

Reference materials for staff assisting in case of Digital Pathology COOP implementation

Version 1.0

Goal of document: allow staff identified in COOP to perform critical slide-scanning tasks.

Part 1 – Chain of communication

Should the COOP for Digital Pathology need to be implemented, you will be notified, likely by email. Initial or subsequent communications should include the name of your primary off-site Digital Pathology contact person. As of February 2022, the three persons are, in order:

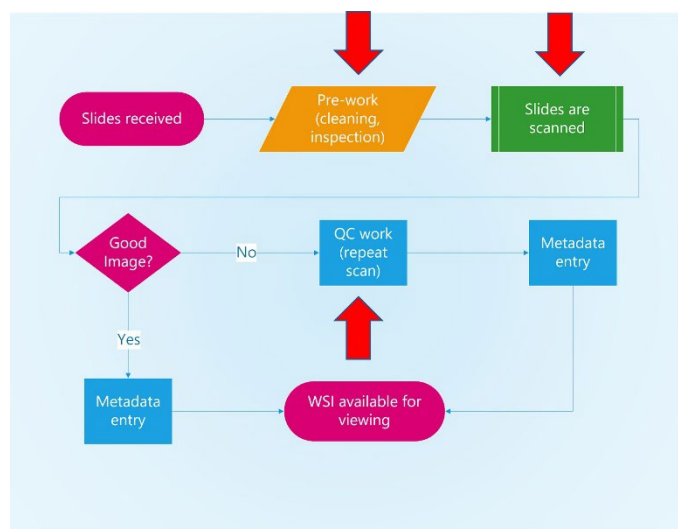
1. Peter Ouillette pouillet@med.umich.edu
2. Linda Cislo lcislo@med.umich.edu
3. Mustafa Yousif mustafay@med.umich.edu

Any questions should be directed to the person indicated as the primary contact. Note: it's also likely the principal contact will reach out to you if there are questions about a specific slide scan request.

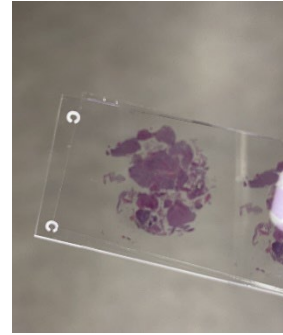
Part 2 – Description of work

In the workflow diagram below, arrows indicate where Digital Pathology will require on-site help in the event of COOP implementation, provided network and internet connections are not down and provided the scanners are functional.

1. Pre-work.
 - a. Cleaning the slides
 - b. Checking for indications the slide might jam (see 3c, below)
2. Scan slides
 - a. Load slides in the correct orientation
3. QC Work
 - a. Offsite digital pathology staff will check the final scans and report which, if any, slides need to be repeated. The person listed as the contact on the scan request form will be presumed to have loaded the slides in the scanner.



- b. Clear instrument errors and free any slides jammed in the scanner.
- c. Example of mis-aligned coverslip that is likely to jam in the GT450 instruments →



Part 3. Identifying critical use cases

Staff assisting with COOP will need to be able to identify “critical” scan requests that must be completed in a timely manner. These cases are approximately ranked based on frequency and relative need:

1. Any slides designated as urgent by the requester
2. Tumor Boards
3. Molecular Diagnostics
4. Transfer or Consult cases where the pathologist will use digital images to sign out
5. Forensic Pathology (includes UM autopsies plus Wayne, Washtenaw, and Livingston Co Medical Examiner cases)
6. Immunohistochemistry (IHC)
7. Legal
8. Clinical trial slides (rare)

Part 4. Slide prep

1. Clean slides with ammonia-based glass cleaner or 70% ethanol
 - a. NOTE 1: do not remove any permanent ink marks on slides
 - b. NOTE 2: wax and excess mounting medium can be difficult to remove with cleaning solvents alone. If located directly over tissue, they can negatively impact the quality of the resulting whole-slide image. Contact available Digital Pathology staff with questions.
2. Check for indications the slide might jam in the instrument
 - a. Mis-aligned coverslips (see photo)
 - b. Peeling labels
 - c. >2 labels
3. If you suspect you have slides that might jam, options:
 - a. Contact one of the available Digital Pathology staff and discuss (pictures are very helpful)
 - b. Load the problematic slides in a separate rack and run them first, while you observe. If they work, problem solved. If they jam, you’ll get practice clearing the jam and you’ll know more for next time.

Part 5. Loading slides

From the Leica GT450 User Guide:

Load Slides in the Rack

For a successful scan, ensure you use the correct orientation of the slides and the rack.

To load slides in the rack:

1. Position the rack so the Leica logo and "SIDE UP" faces up.
2. Insert each slide as shown with the label facing out and up.
3. Push each slide into the rack until the slide touches the back of the rack, ensuring each slide is fully inserted into the rack.



Part 5. Quality Control

Quality control essentially consists of two checks:

- Did the scanner recognize and scan all the tissue, or did it omit part of it?
- Is the resulting image in focus or blurry?

Staff assisting with Digital Pathology operations during COOP implementation are not expected to check for blurry images. However, their assistance with "macro image" checks will be very helpful.



After the slides you loaded have been scanned, do the following:

View Macro Images of Scanned Slides

To view a macro image of a scanned slide:

1. Tap the rack position on the touchscreen interface.
2. Tap the **Slide View** icon to view individual images for the selected rack.



- Tap  and  to view other slides in the rack.
- If any tissue is outside the scan area, you can tap **Scan Entire Slide** to rescan the whole slide.
- If there is an error scanning the slide, a message appears in the box. See *"Slide Errors and Solutions"* on page 70.

Notes:

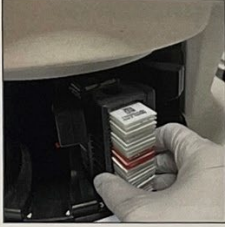
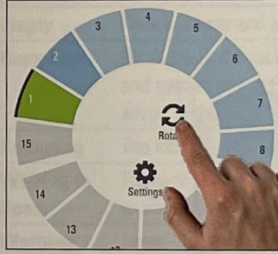
- Scanning the entire slide will take approximately 7-10 minutes.
- Digital Pathology staff will need to delete the image where tissue recognition failed.

Part 6. Unloading slides


From the Leica GT450 Quick Reference Guide:

Aperio GT 450 Quick Reference Guide, Rev

Unload Racks from the Carousel

1. Remove the rack from the rack slot.

2. Tap **Rotate** to rotate the rack to the loading area.

3. After the rack is rotated to the front, carefully remove the rack.

To unload a rack that is not in the loading area:

1. Tap the rack position.


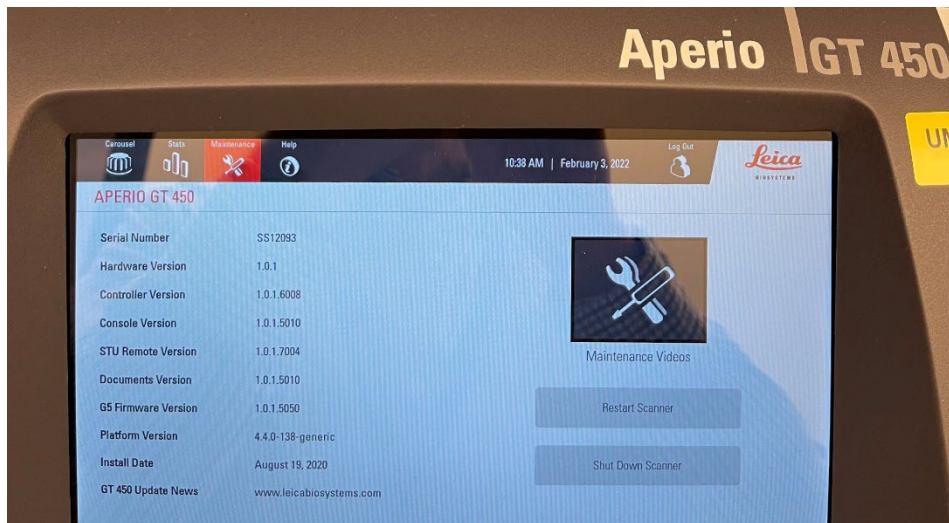
Scan Slides | 15

Note:

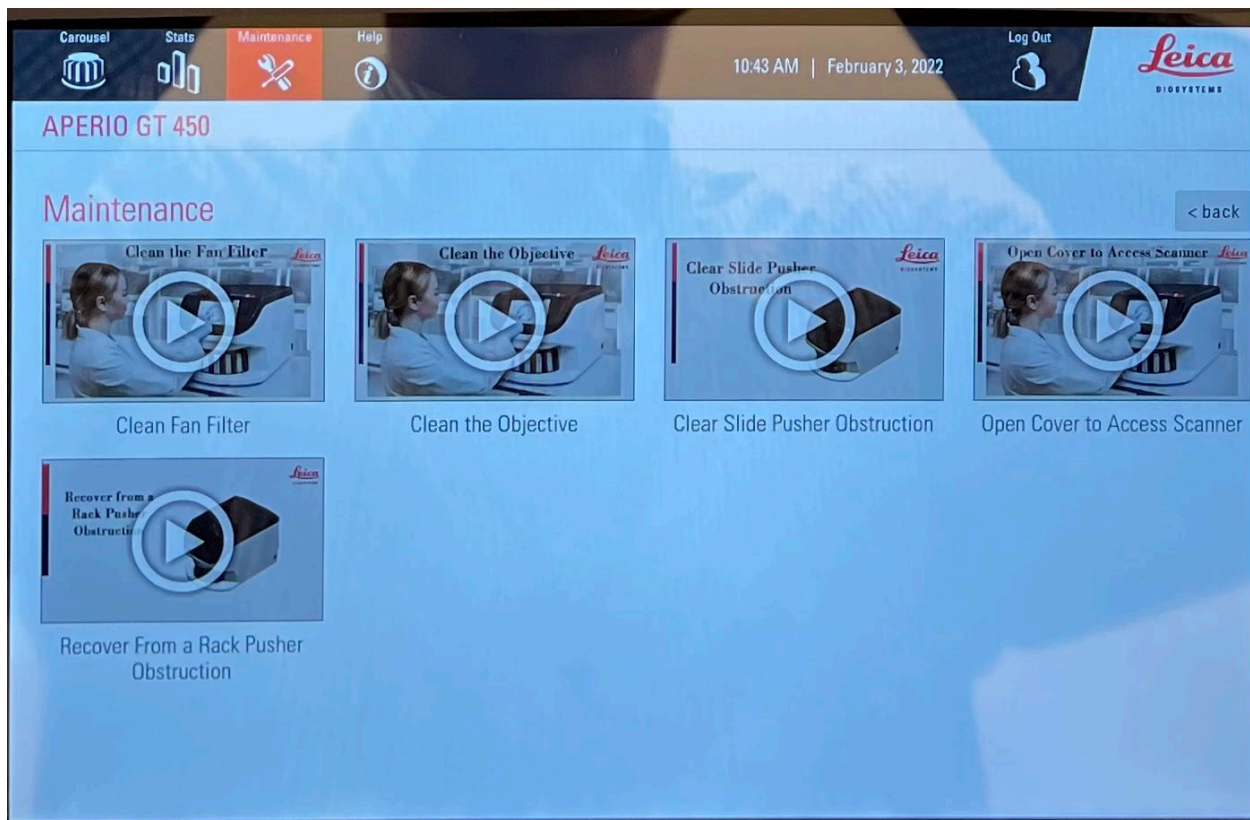
- It is common for the “pie slice” icon to be orange when complete instead of green. This indicates an alert or error. Usually it is because of a “NO BARCODE” error. “IMAGE QUALITY” flags, however, are often accurate – the generated whole-slide image is likely to be partly or wholly blurry.

Part 7 – Clearing Jams

Jams are a fact of scanning life, and during a COOP supporting staff will need to know how to clear them. The good news is that Leica has built training videos into the scanners themselves to help you.



1. Minimize the error message (not shown), or go to another scanner
2. Tap "Maintenance" (red)
3. Tap "Maintenance videos"



Watch all three of the following:

1. Open Cover to Access Scanner
2. Clear Slide Pusher Obstruction
3. Recover from a Rack Pusher Obstruction

Be ready to contact available Digital Pathology staff for real-time assistance.

Appendix

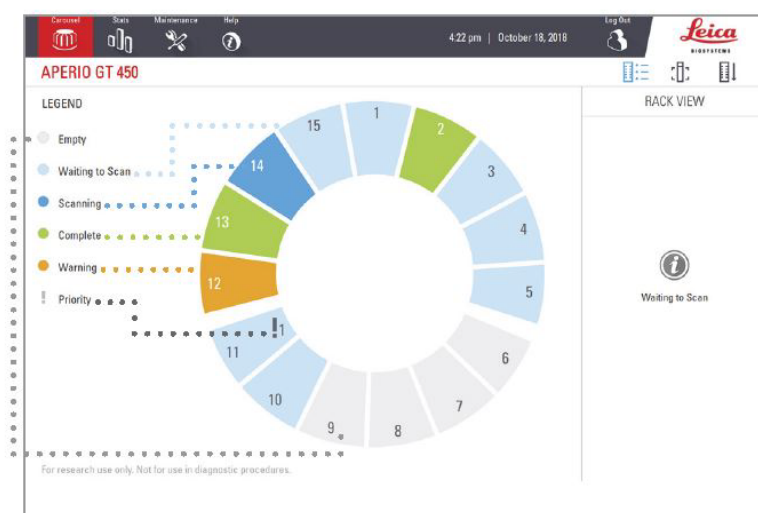
Part A-1 – What do the colors mean?

From the Leica GT450 User's Guide:

Check Rack Status

To check the scan status of a rack:

1. Check the rack position status color against the Legend:



2. The rack statuses are:

Empty	Rack is empty and available for use.
Complete	All slides in the rack scanned successfully and passed image QC. Scanned images are saved to the specific location.
Scanning	The rack is currently being scanned.
Waiting to Scan	The rack is loaded successfully and is waiting to scan.
Warning	There is an issue with the rack, or one or more slides in the rack. If you get a rack warning, see page 37.
Priority	The rack is set for priority scanning. (See "Priority Scanning" on page 30.)

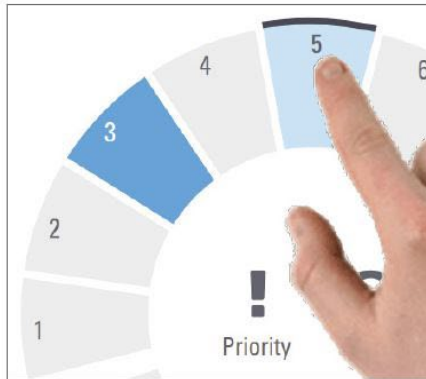
Part A-2 Prioritizing racks

If you have slides that are urgent, there is a command you can issue the scanner to scan your rack first.

Priority Scanning

Use Priority to move a rack to the front of the scan queue. You can apply the Prio

1. Tap the rack position.



The Priority option appears when you select the rack position.

2. Tap **Priority**.



Notes:

- If you choose "priority" for your rack, the scanner will immediately ask you, "Eject active rack?"
 - If you say "Yes," the scanner will still finish scanning the slide it's currently working on, and then it will start scanning the Priority rack.
 - If you say "No," the scanner will finish the entire rack it's working on, and then go to the Priority rack.