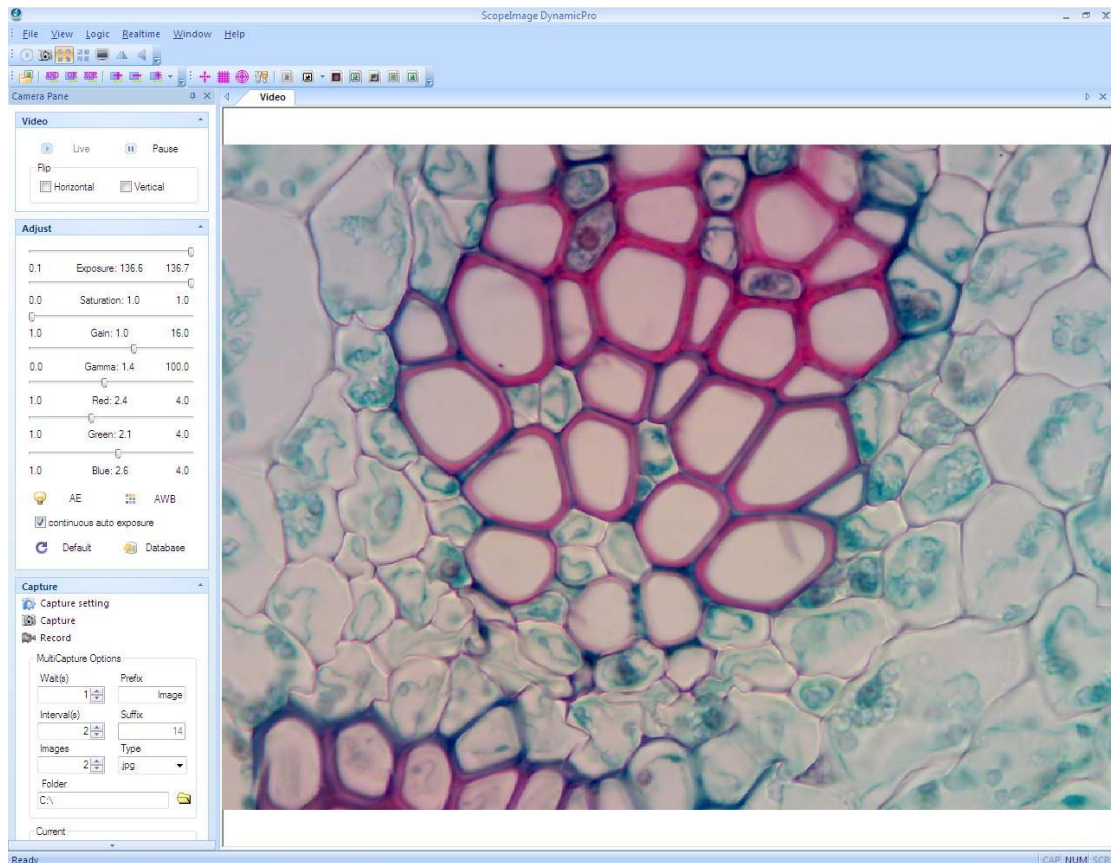


ScopelImage DynamicPro

Professional Imaging software

Operation Manual



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1 Introduction

1.1 About ScopelImage DynamicPro

Microscope image dynamic processing software is especially designed for digital microscope; it has friendly operation interface, stable performance and powerful function, very easy to operate. And can be widely used in various optical micro fields, such as teaching, researching, electronic checking and so on.

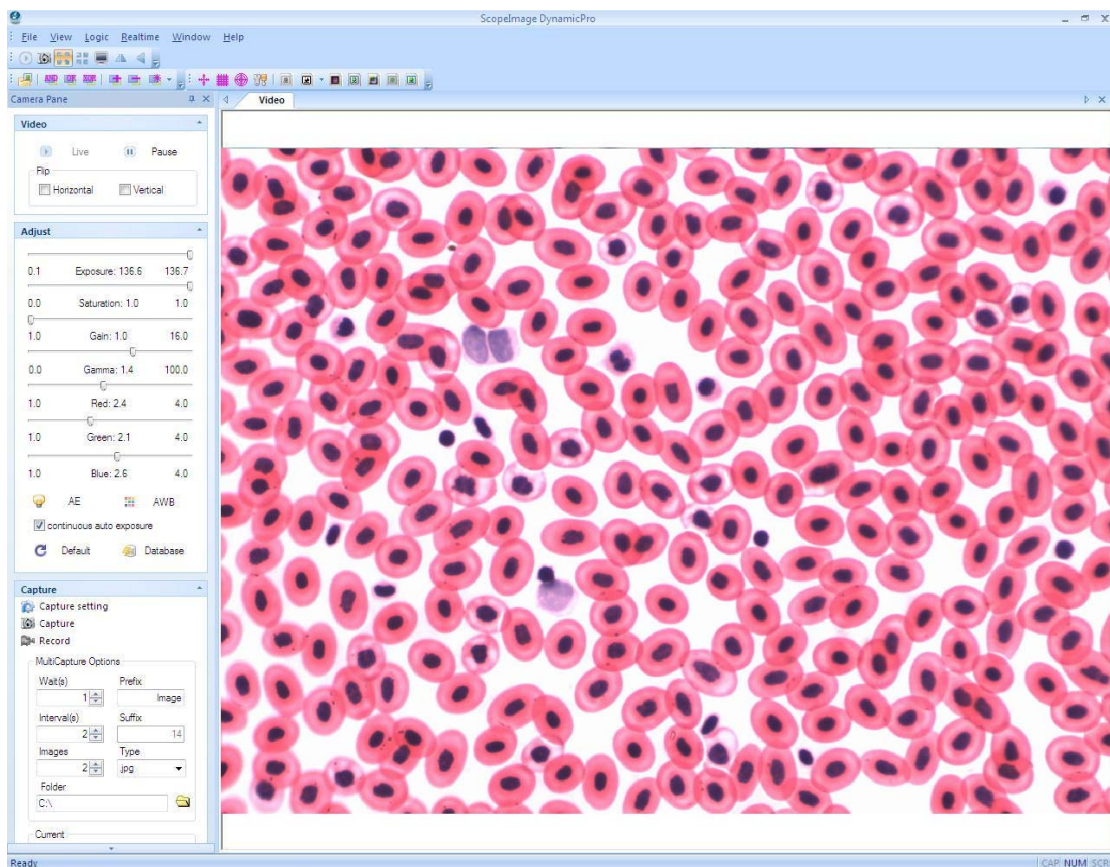
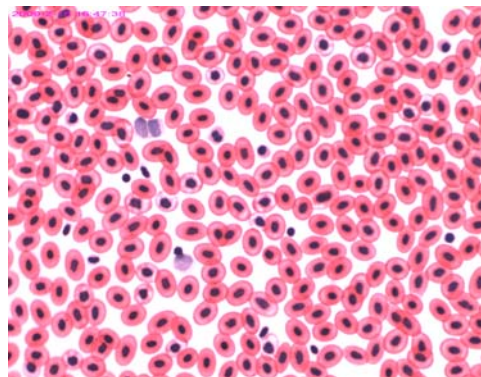
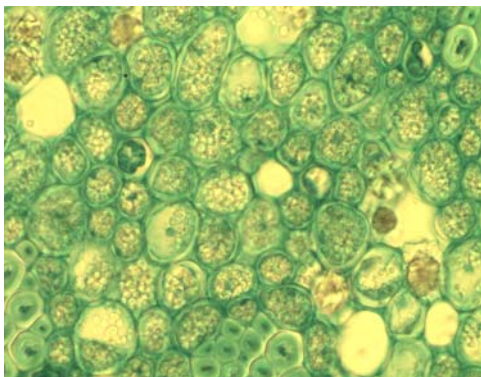
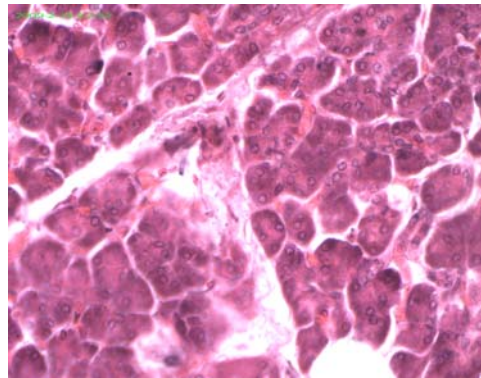
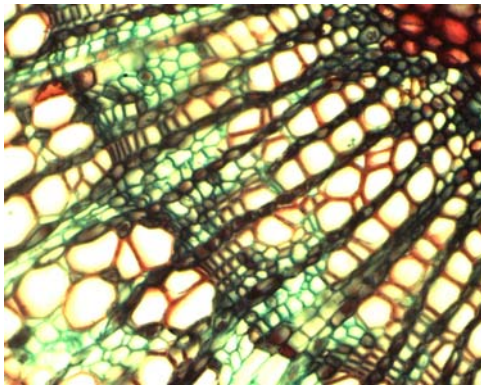


Fig 1.1 Operation Interface of the Software

1.2 Features

ScopelImage DynamicPro is image-processing software professionally designed for live microscope image. It contains functions as live image preview, live image enhancement, live image Boolean calculation, live image marker, live image processing and so on. It also allows you to view, capture, record, zoom preview of the live microscope images. Specific features include as the follows:

- 1) Active image preview, freezing preview, fit to window preview, real preview, full screen preview... various preview modes make you preview the active images with great ease.
- 2) Convenient color adjustment of the active image, containing exposure, gain, gamma, saturation, RGB value, white balance and so on, very convenient to adjust the color during previewing.
- 3) Special design color database, we can associate the parameters of the color to the database, and can store or delete the color scheme.
- 4) Various image Boolean calculation tools, including AND, OR, XOR, ADD, SUB, MULTIPLY and so on, can do Boolean calculation between the active image (the video) and the static image.
- 5) Optimize live image processing and real-time processing result display. Like gray, invert, binary, sharpness, emboss, clear noise, equalize and so on.
- 6) Basic image operations like other similar software are included in the Image menu. You can adjust the image at ease.
- 7) Image flip function, include horizontal flip and vertical flip of the active image.



2. Workspace

Besides image windows, many other windows or user interface elements reside within the main window of ScopeImage DynamicPro. These include menu, toolbars, status bar and control windows providing additional information about the images or

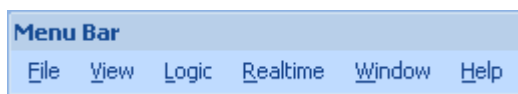
control of the camera.

2.1 Menu

ScopeImage DynamicPro has 6 main menus, they are: File, View, Logic, Realtime, Window, and Help;

“Alt + the first letter of the menu” can open the relevant menu.

The menu can be either docked or floating. Double-click its grip or caption bar to toggle between the two states. When the menu is docked, it can be docked to any of the four sides of the main window. Drag the grip or caption of the menu to adjust its position or to dock it to a particular side of the main window. The grip of the menu is the dot matrix at the left or top of the menu in docked state.



2.2 Tools Bar

ScopeImage DynamicPro has four toolbars. Each toolbar can be either shown or hidden. When a toolbar is shown, it can be either docked or floating. Double-click its grip or caption to toggle between the two states. When a toolbar is docked, it can be docked to any of the four sides of the main window. Drag the grip or caption of a toolbar to adjust its position or to dock it to a particular side of the main window. The grip of a toolbar is the dot matrix at the left or top of the toolbar in docked state.

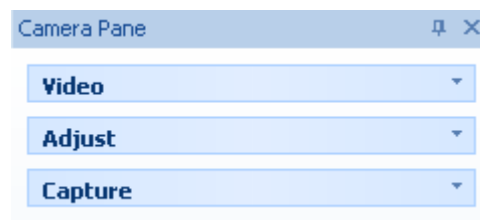


Floating state:



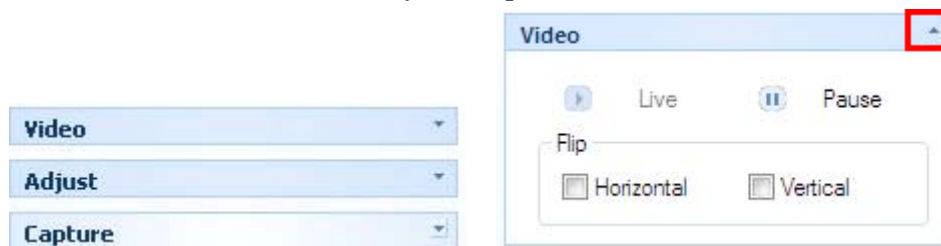
2.3 Control Panel

Control Panel is where camera control commands are issued. It is further divided into three sub-panes (Video, Adjust and Capture) for specific aspects of the imaging process.



Sub-panes are shrinkable. To shrink a sub-pane, click the arrows at its top right corner. To expand a shrunk sub-pane, click again the arrows at this to right corner. The arrows at the top left corner of a sub-pane point upward in expanded state and downward in shrunk state.

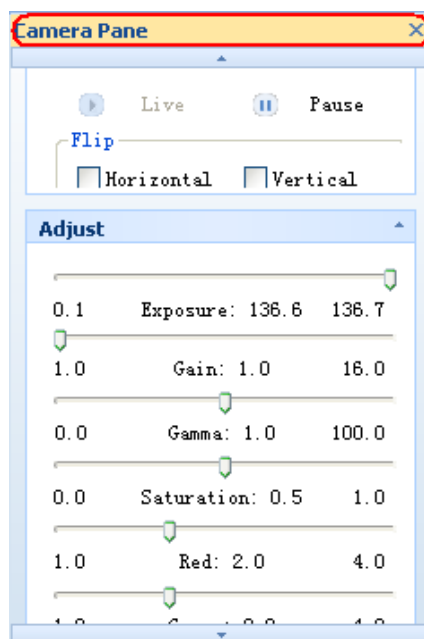
Control Panel also maintains a history of the panes shown.



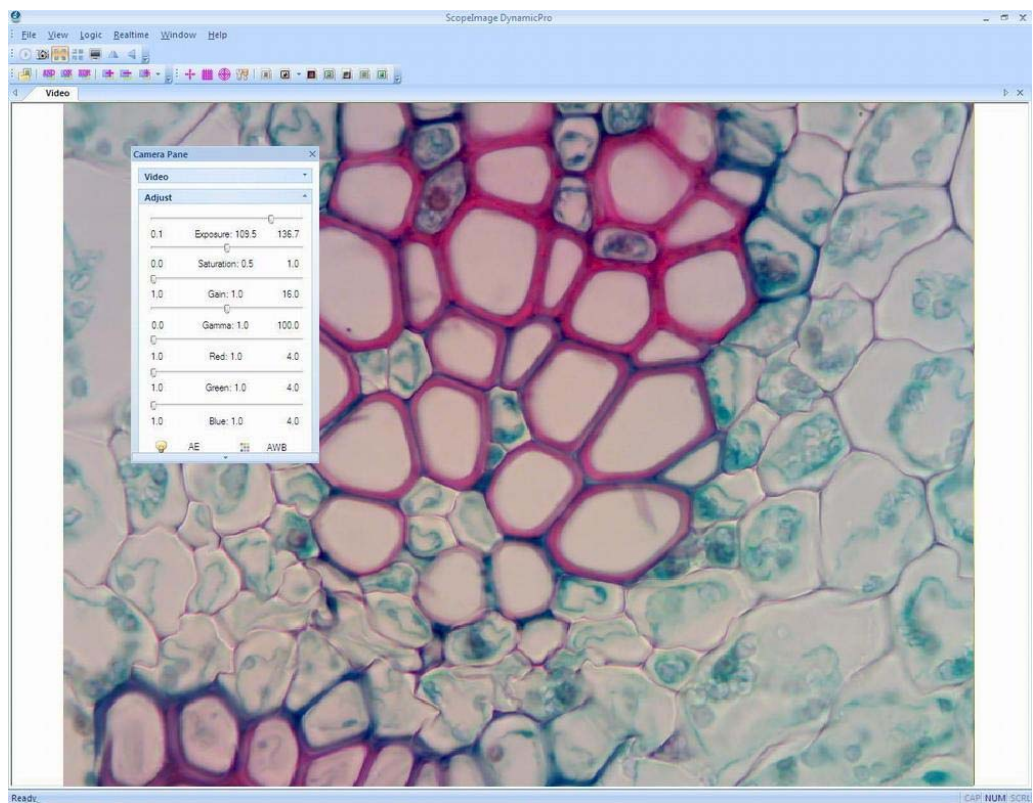
If all the three sub-panel have been opened, the panel will be too long to display all the contents, so there will be two arrows at the top and the bottom of panel, put the mouse on it, the panel will expend upward or downward to display the other part contents.









Use the idler wheel of the mouse to extend the contents of the camera pane: click to select the camera pane, when it displays as yellow, roll the idler wheel to upward or downward display the contents of the camera pane.



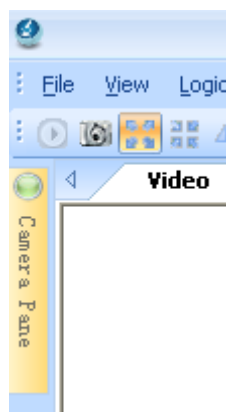
Double click the title bar of the 'Camera Pane' (the yellow part of the image above), can turn to floating state, drag the grip or caption of the menu to adjust its position or to dock it to any of the four sides of the main window. Double click to return back, as the pictures shows below.



The control panel can close, hidden or display.

	Locking state	Camera Pane  
	Hiding or Hanging state	Camera Pane  

When it is in hiding or hanging state, click the 'Camera Pane' or just put your mouse on it, the camera pane will display.





3. Operation

3.1 Real time Video Adjust








3.1.1 Video Preview

Video preview mode, the new preview button is gray ;



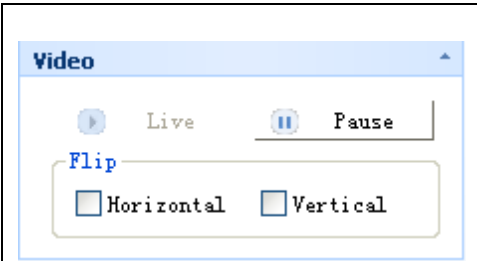
When the preview window is closed, the video preview button is activated ; Push the button  can create a new preview window.



	New Preview	Press to new a new preview window; the equivalent command is the “File->New Preview” menu;
	Capture	Press to acquire an image (based on the current camera settings) and store into the disk;
	Suitable preview	Suitable preview mode is fit to the window preview. This mode is best for finding the right field of view to capture. In this mode, the full field of view is visible, albeit possibly in a reduced resolution.
	Real Preview	Real Preview mode is best for finding the right focus position. In real preview mode, maximal details are shown, although the field of view may be partially visible.
	Full screen	Full screen display the active image.
	Horizontal flip	Flip the active image by the Vertical axis, press to set or reset a flip state.
	Vertical flip	Flip the active image by the horizontal axis, press to set or reset a flip state.

3.1.2 Video control

The ‘Live’ and ‘Pause’ button can switch between active and static image

	<p>Live (Video preview mode)</p>	<p>In video preview mode, the image is activating, we usually call it active image, it is fit for observing specimen or slice.</p>
---	--------------------------------------	--

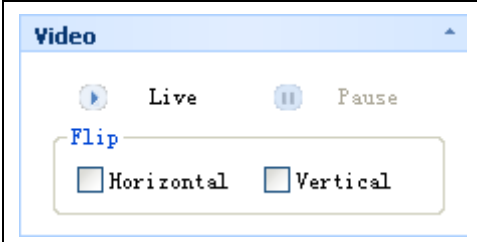
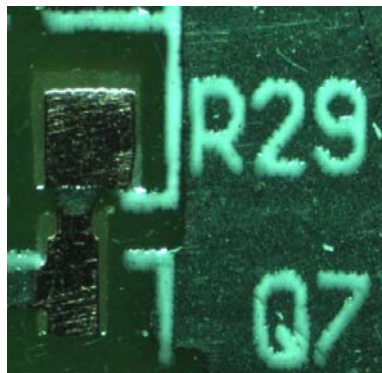
	<p>Pause (Freeze preview mode)</p>	<p>In freeze preview mode, the image has been frozen; it is fit for observing the detail information of the specimen.</p>
---	--	---

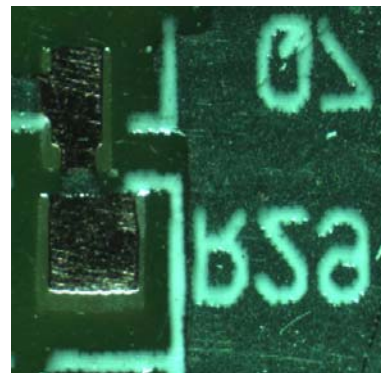
Image flip

The image flip contains horizontal flip  and vertical flip .

 **Horizontal Flip:** Flip the active image by the Vertical axis.

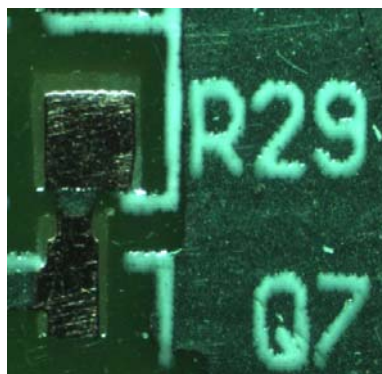


Original Image

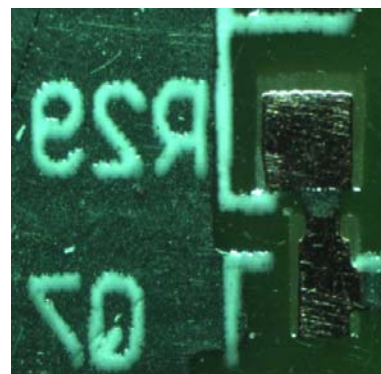


After click the Horizontal Flip button

 **Vertical Flip:** Flip the active image by the Horizontal axis.

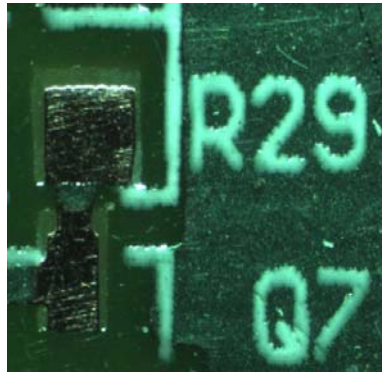


Original Image

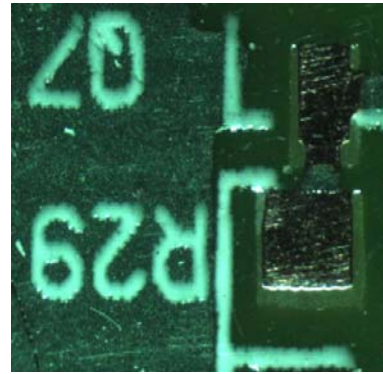


After click the Vertical Flip button

 **Horizontal and Vertical Flip:** Flip the active image by both of the Vertical and Horizontal axis.



Original Image




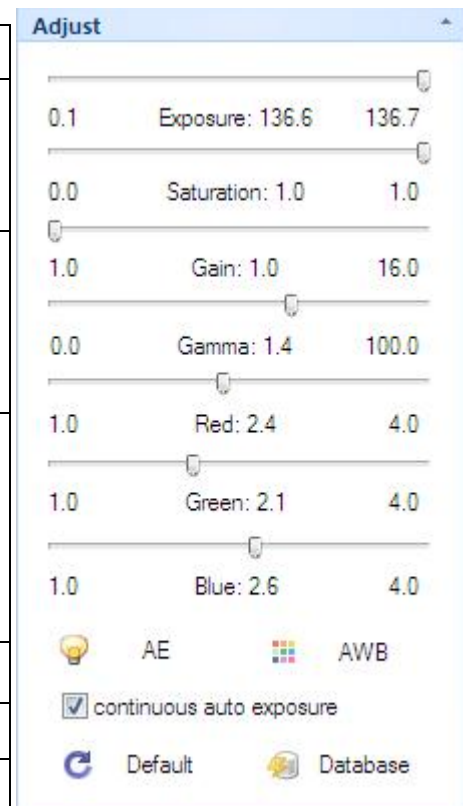
After click both the Horizontal and Vertical button

3.1.3 Color Adjustment

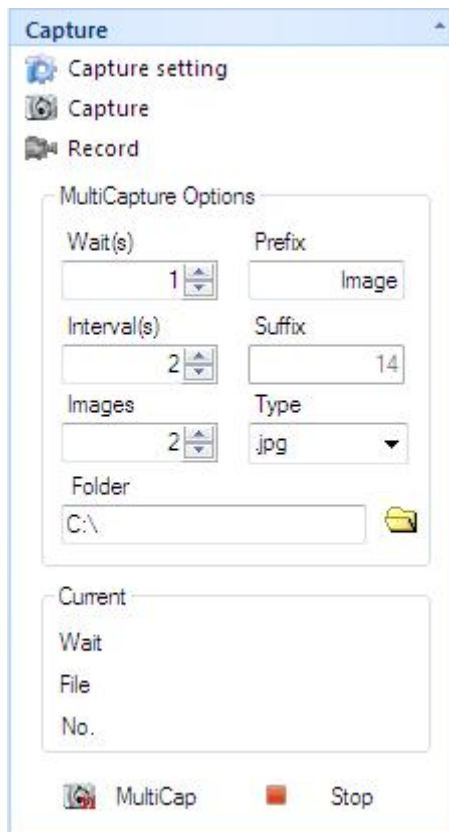
The color adjust function contains the adjustment of the exposure, saturation, gain, Gamma, Red, Green, Blue, and also contain the auto exposure and auto white balance, recovery to the default setting and the color database.

when changing the color-saturation setting, an icon will appear in the live image. the monitors will indicate if an increase (+) or decrease (-) in saturation has been made. if color saturation is set to any other value than zero, the icon will remain on the displays as a warning.

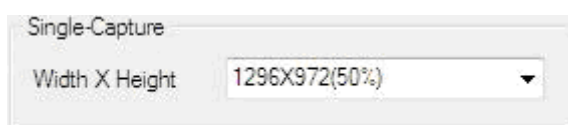
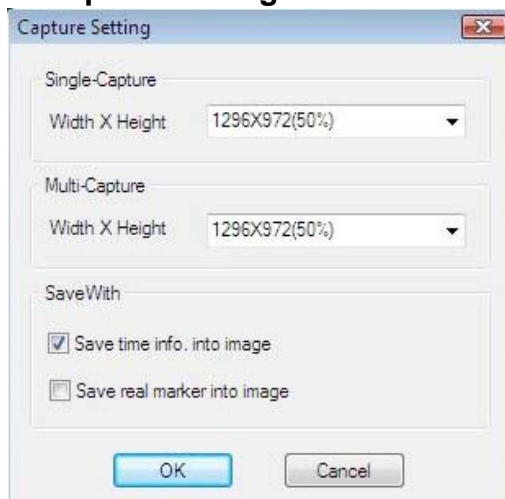
Exposure	Adjust the brightness of the camera.
Saturation	Adjust the saturation of the camera. Saturation is a measure of a color's pureness and brilliance.
Gain	Adjust the gain of the camera. Gain is the similar mean of the brightness, but gain is always means multiply not increase by degrees.
Gamma	Adjust the gamma of the camera. gamma is an image quality enhancement function that offers a richer image by brightening the darker portions of the image without altering the brightness of the brighter portions.
Red	Increase the Red value of the active image.
Green	Increase the Green value of the active image.
Blue	Increase the Blue value of the active image.
 AE	Auto Exposure. Click to do auto exposure, and click again to manual exposure.



3.1.4 Capture, MultiCapture and Record



1. Capture setting



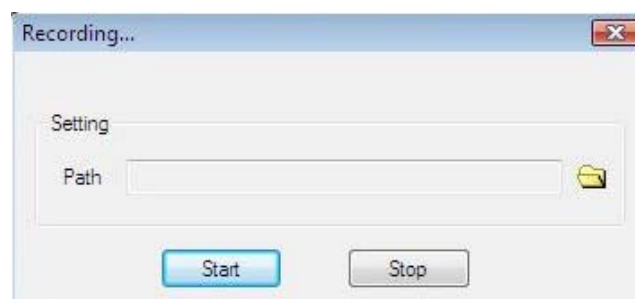
Set the single-capture resolution.


 <p>Multi-Capture Width X Height 1296X972(50%)</p>	Set the multi-capture resolution.
<input checked="" type="checkbox"/> Save time info. into image	Stamp the time on the image.
<input type="checkbox"/> Save real marker into image	Save the image with the real marker.

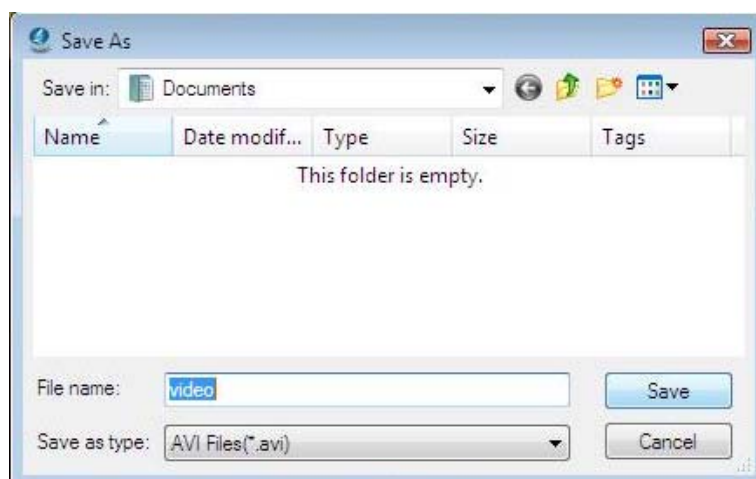
2, Capture

After setting the capture parameters, push this button to acquire an image based on the current camera settings and store into the disk as jpg or bmp file format;

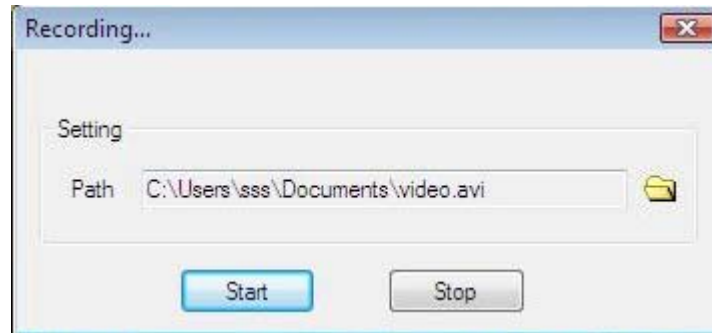
3, Record Video



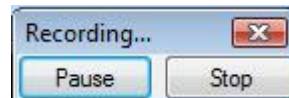
Click the button 



Set the route and the file name.



Click the 'Start' button to begin to record.



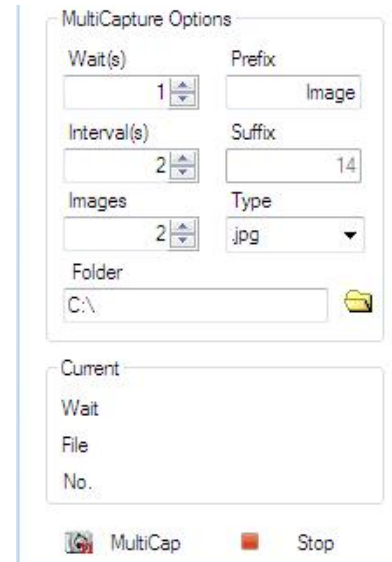
Click the 'Stop' button to stop recording

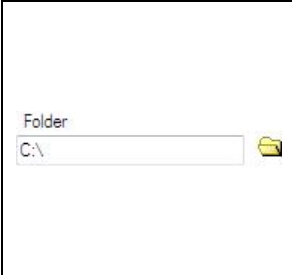


4, MultiCapture

ScopelImage DynamicPro is able to acquire a sequence of images automatically, an operation referred to as multi-capture. Before acquire, we can set the wait time, interval time, amount, prefix, type, path and so on. After setting, a sequence of the image will be acquired according to the camera settings at the time when the acquisition action occurs.

Attention: the Suffix can not modify, it add automatically, but when you switch to a new storage folder, it will begin with 0 again.

Wait(s) <input type="text" value="1"/>	The time to wait before beginning capture, in seconds
Interval(s) <input type="text" value="2"/>	Time interval, it means take image every 2 seconds, and can be referred as frequency.
Images <input type="text" value="2"/>	The amount to acquire.
Prefix <input type="text" value="Image"/>	Set the prefix of the file name.
Suffix <input type="text" value="14"/>	The suffix of the file name. Attention: The prefix can be modified, but the suffix can not, it increases automatically while acquiring. If you have changed the storage folder, the suffix will change into 0 again, and increase from 0.
Type <input type="text" value=".bmp"/>	Set the image type of the images to be acquired.

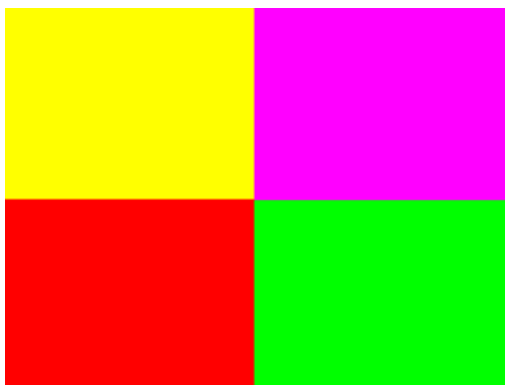


	Set the path of the image to be acquired Attention: In Windows Vista System, you'd better not set the capture as C:/, or you may can not save the images which is limited by user's authority.
	Begin to multicapture.
 Stop	Stop capture.

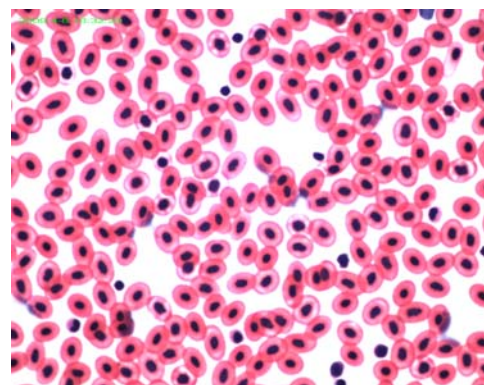
3.2 Boolean Calculation




Boolean calculation between real time video image and the static image introduced in: including ADD, OR, XOR, ADD, SUB, MULTIPLY, users can introduce in deferent images to get different effect.



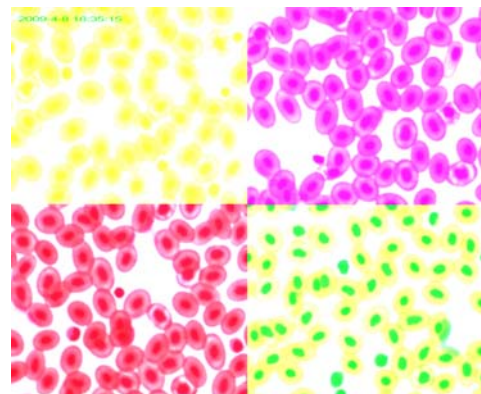
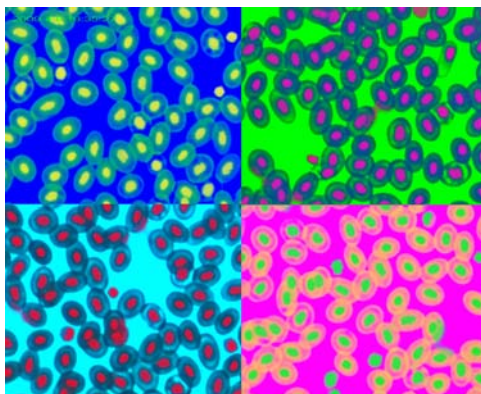
Introduce an image



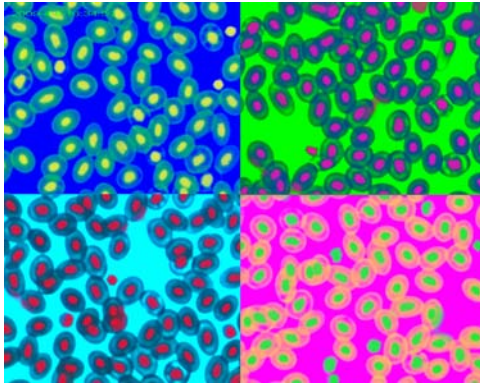
the video source

Click the icon  to introduce an image.

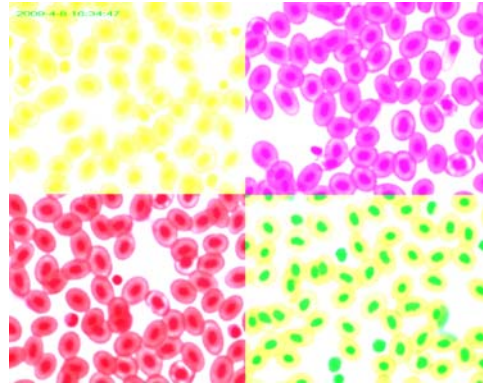
Attention: You need to introduce in an image before doing the calculation, and the result depends on the image introduced in, so choose the right image is very important.



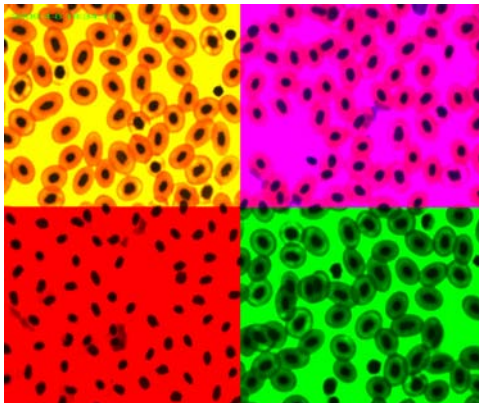
 Logic AND




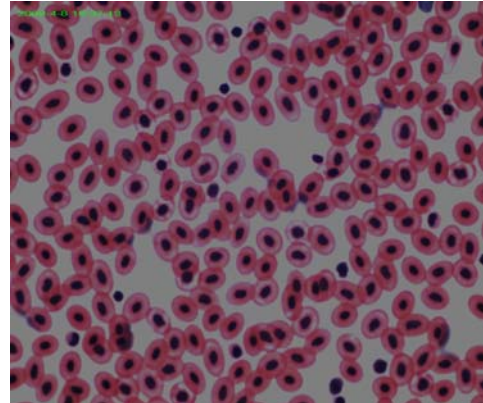
 Logic OR




 Logic XOR

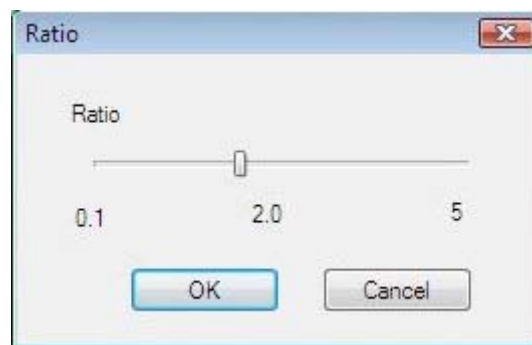


 Logic Add



 Logic subtract

 Logic Multiply



Move the slide to set the multiply ratio.

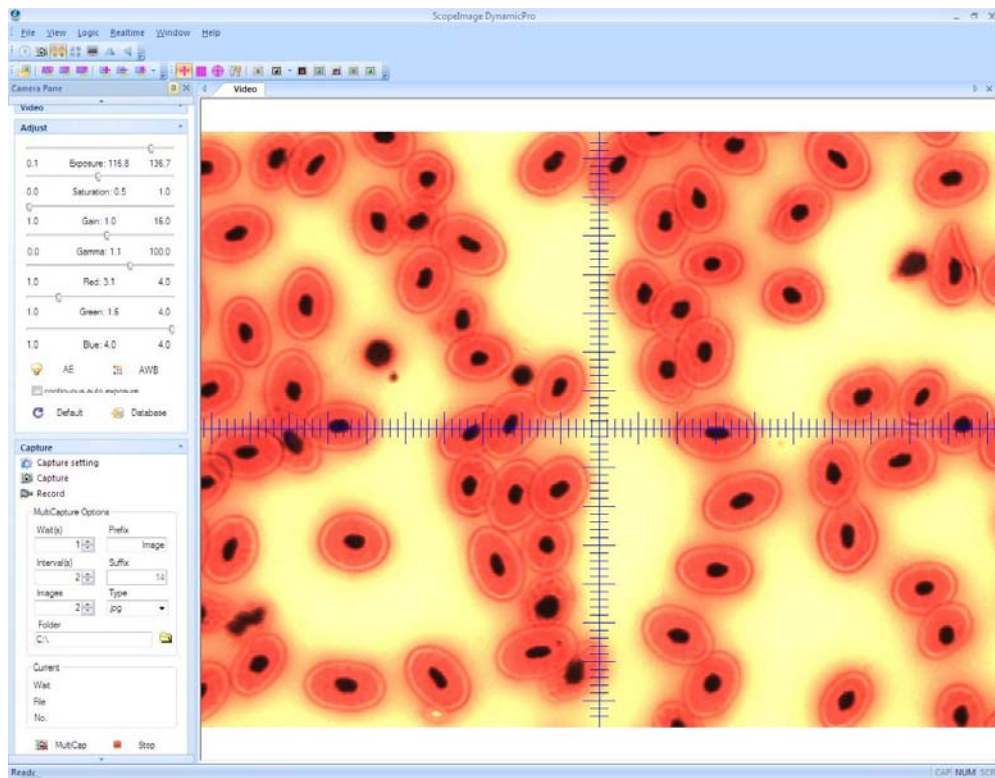
3.3 Real Time Marker



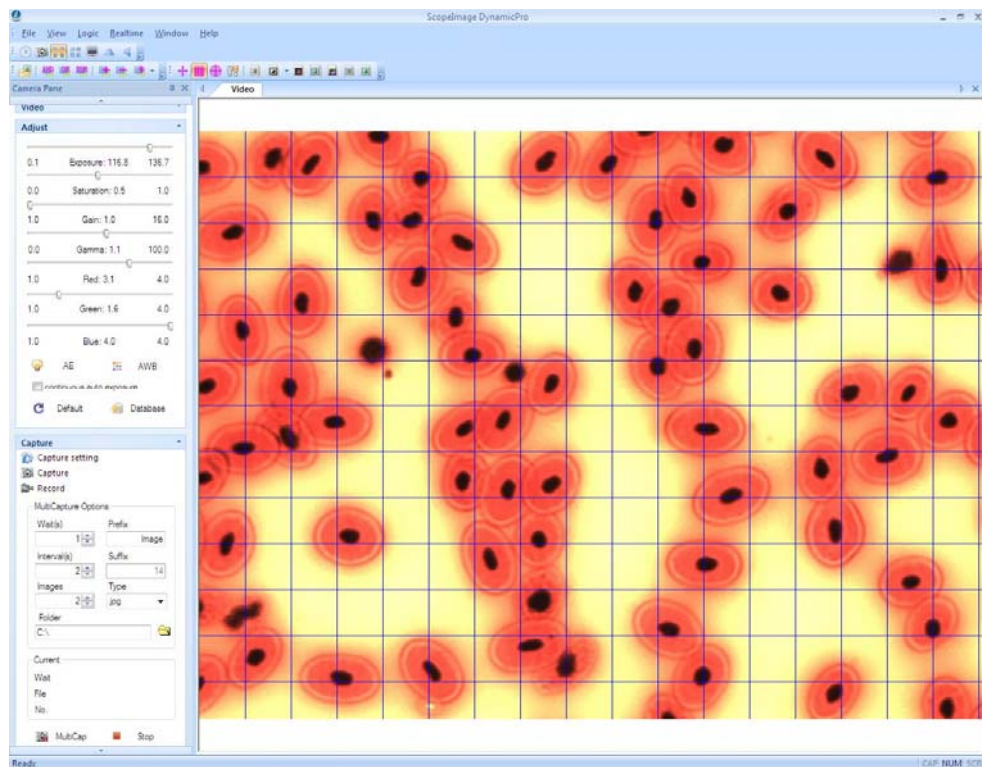
(Recticle, gridding, concentric circles, Marker setting)



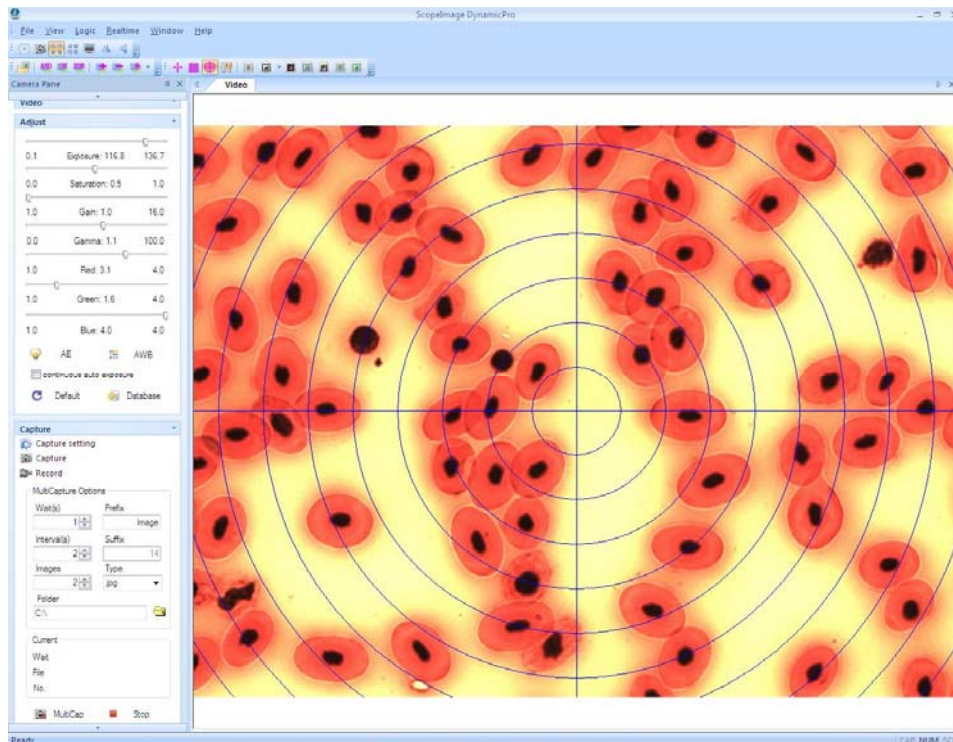
Recticle: Add the ruler marker to the active image.



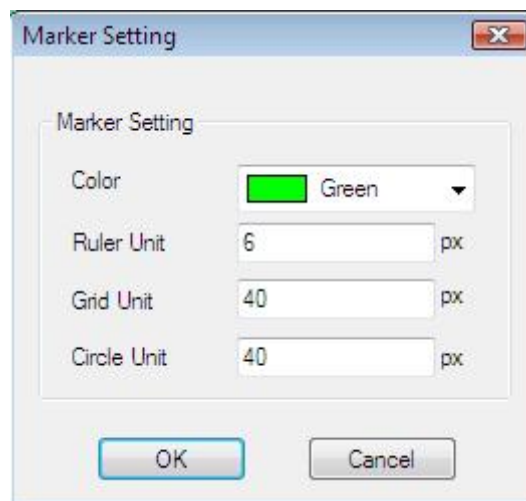
Gridding: Add the square marker to the active image.



Concentric circles: Add the circle marker to the active image.



Marker setting: Set the color and the unit (pixel) of the markers.



3.4 Real Time Image Processing


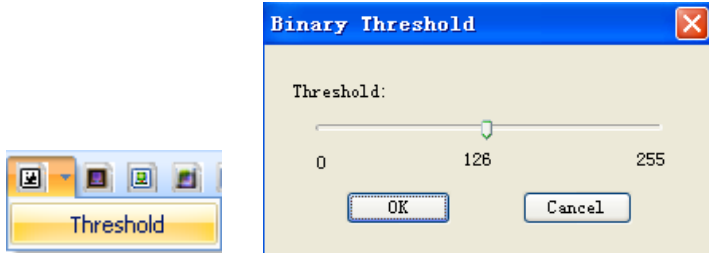







Image processing function: including gray, invert, binary, sharpness, emboss, clear noise, equalize

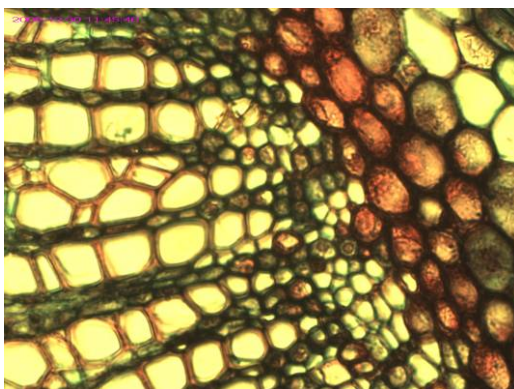


Gray

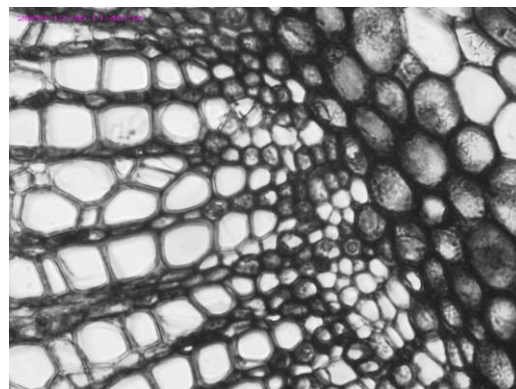
Gray filter, turn the color image to an gray image;

 Binary	<p>Threshold an image converts a gray scale or color original to a black-and-white version that distinguishes feature(s) from background.</p> <div data-bbox="564 336 1275 589">  </div> <p>Move the slide to set the threshold.</p>
 Invert	<p>Color reversal, can turn a positive image to a negative image, or turn a negative image back to a positive image. A negative image performing higher contrast and higher color saturation.</p>
 Sharpness	<p>All digital photographs lose a certain amount of sharpness. That means that most photographs will look a bit blurred and their details won't be as prominent. Basically, sharpening makes the edges of a photographed object appear more distinct.</p>
 Emboss	<p>The Emboss filter makes a selection appear raised or stamped by suppressing the color within the selection and tracing its edges with black.</p>
 Clear noise	<p>Clear the image noise to improve the image quality.</p>
 Equalize	<p>Equalize filter. Make the image more</p>

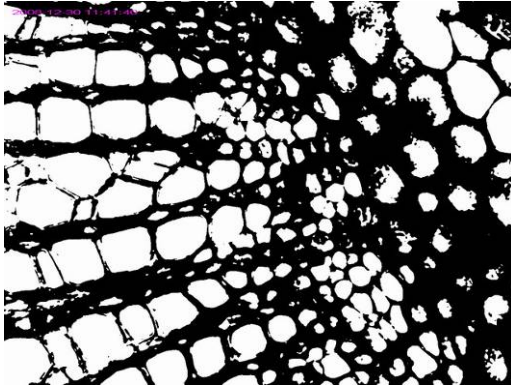
Examples:



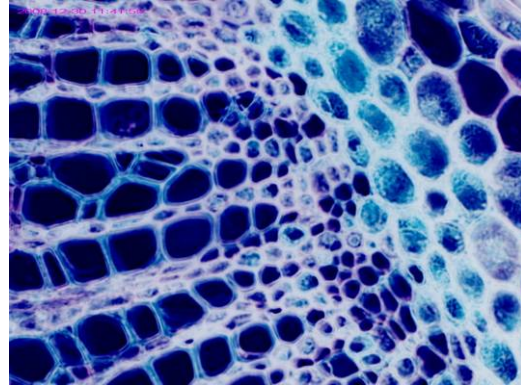
Original



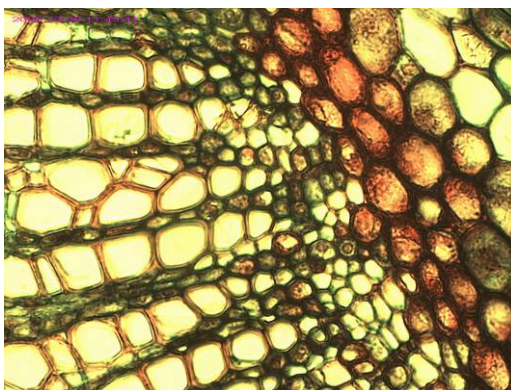
Gray



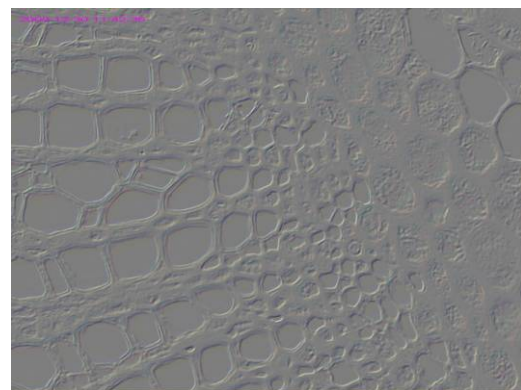
Binary



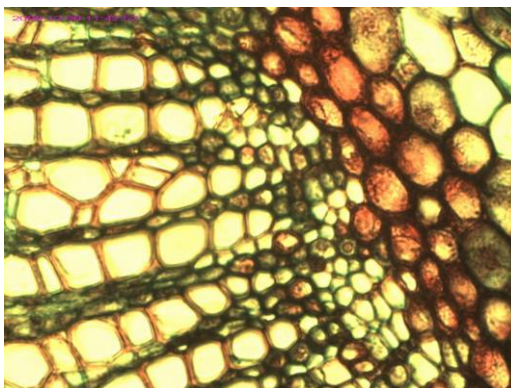
Invert



Sharpness




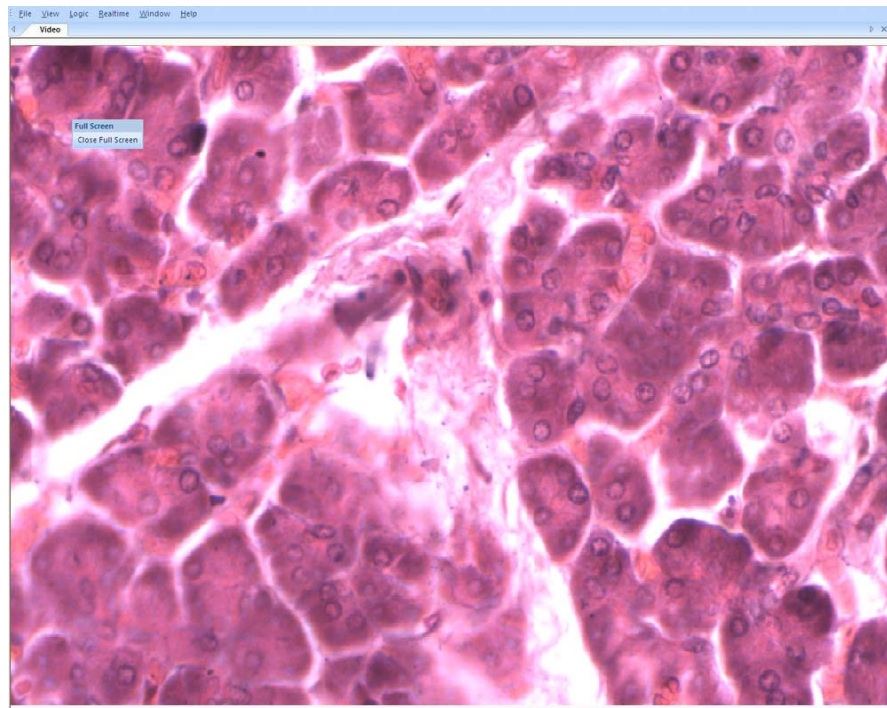
Emboss



Equalize

3.5 Full Screen Display

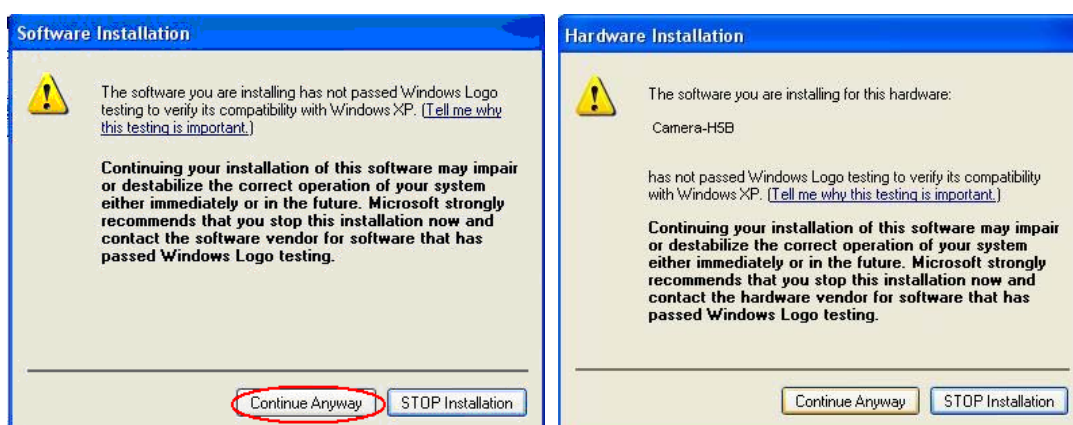
As we know, it is very convenient to preview the live image in the full screen mode. Double click the live image or click the button  on the tools bar can enter into the full screen mode, double click or click the button “Close Full Screen” to exit full screen mode.



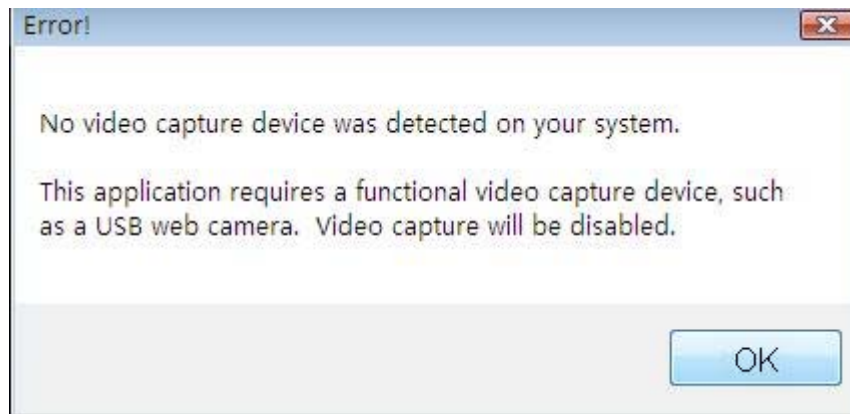
4. Trouble Shooting


4.1 Attention

1. please link the camera with PC before running the driver installation; and when there comes out warning dialog, just click 'Continue Anyway', as the pictures show below:



2. Error: No video capture device was detected on your system (As the picture shows below). Please check whether the camera has linked with the PC or not, and whether the driver has been installed rightly. If not, please refer to the next two chapters 4.2 check whether the driver has been rightly installed and 4.3 How to update the driver.



3. Can not record or record error. Please check whether you have installed the 'video codec software'  in the CD.

4. USB2.0 is a mandatory, not optional. This camera cannot work on the computers with USB1.1 ports. In order to ensure the stability of the connection with the USB2.0 interfaces, please insert the plug into those interfaces in the back panel the mainframe.

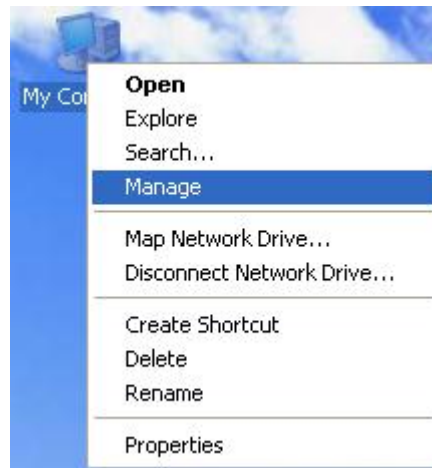


5. **Please use the same USB2.0 port every time.** Using on a different USB2.0 port may need to update your driver again to make the camera work. Refer to the chapter 4.3 to update the driver.
6. This camera supports 32bit operation system: Windows 2000/XP/Vista.
7. Please unplug the USB cable from the computer immediately after using. It will shorten the lifetime of the camera, sometimes may cause repair service if the camera is plugged in the computer all the time and you do not shut down the computer for a long time.

4.2 How to update the driver

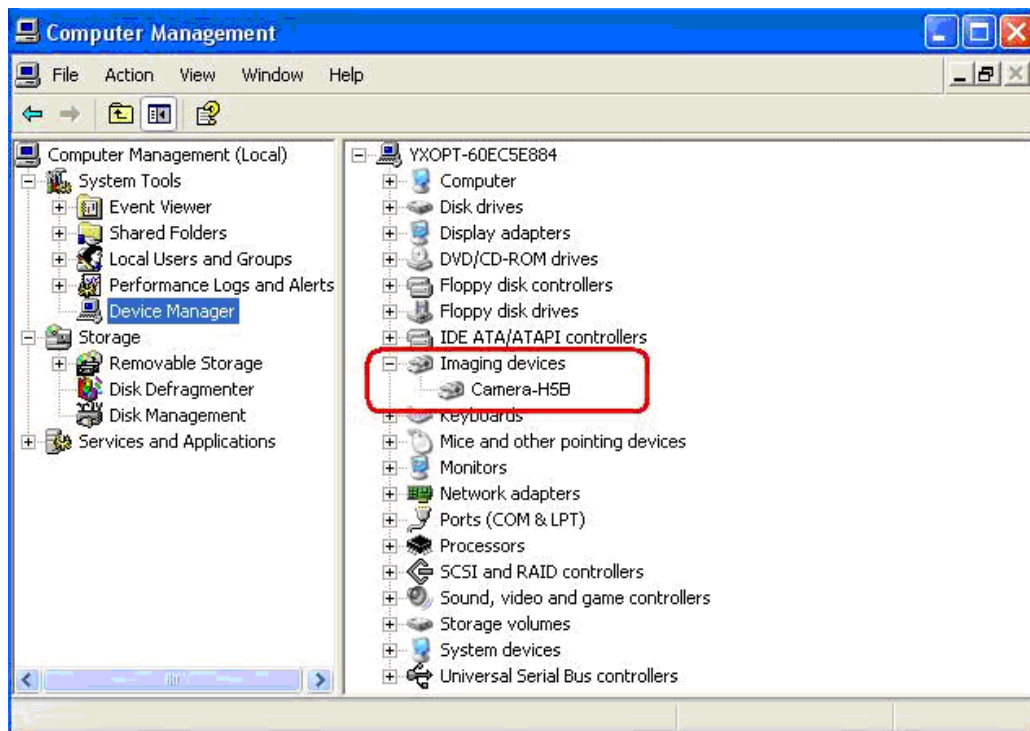
4.2.1 Check whether the driver has been rightly installed

- (1). Right click menu of the 'My Computer', select 'Manage' to open the 'Computer Management'



(2) Click the ‘Device Manager’, and check the ‘Imaging devices’,

If there is an imaging device named Camera-H5B (as picture shows below), it means the device driver has been rightly installed. (Make sure the camera is linked with the computer, and the camera’s red LED is on when checking.)



(3) **Note:** If there’s **no imaging device** in the device manager, or there’s **a yellow warning symbol** before the imaging device “Camera-H5B”, it means the driver is not the right one, you need to update the driver, please refer to the next chapter to update to reinstall the driver.

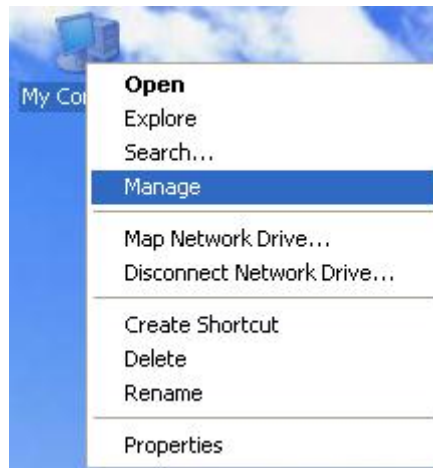
4.2.2 How to update the driver

If you change the USB port, or can not open the software, you need to update the driver. (Make sure you have run the setup before.) Or you can also

uninstall it first, and then reinstall it again.

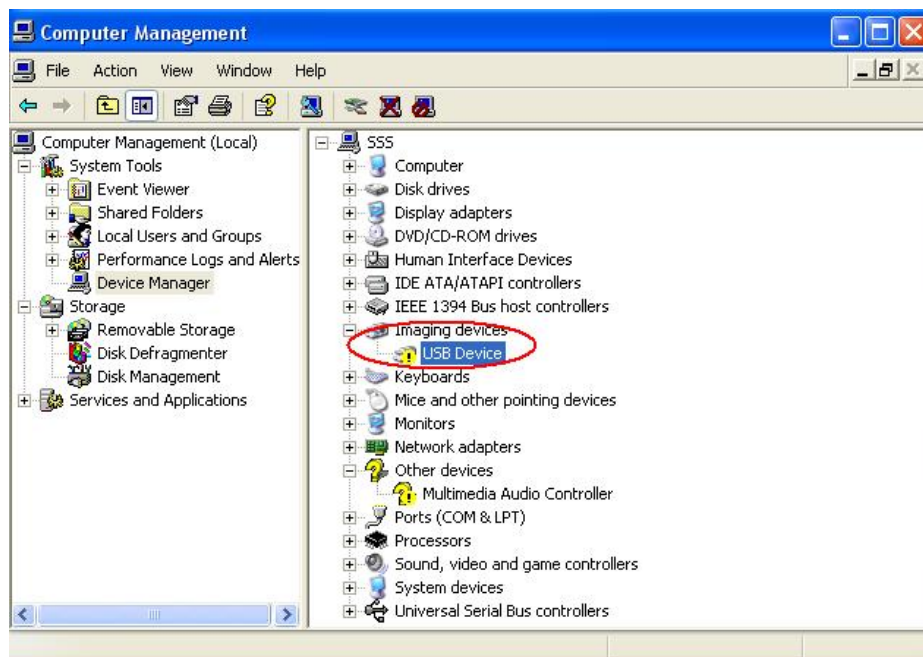
1. Open the Device Manger

- (1) Click to select the My Computer, and then click the right mouse, select the Manage.

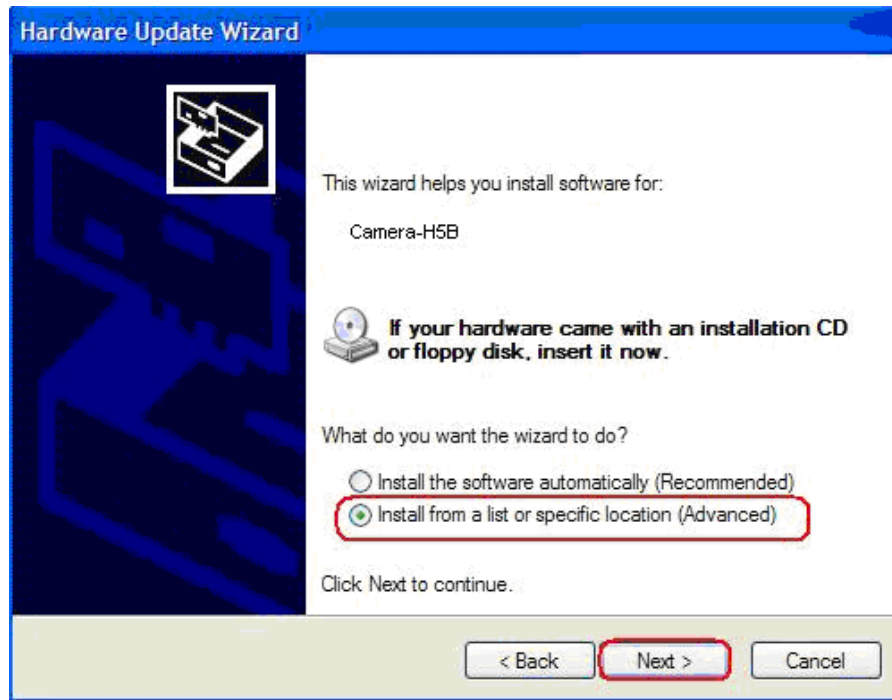
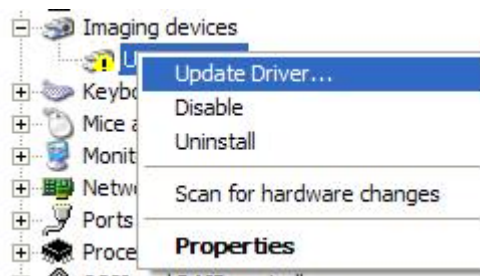


- (2) Open the Computer Management, select the Device Manager.

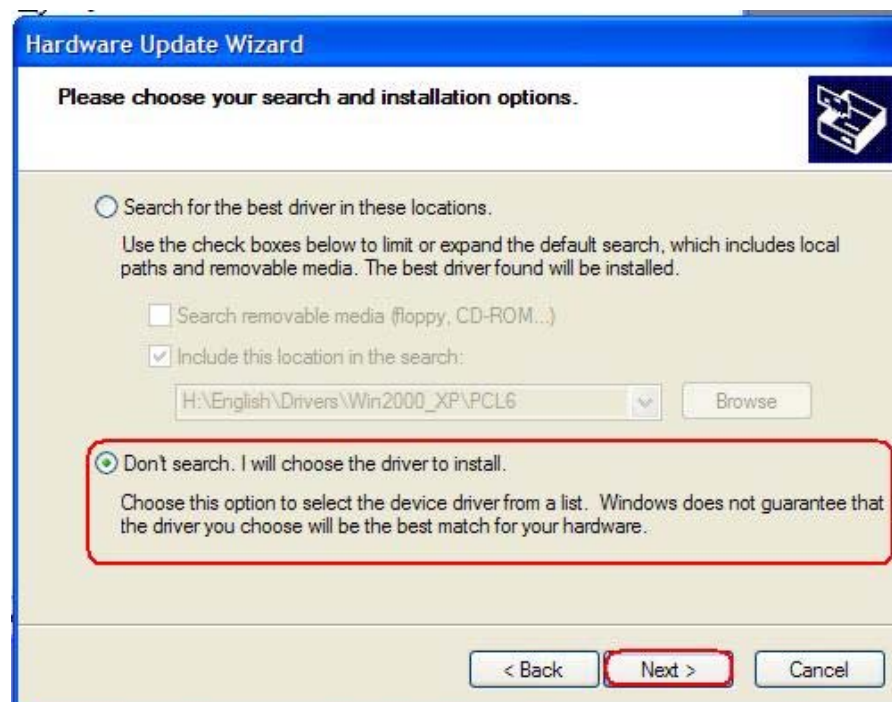
- (3) Click the 'Imaging devices', right click the 'USB Video Device'



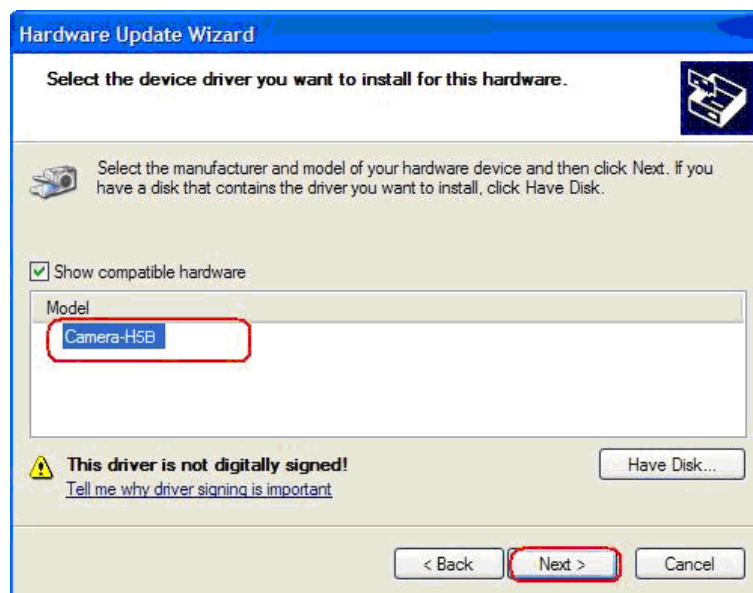
- (4) Click 'Update Driver...', comes out found new hardware wizard.



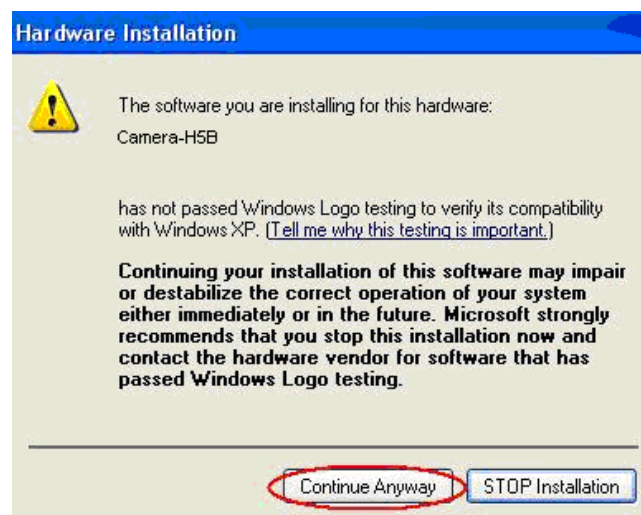
2. Choose 'Install from a list or specific location (Advanced)', click next.



3. Choose 'Don't search. I will choose the driver to install.'



4. Choose 'Camera-H5B', Click 'Next'.

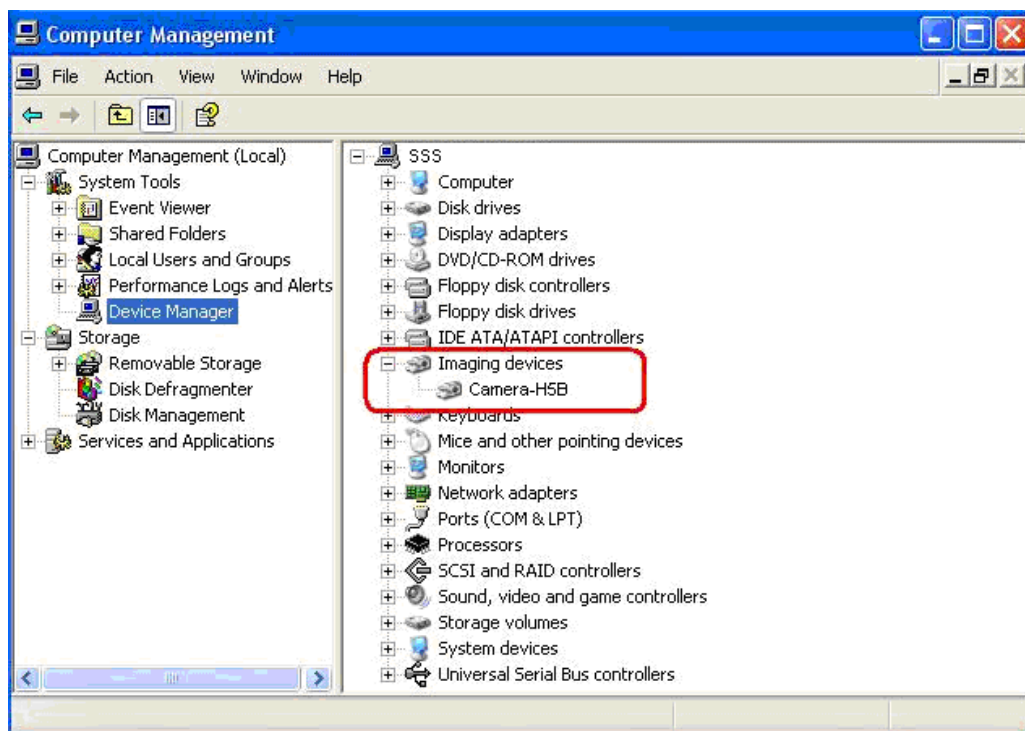


5. Hardware Installation, click 'Continue Anyway'.



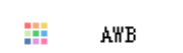
6. Click 'Finish'. Hardware installation has been finished.

You'd better restart your computer to make the new device work rightly. And you can check it bellow the “**Imaging Devices**” in “**Device Manager / Hardware**”. Then you can use the camera to preview the images.



4.3 How to adjust the color

1. Use the auto white balance: Please move slice away, and then click the



button, the camera will do the auto white balance itself, and adjust the color parameter to a right value.

2. Keep the color scheme to the database for further using.
3. Using the LED lamp source will help to restore the purple color, especially when observing these slices of animal tissues;
4. When using the halogen lamp, you'd better add a blue filter glass on the halogen lamp to compensate the spectrum, and then adjust the video parameters: increase the Blue gain, the Red gain smaller than the Blue gain, and the Green gain smaller than the Red gain to balance the background light, adjust these parameters until you get a good color that the color displays on the computer is similar to the color we see in the microscope.