

# MORE ENGINE

Marker tool for *object recognition*



# AREA OF APPLICATION

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## MORE SOFTWARE TOOL

Use interactive object recognition in your own custom touchscreen software development projects.



The Marker Tool is to be used for Windows-Touch-Systems that do not run AppSuite but third-party software. It is able to receive the Wintouch from 3M systems, to recognize markers and to send markers as well as touch points via the TUIO.



# INSTALLATION GUIDE



# INSTALLATION GUIDE: REGISTRATION

Visit our **WEBSITE 1** ([www.multitouch-appstore.com/de/register/](http://www.multitouch-appstore.com/de/register/)) and create an account.

Login and complete your profile information.

Wait for your email confirmation for stage 2.



The screenshot shows the registration page of the AppStore website. The page has a dark green header with navigation links: TOUR, APPS, PRICING, and EXAMPLES. The AppStore logo is in the center, and there are links for FREE DOWNLOAD, LOGIN, and DE. The main content area has a green background with a woman pointing at a screen. The registration process is outlined with four bullet points: Simple registration process, Free download of AppSuite Touchscreen CMS, Free access to all apps and features, and Free access to your personal area (backend). Below this is a Newsletter section with a list of categories: Offers & Discount promotions, Product news & Updates, Company information, and Dates & Events. A large green shield with the number 1 is positioned to the left of the registration form. The registration form itself is titled 'Form: Registration' and includes fields for Email, Password, Repeat password, Salutation, First Name, Last Name, Company, Position, and Country. There are also checkboxes for accepting terms of use and receiving newsletters. A green Register button is at the bottom of the form.

**Registration**

Registration is totally free! After successfully registering you can download and install the eyefactive MultiTOUCH AppSuite for free

- ✔ Simple registration process
- ✔ Free download of AppSuite Touchscreen CMS
- ✔ Free access to all apps and features
- ✔ Free access to your personal area (backend)

**Newsletter**

Activate the checkbox in the registration form to receive our regular newsletter for free.

- ✔ Offers & Discount promotions
- ✔ Product news & Updates
- ✔ Company information
- ✔ Dates & Events

**1**

**Form: Registration**

Please fill out all mandatory fields and click on the button at the end of the form.

Email

Password Repeat password

Salutation

First Name Last Name

Company Position

Country

I accept the [terms of use](#) and the [data privacy policy](#).

Yes, I would like to receive the regular newsletters via email\*.

Register

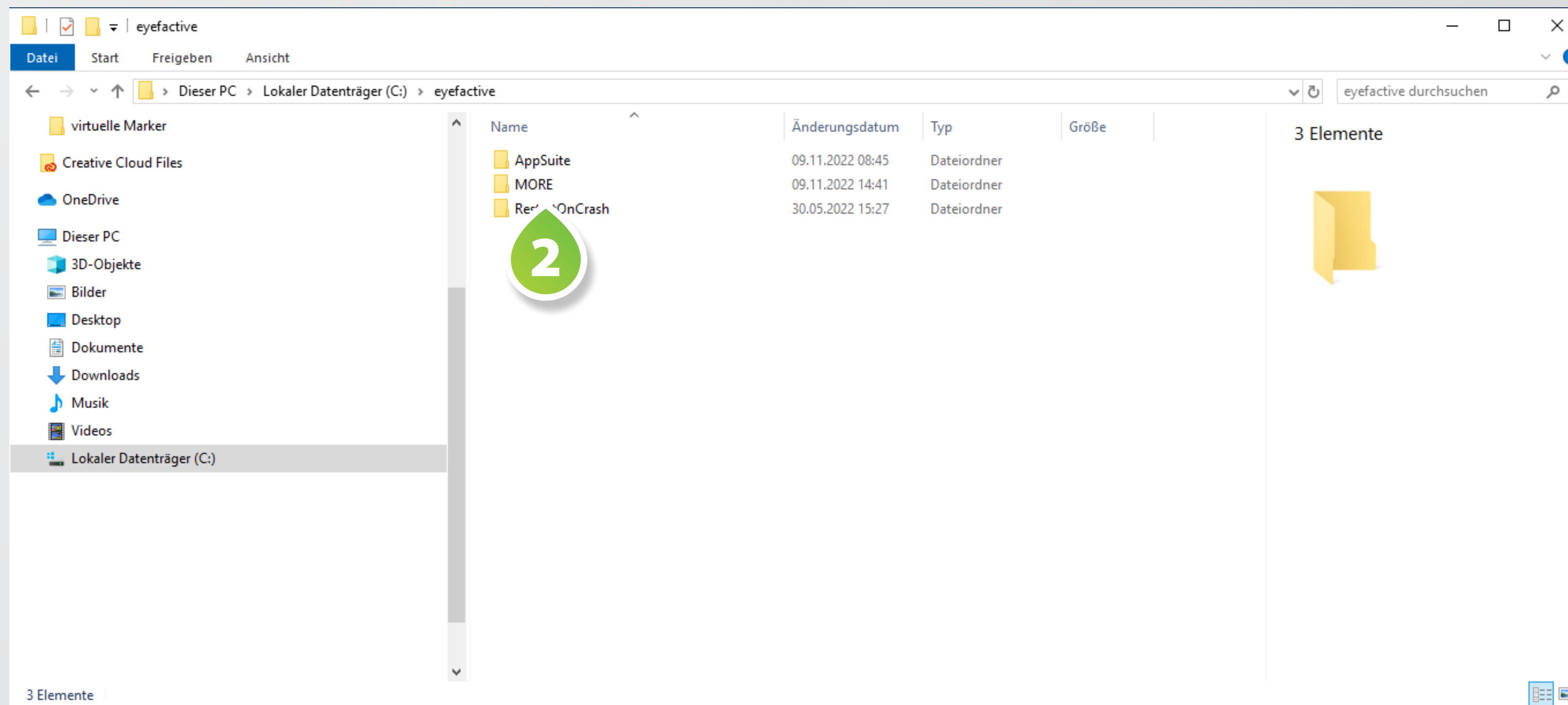
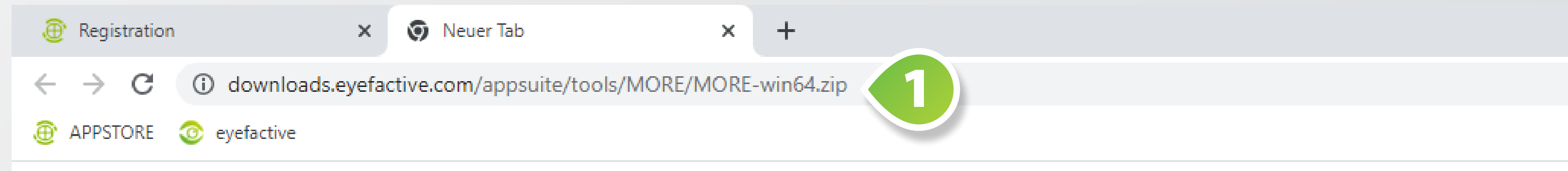
# INSTALLATION GUIDE: DOWNLOAD

Download the MORE engine under this **LINK: 1**

<http://downloads.eyefactive.com/appsuite/tools/MORE/MORE-win64.zip>

Unpack the folder on your computer here:

**C:\eyefactive\MORE 2**





# INSTALLATION GUIDE: RUN

Run the **MORE.EXE** 1 from:  
C:\eyefactive\MORE\MORE.exe

The screenshot shows a Windows File Explorer window titled "MORE" with the address bar set to "Dieser PC > Lokaler Datenträger (C:) > eyefactive > MORE". The left sidebar shows the navigation pane with "Lokaler Datenträger (C:)" selected. The main pane displays a list of files and folders. A green circle with the number "1" is overlaid on the "MORE.exe" file in the list.

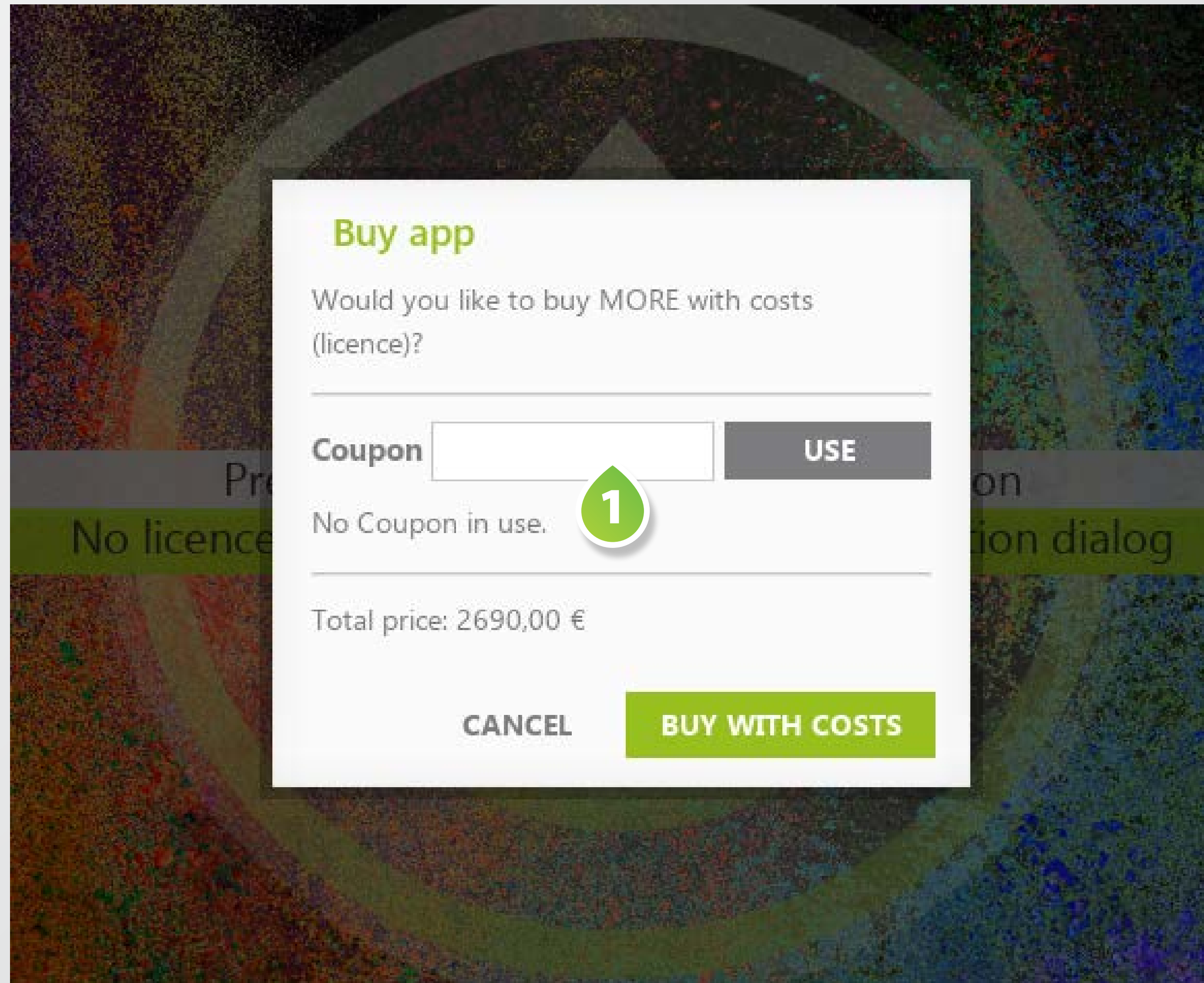
Name	Änderungsdatum	Typ	Größe
libssl32.dll	09.11.2022 14:41	Anwendungserwe...	356 KB
libstdc++-6.dll	09.11.2022 14:41	Anwendungserwe...	1.384 KB
libtasn1-6.dll	09.11.2022 14:41	Anwendungserwe...	100 KB
libthai-0.dll	09.11.2022 14:41	Anwendungserwe...	66 KB
libtiff-5.dll	09.11.2022 14:41	Anwendungserwe...	516 KB
libunistring-2.dll	09.11.2022 14:41	Anwendungserwe...	1.724 KB
libvlc.dll	09.11.2022 14:41	Anwendungserwe...	184 KB
libvlccore.dll	09.11.2022 14:41	Anwendungserwe...	2.734 KB
libwebp-7.dll	09.11.2022 14:41	Anwendungserwe...	446 KB
libwebpmux-3.dll	09.11.2022 14:41	Anwendungserwe...	75 KB
libwinpthread-1.dll	09.11.2022 14:41	Anwendungserwe...	51 KB
libxml2-2.dll	09.11.2022 14:41	Anwendungserwe...	1.328 KB
libyfmMediaPlayer-1.dll	09.11.2022 14:41	Anwendungserwe...	903 KB
libyfmIBridge-1.dll	09.11.2022 14:41	Anwendungserwe...	2.627 KB
libzip.dll	09.11.2022 14:41	Anwendungserwe...	111 KB
libzstd.dll	09.11.2022 14:41	Anwendungserwe...	675 KB
LICENCE.txt	09.11.2022 14:41	Textdokument	2 KB
lua51.dll			
MORE.exe			
MORE_timeout_killExplorer.bat			
ssleay32.dll			
zlib1.dll			

The application window shows a colorful, abstract background with a central circular logo. Two text boxes are overlaid on the application:

- Press 'e' to edit the device configuration
- No licence found: Press 'a' to open the activation dialog



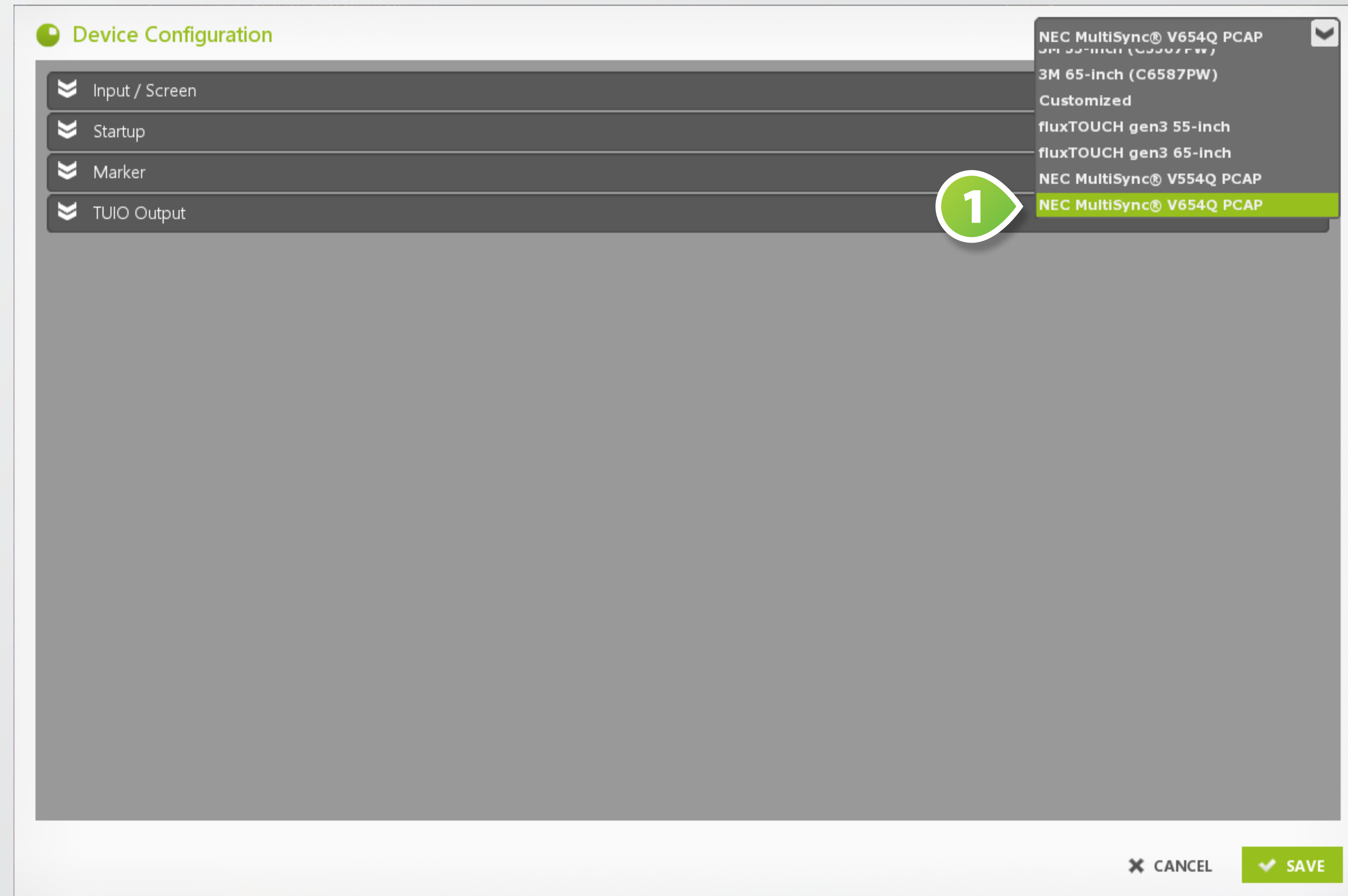
# INSTALLATION GUIDE: LICENSING



Hit "a" to start the licence activation and login with your AppStore login details.

Once logged in you can buy the license. At this point please enter your licence key / coupon code **1**.

# INSTALLATION GUIDE: DEVICE CONFIGURATION

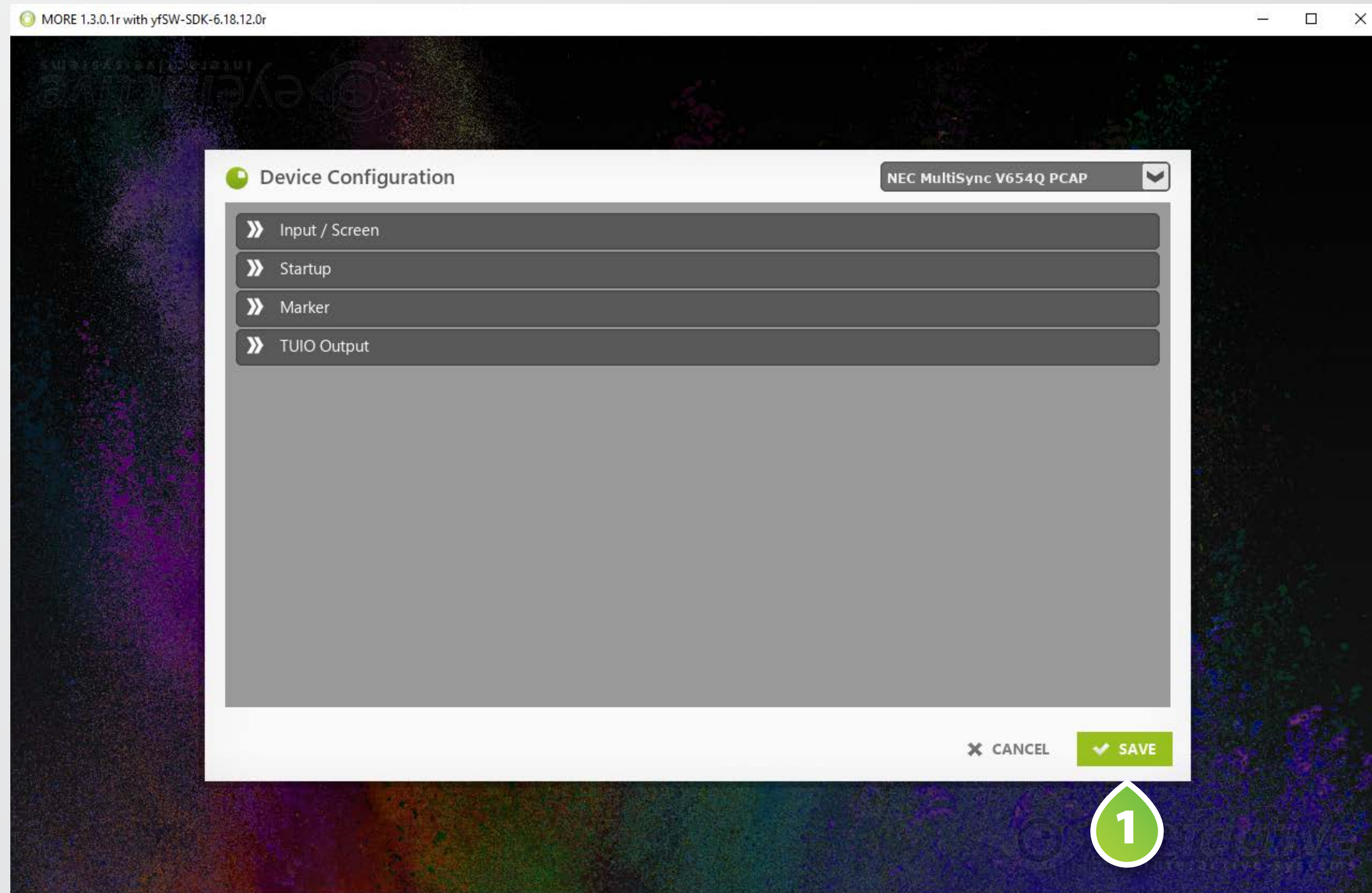


Now go back to MORE and select "e" for editing.

In the „Device Configuration“ select your device „**NEC MultiSync V654Q**“ **1** via the dropdown menu in the upper right corner.



# INSTALLATION GUIDE: LAUNCHING



Minimize the MORE engine to the task bar. It will now send out TUIO data.

You are now ready to **START** **1** your interactive application.

# INSTALLATION FOR NON 3M SENSORS

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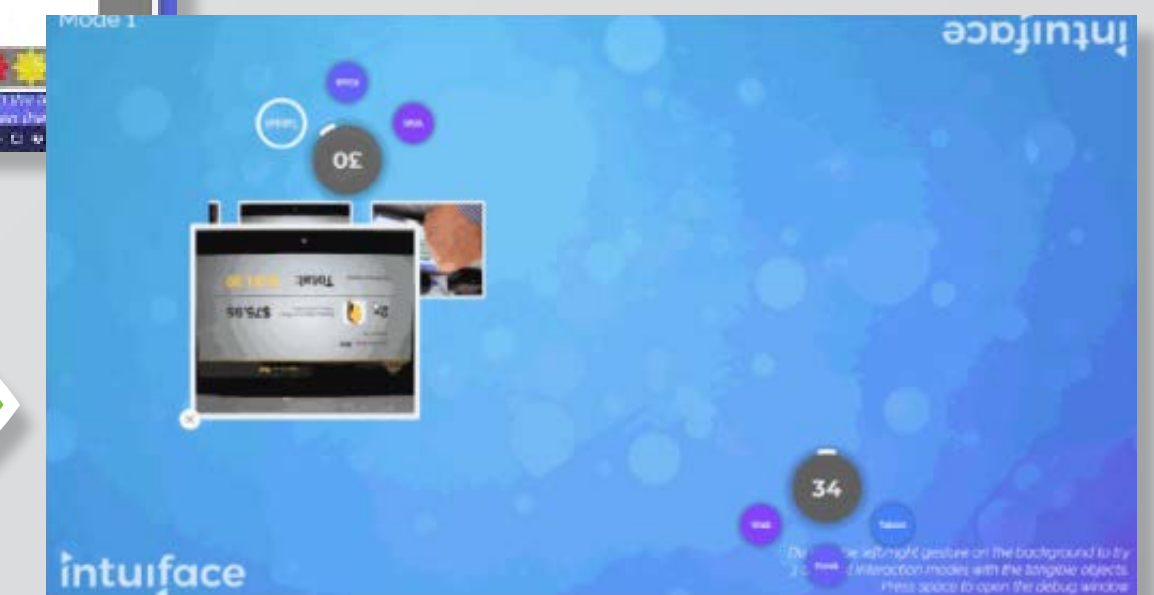
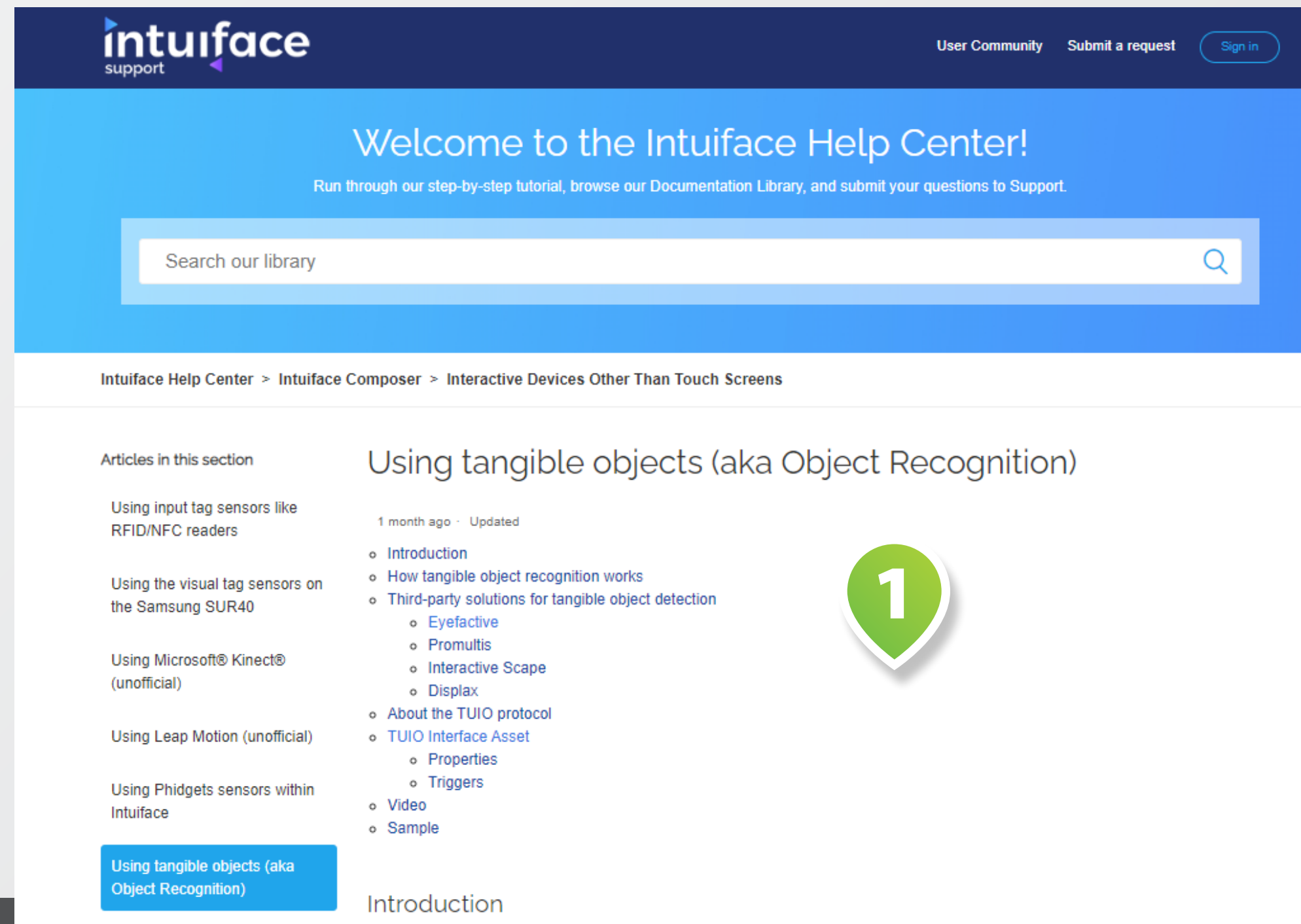
- ✓ Another computer is needed on which MORE is installed as described above. This computer must run with Windows.
- ✓ The touch cable from the screen is connected to that computer.
- ✓ A screen emulator (hardware/program that imitates another specific device) is recommended so that Windows maintains the correct resolution even when no screen is connected.
- ✓ The video cable (HDMI, DisplayPort) is connected to the app computer.
- ✓ Both computers must be connected to the same network.

Note: If the MORE computer does not support the resolution of the app computer, for example 4k, then the markers must be relearned in the backend under Marker->"Marker Configuration" on "Edit".





**SETUP WITH THIRD-PARTY SOFTWARE**



For the **GENERAL USE** ① of MORE in connection with **INTUIFACE** take a look here: <https://support.intuiface.com/hc/en-us/articles/360007432151-Using-tangible-objects-aka-Object-Recognition->  
MORE sends data of fingers and objects via TUIO protocol.

For the **INTEGRATION** into **INTUIFACE** ② take a look here: [https://support.intuiface.com/hc/en-us/articles/360007432151?flash\\_digest=beab32f88a5f4f37cb784f9f239ece772c0e9f00#tuo-interface-asset](https://support.intuiface.com/hc/en-us/articles/360007432151?flash_digest=beab32f88a5f4f37cb784f9f239ece772c0e9f00#tuo-interface-asset)

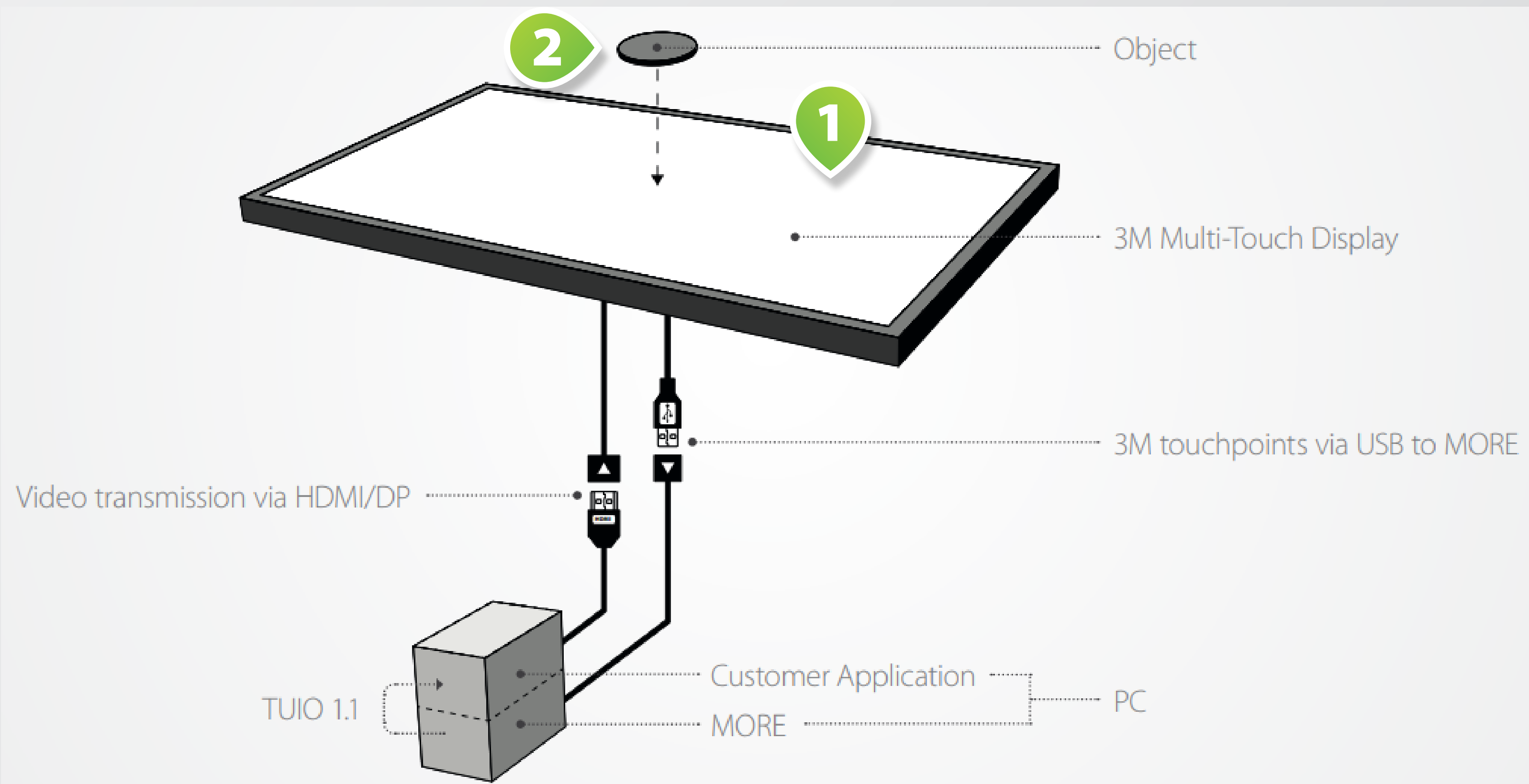


# INTUIFACE: HARDWARE CONFIGURATION WITH 3M

There are two options for the hardware configuration: Either use a 3M touchscreen or your own touchscreen.

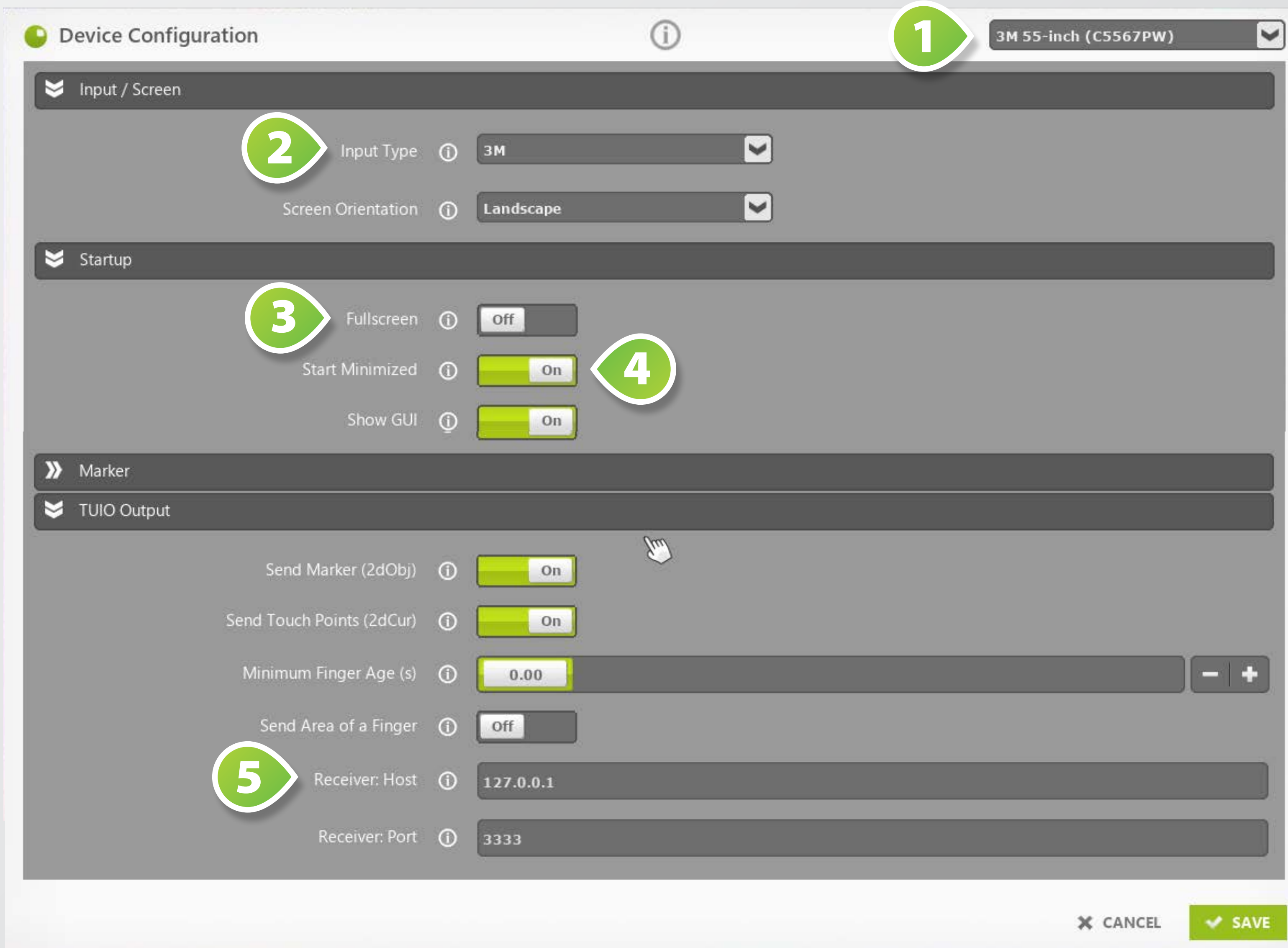
If you use a **3M TOUCHSCREEN** **1** with the **EYEFACITIVE MARKER OBJECTS** **2** you install MORE on the same computer as Intuiface.

MORE runs in the background, receives the data from the 3M touchscreen directly from the driver, recognizes the objects and forwards them to intuiface via the local network address 127.0.0.1.



# INTUIFACE: HARDWARE CONFIGURATION WITH 3M

To realize this, configure in **MORE**:



Device selection

--> "3M XX-INCH ..." 1

"Input / Screen > Input Type"

--> "3M" 2

"Startup > Fullscreen"

--> "OFF" 3

"Startup > Start Minimized"

--> "ON" 4

"TUIO Output > Receiver Host"

--> "127.0.0.1" 5



# INTUIFACE: HARDWARE CONFIGURATION

**Device Configuration** 1 Customized

**Input / Screen**

Input Type i Wintouch

Screen Orientation i Landscape

**Startup**

Fullscreen i On

Show GUI i On

**Marker**

**TUIO Output**

Send Marker (2dObj) i On

Send Touch Points (2dCur) i On

Minimum Finger Age (s) i 0.00 - +

Send Area of a Finger i Off

Receiver: Host i 127.0.0.1

Receiver: Port i 3333

✕ CANCEL ✓ SAVE

If you use **YOUR OWN TOUCH-SCREEN** **1** which supports your own tangible object, you have to install MORE on a second computer and connect it via local network to you Intuiface computer.

On your second computer MORE is running on fullscreen and receives inputs via Windows Touch, recognizes the objects and forwards them to Intuiface via the network address of the Intuiface computer (e.g. 192.168.0.X).

# INTUIFACE: HARDWARE CONFIGURATION

The screenshot shows the 'Device Configuration' window. At the top, a dropdown menu is set to 'Customized' (callout 1). Below this, the 'Input / Screen' section has 'Input Type' set to 'Wintouch' (callout 2) and 'Screen Orientation' set to 'Landscape'. The 'Startup' section has 'Fullscreen' set to 'Off' (callout 3) and 'Show GUI' set to 'On'. The 'TUIO Output' section has 'Send Marker (2dObj)' and 'Send Touch Points (2dCur)' both set to 'On', 'Minimum Finger Age (s)' set to '0.00', and 'Send Area of a Finger' set to 'Off'. At the bottom, 'Receiver: Host' is empty (callout 4) and 'Receiver: Port' is set to '3333'. At the very bottom are 'CANCEL' and 'SAVE' buttons.

To realize this, configure in **MORE**:

Device selection

--> **"CUSTOMIZED"** 1

"Input / Screen > Input Type"

--> **"Wintouch"** 2

"Startup > Fullscreen"

--> **"OFF"** 3

"TUIO Output > Receiver Host"

--> **INDIVIDUELLE IP** 4

of your intuiface  
computer



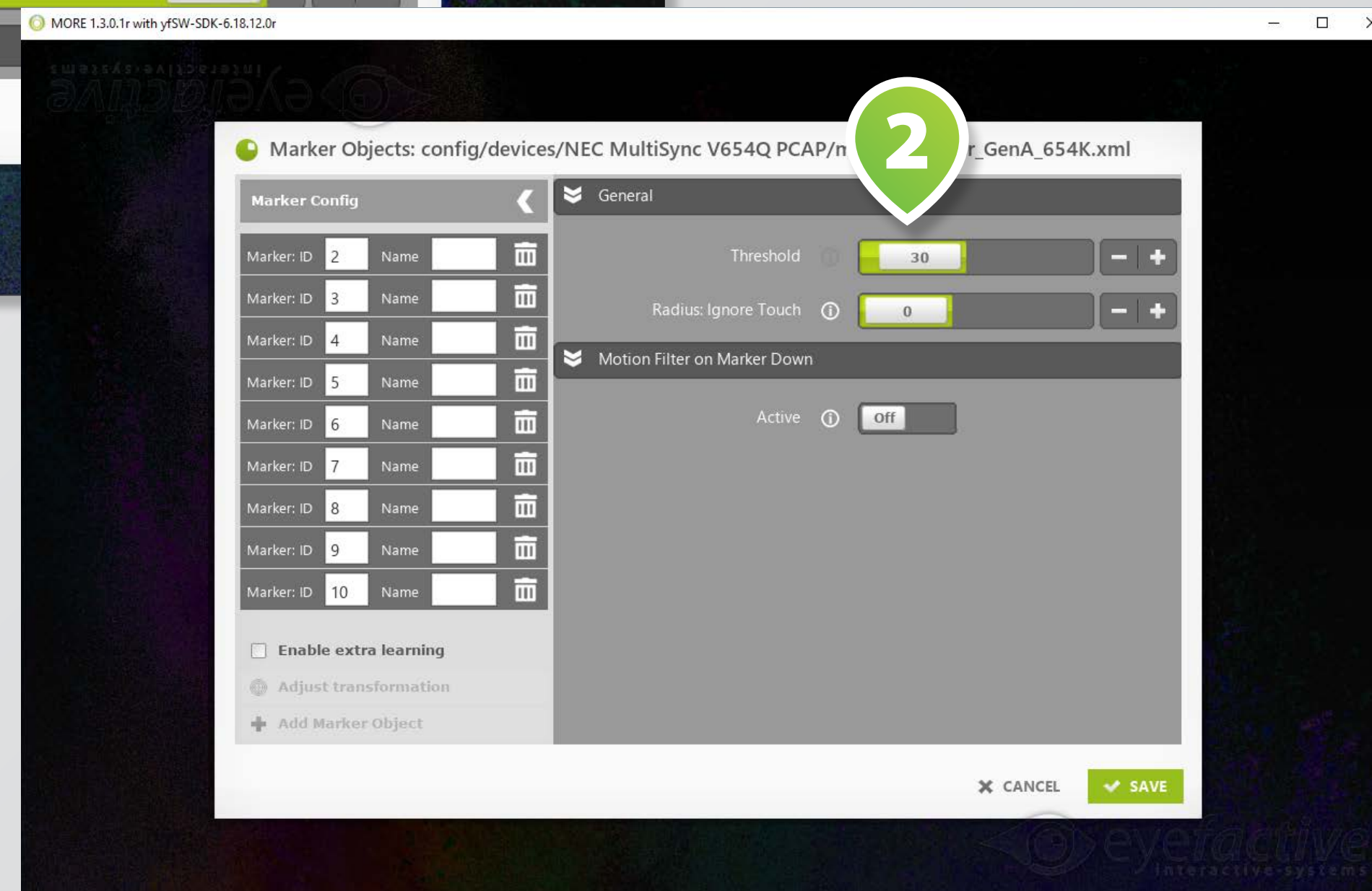
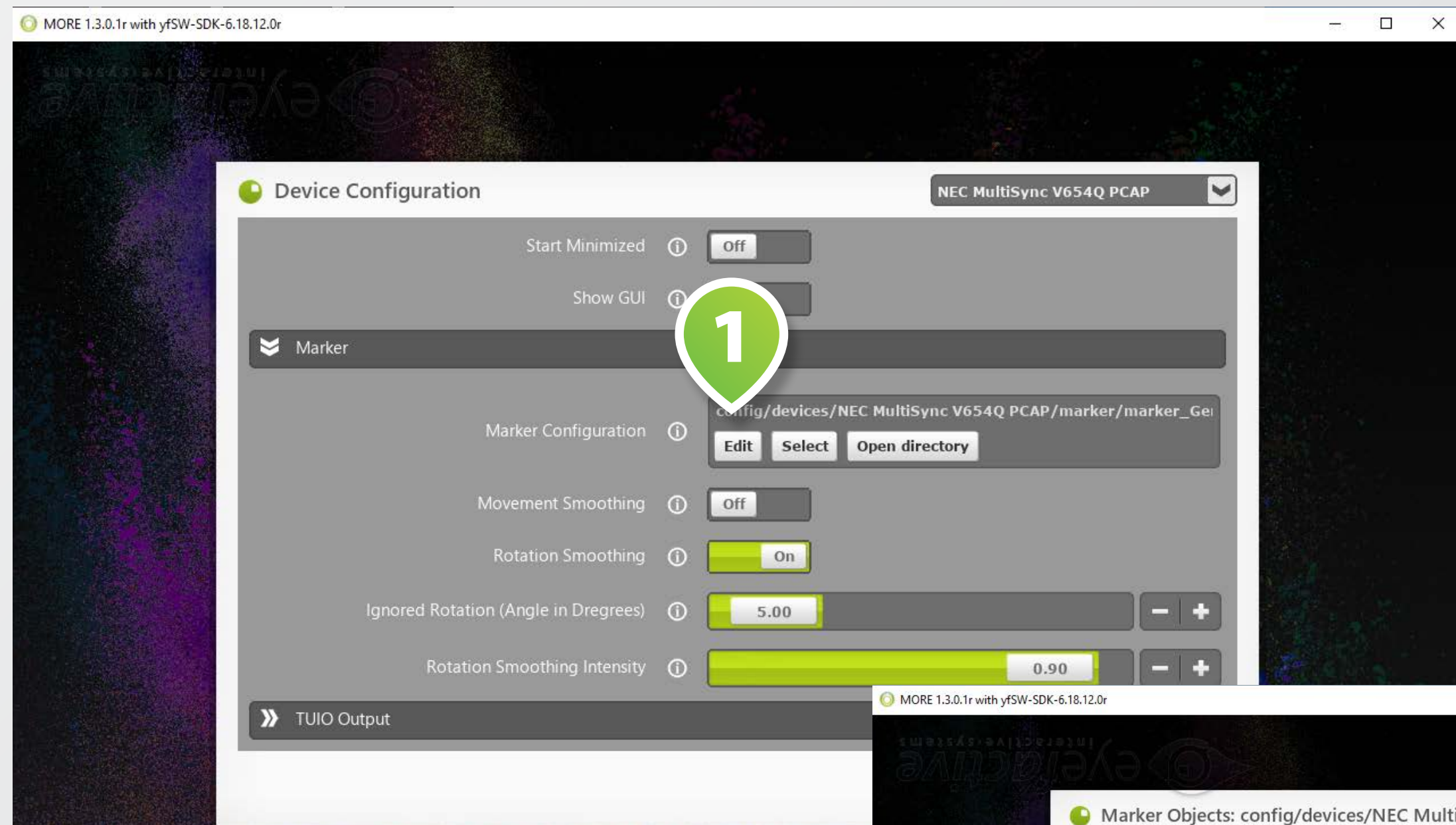


## OFFICIAL FUNCTIONS

# FUNCTION: THRESHOLD

Markers consist of three touch points, which form a triangle together. When the triangles are detected, the edges of a saved triangle are compared to the edges of a detected triangle.

**THE TRESHOLD 1 2** specifies the maximum length difference between two edges in pixels. This helps differentiate different markers, so that two similar saved triangles can be better distinguished.



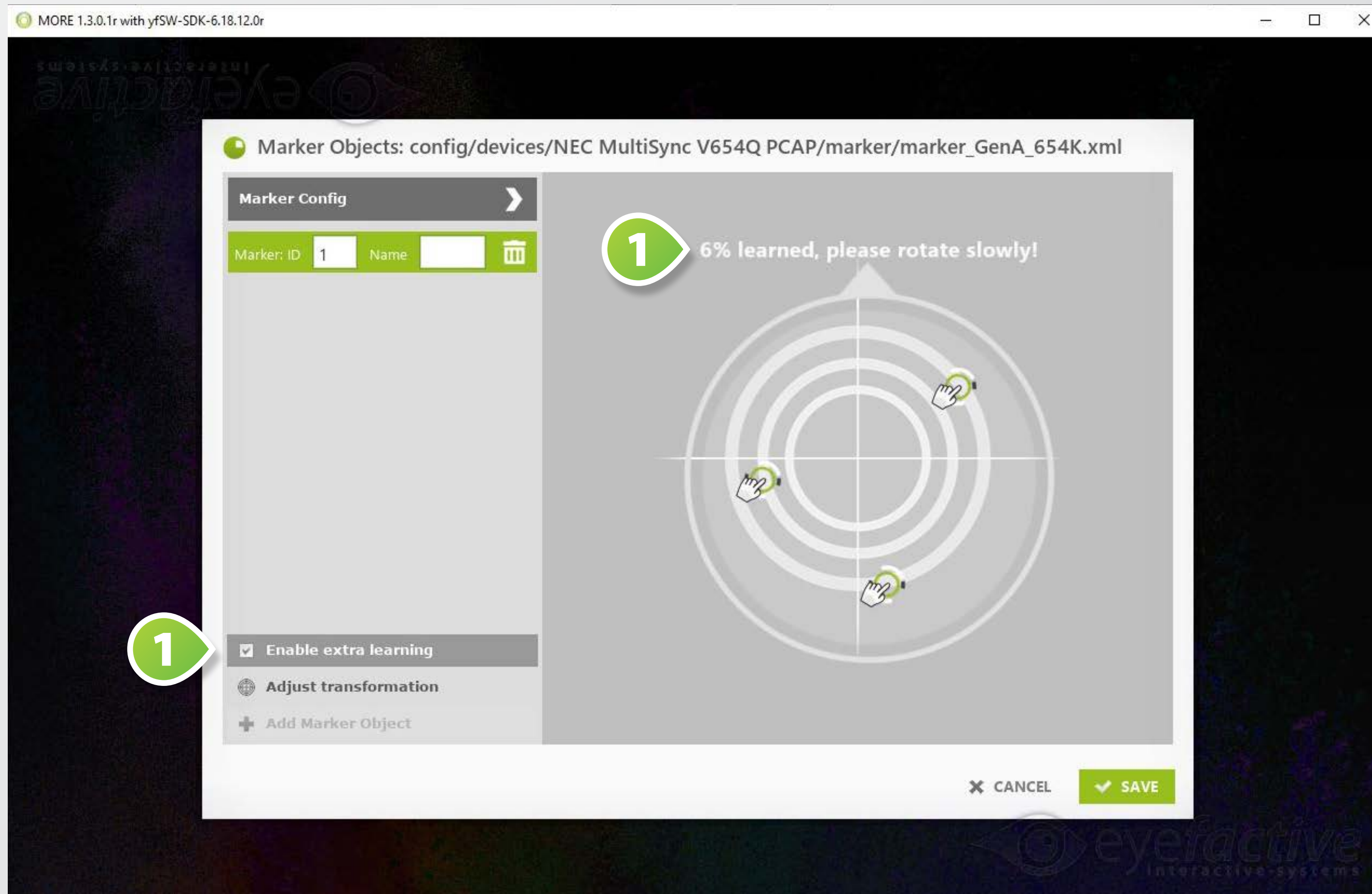


# FUNCTION: THRESHOLD

Depending on the screen, edge lengths of the same object may vary greatly as you rotate the object.

This "morphism" can be compensated by increasing the threshold. However, if the threshold is set too high, it can happen that two objects are confused with each other.

The **EXTRA LEARNING 1** helps here, which teaches different triangles with different edge lengths for different angles. A new marker is created where the three mouse pointers are located and by **ENABELING EXTRA LEARNING 2** this placement is learned and therefore executed in this arrangement.

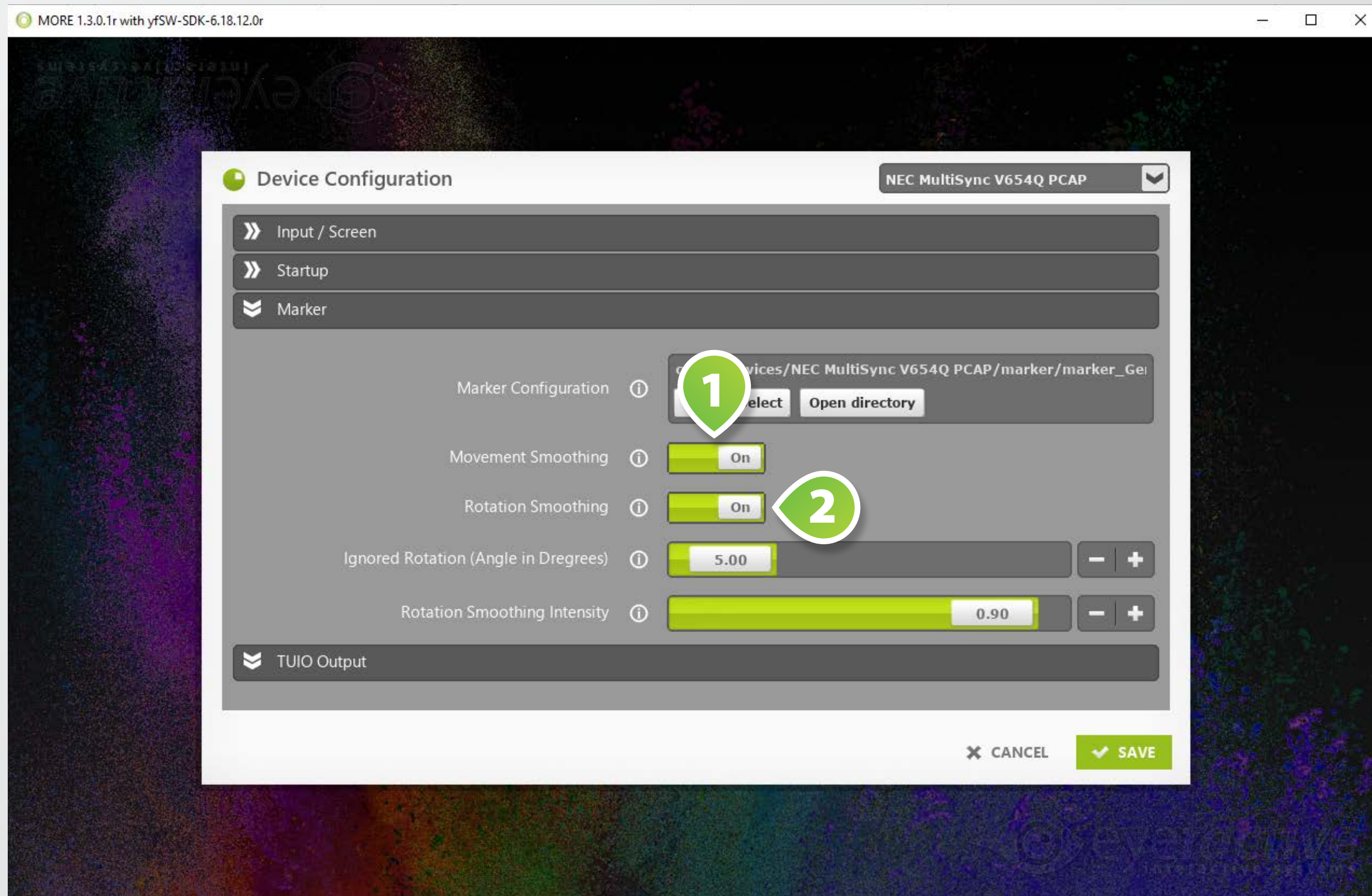




# FUNCTION: ANTIJITTER

For both touch points and markers, jitter (a slight accuracy variation in the transmission frequency) in movements and rotations are excluded.

In the settings under Marker you can smooth the rotation with **ROTATION SMOOTHING** ②, as well as the movements of marker and fingers **MOVEMENT SMOOTHING** ①.





# FUNCTION: CONFIGURATE MARKERS

Under the **MARKER** **1** setting new markers can be learned or existing markers can be removed.

In addition, each marker can be assigned an **ID AND A NAME** **2**.

MORE 1.3.0.1r with yfSW-SDK-6.18.12.0r

Device Configuration NEC MultiSync V654Q PCAP

Start Minimized  off

Show GUI  off

Marker

Marker Configuration

Movement Smoothing  off

Rotation Smoothing  on

Ignored Rotation (Angle in Dregrees)  on

Rotation Smoothing Intensity  on

TUIO Output

**1**

Marker Objekte:

Schwellwert  - +

Marker ID	<input type="text" value="1"/>	Name	<input type="text" value="lila"/>	<input type="button" value="🗑"/>
Marker ID	<input type="text" value="2"/>	Name	<input type="text" value="grün"/>	<input type="button" value="🗑"/>
Marker ID	<input type="text" value="3"/>	Name	<input type="text" value="blau"/>	<input type="button" value="🗑"/>

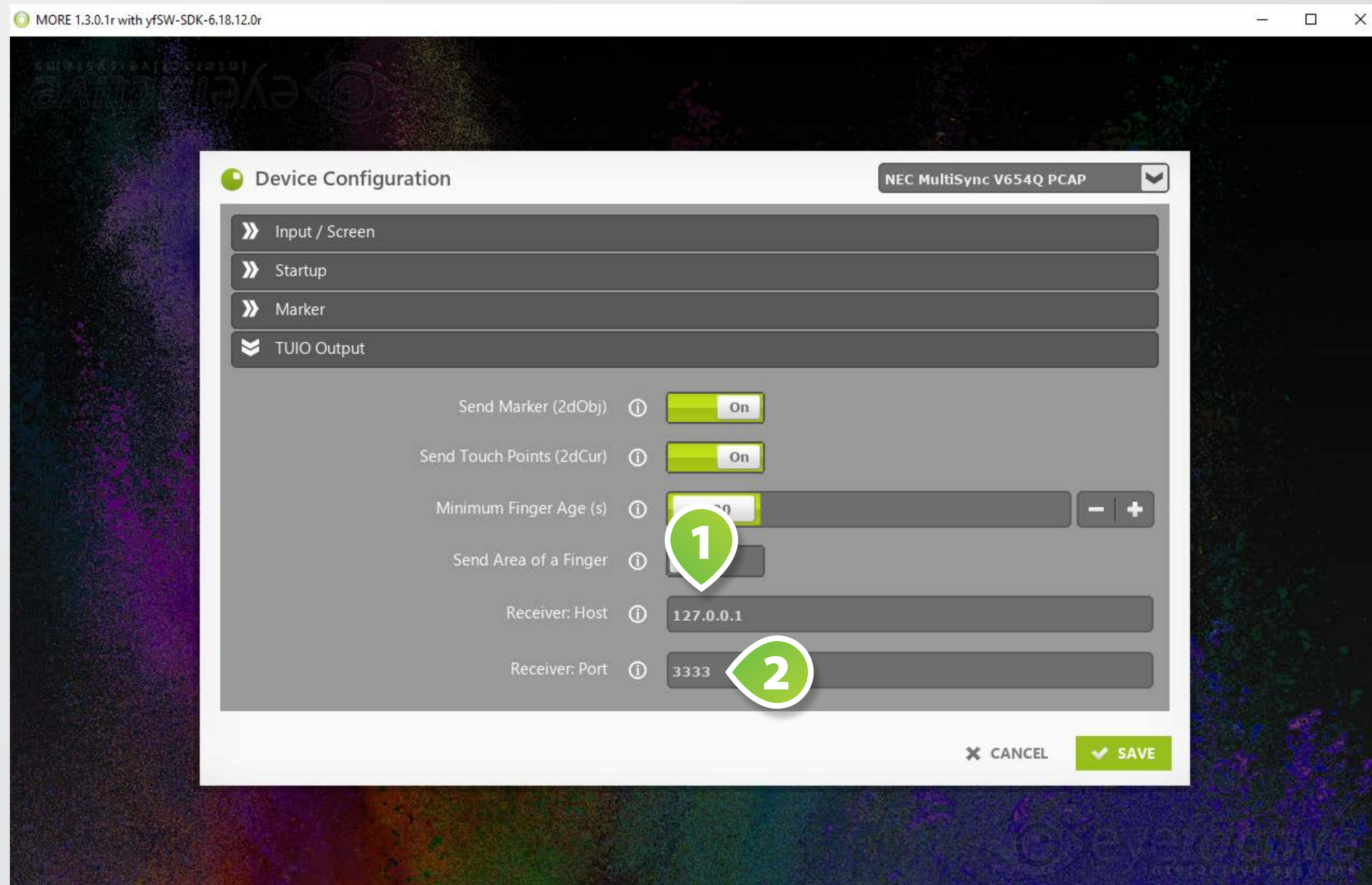
**2**

Hier Marker-Objekt auflegen



# FUNCTION: CHANGE TUIO RECEIVER

Under the TUIO Output setting the **RECEIVER: HOST** ① and the **RECEIVER: PORT** ② can be set in the group receiver.

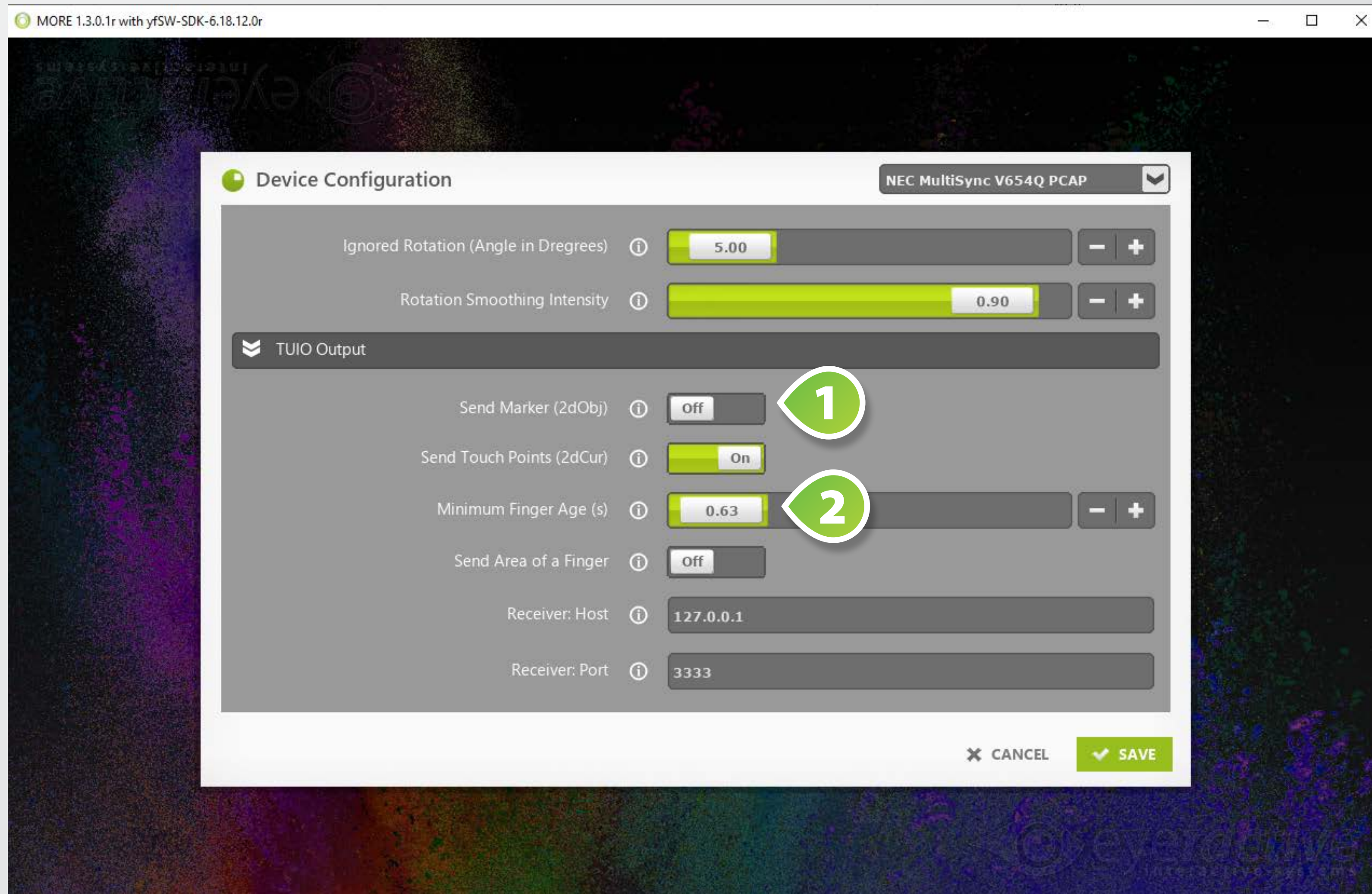




# FUNCTION: DISABLE TOUCH POINT TRANSMISSION

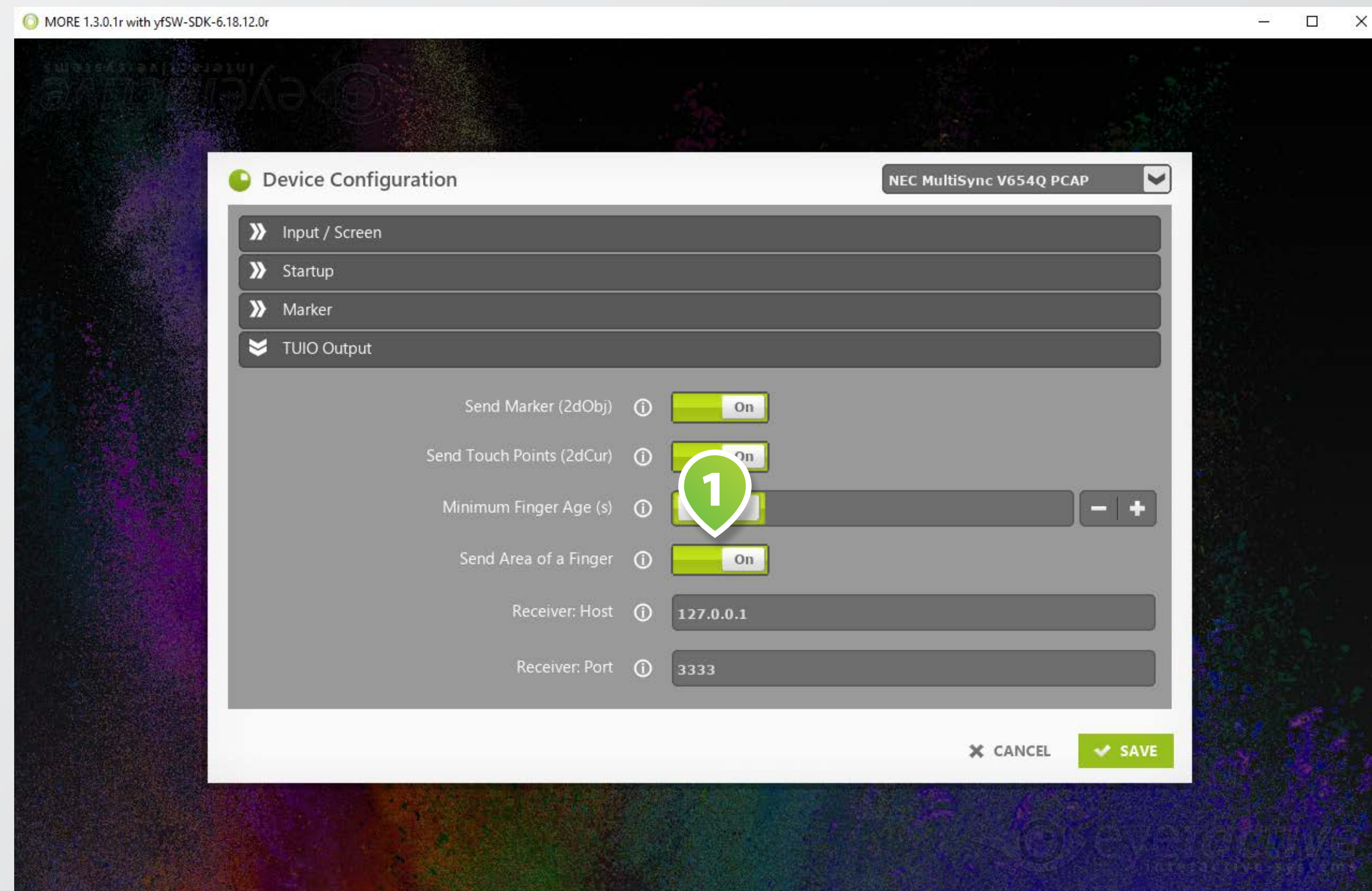
In the settings under TUIO Output you can deactivate the sending of touch points with **SEND MARKER 1**.

In addition the **MINIMUM AGE 2** of a touch point can be defined in seconds with min"...", which a touch point must have before it is sent. This gives the marker recognition time to use the touch points for the marker.





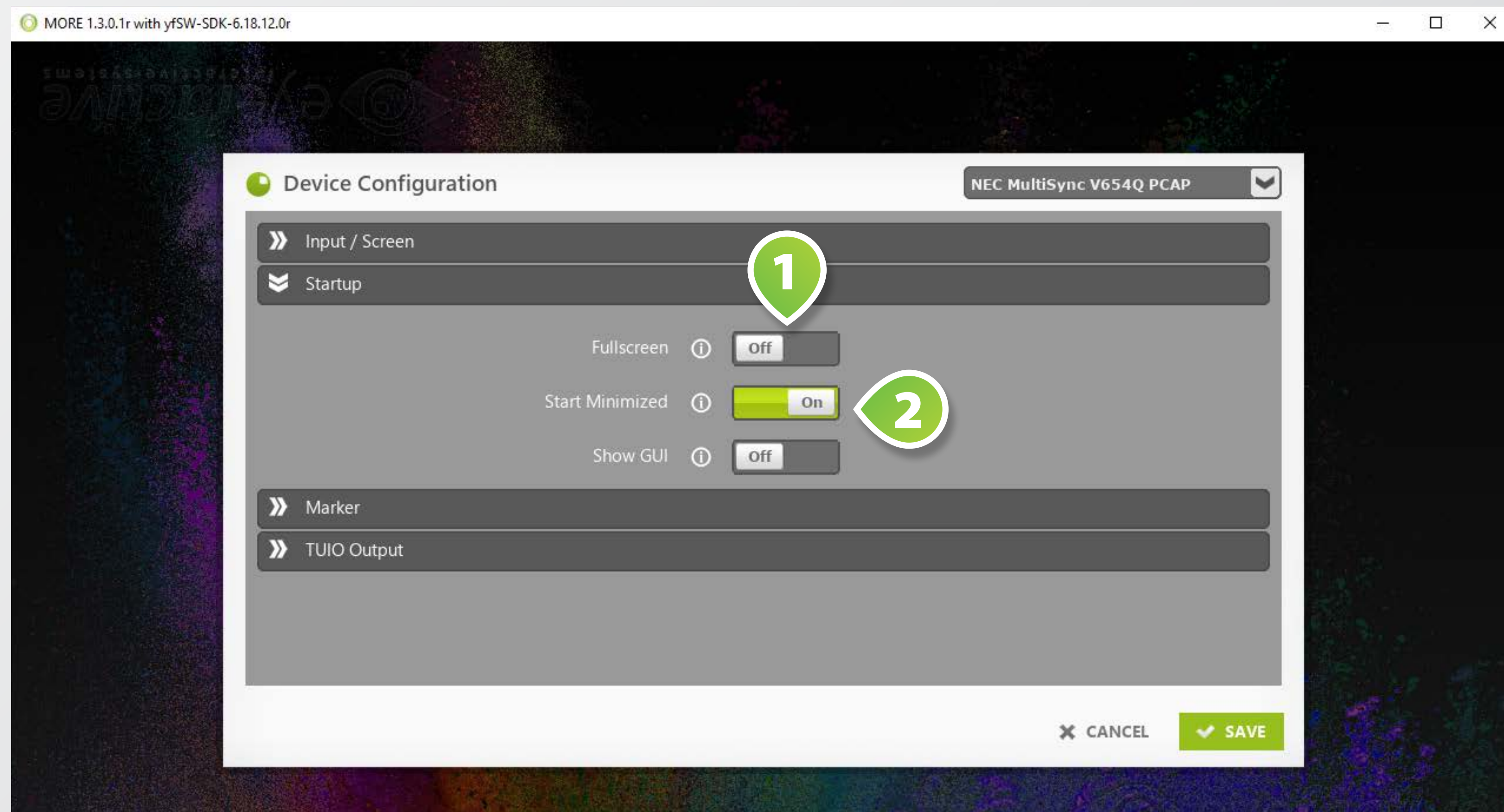
# FUNCTION: USE TOUCH POINTS BASED ON STRENGTH/ AREA AS FINGERS OR MARKERS



On 3M 55 "-65" displays there is a special firmware, which determines a strength/area for each touch point. This can be used to differentiate strong finger touch points from weak marker touch points, as marker touch points usually do not exceed a strength of 150 and finger touch points have an average strength of 200. Under TUIO Output the **SEND AREA OF A FINGER** ①, can be used to send the data to TUIO and thus save it.



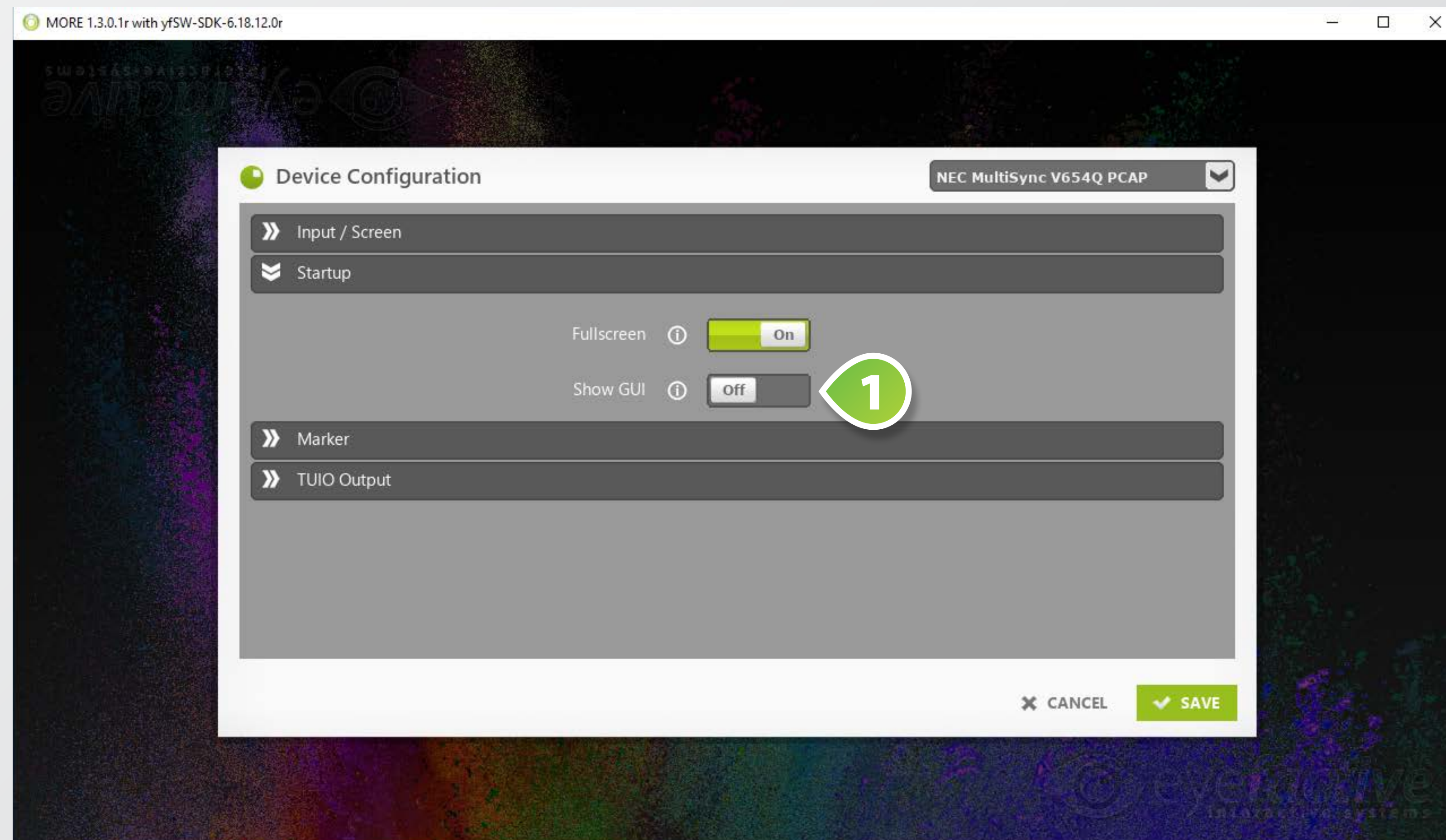
# FUNCTION: MINIMIZE WINDOW AT STARTUP



Under the "Startup" category, the **START MINIMIZE** <sup>2</sup> setting can be turned on by turning off the **FULLSCREEN** <sup>1</sup>, so that the application window can be minimized at startup.



# FUNCTION: DISABLE / ENABLE GUI



In the menu item Startup there is the setting **SHOW GUI** 1, which can be set to „off“ in order not to display the GUI.

This prevents jitters on computers with a weak graphics card.

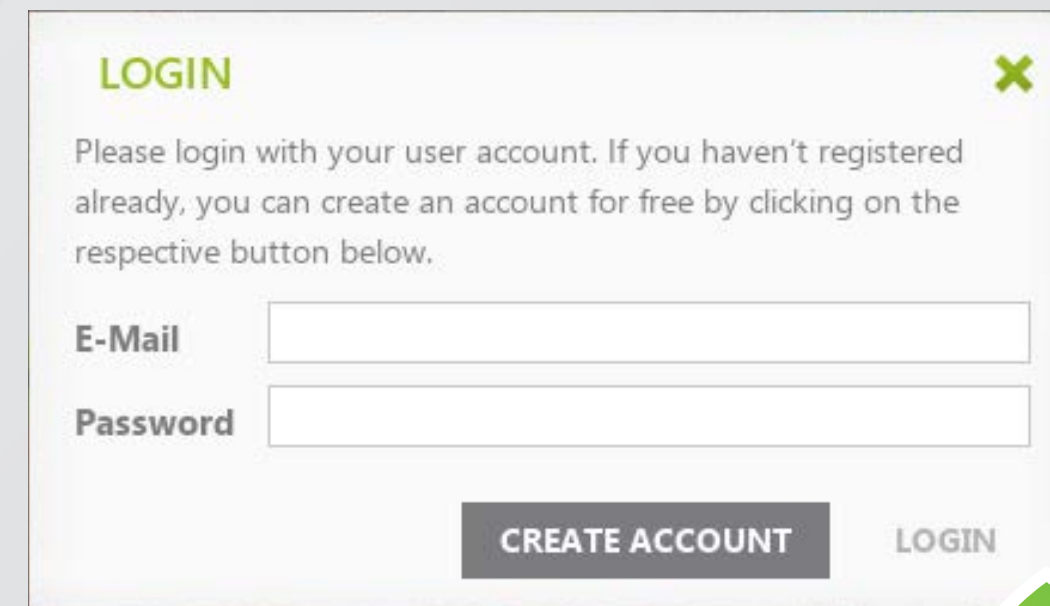
In addition, the GUI can be activated / deactivated with the „g“ key.



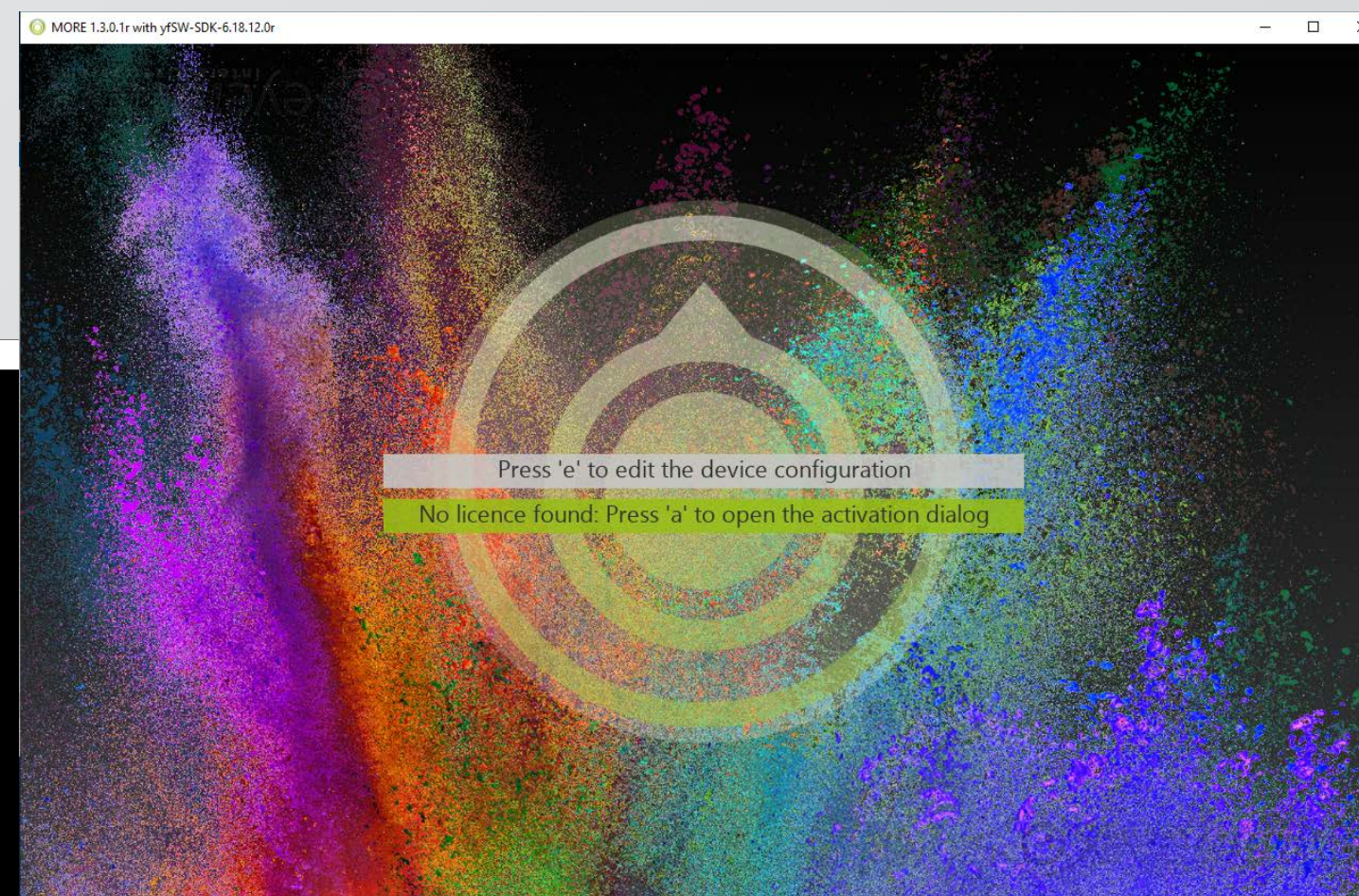
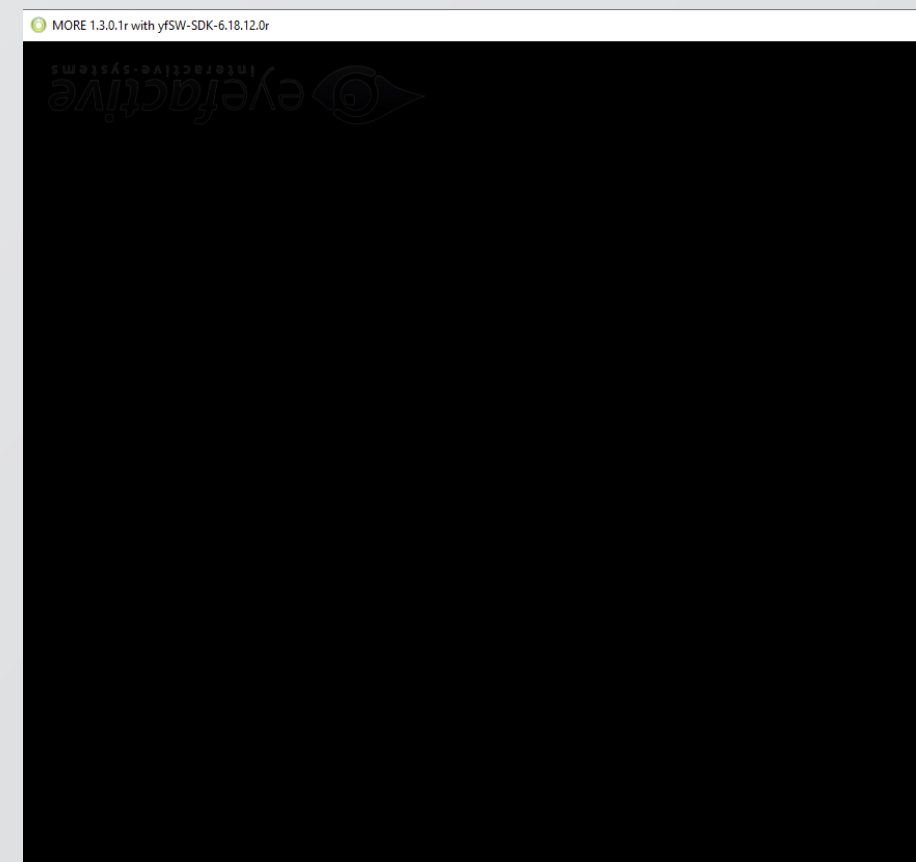
# FUNCTION: KEYBOARD SHORTCUTS



1



2



3

e: OPENS EDITOR 1

a: OPENS THE LICENSING MENU 2

g: DISPLAYS THE GUI 3



# HIDDEN FUNCTION: CONSIDER HIDDEN RADIO ORIENTATION OF THE SCREEN (FROM V1.0.3)

With the setting **SCREEN ORIENTATION** **1**, the orientation of the screen can be adjusted.

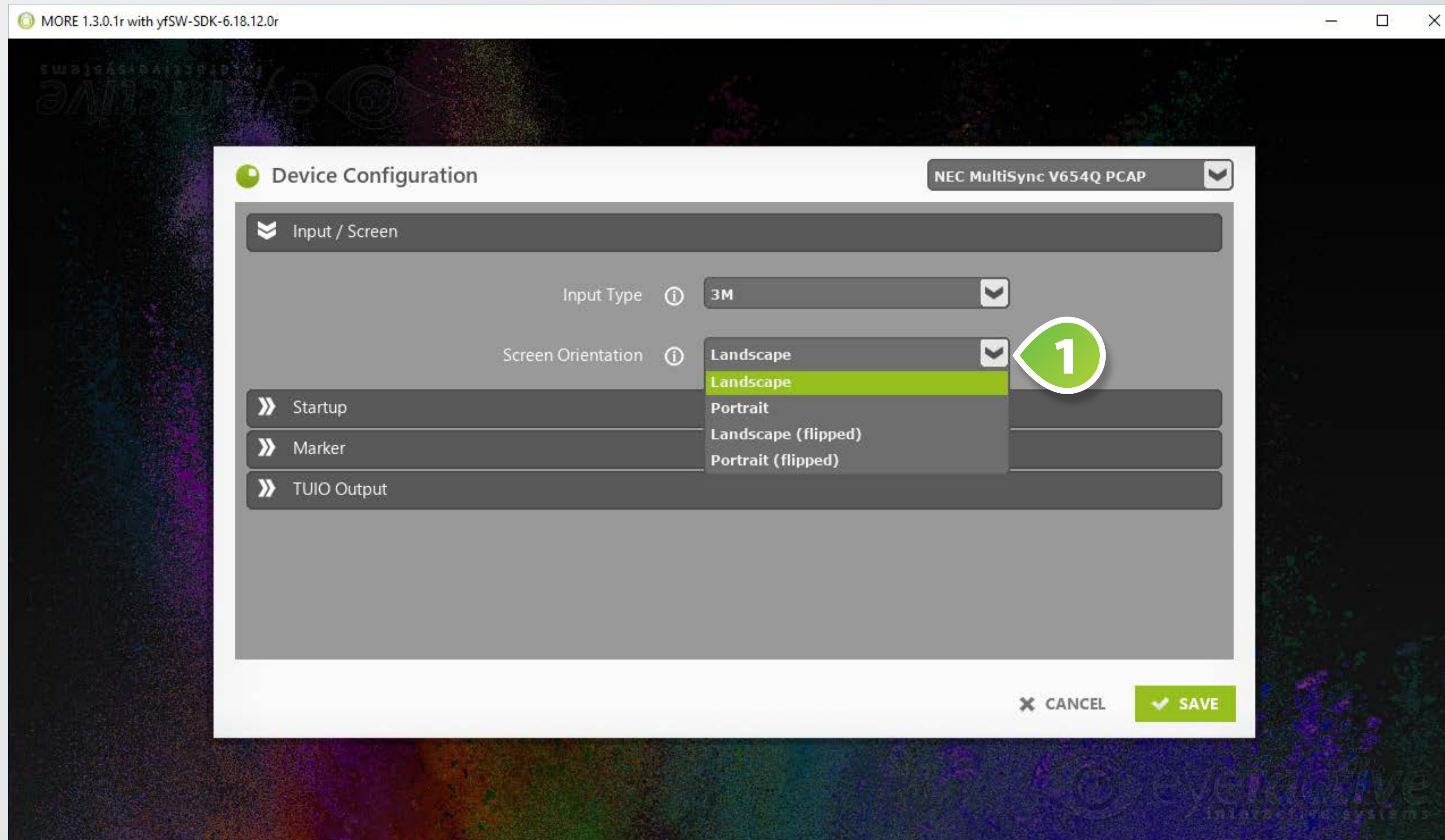
Possible values are:

`screen.orientation="landscape"`

`screen.orientation="landscape_flipped"`

`screen.orientation="portrait"`

`screen.orientation="portrait_flipped"`







## LIMITATIONS

## GHOST TOUCHES



Ghost Touches can occur in several cases:

1. An object lays on the screen at startup and is then removed.

Almost nothing can be done against this. When the controller starts, all raw signal data is adjusted so that all values fall within a target window. An object that is included would be invisible. If the object is removed, there are places where the signal was too strong and the adjusted gain is therefore calculated too low or vice versa. The places where there was too little signal show as positive values afterwards. Because the touchdown threshold is so low, they also trigger quickly. Here only a reset helps. A soft reset would be the fastest. The device does not have to be enumerated again and all signals are reset. A reset can always be triggered by a USB command (the HID Get Feature and Set Feature commands as described in the Reference Guide). Ideally no touching is done during start or reset.



## GHOST TOUCHES



2. The second factor is environmental compensation.

The controller adjusts the environment-dependent values at startup and then uses these as a reference value for changes. Even if you do not touch, the values drift after a long time due to temperature fluctuations, etc. The controller follows the values and calculates the correct compensation. But only if no touch is triggered. This means that if objects are standing for a long time and touches are triggered, this compensation is suspended and can cause problems at some point. A reset helps here as well. But the firmware should also recover when the object is removed, unless ghost touches remain.

Other causes are hardware problems. Not or badly grounded LCD panel or metal frame. This should not apply to our displays.



# TROUBLESHOOTING



# TROUBLESHOOTING

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If problems occur, first check the following points to see if...

- ✓ ... the Windows Screen resolution (FullHD, UHD) is set
- ✓ ... the firmware version is up to date
- ✓ ... the "Touch Threshold" function is switched on and set correctly
- ✓ ... the configuration (see above Intuiface hardware configuration) has been implemented correctly



**TOUCH FUTURE. *TOGETHER.***

