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# VPixx Software Tools Update Guide

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## Overview

This update guide provides installation and usage information relating to the latest VPixx Software Tool release.

For technical questions or product support information, do not hesitate to contact the VPixx support team by phone or by sending an E-mail to [support@vpixx.com](mailto:support@vpixx.com)

By creating your *MyVPixx* account on the VPixx Technologies website, you will have access to additional product documentation, demos, source code examples and the latest firmware and software drivers.

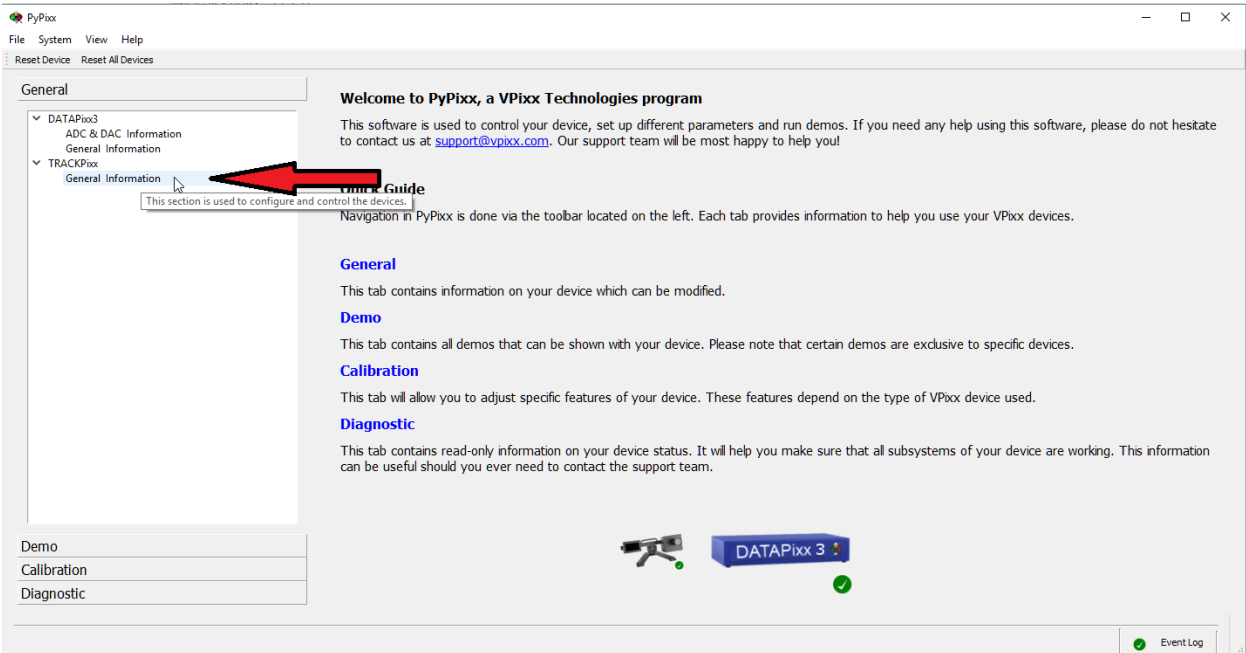
## Firmware Update

To implement the updates contained within this release:

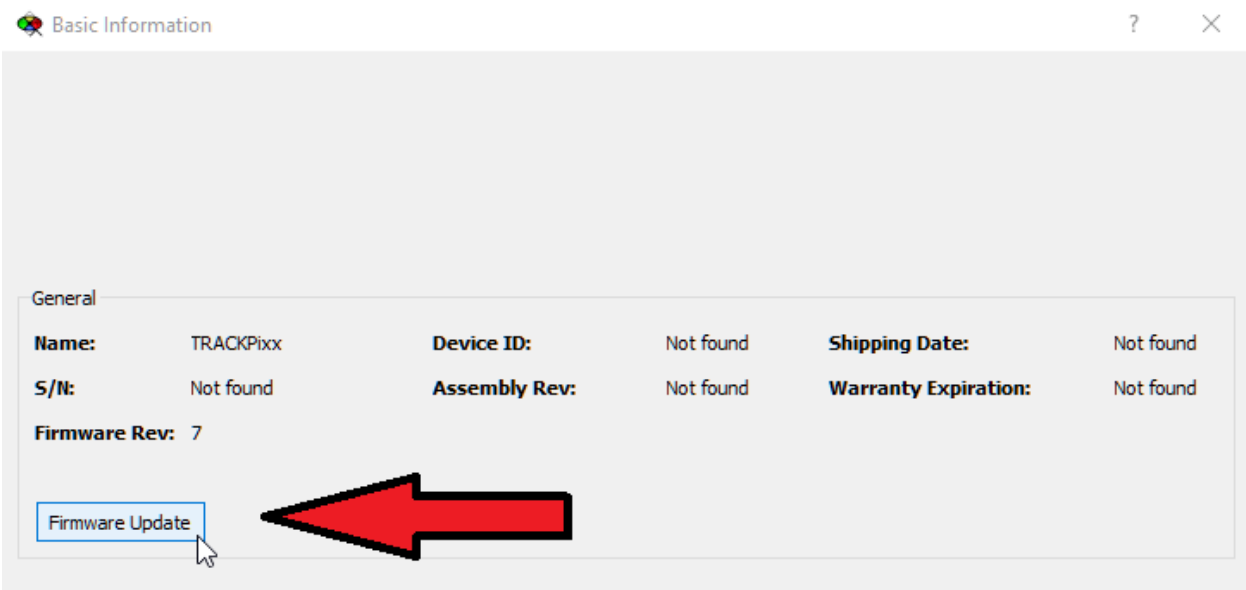
- The TRACKPixx firmware must be updated to **revision 7**
- The DATAPixx3 firmware must be updated to **revision 8**

To update the firmware, follow this procedure:

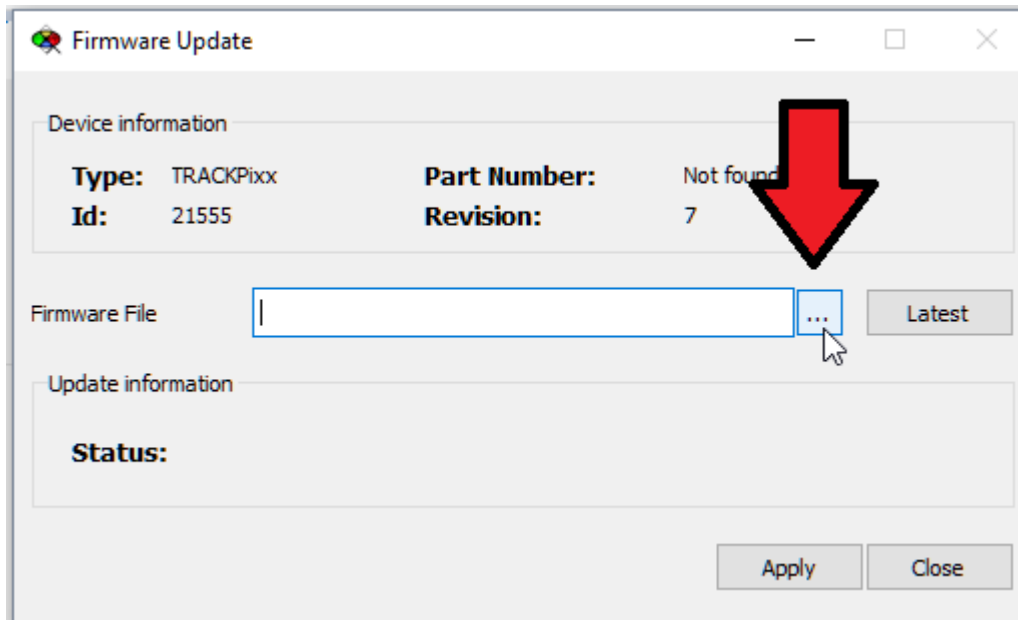
1. To update your firmware using PyPixx, click on the **General Information** sub menu for the product to upgrade.



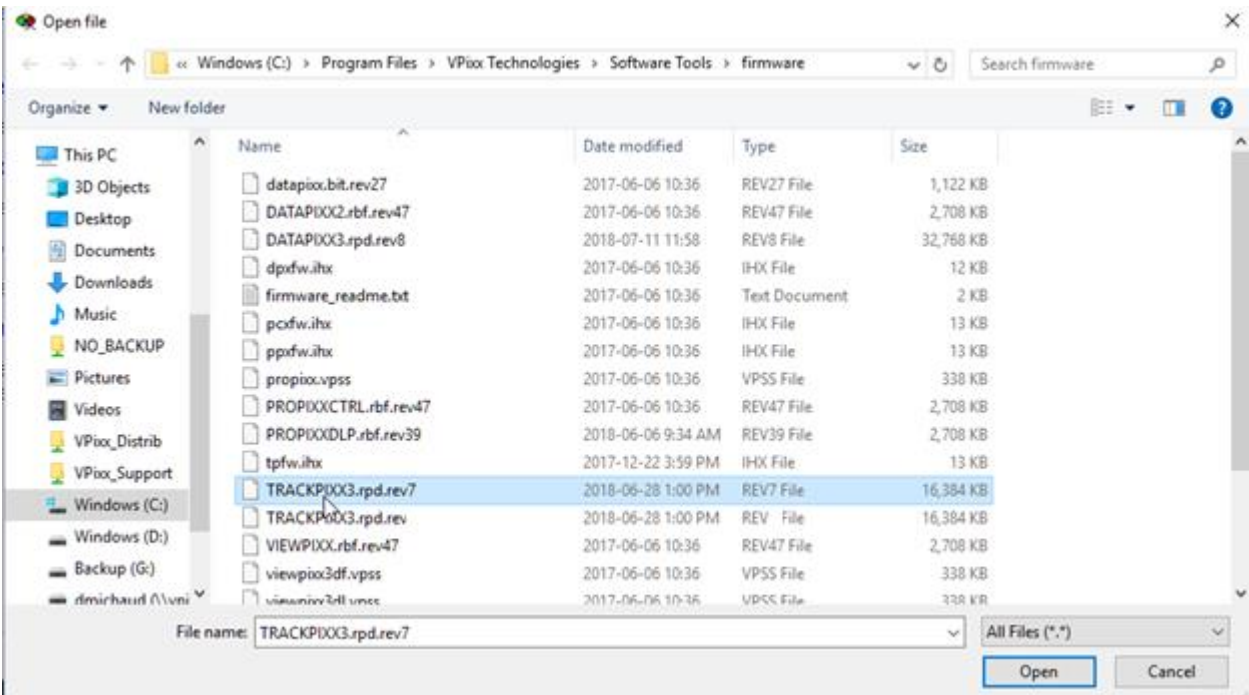
2. Click on the **Firmware Update** button.



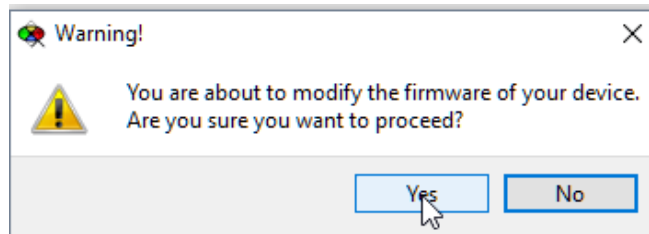
- A new widget will open. Using the (...) button, navigate to the firmware file located in *C:\Program Files\VPixx Technologies\Software Tools\firmware* (the default folder), or use the **Latest** button.



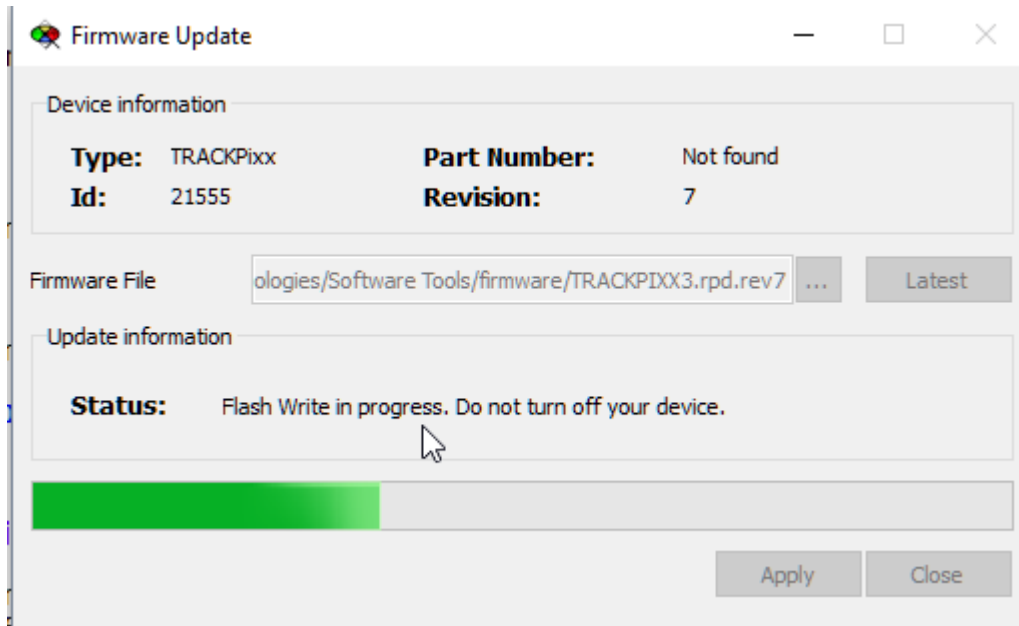
- Select the firmware for your device (if you select the wrong firmware a warning will be displayed).



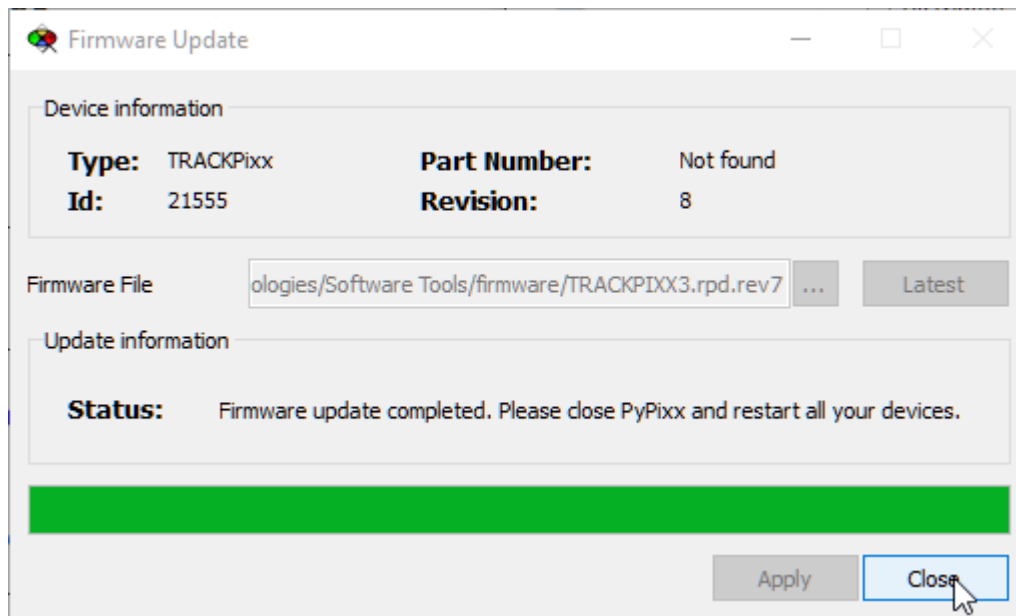
- Select Yes for the warning message informing you that your current firmware will be overwritten.



Ensure that you do not turn off any of the devices or close PyPixx during the update.



6. After the update is complete, follow the on screen instructions (close PyPixx and restart all your devices).



## Updates

This section lists the updates contained within this release. Some of these updates require some explanation or an installation procedure, in which case the relevant information will be listed under the name of the corresponding update.

### Improved PyPixx stability (diagnosis tools, firmware update, etc.)

### Calibrations are now saved directly in the hardware

### A Schedule (data recording) can now directly access calibrated data

### Improved tracking algorithms

### TRACKPixx compatibility with OS X and Linux

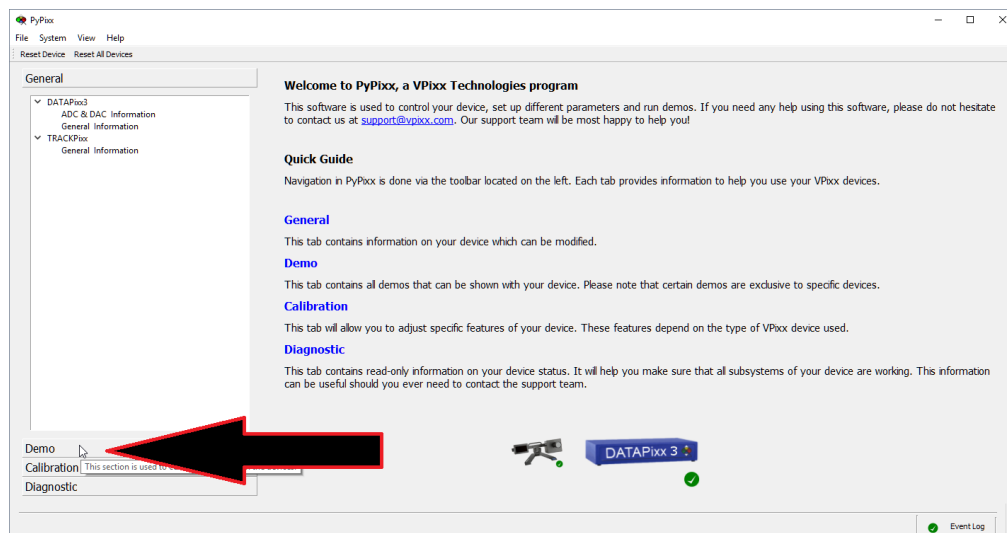
### PyTPx is now integrated in PyPixx

From this release onward, to launch PyTPx, follow this procedure:

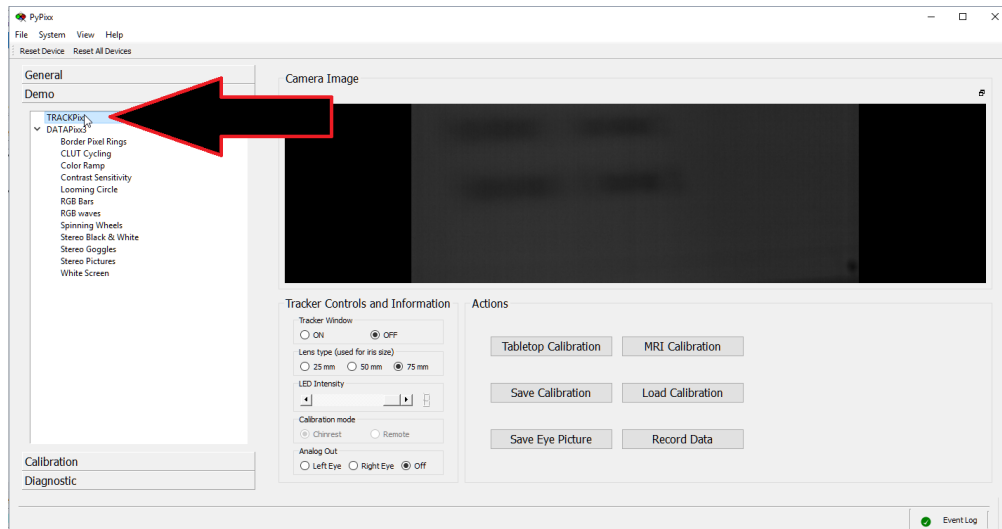
1. Navigate to your desktop to find the shortcut.



2. Click on the *Demo* tab.



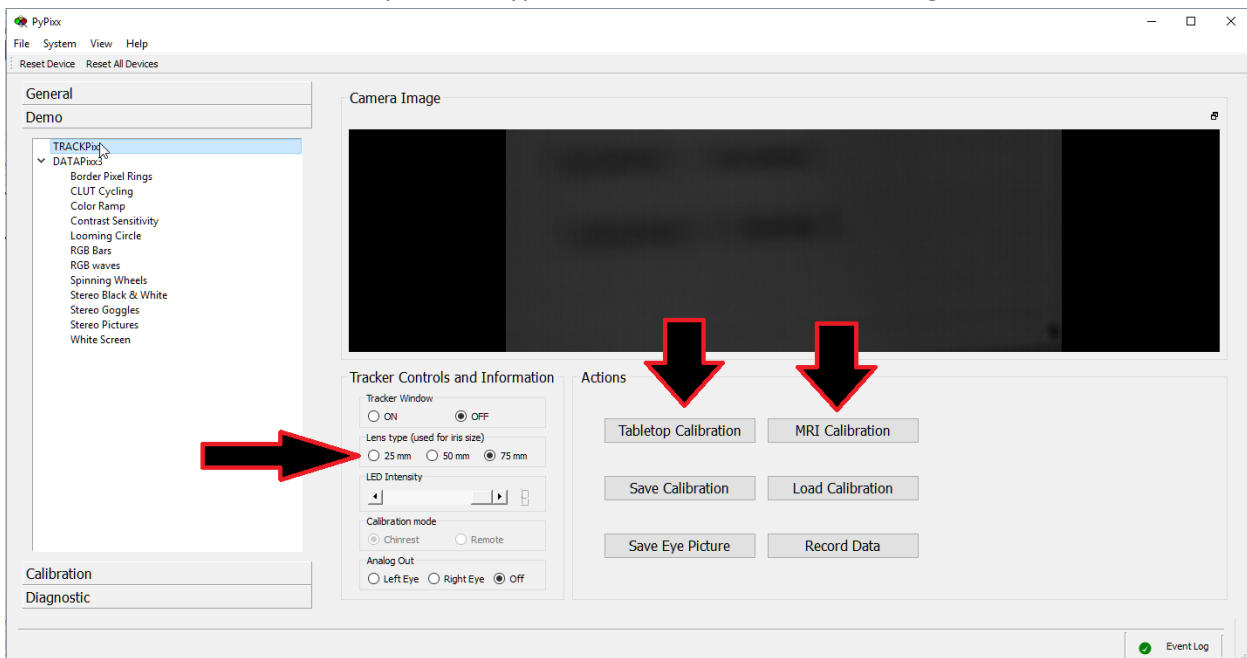
- 3- Click on the *TRACKPixx* item.



### Analog Outputs can now transmit eye positions

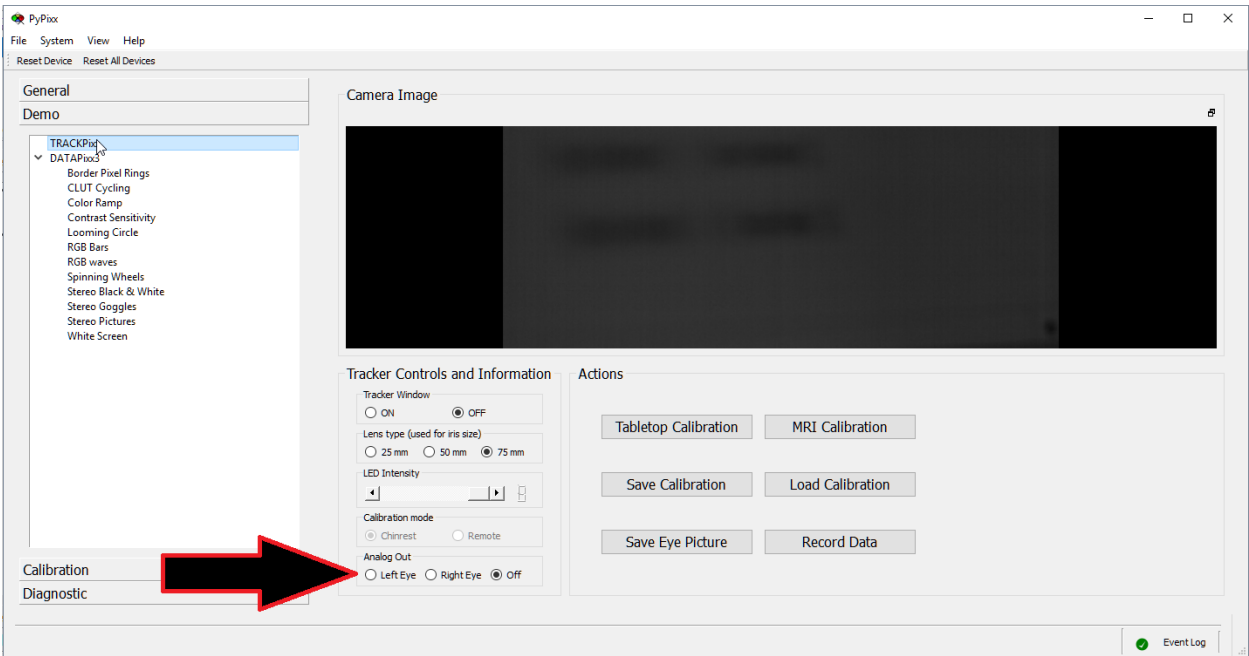
To transmit eye positions through an analog output, follow this procedure:

1. Open PyTPx (refer to the *PyTPx is now integrated in PyPixx* section)
2. Calibrate the TRACKPixx (select your lens type and the correct calibration widget).



3. Once the calibration is completed, enable the *Analog Out* for the desired eye.





### New console overlay options when using DATAPixx3

(Coming to PyPixx in a future update)

1. Full screen stimuli

1920x1080 screen



2560x1440 screen



2. **SUGGESTED MODE:** eye-tracking information half size, stimuli full screen.

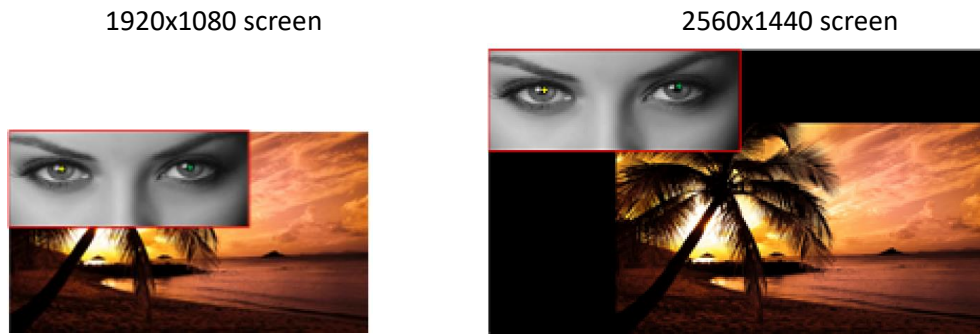
1920x1080 screen



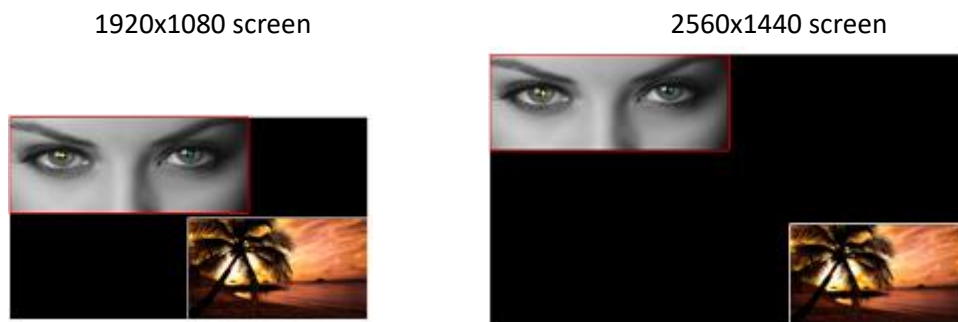
2560x1440 screen



3. Eye-tracking information full Size, stimuli full screen.



4. Eye-tracking information full size, stimuli half size.



The procedure to enable the console overlay options is as follows:

1. To enable in VPUtil, type the command **d3cm** and choose your option. Once the option is chosen, it can be saved via the same command' **S** option. You can restore the default setting using the **R** option.
2. To enable in MATLAB:
  - a. Use `Datapixx('SetVideoConsoleDisplay' [, presetDisposition=0])`
  - b. Select a preset video console disposition for the stimuli window and the tracker window. The parameter **presetDisposition** determines the resolution and disposition of the windows (see above screenshots). This cannot be saved in MATLAB, it must be saved in VPUtil, but can be set on the fly during your experiments.

## MATLAB Search Limits

Search limits allow you to specify to a TRACKPixx3 system a certain zone in which the eyes will be located. This is useful when the TRACKPixx3 is used in an environment restricting head movement, such as an MRI.

To start the newest demo, follow this procedure:

1. Navigate to the Datapixx Demo folder.

↑ > This PC > Windows (C:) > Program Files > VPixx Technologies > Software Tools > DatapixxToolbox\_trunk > DatapixxToolbox > DatapixxDemos

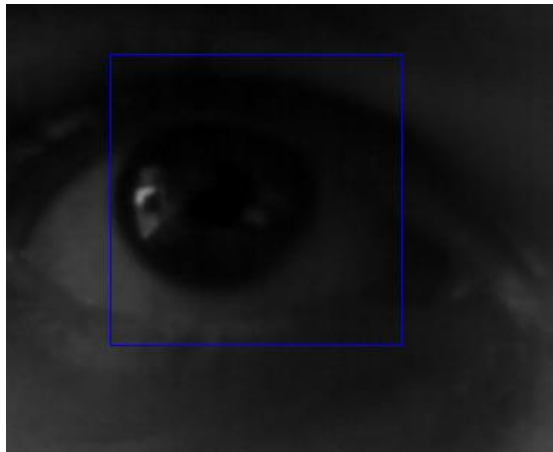
2. Open the TPxTrackpixx3CalibrationTesting.m

TPxTrackpixx3CalibrationTesting.m 2018-07-04 10:48 MATLAB Code 2 KB

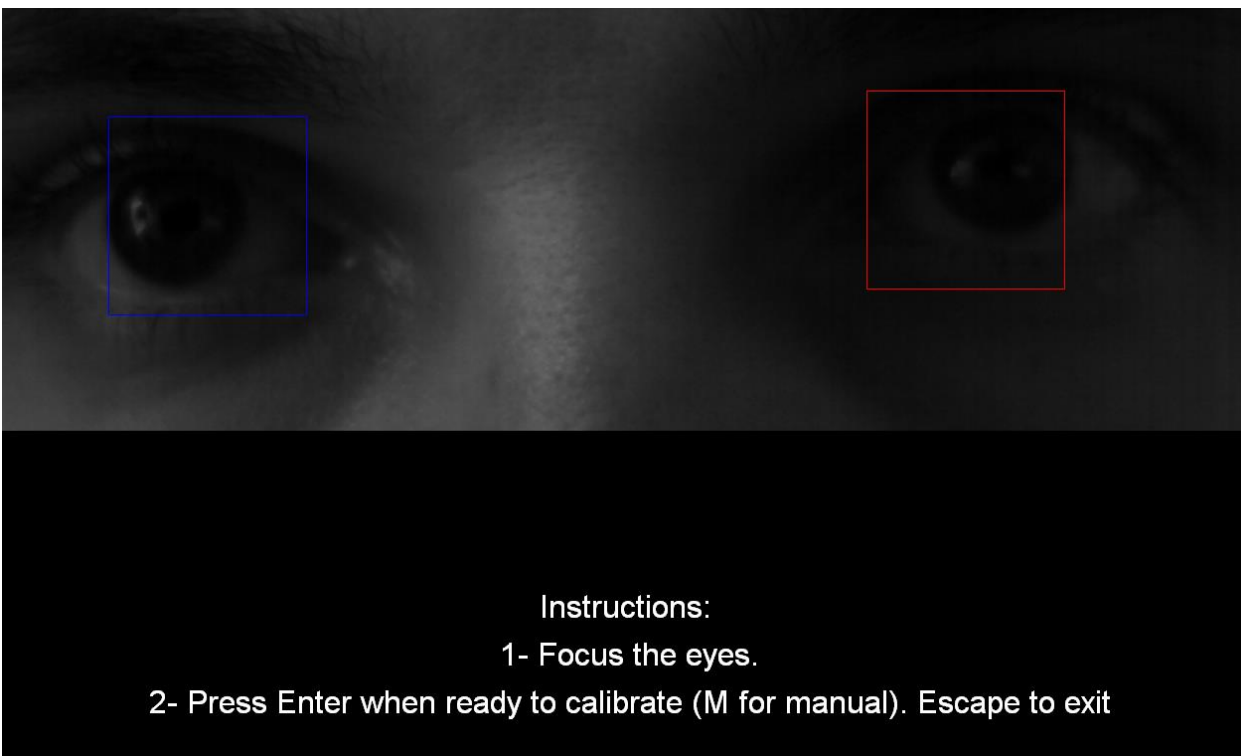
3. In the script, select your screen number.

```
% data will be calibrated.  
  
clear all;  
close all;  
  
%Sets to which screen the calibration  
%multi screen.  
screenNumber = 1; %3 originally  
  
TPxCalibrationTesting(1,0,screenNumbe:  
end
```

4. Once the script starts, you can simply follow the on screen instructions but if you are unable to proceed, we list here some possible solutions:
  - a. (Optional): set the search limit for the left eye by left clicking on the left eye. This will place a blue square box around the eye. You can press the middle mouse button or 'C' to clear the search limits. You should have the overlay enabled at this point so that you know that the tracking functions correctly.

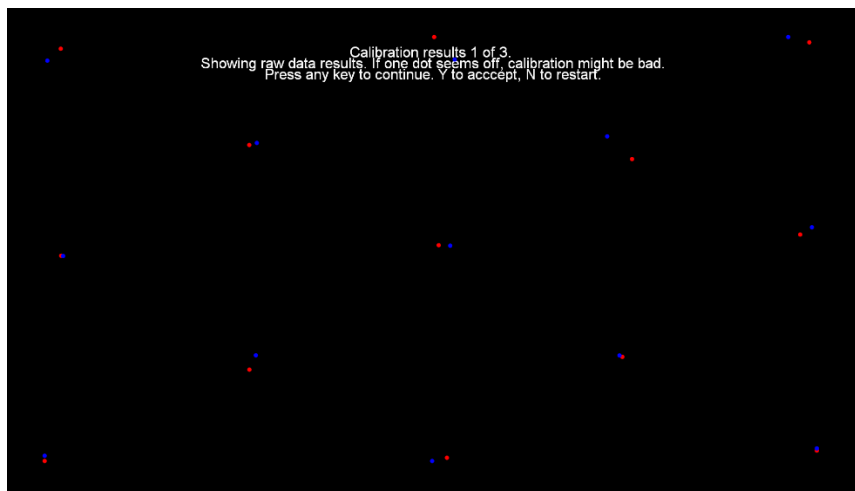


- b. (Optional): set the search limit for the right eye by right clicking on the right eye. This will place a red square box around the eye.
5. Once both search limits are set, simply press enter to start calibration.



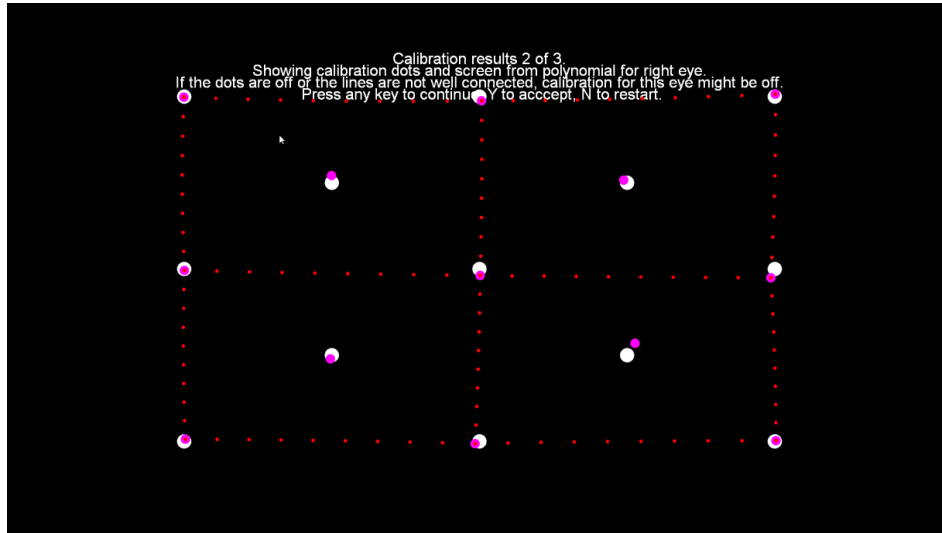
NOTE: You can always stop the script or a calibration by pressing *Escape*.

6. Once the calibration is complete, three sets of data are displayed. These graphs can be used to evaluate the calibration results.
  - a. Press any key other than 'Y' to navigate to the next set of results.
  - b. Result 1: are the points all spread across the screen? An acceptable result should look similar to this:

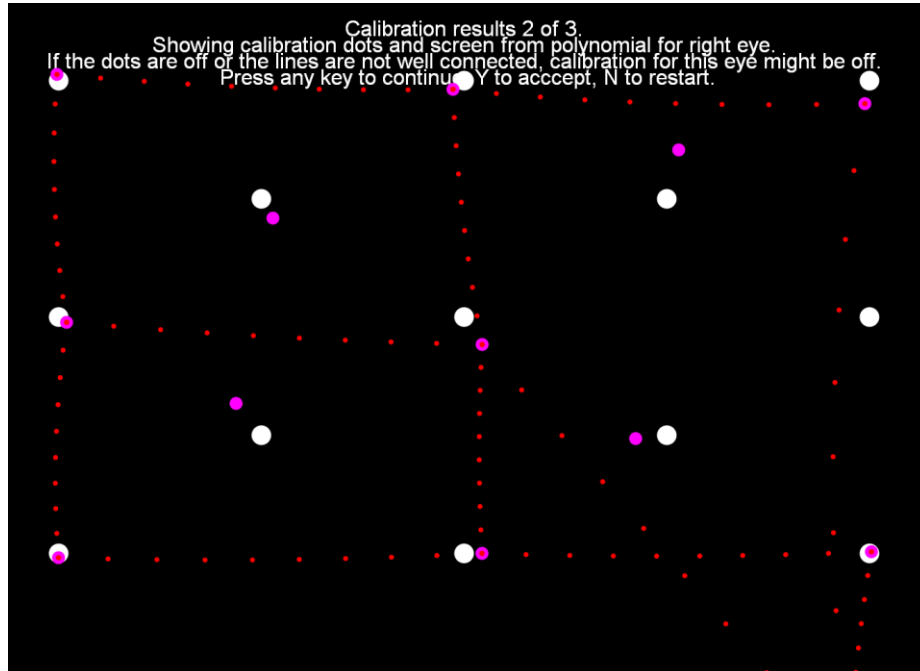


As can be seen, the points are well spread across the screen, and each zone contains one blue and one red point (representing both eyes).

- c. Results 2 & 3: is the calibration for this eye acceptable? Acceptable results should offer a grid of points having the colored points as close to the center of the white points as possible. The 10 points forming the line between the two calibration points should be as straight as possible. If you see any big curves in the points, the calibration should be restarted. A good calibration might look something like this:



An unacceptable calibration might look like this:



7. To accept the calibration, press 'Y' twice.
8. After the calibration is finished, a last step called *Gaze follower* must be completed. During this step, we simply display the calibration dots in white and a red and blue circle will be updated to where you are looking.





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