**TUTORIAL BÁSICO OPTITRACK**

**Este é um tutorial colaborativo, sinta-se livre para acrescentar informações úteis e dicas!**

Todas as informações aqui contidas e muito mais podem ser encontradas em <https://v20.wiki.optitrack.com/index.php?title=OptiTrack_Documentation_Wiki>

#### **Calibration Steps**

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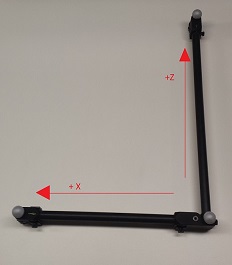
Wanding a capture volume using CW-500 calibration wand.

**Masking**

1. Ensure that the volume is free of unwanted objects and all light interference has been physically masked or covered.
2. Open the [Calibration pane](https://v110.wiki.optitrack.com/index.php?title=Calibration_pane) or use the calibration layout (CTRL + 1).
3. Clear existing masking by clicking Viewport22.png button from the [Camera Preview pane](https://v110.wiki.optitrack.com/index.php?title=View_pane#Camera_Preview).
4. Mask the remaining extraneous reflections using Motive. Click *Block Visible* from the [Calibration pane](https://v110.wiki.optitrack.com/index.php?title=Calibration_pane), or use the Viewport21.png icon in the [Camera Preview pane](https://v110.wiki.optitrack.com/index.php?title=View_pane#Camera_Preview), to apply software masking to automatically block any remaining light sources or reflections in the volume. When masks are applied properly, all of the extraneous reflections (white) in the 2D Camera Preview pane will be covered with red pixels.

**Wanding**

1. Prepare a calibration wand.
2. From the [Calibration pane](https://v110.wiki.optitrack.com/index.php?title=Calibration_pane), click *Start Wanding* to begin.
3. Bring the wand into the capture volume, and wave the wand throughout the volume and allow cameras to collect wanding samples.
4. When the system indicates that enough samples have been collected, click on the *Calculate* button to begin the calculation.
5. When the *Ready to Apply* button becomes enabled, click *Apply Result*.
6. Calibration results window will be displayed. After examining the wanding result, click *Apply* to apply the calibration.



CS-400 calibration square.

**Wanding Tips**

* Avoid waving the wand too fast. This may introduce bad samples.
* Avoid wearing reflective clothing or accessories while wanding. If the person who is wanding has reflective objects on, it can introduce bad samples to the calibration.
* Try not to collect samples beyond 10,000. Extra samples could negatively affect the calibration.
* Try to collect wanding samples covering different areas of each camera view. The status indicator on Prime cameras can be used to monitor the sample coverage on individual cameras.
* Although it is beneficial to collect samples all over the volume, it is sometimes useful to collect more samples in the vicinity of the target regions where more tracking is needed. By doing so, calibration results will have a better accuracy in the specific region.

**Setting the Ground Plane**

1. Now that all of the cameras have been calibrated, you need to define the ground plane of the capture volume.
2. Place a calibration square inside the capture volume. Position the square so that the vertex marker is placed directly over the desired global origin.
3. Orient the calibration square so that the longer arm is directed towards the desired +Z axes and the shorter arm is directed towards the desired +X axes of the volume. Motive uses the y-up right-hand coordinate system.
4. Level the calibration square parallel to the ground plane.
5. (Optional) In the [3D view](https://v110.wiki.optitrack.com/index.php?title=View_pane#Perspective_view) in Motive, select the calibration square markers. If retro-reflective markers on the calibration square are the only reconstructions within the capture volume, Motive will automatically detect the markers.
6. Access the Ground Plane tab in the [Calibration pane](https://v110.wiki.optitrack.com/index.php?title=Calibration_pane#Ground_Plane).
7. While the calibration square markers are selected, click *Set Ground Plane* from the Ground Plane Calibration Square section.

**2 - Streaming - para toolbox matlab do Aurora**

O Streaming ocorre automaticamente no modo Live ou enquanto uma gravação estiver rodando. A gravação por *default* roda no modo loop infinito. Mas isso pode ser mudado clicando em *Loop* (na barra onde está o play da gravação).

Configuração básica do Streaming:

1. Clicar no ícone *Streaming Pane*
2. Definir **Local interface = loopback** se o matlab estiver rodando no mesmo computador que o Motive Software. Caso contrário, utilizar a outra opção
3. Definir **Up Axis = Z Up** para que seja enviado o eixo convencional com z para cima
4. Definir **Transmission Type = Multicast**

Os dados serão capturados no Matlab usando a toolbox contida em Aurora: (arquivo original: kutzer-OptiTrackToolbox-cd58dad). (ver arquivo exemplo *DisplayData* na pasta Optitrack)

**3. Criação do corpo rígido - robô**

Quando um corpo rígido é criado, o programa automaticamente o alinha o centróide do mesmo com o eixo X global. Para facilitar a obtenção da orientação do objeto, o ideal é alinhar o robô com o eixo X e só depois definir o corpo rígido no programa. Assim os ângulos de orientação enviados já irão conter a orientação correta do robô.

Caso o corpo rígido seja criado aleatoriamente, é possível reorientá-lo através das ferramentas “Move 3D object” e “Rotate 3D object” no painel “Perspective View”