Calibration

Go to `Menu > Layout > Calibrate` to see all necessary calibration tools.

Preparation

Check in the `Devices` pane that **all cameras are set to Enabled** and **LED are On**.

Switch **cameras to video mode** by `selecting all cameras in the Device pane` and then pressing the `crosshair symbol` to identify reflections in an area.

Make sure no reflective objects are visible to the system. **Remove all all reflective objects from the space or cover them**. Many shoes have actually reflective surfaces, so make sure to either tape them or take them off for the following processes.

Reflections can be seen in the **Camera Preview** pane, which can be zoomed with the mouse wheel. Some small reflections on the floor can not be avoided and should not influence the tracking.

Switch back cameras to object mode by `selecting all cameras in the Device pane` and pressing the `grayscale symbol` to continue calibration.

Ideally, the space should look like this (minor reflections):

Camera Settings

Place a marker inside the tracking space as a reference.

Select all cameras in the `Devices` Pane and adjust the following camera settings only if the reference is not clearly visible and/or there are a lot of false marker detections caused by reflections.

Gain

Set Gain to the highest valueif you use the whole motion capture space.

`Recommended Gain Value: 8 High (Long Range)`

Exposure

Longer (high) exposure values makes small markers more visible, but high values can introduce false markers. It is best to minimize the exposure setting as much as the markers are clearly visible in the captured images and that there are as less false markes as possible. **Set the exposure to the lowest possible value that the marker is still visible and false markers are reduced to a minimum**.

`Recommended Exposure Value: 100`

Threshold

Keep the **threshold as high as possible to remove false reflection but keeping markers still visible**.

`Recommended Threshold Value: 220`

Calibration with Passive Wand

Make sure that the **Tracking Mode is set to Passive**. Otherwise, press `Passive, Active` Symbol in 3D View.

Masking

Once all the reflections are removed, Clear the previously set masks by pressing `Clear Mask` in the Calibration pane. Then set the masks again by pressing `Mask visible`. it is important that nobody is inside the space at this moment.

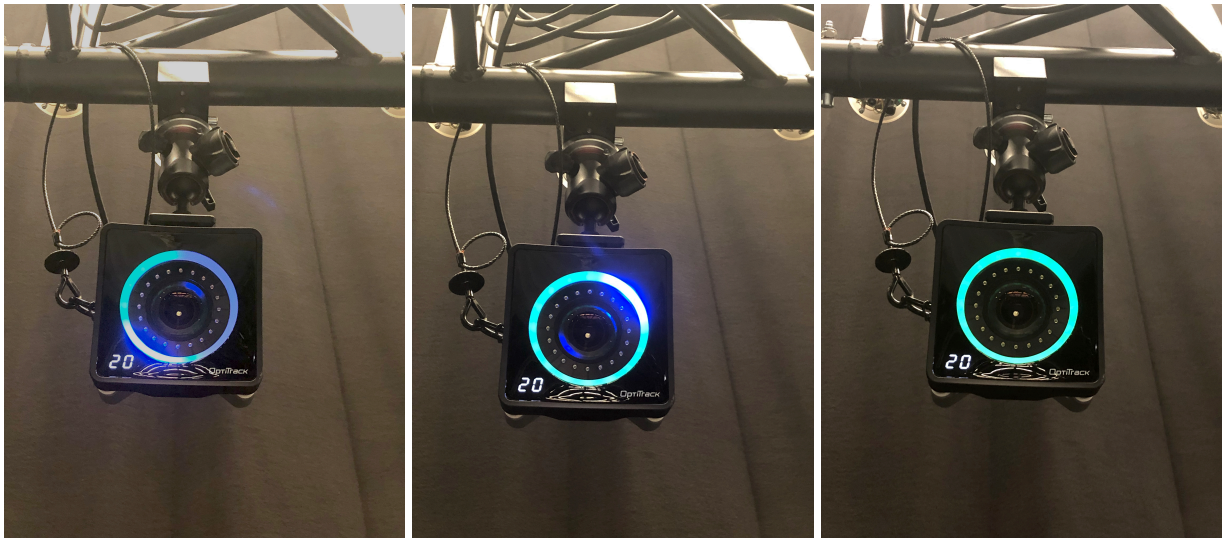
Wanding

Select `OptiWand CW-500 (500mm)` in the Calibration pane as wand type and press `Start Wanding`.

Take the `passive` wand (with grey reflectors), **walk trough the tracking space** and **swing the wand continuously in front of all cameras** and also in the middle of the space.

The cameras will indicate with a blue LED light, when they detecting the markers of the wand (also indicating the direction by the position of the blue light in the circle). The LED light will turn into green when the wanding was successful. Do not wand to close to the cameras, **keep at least 3m distance from the cameras**.

Keep on **wanding util each cameras LED circle is fully green** and you have reached **at least 5000 samples** on each camera.



After wanding, press `Calculate` to solve the camera positions. Solving takes some time. Only if the result is **Exceptional**, you will get good tracking results. Otherwise, repeat the calibration process and check for reflections.

Ground Plane

If you plan to use the tracking system with projections, take special care to position the groundplane as precise as possible over the markers.

Place the L shaped ground plane in the **middle of the room**, facing the long side to the large door.

Press `Set Ground Plane` in the Ground Plane tab in the Camera Calibration pane.

If you get an error message, that no Ground Plane can be found, try to find the 3 Markers in the 3D view, select them and press `Set Ground Plane` again

If setting Ground Plane is successful, you will be promted to **save the calibration**. Choose your session folder and create a subfolder **Calibration**.

The calibration is now finished.

Calibration with Active Wand

Make sure that the **Tracking Mode is set to Active**. Otherwise, press `Passive, Active` Symbol in 3D View.

Masking / LED

Clear the previously set masks by pressing `Clear Mask` in the Calibration pane. Disable all infrared LED light of the cameras by pressing `LED in the Device pane`. Active wands do not need LED lights from the camera.

Wanding

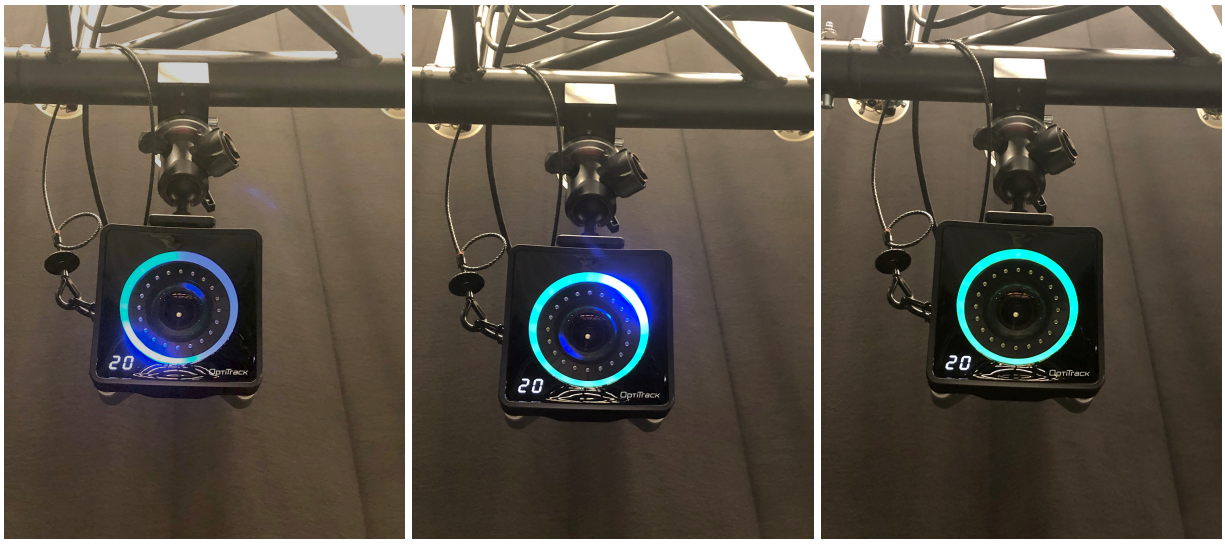
Select `Micron Series (500mm)` in the Calibration pane as wand type and press `Start Wanding`.

Take the `active wand` (with battery) and **turn it on** on the back, **walk trough the tracking space** and **swing the wand continuously in front of all cameras** and also in the middle of the space. The 3 active marker LED are on the opposite side of the On/Off switch, so make sure that they point

to the camera.

The cameras will indicate with a blue LED light, when they detecting the markers of the wand (also indicating the direction by the position of the blue light in the circle). The LED light will turn into green when the wanding was successful. Do not wand to close to the cameras, **keep at least 3m distance from the cameras**.

Keep on **wanding util each cameras LED circle is fully green** and you have reached **at least 5000 samples** on each camera.



After wanding, turn of the wand and press `Calculate` to solve the camera positions. Solving takes some time. Only if the result is **Exceptional**, you will get good tracking results. Otherwise, repeat the calibration process and check for reflections.

Ground Plane

Enable the LED lights of the cameras by pressing `LED in the Device pane`.

Make sure that the **Tracking Mode is set to back to Passive**. Otherwise, press `Passive, Active` Symbol in 3D View.

If you plan to use the tracking system with projections, take special care to position the groundplane as precise as possible over the markers.

Place the L shaped ground plane in the **middle of the room**, facing the long side to the large door.

Press `Set Ground Plane` in the Ground Plane tab in the Camera Calibration pane.

If you get an error message, that no Ground Plane can be found, try to find the 3 Markers in the 3D view, select them and press `Set Ground Plane` again

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The calibration is now finished.

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