# Improve LPR Read Rates

What is the optical range for the reader?

The sweet spot for plate reads is 1.5 to 2.5 meters between camera and plate. Also check to make sure the lens is clean. Another issue may be camera angle. The optimum angle for the camera is straight on (parallel) to the plate
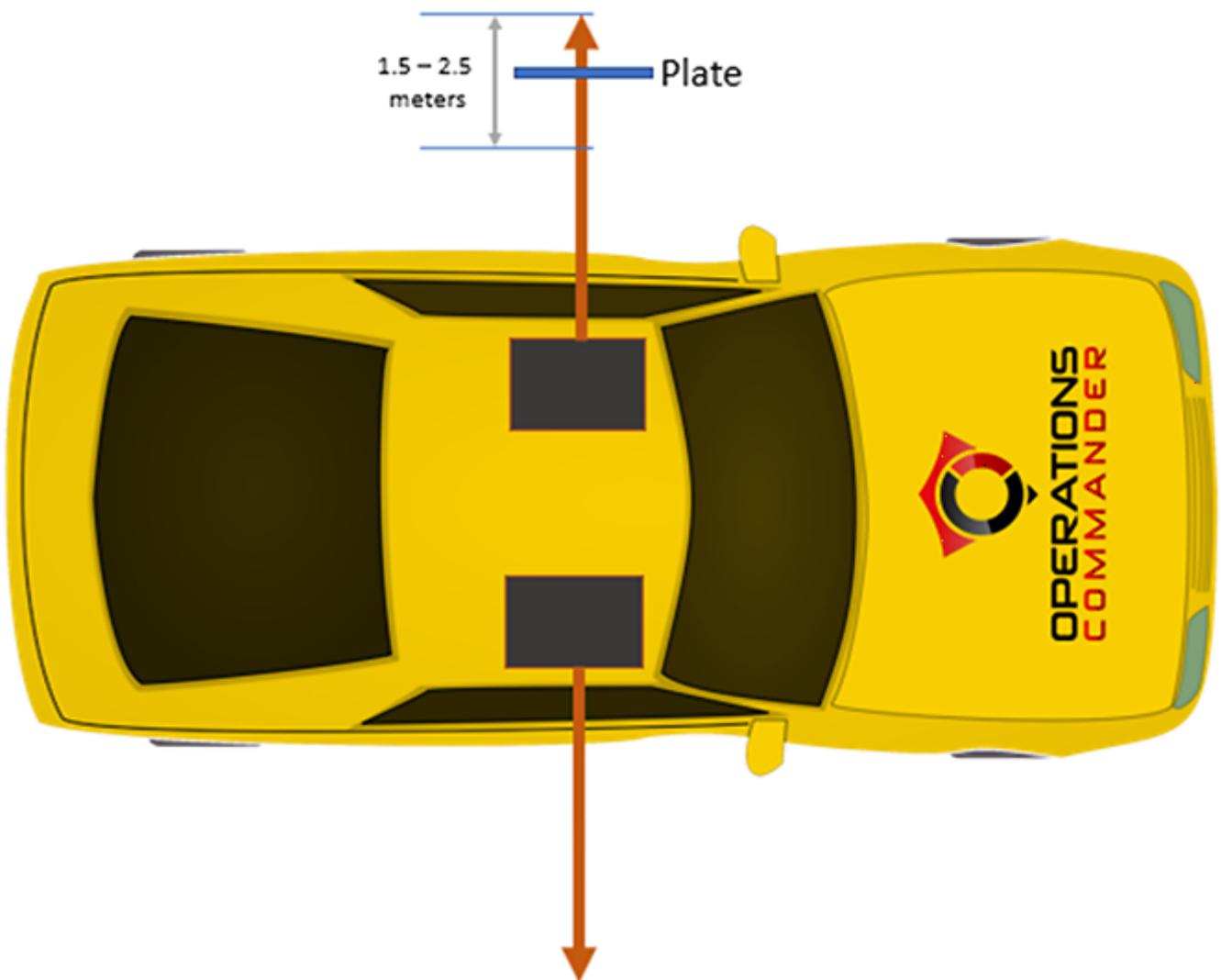
Fuzzy Searching

The PL8-RDR system supports fuzzy searching based on user supplied values.

In the case of the LPR system "seeing" **ABC123**, it will also validate against **A8C123** and **ABC128** or **A8C12B**.

Manual Corrections

You can improve plate reads by making corrections and verifying correct plates on the system. OPS-COM has an algorithm that includes the human updates as part of the read score. Therefore, if a plate is misread and corrected, it is very probable that the system will return the (human) updated version.

Further, the system does fuzzy searching... this means it will look for a plate in the system that matches a pattern. For example, a plate of ABC123 may be read as A8C128. With fuzzy searching and based on time of day etc. the system will return ABC123 if that plate has a permit (but will also note that it was a "fuzzy" read of the plate).

If you see a score of 100% in the LPR report that means that the system determined a human updated version was the best match since a score of 100% is theoretically impossible with LPR cameras.

As an Example here's a tweak you can do for Ontario users once the camera is setup...

Go into the Web Interface Page Plate Reader Camera OCR and set the following Characters dimensions:

CHAR SIZE Min W: 10 Max W: 50 Min H:30 Max H: 100

Plate Reader Settings

Plate Reader

System

Plate Locator		Char Size Pixel		Plate Format	
Win MinX Pixel	0	Min Width	10	Max Jolly Chars	0
Win MinY Pixel	0	Max Width	50	Plate With Separator	NO
Win MaxX Pixel	1279	Min Height	30	Enable UTF8 Encode(*)	NO
Win MaxY Pixel	1023	Max Height	100	(*): Plate string encoded with UTF8 for image and DB saving (Ä, т ,↵)	
Sensitivity	NORMAL				

Temporal Integration

Max Time Transit ms(*)	500
Min Time Same Plate ms(*)	2000
Max Plates in Image [1-4]	1
Image Selection Mode	BEST LUMINANCE
Enable Multi Out Same Plate(*)	0
Min Num Plate Read [1-3](*)	2
Apply Min Num Read To(*)	READ_NOTREAD
Min Plate Score for Num Read=1 [50-100](*)	65
Maximum string distance [0-5]	2

(*): Used in Free Run Mode Only

Advanced Features

Advanced Settings

Reset Apply

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Improving Exposure

For dark plate reads:

Set Max Shutter to 500
Set Max Gain to 256 (If images are too dark this setting can be increased. However it is not recommended to go over 1000.)
Set Iris Level to 15

General

Grab Mode
AUTOIRIS

Info Position
TOP_LEFT

Image Mode
NORMAL

Autoiris

Max Shutter µs	500
Max Gain	256
Iris Level	15

Adjusting the Bounding Box

The LPR camera has the ability to customize the area that is being analyzed during the plate read. This article explains how to adjust the read area (Bounding Box).
The bounding box refers to the area that can be adjusted to narrow the view or area that is analyzed by the LPR camera.

The settings involved are located in the Plate Reader Settings.

ANPR MOBILE SYSTEM Advance

Plate Reader Settings

Plate Reader

System

Plate Locator		Char Size Pixel		Plate Format	
Win MinX Pixel	0	Min Width	8	Max Jolly Chars	0 ▾
Win MinY Pixel	0	Max Width	40	Plate With Separator	NO ▾
Win MaxX Pixel	1279	Min Height	15	Enable UTF8 Encode(*)	NO ▾
Win MaxY Pixel	1023	Max Height	60	(*): Plate string encoded with UTF8 for image and DB saving (Ä, ب, ٣)	
Sensitivity	HIGH ▾				

Temporal Integration

Max Time Transit ms(*)	500
Min Time Same Plate ms(*)	2000
Max Plates in Image [1-4]	1
Image Selection Mode	BEST LUMINANCE ▾
Enable Multi Out Same Plate(*)	0 ▾
Min Num Plate Read [1-3](*)	2
Apply Min Num Read To(*)	READ_NOTREAD ▾
Min Plate Score for Num Read=1 [50-100](*)	70
Maximum string distance [0-5]	2

(*): Used in Free Run Mode Only

Advanced Features

Advanced Settings

Reset   Apply

Warning: changes in these settings will briefly interrupt this browser connection. Refresh this screen to reconnect.

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The default settings for full frame are as follows. Measurements for height are always considered the distance from the top of the screen. Measurements for width are based on distance from the left of the screen

Win MinX Pixel - 0 *(From the left)*
Win MinY Pixel - 0 *(from the top)*
Win MaxX Pixel - 1279 *(From the left)*
Win MaxY Pixel - 1023 *(from the top)*

📟 Plate Reader Settings   ✕   +

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ANPR MOBILE SYSTEM Advance

Plate Reader Settings

Plate Reader

System

Plate Locator		Char Size Pixel		Plate Format	
Win MinX Pixel	0	Min Width	8	Max Jolly Chars	0 ▾
Win MinY Pixel	0	Max Width	40	Plate With Separator	NO ▾
Win MaxX Pixel	1279	Min Height	15	Enable UTF8 Encode(*)	NO ▾
Win MaxY Pixel	1023	Max Height	60	(*): Plate string encoded with UTF8 for image and DB saving (Ä, ب, ۳)	
Sensitivity	HIGH ▾				

Temporal Integration

Max Time Transit ms(*)	500
Min Time Same Plate ms(*)	2000
Max Plates in Image [1-4]	1
Image Selection Mode	BEST LUMINANCE ▾
Enable Multi Out Same Plate(*)	0 ▾
Min Num Plate Read [1-3](*)	2
Apply Min Num Read To(*)	READ_NOTREAD ▾
Min Plate Score for Num Read=1 [50-100](*)	70
Maximum string distance [0-5]	2

(*): Used in Free Run Mode Only

Advanced Features

[Advanced Settings]

[Reset] [Apply]

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To view the location of the bounding box go into the Camera OCR tab.

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Number Plate Reader Configuration

Plate Reader

System

General   Camera Ocr   Camera Context   Plate Reader

Check List   Events Actions   Image Result   Text Result

Statistics   RTP   Video Archive

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Here is the full frame view of the bounding box. See the red outlined box in the image below.

ANPR MOBILE SYSTEM Advance

Frame Grabber Settings

Plate Reader

System

Warning: Engine is stopped if this page is active.

```
Plate        :        NO PLATE
Char Width   :               -
Char Height  :               -
Match List A :        DISABLED
Match List B :        DISABLED
Acq(Sh,G,St) :  300 us, 190, 151 us
```

General

Grab Mode

AUTOIRIS ▼

Info Position

TOP_LEFT ▼

Image Mode

NORMAL ▼

Autoiris

Max Shutter µs   300

Max Gain   256

Iris Level   5

Warning: Live video will stop after 120 seconds.

Start Live | Stop Live | Reset | Apply

Save Image

Adjusting Height

To adjust the box edit the number in the settings. In this case we will narrow the bounding box in height to restrict the read area.

Here are the settings:

Win MinX Pixel - 0 *(from the left)*
Win MinY Pixel - **100** *(from the top)*
Win MaxX Pixel - 1279 *(from the left)*
Win MaxY Pixel - **700** *(from the top)*

ANPR MOBILE SYSTEM Advance

Plate Reader Settings

Plate Reader

System

Plate Locator		Char Size Pixel		Plate Format	
Win MinX Pixel	0	Min Width	8	Max Jolly Chars	0 ▾
Win MinY Pixel	100	Max Width	40	Plate With Separator	NO ▾
Win MaxX Pixel	1279	Min Height	15	Enable UTF8 Encode(*)	NO ▾
Win MaxY Pixel	700	Max Height	60	(*): Plate string encoded with UTF8 for image and DB saving (Ä, ٣, ب)	
Sensitivity	HIGH ▾				

Temporal Integration

Max Time Transit ms(*)	500
Min Time Same Plate ms(*)	2000
Max Plates in Image [1-4]	1
Image Selection Mode	BEST LUMINANCE ▾
Enable Multi Out Same Plate(*)	0 ▾
Min Num Plate Read [1-3](*)	2
Apply Min Num Read To(*)	READ_NOTREAD ▾
Min Plate Score for Num Read=1 [50-100](*)	70
Maximum string distance [0-5]	2

(*): Used in Free Run Mode Only

Advanced Features

Advanced Settings

Reset   Apply

Warning: changes in these settings will briefly interrupt this browser connection. Refresh this screen to reconnect.

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IMPORTANT

Once the settings are changed and you click on Apply, the camera will reboot. This process will take a couple of minutes to complete before you can navigate away from the page.

The resulting Bounding Box will look like this:

ANPR MOBILE SYSTEM Advance

Frame Grabber Settings

Plate Reader

System

```
Plate          :          NO PLATE
Char Width     :                 _
Char Height    :                 _
Match List A   :          DISABLED
Match List B   :          DISABLED
Acq(Sh,G,St)   :   300 us, 183, 77 us
```

General

Grab Mode

AUTOIRIS ▼

Info Position

TOP_LEFT ▼

Image Mode

NORMAL ▼

Autoiris

Max Shutter μs	300
Max Gain	256
Iris Level	5

Warning: Live video will stop after 120 seconds.

Start Live   Stop Live   Reset   Apply

Save Image

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Let's now say we want to lower the box in the view. I would have to increase the values in both Y axis settings.

Here are the settings

Win MinX Pixel - 0 *(from the left)*
Win MinY Pixel - **200** *(From the top)*
Win MaxX Pixel - 1279 *(from the left)*
Win MaxY Pixel - **800** *(From the top)*

📰 Plate Reader Settings   ✕   +

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ANPR MOBILE SYSTEM Advance

Plate Reader Settings

Plate Reader

System

Plate Locator		Char Size Pixel		Plate Format	
Win MinX Pixel	0	Min Width	8	Max Jolly Chars	0 ▾
Win MinY Pixel	200	Max Width	40	Plate With Separator	NO ▾
Win MaxX Pixel	1279	Min Height	15	Enable UTF8 Encode(*)	NO ▾
Win MaxY Pixel	800	Max Height	60	(*): Plate string encoded with UTF8 for image and DB saving (Ä, ب, ٣)	
Sensitivity	HIGH ▾				

Temporal Integration

Max Time Transit ms(*)	500
Min Time Same Plate ms(*)	2000
Max Plates in Image [1-4]	1
Image Selection Mode	BEST LUMINANCE ▾
Enable Multi Out Same Plate(*)	0 ▾
Min Num Plate Read [1-3](*)	2
Apply Min Num Read To(*)	READ_NOTREAD ▾
Min Plate Score for Num Read=1 [50-100](*)	70
Maximum string distance [0-5]	2

(*): Used in Free Run Mode Only

Advanced Features

Advanced Settings

Reset Apply

Warning: changes in these settings will briefly interrupt this browser connection. Refresh this screen to reconnect.

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Here is the resulting bounding box:

ANPR MOBILE SYSTEM Advance

Frame Grabber Settings

Plate Reader

System

Warning: Engine is stopped if this page is active.

```
Plate          :          NO PLATE
Char Width     :                 —
Char Height    :                 —
Match List A   :          DISABLED
Match List B   :          DISABLED
Acq(Sh,G,St)   :   300 us, 184, 77 us
```
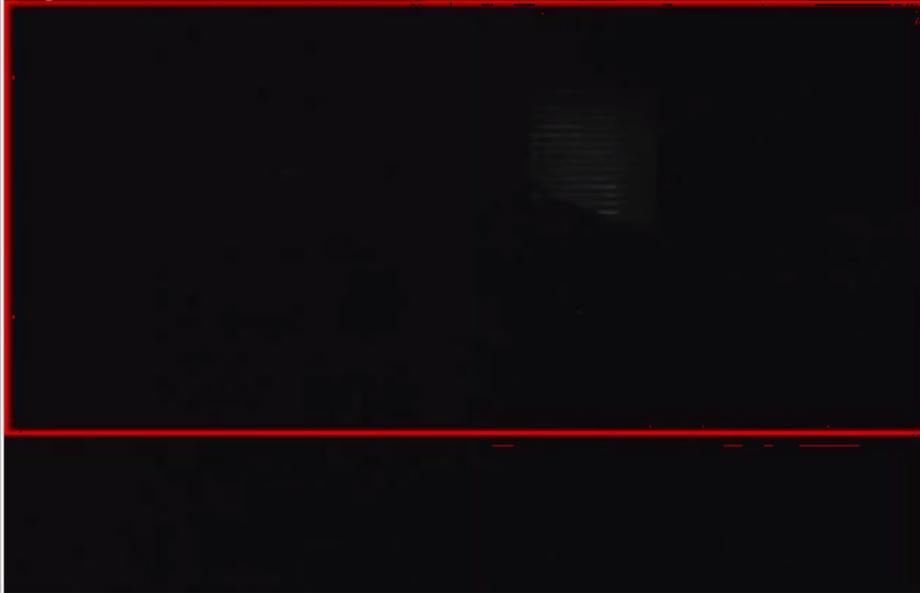
General

Grab Mode

AUTOIRIS ▾

Info Position

TOP_LEFT ▾

Image Mode

NORMAL ▾

Autoiris

Max Shutter μs	300
Max Gain	256
Iris Level	5

Warning: Live video will stop after 120 seconds.

Start Live   Stop Live   Reset   Apply

Save Image

www.tattile.com

Adjusting Width

Additionally you can narrow the width of the bounding box if need be. In this case we will narrow the bounding box by 100 pixels on both sides.

Here are the settings

Win MinX Pixel - **100** *(from the left)*
Win MinY Pixel - 200 *(From the top)*
Win MaxX Pixel - **1179** *(from the left)*
Win MaxY Pixel - 800 *(From the top)*

⌂ ← → C ⓘ 10.42.0.140/cgi-bin/CGI_PlateConf.cgi ☆ ⬇ ⋮

ANPR MOBILE SYSTEM Advance

Plate Reader

System

Plate Reader Settings

Plate Locator		Char Size Pixel		Plate Format	
Win MinX Pixel	100	Min Width	8	Max Jolly Chars	0 ▾
Win MinY Pixel	200	Max Width	40	Plate With Separator	NO ▾
Win MaxX Pixel	1179	Min Height	15	Enable UTF8 Encode(*)	NO ▾
Win MaxY Pixel	800	Max Height	60	(*): Plate string encoded with UTF8 for image and DB saving (Ä, ب, ٣)	
Sensitivity	HIGH ▾				

Temporal Integration

Max Time Transit ms(*)	500
Min Time Same Plate ms(*)	2000
Max Plates in Image [1-4]	1
Image Selection Mode	BEST LUMINANCE ▾
Enable Multi Out Same Plate(*)	0 ▾
Min Num Plate Read [1-3](*)	2
Apply Min Num Read To(*)	READ_NOTREAD ▾
Min Plate Score for Num Read=1 [50-100](*)	70
Maximum string distance [0-5]	2

(*): Used in Free Run Mode Only

Advanced Features

Advanced Settings

Reset   Apply

Warning: changes in these settings will briefly interrupt this browser connection. Refresh this screen to reconnect.

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Here is the resulting bounding box.

By selective use of these settings you can customize the area that is processed by the LPR read. As a result LPR reads could be faster and more accurate since the camera is reading a smaller more focused area and ignores anything outside of the bounding box.

On the Handheld

For NOREADs you can check the setting in **System Settings** to see if that can be reduced.
It may mean more noise, but it may also help with determining what is going on (ie. reading but not seeing it as a **READ** result)

To adjust this setting go into system settings and tap on Include NOREAD (ie. vanity) Results

Include NOREAD (ie. vanity) Results
Minimum NOREAD confidence level:

Set the percentage to 50% to start. We can tweak it once we see how the system reacts.

LPR Proxy IP Address (default: 192.168.8.1)

Include NOREAD (ie. vanity) Results

LPR P
: 3200   ○   > 60%

Includ   ○   > 55%
Minimu

Auto C   ○   > 50%
Autom   ☑

Trigge   ○   > 45%
Trigger

            ○   > 40%   ☐

Time
Minute   ○   > 35%

            ○   > 30%

Chalk   ○   Any   ☑
Display

                                        CANCEL

Advan
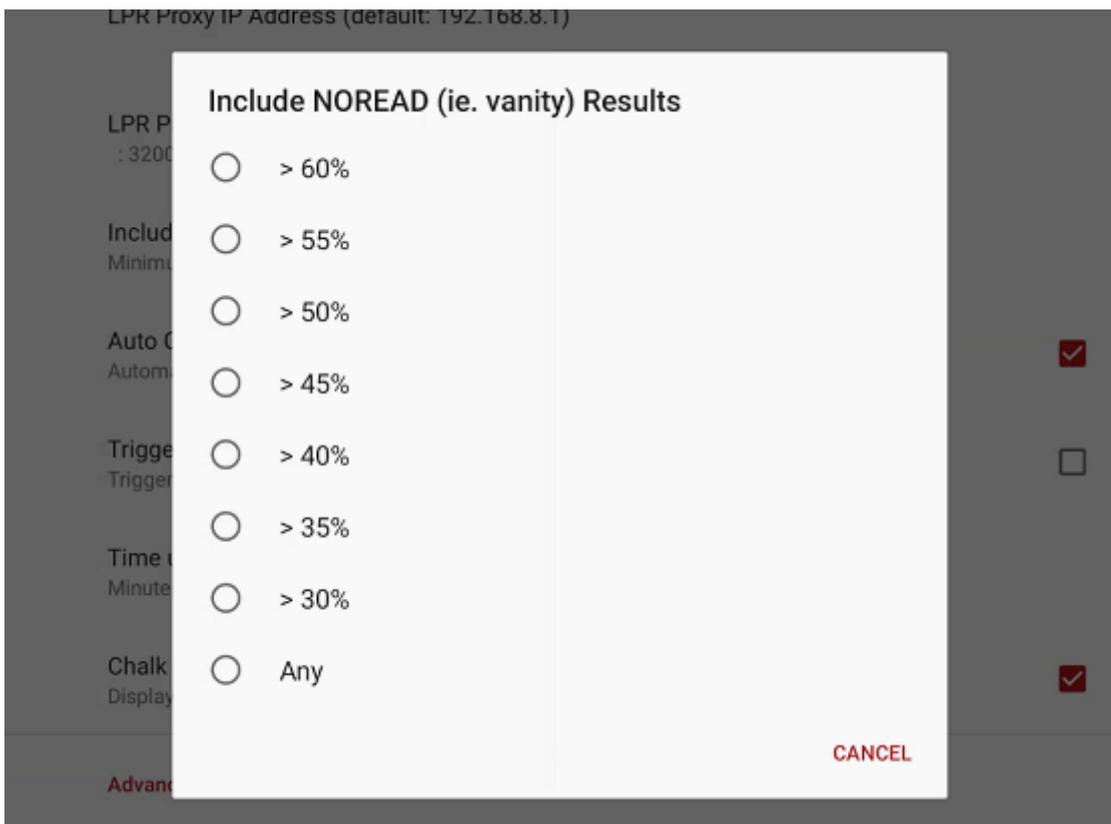
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