

C3D

Purpose

This tutorial shows you how to generate real time feedback from the Visual3D RealTime Tab when streaming a C3D file through Visual3D. The pictures and example in this tutorial are specific to graphing Left Ankle Angles. However, the same principles can be applied to any Link Model Based items.

Steps

Preparing for the Tutorial

1. Download the file [model.zip](#)
2. Save the file where you would normally save motion capture files.

These sample Qualysis files were downloaded from [C3D.org](#)

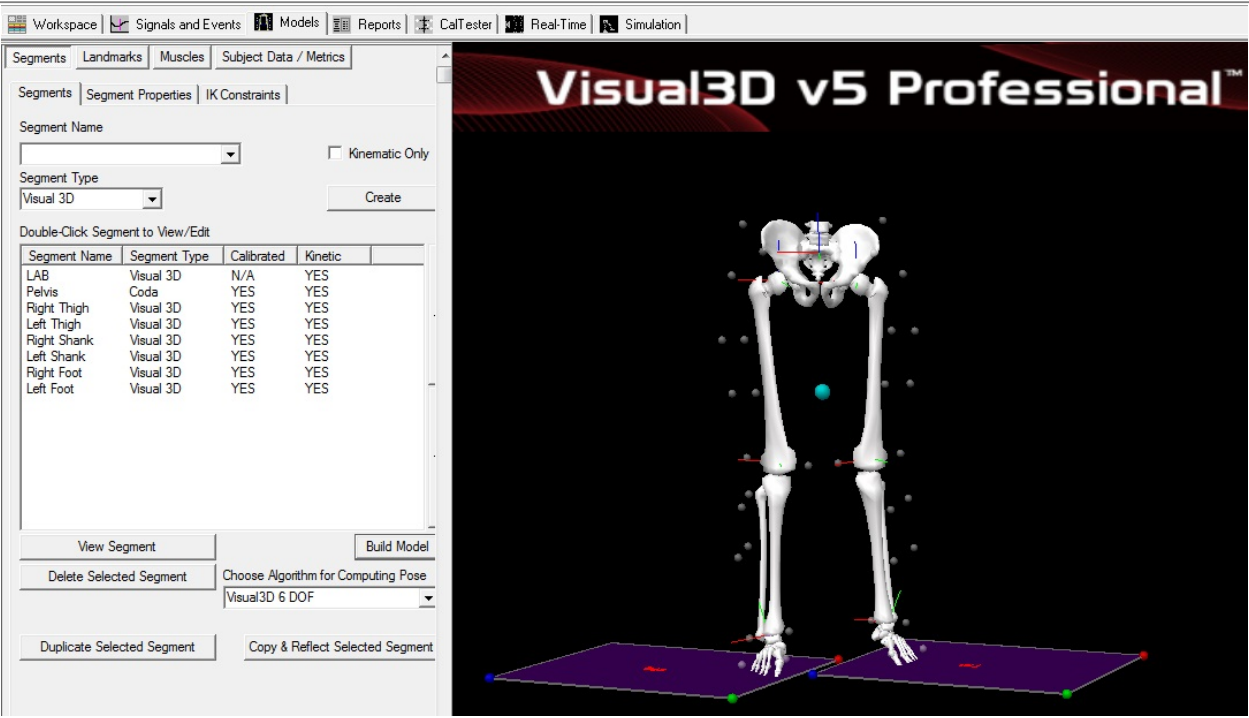
Step 1 - Open CMO File

1. From the File menu, select **Open/Add...**, Choose *model.cmo*

2. From the workspace status screen, verify the model file named *Standing_Hybrid_2.c3d* appears in the column labeled Models/Calibration Files.

The screenshot shows the Visual3D Professional software interface. The title bar reads "model.cmo - Visual3D Professional (C-Motion, Inc. Production)". The menu bar includes File, Edit, View, Model, Force, Analysis, Settings, CMO Library, Pipeline, and Help. The toolbar contains icons for File, CMO C3D, CMO, Print, RECALC, and PIPELINE. The workspace tabs at the bottom are Workspace, Signals and Events, Models, Reports, CalTester, Real-Time, and Simulation. The Pipeline Processes / Wizards window is open, showing a list of processes: POST_1_CreateCMO, RT_0_SetDefaultFolders, and RT_1_ExportXMLFile. An Execute button is next to the list. To the right of the list, it says "Report Pages 0". Below the list, there are buttons for "Add New File Tag" and "Modify Data Columns". At the bottom, the workspace status screen is visible, showing three columns: CMO Workspace, Models/Calibration Files, and Motion Files. The CMO Workspace column contains "model.cmo". The Models/Calibration Files column contains "Standing_Hybrid_2.c3d". The Motion Files column contains "GLOBAL".

3. Switch to the **Models** tab to verify bones in picture



Step 2 - Connect to RT stream/Load Emulation

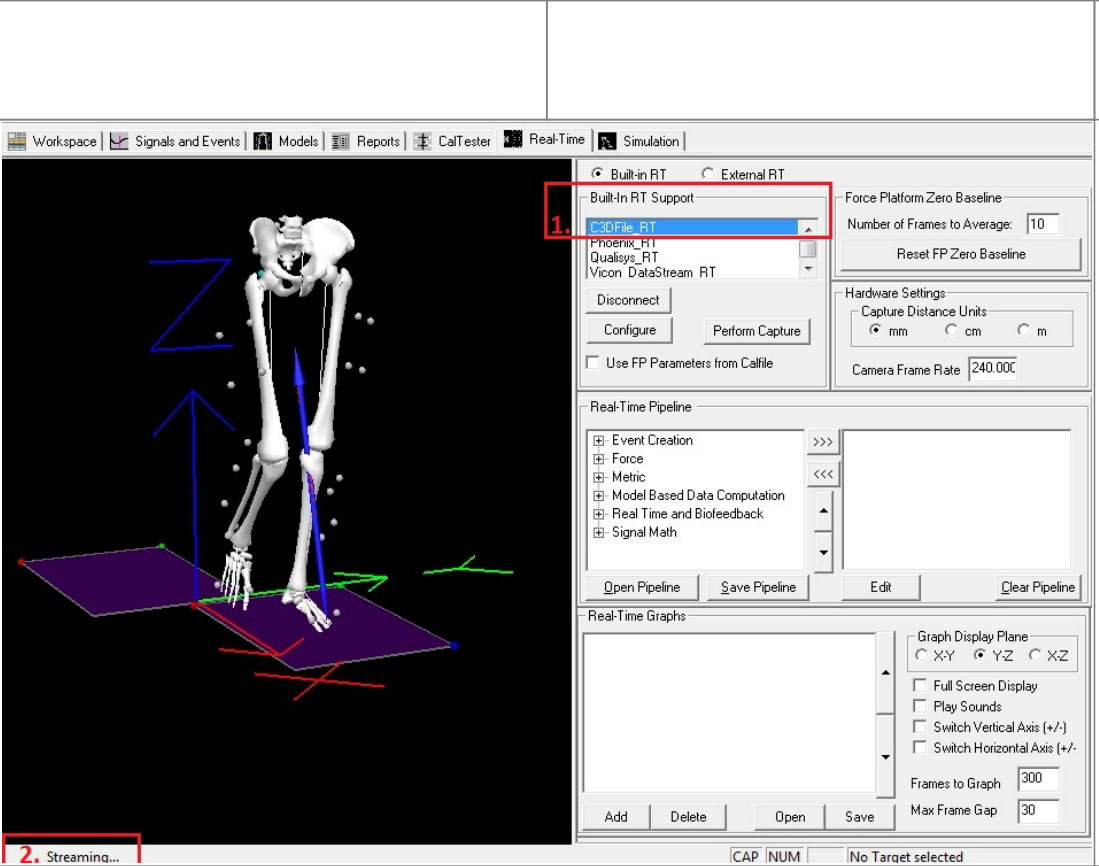
1. Open the *Real-Time* tab

2.a. To connect to the C3D stream using the Builtin RT plugin: (more....)

Click **C3DFile_RT** (used to emulate a camera system)

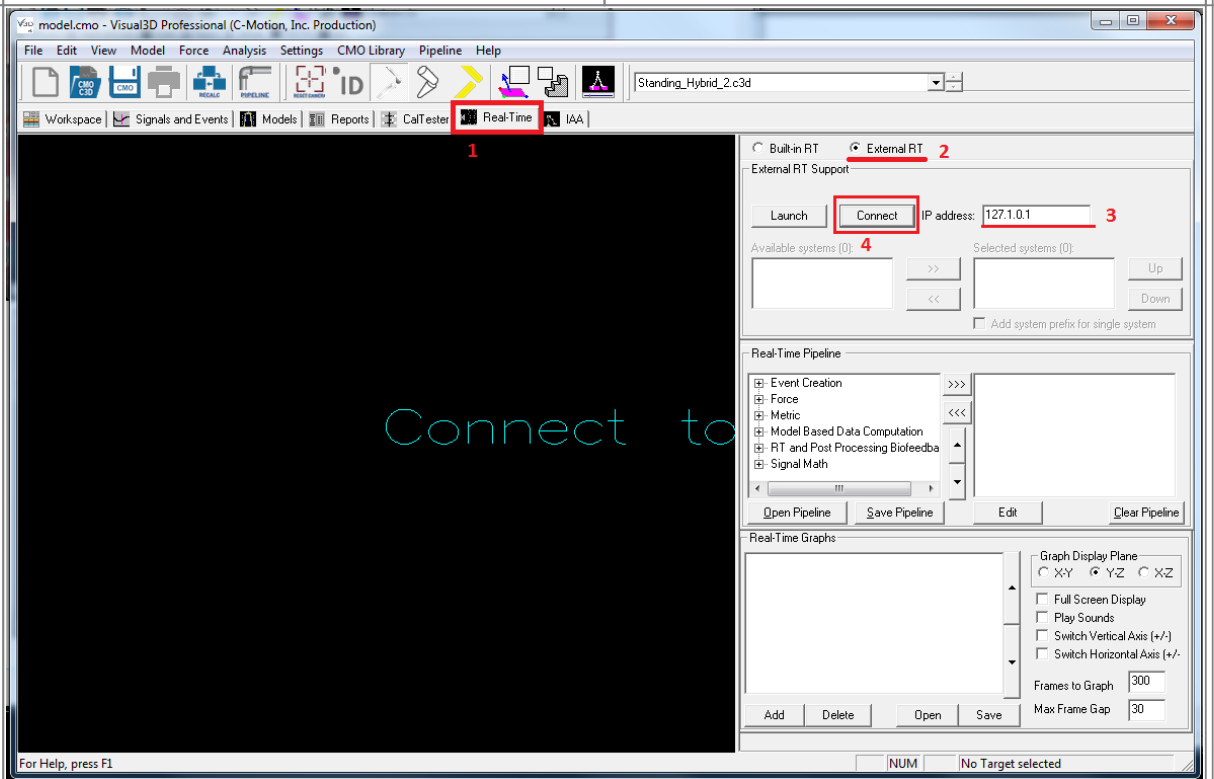
Browse to the dynamic C3D file (Walking_Hybrid_2.c3d)

NOTE: Before using the real time stream users should test using C3D files collected in their lab



2.b. To connect to the C3D stream using the External RT plugin: (more....)

For instructions on how to run biofeedback through Visual3D server see the [Visual3D Server Tutorial](#).



3. The data is automatically applied to the model

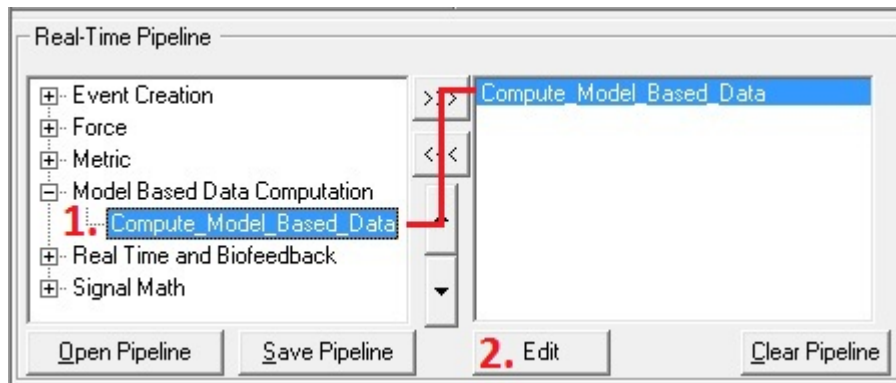
Note: Streaming status in lower left

Step 3 - Compute model based item: RT pipeline

Open up *Model Based Data Computation* under the **Real-Time Pipeline**

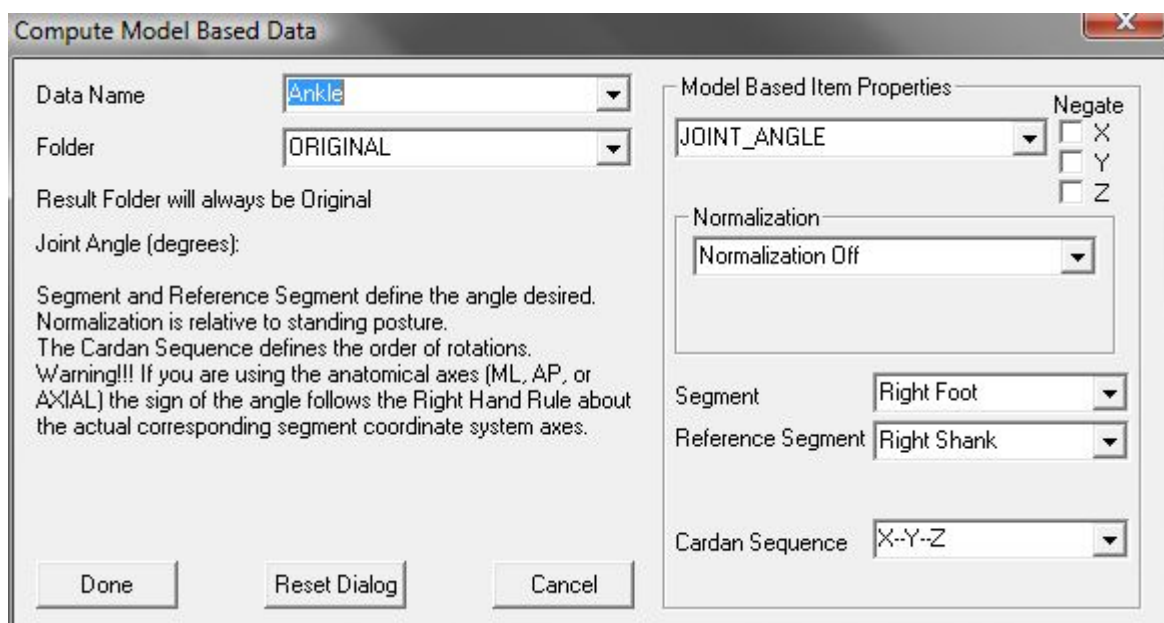
Double click *Compute_Model_Based_Data*

Click **Edit**



Change the corresponding:

Data Name: Ankle **Folder:** ORIGINAL **Model Based Item Properties:** JOINT_ANGLE
Segment: Right Foot **Reference Segment:** Right Shank



Click **Done**

Step 4 - Create Graph

Click **Add** in the **Real-Time Graphs** section, and enter the following:

Data to: LINK_MODEL_BASED::ORIGINAL::Ankle

Add/Modify Real-Time Feedback

Graph Type: ☐ No Graph ☒ 2D Graph ☐ Bar Chart

Data to: **1.**

Component: Line Color:

☐ Graph P2D StdDev Component

Graph Position: Column: Span:
Row: Span:

☒ Automatically Scale to Signal Min/Max ☐ Scale Graph to User Defined Min/Max

☐ Highlight Target Range

☐ Highlight Metric Mean ☐ Highlight Metric StdDev

Event Handling

☐ Anchor Graph Start Frame on Event

☐ Anchor Graph Stop Frame on Event

☐ Update Graph Every Nth Cycle

Number of Cycles to Display

Select Events to Annotate

Warning Data Color. NOTE: If 'Less Than' equals 'Greater Than' then there is no warning given.

	Less Than	Greater Than	Also Change Background Color to
Warn Yellow When:	0	0	Default
Warn Red When:	0	0	Default
Warn Sound When:	0	0	Default

☒ Only Graph ☐ Graph Border

Sound File (Less than)

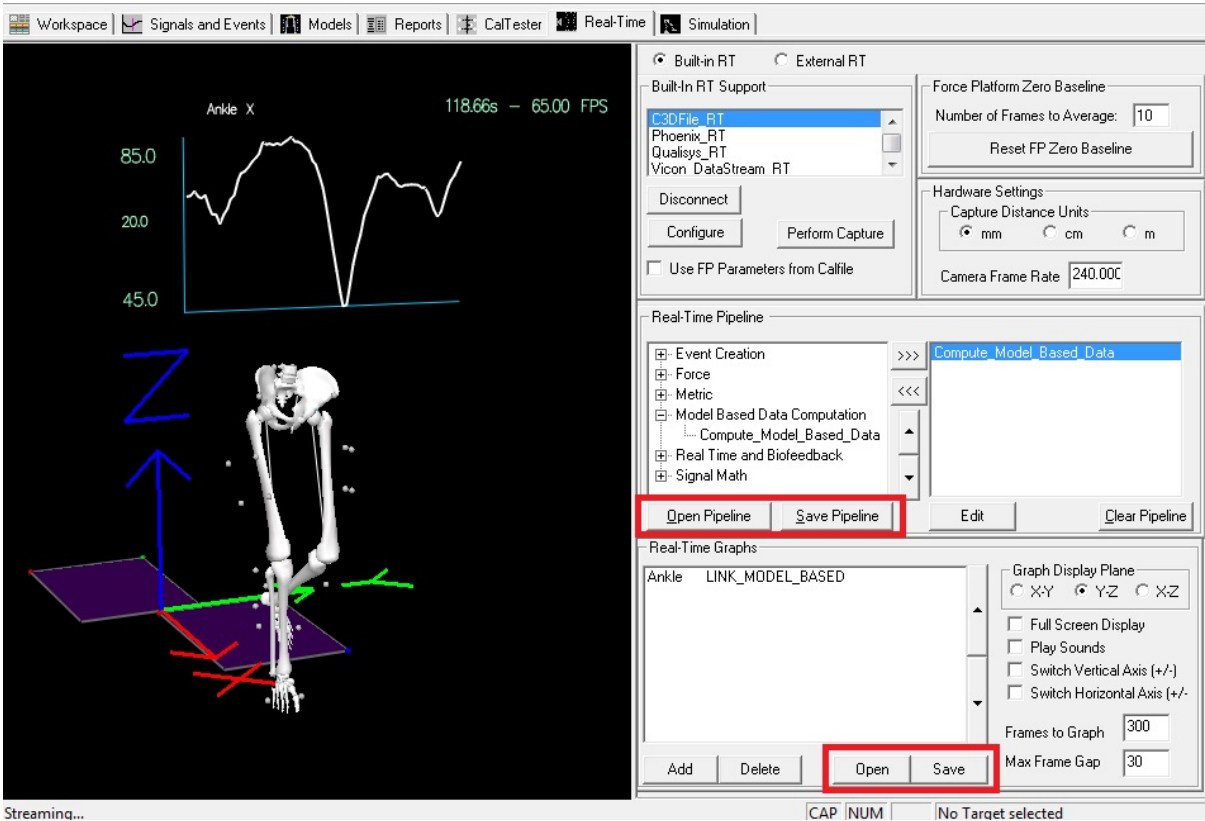
Sound File (Greater Than)

2.

Click **OK**

Complete

Your result should show a Real-Time stream that looks like the picture below



Remember to save the Graph and RT Pipeline

From:
<https://has-motion.com/wiki/> - Wiki Documentation Site

Permanent link:
https://has-motion.com/wiki/doku.php?id=visual3d:tutorials:real_time:biofeedback:c3d&rev=1721231230

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