

# The University of Western Australia – Centre for Microscopy and Microanalysis

Grid-enabled Access to a National Archive of Nanostructural  
Imagery (GRANI) Project

## Requirements Analysis - Survey of Existing and Required Archival Facilities and Services

### Notes:

- No rights over it
- Save to flash drive
- Transfer to snap server
- Integrate with server – password controlled
- Used to host tele microscopy
- Secure Software
  - Instrument OS's
  - Virus Scan
  
- Instrument management software:
  - Not robust
  - Need specific PC
  - ZEISS SEM

Electron Microscopes =

- JEOL
- Zeiss
- (See website)

Timbuctoo -

- Remote control
- But security concerns

Lurker Mode

- Web casting

Alcoa –

- Firewalls a problem

- VPN approaches

Micrograph –

- Video feeds
- Sun server

Eyesight – Mac camera

- NANO

-

Polycom

Monthly Subscription

No IT person

Some/ most are on CANS

## Back Page Notes:

Only some for viewing  
None controllable

Booking DB, Uni on NSW  
Swap Server

A lot TEMS → film → Negative (Scanner) → Tiff

16GB → 40 – 80 GB

1MB Image –

- 100 or more per session
- Illustrating benefits
- participation
- A number of platforms –
  - Macs
  - PC
  - Windows
- (Several versions of OS)

## General

1. How many instruments does your centre support? Which ones are in most demand?

*See website*

*FTP access- quantum snap server*

- *Each with 200MB folder*
- *Password protection*
- *Only deleted annually during maintenance*

*(Most people not on CAN's)*

2. How many users do you have – individuals or organisations?

*230 individuals*

## Access to Instruments

3. What is the process for registering as a user and booking an instrument?

*1 Training courses on web*

*2 Pass training course, theory exam*

*3 Registration database File File Maker Pro*

4. Do you have an online booking system? How is this accessed?

- *(6 to 7 years old)*
- *Online booking on website (Can extract info on KPI's – logon with user ID and password)*
- *UNSW – Paul Munroe*

5. Do you have secure logon procedures for registered users? Is it password controlled? How do users register and acquire a login id and password?

6. Are there restrictions on how long/when users can book an instrument?

*Limitations :*

- *Depend on user rating*
- *Often hours unlimited*

*Prebooking Instruments:*

- *During normal hours (9am – 5pm) each instrument may only be prebooked for a total of 4hrs / week.*
- *Booked only a fortnight in advance*

*Extended bookings have been introduced for SEMs (during 9am-5pm time slot).*

*Users can book up to an additional 4 hours, following completion of their standard 4-hour access, within any specific week.*

*The 6400 microprobe bookings may be unlimited, by arrangement with A/Prof Brendan Griffin.*

*After hours use:*

- *Only **authorised** users may use the Centre facilities after hour*
- *Unlimited bookings of all microscopes and instruments after hours (before 9am and after 5pm).*
- *However, users may need to be flexible during times of high demand.*

7. What is your charging scheme – subscription or time-based? Individual or organization-based?

- *Walk in subscription – annual – access changes on web site*
- *Agency subscriptions*

Table from Website

Research subscriptions*1	\$ 2,000
Postgraduate students*2	\$1,500 or EFTSU share*3
Honours access	\$150 + consumables ONLY if outside normal usage
Undergraduate teaching	EFTSU share
Low volume internal access*4	\$75/hr SEM, \$150/hr TEM, \$50/hr confocal/optical

8. How do you log usage?

9. What security mechanisms are used to stop vandalism and hackers? Are the instruments behind firewalls? Do you use swipe cards?

- *CMM Instruments behind CMM firewall*
- *6 sites within centre*
- *Uni of WA firewall – individual firewall subnets*
  
- *No electronic swipe cards – cost!*
- *Use key after hours*
- *Only bookings server & website on the Internet ( Through Uni of WA firewall and subnet firewall)*

10. What databases do you currently maintain, what information do they store, what platforms are they on, do they talk to each other?

11. How often do you backup administrative data and users' data?

*Admin:*

- *Weekly*
- *Monthly*

*User :*

- *NO*

## Telemicroscopy

12. Are all of your instruments online? If not, how many instruments do you have and what percentage/how many are online?

- *Video feeds from every room to watch them- into Sun Workstation*
  - *Nestor , Zaluzec , ? , Linux*
- *Login to sight and view specific session*

13. Can you control the instruments remotely or only view current image in real-time remotely?

- *Need IT person*

14. Are they connected to broadband networks? i.e., GrangeNet? What bandwidth? Private LANs (e.g., VPN) or internet?

- *CENTIE (Centre for Networking Technologies for the Information Economy)*

15. How are the samples transferred and prepared?

- *Pay for service*

16. Is simultaneous videoconferencing available and a necessity? Do you use both video and audio or only audio? How many web cameras?

- *PolyCam*

17. How often is telemicroscopy actually utilized? Under what circumstances is it used/useful?

- *Not at the moment*

## Image Archival

18. How do users save and organize their images and analytical data ? As flat files in folders or in databases?

- *Partitiones*
- *200MB/ person (Access via website, login with username and password)*
- *Folder names*
  
- *Confidentially – server access – login id and password*
  
- *Effort required*

19. What image formats are supported?

- *Tiff*
- *DM3*
- *Type of proprietary formats , export to Tiff*
- *Photoshop*
  
- *Usually file name and 8 chars*
- *Lose metadata*

20. What other types of data (e.g., spectrometry data) do users need to save? What formats are used/required?

- *Analysis - Excel spreadsheets*
- *Spectrum*

21. Do users save images in multiple formats?

- *No*

22. What image conversion services would be useful? e.g., tiff -> thumbnail

- *Photoshop*

23. Does each instrument have its own camera and proprietary software?

- *Image capturing system*
- *Specific to microscopes*
  - *Gatan – TEMS*

24. Are there built-in image analysis and manipulation tools?

- *Gatan*

25. Are any instruments connected directly to databases?

- *Only Zeiss Optical – ?? Zui Format*

26. What facilities exist for saving metadata/data with images?

- ***NO!***

27. What data/metadata can be saved automatically/manually?

- *No database – uses ?*

28. How do users relate an image to precise sample coordinates? What happens when a session is interrupted?

- ***Problem!***

29. Are there limitations on users' storage space?

30. What happens when users exceed their space limitation?

- *Warning – need to backup – blocked at 200mb*

31. Are there time-limits on local users' data storage?

- *NO*

32. Are there any search and retrieval services for finding stored images/data?

- *File name*

33. What kinds of search and browse facilities do you envisage?

- *Creator*
- *Data*
- *Project*
- *Subject*
- *Controlled*
- *Description – labelled areas*
- *Msg*

34. Is there any particular image database software you would like to use or be investigated/evaluated further?
35. How do most users archive their images/data in the long term? On what medium?
- *CD*
  - *DVD*

36. How do users transfer very large images/files across the network?

- *FTP – Access Swap sever – Web interface*

37. Do users want to be able to share images with others? What kinds of sharing and access policies do you envisage?

- *Supervisor- individuals*
- *Project Team*

38. Would you like a centralized database with secure access across the NANO nodes or only within each NANO node?

- *Local nodes*
- *Mirrored data*

39. What useful value-add services could be provided e.g., annotation services? Watermarking? Image segmentation?

*Annotations – Zeiss optical microscope*

*Image Segmentation –*

- *Image J*
- *PhotoShop*
- *Matlab*

*Watermarking*

- *No requests*

## **Finally**

- nominate which items are mandatory, highly desirable, desirable, optional, unnecessary (M, HD, D, O, U)
- nominate which items are high priority, medium priority, low priority (HP, MP, LP)
- any other items on a wish list