MShot Image Analysis System

Dongle Version

User Guide

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Contents

PC Configuration Needs

To install and use Mshot Image Analysis System, you need the following equipments (or more advanced) and software:

Configuration	Requirements
CPU	Intel core 2 duo E2140
RAM	2 GB
Free Disk Space	1 GB
Display	17 inches（resolution:1280×1024, 24/32bits, color）
OS	Windows® XP,WIN7,VISTA

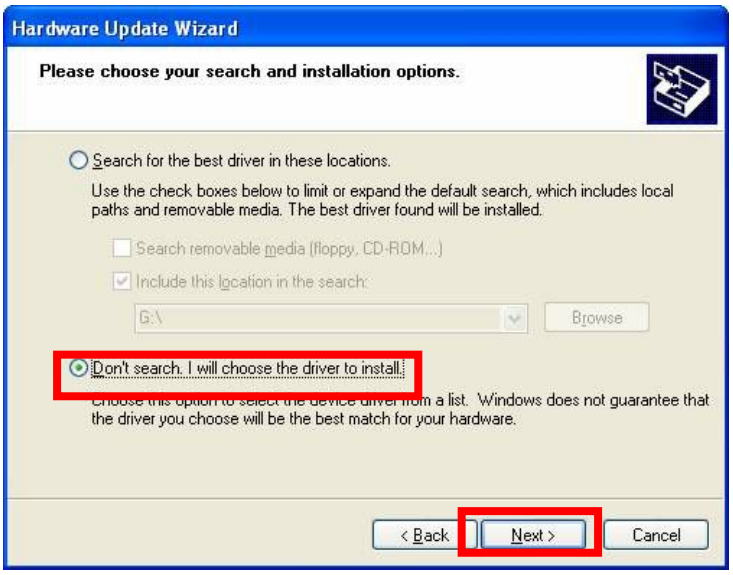
Setup Guide

Driver Setup（MC50）

1. Put the driver disk into your CD-Rom / DVD-Rom or DVD device.
2. Connect MC50 to the USB port of the computer（recommend the USB port on the back if it is desktop), then you can see the prompt of a new software.
3. Choose “Install from a list of specific location[advanced]”. And click “Next”.(as show in picture 1)

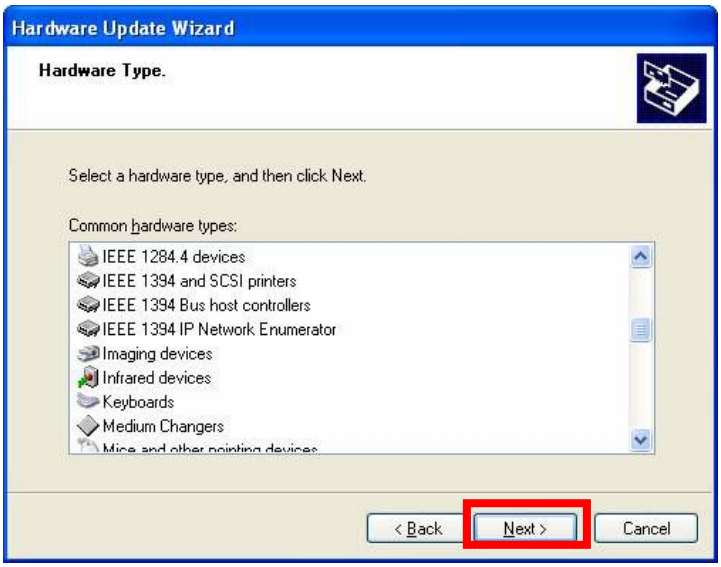
picture 1

4. Choose “Don’t search. I will choose the driver to install”, and click“Next”（as show in picture 2）



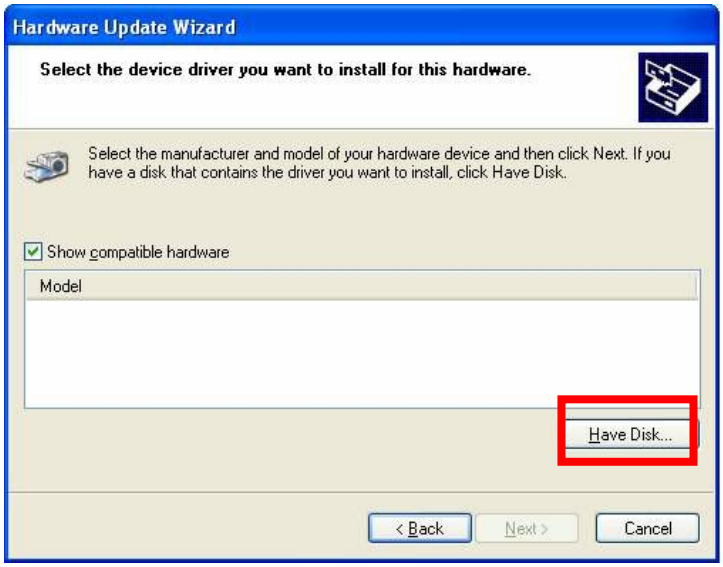
picture 2

5. Select a hardware type, and click “Next” (as show in picture 3)



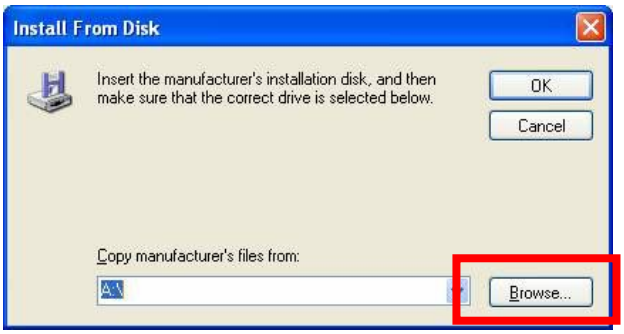
picture 3

6. Click“Have disk...” to select the device driver you want to install this hardware. (as show in picture 4)



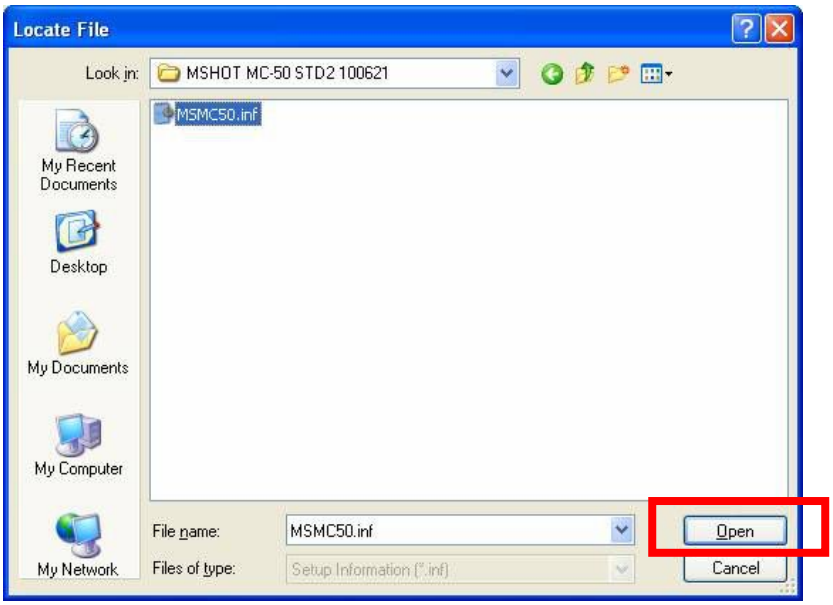
picture 4

7. Click “Browse...” (as show in picture 5)



picture 5

8. Choose the locate file .select **“MSMC50.inf”** and click **“Open”**（as show in picture 6）



picture 6

9. Click “OK”(as show in picture 7)

picture 7

10. Click “Next” (as show in picture 8)

picture 8

11. Click “Finish” to complete the hardware update wizard.(as show in picture 9)

picture 9

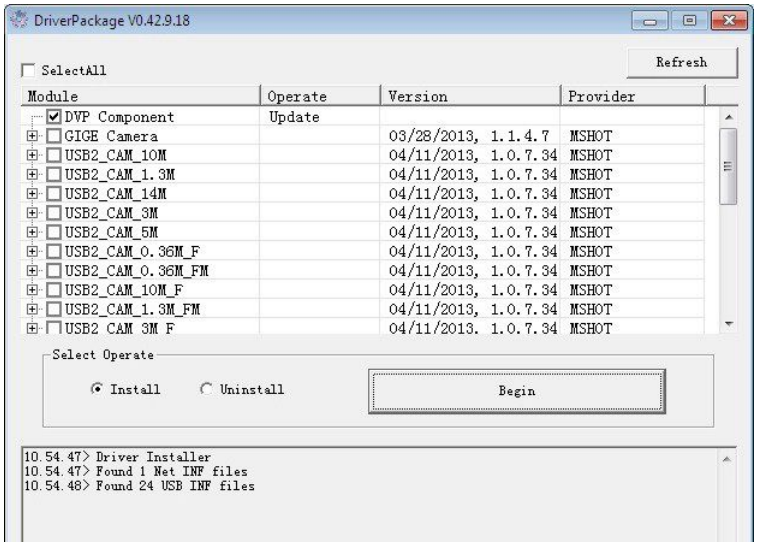
Driver Setup（MD50-T）

1.Put the disk into the CD-Rom / DVD-Rom or DVD device.
2.Connect MD50-T to the USB3.0 port of the computer, then you can see the prompt of a new software.

3.Find 

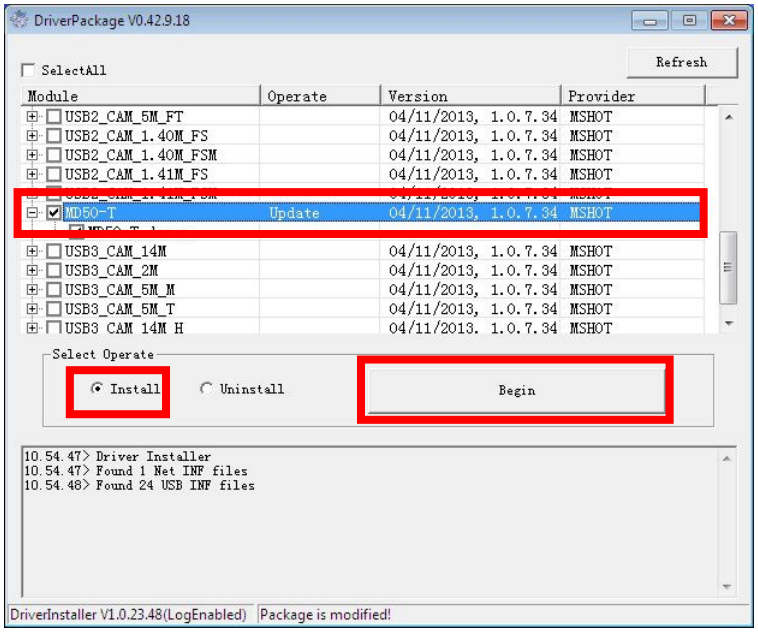
in the disk（installation program under 32 bit system）or 

（installation program under 64 bit system), double click the icon, then it will pop up the installation interface. (as show in picture 10)



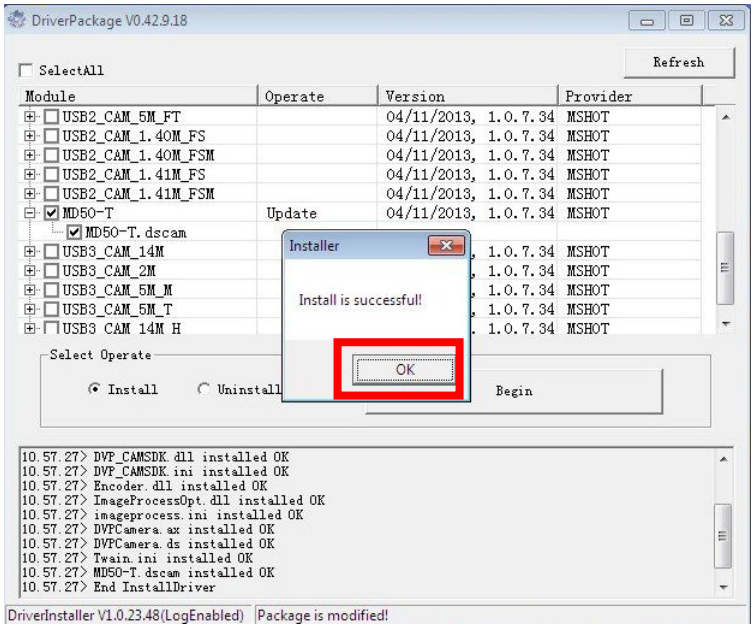
picture 10

4.Find MD50-T in the component list, and choose “Install”, click the “Begin” button（as show in picture11）



picture 11

5.Click “Ok”to finish the installation of the camera driver.(as show in picture 12)



picture 12

Software Installation

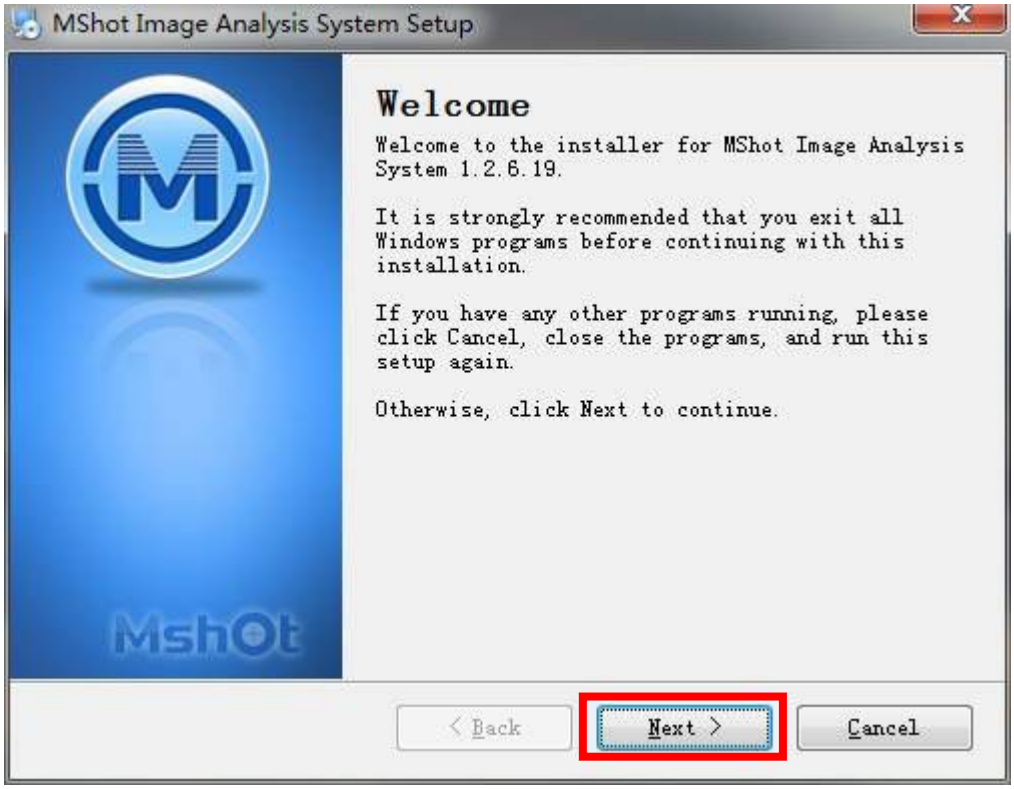
1. Copy the file “Mshot Image Analysis System 1.2.6.19.exe” 

in the computer.

2. Double click this icon 

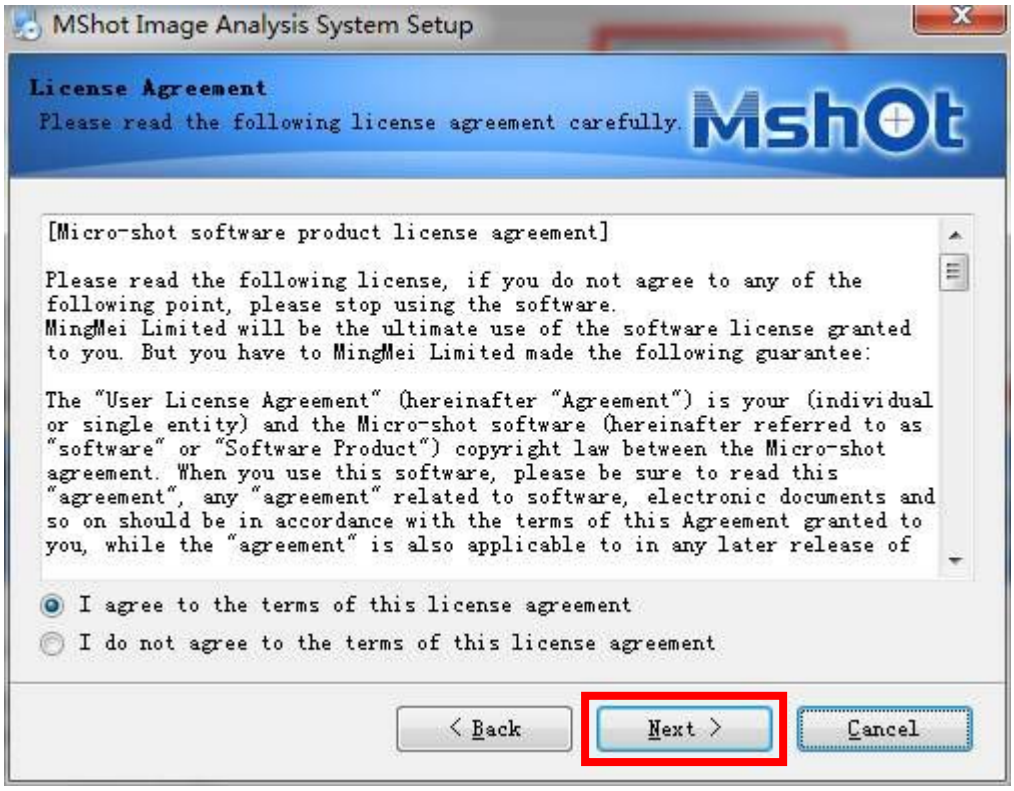
, then it will pop up the installation interface.

3. Click “Next”(as show in picture 13)



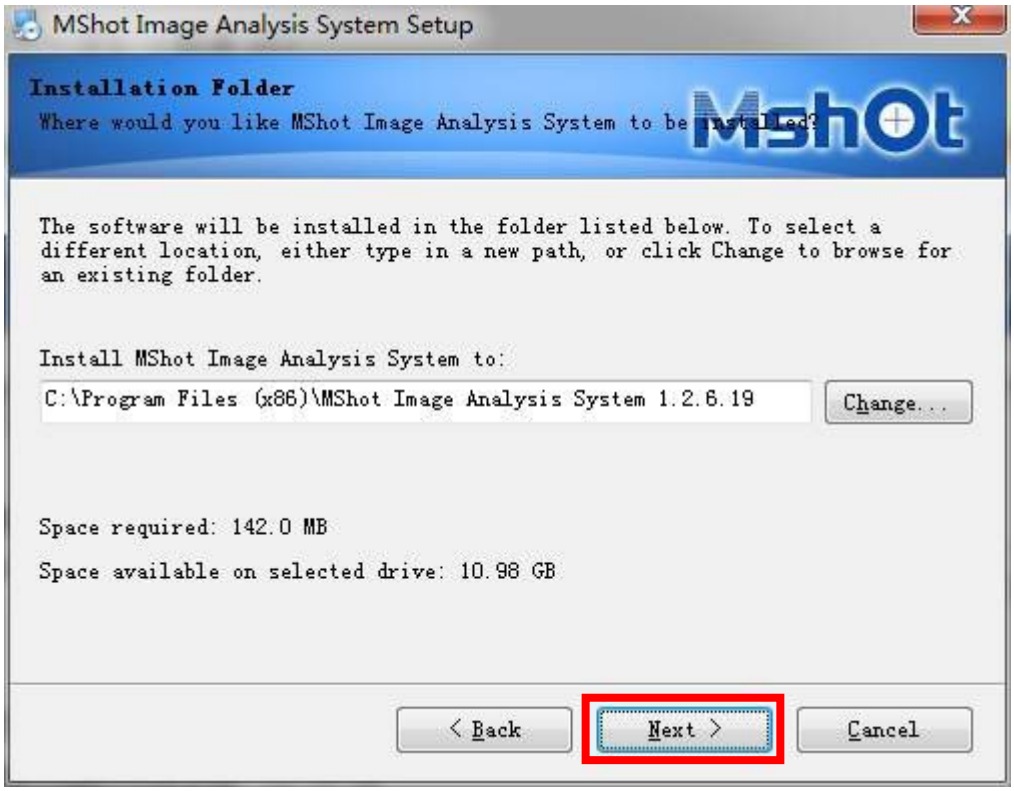
picture 13

4. Choose “I agree to the terms of this license agreement”and click “Next”. (as show in picture 14)



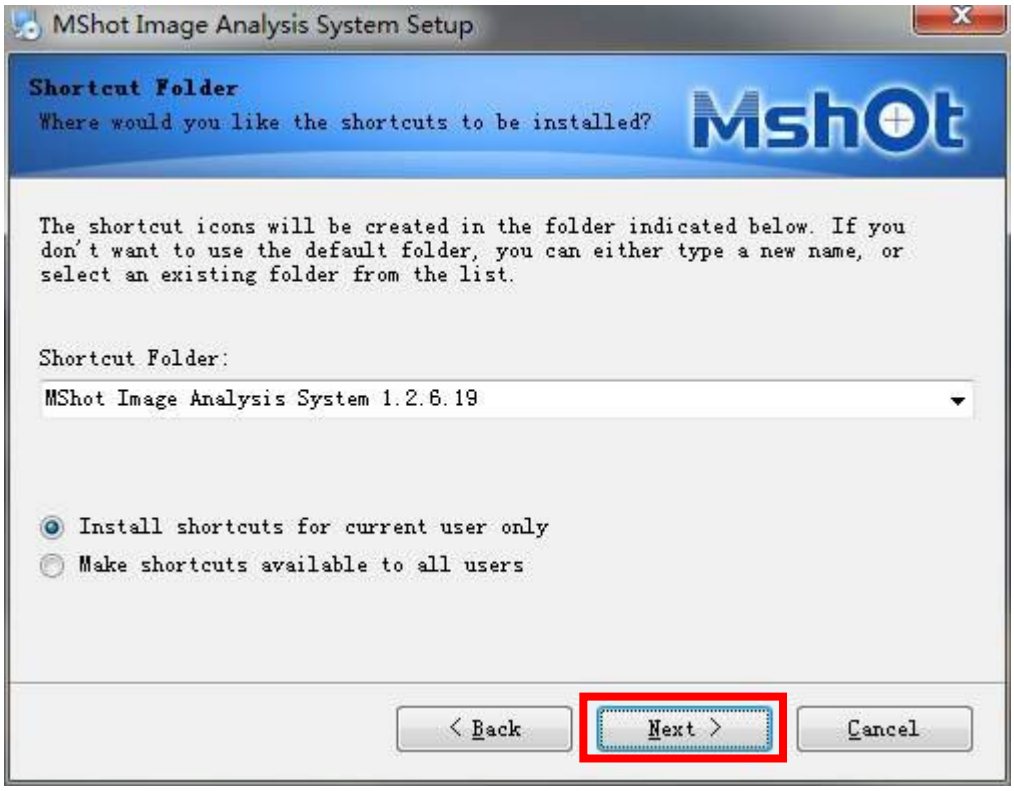
picture 14

5. Click “Next”（as show in picture 15）



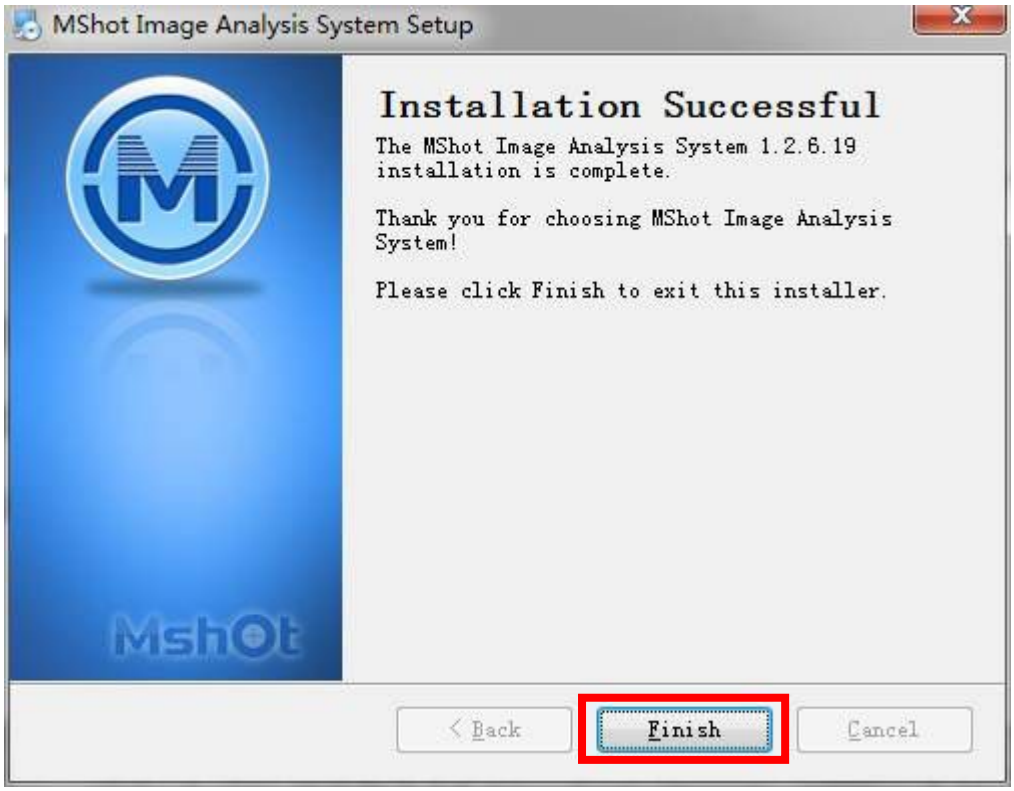
picture 15

6. Click **"Next"**.(as show in picture 16)



picture 16

7. Click "Finish" （as show in picture 17）



picture 17

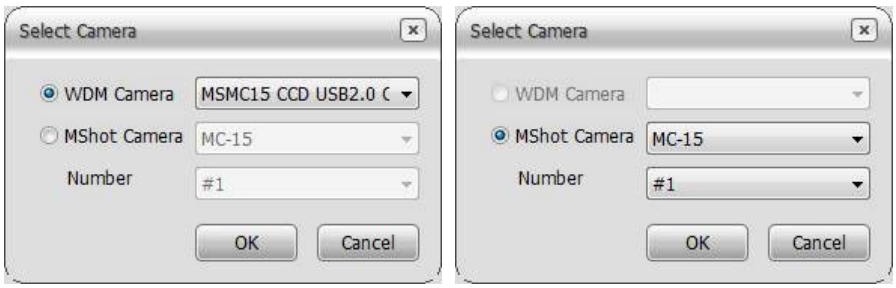
8. Finishing installing the software, it will generate icon like 

on your desk, and you can click it to run.

Dongle Installation

Mshot image analysis system is an application software depends on the hardware combination lock. It needs to insert the key--dongle to unlock the related functions before you can use it. It is already preset related driver information of the combination lock hardware in Windows ® XP/Vista / 7 system. Users only need to insert the dongle to a USB port, the system will automatically install the driver information.

Some functions of Mshot image analysis system can only be run on circumstance which can detect the hardware combination lock, such as: WDM (as picture 18 showing the the difference between using and not using hardware dongle). When the dongle is pulled out during the running of the program, the system will prompt “please insert the dongle”. At this time, you need to insert the dongle and click “Retry”. (as show in picture 19). While clicking“Cancel”, the program will automatically shut down.

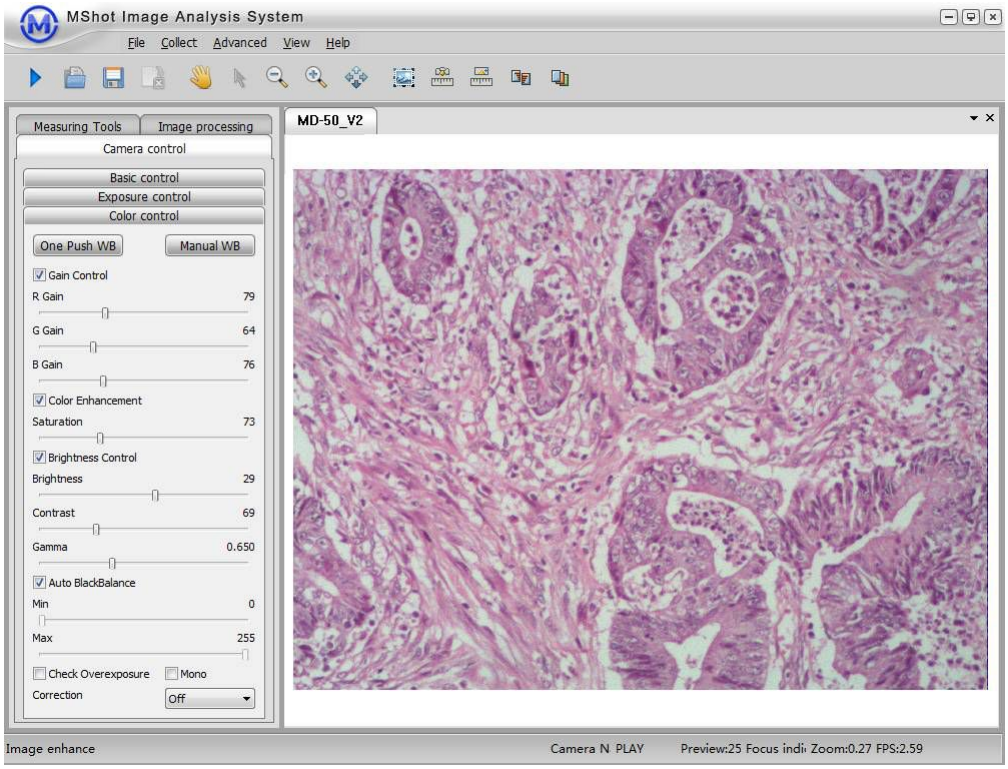


picture 18

picture 19

Operation Interface

Mshot image analysis system has a clear interface（as show in picture 20）, users can easily master the operating of all the functions.



picture 20

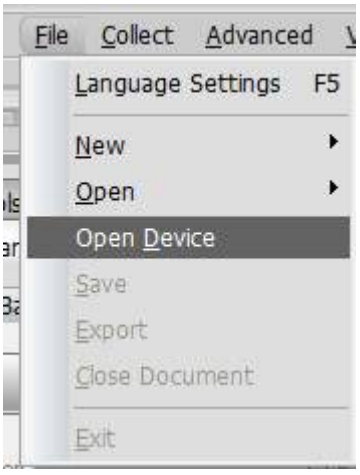
Start MShot Image Analysis System

1. Connect the camera to the computer and install the driver.
2. Power on the light source and switch the light path to the camera.

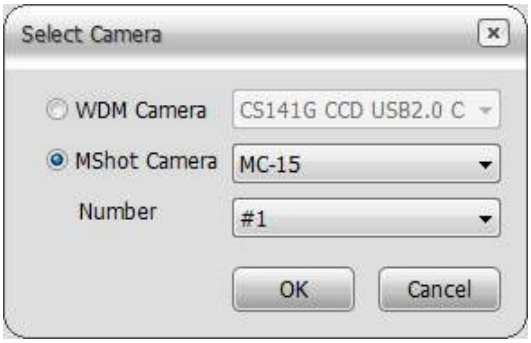
Insert the dongle and double click the icon 

on the desk to start the program.

3. Choose “Open Device” on the “File list”, select the camera, and you can preview the microscope image on the main window.
4. Clicking  this icon, you can open the devices using last time.（as show in picture21, 22）



picture 21



picture 22

5. You can adjust the white balance before observing the sample in order to avoid the image distortion.

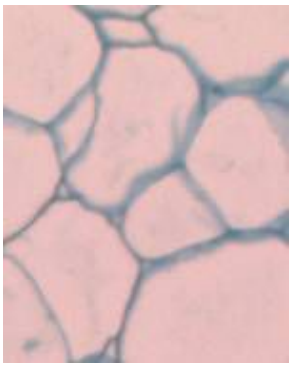
One-push White Balance can smartly adjust the background of the image to pure white, and adjust the color of the image near to the observing effect in the eyepiece. You should remove the specimen on the object stage out of the view before using it in order to get pure white background in the view. Then adjust the brightness of the microscope to or near to white, then press “One Push WB” on the left tool bar, and then you can put the specimen back.. (as show in picture 23, 24)

Regional White Balance do not have to remove the specimen out of view, you just need to directly click the “Regional WB” button, and select the white region in the view, then it can get the white balance effect.

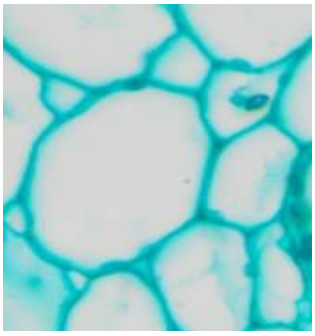
Picture 23

Comparative between before and after white balance：

Before white balance： **real-time image：**

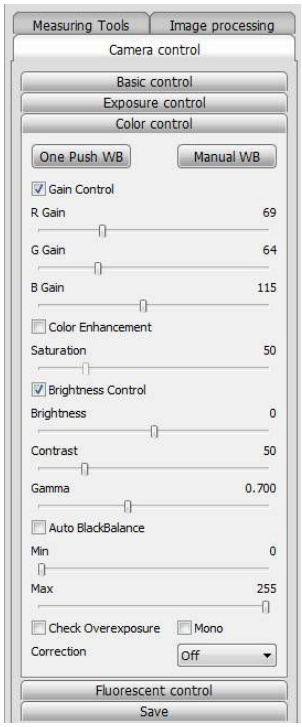


After white balance：↓ **real-time image: ↓**

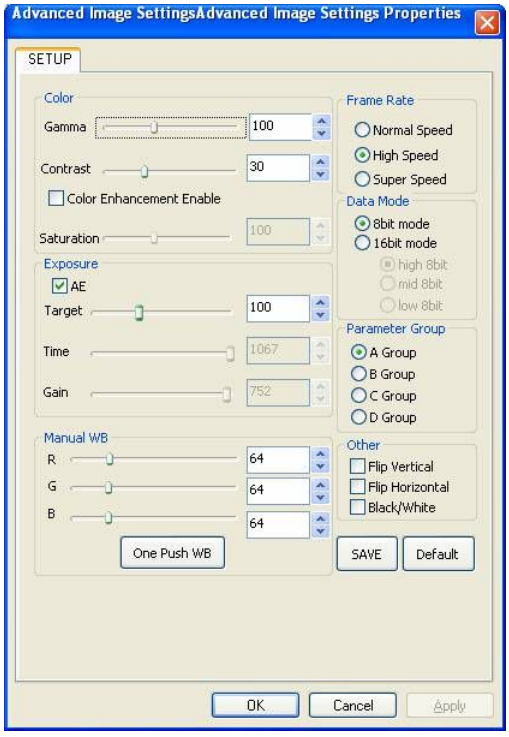


picture 24

6. Opening up the “Camera control”in the left tool bar or click “View”--“Advanced image setting”, or directly press hotkey (F7) (for WDM equipment only), and adjust the video parameters. About video parameters adjustment, please refer to the “image snap part” in the camera user manual. (picture 25, 26)



picture 25

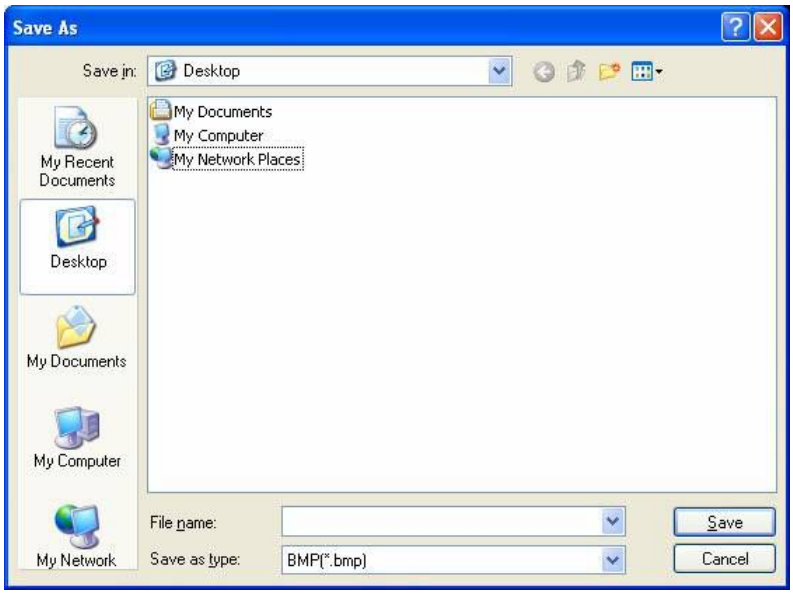


picture 26

7. Click “Basic control” on the left tool bar, or click “View”--“Resolution Setup”, or directly press hotkey (F8) (for WDM equipment only) to adjust the resolution. Cameras are usually provide different resolutions to adapt to different applications. Such as MD50, it provides four groups of resolution, including 640 * 480, 1024 * 768, 1280 * 960, 2596 * 1944, for the user to choose high resolution while getting static image, and choose low resolution while taking video. (picture 27)

Picture 27

8. Click the “Save”  button on the tool bar, choosing the save file and typing in the file name, and choose the “Save as type”, click “Save”to save the preview image.（picture 28）



picture 28

Menu

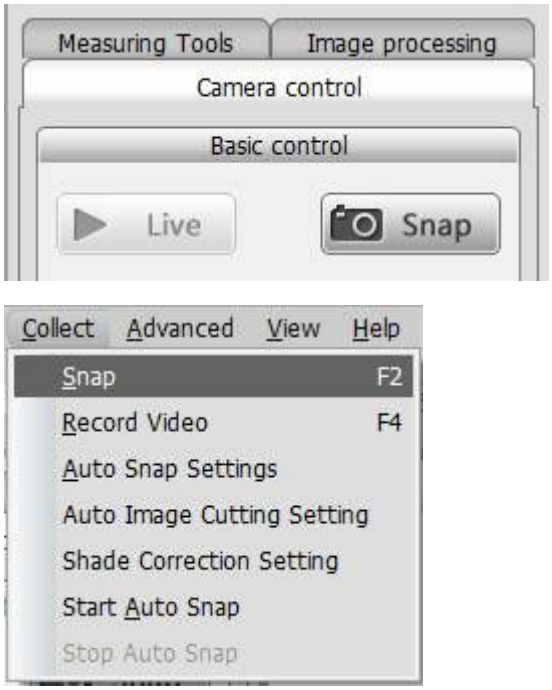
When the program is under previewing mode, all menu are operational. Opening of function module is determined by the hardware combination lock--dongle.

Main Menu	Submenu	Function	Standard● /Optional○
File（F）	Language setting（F5）	Choosing the program language （Chinese/English）	●
	New	Construct a new dynamic measurement	
	Open	Open the image or open the image to measurement	
	Open device	Select the image input device	
	Save	Save the previewing image by choosing content, file name, and file type	
	Output	Output the measurement data	
	Close file	Close the previewing window	
	Exit	Exit the program	
Image Collect	Snap（F2）	snap image to the content setting on auto-snap	●
	Record Video（F4）	Start the video function	
	Auto-snap Setting	Set parameters like auto-snap interval and file name, etc.	
	Photo cut setting	Start the function of photo cut	
	Shade Correction setting	Start the function of shade correction	
	Start auto-snap	Start auto-snap function	
	Stop auto-snap	Stop image auto-snap function	
	Auto-focus	underdevelopment	○
	Temperature detection	underdevelopment	

Main Menu	Submenu	Function	Standard● /Optional○
	Auto-focus setting	underdevelopment	
	Temperature detection setting	underdevelopment	○
Advanced （A）	Image processing	Start the image processing function	●
	Dynamic measurement	Measure the data of the dynamic image	●
	Static measurement	Measure the data of the static image	●
	Splice	Splice the related images	●
	ExtFocus	Form one clearest image with a series of images of the same object in different focus distances	○
View	Advanced image setting(F7)	Using in WDM device, for the setting of the video parameters	●
	Adjustment of the resolution(F8)	Resolution setting of mage preview and snap	
	Display ratio	Choose display ratio（adaptive/full size1:1）	●
	Camera control	Start the camera control module	●
	Navigation view	Choose or cancel navigation view	○
	Measuring data	Choose or cancel display of measuring data	○
	Full screen	Preview in full screen	●
Help		Show related program information	●

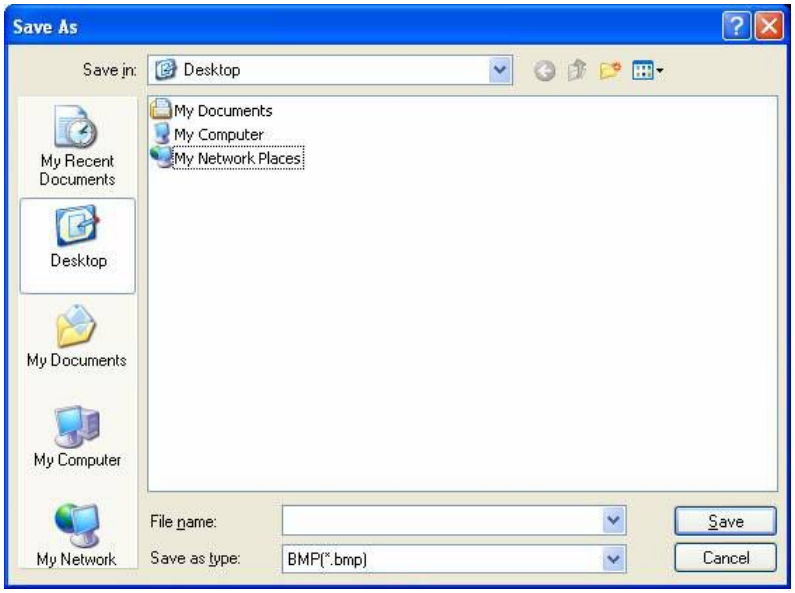
Image snap

1. Enter to preview, click “Basic control”on the left toolbar→choose “Snap”or “Collect” →take photo, or directly press hotkey [F3] / [F2] to snap static image on the current preview image. (picture 29)



picture 29

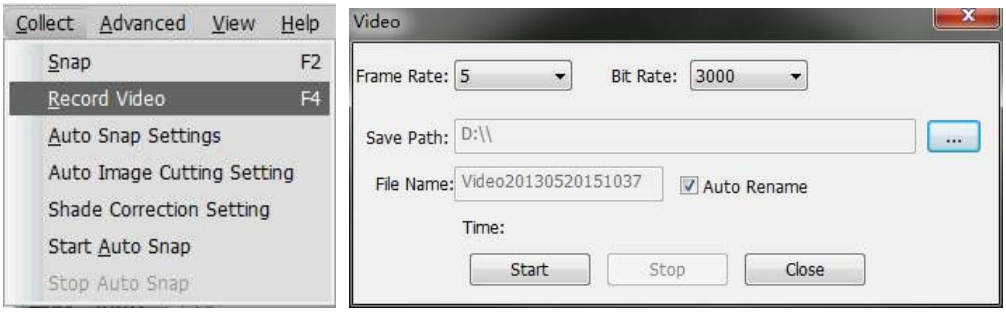
2. After clicking the “Snap”, save the image to your specified file.(picture 30)



picture 30

Dynamically snap of the Current Image Preview

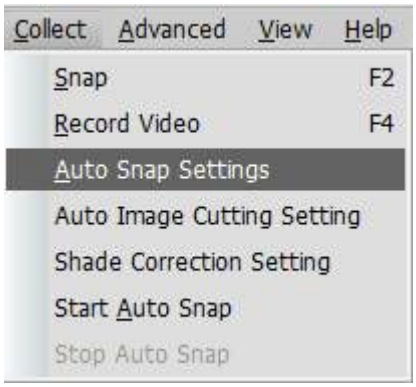
Choose the“Record Video” under the list of “Collect” , or press hotkey [F4]directly. Set the video parameters before taking video. (picture 31)



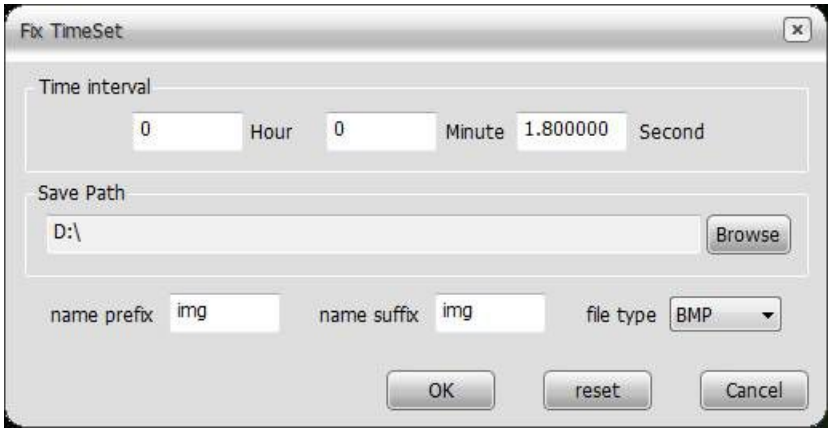
picture 31

Continuous snap of the Current Image Preview

Set the snap parameters in“Auto Snap Settings” under list of “Collect” (Notice: Interval must longer than 0 second). Choose “start auto snap” under list of “Collect” after the parameters setting. Choose “Close Auto Snap” under list of “Collect” to closed function.(picture 32,33)



picture 32



picture 33

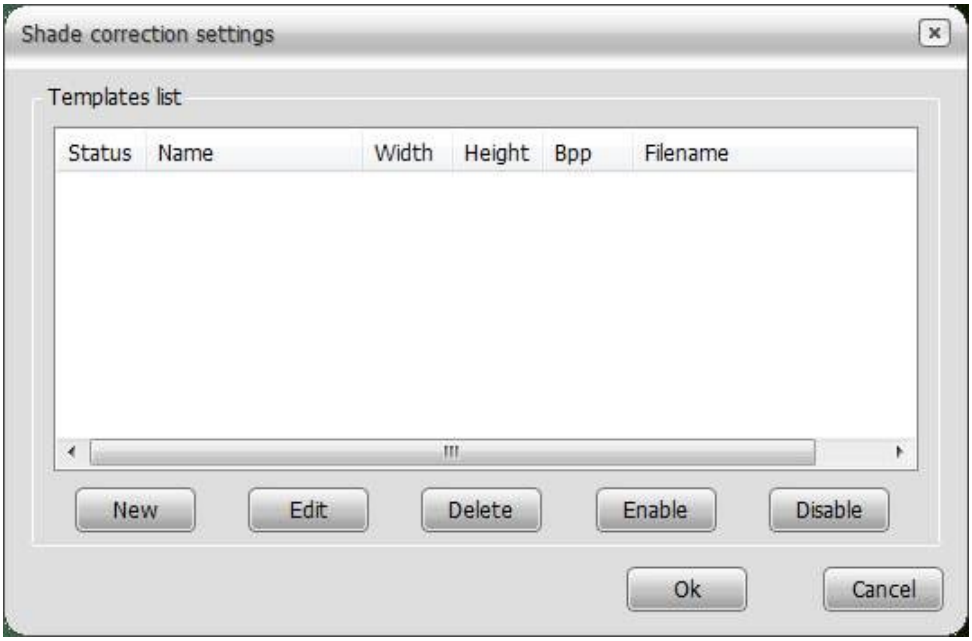
Shade Correction Settings

Correct the shade on “auto snap settings”under list of “Collect”. You can correct partial light area of the image by this way. As the picture 34 show.

picture 34

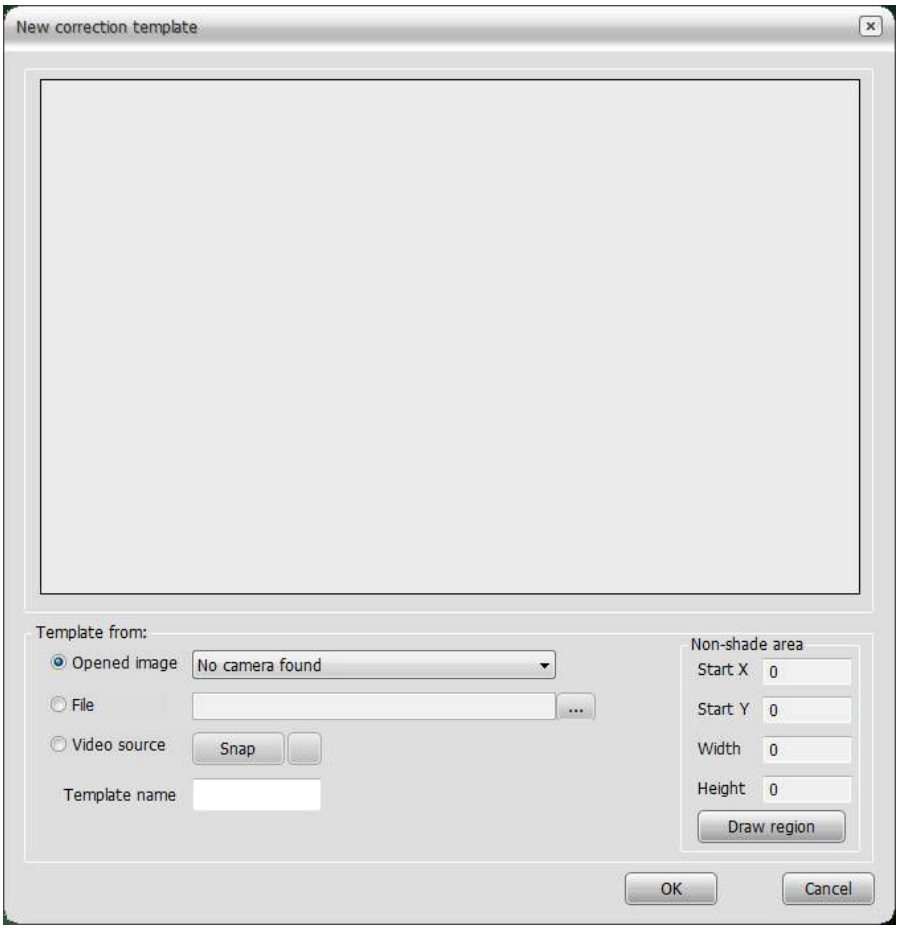
As the center of the image is lighter, you need to set the correction parameters before correcting it.

1. Choose “Shade correction settings” under list of “Collect”to enter the interface of shade correction parameter settings. (picture 35)

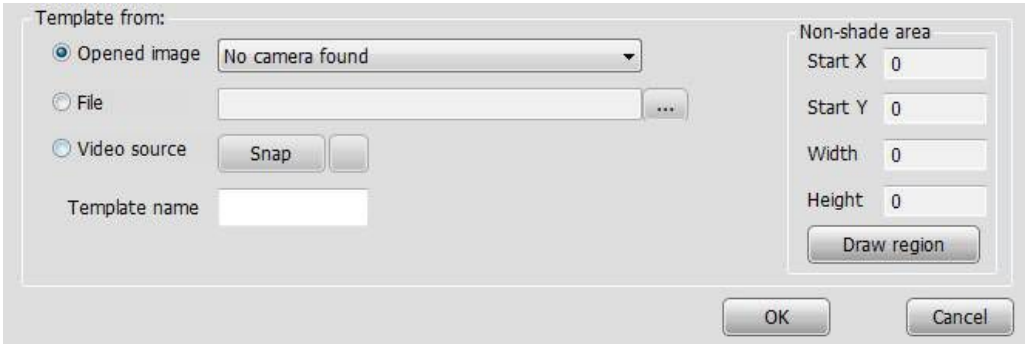


Picture 35

2. Click “New” to enter the interface of new correction template. (picture 36,37)

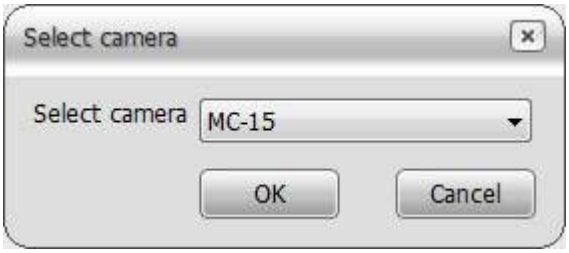


picture 36



picture 37

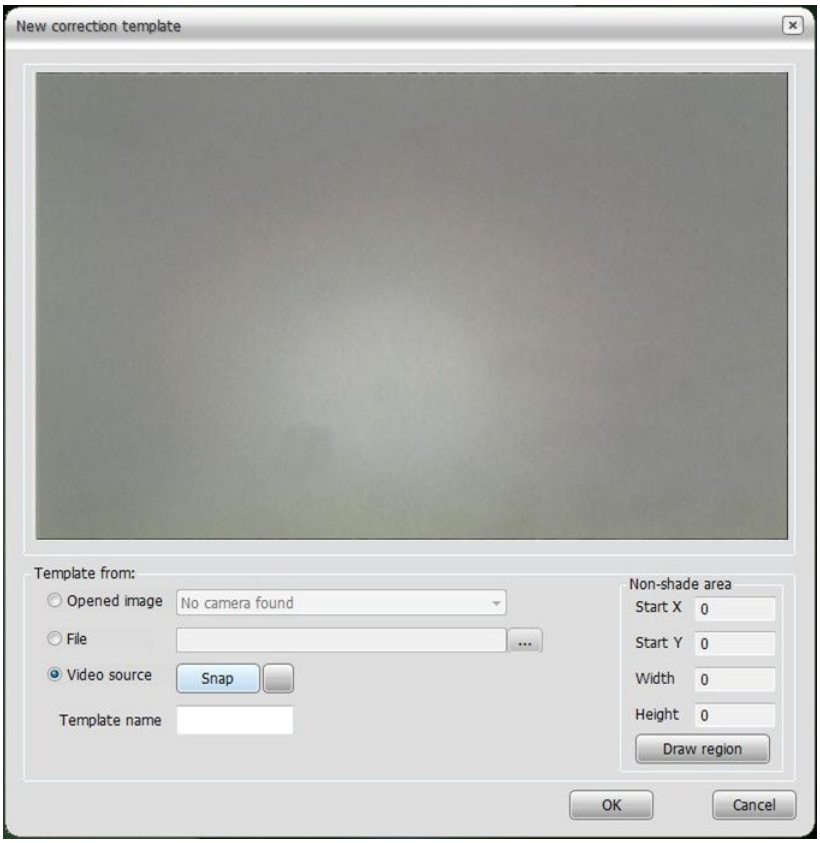
3. Choose “Video source”and click “Snap” to enter the window of video source, and choose the current video source. (picture 37,38)



picture 38

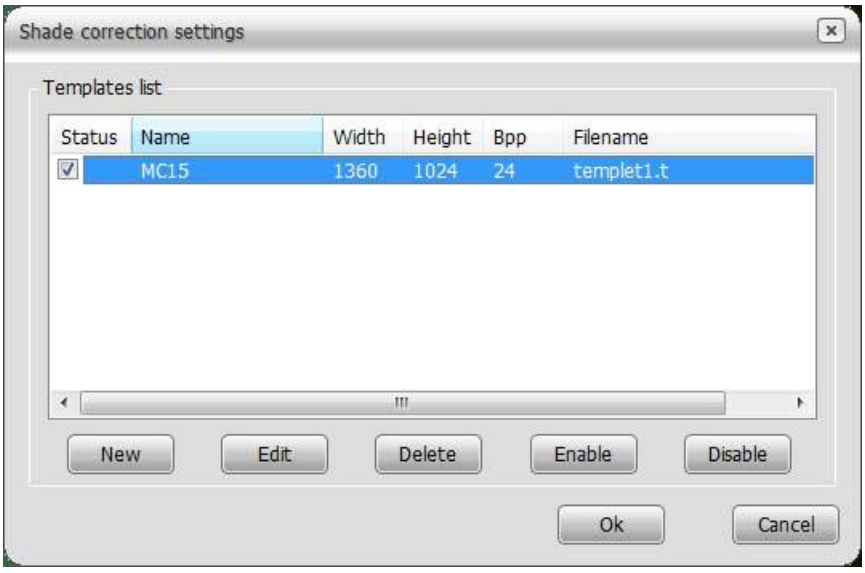
4. Click “Snap” to shoot the current picture, and input template name in the template note place (picture 39).

   Notice: please adjust the focal length and remove the sample before using the template images, . Template images are blank samples, means the background is pure white, without any color and black spots.



Picture 39

5. Click “Enter”and choose the suitable brightness area with mouse and click “OK”. Then new template is added successfully. (picture 40)



picture 40

6. Choose the template in the check box. Click “OK”. Parameter is set successfully. The image snapped is already been shade correction. After correction, there is not any bright spot on the image. (picture 41)

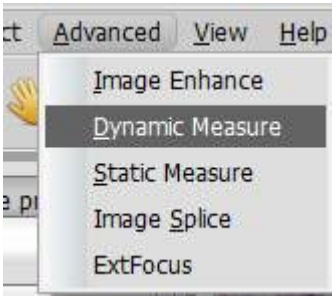
Before correction

After correction

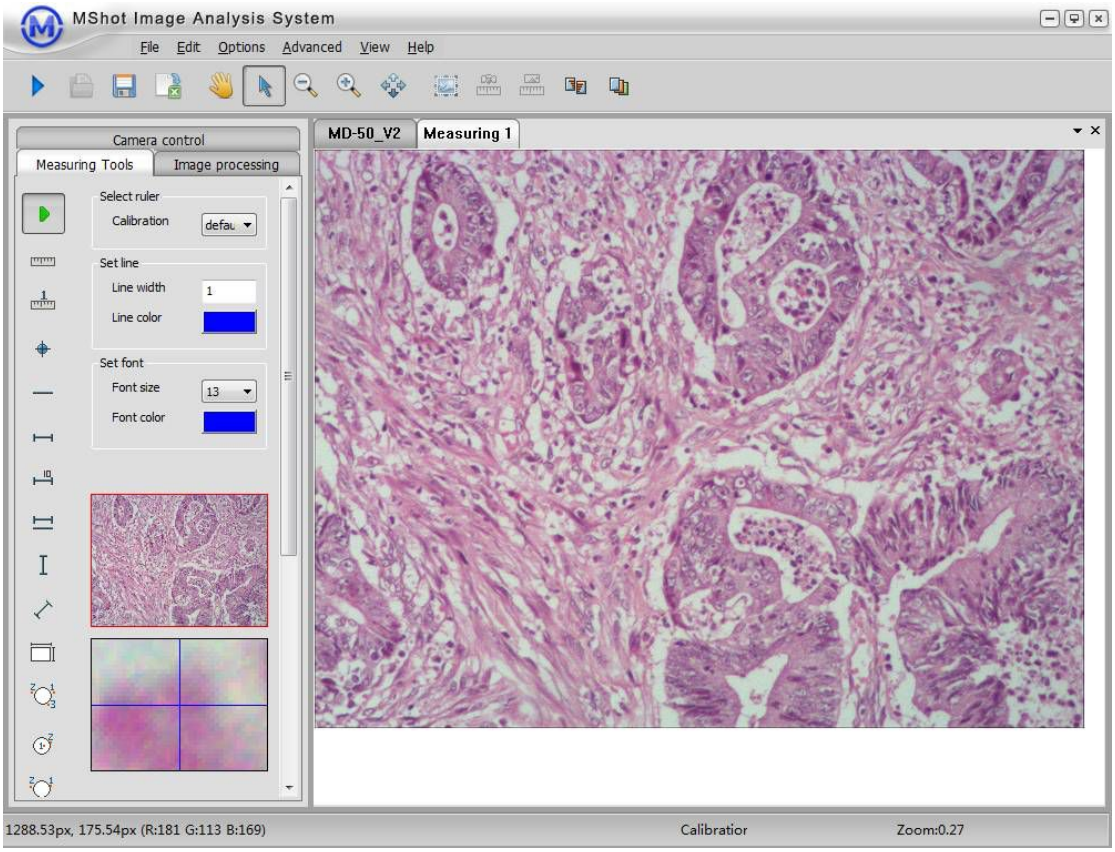
picture 41

Image Measurement

1. Do dynamic (static) measurement on the current preview. Choose “dynamic/static measure” under list of “Advanced”. As picture 43 show, the above image on the left navigation bar is the position navigation, below image is the preview image of 400% magnified image effect of around zone. (picture 42, 43)



picture 42



picture 43

2. Measure the adding zone

Use measuring tools in the toolbar to measure the object. Choose measuring ratio in the "Correction" under list of "Options". Tools in the toolbar is introduced as following. When needing to change or delete some measuring tools, select the target and choose "delete" under list of "edit". When needing to use measuring tools, single click the selected tool and choose the measuring zone in the measuring image.


[insert unit scale] standard measuring scale


[insert tag point] label to locate the target point


[insert line] measure the distance between two target points


[insert line segment] measure the distance between two target points, and the perpendicular datum line

 [insert contraction scale] insert the unit contraction scale

 [insert horizontal line] measure the horizontal distance between two points

 [insert vertical line] measure the vertical distance between two points

 [insert 45° oblique line] measure distance of 45° oblique line

 [insert rectangle] Mark the diagonal point on the rectangle zone, measure the length, width, area, and perimeter.

 [insert circle] Mark three points on the circle, measure the radius, perimeter, and area.

 [insert ellipse] Left click mark the elliptical circumscribed rectangle diagonal point, measure the long diameter, short diameter, perimeter, area.

 [insert curve] long press the left mouse button to mark the key point of the curve, and measure the length.

 [insert hand-painted area] long press left mouse button to mark the peripheric key points of the area, measure the perimeter and area.

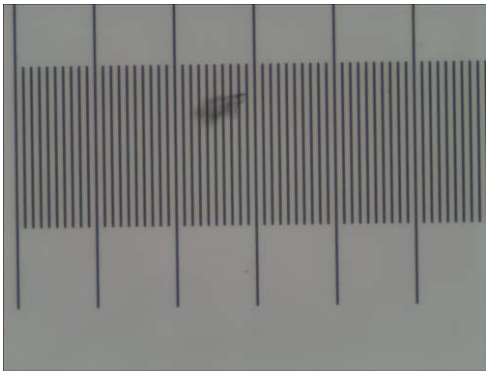
 [insert a polygon] click the left mouse button and mark the polygon's edge points in sequence, measure the perimeter and the area.

 [insert the angle] mark the angle

 [switch to mouse] cancel the choice of measured tools

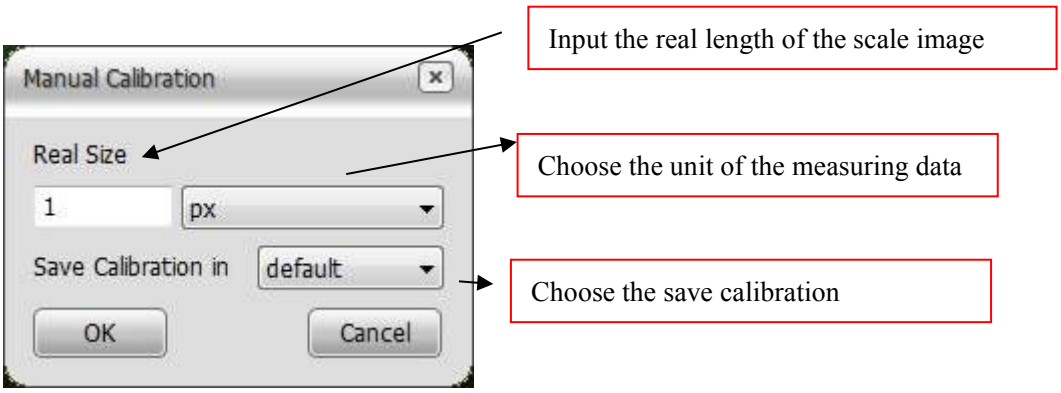
3. Calibration of the measuring scale

Taking image of the standard scale (image pixel of the scale is consistent with both the magnification of objective and measured sample), following is the image of scale under 10X objective (picture 44)



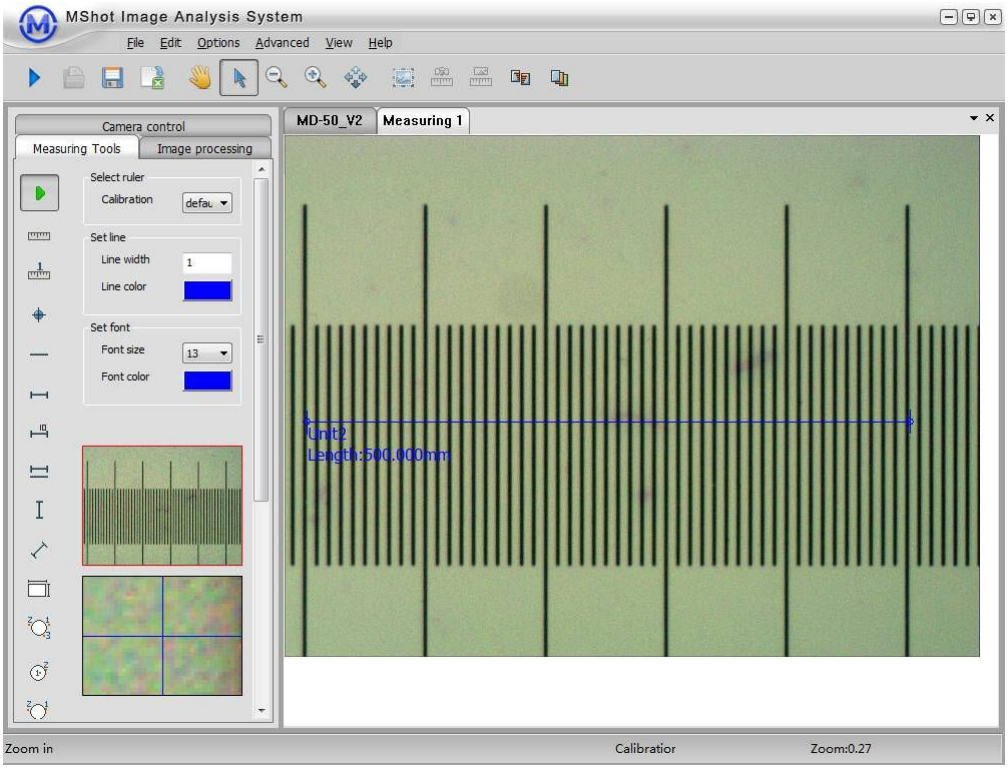
Picture 44

After clicking the icon  , it will pop up the setting window(picture 45). One of the spaces in the setting parameter is 10um, fill in 500 while choosing 50 spaces（picture 46）, optional unit：px, cm, mm, um. Fill in the display name, after revising the name and choose “Calibration” under list of “Options” and revise under the display name.(picture 47)

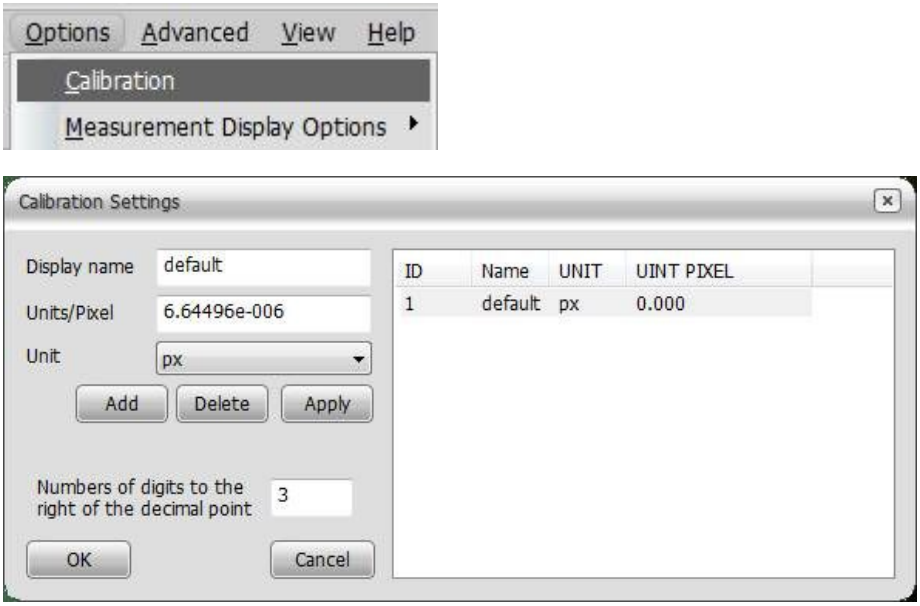


picture 45

Click OK after finishing filling them. Draw out 50 spaces on the image, and then it is finished calibration. Afterwards, the same objective and picture in same pixels can measure with this standard.



Picture 46



picture 47

4. Save data

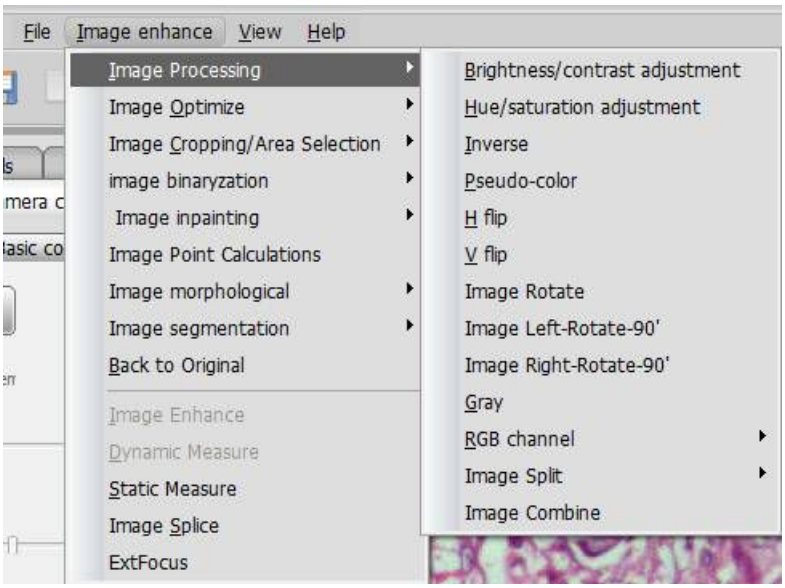
choose “Save image” under list of “File”or click this icon  , then you can get the image including the measuring data.

Choose “save data” under list of “File” or click the icon  , then you can get the excel file including the measuring data.

Image processing function

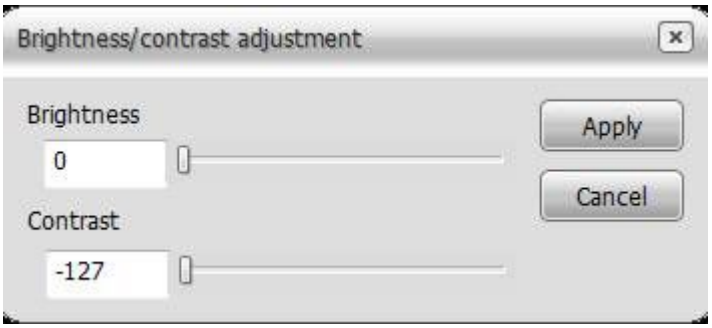
1. Open one picture by choosing “File”or click this icon  , and process the previewing image.

2. Choose “Image Processing” under list of “Image enhance”, and choose the processing tools according to your need. (picture 48)



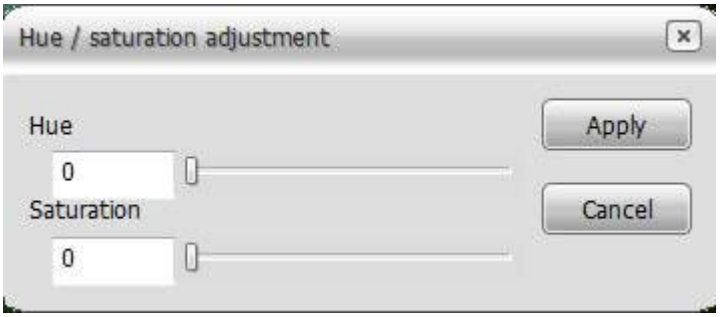
picture 48

It will pop up the following window while choosing “Brightness/contrast adjustment” (picture 49). The number filled in the brightness is bigger, the image will be brighter. Number of contrast is bigger, the color contrast of image will be more distinct.



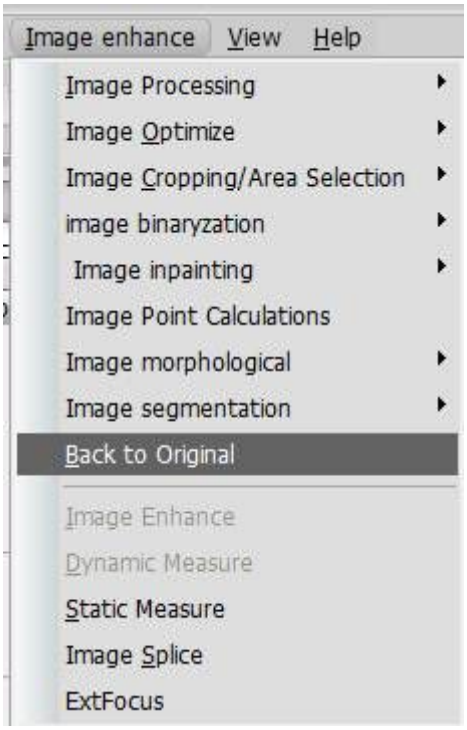
picture 49

It will pop up the following window while choosing “Hue/saturation adjustment” (picture 50). Number of the hue is bigger, color of the image will become brighter; while number of saturation is bigger, color of image will become darker.



picture 50

3. After saving the processing image by clicking this icon  , you can click “Back to Original” to reprocess the image. (picture 51)



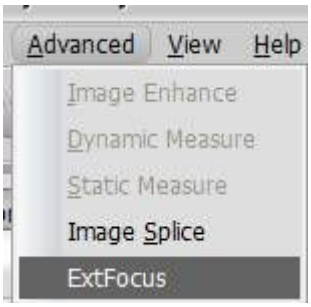
picture 51

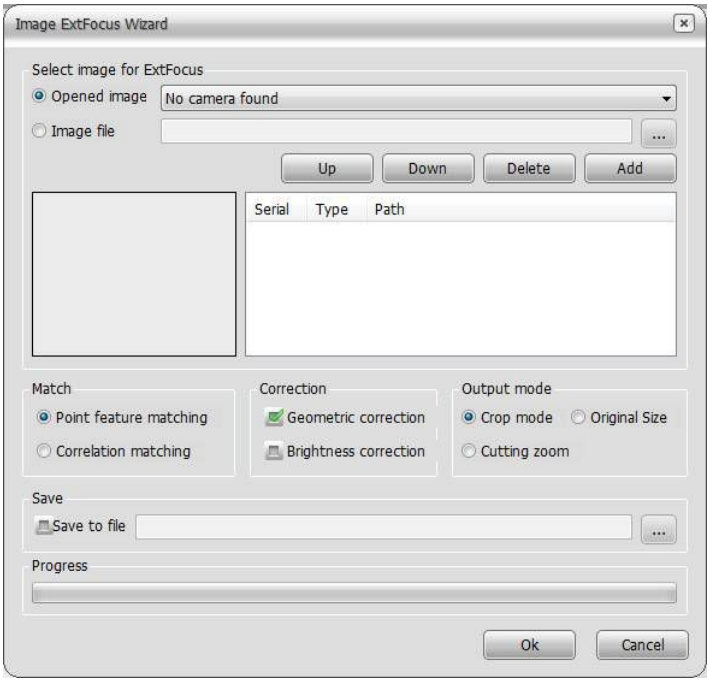
ExtFocus

ExtFocus can form one clearest image with a series of images of the same object in different focus distances. ExtFocus function of Mshot image analysis system can only run in circumstance that can detect the dongle.

1. Connect the dongle with the computer, start Mshot image analysis system.

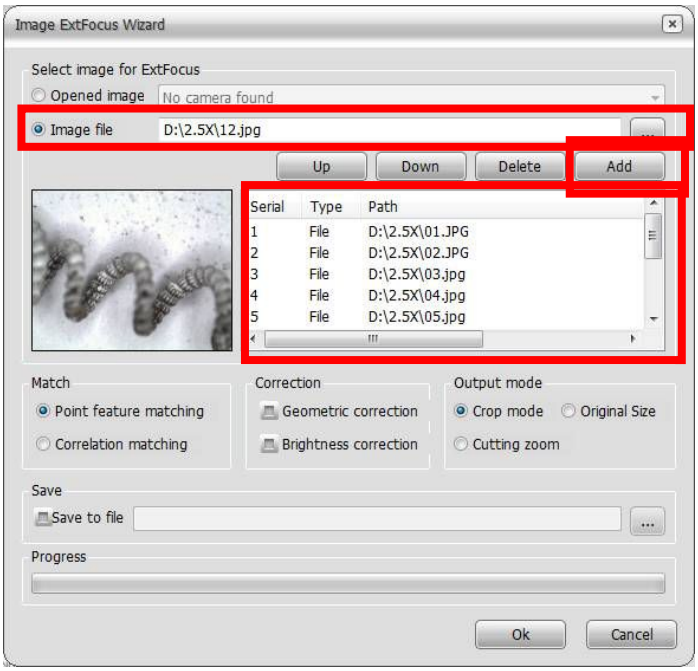
2. Click “ExtFocus” under list of “Advanced”（picture 52）or click the icon on the toolbar  to pop up the Image ExtFocus Wizard（picture 53）.





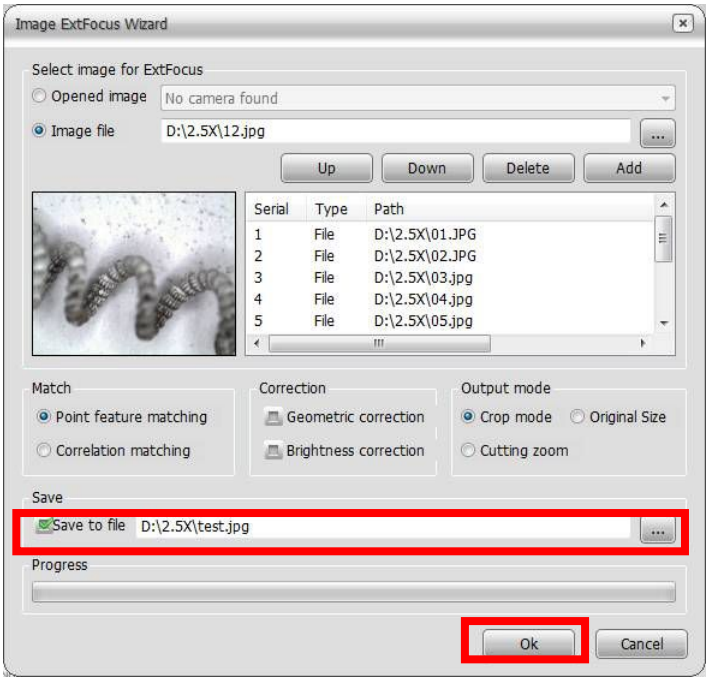
picture 52 picture 53

3. Choose the image file (or choose the opening file), add a series of images of the same object in different focus distances to the list.（picture 54）



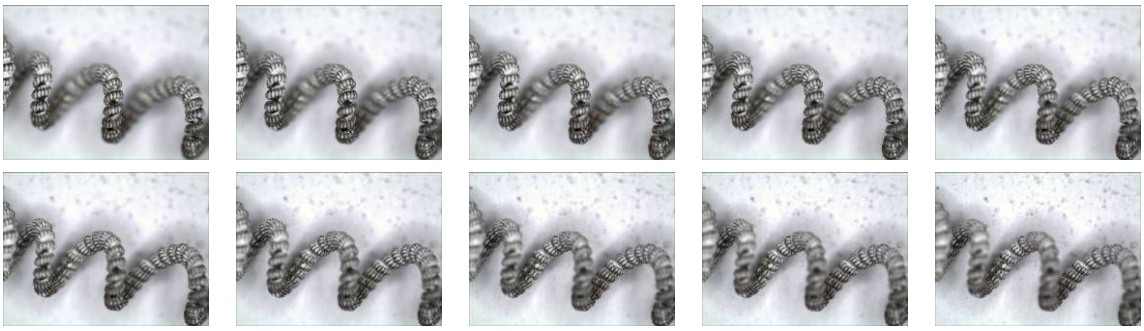
picture 54

4. Choose “Save to file” can save the processed image to the specified file. If you do not choose the file, system will open the default file to save the processed file.(picture 55). After filling in the save file and click the OK button to begin to process the image.



picture 55

5. The processed images will save to the specified file directly. And you can check the image effect in the specified file.（picture 56）



a series of images of the same object in different focus distances before ExtFocus

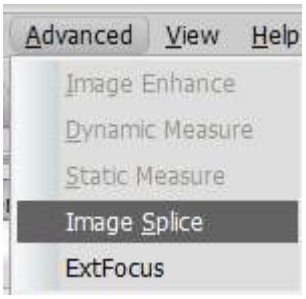
Processed image after ExtFocus

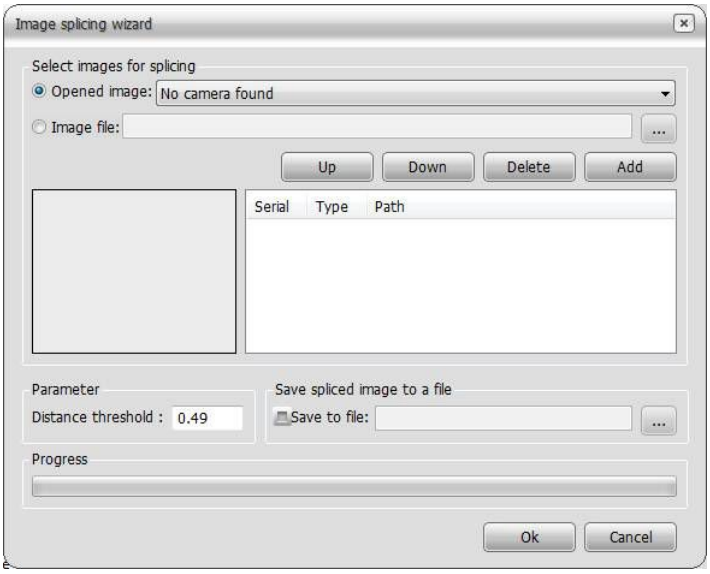
picture 56

Image Splice

Image splice can splice many related images in one image. Function of image splice can only run in detected dongle circumstance of Mshot image analysis system.

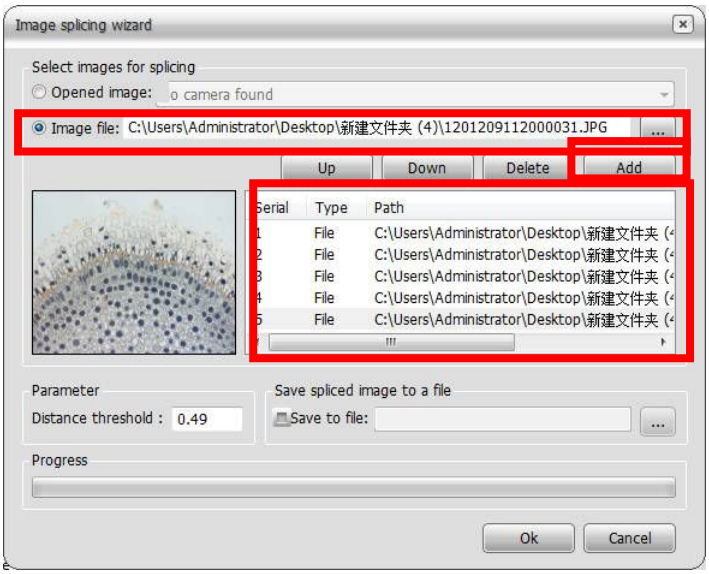
1. Connect the dongle with the computer, and start Mshot image analysis system.
2. Click “Image Splice” under list of “Advanced” （ picture 57 ） or click the icon on the toolbar  and it will pop up the image splicing wizard.（picture 58）





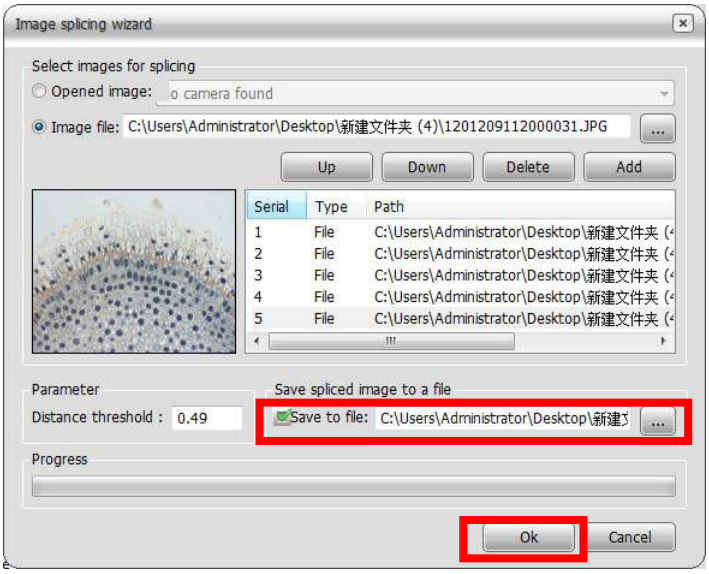
Picture 57 picture 58

4. Choose Image file(or using the opening file), add a series of images of the same object in different focus distances to the list.（picture 59）



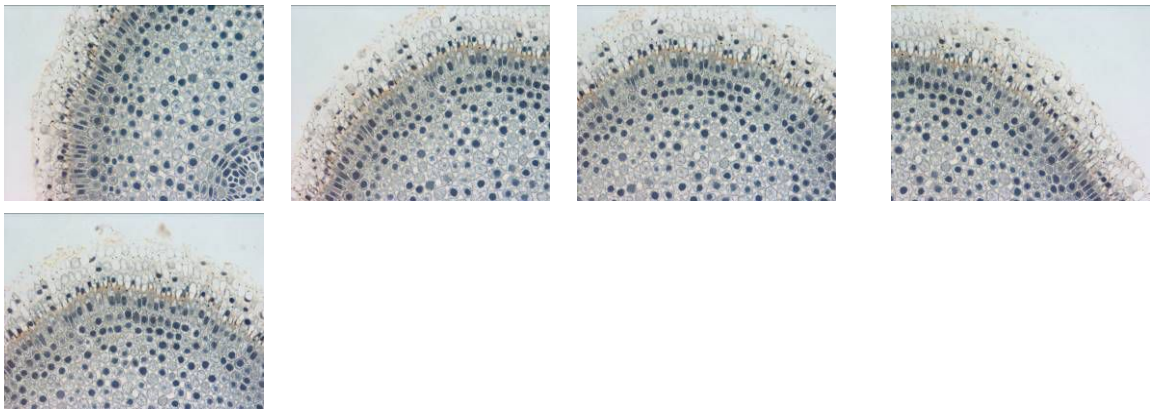
picture 59

5. Choose “Save to file” can save the processed image to the specified file. If you do not choose the file, system will open the default file to save the processed file.(picture 60). After filling in the save file and click the OK button to begin to process the image.

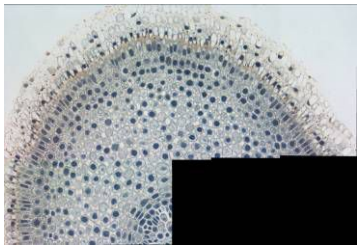


picture 60

6. The processed images will save to the specified file directly. And you can check the image effect in the specified file.（picture 61）



related images before image splice



Processed image after image splice

picture 61

Solutions of common problems

NO.	Problems	Solutions
1	Vista\Windows7 can not run the program, and error message has been thrown by he system.	Use the administrator's account to operate it, or run the command mode with the administrator's account, and executive the program.
3	No equipment on the equipment list.	Please close the image process software, and install the camera driver first. If already install the driver program, please deal with it according to the solution of problem 4.
4	Go wrong after choosing the video equipment, and shows initializing failed.	(1) please confirm the camera has installed to USB2.0interface. (2) please extract USB interface of the camera and connect again, and start the software again. If it still shows error, please connect the camera to another USB interface(it'd better connect to the back USB interface of the desktop).

NO.	Problems	Solutions
5	After opening the Snap wizard, the image wizard becomes all dark.	（1）If it is rod spectral type microscope, please switch the rod to imaging facility terminal. （2）Please adjust the knob of the bulb of the microscope to lighten up the brightness. （3）deal with it according to solution of problem 4.
6	Image wizard shows all bright after opening the Snap wizard.	（1）It is too bright of the illuminator, please lower down the brightness of the bulb. （2）open 2 video collecting software in the same time, and close one of them after closing the collecting software. （3）insert USB1.1interface in the camera, and change the computer.
7	The image wizard shows big difference between color and hue of the previewing image and the observed result in the eyepieces.	Please adjust the “White Balance”, refer to the part of image snap in this manual.
8	The previewing image in the image wizard is smaller than the field of vision in the eyepieces.	It is common because of the sensor size is small. If you need bigger field vision, please contact us to choose 0.5X, 0.63X adapters.

NO.	Problems	Solutions
9	The image is vague.	（1）aperture stop is too big, please close the aperture stop to suitable situation. （2）Camera is not synchronous lead to the not synchronously clear of the image, please adjust the C-mount adapter’s synchronicity.
10	Image blinks while matching with stereo microscope.	Exposure time is too short, please switch to manual exposure, low down the gain, and increase the exposure time.