EVIDENT

SLIDEVIEW™ VS200

Quick Operation Guide

EVIDENT

Introduction

This quick guide will walk you through the basic functions of the SLIDEVIEW™ VS200 slide scanner equipped with VS-ASW software version 3.4.1 to version 4.2.1

The system should not be operated without first receiving training.

Additional material and functions are described in the Instructions for Use, User Manual, and Online Help (see chapter 14 of this guide).

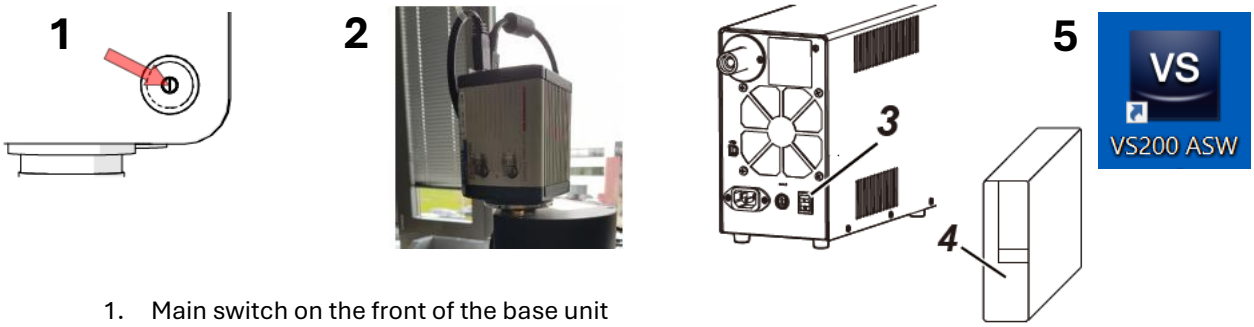
If you need further instructions or would like to learn about more advanced applications, contact the Evident specialist in your area.

Table of Contents

1. Turn On the System 3
2. Homepage Description 3
3. Load the Sample in the System 4
4. Acquire a Single Scan Using Pre-Existing Scan Projects 5
5. Sample Detection and Scan Area 6
6. Adjust Sample Detection (Expert Scan Only) 7
7. Adjust Scan Area (Expert Scan Only) 8
8. Adjust Focus Points (Expert Scan Only) 9
9. Acquire a Batch Scan Using Pre-Existing Scan Projects 10
10. Save Your Scan Project 12
11. Image Explorer Layout 13
12. Image Processing Layout 14
13. Turn Off the System 16
14. Online Help and Support Information 17

EVIDENT

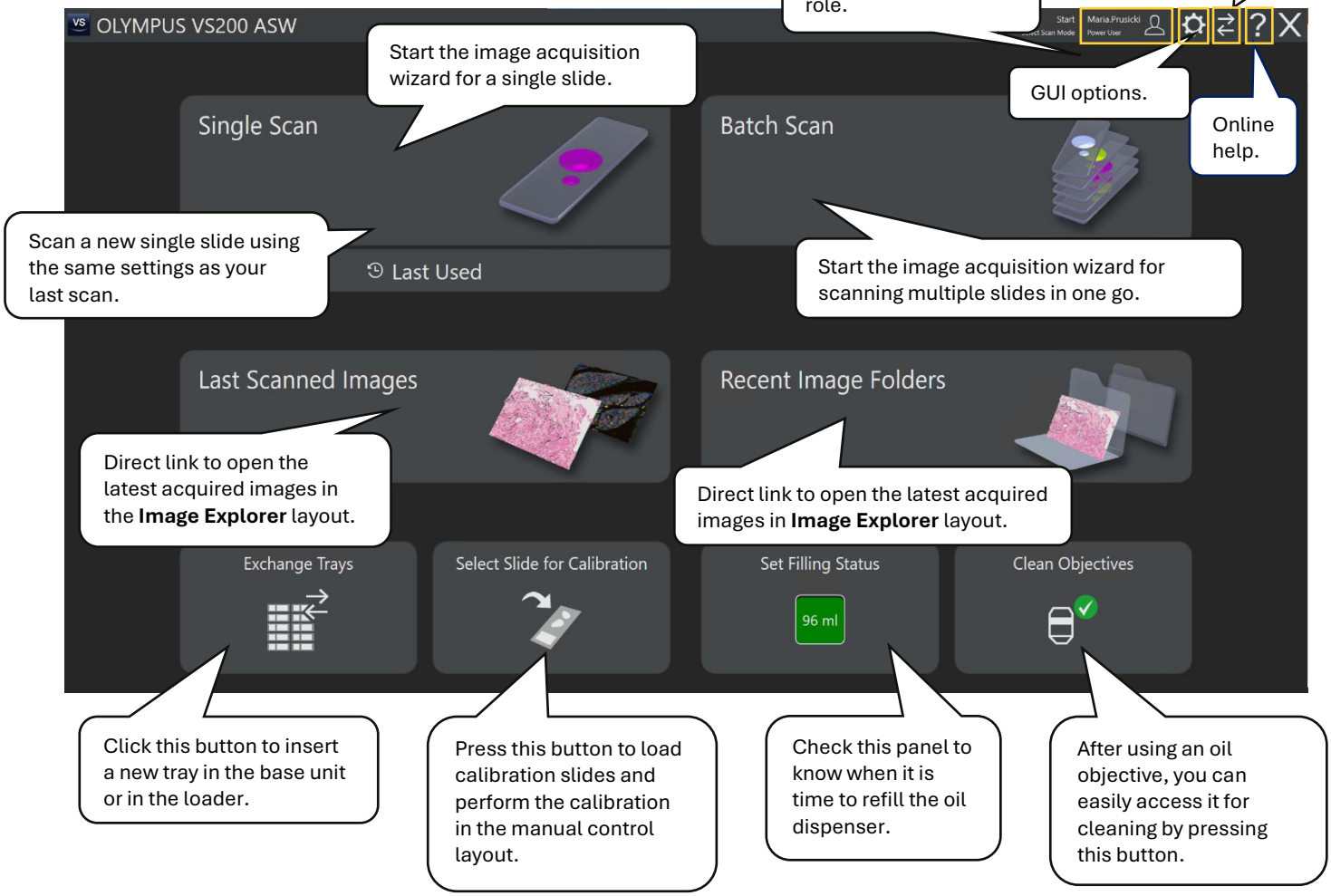
1. Turn On the System



1. Main switch on the front of the base unit
2. Hamamatsu camera (only for fluorescence acquisition) – if present
3. Light source (only for fluorescence acquisition)
4. PC
5. Start the VS200 ASW software

Important: All the hardware components needed must be **turned on before** starting the software.

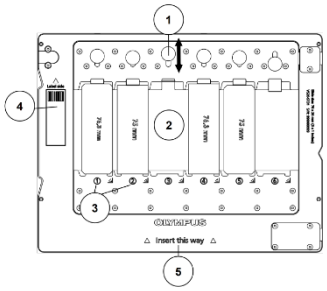
2. Homepage Description



EVIDENT

3. Load the Sample in the System

1



Position the slide on the tray. Make sure that the slide is pushed toward the bottom right of the slide slot (as indicated by the little arrow) and that it holds firmly in place.

1.1 Button to open/close the spring for inserting a slide

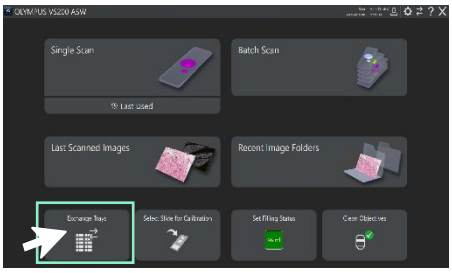
1.2 Slide pocket

1.3 Slide position

1.4 Indicator for label area

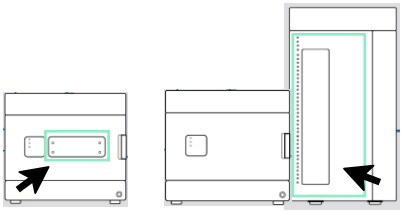
1.5 Indicator for tray insertion

2



On the VS200 ASW homepage, click on **Exchange Trays**.

3



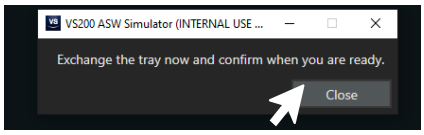
a) Single Tray **b) Loader**

a) **Single Tray:** The flap on the front of the system will open. Insert the tray in the indicated direction (point 1.5) in the trails and make sure that it is **pushed inside until the stop** (c.a. 6 cm).

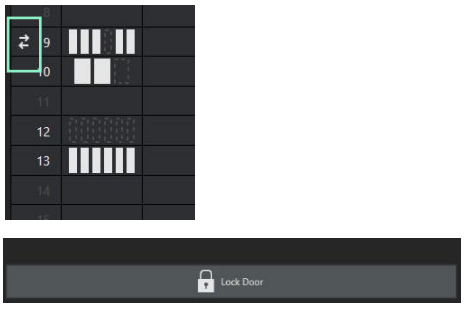
b) **Loader**: Once the LED “Door closed” on the front of the loader turns off, open the door and slide the tray(s) in the tray hotel in the indicated direction (point 1.5). **Make sure to push them to the leftmost side of the hotel**. Close the door of the loader. The LED of the occupied tray positions will now shine.

4

a) Single Tray



b) Loader

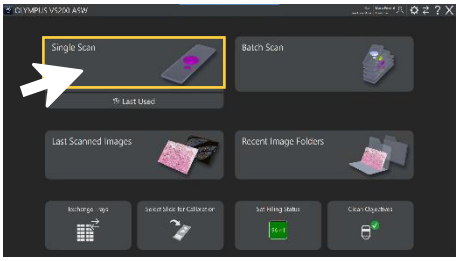


Single Tray: Confirm that the tray is inserted and close the window.

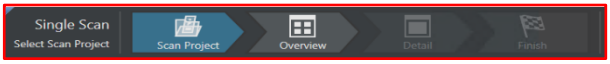
Loader: Newly inserted trays will be signaled with a double arrow appearing on the left of the tray position. You can now lock the door, clicking on the button on the bottom right of the monitor.

4. Acquire a Single Scan Using Pre-Existing Scan Projects

1



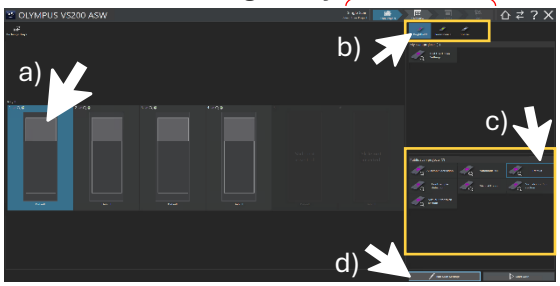
On the VS200 ASW homepage, click on **Single Scan**.



Tip: follow the workflow steps on the top right of the scan wizard.

2

Single Tray *



a) Select the slide of interest. For systems equipped with a loader, on the left side of the screen, the list of inserted trays will appear for selection (a.1).

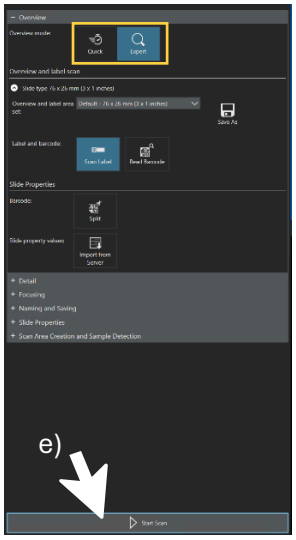
b) Select the scan project type:

- **Brightfield:** for transmitted light illumination and color camera image acquisition.
- **Fluorescence:** for reflected fluorescent light illumination and monochrome camera image acquisition.
- **Special:** for further transmitted light observation methods, such as polarization or phase contrast, or for brightfield imaging that requires advanced settings.

c) Select a pre-existing scan project from the list of **My scan projects** or **Public scan projects**.

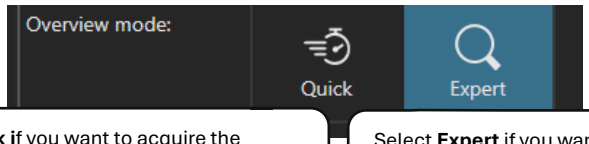
d) Click on **Edit Scan Settings** to revise it.

Loader



On the right side of the screen, you will be able to edit the settings of your acquisition.

For example, you can choose between:



Select **Quick** if you want to acquire the complete image in one-go, without revising the scan area and/or the focus position

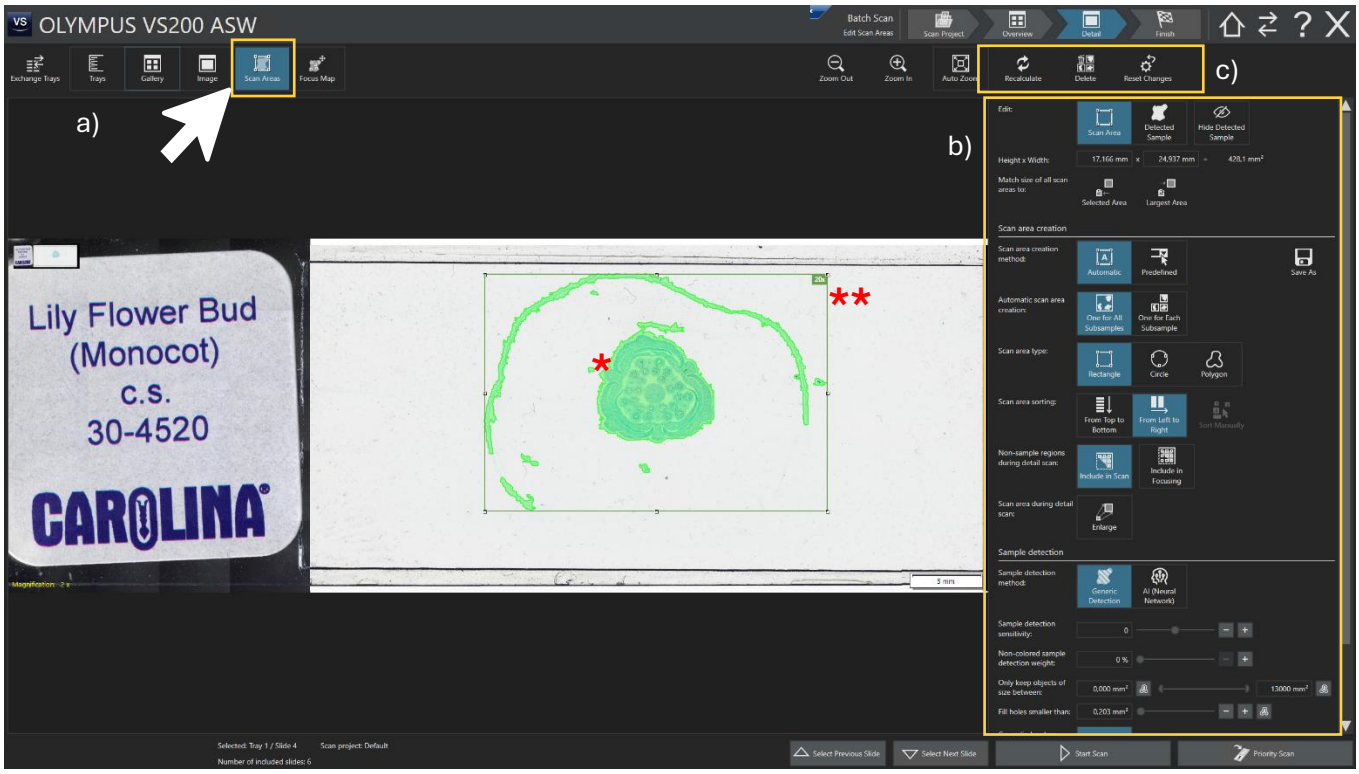
Select **Expert** if you want to revise the settings of your scan after the acquisition of label and overview

Click on other expanders, e.g., **Detail** or **Focusing** to get access to additional imaging settings.

More details on the scan settings will be explained in the following chapters.

e) Once you are ready, click on **Start Scan**.

5. Sample Detection and Scan Area



Definitions:

Sample Mask: Area of the overview that is detected as the sample. It is indicated by a light green overlay. The sample mask is used to automatically calculate the **Scan Area** and the **Focus Map**. The more accurate it is, the higher the quality of the detail scan.

Scan Area: Area of the overview that will be included in the detail scan. It is indicated by a fine line. The color of the line corresponds to the magnification selected for the detail scan.

Procedure:

a) After the overview is acquired, click **Scan Area** on the top left of the scan wizard.

- **Tip:** double-click the image to get direct access.

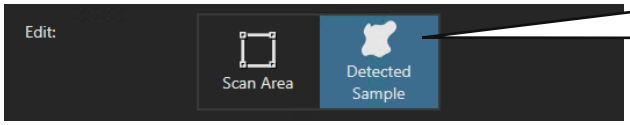
b) Use the commands on the left panel to modify your detected sample and/or the scan area.

c) Use these buttons to:

- Recalculate the scan areas based on the new settings.
- Delete all scan areas.
- Reset the changes and restart from initial conditions.

EVIDENT

6. Adjust Sample Detection (Expert Scan Only)

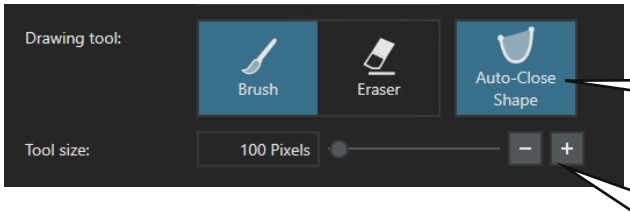


Select **Detected Sample** to modify the sample mask. This will influence your automatically computed scan area.

You can modify it:

a) Using a freehand drawing tool
b) Adjusting the detection settings
c) Using a neural network

a)

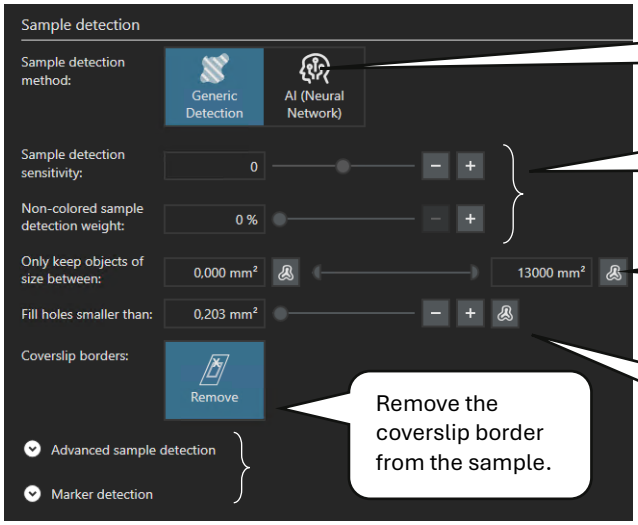


Select the tool you need and draw on the overview area using your mouse.

Scroll to increase or reduce the size of your brush.

Tip: use the mouse wheel to zoom in and out of the image.

b)



Generic Detection uses an algorithm based on pixel intensity and sharpness.

Optimize the sample detection based on the type and the intensity of your staining.

Filter the sample detection results based on the size of the objects.

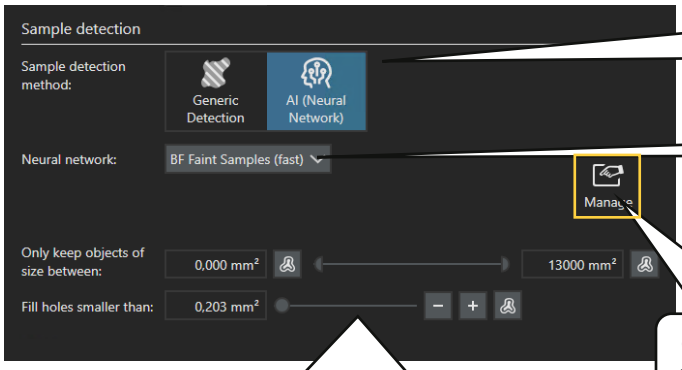
If your sample has a hollow structure, you can fill in the non-detected spaces.

Remove the coverslip border from the sample.

Tip: AI sample detection is optimal for difficult sample types. Train your own neural network to suit your exact application.

Further refine your sample detection using these functions. For more information, refer to the User Manual.

c)



AI (Neural Network) detects the sample using pre-trained neural network (NN). This technology is based on deep learning and implemented using TruAI.

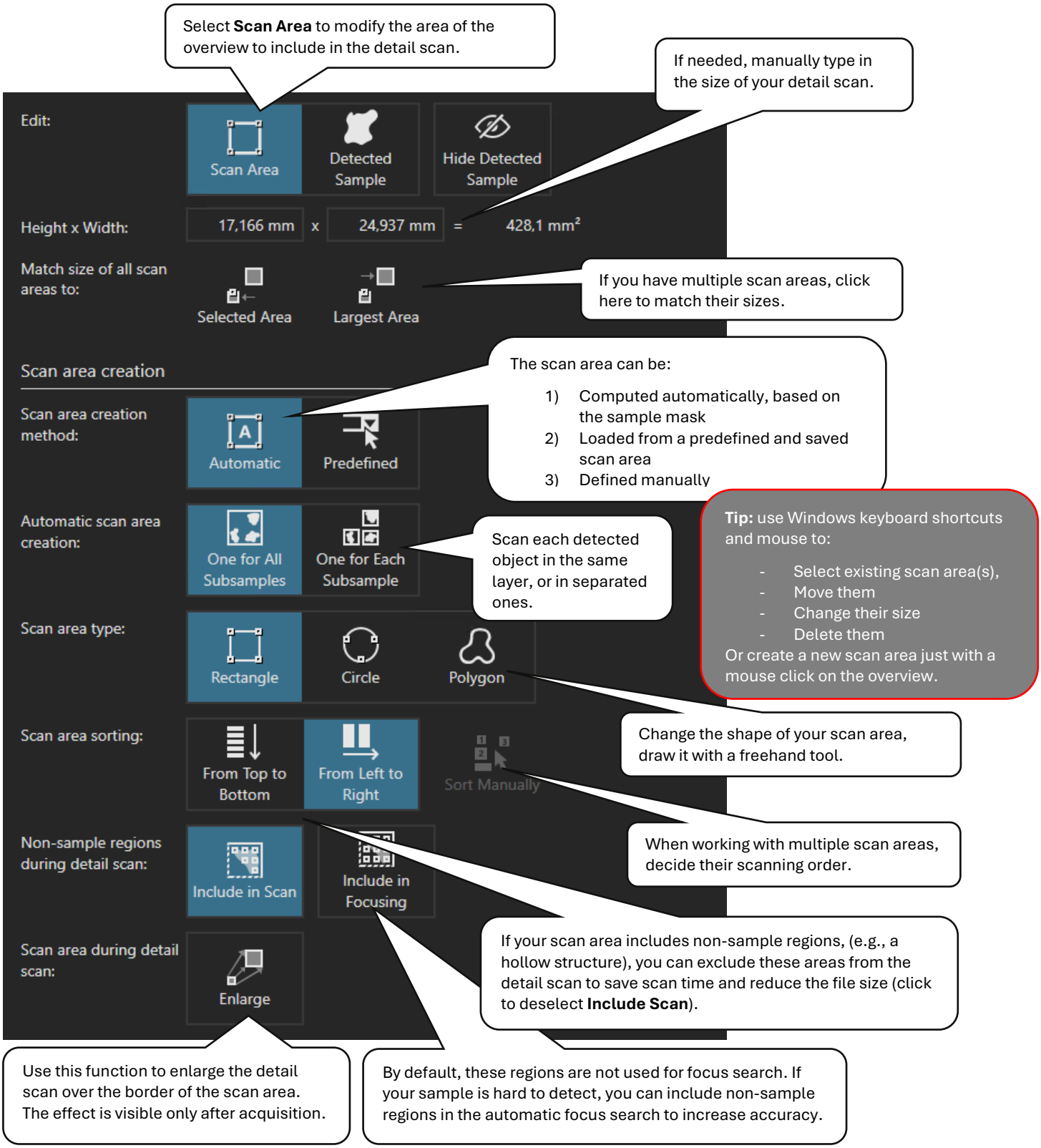
See the list of selectable

Click here to upload your own NN.

Tip: only NN trained on matching conditions can be applied (e.g., a brightfield overview cannot use a NN trained on fluorescence images).

Sample size and hollow structure detection can be adjusted when working with AI

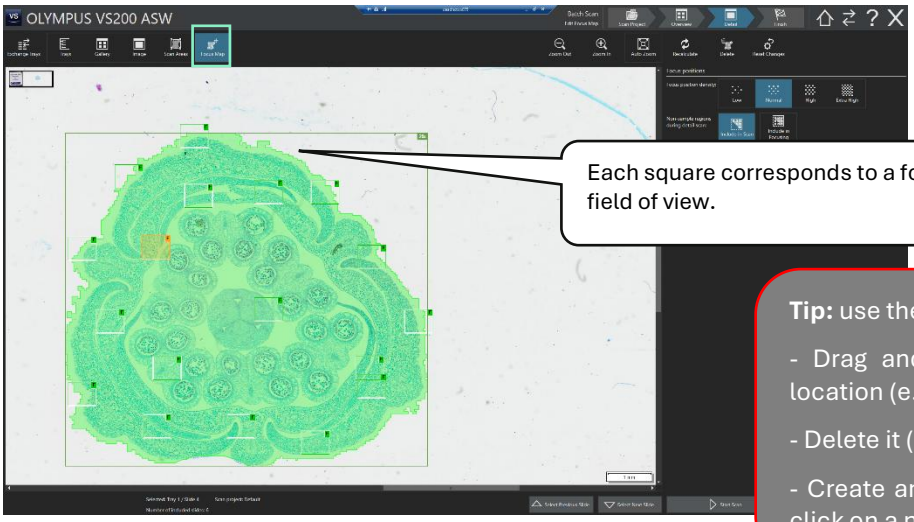
7. Adjust Scan Area (Expert Scan Only)



EVIDENT

8. Adjust Focus Points (Expert Scan Only)

1

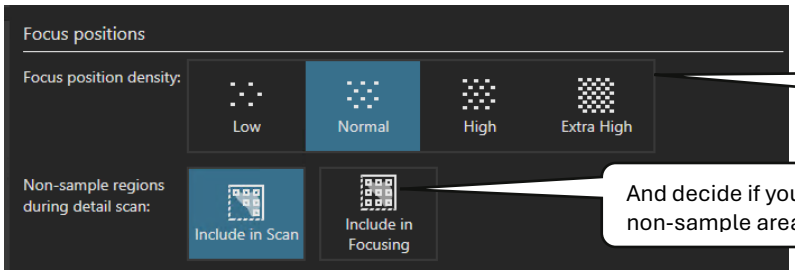


Each square corresponds to a focal point. It has the size of one field of view.

Tip: use the mouse and keyboard commands to:

- Drag and drop the selected point in a different location (e.g., if it overlays a sample debris).
- Delete it (e.g., if it falls on a non-sample area).
- Create an additional point in any position with one click on a new area.

2

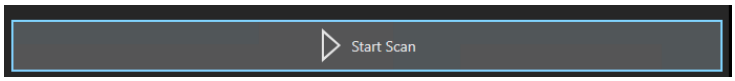


You can change the density of the focal points.

And decide if you want to exclude or include the non-sample area in the focal position.

Tip: if your sample is faint and difficult to detect (e.g., cell cultures), allow the system to focus on non-sample areas.

3



Once you are ready, click on **Start Scan**.

Prefocus: Interpolates each Z-value found on the focal map.

- ✓ Thin sample with a normal-to-high variation in Z-axes (e.g., cell culture, thin wavy tissues).

Prefocus (Average Z): Calculates the average of the Z-values found on the focal map and uses this single value to acquire the entire image, independently of the tilt of the sample.

- ✓ Thick and flat samples, small scan areas.

Prefocus (Flat) and (Flat limited tilt): Interpolates the Z-values found on the map following one tilt direction, resulting in a uniformly inclined plane. The **Flat limited tilt** option constrains the max. difference of Z-planes to 1x (adjustable value) the depth of field of the objective.

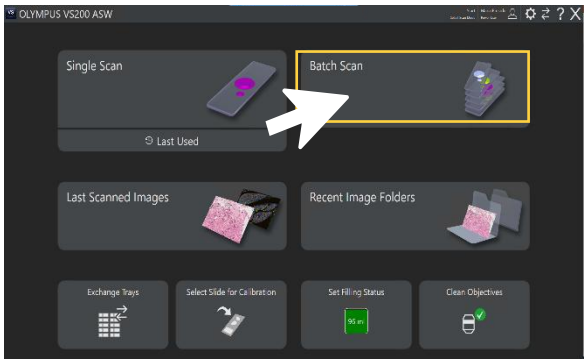
- ✓ Thick samples with a tilt, large scan areas

Continuous Focus: A focus search is performed for each XY position during image acquisition.

EVIDENT

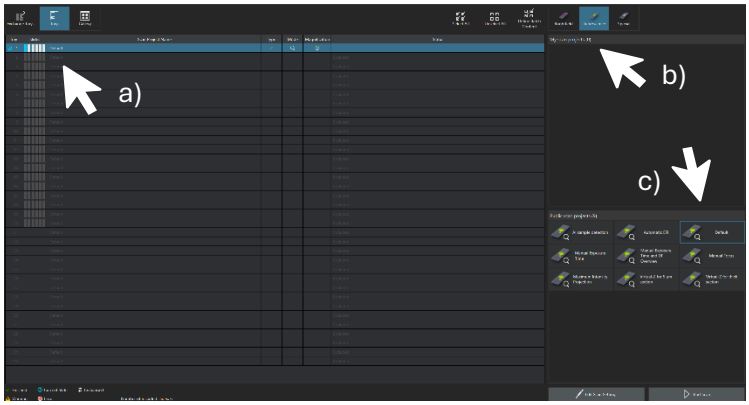
9. Acquire a Batch Scan Using Pre-Existing Scan Projects

1



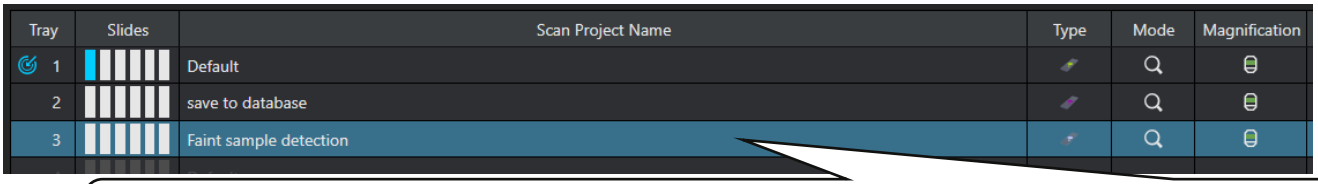
On the VS200 ASW homepage, click **Batch Scan**.

2



a) Select the tray(s) to include in the scan.
b) Select the scan project type.
c) Select a pre-existing scan project from the list of **My scan projects** or **Public scan projects.**
d) Repeat with the following tray(s).

Tip: trays can be skipped.



The table summarizes the main scan settings assigned to each slide.

Scan project type and magnification are color coded (e.g., the green objective indicates 20X magnification for the detail).

Scan project settings.

Name of the assigned scan project.

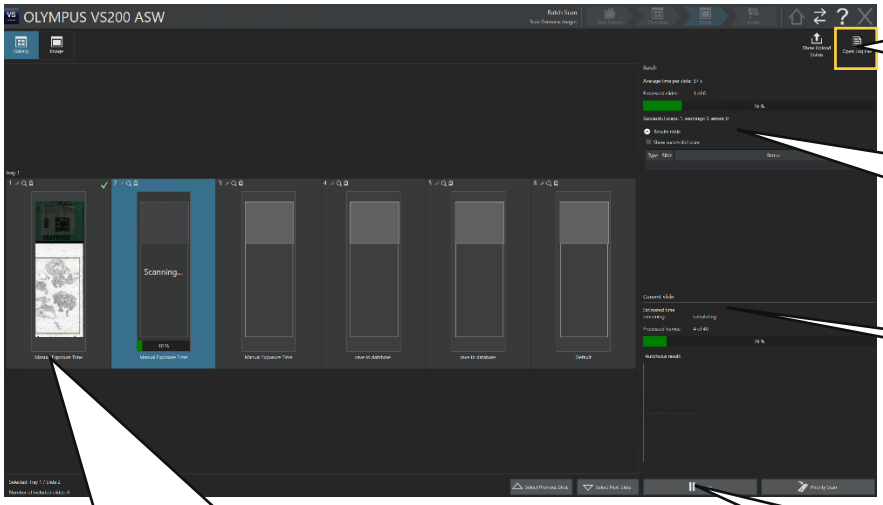
Tip: access the **Gallery view** to assign a different scan project to each slide on the same tray or to exclude single slides from the batch.

3

Once you are ready, click on **Start Scan**.

Acquire a Batch Scan Using Pre-Existing Scan Projects (Continued)

4



Click on this button to download the log file of the batch scan.

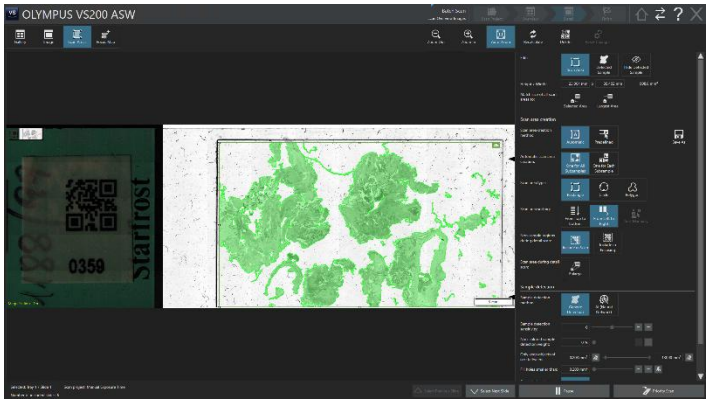
Follow the progress of the batch scan from this window. The table keeps track of the successful scans and of eventual warnings per slide.

Here you see the progress of the acquisition of the current slide.

Already acquired images will appear in the gallery view.

You can pause and retrieve the scan at any time.

5



For Expert scan only:

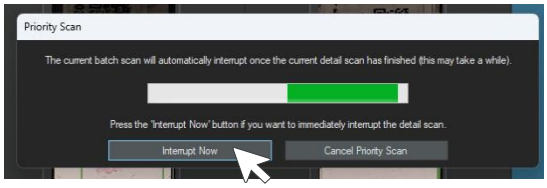
Double-click the overview image to modify the sample detection and the scan area.

From the **Gallery view**, you can change the detail scan settings for the selected slide (e.g., you can change the magnification of the detail scans).

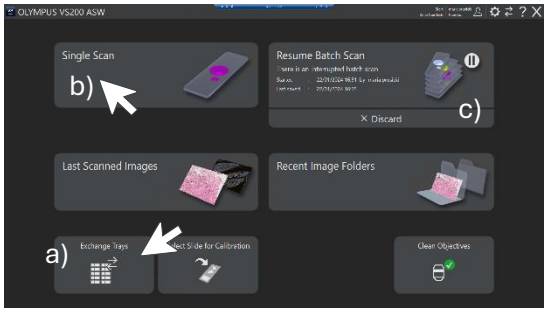
Tip: You can interact with acquired overviews while the system is acquiring the overview of the following slides.

1

2



3



How to acquire an image of an urgent sample during a batch scan:

Click on **Priority Scan**.

Wait for the current scan to terminate or click **Interrupt Now** to proceed immediately.

a) Insert the tray with the urgent sample in the system using the **Exchange Trays** function.

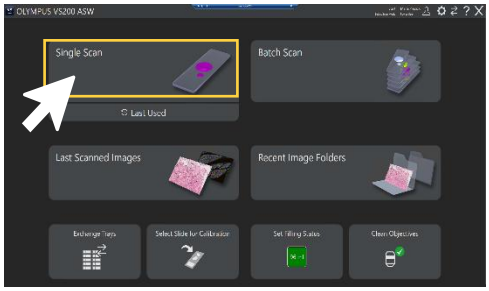
b) Run one or multiple single scans to acquire images of the urgent sample.

c) Resume the batch scan.

EVIDENT

10. Save Your Scan Project

1



On the VS200 ASW homepage, click on **Single Scan**.

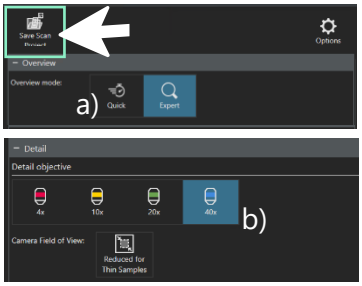
2

a) Select the scan project type.

b) Select a pre-existing scan project from the list to be used as the starting point.

d) Click on **Edit Scan Settings**.

3

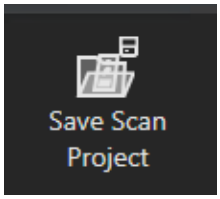


Click on each tab to revise the existing settings and select different ones to suit your experiment.

For example, you can:

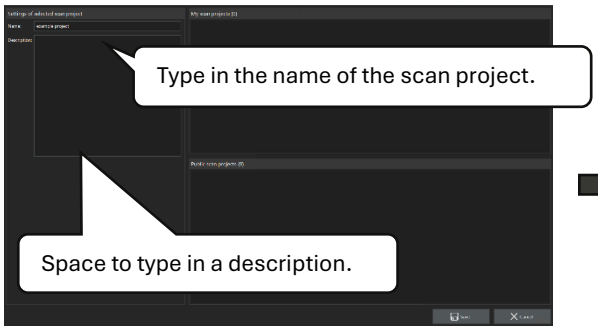
a) Create a Quick scan project
b) Change the magnification of the detail scan

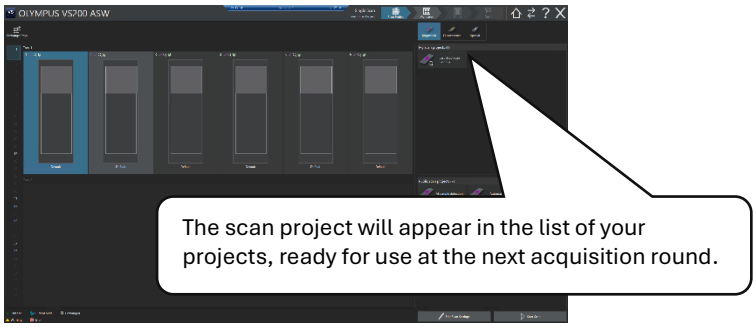
4

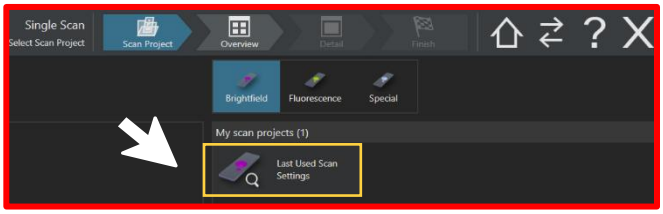


Once you are satisfied with the new settings, click on **Save Scan Project**.

5



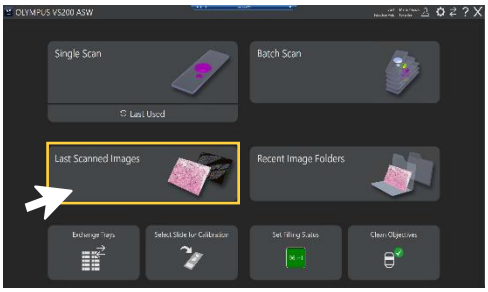




Tip: if you forget to save your scan project settings, you can retrieve the settings used in your last acquisition using the **Last Used Settings** button.

11. Image Explorer Layout

1

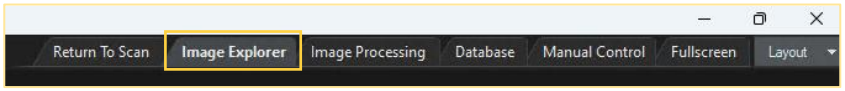


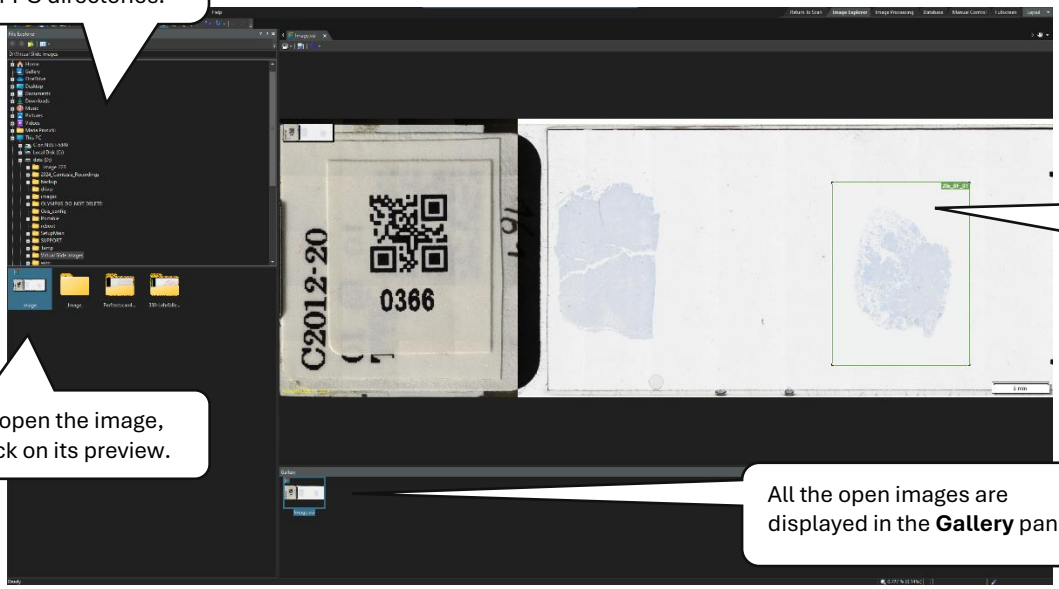
To review the latest acquired images, click on: **Last Scanned Images** or **Recent Image Folders.**

You will be transferred to the additional layout **Image Explorer.**

2

From the **File Explorer** panel, you can navigate all your PC directories.



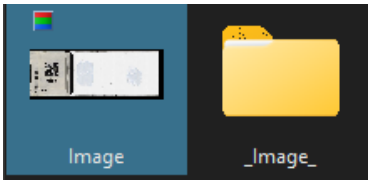


The image is visualized in the central panel.

To open the image, click on its preview.

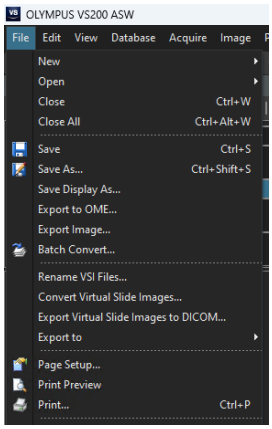
All the open images are displayed in the **Gallery** panel.

c



Tip: VSI image format file consists of two files. These two files must be stored together all the time and must carry the same name. To rename a VSI file, use the rename function (see point 3).

3



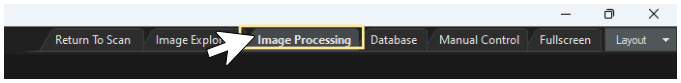
The **File** drop down menu offers access to some basic functions:

- Save the image
- Export the image to a different file format
- Rename the image
- Convert the image to different file formats (File converter is available only with the optional license VS20-CON)

EVIDENT

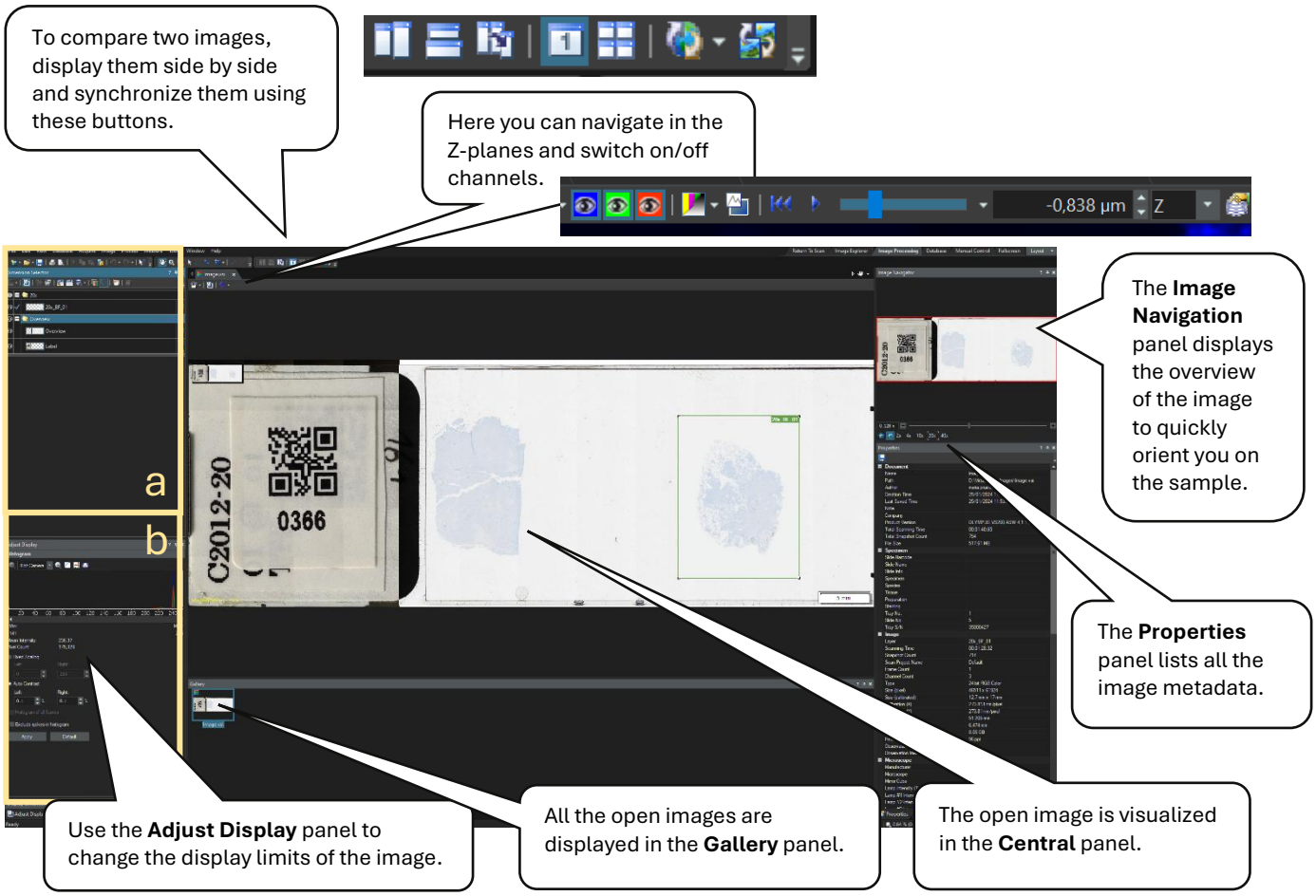
12. Image Processing Layout

1

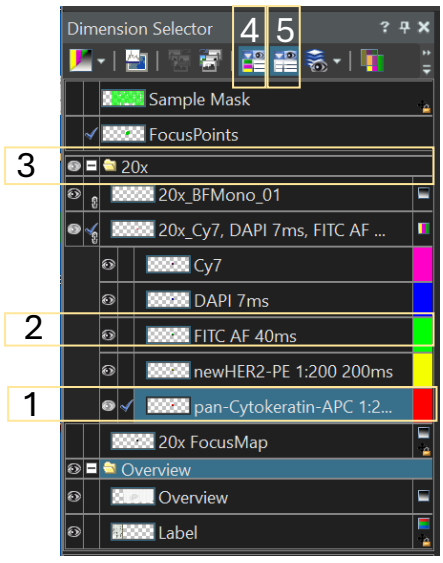


To examine and process the image, access the **Image Processing** layout tab.

2



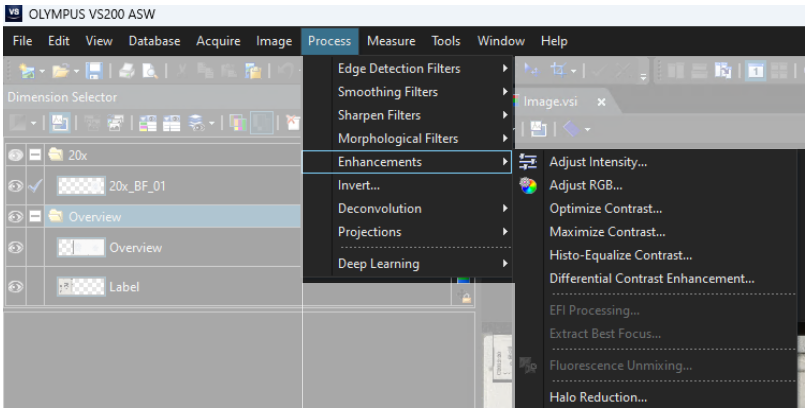
a)



1. The active layer is highlighted in blue.
2. Click on the eye to visualize or hide one of the layers; only non-active layers can be hidden.
3. Scans are organized by magnification; the higher magnifications are always on top.
4. Click here to visualize the list of acquired channels.
5. Click here to visualize the hidden layers, such as the sample mask and focus map.
6. Click on the channel pseudo color to change it.

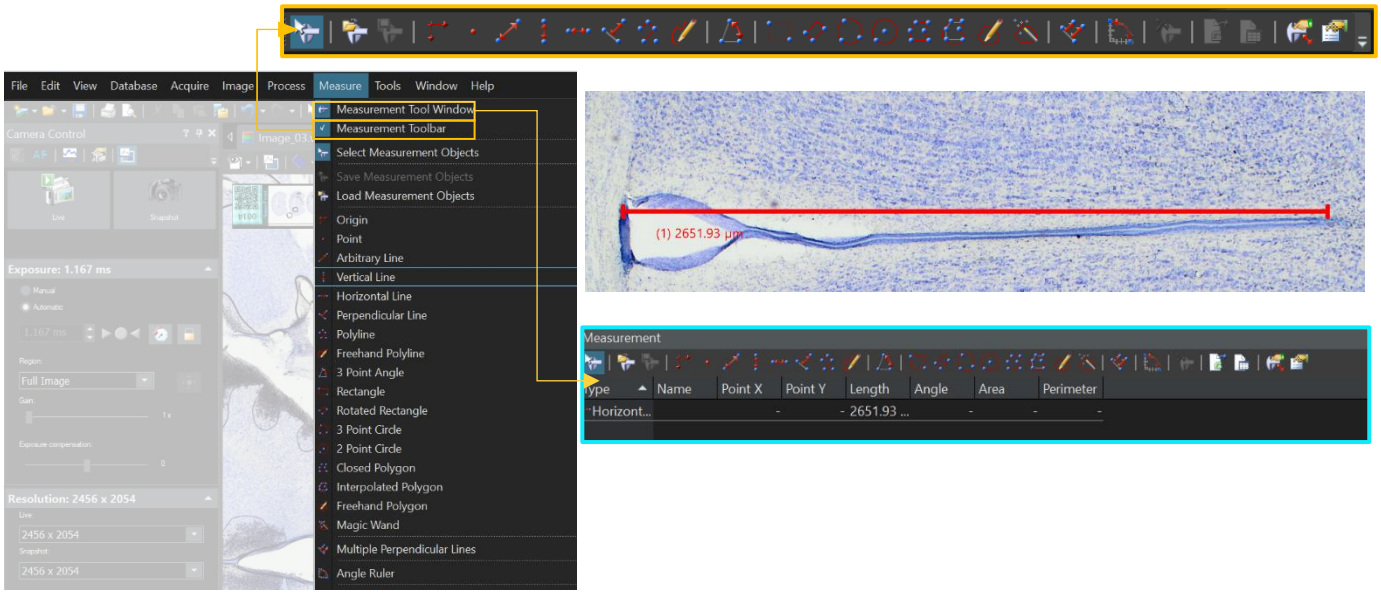
Image Processing Layout (Continued)

3 To apply post-acquisition processing on your open images, select the function from the dropdown menu on the top of the interface.

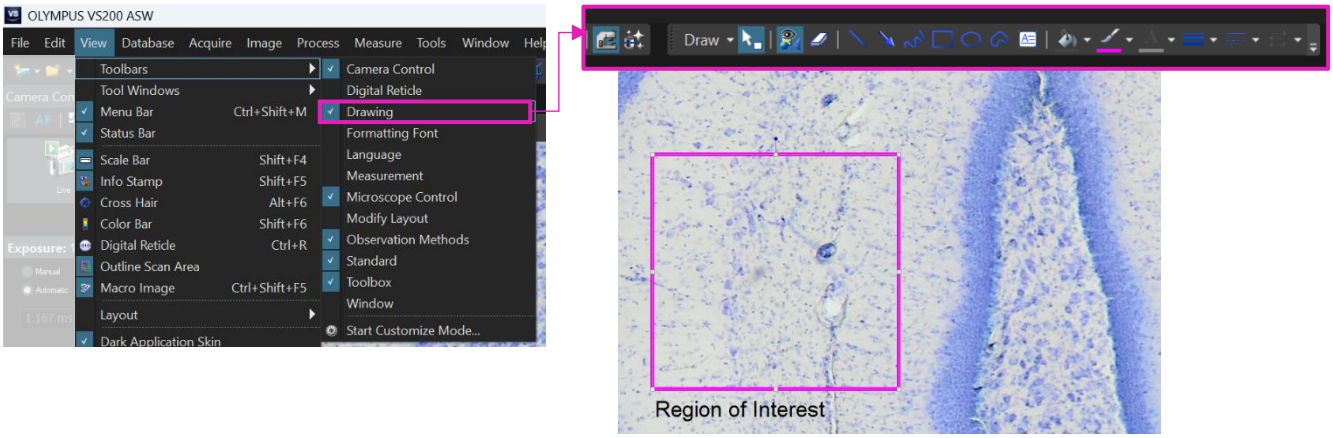


Tip: only functions compatible with the type of the open image will be available to you. (e.g., EFI processing is grayed out if your image is not a Z-stack).

4 You can perform standard measurements on your open images using the **Measurement Tools**.

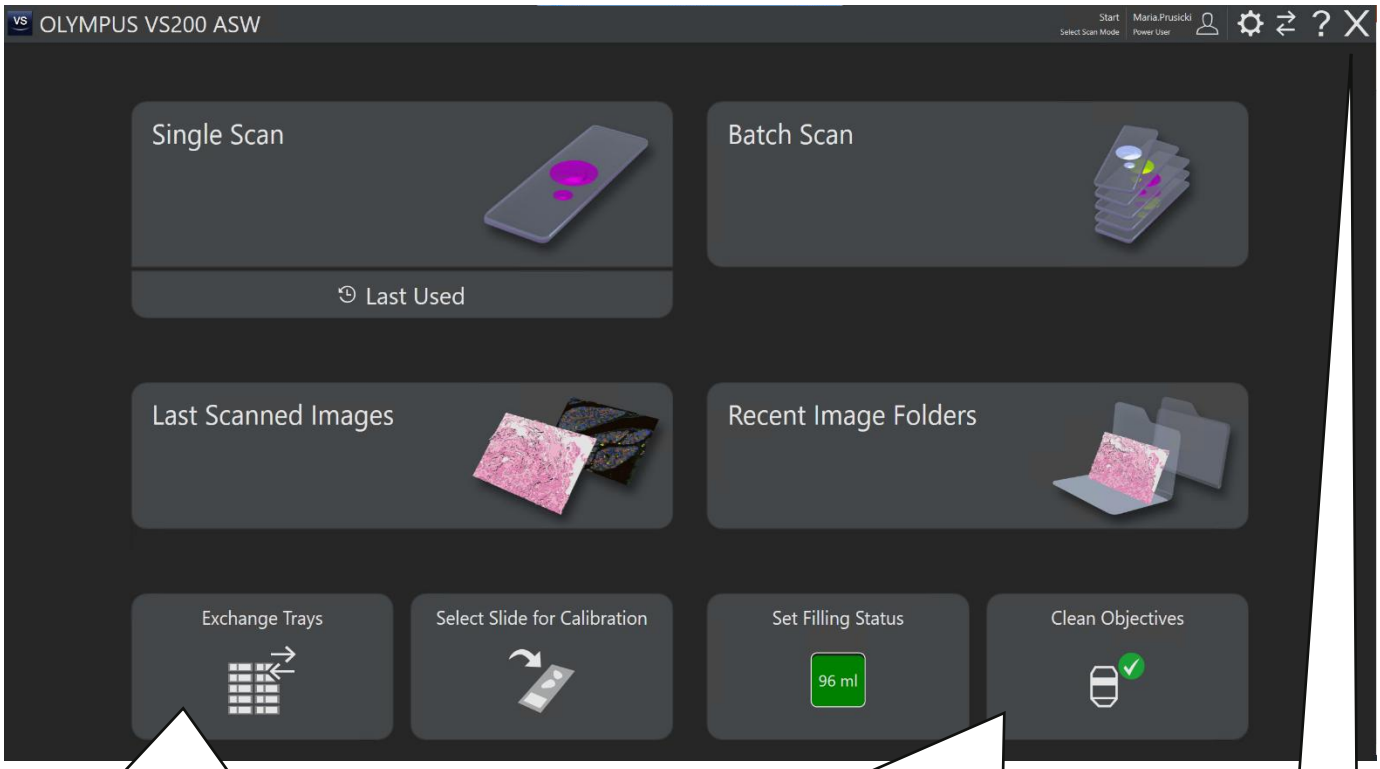


5 Or annotate your image using the **Draw** function.



13. Turn Off the System

1. Remove the tray from the stage of the standard tray system.
2. Clean the slides and objectives after oil usage.
3. Close the software.
4. Switch off the hardware.
5. Power off the PC.

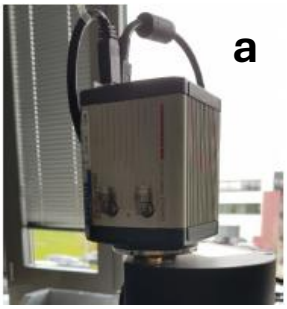


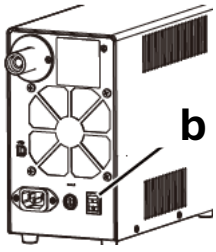
1 Click this button to remove the tray from the stage of the standard tray system. In the loader system, the operation is automatically performed when closing.

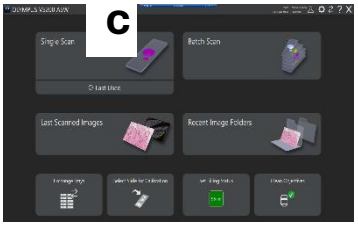
2 If you have been using an oil immersion objective, click this button to easily access the objectives to clean them. Open the door of the system and wipe the used objective with lens tissue and an appropriate lens cleaning solution.

3 Click this button to close the software.

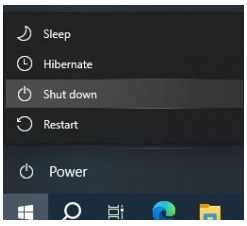
4







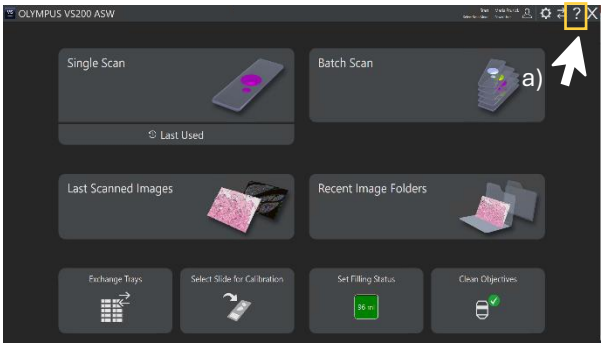
5

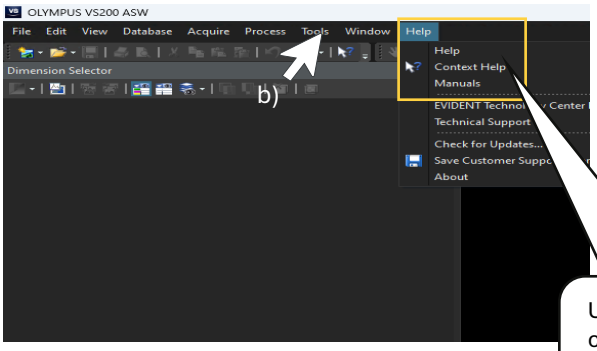


14. Online Help and Support Information

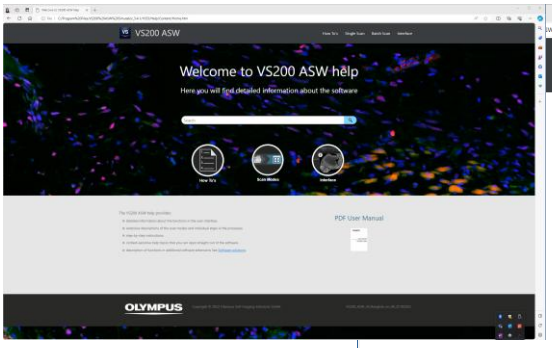
1 For more detailed instructions on specific functions, you can access the **Online Help** or our **Manuals** by clicking on:

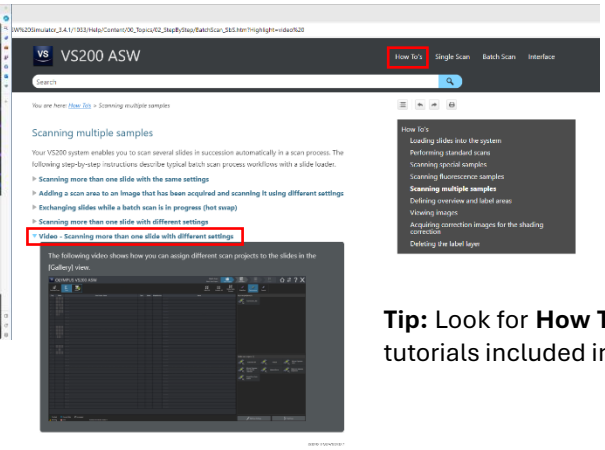
a) The question mark on the homepage
b) Drop down menu in the additional layouts





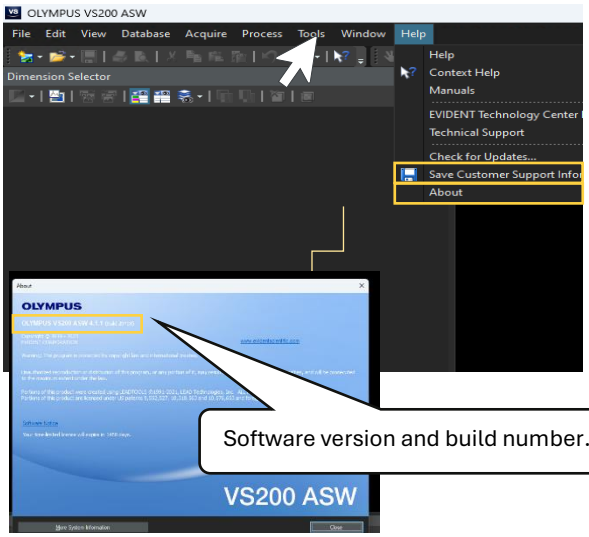
Use **Context Help** to click on an icon and directly access its explanation.



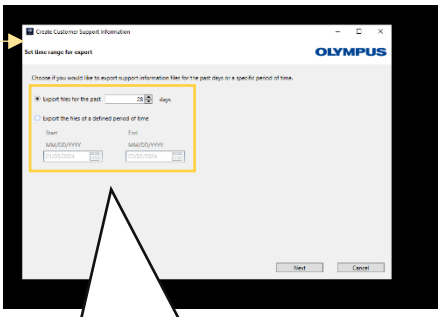


Tip: Look for **How To** instructions and video tutorials included in the online help.

2 If you are experiencing errors, collect the necessary information and share them with your local Evident specialist.



Software version and build number.



Restrict the log file time to the day in which the issue appeared to facilitate the data transfer and the technical investigation.