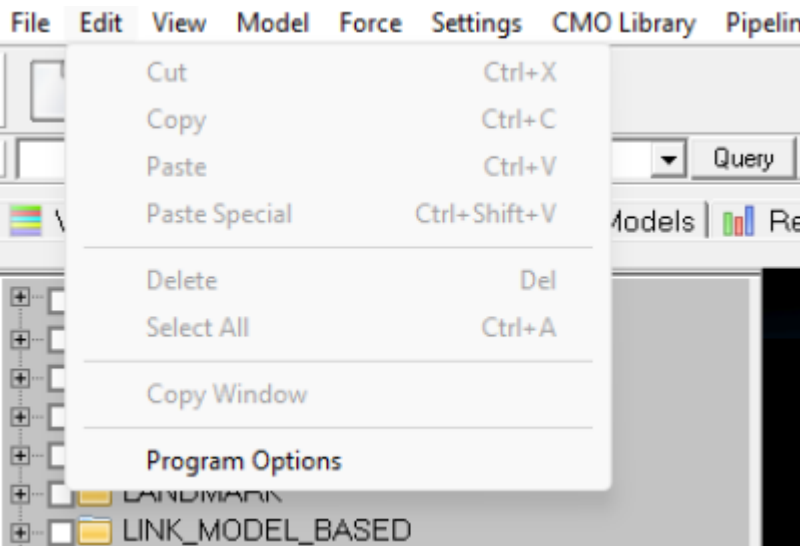
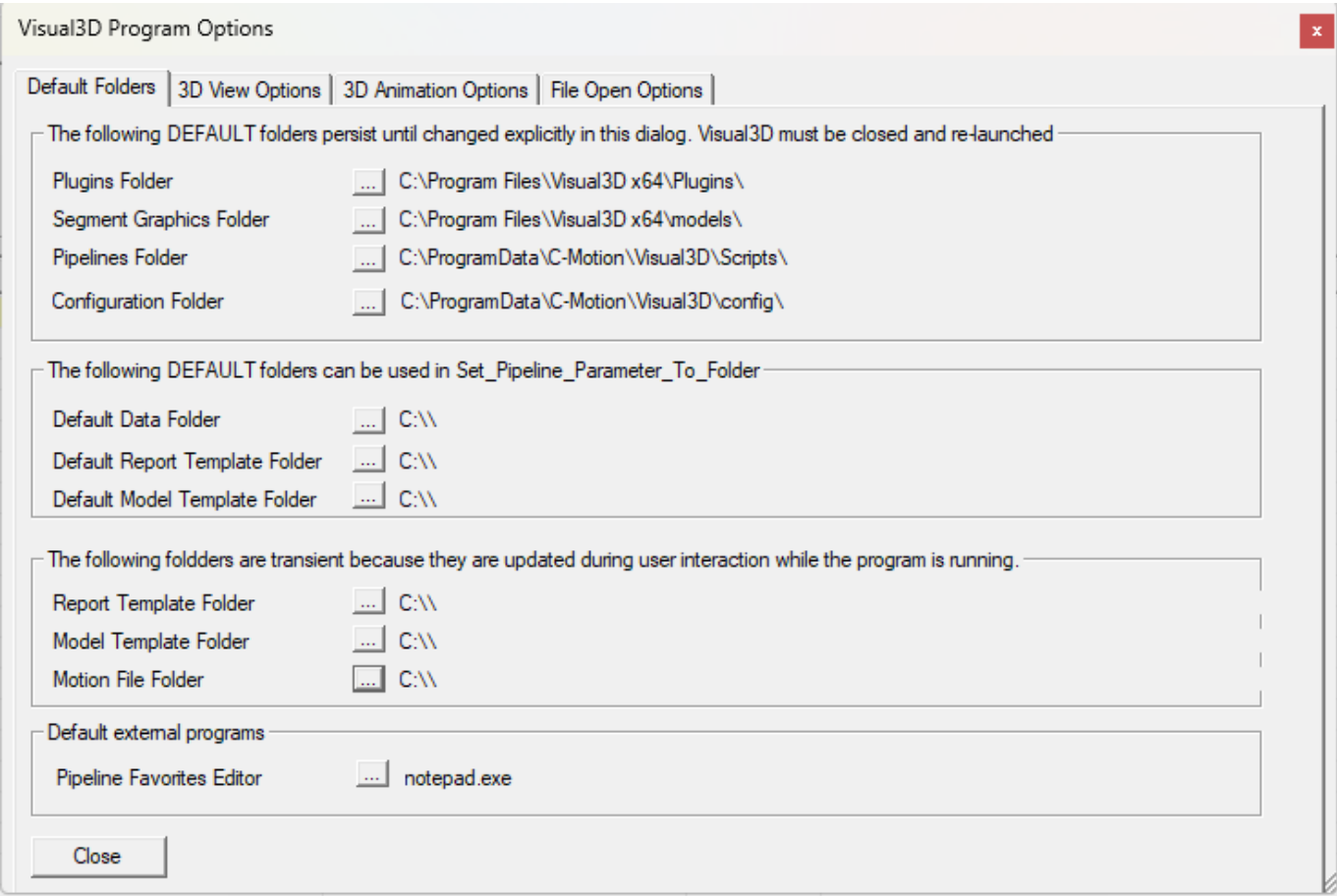


# Program Options

There are many options for controlling the default settings for Visual3D and for controlling the viewing options. The Program Options dialog can be accessed from the **Edit Menu item** and contains 3 tabbed property pages: Default Folders, 3D Animation Options, and 3D View Options.



## Default Folders



Visual3D has 3 categories of folders.

- Folders that are identified when Visual3D is launched, and which are rarely modified.
- Default folders that are convenient for many pipelines that specify generic folders
- Folders that change dynamically as the pipeline executes.

|                                         |                                                                                                                                                                                                                                          |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Persistent Default Folders</b>       |                                                                                                                                                                                                                                          |
| Plugin Folder                           | Visual3D searches this folder for Visual3D Plugins. These plugins may be processing plugins that will appear in the list of Pipeline commands, or they may be Real_Time plugins that will appear in the options for Real-Time Streaming. |
| Segment Graphics Folder                 | The animation models associated with the model segments are stored in. If no path to an object file is selected in the Segment Properties dialog, Visual3D searches here for the file.                                                   |
| Pipelines Folder                        | Default folder for Pipelines. Used mainly for the <a href="#">Pipeline Favorites</a> . Can be referred to as <i>VISUAL3D_DEFAULT_PIPELINE_FOLDER</i> .                                                                                   |
| <b>Pipeline-related Default Folders</b> |                                                                                                                                                                                                                                          |
| Default Data Folder                     | Can be referred to as <i>VISUAL3D_DEFAULT_FOLDER</i> or <i>VISUAL3D_DEFAULT_DATA_FOLDER</i> .                                                                                                                                            |
| Default Report Template Folder          | Current default FOLDER for the report template. Can be referred to as <i>VISUAL3D_DEFAULT_REPORT_FOLDER</i> .                                                                                                                            |
| Default Model Template Folder           | Current default FOLDER for the standing trial. Can be referred to as <i>VISUAL3D_DEFAULT_MODEL_FOLDER</i> .                                                                                                                              |
| <b>User-interaction Folders</b>         |                                                                                                                                                                                                                                          |
| Motion File Folder                      | Current FOLDER for the motion trial. Reset every time a movement file is opened.                                                                                                                                                         |
| Report Template Folder                  | Current FOLDER for the report template. Reset every time a Report Template is opened.                                                                                                                                                    |
| Model Template Folder                   | Current default FOLDER for the standing trial. Reset every time a Hybrid Model is created.                                                                                                                                               |

Default folder paths can be set using the [Set\\_Default\\_Folders](#) pipeline command.

## Setting Pipeline Parameters

These default folder paths can also be used in pipeline scripts as parameters.

```
Set_Pipeline_Parameter_To_Folder_Path
/PARAMETER_NAME=DATA_FOLDER
/PARAMETER_VALUE=VISUAL3D_DEFAULT_FOLDER
;

Set_Pipeline_Parameter_To_Folder_Path
/PARAMETER_NAME=MODEL_FOLDER
/PARAMETER_VALUE=VISUAL3D_DEFAULT_MODEL_FOLDER
;
```

To use these parameter in a command:

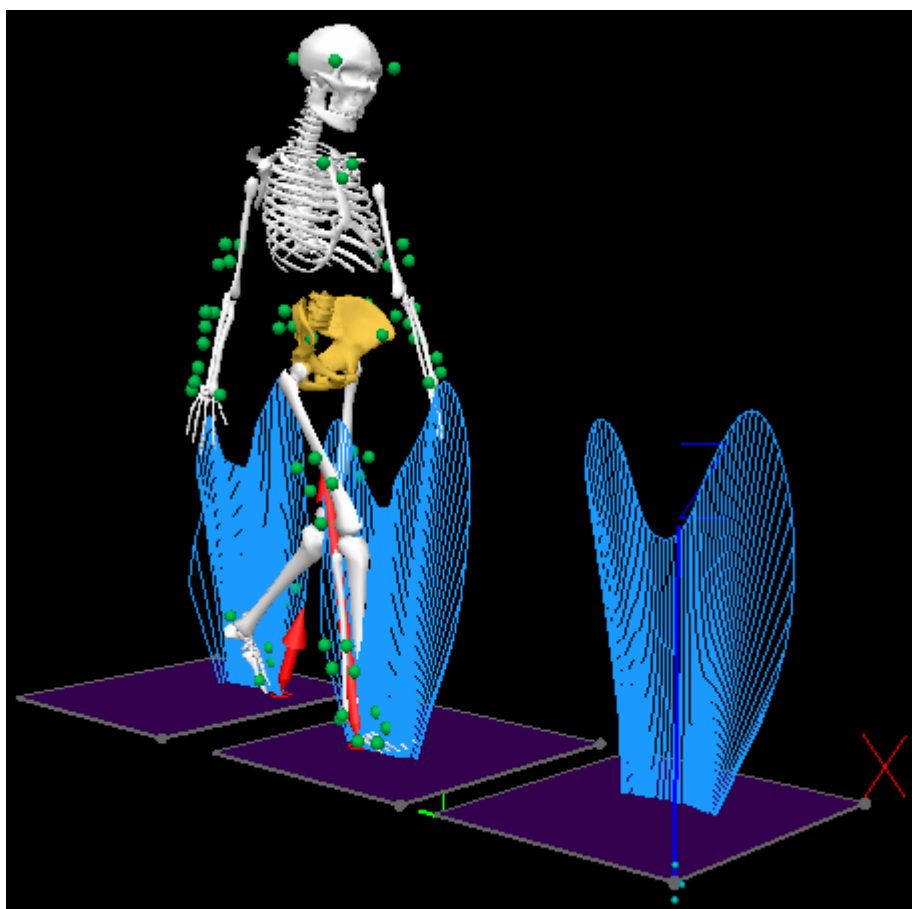
```
!Open all of the c3d files in a folder within the default folder
File_Open
/File_Name= ::DATA_FOLDER&/SUBJECT1/*walk*.c3d
;

! Create a hybrid model and assign a model template from the default model
folder
Create_Hybrid_Model
/CALIBRATION_FILE=::DATA_FOLDER&/SUBJECT1/*static.c3d
;

Apply_Model_Template
/MODEL_TEMPLATE=::MODEL_FOLDER&GaitModel.mdh
/CALIBRATION_FILE=::DATA_FOLDER&/SUBJECT1/*static.c3d
;
```

## 3D Animation Options

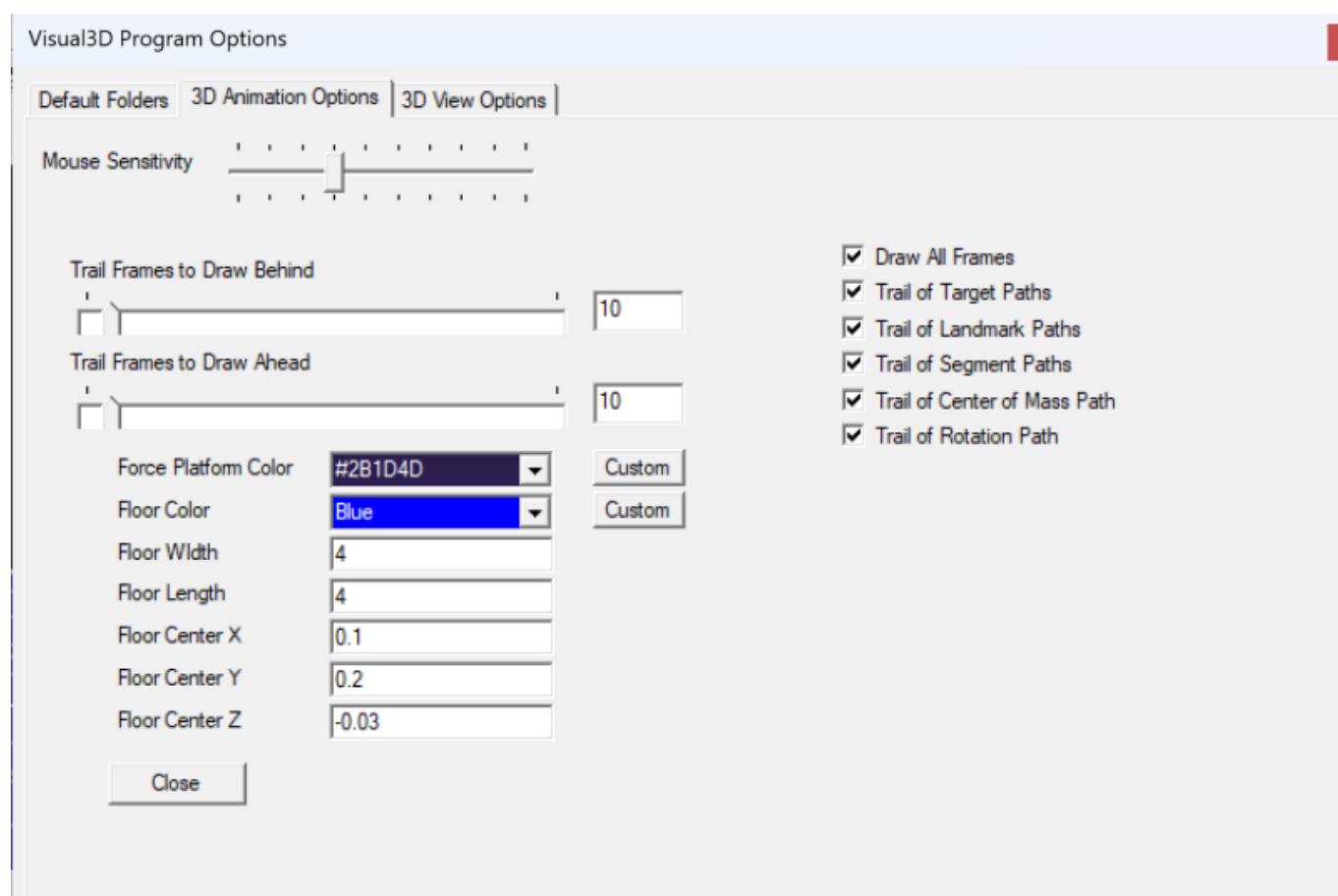
The Visual3D animation display, pictured below, allows you to visualize the movement of target markers, model segments (if defined), and other time-dependent phenomena such as ground reaction force (GRF) measured by force platforms.



Visual3D's extensive animation capabilities allow you to choose which of many elements are included

in the display. The illustration shows a typical combination: global coordinate system (GCS) axes, force platforms, instantaneous GRF vector and butterfly showing how the GRF evolves through time, target markers, and the instantaneous pose of the model (represented in this case by the major bone structures corresponding to each of the modeled body segments). You can interact with the animation display to zoom, pan, and rotate it to any perspective you choose. Note that the skeleton (representing the model) is the only part of the animation display pictured above, which will not appear if you have not yet associated the movement trial with a model. If all you do is open one movement trial, you can watch the markers move through space, observe their relationship to the position of any force platforms and the GRF they measure. This alone is a very useful tool for data quality control—if the animation doesn't look right, your motion-capture data may be invalid.

The 3D Animation Viewer is based on the OpenGL Graphics Library and its settings can be modified in the 3D Animation Options tab.



Define the sensitivity of the mouse; e.g. the responsiveness of the mouse in the 3D viewer.

The trail of markers, landmarks, or segments (including the length of the trail in frames) can be set explicitly.

Draw Trajectory Trail of Targets

☒ Draw All Frames

☒ Trail of Target Paths

☐ Trail of Landmark Paths

☐ Trail of Segment Paths

☐ Trail of Center of Mass Path

☐ Draw All Frames

☒ Trail of Target Paths

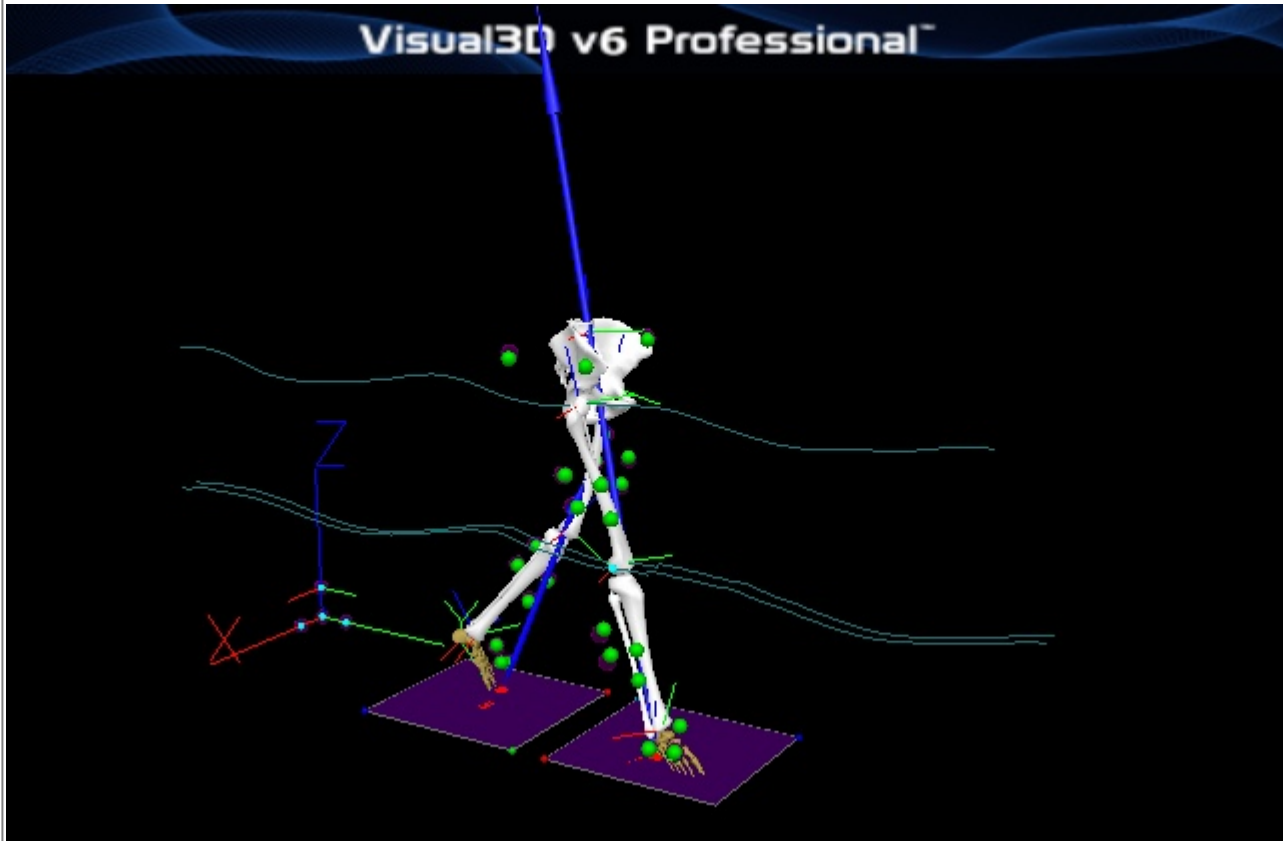
☐ Trail of Landmark Paths

☐ Trail of Segment Paths

☐ Trail of Center of Mass Path

Draw Trajectory Trail of Landmarks

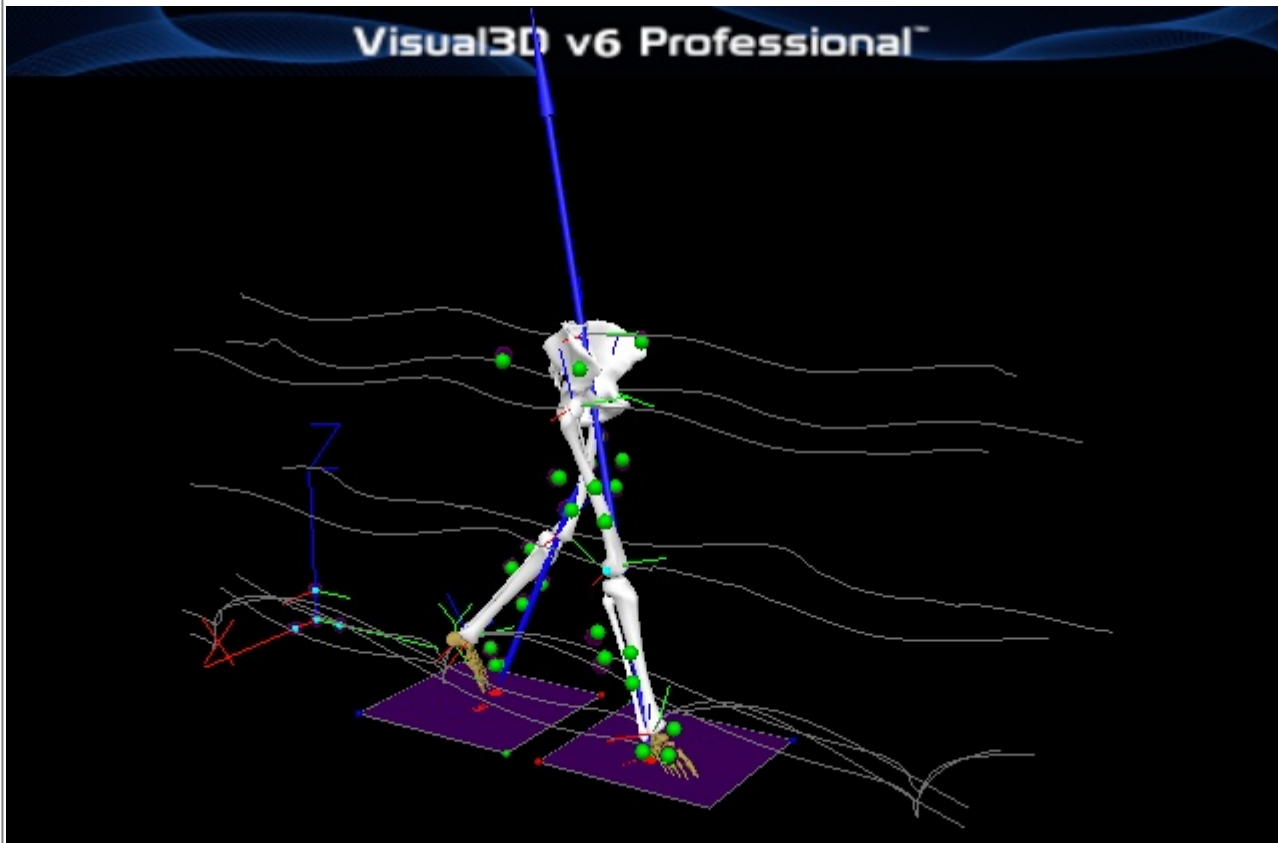
- ☒ Draw All Frames
- ☐ Trail of Target Paths
- ☒ Trail of Landmark Paths
- ☐ Trail of Segment Paths
- ☐ Trail of Center of Mass Path



Draw Trajectory Trail of Segments

Draw a trajectory trail that follows the Origin (e.g. Proximal end) of the segments

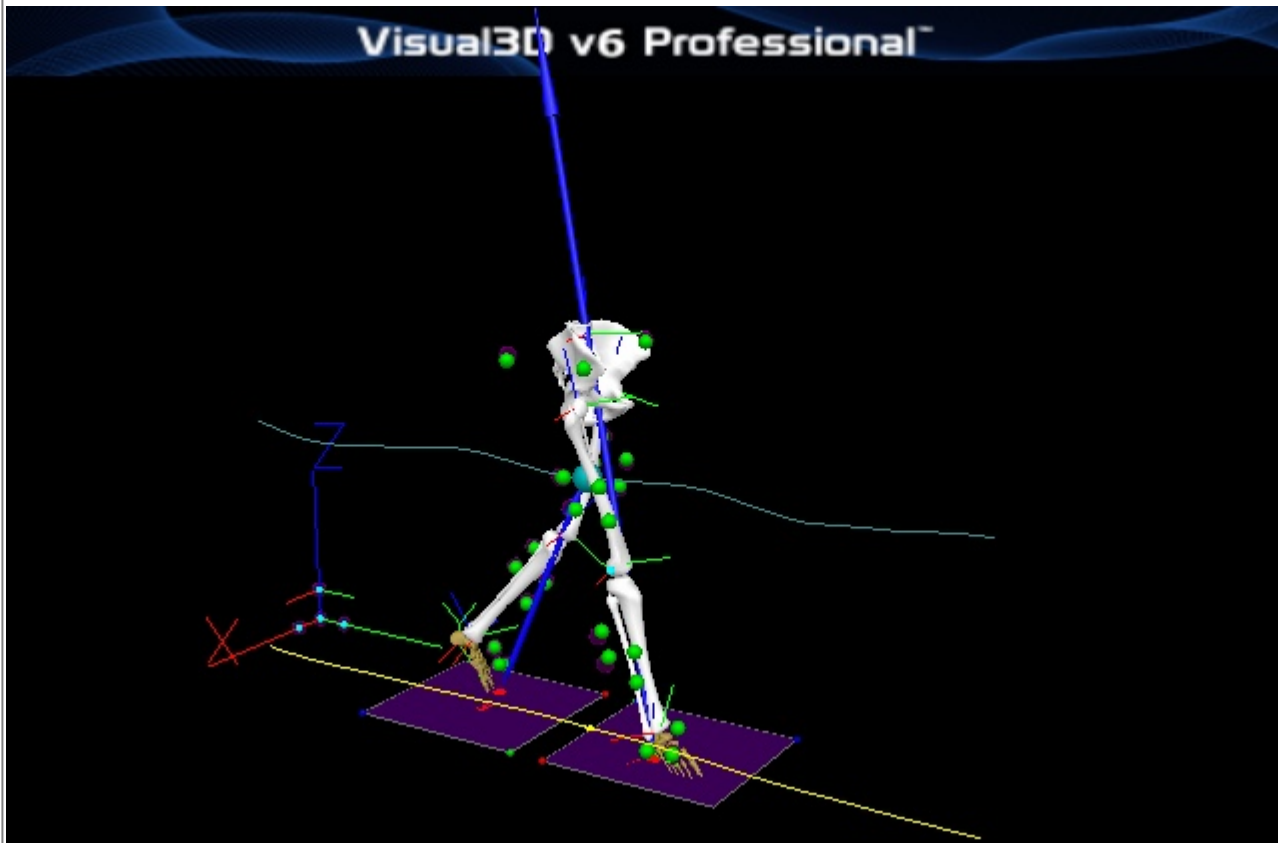
- ☒ Draw All Frames
- ☐ Trail of Target Paths
- ☐ Trail of Landmark Paths
- ☒ Trail of Segment Paths
- ☐ Trail of Center of Mass Path



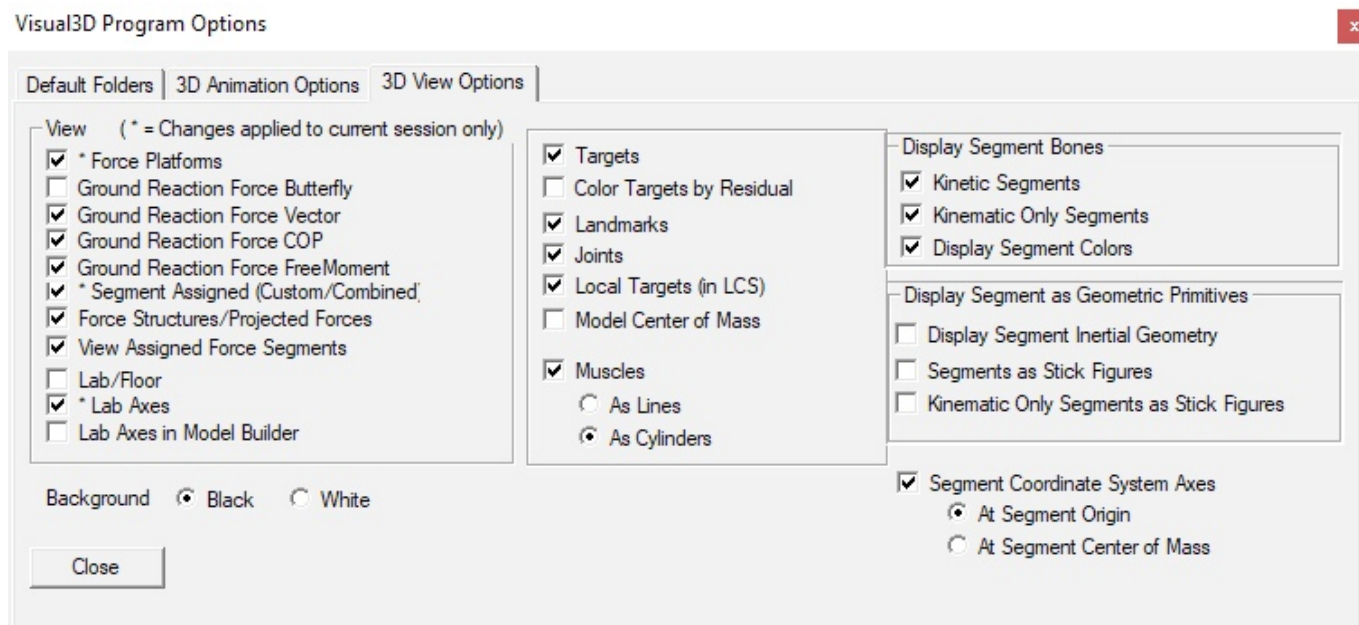
Draw Trajectory Trail of Model Center of Mass

Note that the trail will only be drawn if the COM is drawn

- ☒ Draw All Frames
- ☐ Trail of Target Paths
- ☐ Trail of Landmark Paths
- ☐ Trail of Segment Paths
- ☒ Trail of Center of Mass Path

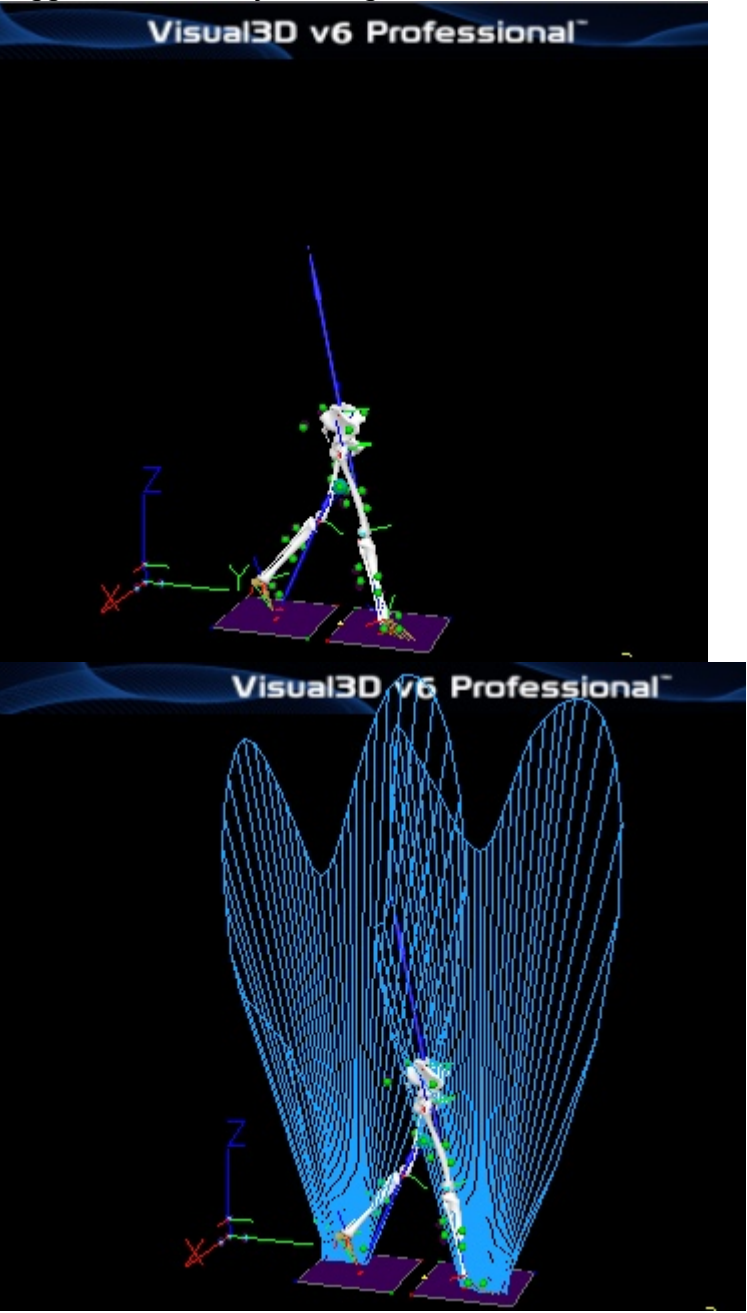


## 3D View Options



This property pages contains a number of toggle settings for different view options in the animation window.

|                        |                                               |
|------------------------|-----------------------------------------------|
| 3D View Options        |                                               |
| <b>Force Platforms</b> | Toggles the visibility of the force platforms |

|                                                   |                                                                                                                                                          |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Ground Reaction Force Butterfly</b></p>     | <p>Toggles the visibility of the ground reaction force butterfly</p>  |
| <p><b>Ground Reaction Force Vector</b></p>        | <p>Toggles the visibility of the ground reaction force vector.</p>                                                                                       |
| <p><b>Ground Reaction Force COP</b></p>           | <p>Toggles the visibility of the ground reaction force Center of Pressure.</p>                                                                           |
| <p><b>Ground Reaction Force Free Moment</b></p>   | <p>Toggles the visibility of the ground reaction force Free Moment.</p>                                                                                  |
| <p><b>*Segment Assigned (Custom/Combined)</b></p> | <p>Displays Assigned Forces.</p>                                                                                                                         |
| <p><b>Force Structures/Projected Forces</b></p>   | <p>Displays Force Structures.</p>                                                                                                                        |
| <p><b>View Assigned Force Segments</b></p>        | <p>Colors all segments that have been assigned to a force.</p>                                                                                           |
| <p><b>Lab/Floor</b></p>                           | <p>Toggles the visibility of the laboratory and floor.</p>                                                                                               |
| <p><b>Lab Axes</b></p>                            | <p>Toggles drawing the laboratory coordinate system axes.</p>                                                                                            |

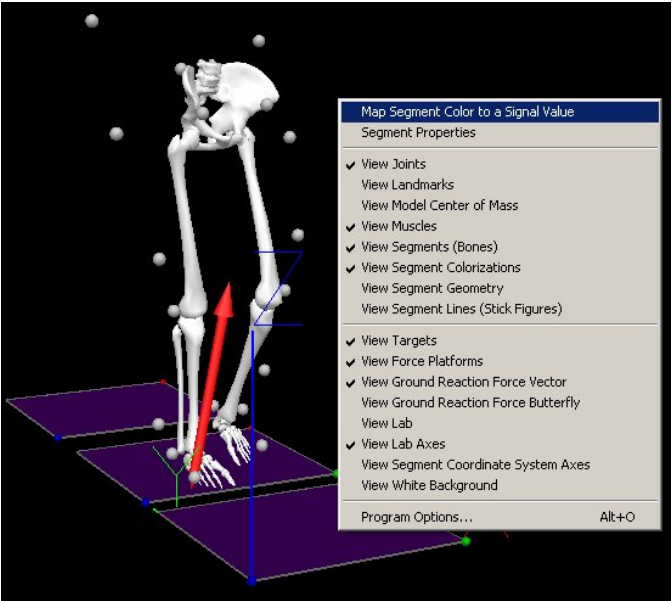
|                                                 |                                                                                                        |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Lab Axes in Model Builder</b>                | Toggles drawing the laboratory coordinate system axes in Model Builder Mode.                           |
| <b>Background Black/White</b>                   | Draws the 3D animation with either a black or white background.                                        |
| <b>Targets</b>                                  | Toggles drawing of targets.                                                                            |
| <b>Color Targets by Residual</b>                | Color Targets by the magnitude of the Residual component.                                              |
| <b>Landmarks</b>                                | Toggles drawing of Landmarks.                                                                          |
| <b>Joints</b>                                   | Toggles drawing the “Joints” used for the Inverse Dynamics.                                            |
| <b>Local Targets (in LCS)</b>                   | Toggles drawing the expected location of the markers as defined by the model.                          |
| <b>Model Center of Mass</b>                     | Toggles drawing the Center of Mass of the Model.                                                       |
| <b>Muscles</b>                                  | Toggles drawing Muscles. Muscles can be drawn as lines or cylinders.                                   |
| <b>Kinetic Segments</b>                         | Toggles drawing Kinetic Segments.                                                                      |
| <b>Kinematic Only Segments</b>                  | Toggles drawing Kinematic Only Segments.                                                               |
| <b>Display Segment Colors</b>                   | Toggles the color of segment based on an assigned signal.                                              |
| <b>Display Segment Inertial Geometry</b>        | Toggles drawing the Segment Geometry.                                                                  |
| <b>Segments as Stick Figures</b>                | Toggles drawing Kinetic Segments as Stick Figures.                                                     |
| <b>Kinematic Only Segments as Stick Figures</b> | Toggles drawing Kinematic Only Segments as Stick Figures.                                              |
| <b>Segment Coordinate System Axes</b>           | Toggles the visibility of the SCS. Specifies the location to draw the axis as origin or center of mass |

## Segment Colorization

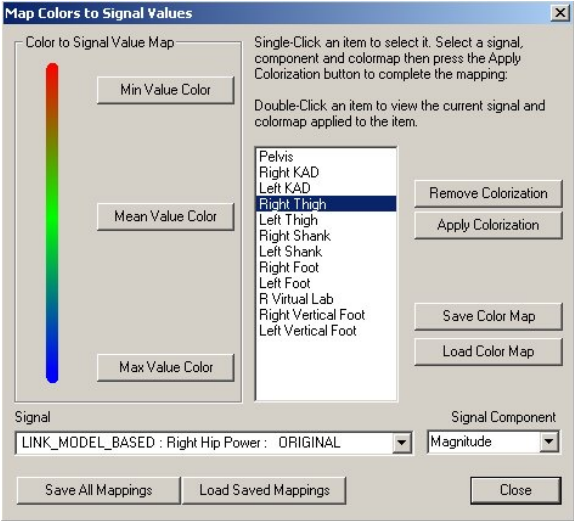
It is possible to color a segment model or a muscle object based on a signal value.

Segment Colorization

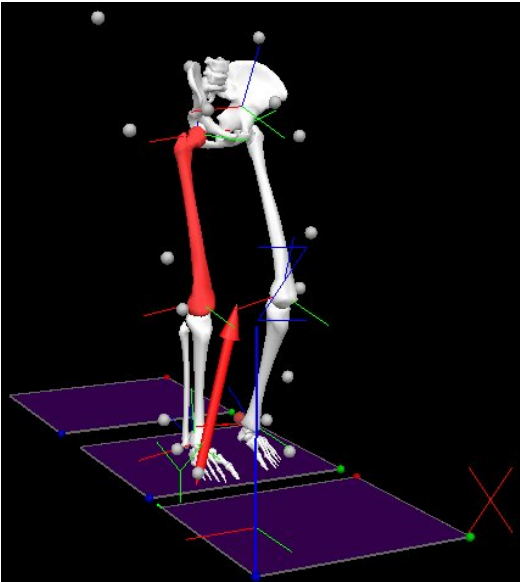
A right mouse click in the animation window will cause the following popup to appear. Select **Map Segment Color to a Signal Value**



The following dialog allows the selection of a Visual3D model object and the associated signal



In the above dialog the magnitude of the **Right Hip Power** signal is used to color the **Right Thigh Segment**. Note that it is important to select the **Apply Colorization** button after the segment and signal have been selected.

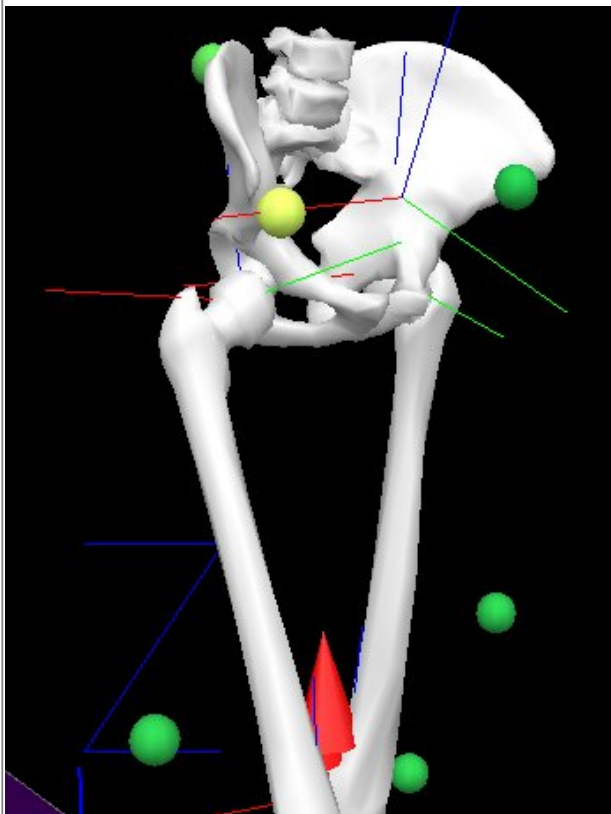


## Target Colorization

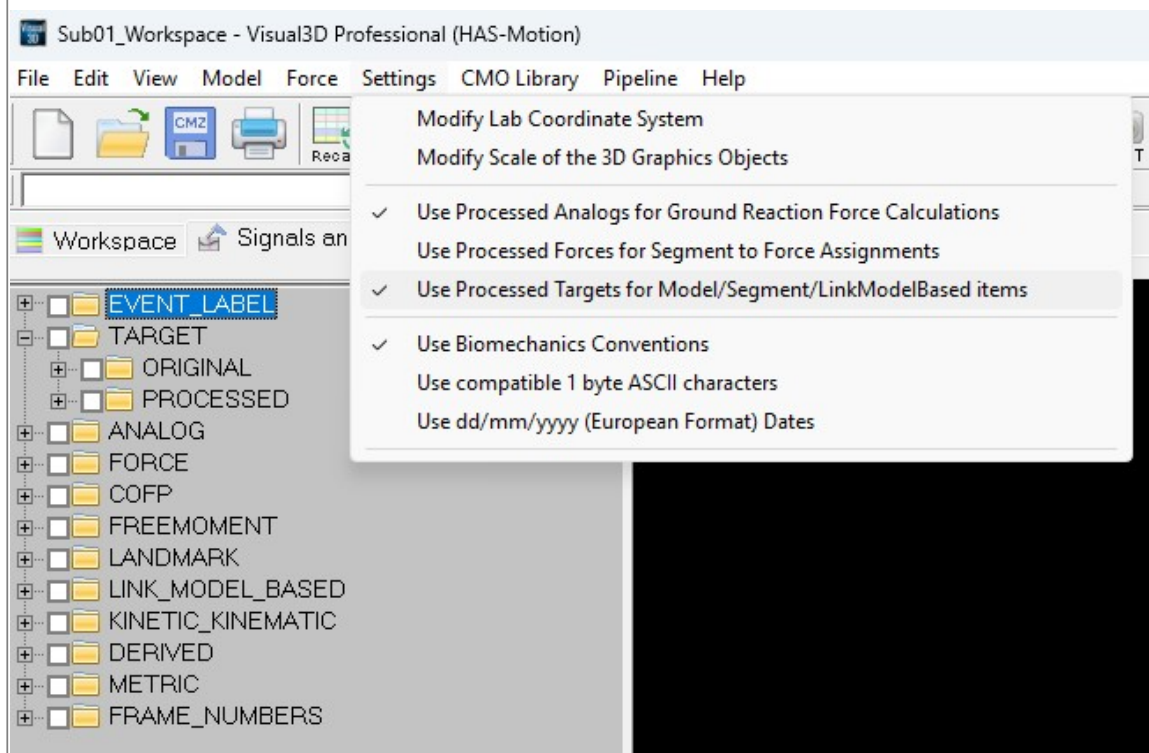
The motion capture markers are colored based on the TARGET residual value.

|                     |
|---------------------|
| Target Colorization |
|---------------------|

Residual= 0  $\Rightarrow$  Red  
Maximum Residual in the file  $\Rightarrow$  Yellow  
Minimum Residual in the file  $\Rightarrow$  Green



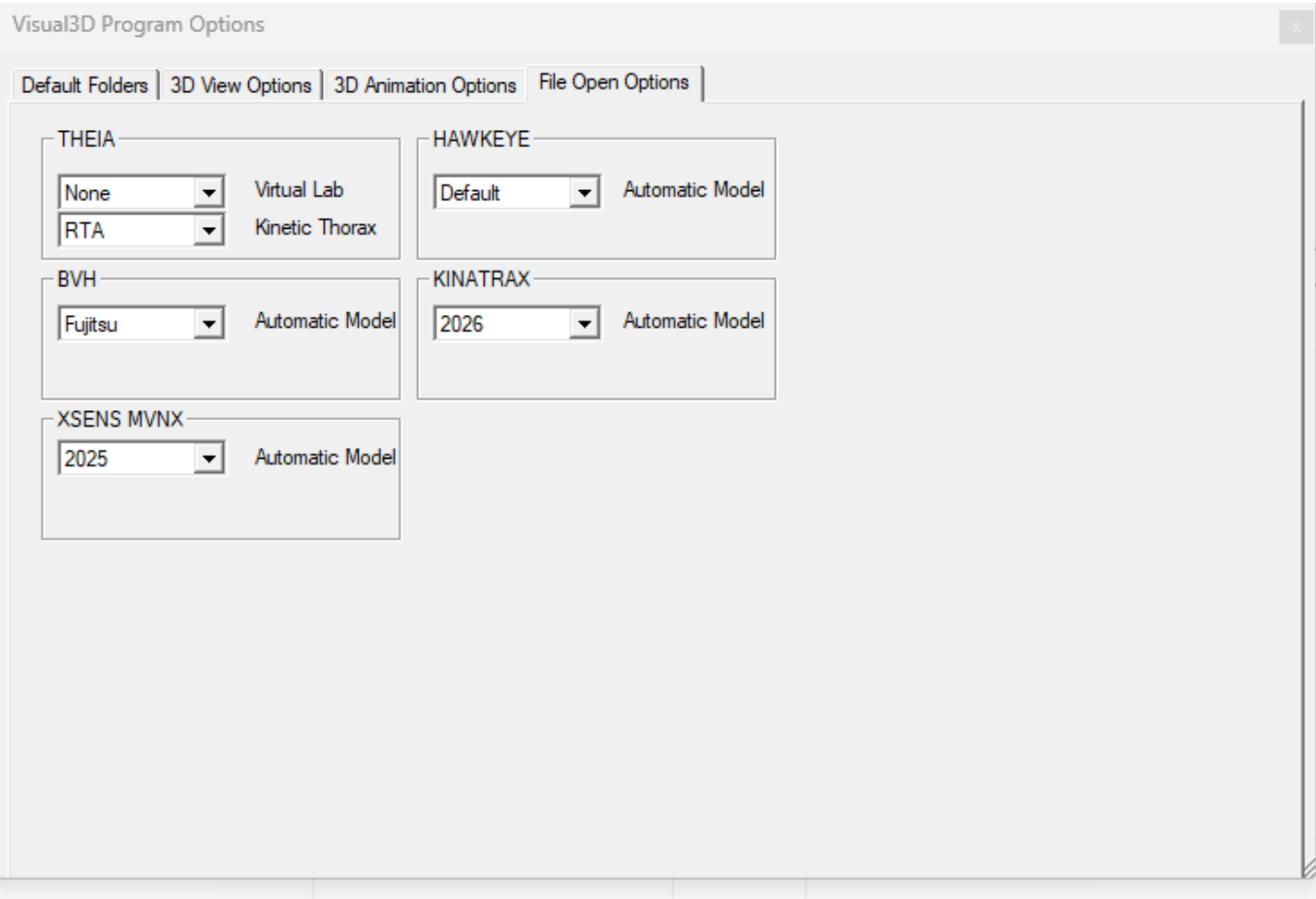
**Note** that if the TARGETS have been processed, the color of the markers will always be green because the residual has no meaning for a PROCESSED signal.



**Note** that an exception is when the option to **Use ProcessTargets for Model/Segment/LinkModeBased Items** is unselected because this results in the ORIGINAL signals being used for the animation as well as the

# File Open Options

Visual3D's File\_Open command supports data files from multiple vendors, including [Theia](#), [Fujitsu](#), [XSENS](#), [Kinatrax](#), and **Hawkeye**.



## Theia File Open Options

|                       |                    |                                                                                                                                                                                                                        |
|-----------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Virtual Lab</b>    | Basic Gait or None | If “Basic Gait” is selected, a virtual lab (VLB) will be generated for the model. Note, this VLB segment will only be suitable for walking and running. If you have different movements, the VLB might be meaningless. |
| <b>Kinetic Thorax</b> | RTA or RTX         | The selected segment will be set to 'kinetic', while the other as 'kinematic only' in the model definition                                                                                                             |

## BVH File Open Options

|                        |         |                                                      |
|------------------------|---------|------------------------------------------------------|
| <b>Automatic Model</b> | Fujitsu | The default model will follow the Fujitsu definition |
|------------------------|---------|------------------------------------------------------|

## XSENS MVNX File Open Options

|                        |                |                                                                                                             |
|------------------------|----------------|-------------------------------------------------------------------------------------------------------------|
| <b>Automatic Model</b> | Legacy or 2025 | The default model that will automatically be built can be specified as the 'legacy' model or '2025' version |
|------------------------|----------------|-------------------------------------------------------------------------------------------------------------|

## Hawkeye File Open Options

|                        |         |                                                      |
|------------------------|---------|------------------------------------------------------|
| <b>Automatic Model</b> | Default | The default model will follow the Hawkeye definition |
|------------------------|---------|------------------------------------------------------|

## Kinatrax File Open Options

|                 |                |                                                                                                             |
|-----------------|----------------|-------------------------------------------------------------------------------------------------------------|
| Automatic Model | Legacy or 2026 | The default model that will automatically be built can be specified as the 'legacy' model or '2025' version |
|-----------------|----------------|-------------------------------------------------------------------------------------------------------------|

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