

Automated License Plate Recognition (ALPR)

Basic Course

Contact for questions

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Outline

- APD Special Order
- BOSS Operations
- PAGIS Operations

APD Special Order : SO 11.10

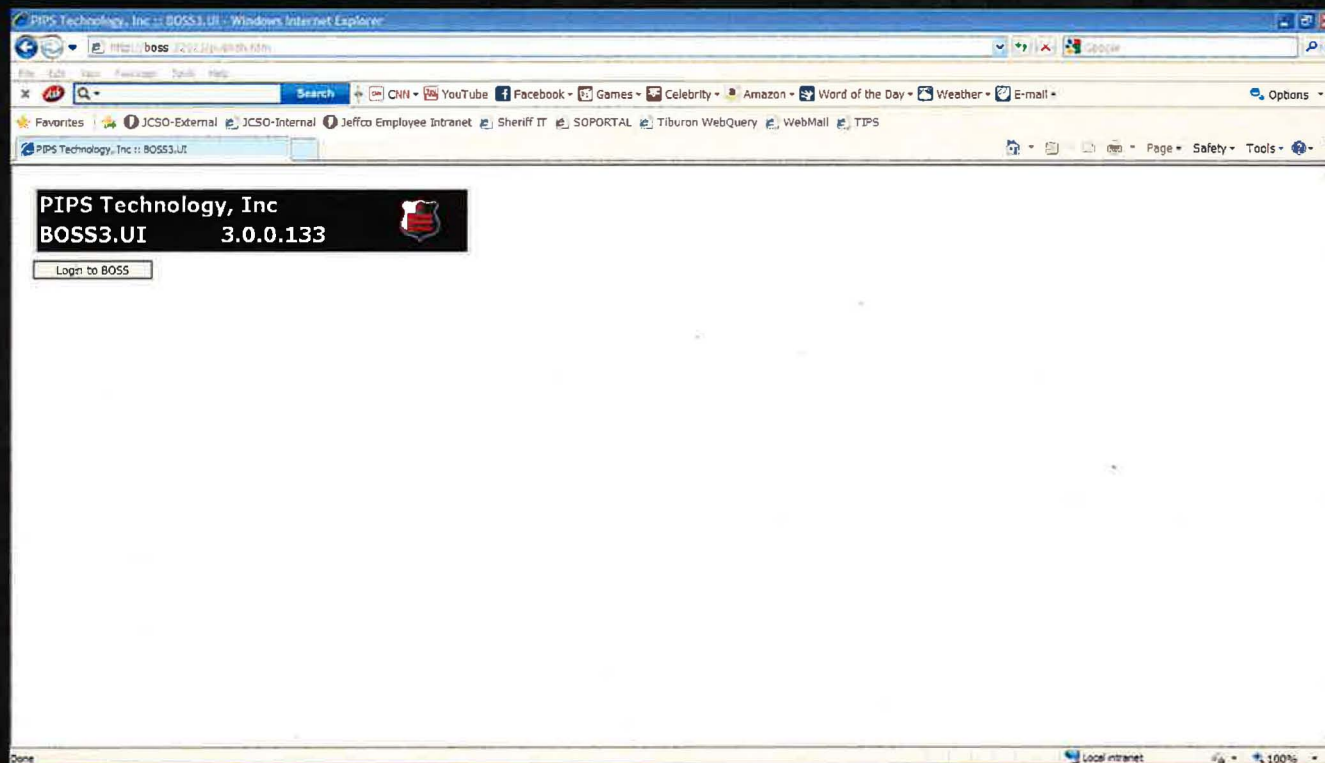
- Automated License Plate Reader (ALPR) technology provides automated detection of license plates. ALPR systems utilized by Aurora Police Department personnel are intended to gather data associated with vehicle license plates for official law enforcement purposes. The Aurora Police Electronic Support Section will administer the ALPR program.
- ALPR systems and the associated database are the property of the Aurora Police Department and are intended for use in conducting official business.
- ALPR plate scan information will be retained for a period of two years, except that plate scan information deemed as evidence in a criminal investigation may be transferred to the Digital Media Management System for further retention.
- Members are authorized to access ALPR data through the Back Office System Server (BOSS) for Law Enforcement investigative purposes only. Members are not allowed to disseminate any information outside of the Department without authorization from the Electronic Support Section .
- Concurrent use of the BOSS system is limited through user licensing. Members must log out of BOSS immediately after use.

APD Special Order continued

- The use of ALPR systems is restricted as outlined below. Department personnel will not use the ALPR equipment or database for any unauthorized purpose.
 - ALPR will be used only for official law enforcement business.
 - No Department member may operate the ALPR system or access the ALPR database without first completing Department approved ALPR training.
 - When receiving an ALPR alert, members must visually confirm the plate against the captured image and verify the validity of the alert through Public Safety Communications Department (PSCD) or MDC query when circumstances allow.
 - At the start of each shift, members must ensure that the ALPR system has been updated with the most current hotlist available from the Back Office System Server (BOSS).
 - The three mounted cameras are not adjustable. Members will not attempt to move or reposition the cameras. If a member believes that a camera is out of adjustment, the Electronic Support Section will be contacted.
 - Only Electronic Support Section personnel are permitted to make adjustments or corrections to the equipment or MDC software that supports the ALPR.

BOSS – Back Office System Software

- How to install the BOSS software on any Department Desktop.
 - Open the Explorer Web Browser
 - In the address bar type the following address: <http://boss3.jcsd.com/BOSS3.UI>
 - Press enter on your keyboard. The following will appear in the browser.



Boss Install continued

- Click on the Log on button and a new window will appear asking for you user name and password. Your user name and password will be the same as your network user name and password.
- Once the BOSS icon is on the Desktop of the computer you are using, you will not need to install the software again. Just double click on the icon and BOSS should log you on to the system.

BOSS Operations

Known Query

The screenshot shows the BOSS3 application window. The title bar reads "PIPS Technology - BOSS3". The menu bar includes "File" and "Help". On the left is a sidebar with "Home", "Admin", and a "Preferences" button (a green heart icon). The main area has a search bar with "Look For:" followed by a text input containing "946MEE". To the right of the input is a dropdown menu currently showing "Reads". Further right is a "Find" button. Three red arrows point to these elements: one to the text input, one to the dropdown menu, and one to the "Find" button. To the right of the application window, a list of desktop icons is visible: Word 2003, Excel 2003, PowerPoint 2003, Access 2003, Windows Explorer, and Recycle Bin. The Windows taskbar at the bottom shows the Start button and several open applications: "In motion design tem...", "Presentation 1", "ALPR Instructor Cour...", "Q:Plate Reader", and "PIPS Technology - BO...". The system clock in the bottom right corner shows "10:29 AM Saturday 1/22/2011".

1. Insert Known Plate

2. Select "Reads" from the drop down menu.

3. Select "Find"

BOSS Operations

Known Query

PIPS Technology - BOSS3

File Help

Home Admin

Look For: 946MEE in Reads Find Clear

Reads(49) First <<Prev Next>> Last

LPN	Timestamp	Patch	Overview	Device	Site	Misread	Hit	Manual	Login
<input type="checkbox"/> 946MEE	1/22/2011 9:25 AM			Unit #1586	MANUAL ENTRIES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Matt Smith
<input type="checkbox"/> 946MEE	1/22/2011 9:22 AM			Unit #1586	MANUAL ENTRIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Matt Smith
<input type="checkbox"/> 946MEE	1/19/2011 12:19 PM			Unit #1586	MANUAL ENTRIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Matt Smith
<input type="checkbox"/> 946MEE	12/23/2010 3:27 PM			Unit #1586	MANUAL ENTRIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Matt Smith
<input type="checkbox"/> 946MEE	12/22/2010 2:50 PM			Unit #1586	MANUAL ENTRIES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Michael Struckhoff
<input type="checkbox"/> 946MEE	12/22/2010 2:48 PM			Unit #1586	MANUAL ENTRIES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Michael Struckhoff
<input type="checkbox"/> 946MEE	12/22/2010 2:47 PM			Unit #1586	MANUAL ENTRIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Michael Struckhoff

start

In motion design tem... ALPR Instructor Cour... Q: Plate Reader PIPS Technology - BO...

10:36 AM Saturday 1/22/2011

BOSS Operations

Partial Query

The screenshot displays the BOSS3 software interface. On the left, a sidebar contains a 'Home' button, an 'Admin' button, and a 'Preferences' button with a heart icon. The main area shows a 'Look For:' field with the text '946ME*' entered. Below this, a dropdown menu is set to 'Reads'. A red arrow points to the 'Look For:' field. To the right of the search field, there are 'Find' and 'Clear' buttons. Below the search field, a welcome message reads 'Welcome BOSS3, Matt Smith' and 'boss: 23032'. On the right side of the main area, there is a 'BOSS' logo and version information 'v3.0.2 20127-IVL'. The bottom of the screen shows a Windows taskbar with the 'start' button, several open applications, and a system clock indicating '10:41 AM Saturday 1/22/2011'.

Insert Partial Plate using * for unknown variables, select reads from the drop down menu, and press find.

PIPS TECHNOLOGY

BOSS Operations

Partial Query Results




PIPS Technology - BOSS3

File Help

BOSS3 Home Reads

Look For: 946ME in Reads Find Clear

Reads(50) First <<Prev Next>> Last

<input type="checkbox"/>	LPN	Timestamp	Patch	Overview	Device	Site	Misread	Hlt	Manual	Login
<input type="checkbox"/>	946MEE	1/19/2011 12:19 PM			Unit #1586	MANUAL ENTRIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Matt Smith
<input type="checkbox"/>	946MET	12/24/2010 2:33 PM			Unit #1744	MANUAL ENTRIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Josh Ybala
<input type="checkbox"/>	946MEE	12/23/2010 3:27 PM			Unit #1586	MANUAL ENTRIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Matt Smith
<input type="checkbox"/>	946MEE	12/22/2010 2:50 PM			Unit #1586	MANUAL ENTRIES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Michael Struckhoff
<input type="checkbox"/>	946MEE	12/22/2010 2:48 PM			Unit #1586	MANUAL ENTRIES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Michael Struckhoff
<input type="checkbox"/>	946MEE	12/22/2010 2:47 PM			Unit #1586	MANUAL ENTRIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Michael Struckhoff
<input type="checkbox"/>	946MEE	12/8/2010 1:13 PM			Unit #1744	MANUAL ENTRIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Josh Ybala

start ALPR Instructor Cour... Q:Plate Reader PIPS Technology -BO...

10:47 AM Saturday 1/22/2011

BOSS Operations

Specific Query Continued

PIPS Technology - BOSS3

File Help

Home

Look For: in Find Clear

Home

Reads

Reports

Cancel Go Append Clear Advanced...

License Plate: >>

From Date: 1/ 8/2011 10:56 AM >>

To Date: 1/22/2011 10:56 AM >>

Use Advanced...Devices

Near Address:

Radius: 0.0 << MI >>

Servers: >>

start

ALPR Instructor Cour... Q:\Plate Reader PIPS Technology - BO...

10:56 AM
Saturday
1/22/2011

Searching

- Search using date and time using drop down screens
- Search area using 100 block such as 15300 E 6th Ave
- Select how wide you want the search to be such as 1 mile, 5 miles, etc.

BOSS Operations

Questions??

PAGIS Operations

PAGIS is the operating system that acts as the user interface to the ALPR system. This is where the user controls the ALPR system in their respective vehicle.

PAGIS Operations

CBI Files

When beginning watch the ALPR operator should give the system approximately 5 minutes to boot up and automatically download the CBI files that contain the current hotlist.

Currently those files are uploaded by the Electronic Support Section .

A program will be written to automatically download the file every hour. The operator can update the file every hour by clicking on begin shift in the Pagis software 2 times.

PAGIS - Mobile System



**PIPS
TECHNOLOGY**
A Federal Signal Company

*the most advanced license plate
recognition systems in the world*

PAGIS Operations

PAGIS Login

When logging into the PAGIS system the user should attempt to be located in a hot spot. The hot spots are located in the parking lot at the District stations, any Fire station, and the fuel pumps at all of the City shops. This is to insure a good connection to the network for a faster download. However it is possible to update the software as long as the vehicle is connected by the air card and netmotion.

Badge No: is your network user name
Password: is your 7 digit ID number

PAGIS v2.5.1 (12800)

PIPS TECHNOLOGY

PAGIS®

POLICE ANPR GRAPHICAL INTERFACE SYSTEM

NTM340 7ADA59

Logon

Badge No: **Key Pad**

Password: **Key Pad**

Location: **APD-10026** **Key Pad**

Exit **Login**

Start VZAccess Manager PAGIS LPR Screen Shot for PIPS - Mi... 1:32 PM

PAGIS Operations

Click Twice on Begin Shift

The screenshot displays the PAGIS software interface. The left panel, titled 'Left Parkin', contains a large white box with the instruction: **Select "Begin Shift" twice, and visually ensure that the system is updating the files.** Below this box is a red arrow pointing down to the 'BEGIN SHIFT' button in the bottom navigation bar. The right panel, titled 'Right Parkin', shows a live video feed of a parking lot with two sheriff's cars. Below the video feed, the license plate '246TFG' is displayed. Both panels show GPS coordinates: 39.731211, -105.201241. The bottom navigation bar includes buttons for COL, IR, TAKE PIC, SEARCH ENTRY, REVIEW, BEGIN SHIFT, END SHIFT, CAM MODE Parking, ADMIN, and LOG OUT. The Windows taskbar at the bottom shows the Start button, PAGIS icon, and system clock at 9:18 AM.

Select "Begin Shift" twice, and visually ensure that the system is updating the files.

GPS: 39.731211, -105.201241

COL IR TAKE PIC

SEARCH ENTRY REVIEW **BEGIN SHIFT** END SHIFT CAM MODE Parking ADMIN LOG OUT

GPS: 39.731211, -105.201241

COL IR TAKE PIC

246TFG

Start PAGIS 9:18 AM

PAGIS Operations

Check Database Update

PAGIS

Left Parkin

Right Parki

Select Review

GPS: 39.731211,-105.201241

COL IR TAKE PIC

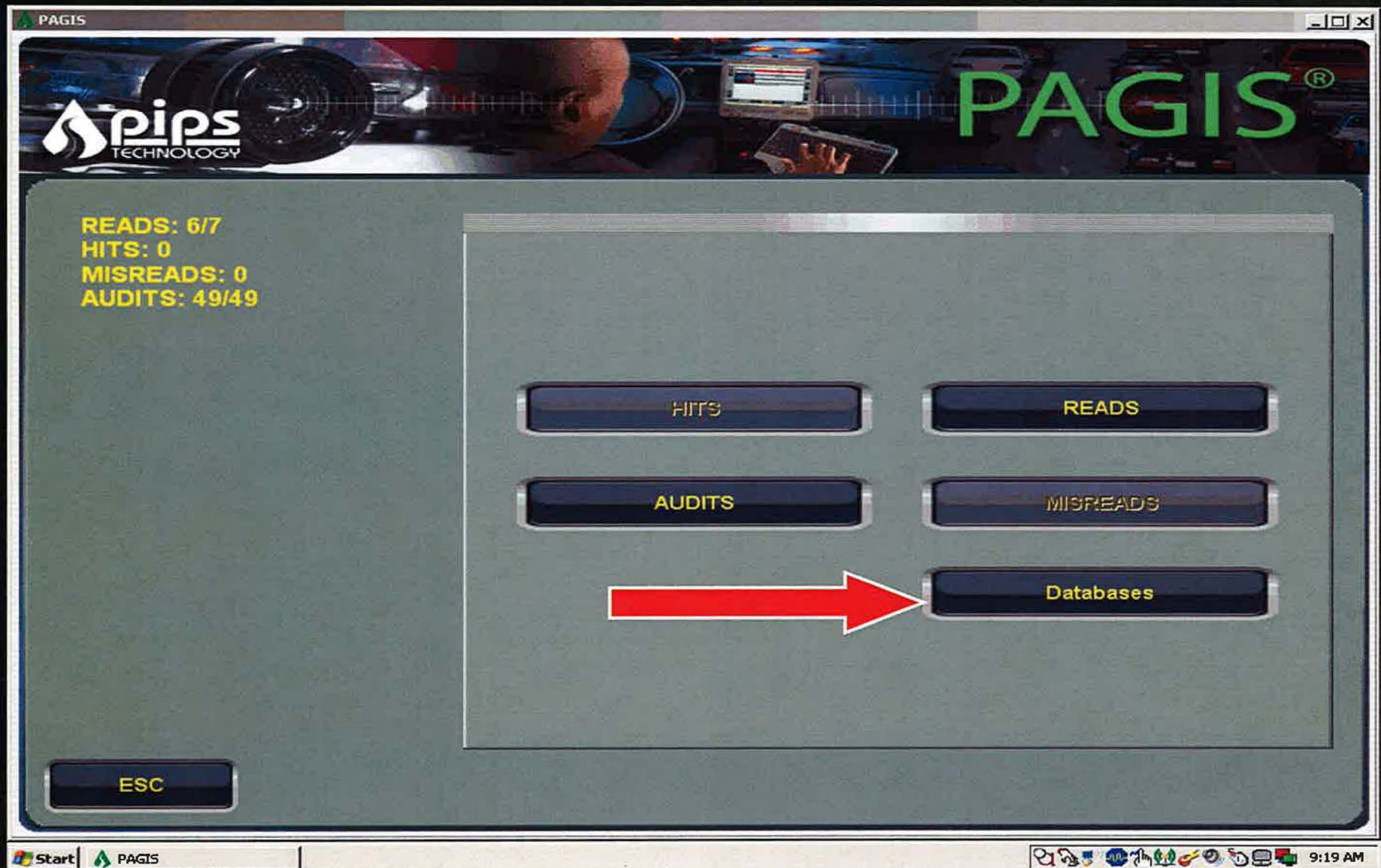
SEARCH ENTRY REVIEW BEGIN SHIFT END SHIFT CAM MODE Parking ADMIN LOG OUT

246TFG

246TFG

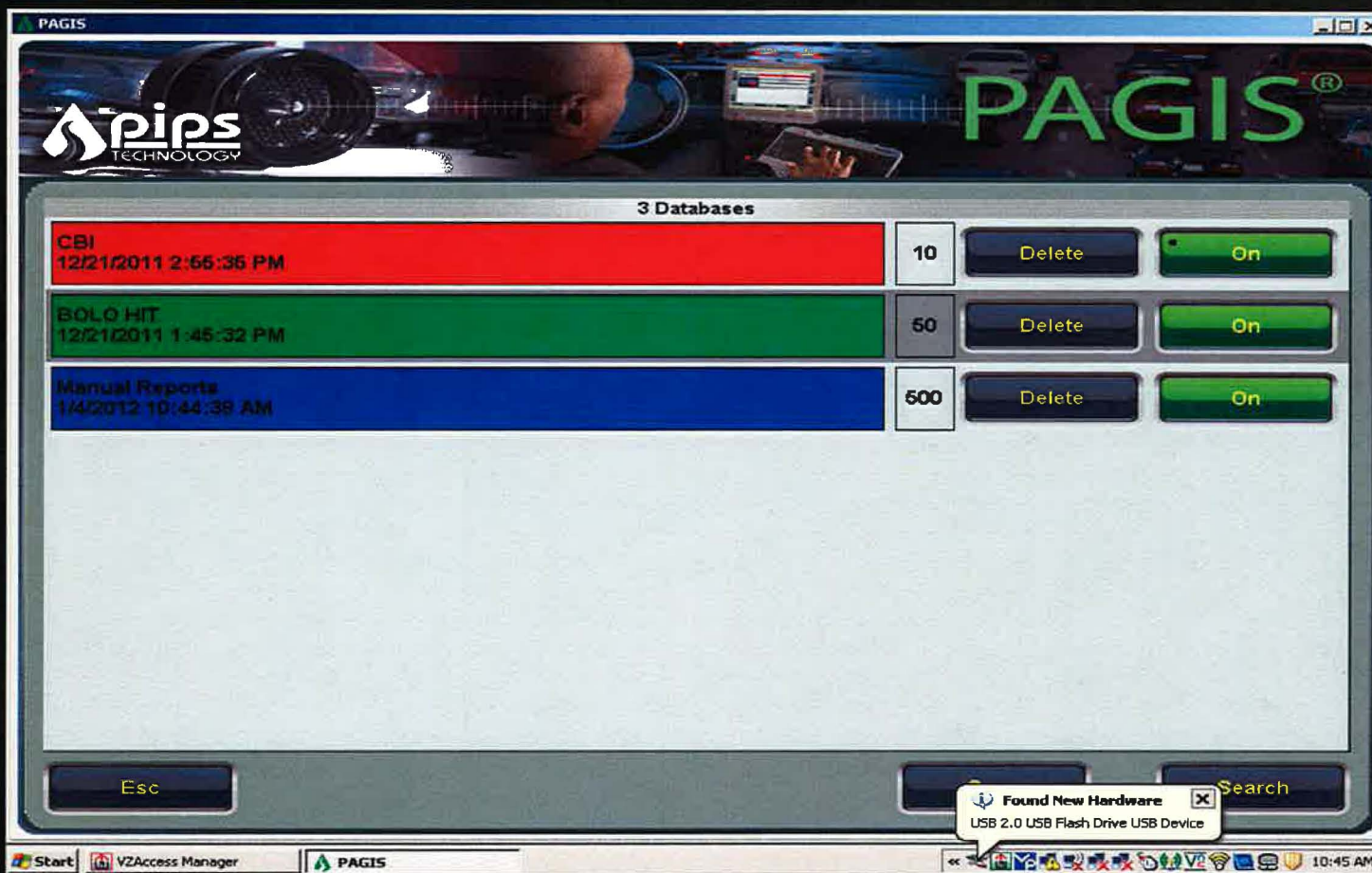
PAGIS Operations

Check Database Update



PAGIS Operations

Check Database Update for current date and time indicating, that the sync was successful



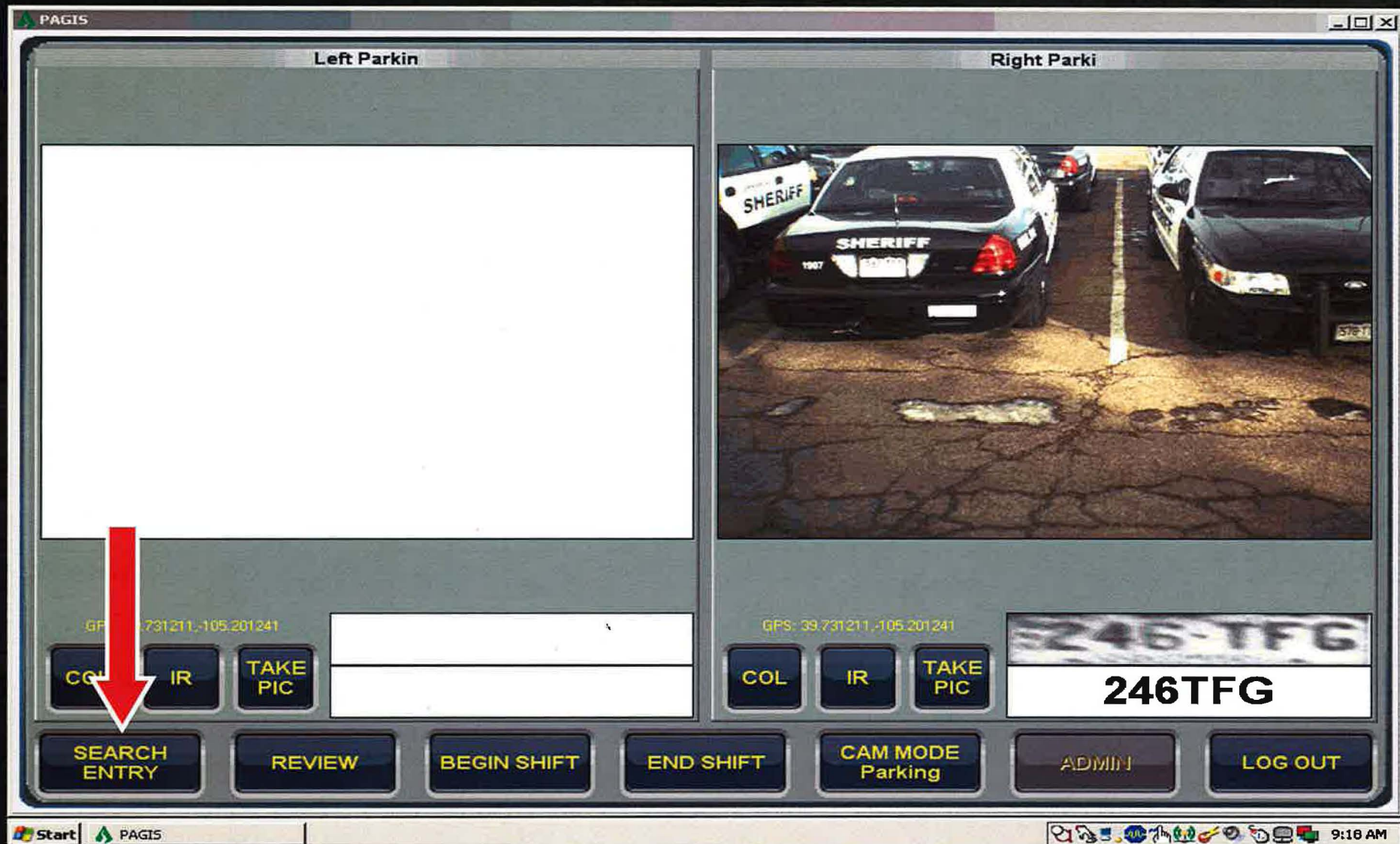
PAGIS Operations

Manual Entry

The PAGIS system utilizes the CBI file to compare the captured license plate from the ALPR system. However, there are times when a license plate of interest may not be in the CBI file. For example, when a BOLO is received from dispatch, or a vehicle is stolen after the CBI file was last downloaded. The user needs to be able to manually enter license plates of interest into the PAGIS system.

PAGIS Operations

Manual Entry – Click on Search Entry



PAGIS Operations

Manual Entry

PAGIS

Insert the manual entry and then press enter.

946MEE KEY PAD

CLEAR DL# READS VLP

ESC

Start PAGIS 9:22 AM

PAGIS Operations

Manual Entry

PAGIS

pip's TECHNOLOGY

PAGIS

Add VLP Report

946MEE

AMBER ALERT FELONY STOLEN MISC

STOLEN: 946MEE @ 1/22/2011 9:22:54 AM

KEY PAD

Add information using the above hot keys or type text in this box and then press save.

ESC

SAVE

Start PAGIS

9:23 AM

PAGIS Operations

Manual Entry

The manual entry is now stored into the PAGIS system, and PAGIS will alert the operator if the plate is captured.

PAGIS Operations

Misreads

The ALPR system has a 97% accuracy rate, and will generally read the captured plate correctly. However, there are times when the system does not read the plate correctly and performs a “misread.”

It is imperative that you know how to properly handle a HIT when the system has misread the license plate.

PAGIS Operations

Misread

PAGIS

Left Parkin Read Hit

39.73187, -105.200283

1/22/2011 9:25:02 AM

946-MEE 946MEB

Manual Reports

946MEE

Note the misread!

STOLEN: 946MEE @ 1/22/2011 9:22:54 AM

ADD INTEL

Ext Chk

MIS READ

PREV DB

NEXT DB

SET DISP

JUMP

ESC

PREV

1/1

Next

SAVE

Start PAGIS

9:25 AM

PAGIS Operations

Misread

The screenshot displays the PAGIS (Plate Analysis and Geographic Information System) interface. The main window shows a vehicle record for a silver SUV. The record includes the following information:

- Left Parkin:** 39.73187, -105.200283
- Read:** 1/22/2011 9:25:02 AM
- Hit:** 946MEE
- Manual Reports:** 946MEE
- Image:** A photograph of a silver SUV with a misread plate '946MEB' overlaid. A red arrow points to this misread plate.
- STOLEN:** 946MEE @ 1/22/2011 9:22:54 AM

A red box highlights the misread plate area with the following text:

Touch the screen where the misread plate has been printed. This will open a window that will allow you to edit the plate.

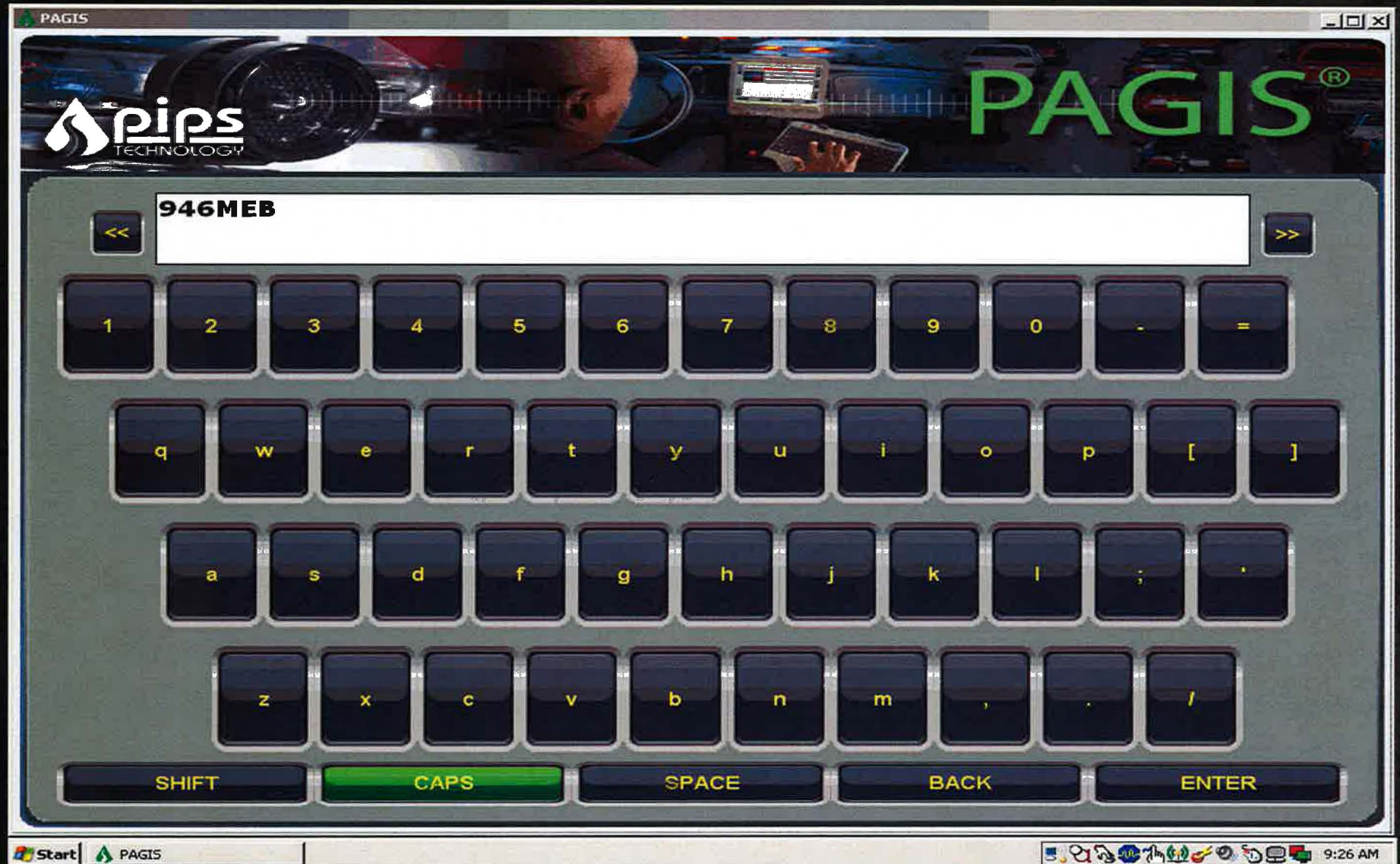
The interface includes several navigation buttons:

- Left Panel:** ADD INTEL, Ext Chk, MIS READ.
- Right Panel:** PREV DB, NEXT DB, SET DISP, JUMP.
- Bottom Panel:** ESC, PREV, 1/1, Next, SAVE.

The Windows taskbar at the bottom shows the Start button, the PAGIS application icon, and the system clock displaying 9:25 AM.

PAGIS Operations

Misread



PAGIS Operations

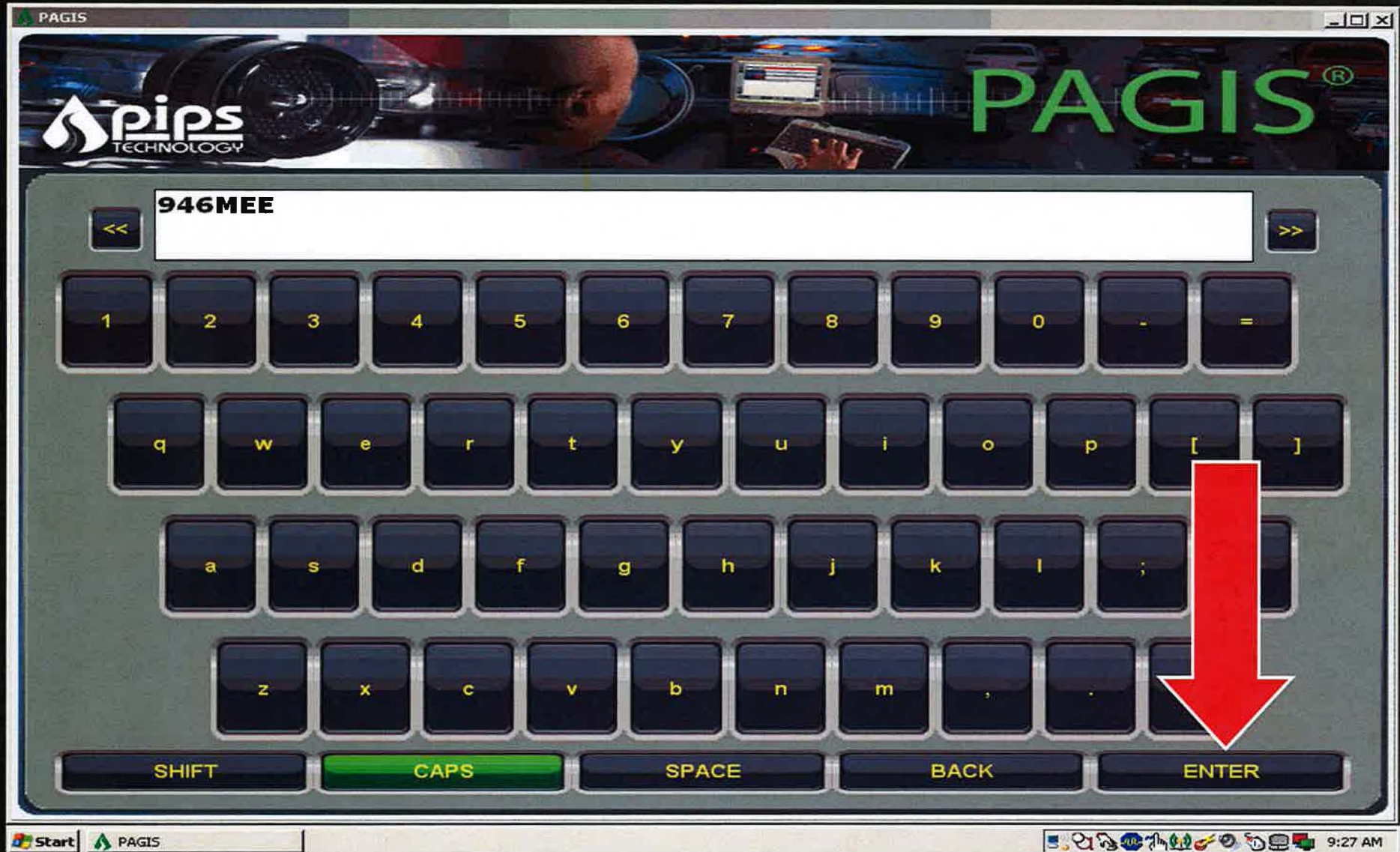
Misread

You can either use the touch screen keyboard or the laptop keyboard to correct the misread.

Once you have updated the correct license plate, press the on screen “Enter” button.

PAGIS Operations

Misread



PAGIS Operations

Misread

PAGIS

Left Parkin Read Hit 1/1

39.73187, -105.200283

1/22/2011 9:25:02 AM

Manual Reports

946-MEE 946MEE

946MEE

STOLEN: 946MEE @ 1/22/2011 9:22:54 AM

The misread has now been entered correctly, but you must depress the "Save" button to store the changes.

ESC PREV 1/1 Next SAVE

ADD INTEL

Ext Chk

MIS READ

PREV DB

NEXT DB

SET DISP

JUMP

PAGIS Operations

Misread

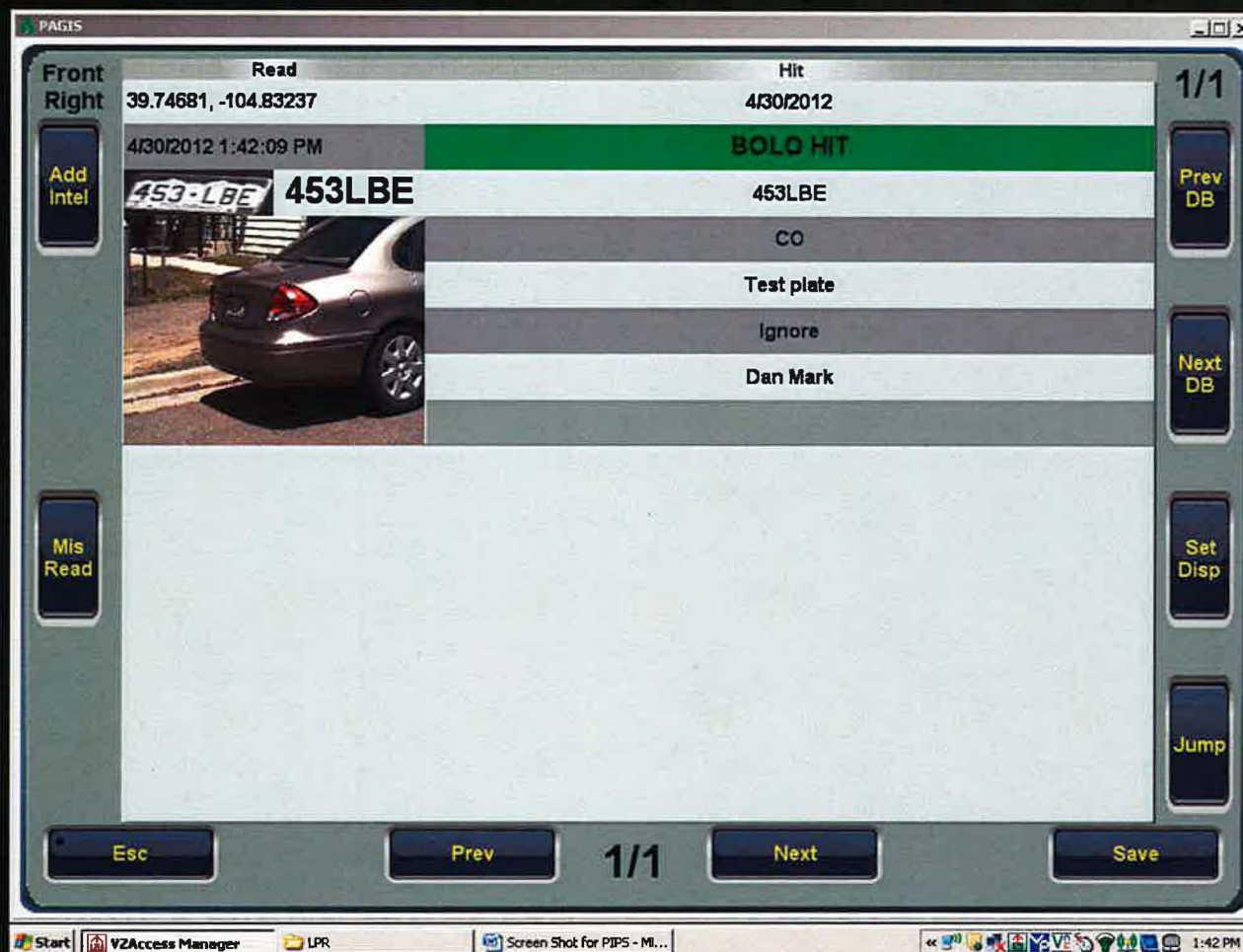
DO NOT USE THE MISREAD BUTTON!

PAGIS Operations

Misread

SERIOUSLY, DO NOT USE THE MISREAD BUTTON!

New window will appear when there is any type of hit!




You need to complete a disposition!

- You can complete the disposition at the end of your shift (not recommended)
- 3 easy steps to complete disposition
- Click on “Set Disp” and a new window will appear

Click Set Disp ➡

PAGIS

Front Right	Read	Hit	1/1
	39.74681, -104.83237	4/30/2012	
Add Intel	4/30/2012 1:42:09 PM	BOLO HIT	Prev DB
	453LBE	453LBE	
		CO	
		Test plate	
		Ignore	
		Dan Mark	
Mis Read			Next DB
			Set Disp
			Jump
Esc	Prev	1/1	Next
			Save

Start VZAccess Manager LPR Screen Shot for PIPS - Mi... 1:42 PM

A new window will appear with a list of dispositions. Choose the most appropriate!

The screenshot shows the PAGIS software interface. The main window is titled 'PAGIS' and contains a list of dispositions for a vehicle hit. The list is displayed in a table with columns for 'Front Right', 'Read', 'Hit', and 'Disposition'. The 'Hit' column shows the date '4/30/2012' and the vehicle identification '453LBE'. The 'Disposition' column lists several options, with 'BOLO HIT' highlighted in green. The interface includes navigation buttons such as 'Add Intel', 'Mis Read', 'PAGE UP', 'PAGE DWN', 'Prev DB', 'Next DB', 'Set Disp', 'Jump', 'Esc', 'Prev', 'Next', and 'Save'. The status bar at the bottom shows the Windows taskbar with the Start button, VZAccess Manager, LPR, and a screen shot for PIPS - MI... The PAGIS logo is also visible in the status bar.

Front Right	Read	Hit	Disposition
	Occupied Steal	4/30/2012	
	Unoccupied Steal		BOLO HIT
	Warrent Arrest	453LBE	
	Warrent Hit	CO	
	Warrent Hit - No Stop	Test plate	
	BOLO Vehicle	Ignore	
	Unoccupied BOLO Vehicle	Dan Mark	
	BOLO Vehicle - No Stop		
	DOR License Restraint - Summons		
	DOR License Restraint - No Summons		
	DOR License Restraint - No Stop		
	Non-valid Hit		

Add remarks using Add Intel – they can be very brief such as “1 arrest made see # 2012-12345”

The screenshot displays the PAGIS (Public Access Gateway to Information Systems) interface. The main window is titled 'PAGIS' and shows a 'Hit' record for the date 4/30/2012. The record is highlighted in green and labeled 'BOLO HIT'. Below this, the record details are listed: 453LBE, CO, Test plate, Ignore, and Dan Mark. The interface includes a 'Read' column on the left with buttons for various actions: Occupied Steal, Unoccupied Steal, Warrent Arrest, Warrent Hit, Warrent Hit - No Stop, BOLO Vehicle, Unoccupied BOLO Vehicle, BOLO Vehicle - No Stop, DOR License Restraint - Summons, DOR License Restraint - No Summons, DOR License Restraint - No Stop, and Non-valid Hit. There are also 'PAGE UP' and 'PAGE DWN' buttons. On the far left, there are 'Front Right' and 'Add Intel' buttons. On the far right, there are 'Prev DB', 'Next DB', 'Set Disp', and 'Jump' buttons. The bottom status bar shows 'Esc', 'Prev', '1/1', 'Next', and 'Save' buttons. The Windows taskbar at the bottom shows the Start button, VZAccess Manager, LPR, Screen Shot for PJPS - Mi..., PAGIS, and a system tray with various icons and the time 1:43 PM.

Front Right	Read	Hit
Add Intel	Occupied Steal	4/30/2012
	Unoccupied Steal	BOLO HIT
	Warrent Arrest	453LBE
	Warrent Hit	CO
	Warrent Hit - No Stop	Test plate
	BOLO Vehicle	Ignore
	Unoccupied BOLO Vehicle	Dan Mark
	BOLO Vehicle - No Stop	
	DOR License Restraint - Summons	
	DOR License Restraint - No Summons	
	DOR License Restraint - No Stop	
	Non-valid Hit	

1/1

Esc Prev 1/1 Next Save

*Click the most appropriate disposition
and add your remarks. Make sure to
Save your work before you Esc*

The screenshot shows the PAGIS software interface. At the top, there is a header with the 'pips TECHNOLOGY' logo and the word 'PAGIS' in green. Below the header, the text 'Add VLP Intel' and '453LBE' are displayed. There are four buttons: 'Towed', 'Arrest', 'Not Recovered', and 'Misc'. Below these buttons is a large text area containing the text 'Test only'. To the right of the text area is a 'Key Pad' button. At the bottom of the form, there are two buttons: 'Esc' and 'Save'. A red arrow points to the 'Esc' button, and another red arrow points to the 'Save' button. The Windows taskbar at the bottom shows the Start button, 'VZAccess Manager', 'LPR', 'Screen Shot for PIPS - Mi...', and the PAGIS application. The system clock shows 1:44 PM.

*Again make sure to Save your work
before you Esc*

The screenshot displays the PAGIS (Public Access Gateway to Information Systems) interface. The main window is titled 'PAGIS' and shows a search result for a vehicle. The interface is divided into several sections:

- Left Panel:** Contains buttons for 'Front Right', 'Add Intel', 'Mis Read', and a list of search criteria including 'Occupied Steal', 'Unoccupied Steal', 'Warrent Arrest', 'Warrent Hit', 'Warrent Hit - No Stop', 'BOLO Vehicle', 'Unoccupied BOLO Vehicle', 'BOLO Vehicle - No Stop', 'DOR License Restraint - Summons', 'DOR License Restraint - No Summons', 'DOR License Restraint - No Stop', and 'Non-valid Hit'. There are also 'PAGE UP' and 'PAGE DWN' buttons.
- Top Section:** Displays 'Hit' information: '4/30/2012' and '1/1'.
- Center Section:** Shows the search results in a list format. The first result is highlighted in green and labeled 'BOLO HIT'. Below it are '453LBE', 'CO', 'Test plate', 'Ignore', and 'Dan Mark'.
- Right Panel:** Contains buttons for 'Prev DB', 'Next DB', 'Set Disp', and 'Jump'.
- Bottom Panel:** Features buttons for 'Esc', 'Prev', 'Next', and 'Save'.

The Windows taskbar at the bottom shows the Start button, 'VZAccess Manager', 'LPR', 'Screen Shot for PIPS - M...', 'PAGIS', and system icons. The time is 1:43 PM.

PAGIS Operations

End Shift

At the end of the shift, the user needs to successfully transfer the captured images to the BOSS system. This is accomplished by pressing the on screen button “End Shift” twice. The system will then transfer the files, and allow the user to log off.

PAGIS Operations

End Shift



Do's and Don'ts

- Don't clean the camera lens with alcohol or ammonia based cleaners. No Windex!
- Do be careful with the equipment.
 - ◆ Expensive
 - ◆ No funds are available to replace the equipment.
- Don't share the fact that you have an LPR system.
- Don't run the car through a car wash with brushes. It will damage the camera and the lenses.
- Do let us know if there is any type of issue that you experience with the equipment or logging in to the system. We can fix it.

ALPR Considerations

ALPR HITS

When the ALPR system indicates a "hit", the officer will:

- see a photograph of the license plate with an indication of the type of hit (i.e., attempt to locate (ATL), sex offender, associated felony and misdemeanor warrants, stolen vehicle and/or license plate with no additional information.
- confirm the license plate by visually checking the actual plate against the captured image.
- validate/confirm the hit by utilizing CCIC. This can be accomplished via the MDC or by making contact with dispatch.

-upon verification of the "hit" via CCIC the officer may take enforcement action pursuant to APD Policy and Procedures.

Troubleshooting

ALPR/PAGIS Common Errors

1. The CBI files are not loading into PAGIS.

Solution: Contact the Electronic Support Section .

2. The screen goes blank, and the cameras will not display.

Solutions:

Close the program. Restart the PAGIS system. If this does not remedy the issue, Close the program and then turn off the car. The computer controlling the PAGIS system gets it's power from the car while running only.

Contact the Electronic Support Section if this does not fix the issue.

3. PAGIS will not synchronize after pressing "End Shift."

Solution: Contact Electronic Support Section .

4. The camera is not reading license plates.

Solution: Contact Electronic Support Section .

PAGIS Operations

Questions??

Do not call the MDC Help Line

Contact the Electronic Support Section

Monday through Friday

0730 hours to 1630

Contact for questions

Lt. Dan Mark - 31710

dmark@aurora.gov.org

Sgt. Jim Beuthel - 31717

jbeuthel@aurora.gov.org

Ofc. Don Fleer – 31604

dfleer@aurora.gov.org