




Fig. 13 Symbol for ZEN

3.2 Starting the ZEN Software

- After logging in to Windows, start the **ZEN blue edition** software by clicking the **ZEN** icon on the desktop (Fig. 13) or in the program menu.

The start selection dialog of the ZEN software (Fig. 14) offers the options **Image Processing** and **ZEN system**.

- Select **ZEN system** to **operate** the LSM 800.

 In Image Processing mode, the hardware will not be initialized. To toggle between the modes, the software must be restarted.

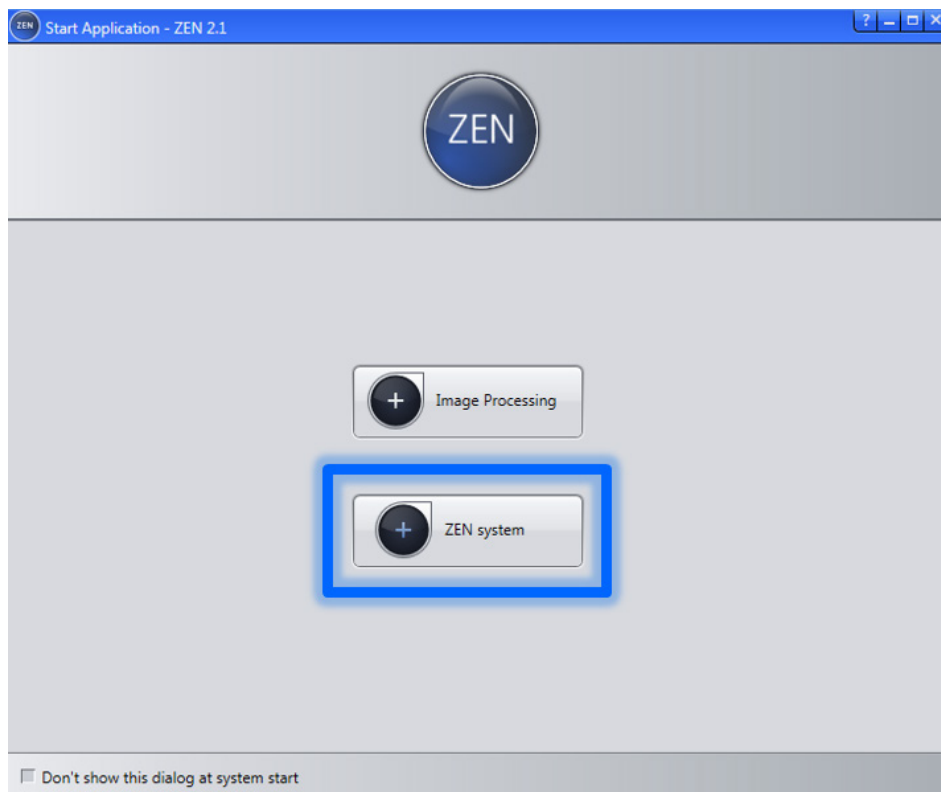
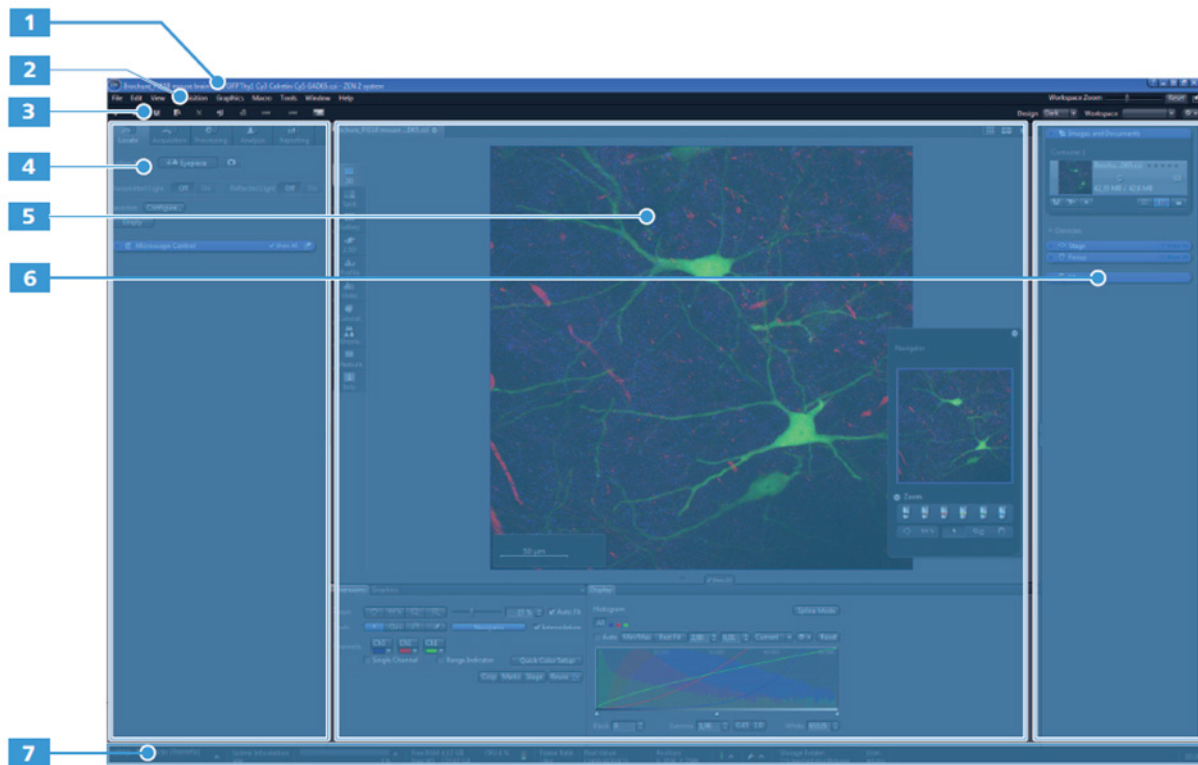


Fig. 14 Application selection dialog

3.3 ZEN Software User Interface

The ZEN blue edition user interface (Fig. 15) is divided into three main areas:

- left screen area (Fig. 15/4)
- center screen area (Fig. 15/5)
- right screen area (Fig. 15/6)



- 1 Title bar
- 2 Menu bar
- 3 Tool bar
- 4 Left screen area
- 5 Center screen area
- 6 Right screen area
- 7 Status bar

Fig. 15 Functional areas of the ZEN blue edition user interface

In the tabs on the left screen area (Fig. 15/4) the tools for visual sample location (**Locate**), image acquisition (**Acquisition**), image processing (**Processing**) and data analysis (**Analysis**) can be selected.

In the center screen area (Fig. 15/5) the acquired images are displayed.

In the right screen area (Fig. 15/6) images and documents which have been opened can be edited in the upper part. Below, the central control elements of microscope hardware such as the focus drive, the motorized specimen stage and incubation components can be found.

3.4 Acquisition of a Confocal Image

- In the left screen area, select the **Acquisition** tab (Fig. 16) to start configuration of image acquisition.

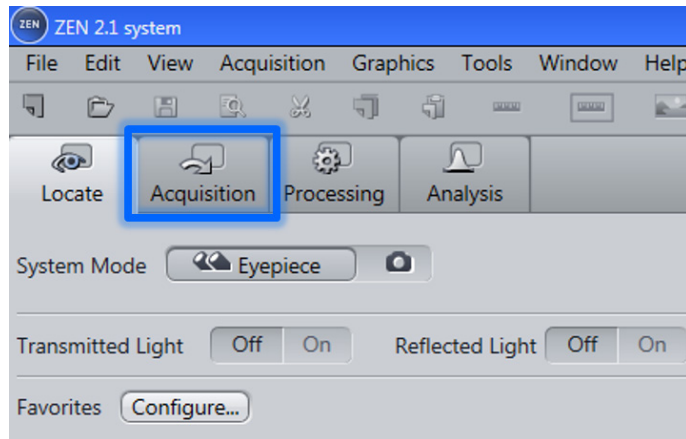


Fig. 16 Image acquisition tab

- Use the **Smart Setup** ZEN function to configure your system easily for image acquisition.
- Start the wizard using the **Smart Setup** button (Fig. 17) in the **Acquisition** tab.

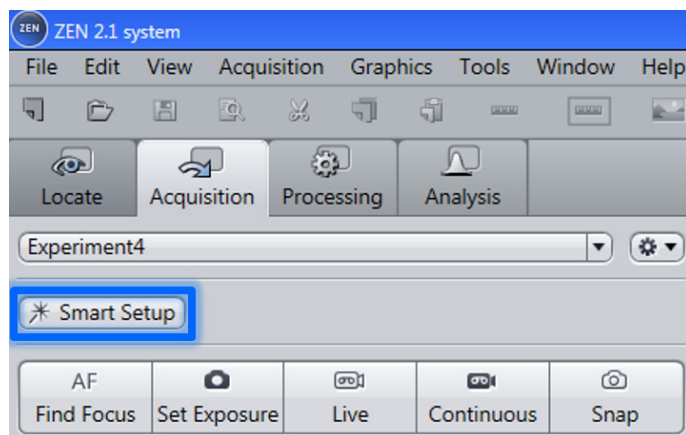


Fig. 17 Smart Setup button

The **Smart Setup** wizard (Fig. 18) allows configuring confocal images, Airyscan images and camera-based images (Airyscan and cameras are optionally available components).

A detailed description of the options in the Smart Setup can be found in the complete operation manual of the ZEN software which is available as an online manual on the system PC.

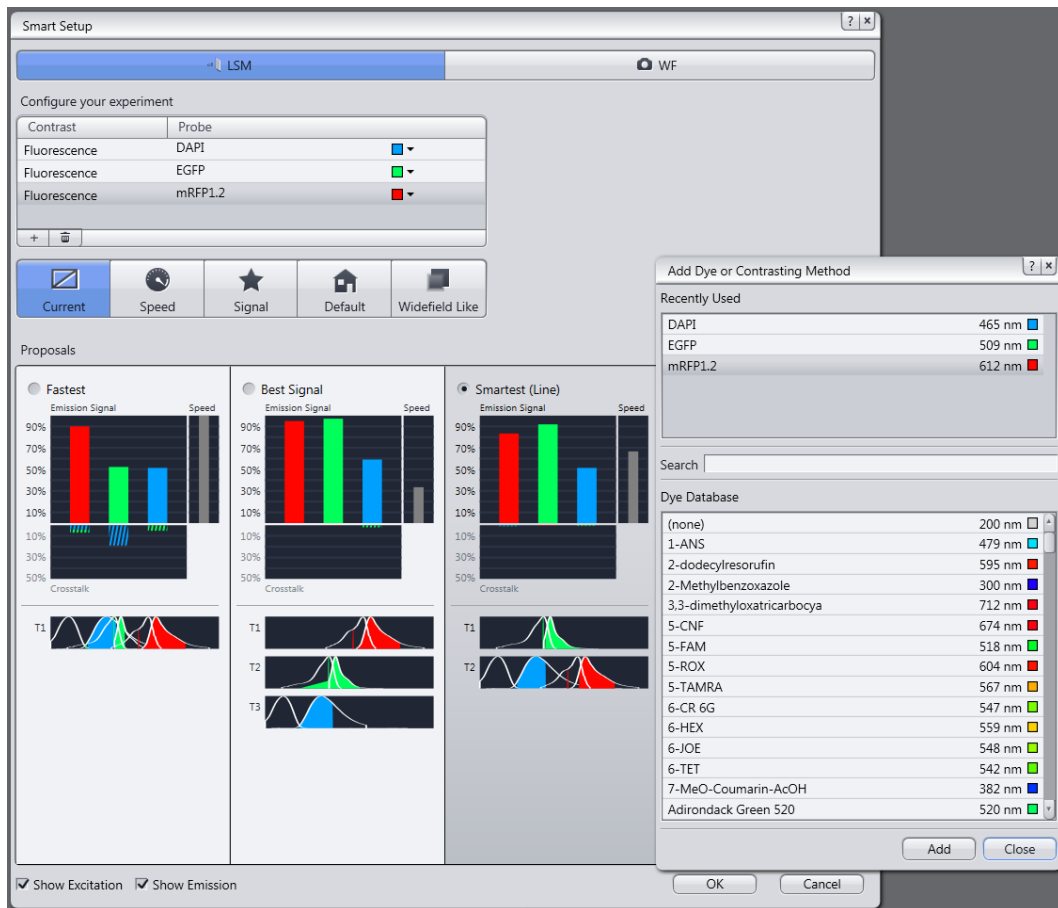


Fig. 18 Smart Setup and dye selection dialog

- First use the **Add Dye or Contrasting Method** dialog to select the dyes which are contained in your sample from a list of over 50 dyes.
- Then exit the **Smart Setup** wizard by clicking the **OK** button.
- Make sure that the cover glass of the sample on the specimen stage is directed towards the objective. Use an immersion medium suitable for the selected objective.

- Start a continuous scan by clicking the **Continuous** button (Fig. 19).

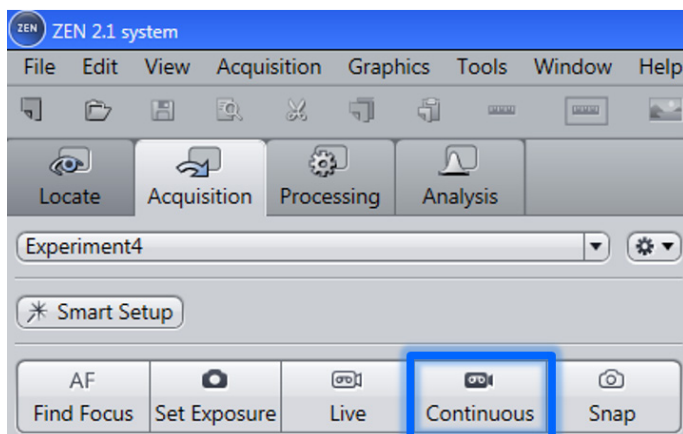


Fig. 19 Starting the continuous image acquisition

- Using the focus drive of the microscope, focus into the required specimen plane.
- ☞ You can also move the mouse pointer over the image in the center area of the screen and then use the scroll wheel of the mouse while holding down the CTRL key.
- Then select the desired location in the specimen by moving the specimen stage with the joystick or the virtual joystick on the right screen area in X - and Y-direction.
- Double-click on the center screen area to center an arbitrary point in the image.
- ☞ If you do not use a motorized scanning stage, these software options are not available. In this case, the specimen is adjusted via the manual drive of the specimen stage.
- Finish the continuous scan by clicking the **Stop** button (Fig. 20).

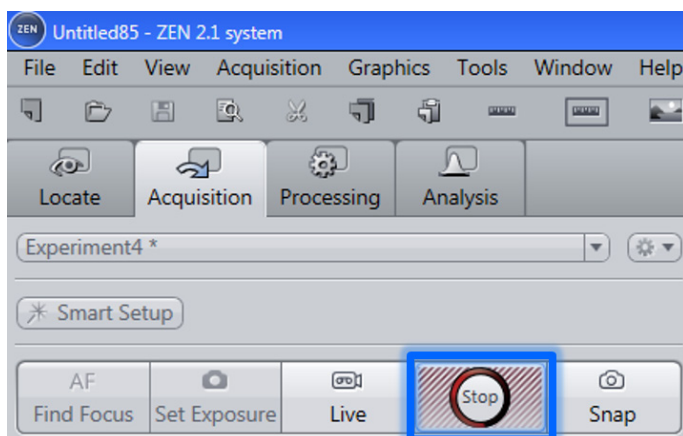


Fig. 20 Finishing the continuous image acquisition

- Click the **Set Exposure** button (Fig. 21) to perform an automatic adjustment of the detector gain of the specimen brightness.

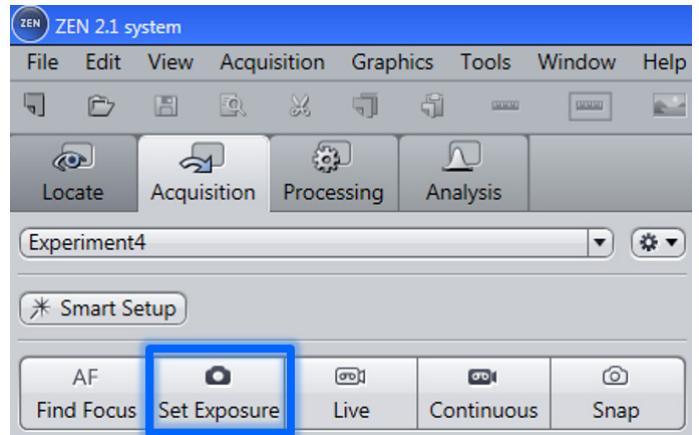


Fig. 21 Automatic detector gain adjustment

Optional:

In case of weakly stained specimens, you might want to increase the laser power in the **Channels** menu window in the left screen area.

- For this purpose, use the **control slider for laser power** of the corresponding fluorescence channel (Fig. 22) and adjust the intensity of the laser while the continuous scan is being made (see above).
- Then repeat the automatic detector gain adjustment from the previous step.

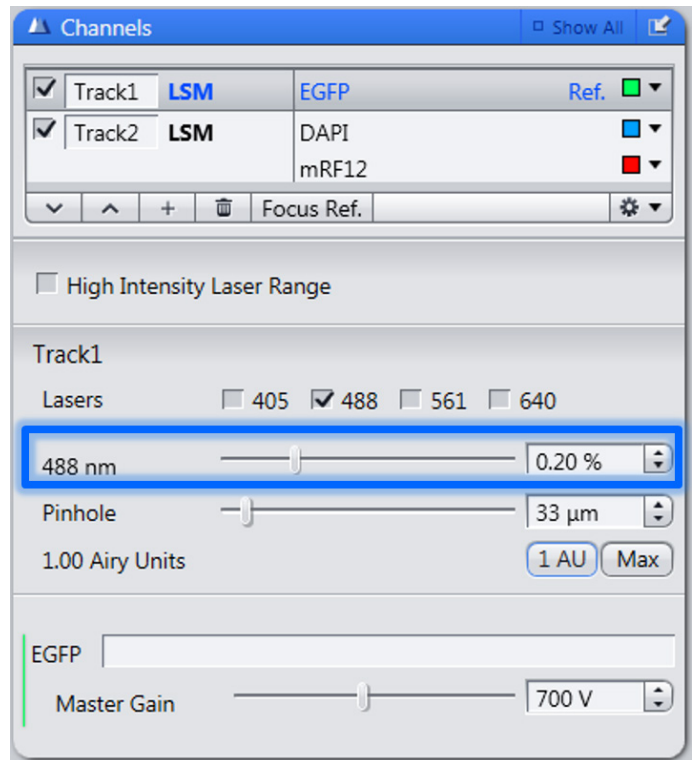



Fig. 22 Adjustment of laser intensity in the Channels menu window

- Start the acquisition of a single image using the **Snap** button (Fig. 23).

Now, your sample should be correctly adjusted.

-  Please note that the steps listed in these operating instructions cannot always guarantee optimum settings, due to the large variety of possible samples. The ZEN software allows very flexible adjustment of system settings according to the requirements of your sample. Further information on this can be found in the complete online manual on the system PC.

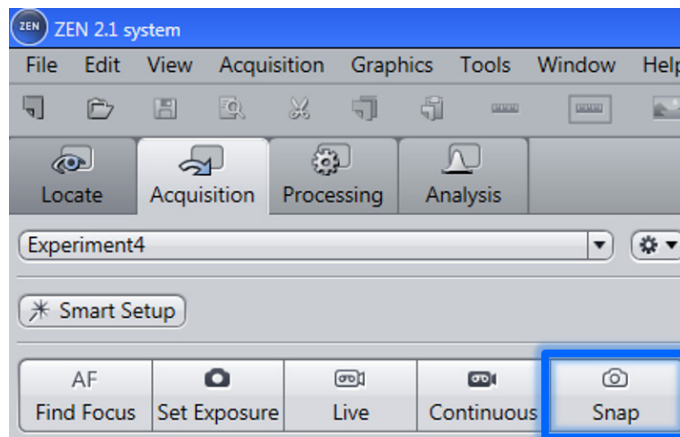


Fig. 23 Starting single image acquisition

- Save the image by clicking the **disk icon** in the image and document handling section in the right screen area (Fig. 24). Alternatively, you can use the **File | Save** command from the menu bar.

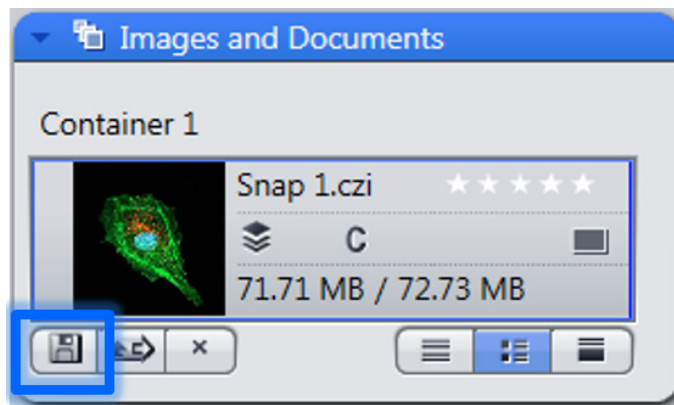


Fig. 24 Saving images

3.5 Exiting ZEN Software

- To exit the software, select the **File | Exit** command from the menu bar. Alternatively, you can exit the program also via the corresponding icon in the title bar.
- If documents with unsaved changes are open, you are prompted to decide whether these changes shall be stored or discarded.

3.6 Switching the System off

- Shut down Windows.

The **PC** automatically switches off shortly thereafter.

- Switch off all **components** used (stand power supply, scanning stage (optional), HXP (optional), piezo focus controller (optional) and Definite Focus Controller (optional)).
- Turn the key switch of the laser module (**LM** module, medium position in the system rack) to position **0** (off).
- Switch off the power supply unit of the system (**PSU** module, upper position in the system rack) by setting the **Power** and **Components** switches to position **0** (off).