Introduction to Equipment Booking in the Department of Materials

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Overview of presentation

• Basics concepts of using shared equipment
• Example booking using iLab website
• Example booking using departmental website
• Accessing data from equipment computers
  – Public network
  – No network
  – Private network
Basics Concepts Behind Using Shared Equipment

• Lots of different types of equipment available
  – Department facilities available for internal & external users (e.g. Electron Microscopes, XRD, Atom Probes etc.)
  – OMCS equipment for commercial characterisation service but also available to internal users.
  – Research group equipment – some shared, some restricted
  – other things that can be booked (e.g. software licenses)

• Various methods of booking
  – iLabSolutions, departmental internal website, weblearn calendars, paper booking sheets, etc.

• Training and Authorisation is required before booking

• Access maybe free or may cost money (e.g. SRF’s)
Department Website: Equipment Booking

Equipment booking:
Direct links to each item of equipment

Note: iLab direct links only go direct if user is already logged-in

Note: if getting started please read the Help which contains a copy of this presentation

http://www.materials.ox.ac.uk/research/equipment-booking.html
iLabSolutions – Getting Started

• **Internal Oxford users** can login using university credentials
  – Internal users are pre-registered or can self-register
• **External Users** can register for an iLab account
  – External users receive an email containing instructions
• Logging in does not immediately grant rights to book any equipment.
• Existing equipment users have had their existing equipment authorizations pre-loaded into the new iLab booking system.
• New unknown users need to be authorized by core managers
  – need to be associated with a Lab(Group) by the core manager
  – need to be allocated a cost code so usage can be tracked and charged
  – need to be **trained and authorized** to use each piece of equipment by the owner/operator of the equipment **before booking**
iLabSolutions – Example booking Jeol 2000FX

Equipment booking:
Direct links to each equipment (if logged-in)

Note:
If already logged-in the links go direct to the booking calendar for the equipment.
If not logged-in the links redirect to the iLab login & homepage.

Notes:  http://www.materials.ox.ac.uk/research/bookings.html
Example iLab booking:
iLab Login page
Webauth login
Webauth continue
Initial set timezone
iLab homepage
Select core
Select equip group
Select equipment
Book equip date/time
Choose project code
Check booking
iLab logout
Close browser warning
Logged out

Notes: starting from http://oxford.corefacilities.org
Example iLab booking:
iLab Login page
Webauth login
Webauth continue
Initial set timezone
iLab homepage
Select core
Select equip group
Select equipment
Book equip date/time
Choose project code
Check booking
iLab logout
Close browser warning
Logged out

Notes: iLab uses university webauth authentication
Enter your university SSO username and password
Example iLab booking:
iLab Login page
Webauth login
Webauth continue
Initial set timezone
iLab homepage
Select core
Select equip group
Select equipment
Book equip date/time
Choose project code
Check booking
iLab logout
Close browser warning
Logged out

Notes: shibboleth confirms your identity so continue to iLab
Example iLab booking:
iLab Login page
Webauth login
Webauth continue
Initial set timezone
iLab homepage
Select core
Select equip group
Select equipment
Book equip date/time
Choose project code
Check booking
iLab logout
Close browser warning
Logged out

Notes: If this is your first login to iLab you need to set your timezone to “GMT 0:00 London”
Example iLab booking:
iLab Login page
Webauth login
Webauth continue
Initial set timezone
iLab homepage
Select core
Select equip group
Select equipment
Book equip date/time
Choose project code
Check booking
iLab logout
Close browser warning
Logged out

Notes: this is your standard iLab homepage.
All equipment is grouped into “cores”. Select list all cores.
Example iLab booking:
iLab Login page
Webauth login
Webauth continue
Initial set timezone
iLab homepage
Select core
Select equipment
Select equip group
Book equip date/time
Choose project code
Check booking
iLab logout
Close browser warning
Logged out

Notes: two Oxford “cores” – Electron Microscopy and OMCS
[Neil Young manages EM and Colin Johnston manages OMCS]
For this example we select Electron Microscopy
**Example iLab booking:**
iLab Login page  
Webauth login  
Webauth continue  
Initial set timezone  
iLab homepage  
Select core  
Select equip group  
Select equipment  
Book equip date/time  
Choose project code  
Check booking  
iLab logout  
Close browser warning  
Logged out

**Notes:** The EM core contains several groups of equipment  
For this example we shall choose Begbroke Microscopes
Example iLab booking:
iLab Login page
Webauth login
Webauth continue
Initial set timezone
iLab homepage
Select core
Select equip group
Select equipment
Book equip date/time
Choose project code
Check booking
iLab logout
Close browser warning
Logged out

Notes: for this example we shall book the JEOL2000FX
Example iLab booking:
iLab Login page
Webauth login
Webauth continue
Initial set timezone
iLab homepage
Select core
Select equip group
Select equipment
Book equip date/time
Choose project code
Check booking
iLab logout
Close browser warning
Logged out

Notes: Look at your desired date and time range (and any existing bookings) Click&Drag booking. Coloured time limits.
Example iLab booking:
iLab Login page
Webauth login
Webauth continue
Initial set timezone
iLab homepage
Select core
Select equip group
Select equipment
Book equip date/time
Choose project code
Check booking
iLab logout
Close browser warning
Logged out

Notes: Check the details and select the project code. A few people have real chargeable project code(s) but most people are charged “imaginary” money.
Example iLab booking:
iLab Login page
Webauth login
Webauth continue
Initial set timezone
iLab homepage
Select core
Select equip group
Select equipment
Book equip date/time
Choose project code
Check booking
iLab logout
Close browser warning
Logged out

Notes: check the details of your booking are correct
Example iLab booking:
iLab Login page
Webauth login
Webauth continue
Initial set timezone
iLab homepage
Select core
Select equip group
Select equipment
Book equip date/time
Choose project code
Check booking
iLab logout
Close browser warning
Logged out

Notes: when you have made all your bookings, if you are using a public/shared computer you must logout.
Example iLab booking:
- iLab Login page
- Webauth login
- Webauth continue
- Initial set timezone
- iLab homepage
- Select core
- Select equip group
- Select equipment
- Book equip date/time
- Choose project code
- Check booking
- iLab logout
- Close browser warning
- Logged out

Notes: note that you are recommended to completely close the web browser (all windows) to complete your logout
Example iLab booking:
iLab Login page
Webauth login
Webauth continue
Initial set timezone
iLab homepage
Select core
Select equip group
Select equipment
Book equip date/time
Choose project code
Check booking
iLab logout
Close browser warning
Logged out

Notes: you receive confirmation of being logged-out.
But you still need to close the web browser...
Internal – Getting Started

- The internal custom written booking system can only be booked using university SSO credentials
- All members of department are automatically pre-registered. Other university members are prompted to self-register.
- The old booking system does not enforce authorization however all users must obtain be trained and authorized to use each piece of equipment by the owner/operator of the equipment before booking
- Each equipment has booking restrictions, but it is up to the users to comply with the booking restrictions.
Internal – Example booking XRD

Notes:  http://www.materials.ox.ac.uk/research/bookings.html
Click on the link to the equipment. (e.g. GeneralXRD)
Notes: Look at your desired date and times (and any existing bookings). Tick tickbox to make booking. (e.g. 9-11 on 10th Oct)
Internal – Webauth authentication

Example booking:
Make booking
Webauth authentication
Webauth confirmation
Check booking is correct
Logout
Logout confirmation
Close browser

Other information:
Superusers
Userlists
My bookings

Notes: If not already authenticated enter your university SSO credentials when requested.
Example booking:
Make booking
Webauth authentication
Webauth confirmation
Check booking is correct
Logout
Logout confirmation
Close browser

Other information:
Superusers
Userlists
My bookings

Notes: webauth confirms your identity so continue to booking system on external.materials.ox.ac.uk (note change of address)
Example booking:
Make booking
Webauth authentication
Webauth confirmation
Check booking is correct
Logout
Logout confirmation
Close browser

Other information:
Superusers
Userlists
My bookings

Notes: Booking accepted and tickbox replaced with your name. (e.g. Chris Akinola has booked 9-11 on 10th October)
The above screen also shows an example red alert message.
Example booking:
Make booking
Webauth authentication
Webauth confirmation
Check booking is correct
Logout
Logout confirmation
Close browser

Other information:
Superusers
Userlists
My bookings

Notes: when you have finished booking equipment please remember to logout, especially if using a public computer
Internal – logout confirmation

Example booking:
Make booking
Webauth authentication
Webauth confirmation
Check booking is correct
Logout
Logout confirmation
Close browser

Other information:
Superusers
Userlists
My bookings

Notes: logout requires further confirmation
Internal – close browser warning

Example booking:
Make booking
Webauth authentication
Webauth confirmation
Check booking is correct
Logout
Logout confirmation
Close browser

Other information:
Superusers
Userlists
My bookings

Notes: Reminder to close web browser to complete logout.
Click proceed and then close the web browser.
Internal – superuser booking

Example booking:
Make booking
Webauth authentication
Webauth confirmation
Check booking is correct
Logout
Logout confirmation
Close browser

Other information:
Superusers
Userlists
My bookings

Superusers can:
- Make plain text booking
- Modify bookings
- Manage userlists

(Contact Paul Warren if you want superuser)

Notes: quite a few staff are “superusers” which allows free-text bookings and modifying other people bookings.
**Example booking:**
Make booking
Webauth authentication
Webauth confirmation
Check booking is correct
Logout
Logout confirmation
Close browser

**Other information:**
Superusers
Userlists
My bookings

**Superusers can:**
- Make plain text booking
- Modify bookings
- Manage userlists

(Contact Paul Warren if you want superuser)

**Notes:** superusers can also manage the equipment userlists
Internal – my bookings

**Example booking:**
- Make booking
- Webauth authentication
- Webauth confirmation
- Check booking is correct
- Logout
- Logout confirmation
- Close browser

**Other information:**
- Superusers
- Userlists
- My bookings

**Notes:** some users find it useful to see a summary of their future bookings and a history of all their changes to bookings
Accessing data from equipment systems

• Data is collected on an equipment control computer
• Data should be analysed on your own/group computer

• How to transfer data? - lots of different options...
  – Equipment computer is on department network
    • Windows file-sharing, Secure File Transfer, Netstorage, FTP, removable media
  – Equipment computer is not on any network
    • Removable media e.g. USB (but must be virus-free!)
  – Equipment computer is on protected private network
    • Transfer data via storage array at Begbroke (bbem.materials.ox.ac.uk)
    • Transfer data via storage array in Holder Building (prem.materials.ox.ac.uk)
    • Removable media e.g. USB (but must be virus-free!)
Data from Equipment on department network (cmd)

Example data transfer:
Windows filesharing
Secure File Transfer
Netstorage
FTP
Removable Media

Windows file sharing from the command window
To open a command prompt on Windows goto: All programs - Accessories - Command Prompt or got to 'Run' and type 'cmd' in the box that pops up.

The images below show an example connection to account ‘username’ in the STUDENT container on the department server called FILES_STUDENT which results in the file store being mounted as the Z: drive.

This method can connect to desktop computers, as long a sharing is enabled
e.g. net use * \mydesktop\myshare /user:MyUsername

Notes: Also see http://www.materials.ox.ac.uk/local/it/materials-files-server.html
Data from Equipment on department network (Run)

Example data transfer:
- Windows filesharing
- Secure File Transfer
- Netstorage
- FTP
- Removable Media

Windows file sharing **from the Run command** (Ctrl R)
The images below show an example connection to account ‘username’ in the STUDENT container on the server called FILES_STUDENT which results in the file store being mounted under network neighbourhood (without a drive letter).

This method can also connect to desktop computers, as long a sharing is enabled e.g. `\mydesktop\myshare`

Notes: Also see [http://www.materials.ox.ac.uk/local/it/materials-fileserver.html](http://www.materials.ox.ac.uk/local/it/materials-fileserver.html)
Data from Equipment on department network (Map)

Example data transfer:
- Windows filesharing
- Secure File Transfer
- Netstorage
- FTP
- Removable Media

Windows file sharing from map network drive
The images below show an example connection to account ‘username’ in the STUDENT container on the server called FILES_STUDENT which results in the file store being mounted as the Z: drive.

This method can also connect to desktop computers, as long a sharing is enabled e.g. `\mydesktop\myshare`

Notes: Also see [http://www.materials.ox.ac.uk/local/it/materials-fileserver.html](http://www.materials.ox.ac.uk/local/it/materials-fileserver.html)
Data from Equipment on department network (SSH)

Example data transfer:
- Windows filesharing
- Secure File Transfer
- Netstorage
- FTP
- Removable Media

Secure File Transfer to Dept Fileservers using WinSCP

WinSCP [http://winscp.net/](http://winscp.net/) is installed on most departmental computers.

This client software can be used to connect to any SFTP server, such as the department fileserver called materials2.materials.ox.ac.uk (Desktops do not run SSH)

![WinSCP software interface](image)

The file transfer window allows you to drag&drop files from the local computer into your HOME directory on the fileserver (or vice versa).

Equivalent software for Mac is [http://cyberduck.io](http://cyberduck.io)

Notes: Also see [http://www.materials.ox.ac.uk/local/it/materials-files-server.html](http://www.materials.ox.ac.uk/local/it/materials-files-server.html)
Data from Equipment on department network (SSH)

Example data transfer:
Windows filesharing
Secure File Transfer
Netstorage
FTP
Removable Media

Please note that the Secure Shell Client software shown below is no-longer supported and no-longer works with the department file servers (Please uninstall this software if you still have it).

After successful connection you are presented with the line command terminal window. Click the yellow folder toolbar icon to open transfer window.

The file transfer window allows you to drag&drop files from the local computer (left pane) into your HOME directory on the fileserver (right pane) or vice versa.

Notes: Also see http://www.materials.ox.ac.uk/local/it/materials-fileserver.html
Example data transfer:
- Windows filesharing
- Secure File Transfer
- Netstorage (Web)
- FTP
- Removable Media

Transfer via Web through Netstorage on Fileserver
NetStorage is a web interface for accessing your files on the department fileserver.
Visit [http://netstorage.materials.ox.ac.uk/netstorage](http://netstorage.materials.ox.ac.uk/netstorage)
After login, the webpage shows the file hierarchy similar to usual. The internal menus can be used in conjunction with the tickboxes beside each object to perform actions like upload or download.

Notes: Also see [http://www.materials.ox.ac.uk/local/it/materials-fileserver.html](http://www.materials.ox.ac.uk/local/it/materials-fileserver.html)
Data from Equipment on department network (FTP)

Example data transfer:
Windows filesharing
Secure File Transfer
Netstorage (Web)
Oxfile or FTP
Removable Media

Transfer via Web through Oxfile or FTP
The university provides a file transfer web interface [http://oxfile.ox.ac.uk](http://oxfile.ox.ac.uk) great for sharing large files. The department also provides an FTP server [ftp://olympus.materials.ox.ac.uk](ftp://olympus.materials.ox.ac.uk) which is suited to transferring lots of small files. More information is at [http://www.materials.ox.ac.uk/local/it/itftp.html](http://www.materials.ox.ac.uk/local/it/itftp.html)

[Password for FTP available from IT staff upon request]

Notes: Also see [http://www.materials.ox.ac.uk/local/it/materials-fileserver.html](http://www.materials.ox.ac.uk/local/it/materials-fileserver.html)
Data from Equipment not on any network (USB)

Example data transfer:
Windows filesharing
Secure File Transfer
Netstorage (Web)
Oxfile or FTP
Removable Media

Transfer via Removable Media
Possible options are USB pen drive or USB hard disk or on older machines maybe even CD / DVD / Zip / floppy!

If the equipment control computer is not networked then files must be transferred using removable media.

Since the reason for the computer not being networked is likely to be security, it is ESSENTIAL that any USB device being used for transferring files should have been scanned with up-to-date antivirus software (on a networked computer) and confirmed as being virus-free BEFORE being connected to the equipment control computer.

Users are recommended to have a dedicated USB drive only for use in transferring data off equipment control computers (which can be reformatted regularly to prevent cross contamination between different equipment).

Notes: Also see http://www.materials.ox.ac.uk/local/it/materials-fileserver.html
Electron microscopes based in the **Holder Building** are all on a separate secure private network with a storage server for public file access (prem.materials.ox.ac.uk).

Electron microscopes and OMCS equipment based at **Begbroke** are mostly on a separate secure private network with another storage server for public file access (bbem.materials.ox.ac.uk).

If the equipment is connected to a secure private network (e.g. you cannot open a webpage) then the equipment control computer should have a mapped network drive for storing your data on the storage array. (e.g. Z:\\prem\data)

The files can be accessed (**read-only**) from the public network either via Windows Filesharing or via Secure File Transfer using shared **emgroup** username and password.

**Notes:** Data is on bbem or prem depending where the equipment is. Shared read-only user account **emgroup** (password provided during training)
Data from equipment on private network: Overview

Windows filesharing Secure File Transfer

Windows file sharing from map network drive
The images below show an example connection using account ‘emgroup’ to connect to the “2100” shared drive on server called prem.materials.ox.ac.uk which results in the file store being mounted as the Z: drive. Similar drive mappings can be used to connect to the other equipment shares (e.g. merlin1, merlin2, 5510, arm200f etc.)

Similarly drive mapping to bbem.materials.ox.ac.uk to connect to begbroke equipment data (e.g. omcs, 840f etc.)
Data from Equipment on department network (SSH)

Example data transfer:
- Windows filesharing
- Secure File Transfer
- Netstorage
- FTP
- Removable Media

Secure File Transfer EM Fileservers using WinSCP
WinSCP [http://winscp.net/](http://winscp.net/) is installed on most departmental computers.

Use the shared "emgroup" account to transfer files out of the EM fileservers
- prem.materials.ox.ac.uk
- bbem.materials.ox.ac.uk

Note that access to EM fileservers is READ-ONLY.
- prem.materials.ox.ac.uk
- bbem.materials.ox.ac.uk

Notes:
Data from Equipment on private networks (SSH)

Data from equipment on private network:
Overview
Windows filesharing
Secure File Transfer

Please note that the Secure Shell Client software shown below is no-longer supported and no-longer works with the department fileservers (Please uninstall this software if you still have it)

The file transfer window allows you to drag&drop files from the storage array (right pane, read only) into your local computer.
Each equipment is listed as separate folders, within which should be users own named folders.

Notes:
Any questions?

• iLab booking system queries
  – Neil Young - manager of EM core
  – Colin Johnson – manager of OMCS core
  – Paul Warren – IT manager

• Department website queries
  – Paul Warren – webmaster@materials.ox.ac.uk

• General IT queries
  – Email queries to itsupport@materials.ox.ac.uk
  – Guidance is on department website http://www.materials.ox.ac.uk/local/it/