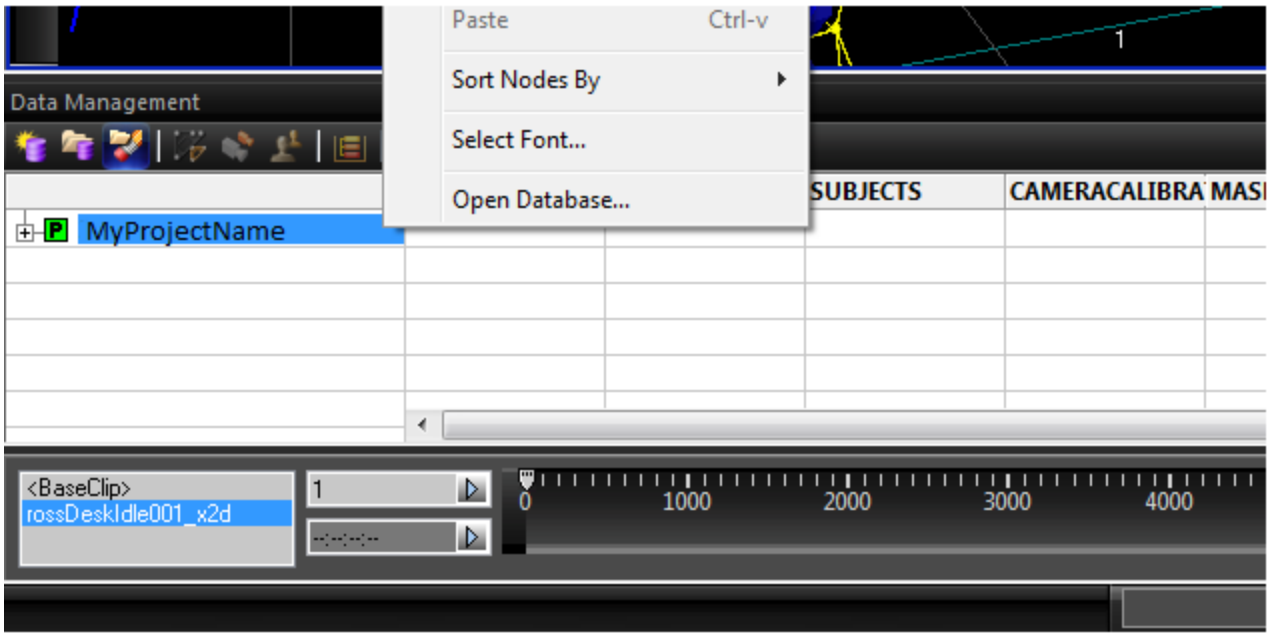
How to do basic clean up and solving in Vicon Blade 2.0

Open the database that contains your project, capture day, etc. Vicon > Data Management >Right Click Open Database (you are looking for an .enf file)

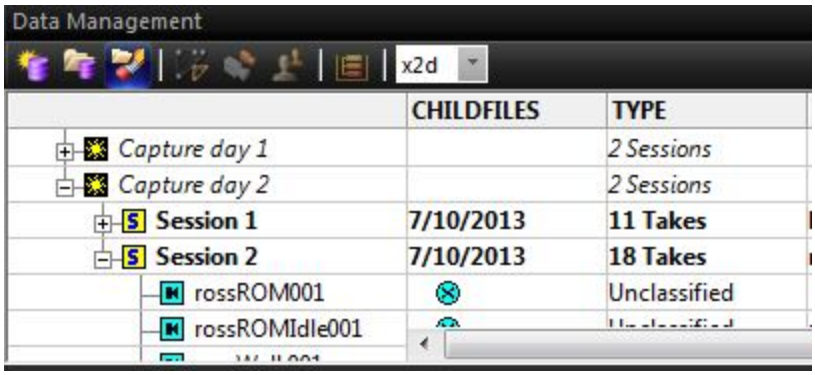


Hit the plus sign to open your project, capture day, session and see your takes.

.xcp = calibration file

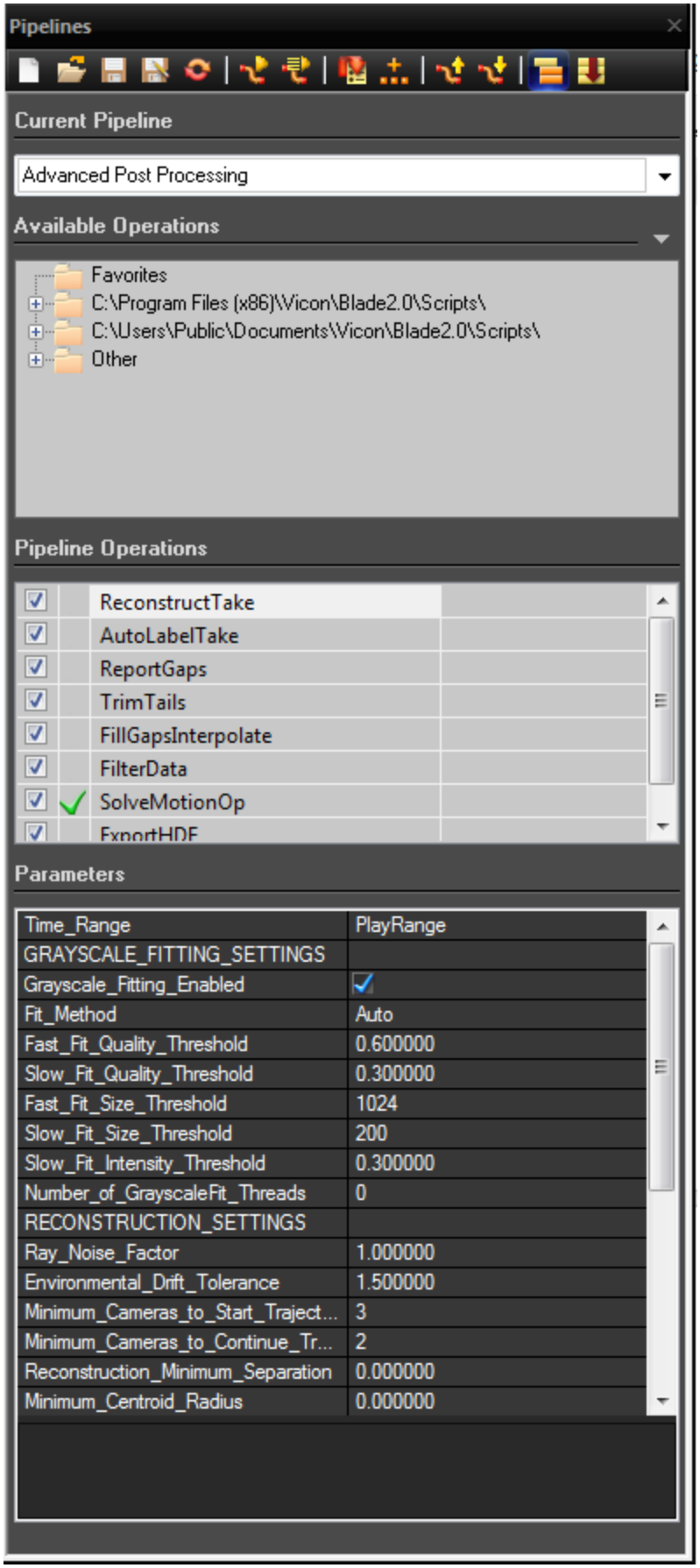
.vsk = skeleton

Double click the blue circle with an X in it to load in the take. You should see the cameras and a skeleton at 0,0,0.



If you open the Character Management Editor you should see your character labeling setup marked calibrated and the solving setup present

Under the Editors tab open the Pipelines menu. Select Advanced Post Processing from the first drop down. Tear the menu out of the Blade to see it better.


Pipelines
Current Pipeline
Advanced Post Processing
Available Operations
Favorites
C:\Program Files (x86)\Vicon\Blade2.0\Scripts\
C:\Users\Public\Documents\Vicon\Blade2.0\Scripts\
Other
Pipeline Operations
ReconstructTake
AutoLabelTake
ReportGaps
TrimTails
FillGapsInterpolate
FilterData
SolveMotionOp
ExportHDF
Parameters
Time_Range
PlayRange
GRAYSCALE_FITTING_SETTINGS
Grayscale_Fitting_Enabled
Fit_Method
Auto
Fast_Fit_Quality_Threshold
0.600000
Slow_Fit_Quality_Threshold
0.300000
Fast_Fit_Size_Threshold
1024
Slow_Fit_Size_Threshold
200
Slow_Fit_Intensity_Threshold
0.300000
Number_of_GrayscaleFit_Threads
0
RECONSTRUCTION_SETTINGS
Ray_Noise_Factor
1.000000
Environmental_Drift_Tolerance
1.500000
Minimum_Cameras_to_Start_Traject...
3
Minimum_Cameras_to_Continue_Tr...
2
Reconstruction_Minimum_Separation
0.000000
Minimum_Centroid_Radius
0.000000

Single click Reconstruct take under pipeline operations, the parameters will appear below. Most of the parameters should be left alone unless you know what you are doing or something has gone horribly wrong. Grayscale_fitting_enabled should be checked. Double click Reconstruct Take under pipeline. This will reconstruct the 2D data back into the 3D marker locations

Single click Auto Label Take (right under Reconstruct Take). Make sure Solve_Labeling_Skeleton is CHECKED***IMPORTANT*** you took the time to marker up your actor correctly, enjoy the auto label! Double click Auto Label Take, this will give you the yellow connect the dots as well as your labeling skeleton.

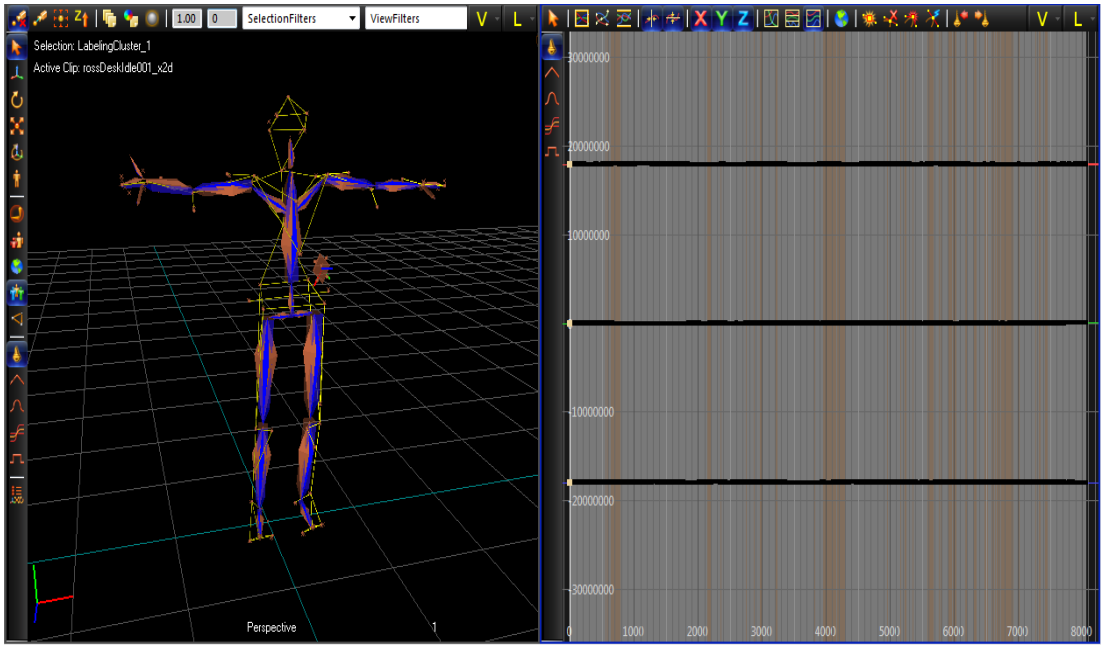
Next find Trim Tails in Pipeline Operations and double click. This will smooth out the start and ends of gaps in data, making them easier to fill later.

Now find Solve Motion Op near the bottom of Pipeline Operations. Double click and the skeleton that was at 0,0,0 will attach to the markers. You are now done with the Pipelines window

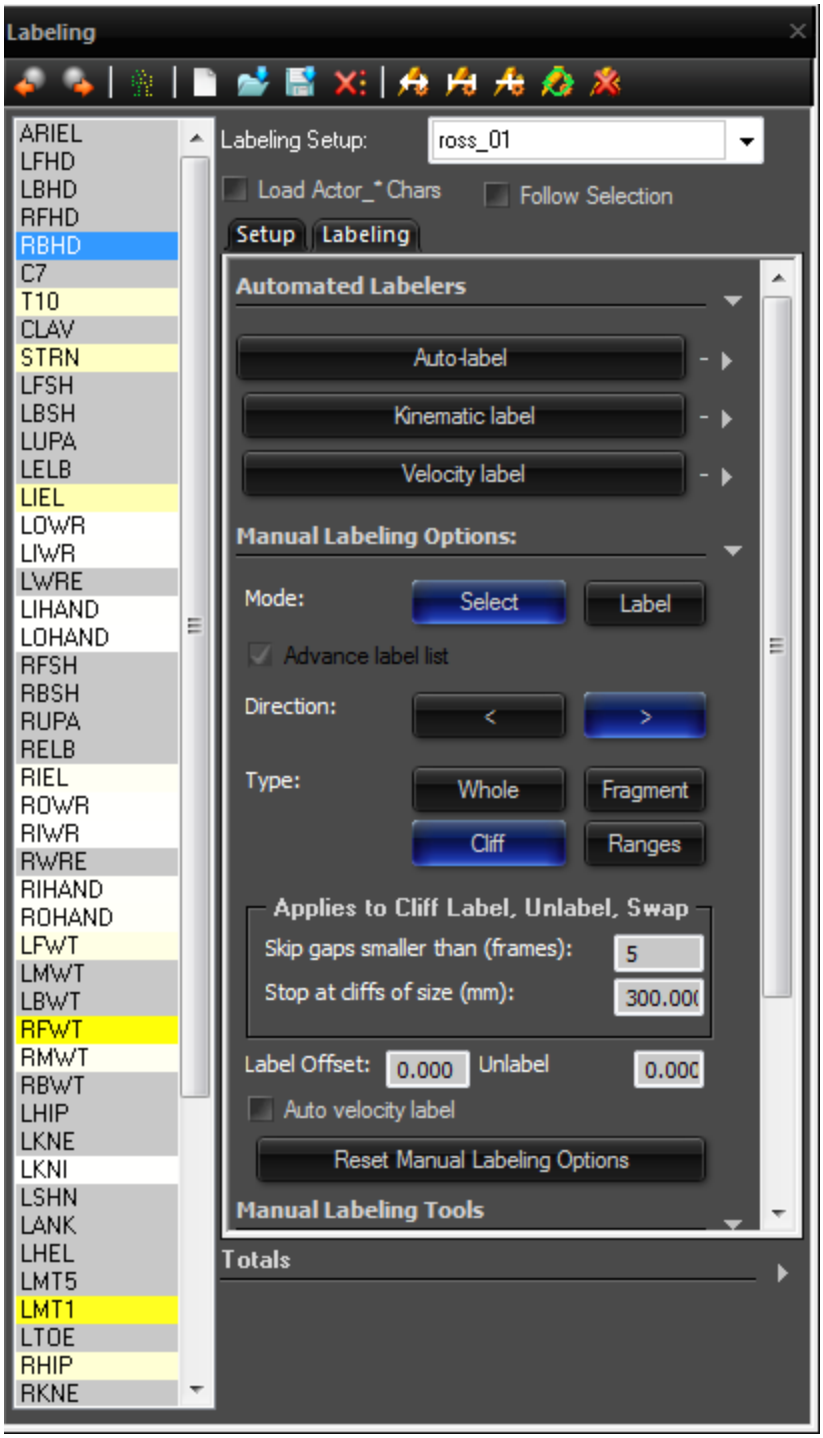
On to fixing maker swapping and occlusion

Side Note: Markers on the right are green, makers on left and middle are yellow.

The two most common issues are marker swapping (ie. the shoulder marker becomes the elbow marker or something.) or occlusion (ie the marker disappears for a duration). To fix occlusion you will use the marker editing editor and for marker swapping you will use the labeling editor both found in the post processing tab in the tracking group. As well in the second panel next to the viewport click on the V dropdown and select graph. This is the F-curve graph, just like the graph editor in Maya. This where you can select individual frames.



It is important to do one at a time and decide if you are moving from left to right or right to left. You have the option to do either, left to right makes more sense as thats how the timeline works, but just stay consistent otherwise you will be doing and undoing your work.



(The labels on the left of the menu will all appear red if you have not done the Auto Label Take operation, and will appear red later when that marker has disappeared from the data)

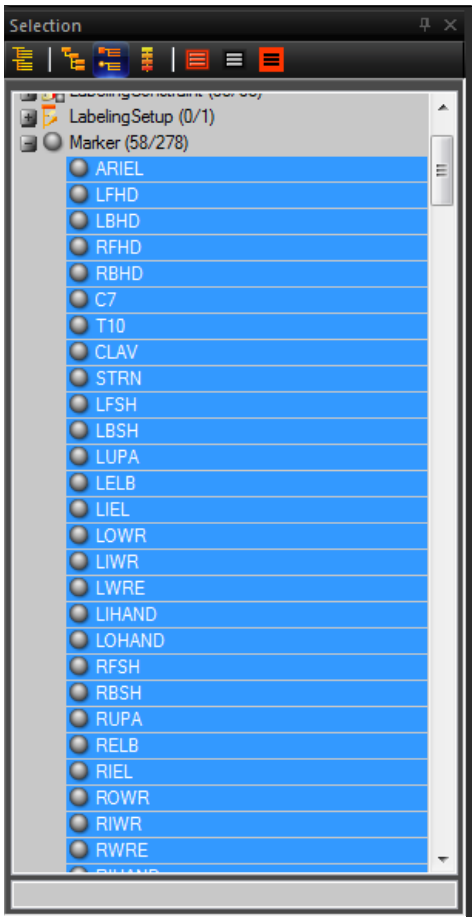
When labeling goes wrong you will notice do to the crossing yellow lines between markers. This is the importance of familiarizing yourself with maker names and locations. Once you do it a few times you'll get it down. If not check the Vicon Marker Reference images.
Markers that are not labeled in a frame will be highlighted RED in the labeling editor.

A reason you may want to start by fixing labeling before occlusion gaps is that filling gaps will need to know the location of markers near the one you are trying to fill.

In the labeling editor make sure select mode is blue, not label. For direction make sure only the RIGHT arrow is blue, this will only solve forward (as before it doesn't really matter as long as its consistent).

Scrub through the timeline and find a mislabeled marker.
Alt-Left Click it to select it, in the HUD in the top left it will tell you what name it currently thinks it is.

Side Note: if you have trouble selecting a marker open the Selection menu under Editors tab. Unlabeled markers will just have numbers, click through until the your marker is selected.



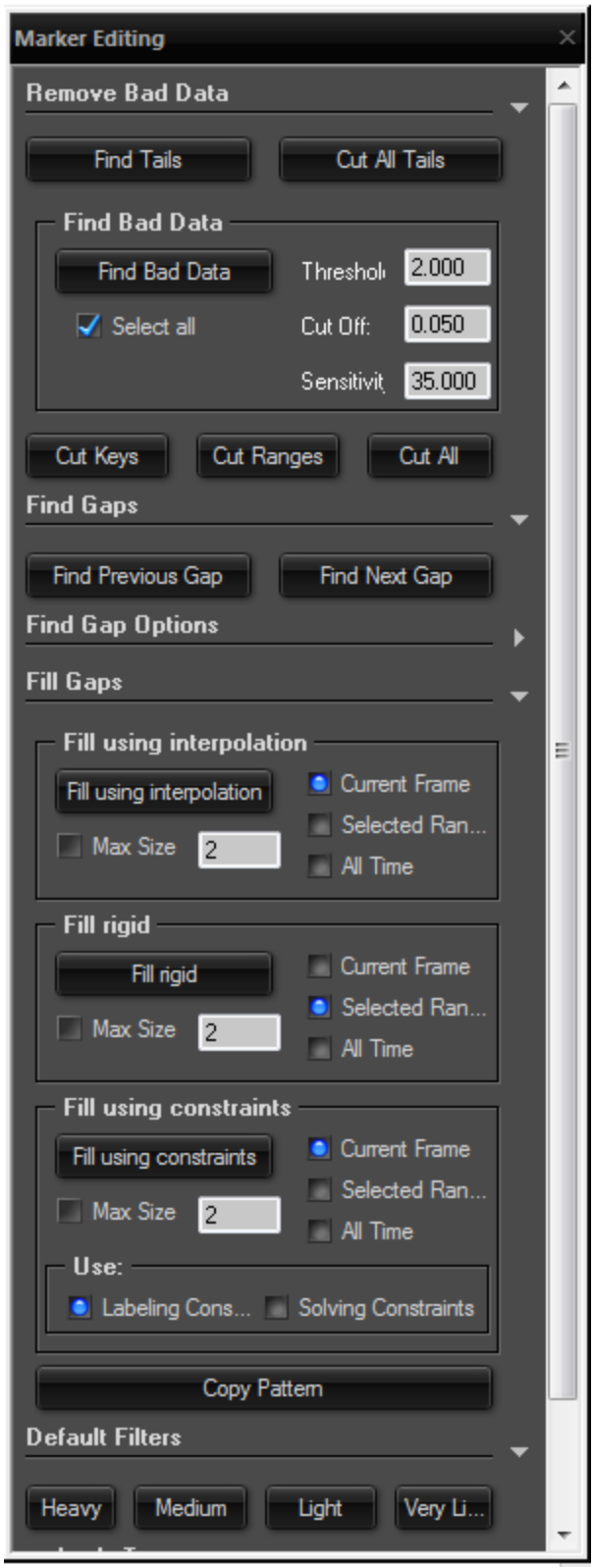
Find the earliest frame with it miss labeled. With it selected simply click the label you want it to have from the list in the Labeling Editor.
This should pop the yellow lines around into the correct place.

Before continuing click Solve Motion in the post processing tab in the Animation section. This will solve the motion forward (or whichever direction you set) fixing the label as best it can.

If you have Cliff selected under type it will do it until there is a long period of time where it can't figure it out. You may have to select Ranges to fix gaps it can't figure out. I'll go over selecting Ranges in a little. You don't want to label and solve for the whole timeline in case it messes up worse

If you spot two or more markers mislabeled at the same frame feel free to relabel and solve them all at once to save time. And again start at one end and go in one direction, the same goes for how you move through markers. start at the head or the feet and fix as much as you can going up or down.

Rigid filling is the process of putting markers that have disappeared back in. This uses various interpolation methods to take the the location of a marker before and after it disappears, the position of neighboring markers before and after, and approximates the location of the missing marker.



To rigid fill find the frame before the marker disappears. Alt-Left Click to select it.

In the graph panel you will see a gap in its curve (black dots are frames). Alt-Left Click and drag from the frame before the gap to the first frame after the gap.

Find at least 2 but preferably 3 markers near by and Alt+Ctrl Left Click to add them to the selection

In the Marker Editing Editor under Fill Rigid check off Selected Ranges and click Fill Rigid.

Click Solve Motion.

The marker will no longer disappear for that gap.
Repeat as needed.

Rigid fills will also overwrite bad tracker data. If a marker is sliding across the skeleton and swapping somewhere, go above Fill Gaps to Remove Bad Data. Select the range of data and click Cut Ranges then apply a rigid fill to the gap that was cut.

Knowing when you are finished is a matter of what you are using the data for. The benefit of Vicon and its skeleton is that it can be brought directly into Motion Builder or Maya as it matches the characterization steps. However, you may need to use the Raw Marker Data in Motion Builder if your skeleton cannot be solved to satisfaction. What this all means is that if you plan to use HIK or the skeleton in MoBu, as long as there are minimal pops in the solving skeleton, then you are good to go and it may not be necessary to fill every single marker. The better job you do here the less popping and stuttering you will have to animate over later.