

OLYMPUS®

Instruction Manual [Simple Operation]

**VS120-S5-W
VS120-S6-W
VS120-L100-W**

VS120
Virtual Slide System

Notice

This manual explains basic operating procedures to enable first-time users to quickly use the system.

For more details, please refer to the included instruction manual [Hardware] and the software [Online Help]. Retain this instruction manual for future reference.

Optical Microscope and Accessory

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Introduction

This system constructs a digitized high-resolution image of a part or whole of a slide glass specimen. Three different types are provided according to whether slide glass specimens are transferred manually or automatically and the number of slide glass specimens transferrable at one time: (1) 5 slides manual loading type, (2) 6 slides manual loading type, and (3) 100 slides autoloader type.

Configuration of instruction manuals

Since this microscope is expandable to a variety of systems, separate instruction manuals are prepared so that the user has to read only the manuals according to the user's own system.

Instruction manual	Main content
VS120 Instruction Manual [Simple Operation] (this manual)	Regarding method for operations such as acquiring and editing images
VS120 Instruction Manual [Hardware]	Notices regarding safety, explanation of main operating parts, specifications etc.
VS120 Online Help	Instructions on operation of software
BX-UCB Instruction Manual	About microscope control box
U-UCD8A Instruction Manual	About motorized universal condenser
VS-RFAA Instruction Manual	About motorized reflected fluorescence illuminator

If the product is used in a manner not specified by this manual, the safety of the user may be imperiled. In addition, the product may also be damaged. Always use the product as outlined in this instruction manual.

The following symbols are used in this instruction manual.

CAUTION : Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTE : Indicates a potentially hazardous situation which, if not avoided, may result in damage to the equipment or other property.

TIP : Indicates commentary (for ease of operation and maintenance).

▶ : Indicates the reference page where the function is described in detail.

Handling precautions

- Be careful not to bump the microscope system during scanning.
- Do not touch the image such as opening files, zooming or panning during scanning.
There is a risk that the scan operation will become unstable.
- Set the cover glass up (objective lens side). If mounted upside-down, it will not be possible to focus on the specimen.
- When moving slides of different thickness manually, because it may interfere with the 40x or higher objective lens, please move the slide after moving the objective lens to standby or switching to a low-magnification objective.
- When setting the slide specimen on the stage,
[L100 type] Set the slide specimen such that its longer side faces the front with the label on the left side.
[S5 type] Set the slide specimen such that its shorter side faces the front with the label at the front.
[S6 type] Set the slide specimen such that its longer side faces the front with the label on the right side.
- If you want to restart the VS-ASW after closing it, please wait at least 10 seconds before restarting.
There is a risk that settings made at the time of closing may not be reflected properly.
- If you want to apply settings with the batch scan mode [Scan Settings], please apply after having set all the settings.
In addition, after changing settings under options etc., please re-apply the settings.
If you do not apply the settings, the settings immediately prior and the changed contents will not be reflected.
Please observe special caution when changing the settings immediately prior to a [Scan Now] operation.

1**Acquiring Images L100 Type****1-1 Starting the microscope system**

- 1** First, turn on the monitor, followed by the microscope control box, slide loader, and controller to start up the system.

TIP If a fluorescence image is acquired, please switch on the power of a peripheral device such as a fluorescence light source.

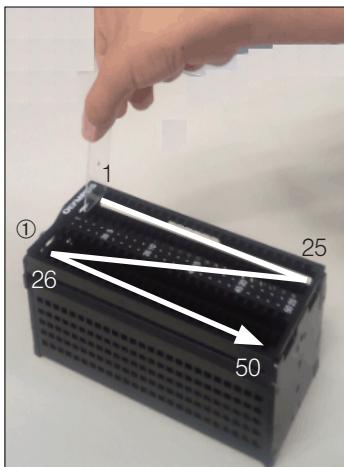
- 2** After Windows® starts, enter your user name and password.

TIP Please consult with the system administrator regarding user name and password.

- 3** After the system has started up, double click the [VS-ASW] icon on the desktop to start up the software and begin adjustment of the stage.



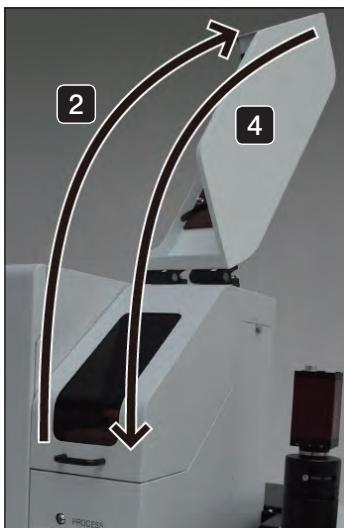
1-2 Setting a slide



1 Set the slide in the cassette.

NOTE • Before setting the slide in the cassette, please wipe the slide clean of any dust etc.

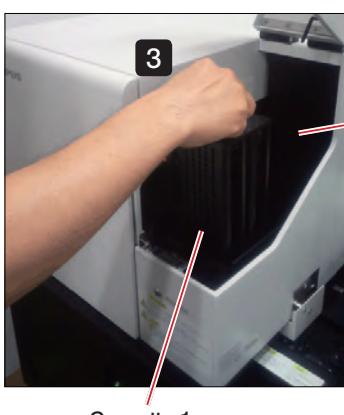
- Hold the slide specimen with the label on the front side, with the cover glass side in the direction of handle ① (direction becomes upwards when setting the slide loader) to set a slide.



2 Open the slide loader cassette cover.



Please take care when opening or closing the cassette cover that you do not trap your fingers.



3 Set the cassette in the specified position in the loader.

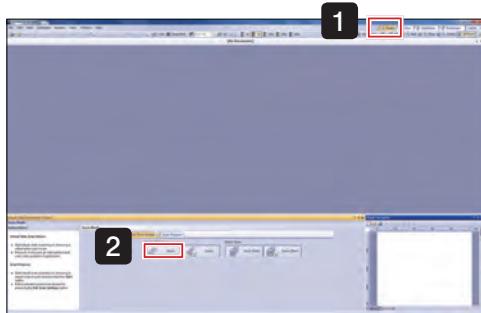
4 Close the slide loader cassette cover.

TIP For details, refer to “4-2 Setting a slide (L100 Type)” on page 67 and the instruction manual [Hardware] “2-3 Setting a slide glass specimen”.

1-3 Acquiring image in each scan mode

1 Brightfield quick mode

Acquire a specimen image without detailed settings.



- 1 Select from the top right of the screen.



The stage moves to the front right, and the [VS-ASW] dialog box displays a [Please insert a new slide] message.

- 4 Set the slide in the stage, click of the [VS-ASW] dialog box.

The stage will then move back to its original position.

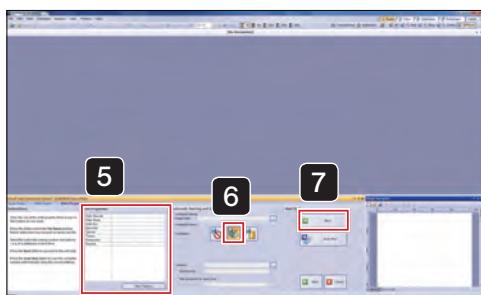
[4-2 Setting a slide \(L100 Type\) \(page 67\)](#)

- 5 If necessary, input the slide information.

- 6 Click the automatic save settings button (to disk) and specify the file destination for the acquired image.

[4-3 Saving acquired images \(page 68\)](#)

- 7 Click .





8 Click the objective lens (magnification) button.

9 Click either Z scan mode (standard) Z mode, (virtual Z) Z mode, or (EFI) Z mode.

[4-6 Setting Z scan mode \(page 70\)](#)

10 If necessary, change the [Scan Settings] with .

[4-5 Setting options \(page 69\)](#)

11 Click .

TIP If the arrow to the side of the button is clicked, an image of the slide label can be acquired.

[4-7 Scanning labels \(page 70\)](#)

Scanning starts.



12 When scanning is complete, the screen shown on the left is displayed.

Click (remove slide).

The stage moves to the front right.

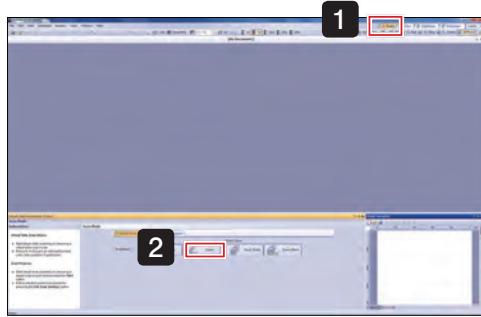
Remove the slide following the [VS-ASW] dialog box messages.

The stage will then move back to its original position.

13 Click and bright field quick mode closes.

2 Brightfield expert mode

Acquire a specimen image by setting the objective lens (magnification), scan area (XY) and focus.



- 1 Select Scan from the top right of the screen.



The stage moves to the front right, and the [VS-ASW] dialog box displays a [Please insert a new slide] message.

- 4 Set the slide in the stage, click OK of the [VS-ASW] dialog box.

The stage will then move back to its original position.

[4-2 Setting a slide \(L100 Type\) \(page 67\)](#)

- 5 If necessary, input the slide information.

- 6 Click (disable automatic save).

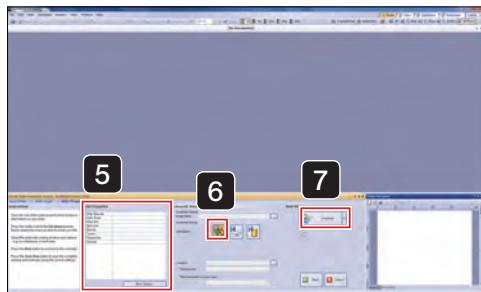
[4-3 Saving acquired images \(page 68\)](#)



- TIP If the arrow to the side of the button is clicked, an image of the slide label can be acquired.

[4-7 Scanning labels \(page 70\)](#)

The specimen image is scanned by the 2x objective lens.





8 Click the objective lens (magnification) button.

9 Click either Z scan mode (standard) Z mode, (virtual Z) Z mode, or (EFI) Z mode.

[4-6 Setting Z scan mode \(page 70\)](#)

10 Click .



11 Click to edit the scan area on the displayed screen.

[4-8 Editing scan area \(page 71\)](#)

12 Click .

13 Click and edit the focus map on the displayed screen.

[4-9 Editing focus maps \(page 72\)](#)

14 Click (automatic focus).

[4-10 Setting focus mode \(page 73\)](#)

15 Click .

Scanning starts.





- 16** When scanning is complete, the screen shown on the left is displayed.

If necessary, save files.

Click (remove slide).

The stage moves to the front right.

Remove the slide following the [VS-ASW] dialog box messages.

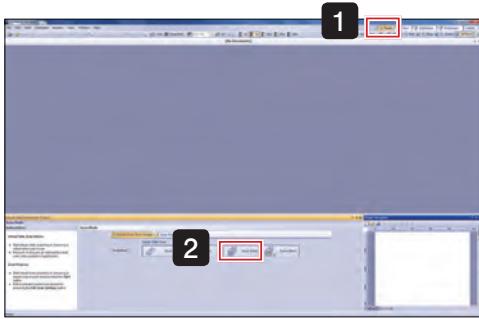
The stage will then move back to its original position.

- 17** Click and brightfield expert mode closes.

3 Brightfield quick batch mode

Acquire multiple images of slide specimens using the slide loader without detailed settings.

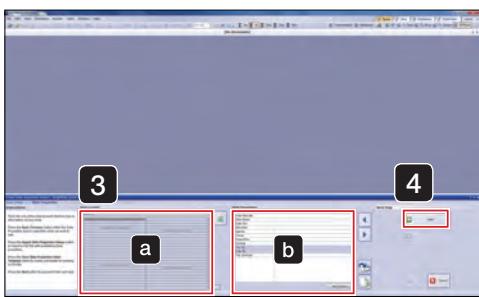
First, please set the slide specimens in the inserted cassette.



- 1 Select from the top right of the screen.

- 2 Click Quick Batch.

NOTE After clicking the button, please do not open or close the cassette cover.



- 3 If necessary, input the slide information.

Select the slide with **a**, and input the slide information in **b**.

TIP Leave slides which do not need information blank.

- 4 Click Next.



- 5** Select the slide to apply settings and click the objective lens (magnification) button.

- 6** Click the automatic save settings button (to disk) and specify the file destination for the acquired image.

[4-3 Saving acquired images \(page 68\)](#)

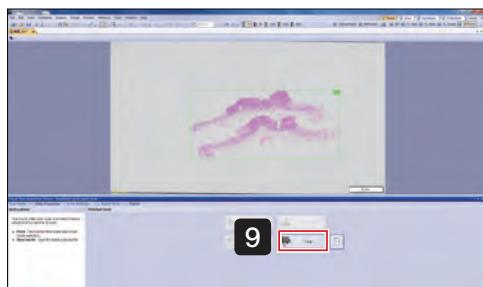
- 7** Click (apply settings to all slides in cassette).

The slide to which the settings are applied is highlighted in the color corresponding to the objective lens (magnification) selected in **5**.

[4-4 Selecting slides to apply scan settings \(page 68\)](#)

- 8** Click **Scan Now**.

Scanning starts.



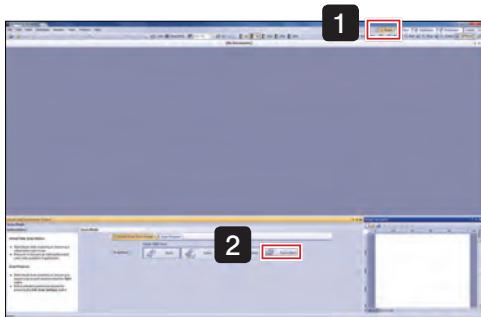
- 9** When scanning is complete, the screen shown on the left is displayed.

Click **Finish** and brightfield quick batch mode closes.

TIP Click and the results of the batch scan (log file) can be viewed.

4 Brightfield expert batch mode

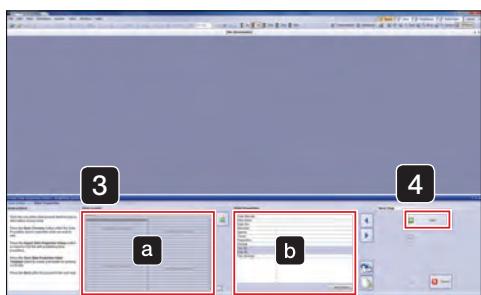
Using the slide loader, acquire multiple slide specimen images by setting the objective lens (magnification), scan area (XY) and focus. First, please set the slide specimens in the inserted cassette.



- 1 Select from the top right of the screen.

- 2 Click .

NOTE After clicking the button, please do not open or close the cassette cover.

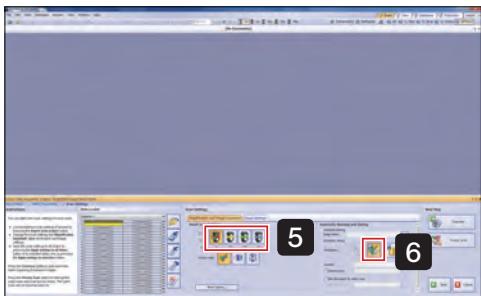


- 3 If necessary, input the slide information.

Select the slide with **a**, and input the slide information in **b**.

TIP Leave slides which do not need information blank.

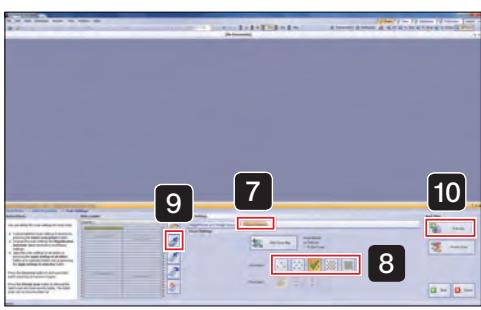
- 4 Click .



5 Click the objective lens (magnification) button.

6 Click the automatic save settings button (to disk) and specify the file destination for the acquired image.

[4-3 Saving acquired images \(page 68\)](#)



7 The [Focus Settings] tab is displayed.

8 Select the focus map grid density.

(Normally, select the (normal) at the middle.)

[4-9 Editing focus maps \(page 72\)](#)

9 Click (apply settings to all slides in cassette).

The slide to which the settings are applied is highlighted in the color corresponding to the objective lens (magnification) selected in **5**.

[4-4 Selecting slides to apply scan settings \(page 68\)](#)

10 Click Overview.

TIP An overview image for the specified number of slides is scanned.

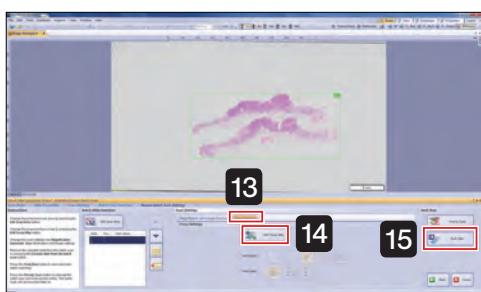
Please wait a moment for the scanning to complete.



11 Click (select all slides in list).

12 Click and edit the scan region on the displayed screen.

[4-8 Editing scan area \(page 71\)](#)



13 The [Focus Settings] tab is displayed.

14 Click and edit the focus map on the displayed screen.

[4-9 Editing focus maps \(page 72\)](#)

15 Click .

Scanning starts.



16 When scanning is complete, the screen shown on the left is displayed.

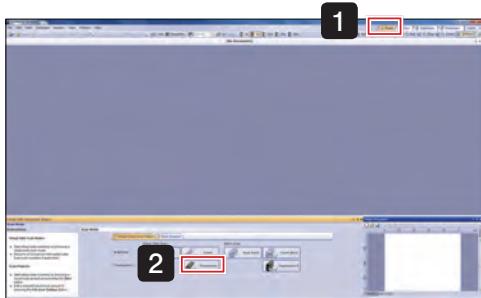
Click and brightfield expert batch mode closes.

TIP Click and the results of the batch scan (log file) can be viewed.

5 Fluorescence expert mode

Acquire a fluorescence image by setting the objective lens (magnification), scan area (XY) and focus.

TIP Operation may differ depending on your model, please also consult the Online Help.



1 Select Scan from the top right of the screen.



The stage moves to the front right, and the [VS-ASW] dialog box displays a [Please insert a new slide] message.

4 Set the slide in the stage, click OK of the [VS-ASW] dialog box.

The stage will then move back to its original position.

[4-2 Setting a slide \(L100 Type\) \(page 67\)](#)



5 If necessary, input the slide information.

6 Select (disable automatic save).

[4-3 Saving acquired images \(page 68\)](#)

7 Click Next .



- 8** Select the observation mode for acquiring image from the following.



Brightfield overview image



BF (Brightfield)



Fluorescence overview image

Tissue



Fluorescence overview image

Cells

Low brightness areas are not recognized.

Low brightness areas can also be recognized.

Click the arrow next to the selected button, and choose the acquisition channel (FL Red, FL Blue, FL Green) from the pulldown menu.

- 9** Select the objective lens (magnification) to use for the overview.
(Normally select 2x)



- 10** Click **Start Live** and display the image.

Set the exposure time while looking at the image.



[Adjusting exposure time \(page 75\)](#)

- 11** After live is finished, click

TIP If the arrow to the side of the button is clicked, an image of the slide label can be acquired.



[4-7 Scanning labels \(page 70\)](#)



12 Click the objective lens (magnification) button.

13 Click either Z scan mode (standard) Z mode, (virtual Z) Z mode, (EFI) Z mode, or (MIP) Z mode.

[4-6 Setting Z scan mode \(page 70\)](#)

14 Click Next .



15 Click Edit Scan Area and edit the scan area on the displayed screen.

[4-8 Editing scan area \(page 71\)](#)

16 Click Next .



17 Click and add the channel to be used for scanning.

TIP Focus operates based on No.1 channel. Please move the channel suitable for focus to No.1 with .

18 Click (manual exposure time mode).



19 Select the channel and the image is displayed with .

20 Click .

21 After adjusting the specimen position and focus with the joystick, set the exposure time with the and buttons.

[Adjusting exposure time \(page 75\)](#)

Live will stop after each channel.

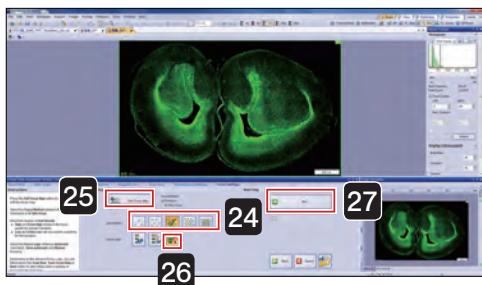


22 If necessary, set Z offset.

Click to enable Z offset.

[Setting Z offset \(page 76\)](#)

23 Click .



- 24** Select the focus map grid density.
(Normally, select the (normal) at the middle.)

- 25** Click and edit the focus map.

[4-9 Editing focus maps \(page 72\)](#)

- 26** Select (manual focus).

- 27** Click .

- 28** While viewing the live image, bring the specimen into focus at all focus points.

[4-10 Setting focus mode \(page 73\)](#)

- 29** Click .

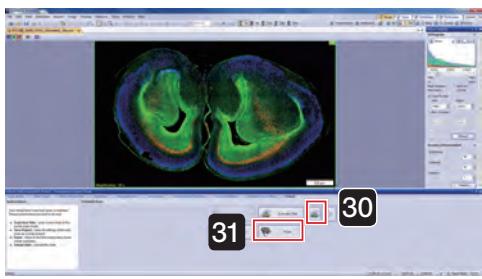
Scanning starts.

- 30** When scanning is complete, the screen shown on the left is displayed.

Click (unload slide).

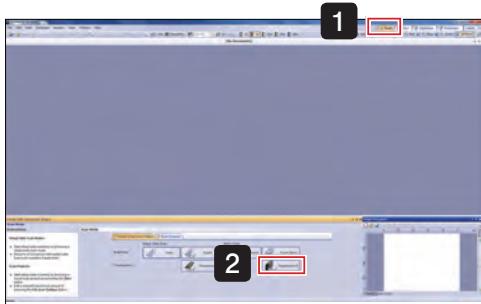
The stage moves to the front right.

- 31** Click and fluorescence expert mode closes.



6 Fluorescence expert batch mode

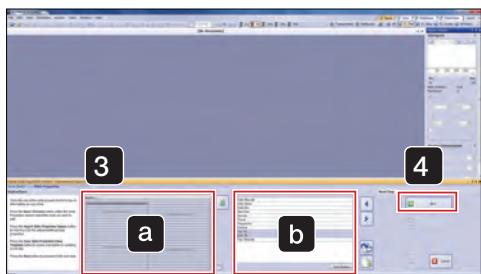
Acquire multiple fluorescence slide images using the slide loader by setting the objective lens (magnification), scan area (XY) and focus. First, please set the slide specimens in the inserted cassette.



- 1 Select from the top right of the screen.

- 2 Click .

NOTE After clicking the button, please do not open or close the cassette cover.

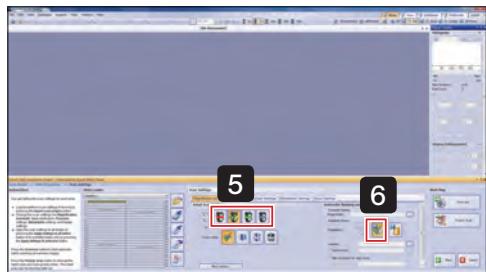


- 3 If necessary, input the slide information.

Select the slide with **a**, and input the slide information in **b**.

TIP Leave slides which do not need information blank.

- 4 Click .



5 Click the objective lens (magnification) button.

6 Click the automatic save settings button (to disk) and specify the file destination for the acquired image.

[4-3 Saving acquired images \(page 68\)](#)



7 The [Overview Settings] tab is displayed.

8 Select the observation mode for acquiring image from the following.



Brightfield overview image



Fluorescence overview image

Low brightness areas are not recognized.



Fluorescence overview image

Low brightness areas can also be recognized.

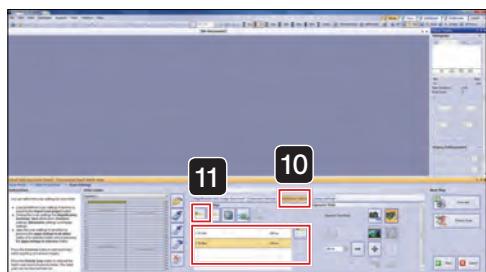
Click the arrow next to the selected button, and choose the acquisition channel (FL Red, FL Blue, FL Green) from the pulldown menu.

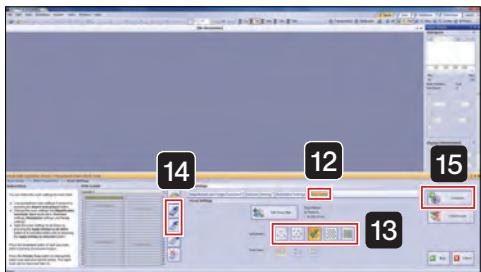
9 Select the objective lens (magnification) to use for the overview.
(Normally select 2x)

10 The [Illumination Settings] tab is displayed.

11 Click and add the channel to be used for scanning.

TIP Focus operates based on No.1 channel. Please move the channel suitable for focus to No.1 with





12 The [Focus Settings] tab is displayed.

13 Select the focus map grid density.
(Normally, select the (normal) at the middle)

14 Click (apply settings to selection) or (apply settings to all slides in cassettes).

The slide to which the settings are applied is highlighted in the color corresponding to the objective lens (magnification) selected in 5.

[4-4 Selecting slides to apply scan settings \(page 68\)](#)

15 Click Overview.

TIP An overview image for the specified number of slides is scanned.

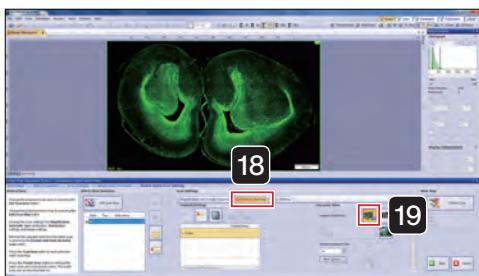
Please wait a moment for the scanning to complete.



16 Click (select all slides in list).

17 Click and edit the scan area on the displayed screen.

[4-8 Editing scan area \(page 71\)](#)



18 The [Illumination Settings] tab is displayed.

19 Click (automatic exposure time mode).



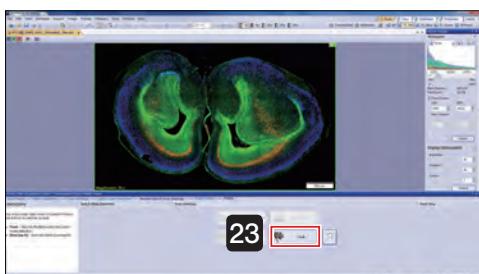
20 The [Focus Settings] tab is displayed.

21 Click and edit the focus map on the displayed screen.

[4-9 Editing focus maps \(page 72\)](#)

22 Click .

Scanning starts.

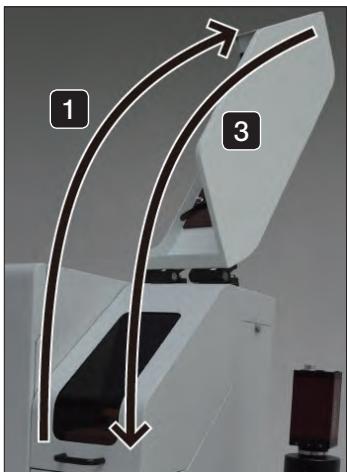


23 When scanning is complete, the screen shown on the left is displayed.

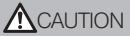
Click and fluorescence expert batch mode closes.

TIP Click and the results of the batch scan (log file) can be viewed.

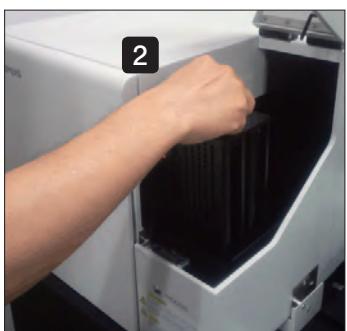
1-4 Closing the microscope system



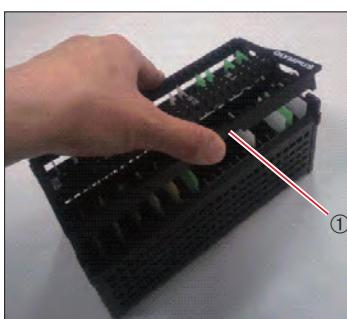
- 1** Open the slide loader cassette cover.



Please take care when opening or closing the cassette cover that you do not trap your fingers.



- 2** Remove the cassette.

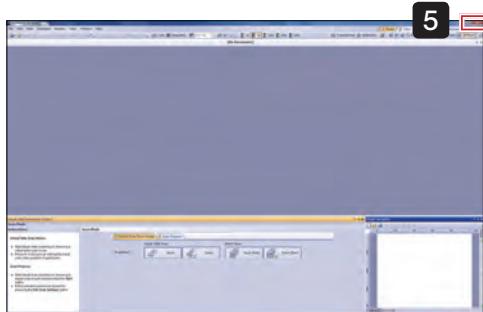


- 3** Close the slide loader cassette cover.

- 4** Place your finger on cassette door ① and lightly lift up to open, then remove all specimens and close cassette door ①.



Regarding how to unload slides, please also refer to instruction manual [Hardware] "2-3 Setting a slide glass specimen".



- 5** Click the button in the VS-ASW screen top right.

- 6** Shutdown Windows®.

The controller powers OFF. The connected monitor, microscope control box and slide loader also power OFF.

- 7** Switch the controller main switch OFF.



If you have acquired the fluorescence image, turn OFF the power of the light source for fluorescence and other peripherals.

2 Acquiring Images S5 Type

2-1 Starting the microscope system



- 1** First, turn on the monitor, followed by the microscope control box, slide loader, and controller to start up the system.

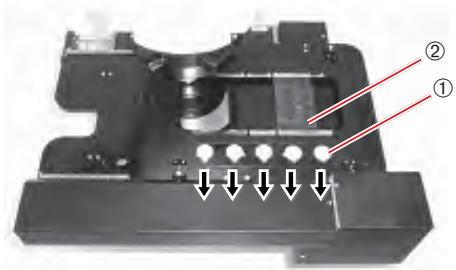
TIP If a fluorescence image is acquired, please switch on the power of a peripheral device such as a fluorescence light source.

- 2** After Windows® starts, enter your user name and password.

TIP Please consult with the system administrator regarding user name and password.

- 3** After the system has started up, double click the [VS-ASW] icon on the desktop to start up the software and begin adjustment of the stage.

2-2 Setting a slide



- 1** Pull the specimen holder open/close slider ① towards you, and with the specimen holder open, set the slide specimen.

Set the specimen such that its shorter side faces the front and the label ② is toward the front.

NOTE Please observe caution not to touch the objective lens.

- 2** Gently return the specimen holder open/close slider and confirm that the specimen has been correctly set.

- 3** Set as many specimens as required.

TIP Regarding how to set the slide, please also refer to the instruction manual [Hardware] "2-3 Setting a slide glass specimen".

2-3 Acquiring image in each scan mode

1 Brightfield quick mode

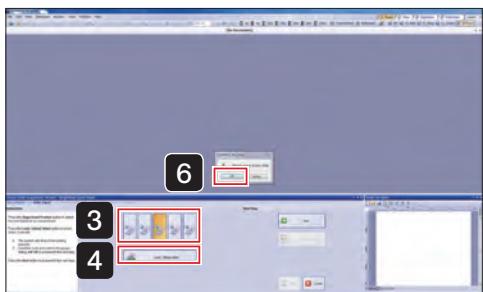
Acquire a specimen image without detailed settings.



- 1 Select from the top right of the screen.



- 2 Click .



- 3 Select the slot number to set the slide.



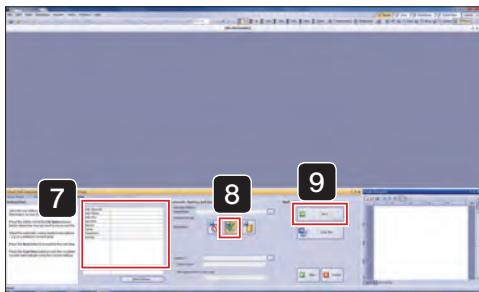
The stage moves to the front right, and the [VS-ASW] dialog box displays a [Please insert a new slide.] message.

- 4 Click .

5 Set the slide in the stage.

6 Click in the [VS-ASW] dialog box.
The stage will then move back to its original position.





7 If necessary, input the slide information.

8 Click the automatic save button (to disk) and specify the file destination for the acquired image.

[4-3 Saving acquired images \(page 68\)](#)

9 Click **Next**.

10 Click the objective lens (magnification) button.

11 Click either Z scan mode (standard) Z mode, (virtual Z) Z mode, or (EFI) Z mode.

[4-6 Setting Z scan mode \(page 70\)](#)

12 If necessary, change the [Scan Settings] with .

[4-5 Setting options \(page 69\)](#)

13 Click **Scan Now**.

TIP If the arrow to the side of the button is clicked, an image of the slide label can be acquired.

[4-7 Scanning labels \(page 70\)](#)

Scanning starts.

14 When scanning is complete, the screen shown on the left is displayed.

Click (unload slide).

The stage moves to the front right.

Remove the slide following the [VS-ASW] dialog box messages.

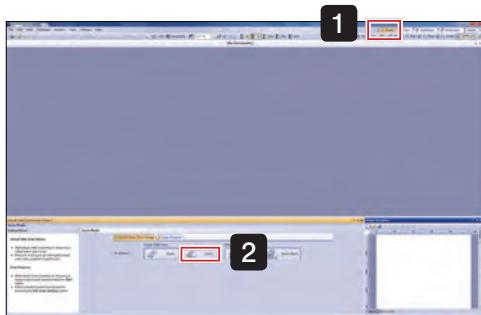
The stage will then move back to its original position.

15 Click **Finish** and bright field quick mode closes.



2 Brightfield expert mode

Acquire a specimen image by setting the objective lens (magnification), scan area (XY) and focus.



- 1 Select from the top right of the screen.



- 3 Select the slot number to set the slide.

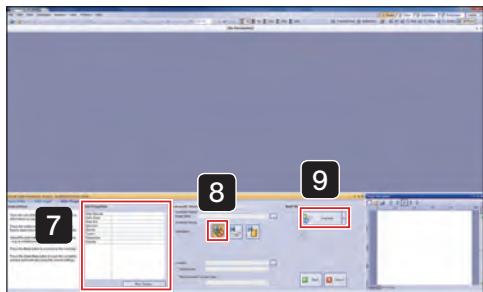


The stage moves to the front right, and the [VS-ASW] dialog box displays a [Please insert a new slide] message.

- 5 Set the slide in the stage.

- 6 Click in the [VS-ASW] dialog box.
The stage will then move back to its original position.





7 If necessary, input the slide information.

8 Select (disable automatic save).

[4-3 Saving acquired images \(page 68\)](#)

9 Click .

TIP If the arrow to the side of the button is clicked, an image of the slide label can be acquired.

[4-7 Scanning labels \(page 70\)](#)

The specimen image is scanned by the 2x objective lens.



10 Click the objective lens (magnification) button.

11 Click either Z scan mode (standard) Z mode, (virtual Z) Z mode, or (EF) Z mode.

[4-6 Setting Z scan mode \(page 70\)](#)

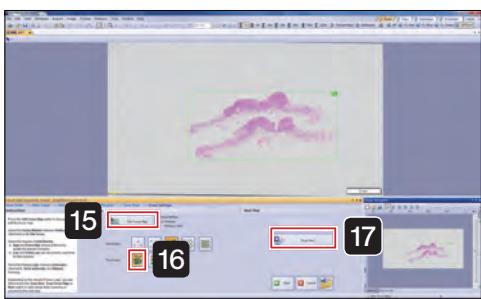
12 Click .



- 13** Click to edit the scan area on the displayed screen.

[4-8 Editing scan area \(page 71\)](#)

- 14** Click **Next**.



- 15** Click and edit the focus map on the displayed screen.

[4-9 Editing focus maps \(page 72\)](#)

- 16** Select (automatic focus).

[4-10 Setting focus mode \(page 73\)](#)

- 17** Click **Scan Now**.

Scanning starts.

- 18** When scanning is complete, the screen shown on the left is displayed.

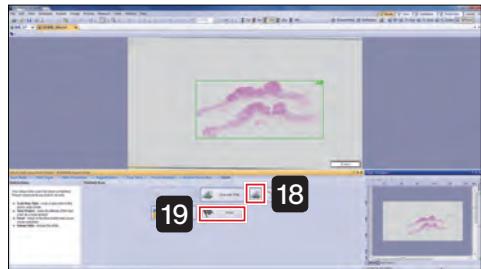
If necessary save files.

Click (remove slide).

The stage moves to the front right.

Remove the slide following the [VS-ASW] dialog box messages.

The stage will then move back to its original position.

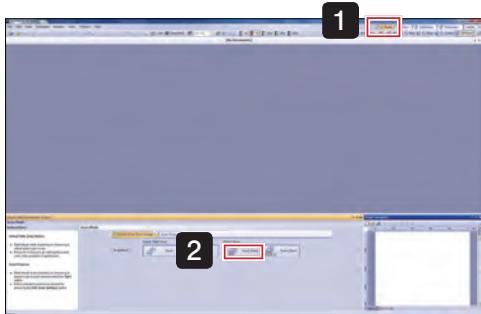


- 19** Click **Finish** and brightfield expert mode closes.

3 Brightfield quick batch mode

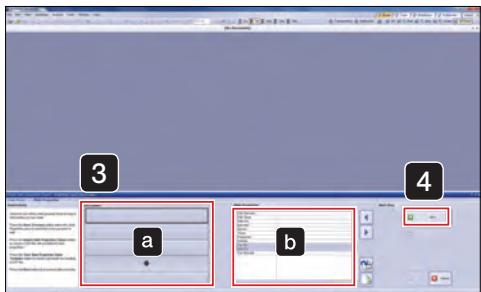
Acquire multiple images of slide specimens set on the stage without detailed settings.

First, please set the slide specimens on the stage.



1 Select from the top right of the screen.

2 Click Quick Batch

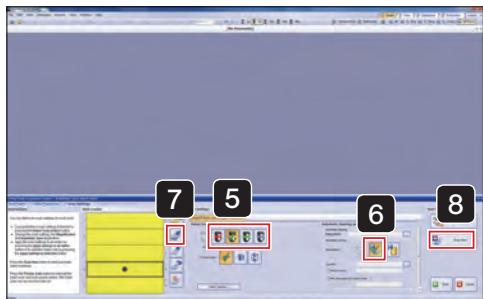


3 If necessary, input the slide information.

Select the slide with **a**, and input the slide information in **b**.

TIP Leave slides which do not need information blank.

4 Click Next



- 5 Select the slide to apply settings and click the objective lens (magnification) button.
- 6 Click the automatic save settings button (to disk) and specify the file destination for the acquired image.

[4-3 Saving acquired images \(page 68\)](#)

- 7 Click (apply settings to all slides in cassette).

The slide to which the settings are applied is highlighted in the color corresponding to the objective lens (magnification) selected in 5.

[4-4 Selecting slides to apply scan settings \(page 68\)](#)

- 8 Click Scan Now.

Scanning starts.

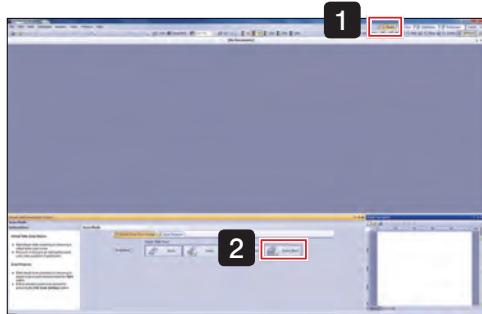
- 9 Click and scanning stops.

TIP Click and the results of the batch scan (log file) can be viewed.



4 Brightfield Expert Batch Mode

Acquire multiple images of slide specimens set on the stage by setting the objective lens (magnification), scan area (XY) and focus.
First, please set the slide specimens on the stage.



1 Select from the top right of the screen.

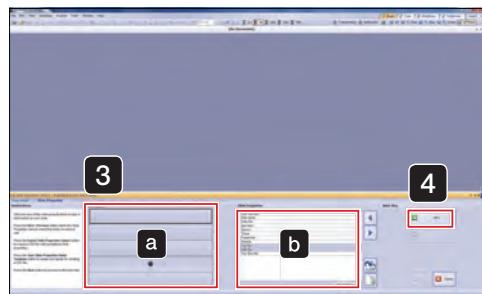
2 Click .

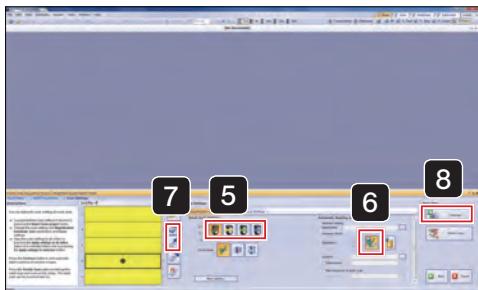
3 If necessary, input the slide information.

Select the slide with **a**, and input the slide information in **b**.

TIP Leave slides which do not need information blank.

4 Click .





5 Click the objective lens (magnification) button.

6 Click the automatic save settings button (to disk) and specify the file destination for the acquired image.

[4-3 Saving acquired images \(page 68\)](#)

7 Click (apply settings to selection) or (apply settings to all slides in cassettes).

The slide to which the settings are applied is highlighted in the color corresponding to the objective lens (magnification) selected in 5.

[4-4 Selecting slides to apply scan settings \(page 68\)](#)

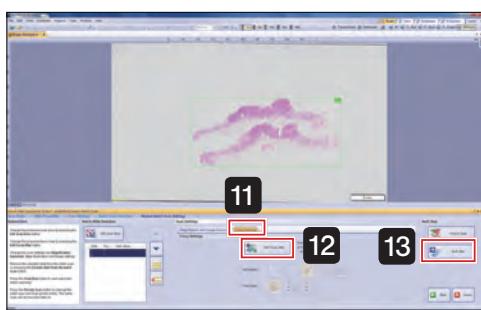
8 Click Overview.

TIP An overview image for the specified number of slides is scanned.

Please wait a moment for the scanning to complete.



- 9** Click (select all slides in list).



- 11** The [Focus Settings] tab is displayed.

- 12** Click and edit the focus map on the displayed screen.

[4-8 Editing scan area \(page 71\)](#)

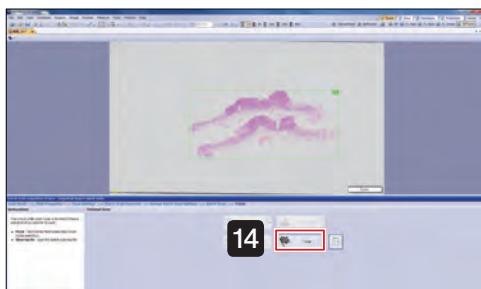
- 13** Click .

Scanning starts.

- 14** When scanning is complete, the screen shown on the left is displayed.

Click and brightfield expert batch mode closes.

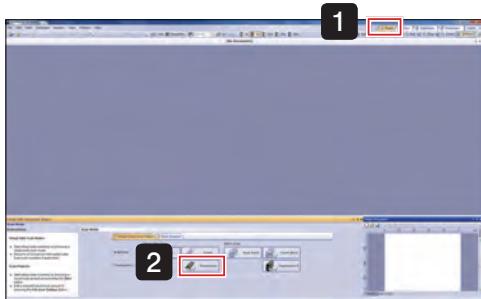
TIP Click and the results of the batch scan (log file) can be viewed.



5 Fluorescence expert mode

Acquire a fluorescence image by setting the objective lens (magnification), scan area (XY) and focus.

TIP Operation may differ depending on your model, please also consult the Online Help.



- 1 Select from the top right of the screen.



- 2 Click .

The stage moves to the front right, and the [VS-ASW] dialog box displays a [Please insert a new slide] message.

- 3 Select the slot number to set the slide.



- 4 Click .



- 5 Set the slide in the stage.



The stage will then move back to its original position.



- 6 Click in the [VS-ASW] dialog box.

The stage will then move back to its original position.

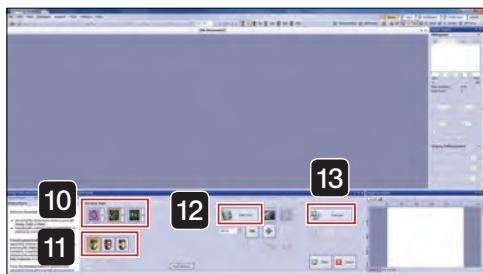


7 If necessary, set the slide information.

8 Select (disable automatic save).

[4-3 Saving acquired images \(page 68\)](#)

9 Click **Next**.



10 Select the observation mode for acquiring image from the following.

Brightfield overview image
BF (Brightfield)

Fluorescence overview image
Low brightness areas are not recognized.
Tissue

Fluorescence overview image
Low brightness areas can also be recognized.
Cells

Click the arrow next to the selected button, and choose the acquisition channel (FL Red, FL Blue, FL Green) from the pulldown menu.

11 Select the objective lens (magnification) to use for the overview.
(Normally select 2x.)

12 Click and display the image.

Set the exposure time while looking at the image.

[Adjusting exposure time \(page 75\)](#)

13 Stop live then click **Overview**.

TIP If the arrow to the side of the button is clicked, an image of the slide label can be acquired.

[4-7 Scanning labels \(page 70\)](#)



14 Click the objective lens (magnification) button.

15 Click either Z scan mode (standard) Z mode, (virtual Z) Z mode, (EFI) Z mode, or (MIP) Z mode.

[4-6 Setting Z scan mode \(page 70\)](#)

16 Click Next .



17 Click to edit the scan area on the displayed screen.

[4-8 Editing scan area \(page 71\)](#)

18 Click Next .



19 Click and add the channel to be used for scanning.

TIP Focus operates based on No.1 channel. Please move the channel suitable for focus to No.1 with .

20 Click (manual exposure time mode).

21 Select the channel and the image is displayed with .

22 Click .

23 After adjusting the specimen position and focus with the joystick, set the exposure time with the and .

[Adjusting exposure time \(page 75\)](#)

Live will stop after each channel.

24 If necessary, set Z offset.

Click to enable Z offset.

[Setting Z offset \(page 76\)](#)

25 Click **Next**.





- 26** Select the focus map grid density.
(Normally, select the (normal) at the middle.)

- 27** Click and edit the focus map.

[4-9 Editing focus maps \(page 72\)](#)

- 28** Select (manual focus).

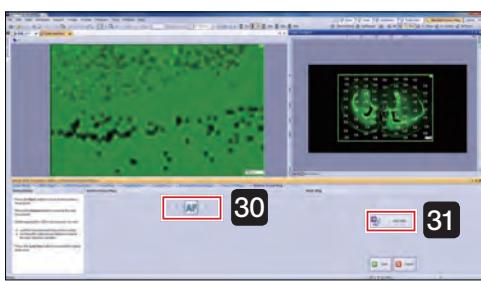
- 29** Click .

- 30** While viewing the live image, bring the specimen into focus at all focus points.

[4-10 Setting focus mode \(page 73\)](#)

- 31** Click .

Scanning starts.

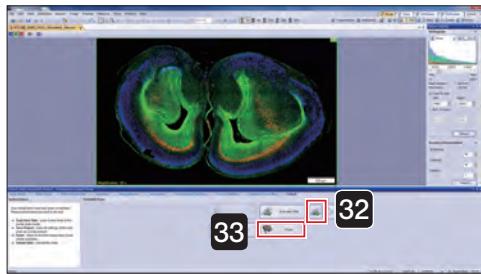


- 32** When scanning is complete, the screen shown on the left is displayed.

Click (unload slide).

The stage moves to the front right.

- 33** Click and fluorescence expert mode closes.

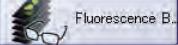


6 Fluorescence expert batch mode

Acquire multiple images of slide specimens set on the stage by setting the objective lens (magnification), scan area (XY) and focus. First, please set the slide specimens on the stage.

- 1 Select  from the top right of the screen.



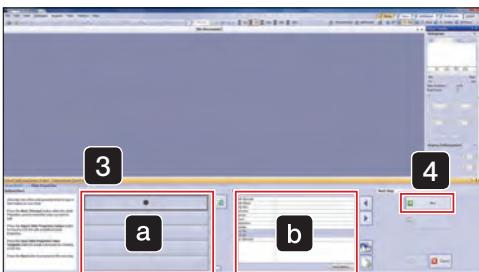
- 2 Click .

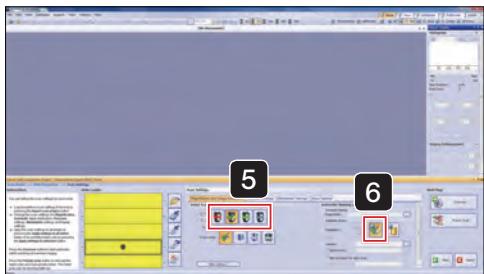
- 3 If necessary, input the slide information.

Select the slide with **a**, and input the slide information in **b**.

TIP Leave slides which do not need information blank.

- 4 Click .





5 Click the objective lens (magnification) button.

6 Click the automatic save settings button (to disk) and specify the file destination for the acquired image.

[4-3 Saving acquired images \(page 68\)](#)



7 The [Overview Settings] tab is displayed.

8 Select the observation mode for acquiring image from the following.

Brightfield overview image
BF (Brightfield)

Fluorescence overview image
Tissue
Low brightness areas are not recognized.

Fluorescence overview image
Cells
Low brightness areas can also be recognized.

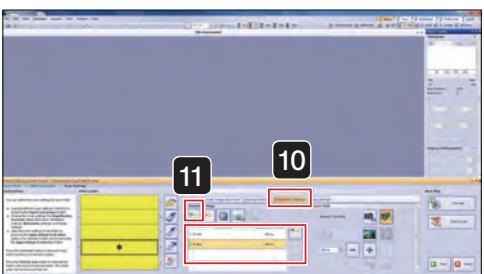
Click the arrow next to the selected button, and choose the acquisition channel (FL Red, FL Blue, FL Green) from the pulldown menu.

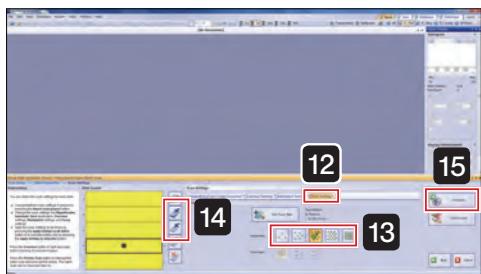
9 Select the objective lens (magnification) to use for the overview.
(Normally select 2x.)

10 The [Illumination Settings] tab is displayed.

11 Click and add the channel to be used for scanning.

TIP Focus operates based on No.1 channel. Please move the channel suitable for focus to No.1 with .





12 The [Focus Settings] tab is displayed.

13 Select the focus map grid density.
(Normally, select the (normal) at the middle)

14 Click (apply settings to selection) or (apply settings to all slides of all cassettes).

The slide to which the settings are applied is highlighted in the color corresponding to the objective lens (magnification) selected in 5

[4-4 Selecting slides to apply scan settings \(page 68\)](#)

15 Click Overview.

TIP An overview image for the specified number of slides is scanned.

Please wait a moment for the scanning to complete.



16 Click (select all slides in list).

16 Click and edit the scan area on the displayed screen.

[4-8 Editing scan area \(page 71\)](#)



18 The [Illumination Settings] tab is displayed.

19 Click (automatic exposure time mode).



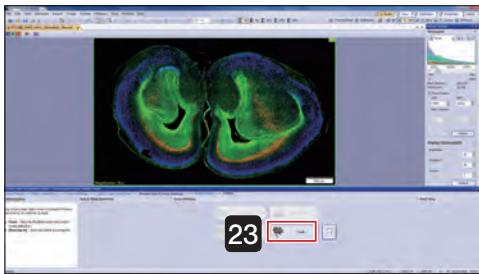
20 The [Focus Settings] tab is displayed.

21 Click and edit the focus map on the displayed screen.

[4-9 Editing focus maps \(page 72\)](#)

22 Click .

Scanning starts.



23 When scanning is complete, the screen shown on the left is displayed.

Click and fluorescence expert batch mode closes.

TIP Click and the results of the batch scan (log file) can be viewed.

2-4 Closing the microscope system

- 1 Move the stage to the front by operating the joystick lever.

 [4-1 Operating the joystick \(page 67\)](#)

- 2 Remove the slide.

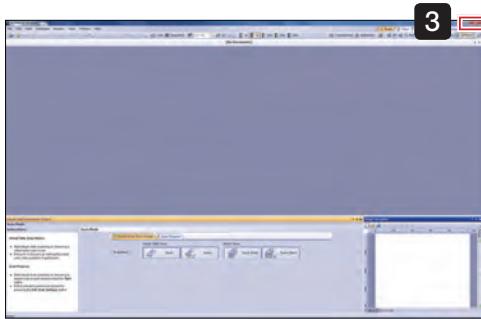
- 3 Click the  button in the VS-ASW screen top right.

- 4 Shutdown Windows.

The controller powers OFF. The connected monitor and microscope control box also power OFF.

- 5 Switch the controller main switch OFF.

TIP If you have acquired the fluorescence image, turn OFF the power of the light source for fluorescence and other peripherals.



3 Acquiring Images S6 Type

3-1 Starting the microscope system



- 1** First, turn on the monitor, followed by the microscope control box, slide loader, and controller to start up the system.

TIP If a fluorescence image is acquired, please switch on the power of a peripheral device such as a fluorescence light source.

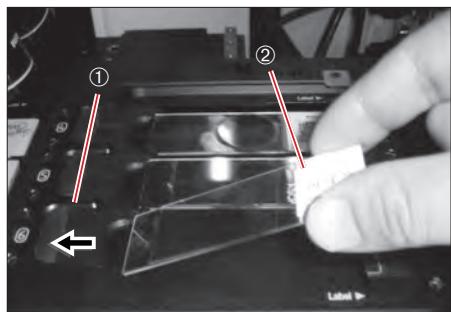
- 2** After Windows® starts, enter your user name and password.

TIP Please consult with the system administrator regarding user name and password.

- 3** After the system has started up, double click the [VS-ASW] icon on the desktop to start up the software and begin adjustment of the stage.



3-2 Setting a slide



- 1** Open the specimen holder by sliding the specimen holder open/close slider ① to the left. Set a slide glass specimen in place.

Set a slide glass specimen such that its longer side faces the front and the label ② is on the right side.

NOTE Take care that you do not touch the objective lens.

- 2** Gently return the specimen holder open/close slider back to its original position and check that the specimen is securely seated and not tilted.

- 3** Set the required number of slide glass specimens in the same manner as described in **1** and **2**.

TIP Regarding how to set the slide, please also refer to the instruction manual [Hardware] "2-3 Setting a slide glass specimen".

3-3 Acquiring image in each scan mode

1 Brightfield quick mode

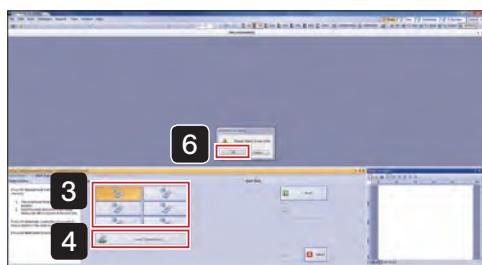
Acquire a specimen image without detailed settings.



- 1 Select from the top right of the screen.



- 2 Click .



- 3 Select the slot number to set the slide.

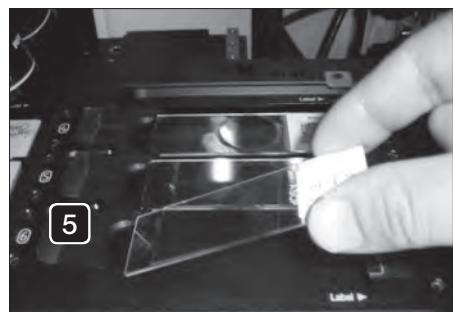


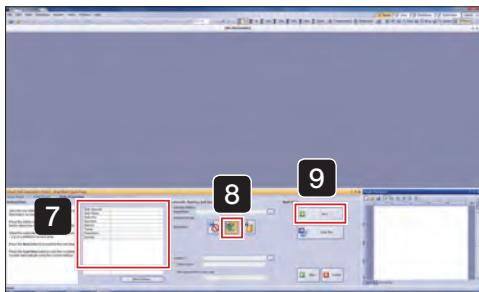
The stage moves to the front right, and the [VS-ASW] dialog box displays a [Please insert a new slide.] message.

- 4 Click .

- 5 Set the slide in the stage.

- 6 Click in the [VS-ASW] dialog box.
The stage will then move back to its original position.





7 If necessary, input the slide information.

8 Click the automatic save button (to disk) and specify the file destination for the acquired image.

[4-3 Saving acquired images \(page 68\)](#)

9 Click **Next**.

10 Click the objective lens (magnification) button.

11 Click either Z scan mode (standard) Z mode, (virtual Z) Z mode, or (EFI) Z mode.

[4-6 Setting Z scan mode \(page 70\)](#)

12 If necessary, change the [Scan Settings] with .

[4-5 Setting options \(page 69\)](#)

13 Click **Scan Now**.

TIP If the arrow to the side of the button is clicked, an image of the slide label can be acquired.

[4-7 Scanning labels \(page 70\)](#)

Scanning starts.

TIP Clicking the enables to escape or restore the objective in order to drop or wipe the immersion oil.

Once you have applied immersion oil and wiped the stage, click in the dialog box.

The stage will then move back to its original position.

14 When scanning is complete, the screen shown on the left is displayed.

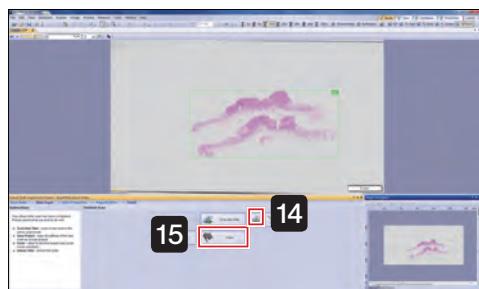
Click (unload slide).

The stage moves to the front right.

Remove the slide following the [VS-ASW] dialog box messages.

The stage will then move back to its original position.

15 Click and bright field quick mode closes.



2 Brightfield expert mode

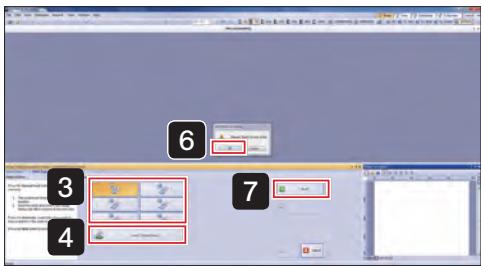
Acquire a specimen image by setting the objective lens (magnification), scan area (XY) and focus.



- 1 Select from the top right of the screen.



- 2 Click .



- 3 Select the slot number to set the slide.



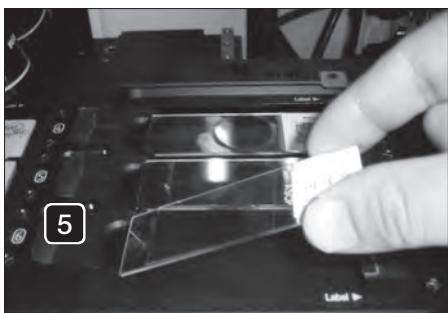
The stage moves to the front right, and the [VS-ASW] dialog box displays a [Please insert a new slide] message.

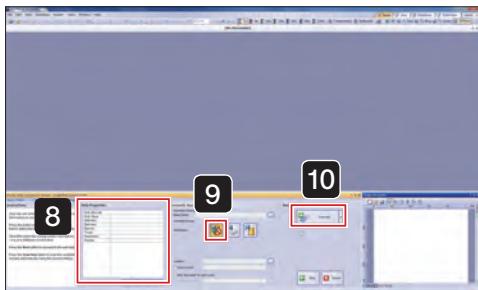
- 4 Click .

- 5 Set the slide in the stage.

- 6 Click in the [VS-ASW] dialog box.

The stage will then move back to its original position.





8 If necessary, input the slide information.

9 Select (disable automatic save).

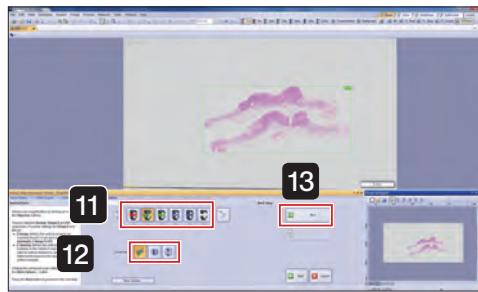
[4-3 Saving acquired images \(page 68\)](#)

10 Click .

TIP If the arrow to the side of the button is clicked, an image of the slide label can be acquired.

[4-7 Scanning labels \(page 70\)](#)

The specimen image is scanned by the 2x objective lens.



11 Click the objective lens (magnification) button.

12 Click either Z scan mode (standard) Z mode, (virtual Z) Z mode, or (EF) Z mode.

[4-6 Setting Z scan mode \(page 70\)](#)

TIP Clicking the enables to escape or restore the objective in order to drop or wipe the immersion oil.

Once you have applied immersion oil and wiped the stage, click in the dialog box.

The stage will then move back to its original position.

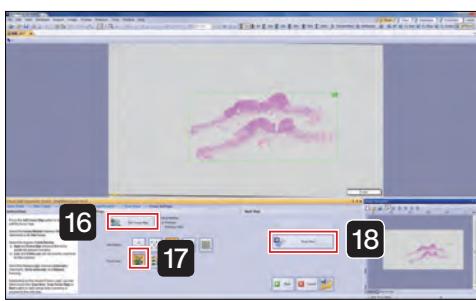
13 Click .



- 14** Click and edit the scan area on the displayed screen.

[4-8 Editing scan area \(page 71\)](#)

- 15** Click .



- 16** Click and edit the focus map on the displayed screen.

[4-9 Editing focus maps \(page 72\)](#)

- 17** Select (automatic focus).

[4-10 Setting focus mode \(page 73\)](#)

- 18** Click .

Scanning starts.

- 19** When scanning is complete, the screen shown on the left is displayed.

If necessary save files.

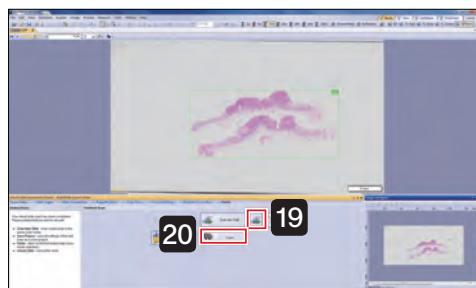
Click (unload slide).

The stage moves to the front right.

Remove the slide following the [VS-ASW] dialog box messages.

The stage will then move back to its original position.

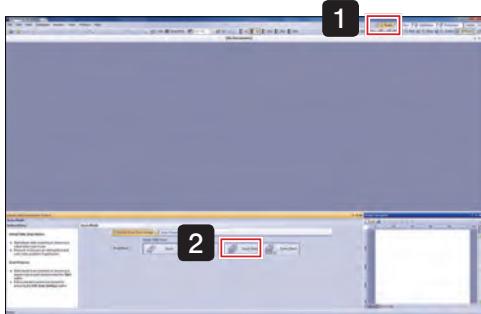
- 20** Click and brightfield expert mode closes.



3 Brightfield quick batch mode

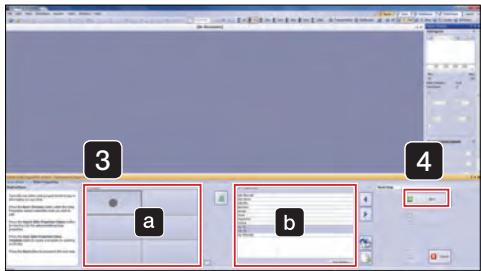
Acquire multiple images of slide specimens set on the stage without detailed settings.

First, please set the slide specimens on the stage.



1 Select from the top right of the screen.

2 Click .

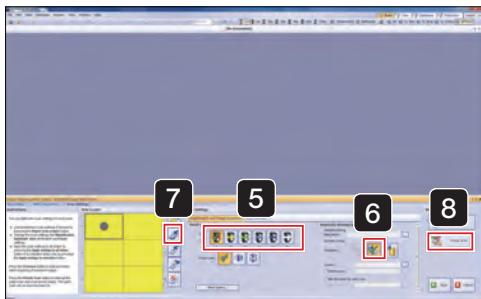


3 If necessary, input the slide information.

Select the slide with **a**, and input the slide information in **b**.

TIP Leave slides which do not need information blank.

4 Click .



5 Select the slide to apply settings and click the objective lens (magnification) button.

6 Click the automatic save settings button (to disk) and specify the file destination for the acquired image.

[4-3 Saving acquired images \(page 68\)](#)

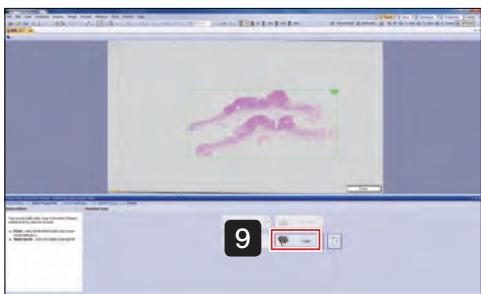
7 Click (apply settings to all slides in cassette).

The slide to which the settings are applied is highlighted in the color corresponding to the objective lens (magnification) selected in **5**.

[4-4 Selecting slides to apply scan settings \(page 68\)](#)

8 Click **Scan Now**.

Scanning starts.

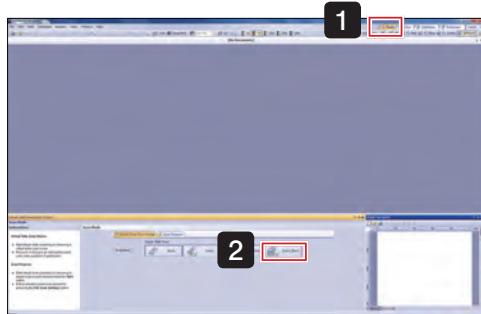


9 Click **Finish** and scanning stops.

TIP Click and the results of the batch scan (log file) can be viewed.

4 Brightfield Expert Batch Mode

Acquire multiple images of slide specimens set on the stage by setting the objective lens (magnification), scan area (XY) and focus.
First, please set the slide specimens on the stage.



1 Select from the top right of the screen.

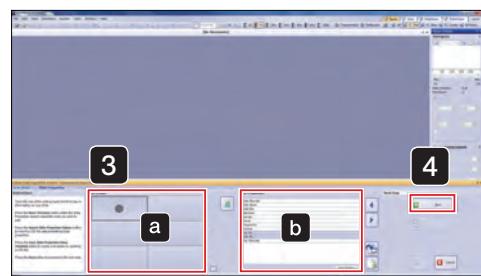
2 Click .

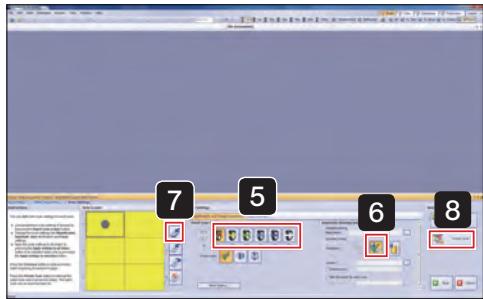
3 If necessary, input the slide information.

Select the slide with **a**, and input the slide information in **b**.

TIP Leave slides which do not need information blank.

4 Click .





5 Click the objective lens (magnification) button.

6 Click the automatic save settings button (to disk) and specify the file destination for the acquired image.

[4-3 Saving acquired images \(page 68\)](#)

7 Click (apply settings to selection) or (apply settings to all slides of all cassettes).

The slide to which the settings are applied is highlighted in the color corresponding to the objective lens (magnification) selected in 5.

[4-4 Selecting slides to apply scan settings \(page 68\)](#)

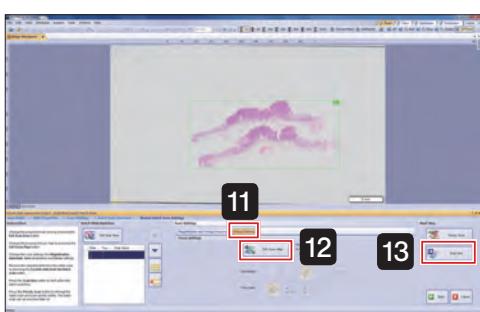
8 Click Overview.

TIP An overview image for the specified number of slides is scanned.

Please wait a moment for the scanning to complete.



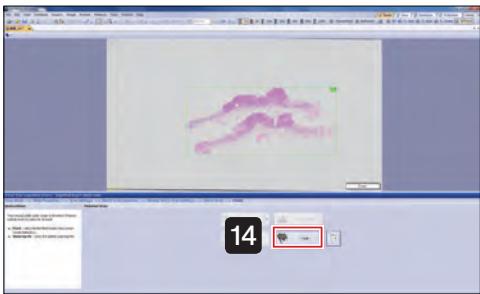
- 9** Click (select all slides in list).



- 10** Click and edit the scan area on the displayed screen.

[4-8 Editing scan area \(page 71\)](#)

- 11** The [Focus Settings] tab is displayed.

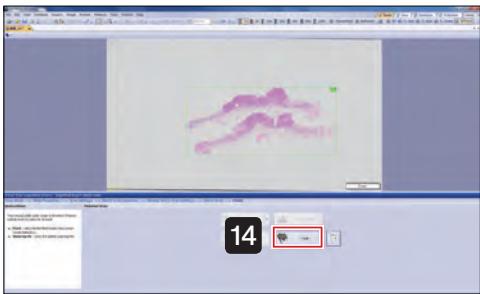


- 12** Click and edit the focus map on the displayed screen.

[4-9 Editing focus maps \(page 72\)](#)

- 13** Click .

Scanning starts.



- 14** When scanning is complete, the screen shown on the left is displayed.

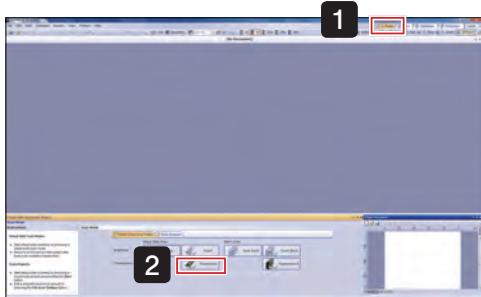
Click and brightfield expert batch mode closes.

TIP Click and the results of the batch scan (log file) can be viewed.

5 Fluorescence expert mode

Acquire a fluorescence image by setting the objective lens (magnification), scan area (XY) and focus.

TIP Operation may differ depending on your model, please also consult the Online Help.



- 1 Select from the top right of the screen.



- 3 Select the slot number to set the slide.

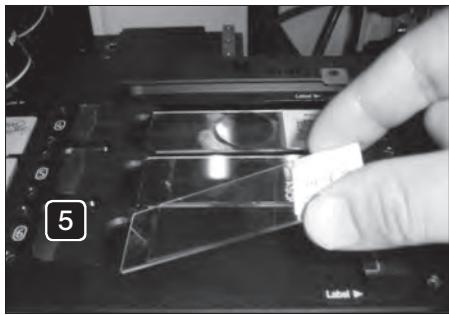


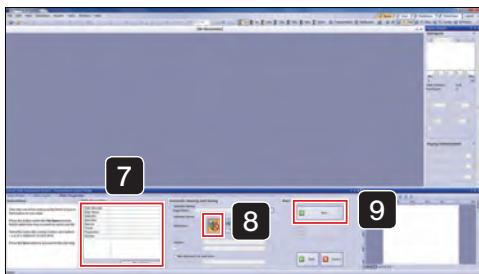
The stage moves to the front right, and the [VS-ASW] dialog box displays a [Please insert a new slide] message.

- 5 Set the slide in the stage.



The stage will then move back to its original position.



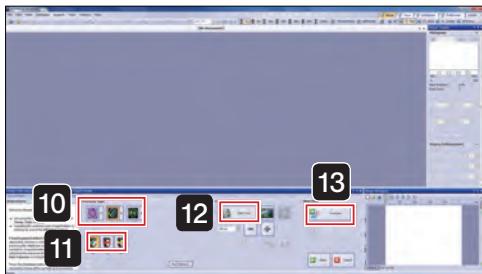


7 If necessary, set the slide information.

8 Select (disable automatic save).

[4-3 Saving acquired images \(page 68\)](#)

9 Click **Next**.



10 Select the observation mode for acquiring image from the following.

Brightfield overview image
BF (Brightfield)

Fluorescence overview image
Tissue
Low brightness areas are not recognized.

Fluorescence overview image
Cells
Low brightness areas can also be recognized.

Click the arrow next to the selected button, and choose the acquisition channel (FL Red, FL Blue, FL Green) from the pulldown menu.

11 Select the objective lens (magnification) to use for the overview.
(Normally select 2x)

12 Click **Start Live** and display the image.

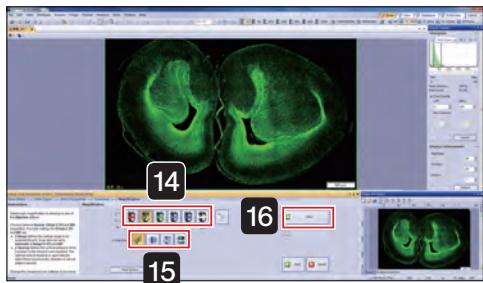
Set the exposure time while looking at the image.

[Adjusting exposure time \(page 75\)](#)

13 Stop live then click **Overview**.

TIP If the arrow to the side of the button is clicked, an image of the slide label can be acquired.

[4-7 Scanning labels \(page 70\)](#)



14 Click the objective lens (magnification) button.

15 Click either Z scan mode (standard) Z mode, (virtual Z) Z mode, (EFI) Z mode, or (MIP) Z mode.

[4-6 Setting Z scan mode \(page 70\)](#)

TIP Clicking the enables to escape or restore the objective in order to drop or wipe the immersion oil.

Once you have applied immersion oil and wiped the stage, click in the dialog box.

The stage will then move back to its original position.

16 Click .



17 Click to edit the scan area on the displayed screen.

[4-8 Editing scan area \(page 71\)](#)

18 Click .



19 Click and add the channel to be used for scanning.

TIP Focus operates based on No.1 channel. Please move the channel suitable for focus to No.1 with .

20 Click (manual exposure time mode).



21 Select the channel and the image is displayed with .

22 Click .

23 After adjusting the specimen position and focus with the microscope joystick, set the exposure time with the and buttons.

[Adjusting exposure time \(page 75\)](#)

Live will stop after each channel.

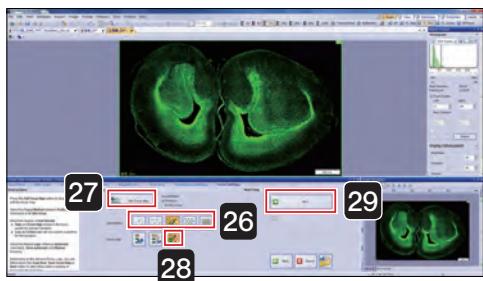


24 If necessary, set Z offset.

Click to enable Z offset.

[Setting Z offset \(page 76\)](#)

25 Click **Next**.



- 26** Select the focus map grid density.
(Normally, select the (normal) at the middle.)

- 27** Click and edit the focus map.

[4-9 Editing focus maps \(page 72\)](#)

- 28** Select (manual focus).

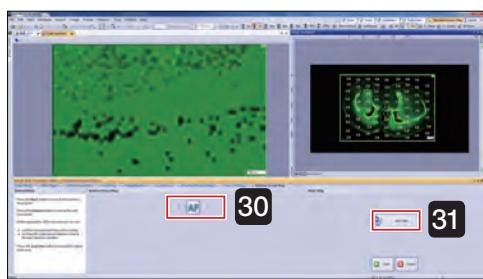
- 29** Click .

- 30** While viewing the live image, bring the specimen into focus at all focus points.

[4-10 Setting focus mode \(page 73\)](#)

- 31** Click .

Scanning starts.

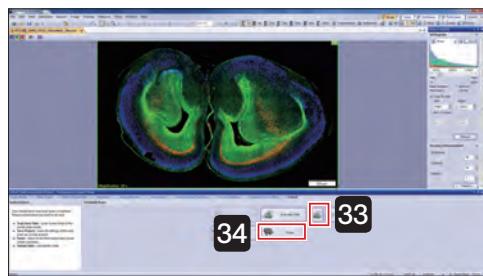


- 32** When scanning is complete, the screen shown on the left is displayed.

Click (unload slide).

The stage moves to the front right.

- 33** Click and fluorescence expert mode closes.

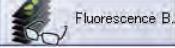


6 Fluorescence expert batch mode

Acquire multiple images of slide specimens set on the stage by setting the objective lens (magnification), scan area (XY) and focus. First, please set the slide specimens on the stage.

- 1 Select  from the top right of the screen.



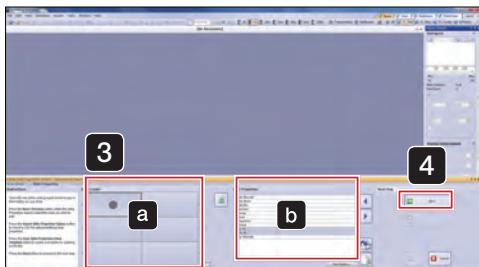
- 2 Click .

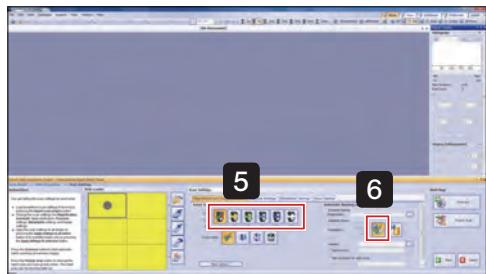
- 3 If necessary, input the slide information.

Select the slide with **a**, and input the slide information in **b**.

TIP Leave slides which do not need information blank.

- 4 Click .

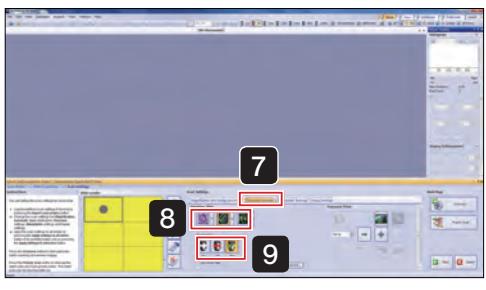




5 Click the objective lens (magnification) button.

6 Click the automatic save settings button (to disk) and specify the file destination for the acquired image.

[4-3 Saving acquired images \(page 68\)](#)



7 The [Overview Settings] tab is displayed.

8 Select the observation mode for acquiring image from the following.

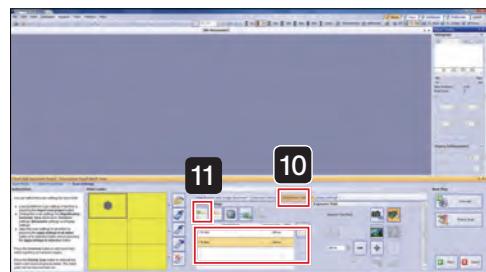
Brightfield overview image
BF (Brightfield)

Fluorescence overview image
Tissue
Low brightness areas are not recognized.

Fluorescence overview image
Cells
Low brightness areas can also be recognized.

Click the arrow next to the selected button, and choose the acquisition channel (FL Red, FL Blue, FL Green) from the pulldown menu.

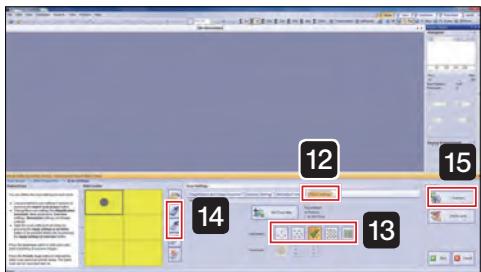
9 Select the objective lens (magnification) to use for the overview.
(Normally select 2x.)



10 The [Illumination Settings] tab is displayed.

11 Click and add the channel to be used for scanning.

TIP Focus operates based on No.1 channel. Please move the channel suitable for focus to No.1 with .



12 The [Focus Settings] tab is displayed.

13 Select the focus map grid density.
(Normally, select the (normal) at the middle.)

14 Click (apply settings to selection) or (apply settings to all slides of all cassettes).

The slide to which the settings are applied is highlighted in the color corresponding to the objective lens (magnification) selected in **5**.

[4-4 Selecting slides to apply scan settings \(page 68\)](#)

15 Click Overview.

TIP An overview image for the specified number of slides is scanned.

Please wait a moment for the scanning to complete.



16 Click (select all slides in list).

17 Click and edit the scan area on the displayed screen.

[4-8 Editing scan area \(page 71\)](#)



18 The [Illumination Settings] tab is displayed.

19 Click (automatic exposure time mode).



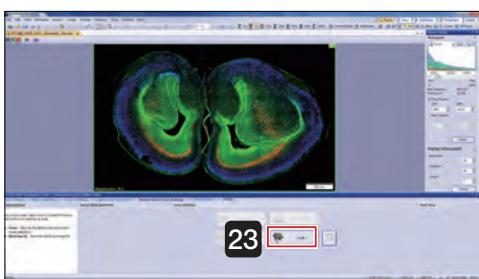
20 The [Focus Settings] tab is displayed.

21 Click and edit the focus map on the displayed screen.

[4-9 Editing focus maps \(page 72\)](#)

22 Click .

Scanning starts.



23 When scanning is complete, the screen shown on the left is displayed.

Click and fluorescence expert batch mode closes.

TIP Click and the results of the batch scan (log file) can be viewed.

3-4 Closing the microscope system

- 1 Move the stage to the front by operating the joystick lever.

 [4-1 Operating the joystick \(page 67\)](#)

- 2 Remove the slide.

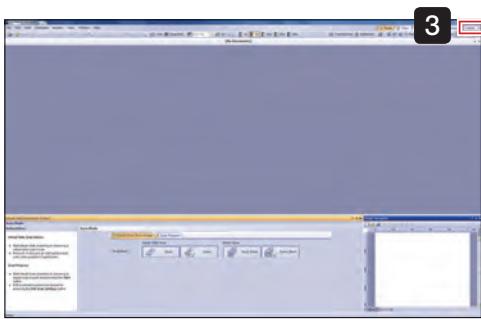
- 3 Click the  button in the VS-ASW screen top right.

- 4 Shutdown Windows.

The controller powers OFF. The connected monitor and microscope control box also power OFF.

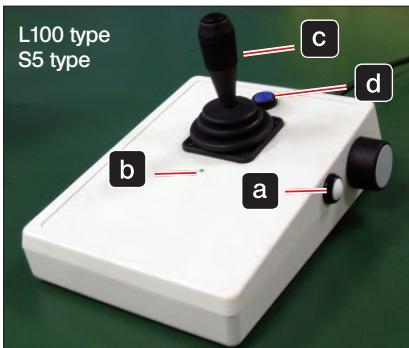
- 5 Switch the controller main switch OFF.

TIP If you have acquired the fluorescence image, turn OFF the power of the light source for fluorescence and other peripherals.



4 Acquiring Images Explanation of Functions

4-1 Operating the joystick

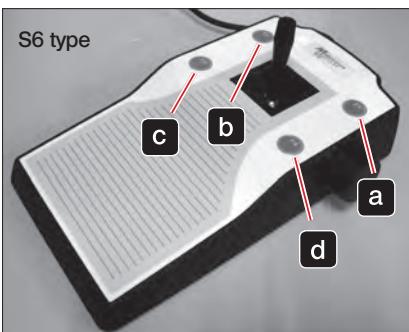


Operate the lever to move the stage.

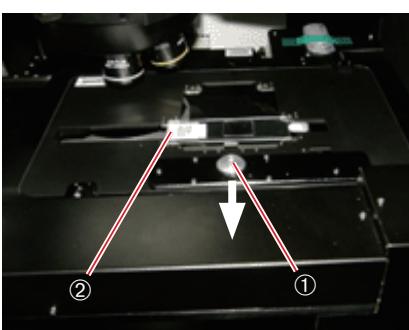
The stage can be moved at 4 different speeds.



- a**: Press the button and the level increases.
(When at level 4, if the button is pressed the speed returns to level 1)
- b**: the number of times the LED light flashes changes according to the level.
(Level 1: 1 flash, ..., Level 4: 4 flashes)
- c**: If you press the button while turning the lever, the stage will move at level 4 speed.
- d**: Not In Use



4-2 Setting a slide (L100 Type)



To set slide on the stage manually:

The stage automatically moves to a position where you can easily insert a new slide. At the same time, a dialog box, requesting you to insert the microscope slide, will open.

Pull the specimen holder open/close slider ① towards you, and with the specimen holder open, set the slide specimen.

Set the specimen such that its longer side faces the front and with the label ② on the left side.

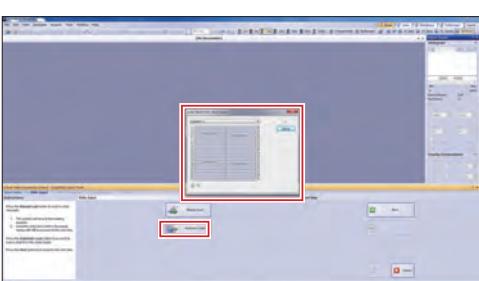
Gently return the specimen holder open/close slider and confirm the operation with [OK].

To set slide from the slide loader:

Click and the [Load Slide from Slide Loader] dialog box is displayed, and the position where the slide is set is detected.

TIP Empty trays without slides are marked with an X.

NOTE When setting slides from the slide loader, please be sure to confirm that there are no slides on the stage.



4-3 Saving acquired images

You can select whether to save the image automatically after acquiring the image, or save the image by specifying the save destination after acquiring the image.

Also, if saving automatically, you can set the save method.

Select one of the following buttons from [Destination] in the [Slide Properties] step.



The image is not automatically saved, and the image window is displayed. The displayed image can be saved at any time specifying the save destination and file type etc.

Saved automatically to the specified disk.
Click button at [Location], and set the image save location on the displayed screen.

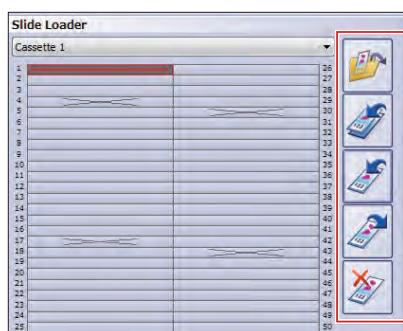
Saved automatically to the specified database.
The [Open Database] dialog box is displayed. Set the image save location on the displayed screen.

- TIP**
- The save method and location can also be specified from [Scan Settings]→[Images] under the option.
 - Click button at [Image Name], and the automatically applied name can be changed. For more details, please refer to the Online Help.

4-4 Selecting slides to apply scan settings

When performing batch scanning, you can select which slides to apply the current scan settings.

Also, you can load and use previously saved scan settings.



Load previously saved scan settings and use for scanning.

Apply current scan settings to all slides.

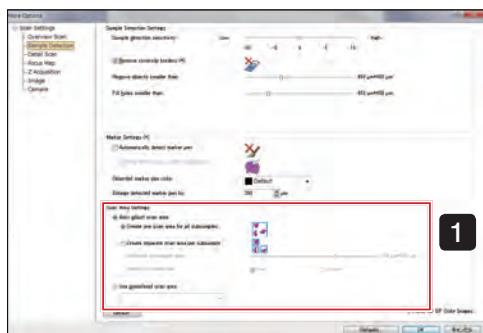
Apply current scan settings to slides selected from the slide list on the left.

Load scan settings of slides selected from the slide list on the left.

Delete scan settings for slides selected from the slide list on the left.

4-5 Setting options

Scan settings such as "Scan Area", "Detailed Area" and "Focus Map" can be changed.



1 Specimen detection settings

- Scan area settings

Auto adjust scan area

Select from the following 2 scan modes.



When scanning 1 scan area

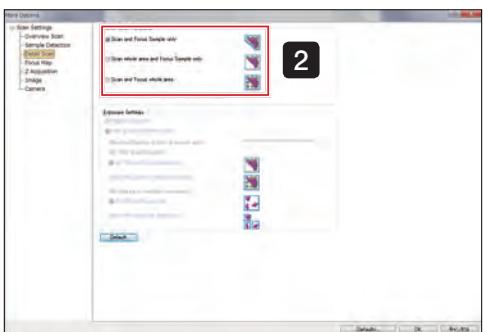


When scanning multiple scan areas

Use predefined scan area

Loading a saved scan area.

Click the arrow to the side of the box, and from the list select the scan area to be used.



2 Detailed scan settings

- Detail scan parameter

Select from the following 3 options.



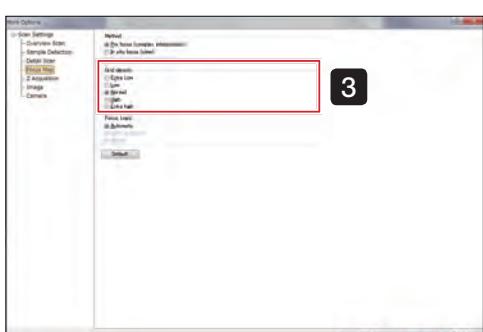
Focusing and scanning only the specimen inside the area.
The processing speed is faster, but areas not recognized as specimen will not be scanned.



Scanning the whole area and focusing only on the specimen.
Areas not recognized as specimen will not be focused.



Scanning and focusing the whole area.
All areas of the slide where the presence of specimens is hard to recognize are focused.



3 Focus map settings

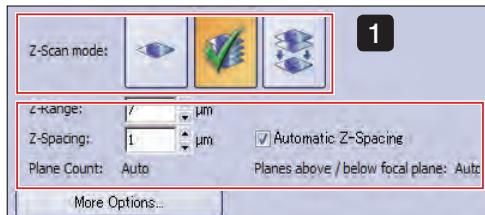
- Grid density

Focus map grid density can be selected from 5 types:



[Extra Low], [Low], [Standard], [High], [Extra high].

4-6 Setting Z scan mode



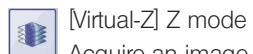
Brightfield scan mode

- 1 Select Z scan mode.



[Standard] Z mode

Acquire a standard detail scan.



[Virtual-Z] Z mode

Acquire an image by changing the focal position in the height (Z) direction.



[EFI] (Expanded Focus Image) Z mode

Images with the highest sharpness value are acquired.



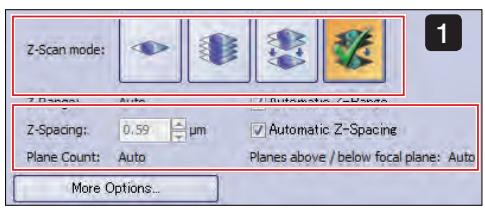
[MIP] (Maximum Intensity Projection) Z mode [fluorescence scan mode only]

Images with the highest brightness are acquired.

- 2 Selecting [Standard], [Virtual-Z], and [MIP] will display Z Interval, Z Range, and plane count setting buttons at the bottom.

If necessary enter the value.

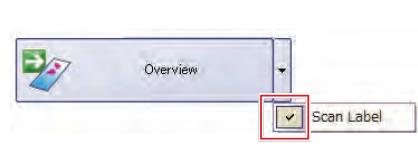
TIP Initial settings are set to automatic. If setting manually, please uncheck the checkbox.



Fluorescence scan mode

4-7 Scanning labels

Slide information such as bar codes can be acquired together with a specimen image.



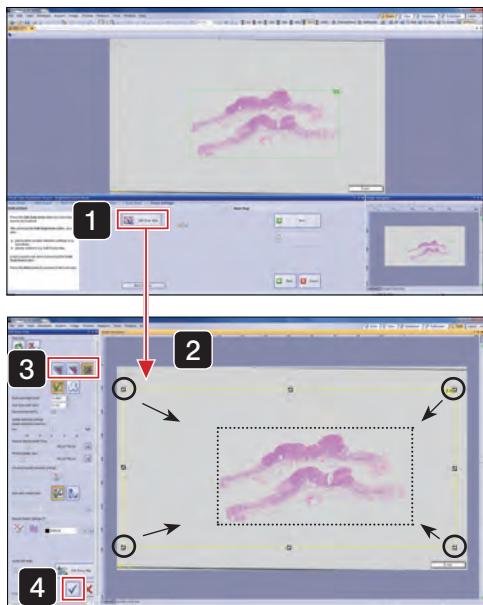
- 1 Click the or button side tab and enter a check in [Scan Label].



- 2 The icon above the button changes from to .

4-8 Editing scan area

The scan area can be edited and a new scan area can be created.



1 Click Edit Scan Area.

2 Operate the mark to edit the scan area.

3 Select [Scan and Focus Logic].

Focusing and scanning only the specimens inside the area.
The processing speed is faster, but areas not recognized as specimen will not be scanned.

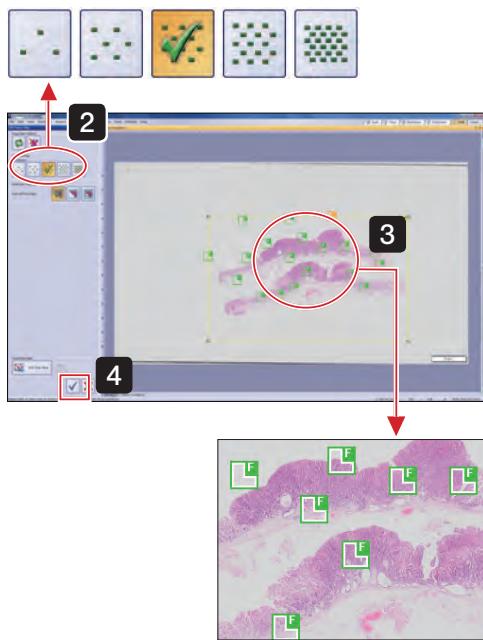
Scanning the whole area and focusing only on the specimen.
Areas not recognized as specimens will not be focused.

Scanning and focusing the whole area.
Even for specimens that are hard to recognize all areas will be focused.

4 After editing, click (confirm input) and confirm the scan area.

4-9 Editing focus maps

The focus point position and grid density can be edited.



- 1** Select the [Focus Settings] tab and click .

The [Edit Focus Map] window is displayed.

- 2** Select the focus map grid density.

- 3** Edit the focus map in the edit window.

Add: Left-click to add

Delete: Right-click and select [Delete] from the menu.

Move: Drag to the point where you want to move it.

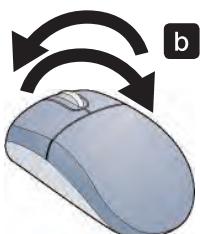
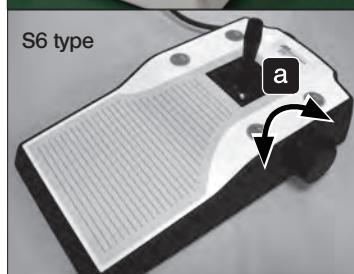
TIP In expert (brightfield / fluorescence) mode, the focus mode can be set. For more details, please refer to the following page "4-10 Setting focus mode".

NOTE After editing the focus map, if you click on another grid density, you will lose those changes.

- 4** After editing, click (confirm input) on the left side of the editing screen and confirm the scan area.

4-10 Setting focus mode

In expert (brightfield / fluorescence) mode, the focus logic (method for focusing) can be set for each slide.



- 1** Select either or or from the [Focus Logic] in the [Focus Settings] step.

- [Automatic focusing]
Auto focus is enabled. Subsequent steps are not required.
- [Semi-automatic focusing]
After auto focus, focus is adjusted manually.
- [Manual focusing]
Focus is adjusted manually.

- 2** Adjust the focus.

- a** Turn the joystick focus dial.

- b** Press the keyboard [Ctrl] key, and turn the mouse wheel when the mouse cursor appear as Z .

- 3** Click (next focus map) or (previous focus map) and repeat

- 2**. You can also left-click the mouse while holding down Ctrl to move to the next focus map.

NOTE In the case of samples with low contrast or using high magnification oil objective lens which the auto focus is not appropriate, please select semi-auto or manual mode and check the focus before scanning.

TIP For more details on focus logic lease, refer to the Online Help.

4-11 Priority scanning

During image acquisition in batch mode, image of slides that have not been set on the slide loader or stage can be acquired without waiting for the other slides to finish.

When acquiring image of the priority slides is complete, the batch mode image acquisition will restart from the point at which it was interrupted.

TIP Before starting a priority scan, in order to ensure the safe pausing of the batch mode image acquisition in progress, there may be a need for a certain amount of time.



1

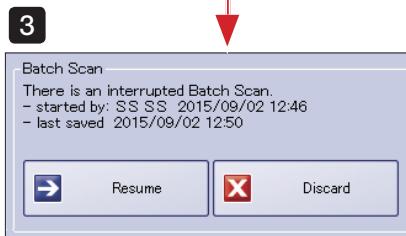
1 Click Priority Scan .



2

2 Click Quick , Expert or Fluorescence to start the scan.

TIP • The procedure for priority scanning is the same for "Quick mode", "Expert mode" and "Fluorescence expert mode" for your model type.
• Please confirm in the scan wizard top screen whether the priority scan is in process or not.



3

3 If you wish to continue the paused batch, click Resume .

If you wish to cancel the paused batch, click Discard .

NOTE If you click Discard , the scan settings of the paused slides will be lost and the batch scan will not be able to be restarted.

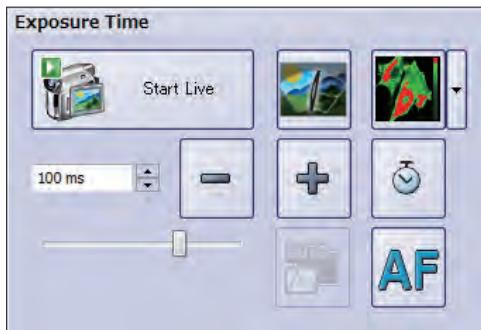
For more details, please refer to the Online Help.

4-12 Operating each fluorescence channel

1 Adjusting exposure time

Adjust the resolution of the fluorescence image.

Resolution can be adjusted in the overview screen and illumination settings screen in fluorescence mode.



Overview screen

If checked, the contrast of the live image and the overview image on the screen will be adjusted automatically.

If you adjust manually, uncheck the checkbox and adjust the histogram. For procedures to adjust the histogram, refer to "Adjusting histogram after acquiring image" on page 77.

Removal of online deblur
Makes the live image clearer.

TIP Enabled when you select [Tissue] or [Cells] in overview.



Illumination settings screen

Saturation indicator

Display the saturation indicator or pseudo color table in the live image. The saturation indicator displays low intensity as blue, high intensity as red, and the pseudo color table display refers to the settings of the color table.

TIP Enabled when you select [Tissue], [Cells] or [Channels].

TIP • The adjusted image does not affect the actual image, only the display in the screen is changed.

• The display adjustment values will be saved in both [Quick mode] and [Expert mode] until you exit VS-ASW.

• The auto exposure time mode adjustment value can be managed in scan project.

2 Setting Z offset

Set how much other channels are offset when scanning based on a channel.

- 1 Click  to enable Z offset mode.



- 2 Click .

The [Detect Z offset] window and live image are displayed.

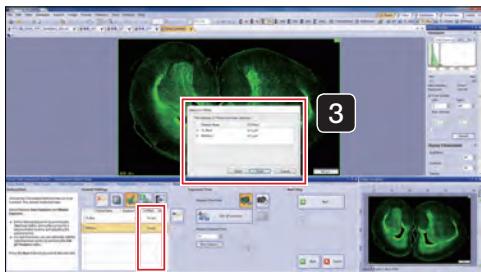
Confirm that the focus is adjusted and click .



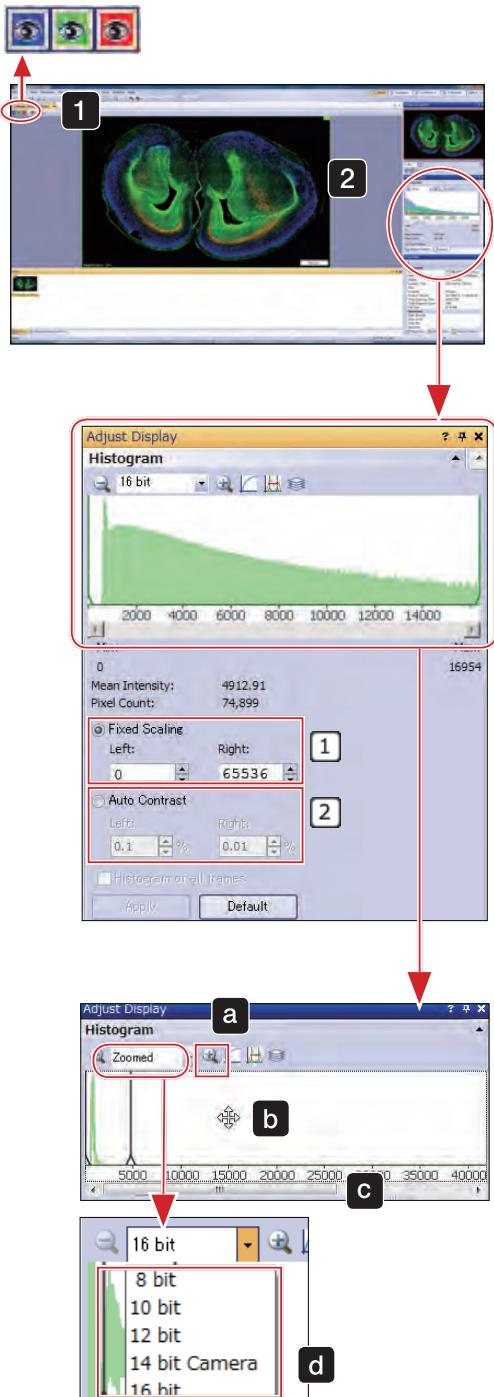
- 3 When all the settings are completed, the Z offset value of all channels will be displayed.

Click .

TIP The Z offset value of the No.1 channel is always 0.



3 Adjusting histogram after acquiring image



1 Selecting channels

Click the [Layers] icon channel and you can select whether to display or not.

Also, it can be displayed in grayscale.

For more details, please refer to the Online Help.

2 Adjusting histogram

You can change the value of the intensity in the [Adjust Display] tool dialog box.

Select the channel with 1 and adjust the histogram.

1: Select [Fixed Scaling], and enter the left and right numeric values.

TIP In the case of a 16-bit camera it should be [Left: 0 Right: 65536].

2: When you select auto contrast, contrast is adjusted automatically.

By setting each color, you can optimize viewing.

Operating the histogram

Scaling the X axis

a Method 1: Enlarge or shrink by clicking and .

b Method 2: Select the chart (left-click on the chart), and enlarge or shrink by scrolling the mouse.

Moving the X-axis left and right

b Method 1: Select the chart, and move the mouse to the left or right while holding down the left mouse button.

c Method 2: Left and right movement with the scroll bar.

Default display of the histogram

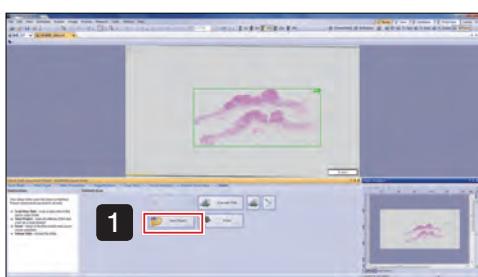
d Choose the camera to be used from the pull-down menu.

5 Using Scan Projects

5-1 Saving scan projects

Save detailed acquisition settings such as the scan area, and then use for subsequent image acquisition.

TIP For more details on scan projects, please refer to the Online Help.



- 1** On the scan exit screen, click  Save Project.

The [Save Scan Project As] window is displayed.

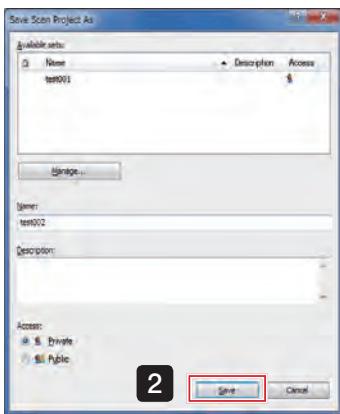
- 2** Enter a filename, set the access permission, and click  Save.

TIP • Scan projects can also be saved on the screen before starting the scan.

- The file can be saved as private or public. Private files will only appear in the current Windows Login account. Public files will appear in all Windows Login accounts.

In addition, you can only use "Restoring the System" for scan projects that were saved publicly.

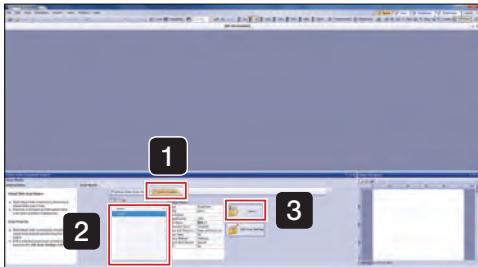
For more details, please refer to ["8 Saving and Restoring the System" on page 96](#).



Using Scan Projects

5-2 Loading scan projects

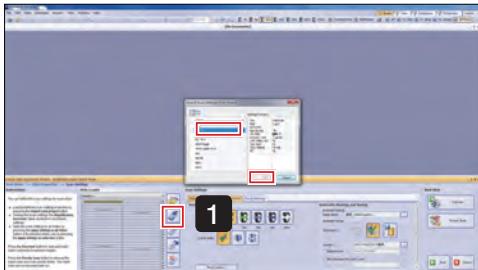
Single scan mode



- 1 Display the [Scan Projects] tab.
- 2 Select the scan project to load from the list of saved scan projects.
- 3 Click .

The scan settings are loaded.

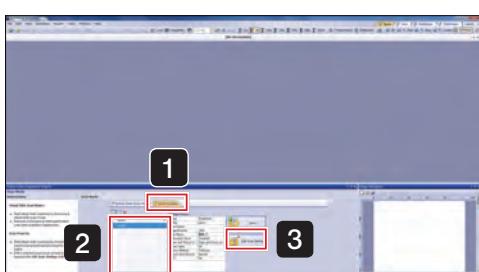
Batch scan mode



- 1 Click the scan settings screen (import scan project).
- 2 Select the scan project to load from the list of saved scan projects in the [Import Scan Settings from Project] dialog box.
- 3 Click .

The scan settings are loaded.

5-3 Editing scan projects



- 1 Display the [Scan Projects] tab.
- 2 Select the scan project to edit from the list of saved scan projects.
- 3 Click .

The [Scan Project Editor] window is displayed.



- 4 Set the required items and click .
- 5 Click .

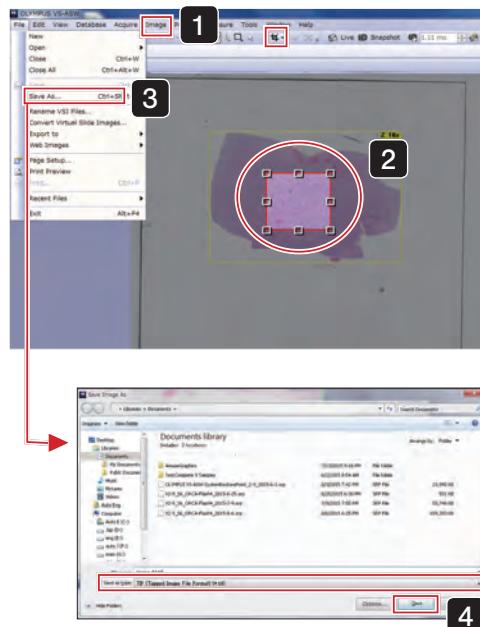
The changed items are saved.

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6 Editing Images

6-1 Trimming images and saving as TIFF

When saving acquired images in TIFF format, large images and high-resolution images may be altered when saved. In this case, save the TIFF file after trimming the unnecessary parts.



1 From the [Image] menu, select [Crop to New Image] or select 

2 Trim the unnecessary parts of the image.

3 From the [File] menu, select [Save As].

The [Save Image As] dialog box is displayed.

4 Select [TIFF] as the file type, and click .

TIP There are 4 methods for trimming.

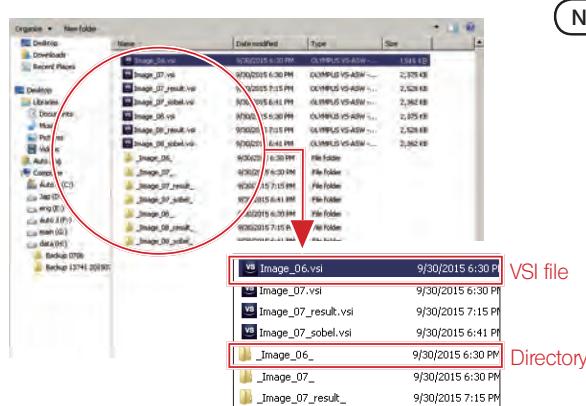
For more details, please refer to the Online Help.

6-2 Copying and transferring images to other mediums

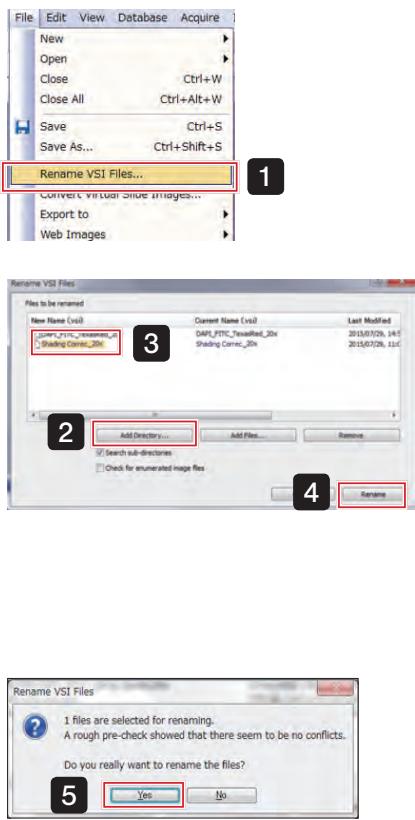
The file size in VSI format may become very large due to the unlimited image size.

If you copy or move the image, use NTFS of the file system of the hard disk of save destination, which has a larger capacity.

NOTE A VSI file with the same name as the file folder is created within the folder. To copy VSI files in Windows Explorer, please copy and move both the file and folder names.



6-3 Changing image names



1 Click [Rename VSI Files] from the [File] menu.

The [Rename VSI Files] dialog box is displayed.

2 Click **Add Directory...** and select the folder in which the image is saved.

3 Select the file you wish to change and left-click to change the name.

4 Click **Rename**.

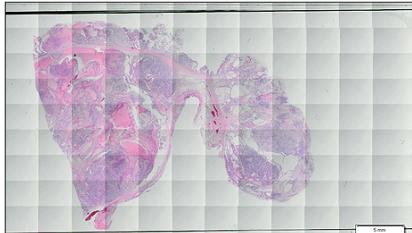
NOTE A VSI file with the same name as the file folder is created within the folder. To change the name of VSI files in Windows Explorer, please change both the file and folder names.

5 Click **Yes**.

7 Maintenance

7-1 Shading correction

1 Brightfield camera shading correction



Virtual slide image with shading applied.

If you are using the VS120 system for a long period of time, there may be times when the brightness of the image is not uniform. This is called shading.

When shading occurs, virtual slide images will be in the state as shown on the left. In such a case, by performing calibration, equal brightness of the image will be restored.

- Set the slide specimen in the stage.

NOTE In shading correction, transparent areas (an area where there is no cell or tissue) use a wide slide. Please ensure that the slide specimen is clean with no dust or dirt. Also, for other items of caution, please check the wizard screen "Notes".

- Click BF.

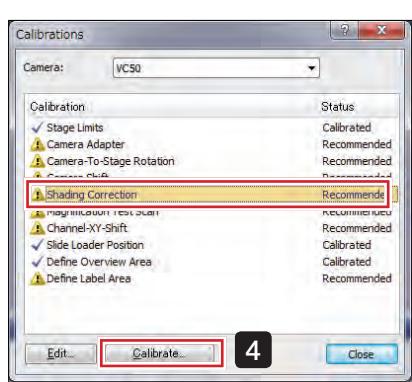


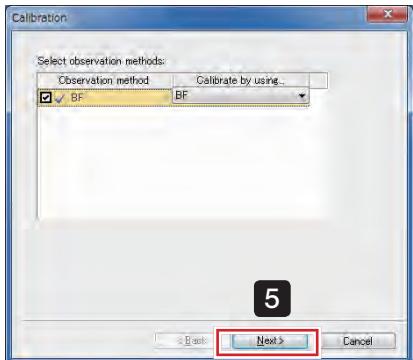
- Select [Acquire]→[Calibration].

The [Calibration] window is displayed

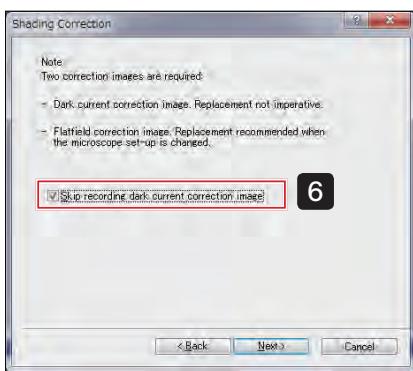


- Select [Shading Correction] and click Calibrate... .





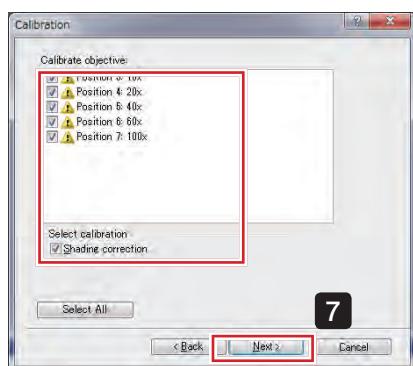
- 5** The screen on the left is displayed. Confirm that BF is checked and click **Next >**



- 6** The [Shading Correction] window is displayed.

- TIP** • If you do not require the incorporation of a parasitic current correction image, please check the checkbox.
• For weak fluorescence images, where the effect of parasitic current noise is large, please remove the check.

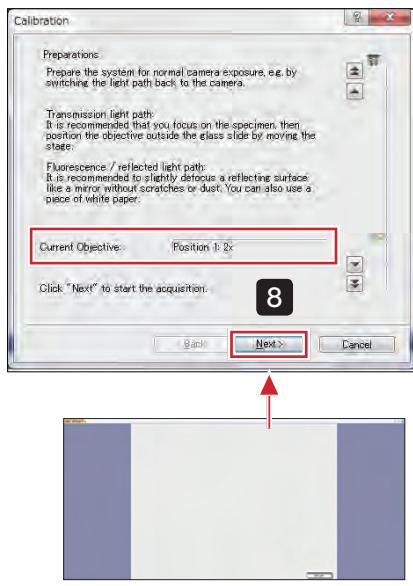
Click **Next >**



- 7** The [Calibration] window displays again.

Select the objective lens (magnification) to be adjusted and items and click **Next >**

- TIP** Normally, select all items when calibrating. Click **Select All** to check all the magnification and item checkboxes.



8 Calibrate a 2x objective lens.

While watching the live image, after adjusting the focus of the slides, move the stage, to move the slide specimen outside the observation range of the objective lens.

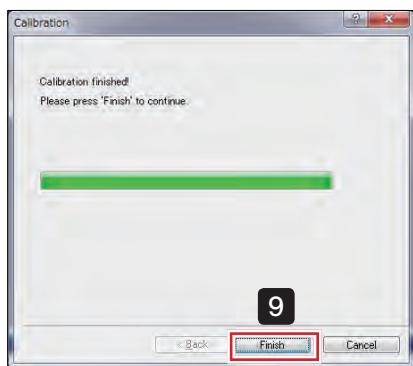
Confirm that nothing is showing in the live image and click **Next >**.

NOTE If dirt or dust shows in the live image, please clean the objective lens or condenser lens.

For cleaning methods, please check the instruction manual [Hardware] "Maintenance and preservation" and for other items of caution, please check the wizard screen "Notes".

10x, 20x and 40x objective lens calibration follows the same procedure.

NOTE Please perform calibration on the cover glass ensuring that there are no specimens or dust / dirt.



9 When all selected objective lenses (magnification) are complete "Calibration finished!" is displayed. The screen is displayed.

Click **Finish** and calibration is complete.

TIP Using "Saving and Restoring the System", [Shading Correction] can be easily restored according to the observed objects. For more details, please refer to "8 Saving and Restoring the System" on page 96.

2 Fluorescencecamera shading correction

NOTE

- This function assumes that an ORCA-Flash4.0 fluorescence camera is used. If another camera is used the intended results may not be obtained.
- Since it depends on the specimen, correction may be insufficient, or may make the image worse, depending on the specimen.
- When the software is updated, discard the fluorescence shading correction and redo it.

First, set a specimen to use for the fluorescence shading correction on the stage.

Perform shading correction from the menu command

- 1** The [Camera Control] window is displayed under the [View] menu →[Tool] window.

TIP

If the light source is Xcite Exacte or SOLA SE II, please also display the [Microscope Control] window in the [View]→[Tools] window.

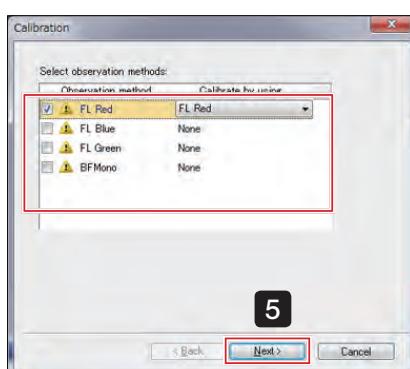
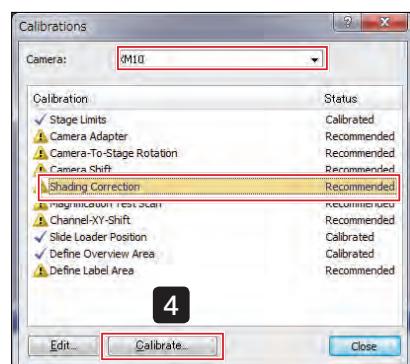
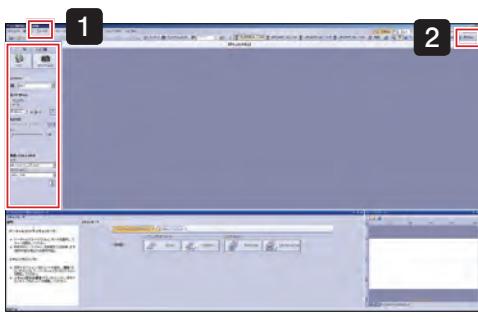
- 2** Click .

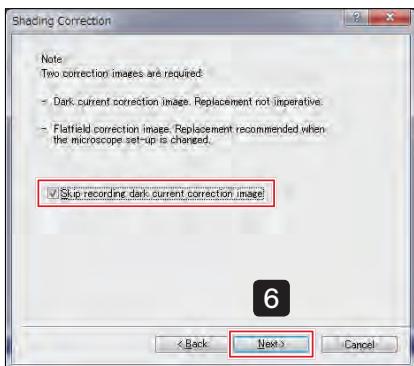
- 3** Select [Acquire]→[Calibration].

The [Calibration] window is displayed.

- 4** Select [Shading Correction] and click .

- 5** Check the checkbox for the observation method to be adjusted and click .

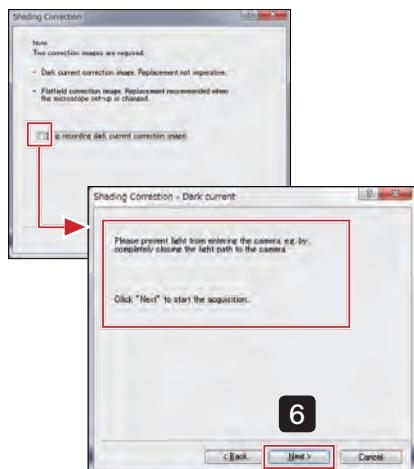




6 The [Shading Correction] window is displayed.

TIP If you do not require the incorporation of a parasitic current correction image, please check the checkbox.

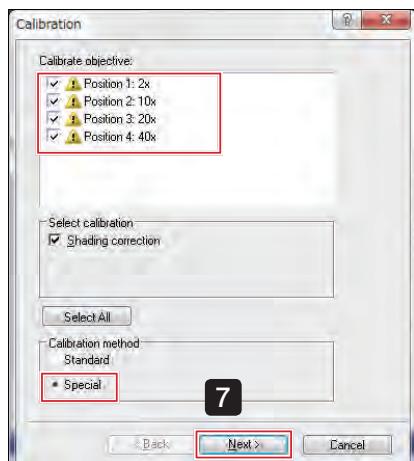
Click **Next >**.



If the checkbox is unchecked:

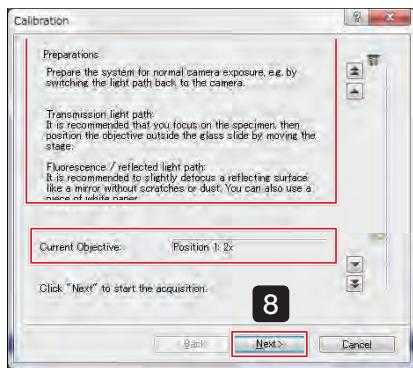
6 The [Shading Correction - Dark current] window is displayed.

Confirm the screen contents and click **Next >**.



7 Select the objective lens (magnification) to be adjusted, choose [Special] from the 2 calibration methods, and click **Next >**.

TIP The objective lenses (magnification) will be corrected from the lowest magnification lens.



8 The “Preparations” message screen is displayed.

Adjust the slide following the instructions on the screen.

NOTE • Please acquire an image on the tissue or cell.

- Please do not use a 2x objective lens because satisfactory results cannot be obtained.
- Confirm whether the specimen is in focus on the live image, and if not in focus, use the joystick focus dial to adjust the focus.

Use the specimen where the fluorescence is emitted entirely in the area 1.6 times of the live image field-of-view and also the sizes of cell holes (non-fluorescence areas) in the field-of-view meet the following conditions.

Objective lens 10x : diameter 350 µm or less

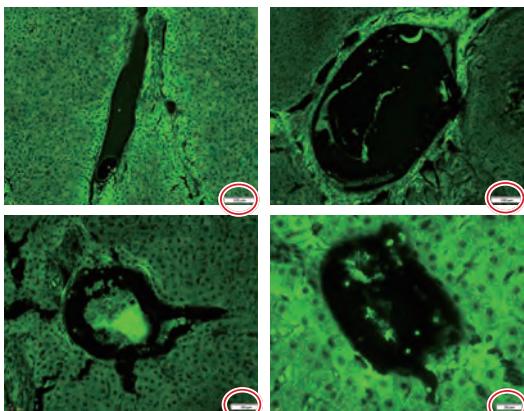
Objective lens 20x: diameter 180 µm or less

Objective lens 40x: diameter 90 µm or less

Objective lens 60x: diameter 60 µm or less

Objective lens 100x : diameter 35 µm or less

Hole sizes which do not meet the conditions on the right.



TIP Confirming conditions:

- Using an objective lens (magnification) with 1 step lower magnification than the objective lens (magnification) used to acquire the image, please confirm whether the above conditions are met.
- The objective lens below 60x is a dry objective lens, please confirm after moving the stage.
(Please measure the hole's approximate size using the "Scale" on the screen lower right.)

NOTE After confirming the conditions please do not forget to return to the original magnification objective lens (magnification).

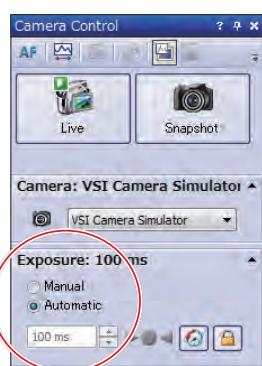
Adjust the exposure time in the [Camera Control] window.

Select exposure settings [Auto], gradually increase the brightness of the light source, and adjust the light on the illumination side until the exposure time is approximately 1 second (1000 ms).

TIP If it is difficult to adjust the exposure time to approximately 1 second, please set the light to its maximum.

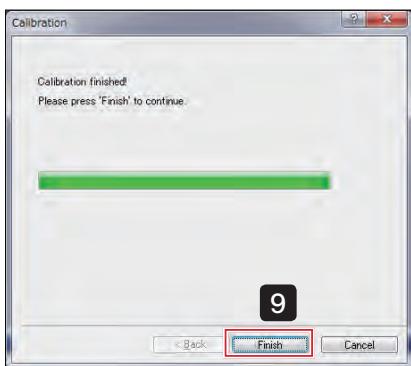
After adjustment, click **Next >**

Shading correction is performed for the selected objective lens (magnification).



TIP Shading correction is performed sequentially for the objective lens selected in and **7**. Please confirm the [Current Objective].

For more details, please refer to the Online Help.



- 9** When all selected objective lenses (magnification) are complete "Calibration finished!" is displayed. A message screen is displayed.

Click **Finish** and calibration is complete.

- TIP** Using "Saving and Restoring the System", [Shading Correction] can be easily restored according to the observed objects.
For more details, please refer to "8 Saving and Restoring the System" on page 96.

Deleting shading images

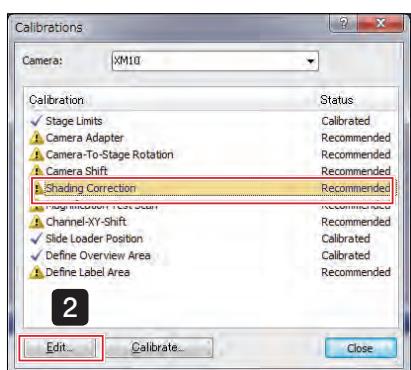
Delete unrequired shading images.

- 1** Select [Acquire]→[Calibration].

The [Calibration] window is displayed.



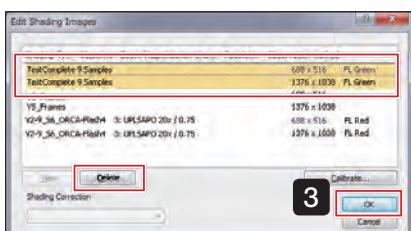
- 2** Select [Shading Correction] and click **Edit...**.



- 3** The [Edit Shading Images] dialog box is displayed.

Select the image to be deleted, click **Delete**, and when complete, click **OK**.

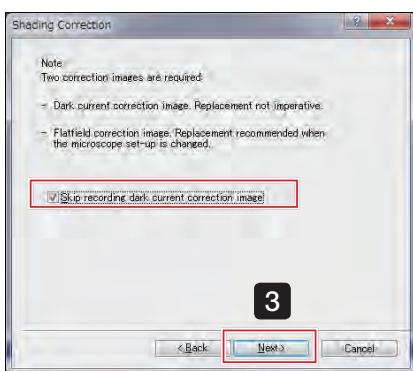
- NOTE** Two types of shading image are acquired with the same name for each objective lens. When deleting, please delete both types.



Perform shading correction during scan wizard image acquisition

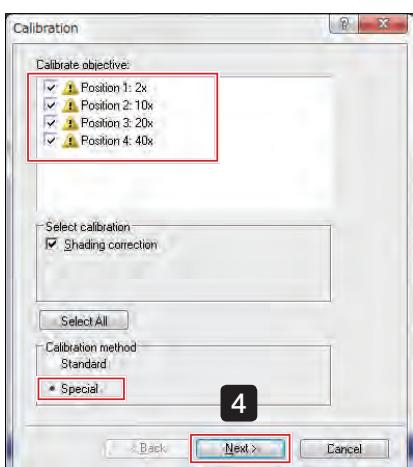
Please perform fluorescence shading correction with the wizard only when you have sufficiently understood the contents.

It is recommended to save the setting before implementation. For more details, please refer to “[8-1 Saving the system](#)” on page 96.

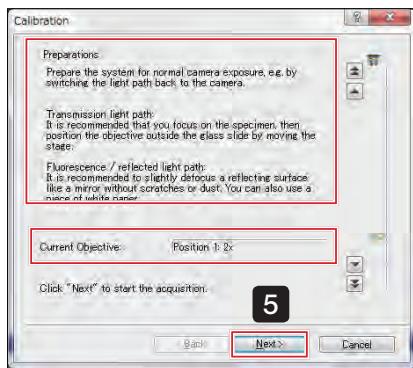


TIP If you do not require the incorporation of a parasitic current correction image, please check the checkbox.

Click



TIP The objective lenses (magnification) will be corrected from the lowest magnification lens.



5 The "Preparations" message screen is displayed.

Adjust the slide following the instructions on the screen.

NOTE

- Please acquire an image on the tissue or cell.
- Please do not use a 2x objective lens because satisfactory results cannot be obtained.
- Confirm whether the specimen is in focus on the live image, and if not in focus, use the joystick focus dial to adjust the focus.

Use the specimen where the fluorescence is emitted entirely in the area 1.6 times of the live image field-of-view and also the sizes of cell holes (non-fluorescence areas) in the field-of-view meet the following conditions.

Objective lens 10x : diameter 350 µm or less

Objective lens 20x: diameter 180 µm or less

Objective lens 40x: diameter 90 µm or less

Objective lens 60x: diameter 60 µm or less

Objective lens 100x : diameter 35 µm or less

TIP Confirming conditions:

- Using an objective lens (magnification) with 1 step lower magnification than the objective lens (magnification) used to acquire the image, please confirm whether the above conditions are met.
- The objective lens below 60x is a dry objective lens, please confirm after moving the stage.
(Please measure the hole's approximate size using the "Scale" on the screen lower right)

NOTE

After confirming the conditions please do not forget to return to the original magnification objective lens (magnification).

Adjust the exposure time in the [Camera Control] window.

Settings [Auto], gradually increase the brightness of the light source, and adjust the light on the illumination side until the exposure time is approximately 1 second (1000 ms).

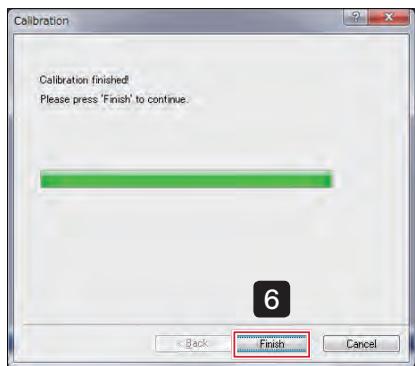
TIP

If it is difficult to adjust the exposure time to approximately 1 second, please set the light to its maximum.

After adjustment, click **Next >**

Shading correction is performed for the selected objective lens (magnification).





- 6 When all selected objective lenses (magnification) are complete "Calibration finished!" is displayed. A message screen is displayed.

Click **Finish** and calibration is complete.

TIP Using "Saving and Restoring the System", [Shading Correction] can be easily restored according to the observed objects.

For more details, please refer to "8 Saving and Restoring the System" on page 96.

7-2 Setting overview image area

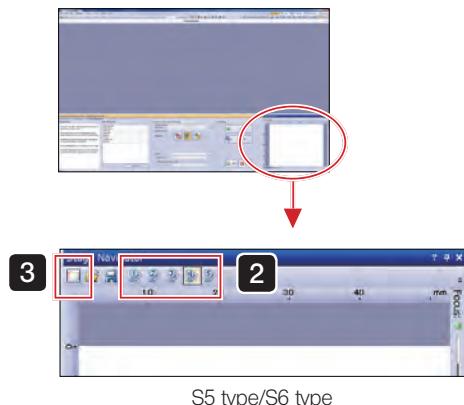
Set the slide area for acquiring overview images.

TIP

Please set the image area of the whole slide.

The overview image area, once set, will not change until the next image area is set.

- 1 Set the slide in the stage.



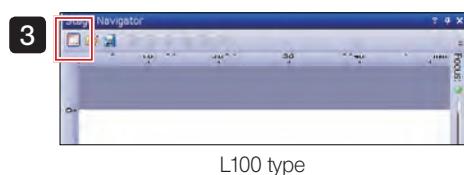
- 2 Only when using S5 type / S6 type, select the slide for which you will set the image area in the [Stage Navigator] tool window. The selected slide is highlighted in color.

(When using L100 type, go to step 3.)

- 3 Click (define overview area) in the [Stage Navigator] tool window.

TIP

You can also change the settings by selecting [Define Overview Area] from [Acquire]→[Calibration] menu.



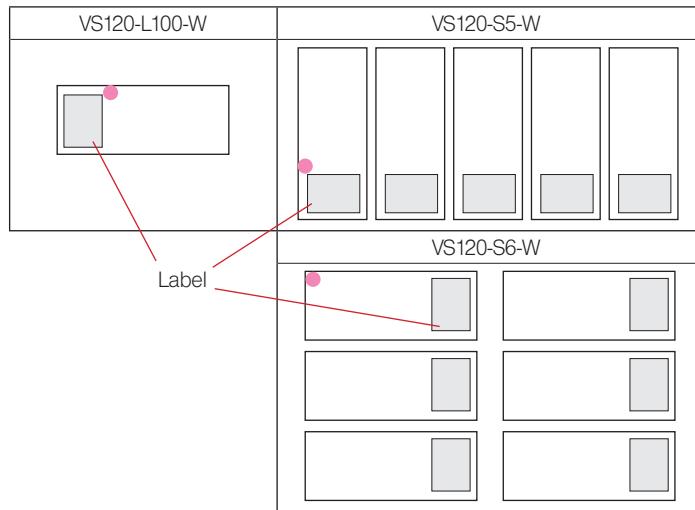
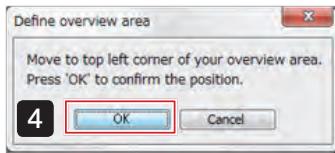
The lowest magnification objective lens (magnification) is engaged.

The live-image will be displayed.

Maintenance

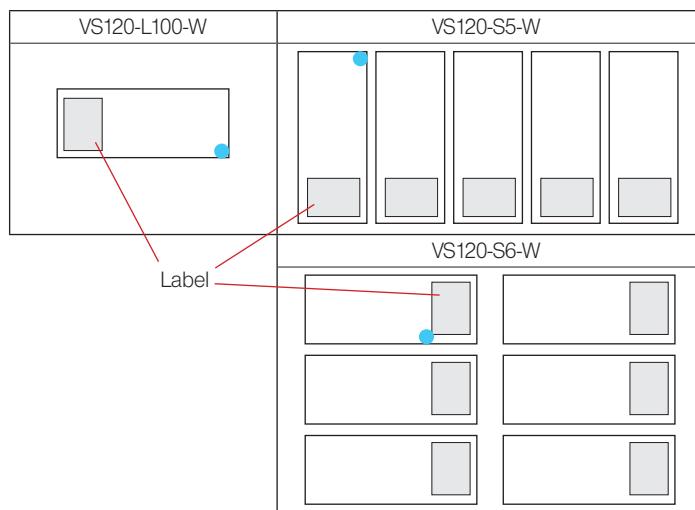
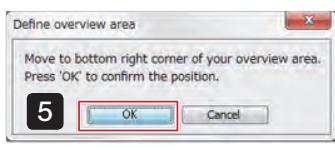
- 4 The [Define overview area] dialog box is displayed.

Use the joystick lever to move the stage to the ● position shown in the figure below. When the position is determined, click **OK**.



- 5 The [Define overview area] dialog box is displayed.

Use the joystick lever to move the stage to the ● position shown in the figure below. When the position is determined, click **OK**.



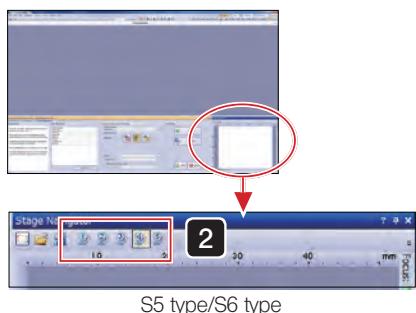
TIP

It is recommended to set the overview image area so that it includes the entire specimen or the entire cover glass.

7-3 Setting label area

When scanning labels, set the stage movement range.

- 1** Set the slide in the stage.



- 2** Only when using S5 type /S6 type, select the slide for which you will set the label area in the [Stage Navigator] tool window. The selected slide is highlighted in color.

(When using L100 type, go to step **3**.)

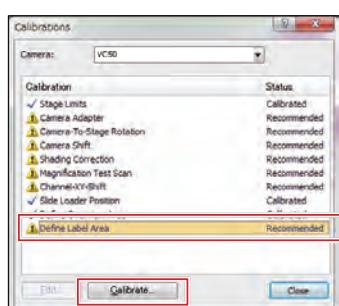
- 3** Select [Acquire]→[Calibration].

The [Calibration] window is displayed.



- 4** Choose [Define Label Area] and click **Calibrate...**.

The lowest magnification objective lens (magnification) is engaged.

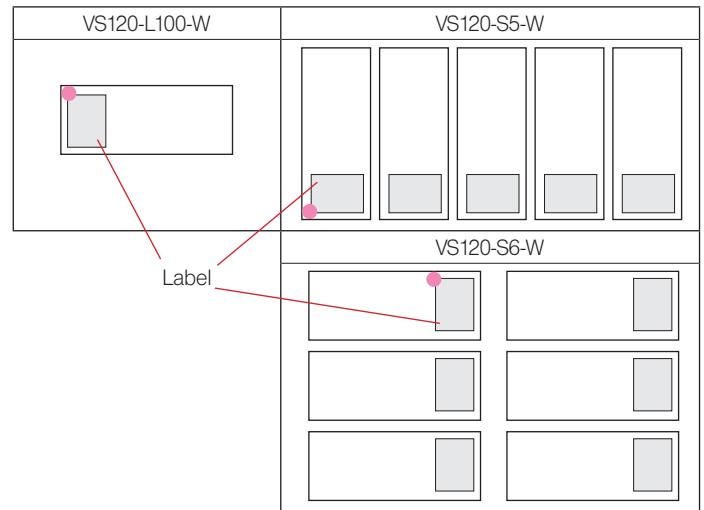
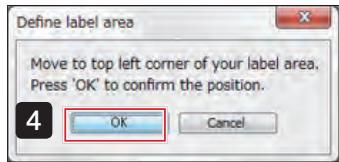


The live-image will be displayed.

Maintenance

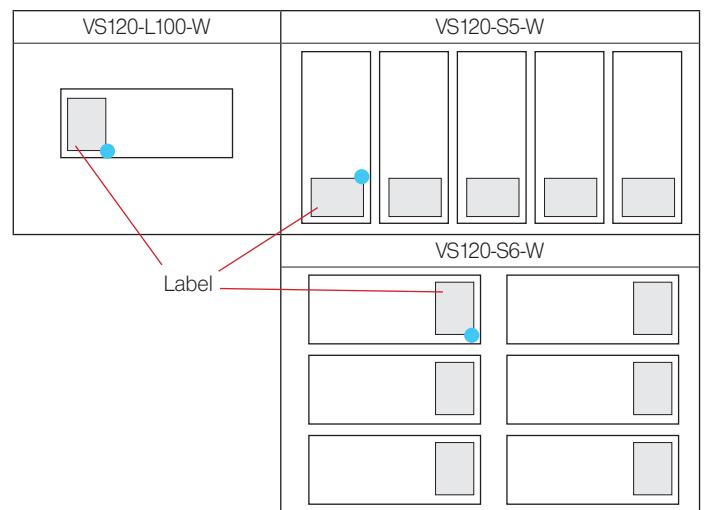
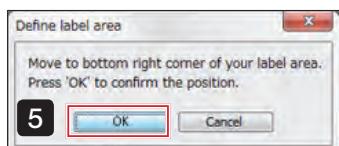
- 4 The [Define label area] dialog box is displayed.

Use the joystick lever to move the stage to the ● position shown in the figure below. When the position is determined, click **OK**.



- 5 The [Define label area] dialog box is displayed.

Use the joystick lever to move the stage to the ● position shown in the figure below. When the position is determined, click **OK**.



8 Saving and Restoring the System

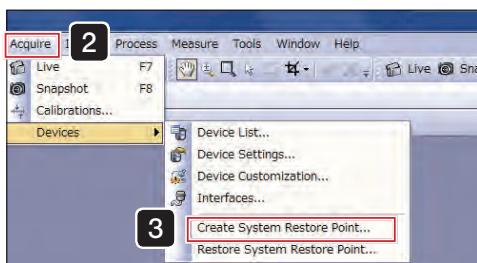
System status can be saved and restored in this System.

This function is available only when the Windows account is Administrator.

TIP "Settings" can be saved, not images.

NOTE When the software is updated, restore points made with the previous version will not be able to be read.

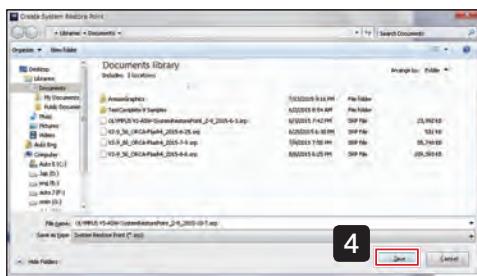
8-1 Saving the system



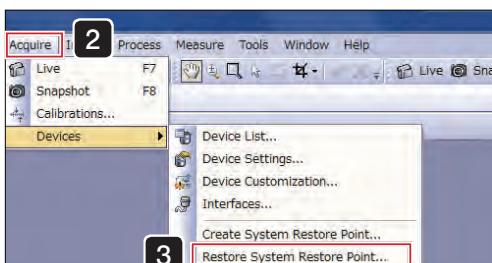
- 1 Start [VS-ASW].
- 2 Select [Acquire]→[Device].
- 3 Click [Create System Restore Point...], confirm the displayed message and click **OK**.
- 4 Specify the save destination for the system information, input the file name and click **Save**.
- 5 [VS-ASW] automatically restarts.

TIP The following information can be saved.

- Calibration information
- Device list
- Device settings
- Contents of all settings saved publicly
- ScanProject contents
- Layout position of each Tool Windows



8-2 Restoring the system



- 1 Start [VS-ASW].
- 2 Select [Acquire]→[Device].
- 3 Click [Restore System Restore Point...], confirm the displayed message and click **OK**.
- 4 If there are multiple restore points, select a file and click **Open**.
- 5 [VS-ASW] automatically restarts.

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