Vicon Blade Users Guide – V10
by Deborah R. Fowler

WORK IN PROGRESS: This document is available on-line at **facultypages.scad.edu/~dfowler**

Using Vicon Blade, Motion Builder, Maya – Quick Start
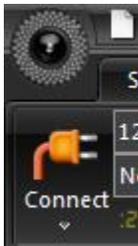
VICON BLADE:

First turn on the equipment – **two red switches** on the right under the desk. **It is important you turn on both as one controls the fans to cool the equipment.**

Log on as **MONT-MOCAP\mocap** (or use the .\ mocap)
password: mocap

Start Vicon Blade 1.7 (icon looks like red gear on desktop, or find it under programs)
Select a profile (C:\Users\Public\Documents\Vicon\Blade1.7\Default.ini is fine)

Connect the cameras

At the top left side – make sure you hit **Connect –** you will see the cameras respond by lighting up bright red leds, with a blue and a green light. The blue light indicates that cameras are connected. Once we finish the wand wave the green lights will stop blinking and be on solid.
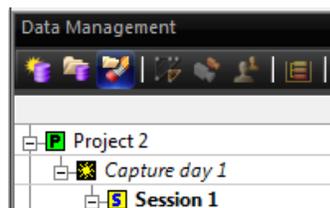
The gearbox icon above the plug icon will **turn red when connected.**

CREATE A NEW DATABASE

First manually create a folder in the D drive (outside of Vicon Blade where you will put your data). Back in Vicon Blade you will create a new database.This is where your capture data will be stored.

How? Under the main button, top left, open the menu. Click on **Data Management**, at the bottom of the pull down menu. It toggles the Data Management pane,

- click **new** database (purple barrel over the sun icon). It brings up a dialogue box.
- Set the **location** (your folder name on the D drive for example), **name and template** (default template, Blade Animation Template.eni, is fine), and click create, then open.
- Right click anywhere in the database by selecting *new* at the top and create
  project / capture day / session.

[This location will be where you read your .enf from later if you return to do postprocessing after quitting blade. ie.) Fowler/ClassOct6 to open read file ClassOct6.enf in that directory.

Now you are ready to begin calibration.

To prepare for capture, first calibrate the cameras, then capture the movement.

TO CALIBRATE THE CAMERAS

If you haven't already connected the cameras, under the **Studio Activities** tab, click the connect button (plug in icon). Main icon becomes red (left hand corner).

> **Note about mouse controls: When moving in the Vicon Blade window, RMB forward and backward is an in and out motion with the mouse. Hold both mouse keys down to move around.**

Why calibrate the cameras each capture day?

Running the calibration ensures that Blade knows the precise location of the cameras to construct 3D points in space from the 2D camera data.

Calibration should be performed before your capture. This will ensure a clean capture. You may save settings for another session, however keep in mind that changes from movement of any kind (trains, people walking on the floor above, etc.) can affect the cameras, thus it is a good idea to calibrate that capture session. Running the calibration ensures that blade knows the precise location of the cameras.
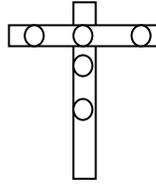
> Click the **Camera Layout** button (under **Studio Activities**) to reconfigure the workspace
> make sure the menu below **Connect** is set to **CIRCLE FIT**.
> NOTE: this will be set to CIRCLE FIT for calibration but RECONSTRUCT for capture.
>
> **The process of calibrating the cameras involves the following:**
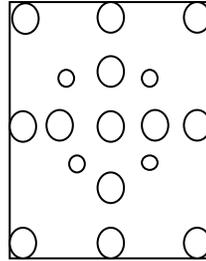> 1. Adjust the cameras settings (stripe display) to get accurate data (full bubble gum button)
>   Make sure **strobe is set to max (1) and threshold .3**
>   Strobe is the red bar, threshold the yellow bar, gain white, circularity green
>   **As of March 1, 2012 we also set gain to 2 and threshold of the two cameras by the back door to .15** (use the single bubble gum button, also double check the locations as the physical locations do not always pertain to the software camera numbers)
> 2. In the calibration pane, use **auto-threshold** first, click it on (start) and off (stop), with no markers in the volume. (*Cleans up* everything, camera views should look clear).
> 3. **As of July 10, 2012** the new Wand is the **Combined Wand** (select the last Combined Wand entry in the dropdown menu).
> 4. Setting the axis with the Wand (select the last **Combined Wand** entry in the menu)
> 5. Calibrate the floor (this helps with feet capture data)
> 6. [Optional] **Save Calibration** (just in case you want to reload it later on – locations only)

Axis calibration

This edge parallel to front edge of volume (towards work station)

Floor calibration

Distribute markers on the edge of the volume and forming a vertical and horizontal line – you may also add extra markers to form a circle. See diagram above.

(In rare cases you can adjust camera settings individually, however since our equipment is monitored closely there is no need – the steps are described below).

THE FOLLOWING SECTION IS TO BE USED ONLY THIS IF REQUIRED – Generally unnecessary

Adjust Individual Camera Settings

Hit **reset calibration**. Hit connect if the menus are grayed out. If there is problem you can also select reboot for the cameras.

Put down markers on the floor (about 5-9 scattered around). Step through and adjust all cameras individually. Set the drop down menu parameter to "**all data**" (grayscale mode) so that markers are seen. You will set it back to "**automatic**" after you adjust all the cameras.

Click the icon that looks like a bar graph (show settings). There are 4 settings pictured as a bar graph to the right of each camera. These correspond to strobe, threshold, gain, circularity.
The last two, gain and circularity are left alone, gain should be at 1 and circularity .5.
Threshold (how bright does it need to be) Lower threshold values will take things that are not so bright.

1. Turn strobe up for all.
2. Adjust threshold for each camera individually. (generally values around .35 seem to work well, but check the visual marker in the cross hairs. Lowering the threshold will take in more things that are not so bright).

How do you adjust the strobe for all cameras?
Select all cameras and set strobe (by dragging) to the maximum height (to 1).

How do you adjust the threshold of each camera?
Use the icons to step through one camera at a time, and be sure to select the button that says effects one camera, not all.
Zoom in (by using the left and right mouse buttons to navigate, not alt or shift and not the middle mouse – this is not maya) on a particular marker that is in clear view of the camera (don't worry about twinkling markers outside of where the camera is aimed). Note that the 3-D data is constructed from all the 2-D camera data so not all cameras will necessarily see all markers.

What you are trying to achieve is to have inside the circular "bullseye" not all white, but levels of grey, filling the space.

Set it back to "**automatic**" after you have adjusted all the cameras.

Wand Wave

Hit **start wand wave**. Walk around the inside of the capture volume waving the wand up and down and in circular motions. The cameras should all reach a value of > 4000 to 5000 in the status report window. The green lights on the cameras will indicate when the camera has enough data, or you can glance over at the projection of the values so far. Once these have reached over 4000 to 5000, hit **stop wand wave**. Note the values of projError are low – this is good. If you want very accurate data, wand wave up to 10000. Experience has show the more careful the calibration, the more accurate the data. **Expect an error with the new wand around .15.**

Set Volume Origin and Axis and optionally floor

Now place the wand with the handle pointed to the back of the room. This will define the orientation of the space. Select **Combined Wand (last entry in the drop down menu).** This should be placed parallel to the front line of the volume, facing us and set level so the bubbles are level. It should also be square with the volume with the markers defining x and z.

Hit Start on the Set Origin, then Hit Stop

Check that the camera icons are now properly oriented to the plane.

In addition, you may now calibrate the floor. Set down markers as pictured in the diagram in the preceding section and Hit floor calibration Start and Stop in the same way you did for the axis. Remember to remove the markers after the floor calibration is complete.

If you wish **[HIGHLY RECOMMENDED], SAVE your calibration** incase you need to re-load it or re-use it.

Your calibration is complete. (If you want to see the data, you can hit reconstruct).

IMPORTANT NOTE: the calibration file **only saves the location** of the cameras. If you re-load the calibration you must **reset the Strobe to 1, Threshold to .3 (.15 for the two cameras by the door), and Gain to 2** before proceeding.

TO CAPTURE A SESSION – start with ROM (Range of Motion)

Capturing is the process of recording all 2D camera data. When capturing, only 2D camera data is recorded, although you see 3D data in your workspace. Once saved, the data can be processed offline, providing the 3D "reconstructions". Note we use a t-pose because autolabel looks for this.In addition, character models are defined this way so is easy to append skeletons to models.
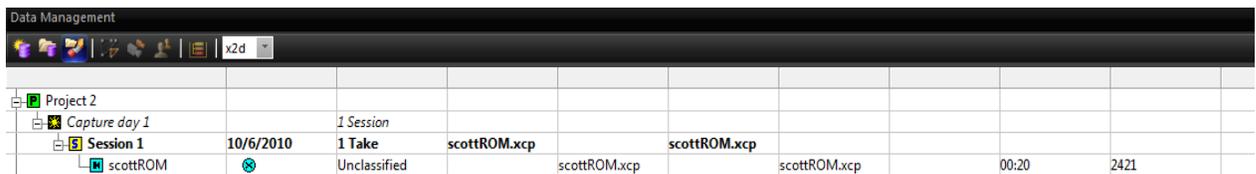
A correct T-pose has feet straight forward, arms out straight, not above or below the shoulders.

If you haven't set up your database, make sure you do; go to the database window, right click three times to set up project/capture/name:

These are: new project, new capture day, new session
Once we are ready to capture, it will be under this directory as a new take – label it appropriately

In the diagram, we have labeled the first take scottROM (range of motion)

Data Management								
🔧🔧🔧 🔧🔧🔧 🔧 | ▤ | x2d ▾								
⊟ P Project 2								
⊟ ✖ Capture day 1		1 Session						
⊟ S Session 1	10/6/2010	1 Take	**scottROM.xcp**		**scottROM.xcp**			
└ R scottROM	⊗	Unclassified		scottROM.xcp		scottROM.xcp	00:20	2421

Before we start, set up your actor with markers …
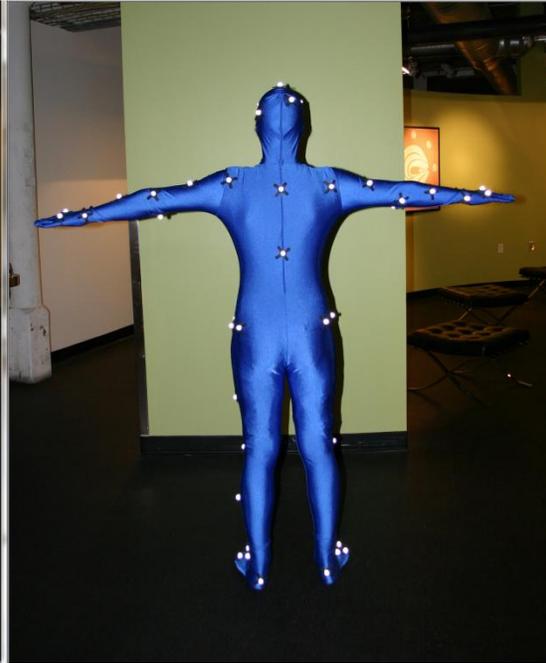
Marker placement

We are using a passive optical system; markers are made of tiny glass beads. 3M retro-reflective tape would work too. Space defined by inside lines of tape, using 12 4M Pixel cameras. Marker positions match the vicon skeleton template.

53 markers total
- 10 on feet (5 each, 3 toes, 1 ankle, 1 behind)
  On the toes, make one in the front center of the foot, one on the Achilles heel, one just above the ankle bone
- 16 on arms (4 each hand, 2 each elbow, 1 each upper/lower)
  On the hands, make the flat top two and two on the sides of the wrists. On the elbow close to the bone
- 2 on chest
- 2 on back
- 6 on hips (3 each side, one front/back/side – pelvic bone)
- 5 on head (2 front, 2 back, 1 top) Be careful with these on the new hoods – make sure they are not too near the top, only one should define the top
- 4 on knees (2 each side, offset slightly so not knocked off)
  these are close to the knee caps
- 2 on lower legs – one each leg
- 2 on upper legs – one each leg (non-symmetric, quite different)
- 4 on shoulders (2 each, front/back)

Don't be afraid to ask your actor to bend so you can place the markers more accurately.

Remember – slightly offset the one on the thigh and mid calf so the software can tell right/left

two on the top of hand
two on the wrists

One on the toe
Two on the widest part of the foot
One above the ankle bone
One on the heel

Hint: If the Velcro markers are not sticking properly, wiggle them a little on the material. there are exactly 53 markers in both marker box sets.

Why? **The skeleton in the software is defined in this way so that it understands this configuration and corresponds to this set up.**

CAPTURE

Under the **Studio Activities** tab, click on the **Actor Layout** button to reconfigure the Blade workspace. In the **Capture** pane, enter a take name appropriate for a character range of motions (ROM). ie. scottROM (exercising all rotation extremes for every joint).

We capture by starting in T-pose (the default position) and then do a range of motion. This includes rotating head, swinging arms, hands, legs, wiggling feet, bending, kneeling. This is needed to create an accurate skeleton for vsk. In other words, it defines the constraints of motion for the skeleton. ROM – the extremes.

Go ahead and capture range of motion. End with T-pose. *Ending in a T-pose makes it easy to join movement together.*

When you run Actor Calibration (described next), under character management, save character, it will save a vsk file. The **vsk** is the skeleton without the motion. The **x2d** is the raw capture data. The **hdf** file is the captured motion after it has been processed, and finally the **c3d** file is the marker data that gets read into motion builder. Calibrate actor aligns the data into the skeleton.

A note about motion builder. The skeleton in blade is for visualization of the data captured and to assure everything is working correctly. When we write out the **c3d file it transfers marker data only, not skeleton data,** and thus this gets re-defined in motion builder. However, if we set up motion builder to stream the data, the skeleton is understood.

CHARACTER SETUP

Click Actor Layout

The previous section on "To Capture a Session" and this section on "Character Setup" really should be covered simultaneously. Usually, we capture a session including a range of motion. **After we capture the range of motion we calibrate the actor.**

Under the **Studio Activities** tab, click on the **Actor Layout** button to reconfigure the Blade workspace. In the Capture pane, enter a take name appropriate for a character Range of Motions. ie. Deborah_ROM (exercising all rotation extremes for every joint). Capture this.

In the data management pane, double click on the round blue icon to load the raw capture data into blade. Now run the following (note, all these are under the **StudioActivities** label under **Process ROM** icon except step 2, which is found under the **pipeline icon under the Editors tab. (When in doubt look at the Editors – pipelines). They are also listed under the Actor Calibration pipeline.**
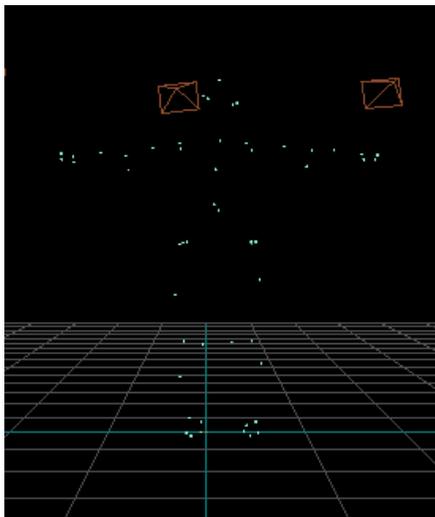
Under the Calibrate Actor Pipeline:

1. **ReconstructROM -** from the process rom icon (or 1 Actor Calibration pipeline)
   (Readout line at the bottom shows progress **–** takes a few minutes)
2. **AutoVST_MakeVST -** In the Editors tab, click the Pipelines button, go to 1 Actor Calibration
   check the parameters displayed
   THIS IS WHERE YOU MUST CHANGE actorName and set select bone to MotionBuilder
   Then "run selected" from the drop down menu. You will see the vsk (skeleton) appear at the origin, not on your marker points. That is normal.
3. **TPose LabelROM** - from the process rom icon (or pipeline), select TPose Label.
   Now you will see a connect the dots being.
4. **AutoLabelROM** – from the process rom icon (or pipeline). The bone skeleton and dot being are now aligned, but if you scrub, you will not see them move together. They have not been calibrated yet. Only connect dot guy moves.
5. **Calibrate Actor** – alignment - calibrates skeleton to motion. This is an important step. Name your character. When you save the data it will have the calibration saved.

6. **Solve Motion (under PostProcessing**) – now you can save the .hdf file

VST stands for vicon skeleton template, and defines where markers go on the body. VSK is the resulting calibrated vicon skeleton.
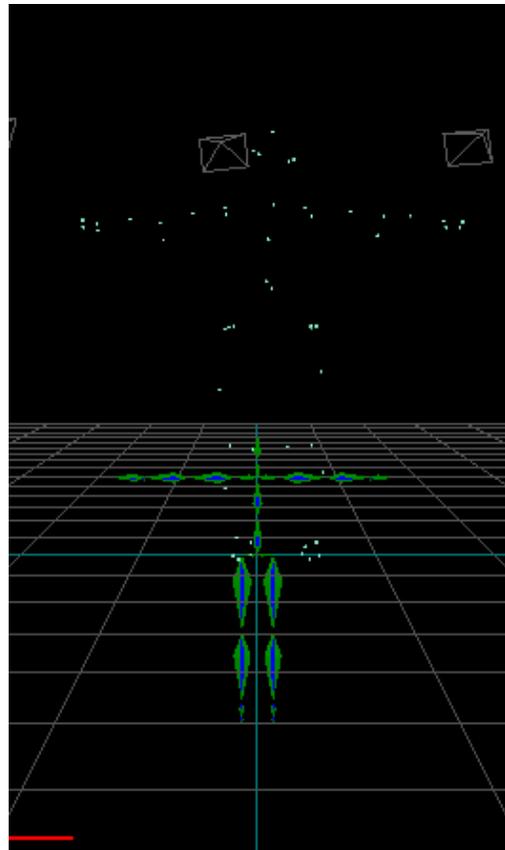
What does this mean? The markers are set up in a way to define a skeleton and label it in a pre-defined way. This is what AutoVST functionality means.

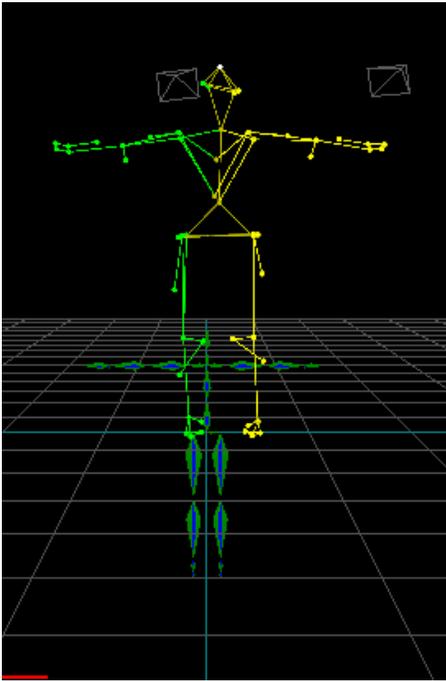Let's look at each of these steps visually:

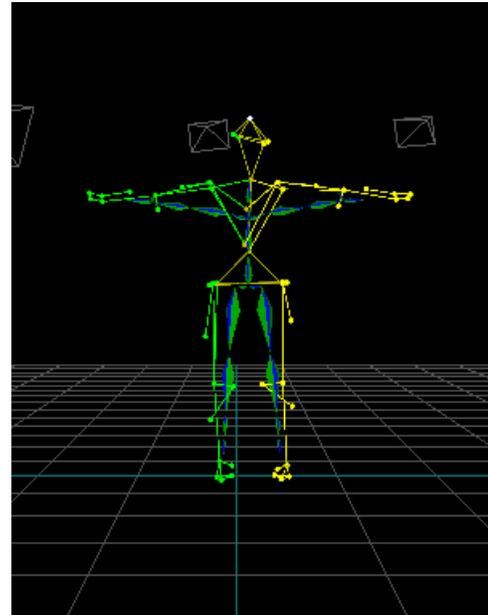1. **ReconstructROM** – takes the 2-D data and converts it to 3-D marker man

2. **AutoVST_MakeVST** makes skeleton THIS IS WHERE YOU MUST SET NAME AND BONES (MOTION BUILDER)
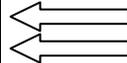
3. TPoseLabelROM – makes connect-the-dot man

4. AutoLabelROM – labels, but still only connect-the-dot man moves

5. Calibrate Actor – aligns the connect-the-dot man with the skeleton so moves together. The head icon in the character management pane turns from red to green when this is done.

6. Solve Motion – now save the .hdf file (solves the skeleton to the marker cloud)

This is what the parameters pane displays when you click on step 2, make sure it is defined after

change actorName

change to Motion Builder

CAPTURE A TAKE

The take name appears in red ie. scottROM. This is normal. This means that the data has been recorded and it is expecting you to rename it before capturing your next take.
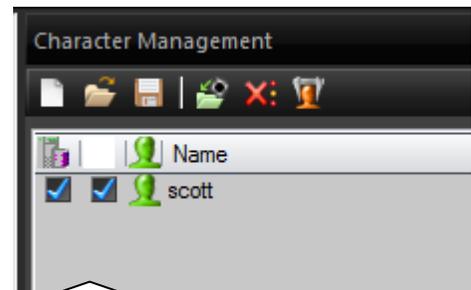
After the actor has been calibrated you are ready to continue capturing.

1. Connect the cameras (double click on the plug icon) (on reconstruct – to see data)
2. Rename the take (type in a label where is the previous label is red (this is normal – it means it will not let you overwrite this take). After you have typed in an appropriate name, hit enter.

Now you are ready to capture your next take.

PROCESSING THE CAPTURE

NOTE: **This assumes RecontructROM, AutoVST_MakeVST, TPoseLabelROM, AutoLabelROM, CalibrateActor has been done for the character.**

 In Summary:
1. Capture Data (including having done ROM and Actor Calibration)
2. Open Raw Data (double click the blue icon)
3. Reconstruct
4. Autolabel
5. Solve Motion
6. Export (hdf file)
7. PostProcessing (filling gaps, problems, etc. – can use the CleanItUp script)

Post processing refers to working with offline data. Once camera data is captured, it can be processed to provide 3D reconstructions, character labels and skeletal animation. In post, it is also possible to clean 3D data, fill gaps, and smooth out jittery motion.

Let's talk about the raw capture data (.x2d file):

In the x2d file we have the raw camera data. This file is saved automatically when we hit stop on our capture. We need to postprocess it to create a file that we can pull into an application such as Motion Builder and use this captured data. To do this, we go thru the pipeline steps as described below after loading the raw data.

Double click the blue circle. This brings up the data and disconnects the cameras. We are now ready to post process. You may use the pipeline menu (Basic Postprocessing) or find the operations in the menus.

In the **Basic Postprocessing** **Pipeline or in the menus the operations are as follows …**

Click on the Post Processing tab (or Studio Activities). Click the **Reconstruct** button. You will see unlabeled markers in the 3D view. If you hit play or scrub you can see the animation. Clicking **AutoLabel,** gives us the connect-the-dot being, now click the **Solve Motion** button. The skeleton is now solved and appears properly on the character. Once you have finished postprocessing, you will save the .hdf file. This can be brought back into blade.

CLEANING UP THE DATA

You may want to **clean up the data** at this point.

All the clean up tools can be found under the Editors or PostProcessing tabs, or alternatively under the Advanced PostProcessing script on the Actors Layout page.

Scrub through the capture and see if there are problems (ie. red flickering on the labeling when viewing the labeled data – to see the labels, click on Labeling under the Editors tab). You can select the gaps by bringing up a graph (under the Workspace tab) and finding the gaps (occluded markers) in the timeline and selecting (alt to drag and select) the marker and filling. For example, select the marker that goes missing, hit find gap, then select markers around it and select fill. Fill has options of constraints and rigid. Rigid option works when 3 markers are selected. See section on detailed finding and filling gaps.

Alternatively, you can use a script called CleanItUp (located under C:\ProgramFiles(x86)\Vicon\Blade1.7\Scripts\CleanItUp).

To access this, go to the Advanced Post Processing script, click on Available Operations – browse to the location above. Double clicking on CleanItUp will add it to the list, then simply select it and run selected. CleanItUp is a script provided to us by Vicon and does a good job of filling gaps for us. You are welcome to use the script, however please be aware of how to resolve these issues manually.

If you run CleanItUp or do any kind of gap/label adjustment you will need to run Solve Motion after. Also, it's a good idea to save your hdf file at this point. (Note that you can always re-create it from your raw capture data if the need should arise).

Once you are done postprocessing …

Click on **Export** in the file menu to export the file as type **c3d**. It is recommended to export the data to the same location as the capture session. We save as a .c3d (or fbx file) to process this motion in another software application. The .c3d file is marker data (also called the marker cloud) for use with 3D packages (no skeleton animation).

Note all postprocessing can be done elsewhere, where blade is available, if your time is up in the capture room, however you may want to see the results incase you need to re-shoot it.

NOTE: if scripts are missing (right hand side of the screen), make sure under the main icon on the left, click for the pull down menu, select **preferences** and navigate to the C drive. The scripts live in C:\ProgramFiles(x86)\Vicon\Blade1.7\Scripts. Select this and then hit reparse.

USING MOTION BUILDER WITH THE SAVED DATA

You can read in .c3d file (3D marker data for use with 3D packages) into motion builder and export it as fbx into maya.

Please refer to separate documentation for instructions.
As a quick previewing method you can use fbx export instead of c3d. In motion builder – this will bring in the skeleton and can be used as a faster method to preview the data. It is similar to streaming and is described after the section which follows.

EXECUTIVE SUMMARY FOR CAPTURING

- connect the cameras
- create a new database
- click **Camera Layout** (Under Studio Activities tab) (circle fit)
  - Set strobe to max (1)   threshold to .3 (two by door to .15)   gain to 2
  - run autothreshold (start/stop)
  - wand wave (start, wave, stop)
  - set origin (start/stop with triangle)
  - set floor (start/stop with distributed markers)
  - save calibration (just incase – you can re-load calibration, but remember, only the positions are saved, you will have to reset strobe/threshold)
- click **Actor Layout** and capture ROM (reconstruct)
- process ROM (Calibrate Actor Pipeline)
- re-connect and capture other takes

STREAMING DATA INTO MOTION BUILDER

This is a supplementary section and is just for fun!

Changing the Display

To change the display, toggle the input on the projector
to change between screens:

Streaming

The machine name is MONT-REALTIME\stream or you may log in with your own user name.

Streaming data is easier than ever before! Now we are using Blade 1.7 and **Motion Builder 2011**. First, make sure both machines are powered up. To view the different screens on the **projector** you may simply toggle between then by hitting the source input button.

In Blade, click on **Real Time** (under the **Editors** tab) – this will bring up a parameter window. If you are **streaming already captured data you can import the hdf** file of the capture you want to stream and then click on both boxes. The lower one indicates you are streaming offline (already recorded) data.

☐ Server active
☐ Stream Offline Data

Now go to Motion Builder. Under **Devices**, drag the icon "vicon stream" onto the view window. This will bring up a parameter window. Check to see the ip address is set to **10.7.102.231** Now click **generate a new optical model.** Now if you scrub through the animation you will see it is already streaming. **Go back to the beginning in t-pose. (In live streaming be sure to have your actor stand in t-pose when characterizing.)**

We are going to drive the character animation with the captured data character. Go to the **characters** section and expand it, find the **character** icon. Drag this icon to the hips of the character. Go ahead and hit "characterize" and select "biped".

Now select a character to drive. For example Mia. Drag "Mia characterize" which you will find under **Tutorials.** Drag her to the little ball icon in your view window. A dialogue will pop up. Select fbx merge, all takes. If you want the Clipart characters you can select them from the file menu using the option **Merge** (they are in **\\sfdm-appdeploy\AppGet\Files\Clipart**)

Now with Mia selected, click **active** and set her to **Character Input.** She should jump to your marker location. Now when you play the captured data, the capture actor is driving Mia.

In summary:

In Blade
- under Editors, click on RealTime
- set the server active and stream offline data to on (or if live just the above)
- if using live streaming, set the pull down menu to **Solve**

In Motion Builder
- devices – **video stream** – drag to view window
- click **generate a new optical model** (make sure ip address is set to **10.7.102.231**) (note this ip address has only changed once since Spring 2010 – a dedicated ip address has been requested, in the meantime if streaming fails, check the ip address)
- drag **character** onto hips of capture (characterize, biped) (T-POSE)
- drag tutorials character (ie. mia characterized) onto view (fbx merge all takes)
- change tutorial character to be **active** with **Character Input** selected

If you were streaming live capture data, the same process is involved except now, do not click stream offline data. If the streaming is not working, go to the place where you selected generate a new optical model and you will see there is now a parameter to update. Click this to update it.

It is possible to record streaming data by simply pressing the record button.

Trouble shooting with live streaming:

- make sure your cameras are connected
- make sure you have a vsk skeleton loaded for the character (try deleting and reloading in the character management menu)
- make sure live streaming is checked on (under editors)
- make sure you have the solve selected
- make sure you characterize your actor FIRST and that they are in T-POSE

    NOTE: If it gets wacky, try clicking on and off ServerActive – this sometimes resolved the issues, otherwise, start the motion builder portion of it over.

USING FBX files in MOTION BUILDER to preview capture

It is possible to export fbx from blade; then in motion builder you will bring in the skeleton data animation as opposed to marker data. The steps are analogous to the ones above for Motion builder.

- import fbx using Motion File Import in the main menu – results in a skeleton
- characterize by dragging the character icon onto the hips of the capture
- rename this character
- grab one of the pre-made characters from tutorials and drag it to the view window – select fbx merge all takes
- now select this new character, make it **active** with **Character input** selected. The skeleton will drive this character
- under story, **make sure you select the right take**, otherwise the motion will not appear to be working

Note: You can also bring fbx into Maya, however it is highly recommended to import it into motion builder and export it as an fbx for use in Maya (even if you don't change anything). Blade fbx is compatible with Motion Builder, but has been known to have problems if taken directly into Maya.

Once you have the skeleton in Maya you can skin geometry onto it or parent geometry. More details in a document coming soon!

USING PROPS

This technique was tested (Winter Quarter 2011):

To create a rigid prop, it is suggested you use 4 to 5 markers. Assuming the cameras are calibrated:

1. Click on the Actor Layout to configure the workspace
2. Enter an appropriate name, just as you would a normal take
3. Click start/stop – you only need one frame showing all the markers
4. To calibrate your prop: double click on the blue dot as you would any other capture data
   - **reconstructRom** (the processROM button in **studio activities**)
   - go to a frame where all markers are visible – select all the markers by holding **ALT** and dragging over the markers
   - click on the **Define New Actor** button and select **Auto Create New Object** in the pulldown menu
   - click the **Calibrate Character** button to calibrate the new character (the prop)
   - This will turn your actor with the name you gave it to green in the Character Management display (green indicates a calibrated actor or prop)
   - If you select it, you can rename the prop

5. To save the prop, select the save character button (third from the left – looks like a file with writing on it) and click save on the window that pops up

Coloring markers:

To make the markers stand out from your other data when using your prop, you can color them.
1. Select the markers using ALT and dragging over the markers.
2. Click on the Editors tab and select Attributes
3. In the Attributes window select the icon that says, affect only selected markers
4. Click on the color attribute and choose a color from the dropdown menu

Adding a stick to two markers on your prop:

1. Hold ALT to select the first marker, then hold CTRL and ALT to select the second marker
2. Go to the **PostProcessing tab** and click **MakeStick** to draw a stick between markers (These can be undone by selecting ClearStick on the same button)
3. You can change the color of the stick using the button right below MakeStick

Details on Finding and Filling Gaps

This section describes the manual method of fixing occluded markers. See the previous section about using the CleanItUp script.

To find gaps there are two methods:

By marker – repeat the following until all gaps are done
1. Select a marker (hold down ALT and then select the marker in the view window
2. Hit the **FindGap** button
3. If there is a gap, the graph display jumps to it

By scrubbing – scrub through the capture and check for problems (these are seen by the labels flashing red, visually on the graph editor with gaps or the connect the dots joins disappearing)

Once the gaps are found, you can repair them using **FillGap**

To get the graph view:
Go to the workspace tab, select split horizontal, then **Graph** button

To fill gaps:

In the graph view, hold **ALT** and drag from start to end of gap, then select neighboring markers in the view by holding **ALT-CTRL** and clicking on them

Then click on **FillGap** and select from the pulldown menu the options:
- selected time range
- rigid

or
- selected time range
- interpolated

How do you know which one to use?
✓ Rigid fill – is for when the missing marker is a constant distance from neighbors (best to select three, two is required). For example, the waist.
✓ Interpolated fill – computes along the trajectory of motion – for example arms

Two person capture

This was tested Winter 2011 quarter and used successfully Spring 2011.

Our software is capable of capturing two actors at once. It is recommended that the actors ROM are captured and calibrated one after another.

Be sure in the data management window to check off the previous character while you are calibrating your new character and be sure to label your new actor in the processing steps.

Preliminary experiments indicate that the post processing time for two person capture can be significantly higher due to the increased number of occluded markers, however it appears quite successful. If you position your actors properly the data can be as easily processed as a one person capture.

If you have questions, please email me at dfowler@scad.edu

Troubleshooting

Please do not randomly click buttons without knowing what they do. If you run into problems, quit out of vicon blade and bring it up again. This will reload most of the settings required for the software. There are some exceptions.

The software will automatically try to load in previous calibrations and database information. Ensure that you set these for your capture session.

If you capture button is grayed out, make sure you didn't accidently click the *video camera data* check box. That should **not** be on.

QUICK REFERENCE: Full instructions are found in the document.

ip address for streaming needed by MB: **10.7.102.231**
ClipArt for MB stored in: **\\sfdm-appdeploy\AppGet\Files\Clipart**
Make sure you set it to **Solve** for streaming

Settings for Cameras are:

Gain 2
Strobe 1
Circularity (no change, it is at .5)
Threshold .3 (except two by door – usually labeled 2,10 are .15)

New wand is:
Combined Wand – selected last entry of "Combined Wand" in pull down menu