STANDARD OPERATING PROCEDURE
NanoZoomer Slide Scanner

PURPOSE

This document describes the operational setup and procedures for the NanoZoomer Slide Scanner.

The NanoZoomer Slide Scanner is a whole slide scanner/imager offering high throughput and high-speed for bright field imaging. The batch scanning/imaging allows 210 slides to be queued for acquisition. Although it is equipped with fluorescence imaging capacity, it is not recommended for slide scanning due to the low resolution and low sensitivity.

SCOPE

The procedure applies to bright field (BF) scanning only for both single slide and batch modes, including starting up the system, BF calibration, running single and/or batch scanning mode and shutting down the system.

Fluorescence scanning on this system is not recommended and therefore not included in this document.

A hardcopy of the full manual provided by the instrument vendor is available in the instrument lab and via the Westmead Imaging internet site.

SAFETY

The operator must exercise caution when checking the slide quality for batch scanning, never touch the slide edges with fingers. When a razor blade is needed to cut extra mounting medium off the slide edges, remember to always practice caution when handling it.

In addition, safe operation of the instrument also requires the awareness of other risks. Refer to Safe Work Procedure WIMR-SWP-WHS-GEN-16.01, "Using a fluorescence or laser scanning microscope": https://sydneyuni.atlassian.net/wiki/spaces/WIF/pages/768016621/Manuals+Protocols

TRAINING / COMPETENCIES

All personnel require training prior to independent operation of the instrument. Training is conducted by imaging staff and competency demonstration is necessary before authorisation.

Competency is assessed via demonstration of independent instrument operation, in conjunction with verbal explanation of all aspects of operation and troubleshooting common faults. After training is carried out, a training competency quiz is to be completed and passed before instrument access is authorised by imaging staff. All instrument operation is to be conducted by trained operators.

EQUIPMENT & SUPPLIES

The Nanozoomer Slide Scanner is located in W1.02, Level 1 WIMR.

PROCEDURE

Detailed instruction regarding the setting up of the NanoZoomer slide scanner can be found in the instrument's manuals.

1. **Start Up**

   - Turn on the power switch on the microscope
   - Allow to warm up for 30 min
   - Log on to the computer

2. **Loading Slides**

   - Insert the slides into the slots with the sample surface facing upwards and the labels near the cassette handle.

     NOTE: DO NOT insert more than 1 slide into one slot and DO NOT set any slides to span two slots.

     Up to 30 sides can be set into a slide cassette (7 cassettes are available, so a total of 210 slides can be scanned in one go).

   - Push to open the slide cassette access door. Place the slides-loaded cassette(s) into the slide scanner with one cassette in one track.

     NOTE: The door does not open when BUSY LED is on.

3. **Slide Preparation**

   - **NEVER** load slides into the NanoZoomer that are wet or have mounting medium that is not completely set.

   - Check that the edges of slides are flush with their coverslips. If a coverslip is sticking out, or if there is a lump of mounting medium on any edges of a slide, use the sandpaper to make the edge smooth.

   - Make sure sticky labels do not stick out beyond the slide. Slice any edges that stick out with the razor blade provided in the lab.

   - Clean the slides with 100% ethanol before loading if necessary.

4. **Calibration—BF calibration**

   IMPORTANT! Handle the calibration slide with care, it is very expensive.

   - Load the calibration slide into a slide cassette
   - Click NDP calibration (BF) on the desktop of the computer
   - Click "OK"
   - Click "exit" to finish

It is recommended to do calibration every week (check the logbook kept next to the instrument for calibration record), it takes only 8 minutes.
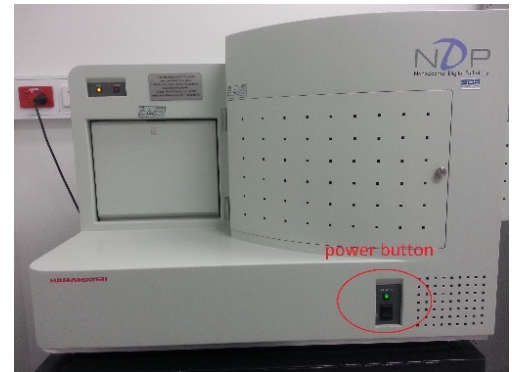
5. Scanning and Image Acquisition

- Open NDP-scan 2.2 software (this will take a couple of minutes)
- Load the slides
- Check "Settings" and make sure:
  - Your folder is selected: DATA D:/Scans/firstname.lastname (same as your PPMS username).
  - Minimal space requirement: 1024 MB

> **Note: all data must be saved here (kept for 7 days before auto deleting): DATA D:\Scans\"your folder".**
> **Your data will be transferred to the server instantly:**
> **Scientific platforms G:\Cell Imaging\Nanozoomer\"your folder" (kept for 14 days before auto deleting).**

- Choose "single" mode if you want to scan individual slides one at a time, or choose "batch" mode if you want to scan a number of slides unattended (either automatically or with manual intervention). You can switch between these two modes when needed.

6. Single slide mode (BF)

- Click "automatic" to get the right file path as set in the general settings.
- Click "load next slide". You will see an overview of the slide in the live window.
- Choose resolution: 20X or 40X (40x is greater resolution than 20X).
- If you are not happy with the current auto-selected area as shown in the live window, you can right click on "manual", choose "delete", and then manually draw to select the imaging area of your interest.
- Focus points: either choose "automatic" to create the focus points, or right click on the mouse to set up the focus points manually. Note: an additional option to "review" these focus points.
- Click "start scan" to initialize scanning.
- After scanning finishes, the image will be saved to the folder you nominated in the general "settings".

7. Batch mode

- Click "slide references" to name your batch slides. You can also choose not to do anything here but use the system default naming format.
- "Batch type": semi-automatic is recommended.
- Profile: brightfield.
- Click "start batch" to enter batch settings.
- Once the virtual image of the first slide appears in the live window, click "setup scan" to set up the first slide by following the wizard steps. The rest of the slides in the batch can be set up in the same way.
- Click "Start scanning" to process images.
- After scanning finishes, the images will be saved to the folder you nominated in the general "settings".

8. Shut down

- Exit from the acquisition software (computer can be left on).
- Remove your slides from the NanoZoomer and return the cassette(s) to the storage box if applicable.
- Turn off the power switch on the microscope.
- Log your usage in the logbook provided next to the computer.
- Clean the bench.

DATA & RECORDS MANAGEMENT

All data must be saved here: DATA D:\Scans\"your folder" (kept for 7 days before auto deleting).

Your data will be transferred to the server instantly: Scientific platforms G:\Cell Imaging\Nanozoomer\"your folder" (kept for 14 days before auto deleting).

REFERENCES

A hardcopy of the full manual provided by the instrument vendor is provided in Lab W1.02.

The electronic version of this manual is available on the Imaging Website:
https://sydneyuni.atlassian.net/wiki/spaces/WIF/pages/768016621/Manuals+Protocols.

DOCUMENT CONTROL

Document Reference:	WIMR-SOP-SP-CI-08.01
Status:	Approved
Endorsed by:	Suat Dervish, Hong Yu
Approval Authority:	Suat Dervish
Signature of Approval Authority:	
Approval Date:	2/06/2020
Issue Date:	2/06/2020
Review Date:	2/06/2021
Author:	Hong Yu
Policy Owner:	Scientific Platforms
Functional Unit:	Westmead Imaging Facility
Enquiries Contact:	Name: Hong Yu Position: Advanced Cell Imaging Specialist Email: hong.yu@sydney.edu.au Phone: 8627 3211

REVISION HISTORY

Revision Date	Version No.	Amended by:	Change