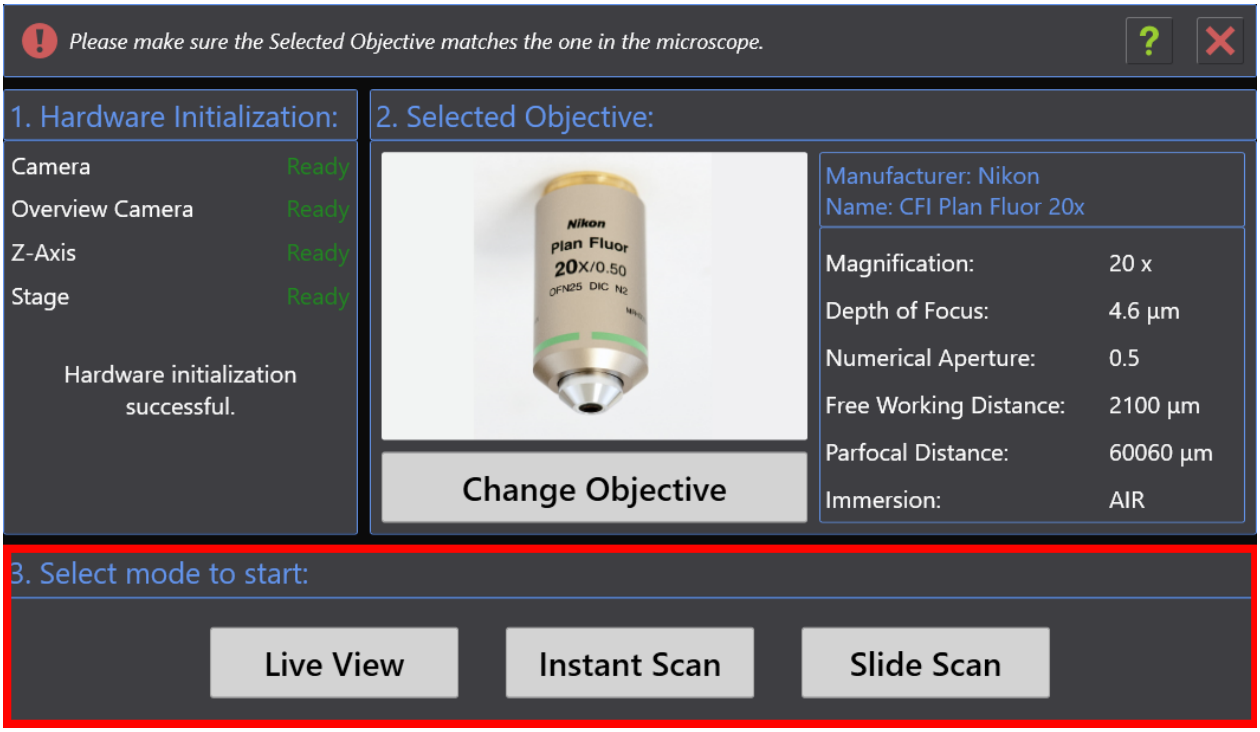
precipoint



User Manual
MicroPoint
Microscope Operating Software

For research use only. Not for use in diagnostic procedures.

User Manual: UM-MP-2021-01
Revision: A
Date: December 2021

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Disclaimer

PreciPoint Field Representatives should be contacted immediately for assistance in the event of any instrument malfunction. Installation of hardware should only be performed by a certified PreciPoint Service Engineer.

This is the original version of the user manual.

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REF MP-2021-01

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1 General Information

1.1 Important Indications

To avoid mishandling of the product, make sure to read the user manual of the microscopes you are using (M8, O8 or Fritz) and this user manual before setting up and using it.

This user manual is designed to make it easier to learn how to use the software "MicroPoint" and take advantage of its intended applications.

This user manual contains important information designed to operate the Digital Microscope & Scanner safely, properly and economically. Observing these instructions helps to avoid risks, reduce repair costs and downtime and increase the reliability and lifetime of the product.

This user manual must be accessible to all users!

1.2 Target Group

The digital microscope may be used only by persons who have been specially briefed and trained for these tasks.

Each person must be taught all functional routines

.

1.3 Information about used Pictograms

The following symbols are used in the user manual:

"General Warning"

Working and operating procedures which must be followed to avoid personal and material damage.

1.4 Intended Use

The Software "MicroPoint" is designed to operate the Digital Microscopes & Scanners M8, O8 or Fritz. It is intended to investigate and digitize samples, mainly histological samples and sections, on glass slides.

- Research
- Teaching
- Life Science
- Industry

This software is not intended for applications that require a medical certification! Not for use in diagnostic procedures!

Specification of intended microscope slides:

Two types of slides with the following dimensions can be used on the x-y-stage.

a)

Length	75.5mm ± 0.5mm
Width	25.5mm ± 0.5mm
Thickness	1mm ± 0.05 mm

b)

Length	75.5mm ± 0.5mm
Width	51 mm ± 1mm
Thickness	1mm ± 0.05 mm

⚠	It is considered improper use, if slides or objects with dimensions other than shown in the above specification list are used with the microscope. This can cause damage to the microscope, the objective and/or the slide.

Improper use can cause injuries, or damage to the microscope and other connected devices. Any other use or extended use is considered improper use. The manufacturer and supplier shall not be liable for any resulting damage.

The intended use includes following the instructions in this manual.

⚠ Operate the device only in a technically perfect condition. Malfunctions which can impair safety must be remedied immediately!

2 Software Installation

2.1 System Requirements

Processor	Intel i7 7th Gen Quad Core (AiO) Intel i7 8th Gen Hexa Core (Desktop)
Operating System	Win 10 Home/Pro/Enterprise/Education (64 Bit) 1904 or higher
Required platform	Net Framework 4.7.2
Random Access Memory (RAM)	16 GB
Hard Drive	512 GB SSD optional 1TB HDD
Videocard	NVIDIA Geforce GTX 960 / GTX 960M 4GB Graphics Memory
Recommended Computers	ASUS Zen AiO S (Asus Z240IEGT-GA033T) Dell XPS 7760 AiO Dell XPS 8930

Note that we do not recommend using the device with hardware other than delivered by PreciPoint.

2.2 Installation

The MicroPoint operating software of the microscope is delivered installed on the PC. There is no further installation needed.

We do not recommend using other hardware to control the microscope.

In case you have to use other hardware, please reach out to our PreciPoint support team and ensure that you supply an internet connection to the hardware for our team to provide remote support.

2.3 System Updates

PreciPoint does not provide automatic updates of the MicroPoint software – however, updates are included in the service packages or can be bought on a need basis. Please contact the PreciPoint Sales team if in doubt of the packages that you have acquired.

In case you do have software updates purchased, updates require the control PC of the microscope to have internet access so that the PreciPoint support team can remotely access the PC. This can also be a temporary connection. The PreciPoint support team will schedule a meeting with you in order to perform the update.

Note that updates to the operating software on the PC (Windows) may cause the MicroPoint software to not work – reach out to the PreciPoint support team in case this happens.

3 Starting MicroPoint

Before starting the software, (1) ensure that the microscope is properly connected to the computer, (2) that the power connection to the microscope is established and (3) that the microscope is turned on (see M8/O8/Fritz manuals for more information).

1. Turn the device on. Wait for 30 seconds. Double-click on the white desktop icon "MicroPoint". If you are using a touch screen – a **Double Tap** on the screen will do.

Figure 3.1: Desktop icon of the microscope software **MicroPoint**

2. A start screen appears showing the progress of the initialization of the device with the camera, the overview camera, the z-axis and the x-y-stage.

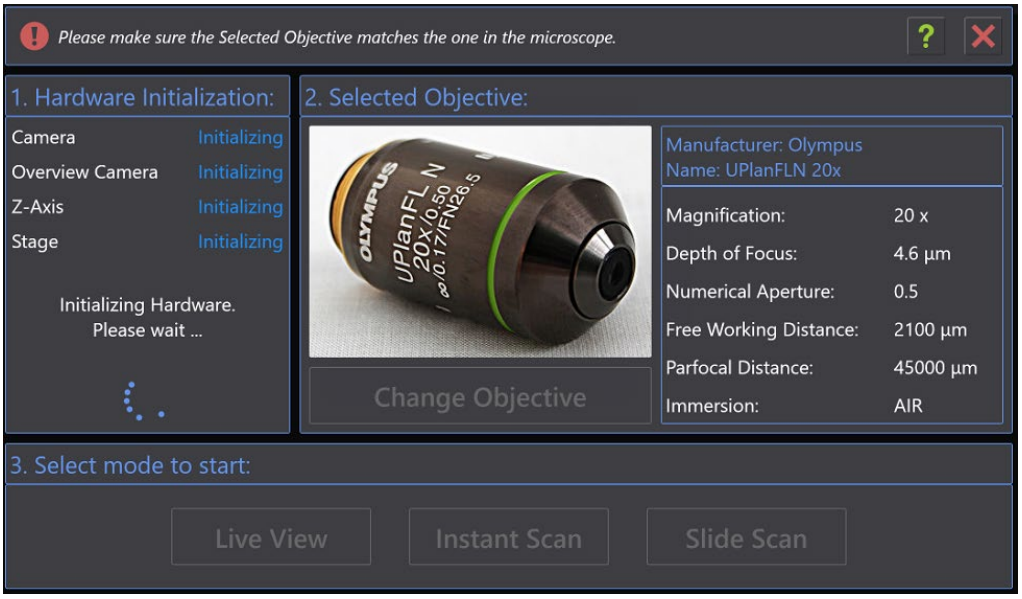


Figure 3-2: Opening screen of the microscope software **MicroPoint**

3. Wait until all components have been successfully initialized which is indicated by a "Ready" in the left part of the start screen. In addition, the buttons at the bottom will be activated and unlocked after completion of initialization.

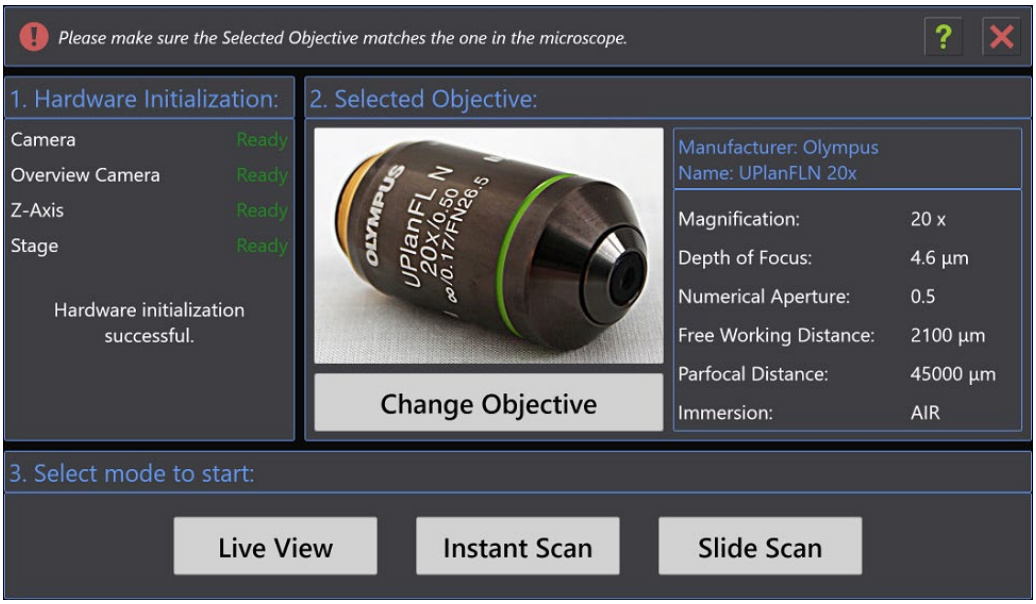


Figure 3-3: Opening screen of the microscope software **MicroPoint** with initialized hardware ("ready") and unlocked buttons

4. Select the right objective. Ensure that the displayed objective in the start screen is exactly the same as the objective mounted into the device. If this is not the case, switch the configuration by pressing **Change Objective**. Select the appropriate objective (see chapter 5.3).

⚠ Never run the microscope with inappropriate objective configuration, this can cause damage to the objective, the microscope and the slide and also impede quality of the image generated.

5. Select the operating mode. You can choose between **Live View Mode**, **Instant Scan Mode** and **Slide Scan Mode**. Detailed information about the different modes can be found in chapter (4).

1. Place the slide into the designated mount of the x-y-stage. Instructions on how to place slides are provided in chapter 5.2 on page 21. When the slides are inserted, click **Continue**. You may now start using the microscope.

4 Menu Structure

The M8 comes with three different modes: Live View, Instant Scan and Slide Scan. Each mode features unique benefits and possibilities. In this user manual, we briefly introduce each mode. For detailed information about each mode, please refer to the user manual "MicroPoint".

The three modes are shown for selection at the bottom of the start screen.

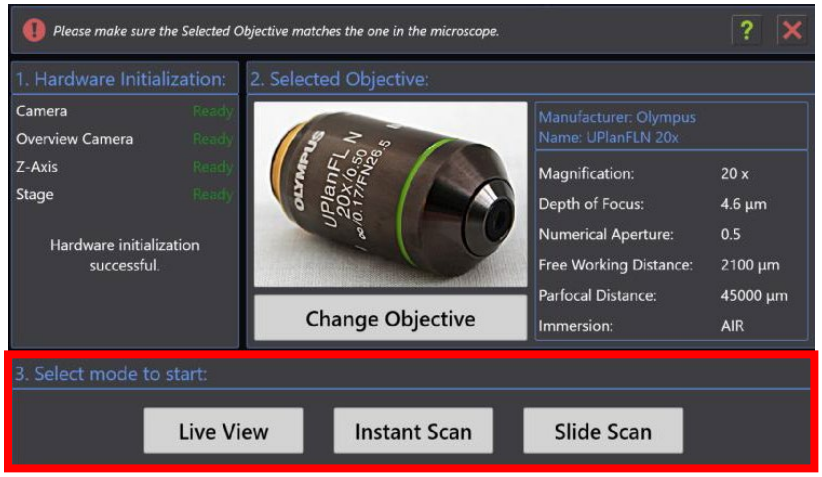


Figure 4-1: Select mode

4.1 Live-View Mode

In **Live-View,** the image captured by the microscope camera is shown live on the screen (#1)

Explanation of buttons in figure 4.1:

#2 is a scalebar indicating the size of the area you see.

#3 displays the magnifications and position. In the magnifications you can see the physical magnification of the objective in the microscope in the number in 0 – e.g. (20x) for a 20x objective. After the : you see the objective magnification that you see in Viewport (note that in the Live-View Mode the physical and the Viewport magnification are always the same, in the other modes they can differ given that you can zoom in and out.

#4 is the overview map that shows you the entire slide including the label area.

#5 displays the position on the slide which you currently see in the magnified view in Viewpoint. Via the overview image, you can also navigate the slide by clicking on the the overview image on the position you want to view.

#6 The focus can be found with the AutoFocus function which automatically finds the focus.

#7 If you have samples where it was difficult to find the focus via AutoFocus, this could be because the 'expected' focus plane of MicroPoint was somewhere else. You can change this 'expected' focus plane to a different one by pressing the FocusPlane button. This, thus, changes the focus plane which MicroPoint uses as a starting point to find the focus which will also support the AutoFocus button to find the focus point on its own.

#8 With the two drives on the right of ViewPoint, you can use the functions known from an analog microscope; the coarse and fine drive. For the coarse drive (right bar), you can press the arrows in the top and bottom to move the z-axis up (top) or down (bottom). With the fine drive (left bar) you can fine adjust the focus by clicking the bar and dragging it up and down to move the z-axis. This mode is used if the AutoFocus button cannot find the right focus point.

#9 is the toolbar in which you can find the settings and also change to a different microscopy mode (top of the tool bar).

#10 with pin position you can mark an area on the sample so that you can easily find it at a later time.

#11 there is also a possibility to create a z-stack (note this only works in the Live-View Mode on the tile that is displayed, there is no z-stack function for the full slide). The z-stack creates several images on different z-axis positions of the same x-y-position. In the settings menu that opens when you clickt the button, you can indicate how many layers you want. The output is the indicated amount of z-layers in a jpeg file.

#12 You may save snapshots of the live view to a storage space indicated by you by using the camera icon on the top right.

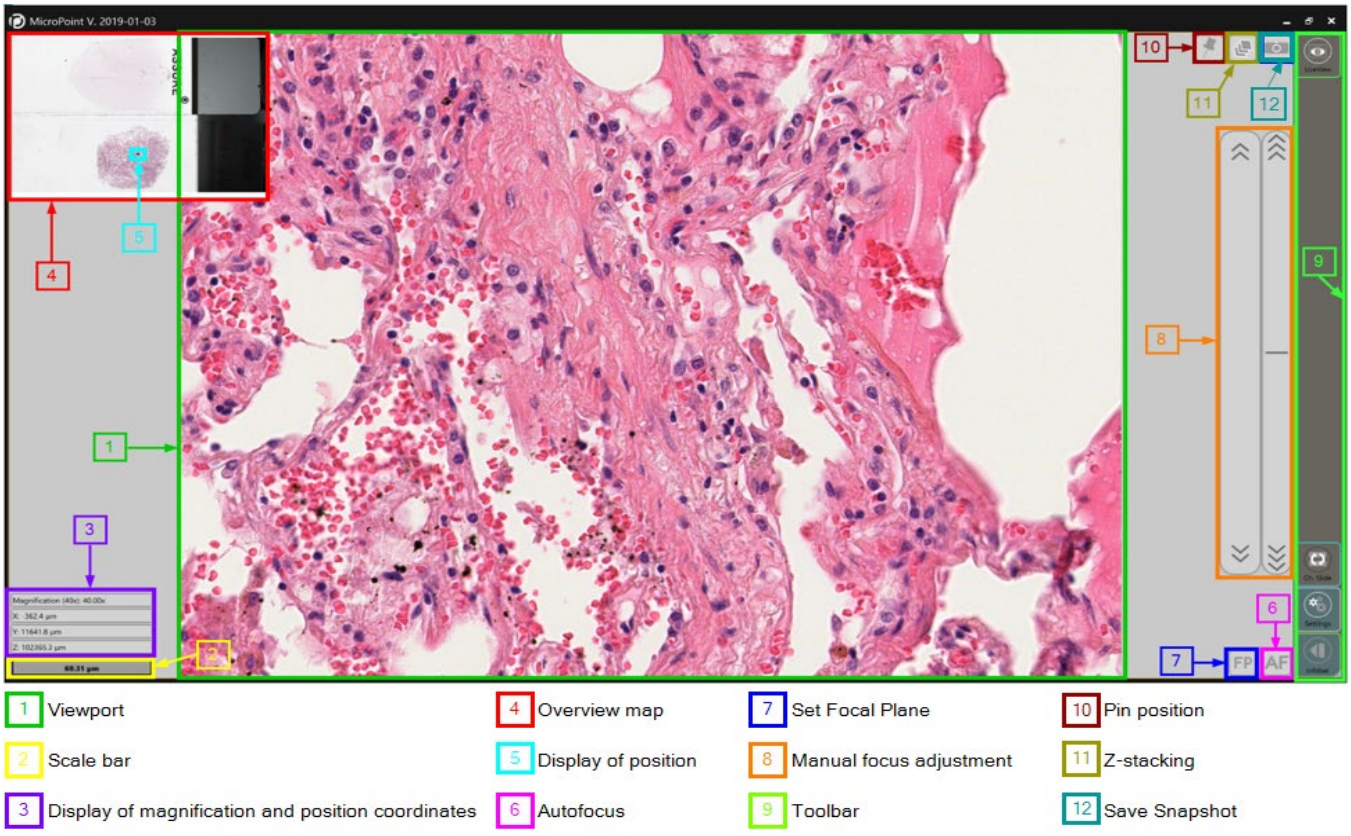


Figure 4-2: Overview of the tools available in **Live-Mode**

4.2 Instant Scan Mode

The **Instant Scan** mode features Live-Stitching: Concatenation of individual pictures taken at the maximum resolution of the objective within seconds to a full single picture. It is thus combines the advantages of a large field of view of a scan and the speed and reactivity of a digital live view.

An overview of the specimen is available (top left) while zooming seamlessly through the details of the sample. A change of objective is not necessary, as the live-stitching seamlessly displays different magnifications with the use of a single objective (up the magnification of the objective and digitally as an overzoom up to 350x magnification). Note that the digital zoom can render the image blurry, the further beyond the actual objective magnification you zoom, the more blurry it will get.

In addition, the Instant Scan mode offers annotations, measurements and counting tools as well as image manipulation filters, such as changes to contrast and brightness, that all enable rapid analysis and processing of the image on the screen. The image, the filters and all annotations can be saved and exported. Overall, you may process large areas of a specimen without the need of scanning a whole slide image first.

Explanation of buttons in figure 4.2:

#1 Viewport

#2 is a scalebar indicating the size of the area you see.

#3 displays the magnifications and position. In the magnifications you can see the physical magnification of the objective in the microscope in the number in 0 – e.g. (20x) for a 20x objective. After the: you see the objective magnification that you see in Viewport (note that in the Live-View Mode the physical and the Viewport magnification are always the same, in the other modes they can differ given that you can zoom in and out.

#4 is the overview map that shows you the entire slide including the label area.

#5 displays the position on the slide which you currently see in the magnified view in Viewpoint. Via the overview image, you can also navigate the slide by clicking on the the overview image on the position you want to view.

#6 the buttons in the bottom imitate the objectives in a revolving nosepit. Each of the buttons will automatically display the magnification they indicate. Note that the zoom magnification is in principle independent of the physical objective in the device, however, if the magnification you seek is larger than the physical objective magnification, you will be seeing a digital overzoom. When you digitally zoom to a very high magnification, this might render the image blurry.

#7 with the IC button you can perform the illumination correction. This has to be done everytime you change the physical objective, or if you substantially change the nature of the slide (e.g. from a standard size slide to a slide that is thicker than standard). If the illumination correction is not done correctly, you might see tiling (horizontal and vertical lines where the stitching did not work perfectly) and/or the image might be too dark/bright. The other buttons are explained in the section on the Live View above as buttons #5-7.

#8 You may save snapshots of the live view to a storage space indicated by you by using the camera icon on the top right.

#9 Is the toolbar in which you can find the settings and also change to a different microscopy mode (top of the tool bar). As well as do annotations on the live image.

#10 is the infobar that shows you the annotations that you made and allows you to navigate between them.

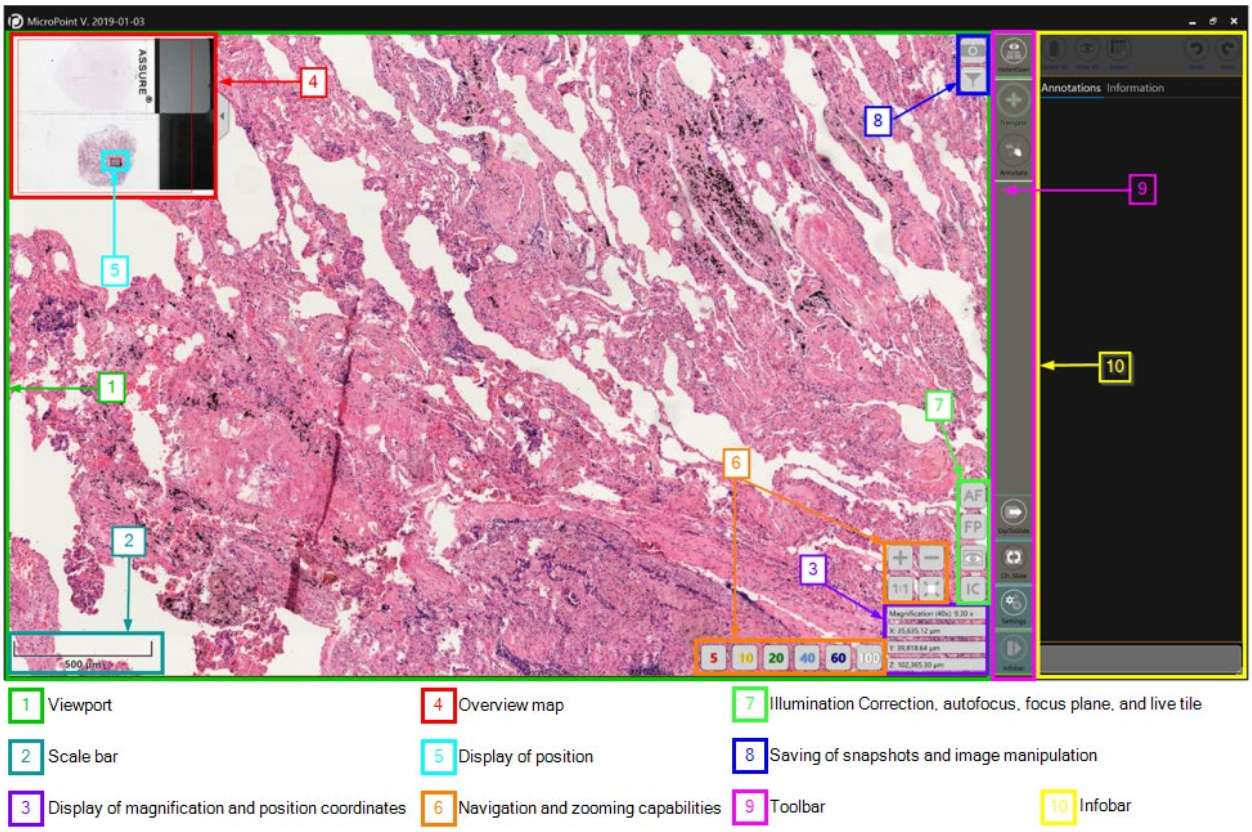


Figure 4-3: Overview of tools available in **Instant Scan Mode**

Once you do annotations (accessible through #9 toolbar in the figure 4.2. explained above), in **Instant Scan Mode** areas can be marked, annotated, measured and counted. All measurements etc. can be saved and exported onto the hard drive in a CSV-format file. Beyond that, manipulation of the shown image is possible. For example, changes in contrast and brightness are possible. Snapshots of the image may be saved onto the hard drive as jpg or png.

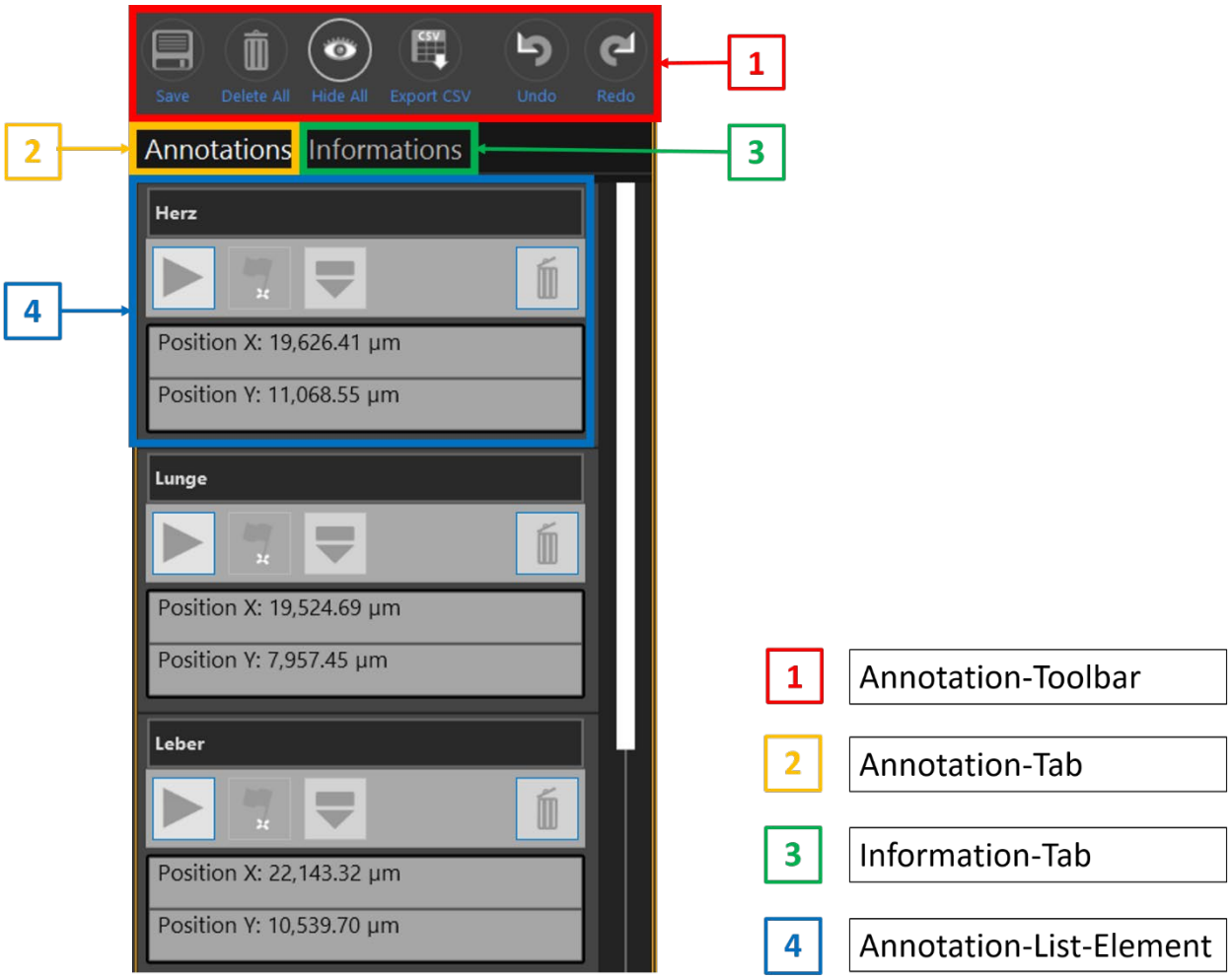
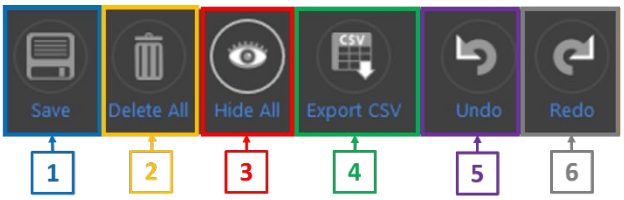
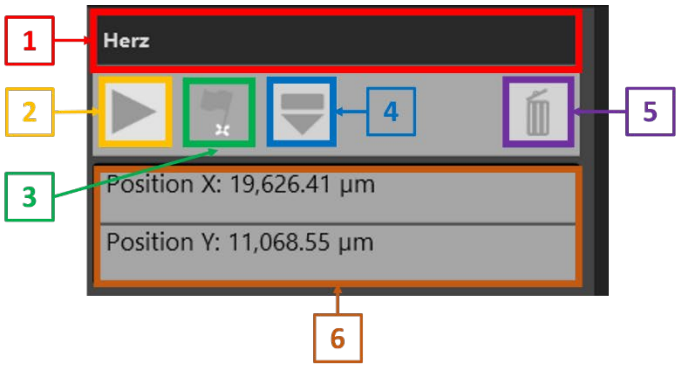


Figure 4-4: Description of **Infobar**



1	**Save:** Saving all changes
2	**Delete All:** Delete all annotations and measurements
3	**Hide / Show All:** Show or hide all annotations and measurements inside viewport
4	**Export CSV:** Export all annotations and measurements to CSV file
5	**Undo:** Undo last change of annotation and measurement
6	**Redo:** Redo last Undo action

Figure 4-5: Description of **Annotation-Toolbar**



1	**Textbox:** Input for name of annotation
2	**Center annotation:** Display annotation in middle of viewport (triggered by drag and drop)
3	**Hide/Show annotation:** Hide or show annotation in viewport
4	**Hide/Show information:** Expand or collapse information inside Annotation-List-Element
5	**Delete annotation:** Delete annotation and corresponding information
6	**Display of annotation information:** Display of postion and measurement data of annotation

Figure 4-6: Description of **Annotation List Element**

4.3 Slide Scan Mode

Powered by the **Slide Scan mode,** you can digitize your samples in high quality and resolution to view them digitally later. Mark the regions of interest in the sample which you would like to scan, select the most appropriate scanning mode (five different scanning-modes are available differing in speed and quality) and start your scan. To automate setting the scanning area, we integrated an algorithm for tissue recognition (best for histological samples with strong colors) that will automatically suggest a scanning area.

Once the scan is complete, use the free of charge PreciPoint viewer software **ViewPoint** to digitally view and process your scanned images. Alternatively, you can also use it in our paid-for PreciCloud browser-based viewer with easy sharing function (contact our Sales team in case this is interesting for you on sales@precipoint.de).

Explanation of the buttons in figure 4.6:

#1 Shows the scannable area on a slide. Note that the label area is intended to be on the right side of the scanner and will not be scanned in high-resolution.

#2 Shows the area that will be scanned in high-resolution. This area can also be automatically placed by MicroPoint with the use of an algorithm that recognizes tissue. Note that this only works with samples that have a high contrast, very light or unstained images might not be recognized. In cases where the automatic scan area suggestion does not work, the scan area can be manually adjusted clicking the box and drawing it to the area that you want to scan.

#3 is where the label of the slide is displayed – note that the label needs to be on the right side of the slide. If the label is in another position, this might both impede the quality of viewing the label as well as the scan quality.

#4 Shows you a 'window' into what the objective currently 'sees'. While a scanning progress, you can use this to see whether the objective finds the right focus point.

#5 In the scan configuration menu, you have several settings to optimize the scanning time and image quality. You are able to give the image a name as well. For the scanning options, you see the fastest mode (single focus) in the top, and the most thorough modes (AutoFocus and Focus Fusion) in the bottom. The single focus only takes 1 image per x-y-position, whereas the AutoFocus will take several images on the same x-y-positions so that the software can afterwards pick the sharpest image to compile the whole slide scan.

6# You have the opportunity to start the scan of several scanning areas at the same time. You can add additional scanning areas with the '+', delete scanning areas that you do not need with '-' (note that it will delete the box that is active).

#7 Starts the scan. Before it starts, it will show a menu where you are asked to indicate the storage location of the file once it is generated.

#8 is the toolbar that you also have in the other modes, where you can for example change the scan mode.

#9 is the infobar where you can see the scans that will be started. Note that you can start several scans with different scanning configurations for each scan. If you click on the scan boxes or the infobar scanning list, you can change the scan settings in the menu in #5.

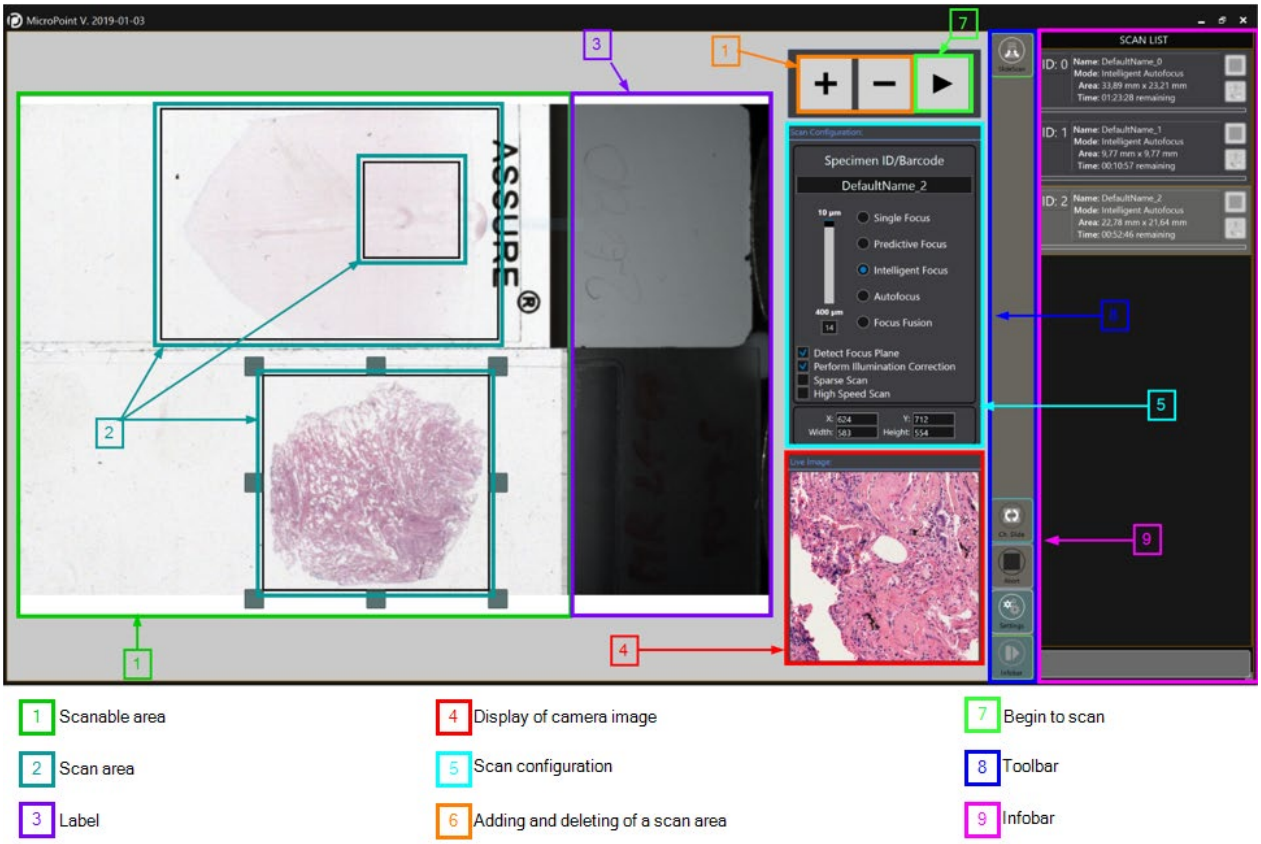


Figure 4-7: Overview of tools available in **Instant Scan Mode**

4.4 Changing Operating Mode

If you want to change the operating mode, you have to click on the button at the top of the **Toolbar**. A selection of modes is shown. Click on the desired mode.

Figure 4-8: Buttons for changing operating mode

5 Basic Functions

5.1 Touch Gestures Overview

These gestures can only be used on if you have a touch screen.

Gestures	Operation
	**Tap:** Tap once with the index finger on an item on screen.
	**Double Tap:** Touch twice in quick succession with the index finger on an item on screen.
	**Long Press:** Press about one second with the index finger on an item on screen.
	**Pan:** Navigate by remaining the index on screen and drag the finger in desired direction.
	**Flick:** Quickly slide the index finger in desired direction (all directions allowed) across the screen and then take your finger off the screen.
	**Two Finger Scroll:** Place the index and middle finger close together on screen and drag them up or down together.
	**Zoom In:** Place your thumb and index finger close together on screen and drag the two fingers apart.
	**Zoom Out:** Place your thumb and index finger apart on the screen and move both fingers toward each
	**Rotate:** Place your thumb and index finger wide apart on screen and let one finger circle around the other.

Figure 5-1: Touch gestures overview

5.2 Changing Slides

There are two possibilities for the change of slides:

a) When starting the software, after selecting of the operation mode you will always be asked to insert a slide.

b) In every mode you can press the button **Change Slide** in order to start the replacement mechanism. This button is located in the bottom right of the **Toolbar**.

Figure 5-2: The **Change Slide** - button

Both possibilities follow the same procedure:

1. Wait until the following dialogue is shown on the screen, which asks you to insert a slide

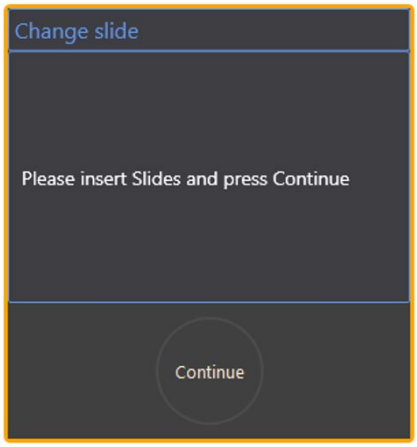


Figure 5-3: The **Change Slide** dialogue

Never put any body parts between the x-y-stage and z-axis while the z-axis is moving. This may cause injuries!

2. Now insert the slides:

The optical components of the microscope should be clean (objective and glass plate of the x-y-stage). This is important for achieving good optical performance. It shall be cleaned with a fuzz-free cloth, lens tissue, or cotton swab moistened with a commercially available glass cleaner.

⚠ Never apply undue force to scrub the surfaces. This can lead to scratches influencing the optical performance.

⚠ Never plug in the microscope when using inflammable substances for cleaning. This can cause electric sparks inflaming the substances and causing damage to the microscope and injury to the body.

a. Move the slide mount to the right by using the handle (in Figure 5.4). Hold this position while changing slides.

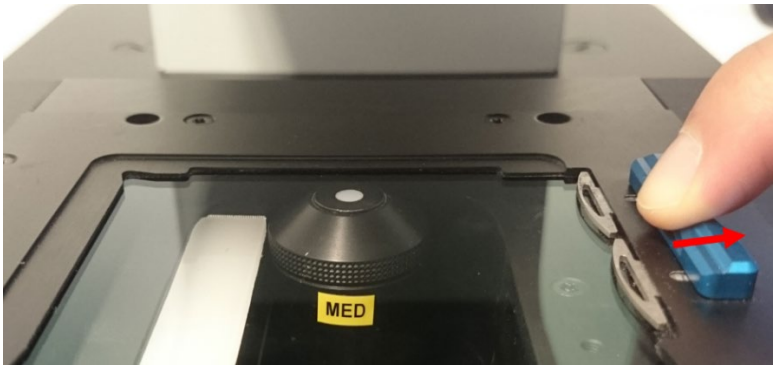


Figure 5-4: Opening the slide mount by moving the handle

b. By using the left hand, put the first slide gently onto the glass plate and move the slide gently to the rear of the holder until the stop is reached. The slide mount shall be kept open the whole time in order to prevent damage to the slide.

Figure 5-5: Insert slides

c. Repeat step b in order to insert a second slide. When all slides are mounted, you can release the handle. The slide mount closes automatically.

   If you want to remove slides, proceed in the same way as described above.

3. When you are finished inserting the slides press **Continue** in the dialog window of the software. Now an overview image of the inserted samples is generated.

5.3 Changing the Objective

1. Start or restart the program **MicroPoint** and wait until all the hardware components have initialized.

2. Press the button **Change Objective** and wait until the z-axis comes to a complete stop before you continue.

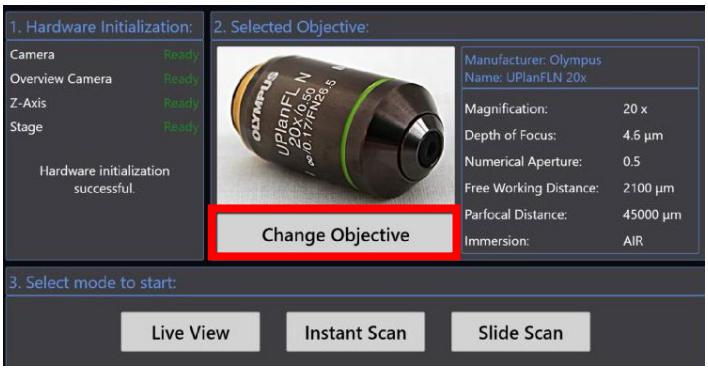


Figure 5-6: **Change Objective** - button in **Startup** dialogue

3. Clockwise unscrew the mounted objective and place it into the designated storage box. Tipp: screw the objective with one hand and hold the other hand under it to avoid the objective falling onto the glass plate in the stage.

While unscrewing the objective, pay attention not to drop it. This might cause damage to the objective and/ or the stage.
Tip: Use one hand to unscrew the objective and hold the other one under the objective to avoid it falling into the glass plate on the stage.
Store the objective safely when not in use.

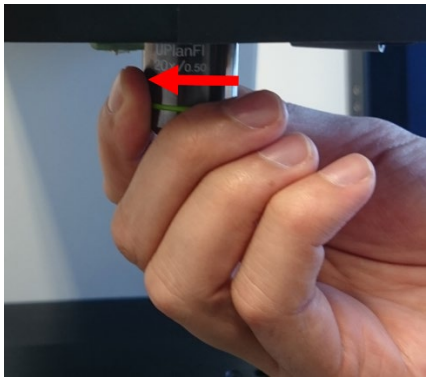


Figure 5-7: Clockwise unscrewing of the objective.

4. Take the new objective and place it on the screw thread. Ensure to place it exactly perpendicular to the thread to avoid jamming.

Figure 5-8: Placing the objective straightly on the screw thread (essentially for allowing an easy insertion)

5. Screw the objective counter-clockwise until it reaches a stop. Do not apply force, there is no need for screwing the objective very tight.

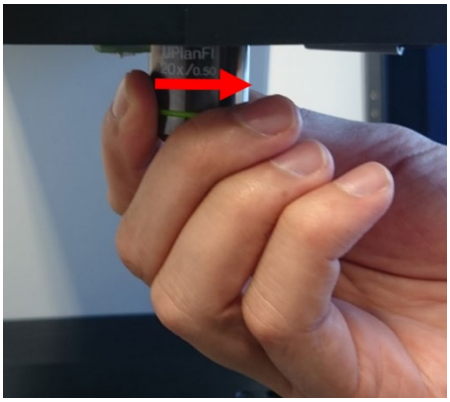


Figure 5-9: Screwing of the objective counter clockwise into the screw thread.

6. Now select the mounted objective from the list in the change objective menu on the start screen. Log your selection by pressing the button **Select Objective**.

Never use the microscope with inappropriate objective configuration. This can cause damage to the microscope, objective and/or the slides.

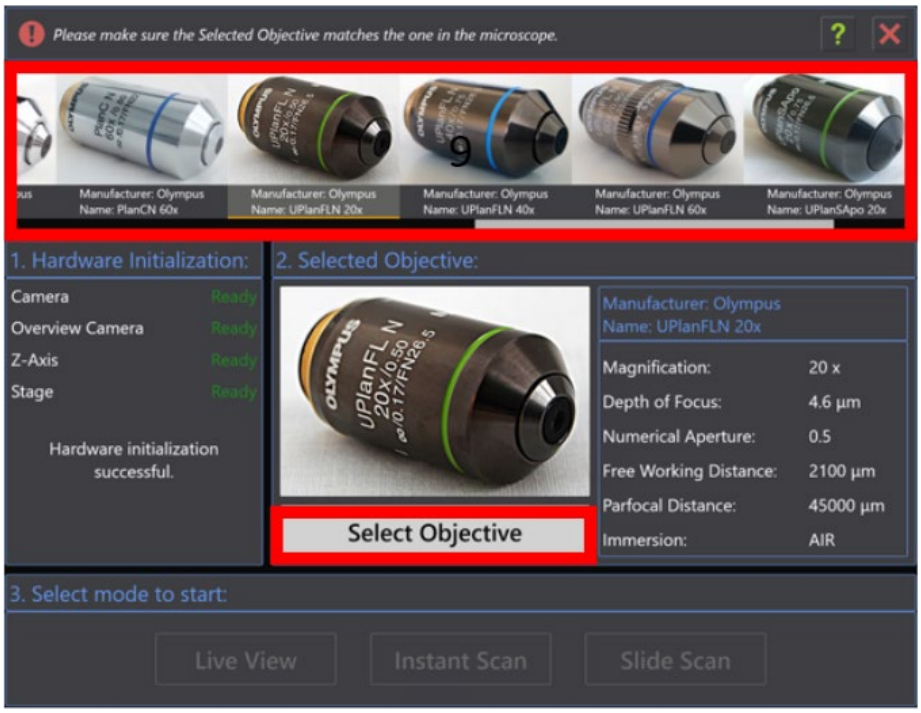


Figure 5-10: Selection of objective configurations and the button **Select Objective** in the **Start-Up** dialogue

If you need an additional objective or if you own an objective whose configuration is not existing in the selection list of the software, please contact us. We are happy to help.

6 Functions of Live-Mode

6.1 Navigation

6.1.1 Moving the View

Moving the viewport using your mouse, touch-gestures and keyboard is ideal especially for small movements.

a) Operation with mouse:

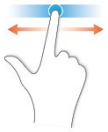
Select an anchor point on the display window, click the left mouse button and hold it down. Now move the mouse along the desired direction. Afterwards you can release the left mouse button.

Note: You can navigate several times in different directions, as long as you hold down the left mouse button.

The second variant of moving in a direction is called **Flick**. Therefore, the left mouse button is pressed and at the same time the mouse is quickly moved in one direction while subsequently releasing the mouse button immediately.

b) Operation with Multi-touch (only on touch-screens)**:**

Select an anchor point on the display window. There, press your index finger against the screen, stay pressed with the finger and move it in the desired direction.

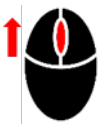


The second variant of moving in a direction is called **Flick**. Therefore, press your index finger against the screen and at the same time move quickly with this finger in one direction while subsequently taking the finger off the screen immediately.

6.1.2 Manual Focus

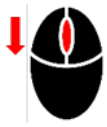
a) Operation with mouse:

Position the cursor on the display window.



Move the z-axis down by turning the mouse wheel upwards.

Or:



Move the z-axis up by turning the mouse wheel downwards.

The operation using the mouse wheel is primarily intended for fine focusing. If you are far away from the focus, the use of the z-axis-control-element or the operation with touch is recommended.

b) Operation with touch (only on touch-screens)**:**

Put your index and middle finger close together on the screen and drag both fingers upwards or downwards. Dragging your fingers down moves the Z axis downwards and dragging them up moves the axis upwards.

c) Z-Axis-Control-Element:

Put your finger or left-click on the **Z-Axis-Control-Element** and stay there with your finger or hold the mouse button down as long as you want to move the z-axis. If you want to move down click on the lower part of the **Z-Axis-Control-Element** and if you want to move the z-axis up use the upper part of **Z-Axis-Control-Element**. The more you put your finger away from the middle of the **Z-Axis-Control-Element** the faster the z-axis will move. (See Figure 6.1 below)

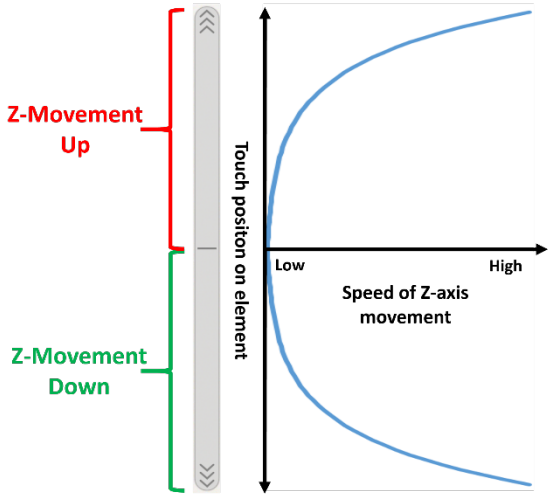


Figure 6-1: Description of **Z-Axis-Control-Element**

6.1.3 Autofocus

With the use of the autofocus button an automated focusing is possible.
It has to be ensured, however, that the sample is not too far out of focus (70µm -100µm).

6.2 Saving of Images

The view of the display window can be saved as an image.

Figure 6-2: The **Snapshot**-button

1. Click on the **Snapshot** -button in the upper right corner of the display window (viewport).
2. Select a storage location.
3. Select the file format and name the image.
4. Save it.

Possible file formats:

-.jpg

-.png

-.bmp

6.3 Changing Exposure Time

1. Click on Settings.
2. Move the slider located under **Exposure [ms]**, write inside of the text box or click the arrows next to the text box.

Avoid overexposure and underexposure!

If you changed the exposure time you have to generate a new illumination correction configuration!

6.4 Changing Illumination Correction Configuration

1. Focus on the desired sample.
2. Locate a spot with no sample in the vicinity where you have focused on (must be white with no details such as dust, etc.).
3. Use a safety distance of about 3 image sections away from the sample.
4. Click on **Settings** and press **Apply Illumination Correction**.
5. Please wait until the illumination correction is finished. If the sample was visible one time while correction mechanism, retry the illumination correction on another location of the slide.
6. When a dialogue box appears containing yes or no, you are able to see the illumination correction. Check if any patterns are visible. If so, press **No** and retry the illumination correction once again for another region. Otherwise agree to the new illumination correction by clicking **Yes**.

Error messages:

1. Camera image brightness is too low. Too low exposure time or illumination correction in sample.
2. Camera image brightness is too high. (too high exposure time)

7 Functions of the Instant Scan Mode

7.1 Navigation

Make sure to be in the **Navigation-Mode**, which can be found in the **Toolbar** on the right side of the display. The **Navigate**-button in the **Toolbar** is shown green.

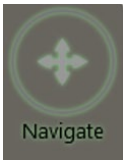


Figure 7-1: The active **Navigate**-button

7.1.1 Moving the View

Moving the **Viewport** with the mouse, the Multitouch as well as the keyboard is recommended for small movements. For larger movements or relocation to other parts of the slide, please use the **Overview Map**.

a) Operation with mouse:

Select an anchoring point in the working area. Left-click and hold the button while moving in the desired direction and to a new area.

Note: you may navigate in multiple and various directions while holding the button pressed.

The second option to move the viewport in one direction is flicking. Therefore press the left mouse button and hold it while move it fast in one direction then drop the mouse pointer.

b) Operation with Multitouch (only on touch-screens)**:**

Select an anchoring point in the working area. Move your finger in the desired direction and to a new area.

The second variant of moving in a direction is called **Flick**. Therefore, press your index finger against the screen and at the same time move quickly with this finger in one direction while subsequently taking the finger off the screen immediately.

c) Operation with keyboard shortcuts:

Make sure to have selected the viewport. If not, please left-click into the viewport.

In Figure 7.2 you find the relevant keyboard shortcuts. Press and hold the relevant shortcut until you have reached the target area. To navigate in multiple different directions, please combine and simultaneously press the relevant shortcuts.

Key	Function
T	Navigate Up
G	Navigate Down
F	Navigate Left
H	Navigate Right

Figure 7-2: Keyboard shortcuts to navigate

Another possibility to navigate is to use the keyboard shortcuts on the numpad of the keyboard as shown in Figure 7.3.

Key	Function
8	Navigate Up
2	Navigate Down
4	Navigate Left
6	Navigate Right

Figure 7-3: Navigation keyboard shortcuts on **number pad**

7.1.2 Navigation via Overview Map

If you want to navigate from one slide to another or over long distances you can use the Overview Map. Klick or touch on one position on the Overview Map located on the top left of the viewport. Thereafter the microscope stage will move to this position. You can also drag and drop the rectangle (the large rectangle with the red line on the top in Figure 7.4), which represents the current view, to another spot of the **Overview Map**.

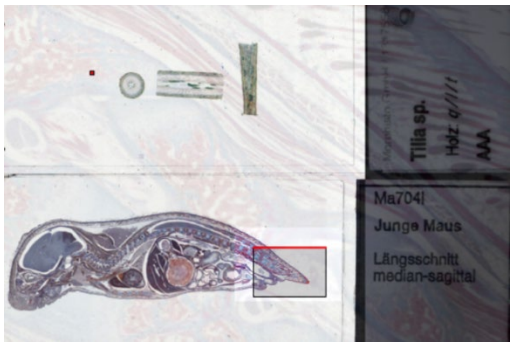


Figure 7-4: The **Overview Map**

7.1.3 Zoom In and Zoom Out

a) Operation with mouse:

Zoom In:

Move the cursor to the area which shall be enlarged. Scroll the wheel of the mouse up until you have reached the required enlargement.

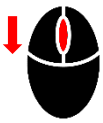
-button:

Another possibility to zoom in is the following button . The icon is displayed in the bottom right corner of the user interface. Each click onto the icon will gradually enlarge the picture. The sequence of enlargement (= triggered by clicks) is predefined as follows:

0.2x	1.25x	2.5x	5x	10x	20x	40x	63x	100x	350x

Click multiple times until you have found the desired enlargement. Please note that the middle of the working area will be enlarged.

Zoom Out:



Move the cursor to the area which shall be enlarged. Scroll the wheel of the mouse down until you have found the required enlargement.

-button:

Another possibility to zoom out is the following button . The icon is displayed in the bottom right corner of the user interface. Each click onto the icon will gradually downsize the picture. The sequence of downsizing (= triggered by clicks) is predefined as follows, here in reverse order:

0.2x	1.25x	2.5x	5x	10x	20x	40x	63x	100x	350x

Click multiple times until you have found the desired enlargement. Please note that the middle of the working area will be downsized.

b) Operation with Multitouch (only on touch-screens)**:**

Zoom In:

Put thumb and index finger close to each other. To enlarge, move the fingers apart from each other. Release the fingers when the target enlargement has been reached.

Zoom Out:

Put thumb and index finger far apart from each other. To downsize, move the fingers closer to each other. Release the fingers when the target enlargement has been reached.

You may as well press the buttons  and  located in the bottom right of the **Viewport** to zoom in and out.

c) Operation with keyboard shortcuts:

Use the keyboard shortcuts shown in Figure 7.5 and Figure 7.6 to zoom in and to zoom out.

Key	Function
	Zoom in
	Zoom out

Figure 7-5: Keyboard shortcuts to zoom

Key	Function
	Zoom out
	Zoom in

Figure 7-6: keyboard shortcuts to zoom on **number pad**

The sequence of enlargement and downsizing (= triggered by each use of the shortcut) is predefined as follows:

0.2x	1.25x	2.5x	5x	10x	20x	40x	63x	100x	350x

Use the shortcut multiple times until you have found the desired enlargement. Please note that the middle of the working area will be enlarged / downsized.

If you require seamless zoom, please operate with Multi-touch.

7.1.4 View Overall Overview and Zoom to Objective Enlargement

a) Operation with mouse:

Overall overview:

Left-click on the  icon which can be found bottom right in the viewport. The whole scan is shown and it will fill the whole viewport.

Zoom to maximum enlargement of objective:

Left-click on the 

icon which can be found bottom right in the viewport. The middle of the working area will be enlarged to the maximum enlargement of the objective (20x, 40x etc.).

For example: when you are working with a 20x objective, the zoom will be automatically set to 20x when pressing the bottom.

b) Operation with Multitouch (only on touch-screens)**:**

You can also press the above mentioned buttons with touch.

You may as well press the relevant working area on the screen for about 1 second (**Long Press**) to zoom to the maximum enlargement of the objective.

c) Operation with keyboard shortcuts:

Use the keyboard shortcuts shown in Figure 7.7 and Figure 7.8 to set full screen and to zoom to the maximum enlargement of the objective. For execution, press the relevant shortcut once.

Key	Function
F2	View of whole scan
F3	View in magnification of acquisition

Figure 7-7: Keyboard shortcuts to set full screen and to zoom to maximum enlargement of objective

Key	Function
1	View of whole scan
7	View in magnification of acquisition

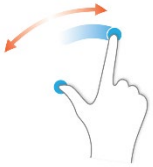
Figure 7-8: Keyboard shortcuts to set full screen and to zoom to maximum enlargement of objective on **number pad**.

7.1.5 Rotation

a) Operation with mouse:

Rotation via mouse is not possible. Please use the keyboard or the Multitouch to rotate.

b) Operation with Multitouch (only on touch-screens)**:**



Use one finger as anchoring point. Use another finger to imitate the required rotation. The screen rotates in the same direction as your finger.

Reset the rotation:

Any rotation of the picture is shown in the  icon on the bottom right of the viewport. Click on the icon to reset the rotation and return to the original orientation.

c) Rotation with keyboard shortcuts

Use the keyboard shortcuts shown in Figure 7.9 and Figure 7.10 to rotate. To reset the rotation to the original orientation, press the relevant shortcut once.

Key	Function
A	Rotate view left
D	Rotate view right
F4	Reset Rotation

Figure 7-9: Keyboard shortcuts to rotate

Key	Function
CE	Rotate view left
×	Rotate view right
÷	Reset Rotation

Figure 7-10: keyboard shortcuts to rotate on **number pad**

7.1.6 Autofocus and Manual Focusing

Autofocus

Figure 7-11: The **AF**-button

1. Make sure you see the specimen you want to focus in the middle of viewport.
2. Press the **AF** –button (Figure 7.11) on the bottom right of the viewport.

If the specimen is not in focus after pressing the **AF**-button, you can press **AF**-button again to execute an Autofocus with larger range or you can try manual focusing.

Manual Focusing

1. Make sure you see the specimen you want to focus in the middle of viewport.
2. Press the  -Button on the bottom right of viewport to activate the **Live-Tile**.

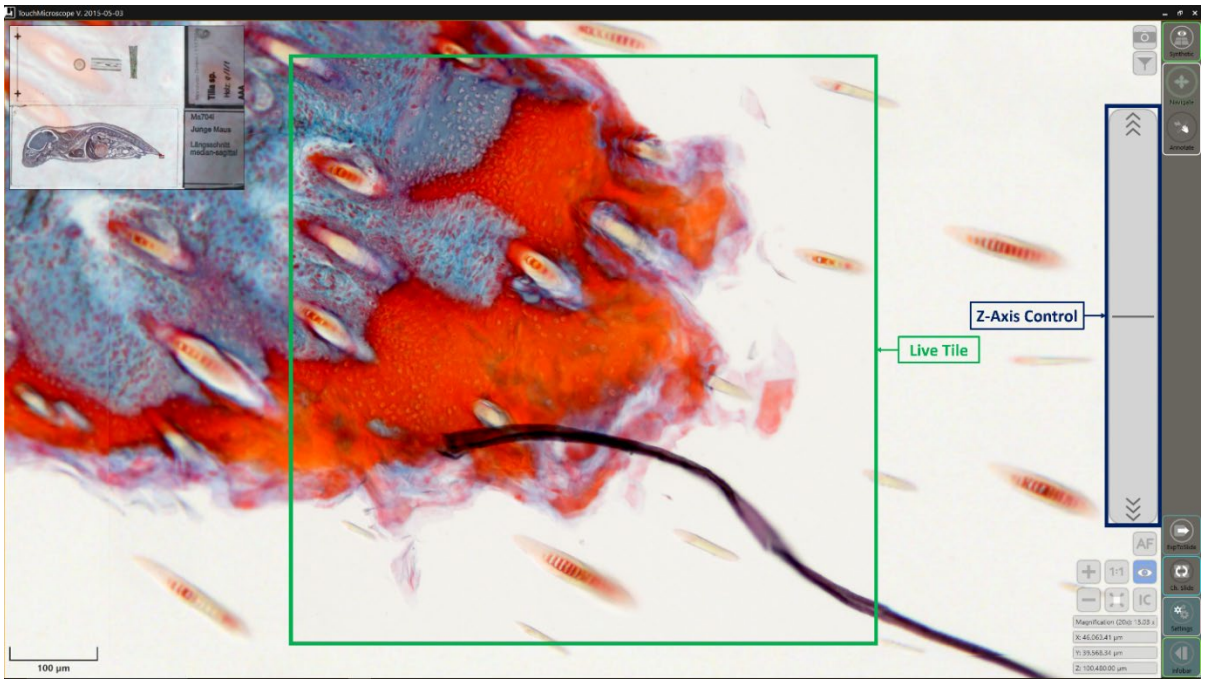


Figure 7-12: Example of using the **Live Tile** in **Synthetic Mode**

3. Now you see the **Live Tile** in the middle of the viewport and a Z-axis control element. Set a finger on the Z-Axis control and move in desired direction. If you want to move the z-axis up move the finger on z-axis control up and if you want to move the z-axis down move the finger on the z-axis control down.

If you want to exit the **Live Tile** you have to press the  -Button again.

7.2 Annotations

When making annotations, the annotation mode must be activated in the **Toolbar** on the right side of the display. Once activated, the various possibilities and functionalities will be shown in the tool bar. How to switch from navigation to annotation mode: right-click on the mouse or tap with two fingers on the viewport.

7.2.1 Mark

Figure 7-13: The active **Annotate**-button

Select **Annotate** in the **Toolbar** and select **Marker** beneath the **Annotate**-button.

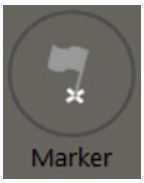


Figure 7-14: The **Marker**-button

a) Operation with mouse:

Left-click on the position you want to mark and pull the mouse towards any desired direction. Once you release the mouse click, an arrow and a text box will appear. You may write into the text box and/or move the annotation around. You may write into the text box located in the annotation list element in the **Infobar**. You can also move the annotation by clicking on the annotation box and dragging it into the desired direction.

b) Operation with Multitouch (only on touch-screens)**:**

Press with a finger on the position you want to mark and move towards any desired direction. Once you release the finger, an arrow and a text box will appear. You may write into the text box located in the annotation list element in the **Infobar**. You can also move the annotation by touching on the annotation box and dragging it into the desired direction.

7.2.2 Draw and Measure distances / the length of straight line

Select **Line** in the **Toolbar**.

Figure 7-15: The **Line**-button

a) Operation with mouse:

Left-click onto the starting point of your line and release the left mouse button when you have reached the end point. The line has been drawn and the length of the line is displayed above the line.

b) Operation with Multitouch (only on touch-screens)**:**

Press with your index finger onto the starting point of your line and release it when you have reached the end point. The line has been drawn and the length of the line is displayed above the line.

7.2.3 Draw and measure the length of a curved line

Select **Polyline**-button in the **Toolbar**.

Figure 7-16: The **Polyline**-button

a) Operation with mouse

Left-click onto the starting point of your line. Hold the mouse button while drawing along the contour of the shape. Release the mouse once you have reached the end point. The line has been drawn and the length of the line is displayed above the line.

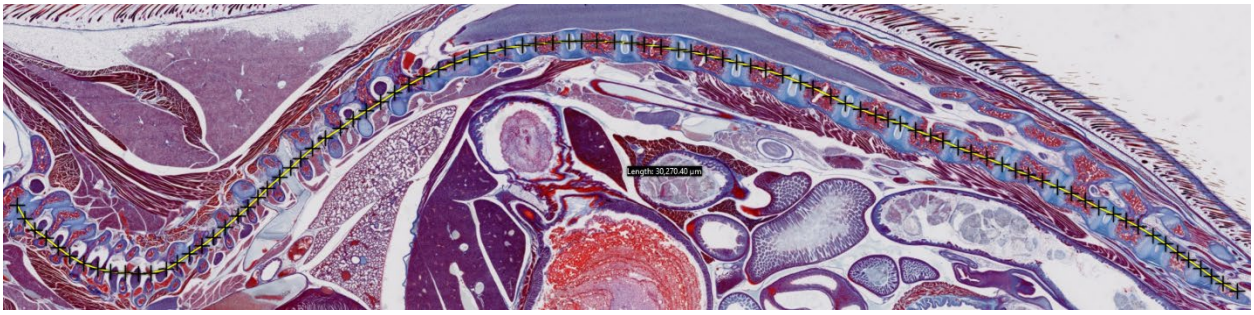


Figure 7-17: The annotation **Polyline**

b) Operation with Multitouch

Mark with a finger touch the starting point of your line and draw along the contour of the shape. Release the finger once you have reached the end point. The line has been drawn and the length of the line is displayed above the line.

7.2.4 Determine circumference, area and radius

Determine radius and area with the help of a circle

Select **Circle** in the **Toolbar**.

Figure 7-18: The **Circle**-button

a) Operation with mouse:

Left-click onto the starting point of your circle. Hold the mouse button while drawing a circle. Release the mouse once you have reached the end point. In the **Toolbar** on the right you find circumference, area and radius for the corresponding annotation

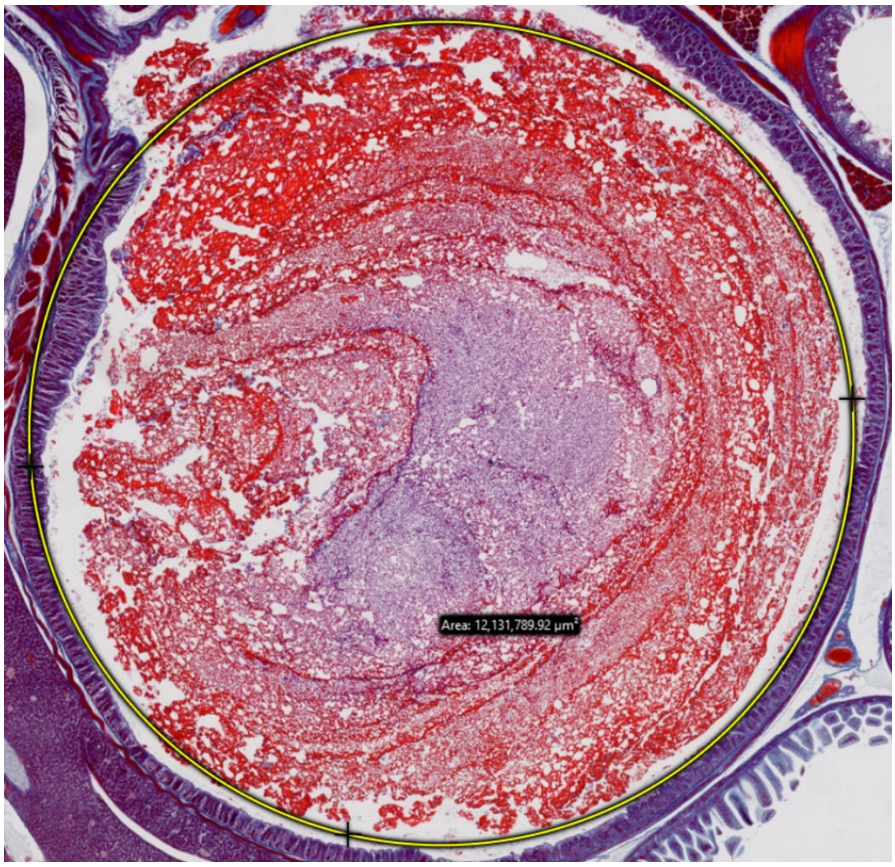


Figure 7-19: The annotation **Circle**

b) Operation with Multitouch (only on touch-screens)**:**

Mark with a finger touch the starting point of your circle, now draw a circle. Release the finger once you have reached the end point. In the **Toolbar** on the right you find circumference, area and radius for the corresponding annotation

Determine circumference and area with the help of a polygon:

Select **Polygon** in the **Toolbar**.

Figure 7-20: The **Polygon**-button

a) Operation with mouse:

Left-click onto the starting point of your polygon. Hold the mouse button while drawing along the contour of the polygon. Release the mouse once you have reached the end point. In the **Toolbar** on the right you find circumference, area and radius for the corresponding annotation.

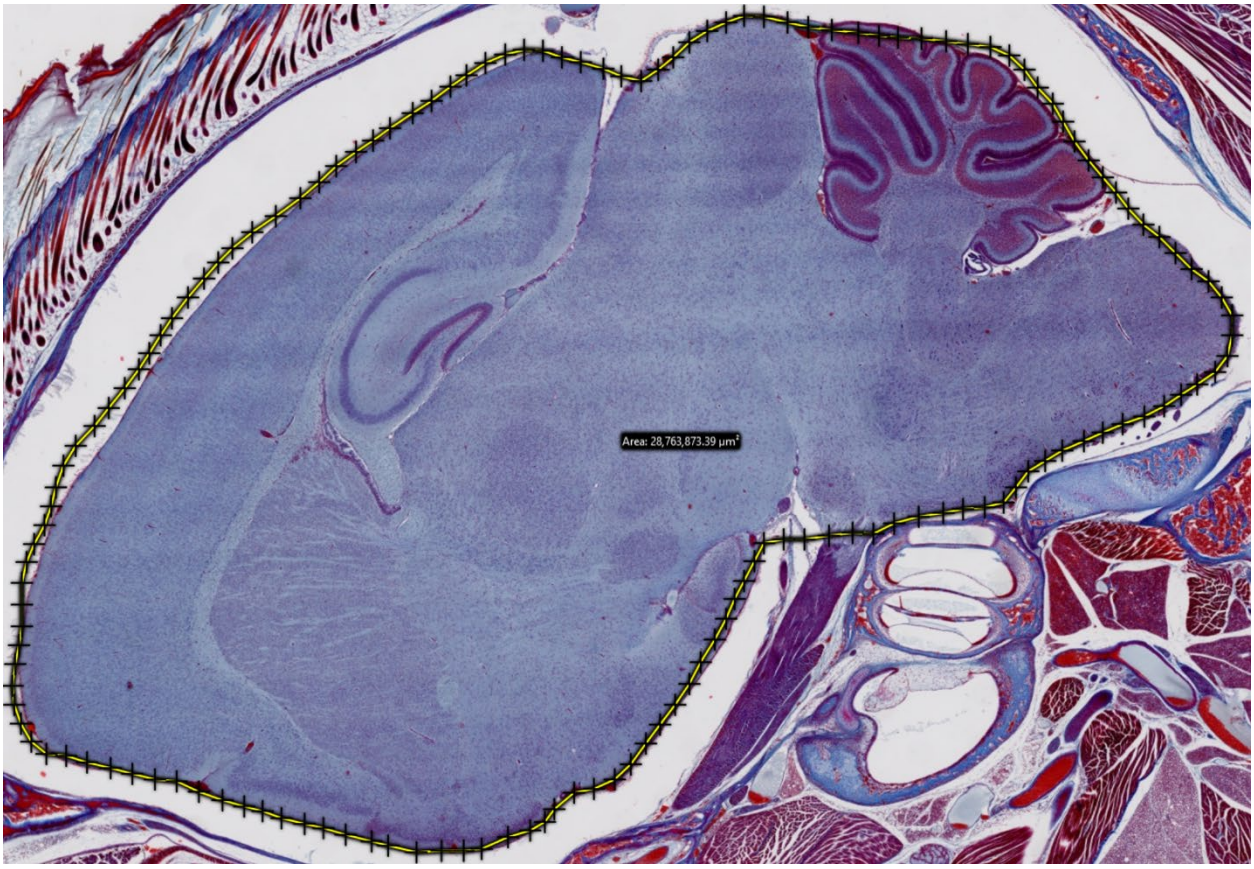


Figure 7-21: The annotation **Polyline**

b) Operation with Multitouch (only on touch-screens)**:**

Mark with a finger touch the starting point of your polygon. Draw along the contour of the polygon. Release the finger once you have reached the end point. In the **Toolbar** on the right you find circumference, area and radius for the corresponding annotation

7.2.5 Counting

Select **Count** in the **Toolbar**.

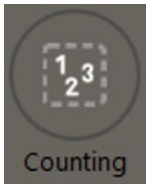


Figure 7-22: The **Counting**-button

a) Operation with mouse:

First you have to draw an area within which you would like to count. To draw such an area, left-click onto a starting point, hold the mouse button and encircle the area. Release the mouse once you have reached the end point. To count, left-click on elements within the area. A cross appears where you have set a mark. You may choose between 5 differently colored markers and assign them different names.

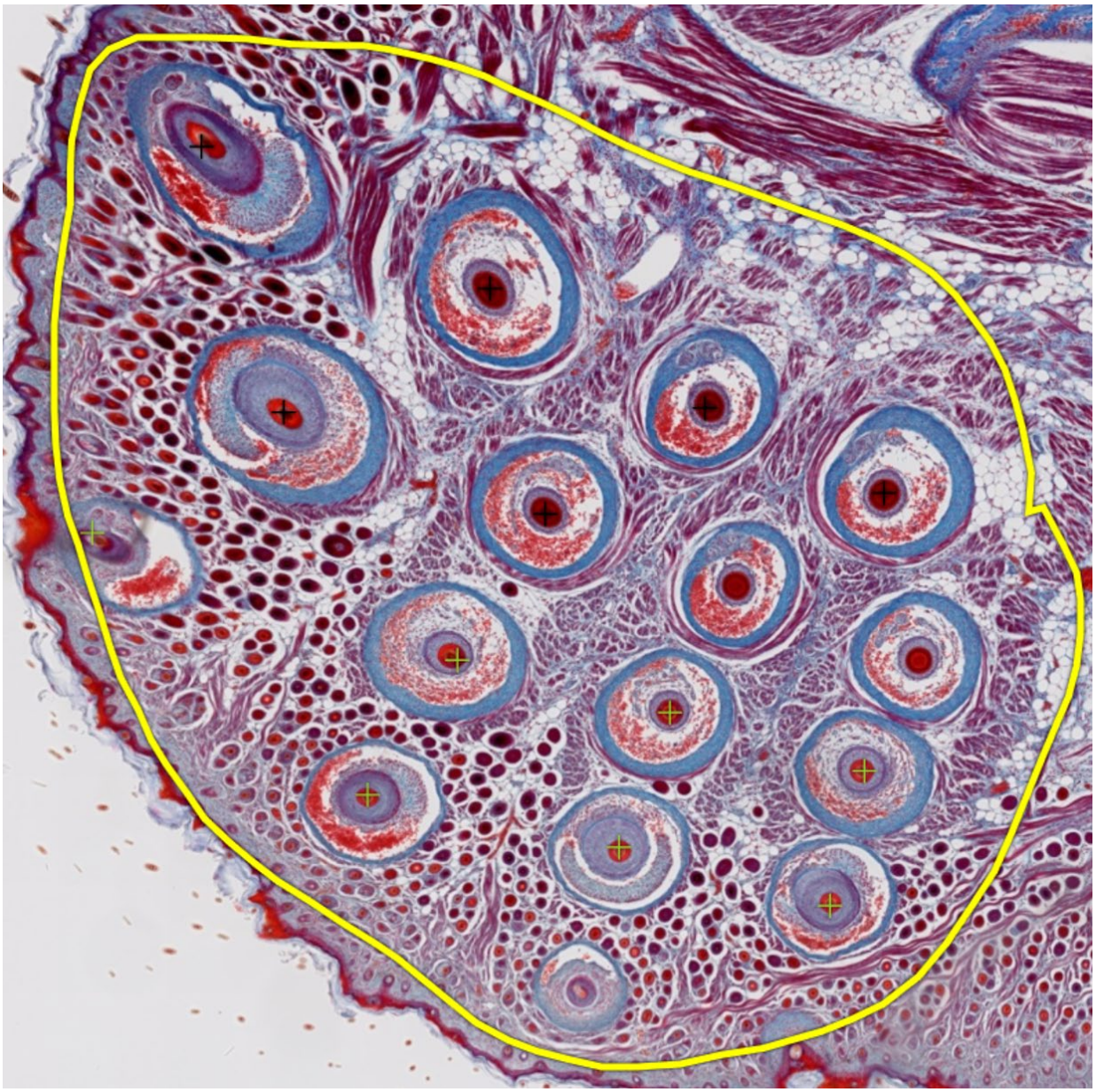


Figure 7-23: Example for **Counting**

b) Operation with Multitouch (only on touch-screens)**:**

First you have to draw an area within which you would like to count. To draw such an area, mark with a finger touch a starting point and encircle the area. Release the finger once you have reached the end point. To count, mark with a finger touch elements within the area. A cross appears where you have set a mark. You may choose between 5 differently colored markers and assign them different names.

7.2.6 Export annotations

You may export annotations via CSV file:

Figure 7-24: The **Export CSV**-button

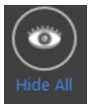
1. Click **Export CSV** in the Annotation **Toolbar**.
2. A file explorer opens. Define a name and where you would like to save the file. Click save.

You may process the CSV file and therewith the annotations for example in Microsoft Excel or any equivalent and CSV-compatible program.

7.2.7 Hide and unhide annotations

You may hide and unhide all or selected annotations.

Hide and unhide all annotations



Use this button located in the **Annotation-Toolbar** to hide all annotations in the viewport. The button will now show as **Show All**. Use the button again to unhide all annotations.

Hide and unhide selected annotations

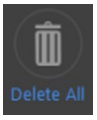
Use this button (see Figure 4.5 on page 16) in the selected **Annotation-List-Element** to hide a specific annotation in **Viewport**. Press the same button again to unhide the specific annotation.

7.2.8 Center selected annotations in Viewport

Left-click on this button located in the **Annotation-List-Element**. Hold the mouse button and pull the mouse and release it on the **Viewport**. When releasing the button, the viewport will show the selected annotation in its center.

7.2.9 Delete annotations

Delete all annotations



Use this button in the **Annotation-Toolbar** to delete all annotations. All annotation will be removed from **Annotation-List** as well as from the **Viewport**.

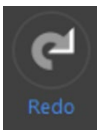
Delete selected annotations:

Use this button displayed in the selected **Annotation-List-Element** to delete a specific annotation. The annotation will be removed from the **Annotation-List** as well as from the **Viewport**.

7.2.10 Undo

To undo annotations, click this button in the right corner of the **Annotation-Toolbar**. You may undo several annotations.

7.2.11 Restore



If you have undone annotations, you may restore them by clicking this button located in the right corner of the **Annotation-Toolbar**.

7.3 Image Manipulation

Figure 7-25: The **Filter**-button

Press the **Filter**-button in the upper right corner of the viewport. You will see a selection of three different filters:

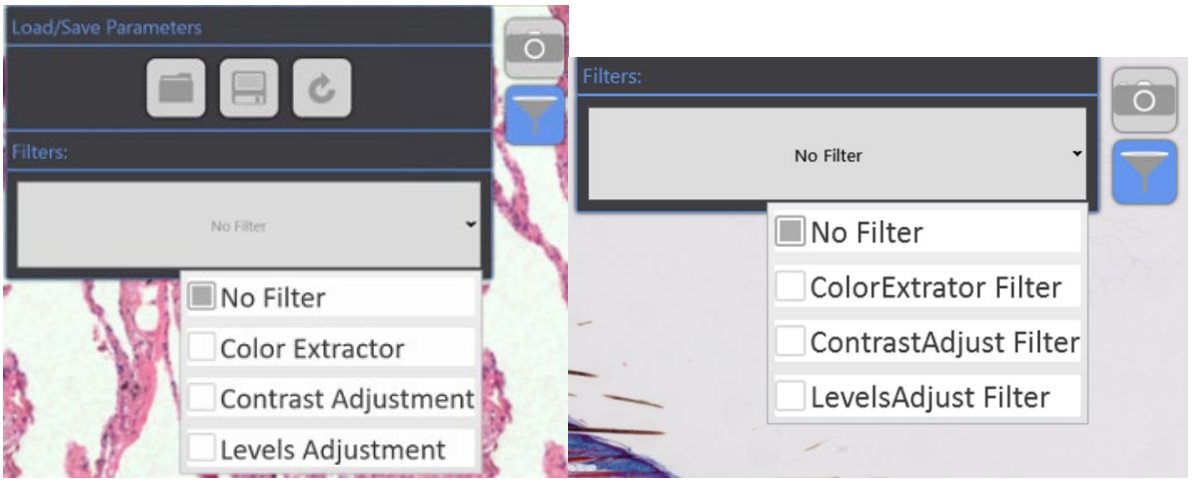


Figure 7-26: Selection of filters

7.3.1 Partial cropping by color

With the **ColorExtractor Filter** unimportant image areas can be discolored so that important areas can be highlighted.

Select the **ColorExtractor Filter** by clicking on the correspondent button.

Figure 7-27: The **ColorExtractor** Filter

Now select a color by clicking on the **Pipette**-button, holding down the left mouse button and dragging the pipette either over an area in the viewport or into the color selector shown below. You can see the currently selected color in the box on the right of the **Pipette**-button. Once you have made the color selection, release the left mouse button.

Figure 7-28: The **Pipette**-button

Now select the tolerance of the color displayed in the viewport by moving either the control slide, entering a number between 0 and 100 into the input box or pressing the up or down buttons to the right of the input box.

At 100% tolerance, the preparation is displayed in all colors. When the tolerance is decreased, more and more colors will be grayed.

Figure 7-29: The **Reset**-button

Use the **Reset** button to set the tolerance back to 100% in order to see again the entire color spectrum of the scanned preparation.

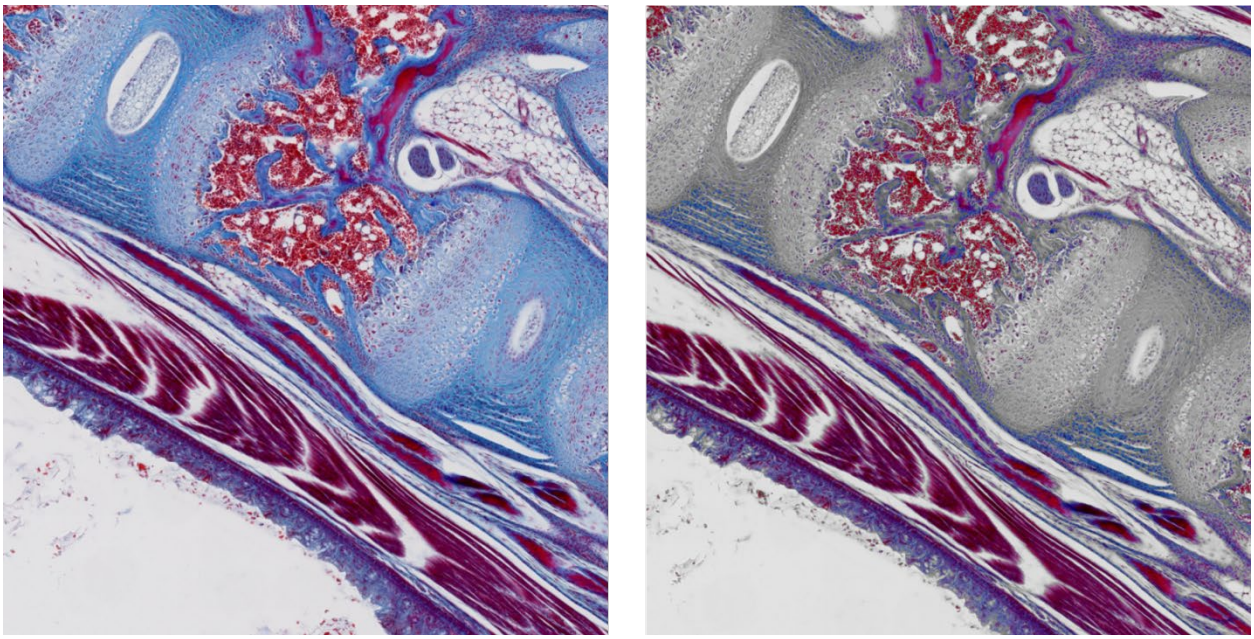


Figure 7-30: Example for usage of **ColorPicker**

7.3.2 Changing of brightness and contrast

Select the **ContrastAdjust Filter** by clicking on the correspondent button.

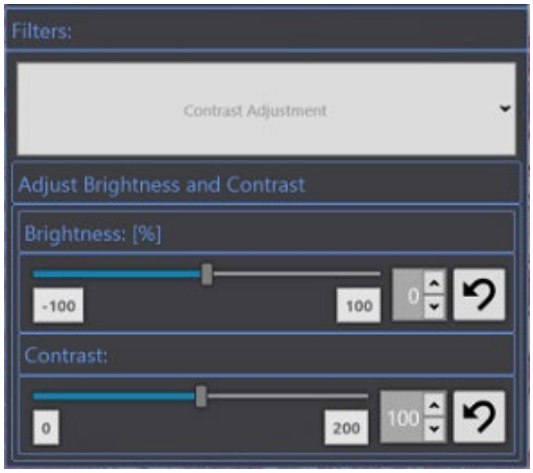


Figure 7-31: Window allowing adjustments in brightness and contrast

This filter allows you to manipulate the contrast and brightness of the scan. Select the brightness and contrast by moving either the control slide, entering a number into the input box, or pressing the up or down buttons to the left of the entry box.

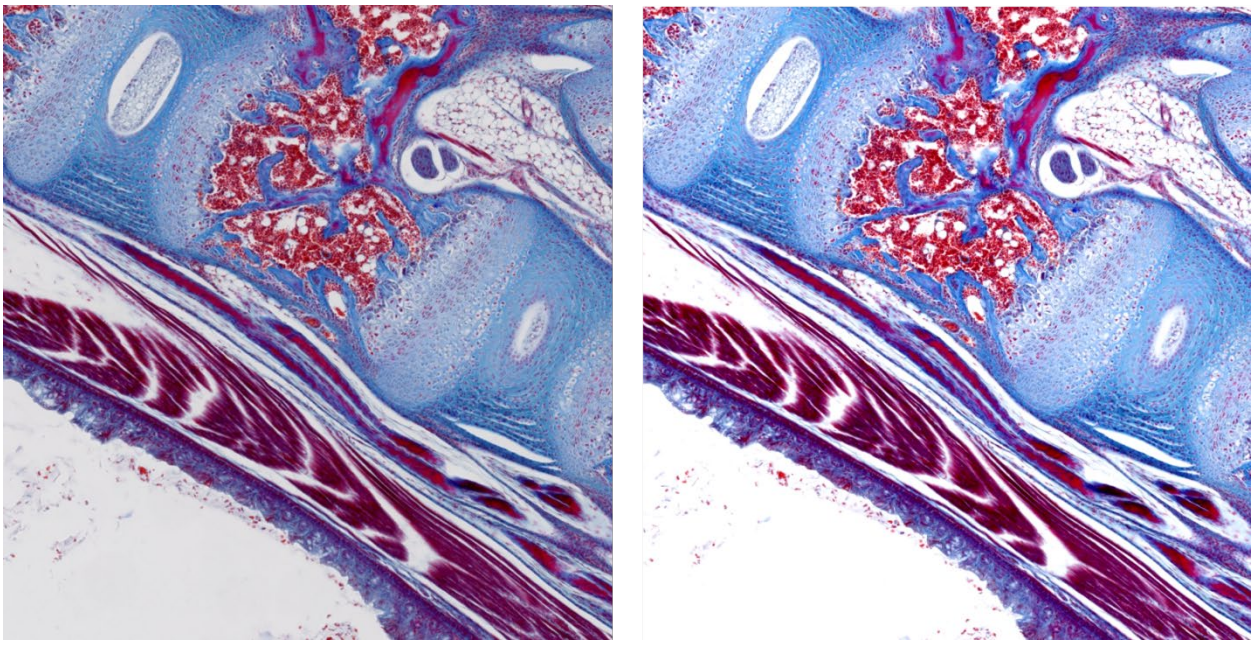


Figure 7-32: Example for changing of brightness and contrast

7.3.3 LevelsAdjust Filter

Select the **LevelsAdjust Filter** by clicking on the correspondent button.

In the levels adjustment the histogram can be restricted. This restricted histogram is then spread this way that the minimum is lying at 0 and the maximum at 255.

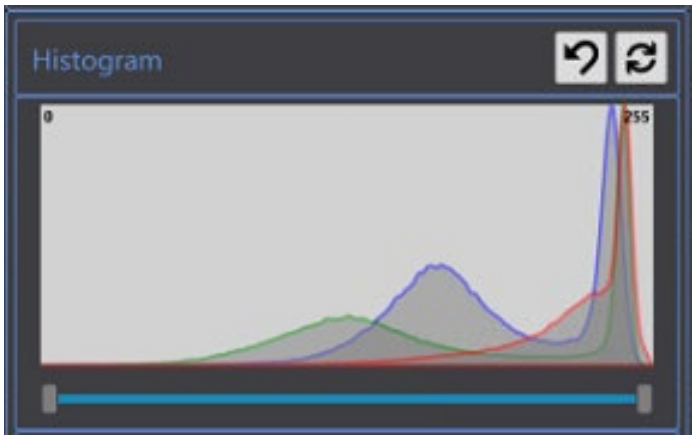


Figure 7-33: Histogram

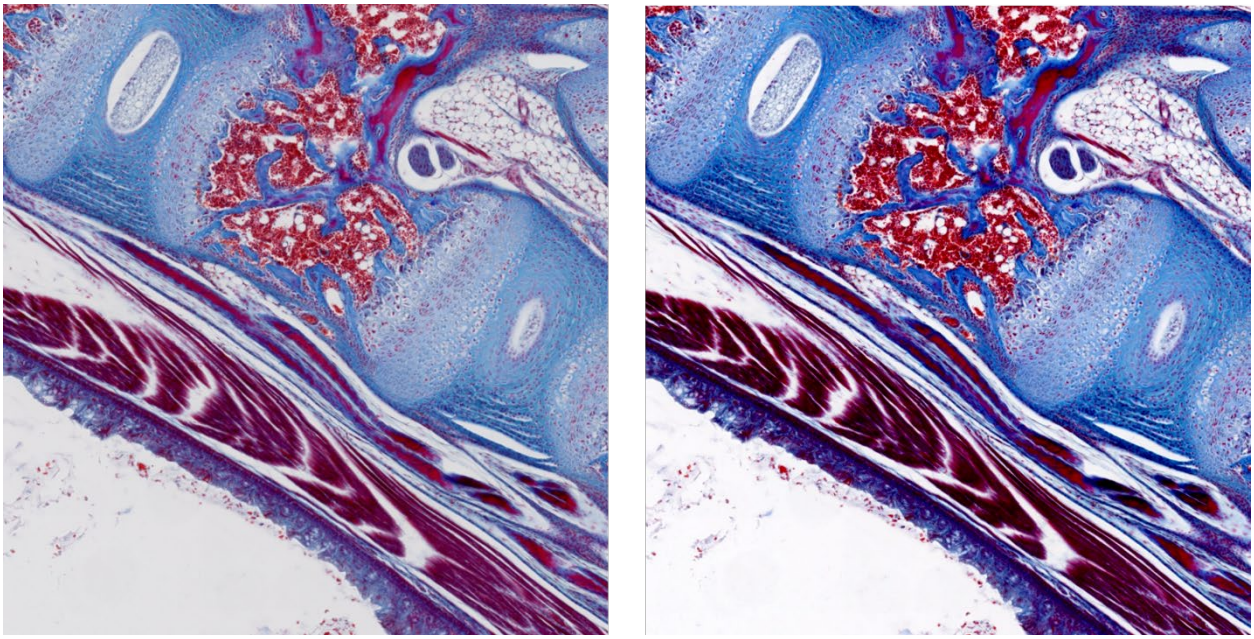


Figure 7-34: Example for level adjustment

7.3.4 Gamma correction

Select the **LevelsAdjust Filter** by clicking on the correspondent button.

Figure 7-35: Adjustment window for gamma

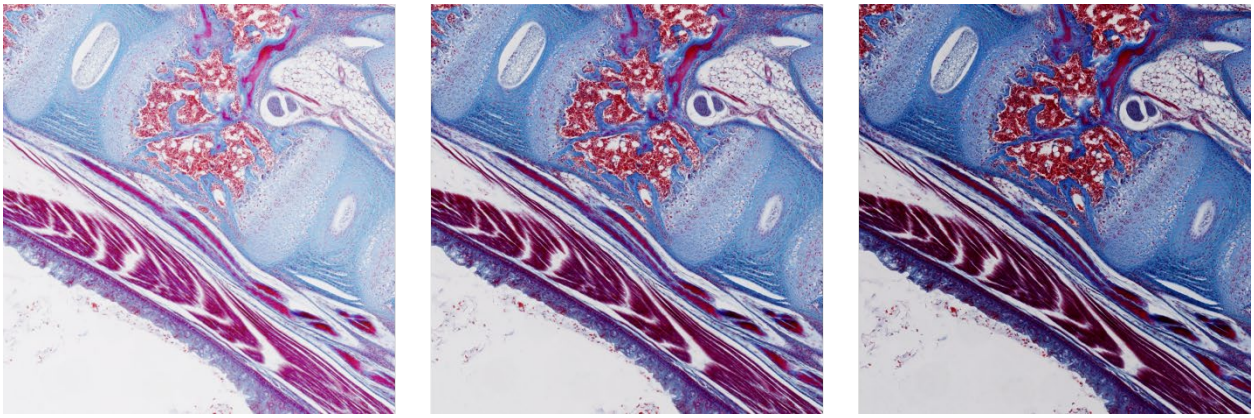


Figure 7-36: Example for manipulation of gamma

7.3.5 Manipulation of color channels

Select the **Levels Adjustment Filter** by clicking on the correspondent button.

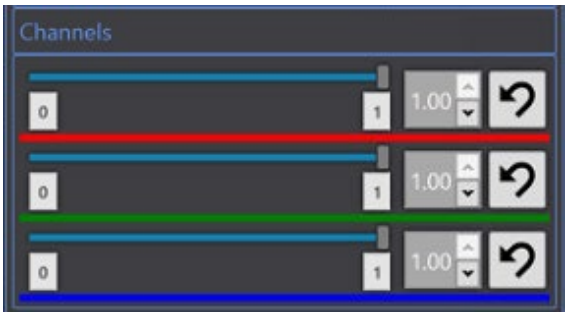
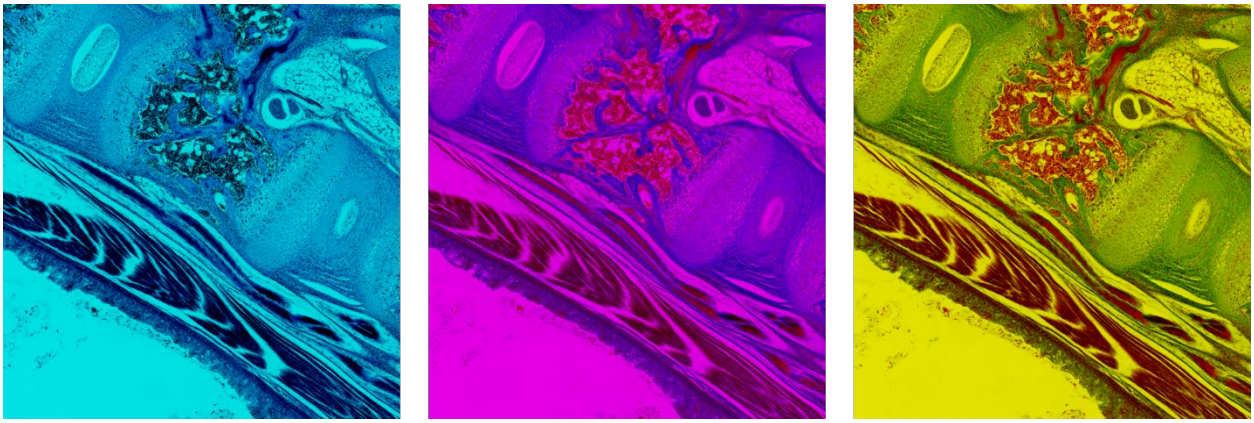


Figure 7-37: Adjustments for the individual color channels



7.3.6 Sharpen

Select the **Levels Adjustment Filter** by clicking on the correspondent button.

Figure 7-38: Adjustment window for sharpening

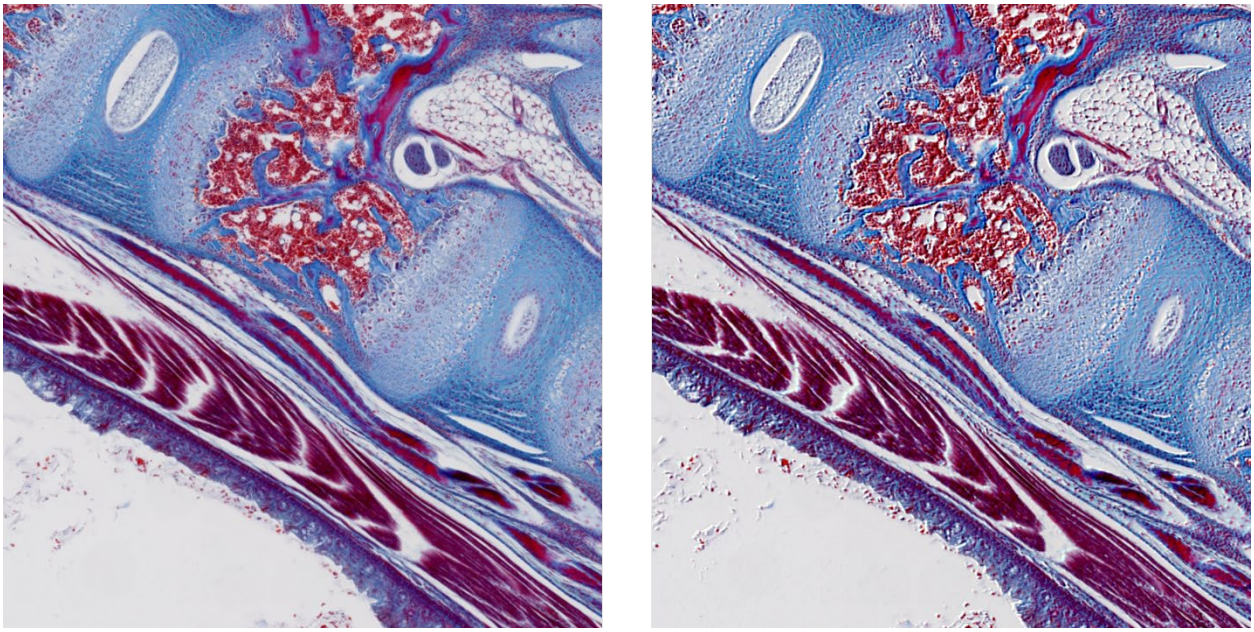


Figure 7-39: Example images for the sharpening effect

7.3.7 Color Inversion

Select the **Levels Adjustment Filter** by clicking on the correspondent button.

Figure 7-40: Checkbox for activation / deactivation of color inversion

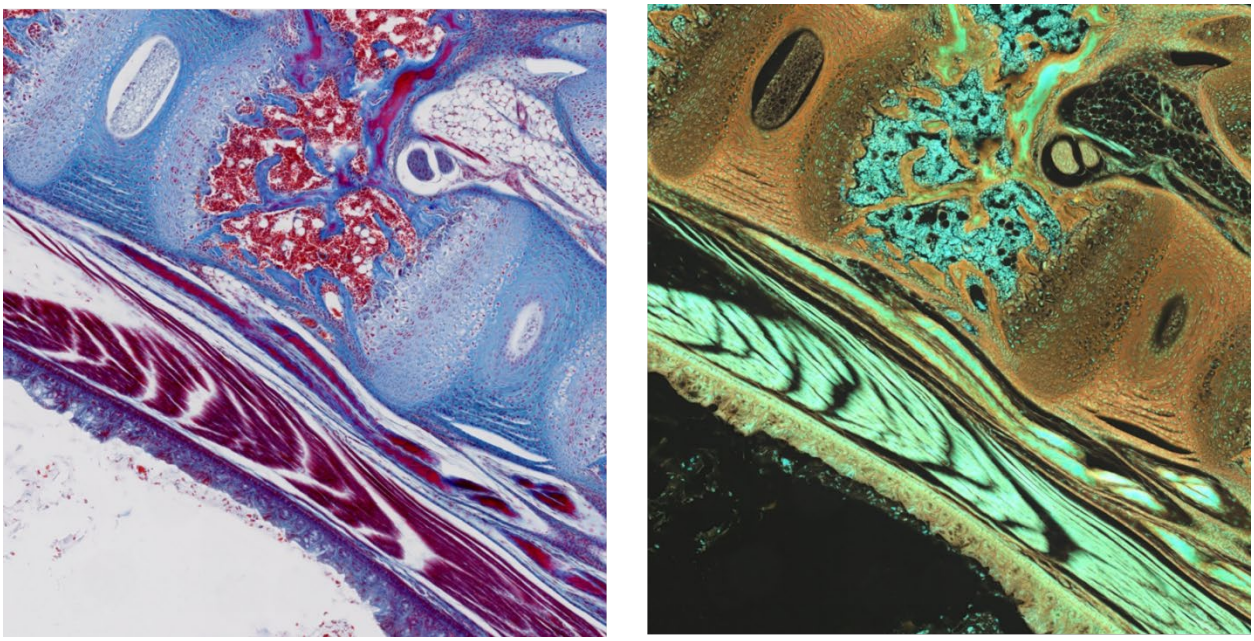


Figure 7-41: Example images for color inversion

7.4 Save images

The view of the display window can be saved as an image.

Figure 7-42: The **Snapshot**-button

1. Click on the **Snapshot**-button in the upper right corner of the **Viewport.**
2. Select a storage location.
3. Select the file format and name the image.
4. Save it.

Possible file formats:

- JPEG (.jpg)

-. PNG (png)

- BITMAP (.bmp)

7.5 Changing Exposure Time

If you change the exposure time you also have to generate a new illumination correction configuration. So the exposure time adjustment is integrated in the creation process of Illumination Correction Configuration.

1. Focus on the desired sample.
2. Locate a spot with no sample in the vicinity where you have focused on (must be white with no details such as dust, etc.).
3. Click on the **IC** button on the bottom right of the viewport and following dialog shows up:

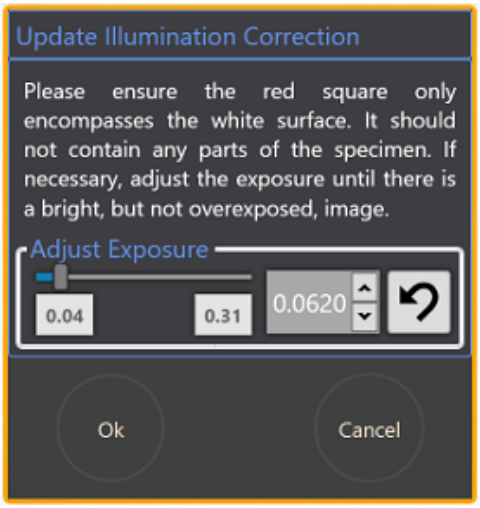


Figure 7-43: Illumination Correction Dialog

Also the area where the Illumination Correction will be executed, is marked as following:

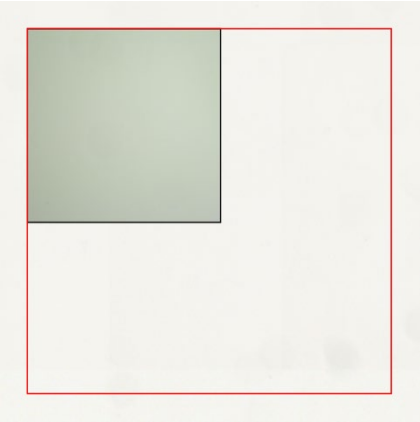


Figure 7-44: Area where Illumination Correction will be executed

Make sure that no content is inside the red rectangle. If there is content in this area, press **Cancel** and navigate to another region of slide and reopen Illumination Correction Dialog.

4. You can now adjust the exposure time by manipulating the slider, writing in the textbox or clicking the arrow buttons.
5. You have to generate a new Illumination Correction by clicking the **Ok** button of the dialog.
6. Wait till the Illumination Correction Calibration is finished, then click **Yes** to accept the new Illumination Correction.

⚠ Avoid overexposure and underexposure!

7.6 Changing Illumination Correction Configuration

1. Focus on the desired sample.
2. Locate a spot with no sample in the vicinity where you have focused on (must be white with no details such as dust, etc.).
3. Click on the **IC**-button on the bottom right of the viewport and following dialog shows up:

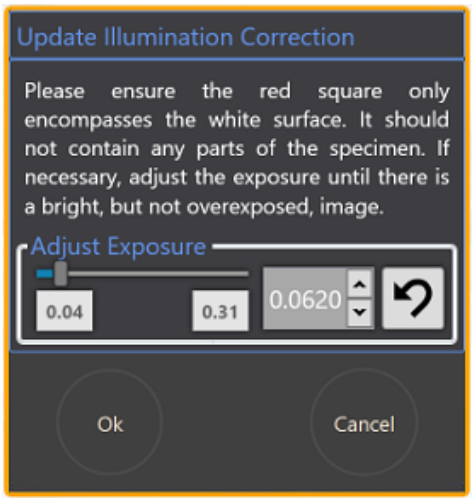


Figure 7-45: Illumination Correction Dialog

4. Also, the area where the Illumination Correction will be executed, is marked as following:

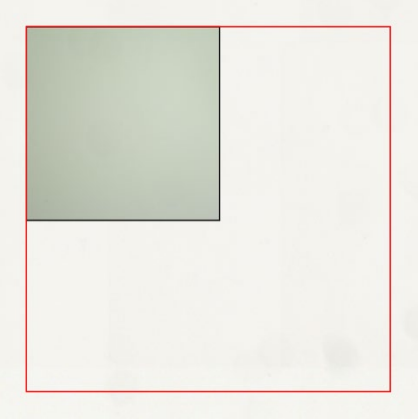


Figure 7-46: Area where Illumination Correction will be executed

5. Make sure that no content is inside the red rectangle. If there is content in this area, press **Cancel** and navigate to another region of slide and reopen Illumination Correction Dialog.
6. Generate a new Illumination Correction by clicking the "Ok" button of the dialog.
7. When a dialogue box appears containing yes or no, you are able to see the illumination correction. Check if any patterns are visible. If so, press **No** and retry the illumination correction once again for another region. Otherwise agree to the new illumination correction by clicking **Yes**.

Error messages:

1. Camera image brightness is too low. (too low exposure time or illumination correction in sample)
2. Camera image brightness is too high. (too high exposure time)

8 Functions of the Slide Scan Mode

8.1 Selection of the Scanning Area

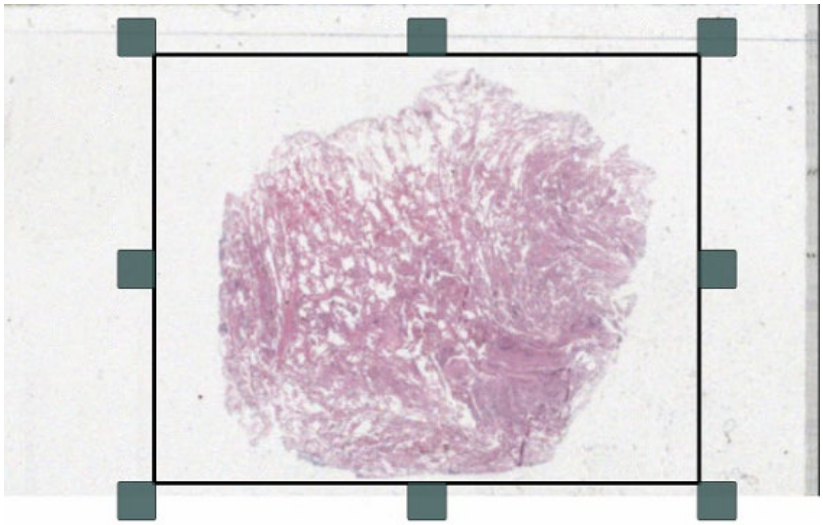


Figure 8-1: Example image for the selection of the whole preparation for scanning

a) Operation with the mouse:

Creation of a new Scanning Area

Create a new scanning area by:

Either pressing the **Plus** button, or clicking on the desired scanning area and simultaneously dragging the mouse to enlarge the scanning window.

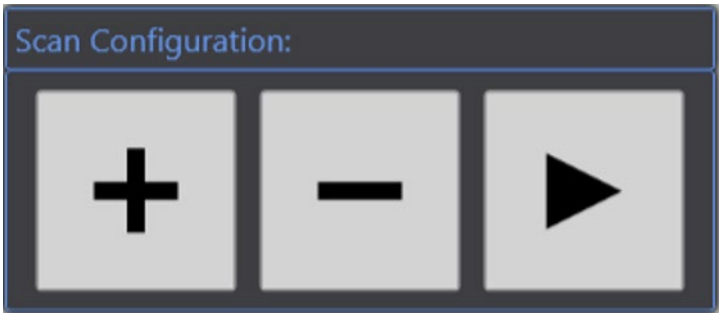


Figure 8-2: Plus-Button to create scan areas

After starting of the **Slide Scan Mode**, there will always be a predefined scan area in the upper left corner of the overview screen. You are able to move this area to the desired position and to resize it to the wanted extent.

Deletion of scanning area

Delete a scanning area by pressing the **Minus** button.

b) Operation with touch (only on touch screens):

Touch on the **Plus** button,

Or

mark the upper left corner of the scan area with your index finger and drag the finger to the place where the bottom right of the scan area should be created.

Important instructions

The scanning area should not be smaller than an image area. If you should draw a scanning area smaller than the smallest allowable scan area, no scanning area will appear.

It has to be ensured that no scanning area may be pulled over several slides. If so, a flawless imaging cannot be guaranteed.

Every scanning area features a scanning configuration.

8.2 Scanning Configurations

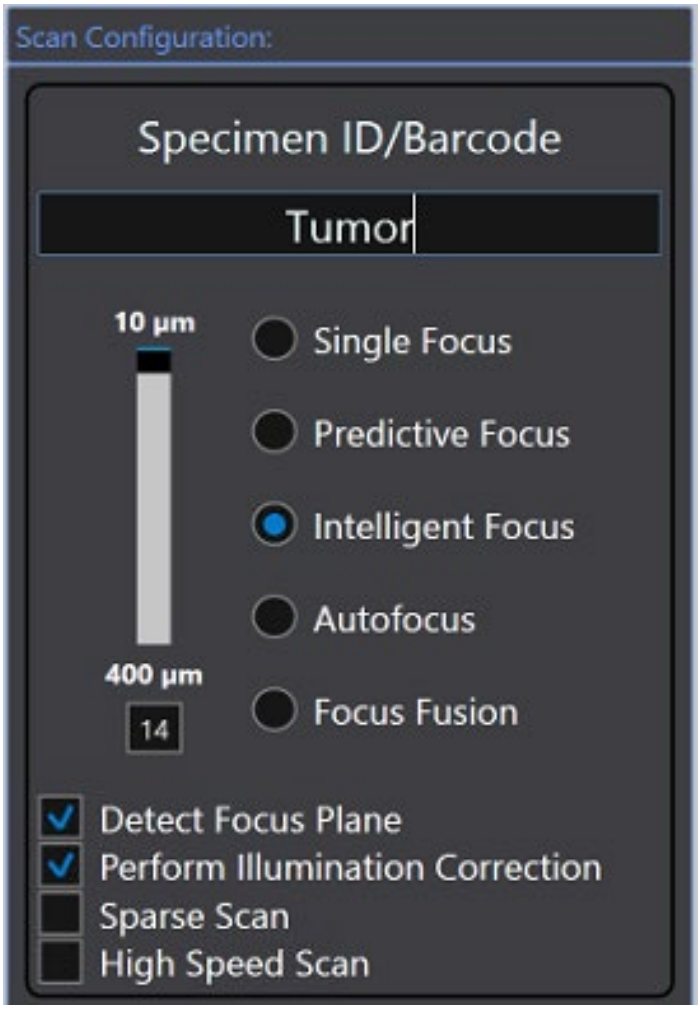


Figure 8-3: Scanning configurations

8.2.1 Single Focus

The scan mode **Single Focus** is the fastest scan mode and specifically suitable for very plane surfaces of samples. An average focal plane is defined based on several focus points the device finds, then the sample is scanned on one z-axis level.

This scanning mode is especially suitable for the scanning of smaller areas with little difference in height.

8.2.2 Predictive Focus

The scanning mode **Predictive Focus** is for relatively even surfaced samples. The microscope uses different focus points to extract the best fitting focus plan for the scan. Then the microscope drives along this abstracted focus plane while scanning the slide, without changing its Z-position for each tile.

8.2.3 Intelligent Focus

The scanning mode **Intelligent Focus** is the default mode of the scan configuration and usually the best option in balancing speed and quality. Just like in the **Predictive Focus** mode, the M8/O8 uses focus points to estimate the best fitting focus plane to drive along with its Z-position. Then additionally, in the **Intelligent Focus** mode, it is necessary to specify your focus range between 10 and 400 micrometers, based on the slide topology. The focus range determines how much the Z-position should drive vertically in either direction for each tile scanned during the scan. As the Z-position drives along the z-axis, the microscope finds the sharpest focus point in the specified range to select the best image for your digitized slide.

8.2.4 Auto Focus

The scanning mode **Auto Focus** focuses every detail image while scanning. The used z-range for the autofocus can be predefined. This scan mode delivers exclusively focused images. Thus, this scanning mode results in high quality images. The velocity of the scan is dependent on the defined z- range. The scanning mode **Auto Focus** is suitable especially for preparations which have a large difference in height.

8.2.5 Focus Fusion

The scanning mode **Focus Fusion** is exceptionally for very uneven objects on the whole slide. Just like in the **Intelligent Focus** and **Auto Focus** scan modes, the focus range must be selected. However, in Focus Fusion mode, as the Z-position drives along this range, it is not selecting the best image, but rather collecting the best pixels from each individual image, among the stack of images. Then, this scanning mode merges the best pixels into one sharp image, thereby guaranteeing the best possible focus beyond the "image" level, to the "individual pixel" level.

Important instructions

The following should be considered:

- do not mark multiple preparations in one scanning area – each preparation should be marked inside of a separate scanning area
- one scanning area should not contain two slides at once (always mark them in separate scanning areas)
- there should be white areas within or near the marked scanning area (for illumination correction)

Functionality:

Step 1. Selection of the acquisition mode:

Conditions for the selection:

- Single Focus:

- the longest line of the marked scanning area is less than:
  - 10x: 1.5 mm
  - 20x: 0.5 mm
  - 40x: 0.2 mm

- Auto Focus:

- the longest line of the marked scanning area is less than:
  - 10x: 4.5 mm
  - 20x: 1.6 mm
  - 40x: 0.7 mm
- the number of images to be captured is lower than the value: 30
- inside of the marked scanning area there is not enough information for the Intelligent Focus

- Intelligent Focus:

- the marked scanning area is big enough and contains enough information

  (see Single Focus/ Auto Focus)

Step 2. Intelligent Focus was selected by the software in compliance with all conditions:

Procedure:

1. Performing an autofocus on previously calculated point within the marked scanning area with large autofocus range

2. Definition of the skew of the preparation:

Calculation of the focusing points (the amount of focusing points is dependent on the size of the marked area, with at least 7 points and a maximum of 30 points to be set) and performing an autofocus with a computed range for every focus point.

3. Performing a so-called on-line Illumination Correction on an appropriate spot, inside or near the marked area. If no appropriate spot for the illumination correction could be found, a standard correction will be executed.

4. Scanning of the marked area by an acquisition of the sharpest possible image in each case by an autofocus inside of a small focus range.

8.2.6 Optimization

8.2.6.1 Sparse Scan

The **Sparse Scan** is an optimization for scanning to both increase the speed for image acquisition and decrease the file size. With this feature, the microscope skips scanning areas on the slide that do not contain samples. This mode works with the abovementioned algorithm for tissue recognition and has as a limitation that the sample needs to be recognized via the overview image. Samples, that are not clearly visible in the overview image, might be cut out by Sparse Scan, thus we do not recommend to use this mode with very light samples or samples with low contrast. Note that either **Sparse Scan** or **High Speed Scan** can be selected, not both.

8.2.6.2 High Speed Scan

The High Speed Scan option is an optimization for the scanning mode Intelligent Focus. Focus. **High Speed Scan** only uses the Autofocus feature in every other column and every other row of the scan grid. When Autofocus is not used, the images are acquired at an estimated Z-position. Note that either **Sparse Scan** or **High Speed Scan** can be selected, not both.

8.2.6.3 Illumination Correction

This feature is selected by default. **Illumination Correction** homogenizes the background illumination to eliminate the uneven tiling pattern. To do this, the microscope identifies a white space – or an area without a sample – on the whole slide. Then this white space is replicated throughout the whole slide to correctly illuminate. The white space is determined using the above mentioned tissue recognition algorithm. Limitations to this mode are as mentioned, that the sample needs to be recognizable from the overview image. In case you have samples that are barely visible on the overview image, or slides that are fully covered with a sample so that white space cannot be found, we suggest you unclick the illumination correction in the scan mode and before scanning perform the illumination correction manually on a white space that you manually find via the Instant Scan mode (as described in the Instant Scan chapter). If there is no white space on a slide, we suggest to manually perform the Illumination correction using a slide of the same dimensions that is empty.

8.2.6.4 Detect Focus Plane

This feature is selected by default. The microscope will use a predetermined focal plane to detect the approximate location of the sample before starting the scan. This is generated using our algorithm and can also be adjusted manually in the Live View (see chapter Live View above). Especially on samples where there are different focus levels (e.g. on cytological samples), we recommend to manually set the focus plane via the Instant Scan or Live View before und unclick 'Detect Focus Plane' in the scan mode.

.

8.3 Naming of Scans

Select the scan that you want to name and click in the text box below the word **Specimen ID / Barcode** and type in the name of the scan.

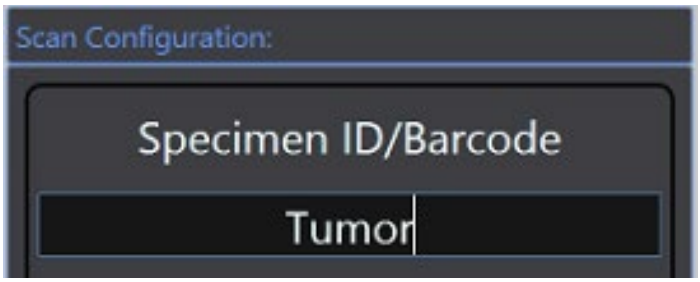


Figure 8-4: Naming of the scanned area

8.4 Start of the Scan

With the Start button (see Figure 8.5) you can start the scan of all created scanning areas.

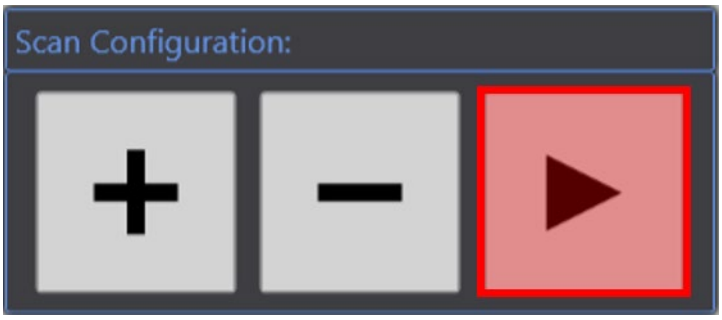


Figure 8-5: „Start"-Button in scan configuration

Once you have pressed the **Start** button, select the storage location for the scan. In the selected folder, all created scans will be stored.

8.5 Status Display and Duration of Scans

Once the scan has been started, you can see the progress of the respective scans in the information element inside of the **Infobar**. As long as the scan is active, the progress bar appears yellowish. Once the scan is complete, the progress bar turns green.

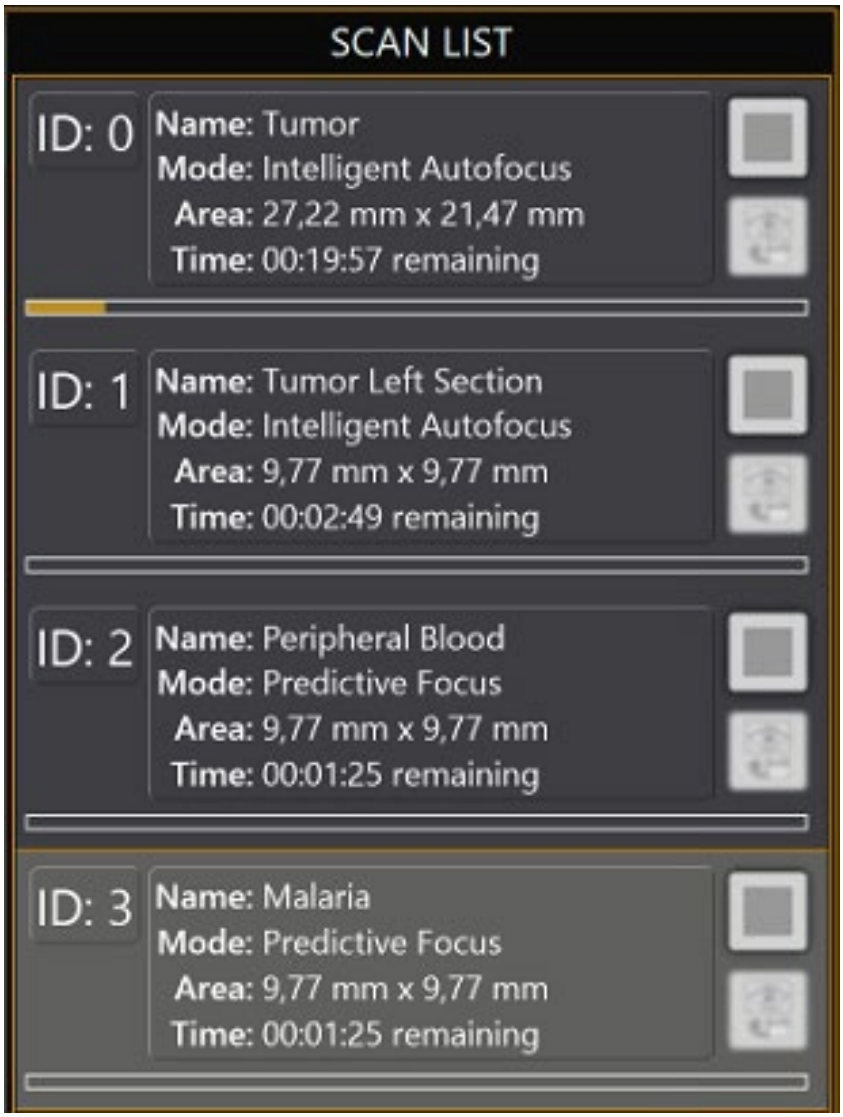


Figure 8-6: Status display of the scanning progress

8.6 Abort Running Scans

Abort all Scans

If you want to abort all running scans, touch or click on the button **Abort/Reset**.

Figure 8-7: Abort/Reset-Button to abort scans

Abort a single scan

If you want to abort single scans, you are able to touch or click the Aborting button inside of the information element for each scan.

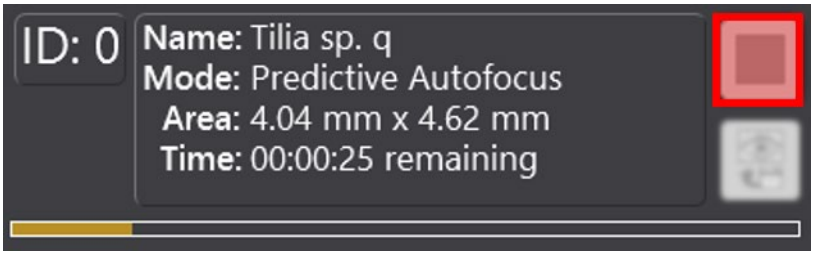


Figure 8-8: Abort Button to abort single scans

8.7 Open the Storage Location of the Scans

After completion of the scan the scan can be opened using the Viewer. The folder in which the scan has been stored can be opened by clicking or touching the **Open** button inside of the information element of each scan.

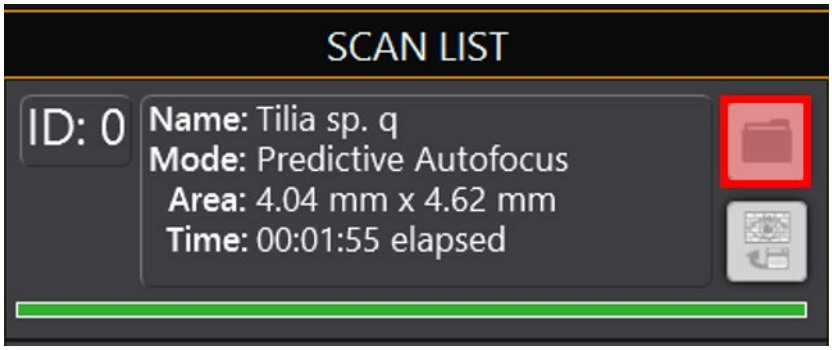


Figure 8-9: **Open**-button

8.8 Open the Scans in ViewPoint

For how to use the ViewPoint, please see the separate ViewPoint user manual.

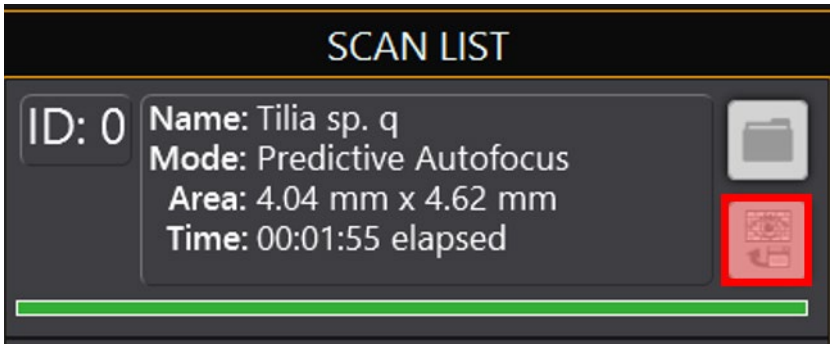


Figure 8-10:**Open in Viewer**-button

8.9 Rescanning

If you have aborted all scans or all scans have been completed, you can click on the **Abort/Reset** button. Thus, the status of all scans will be reset and you are able to change the adjustments for the scanning areas and rescan them.

Figure 8-11: The **Reset**-button

9 Change Software Settings

You can change the behavior and appearance of multiple user interface elements. You can find this control under **Settings,** which is located between the Change Slides icon and the InfoBar icon. Once you are in the **Settings** interface, click on the **Viewport Settings** tab and then on the **Appearance** tab down below.

9.1 Viewport Appearance

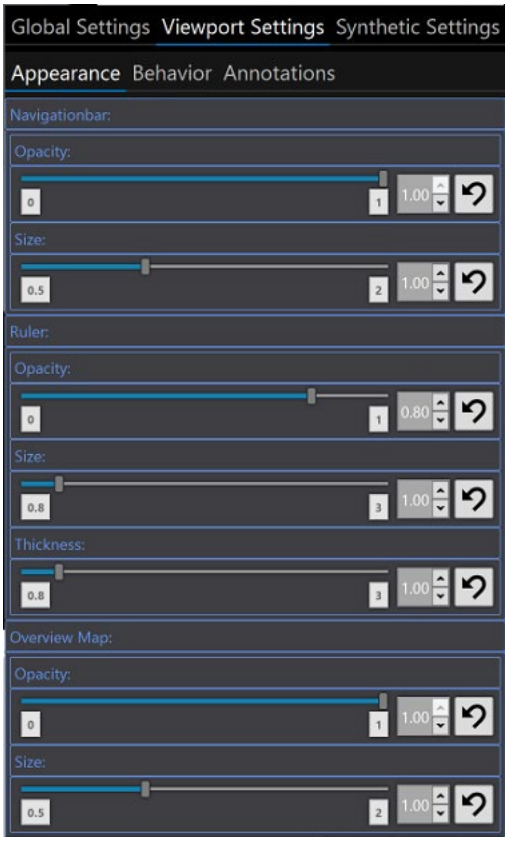


Figure 9.1: Viewport Apperance

Display of position and magnification

You can change the size and opacity of the display of position and magnification by manipulating the two scrollbars **Opacity** and **Size,** on the upper side of the **Viewport Appearance** tab.

Navigation Bar

You can shift the scale bar by clicking and holding the left mouse button on the scale bar in the viewport and drag the scale bar to the desired position and release the left mouse button. You can change the **Opacity** and **Size** of the navigation bar with the two sliders in the middle of the **Viewport Appearance** tab. This can be extremely useful when viewing on a laptop to give a much bigger viewing area.

Scale Bar

You can shift the scale bar by clicking and holding the left mouse button on the scale bar in the viewport and drag the scale bar to the desired position and release the left mouse button. You can also change the **Opacity**, **Size**, and **Thickness** of the scale bar with the three sliders in the middle of the **Viewport Appearance** tab.

Overview Map

You can also change the size and opacity of the overview map located on the upper left side of the viewport. Just manipulate the two scrollbars **Opacity** and **Size** on the upper side of the **Viewport Appearance** tab.

9.2 Viewport Annotation (Pro Version Only!)

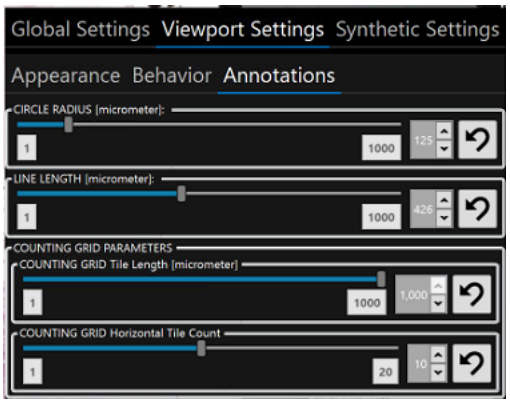


Figure 9. 2: Viewport Annotation (Pro Version Only)

Viewport Annotations is only applicable to users who have the MicroPoint Pro Version. This section gives you the ability to set predefined parameters. Instead of having to manually draw a line over and over, with the Line Length scale bar you can set a predetermined line and then apply it to the sample. This also goes for creating a predefined Circle Radius, Counting Grid Tile Length, and Counting Grid Horizontal Tile Count. You can find these annotations in the MicroPoint Pro Version.

9.3 Viewport Behavior

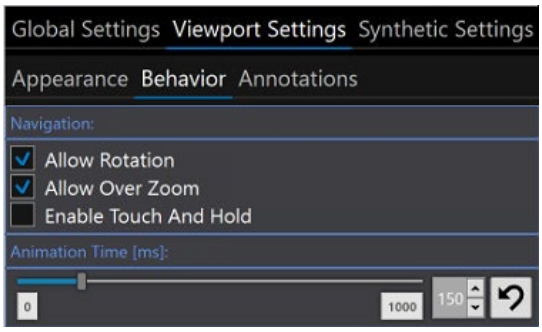


Figure 9. 3: Allow Rotation, Limit Zoom to Objective Power, and Animation Time

Navigation

You can turn on and off certain functions. You click the checkboxes on and off to allow for the sample to be rotated or not. The same principle goes for limiting the zoom to the objective power. If you turn this off, you will be able to view the sample past the objective zoom and go into the digital zoom. You can also enable touch and hold, as well as disable touch and hold.

Animation Time

The Animation time is a scroll bar that can be moved left to right to determine how fast or how slow the display reacts to the commands by the user. This is useful when you are wanting to zoom in and out seamlessly or if you want to be zooming in a slow incremental fashion.

9.4 Global Settings

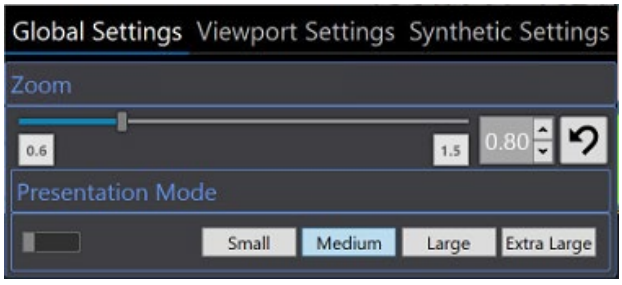


Figure 9. 4: Presentation Mode & Zoom

Zoom

The zoom option allows you to scale the buttons/icons. Depending on the monitor's size and resolution this option gives the user the ability to adjust the icons to their liking. When using ViewPoint on a laptop the icons may be too large and take up most of the viewing area. Drag the scrollbar to the left to decrease the size of the buttons and icons on the user interface or drag the scrollbar to the right to increase the size. This is also possible via clicking on the arrow buttons and increasing or decreasing the zoom value in the box.

Navigation Bar

You can shift the scale bar by clicking and holding the left mouse button on the scale bar in the viewport and drag the scale bar to the desired position and release the left mouse button. This allows you to zoom into the sample more. In doing so, this decreases the size of the info bar. This can be extremely useful when viewing on a laptop to give a much bigger viewing area.

Presentation Mode

You can activate the Presentation Mode by clicking on the **Settings** button located on the lower right side, click on the Tab **Global Settings** and choose the size of the cursor first (you can choose between four sizes), then click on the switch on the lower-left corner of the Settings window. Now the mouse cursor is highlighted with color and with the chosen size.

10 View scans

There are two options for how to view the scanned images.

Note that PreciPoint files are a vmic format. If you have questions on whether the images can be opened in another format, please reach out to the PreciPoint support team.

10.1 ViewPoint

ViewPoint is the PreciPoint viewer for offline use. It can also be downloaded onto other computers for viewing our samples. For detailed explanation on how to use the ViewPoint, see the ViewPoint manual.

10.2 PreciCloud

As PreciCloud is the viewing option that runs in a Browser (Google Chrome recommended) and thus allows you to share images easily with other people (there are different privacy settings possible). For using the PreciCloud no installation is needed, individual users for viewing are optional.
Before viewing images in the PreciCloud, they need to be uploaded there – for this, a paid user and server configuration is required. Please reach out to the PreciPoint sales team in case you are interested in the PreciCloud.

11 Troubleshooting

Error 1:

One or more hardware components do not initialize at the start of the software

Possible Cause 1: No power supply of the microscope:

Close the software and check if the power cord of microscope is connected properly and whether the switch on the rear side of microscope is on "I". Wait 30 seconds and then restart the software.

Possible Cause 2: No connection between microscope and computer:

Close the software and check if the USB cable is screwed on the USB 3.0 connection of the microscope. Also check if this cable is connected to the USB 3.0 connection. Wait for 30 seconds and restart the software.

Possible Cause 3: Other

Close the software and switch off the microscope. Restart the computer. After rebooting, turn on the microscope again and then wait 30 seconds. Only now, start the software again.

Error 2:

Software becomes unresponsive

Try to close the software by clicking "X" on the top right. If that does not work, open the Windows Task Manager by pressing "Ctrl+Alt+Del". Search among the listed processes the entry "TouchMicroscopy.exe". Stop this process by clicking on "End Process". Switch off the microscope by using the power switch at the back of the microscope. Wait at least 10 seconds, then turn the microscope on. Wait 30 seconds. Only now, start the software again.

Error 3:

Inactive touch-input

Close the software. Switch off the microscope. Restart the PC. Only turn on the microscope when the PC has finished rebooting. Wait 30 seconds. Only now, start the software again.

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