Using Logitech HD webcams or Microsoft LifeCam Studio webcam on Windows-
(*Mac users: Mac webcam info is further down the page)

If you're using a **Logitech Webcam** (C-930, C-920, C-615) on a **Windows PC** you should have the **Logitech Webcam Control software** (aka '*Driver Property Page'* for C-930 , but you can use the older Logitech Webcam Control software for Windows) which has the controls to let you digitally zoom-in and zoom-out with the camera and to turn off the Auto-Focus and Auto-Exposure , so you can manually adjust those settings for greater control . You should have had the Logitech Webcam Software on the install disc that came with your webcam, but if you don't have it , you can download it from the Logitech Support site :

C-930 Pro Webcam- (note for C-930 this is now called 'Driver Property Page')
**http://support.logitech.com/en_us/product/pro-webcam#download**

C-920 -
**http://support.logitech.com/en_us/product/hd-pro-webcam-c920#download**

C-615 -
http://support.logitech.com/en_us/product/hd-webcam-c615#download

The Logitech Webcam Software is basically the same for all three models, C-615, C-920, C-930, but your interface may be slightly different than the screenshots shown below .
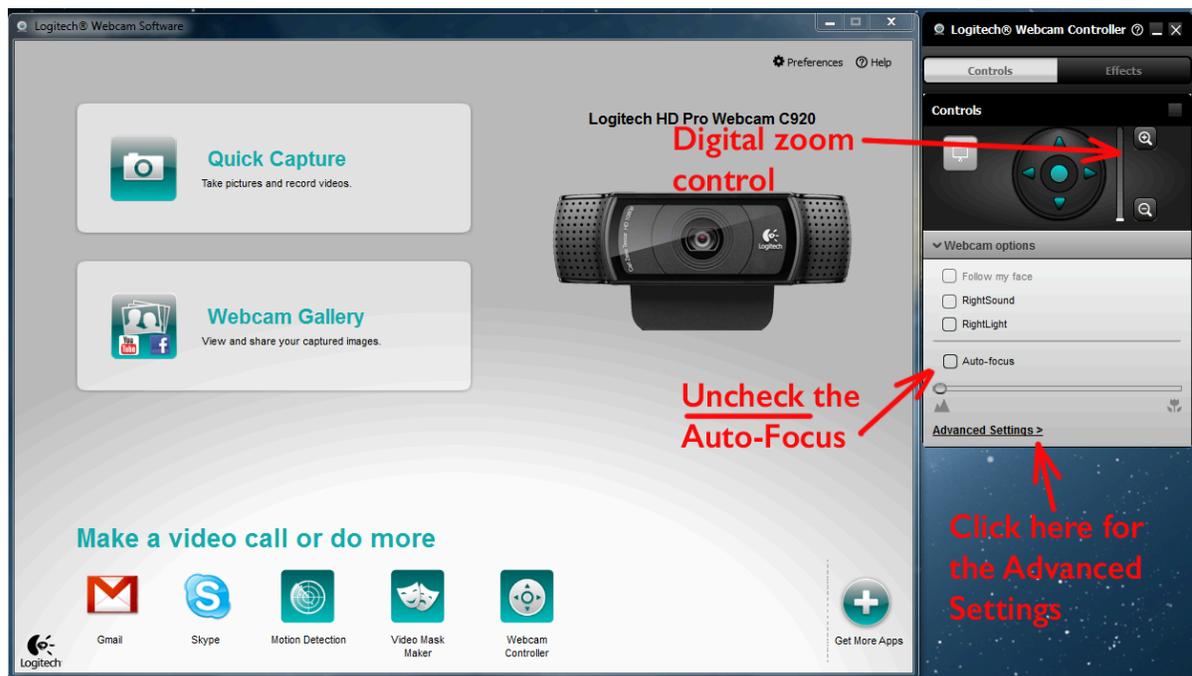

Under the Advanced Settings you can adjust the Exposure manually , and also adjust the Brightness/Contrast , Color Intensity (saturation) and White Balance to fine tune the image quality . If you have "flicker" on your images turning on the Anti-Flicker NTSC 60Hz might help.
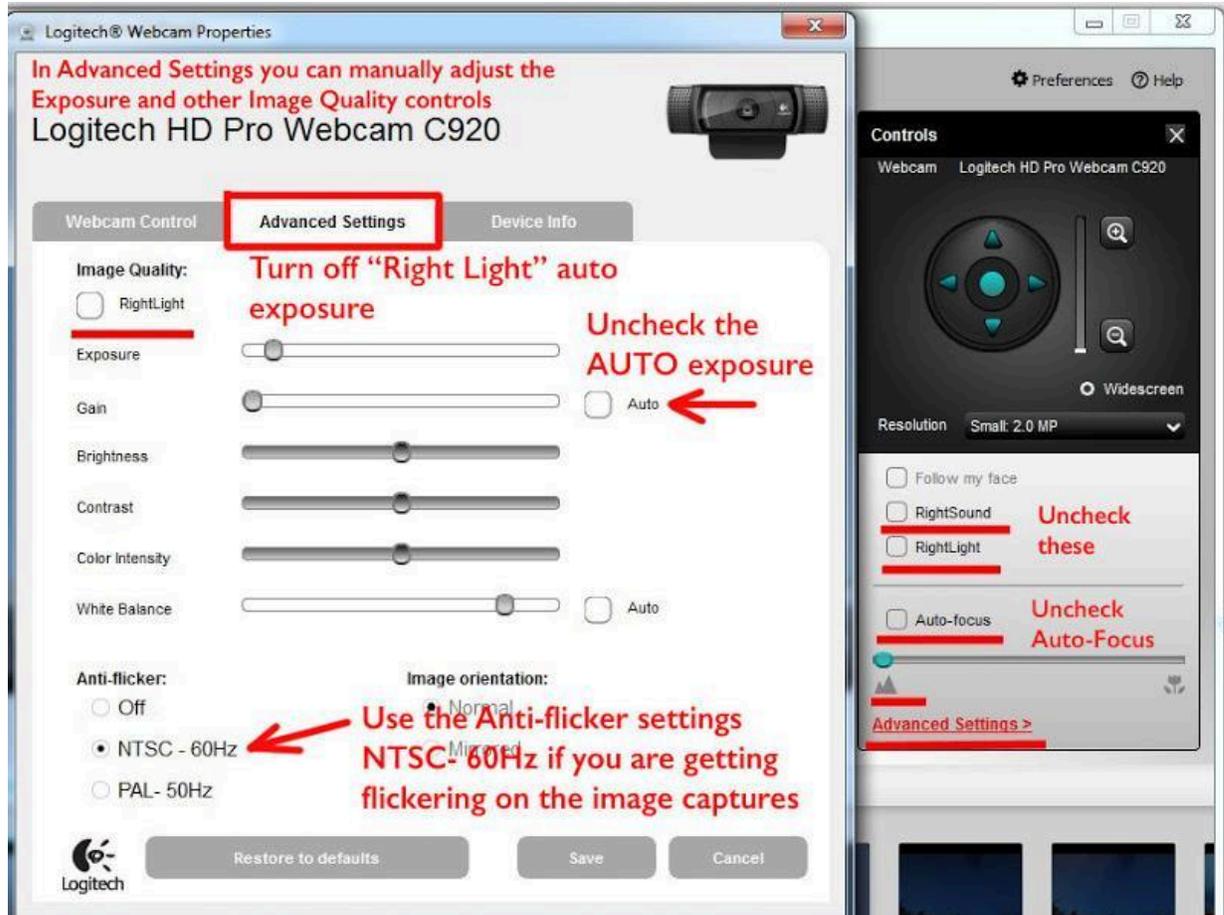
If you have the **Microsoft LifeCam Studio webcam** then it also comes with webcam control software to allow for digital zooming , manual focus control, manual image adjustment -
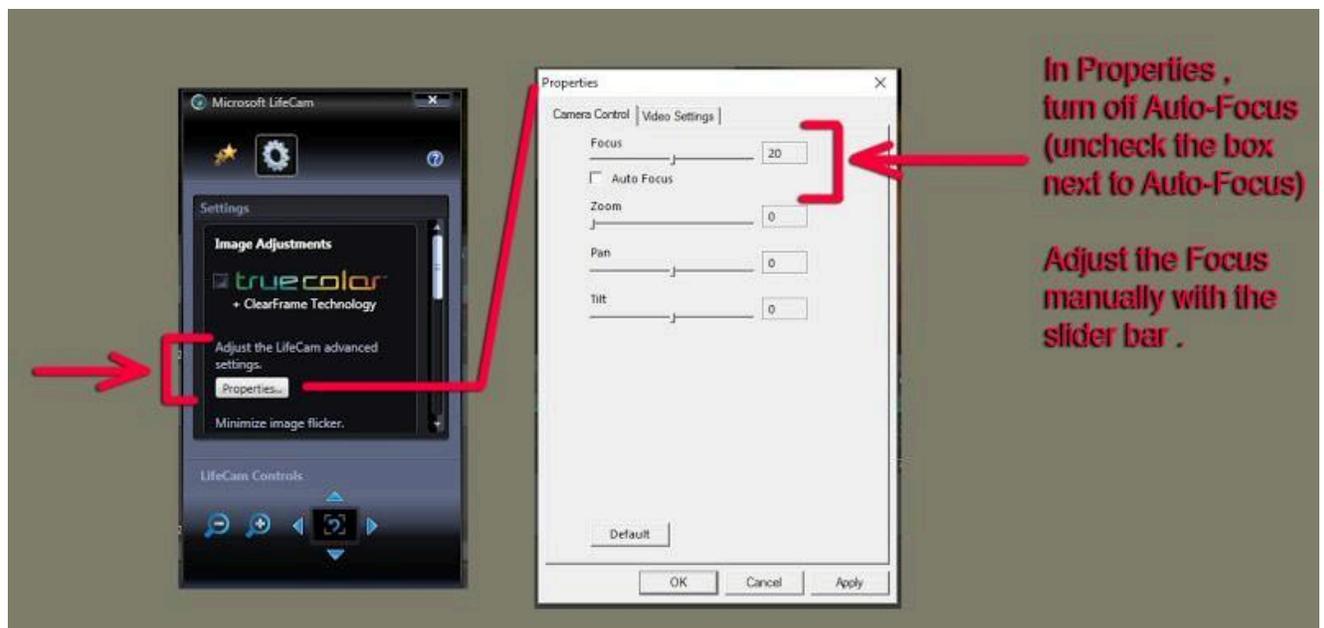
For Microsoft LifeCam Studio, try turning OFF the Auto-Focus and turning OFF the Auto-Exposure and Auto-White Balance and turn ON the Powerline Frequency (Anti-Flicker) to 60 Hz NTSC , (unless you are in an area that has powerline frequency set to 50 Hz). You can digitally zoom-in and zoom-out the lens of the webcam with the zoom control, useful for adjusting the framing of your scene. (don't try to zoom-in too far or it tends to degrade the image quality)
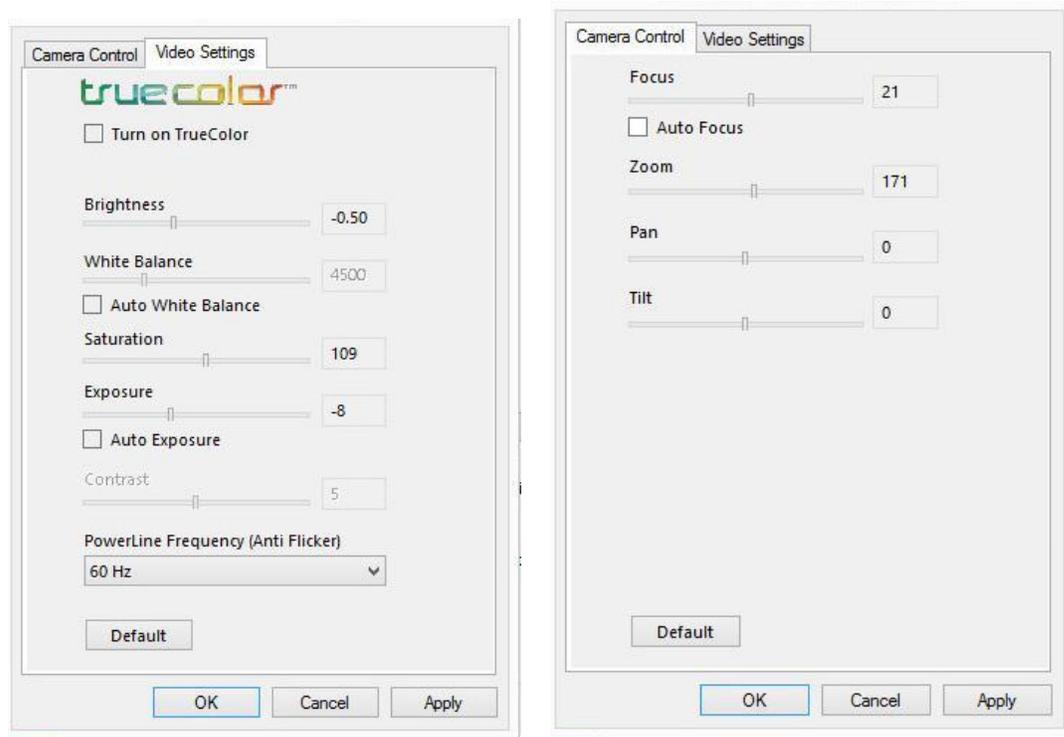

Mac Users -

The recommended Webcam Control Software for Mac users is **iGlasses**.

A similar webcam control software is **Webcam Settings**.

Try downloading it and try it out with your webcam if they offer a trial version. With iGlasses I know that they do offer a 7-day *"Try Before You Buy" t*rial period, so maybe you could try them both on a trial version to see which one works best with your webcam, iGlasses or Webcam Settings.

With iGlasses you can set Focus to Manual instead of Auto-Focus (turn off Auto-Focus works with Logitech C920 and C930 , not confirmed for C615) . You can adjust the exposure and then LOCK Exposure so you don't get flickering light levels. **This is really essential for controlling the frame captures when working frame-by-frame in stop motion animation.**

http://www.ecamm.com/mac/iglasses/
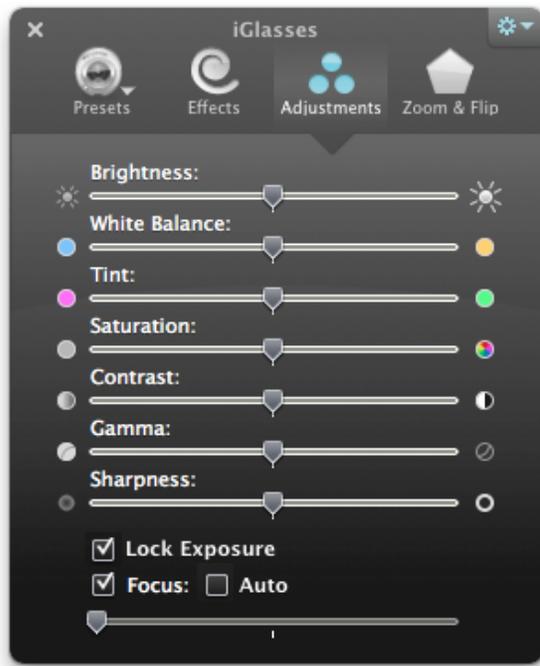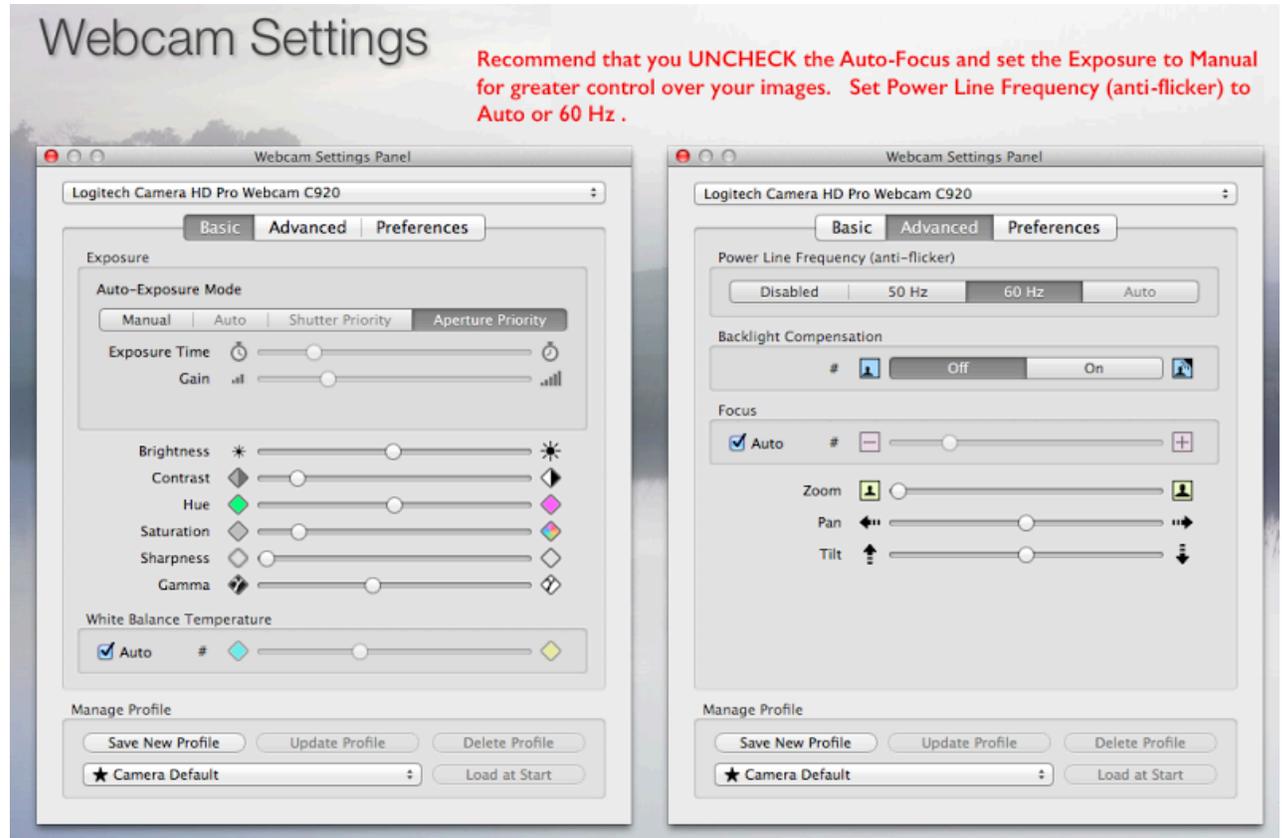
Digital Zoom with iGlasses -

(be careful of using the digital zoom too much, because it's not a true camera lens zoom, it's a digital/interpolated pixels zoom, so the image quality can get a little too "pixelated" if you go in too close)

Webcam Settings -

Here is some updated information about optimizing the settings for using an HD webcam for frame capture --

Recently I had a conversation via email with an online student who has been doing some experimenting with TVPaint and his Logitech C920 webcam to get prepared for class starting next week . He had a few issues getting the camera image quality to be as good as possible and in the emails back and forth between us I was able to help him refine his process for optimizing the webcam for the best quality image capture in TVPaint , so I wanted to share this information .

This is all related to one of the documents I emailed you, called **'HD Webcam Control Software.docx'** , in the link **Misc TVPaint Tutorials for ANM 180 . Most of this is covered in those tutorials , but I think the information below clarifies the procedure.** (If you haven't read through that material yet , you should. You need to use the webcam control software to enable Manual Focus and Manual Exposure and Manual White Balance controls to optimize the image quality from your webcam.)

This information is mostly for you Mac users who will be using one of the recommended webcam control softwares for Mac, either iGlasses or a similar webcam control software called Webcam Settings . Windows users should just use the Logitech Camera Settings control software for Windows that comes with your *Logitech C930e or Logitech C920 webcam* , or the software that comes with the *Microsoft LifeCam Studio webcam* if that's the camera you chose. See the details in the document **'HD Webcam Control Software.docx'** .

The student I have been emailing was having the issue of the preview image from the Logitech webcam looking good , but then when it was in TVPaint it didn't look as good as the preview image. So , here are some things that he discovered should be done to optimize the image quality. You may want to print this out

as "cheat sheet" to use until you get used to the procedure. This may seem like a lot to do, but once you get the webcam set up and optimized you don't have to do this each time you start a new project.

1.) First , download and install the free Logitech Camera Control Software from the **Apple App Store** or from the **Logitech Support website**. This should be used to initially set up the Logitech C930e or C920 on your Mac.

2.) Download and install either **iGlasses** webcam control software or **Webcam Settings** webcam control software.

3.) now follow this procedure for setting up your Logitech C930e or C920 webcam -

Before starting TVPaint -

1. To initially set up the webcam open Logitech Camera Settings app . Select webcam C920 or Logitech C930e
2. Webcam Control Tab > tweak the Zoom/Pan > Click Auto Focus OFF under Focus > Manually Adjust
3. Advanced Settings > Brightness = 50 > Contrast = 50 > Color Intensity = 50
4. Under White Balance > Click Auto Off
5. Anti-Flicker = NTSC 60Hz (PAL 50Hz will make it worse. Probably due to the US/EU format difference. If you are in Europe or anywhere else that uses PAL standard video then you might want to use PAL 50Hz)
6. SAVE Settings (Adjustments Can Still Take Place)

For using iGlasses -

8. Open iGlasses9. Select Camera: Logitech C920 or Logitech C930e
10. Zoom & Flip: Zoom Out 100% (This will be controlled by Logitech Camera Settings)
11. Exposure =Manual, White Balance = Manual , Focus = Manual (adjust focus carefully)
12. Save Preset
13. Leave iGlasses Open(Note: when you have TVPaint open it can be difficult to minimize the iGlasses window, so just drag it down to the corner
of the screen where it's out of the way if you can't minimize it)

For Using Webcam Settings -

14. Open Webcam Settings Panel15. Select: HD PRO Webcam C920 or Logitech C930e
16. Turn Auto-Exposure Mode > Manual
17. Manually Adjust Brightness, Contrast, Saturation & Sharpness (Reducing Sharpness to **-2** which smooths edges slightly.)
18. Turn Off Auto under White Balance Temperature > Manually Adjust
19. Advanced Tab > Click 60Hz Power Line Frequency (Anti-Flicker)
20. Backlight Compensation > OFF (it could be left on, but if the scene is lit well it's probably not necessary)
21. Focus > Click Auto-Focus OFF > Manually Tweak Focus To Perfection (in Webcam Setting Manual Focus you can click to adjust the focus in very precise increments)
22. Set LED to OFF > The Logitech C920 and C930e LED lights emit a blue light. If the Camera is positioned close to reflective surfaces that could possibly add a bluish cast to the lighting . You don't need it, so turn if off)
23. SAVE New Profile .
24. Leave Webcam Settings Open

Now open TVPaint 11 -

25. Open TVPaint 11
26. In the Startup Panel or under the File Menu create New Project > 1920 x 1080 > Field = Progressive > Pixel Aspect Ratio = 1.00 > Frame Rate =24FPS, Start Frame = 1,
27. Now go to Windows menu > Animation > Video Input28. in the Video Input window select *iGlasses* as the input Device or if you are using Webcam Settings
select the *Logitech C920* or *Logitech C930* as the input Device (it may just be listed as "Logitech webcam")

(At this point just follow directions in the set of tutorials I sent , **Misc TVPaint Tutorials for ANM 180** , especially *'Starting a New TVPaint 11 Project.docx'* and *'Using TVPaint Video Input_Updated_SP_16.docx'*. Note that if you are using TVPaint Standard edition the settings in Video Input are just slightly different than in TVPaint Pro Edition)

The student observed:

"After I followed this set up , I found my image capture from the webcam to TVPaint was of significantly higher quality. *Once all of the setups are saved this is a quick process.*

Lighting and camera placement seem to be 75% of the battle of getting high-quality image captures, similar to live-action film shooting."

I totally agree with what the student wrote about Lighting. Lighting (or *lack of lighting*) is often a major weakness of student projects . Some students will try to get away with just using a single desk lamp and/or ambient light in the room, which is a big mistake because it results in *flickering light levels* and *poorly lit, grainy images* .   An expensive professional light kit is not needed for this class (but if you've got a good lighting kit , use it !) , however 3 or 4 inexpensive **clamp-on shop lamps** with soft light LED bulbs will give nicely lit, sharp images.   Using some translucent vellum/tracing paper taped over the mouth of lamps gives some good *diffusion* , to make the quality of the light even and soft (and if a hard spotlight or rim-light effect is needed then a separate smaller lamp with a more sharply focused beam can be used to augment the overall softer light) . Another way to get evenly distributed, soft light in the shooting area is to "bounce" the light off a large piece of white foam core , or a hanging white cloth (sheet) , or even bounced off a white wall or ceiling , on to the set .

See this useful tutorial on inexpensive Stop-Motion Lighting Equipment: **https://vimeo.com/15409469**

Please read these tutorials on **'Minimizing Flicker in shooting Stop Motion.docx'** and **'Lighting and Color Correction in TVPaint.docx'** .

Finally, one more tip I'd like to share with you is about the Grab Video Input command for capturing frames in TVPaint, which is easy to overlook . You don't necessarily have to click on the *Grab Input* button in the Video Input Window to grab a frame. You can use a keyboard shortcut for that function:

⇒ The keyboard shortcut in TVPaint 11 for *Grab Video Input* (to grab a frame) is the **TAB** key .

See the following screen grab . Notice that if you hover your mouse cursor over any tool or button in TVPaint it will show you what the keyboard shortcut is , if there is a keyboard shortcut assigned to that function.

So for Grab Video Input , you can see that the keyboard shortcut is TAB.
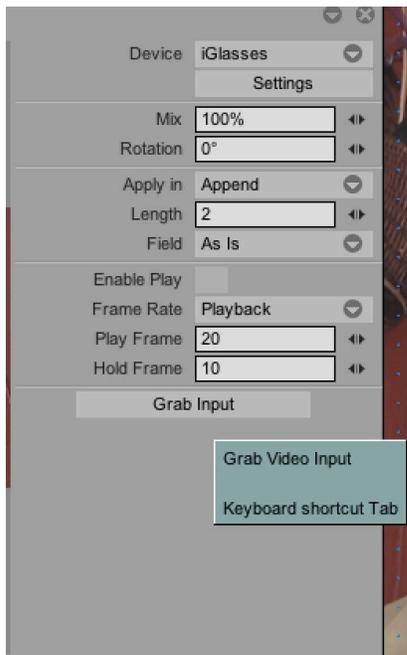
So, obviously you can just click the _Grab Input_ button in the Video Input window to grab frames. One click on the Grab Input will capture a frame . If the Length is set to 1 it will expose the captured frame for 1 frame on the Timeline . If the Length is set to 2 it will expose the captured frame for 2 frames on the Timeline.

But you have the option to grab frames either by clicking on the Grab Input button or the **TAB** key on the keyboard.

⇒ This is quite useful if you have a WIRELESS KEYBOARD (bluetooth keyboard) or a USB controller (such as a Griffin Powermate USB Controller) with a long USB extension cord that you can program key commands to , because then you can just grab a frame by clicking on the Tab key of the wireless keyboard next to you or by clicking on the USB controller key , so you don't have to keep going back over to your computer to click the Grab Video Input button in the Video Input panel in the TVPaint interface.

Or you could even use an old game controller , to program one of the buttons to the Tab key to make that your Grab Video Input tool -

Another suggestion I had from a student (though I have not tried this myself) is to use a _remote keyboard app_ on your smartphone and use it like a regular keyboard to hit the Tab keyboard shortcut to Grab Video Input , but with the remote keyboard on your phone you can get as far from the computer as you want.   Search the Apple App Store (for iPhones) or Google Play Store (for Android Phones) for remote keyboard app.

Note that if you're ever unsure of what Keyboard Shortcut key is assigned to a function you can go to the Edit Menu > Shortcuts to bring up the list of available functions and keyboard shortcuts . Enter the function you are looking for in the Search box (in this case Grab or Grab Video Input) and it will show you what key is

assigned to that function (if any) . In this case it shows you that the TAB key is assigned to the function Grab:Video Input. Notice that if there are unassigned keys you can assign any function you want to that key , so there is some customization allowed. <u>In this case there's really no good reason to change the Grab Video Input command to a different key , so just leave it assigned to TAB.</u> See the TVPaint User Manual for more information on customizing Keyboard Shortcuts in the Preferences:

<u>http://www.tvpaint.com/doc/tvp11/index.php?id=lesson-first-approach-preferences-general</u>
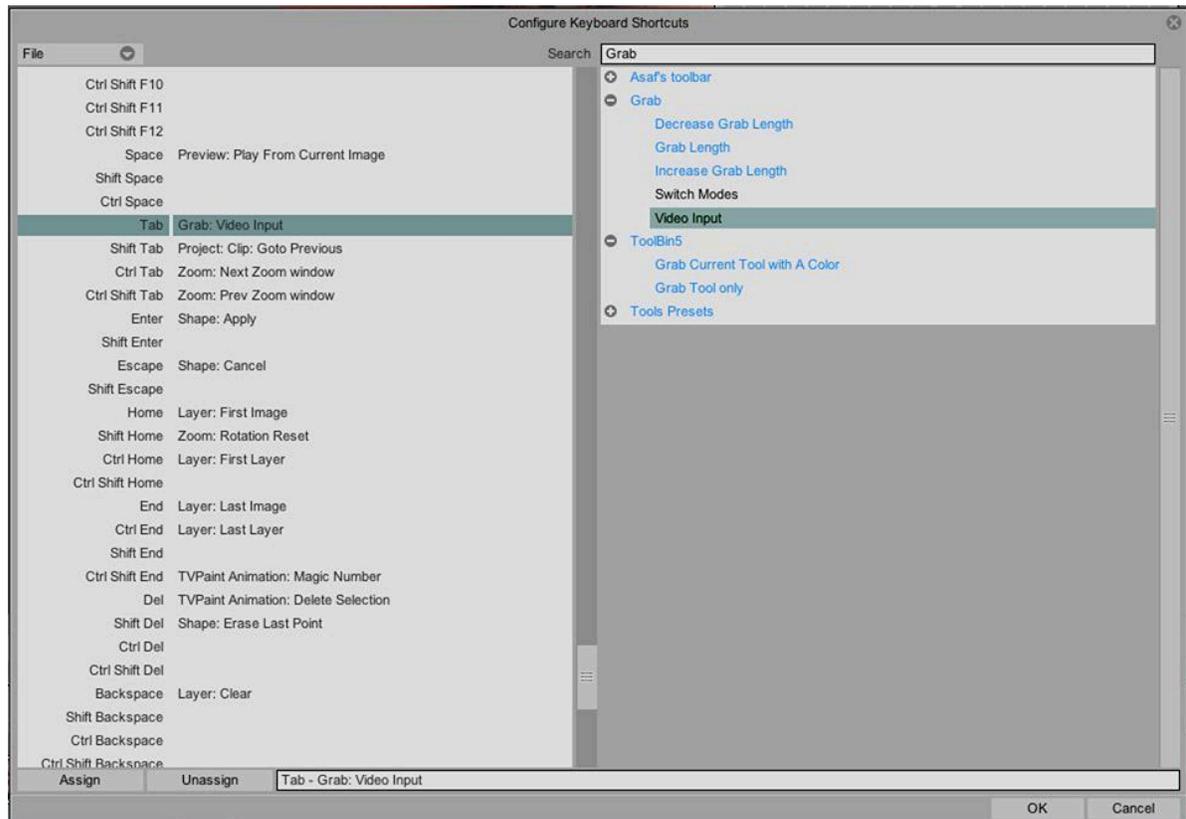
-David Nethery ,
Online Director of Traditional Animation ,
Academy of Art University