence of Privacy settings. If this option is selected, the users of the PAGIS Software system will continue to be responsible for any actions required to protect the stored information and to ensure the validity of the databases being used.

Note: If the configurable time settings are set to 0, as they are by default, the system responds as if the Never option has been chosen.

If the **Never** option is selected, the time settings will be disabled. In the event that the Privacy settings had been previously enabled and time information had been configured, those settings will be retained even if the system is later reset to **Never**.

2.8.6.2.2 On Startup Option

Selecting **On Startup** allows the System Administrator to configure how the system manages databases, hits, and reads; these settings are described below. With **On Startup** selected, each time the PAGIS Software application is restarted, it checks these settings and evaluates whether existing information has exceeded the allowable age.

2.8.6.2.3 Purge Database Older Than Setting

This setting allows the Administrator to control how frequently the databases stored on the system are removed. For example, if a database, "Expired Plates Hotlist," was added to the PAGIS Software 3 days ago and the **Purge Database Older Than** settings are set to 2 days, then the next time the PAGIS Software is restarted, "Expired Plates Hotlist" will be removed.

2.8.6.2.4 Purge Hits Older Than Setting

This setting allows the Administrator to control how frequently the hits stored in the PAGIS Software are sanitized. For example, if any hits in the PAGIS Software were captured during a shift a week earlier (7 days ago) and **Purge Hits Older Than** is set to 4 days and 5 hours, then the next time the PAGIS Software is restarted, those hits will be sanitized.

2.8.6.2.5 Purge Reads Older Than Setting

This setting allows the Administrator to control how frequently the reads stored in the PAGIS Software are sanitized. For example, if reads were captured during a shift a month earlier (30 days ago) and the **Purge Reads Older Than** settings are set to 25 days, the next time the PAGIS Software is restarted, reads more than 25 days old will be sanitized.

Note: Once reads and hits have been sanitized, they can no longer be viewed in the PAGIS Software. However, they are retained in the system until an **End Shift** or **Sync** is performed.

2.8.6.3 Language

The Language screen lets you change the language assignment used in the PAGIS Software. Available languages are listed in the drop-down box and are added during the installation process.

2.8.6.4 Location

Any name entered in the location field is listed as the default system location. The information is not tied to the GPS location.

2.8.6.5 Users

The Users screen lets you add users, set their privileges, and delete users from the PAGIS Software.

Note: Adding new users through the PAGIS Software should be limited to those customers who are not syncing to the PIPS Back Office System Software.
For customers deploying both the PAGIS Software and BOSS, user accounts created in the PAGIS Software will be overwritten by the users defined in the Back Office System Software during the next sync.

You can scroll through the user list by pressing **Page Up** and **Page Down**.
Account information for each user is listed in unlabeled rows with the following fields:
Badge No. (Username) – Add a new username or badge number for an existing user. The username field will accept up to 15 alphanumeric characters.
Password – Enter a password to associate with the username. The password field will accept up to 15 alphanumeric characters.
Key Pad – Displays an on-screen keypad.
Privileges – Select the privileges associated with the entered username by clicking on the buttons defined below. After a privilege is activated, the button changes to green.

2.8.6.5.4 **Sync** – Allows the user to synchronize files.

2.8.6.5.5 **Ext** – Allows the user to access external databases.

2.8.6.5.6 **Adm** – Allows the user to configure the PAGIS Software, add and remove users, and change the options.

DO NOT choose the Adm button unless the user is being granted administrative rights.
Del – Remove a user from the list. The user is deleted the second time the Del button is pressed.
Add – Add a new user with the options selected.
Save – Add the new user to the database.
Esc – Return to the previous screen without saving changes.

The available combinations of privilege options are shown in the table (next page) according to the area of function to which the privilege applies.

	Sync Only	Ext Only	Adm Only	Ext + Adm	Sync + Ext	Sync + Adm	Sync + Ext + Adm*
Begin Shift	•	X	X	X	•	•	•
End Shift	•	X	X	X	•	•	•
Admin	X	X	•	•	X	•	•
Sync	•	X	X	X	•	•	•

• = The user has privilege X = The user doesn't have the privilege
**Sync + Ext + Adm are the privileges pre-set for the default logon setting (username = admin; password blank).*

Note: Creating a new user in the PAGIS Software deactivates the default user account. (See Section 4.1.1.)

2.8.6.6 Sound

The Sound screen associates available sound files with specific alerts and actions. You can also toggle sounds off and on by pressing **On** or **Off**. Sounds are active when the button is **On** (green) and deactivated when the button is **Off** (red).

Choosing sounds is an optional feature. Sounds are preset in the PAGIS Software and may be modified by an Administrator. By default, the PAGIS Software will play a sound to notify the user when an event or "hit" is triggered. Sound files (.wav file format) are stored in the Sounds folder in the PAGIS Software directory.

Tip: Custom sound files (.wav file format) may be uploaded into the Sounds folder of the PAGIS Software directory by the Administrator. The user may identify the nature of the hit more easily if distinctive sounds are associated with different types of hits or events.

To disable or enable sounds:

1. Press **Sound** to open the Sound screen.
2. To toggle a sound to **On**, press the button showing **Off**. The button will changed from red to green, and the sound will be on.
3. To test the sound, press **Play**.
4. To toggle a sound to **Off**, press the button showing **On**. The button will change from green and red and the sound will be off.

To change a sound associated with a specific predefined event:

1. Choose an event by scrolling through the list using **Page Up** or **Page Down** on the right side of the screen.
2. Select a new sound by pressing the ellipses (...) button to browse to and select a new sound file from the sound folder in the PAGIS Software directory.
3. You can preview the sound by pressing the **Play** button.
4. Press **Save** to apply the changes.

2.8.6.7 System

The System screen determines external system connections and assigns connection string ports to cameras and to the external GPS unit. The GPS connection string refers most commonly to the COM port, although it may also refer to the IP address or serial port IP_Address:TCP_Port.

You can change the computer, ports, and GPS connection strings by clicking in the text box and entering the text using the keyboard or the keypad. Press the **Save** button to save changes. You must exit and restart the PAGIS Software for any changes to take effect.

2.8.6.7.1 Configuring System Connection Strings

To set the COM ports:

1. From the System screen, verify that the appropriate system type is chosen. If necessary, choose the system type by clicking the button next to the desired type. When using the PIPS Mobile ANPR/ALPR Processor, the default setting is “Default.”
2. Verify that the GPS Connection String is correct (see next section). The default setting is “5.”
3. Press **Save** to save the changes or **Esc** to return to the previous screen and cancel any modifications.
4. Restart the PAGIS Software to activate any changes.

2.8.6.7.2 GPS Connection String

The GPS Connection String field is available when the Default, Microbus MPC2, or Motorola MW-810 system is selected. The GPS Module is a standard feature in the PAGIS Software. The PAGIS Software should be configured to work with the system-supplied GPS Module.

The GPS Connection String is blank when you are running client/server installation. The GPS Connection String is set to “5” when the PAGIS Software is running on a mobile data computer, such as a laptop, or “6” when it is running on the PIPS Mobile ANPR/ALPR Processor.

2.8.6.8 Rules

Rules provide a way to check for a commonly misread character and the read character as both options for a database match. For instance, “8” and “B” are sometimes mistaken. If the OCR engine reports a plate as ABC123, you might check both ABC123 and A8C123 against all databases to find a match. While you are less likely to miss a hit, the process can also produce more false hits. Verify that the plate read and the database match is the same.

To add a new rule on the Rules screen:

1. Click **Add** and enter a single character instance (the letter “O,” for example), and enter a list of similar characters (letter “O”, number “0”, and letter “Q” in this example).
2. With this rule defined, anytime the system reads an “O”, it will run the query for matching purposes as “O,” “0,” and “Q.” The system will not do the same when it reads a “Q.” Another rule would have to be entered to accomplish that.
3. The rule will be saved by clicking **Save**.

2.8.6.9 OCR

The OCR screen is used to enable inverse and square plate reads, to disable duplicate plate reads (if multiple cameras pick up the same plate), to show diagnostics, and to disable read correction. Each check box toggles the options: if a check mark appears, the option is active. If the box is empty, the option is disabled.

These options are explained in the table below.

Option	Action
JPEG Images	Use compressed .jpg images instead of full-resolution bitmaps. **On** by default. When this feature is activated, it minimizes storage requirements for collected data.
Inverse Plates	This feature can be useful for plates with a dark background and light lettering. **Off** by default. This option increases the processing load and therefore should remain disabled until it is needed due to the region.
Square Plates	Adjusts the read area for plates that are square instead of rectangular. **Off** by default.
Show Diagnostics	Shows a diagnostic screen if an error occurs. **Off** by default.
Disable Duplicate Read	Turns off duplicate reads. If the same plate is read by more than one camera within a short time frame, the duplicate is ignored. This minimizes storage requirements for the collected data and improves system metrics related to the number of reads. **On** by default.

2.8.6.10 External

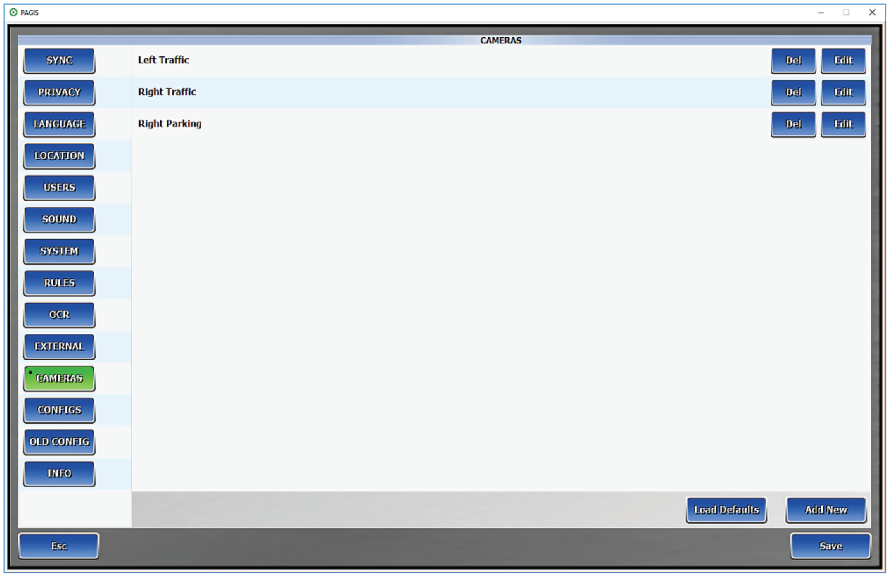
The External screen lets you connect the PAGIS Software to an external database or device. To make this connection, click the red **Off** button to change it to a green **On** button and then press **Save**. Any changes made on this screen will take place after the PAGIS Software is restarted.

Use the **Page Up** and **Page Down** buttons to scroll through the list of available databases and devices.

2.8.6.11 Cameras

The Cameras screen lets you add and identify specific cameras for use with the PAGIS Software. Because the camera configurations setup using the Configs screen are associated with Camera or Lane Names, cameras must be identified or named. Otherwise, no options will be available in the drop-down boxes for Display and Hidden cameras on the Configs screen.

On the PAGIS Software setup, the Cameras screen displays the default Camera Names. From this screen you can delete cameras, edit the Camera names, and add new cameras. Pressing **Load Defaults** on the Cameras screen will add sample cameras to the Cameras screen and sample configurations to the Configurations screen.



Adding cameras involves identifying or naming the cameras and configuring them. The following steps describe how to add a new camera from the Cameras screen. The steps must be repeated for each camera you add:

1. Press **Load Defaults**. Loading a default setting provides a base configuration to modify and is based upon a standard four- camera system. The defaults can also be used for testing purposes. Choosing a default also loads associated configuration files, which appear in the Configs screen. Select an **Edit** button to configure a camera.

Whether you are adding a new camera, or editing an active one, go through Steps 2 – 15 below to complete the setup.

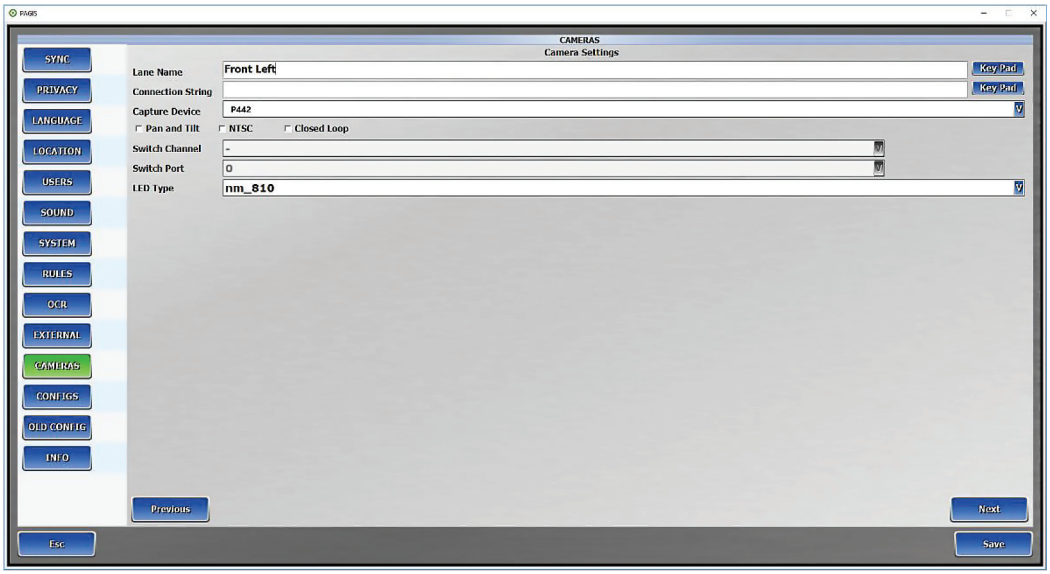
2. Either click the **Edit** button on a default camera, or click **Add New** to open the Camera Type screen, which will display the list of cameras supported by the PAGIS Software: P362, Sony, Digital Eye Witness, CCTV, IR, TSS, and P632 Slate cameras.
3. Select the button for the type of camera to be used and then press **Next** to open the Camera Settings screen (shown on page 42).
4. On the Camera Settings screen, enter a Camera (or Lane) Name. You can use the default names (Right Traffic, Left Parking, etc.) or use the keypad to type in a new one.

Note: The Camera Name must be 11 characters or less in length. Otherwise, the positional indicators and the device status information will be incomplete.

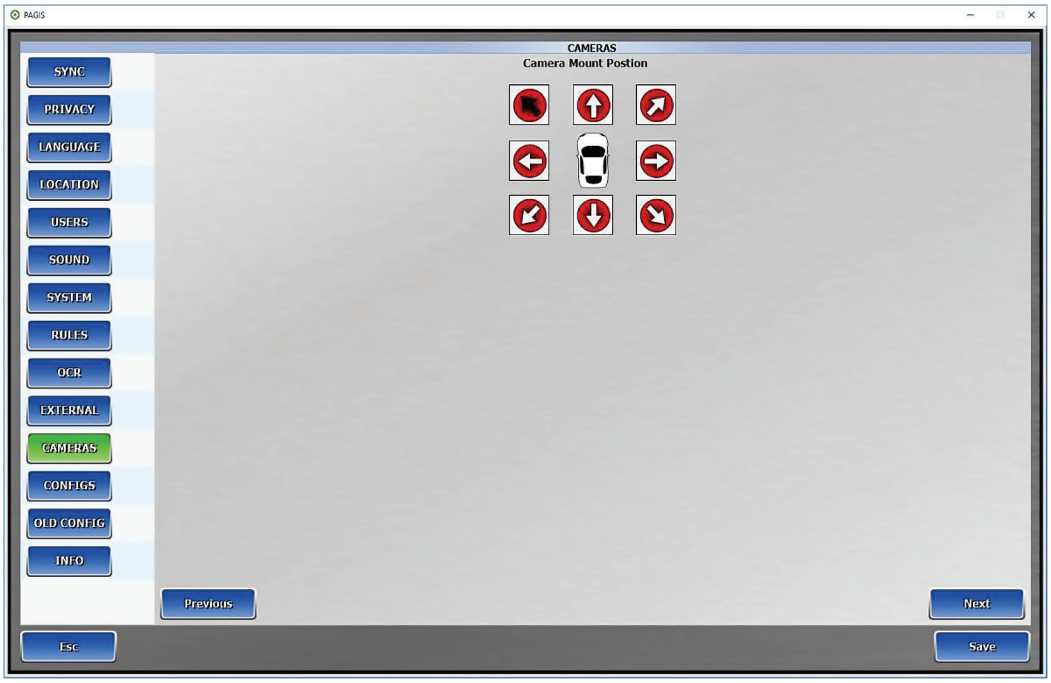
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5. Enter the device Connection String, if necessary, default setups with SX units do not require this setting.

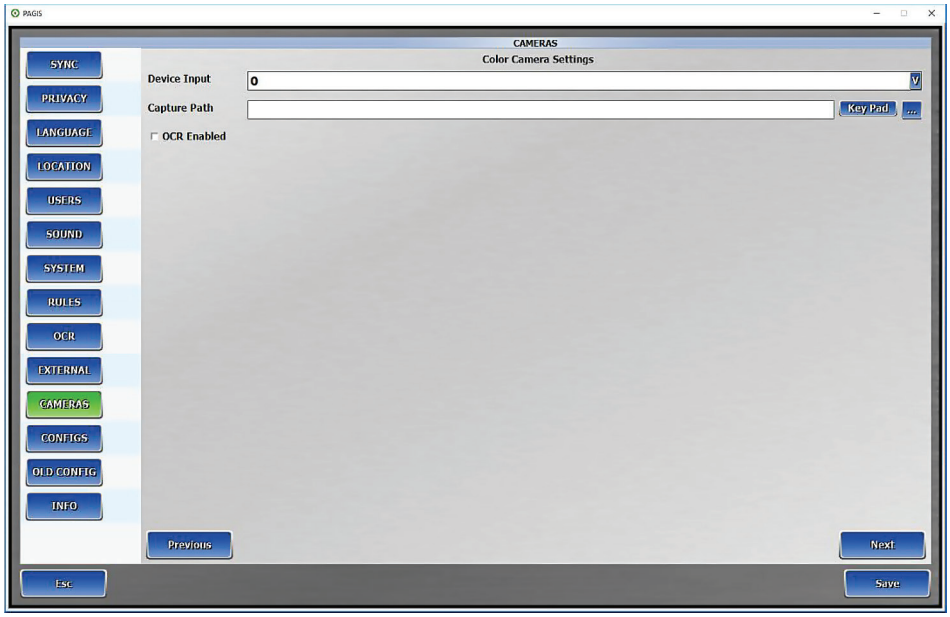
6. Enter the Capture Device, using the options available in the drop-down menu. P442 is the default for SX units.
7. The Switch Channel and Switch port are network options. The LED type is related to the camera. By default, these options are not available to change.
8. Press **Next** to open the Camera Mount Position screen.



9. On the Mount Position screen, these directional arrows represent the location of each Cameras and the direction they are pointing. Choose the desired option for the camera you are configuring by pressing one of the directional buttons. The arrow showing the chosen direction will appear in the display for that camera on the Live View screen when a hit has been detected.



10. Press **Next** to open the Color Camera Setting screen.



11. Select the device input option. For the first camera loaded select “0” for the Device Input value.
12. Using the keypad, enter a Capture Path for the camera, or press the ellipses (...) button to browse available paths. This is an optional step.
13. If the camera has a color lens only (and no IR lens), check “OCR enabled.” The likelihood of a Color Lens only is very rare but is still addressed.

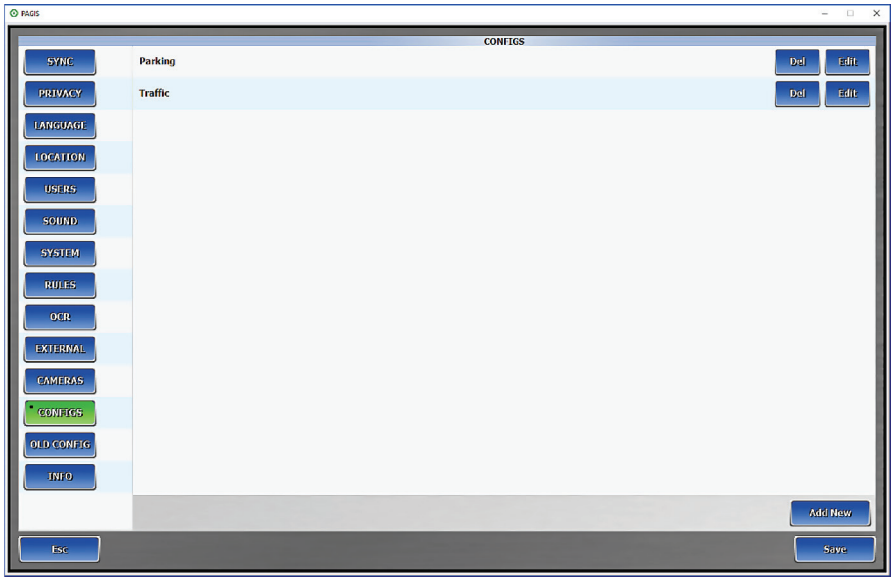
Note: Check the OCR Enabled box only for the IR lens of a PIPS mobile camera. For certain states that do not have retro-reflective plates, optical character recognition may be performed from the image captured by the color lens of the camera. When OCR is performed on a color image, the processing requirements increase and the accuracy will be somewhat diminished relative to OCR from the infrared image.

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14. Press **Next** to open the IR Camera Setting screen.
15. The IR Settings screen has the same options as the Color Setting screen. Repeat Steps 11-13. It is important to ensure that the “OCR Enabled” is checked for the IR camera.
16. Press **Save** to save the changes and return to the Cameras screen. Repeat these steps for each camera you are adding or editing.

2.8.6.12 Configs

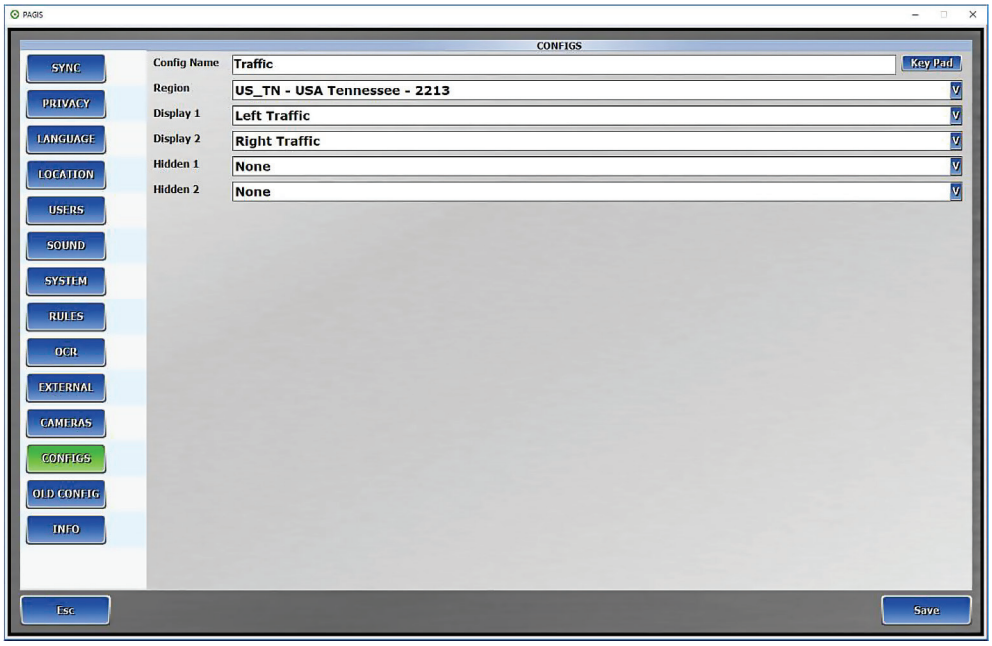
The Configs screen allows you to define how the configured cameras are displayed on the Live View screen and to set the region of the country where the Mobile System is deployed. You can also use the Configs screen to set up multiple camera configurations for parking or traffic monitoring to replicate a particular driving environment. Up to four ALPR cameras can be activated, each with color overview and infrared. Each configuration provides customized settings for cameras and lanes.



If you have loaded a default camera setup, the Configs screen will be populated with the two default configurations: Traffic and Parking. The buttons on the Configs screen are as follows:

Del – Removes the current configuration from the PAGIS Software.
Edit – Opens the Edit Configs screen where you can modify settings for the selected configuration, including selecting a region and selecting which cameras to display and to hide.
Add New – Adds a new configuration to the PAGIS Software and opens the Add Config screen.
Save – Preserves changes to the configurations.
Esc – Returns to the Main Menu.

When adding or editing a new configuration, you can assign each of the cameras you set up on the Cameras screen to Display 1, Display 2, Hidden 1, and Hidden 2, using drop-down boxes in each field on the second Configs screen (shown on page 45). While only two cameras may be displayed simultaneously on the MDC or monitor, all cameras can be processing and checking plates against the databases. When a defined “hidden” camera receives a database hit, an alert gives the user audible and visual confirmation of the hit, the Camera Name that captured the hit, and the positional arrow for that camera (if configured) as defined in Section 4.8.6.11 Step 9.



Config Name: The name of the configuration mode for the displayed and hidden cameras. When selected, this will be displayed on the Live screen's Cam Mode button. You can also define the region (e.g., entire US, a region, a given state), which will determine the options used by the OCR engine to interpret a captured license plate number.
Display 1: This camera is always displayed on the left-hand side of the Live View screen.
Display 2: This camera is always displayed on the right-hand side of the Live View screen.
Hidden 1 and 2: When populated, these cameras are functioning and performing OCR, but the images are not visible to the user. Hits and reads will still be generated by these cameras.

2.8.6.12.1 Adding a Camera Configuration

1. From the Configs screen press **Add New**.
2. Enter a Config Name in the text box: **Right Parking, Left Traffic, Parking, Traffic**, etc.
3. Choose the appropriate OCR Region from the drop-down box. The OCR engine for your region or state will already have been installed.
4. Choose options from the drop-down boxes for **Display 1, Display 2, Hidden 1**, and **Hidden 2**. The cameras configured/ listed on the Cameras screen are listed in the drop-down boxes. No matter how many ALPR cameras comprise your specific system, you have the option to have all of them processing data simultaneously if you list the cameras as "hidden."
5. Press **Save** to save the settings.
   Repeat Steps 1 through 5 for any additional configurations.
6. Press **Esc** to return to the previous screen.
   After the cameras have been configured, verify the camera input and proper alignment on the Cam Setup screen, as explained in Section 4.8.3. This screen provides a preview of camera output for each of the configured cameras.

2.8.6.13 Old Config

The Old Config screen provides all-in-one access to the camera and configuration settings for configurations imported from previous PAGIS Software installations. This screen is not meant for setting up new configurations. When the PAGIS Software is upgraded, the old configurations from the prior version appear in the Old Configs screen. These configurations can still be used. The Old Configs screen format is the same as prior versions with all information for a configuration available on one screen.

While these instructions will create a working configuration, the Configs screen is the recommended and simpler method. To use the Old Config screen:

1. Enter a name for the configuration.
2. Select the OCR Region.

Steps 3 through 13 should be repeated for each camera. For a traffic configuration, you will repeat the steps twice, once for the front left camera and again for the front right camera.

3. Select the Lane to configure from the Lane drop-down box.
    a. **Display 1** refers to the camera that will be displayed on the left-hand side of the Live View screen.
    b. **Display 2** refers to the camera that will be displayed on the right-hand side of the Live View screen.
    c. **Hidden 1** and **2** refer to cameras that perform OCR, but are not displayed on the Live View screen; hits and reads will still be generated by the hidden camera(s).
4. In the Lane Name text box, provide a name that will be displayed to the user when a hit occurs. In a traffic configuration mode, you might use “Left” or “Right” which refers to the traffic camera on the left (Driver’s side) and the traffic camera on the right (Passenger side).
5. Select the camera type to be associated with the lane.
6. In the Connection String box, enter a COM port to serially control the camera or the IP:Port to control the camera over TCP/IP.

    Steps 7 through 14 should be repeated for each lens (infrared and color) that will be a part of the lane. If you are using a PIPS mobile camera, there are two lenses. If you are using a Sony or DEW camera, there is only an overview lens.

7. In the Camera drop-down box select the lens type you wish to configure. Choose OV for the color overview lens, and IR for the infrared lens.
8. Select the capture device in the Device drop-down.
9. In the drop-down box, select the appropriate input number for the device you are using. The appropriate input number varies with the type of capture device.
10. If Client or AVI Files are chosen for the device type, enter a path.
11. Check the Enabled box to activate the camera.
12. Check the OCR box if optical character recognition will be performed with this camera.

Tip: Check the OCR Enabled box only for the IR lens of a PIPS mobile camera. For certain states that do not have retro-reflective plates, optical character recognition may be performed from the image captured by the color lens of the camera. When OCR is performed on a color image, the processing requirements increase and the accuracy will be somewhat diminished relative to OCR from the infrared image.

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13. If the camera supplies video in the NTSC signal format, check the NTSC box.
14. After the cameras have been configured, verify the camera input and proper alignment on the Cam Setup screen, as explained in Section 4.8.3.

2.8.6.14 Info

The Info screen displays additional information including the version number of the current installation. This information may be helpful when calling Technical Support.

3 PAGIS INSTALLATION GUIDE

3.1 Minimum System Requirements

The PAGIS Software requires the following minimum system requirements for the mobile data computer:

- Pentium-compatible PC at 1.0 GHz
- Windows XP-10
- Microsoft .NET Framework 3.5
- 8 GB of RAM
- At least 1 GB of hard drive space
- SVGA display with a minimum resolution of 800 x 600 pixels
- Available Ethernet port
- Keyboard and mouse, or a touch screen monitor.

3.2 Installing PAGIS

Installing the PAGIS Software on Laptop.

On your laptop, find and identify the network adapter that is connected to the mobile processor and change the default DHCP IP setting to manual and use the following IP.

- Mobile processors older than May 2015 use IP: 192.200.200.200, Subnet: 255.255.255.0.
- Mobile processors May 2015 and newer use IP: 192.168.200.200, Subnet: 255.255.255.0.
- No Gateway required, should be left blank.
- Default IP of mobile processor is 192.200.200.201 or 192.168.200.201 depending on manufacture date.
- The Mobile processor is pre-configured to relay its camera data connection to the .200 IP address, using alternative IP's on Laptops will cause a failure to communicate when configuring the cameras under the default configurations.

(Only applies to PAGIS versions 2.7.6.x.xx and older)

Transfer the installation file, PAGIS_Setup_x.x.x.exe, to the laptop.

1. Run the file as an Administrator.
2. When the Licensing Agreement is displayed, click on the check box indicating acceptance of the terms. Click Next to continue.
3. Select **(MDC PAGIS)** and the desired shortcut options, click **Next** to continue.
4. Confirm the installation location, selecting Browse if necessary, click **Install** to continue.
5. When the "Installation Complete" message is displayed, click **Next** to continue. When the "Completing the PAGIS Setup Wizard" message is displayed, click **Finish**.
6. Click **No** when the reboot message is displayed, rebooting is only required for installations on mobile processor. If installing on mobile processor please refer to SX3 or SX4 Tools and Settings Guide.

(PAGIS version 2.9.6.x.xx Only)

PAGIS 2.9.6.x.x is a reimaged PIPS version of PAGIS designed to work in conjunction with the SX4 mobile processors, all version of PAGIS are backwards and forwards compatible with SX3 & SX4 generations of mobile systems but the 2.9 version installs slightly different.

1. PAGIS 2.9 does not have an installer, its comes in the form of a "Flat file" designed to be copied into place.
2. Typically, in the form of a .zip file "MDC_Cleint2.9.x.x.x.zip". Create a folder locally and unzip the contacts of the archive file into the new folder.
3. Alternatively, a "MDC Client" version is also available directly on the SX4 itself. Located under the C:\PIPSTechnology folder, see SX4 Tools and Setting Guide.
4. Make sure user accounts in Windows have full read and write access to this folder, epically if the folder exist in any location Windows considers protected, like "D:\Program Files (x86)".
5. Create a shortcut for the PAGIS.exe on to your desktop then proceed to PAGIS setup.

3.3 Upgrading PAGIS

When upgrading existing PAGIS software with newer versions and you want to keep your existing camera and synchronization settings do the following.

1. Rename the PAGIS2 folder to PAGIS2_old, typically located in (C:\Program Files (x86)\PIPS Technology, Inc).
2. Install PAGIS per the instructions in section 1.
3. Copy the following files from the PAGIS2_old to the new PAGIS2 folder.
   - Synchronizer.ini
   - FuzzyLogic.ini
   - Attributes.db
   - ANPR (Copy the entire ANPR folder).
4. Start PAGIS, wait 30 second to PAGIS to re-sync login account then try logging in. If log in fails just click the login button without any credentials the try doing Begin Shift.

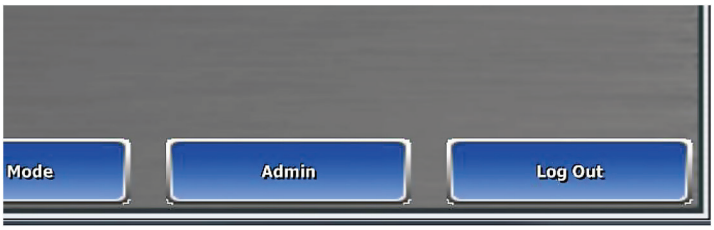
3.3.1 Upgrading PAGIS Software Mobile processor:

Refer to PIPS Mobile Processor guide for SX3 or SX4 versions.

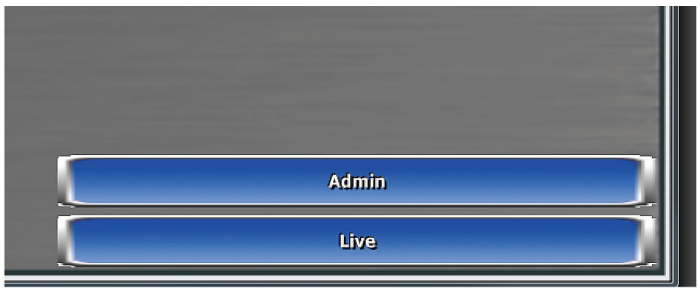
3.4 PAGIS Camera Setup

Note: At this point the laptop must be in the ALPR vehicle with the ALPR equipment turned on.

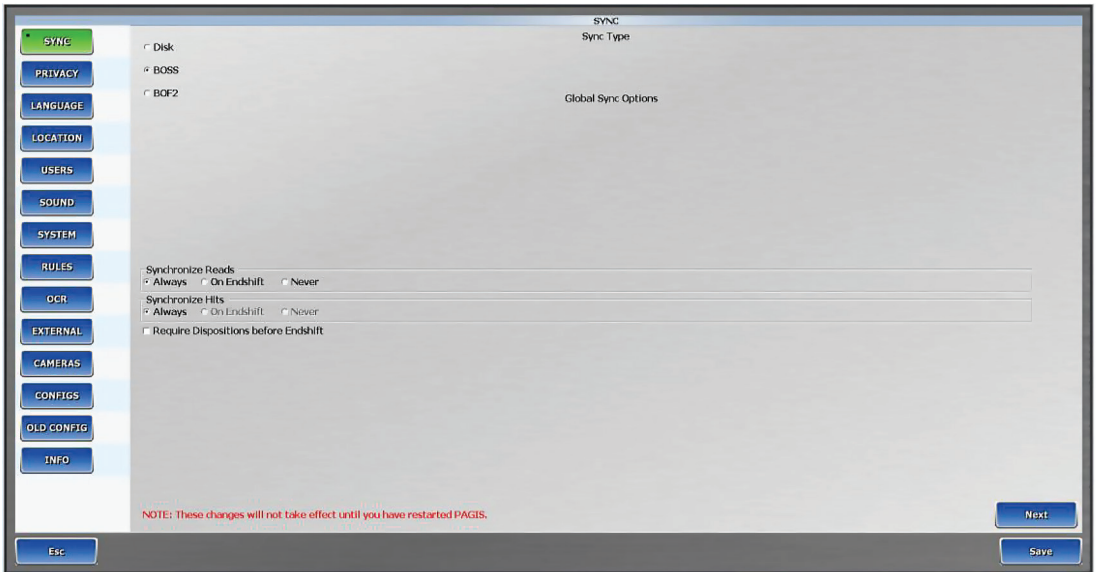
1. Start PAGIS, login. If log in fails just click the login button without any credentials the try doing Begin Shift.
2. From the default live screen on PAGIS, click the Admin button.



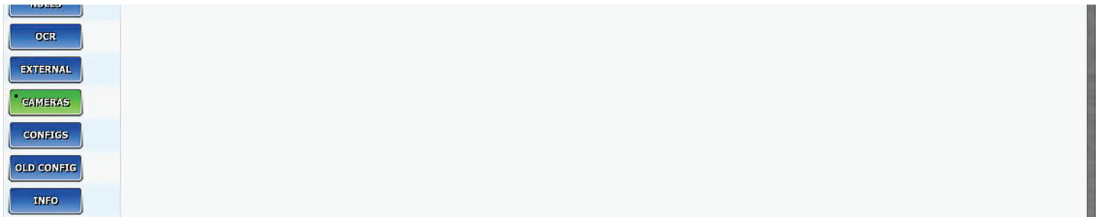
3. From the second setup screen click the Admin button.



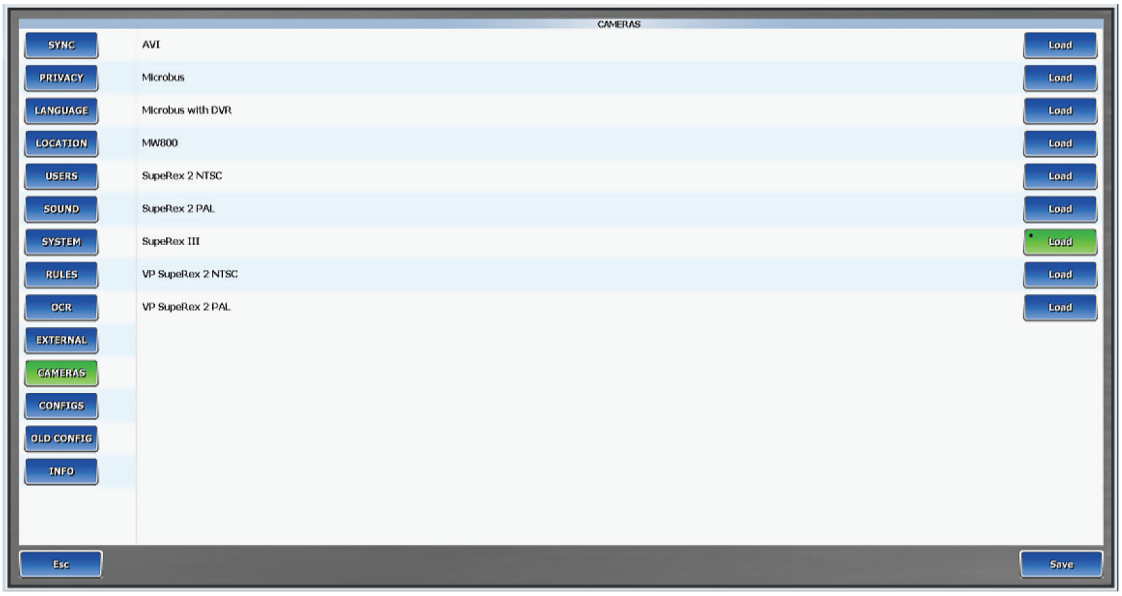
This will bring you into the PAGIS administrative configuration area.



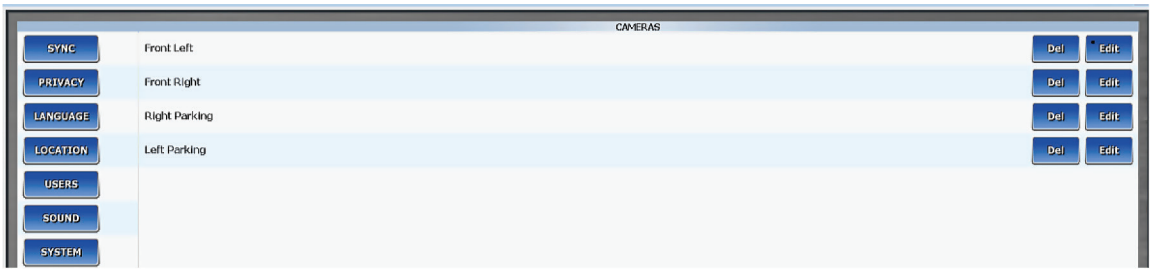
4. Click the “Cameras” button.
5. Then click “Load Defaults” button to right.



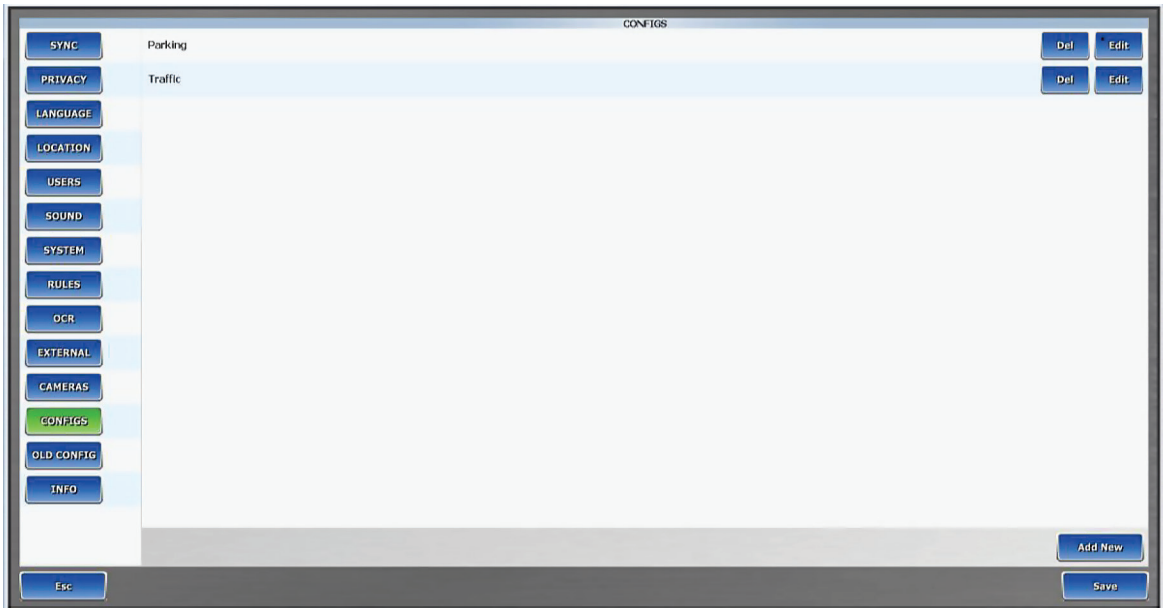
6. Select the Load button for “SuperRex III”, then click Save.



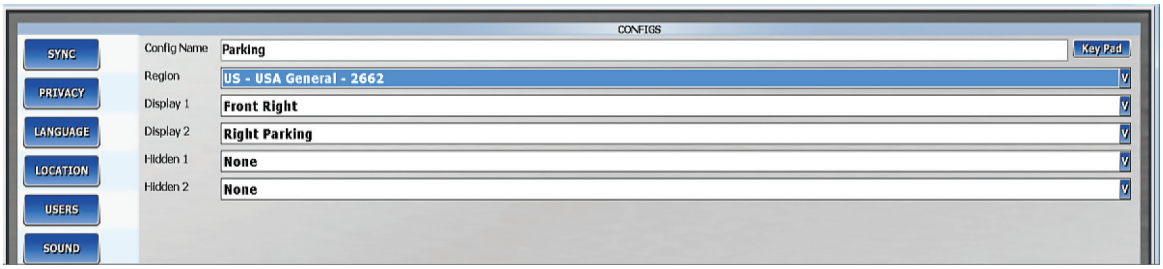
Default 4 cameras should now appear.



7. Click the “Configs” button on the left.

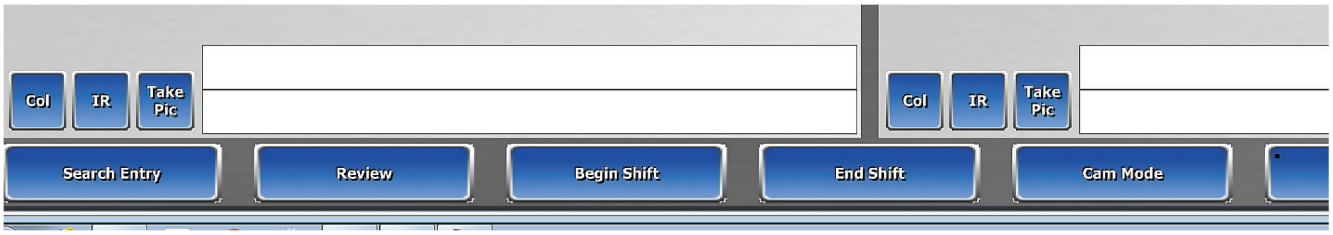


8. Click the Edit button to right of the first configuration, Parking.



9. Click the dropdown arrow to right of “Region” and select the region file. PAGIS will use this to OCR plates, typically the region files are labeled according to States. Some may have additional surrounding areas labeled in the name.
10. Select your cameras for Display1 & 2, typically these correspond with the configuration name. It’s important that you know how many active cameras your system physically has connected and in what positions they are in. In general, the ones you want to see actively capturing plate you would put in the “Display section”, cameras you want to be active but not visible would go under the Hidden 1 & 2.
11. Once you made you selection click Save.
12. Click the “Configs” button and repeat the above steps for Traffic.

13. Once done return to main live screen.
    a. Check to make sure your configurations saved, click the “Cam Mode” button.

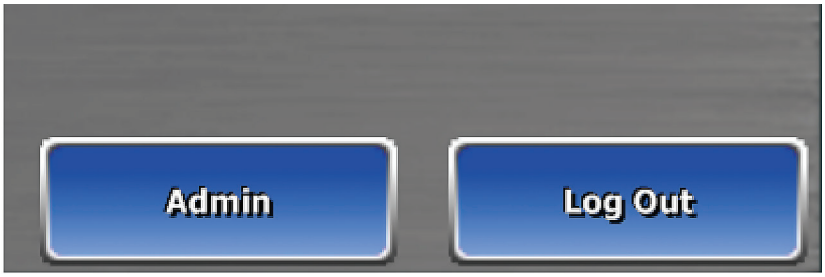


    b. Click the cam mode button once, this will cause PAGIS to change viewing mode. Changing modes can take 2-4sec.
    c. You will now see the first mode, typical traffic labeled in the cam mode section and the corresponding camera names will now appear at the top of each camera panel.
    d. Confirm camera is working by clicking the COL button in each camera panel to see the live video feed, this will stop after 1min or after plate capture has occurred.

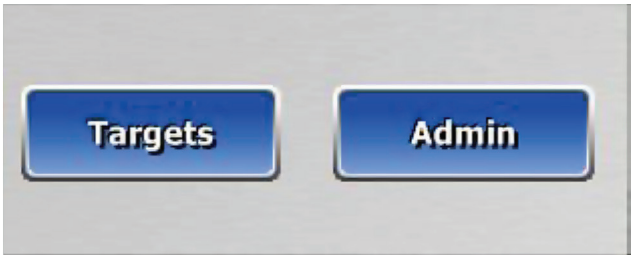
3.5 PAGIS Sync Setup

Steps to setup PAGIS to sync with BOSS.

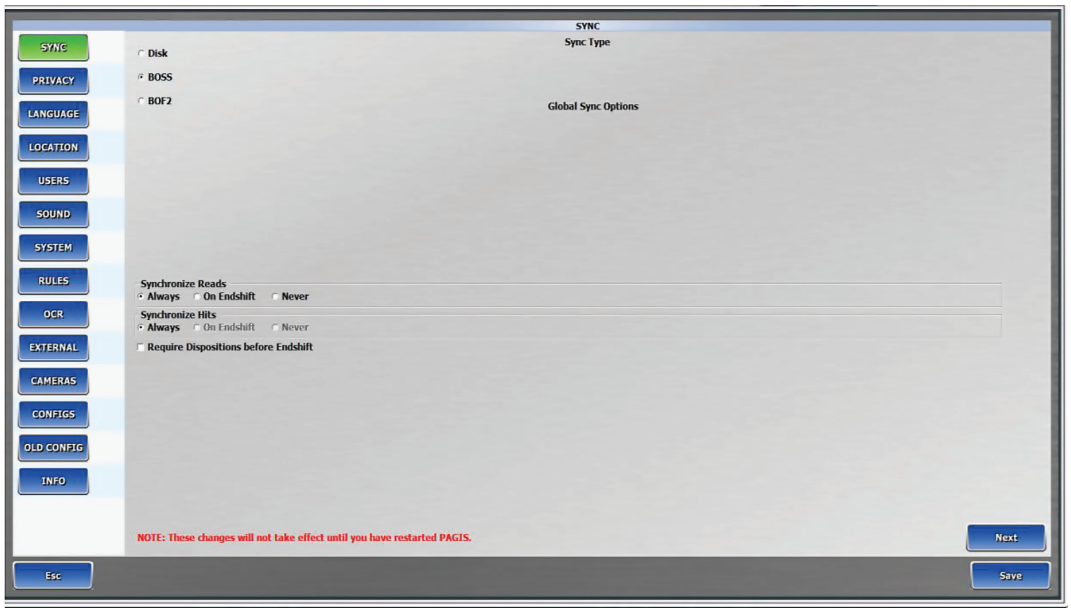
1. Log into PAGIS with Admin account.
    a. Click the Admin button,



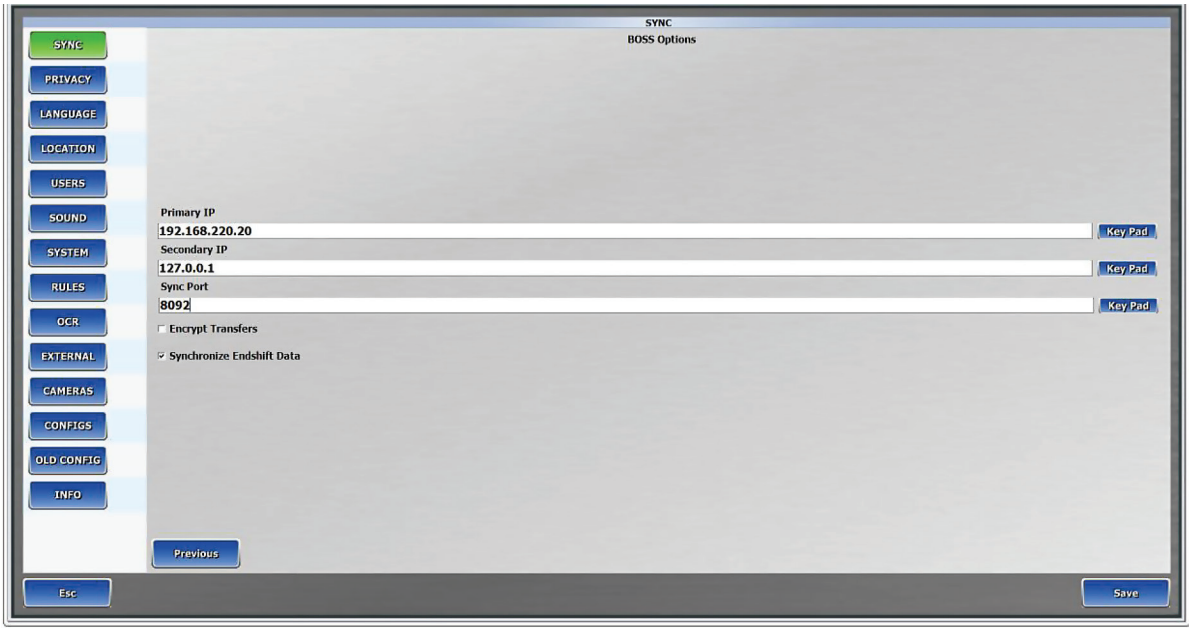
    b. Click **Admin** button again.



2. Under the “Sync Type” select BOSS then click the Next button, Sync Reads & Hits are selected as Always.



3. Type in the BOSS IP address in the Primary IP field just as the example shows, Secondary IP field is for network hopping like switching from cellular to Wi-Fi or LAN where the BOSS IP is different between network- if not needed leave the default IP. Default sync port is 8092- if this is changed be sure to match the same port in the BOSS server settings.
4. Click the Save button and return to main screen.



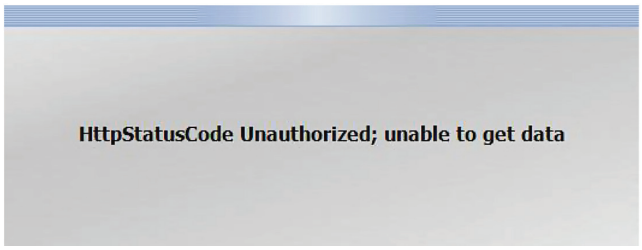
3.6 Testing PAGIS Connection to BOSS

Begin Shift to test connection to BOSS.

1. At PAGIS main screen, click the Begin Shift button to select, then click again to active.



2. If the laptop has previously been setup to communicated with BOSS you should see a transfer window appear in the middle of the screen and possibly notice alert list transferring. If you do not notice alert list transferring this probably because the BOSS admin has not enabled any list to transfer.
3. If you see a message indicating "HttpStatusCode" this is an indication the BOSS has received your request to communicate but has rejected it. Reason for this, is that all new "Device" i.e. your laptop name must be manually enabled in BOSS to allow communication. Once your BOSS admin has allowed communication this "Unauthorized" code will not appear again.



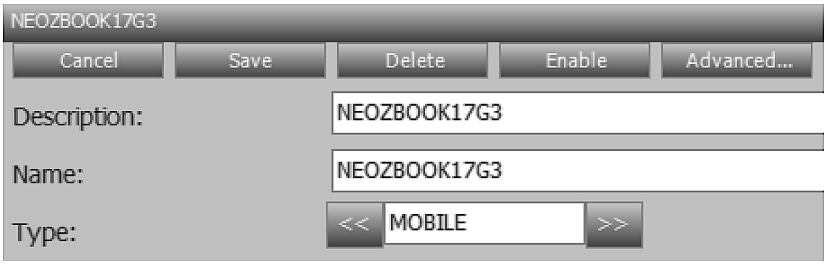
3.7. Enable Mobile Systems in BOSS

It's important to understand how BOSS see's newly added mobile systems, i.e. PAGIS on laptop.

a. When a Begin Shift if performed for the first time in PAGIS you will receive a "HttpStatusCode" "Unauthorized" code, this code indicates BOSS has seen the request but has returned a "Unauthorized" message indicating that your device i.e. laptop name must be enabled in BOSS.
b. BOSS reference mobile systems as a device. A single device is identified as the computer name running PAGIS.

3.7.1 Enable new mobile device in BOSS

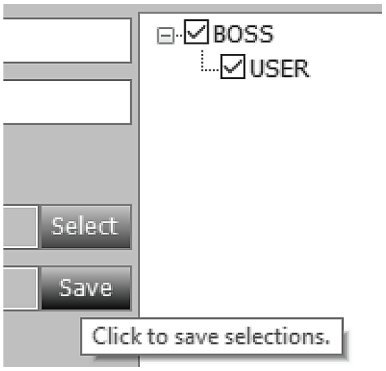
1. Log into BOSS with Admin privileges.
2. Click the Admin button on the left and then click the button labeled Devices.
3. Under the Devices section click the "Refresh" button located on the bottom of screen.
4. You should see a new device appear under "Device Name", the device name will be the computer name that PAGIS is running on.
5. Click on the device then click the edit button listed at the bottom of the screen.
6. Click the "Enable" button. After clicking the "Enable" button BOSS will bring you back to the main device section, at this point PAGIS is now authorized to send and receive data to BOSS.



Note: Remember even though PAGIS is now enabled to send & receive data you will still need to configure what user groups and Hotlist to be sent to your newly activated device, otherwise none will be sent, see step below.

3.7.2 Assigning User Groups to a Device

1. Click on the desired device then click the edit button listed at the bottom of the screen.
2. Click the "Select" button by the row labeled "Owners:", checkmark all the user groups that you would like to log into PAGIS then click the same "Select" button now labeled "Save" to populate the "Owners" section.

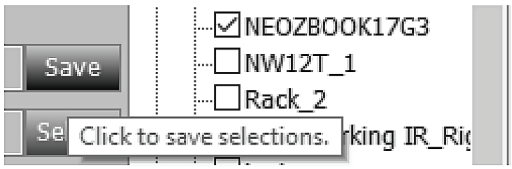


3. If done correctly the "Owners" filed should now have user groups populated.
4. Click the "Save" button on the top row.

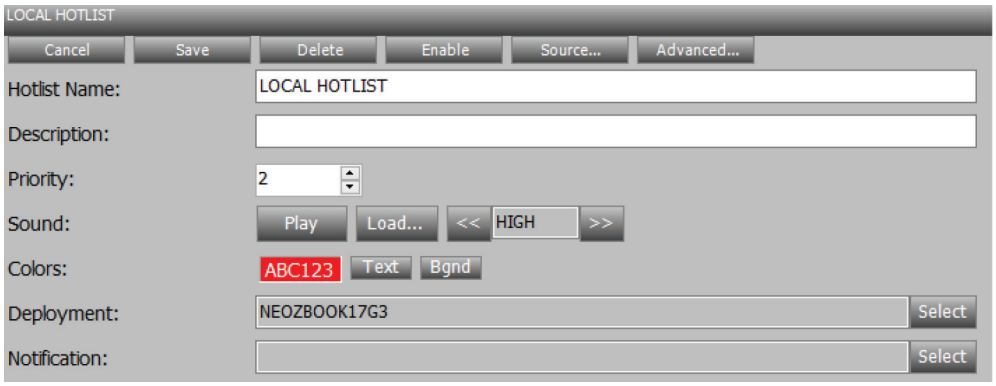


3.7.3 Assigning Hotlist to Device

1. Click the Admin button on the left, then click the button labeled Hotlist.
2. Click on the desired Hotlist then click the edit listed at the bottom of the screen.
3. Click the "Select" by the row labeled "Deployment". Checkmark a device then click the same "Select" button now labeled "Save" to populate the "Deployment" section.



4. If done correctly the "Deployment" filed should now have the device populated.
5. Click the "Save" button on the top row.



6. Repeat steps a-e for each Hotlist you would like to deploy to PAGIS.

3.8 Troubleshooting & Tips

- New installations of PAGIS do not require a login or PW because it's in an unconfigured state until groups are assigned. See section 6.3.
- PAGIS automatically synchronizes data with BOSS every 30sec regardless of the Begin Shift / End Shift features.
- In PAGIS captured plates are stored locally and synced with BOSS via the automatic communications cycle, local data remains until an End Shift is performed.
- PAGIS utilizes TCP/IP 8092 to communicate with BOSS. If you're having synchronization issue it is recommend too troubleshoot the issue separately from PAGIS. A good tool to use is Windows Telnet command in Dos. On the laptop with PAGIS go into a Dos prompt and type "Telnet BOSSIPHere 8092", if the screen goes black this is confirmation that the laptop can communicate with BOSS via port 8092, if the connection fails this means the laptop and the network its on cannot communicate with BOSS.
- No camera panels appear in PAGIS.
  a. Check that the Ethernet adapter is configured correctly, see section 1.1.
  b. Since the connection from laptop to mobile processor is peer to peer, local firewall should be turned off for the ethernet adapter.
  c. Try pinging the mobile processor.

Try Telnet to mobile processor using port 9000, if the processor is running correctly you should see streaming data in the connection. If no data stream is present this could indicate an issue on the mobile processor end, refer to the SX3 or SX4 "Tools and Setting Guide" from more instructions.

NetMotion VPN:
If you are running NetMotion VPN on the MDC, the following NetMotion rules will need to be applied.

a. log into the NetMotion server as administrator. Click Settings, then Client. Click Global Client Settings, then select Passthrough List, click the "Add…" button on the right, Select "Network Address" and enter the following settings (as shown): IP address:192.168.200.0 (the zero is correct, it's an IP address "range") Subnet Mask: 255.255.255.0. Keep all other settings default (as shown) and click OK. The MDC must disconnect from NetMotion and reconnect again for the settings to be applied locally.

Cisco VPN Client:
Make sure Stateful Firewall is unchecked and "Allow Local LAN".

4. APPENDIX: THE PAGIS SOFTWARE DATABASE FILE

This information is useful when the PAGIS Software is used without the Back Office System Software, or when it is used in Data Sync mode.
The only file format that the PAGIS Software supports for importing data into the vehicles for the purpose of matching against the capture license plate is a CSV (comma-separated value) file. This format is a standard ASCII text file that is platform independent and understood by many of the common spreadsheets such as Microsoft Excel as well as by any text editor such as Notepad. The PAGIS Software will support CSV files with any number of columns, called fields, as long as the first field is the VLP (Vehicle License Plate).

Example CSV 1

ABC123, Red, Ford, Explorer, 1996, WANTED XYZ456, Blue, Audi, A4, 2001, MURDER

Example CSV 2

45ABC234, Vehicle wanted in associated with a kidnapping on 12/5/2005 995BD233, Vehicle reported stolen from Liz's Lounge at 6am on 12/1/2005

Example CSV 3

UIO223 ABC123

The PAGIS Software calls files in pairs: a database is created using two files, a CSV file and an INI configuration file. Without that file, the database will not load. If, for instance, the file that a police agency is trying to import into the PAGIS Software is called stolen.csv (again, recall that CSV files are the only format supported by the PAGIS Software) then the corresponding INI file would be called stolen.ini. The PAGIS Software will only load a CSV file for a database if it has the same name as the INI configuration file.

4.1 Interpreting the Sample File

Lines that appear in brackets [] are called Headings. The lines that appear between the headings are called values. Values will always contain an equal sign (=). If a line starts with a semicolon, it is considered to be a comment and is not read by the system. There can be any number of comments in the INI file.

4.1.1 The [SETTINGS] Heading

Under the Settings heading there are the values NumFiles, DbName, DbColor, Priority, Covert, Alarm, and NumFields. The NumFiles value tells the system how many database files the system should split the specified hotlist into. Generally a value of 1 is acceptable, but for larger hotlists (200,000 +), a number of 2 – 5 may be desirable.

The *DbName* value tells the PAGIS Software what the displayed name of the hotlist should be.

The *DbColor* value tells the PAGIS Software the display color of the hotlist. This is merely an esthetic setting and not a functional setting. The right-hand side of the equal sign is the HEX value representing the ARGB values for the color. If you do not know what this means, you should simply leave this line out of the file.

The Priority value designates the priority of this hotlist in relation to other hotlists in the system. The highest priority database is 1 and the lowest is 999.

The Covert value determines whether standard PAGIS Software users are alerted when a hit is made from the database. Covert database can be used for hotlists that are included for information-gathering purposes rather than eliciting user intervention. The system can also be configured to notify via email or SMS message when a hit is made from a covert hotlist.

The Alarm value tells the system whether a Low, Medium, or High audible alarm should be played when a hit is made from the hotlist. Values for Alarm are LOW, MED, HIGH.

The NumFields values tells the system how many fields (or columns) are in the CSV file. If this value is less than the actual number of fields in a file, then additional fields are placed in the general information area. This value also determines the number of headings of the [Field x] will be present in the file. For instance if NumFields=2 then there will be two additional headings, [Field 0] and [Field 1]. Creation = The timestamp when the hotlist was added to the Begin Shift file.

4.1.2 The [FIELD X] Heading

Under the Field heading, there are two configurable values: Name and PAGIS:

The Name value tells the system what the name of this field is. If no name is specified, then there is no name given to the field. The format is Name = <field>.

The PAGIS value tells the system how to display the field in the GUI (graphical user interface, the Windows application). If no value is defined, then the field is placed as general information. Values 1 – 5 represent special fields for PAGIS Software that translate to the information being displayed in a box of its own when a hit is recorded. A value of 6 represents an ID number to cross reference the vehicle from this hotlist with a person from the wanted list. A value of 7 is identical to leaving the value undefined.

4.1.3 Sample INI Configuration File

[Settings]

NumFiles=1

DbName=Stolen Vehicles

DbColor=ffffff00 Priority=5

Covert=False Alarm=MED

NumFields=8

;PAGIS Values

;0 is VRM / VLP (Not User Definable, always Field 0)

;1 is Special Field 1

;2 is Special Field 2

;3 is Special Field 3

;4 is Special Field 4

;5 is Special Field 5

;6 is ID Number (PNC ID, Drivers License, Social Security Number, etc.)

;7 is General Info (Default for all undefined fields)

[Field 0]

PAGIS=VRM

4.1.4 Sample INI Configuration File

[Field 0] Name=VRM

[Field 1] Name=Color PAGIS=3

[Field 2] Name=Make PAGIS=1

[Field 3] Name=Model PAGIS=2

[Field 4] Name=Action PAGIS=4

[Field 5] Name=Warning PAGIS=5

[Field 6] Name=PNCID PAGIS=6

[Field 7] Name=Intelligence PAGIS=7

4.2 Additional Development and Support

Additional development by PIPS Technology Inc. will be required in order to support additional data formats. Contact Technical Support at the address below for further information.

Email: support@pipstechnology.com

Web: www.pipstechnology.com

Phone: 833 PIPS LPR (833 747 7577)

Neology Headquarter San Diego

Address: 12760 Danielson Ct.,
Suite A Poway, CA 92064

Neology Austin

Address: 6801 N Capital of Texas Hwy,
Suite 220B, Austin, TX 78731

Neology México

Plaza Carso II, Lago Zurich No. 219-Piso 10
C.P. 11529 Ciudad de México

5. APPENDIX: ADDITIONAL PROCEDURES

5.1 Microsoft .NET 3.5 Installation

The PAGIS Software requires Microsoft .NET Framework 3.5. If your computer does not have .NET, it can be downloaded from the Microsoft website. If you are using Windows 7, the 3.5 Framework is already part of the operating system, even though it does not show up in Add/Remove Programs.

5.2 Firewall Settings for Client-Server Installations

For client-server installations, the appropriate settings need to be added to Windows Firewall to allow the two processors to communicate. If your systems are maintained by a Network Administrator, you should contact the Administrator before making changes to the firewall.

1. Open a command prompt by going to Start -> Run and typing cmd and clicking OK.
2. From the command prompt, run the following 10 commands. When the commands are successful, the word OK will appear.
   a. netsh firewall delete allowedprogram “C:\Program Files\PIPS Technology, Inc\PAGIS2\ VPRelay.exe”
   b. netsh firewall delete allowedprogram “D:\PAGIS\VPRelay.exe”
   c. netsh firewall delete allowedprogram “C:\Program Files\PIPS Technology, Inc\PAGIS2\PAGIS. exe”
   d. netsh firewall delete allowedprogram “D:\PAGIS\PAGIS.exe”
   e. netsh firewall add portopening TCP 9000 PIPS _ ViewFinder
   f. netsh firewall add portopening TCP 10000 PIPS _ Images
   g. netsh firewall add portopening UDP 10010 PIPS _ Ping
   h. netsh firewall add portopening TCP 32023 PIPS _ Config
   i. netsh firewall add portopening TCP 32024 PIPS _ GPS
   j. netsh firewall add portopening TCP 32025 PIPS _ GPS2
3. Restart the computer.

5.3 Mapping a Network Drive

The instructions below provide basic directions for mapping a network location to a drive. Please contact your System Administrator for assistance.

1. Open a file browser and browse to the folder you wish to use.
2. Right-click on the folder and choose Map Network Drive from the contextual menu or use the Tools > Map Network Drive command. If the Map Network Drive option is not available, try selecting a folder higher up in the directory structure.
3. Choose an available drive letter for the drive to be mapped.

5.4 The PAGIS Software Version 2.9 Series Troubleshooting

ISSUE REPORTED	EXPLANATION	STEPS TO CORRECT
Error message displayed "Could not connect to remote host!"	The connection between VP Relay and the MDC version of PAGIS has been lost.	- Confirm that VP Relay is running on the PIPS Mobile ALPR Processor. - Confirm that the MDC running the PAGIS Software is able to ping the PIPS Mobile ALPR Processor. - Confirm the IP settings for both applications match the IPs for the MDC and the PIPS Mobile ALPR Processor. The software stores the PIPS Mobile ALPR Processor IP in the file PAGIS.exe.config, in the 'DEWG3.ConnectionString' field. VP Relay stores the MDC IP in the file anpr2.ini, in the '[Send] Address' field. - Confirm the port settings for both applications match. PAGIS Software stores the port in the file PAGIS.exe. config, in the 'ANPR.Location' field. VP Relay stores the port in the file VPRELAY.exe.config, in the 'ConfigPort' field on the SX units its self, see SX user guide on how to connect. - If the connection still cannot be made, the installation needs to be escalated to PIPS support
Reads are not syncing to BOSS. There is an error message in the log file indicating that the end point cannot be reached related to the REST API.	This is an issue seen when the port settings are not correct.	- Confirm that the port has been set correctly in the Admin/ Sync/ BOSS3 section. - Confirm that the port has been set correctly for the REST API on the Network Port Settings screen in the BOSS3 Controller. - Confirm that the firewall is open for the port being used by the PAGIS Software.

5.5 Instation (formerly BOF2) Configuration Information

The Instation software (formerly known as BOF2) is a back office program used in the European market that was written by a company called Anite. It is a web-based software that provides similar features to the PIPS Back Office System Software (BOSS), like hotlist management.

Instation configuration options in the BOF2 options screen:
End Point – The IP address of the Instation website. The format must be <IP Address>:<Port>. Force – A unique code assigned to each police force.
Location – A unique number assigned to each mobile unit within a force. For example, if a force has 20 vehicles, in each of the mobile units the force numbers would be identical, but the Locations would be 1–20.
Patch – The image of the plate that is pulled from the read. It is checked by default; the Patch image will be sent to Instation.
Overview – The image captured for the read. It is checked by default; the Overview image will be sent to Instation.
Compact – Select if the communication packet being sent to Instation needs to be minimize. This will cause the application to create communication packets without images included. This is not checked by default. If checked it will uncheck the Patch and/or Overview settings.

To Reset Hotlists after Save: Instation tracks what hotlists have been sent to a PAGIS Software system. When a hotlist update is available, Instation is then able to send only the information that the software system has not yet received. At any time the PAGIS Software system can decide to collect fresh hotlists, and the current ones can be deleted. If the "reset hotlists after save" flag is set, when the software system syncs to Instation, it will send a message indicating that the hotlist version tracking needs to be reset. Instation will now send all of the full hotlists.

GLOSSARY

Term	Definition
ALPR/ANPR	Automatic License Plate Recognition/Automatic Number Plate Recognition
GPS	Global Positioning System
Hotlist	A database or list that contains vehicle license plates of interest
IR	Infrared
License plate	Also called a tag or number plate
MDC	Mobile data computer or laptop
OCR	Optical character recognition
OS	Operating system
USB flash drive	Also called a thumb drive or memory stick
VLP	Vehicle License Plate
Whitelist	In the PIPS Back Office System Software (BOSS), a whitelist hit is the opposite of a hotlist hit. When a license plate does not exist in an enabled whitelist database, the same Hits (Alert) screen will be displayed

For additional information, assistance or maintenance questions please contact Neology ALPR/ANPR Support at:
PHONE: 833-PIPS-LPR (833-747-7577)
• Option 1 for Sales
• Option 2 for Support

For the U.S/Can and all other areas:
Sales Enquiry Email: sales@pipstechnology.com
Support Request Email: support@pipstechnology.com

For Europe, Middle East and Africa:
Sales Enquiry Email: sales@pipstechnology.co.uk
Support Request Email: support@pipstechnology.co.uk

PIPS TECHNOLOGY
DETECTION INNOVATION

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Neology Headquarters San Diego
Address: 12760 Danielson Ct.,
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Neology UK Ltd
Address:Form 1 Bartley Wood Business Park
Hook, Hampshire
RG27 9UP

Neology México
Plaza Carso II, Lago Zurich No. 219-Piso 10
C.P. 11529 Ciudad de México

NEOLOGY
INNOVATIVE TECHNOLOGIES

Police ALPR Graphical Interface Software (Pagis)



PIPS TECHNOLOGY
DETECTION INNOVATION

Starting PAGIS

To start software, double click the **Pagis** icon on the desktop Icon.



Logging In

Enter Your Username (Badge Number or Other)

Enter Your Password

Depending on Boss setting this may or may not be required.

Enter Location

Optional Field. Each license plate read will have this label associated with it when the field is populated. The label can be used for the Back Office System Software reporting purposes.

Key Pad- Available throughout Pagis where keyboard input is available.

Click Login

Note: By default if Pagis has not been synced with Boss, Login information is not required.



Main Live View Screen

Camera Title

Color Overview
Captures are displayed as still images.

Pagis defaults to two Camera Display Panels. “Cam Mode” controls what's currently being displayed.

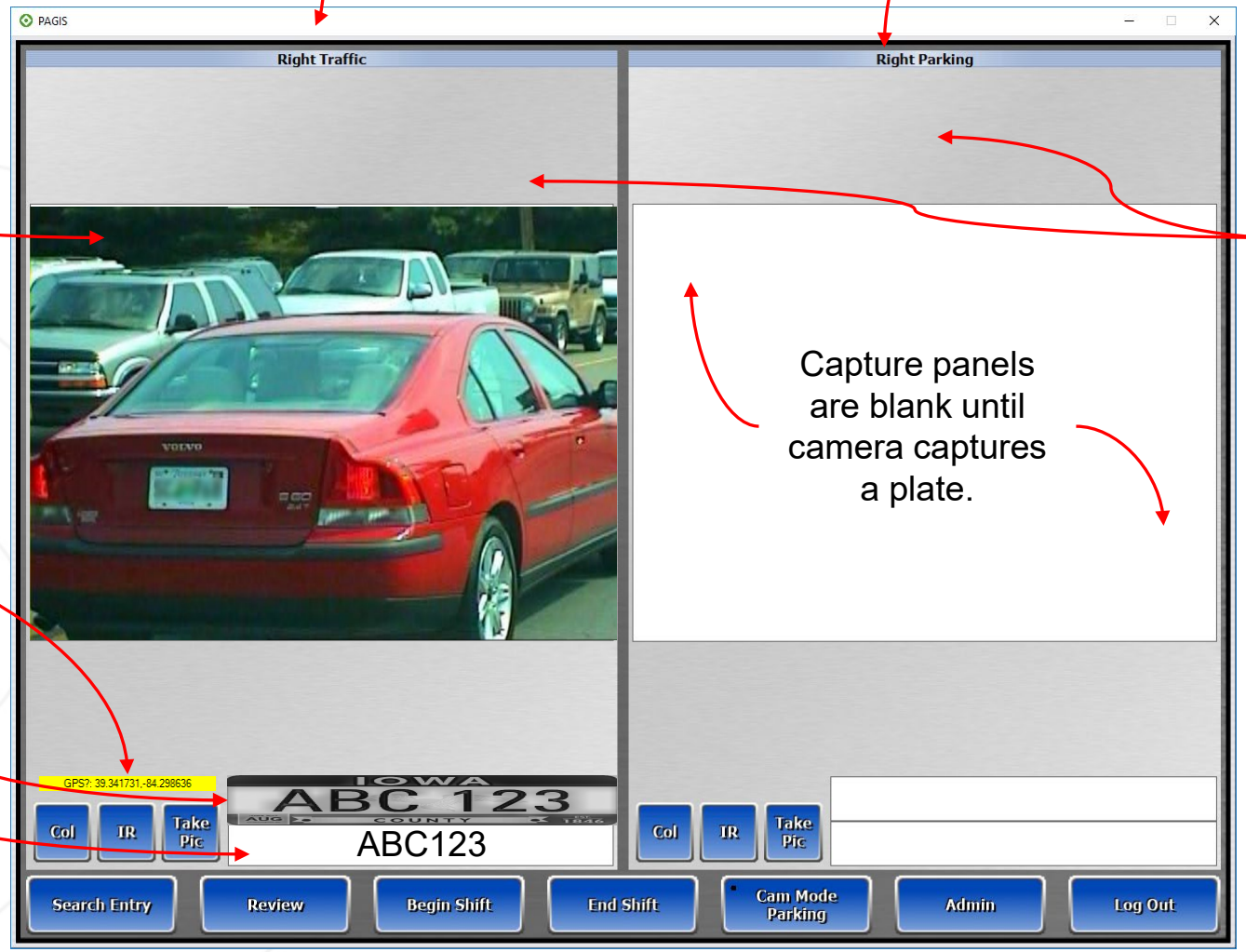
Capture panels are blank until camera captures a plate.

GPS Coordinates

Infrared plate patch

(IR plate read or “patch”)

OCR text translation of IR plate patch



Camera Controls

Each camera panel has its own Camera Control Buttons.

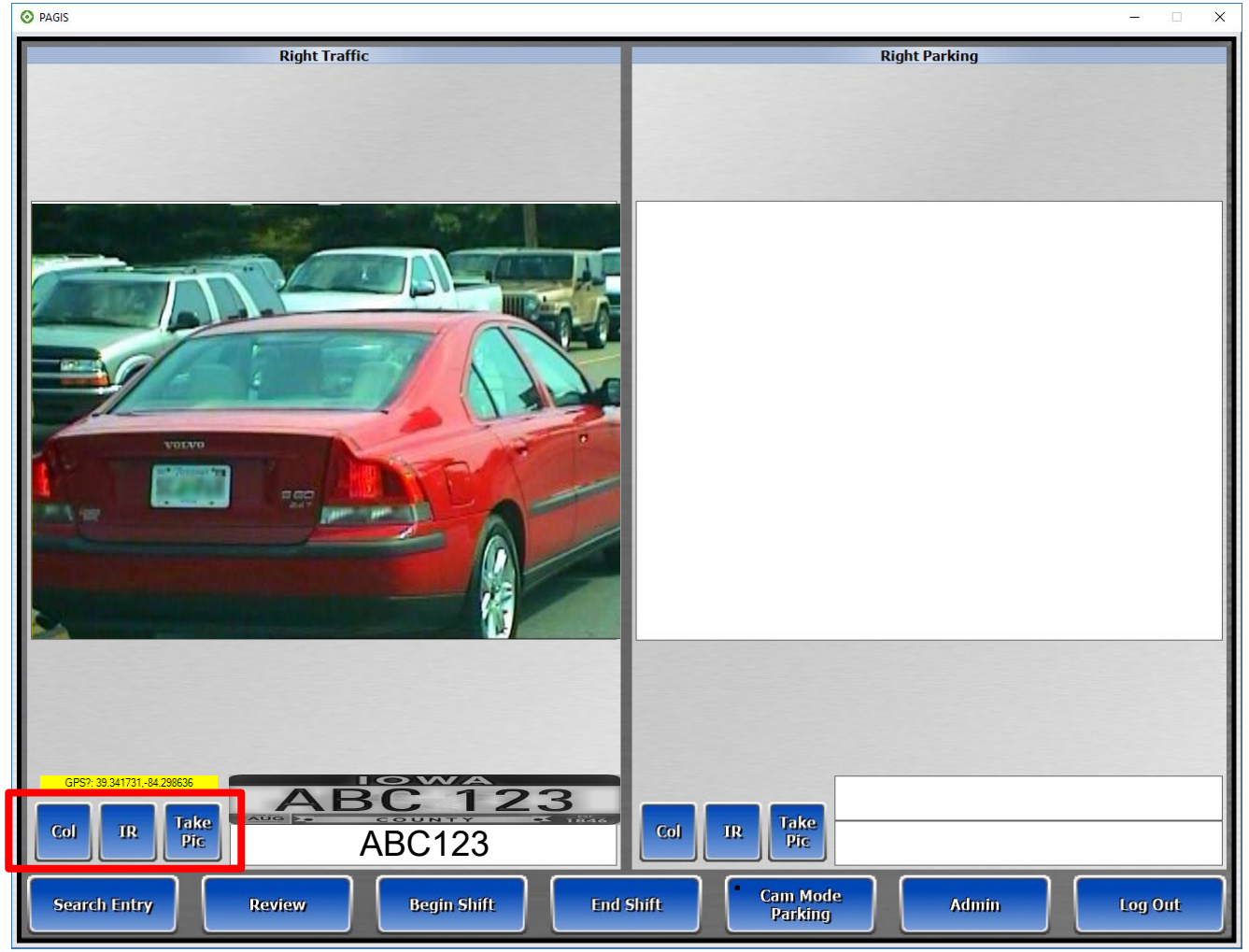
COL- Select a live view of the color camera indicated in the camera label above the view finder. The view will remain until a “still” color image is displayed for the last ALPR read.
Activating this feature will last approximately 45sec or until next capture occurs.

IR- Select a live view of the infrared camera indicated in the camera label above the view finder. The view will remain until a “still” color image is displayed for the last ALPR read.
Activating this feature will last approximately 45sec or until next capture occurs.

TAKE PIC- Take a digital photograph of the color image in the view finder above the control.

Activate the camera control features by clicking on one of the three buttons will active the feature and turn the button green.

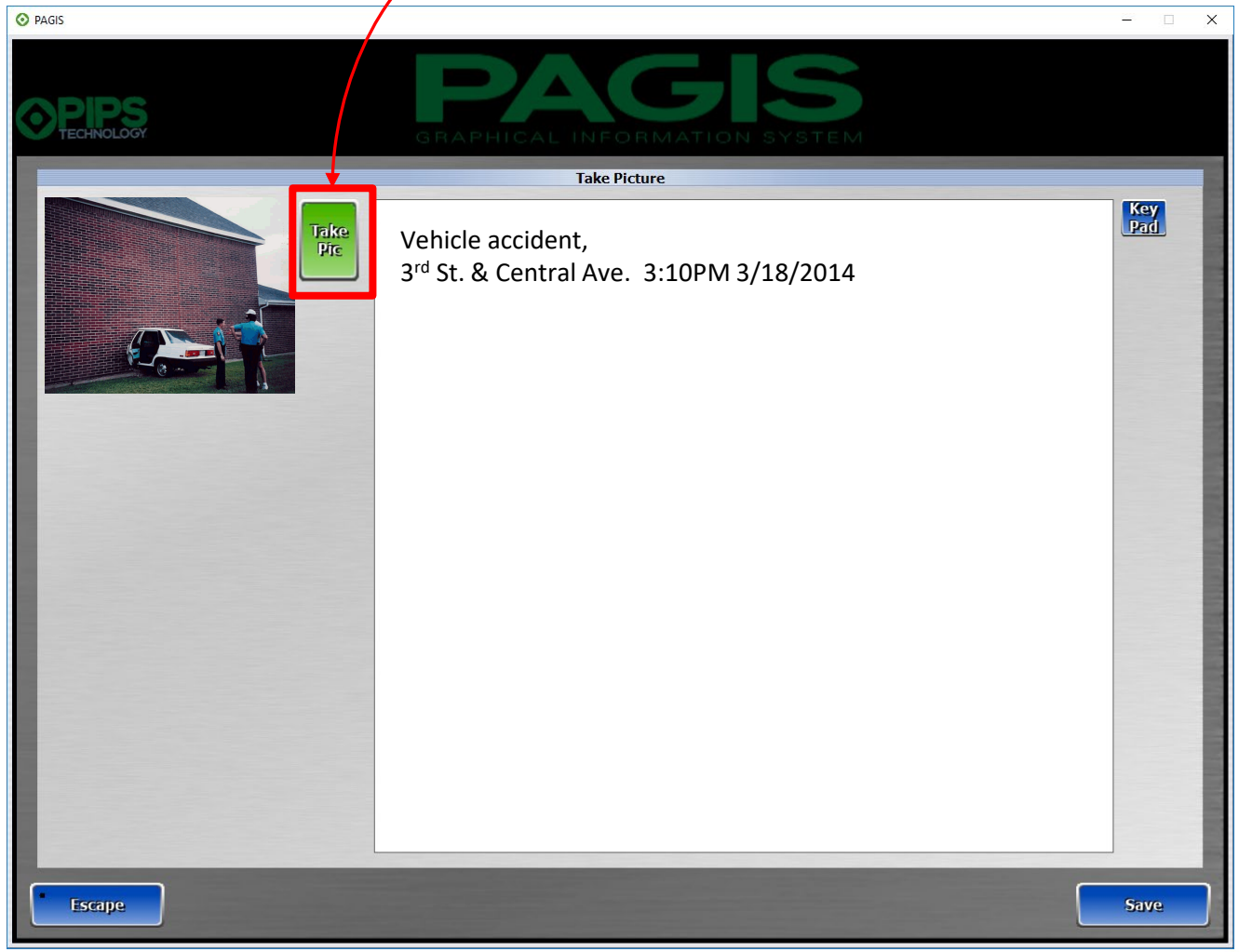




Take Pic Mode

TAKE PIC- Take a digital photograph of the color image.

- Press **TAKE PIC** for a live view screen.
- In “Take Pic” mode screen Press **TAKE PIC** button to capture image.
- **Enter notes** – text must be entered or image will not be saved.
- Press **SAVE** to record image and text in the database. This capture record can be later retrieved under Pagis—Review—Audits or via Boss reporting feature.



System Control Features

3 of the 7 buttons across the bottom of the Live View screen take you into additional system functions:

- **SEARCH ENTRY-** Search prior reads, manually check a plates with existing databases or make a manual entry into the Pagis database.
- **REVIEW-** View summary statistics, reads and hits, view pictures, audit reports and database status.
- **BEGIN SHIFT-** Download alert-list databases and user credentials from the Back Office System Software.
- **END SHIFT-** Upload all collected plate data to the Back Office System Software then purge locally.
- **CAM MODE-** Toggles the modes for systems using two or more cameras displayed in the view finder (displays the various camera configurations).
- **ADMIN-** Access Pagis administrative features, camera and live view configurations, sounds, users, privacy ect..
- **LOG OUT-** Log off the current user and return to the logon screen.



Search Entry

Click Search Entry from the Live View screen to display Search Entry features.

- **Text Box** – Enter the alphanumeric string to search.
- **Key Pad** – Press to activate an on-screen keypad, for use with a touch screen monitor or with a mouse.
- **Clear** – Clear the content of the text box.
- **DL#** – Check the databases (BOSS hotlists) for a driver's license number entered in the text box, (Not available in some country's).
- **Reads** – Search for plate number with the reads and hits currently stored in the Pagis databases.
- **Add VLP** – Add plate number to "Manual Reports" database or check existing databases for the entered license plate.
- **Esc** – Return to the previous screen.

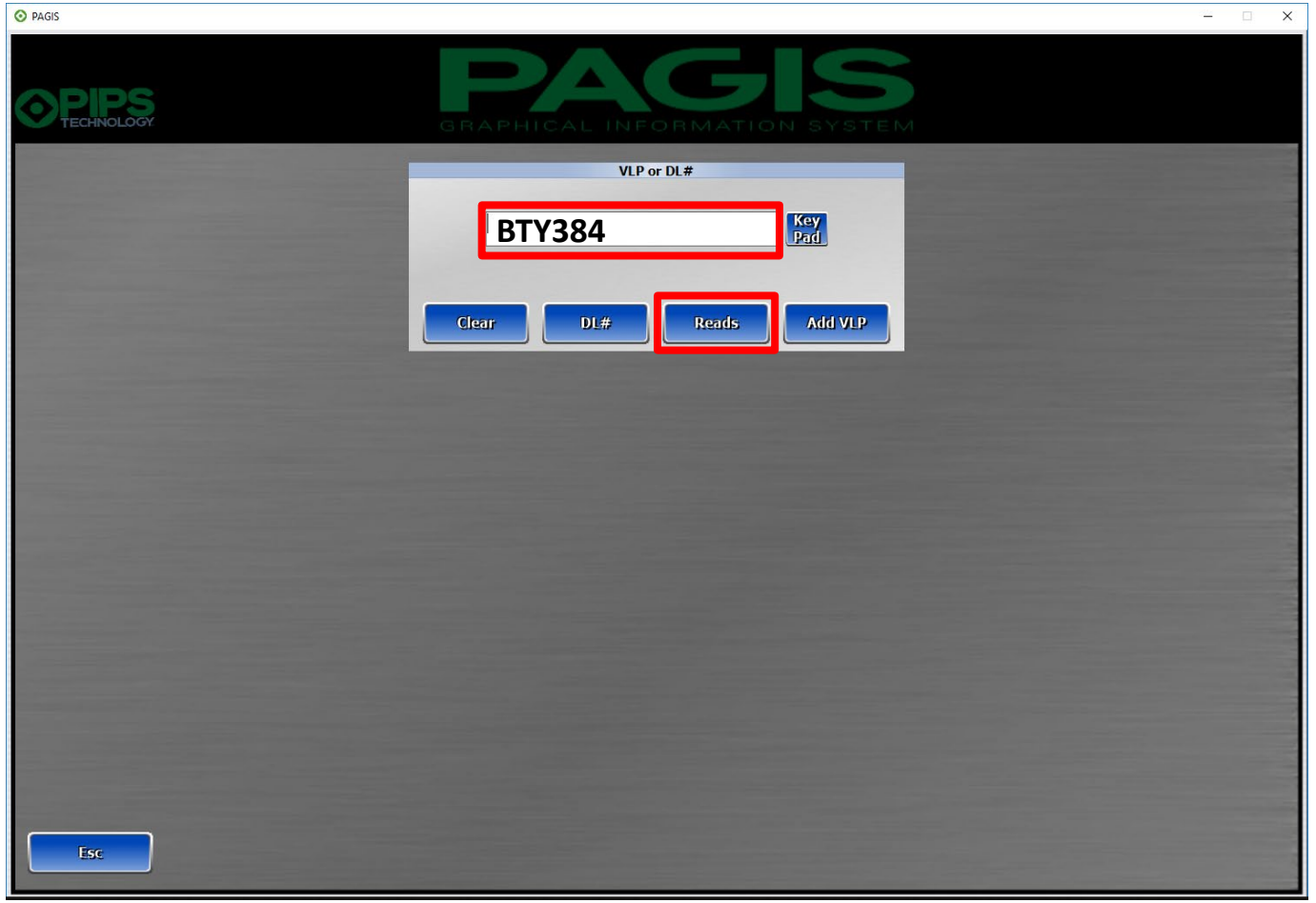




Search Entry- Reads

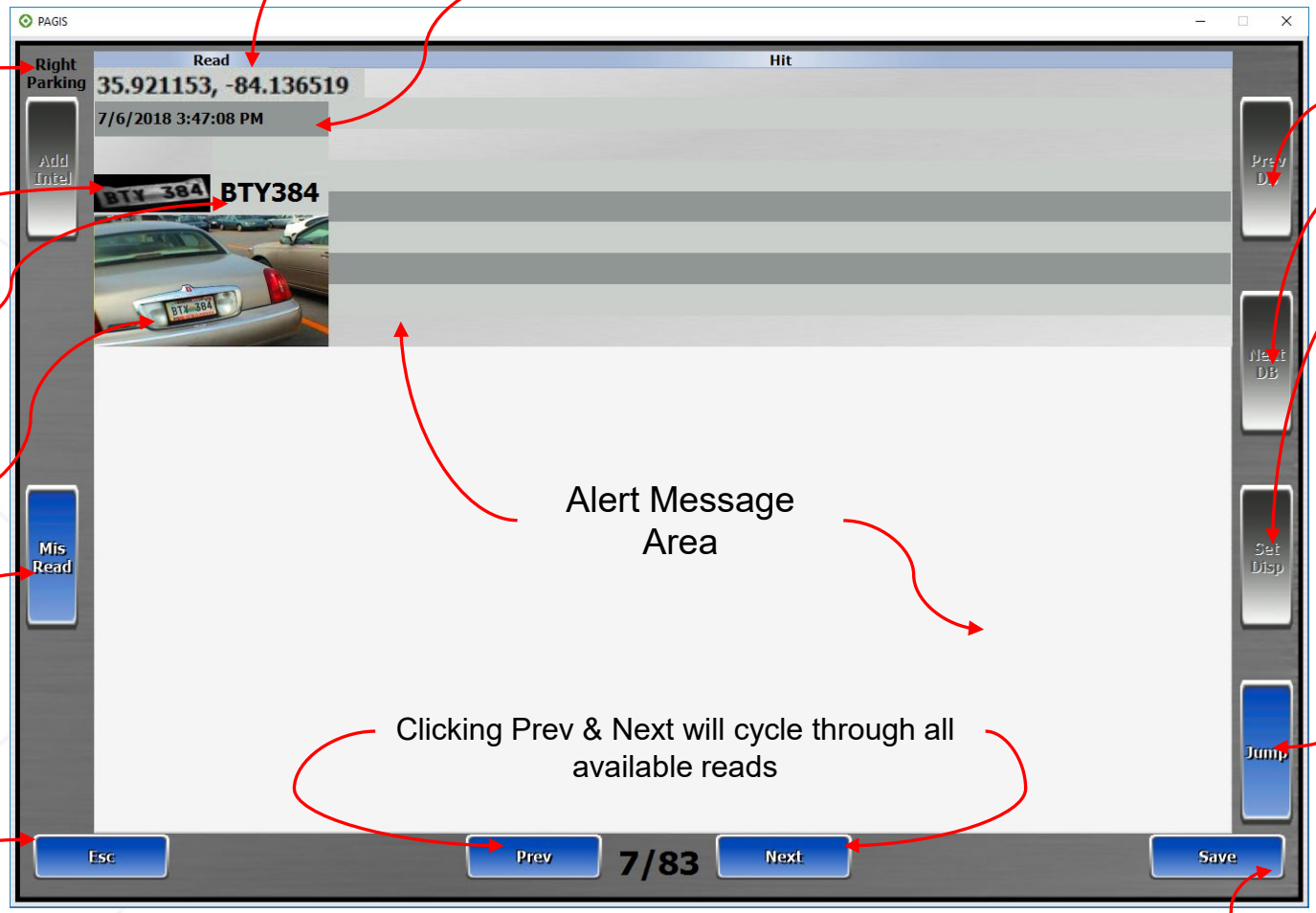
Search against collected license plates data.

- Search criteria can include exact text or text and wildcards. Wildcards are special characters that represent any / all potential characters and can be used in searches and queries.
- Wildcard searches can be performed using the * and _ characters. The asterisk (*) designates an unknown number of characters while the underscore (_) indicates a single missing or unknown character. To search for a plate number with the characters J and 8, entering *J_8* will display all records containing J and 8 separated by one character.



Search Entry- Reads

Reference: Grayed out buttons indicate the record has already been send to Boss during the automatic sync cycle. In setups utilizing Disk data transfer this will not occur.



Capture camera name

IR “Plate Patch”
Clicking Plate Patch will result in larger view Of image for 4sec.

OCR translation of “Plate Patch”
Click OCR Patch to correct a misread.

Color Camera “Overview” image
Clicking Overview Patch will result in larger view Of image for 4sec.

MisRead- Clicking the misread button then save will tag the record as misread.
Click OCR Patch to correct a misread.

Esc- Escape to previous screen

GPS coordinates

Date and time stamp

Buttons not available in Read review screen.

Alert Message Area

Clicking Prev & Next will cycle through all available reads

Jump – Allows you to move to a specific record.

Save change made after editing misread.

Search Entry- Add VLP

Add a plate to the “Manual Reports” database or checks existence of plate in other alert-list download from Boss.

- Manual Reports database is Pagis standalone alert-list designed for manual entries by the Pagis operator.
- Manual Reports database do not transfer to Boss or other mobiles units utilizing Pagis.
- Manual Reports database are cleared out during End Shift.

- Enter a plate number into the text field, then click Add VLP.
- If Plate already exist a message indicator its database location will appear, otherwise you will be prompted in the next screen to classify your entry.
- Wildcards or partial plate not accepted as valid VLP’s.

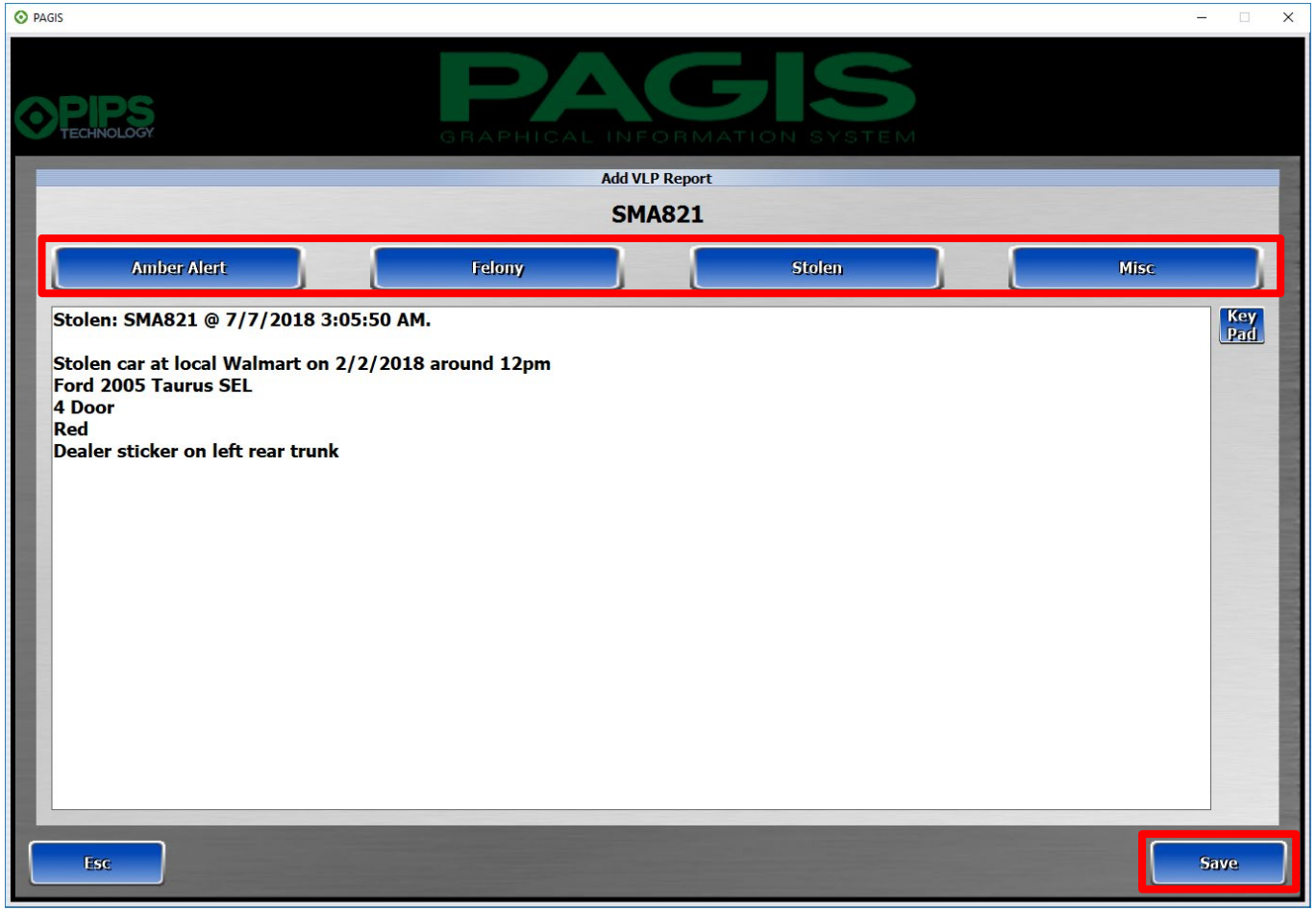


Search Entry- Add VLP

Add VLP Report:

- Select one of the four pre-defied classifications.
- Type in additional information about the vehicle.
- Click Save.

- There is no limit to number of manual entries that can be added to the Manual Reports database.
- Entries can not be deleted individually.
- All entries into the Manual Reports database are temporary and will be discarded when End Shift is performed.



Review

Reads- Shows current sync status of data to Boss. Numbers to left of slash "/" indicate number of record already synced with Boss, number to right of slash "/" indicate total available locally.*(In Disk Sync mode this will always be zero)*

Hits- Total number of hits that have occurred.

Misreads- Total number of reads marked as misreads.

Audits- Shows current sync status of data to Boss. Numbers to left of slash "/" indicate number of record already synced with Boss, number to right of slash "/" indicate total available locally.*(In Disk Sync mode this will always be zero)*

Click Review from the Live View screen to display additional options for reviewing data.

- **Hits** – Displays the hit alerts for VLP reads that matched plates in the databases.
- **Reads** – Displays all plate detections that have occurred since the last End Shift sync.
- **Audits** – Displays failed and successful logons, any manual data entered during the shift, and all license plate searches performed.
- **Misreads** – Displays reads and/or hits that have been manually flagged during the shift as misreads.
- **Databases** – Review all databases currently in the Pagis Software.
- **Esc** – Returns to previous screen.



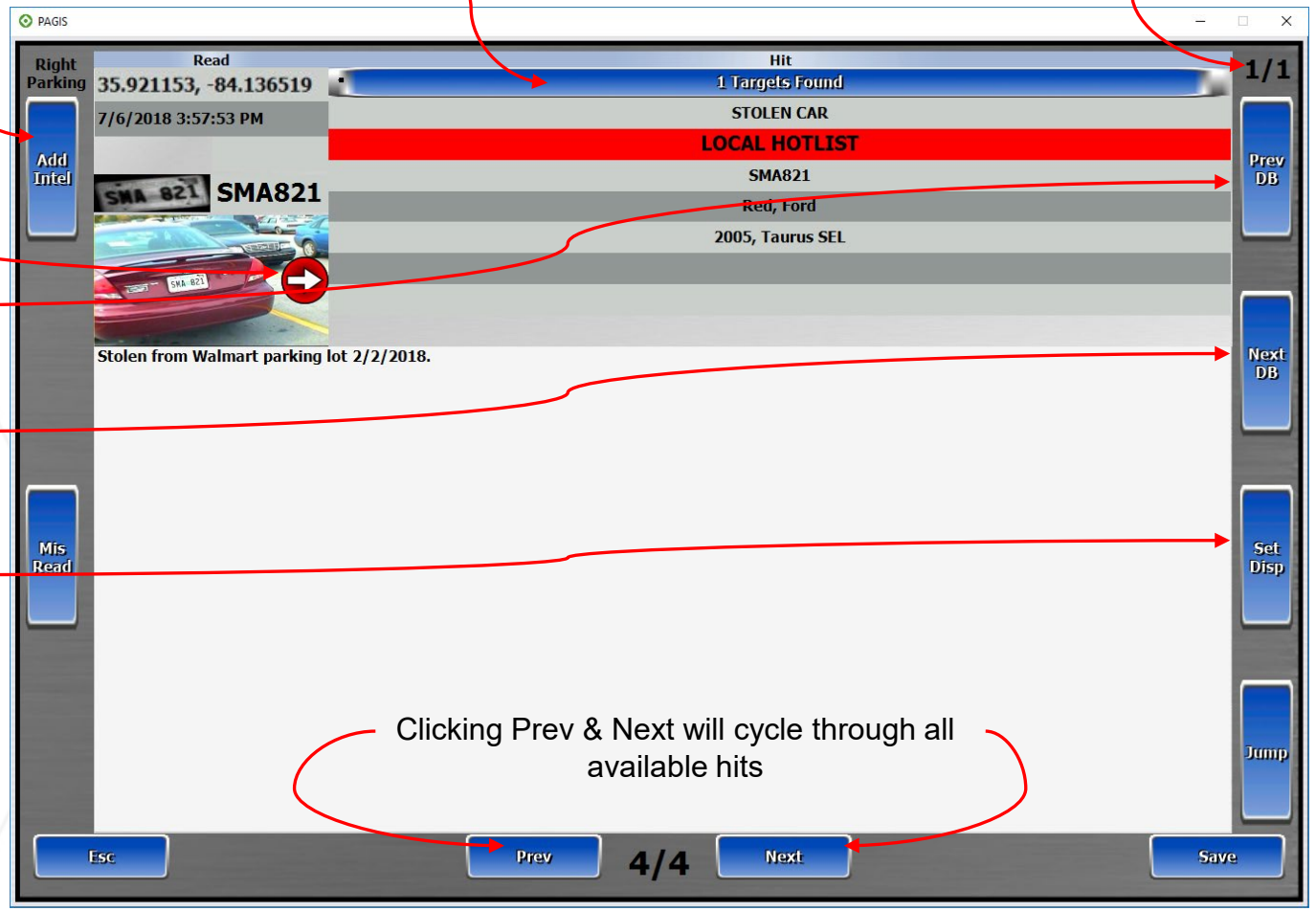


Review- Hits

- **Add Intel** – Add information about a particular hit prior to synchronization to BOSS. For instance, you might add information about the arrest or violation.
- Camera direction arrow indicator.
- **Prev DB** – Moves to the previous database that produced a hit alert with current plate number.
- **Next DB** – Moves to the next database that produced a hit alert with current plate number.
- **Set Disp** –Report on the disposition of the hit in one of the categories defined by your Boss system administrator *(Arrest Made, Vehicle Recovered, Surveillance Established, Towed, etc.)*. Dispositions will appear in the large text box. These dispositions are reported to BOSS and allow for easy classification when running hit reports.

Target Profile Found
Click to view

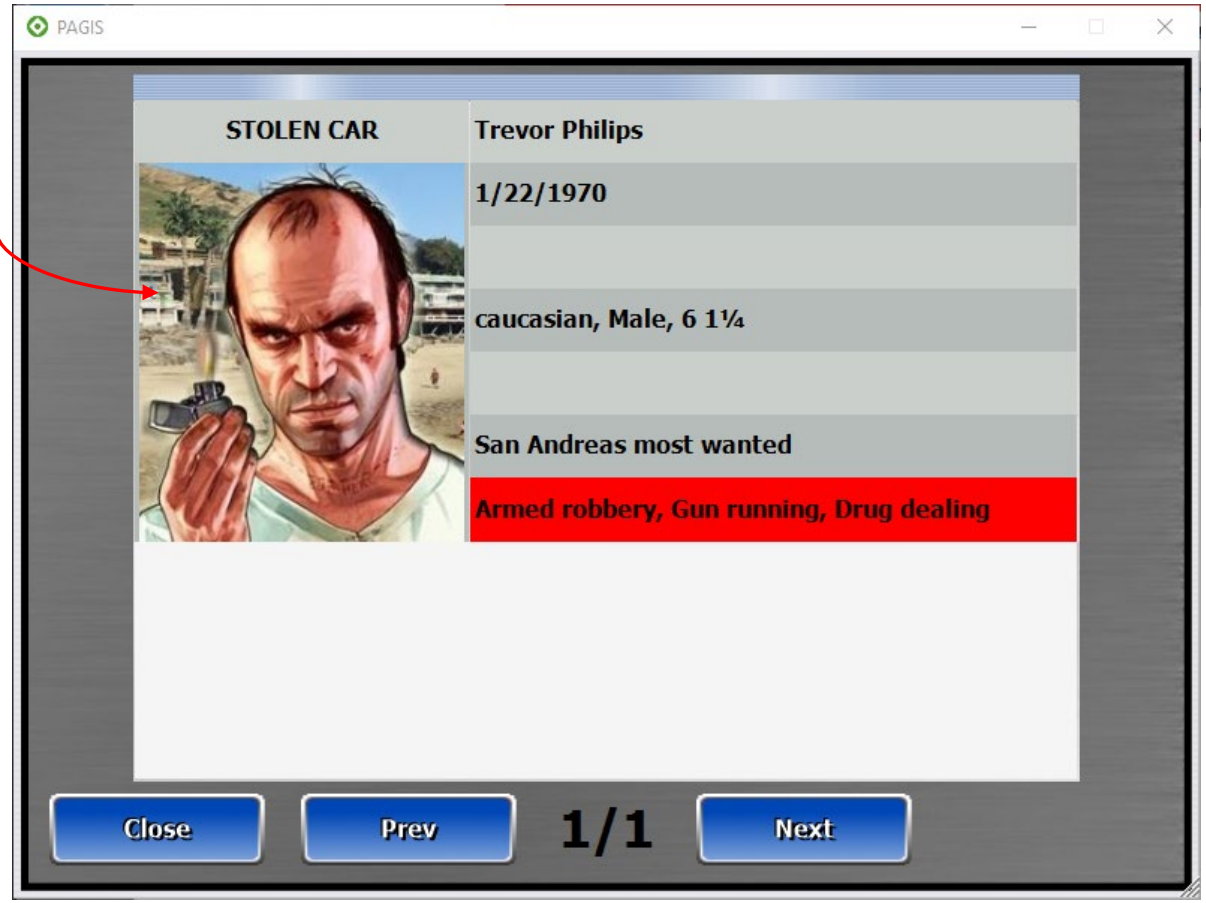
Current/Total (Databases) – Shows how many database the hit has registered against. For example, 1/3 means that you are viewing information from the first of the three databases that produced hits.



Review- Hits- Targets

- **Target Profile**–Target screen displays information about suspects matched with a license plates. Targets are downloaded into the Pagis Software's Targets list from the Back Office System Software (Boss).

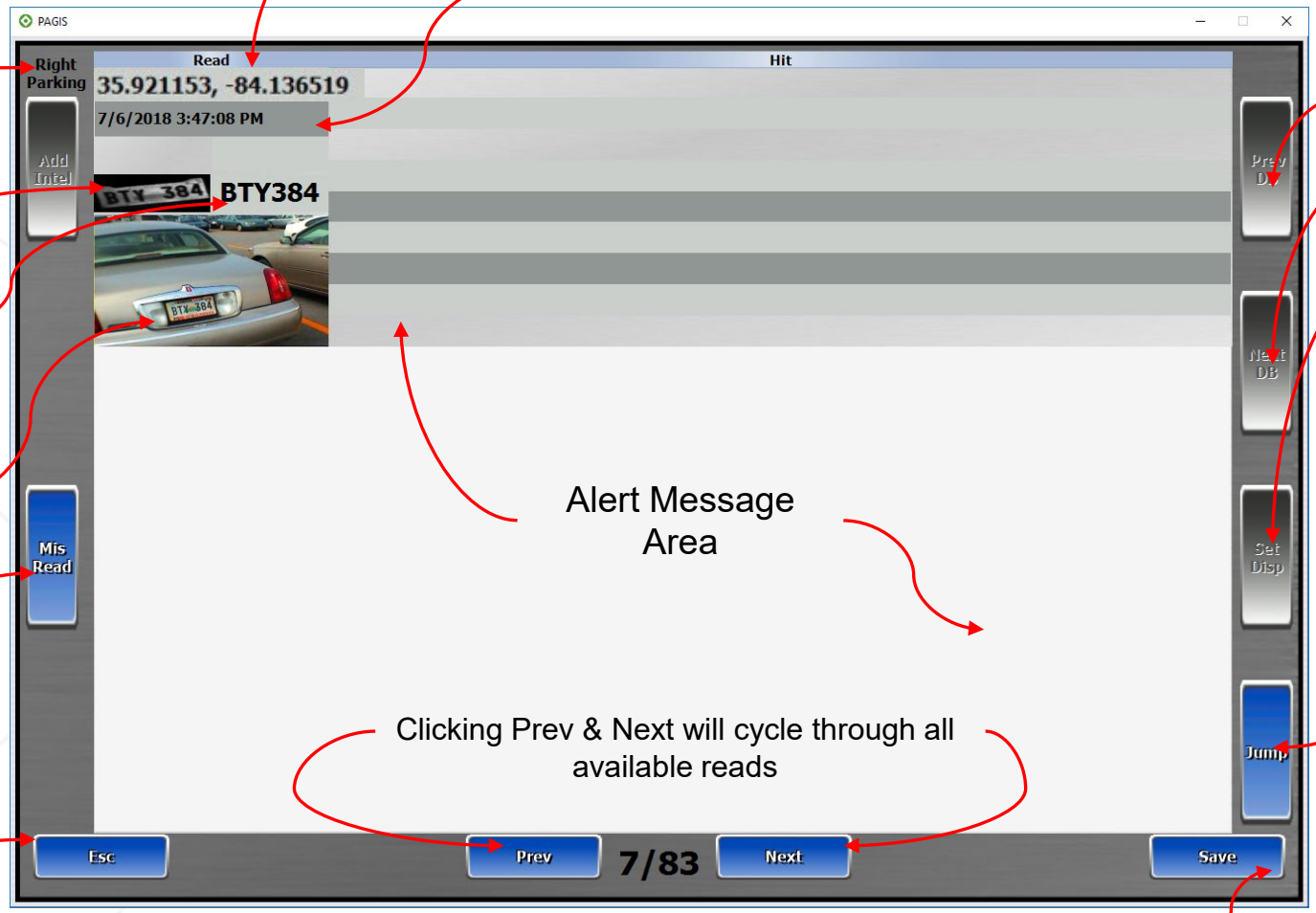
- **Close** – Returns to previous screen.



Clicking Prev & Next will cycle through all available Targets

Review- Reads

Reference: Grayed out buttons indicate the record has already been send to Boss during the automatic sync cycle. In setup utilizing USB data transfer this will not occur.



GPS coordinates

Date and time stamp

Buttons not available in Read review screen.

Capture camera name

IR “Plate Patch”
Clicking Plate Patch will result in larger view Of image for 4sec.

OCR translation of “Plate Patch”
Click OCR Patch to correct a misread.

Color Camera “Overview” image
Clicking Overview Patch will result in larger view Of image for 4sec.

MisRead- Clicking the misread button then save will tag the record as misread.
Click OCR Patch to correct a misread.

Esc- Escape to previous screen

Alert Message Area

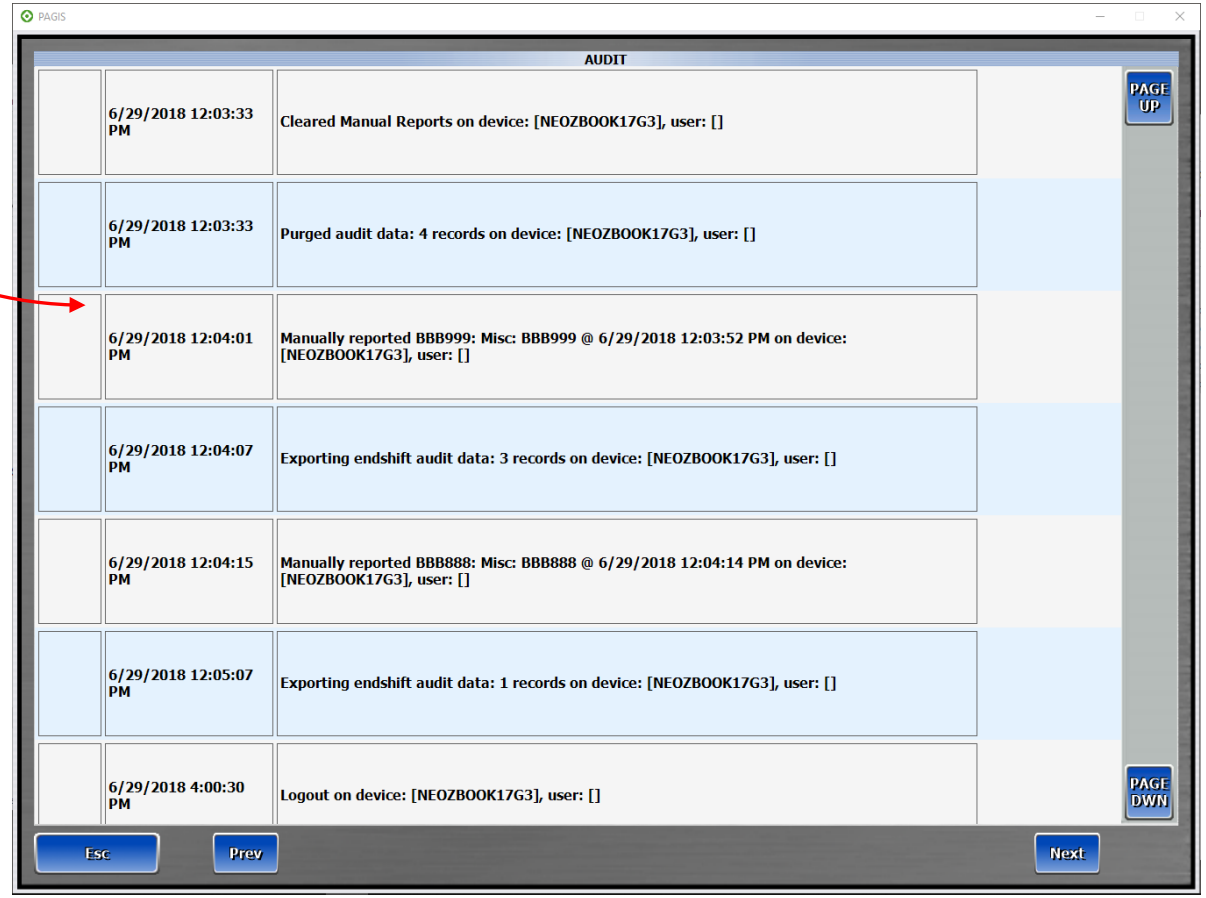
Clicking Prev & Next will cycle through all available reads

Jump – Allows you to move to a specific record.

Save change made after editing misread.

Review- Audits

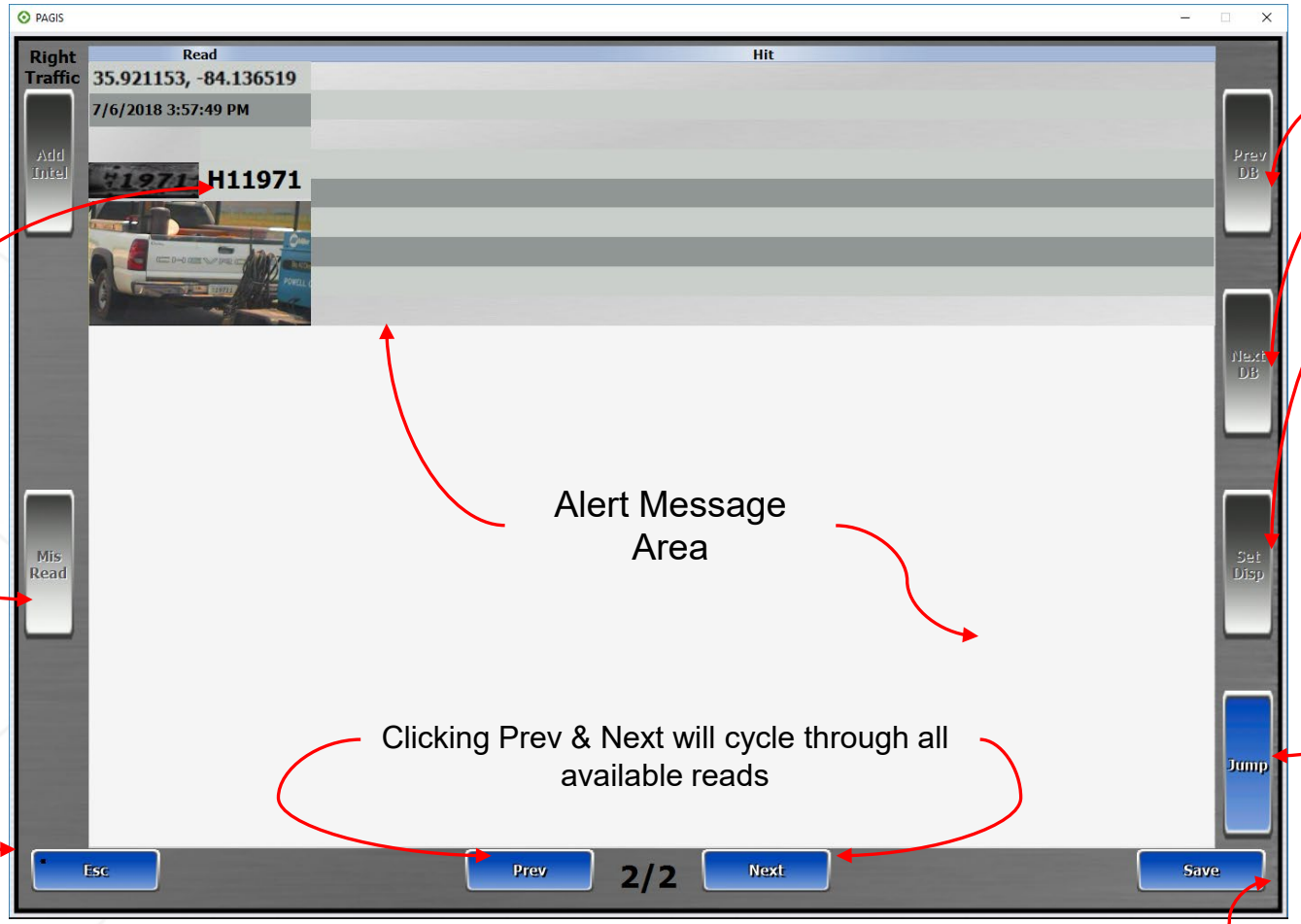
- The Audits screen provides a log of various actions taken during the current session, including searches, synchronizations, hits, etc. Performing an End Shift or syncing the database clears the log.
- Audit logs are transmitted back to Boss during automatic synchronization or during End Shift.
- **Esc-** Return to previous screen.
- **Prev / Next-** Cycle thought all available audit log by page.
- **Page Up/Dwn-** Scroll thought current page.



Review- Misreads

Reference: Grayed out buttons indicate the record has already been send to Boss during the automatic sync cycle. In setups utilizing USB data transfer this will not occur.

Buttons not available in Misread review screen.



MisRead- Clicking the misread button then save will tag the record as misread.

- *Click OCR Patch to correct a misread.*
- *Grayed out MisRead button indicates record is already tagged as misread.*
- *Hits tagged as misread are demoted to read and no longer counted as a hit.*

Alert Message Area

Clicking Prev & Next will cycle through all available reads

Jump – Allows you to move to a specific record.

Esc- Escape to previous screen

Save change made after editing misread.

Review- Databases

Database Name – Displays the name of the database in the field, along with the date and time stamp showing the last synchronization.

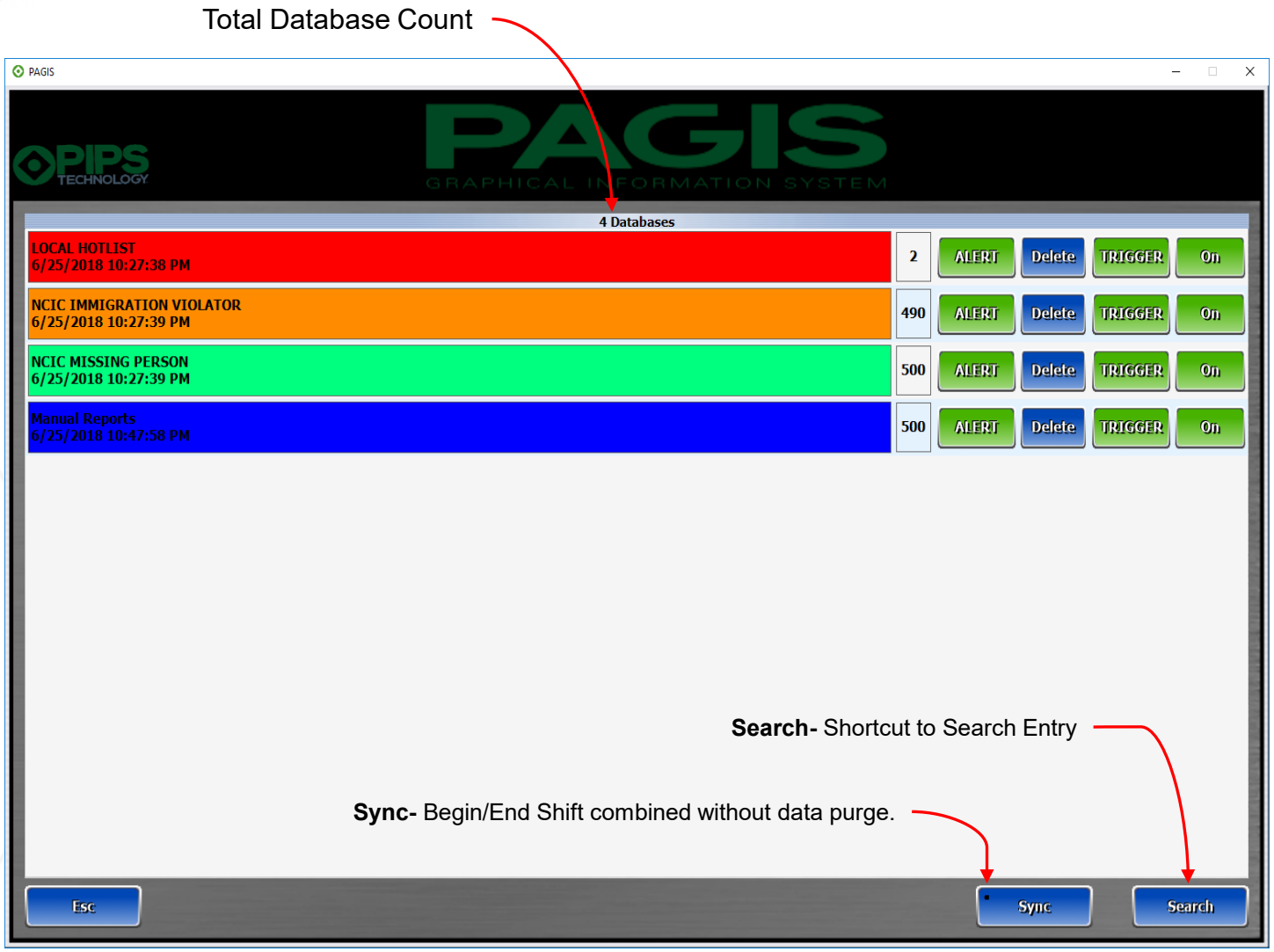
Priority – Database priority is shown by the number in the second column (100-999), as determined by the System Administrator. The lower the number, the higher the database priority. By default, the Manual Reports database created by the Pagis Software has a priority of 500.

Delete – Removes the database from the current session. Because databases are managed in BOSS, if deleted and has not been removed from the BOSS deployment list, it will be added back on the next synchronization via the automatic sync cycle or during next Begin Shift.

Trigger/No Trg – If Trigger is on, the software sends a signal to a com port on the mobile processor and any device (such as a light or siren) connected through this port will active the device during an alert.

On/Off – Database status indicator. A green On button indicates that the database is active. A red Off button shows that the database is inactive and hits will not be generated from that database in Pagis.

Alert/No Alert - When this button is clicked it will switch from “Alert” or to “No Alert” depending on its previous state. “Alert” means the Pagis user will be alerted if a hit that is triggered. If “No Alert” is displayed the Pagis user will not be notified of alert but the alert will still occur. This setting is not available by default in Pagis. The administrator must alter the “PAGIS.exe.config” file and set <add key="AllowDisabledAlerts" value="true"/>, Pagis must be restarted for changes to take effect.

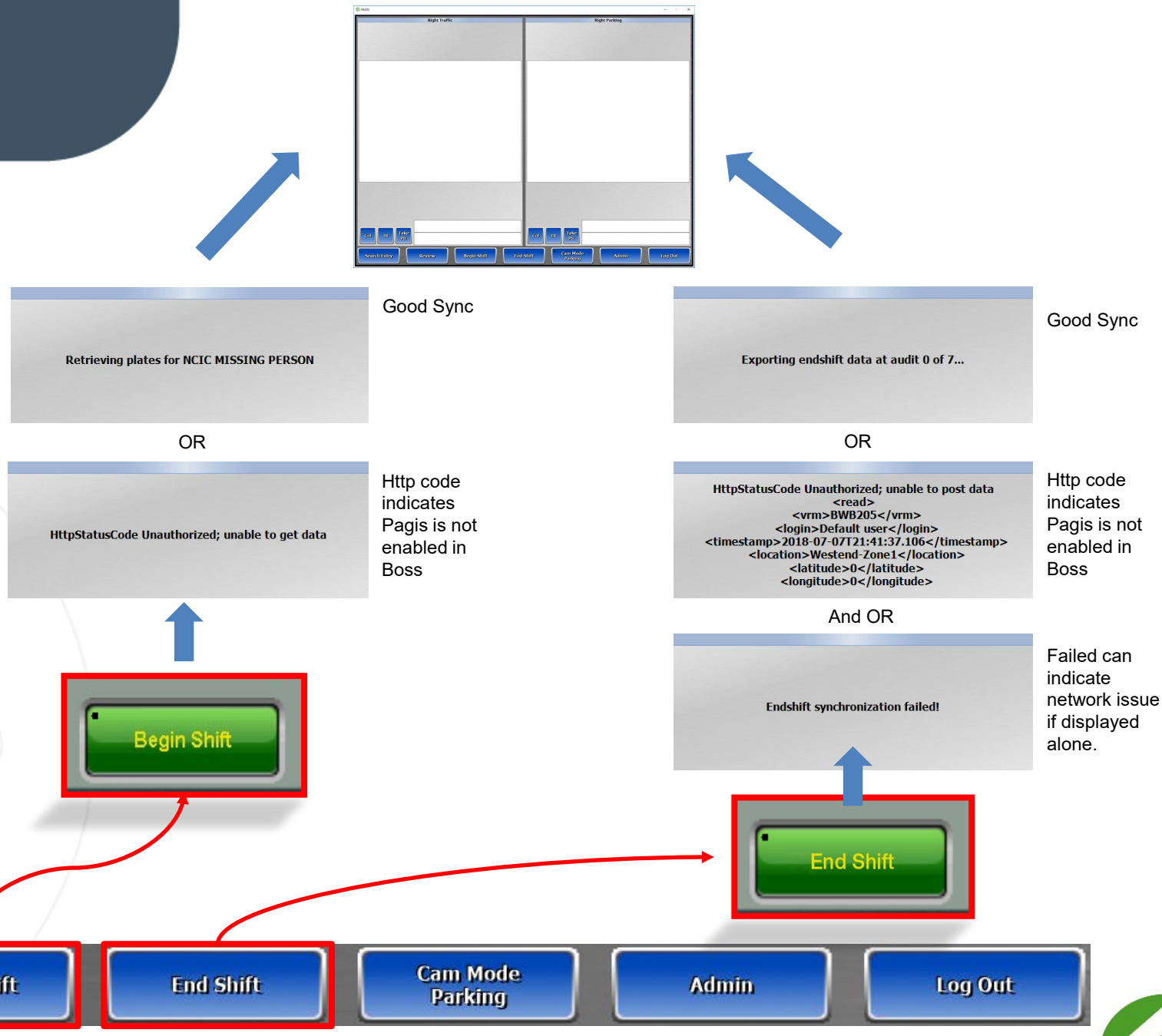


Begin / End Shift

Begin Shift- At the start of a new shift, after you have logged on and the Live View screen appears, press Begin Shift twice, which synchronizes Pagis with Boss downloading any new or updated database information. After you press Begin Shift, the status of any updates will be displayed.

Depending on the synchronize configuration in BOSS, whenever synchronization occurs, BOSS can transfer only the changes made to a database rather than transferring the entire database. This is particularly important when working with very large database files because it will reduce the amount of data transferred over the network. See the PIPS Back Office System Software User's Manual for more information.

End Shift- At the end of a shift, collected data should be exported to Boss, to export the data press End Shift twice to synchronize. If using a USB flash drive to store the data make sure its plugged into the designated USB port. No data is lost if the Pagis Software is closed without synchronizing or if communication is interrupted. End Shift purges all reads locally as well as the Manual Reports database.



Cam Mode

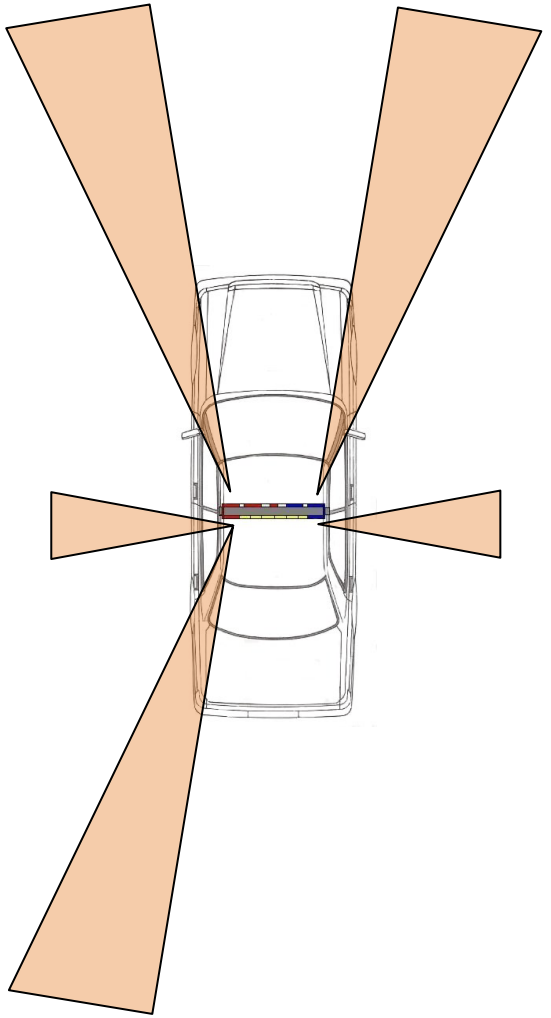
Cam mode toggles between cameras in the main live view display.

- Click the CAM MODE button to change camera configuration modes. Change modes can take approximately 2-4 seconds to transition.

Default modes:

- Traffic - Front left and Front right cameras.
- Parking - Front right and Right parking OR Left parking and Right parking.
- Additional modes can be added by the system administrator during Pagis setup.

ALPR systems with three (3) or four (4) cameras will display only two (2) cameras simultaneously. However, all cameras can be made active or inactive. Active cameras not displayed in live view are referred to as “hidden” but are active and will provide notifications upon a database match.



Click to activate. Title below “Cam Mode” will change names when mode change is complete.



Admin

Pressing Admin on the Live View screen takes you to the Admin Main Menu, a central location for accessing the Pagis Software functions.



Device Status Table:

- **Device** – Devices connected to the Mobile Processor.
- **Active** – Most recent status of a device,.
- **GPS** – The GPS coordinates captured at the time of the last confirmed connection.

Admin Main Menu items:

- **Review-** Display all data collected.
- **Location-** Location screen provides an additional area where the user is able to associate the current GPS coordinates.
- **Location Text Box** – This is a free-text entry box. The user can enter a location description that is associated with the GPS coordinates listed.
- **Cam Setup-** The Cam Setup screen lets you preview camera or images. The buttons allow the user to select each of the configured cameras.
- **Databases-** The Database screen displays active databases.
- **Targets-** View all downloaded Target profiles.
- **Admin-** The second Admin screen controls the Pagis Software options set by the Administrator, such as language, sounds, users and user privileges, GPS unit, cameras, sync folder, access to external databases and devices, configurations, and system settings. These options are explained in the following sections.
- **Logout** – Logs out of Pagis.
- **Live** – Return to the Live view screen.



Admin-Admin-Sync

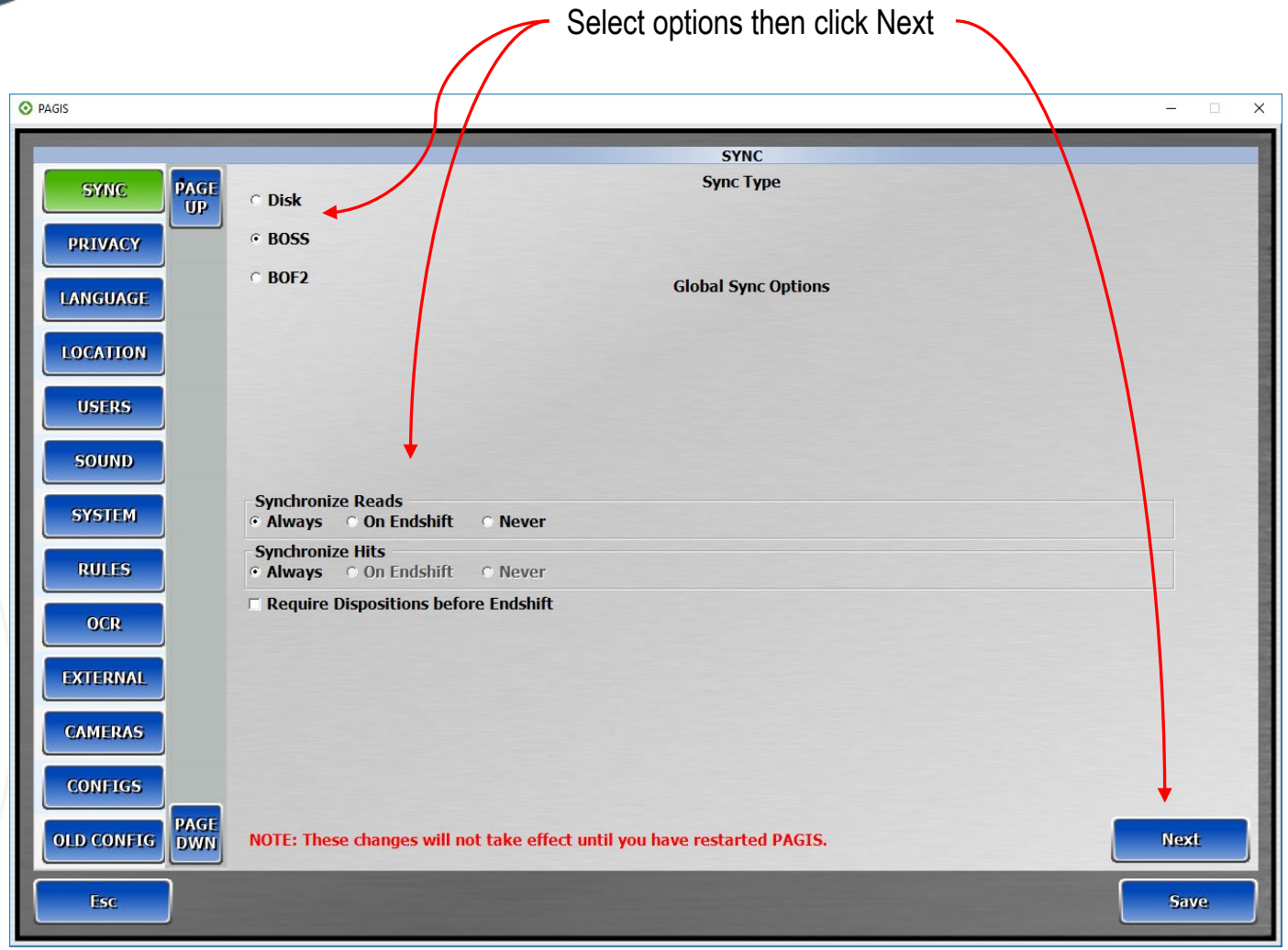
Pagis Sync Type:

- **Boss-** Configure Pagis for wireless communication to BOSS. Once established wireless communication to Boss can occur automatically or manually via the Begin/End Shift features.
- **Disk-** Configure synchronization via USB thumb drive.
- **BOF2-** Used for European Boss version (Instation).
- **Next-** Proceeds to next configuration screen based on option selected above.

Global Sync Options:

Synchronize Reads / Hits

- Selecting "**Always**" means that reads and hits are always going to be synced to the Back Office System Software.
- Selecting "**On Endshift**" means that syncing will only occur upon End Shift or Sync.
- Selecting "**Never**" means that information gathered in Pagis will be sanitized as it is being sent to the Back Office System Software.



Admin-Admin-Sync-Disk

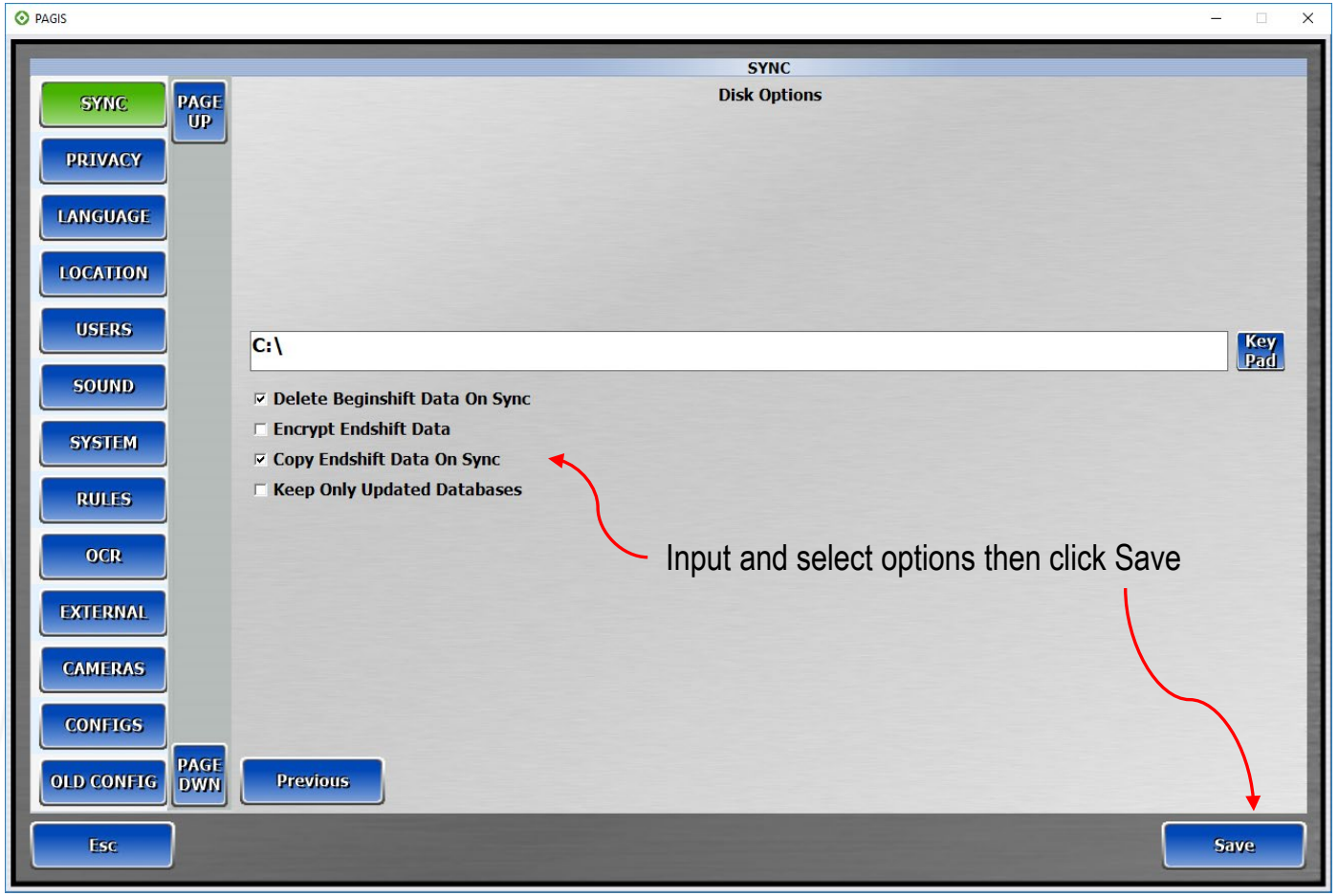
Synchronization to a Local Disk or Flash Drive:

If choosing Disk, with the sync folders residing on a USB flash drive, make sure the flash drive assigned to the user has adequate space to accommodate the file size of all the databases that will be imported and exported. Folder sizes vary depending upon the number of entries and the number of databases but typically a 4Gb drive will work for most.

- **Text box-** Enter the drive letter only, do not use folder paths as Pagis will automatically manage Begin shift and End shift folders.

Disk Sync Options:

- **Delete Begin Shift data on sync-** If this option is selected, the sync folder will be deleted once all of the data has been imported into the Pagis Software. This option is “on” by default.
- **Encrypt End Shift data-** If this option is selected, the end shift files created by the Pagis Software will be encrypted. This option is “off” by default.
- **Copy End Shift data on sync-** If this option is selected, the End Shift folder will be created and the End Shift files will be stored. This option is “on” by default. If off files will not transfer to drive.
- **Keep only updated databases-** If this option is selected, any databases that were not updated during Begin Shift will be considered outdated and removed. This option is “off” by default.

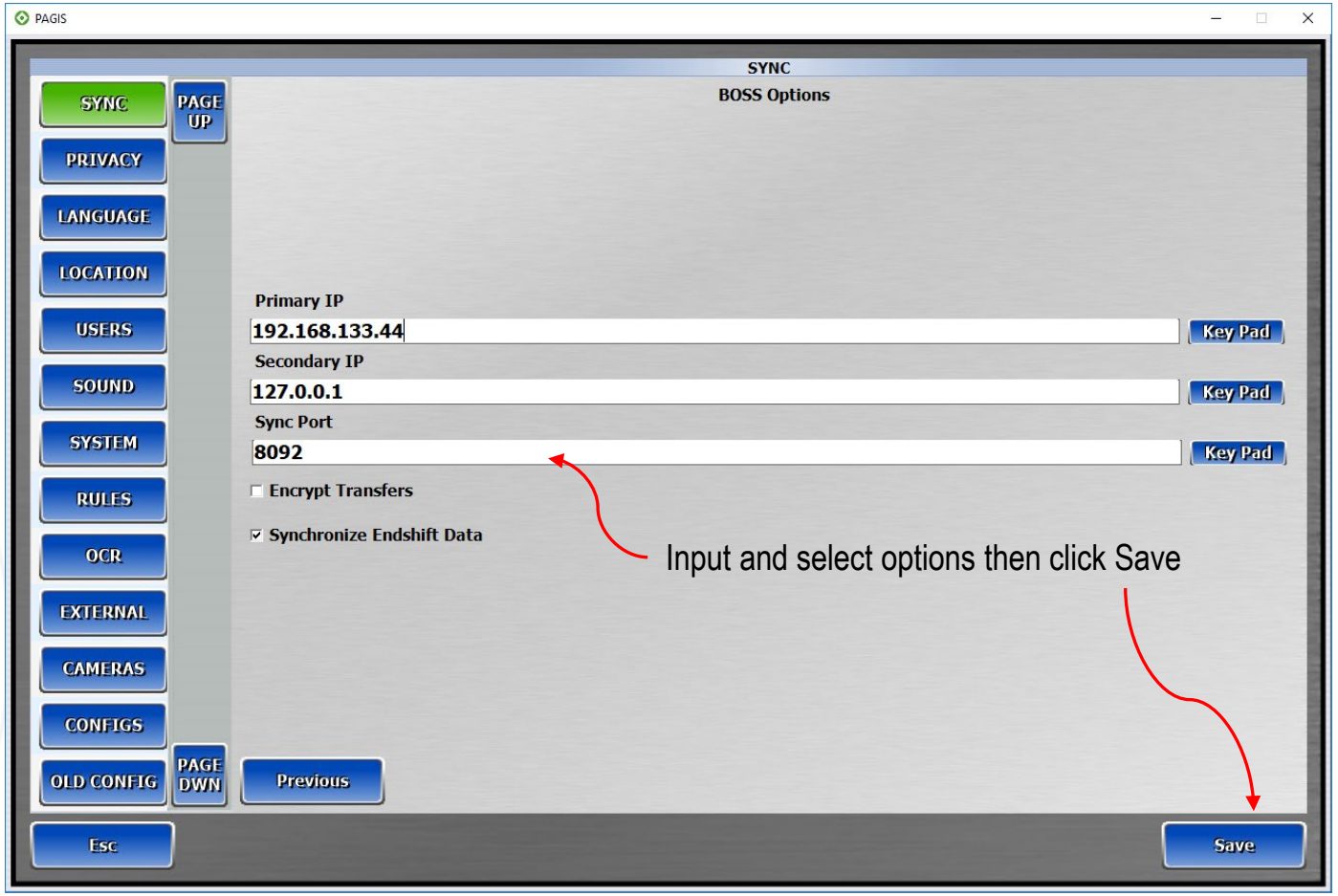


Admin-Admin-Sync-Boss

Synchronization to Boss:

If choosing to establish BOSS as the synchronization method, the user must have wireless access to the network to successfully sync at the beginning and end of a shift. You must also have an IP address of the BOSS server that is reachable via TCP/IP port 8092. After syncing with the Back Office System Software, data is flagged in the database to prevent duplicate syncing.

- **Primary IP-** Enter IP or Domain name of Boss server, used for primary network connection. Pagis utilize TLS-1.0 as it communication protocol.
- **Secondary IP:** Enter IP or Domain name of Boss server, used for alternate network connection if switching from Cellular to Wifi. Leave default if not utilizing.
- **Sync Port-** Default port is 8092, this port can be customized but you must make sure the Boss “RestAPI” port matches the new custom port.
- **Encrypt Transfers-** If this option is selected, the end shift files created by the Pagis Software will be encrypted. This option is “off” by default.
- **Synchronize End Shift Data-** When select all read/hit data will be synchronized with Boss during its automatic communications cycle and during End Shift.



Admin-Admin-Privacy

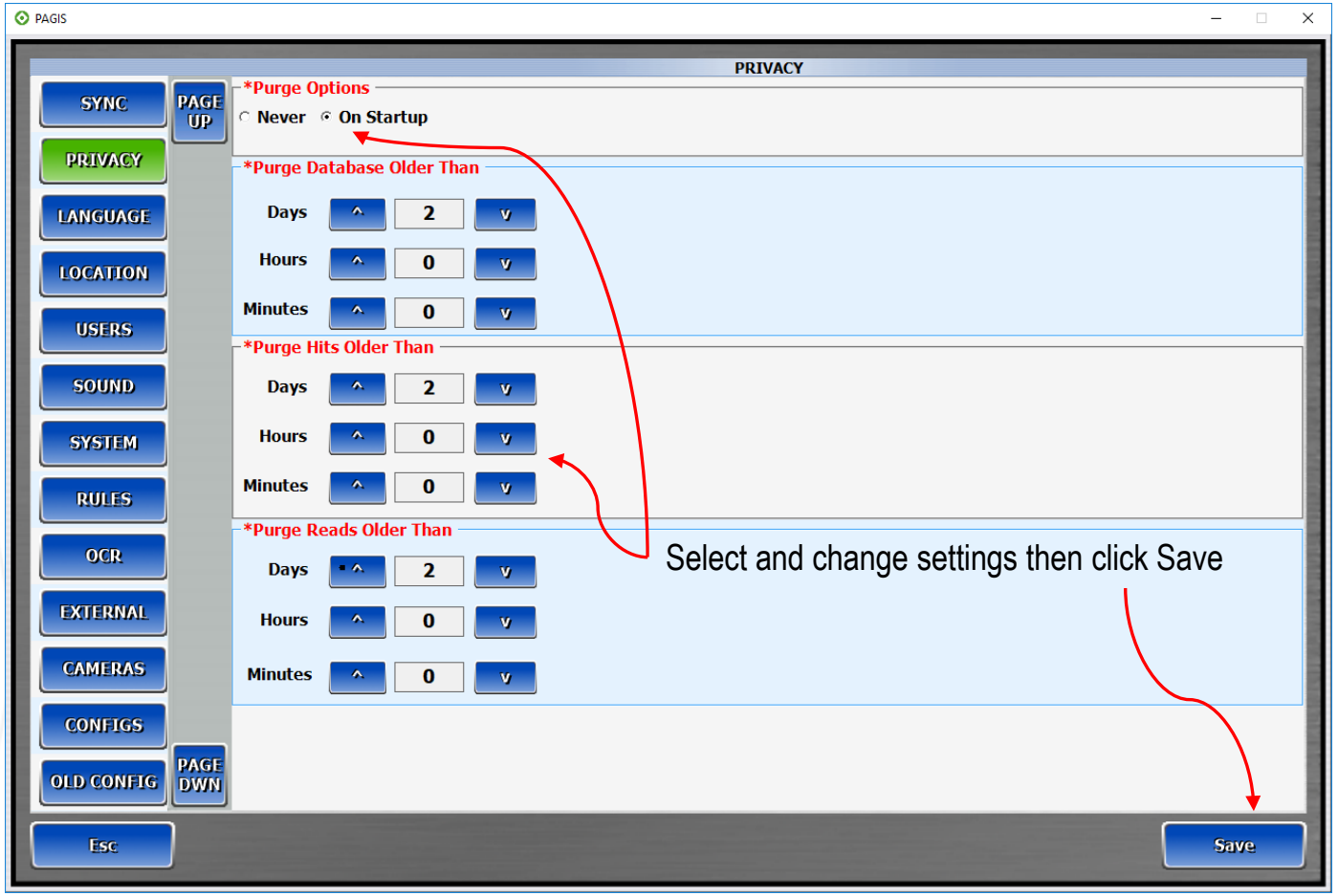
Privacy settings ensure data compliance and also prevents local storage from filling up. These configurable settings control the length of time in days, hours, and minutes that read or hit information is to be saved locally.

- **Never-** Privacy Settings disabled.
- **On Startup-** With On Startup selected, each time Pagis is restarted, it checks these settings and evaluates whether existing information has exceeded the allowable age.

Purge Database Older Than Setting:
Control how frequently the databases stored on the system are removed. For example, if a database, “Expired Plates Hotlist,” was added 3 days ago and the purge settings are set to 2 days, then the next time Pagis is restarted, “Expired Plates Hotlist” will be removed.

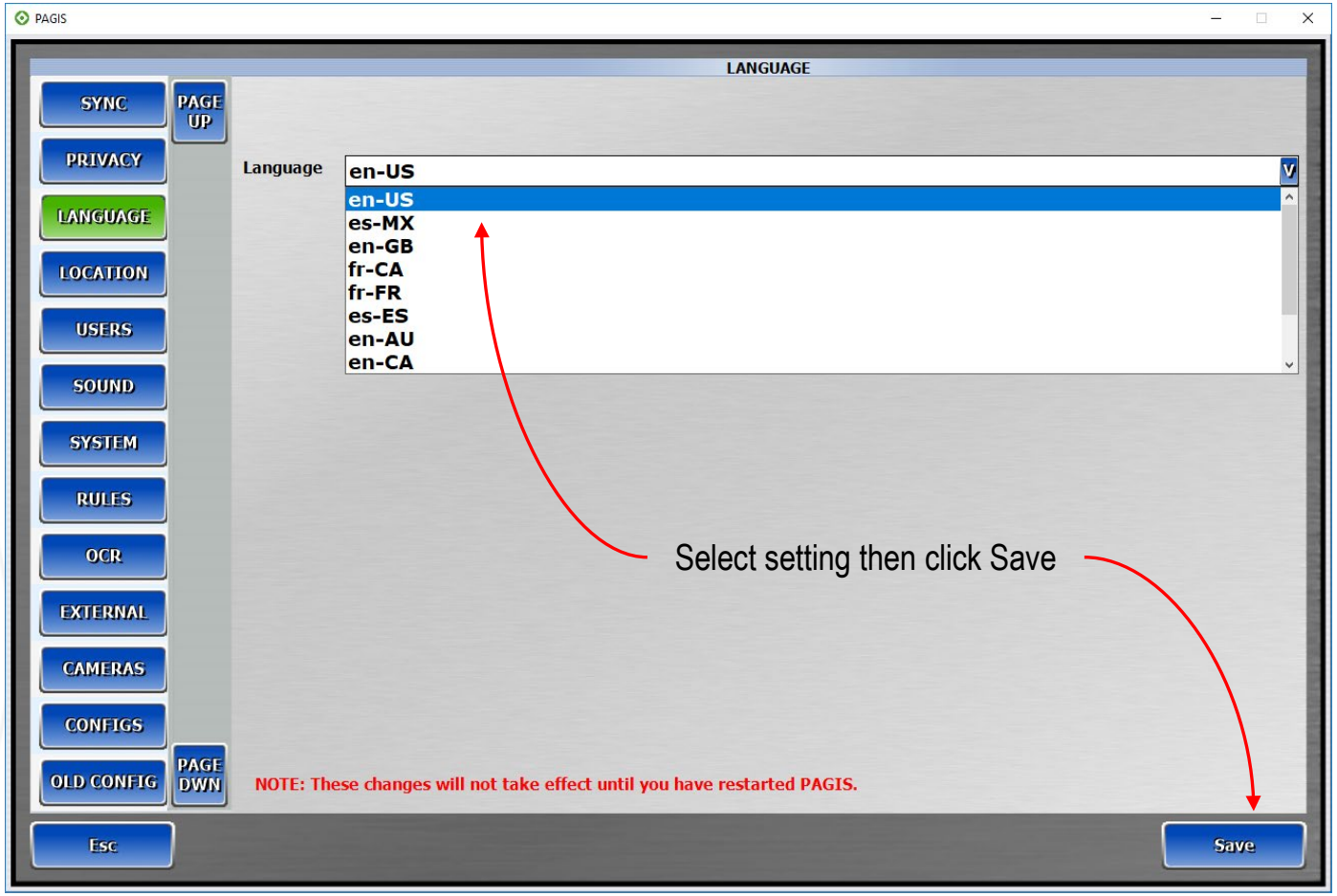
Purge Hits Older Than Setting:
Control how frequently the hits stored in Pagis are purged. For example, if any hits in Pagis were captured a week earlier (7 days ago) and “Purge Hits Older Than” is set to 4 days and 5 hours, then the next time the Pagis Software is restarted, those hits will be removed.

Purge Reads Older Than Setting:
Control how frequently the reads stored in Pagis are purged. For example, if reads were captured a month earlier (30 days ago) and the “Purge Reads Older Than” settings are set to 25 days, the next time Pagis is restarted, reads more than 25 days old will be removed.



Admin-Admin-Language

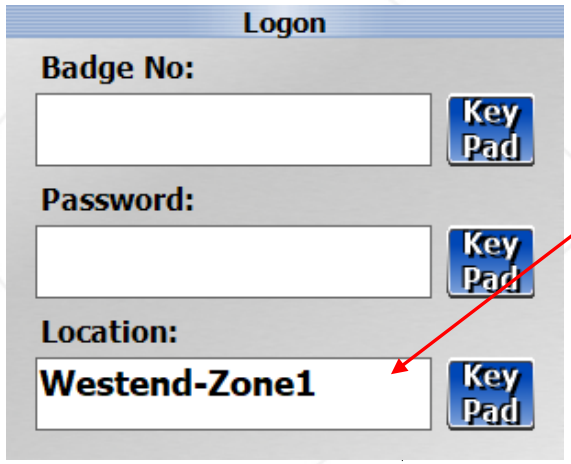
Language- Change the language assignment used in the Pagis Software. Available languages are listed in the drop-down box and are added during the installation process.

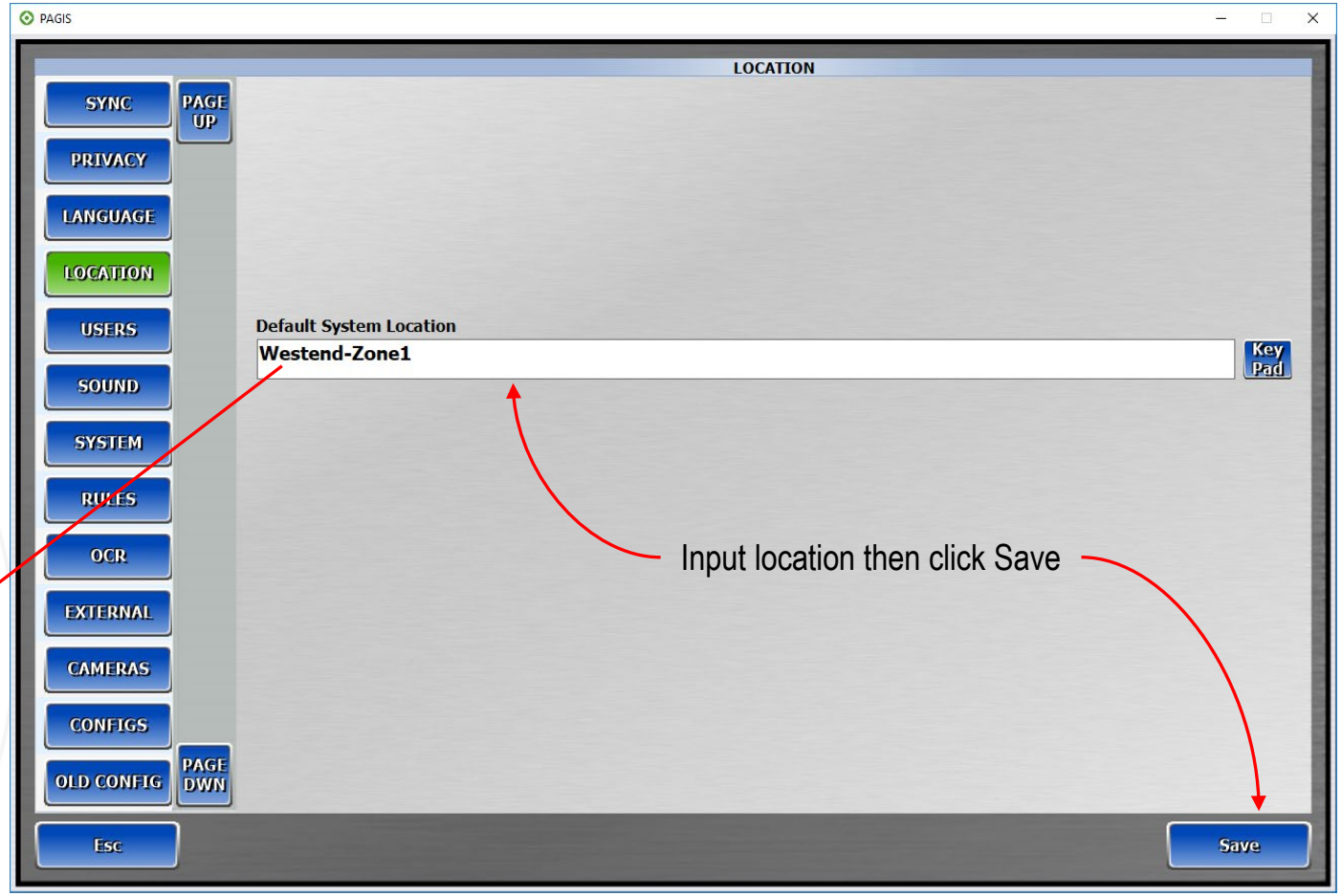


Admin-Admin-Location

Default System Location- Any name entered in the location field is listed as the default system location at the login screen. The location name will be assigned with every read/hit capture by Pagis, this information is not tied to the GPS location.

Location listed at Login Screen





Admin-Admin-Users

IMPORTANT: Adding new users through the Pagis Software should be limited to those customers who are not syncing to the PIPS Back Office System Software as Boss will override any users added manually during the next sync.

Badge No. (Username) – Add a new user. The username field will accept up to 15 alphanumeric characters.

Password – Enter a password to associate with the username. The password field will accept up to 15 alphanumeric characters.

Privileges – Select the privileges associated with the user by clicking on the buttons defined below. After a privilege is activated, the button changes to green.

Sync – Allows the user to synchronize files.

Ext – Allows the user to access external databases.

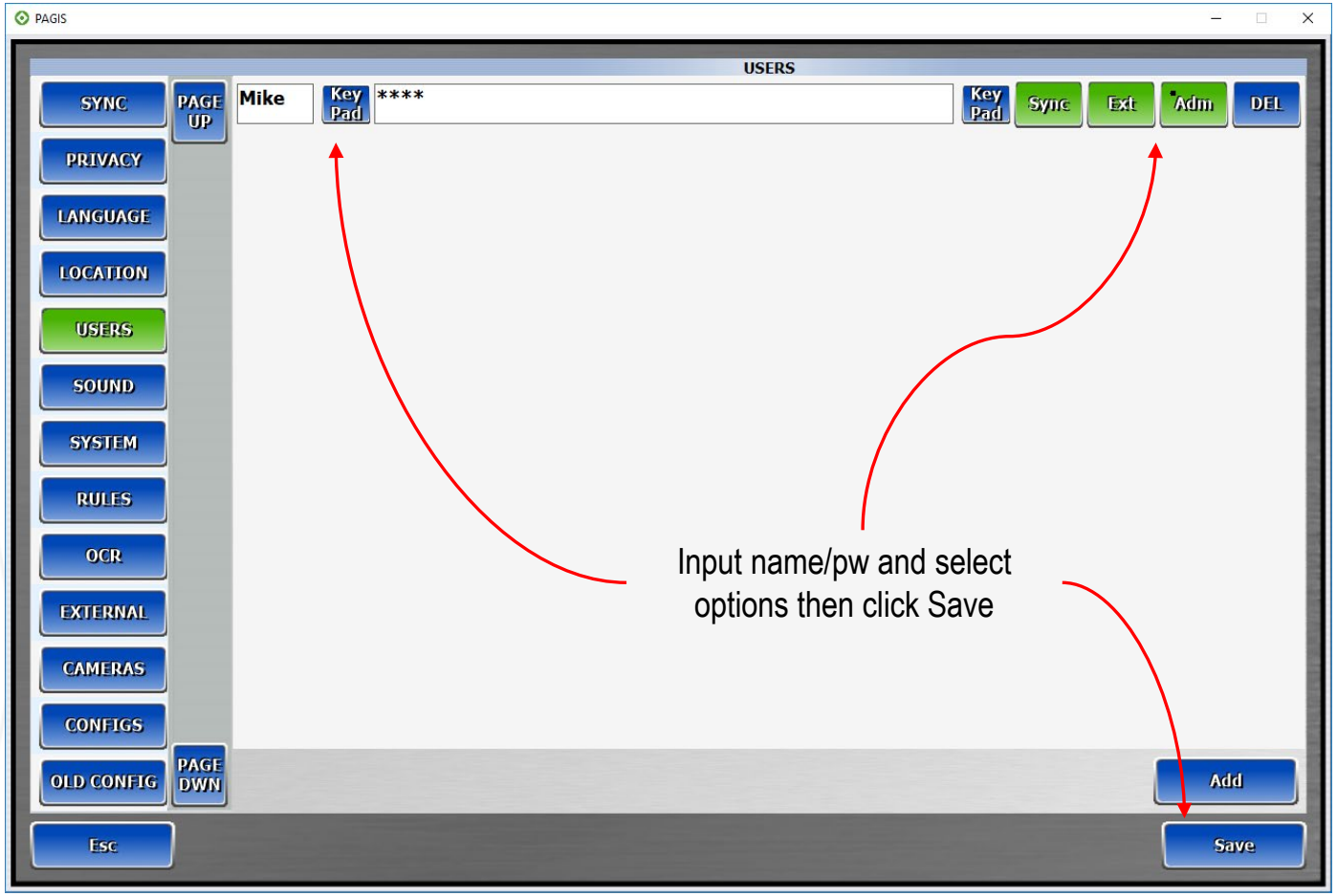
Adm – Allows the user to configure the Pagis Software, add and remove users, and change all advanced options.

Del – Remove a user from the list. The user is deleted the second time the Del button is pressed.

Add – Add a new user with the options selected.

Save – Add the new user to the database.

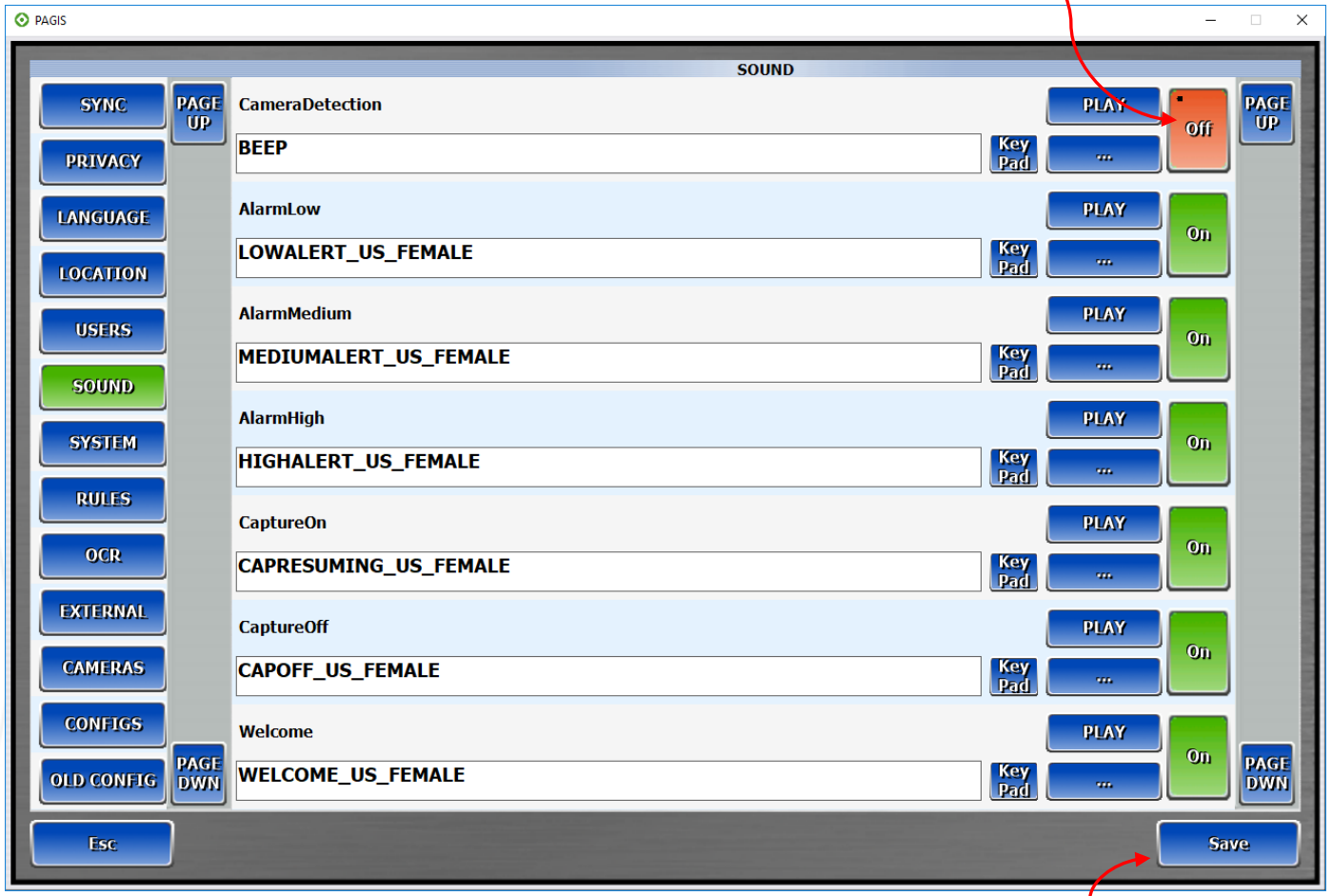
Esc – Return to the previous screen without saving changes.



Admin-Admin-Sounds

The Sound screen associates available sound files with specific alerts and actions.

- **On or Off-** Sounds are active when the button is On (green) and deactivated when the button is Off (red).
- Choosing sounds is an optional feature. Sounds are preset in the Pagis Software and may be modified by an Administrator. By default, the Pagis Software will play a sound to notify the user when an event or “hit” is triggered. Sound files (.wav file format) are stored in the Sounds folder in the Pagis Software directory.
- To select new sound files select the  button and Windows File Explorer will open.
- All sound changes are Global and apply to all uses in Pagis.
- **Page Up/DWN-** Scroll thought available options.



Admin-Admin-System

The System screen determines external system connections and assigns connection string ports to cameras and to the external GPS unit. The GPS connection string refers most commonly to a COM port, although it may also refer to the IP address TCP/IP port "IP_Address:TCP_Port".

You can change the computer ports, and GPS connection strings by clicking in the text box and entering the text using the keyboard or the keypad. Press the Save button to save changes. You must exit and restart the Pagis Software for any changes to take effect.

Default- Used for all PIPS mobile processors. In client-server configuration these setting should not be altered from the defaults.

- Only GPS connection String available, default is 5 in client server & 6 on standalone systems.

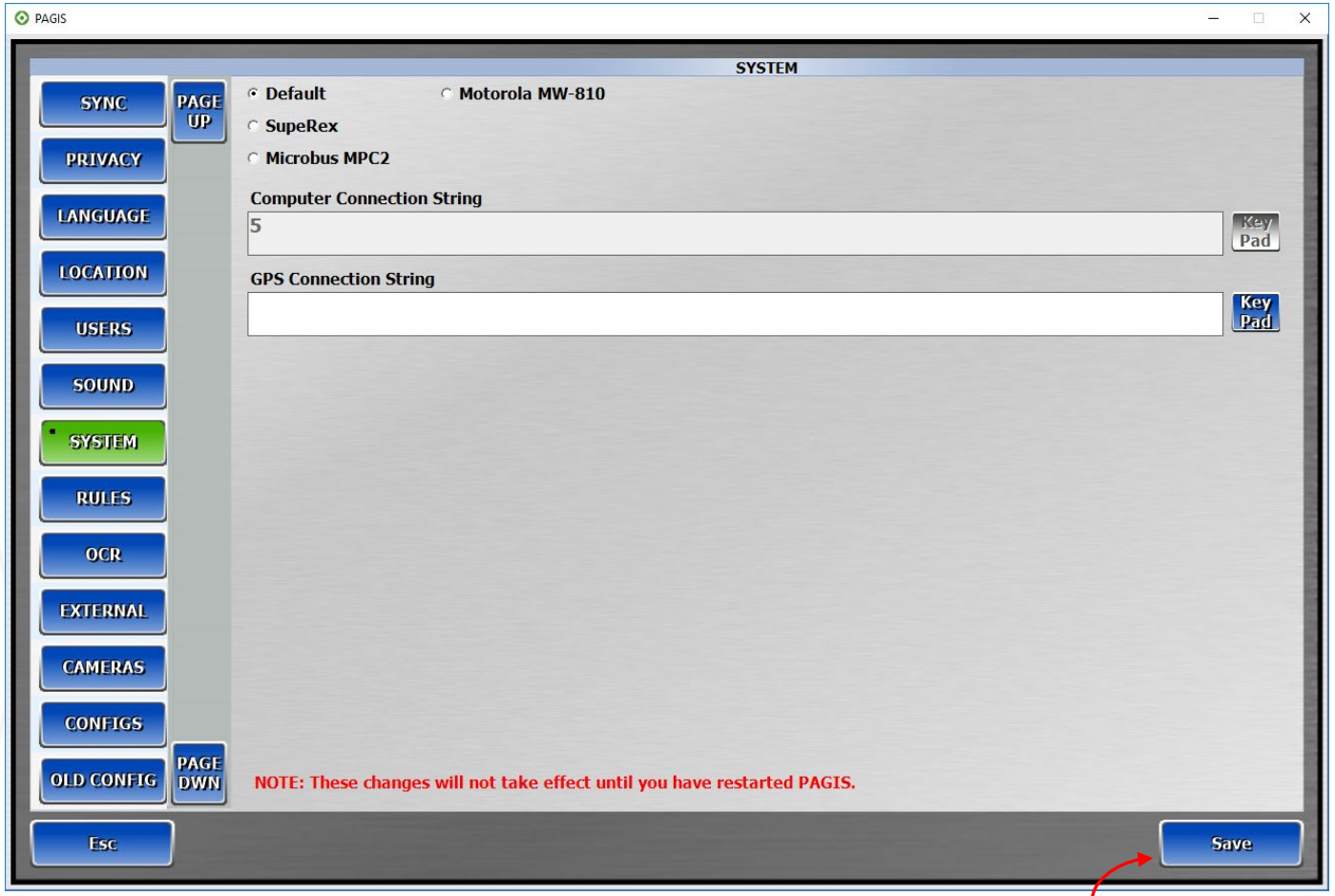
SuperRex- Legacy feature not used.

Mircobus MPC2- Used for European customers running on Microbus systems.

- Only GPS connection String available.

Motorola MW-810- Used when running on Motorola MW-810 ALPR units.

- Computer & GPS connection String available.



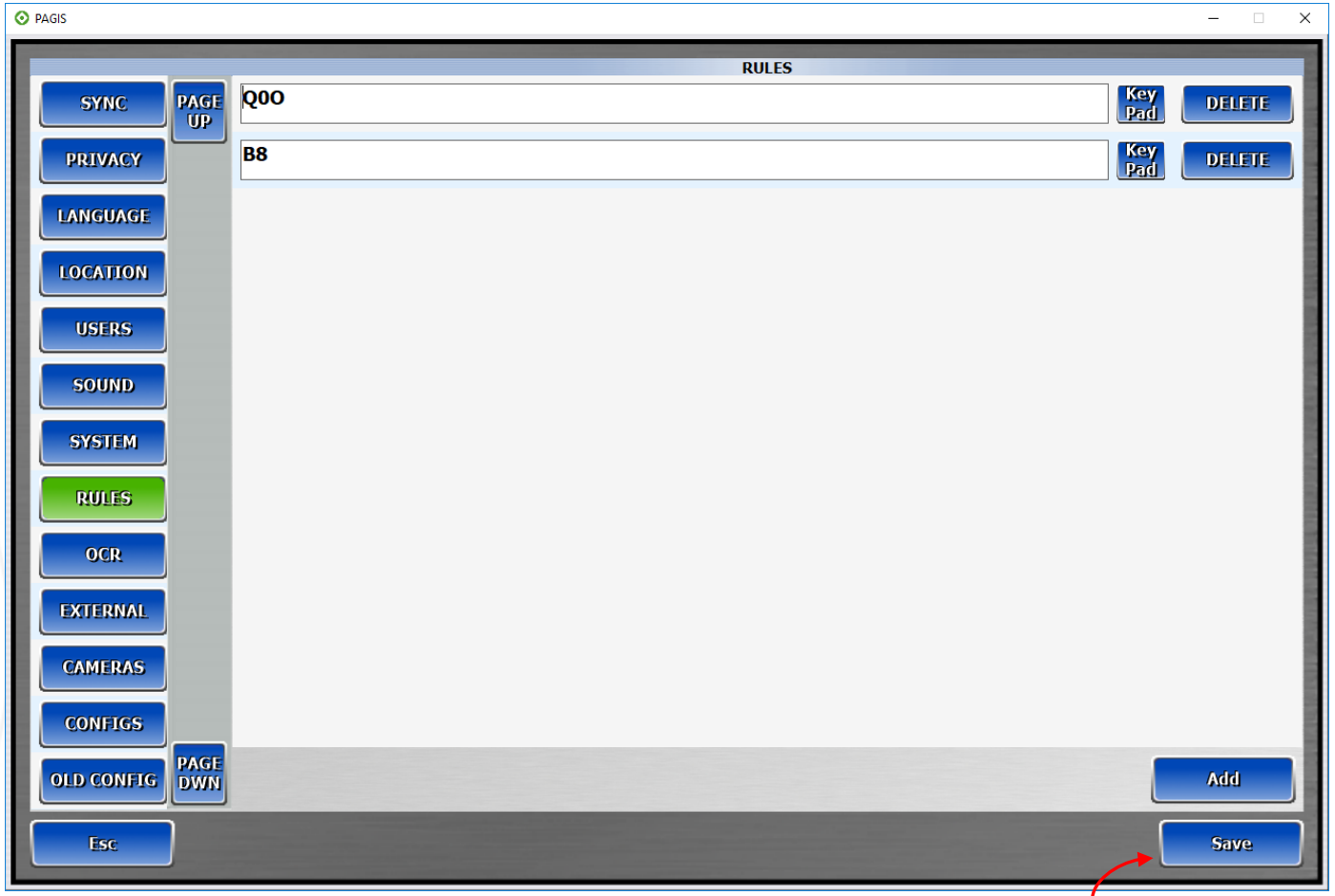
To apply changes click Save

Admin-Admin-Rules

Rules provide a way to check for a commonly misread character and the read character as both options for a database match. For instance, “8” and “B” are sometimes mistaken. If the OCR engine reports a plate as ABC123, you might check both ABC123 and A8C123 against all databases to find a match. While you are less likely to miss a hit, the process can also produce more false hits.

To add a new rule on the Rules screen:

- **Add-** Click Add and enter a single character instance (the letter “O,” for example), and enter a list of similar characters (letter “O”, number “0”, and letter “Q” in this example).
- With this rule defined, anytime the system reads an “O”, it will run the query for matching purposes as “O,” “0,” and “Q.”
- **Delete-** Click and highlight the “Delete” button then save to delete a rule
- **Save-** Click to save changes.



To apply changes click Save

Admin-Admin-OCR

The OCR screen is used to enable inverse and square plate reads, to disable duplicate plate reads (if multiple cameras pick up the same plate), to show diagnostics, and to disable read correction. Each check box toggles the options: if a check mark appears, the option is active. If the box is empty, the option is disabled.

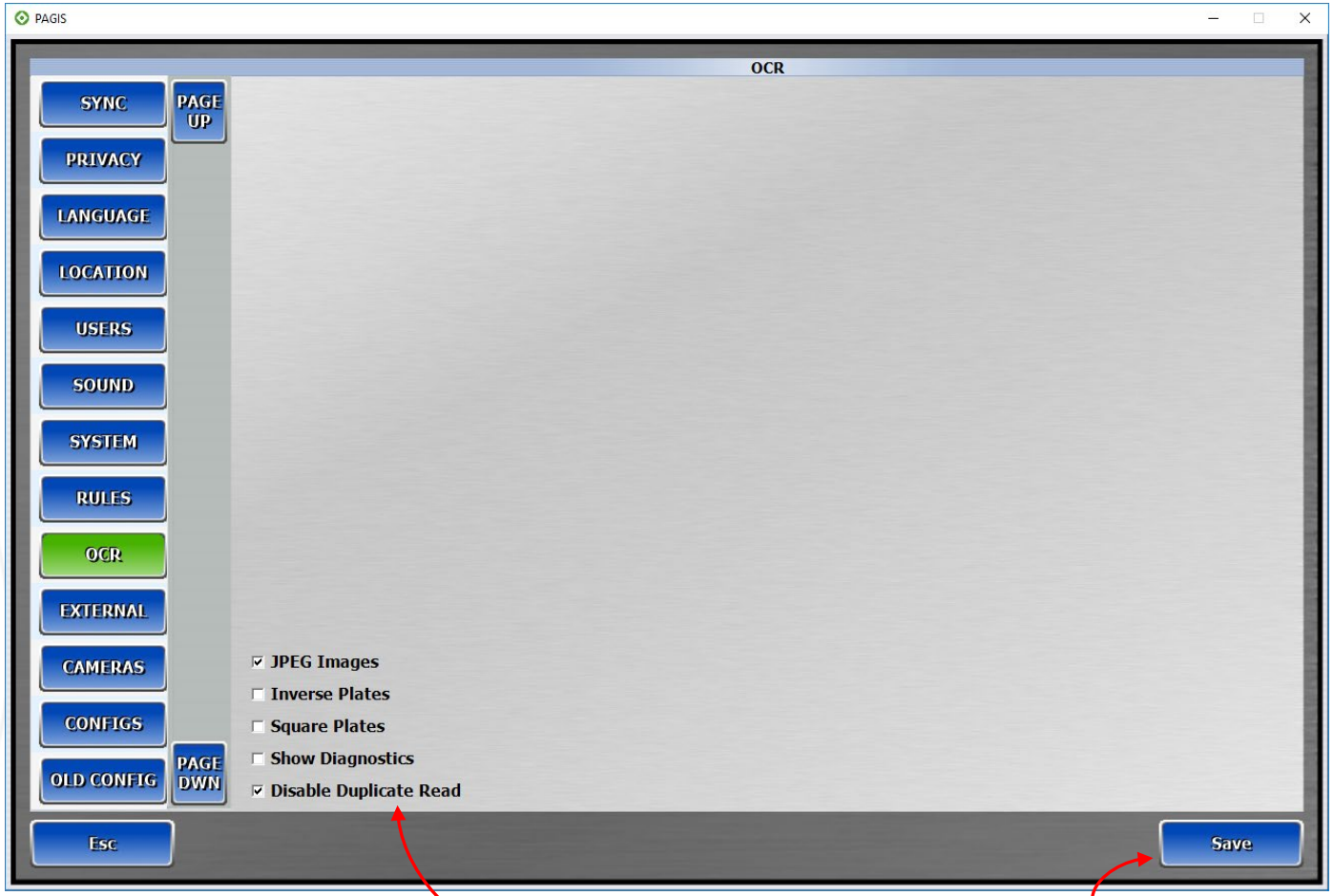
JPEG Images- Use compressed .jpg images instead of full-resolution bitmaps. On by default. When this feature is activated, it minimizes storage requirements for collected data.

Inverse Plates- This feature can be useful for plates with a dark background and light lettering. Off by default. This option increases the processing load and therefore should remain disabled until it is needed due to the region.

Square Plates- Adjusts the read area for plates that are square instead of rectangular. Off by default.

Show Diagnostics- Shows a diagnostic screen when Pagis is running. Off by default.

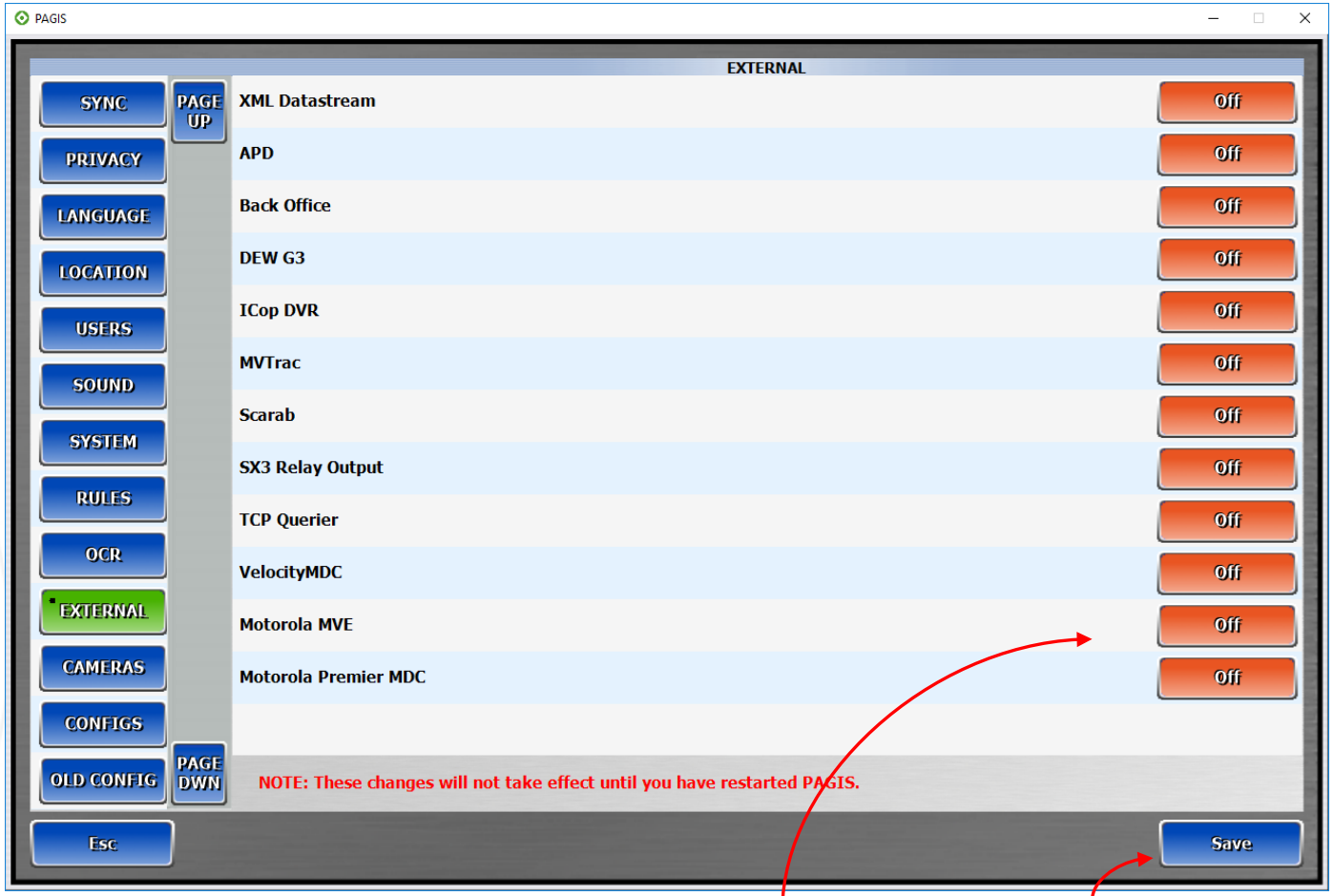
Disable Duplicate Read- Turns off duplicate reads. If the same plate is read by more than one camera within a short time frame, the duplicate is ignored. This minimizes storage requirements for the collected data and improves system metrics related to the number of reads. On by default.



Admin-Admin-External

The External function creates a conduit for PAGIS to communicate with external software applications and hardware platforms or devices. External can connect PAGIS to a CAD system to pass the license plate text from a match to a hotlist or start a digital video recorder when a hit occurs.

- To make this connection, click the red Off button to change it to a green On button and then press Save. Any changes made on this screen will take place after the Pagis Software is restarted.
- External hardware devices may require additional cabling between the mobile processors serial port and the device to be controlled.

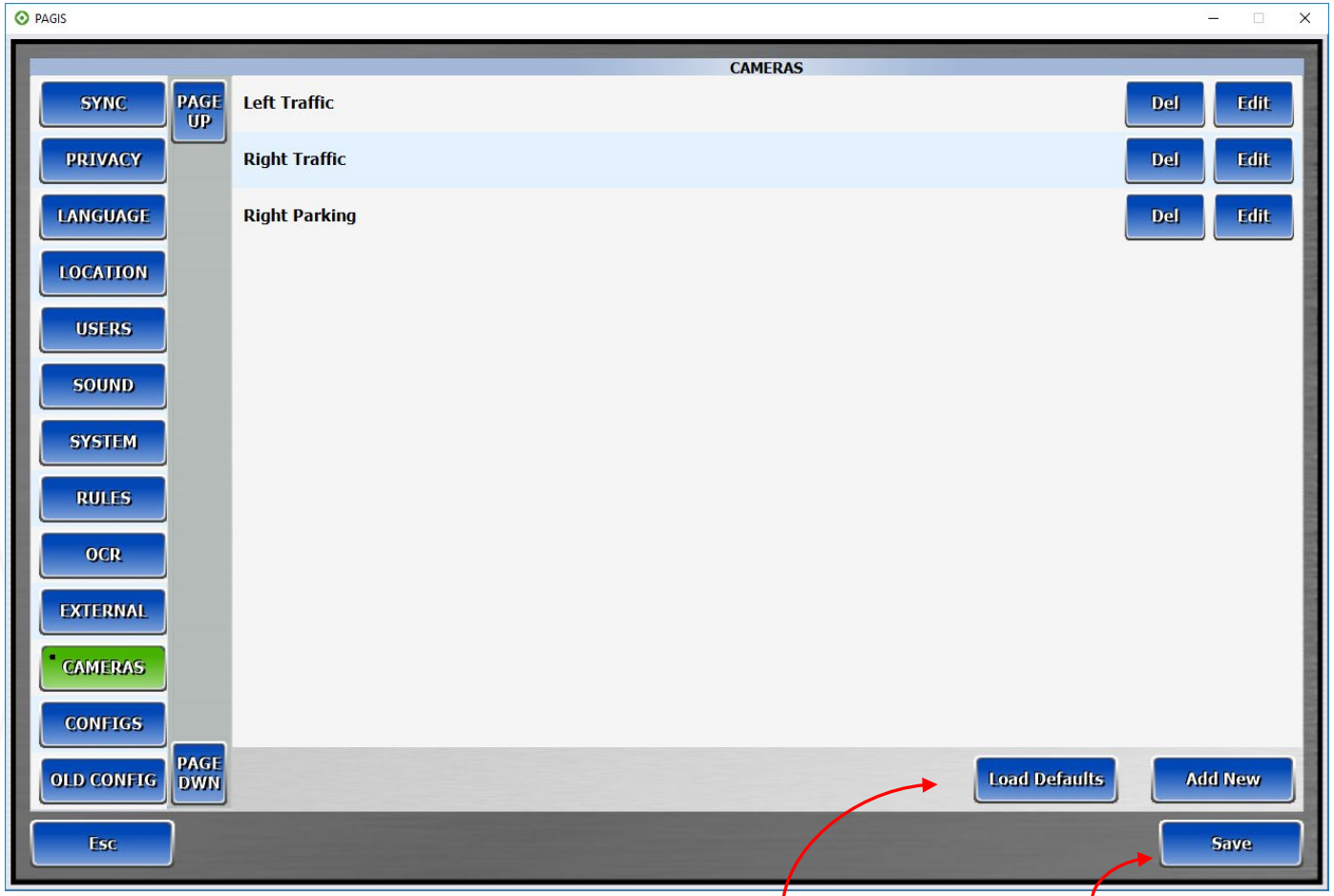


Make selection then click Save

Admin-Admin-Cameras

The Cameras screen lets you add and identify specific cameras for use with the Pagis Software. Because the camera configurations setup using the Configs screen are associated with Camera or Lane Names, cameras must be identified or named. Otherwise, no options will be available in the drop-down boxes for Display and Hidden cameras on the Configs screen.

- **Load Defaults-** Loading a default setting provides a base configuration to modify and is based upon a standard four- camera system. The defaults can also be used for testing purposes. Choosing a default also loads associated configuration files, which appear in the Configs screen.
- **Add New-** Add new camera type. Cameras supported by the Pagis Software are P362, Sony, Digital Eye Witness, CCTV, IR, TSS, and P632 Slate cameras.
- **Edit-** Configure camera settings.
- **Save-** Apply camera changes.

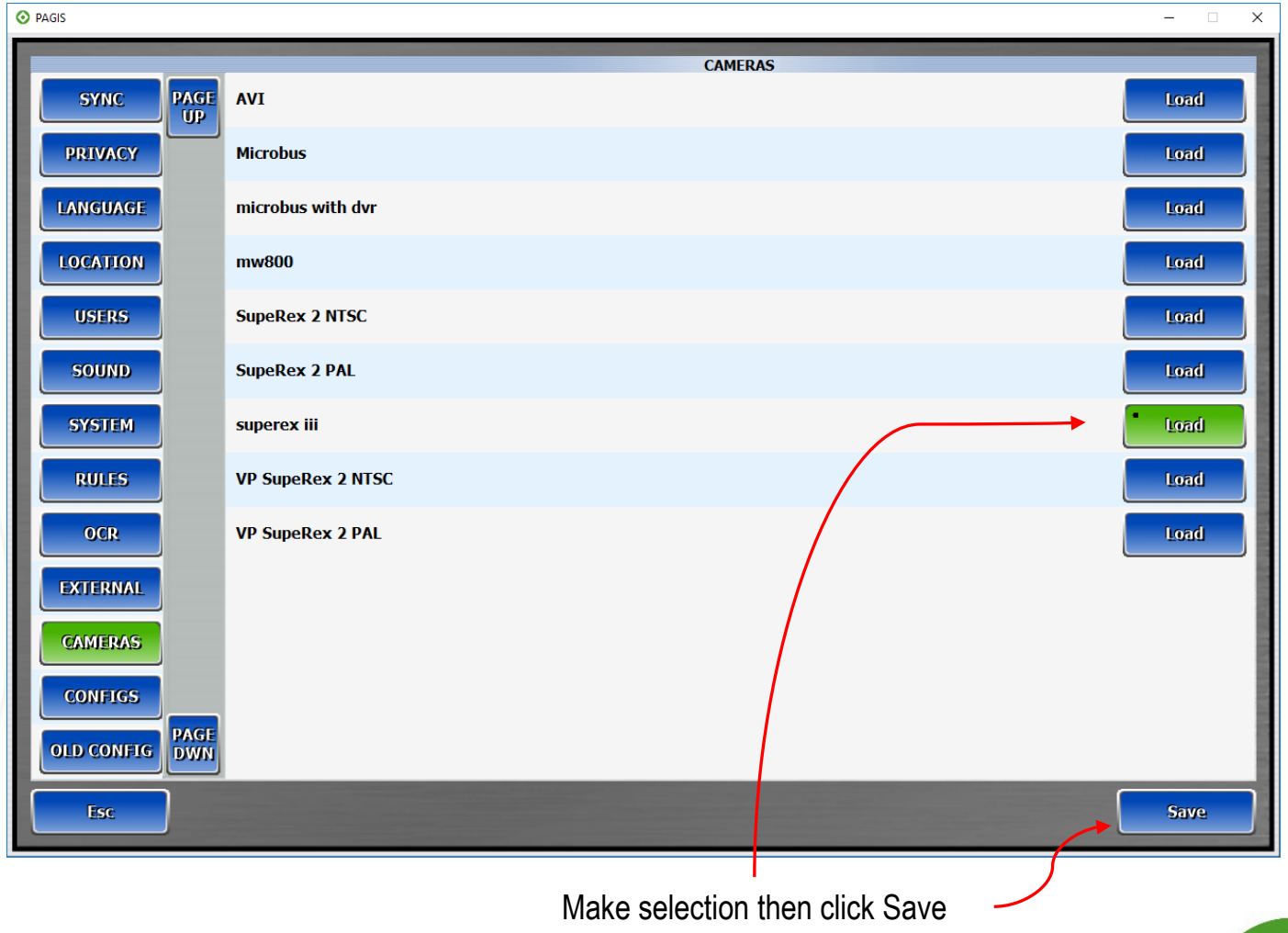


Admin-Admin-Cameras

Load Defaults

Loading a default setting provides a base configuration to modify and is based upon a standard four- camera system. Choosing a default also loads associated configuration files, which appear in the Configs screen.

- **Load-** Add new pre-configured cameras to Pagis, PIPS customer utilizing mobile processor should load the “Superex iii” default cameras as these are pre-configured to work with SX mobile units..
- Click the “load” button turning it green then click Save to apply camera changes. Once Saved Pagis will return the Cameras screen where the four cameras will be displayed.
- Front Left
- Front Right
- Right Parking
- Left Parking

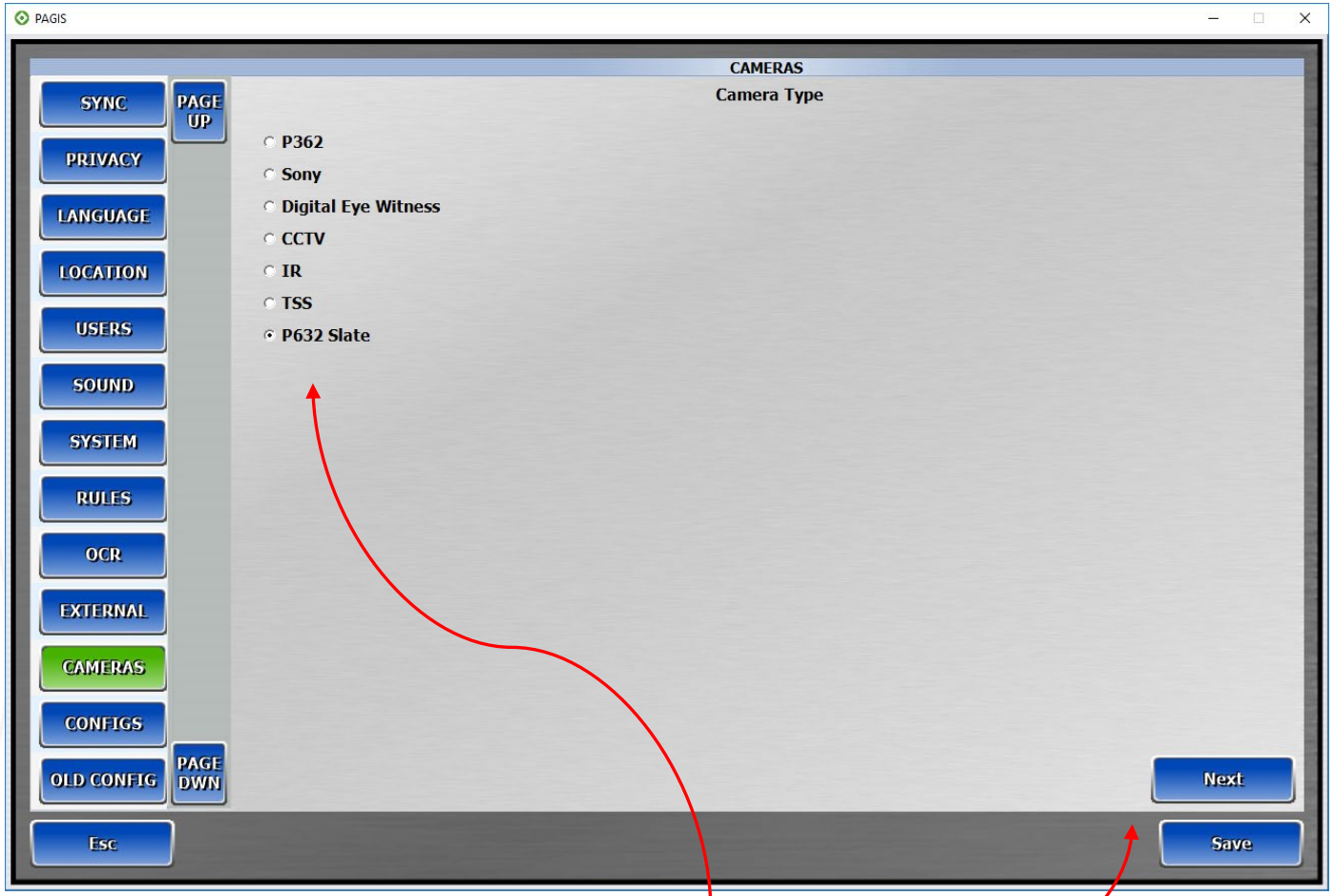


Admin-Admin-Cameras

Edit or Add- Camera Type

Pagis has the ability to connect with different camera types. Selecting from the default list will pre-configure the communication settings.

- **Select Camera Type-** Cameras supported by the Pagis Software are P362, Sony, Digital Eye Witness, CCTV, IR, TSS, and P632 Slate cameras.
- **P632 Slate** is the default used when utilizing PIPS mobile cameras.
- Next to continue.

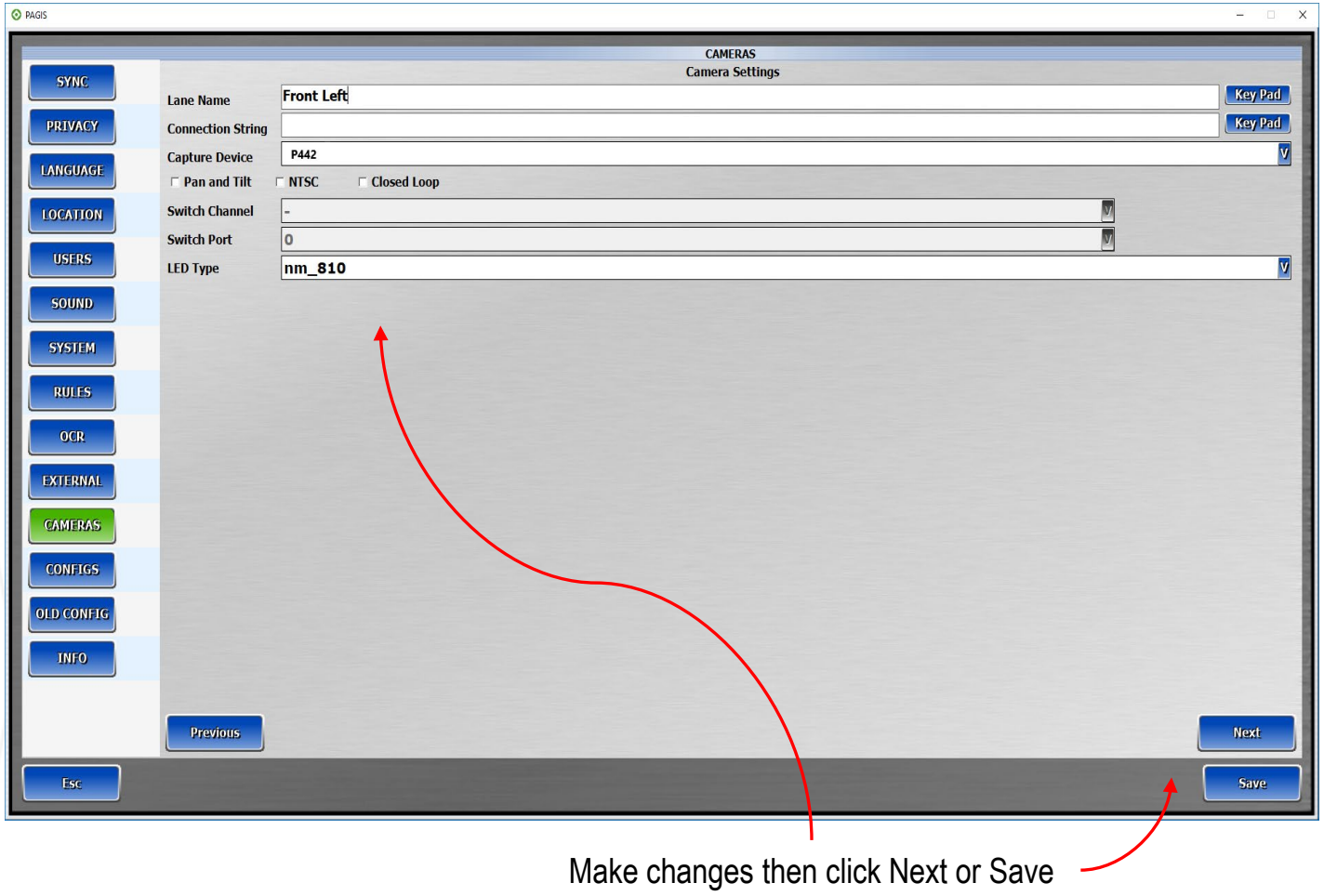


Admin-Admin-Cameras

Edit or Add- Camera Settings

Change the below setting as needed, PIPS camera setting are pre-loaded and do not need alterations.

- **Lane Name-** The Camera Name must be 11 characters or less in length. Otherwise, the positional indicators and the device status information will be incomplete.
- **Connection String-** PIPS camera this setting is blank. Others may utilize IP_Address:TCP_Port".
- **Capture Device-** PIPS cameras utilize P442. Other options available in the pulldown list are Video files, User Feed and Client.
- **Protocol Setting-** Pan and Tilt, NTSC & Closed Loop.
- **Switch Channel-** Not utilized.
- **Switch Port-** Not utilized.
- **LED Type-** PIPS cameras utilized mn_810, mn_750 & mn_950.
- **Previous-** Go to previous configuration screen.
- **Next-** to continue.
- **Esc** – Returns to the Admin Screen.

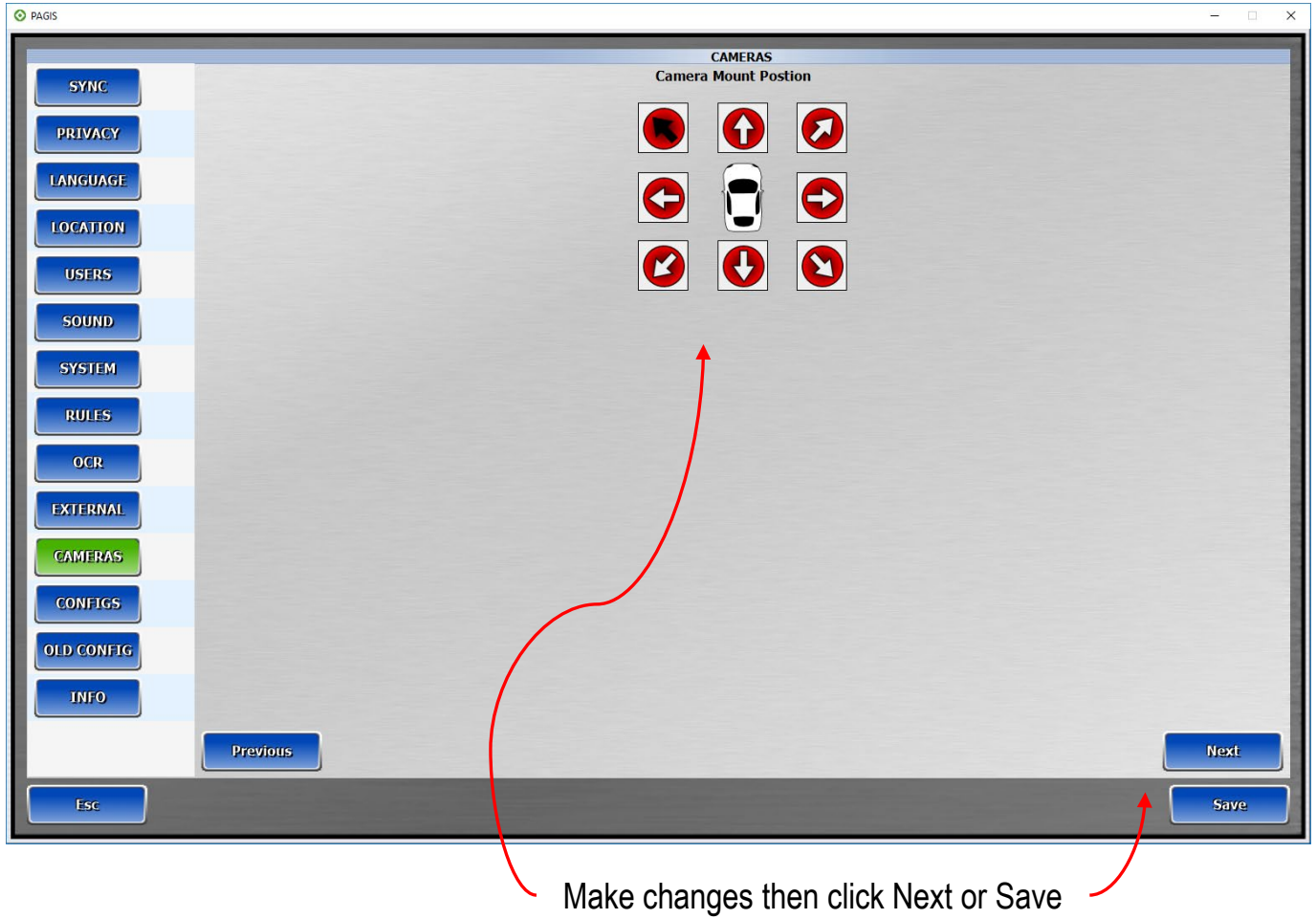


Admin-Admin-Cameras

Edit or Add- Camera Mount Position

On the Mount Position screen, these directional arrows represent the location of each Cameras and the direction they are pointing. Choose the desired option for the camera you are configuring by pressing one of the directional buttons. The arrow showing the chosen direction will appear in the display for that camera on the Live View screen when a hit has been detected.

- **Previous-** Go to previous configuration screen.
- **Next-** to continue.
- **Esc** – Returns to the Admin Screen.



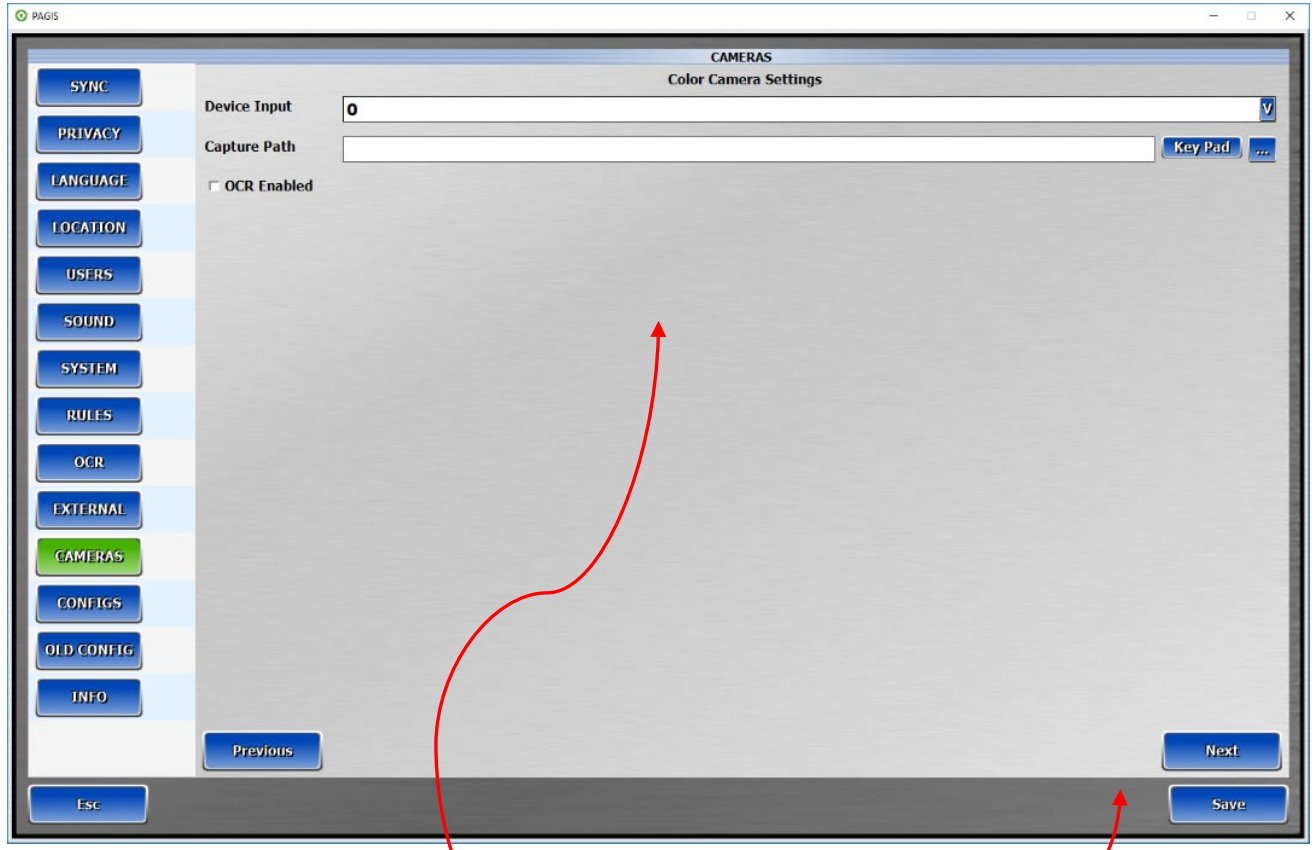
Admin-Admin-Cameras

Edit or Add- Color/IR Camera Setting

- **Device Input-** PIPS cameras input settings range from 0-3.

a) 0= Front Left camera connected to Cam1 port on SX processor.
b) 1= Front Right camera connected to Cam2 port on SX processor.
c) 2= Right Parking camera connected to Cam3 port on SX processor.
d) 0= Left Parking camera connected to Cam4 port on SX processor.

- **Capture Path-** Input video file path for playback in Pagis, not utilized when connect to PIPS mobile processor.
- **OCR Enabled-** If checked OCR will utilize the Color video. If unchecked Color OCR is disabled.
- **Previous-** Go to previous configuration screen.
- **Next-** to continue.
- **Esc** – Returns to the Admin Screen.



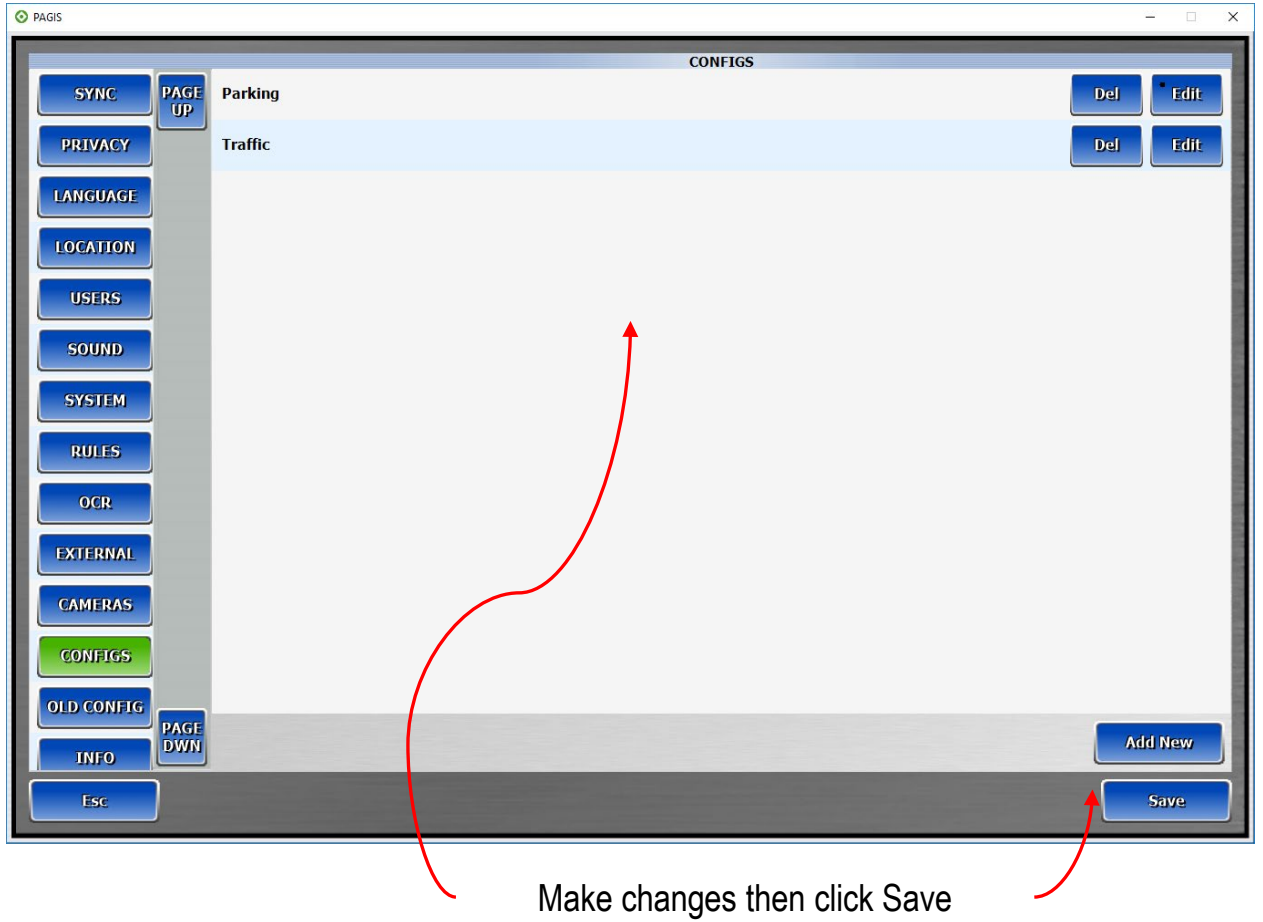
Admin-Admin-Configs

The Configs screen allows you to define how the configured cameras are displayed on the Live View screen and to set the region of the country where the Mobile System is deployed. You can also use the Configs screen to set up multiple camera configurations for parking or traffic monitoring to replicate a particular driving environment. Up to four ALPR cameras can be activated.

If you have loaded a default camera setup, the Configs screen will be populated with the two default configurations, Traffic and Parking.

The buttons on the Configs screen are as follows:

- **Del** – Removes the current configuration from the Pagis Software.
- **Edit** – Opens the Edit Configs screen where you can modify settings for the selected configuration, including selecting a region and selecting which cameras to display and to hide.
- **Add New** – Adds a new configuration to the Pagis Software and opens the Add Config screen.
- **Save** – Preserves changes to the configurations.
- **Esc** – Returns to the Admin Screen.

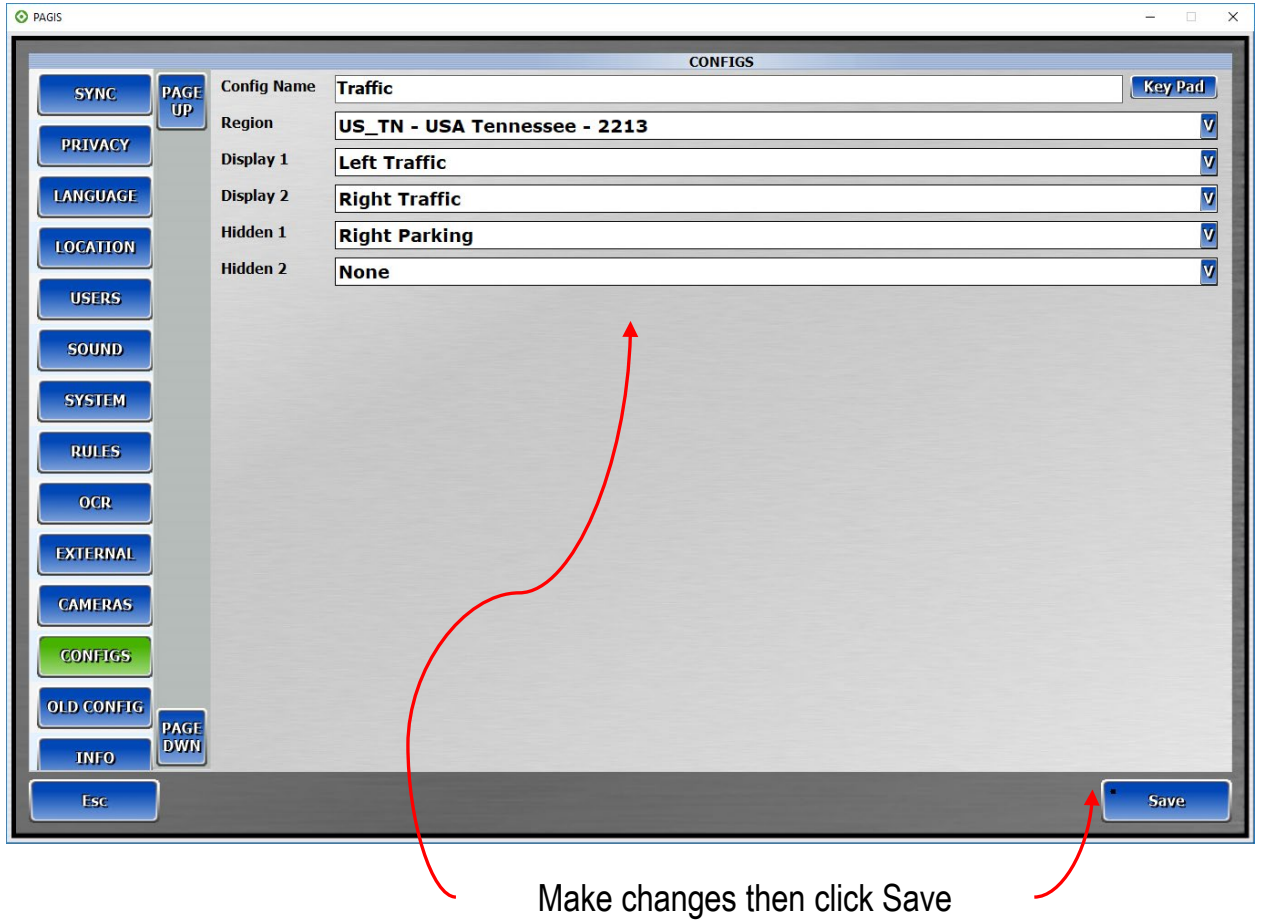


Admin-Admin-Configs

Configs Edit or New

When adding or editing a new configuration, you can assign each of the cameras to a position on the screen.

- **Config Name-** The name of the configuration mode.
- **Region-** Select the ORC region file for you location. The region files are pre-loaded into the mobile processor at the factory. You must be connected to working PIPS mobile processor in order for Pagis to see the region available.
- **Display 1**: This camera is always displayed on the left-hand side of the Live View screen.
- **Display 2**: This camera is always displayed on the right-hand side of the Live View screen.
- **Hidden 1 and 2**: When populated, these cameras are functioning and performing OCR, but the images are not visible to the user. Hits and reads will still be generated by these cameras as well as audible capture and alert sounds.
- **Save** – Preserves changes to the configurations.
- **Esc** – Returns to the Admin Screen.

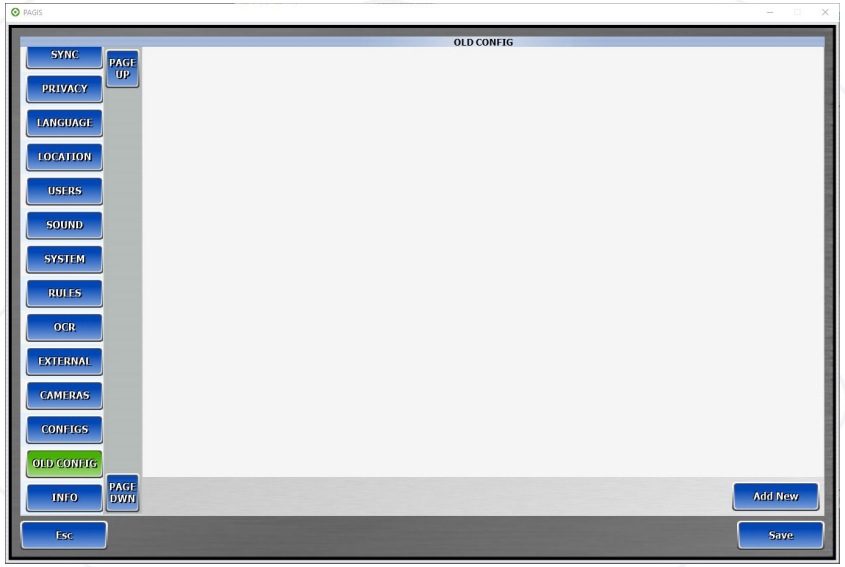


Admin-Admin

Old Configs / Info

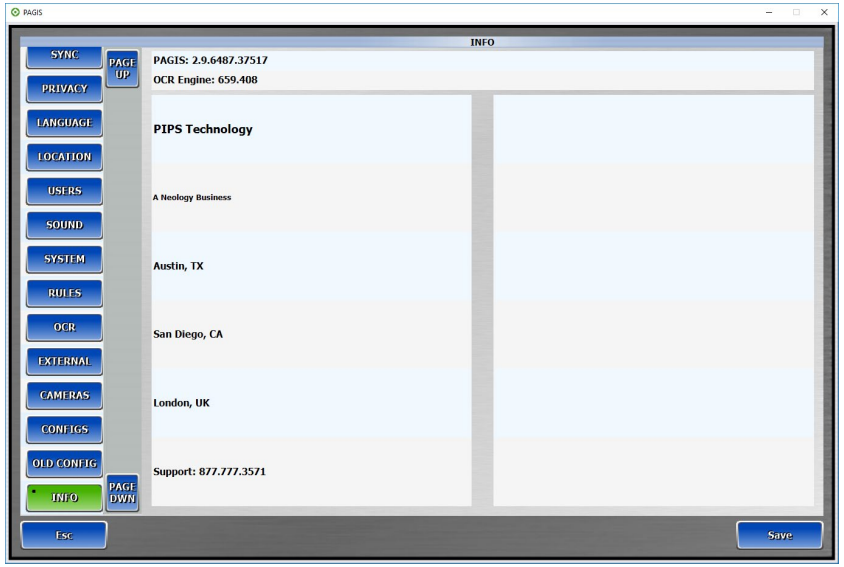
The Old Config is not utilized with newer Pagis installation.

- **Esc** – Returns to the Admin Screen.



The Info screen displays additional information including the version number of the current installation along with OCR engine version. This information may be helpful when calling Technical Support.

- **Esc** – Returns to the Admin Screen.



Questions?



Thank You!



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