



MICROSOFT VIS SOFTWARE

User Guide en

Software Version

Microscope VIS basic



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About this help

This Help has been prepared to help you get started with your Microscope VIS application.

The Microscope VIS application lets you capture images and video from digital cameras connected to microscopes, process and analyze them.

Help menu

Content

Shows the content of the help file in a tree structure. Click on the book symbols to open subchapters.

Index

Contains a collections of index entries. Click on an entry in the list to open the related help topic.

Search

Enter a search word where you search help for. The search results will be shown as a list. Simply click on a list entry to open the related help topic.

Text formats and conventions

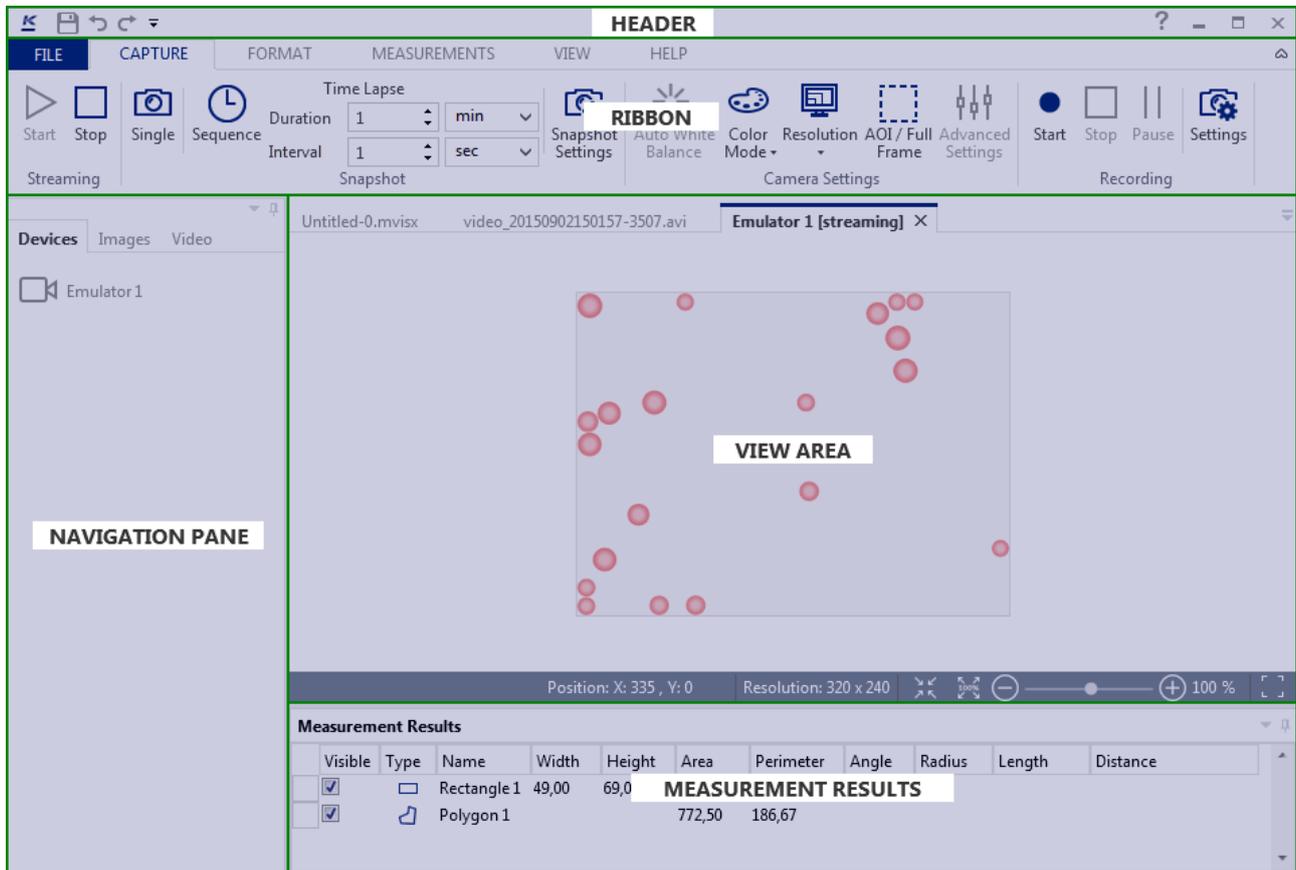
The Microscope VIS Help uses the following documentation conventions:

- 1. This is a numbered step in a process.
- Bold** Indicates a control, such as window, tab, panel, text box, button, spin box, list box, etc.
- <Key> Indicates a key to press in order to perform an action.

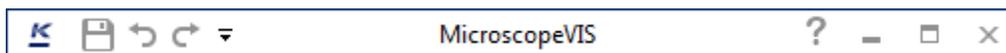
Microscope VIS workspace

Main interface elements:

- Header;
- Ribbon;
- Navigation Pane;
- Display Area;
- Measurement results panel;



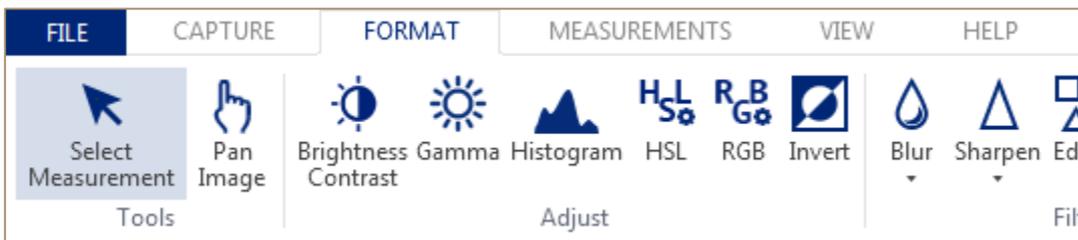
Header



Use the **Header** menu to:

- Save data
- Undo/Redo actions
- View help file
- Control windows size and exit the Microscope VIS

Ribbon



Use the **Ribbon** to access to main application functions.

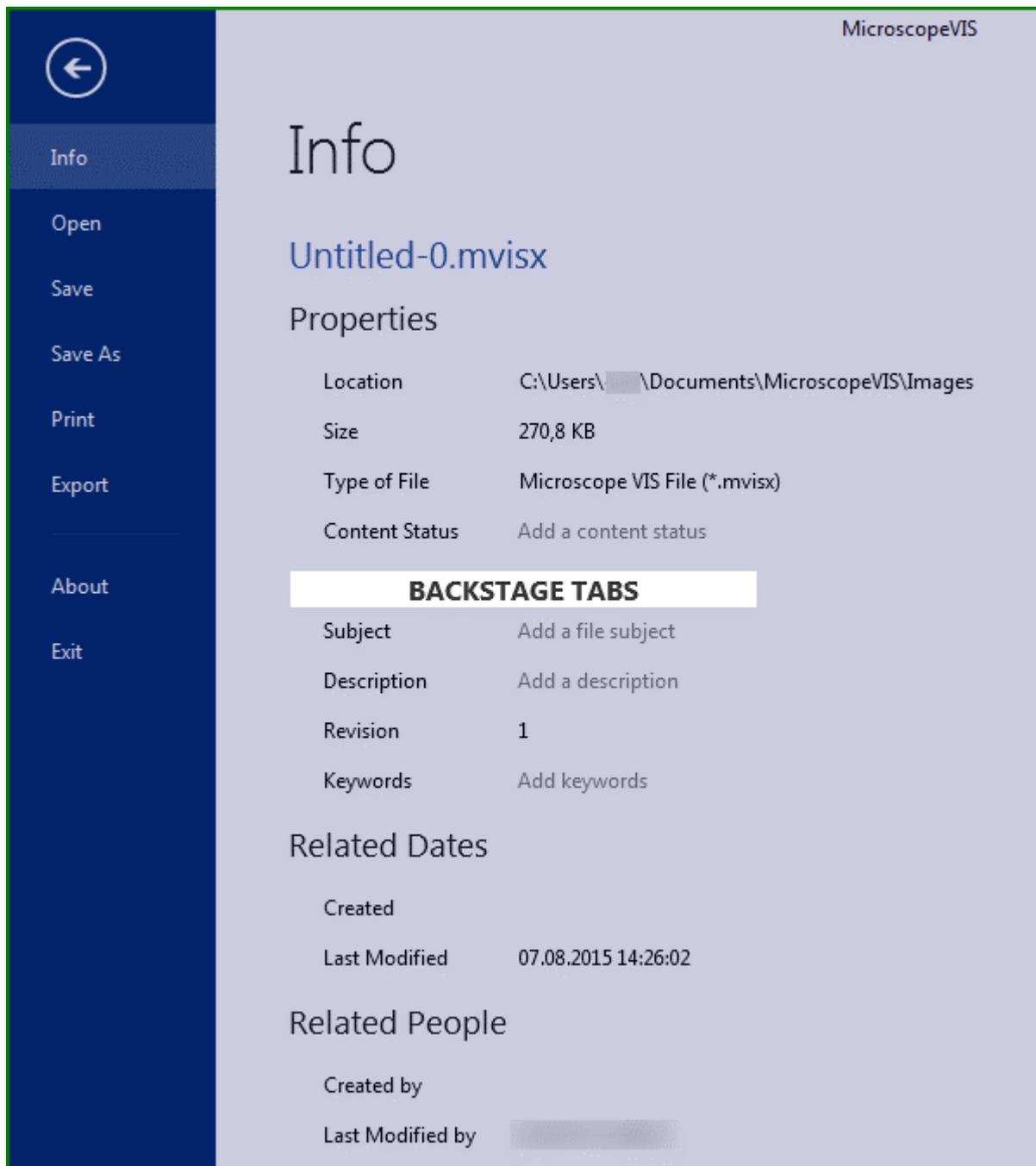
The Ribbon contains following tabs:

- File;
- Capture;
- Format;
- Measurements;
- View;
- Help.

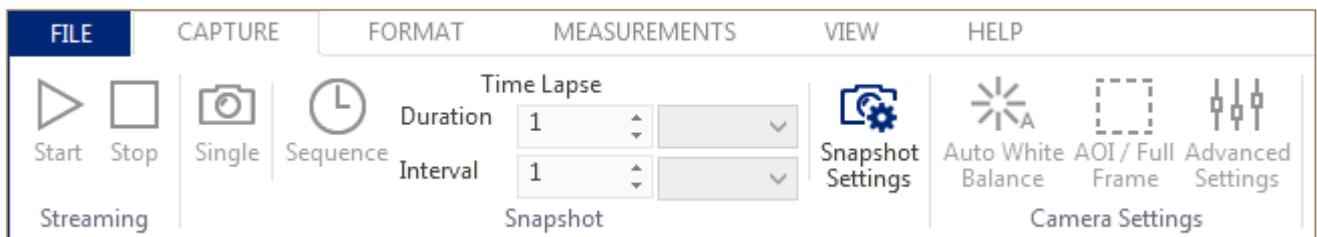
File (Backstage)

Use the ribbon tab **File** to open the **Backstage** view:

- Watch meta information about images or videos (**Info tab**);
- **Open** images or videos;
- **Save** images or videos;
- **Export** data;
- **Print** data;
- Watch information about current **version** of the application;
- **Exit** the Microscope VIS application.



Capture

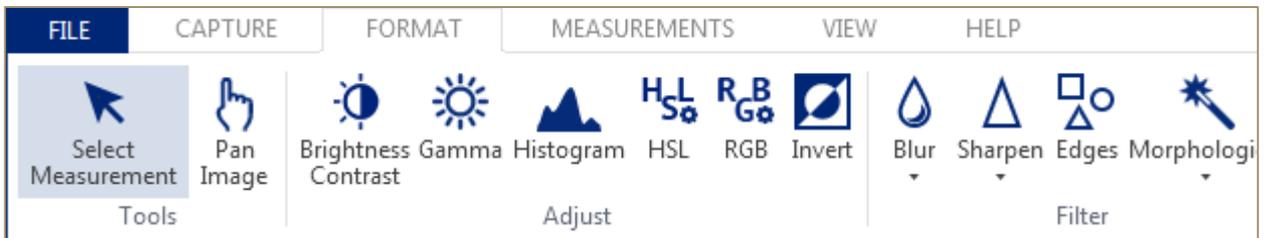


Use the ribbon tab **Capture** to:

- View streaming;
- Create snapshots;

- Setup snapshot and time lapse settings;
- Setup camera settings;
- Record video.

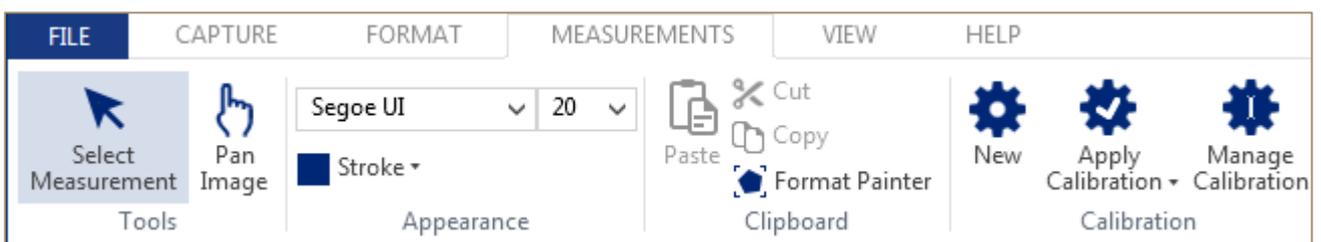
Format



Use the ribbon tab **Format** to process images:

- Select measurements shapes;
- Pan around the image;
- Change image parameters;
- Apply different filters to the image;
- Rotate images;
- Crop Image;
- Resize/Resample image.

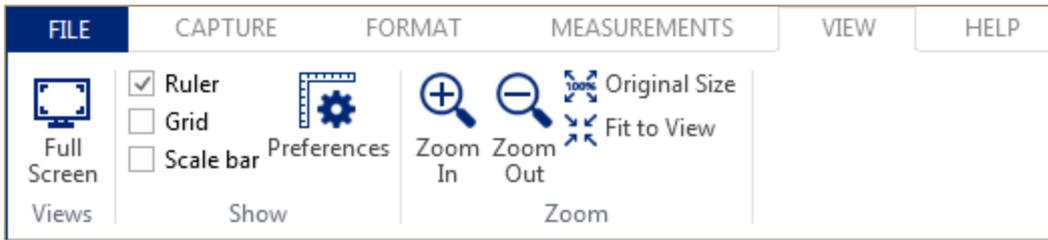
Measurements



Use the tab **Measurements** to:

- Select measurements shapes;
- Pan around the image;
- Calibrate camera;
- Perform measurements;
- Add text and marks to the image.

View



Use the ribbon tab **View** to:

- View image in the full screen mode;
- Set view image preferences;
- Zoom image.

Help



Use the ribbon tab **Help** to view the Microscope VIS application user guide.

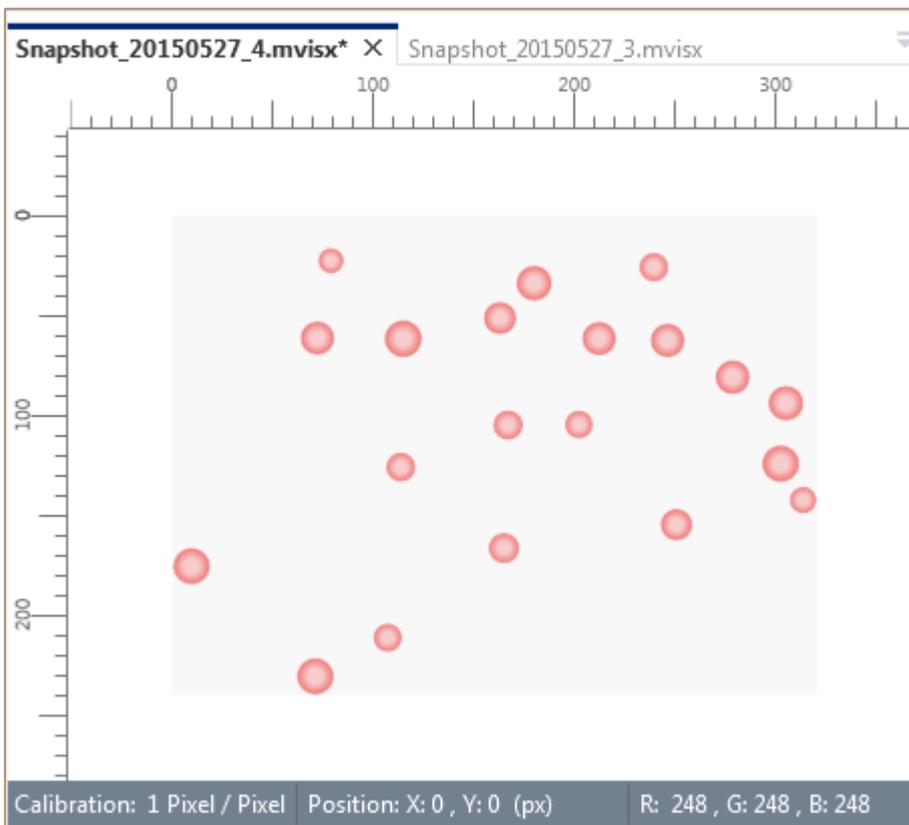
Navigation Pane



Use the **Navigation Pane** to:

- View list of cameras (devices);
- View list of images (snapshots);
- View list of videos (recordings).

Display area



Use the **Display Area** to:

- View camera streaming;
- View images (snapshots);
- Change images views;
- View videos (recordings) in the video player.

Measurement Results

Measurement Results						
	Visible	Type	Name	Width	Height	A
	<input checked="" type="checkbox"/>	/	Line 1			
▶	<input checked="" type="checkbox"/>	○	Circle 1			68
	<input checked="" type="checkbox"/>	//	Parallel 1			

Use the **Measurement Results** panel to view measurement results.

Command Line Parameters

The application command line parameters come in two variants: a short one and a long one.

In the short variant the parameter is written as a hyphen immediately followed by a single letter and optionally a value (or values) separated by a space character. Some parameters do not have the short variant.

In the long variant, the parameter is written as two hyphen immediately followed by a parameter name (two or more letters) and optionally a value (or values) separated by a space character.

No whitespace is allowed between hyphens or hyphen and parameter name.

The parameters are separated by space characters.

Short Variant	Long Variant	Description	Examples	Remarks
-u <language_name>	--uiculture <language_name>	Overrides the application language set in options. <language_name> can be one of the following: <ul style="list-style-type: none"> • en • de • es • it • fr 	-u de --uiculture fr	
-c <culture_code>	--culture <culture_code >	Overrides the default culture used for formatting and string comparison. If not specified, current windows culture will be used. <culture_code> can be any valid ISO 639-1 culture code.	-c fr -c de-AT --culture it --culture ru-RU	
-i <instance_name>	--instance <instance_name>	Instance name. Can be used to run a separate application instance.	-i my_new_instance --instance some_instance	Not recommended to use! The second instance may not be able to access

				some cameras.
-o <file_paths>	--open <file_paths>	Opens the specified files. Each file path should be enclosed in quotation marks. The paths must be separated by a whitespace.	-o "C:\MyFile.jpg" " -o "C:\F1.png" "C:\F2.jpg" --open "D:\File.mvisx" "	
	--resetlayout	Resets the application layout.	--resetlayout	
-r	--resetsettings	Resets all application settings to their default values.	-r -- resetsettings	

More complex example:

MicroscopeVIS.exe -u fr -o "C:\File1.jpg" "C:\File2.png" --resetlayout

Operating

See the chapters Control Window, Manage Data, Connect Camera, View Images Stream, Create Snapshots, Adjust Camera Settings, Process Images, Perform Measurements, Ruler, Grid and Scale Bar, Recording Video, Video Player, View Microscope VIS Help.

Control Window

Use the header menu to control size of the Microscope VIS window.

- Click the **Collapse**  button to turn down Microscope VIS window into the taskbar.
- Click the **Expand**  button to expand Microscope VIS window.
- Click the **Close**  button to close Microscope VIS window and exit the application.

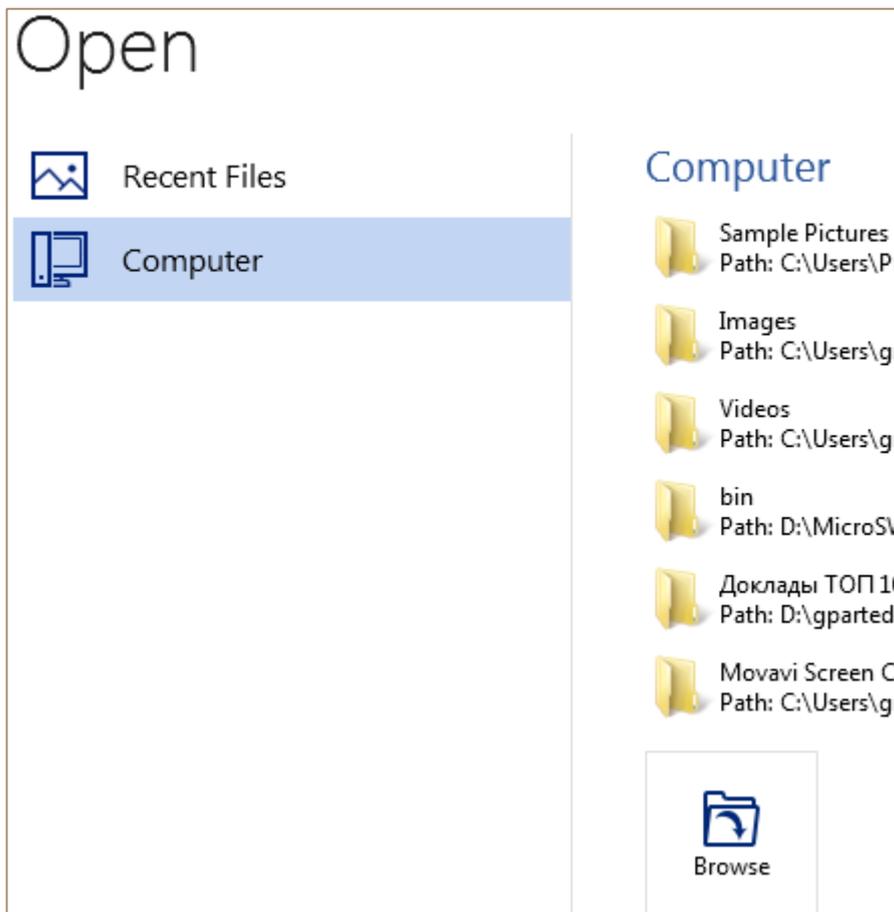
Manage Data

To manage your data use the **File** tab on the Ribbon.

Open File

To open an image or a video file do the following:

1. Click **File > Open**.



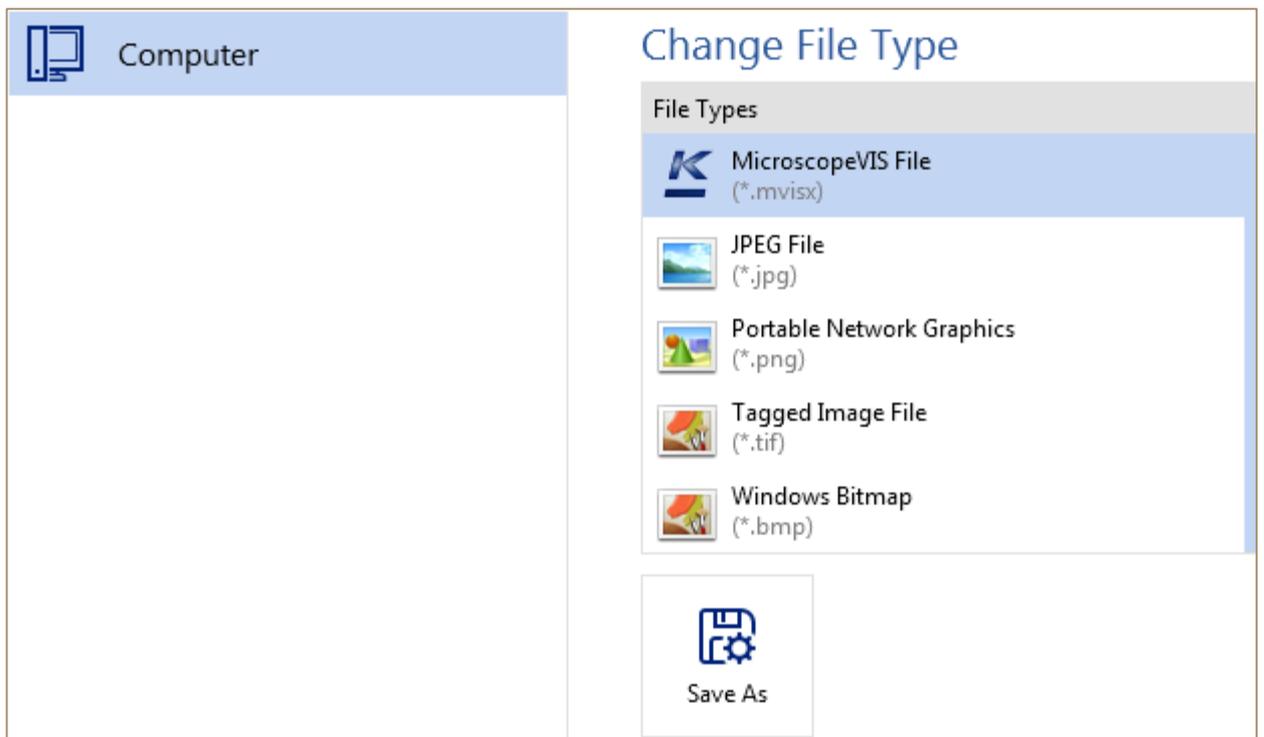
2. Do any of the following:

- Click one of the file (image or video) names from the **Recent Files** list. The Microscope VIS opens the selected file.
- Click **Computer** tab and open one of the recent locations or click **Browse**. Select your file and click **Open**.

Save Image

To save an image do the following:

1. Click **File > Save As** (alternatively – right-click the image in the **Display Area** and click **Save as** on the context menu).



2. Select a **file type** and adjust file options.

Note: the Microscope VIS allows you to save images in the following **types** (formats):

- MicroscopeVIS files (***.mvisx**) – a custom Microscope VIS format;
- JPEG files (***.jpg**);
- Portable Network Graphics (***.png**);
- Tagged Image File (***.tiff**);
- Windows Bitmap (***.bmp**).

You are able to open images in other formats in read only (it depends on installed drivers in the operation system), but to save only in the above formats.

MicroscopeVIS files (*.mvisx) is a custom Microscope VIS format. This format allows storing image, meta information and editable measurement elements in one file.

There is a chance you will not be able to open images in this format in another external image editor. To do this save the image in .jpg, .png, .tiff or .bmp format.

The following save options are available:

File Type	File Options
MicroscopeVIS files (*.mvisx)	Compression (use this option to control the image quality; you can set here one of the following kinds of compression: super-fast, fast, normal, maximum or uncompressed)

	Color depth (use this option to save image as color image or as grayscale image)
JPEG files (*.jpg)	Quality (use this option to control the image quality; you can set the quality of the image in percent: 1% until 100%)
Portable Network Graphics (*.png)	Color depth (use this option to save image as color or as grayscale image)
Tagged Image File (*.tiff)	Compression (use this option if you want to compress the image) Color depth (use this option to save image as color image or as grayscale image)
Windows Bitmap (*.bmp)	Color depth (use this option to save image as color image or as grayscale image)

Additional File Options

The following additional file options are available for the formats .jpg, .png, .tiff or .bmp:

- **Burn-in measurements and annotations** (if you select this option all the measurements and annotations will be merged with the current image into one raster image and you will not be able to edit them anymore. It might be helpful if you want to open this image in another application and want to see measurements shapes on this picture);
- **Save measurements and annotations for a further processing** (if you select this option all the measurements and annotations will be saved in a separate file with extension .mvisl. You will be able to edit them further);
- **Burn-in ruler** (if you select this option vertical and horizontal rulers will be shown on the image).

3. Click the **Save As** button, enter a file name, select a preferred location and then click the **Save** button in the dialog box.

Save Image Changes

To save image changes do any of the following:

- Click **Save**  on the Quick Access Toolbar or
- Click **File > Save**, or
- Right-click the image in the **Display Area** and click **Save** on the context menu.

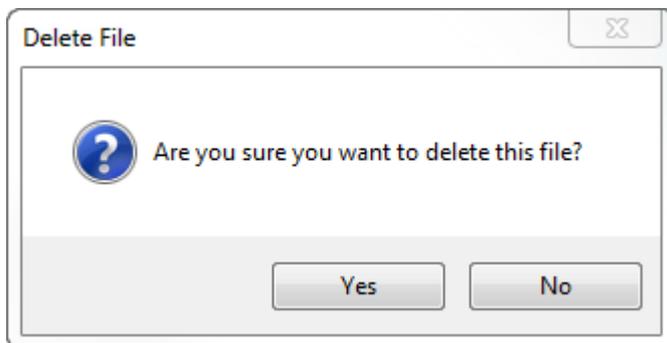
Close Image

To close an image do any of the following:

- Click **Close**  in the image tab title;
- Right-click the image tab title and click **Close**;
- Right-click the image and click **Close** .

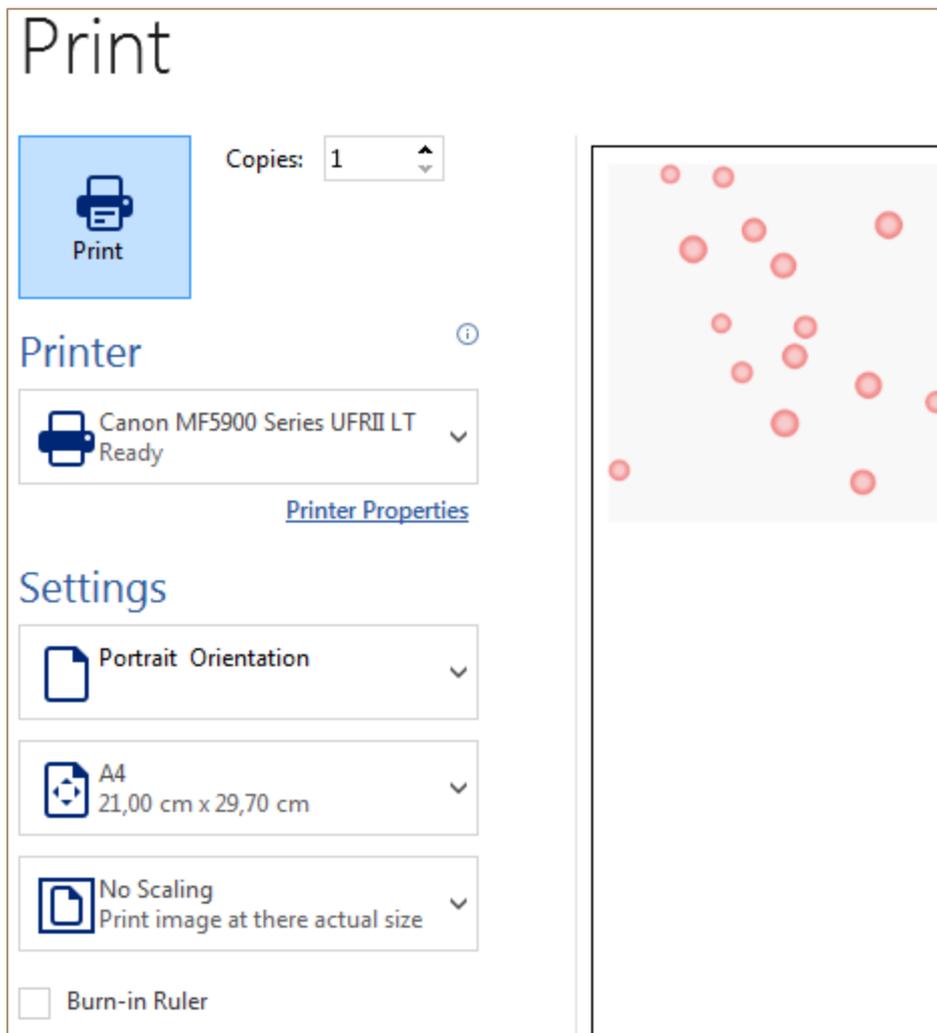
Delete Image

1. Do any of the following:
 - Right-click the image preview in the **Images List** and click **Delete**;
 - Right-click the image in the **Display Area** and click **Delete**;
2. Click **Yes** in the **Delete File** dialog box.



Print Image

1. Open/select an image you want to print.
2. Click **File** > **Print**. On the right, you will see your image.



3. Click the **Print** button.

The image can be split into several pages. To see each page, click the arrow at the bottom of the preview, and if the image is too small or too big, use the zoom slider to adjust it.



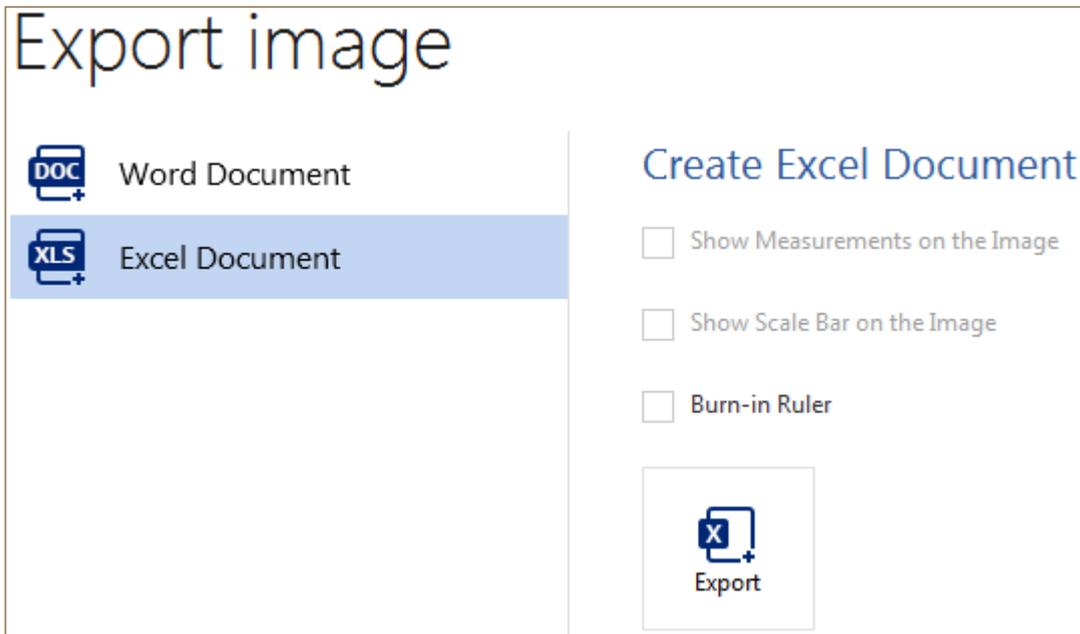
You can use the following settings:

Setting	Description
Orientation	Use this setting to print your image in the Portrait or in the Landscape Orientation .
Paper Size	Use this setting to set the Paper Size .
Scaling	Use this setting to print your image in the original size (No Scaling) or fit to one page (Fit On Page).
Burn-in Ruler	Select this option to print vertical and horizontal rulers on your image.

Export Data

To export data do the following.

1. Open/select an image you want to export.
2. Click the **File > Export**.

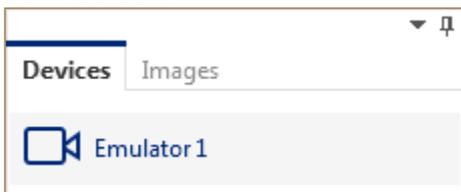


3. Click the **Word Document** tab or the **Excel Document** tab to export image in the Microsoft Word or in the Microsoft Excel format.
4. Click the **Create** button, enter a file name, select a preferred location and then click the **Save** button.

Connect Camera

Connect your camera to the computer using USB (the driver should have been installed together with the basic installation).

You will see a new item in the *Devices list* and the message "The camera [camera name] is connected".



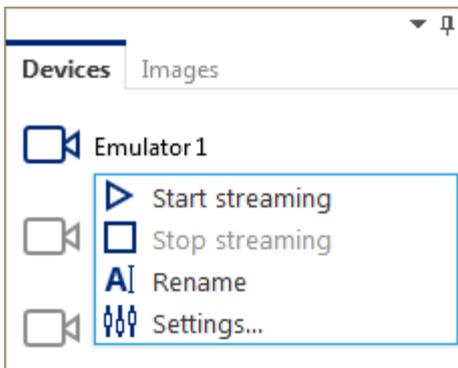
View Images Stream

To view the camera images stream in real-time, connect your camera to the computer and do any of the following:

- On the **Capture** tab, click **Start**, or



- In the *Devices List*, right-click your camera and click **Start Streaming** on the context menu, or



- Double-click your camera in the *Devices List*.

To stop streaming do any of the following:

- On the **Capture** tab, click **Stop**, or
- In the *Devices List*, right-click your camera and click **Stop Streaming** on the context menu.

Create Snapshots

The Microscope VIS application allows you to take single snapshots and to create time lapses. See also the chapters Adjust Snapshot Settings, Take Single Snapshot and Create Time Lapse.

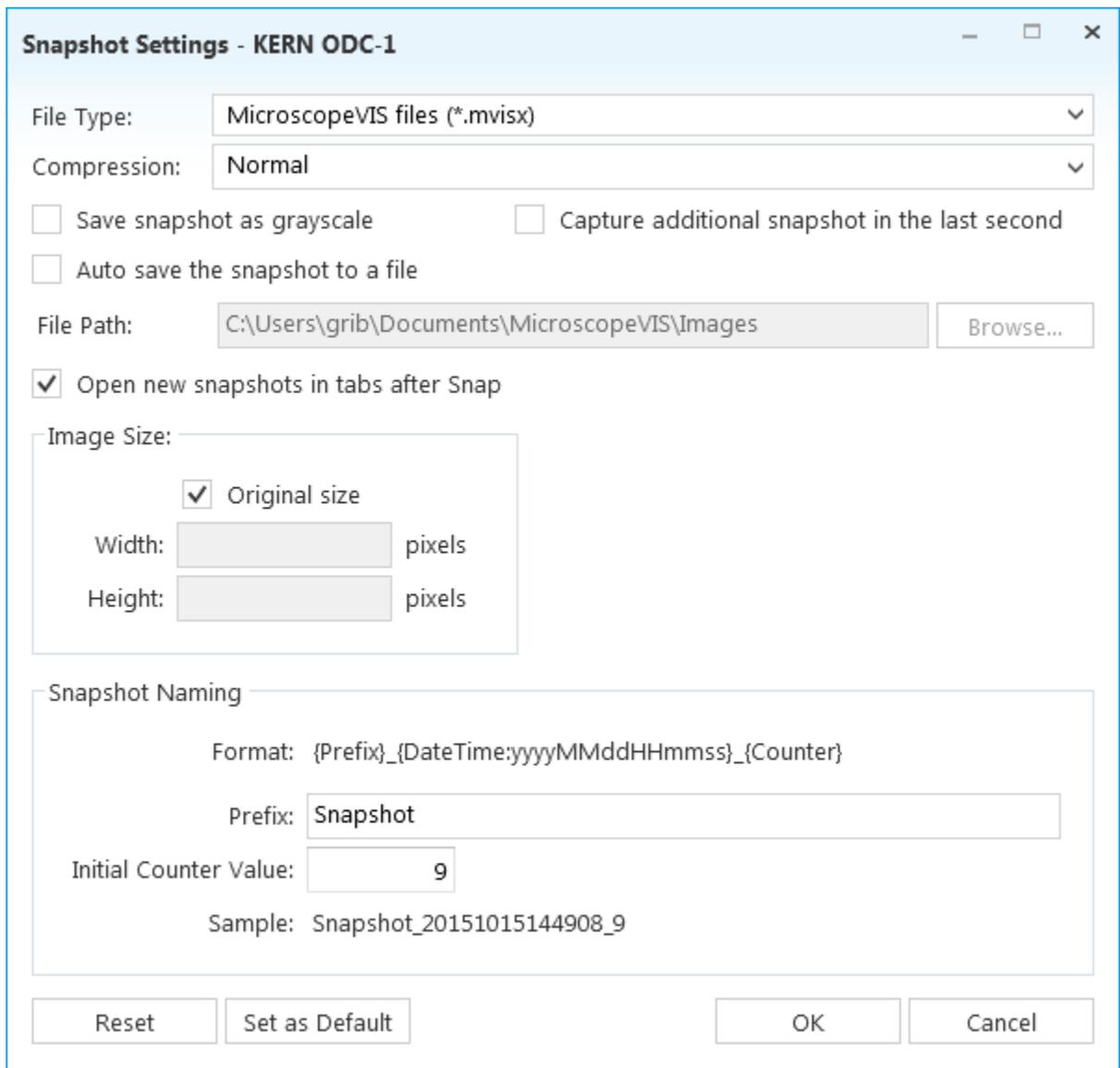
Adjust Snapshot Settings

To adjust the snapshot settings follow the steps below.

1. On the **Capture** tab, click **Snapshot Settings**.



The **Snapshot Settings** dialog box appears.



2. Adjust the Snapshot Settings (see the table below).

Setting	Description
<p>File Type</p>	<p>Use this setting to select the file type of snapshots. You are able to save your snapshots in the following formats:</p> <ul style="list-style-type: none"> • Microscope VIS files (*.mvisx); • JPEG files (*.jpg); • Portable Network Graphics (*.png); • Tagged Image File (*.tiff); • Windows Bitmap (*.bmp).

Compression	To decrease the snapshot size you can compress it. Use the Compression box to set compression type. See also Save Image chapter.
Save snapshot as grayscale	If you want to save your snapshots as grayscale images, select this checkbox.
Capture additional snapshot in the last second	By default snapshots are taken like in the following example: if you set the settings to take snapshots each 5 seconds during 15 seconds, only 3 snapshots will be taken: the first one in the first second, the second one in the fifth second, and the third one in the tenth second. If you want to take an additional snapshot in the fifteenth second (in the last second) select this checkbox.
Auto save snapshot to a file	If you want to save your snapshots to a preferred location, select the checkbox Auto save snapshot to a file and enter a File Path .
Open new snapshots in tabs after Snap	Select this checkbox to open new snapshots in tabs in the <i>Display Area</i> .
Image Size	If you want to save your snapshots in original resolution, select the Original Size checkbox. If you want to save your snapshots in custom resolution, clear the Original Size checkbox and enter Width and Height of the image.
Snapshot Naming	Snapshot's name has the following format: {Prefix}_{DateTime:yyyyMMddHHmmss}_{Counter}. For example Snapshot_20150512115307_1. You can change the Prefix and Counter value (Initial Counter Value).

3. Click **OK** to save the Snapshot Settings.

These settings will be applied only to the current session and only for the selected camera. That means, if you reopen the Microscope VIS application, the default settings will be used for this camera.

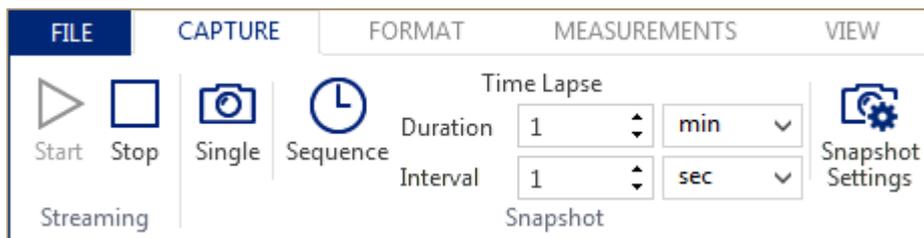
4. Click **Set as Default** if you want to save your settings as default settings. These new default settings will be used as default settings for other cameras.

5. Click **Reset**, if you have made some changes and want to set all the settings to default values.
6. Click **Cancel** to discard all the changes.

Take Single Snapshot

To take a single snapshot do the following:

1. Start **Streaming** (View Images Stream) from your camera (see also the chapter View Images Stream).
2. Click the **Single** button.

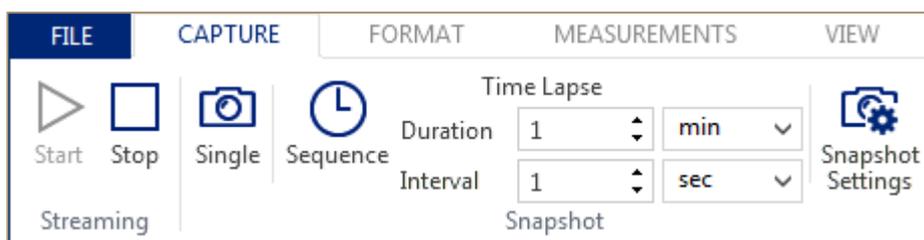


Create Time Lapse

To create time lapse do the following.

1. Start **Streaming** (View Images Stream) from your camera (see also the chapter View Images Stream).
2. In the **Duration** box and in the **Interval** box, enter the duration and the interval of the snapshotting.

For example if you want to take snapshots each 5 seconds during 1 minute, enter the **Duration** 1 min and the **Interval** 5 sec.

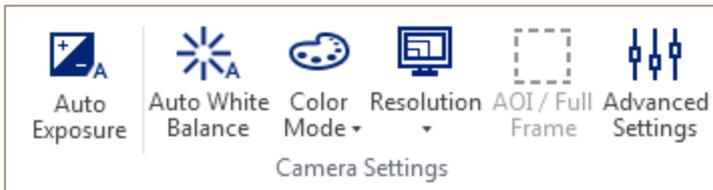


3. Click **Sequence**.

Adjust Camera Settings

Some of the common and most usable **Camera Settings** are placed directly on the **Ribbon**, other settings are available in the dialog box **Advanced Settings**.

Common Camera Settings



Exposure

To set the Exposure automatically according to the environment:

- On the **Capture** tab, click the **Auto Exposure** button.

White Balance

To set the White Balance automatically according to the environment:

- On the **Capture** tab, click the **White Balance** button.

Color Mode

To change the Color Mode do the following:

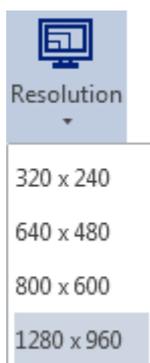
- On the **Capture** tab, click the **Color Mode** button and select a color mode.



Resolution

To change the Resolution of the Streaming do the following:

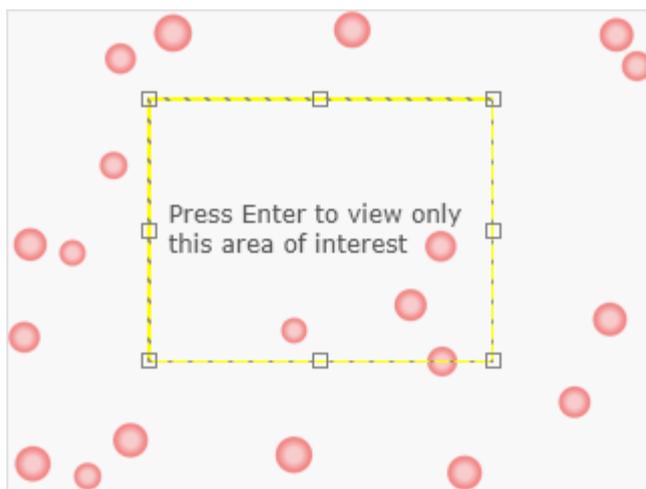
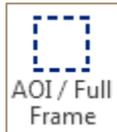
- On the **Capture** tab, click the **Resolution** button and select a Resolution.



Area of Interest

If you want to view only a specific area, apply the Area of Interest. To draw an Area of Interest do the following:

1. Click the **AOI/Full Frame** button and draw an area of interest on your image.
2. Click the <ENTER> to display only this area.
3. Click the **AOI/Full Frame** button once again to display the image in the full frame mode.

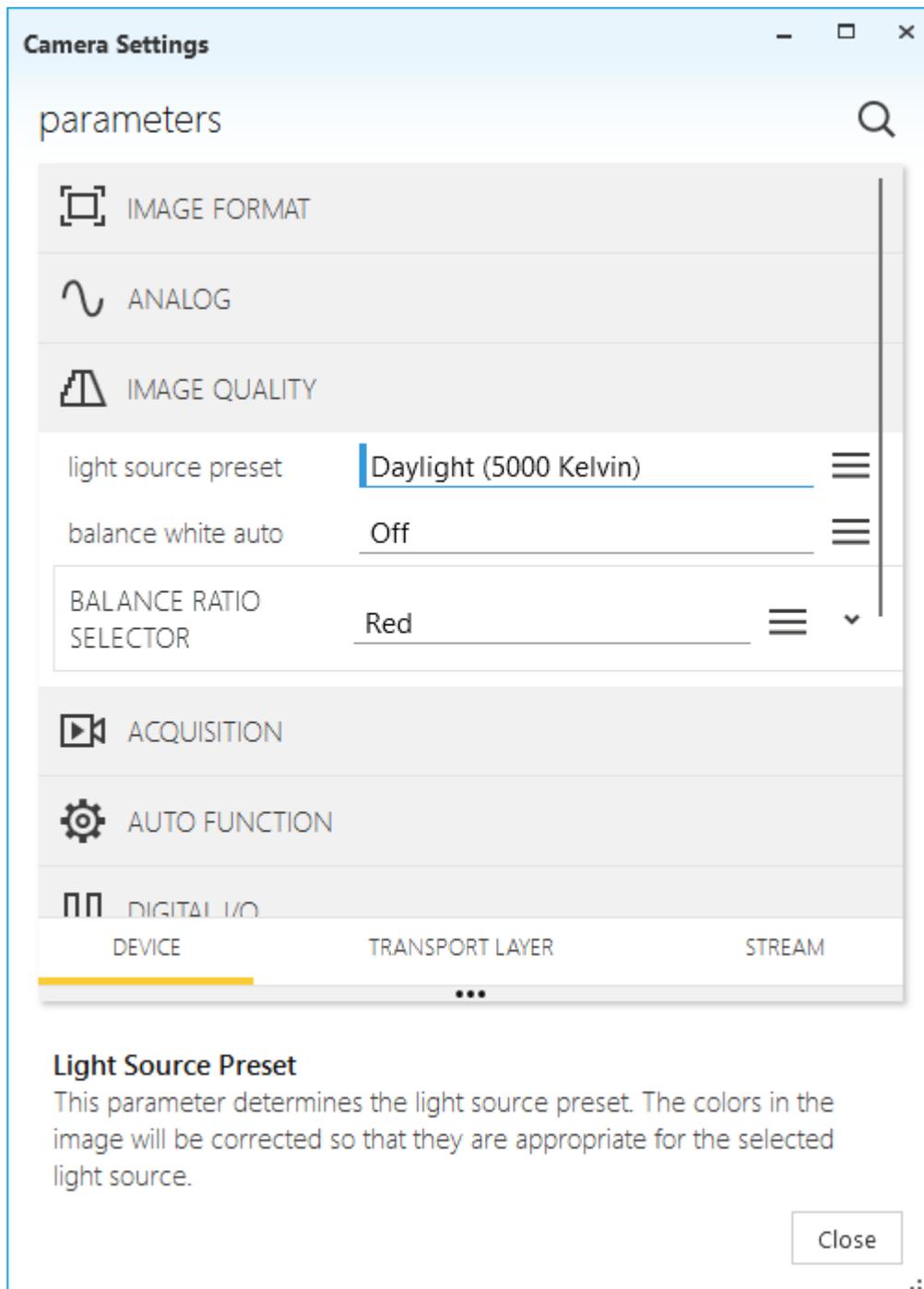


Advanced Camera Settings

To adjust the Advanced Camera Settings do the following.

1. Select your camera and click the **Advanced Settings** button on the **Capture** tab, or right-click your camera, and click **Settings** on the context menu.

You will see the **Camera Settings** dialog box. The content of this dialog box depends on the type of your camera. It is not described here in detail. For example:

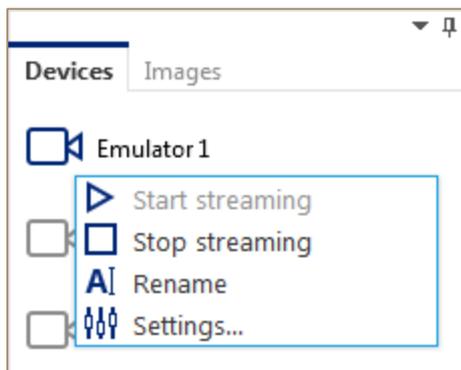


2. Adjust camera settings. They are applied at once.
3. Click **Close**.

Rename Camera

To rename camera do the following.

1. Right-click your camera in the *Devices List* and click **Rename** on the context menu.



2. Enter a new camera name.
3. Press <ENTER> or lose the focus.

Process Images

To adjust the image format and apply filters to the image use the **Format** Ribbon tab.



Zoom in or out

You can zoom in to get a close-up view of your image (or video) or zoom out to see more of the image (or video) at a reduced size. You can also choose a particular zoom setting.

Quickly zoom in or out of an image (video)

To zoom in or out your image (or video) do the following:

1. On the status bar, click the **Zoom** slider.



2. Slide to the percentage zoom setting that you want. Click - or + to zoom in gradual increments.

Choose a particular zoom setting

You can choose how much of an image (or video) you view on the screen.

Do any of the following:



- On the **View** tab, in the **Zoom** group, click **Original Size**. This returns the view to 100% zoom.
- On the **View** tab, in the **Zoom** group, click **Fit to View**.

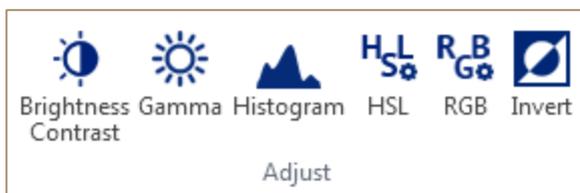


- On the status bar, click **Original Size** . This returns the view to 100% zoom.
- On the status bar, click **Fit to View**.

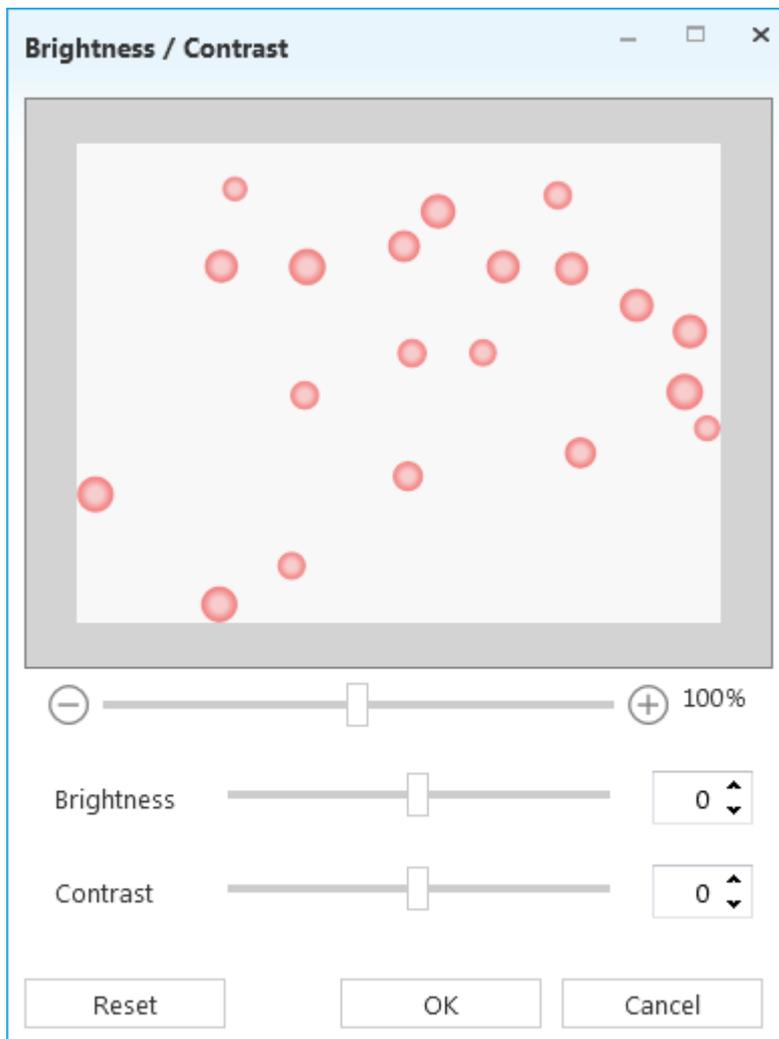
Brightness/Contrast

To adjust the brightness and contrast levels of the image do the following.

1. On the **Format** tab, in the group **Adjust**, click the **Brightness Contrast** button.



The **Brightness / Contrast** dialog box appears.



2. Change the **Brightness** setting using the slider or enter a level value in the **Brightness** box.
3. Change the **Contrast** setting using the slider or enter a level value in the **Contrast** box.
4. Click **OK**. The settings are applied.
5. Click **Reset** to set all values the default values.
6. Click **Cancel** to discard all the changes and close the current window.

Zoom in or out of the image preview:

1. Under the image preview, click the **Zoom** slider.

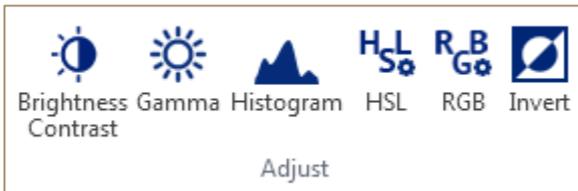


2. Slide to the percentage zoom setting that you want. Click - or + to zoom in gradual increments.

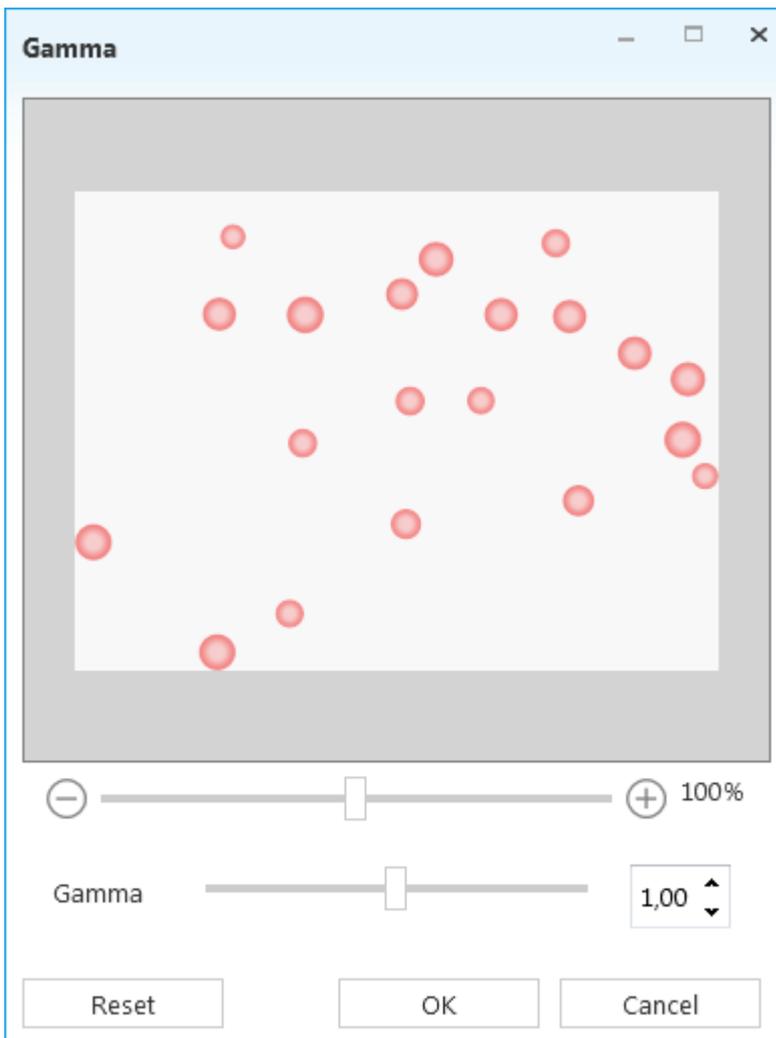
Gamma

To adjust the gamma of the image do the following:

1. On the **Format** tab, in the group **Adjust**, click the **Gamma** button.



The **Gamma** dialog box appears.



2. Change the **Gamma** setting using the slider or enter a value in the **Gamma** box..
3. Click **OK**. The setting is applied.
4. Click **Reset** to set all values the default values.
5. Click **Cancel** to discard all the changes and close the current window.

Zoom in or out of the image preview:

1. Under the image preview, click the **Zoom** slider.

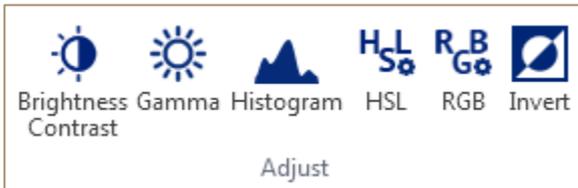


2. Slide to the percentage zoom setting that you want. Click - or + to zoom in gradual increments.

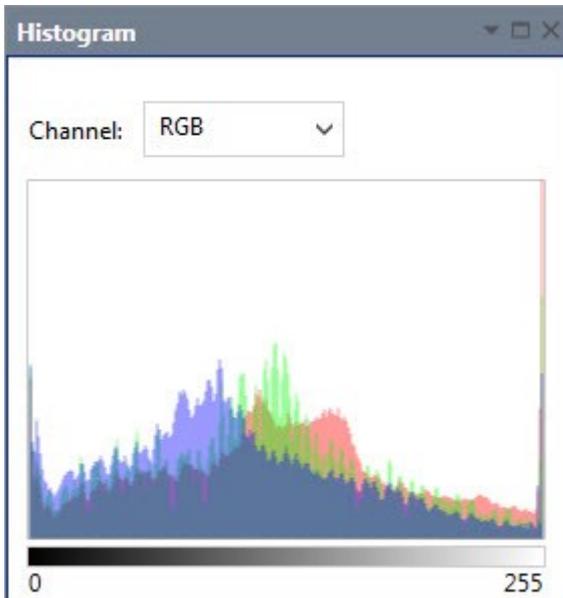
Histogram

To view the **Histogram** of the image do the following.

1. On the **Format** tab, in the group **Adjust**, click the **Histogram** button.



The dockable **Histogram** panel appears.

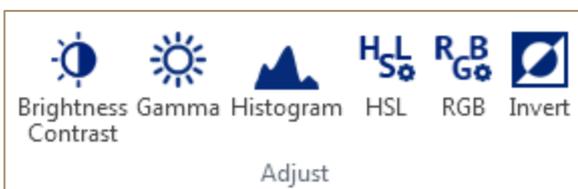


2. Select a channel in the **Channel** box (RGB, Red, Green or Blue for RGB images; Grayscale for grayscale images).

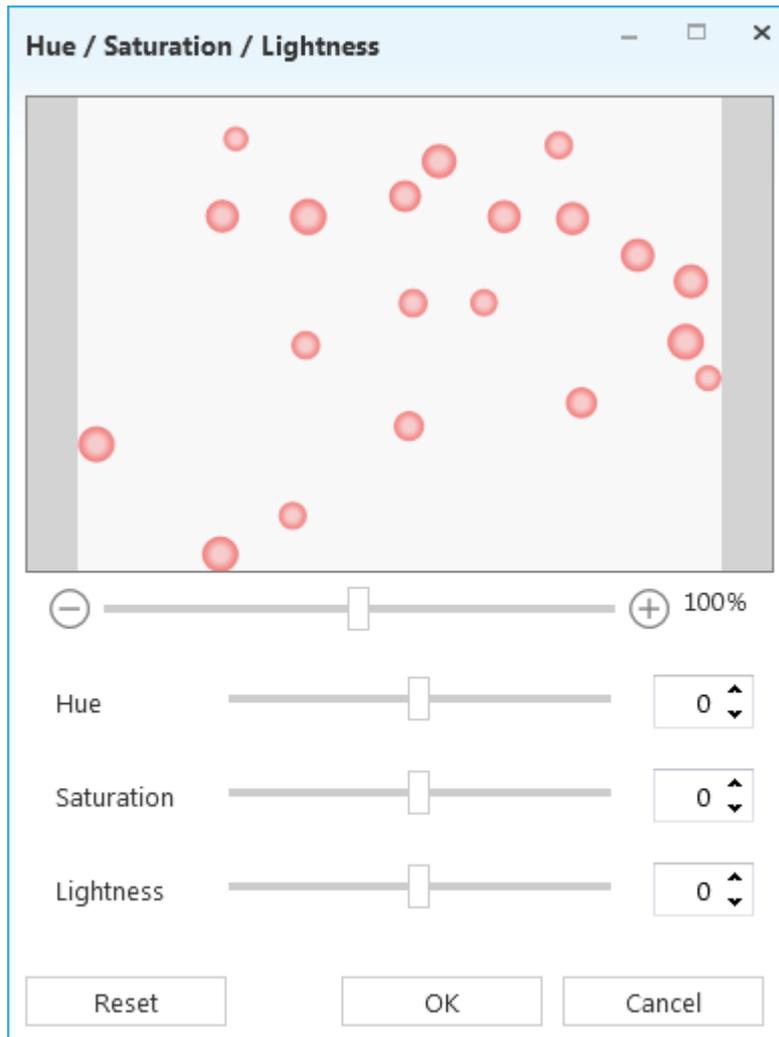
Hue, Saturation, Lightness

To adjust the **Hue, Saturation, Lightness** levels on a range of color weights for the image do the following.

1. On the **Format** tab, in the group **Adjust**, click the **HSL** button.



The **HSL** dialog box appears.



2. Change the **Hue** setting using the slider or enter a value in the **Hue** box.
3. Change the **Saturation** setting using the slider or enter a value in the **Saturation** box.
4. Change the **Lightness** setting using the slider or enter a value in the **Lightness** box.
5. Click **OK**. The settings are applied.
6. Click **Reset** to set all values the default values.
7. Click **Cancel** to discard all the changes and close the current window.

Zoom in or out of the image preview:

1. Under the image preview, click the **Zoom** slider.

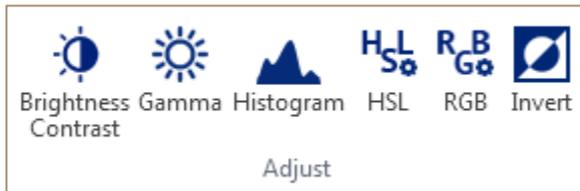


2. Slide to the percentage zoom setting that you want. Click - or + to zoom in gradual increments.

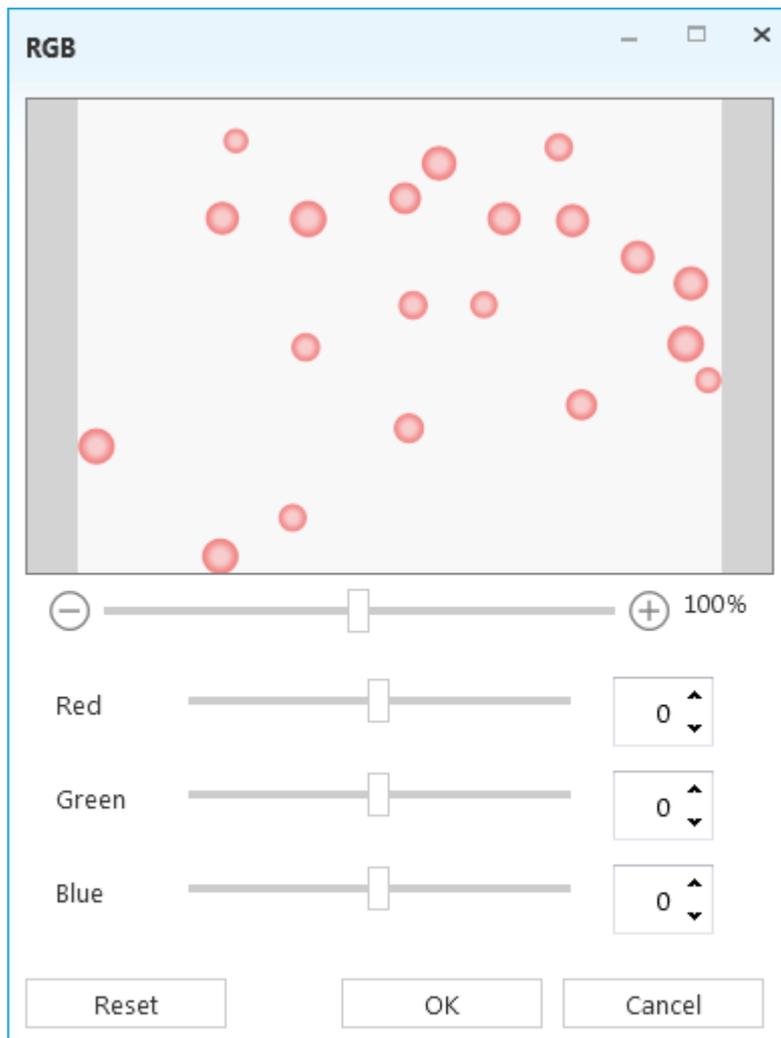
RGB

To adjust the red, green and blue levels of the image do the following.

1. On the **Format** tab, in the group **Adjust**, click the **RGB** button.



The **RGB** dialog box appears.



2. Change the **Red** level using the slider or enter a level value in the **Red** box.
3. Change the **Green** level using the slider or enter a level value in the **Green** box.
4. Change the **Blue** level using the slider or enter a level value in the **Blue** box.
5. Click **OK**. The settings are applied.
6. Click **Reset** to set all values the default values.
7. Click **Cancel** to discard all the changes and close the current window.

Zoom in or out of the image preview:

1. Under the image preview, click the **Zoom** slider.

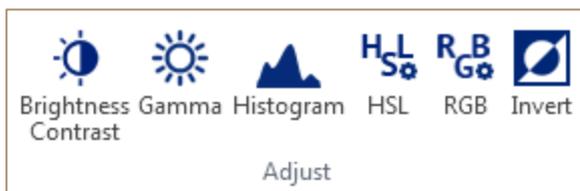


2. Slide to the percentage zoom setting that you want. Click - or + to zoom in gradual increments.

Invert colors

To invert colors of your image do the following:

1. On the **Format** tab, in the group **Adjust**, click the **Invert** button to invert all the pixel colors and brightness values in the image.

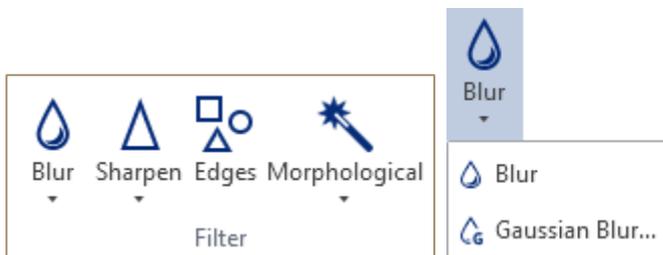


2. Click this button again to invert these values to the previous state.

Blur

To apply the Simple Blur filter to your image do the following:

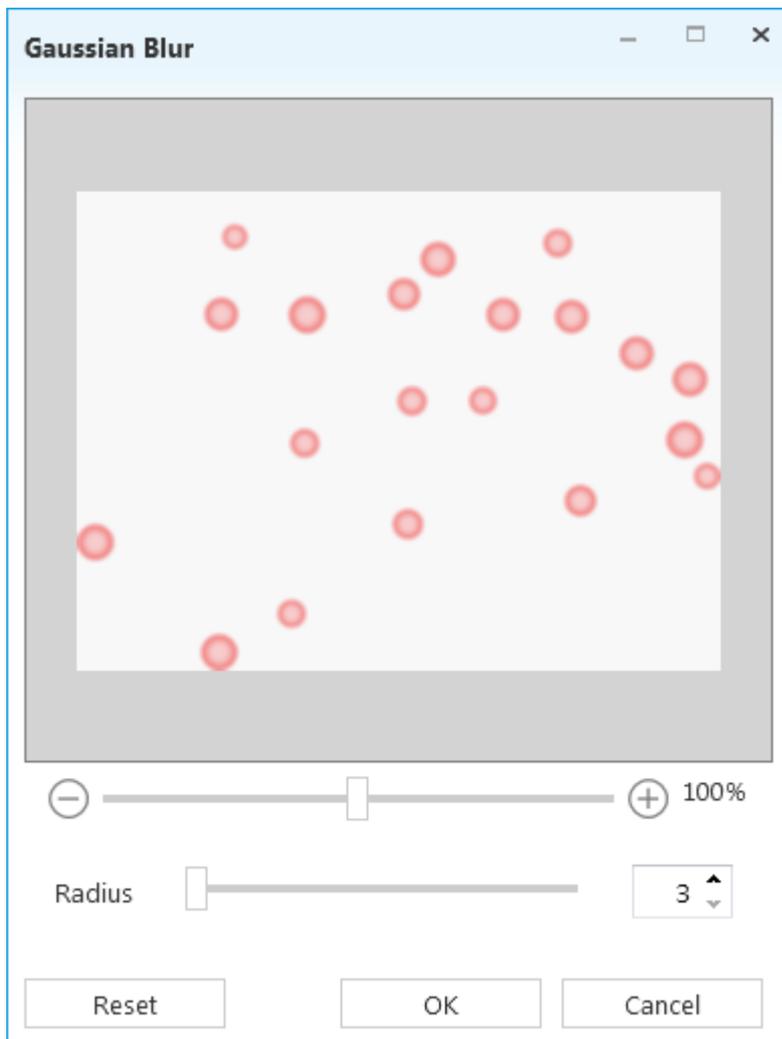
- On the **Format** tab, in the group **Filter**, click the **Blur** button and then click **Blur**. The filter is applied.



To apply the Gaussian Blur filter to your image do the following:

1. On the **Format** tab, in the group **Filter**, click the **Blur** button and then click **Gaussian Blur**.

The **Gaussian Blur** dialog box appears.



2. Change the **Radius** using the slider or enter a value in the **Radius** box.
3. Click **OK**. The filter is applied.
4. Click **Reset** to set all values the default values.
5. Click **Cancel** to discard all the changes and close the current window.

Zoom in or out of the image preview:

1. Under the image preview, click the **Zoom** slider.



2. Slide to the percentage zoom setting that you want. Click - or + to zoom in gradual increments.

Sharpen

To apply the Simple Sharpen filter to your image do the following:

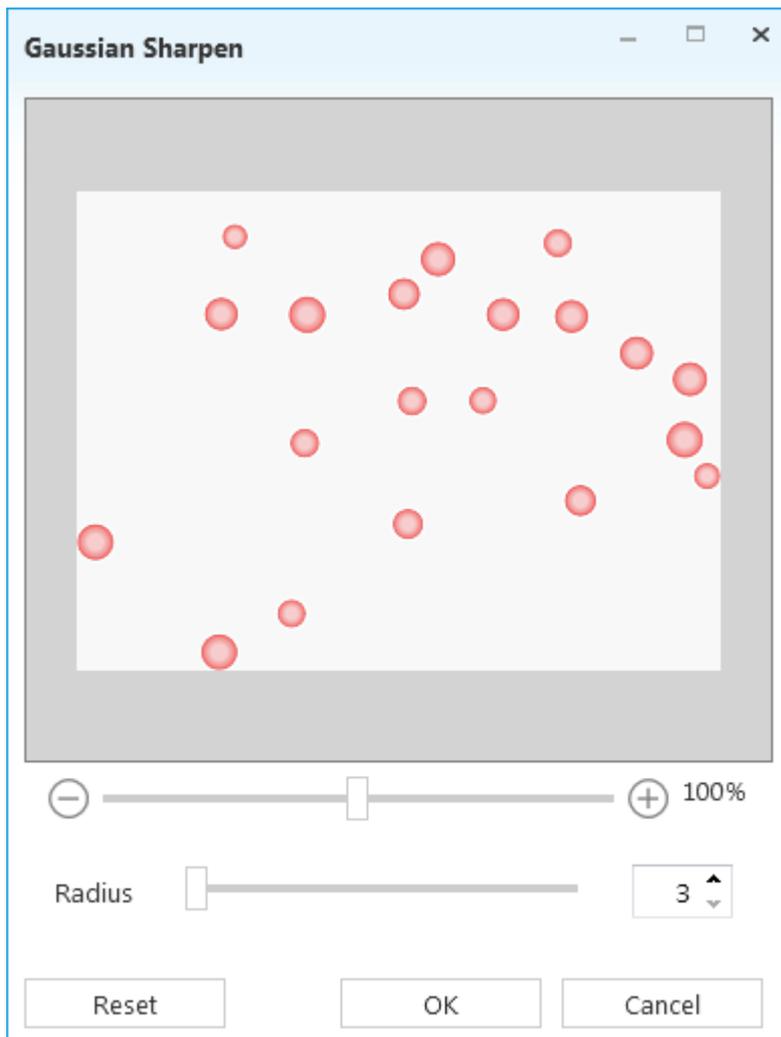
- On the **Format** tab, in the group **Filter**, click the **Sharpen** button and then click **Sharpen**. The filter is applied.



To apply the Gaussian Sharpen filter to your image do the following:

1. On the **Format** tab, in the group **Filter**, click the **Sharpen** button and then click **Gaussian Sharpen**.

The **Gaussian Sharpen** dialog box appears.



2. Change the **Radius** using the slider or enter a value in the **Radius** box.
3. Click **OK**. The filter is applied.
4. Click **Reset** to set all values the default values.
5. Click **Cancel** to discard all the changes and close the current window.

Zoom in or out of the image preview:

1. Under the image preview, click the **Zoom** slider.



2. Slide to the percentage zoom setting that you want. Click - or + to zoom in gradual increments.

Edges

To detect contours of objects on your image:

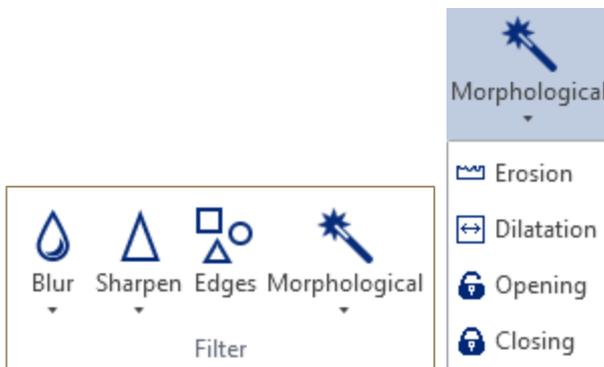
- On the **Capture** tab, in the group **Filter**, click the **Edges** button. The filter is applied.



Morphological Filters

To apply Morphological filters to your image do the following.

1. On the **Format** tab, in the group **Filter**, click the **Morphological** button and then click one of the following filters:
 - Erosion;
 - Dilatation;
 - Opening;
 - Closing.

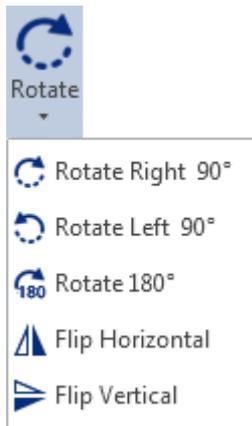


The filter is applied.

Rotate Image

To rotate your image do the following:

1. On the Format tab, in the group **Arrange**, click the **Rotation** button.



2. Click one of the following kinds of rotation or flip:

- Rotate Right 90°;
- Rotate Left 90°;
- Rotate 180°;
- Flip Horizontal;
- Flip Vertical.

The arrangement is applied.

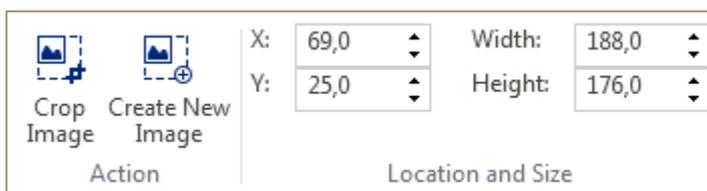
Crop Image

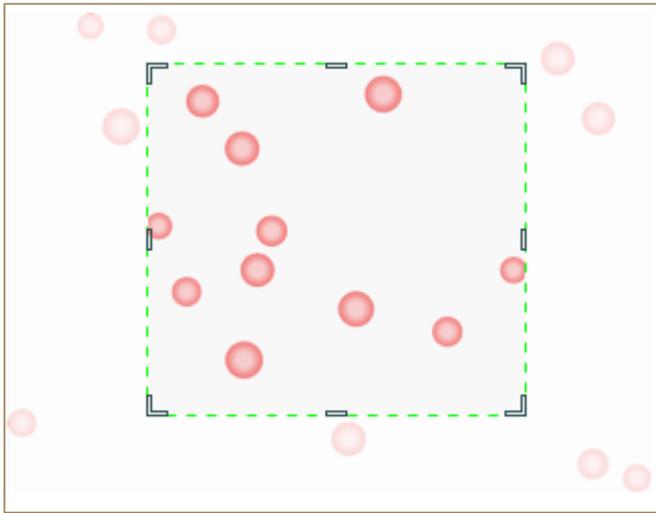
To crop your image do the following.

1. On the tab **Format**, in the **Size** group, click the **Crop** button.



The contextual tab **Crop** appears on the Ribbon and a rectangle appears on the image.





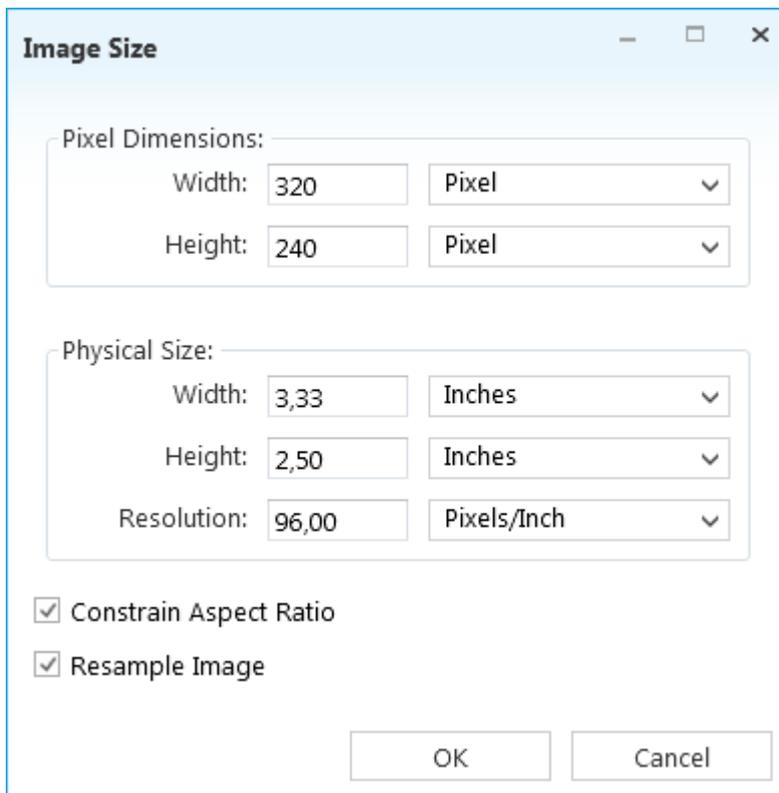
2. If necessary, adjust the cropping rectangle:
 - To move the rectangle to another position, place the pointer inside the rectangle and drag, or in the group **Location and Size**, enter X and Y position of the rectangle.
 - To scale the rectangle, drag a handle, or in the group **Location and Size**, enter **Width** and **Height** of the image.
3. Do one of the following:
 - Click the **Crop Image** button to crop the current image.
 - Click the **Create New Image** button to create new from the cropping rectangle and open it in a new tab.

Image Size

To change the image size use **Image Size** dialog box (on the **Format** tab, in the group **Size**, click the **Resize** button.)



The **Image Size** dialog box appears.



When you use the **Image Size** dialog box to resize your images, three aspects of your image can change:

- Pixel dimensions: The width and height of the image.
- Physical size: size of the image when printed, including a width and height.
- Image resolution when printed: This value appears in pixels per inch or pixels per centimeter.

The Microscope VIS application calculates the physical size, resolution, and pixel dimensions of an image as follows:

- Physical size = pixel dimensions / resolution
- Resolution = pixel dimensions / physical size
- Pixel dimensions = physical size x resolution

The **Image Size** dialog box allows you to resize your images in two ways. You can increase or decrease the amount of data in the image (resampling). Or, you can maintain the same amount of data in the image (resizing without resampling). When you resample, the image quality can degrade to some extent.

Resize Image

To resize your image do the following:

1. On the **Format** tab, in the group **Size**, click the **Resize** button.
2. Make sure that the **Resample Image** checkbox is clear. If clear, you can change the Physical Size and Resolution without changing the total number of pixels in the image.

3. To maintain the current aspect ratio, select **Constrain Aspect Ratio**. This option automatically updates the width as you change the height, and vice versa.
4. Under **Pixel Dimensions**, enter new values for the **Height** and **Width**, or
5. Under **Physical Size**, enter new values for the **Height**, **Width** and **Resolution**. If desired, select a new unit of measurement.
6. Click **OK**.

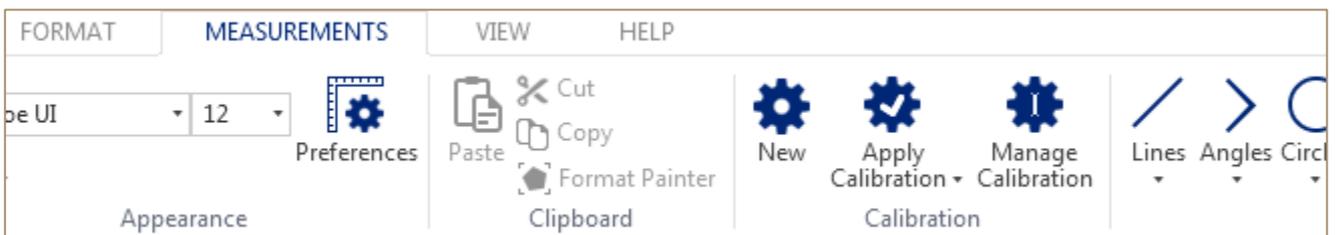
Resample Image

To resample your image do the following:

1. On the **Format** tab, in the group **Size**, click the **Resize** button.
2. Select **Resample Image**.
3. To maintain the current aspect ratio, select **Constrain Aspect Ratio**. This option automatically updates the width as you change the height, and vice versa.
4. Under **Pixel Dimensions**, enter new values for the **Height** and **Width**.
5. Click **OK**.

Perform Measurements

To perform measurements use the **Measurements** Ribbon tab.



See the results of your measurements in the **Measurement Results** panel.

Measurement Results											
	Visible	Type	Name	Width	Height	Area	Perimeter	Angle	Radius	Length	Distance
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Rectangle	Rectangle 1	91,00	47,00	4277,00	276,00				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Ellipse	Ellipse 1	2,38	,88	1,63	5,38				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Ellipse	Ellipse 2	65,00	44,00	2246,24	172,81				

Calibrate Camera

The Microscope VIS application allows creating new calibrations, applying these calibrations to your images and managing them. See also the chapters Create New Calibration, Apply Calibration to an Image and Manage Calibrations.

Create New Calibration

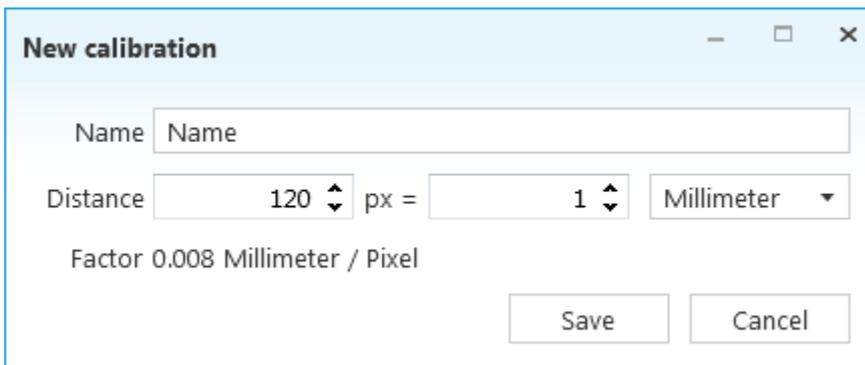
To calibrate your camera do the following:

1. On the **Measurements** tab, in the group **Calibration**, click the **New** button.



2. Draw the reference line on the image of the stage micrometer.

The **New Calibration** dialog box appears.



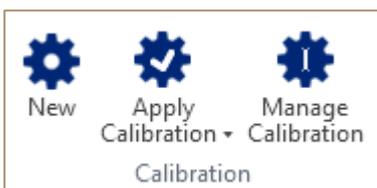
3. Enter the name, distance, number of units and unit.
4. Click **Save**.

The new calibration appears in the **Apply Calibration** list.

Apply Calibration to an Image

To apply a calibration to your image do the following:

1. Open your image.
2. On the **Measurements** tab, in the group **Calibration**, click the **Apply Calibration** button and then click one of calibrations. If there is no calibrations in this list, create a new one (see also the chapter Create New Calibration).



The calibration applies to your image. You can see it in the status bar.

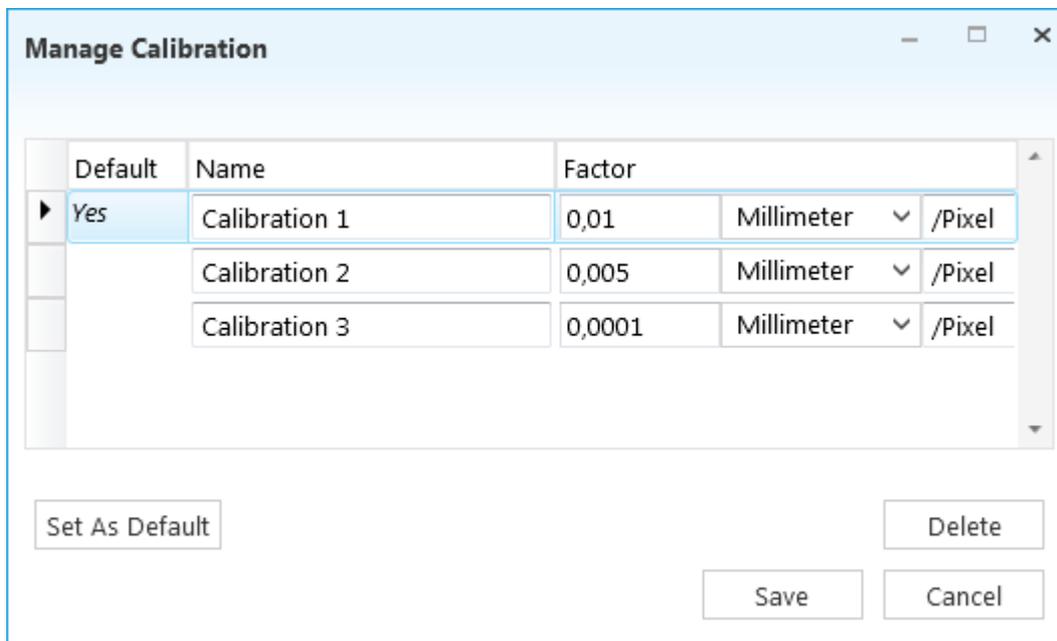


Manage Calibrations

To manage your calibrations do the following:

1. On the **Measurements** tab, in the group **Calibration**, click the **Manage calibration** button.

The **Manage Calibration** dialog box appears.

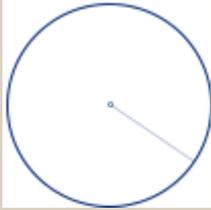
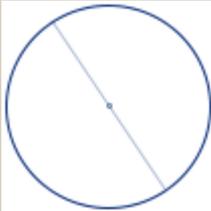
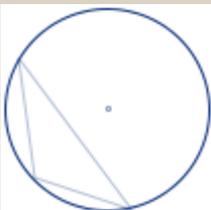


2. Do any of the following:
 - To change a calibration, enter new Name, Factor or Unit of measurements and then click **Save**.
 - To delete a calibration, select one of the calibrations and click **Delete**, then click **Save**.
 - To set a calibration as default calibration, click **Set As Default**. In this case, the default calibration will be used to other images, that you open.

Measure Objects

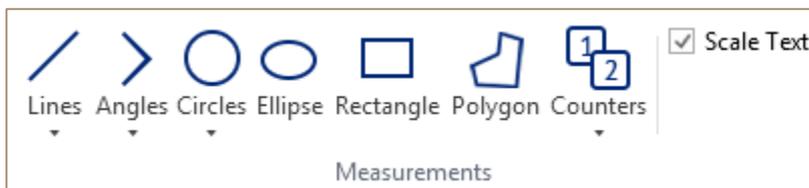
To measure objects on your images you can use a variety of geometrical figures:

Figure	Description
	Single Line.
	Parallel Lines.
	Polyline.

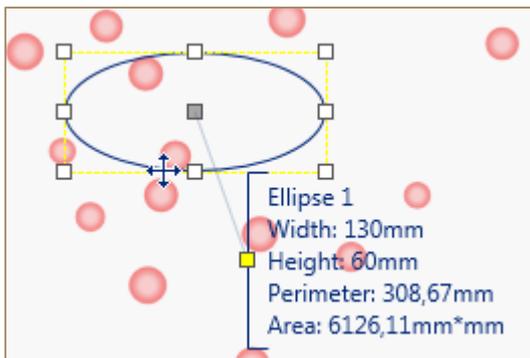
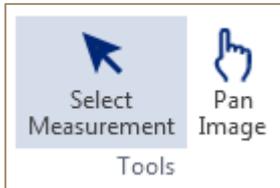
	Angle.
	Linear Angle.
	Circle by Radius.
	Circle by Diameter.
	Circle by 3 Points.
	Ellipse.
	Rectangle.
	Polygon.

To measure objects on your image do the following:

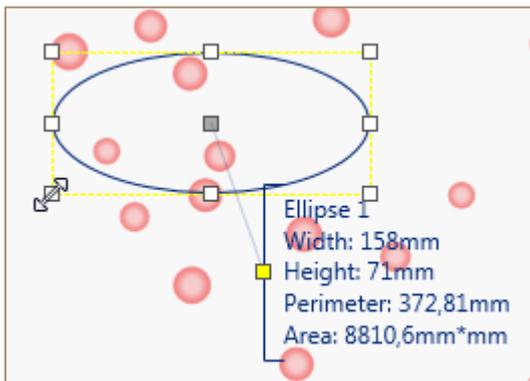
1. Open your image.
2. On the **Measurements** tab, in the group **Measurements**, choose the corresponding geometrical figure (click the button (Ellipse, Rectangle and Polygon), or click the button and click the desired figure in the list (Lines, Angles and Circles)).



3. Draw the figure on the image.
4. If necessary, adjust the drawn figure:
 - To move the figure to another position, select the figure using the **Select Measurements** button (on the **Measurements** tab, in the group **Tools**) place the pointer over the figure and drag.



- To scale the figure, drag a handle.



5. Double-click to finish drawing of polyline and polygon, if you are drawing these figures.

The measurement results appear in the **Measurement Results** table and next to the figure in the annotation block. Then you are able to export these results to a Microsoft Word or Microsoft Excel document (see also the chapter Export Data).

Measurement Results											
	Visible	Type	Name	Width	Height	Area	Perimeter	Angle	Radius	Length	Distance
▶	<input checked="" type="checkbox"/>	○	Ellipse 1	141,00	60,00	6644,47	328,68				

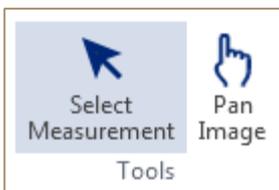
Modify Measurements

You are able to move, scale, copy/paste measurement figures, to change the color of the measurement figures and annotation text, to change font and size of the annotation text, to apply the formatting of one measurement figure to another one.

Select Measurement Figure

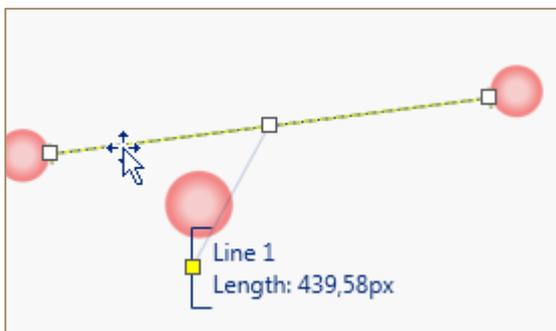
To select a measurement figure (figures) do the following.

1. On the **Format** tab or on the **Measurements** tab, in the group **Tools**, click the **Select Measurement** button. Now you are able to select measurement figures.

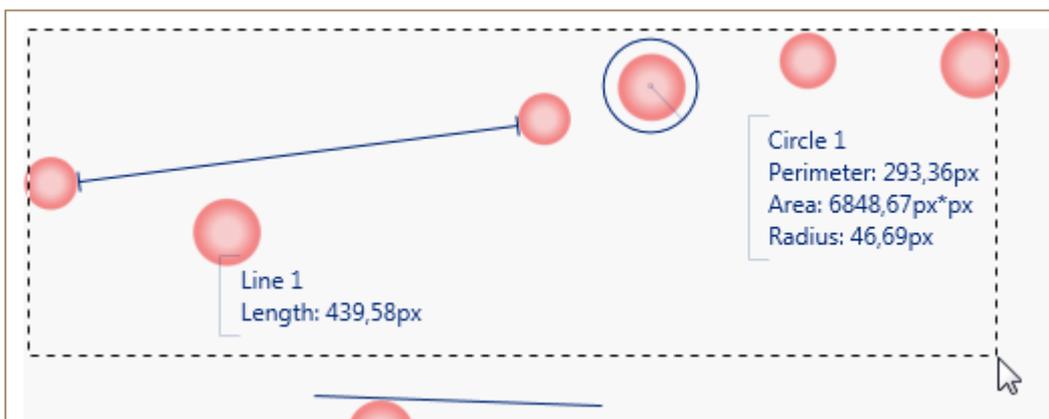


2. Do any of the following:

- If you want to select only one figure, place the pointer over a figure and click it.



- If you want to select several figures, click and hold the left mouse button somewhere on the image and drag or click one of the figures, then press <Ctrl> key and click other figures.



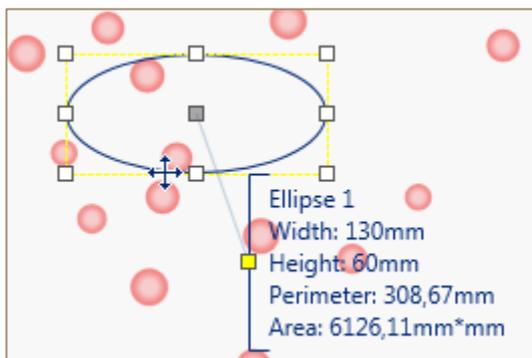
- Click a row in the **Measurement Results** table to select one figure or press <Ctrl> key and click the rows you want to select.

Measurement Results						
	Visible	Type	Name	Width	Height	A
	<input checked="" type="checkbox"/>	/	Line 1			
	<input checked="" type="checkbox"/>	○	Circle 1			68
	<input checked="" type="checkbox"/>	//	Parallel 1			

Move and Scale Measurement Figure

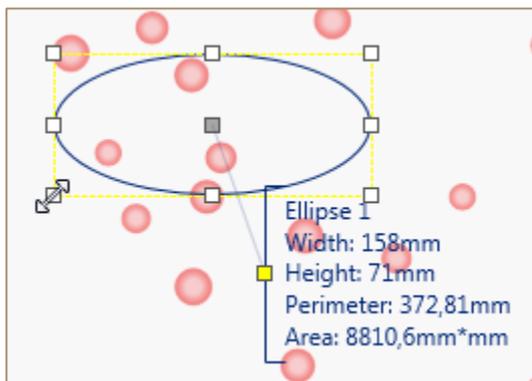
To move the figure to another position, do the following:

1. Select the figure you want to move (see also the chapter Select Measurement Figure).
2. Place the pointer over the figure and drag.



To scale the figure, do the following:

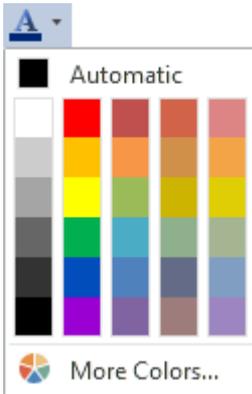
1. Select the figure you want to scale (see also the chapter Select Measurement Figure).
2. Drag a handle.



Change Measurement Figure Color, Font and Size

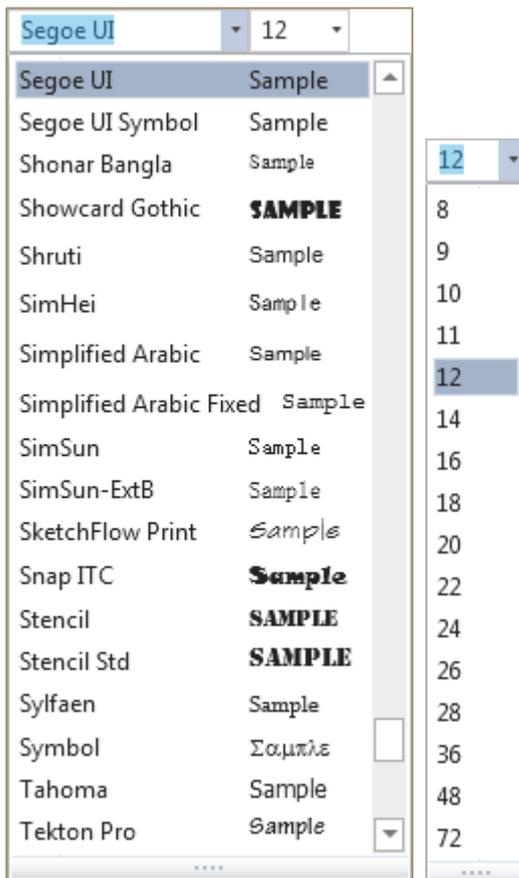
To change the color of your measurement figure do the following:

1. Select the figure (see also the chapter Select Measurement Figure).
2. On the **Measurements** tab, in the group **Appearance**, click the **Color** button and select a color you want to apply.



To change font and size of the annotation text do the following:

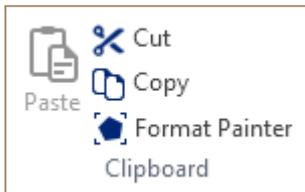
1. Select the figure (see also the chapter Select Measurement Figure).
2. On the **Measurements** tab, in the group **Appearance**, click the **Font** box and select a new font, click the Font Size box and select a new font size.



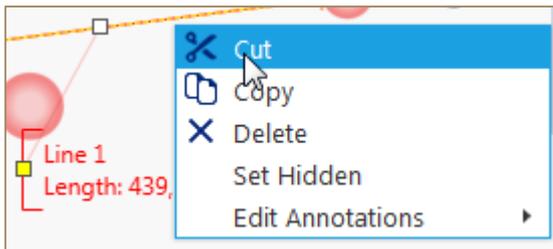
Cut / Copy / Paste Measurement Figure

To cut a measurement figure do the following:

1. Select the figure (see also the chapter Select Measurement Figure).
2. Do one of the following:
 - On the **Measurements** tab, in the group **Clipboard**, click the **Cut** button.



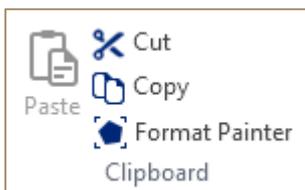
- Press <Ctrl + X>.
- Right-click the figure and click **Cut** on the context menu.



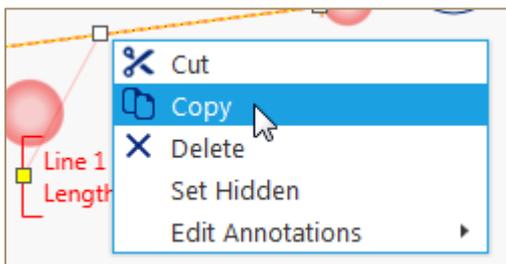
The selected figure is removed and is put to the Clipboard, so you can paste it somewhere else on an image.

To copy a measurement figure do the following:

1. Select the figure (see also the chapter Select Measurement Figure).
2. Do one of the following:
 - On the **Measurements** tab, in the group **Clipboard**, click the **Copy** button.



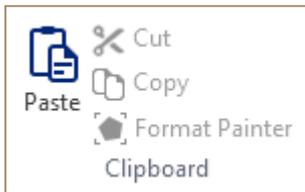
- Press <Ctrl + C>.
- Right-click the figure and click **Copy** on the context menu.



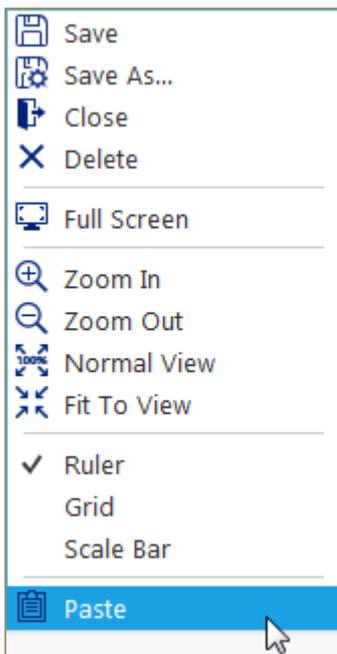
The selected figure is put to the Clipboard, so you can paste it somewhere else on an image.

To paste a measurement figure do the following:

1. Cut or copy the figure.
2. Do one of the following:
 - Click somewhere on the image and click the **Paste** button in the tab **Clipboard**.



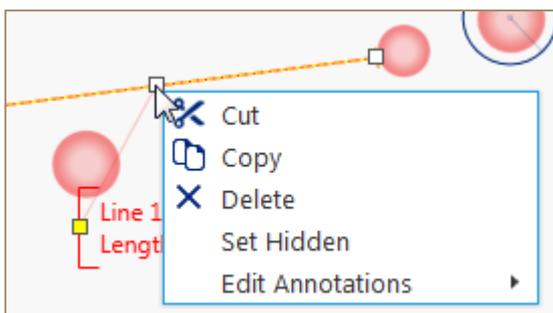
- Click somewhere on the image and press <Ctrl + V>
- Right-click somewhere on the image and then click **Paste** on the context menu.



Hide Measurement Figure

To hide a measurement figure do one of the following:

- Right-click the figure and then click **Set Hidden** on the context menu.



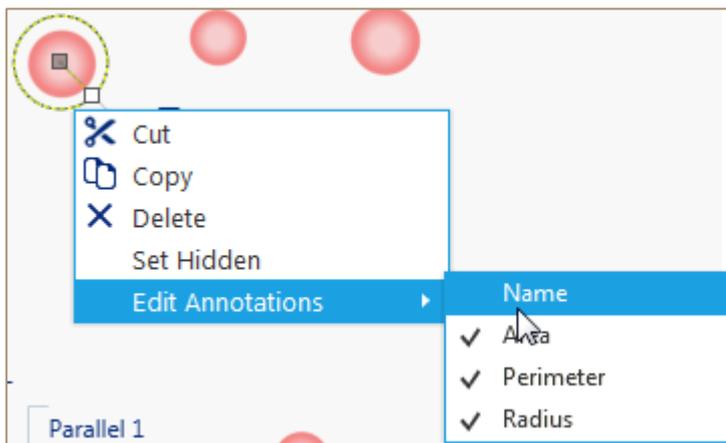
- Clear the **Visible** checkbox for the corresponding figure in the **Measurement Results** table.

Measurement Results			
	Visible	Type	Name
	<input type="checkbox"/>		Line 1
	<input checked="" type="checkbox"/>		Circle 1
	<input checked="" type="checkbox"/>		Parallel 1

Show/Hide a Measurement Result

To hide a measurement result do the following:

1. Right-click the figure.
2. Select **Edit Annotations** on the context menu and clear the corresponding checkbox, e.g. **Name**.

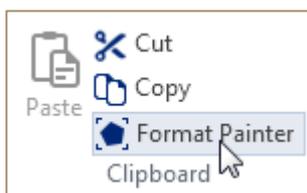


The **Name** is hidden now. To show the Name select the corresponding checkbox.

Use the Format Painter

Use the **Format Painter** on the **Measurements** tab to copy formatting from one measurement figure to another. Do the following:

1. Select the figure, which formatting you like.
2. On the **Measurements** tab, in the group **Clipboard**, click **Format Painter**.

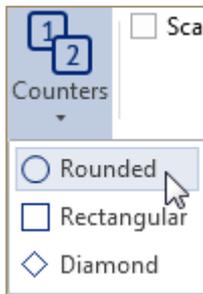


3. Click the figure you want to change to look the same.

Count Objects

To count objects on your image manually, use the **Counter** tool on the **Measurements** tab, in the group **Measurements**. Do the following:

1. On the **Measurements** tab, in the group **Measurements**, click the **Counters** button and then click one of the kinds of counters (Rounded, Rectangular and Diamond).



2. Click the objects on your image to count them.

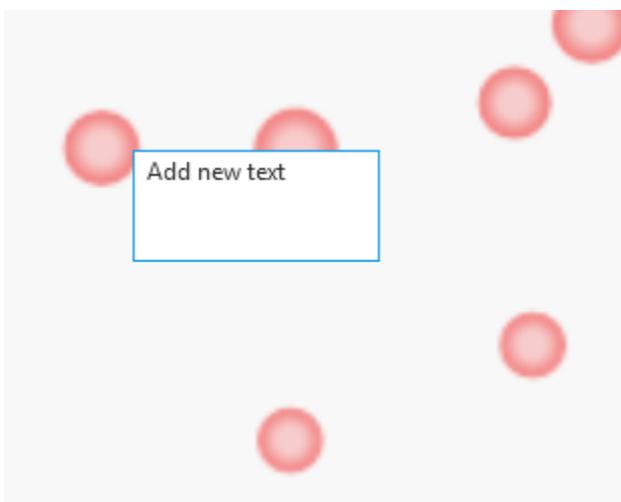
Add Text and Annotations

To add text to your image do the following:

1. On the **Measurements** tab, in the group **Annotations**, click the **Text** button.



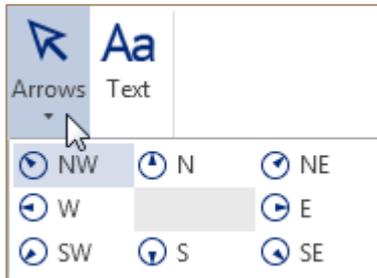
2. Click somewhere on the image or draw an area on the image and enter your text.



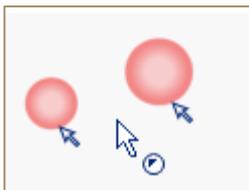
3. Click somewhere else on the image.

To add arrows to your image do the following:

1. On the **Measurements** tab, in the group **Annotations**, click the **Text** button.



2. Click somewhere on the image to add the arrow.



Ruler, Grid and Scale Bar

To show Rulers, Grid and Scale Bar use the **Show** group on the **View** tab. See also the chapters Show Ruler, Show Grid and Show Scale Bar.

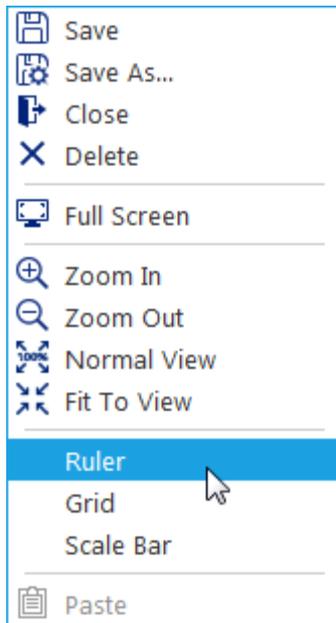
Show Ruler

To show rulers do one of the following:

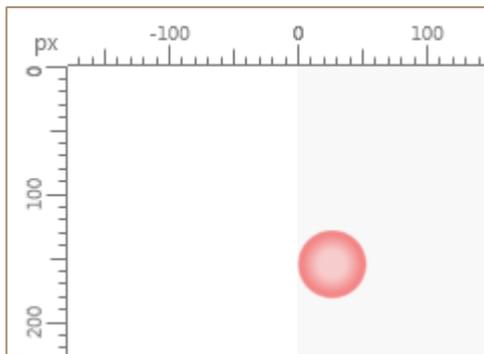
- On the **View** tab, in the group **Show**, select the **Ruler** checkbox.



- Right-click the image and click **Ruler** on the context menu.



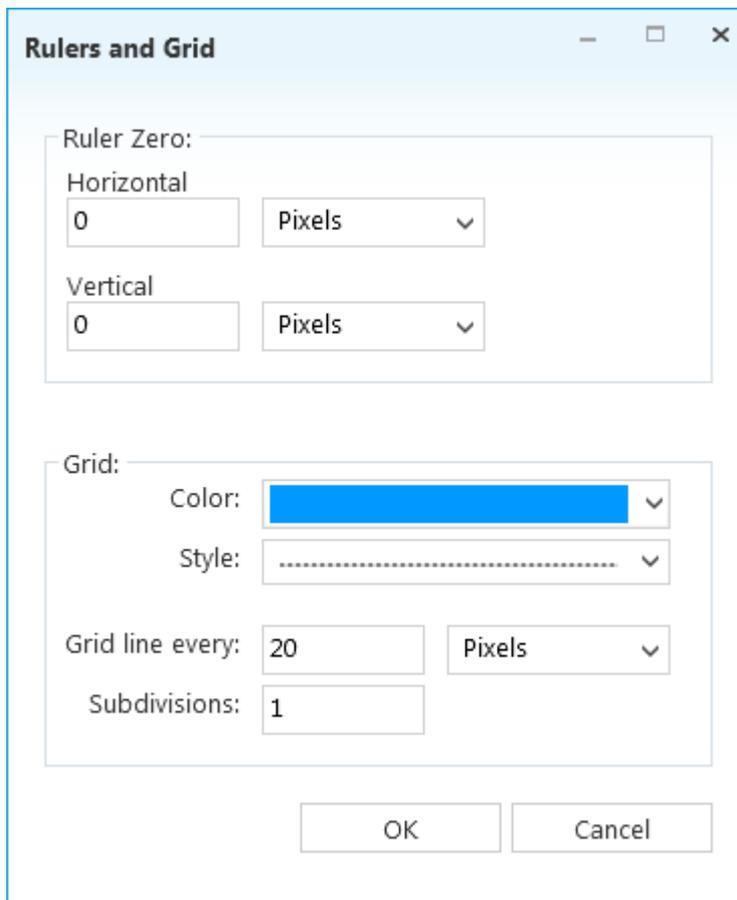
The vertical and horizontal rulers appear.



To shift Ruler Zero do the following:

1. On the **View** tab, in the group **Show**, click the **Preferences** button.

The **Rulers and Grid** dialog box appears.

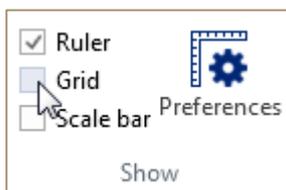


2. Enter new values of the horizontal and vertical start point of the rulers and select unit of measurement.
3. Click **OK**.

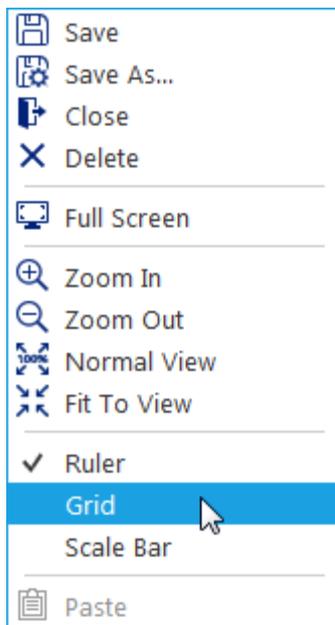
Show Grid

To show rulers do one of the following:

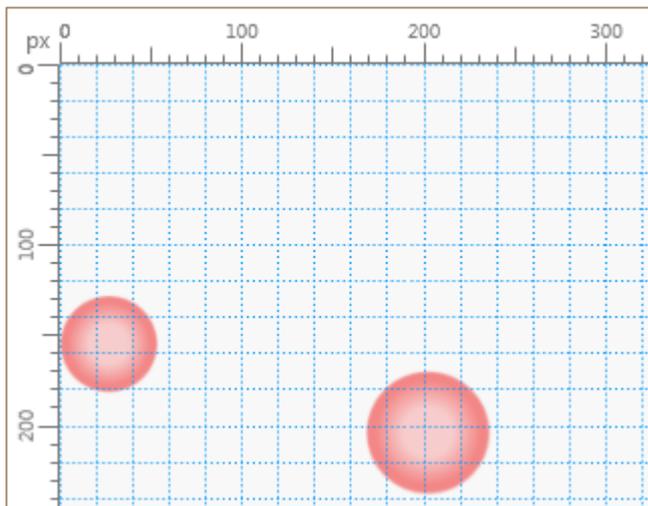
- On the **View** tab, in the group **Show**, select the **Grid** checkbox.



- Right-click the image and click **Grid** on the context menu.



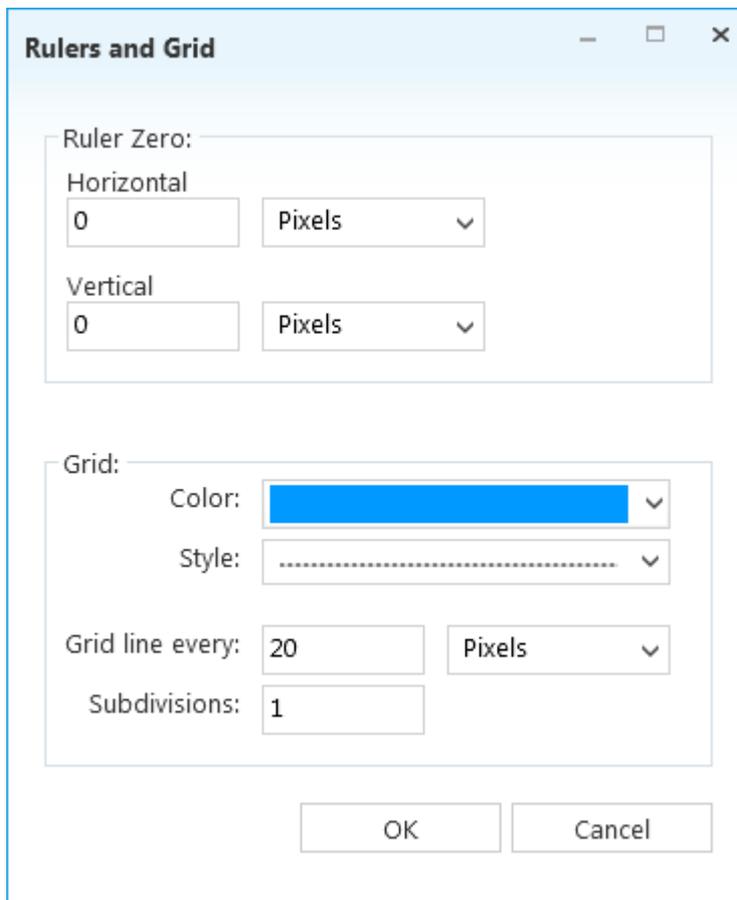
The grid appears.



To adjust grid preferences do the following:

1. On the **View** tab, in the group **Show**, click the **Preferences** button.

The **Rulers and Grid** dialog box appears.



2. To change the style (Lines, Dashed Lines) and color of the grid lines select new the values in the **Color** and **Style** boxes.
3. To change the distance between grid lines and the number of subdivisions enter new values in **Grid line every** and **Subdivisions** boxes.
4. Click **OK**.

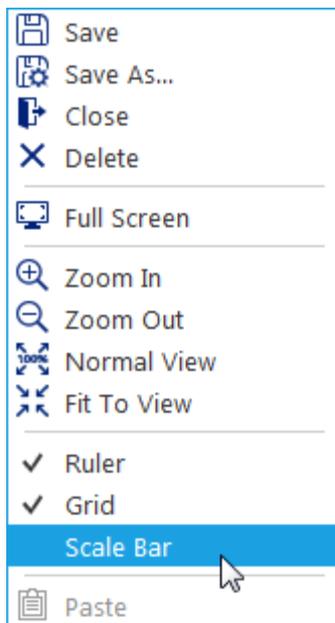
Show Scale Bar

To show the **Scale Bar** do one the following:

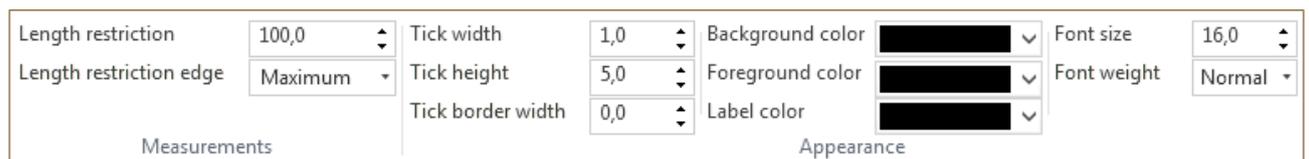
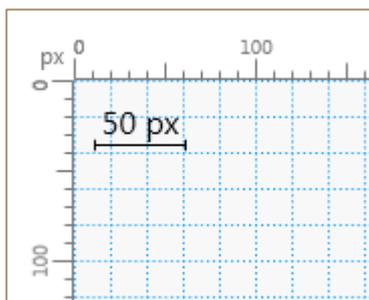
- On the **View** tab, in the group **Show**, select the **Ruler** checkbox.



- Right-click the image and click **Scale Bar** on the context menu.



The **Scale Bar** appears on the image and the **Scale Bar** contextual tab appears on the Ribbon.

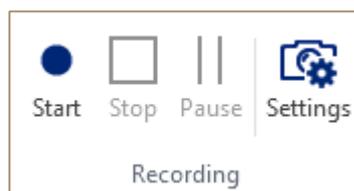


To adjust the Scale Bar preferences use the **Scale Bar** tab.

Recording Video

To record a video from your camera do the following:

1. Start the streaming from your camera (see the chapter View Images Stream).
2. On the **Capture** tab, in the group **Recording**, click the **Start** button.

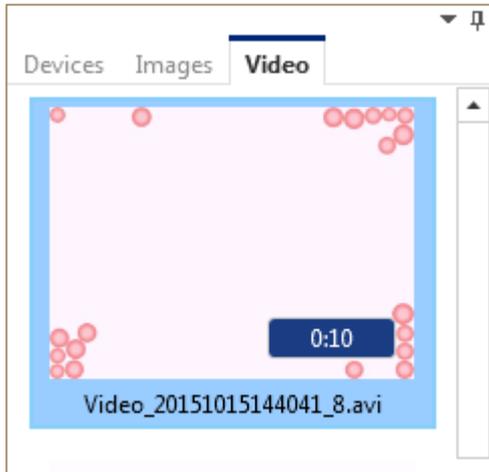


The Recording starts. In the tab of camera stream, you will see the duration of the recorded video.

KERN ODC-1 [00:00:03/00:00:10.000] X

3. Click the **Pause** button to pause the recording.
4. Click the **Stop** button to finish the recording.

The new video appears in the **Video** list.



Adjust Recording Settings

To adjust the recording settings do the following:

1. On the **Capture** tab, in the group **Recording**, click the **Settings** button.

The **Recording Setting** dialog box appears.

Recording Settings - KERN ODC-1

File Type: Bitrate: kbits/sec

Codec: Frame Rate:

Warn when hard drive space is less than

Stop recording if free space less than:

Pause preview while recording to improve performance

Recording time: h m s ms Limit recording time

File Path:

VideoNaming

Format: {Prefix}_{DateTime:yyyyMMddHHmmss}_{Counter}

Prefix:

Initial Counter Value:

Sample: Video_20151015144620_9

2. Adjust the **Recording Settings** (see the table below).

Setting	Description
File Type	<p>Use this setting to select the file type of the video. You are able to save your recordings in the following formats:</p> <ul style="list-style-type: none"> • Audio Video Interleave (.avi); • HD Video (.mov); • HD Video (.mp4); • HD Video (.mpg); • Ms MPEG 4v2; • Ms MPEG 4v3; • RAW.

Codec	Use this setting to select the codec that will be used to compress your recording.
Bitrate	Use this setting to set the number of bits that are processed per unit of time.
Frame Rate	Use this setting to set the frame frequency (FPS – frame per second). Select the value Based on Source , to get this frequency from your camera.
Warn when hard drive space is less than	To be warned when hard drive space is less than a certain value enter a value in Mb or Gb in this box.
Stop recording if free space less than	Use this setting to set the value of free hard drive space when the recording stops.
Pause preview while recording to improve performance	If your computer is “slow”, use this setting to increase the performance when recording a video. Select this checkbox to pause the stream of images from your camera.
Recording time	If you want to limit the duration of your video, select Limit recording time checkbox and use Recording time boxes to enter the certain time.
Limit recording time	Select this checkbox to limit the duration of your video. Clear this checkbox to record the video without any time limits.
File Path	If you want to save your snapshots to a preferred location, enter a correct existing File Path .
Video Naming	Video name has the following format: {Prefix}_{DateTime:yyyyMMddHHmms}_{Counter}. For example Video_20150512115307_1. You can change the Prefix and Counter value (Initial Counter Value).

3. Click **OK**.

These settings will be applied only to the current session and only for the selected camera. That means, if you reopen the Microscope VIS application, the default settings will be used for this camera.

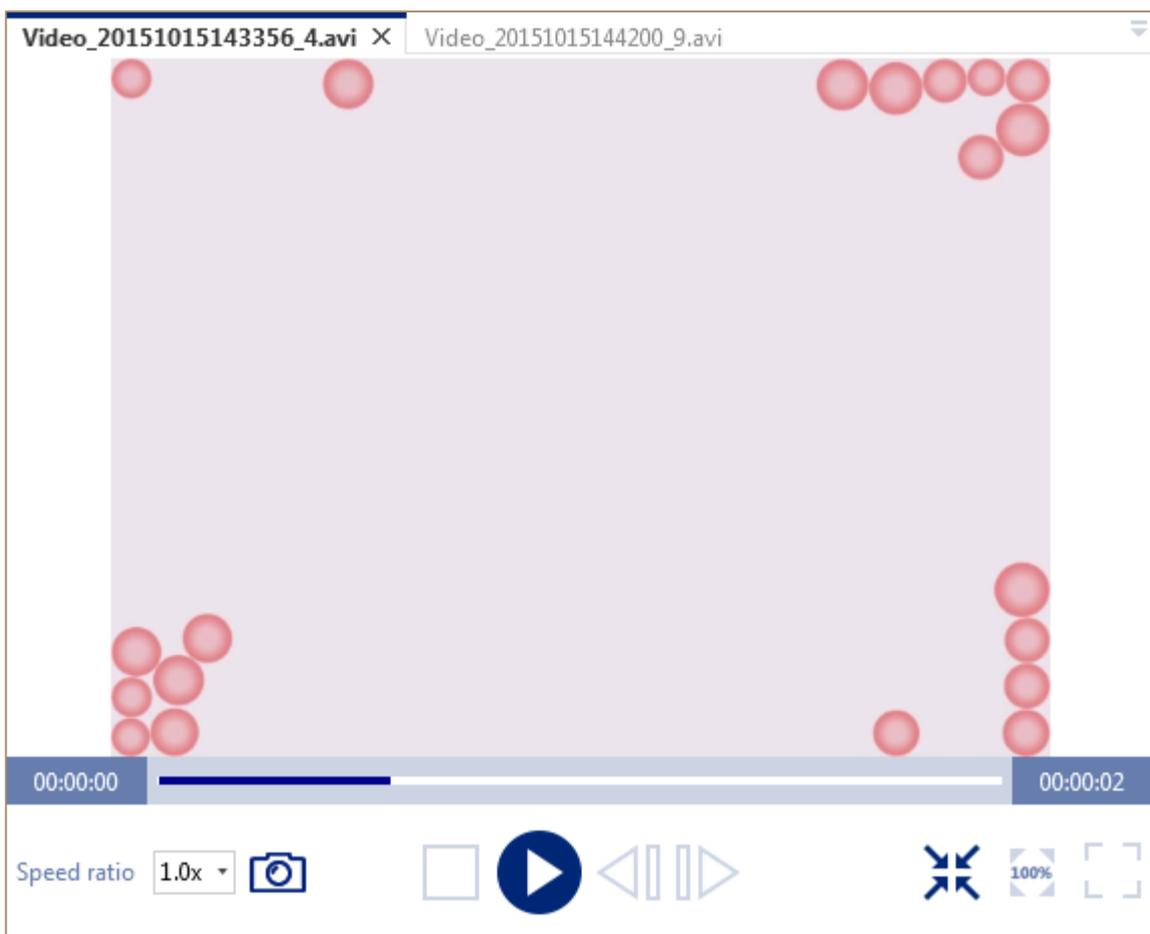
4. Click **Set as Default** if you want to save your settings as default settings. These new default settings will be used as default settings for other cameras.

5. Click **Reset**, if you have made some changes and want to set all the settings to default values.
6. Click **Cancel** to discard all the changes.

Video Player

To play a video do one of the following:

- Open a video file (see the chapter **Open File**) and click the **Play** button in the **Video Player**.
- In the **Video** list, double-click the item to begin playing it.
- In the **Video** list, right-click the item and click **Play** on the context menu.



To **move to a specific point** in a video file move the **Seek** slider.



To **stop** your video file click **Stop** button.



To view a video file per frame use the **Frame Back** and **Frame Forward** buttons.



To increase or decrease the **speed** of the playback, select new speed in the **Speed Ratio** box.



If necessary, adjust the view of the video:



- To set the zoom level so the video fits the visible area of the tab, click the **Fit to View** button.



- To set the zoom level to the original size of the video, click the **Original Size** button.



- To scale the image of the video use the zoom slider.



- To play the video in the full screen mode, click the **Full Screen** button.



View Microscope VIS Help

To view the Microscope VIS **Help** do one the following:

- On the **Help** tab, click the **Show Help** button.



- Click the button **?** in the **Header**.

Shortcuts list

Shortcut	Action
<Ctrl> + <Z>	Undo - to discard an edit action to the image
<Ctrl> + <Y>	Redo - to reapply an edit action to the image
<Ctrl> + <A>	Select all - to select all marked measurements/annotations
<Ctrl> + <C>	Copy – to copy measurements/annotations onto the clipboard.
<Ctrl> + <V>	Paste – to measurements/annotations on the Clipboard to the image
<Ctrl> + mouse clicks on measurements	Select multiple measurements
<Shift> + select area with measurements	Select multiple measurements

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