

Update DSX Knee Model Template

This page walks you through modifying the default DSX Knee Model Template (MDH file) in Visual3D for use with different target labels.

Load Files

1. Open Visual3D

2. Load Static C3D file

Model→

Create (Add Static Calibration File)→

Hybrid Model from C3DFile→

Select a static trial collected in your lab

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File Edit View Model Force Settings CMO Library Pipeline Help

Create (Add Static Calibration File) >

Close Model

Compute Model Based Data

Hybrid Model from C3DFile

Hybrid Model from Real Time Streaming

Legacy Models >

3. Load DSX Model Template (.mdh file)

Model→

Apply Model Template→

Browse to the DSX model template on your computer

Note: There will be build errors, that's fine

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File Edit View Model Force Settings CMO Library Pipeline Help

Create (Add Static Calibration File) >

Close Model

Compute Model Based Data

Convert Model to Hybrid Model

Assign Model to Motion Files

Append Model Template to current model

Apply Model Template

Save Model Template

Update Segment Definition

1. In the Models tab, under the Segments button, in the Segments tab, there is a list of segments. These segments must be updated to reflect the new tracking target labels.

To update each segment, double click on the desired segment name.

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Workspace Signals and Events Models Reports CalTes

Segments Landmarks Muscles Subject Data / Metrics

Segments Segment Properties IK Constraints

Segment Name

☐ Kinematic Only

Segment Type

Visual 3D

Create

Double-Click Segment to View/Edit

Segment Name	Segment Type	Calibrated	Kinetic	
LAB	Visual 3D	N/A	YES	
Pelvis	V3D_Composite	YES	YES	
Left Thigh	Visual 3D	NO	YES	
Left Shank	Visual 3D	NO	YES	
LPT	Visual 3D	NO	NO	
Left Femur	Visual 3D	NO	NO	
Left Tibia	Visual 3D	NO	NO	
Right Thigh	Visual 3D	NO	YES	
Right Shank	Visual 3D	NO	YES	
RPT	Visual 3D	NO	NO	
Right Femur	Visual 3D	NO	NO	
Right Tibia	Visual 3D	NO	NO	
Right Patella	Visual 3D	NO	NO	
Left Patella	Visual 3D	NO	NO	

A. Update Pelvis Definition

Select target labels from the drop down list which represent the ASIS/PSIS labels. If only using a sacrum label, enter the sacrum label into both the left and right sacrum boxes.

If using other tracking targets (ex. iliac crest) specify them here.

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Segments Landmarks Muscles Subject Data / Metrics

Segments Segment Properties IK Constraints Pelvis

Define Segment Type

Segment Type: V3D_Composite

Define Calibration Targets

R.ASIS	RASI
L.ASIS	LASI
R.PSIS	RPSI
L.PSIS	LPSI

Define ASIS Target Radius for Hip Joint Center Offset

ASIS Target Radius 0.0040

Select Tracking Targets (Ctrl-Left Mouse Click to Multiselect)

☒ Use Calibration Targets for Tracking

Close Tab Guess Properties Apply Build Model

B. Update Thigh Definition

The LEFT_HIP and RIGHT_HIP landmarks are created from the pelvis, so do not modify these.

In the **Distal Joint and Radius** section, specify the lateral and medial epicondyle knee targets.

In the Tracking Targets section, click on the tracking targets.

Note: When selecting tracking targets, you must click in the check box. Clicking on the target name will deselect all tracking targets.

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File Edit View Model Force Settings CMO Library Pipeline Hel

Workspace Signals and Events Models Reports CalTes

Segments Landmarks Muscles Subject Data / Metrics

Segments Segment Properties IK Constraints Pelvis Left Thigh

Define Proximal Joint and Radius

Lateral Joint Center Medial

None LEFT_HIP None

Radius (Meters) 0.5*DISTANCE(RIGHT_HIP,LEFT_HIP)

Define Distal Joint and Radius

Lateral Joint Center Medial

LLK None LMK

Radius (Meters) 0.0586137

Extra Target to Define Orientation (if needed)

Location None

Select Tracking Targets (Ctrl-Left Mouse Click to Multiselect)

☐ Use Calibration Targets for Tracking

☐ RIGHT_HIP	☐ LTH_TRACK2	☐ LPT_TRACK1	☐ RTH_TF
☒ LEFT_HIP	☐ LTH_TRACK3	☐ LPT_TRACK2	☐ RSK_TF
☐ LKJC	☐ LSK_TRACK1	☐ LPT_TRACK3	☐ RSK_TF
☐ RKJC	☐ LSK_TRACK2	☐ RTH_TRACK1	☐ RSK_TF
☐ LTH_TRACK1	☐ LSK_TRACK3	☐ RTH_TRACK2	☐ RPT_TF

Depth (Meters):

Close Tab Guess Properties Apply Build Model

C. Update Shank Definition

The L/RKJC is a landmark created from the thigh, so do not modify this.

In the **Distal Joint and Radius** section, specify the lateral and medial malleoli ankle targets.

In the Tracking Targets section, click on the tracking targets.

Note: When selecting tracking targets, you must click in the check box. Clicking on the target name will deselect all tracking targets.

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File Edit View Model Force Settings CMO Library Pipeline Hel

Workspace Signals and Events Models Reports CalTes

Segments Landmarks Muscles Subject Data / Metrics

Segments Segment Properties IK Constraints Pelvis Left Shank

Define Proximal Joint and Radius

Lateral Joint Center Medial

None LKJC None

Radius (Meters) LTH_DISTAL_RADIUS

Define Distal Joint and Radius

Lateral Joint Center Medial

LLA None LMA

Radius (Meters) 0.0454794

Extra Target to Define Orientation (if needed)

Location None

Select Tracking Targets (Ctrl-Left Mouse Click to Multiselect)

☐ Use Calibration Targets for Tracking

☐ RIGHT_HIP	☐ LTH_TRACK2	☐ LPT_TRACK1	☐ RTH_TI
☐ LEFT_HIP	☐ LTH_TRACK3	☐ LPT_TRACK2	☐ RSK_TF
☐ LKJC	☐ LSK_TRACK1	☐ LPT_TRACK3	☐ RSK_TF
☐ RKJC	☐ LSK_TRACK2	☐ RTH_TRACK1	☐ RSK_TF
☐ LTH_TRACK1	☐ LSK_TRACK3	☐ RTH_TRACK2	☐ RPT_TF

Depth (Meters):

Close Tab Guess Properties Apply Build Model

Note: The L/RPT, Femur, Tibia and Patella segments should not be modified.

Update Model Metrics

1. Update the necessary model metrics. In the Models tab, under the Subject Data/Metrics button, in the Subject Data tab, there is a list of model metrics.

To update each segment, double click on the desired segment name.

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Workspace Signals and Events Models Reports CalTes

Segments Landmarks Muscles Subject Data / Metrics

Subject Data

Name	Editable	Value	Express
Mass	YES	100	100
Height	YES	1	1
Gravity	YES	9.81	9.81
Segment_to_COFP_Distance	YES	0.2	0.2
Joint_Radius_Ratio	YES	1.1	1.1
LTH_TRACKING_TARGET...	YES	LANDMA...	'LANDM
LTH_TRACKING_TARGET...	YES	LEFT_HIP...	'LEFT_F
LSK_TRACKING_TARGET...	YES	TARGET+...	'TARGE
LSK_TRACKING_TARGET...	YES	LHF+LLA+...	'LHF+LL
RTH_TRACKING_TARGET...	YES	LANDMA...	'LANDM
RTH_TRACKING_TARGET...	YES	RIGHT_HI...	'RIGHT_
RSK_TRACKING_TARGET...	YES	TARGET+...	'TARGE
RSK_TRACKING_TARGET...	YES	RHF+RLA...	'RHF+R
THIGH_SCALE	YES	0.968744	((LTH_
ASIS_Distance	YES	0.247693	ASIS_Di
Target_Radius_ASIS	YES	0.004	0.0040
RPV_Segment_Depth	YES	0.118549	0.11854
LTH_Proximal_Radius	YES	0.0891695	0.5*DIS
LSK_Proximal_Radius	YES	0.0586137	LTH_DI
LeftFemur_Distal_Radius	YES	0.01	0.01
LeftFemur_Proximal_Radius	YES	0.01	0.01
LeftTibia_Distal_Radius	YES	0.01	0.01
LeftTibia_Proximal_Radius	YES	0.01	0.01

Add New Item Modify Selected Item Delete Selected Item Build Model

A. Update LTH_TRACKING_TARGET_TYPES

This list should be identical to the tracking list selected in the dialog

The default is shown below, but it should reflect the tracking list you selected for your marker set

'LANDMARK+TARGET+TARGET+TARGET+TARGET+TARGET+TARGET

Click "OK"

Note: The LEFT_HIP landmark and LLK, LMK, LTH1, LTH2, LTH3, LTH4 targets are used to track the thigh. Since there is one landmark, and six targets, the list should be LANDMARK + TARGET (listed six times). Landmark should always be listed first.



Enter New Value for LTH_TRACKING_TARGET_TYPES

Name

LTH_TRACKING_TARGET_TYPES

Value or Expression

"LANDMARK+TARGET+TARGET+TARGET+TARGET+TARGET+TARGET

OK Cancel

B. Update LTH_TRACKING_TARGET_LIST

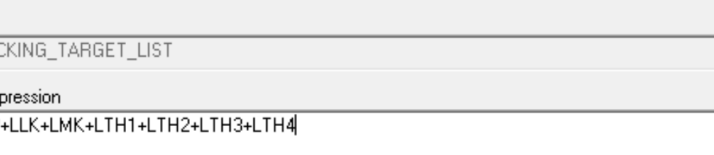
This list should be identical to the tracking list selected in the dialog

The default is shown below, but it should reflect the tracking list you selected for your marker set

'LEFT_HIP+LLK+LMK+LTH1+LTH2+LTH3+LTH4

Click "OK"

Note: The single quote at the start of the line is important, this tells Visual3D the value is a string.



Enter New Value for LTH_TRACKING_TARGET_LIST

Name

LTH_TRACKING_TARGET_LIST

Value or Expression

"LEFT_HIP+LLK+LMK+LTH1+LTH2+LTH3+LTH4"

OK Cancel

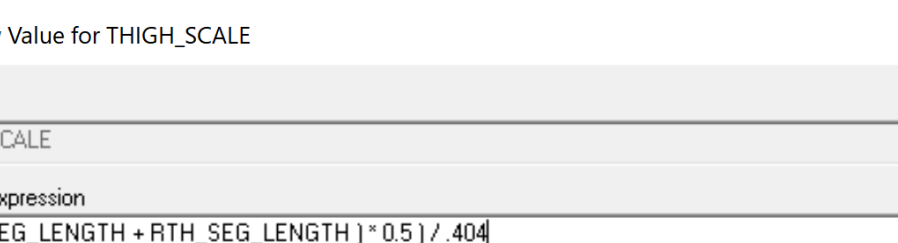
C. Update tracking list for right thigh and left/right shank segments

D. Update THIGH_SCALE (if necessary)

This value will update automatically for every subject - but if you only have targets on ONE leg, you should remove the SEG_LENGTH for the segment you are not using.

So if only using
left side targets,
specify this value
as (
LTH_SEG_LENGTH
* 0.5) / .404

Note: You do not need quotes or single quotes here



Enter New Value for THIGH_SCALE

Name

THIGH_SCALE

Value or Expression

$$([LTH_SEG_LENGTH + RTH_SEG_LENGTH] * 0.5) / .404$$

OK Cancel

Save Updated Model Template

6. Save Updated Model Template

Model→Save Model Template

Visual3D

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