

Capore® Touch & Object Assistant

Operating manual

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1. User interface (Capore® Web Interface)

This chapter describes the configuration of Capore® Touch & Object Recognition and only applies to Scape® Tangible with integrated Scape® object recognition.

The **Capore® Touch & Object Assistant** is equipped with **Capore®** Touch & Object Recognition technology. The integrated **Capore® API Box** takes over the touch and object recognition via the **Capore® Touch & Object Assistant** and transmits the determined information via a network interface using the TUIO protocol. The **Capore® Web Interface** allows you to make the following settings on the system:

- Activate **Capore® API Box**
- Manage TUIO settings
- Set **Capore®** Object Recognition Mode
- Test **Capore®** Touch & Object Recognition
- Activate **Capore® Plus** objects
- Calibrate the rotation angle of **Capore® Plus** objects
- Manage network settings
- Manage **Capore® Plus** anti-theft settings
- Backup / restore settings
- Update the operating system of the **Capore® API Box**

1.1. Opening the user interface

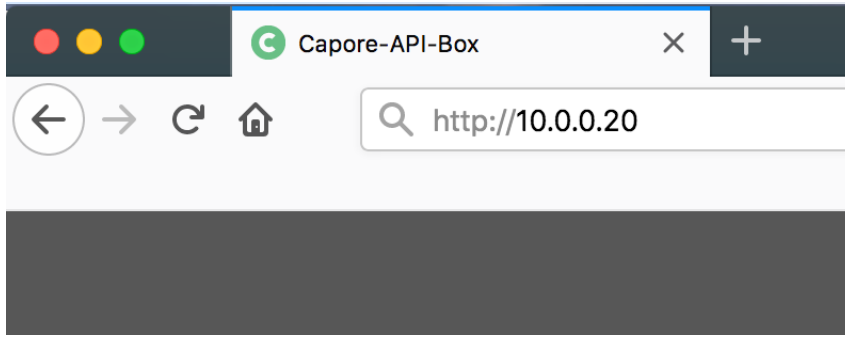


Fig. 1:

Open a web browser on a device which is connected to the **Capore® API Box** via a network.
Depending on how your **Capore® API Box** is integrated into a network, you have the following options to connect to the **Capore® Web Interface**.

- a) The **Capore® API Box** is connected directly to the application PC with a network cable:
By default, the network interface of the **Capore® API Box** is set to static IP address **10.0.0.20** with subnet mask **255.255.255.0**. Set the network interface on the PC to an address e.g. 10.0.0.21/24. Enter the IP of the **Capore® API Box** (10.0.0.20) in the address bar of your browser.
- b) The **Capore® API Box** is integrated into a network with DHCP and DNS server:
In this case, the **Capore® API Box** automatically receives an IP address from the DHCP server. Enter these in the address bar of your browser.
You can also access the **Capore® Web Interface** via the name of the Capore® API Box. The unique factory-specific name of the **Capore® API Box** can be found on the nameplate of the **Capore® Touch & Object Assistant**.

1.2. Overview

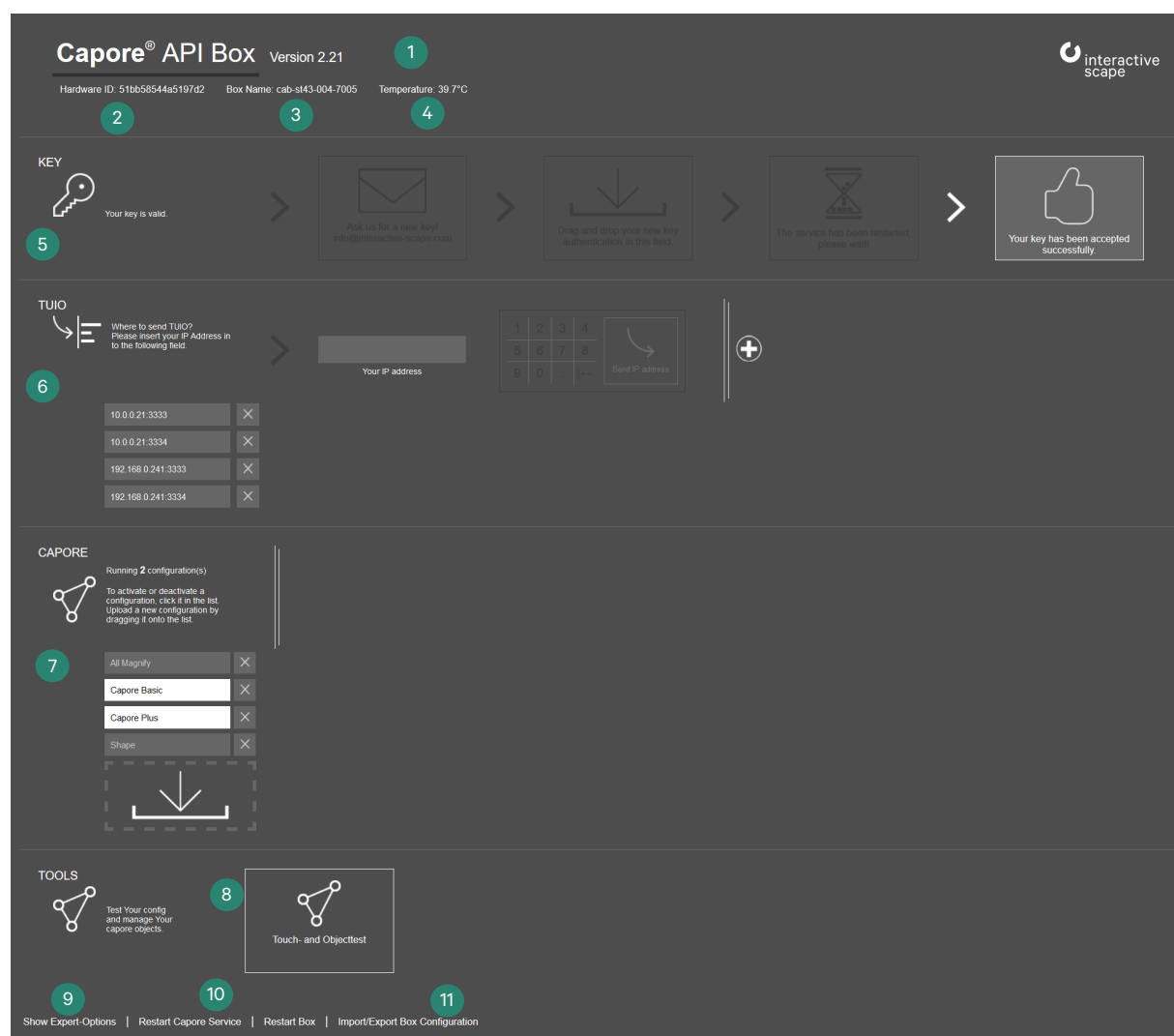


Fig. 2:

- | | |
|----|---|
| 1 | Version number of the Capore® Touch & Object Assistant |
| 2 | Hardware ID of the device |
| 3 | Name of the Capore® API Box (Hostname) |
| 4 | Temperature of the Capore® API Box |
| 5 | Capore® activation and license check |
| 6 | Manage TUJO targets |
| 7 | Set object recognition mode for Capore® |
| 8 | Tools for testing and configuring Capore® Touch & Object Recognition |
| 9 | Show / hide expert settings |
| 10 | Restart Capore® services or entire Capore® API Box |
| 11 | Save / restore Capore® configuration |

1.3. Configuration

1.3.1. Hardware ID and system information

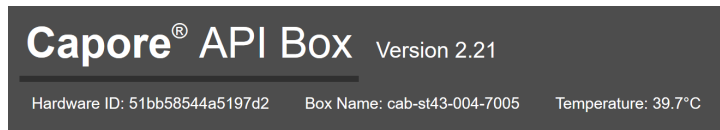


Fig. 3:

Make sure you are always using the latest version of **Capore® Touch & Object Assistant** to keep your system protected and stable. Click on the version number to check if an update is available (more information about the update process in chapter **7.3.6 - Advanced settings**).

The hardware ID is a unique hash that exactly identifies your system. You need this number to obtain a valid license file.

1.3.2. Activation and license key

As a rule, your system is already activated and ready for delivery.

If your system requires activation (see Figure 4), send your hardware ID (see chapter **7.3.1 - Hardware ID and system information**) to info@interactive-scape.com.

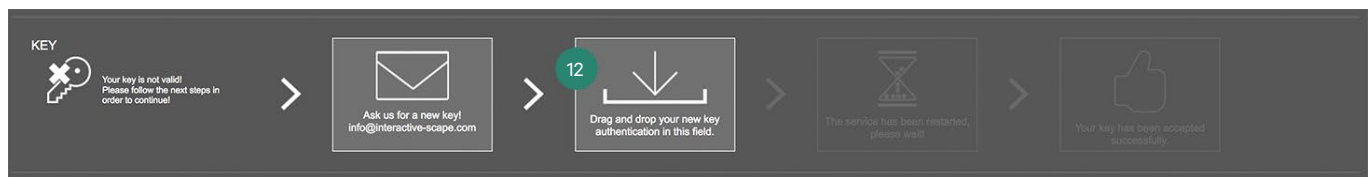


Fig. 4: Unactivated Capore® Object Recognition

You will receive a license key file. Drag and drop it onto the corresponding **icon (12)**.

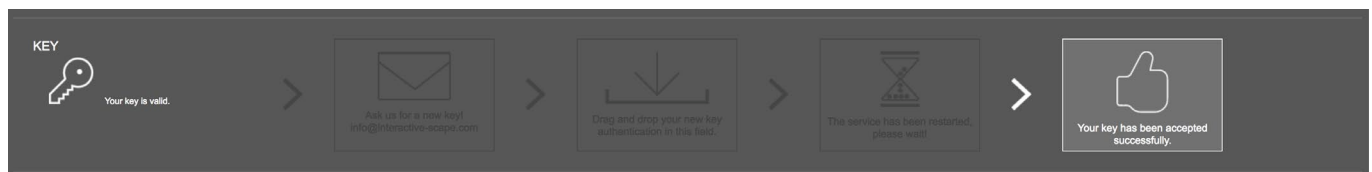


Fig. 5: A valid license key file was found.

Now your **Capore® Object Recognition** is activated and ready for use (see Figure 5).

1.3.3. TUIO

TUIO is a UDP-based protocol for transferring touch and object information over a network.

The **Capore® Web Interface** allows you to add and remove any TUIO receiver in the network. All touch and object information are sent to all TUIO recipients included in the list.

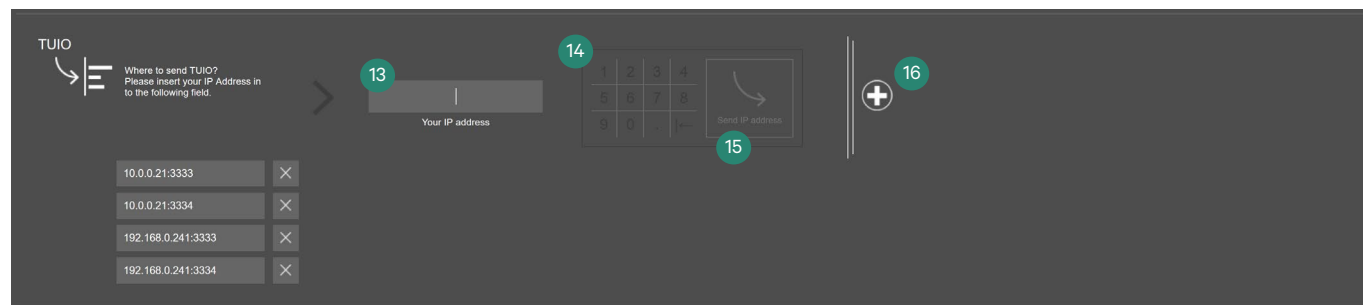


Fig. 6:

Enter a valid IP address in the **IP address field (13)** using the **keypad (14)** or with a keyboard. Add the entry by pressing **Send IP address (15)**.

The TUIO default port is 3333. If you want to use a different port, click the **plus (16)** to display the port input and select a port.

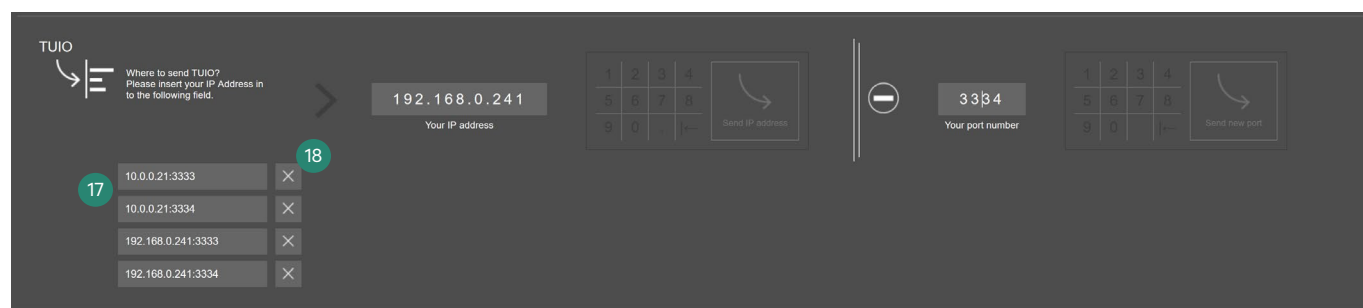


Fig. 7:

The entered address is added to the **list of TUIO receivers (17)**.

Remove TUIO recipients from the list by clicking on the **X (18)** next to the corresponding entry.

1.3.4. Object tracking

There are different types of **Capore® objects** (**Capore® Basic**, **Capore® Magnify**, **Capore® Plus**). Each of these objects is identified by unique patterns, which are stored in a pattern file. By selecting a specific pattern file, you determine which object types the system recognizes.

The number of active pattern files can be found in the **text (19)** above the **list of installed pattern files (20)**.

Click on a gray entry in the **list of installed pattern files (20)** to activate this **Capore® Object Recognition** pattern file or a white entry to deactivate it.

Active pattern files are highlighted in white in the **list of installed pattern files (20)**.

Click the **X (21)** next to an entry to remove this pattern file from your **Capore® API Box**.

Add more pattern files to your **Capore® API Box** by dragging and dropping them onto the **upload icon (22)**.

The files are automatically added to the **list of pattern files (20)** and can then be selected.

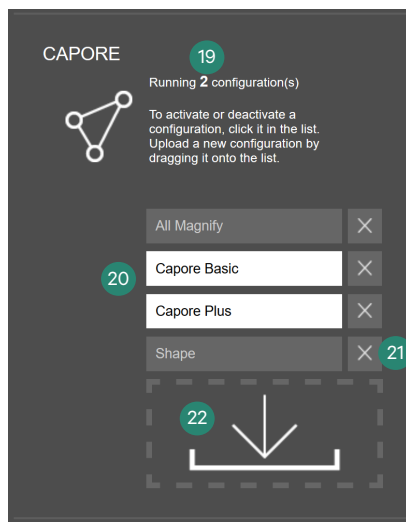


Fig. 8: Pattern file management

Changing the active pattern file requires a restart of **Capore® Services** (see **Advanced settings – Restarting Capore® API Box**).

Capore® Plus object settings

Click the **button (b)** to display the **Capore® Plus** object settings.

The settings for **Capore® Plus** objects are only available if there is **exactly one Capore® Plus** object on the screen.

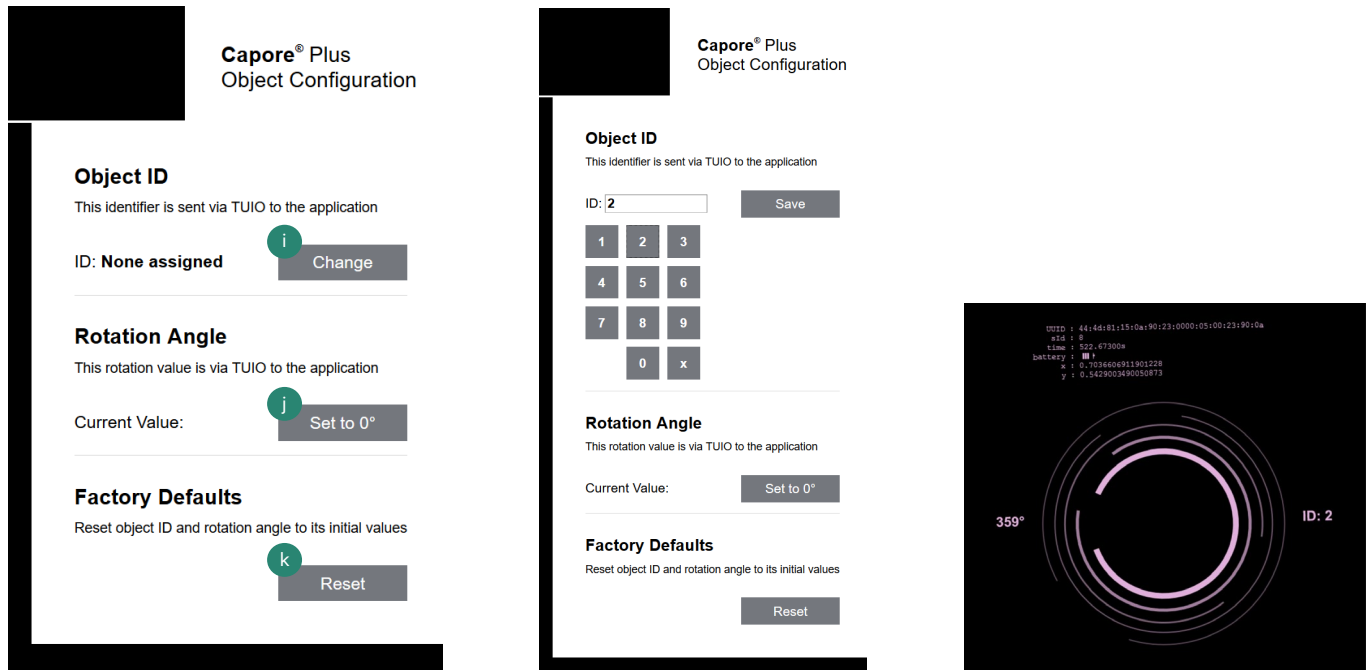


Fig. 10:

Click the **“Change” (i)** button to assign a TUIO-ID to a **Capore® Plus** object or change the assigned TUIO-ID. The TUIO-ID is a number that identifies an object in the TUIO protocol.

A TUIO-ID is not unique and can be assigned to multiple objects.

Use the on-screen keypad or keyboard to enter the new TUIO-ID and finish the process with the "Save" button. This change is effective immediately.

Click the **“Set to 0°” (j)** button to calibrate the rotation angle of an object.

The current physical rotation of the object is assumed to be 0° and stored. The rotation angle is stored per physical object and independently of the TUIO-ID. Therefore, objects with the same TUIO-ID can have different rotation angle settings.

This change is effective immediately.

Click the **“Reset” (k)** button to clear the rotation angle calibration and the assigned TUIO-ID of a **Capore® Plus** object. This change is effective immediately.

1.3.6. Advanced settings

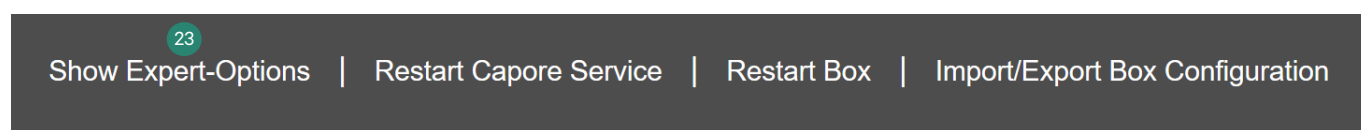


Fig. 11:

Click on **“Show Expert-Options” (23)** to access the following settings.

Network settings

In the network settings, you can configure the network adapter of the **Capore® API Box**.

Enter the data using the respective numeric fields next to the input boxes or using a keyboard (first click in the corresponding input box).

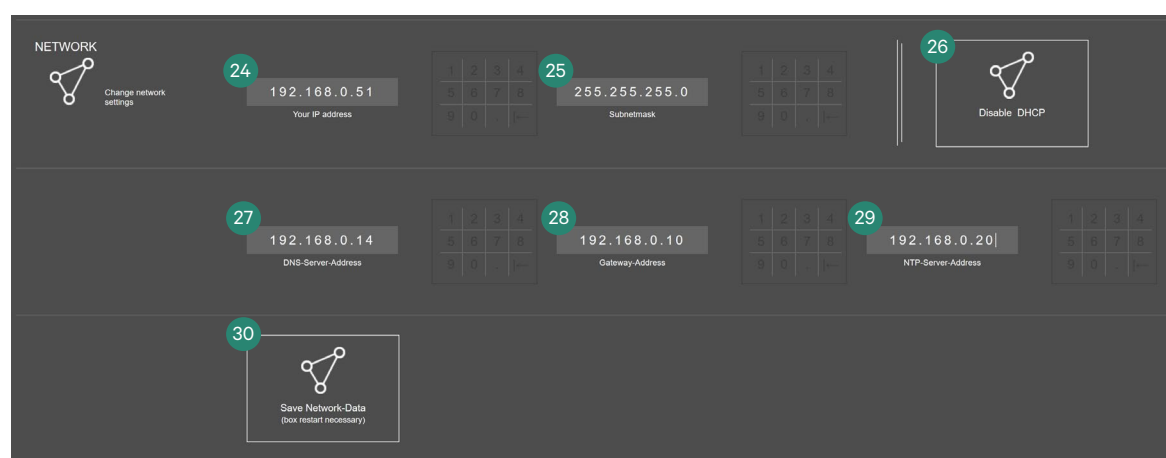


Fig. 12: Network settings - overview

- | | |
|----|--|
| 24 | Static IP address of the Capore® API Box |
| 25 | Subnet mask of the static IP address of the Capore® API Box |
| 26 | Turn on/off automatic assignment of IP address via DHCP server |
| 27 | IP address of the DNS server |
| 28 | IP address of the standard gateways (internet access) |
| 29 | IP address of the NTP server for setting time |
| 30 | Save Network Data |

The use of DHCP and a static IP address is possible at the same time. The **Capore® API Box** is then accessible via both dynamic and static addresses.

The **Capore® API Box** is always accessible via the IP 10.0.0.20/24.

Confirm your entries with the **“Save Network Data” (30)** button.

Changes to the network settings of the **Capore® API Box** will only take effect after a restart of the **Capore® API Box** (see later in this chapter - Restarting the **Capore® API Box**).

Smoothing settings



Fig. 13:

You can use the smoothing parameters to set the motion or rotation smoothing of the **Capore® objects**.

Position Smoothing smoothes the movement of the object in horizontal and vertical directions.

Rotation Smoothing smoothes the rotation of the object.

The value 0 deactivates the smoothing completely.

The maximum value is 1 (default).

You can set the strength of the respective smoothing in the range 0 - 1.

Theft protection settings

The **theft protection** feature constantly checks where **Capore® Plus objects** are relative to the table.

If an object is removed from the table, the **Capore® API Box** sends a message to all configured anti-theft clients.



Theft protection requires the use of compatible Capore® objects (cp-003 TP).

Capore® Plus objects that are compatible with the theft detection feature are marked with an **asterisk (*)** in the "Meta information of all detected **Capore® Plus objects**" (**Touch & Object Test – d**

Note that changed theft detection settings take effect only after restarting the Capore® Services or the **Capore® API Box** (see later in this chapter – **Restarting the Capore® API Box**).

An alarm signal (as well as a false alarm) can be switched off by placing the corresponding object on the display.

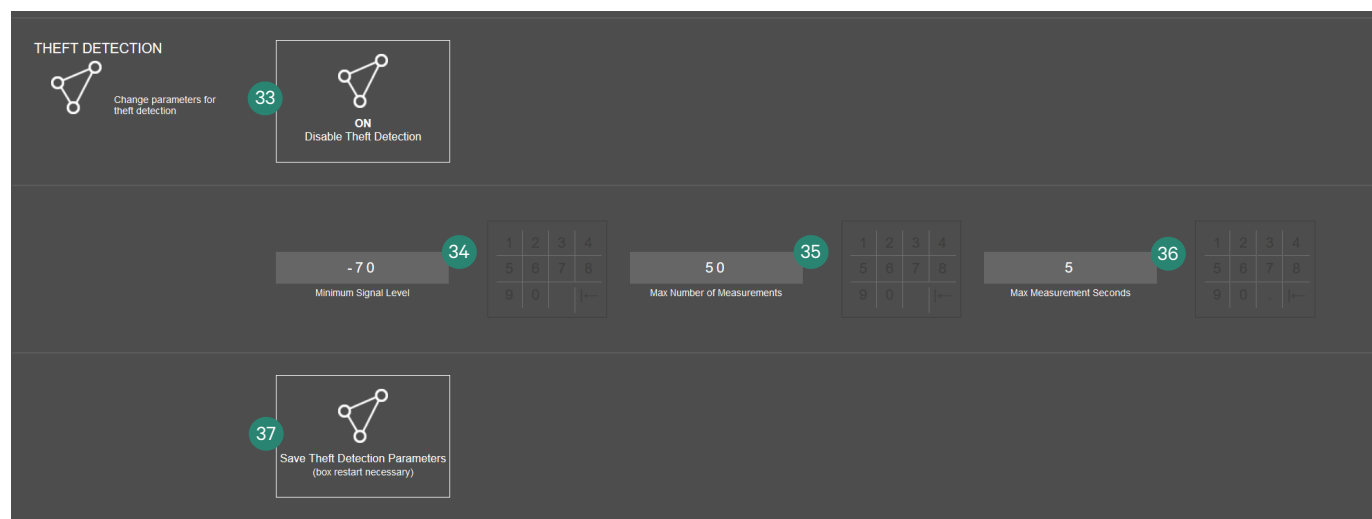


Fig. 14:

33 Enable / disable **theft detection** feature

34 Minimum signal level

If the level falls below the set value, the system assumes a theft.

Value: < -80 and > -60

35 Maximum number of measurements for signal level calculation

The higher the value the longer the theft detection and the more unlikely to trigger a false alarm.

Number >= 1

Default value: 50

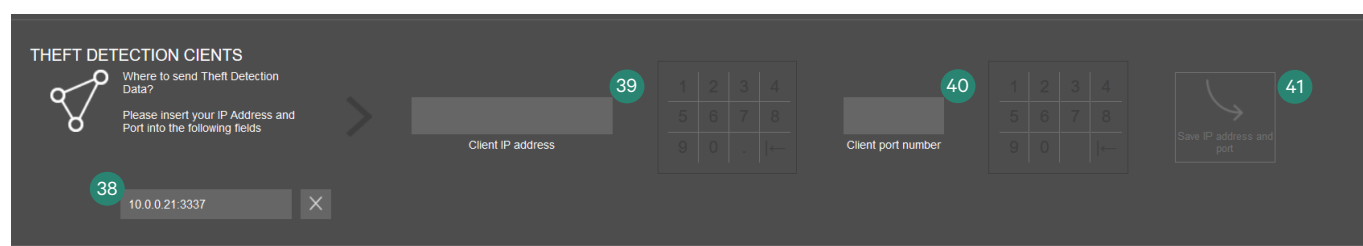
36 Maximum duration of the level measurement

The higher the value the longer the theft detection and the more unlikely to trigger a false alarm.

Value: > 0.1

Default: 5.0

37 Save **theft detection** settings (Requires restart of Capore® Services)



The **list of theft detection clients (38)** shows the IP addresses and ports to which theft detection data is sent. The **Capore® API Box** cyclically sends UDP packets to all configured clients after the startup process. The theft detection data may include the following information:

- theft detection on Is sent once when the function is started
- no theft No theft detected
- theft:[['uuidmac', id], ...] Theft Detected - This message contains a list of UUIDs and TUIO-IDs of the stolen object(s).

Enter a valid IP address into the **client IP address field (39)** using the numeric keypad.

Enter a valid network port into the **client port field (40)** using the numeric keypad.

If you do not specify a port, the default port 3337 is used.

Save your entry by pressing the **Save button (41)**.

Click the **"X"** next to a client name to remove it from the **list of theft detection clients (38)**.

Usually, the client of the theft detection feature is the application PC itself. However, you can also specify any other device. It only has to be reachable via the network for the **Capore® API Box**.



You can temporarily disable theft detection for a single object.

Perform the following steps within 10 seconds:

- 1. Put the object on the display**
- 2. Turn the object at least 90° counterclockwise**
- 3. Turn the object back to its origin**
- 4. Turn the object at least 90° clockwise**
- 5. Remove the object from the display**

The theft detection for this object will become active again when

- the object is placed on the display,**
- the Capore® Services or Capore® API Box is restarted.**

Update the Capore® API Box

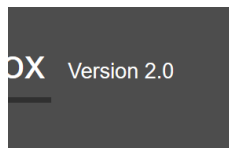


Fig. 15:

If your **Capore® API Box** is connected to the Internet, you can click on the **Capore® Touch & Object Assistant** version label to see if a newer version of the operating system is available.

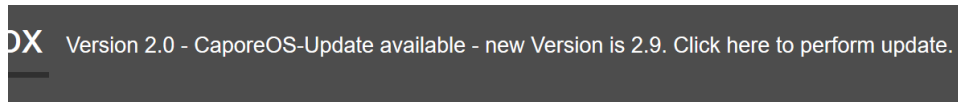
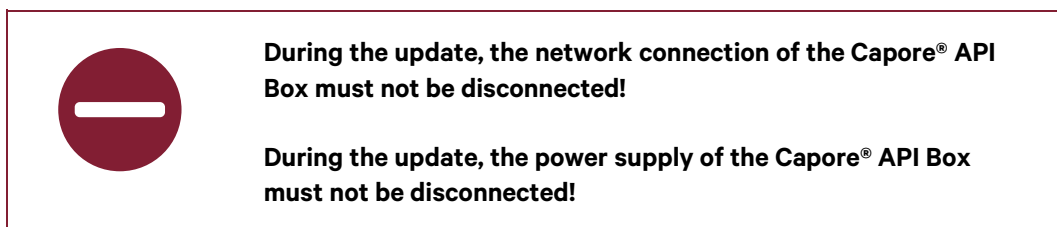


Fig. 16:

If a newer version of **Capore® Touch & Object Assistant** is available, you will be notified. Click on the message to start the update process.



If you have a valid **Capore® OS** image file, you can load and install the included system on the box (instead of a configuration file) as described in **Import / Export Box Configuration**.

Restart Capore® API Box



Fig. 17:

“Restart Capore Service” (42) restarts individual **Capore® services**. This will make settings to the TUIO data and the object recognition become effective. The operating system of the **Capore® API Box** will not be restarted.

“Restart Box” (43) restarts the entire **Capore® API Box** and all services. This measure is similar to disconnecting and reconnecting the power supply and is necessary, for example, to activate new network settings.



Make sure there are no objects on the display when restarting the Capore® API Box or Capore® Services.
Do not touch the touch screen while the device is turning on, otherwise there will be errors in the touch and object detection.

Import/Export Box Configuration

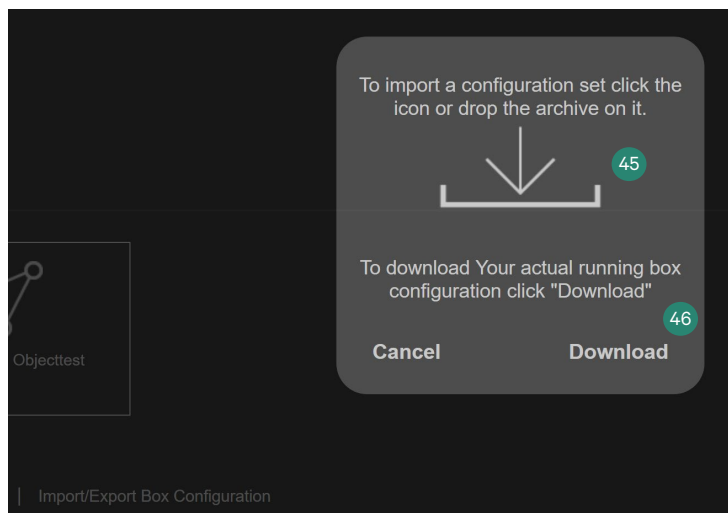


Fig. 18:

The settings (including the uploaded pattern files) that you have made to your **Capore® API Box** can be saved to a backup file. Click on the Download button. Click on **“Import/Export Box Configuration” (44)** and then on the **“Download” button (46)**.

Using this backup file, you can restore the settings of your current **Capore® API Box** or set up another **Capore® API Box (45)**.



It is not possible to back up or restore the activation key of the Capore® API Box via the backup file.

You can also load a **Capore® OS** image file to the box to update the system offline. The Capore® OS itself detects whether an image file has been selected instead of a configuration file and asks whether the system should be updated.

2. Troubleshooting

If your **Capore® Touch & Object Assistant** does not work as intended, contact **Interactive Scape Hardware Support**. You can reach them on weekdays at **+49 30 698 094 150**.

2.1. Manufacturer – Support

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