



ASCI

Australian Synchrotron Computing Infrastructure



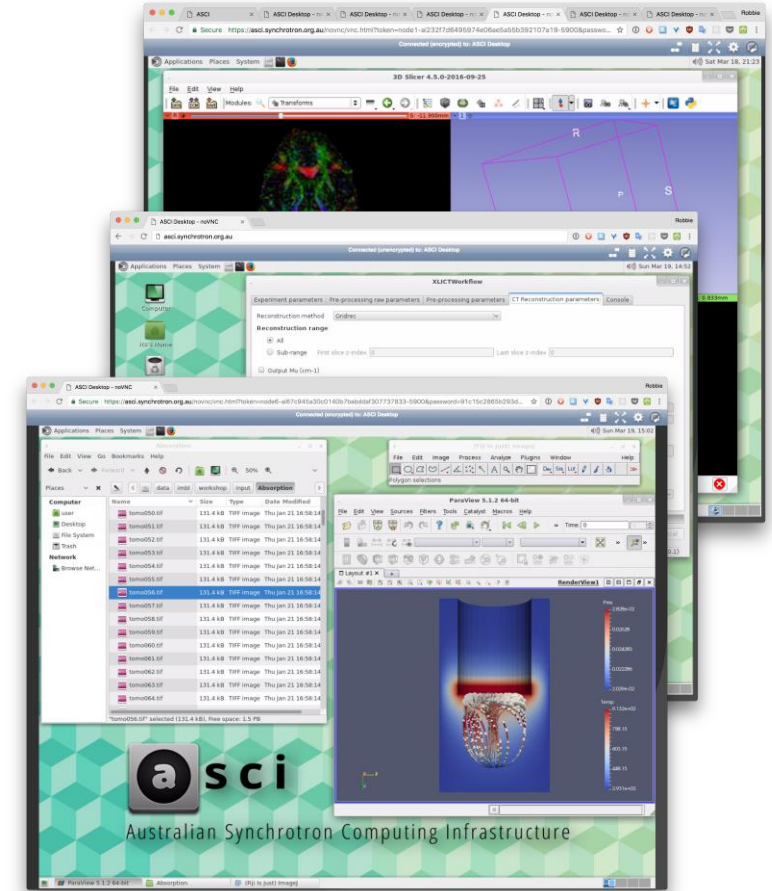
Dr. Andreas Moll

Manager – Scientific Computing

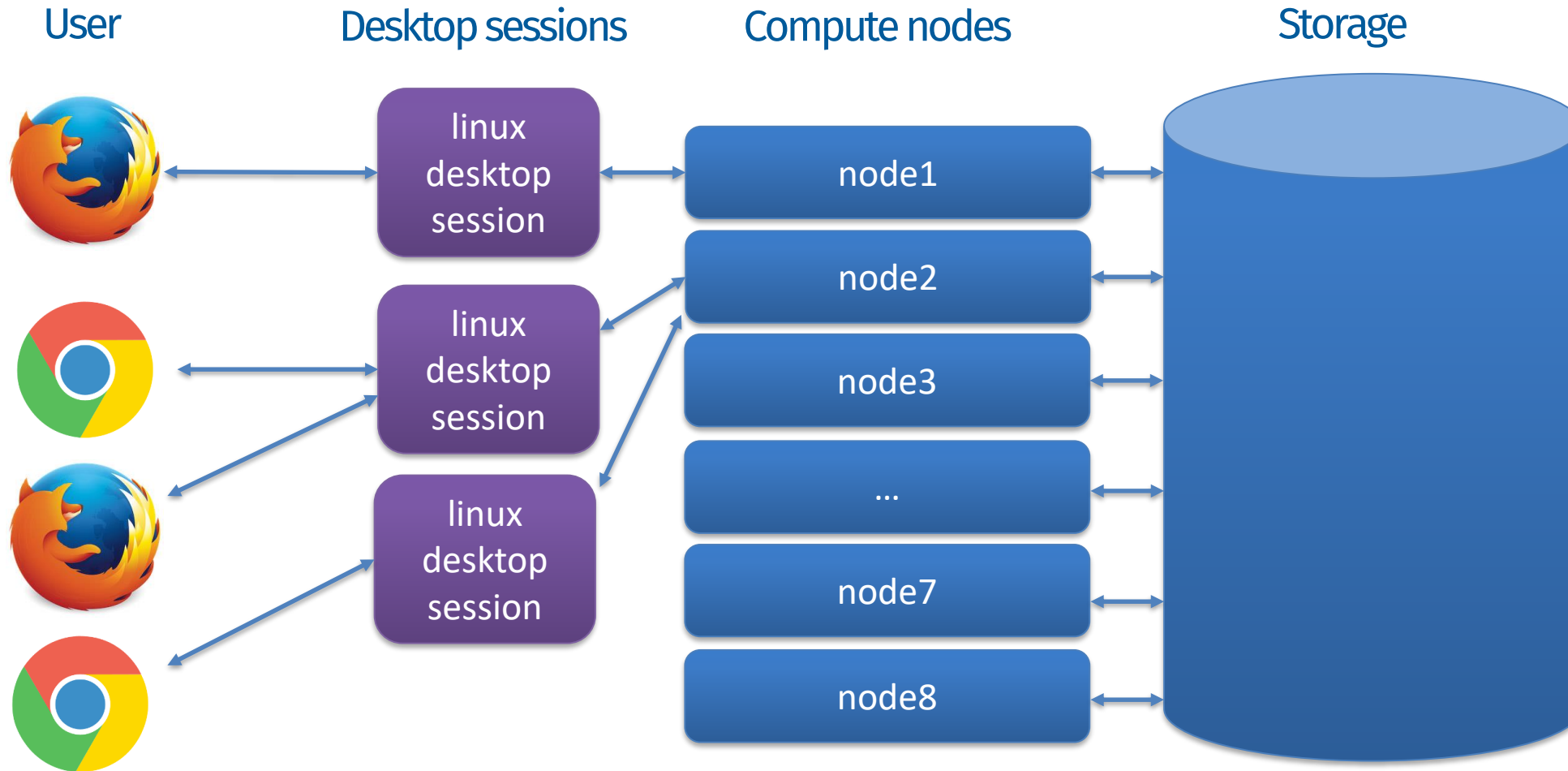
Science. Ingenuity. Sustainability.

ASCI

- High performance computing platform
- Intuitive desktop interface
- Preconfigured processing environments
- Data instantly available
- No client-side configuration
- Accessible anywhere in the world



System



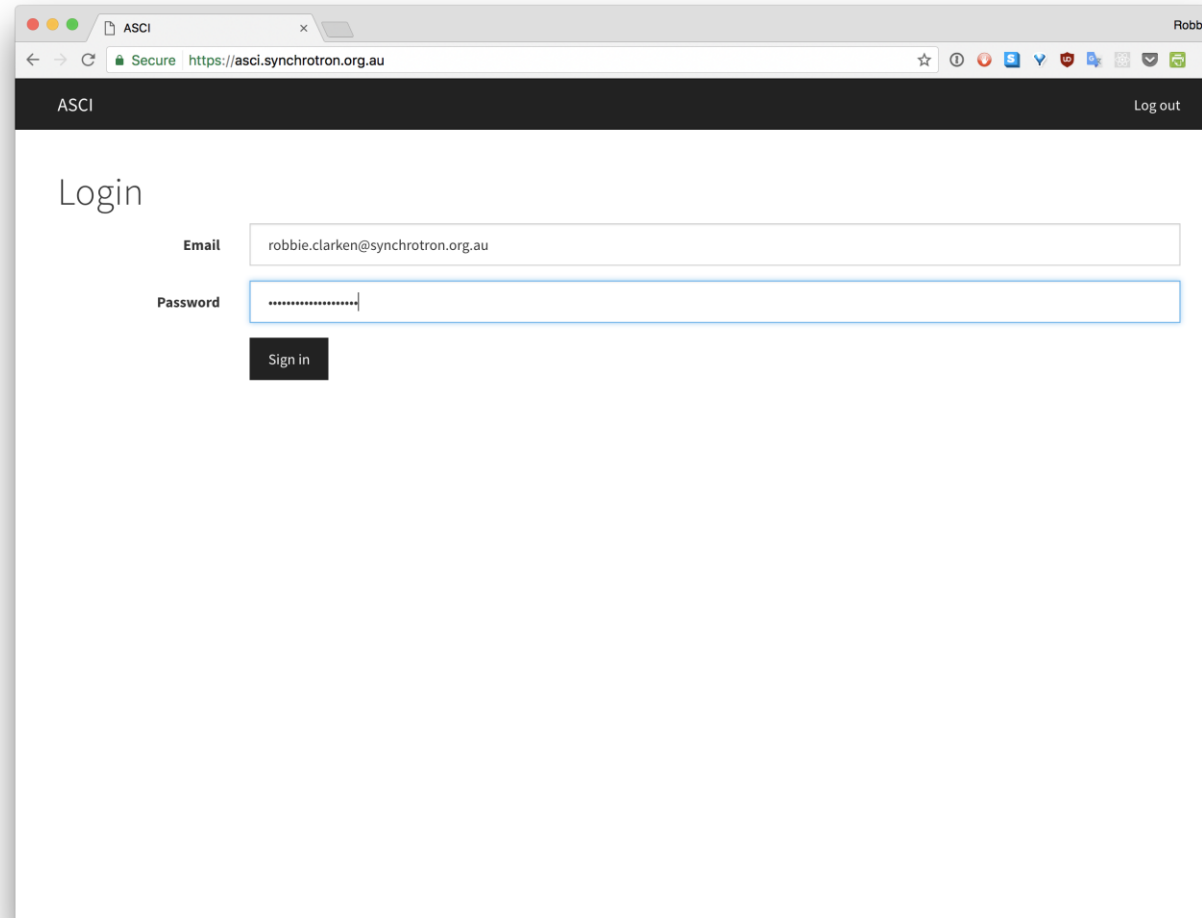
Node Hardware

- 2 x Intel Xeon E5-2650 v4
 - 12 cores / 2.2 GHz
 - With hyper-threading: 48 cores per node
- 2 x NVIDIA GeForce GTX 1080, 8GB
 - 5120 cuda cores per node
- 512 GB RAM
- 480 GB SSD per node



ASCI Access

How to access ASCI



A screenshot of a web browser window showing the ASCI login page. The browser's address bar displays "Secure https://asci.synchrotron.org.au". The page has a dark header with "ASCI" on the left and "Log out" on the right. The main content area is titled "Login" and contains two input fields: "Email" with the value "robbie.clarken@synchrotron.org.au" and "Password" with masked characters. A "Sign in" button is positioned below the password field.

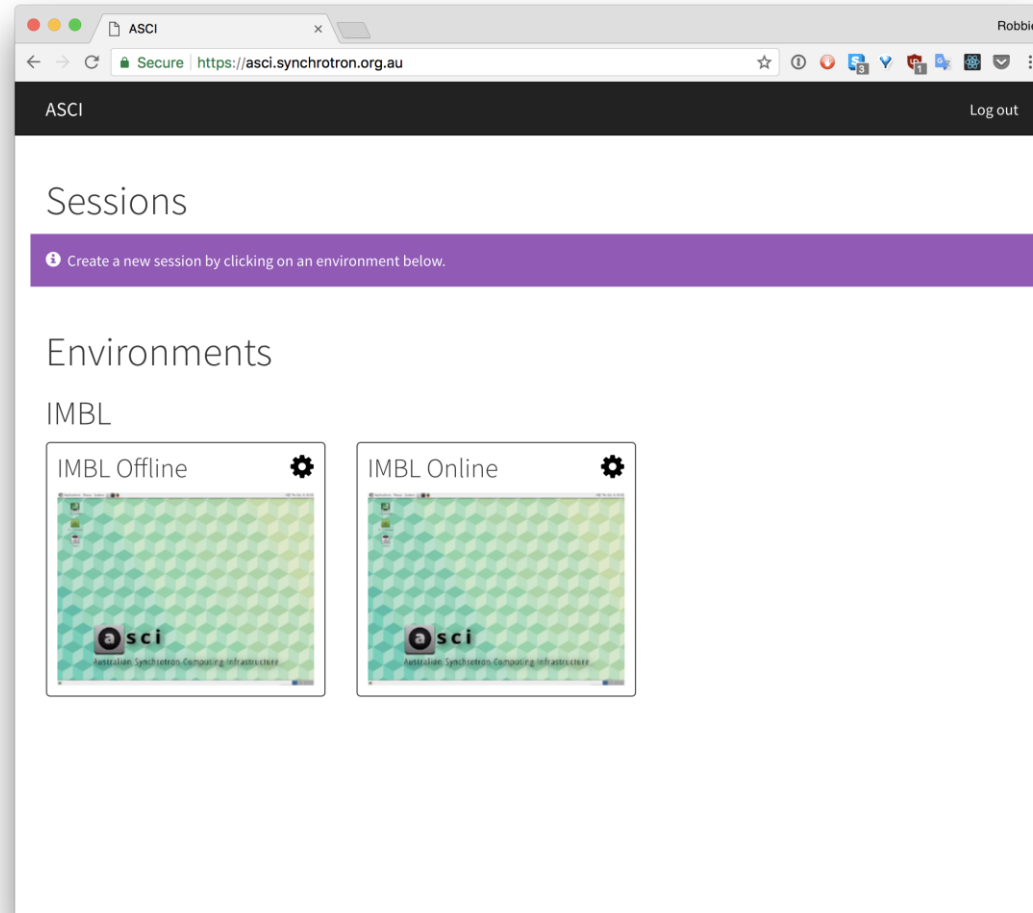
ASCI Log out

Login

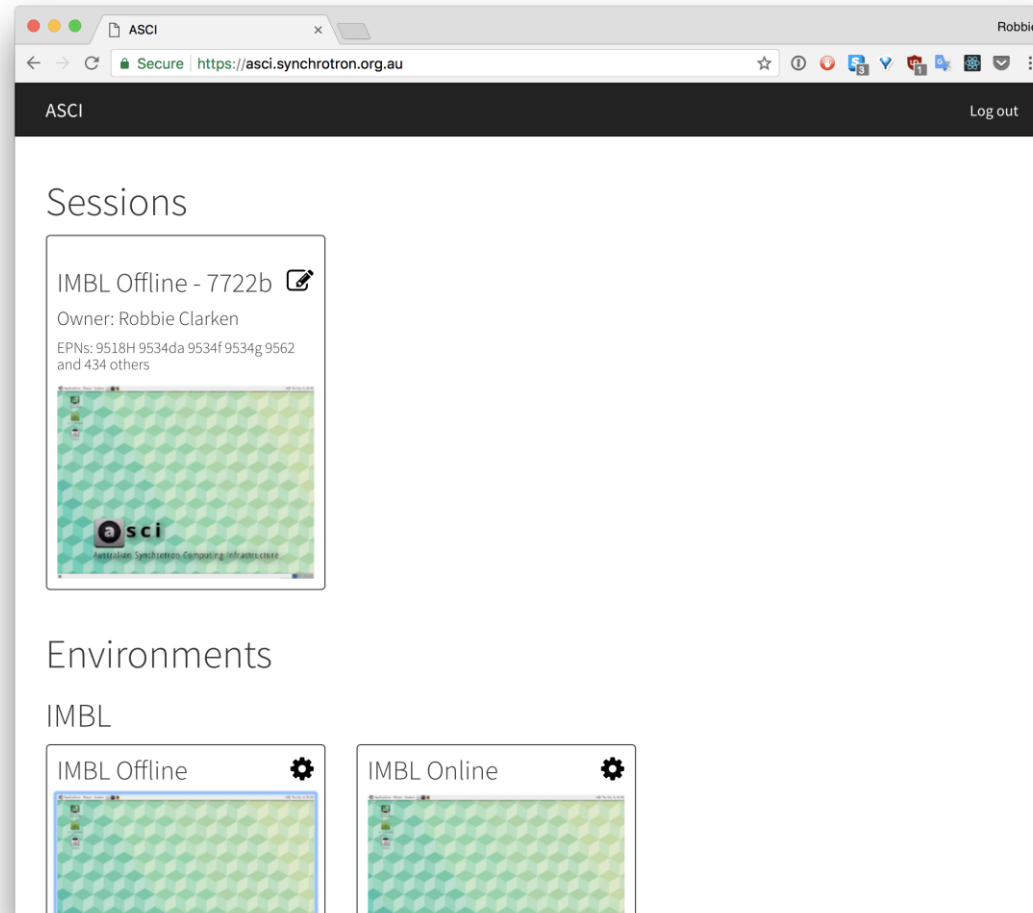
Email

Password

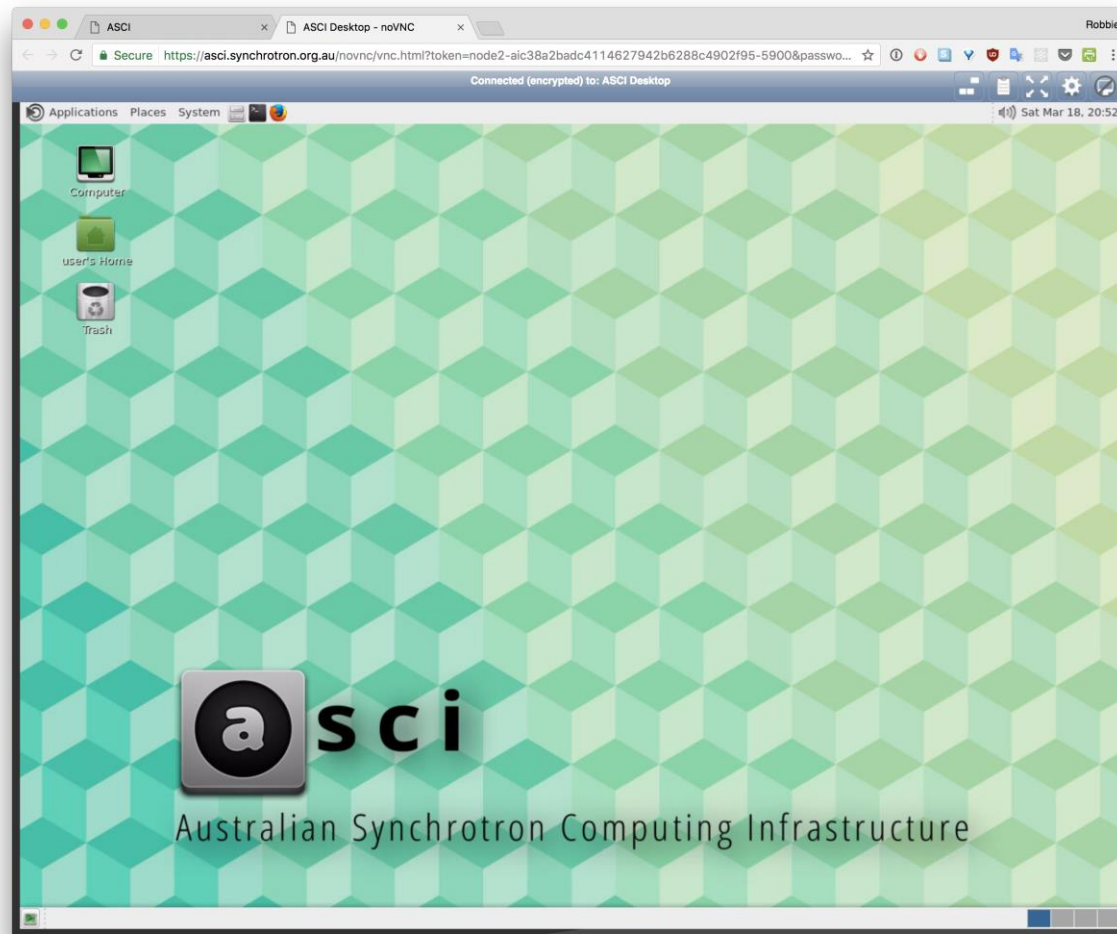
How to use ASCI



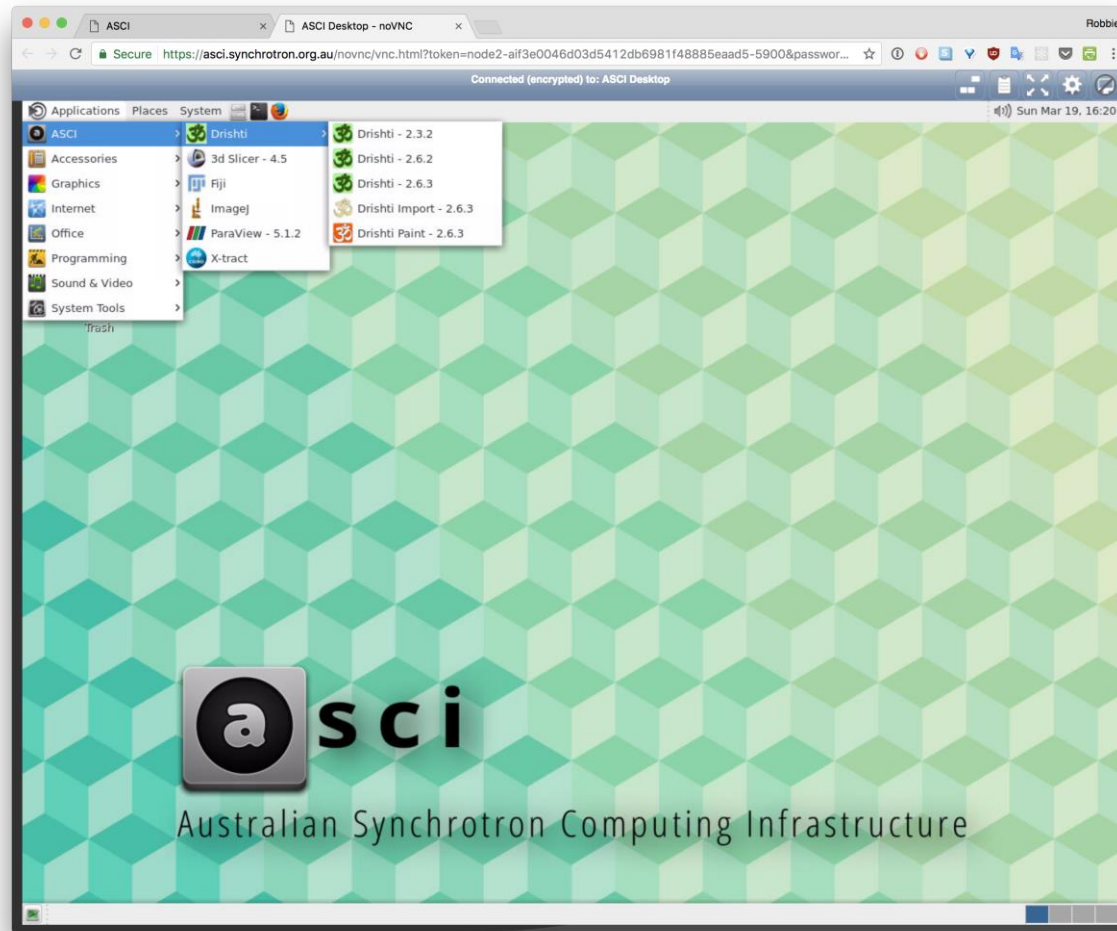
How to use ASCI



How to use ASCI



Where are my Applications?



Switching to Full Screen

1. Open a terminal
2. Enter the following command:

`asci-resolution WIDTH HEIGHT`

3. Hit Enter
4. Expand left menu
5. Click full screen button



Where to find your Data

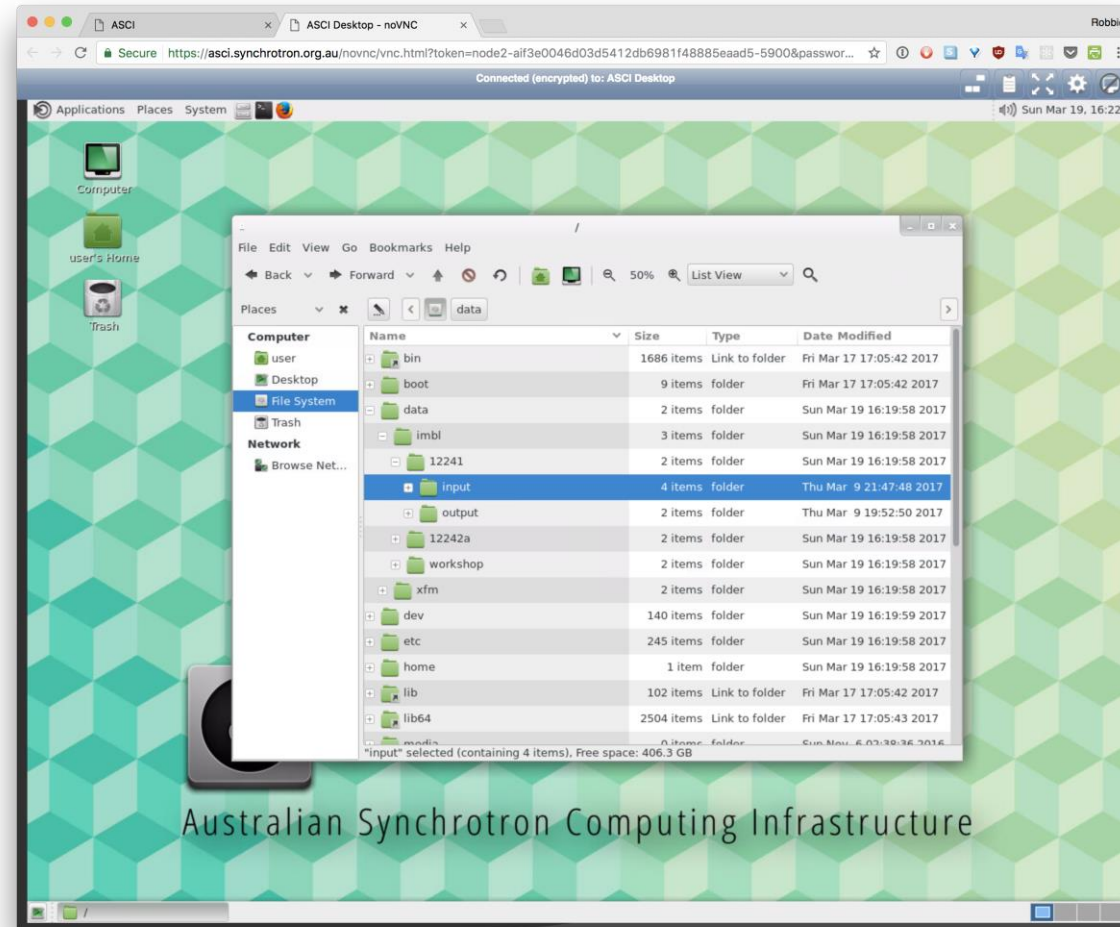
Data is found in

`/data/<beamline>/<epn>`

Eg:

`/data/imbl/12241`

- `input` folder is read-only
- `output` folder is writable
(applications should be set to write processed data here)



Environment

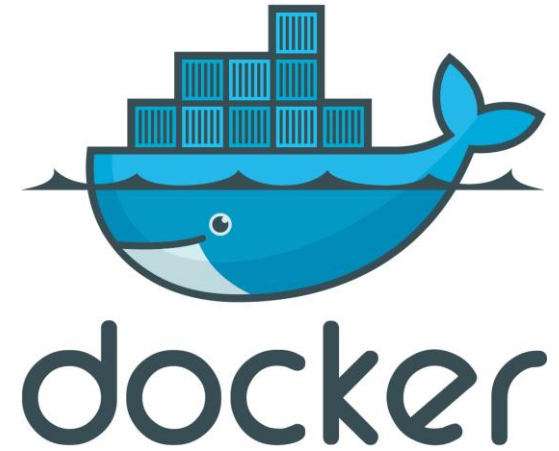
What is an Environment

- Defines the software available inside the session
- Supports versioning to facilitate reproducing analysis
- IMBL environment has:
 - ☐ X-TRACT
 - ☐ Drishti
 - ☐ ctas
 - ☐ Fiji
 - ☐ Python
 - ☐ ITK
 - ☐ ParaView
 - ☐ 3D Slicer
 - ☐ VolView
 - ☐ Meshlab
- Additional software can be added upon request
- Software needs to run on Linux or under Wine

Sessions

The Technology behind a Session

- Linux container running directly on the node
- Isolated process environment
- Processes have direct access to system resources (unlike VMs where there is an emulation layer)
- Low overhead → can run many sessions on the same node
- Sandboxed: users cannot read or write to files they haven't been given access to



How long will a Session last

- Less than one week – all sessions terminated on Monday Noon (12 pm)
- Note:
 - Changes made inside a container are not saved
 - Only data stored inside the experiment folder will be persisted between sessions
 - Save all scripts inside the experiment folder

Session Resources

- Nodes are allocated per beamline
- Ensure “online” experiment processing have sufficient resources
- All post-experiment IMBL processing will be allocated to a single node
- Sessions on this node will have full access to all RAM, CPU, GPU resources

node1: IMBL Online

node2: IMBL Offline

node3: XFM Online

node4: XFM Offline

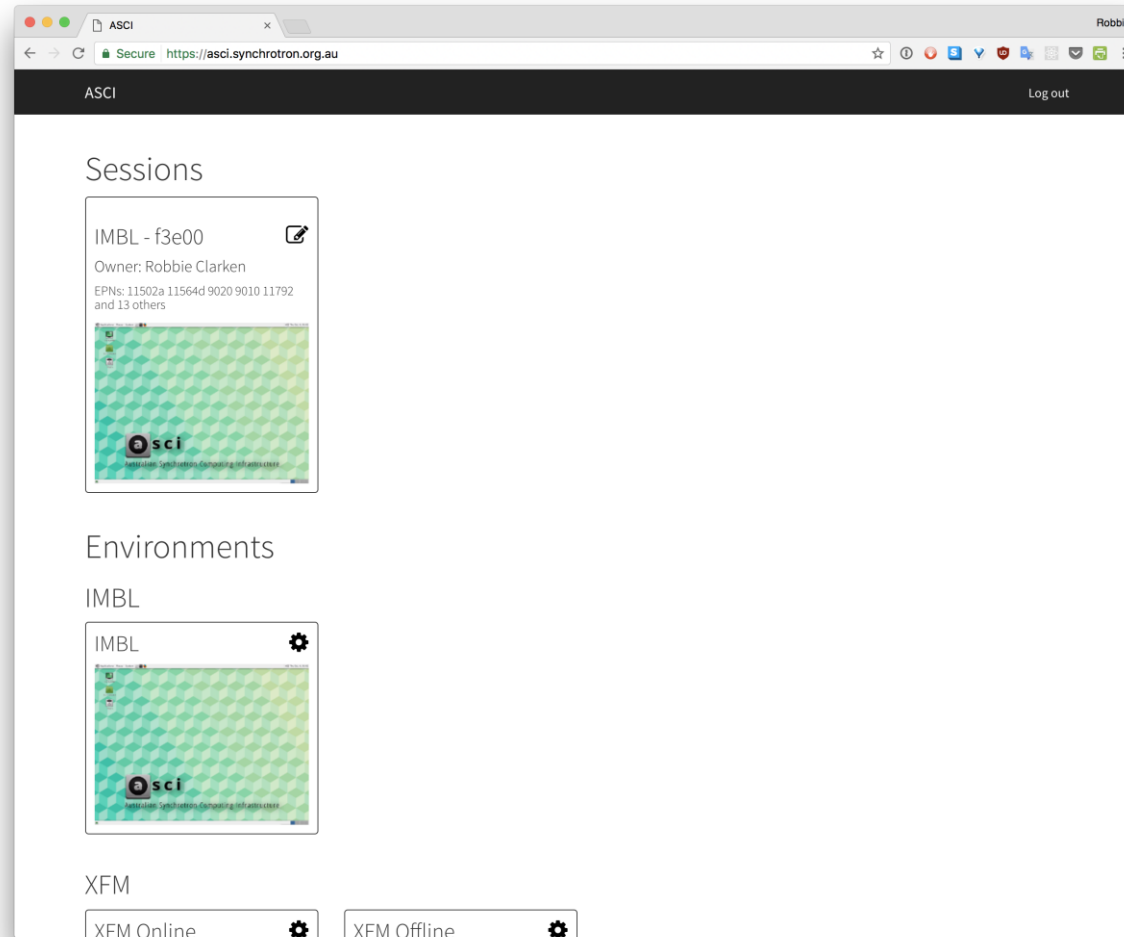
node5: MX2

node6: MX2

Session Management

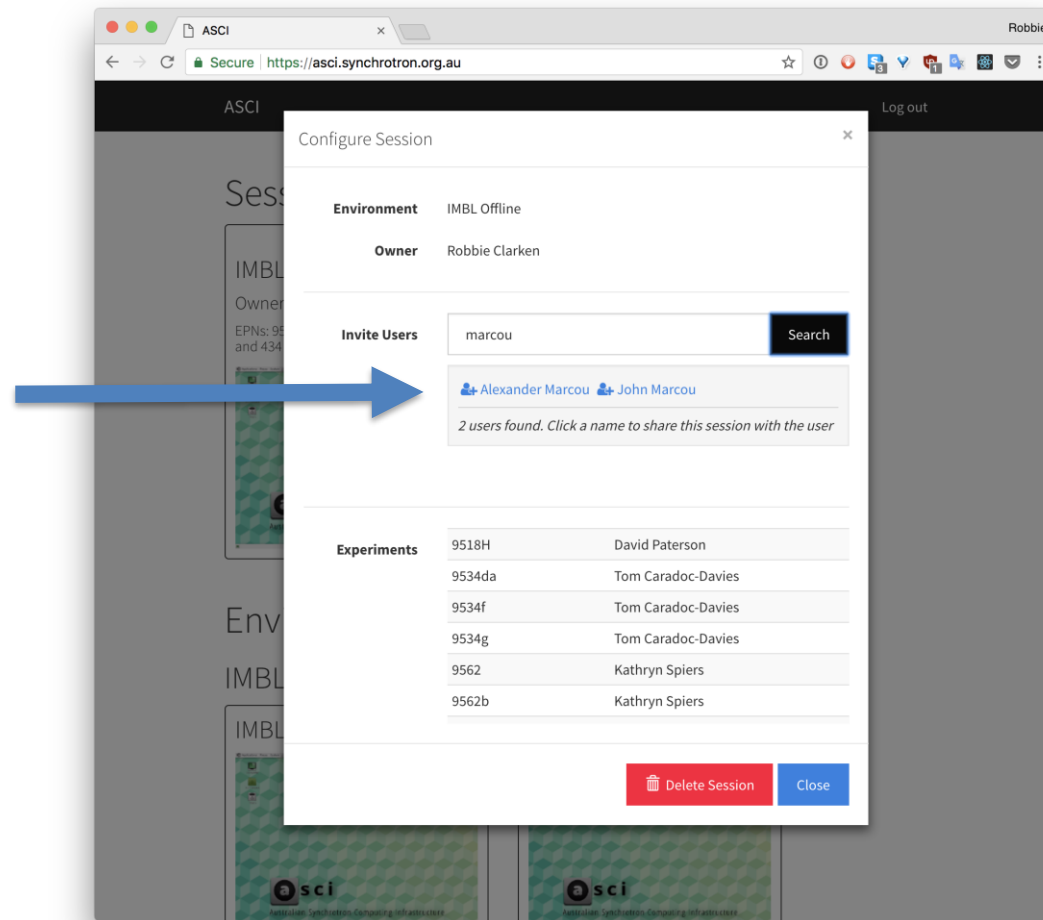
- The user who creates the session is the “owner”
- Initially only the owner can connect to the session
- Owner can share the session with any other ASCI user
- When multiple users connect, they each see the same desktop
- Both users can control the mouse cursor and enter keyboard input

Sharing a Session



Sharing a Session

Search for users and
click their name to
share



Experiment Data

- By default, every experiment you are a member of is mounted
- When you share a session you are granting the other user access to every experiment you have mounted
- If you want to restrict which experiments are mounted you must do it before creating the session

Having Problems?

ascomputing@ansto.gov.au

<https://asci.readthedocs.io/en/latest/index.html>