



# ASCI

Australian Synchrotron Computing Infrastructure

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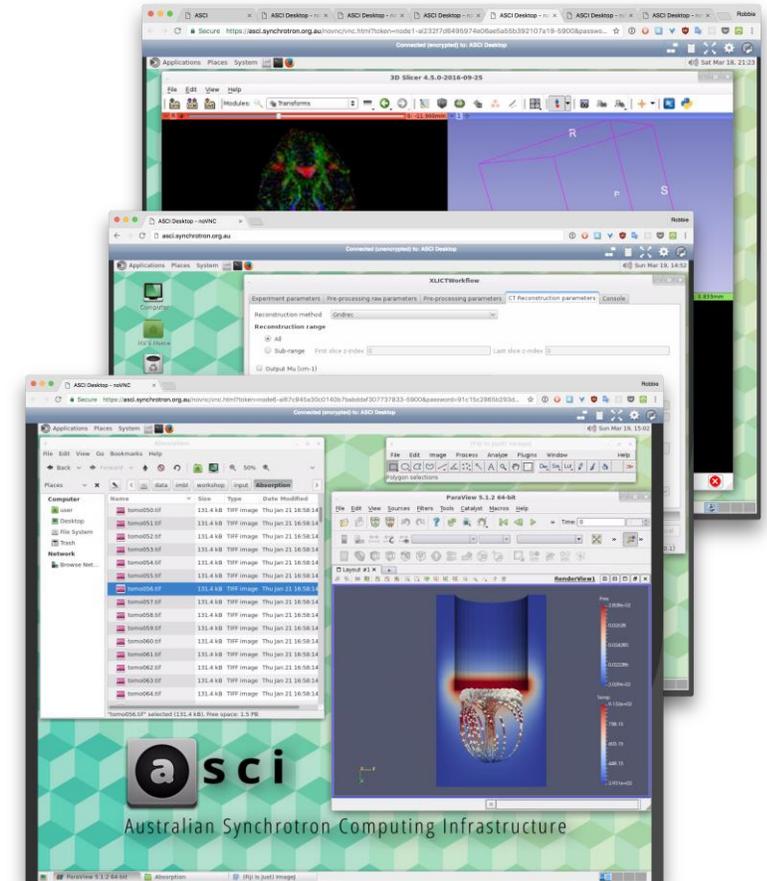
**Dr. Andreas Moll**

Manager – Scientific Computing

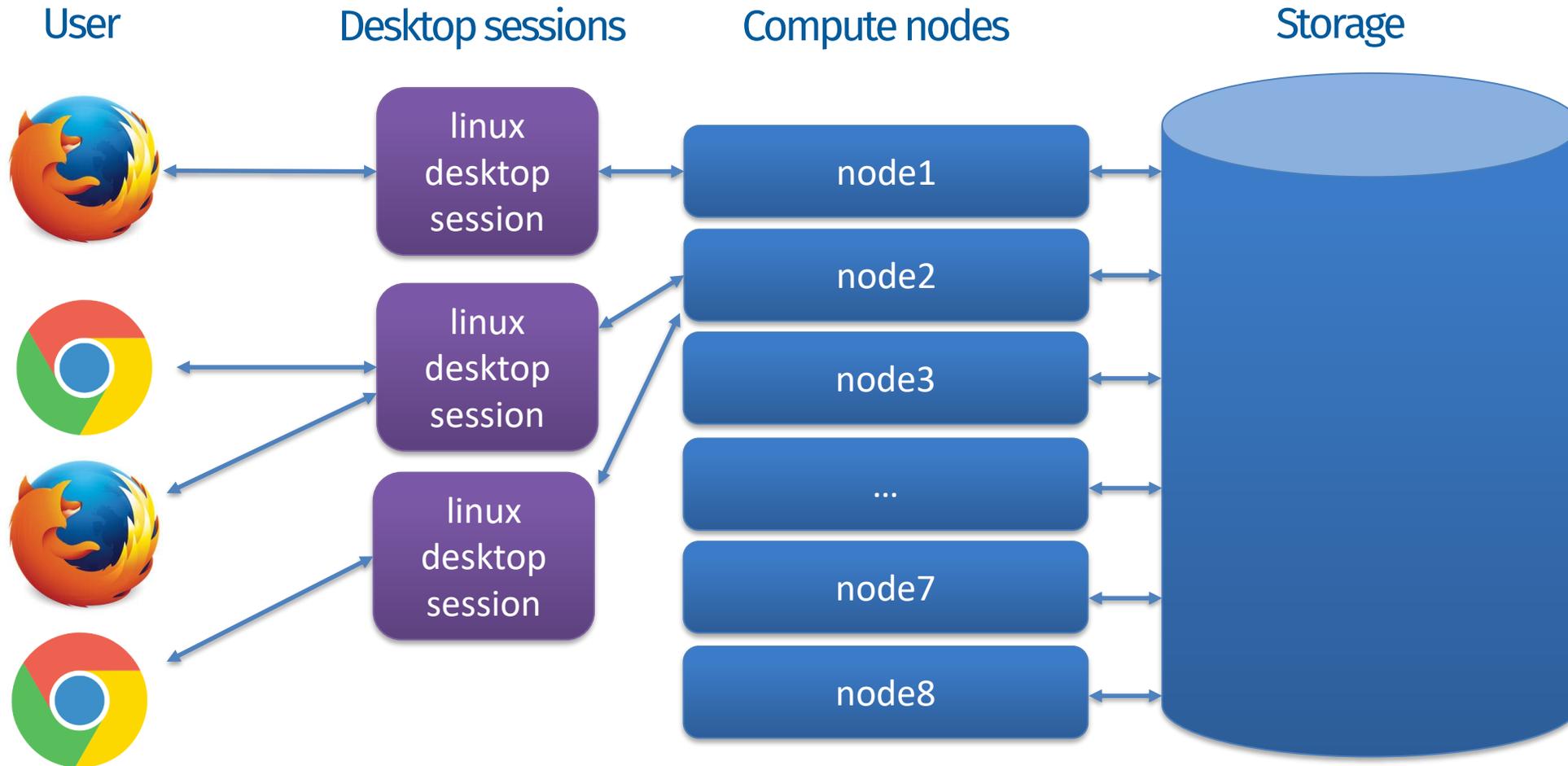
Science. Ingenuity. Sustainability.

# 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

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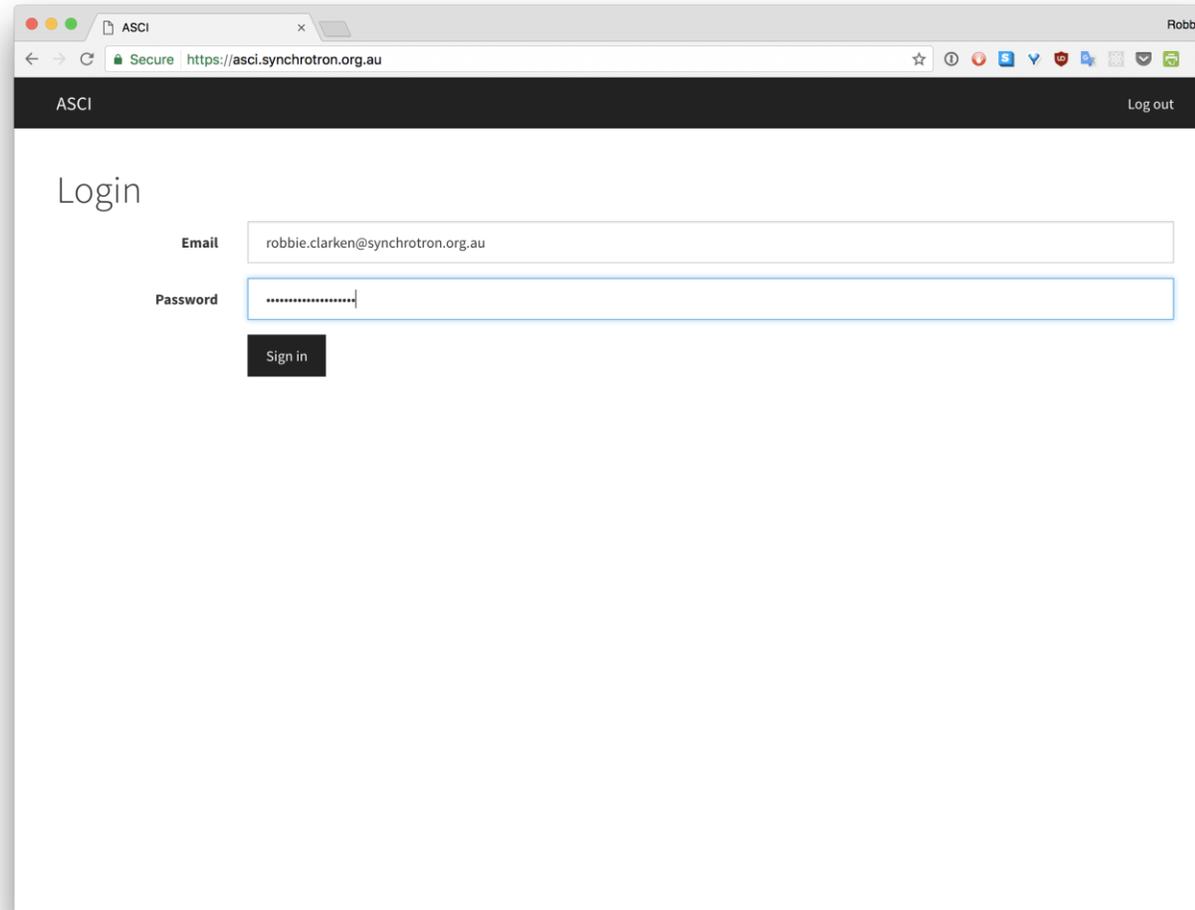
- 2 x Intel Xeon E5-2650 v4
  - 12 cores / 2.2 GHz
  - With hyper-threading: 48 cores per node
- 2 x NVIDIA GeForce GTX 1080, 8GB
  - 5120 cuda cores per node
- 512 GB RAM
- 480 GB SSD per node



# ASCI Access

# How to access ASCI

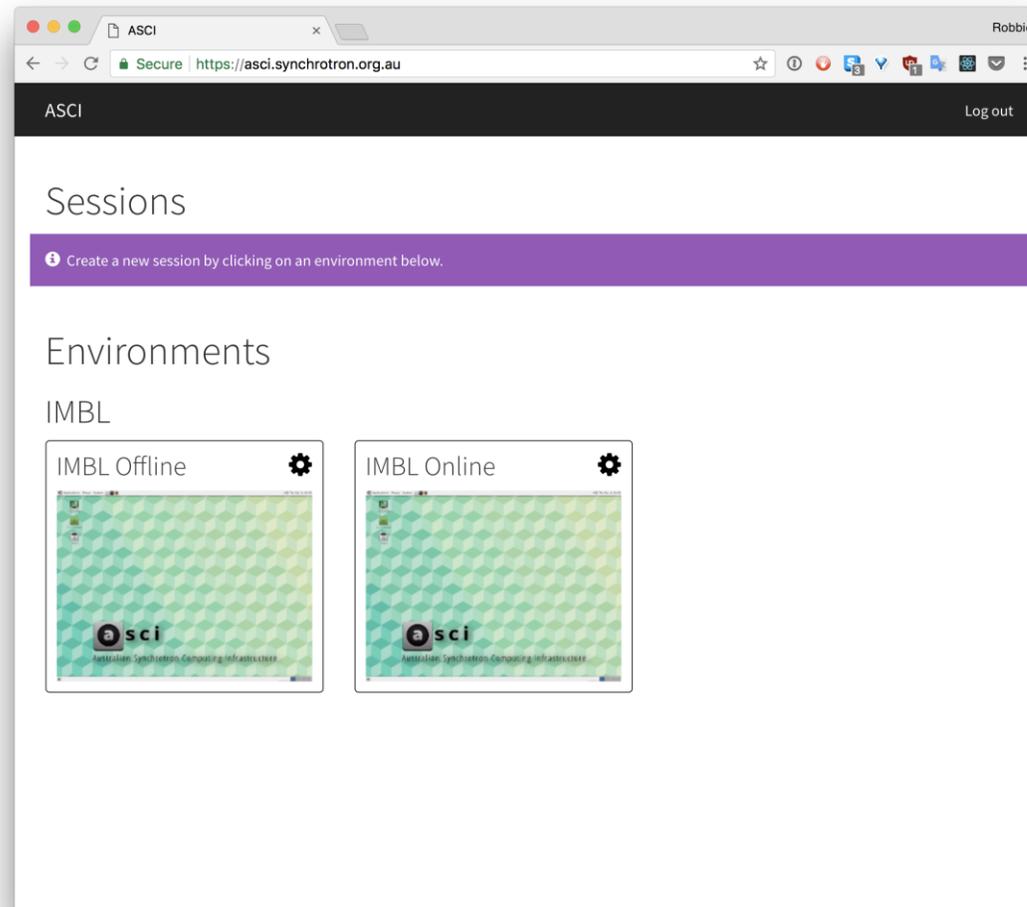
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A screenshot of a web browser window showing the ASCI login page. The browser's address bar displays "Secure https://asci.synchrotron.org.au". The page has a dark header with "ASCI" on the left and "Log out" on the right. The main content area is titled "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.

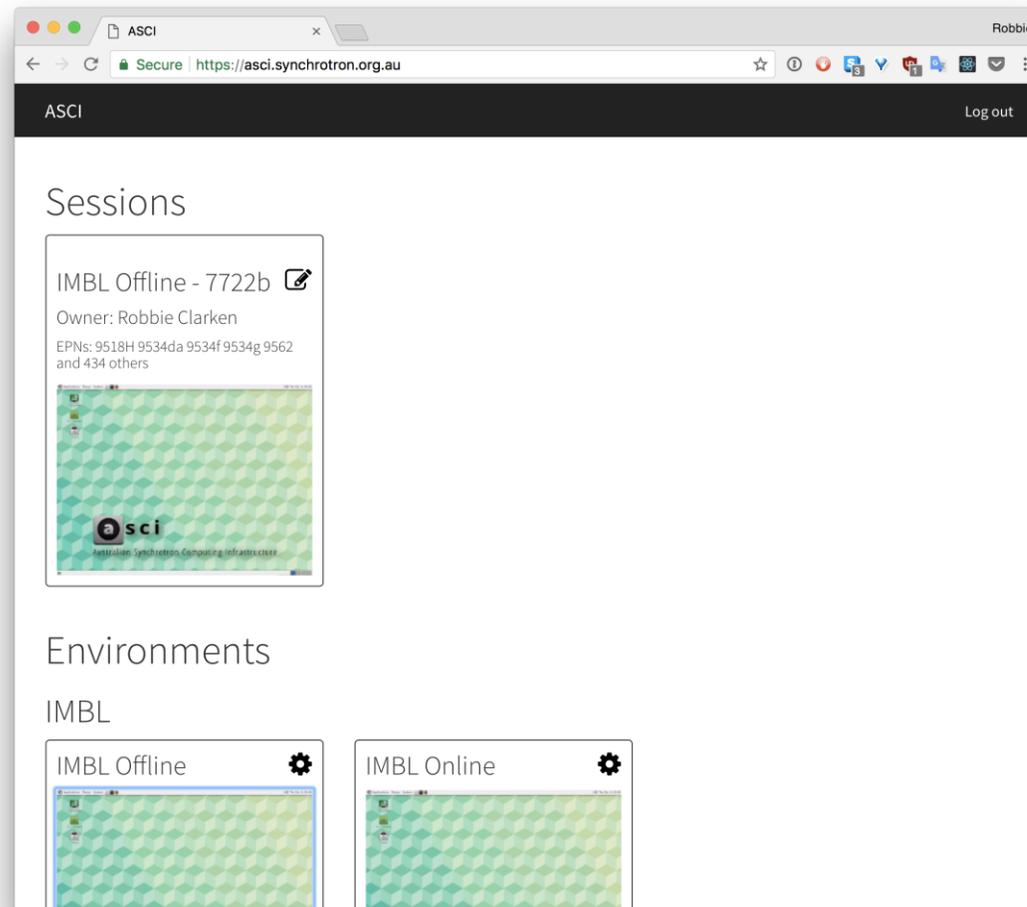
# How to use ASCI

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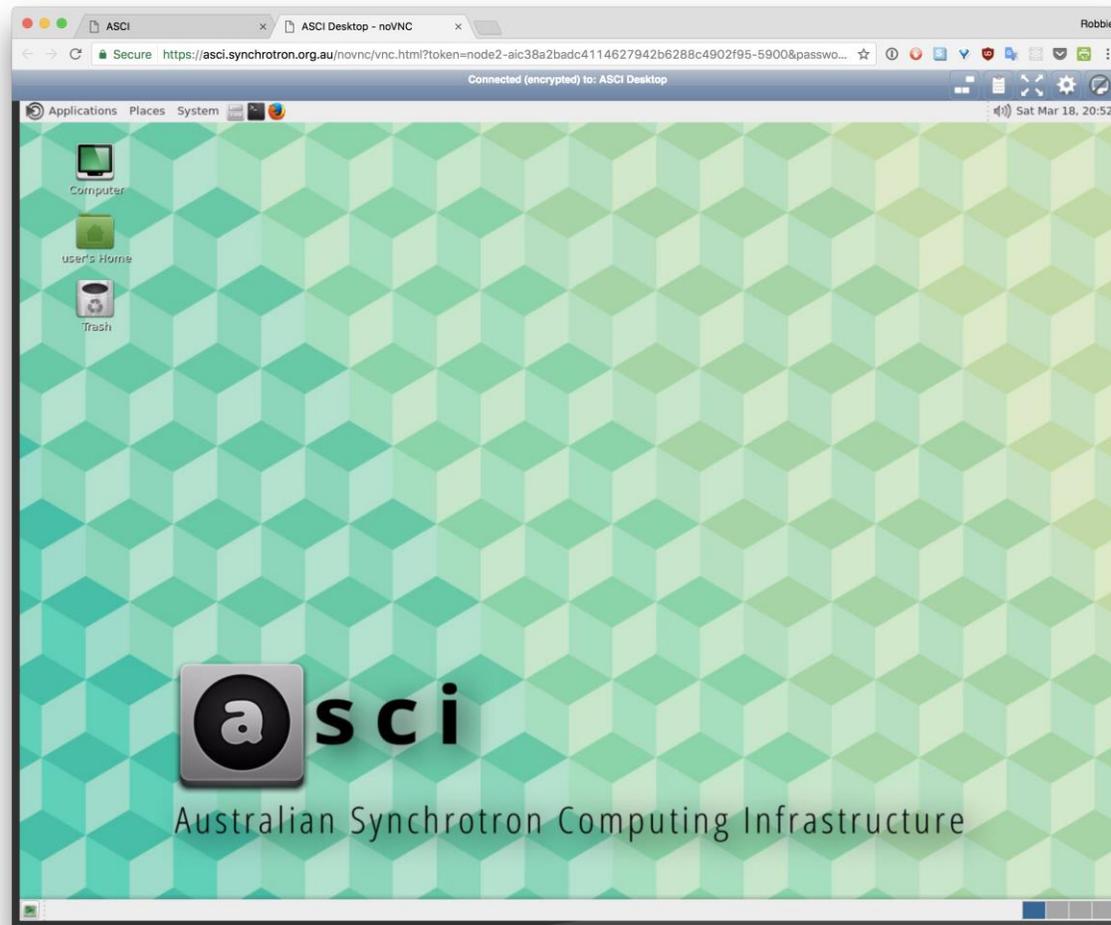
# How to use ASCI

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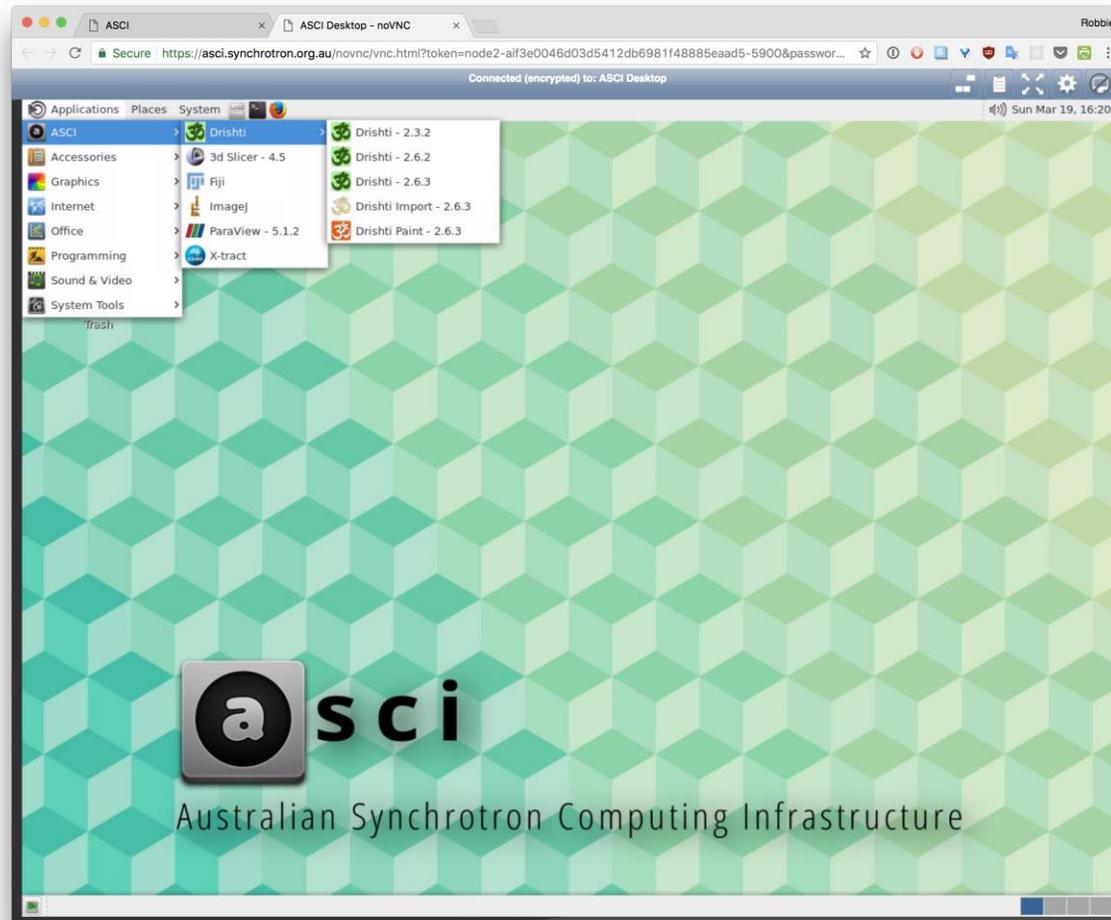


# How to use ASCI

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# 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

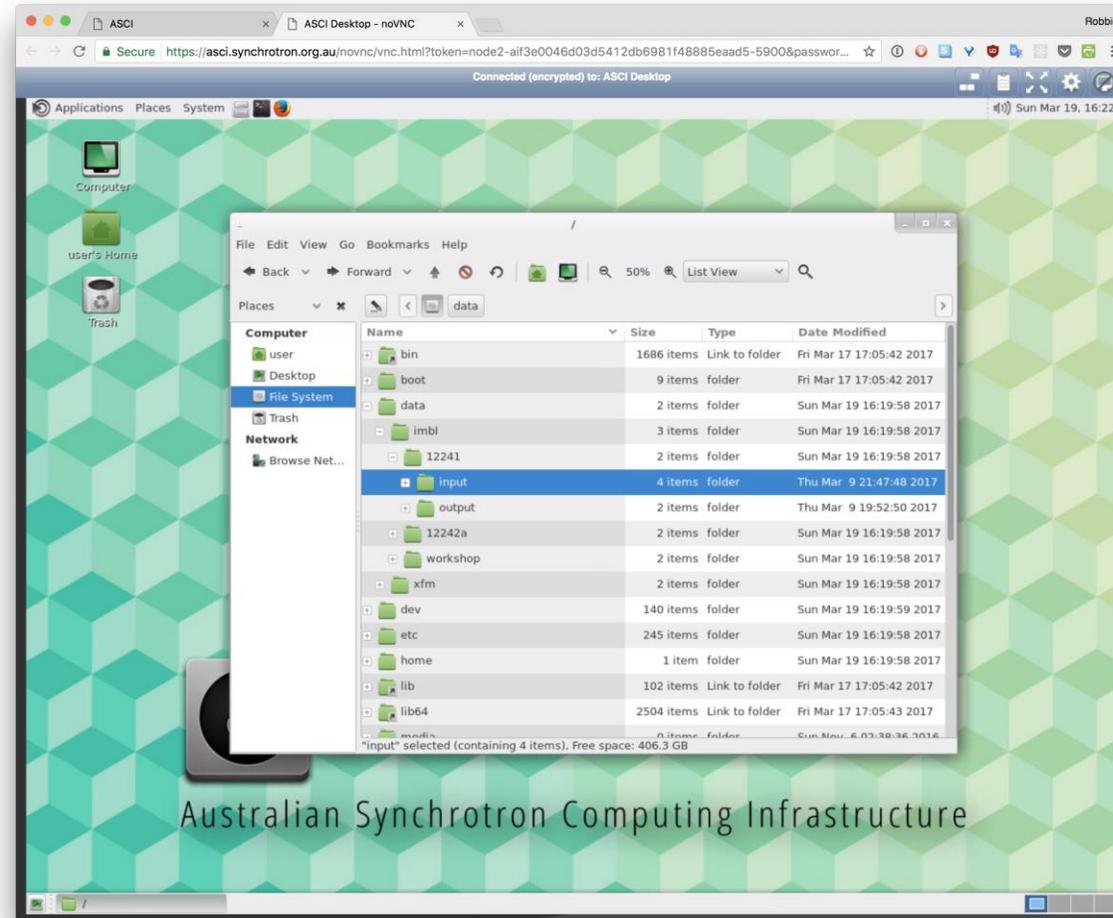
Data is found in

`/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

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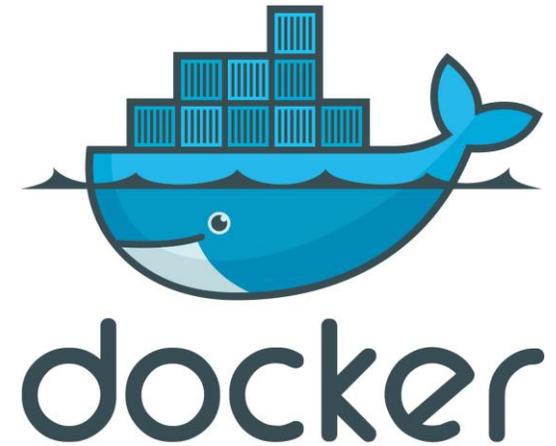
- Defines the software available inside the session
- Supports versioning to facilitate reproducing analysis
- IMBL environment has:
  - X-TRACT
  - Drishti
  - ctas
  - Fiji
  - Python
  - ITK
  - ParaView
  - 3D Slicer
  - VolView
  - Meshlab
- Additional software can be added upon request
- Software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

# Sessions

# The Technology behind a Session

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- 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

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- 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

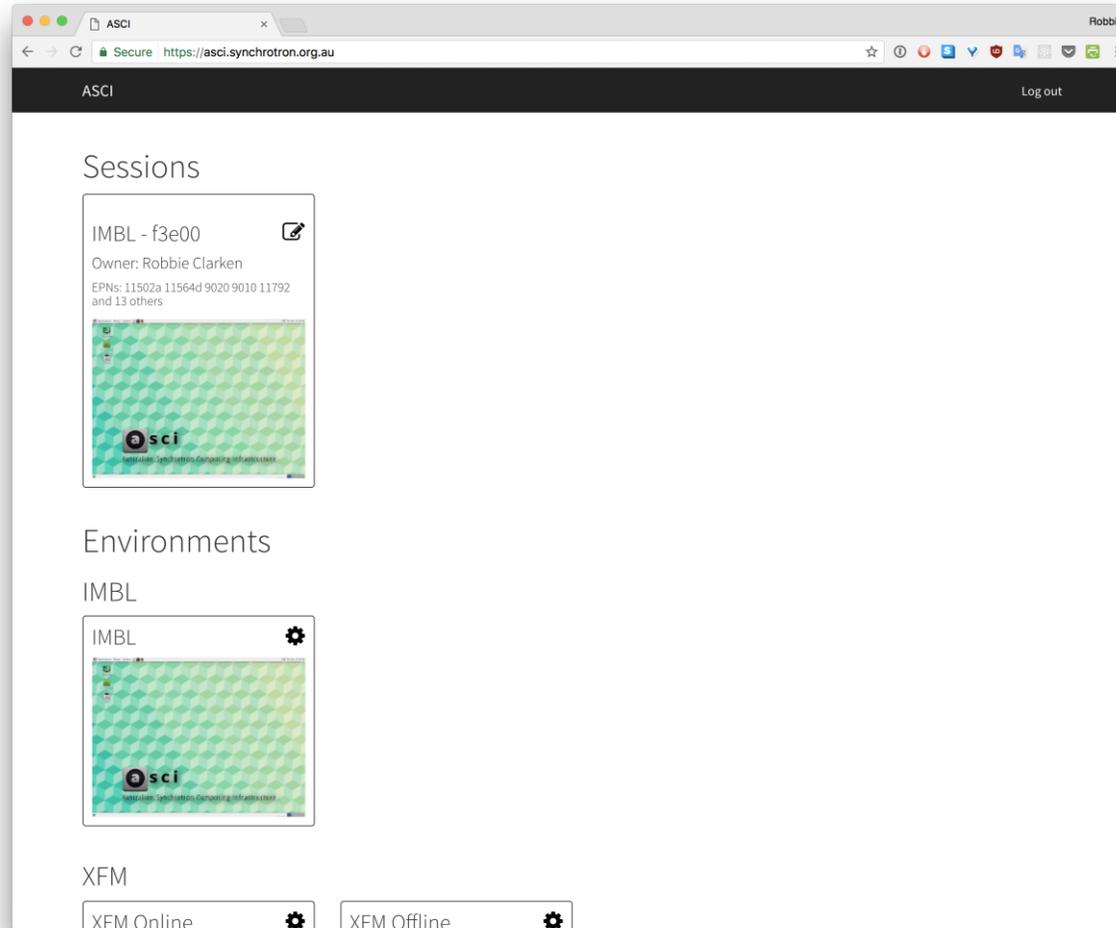
node6: MX2

# Session Management

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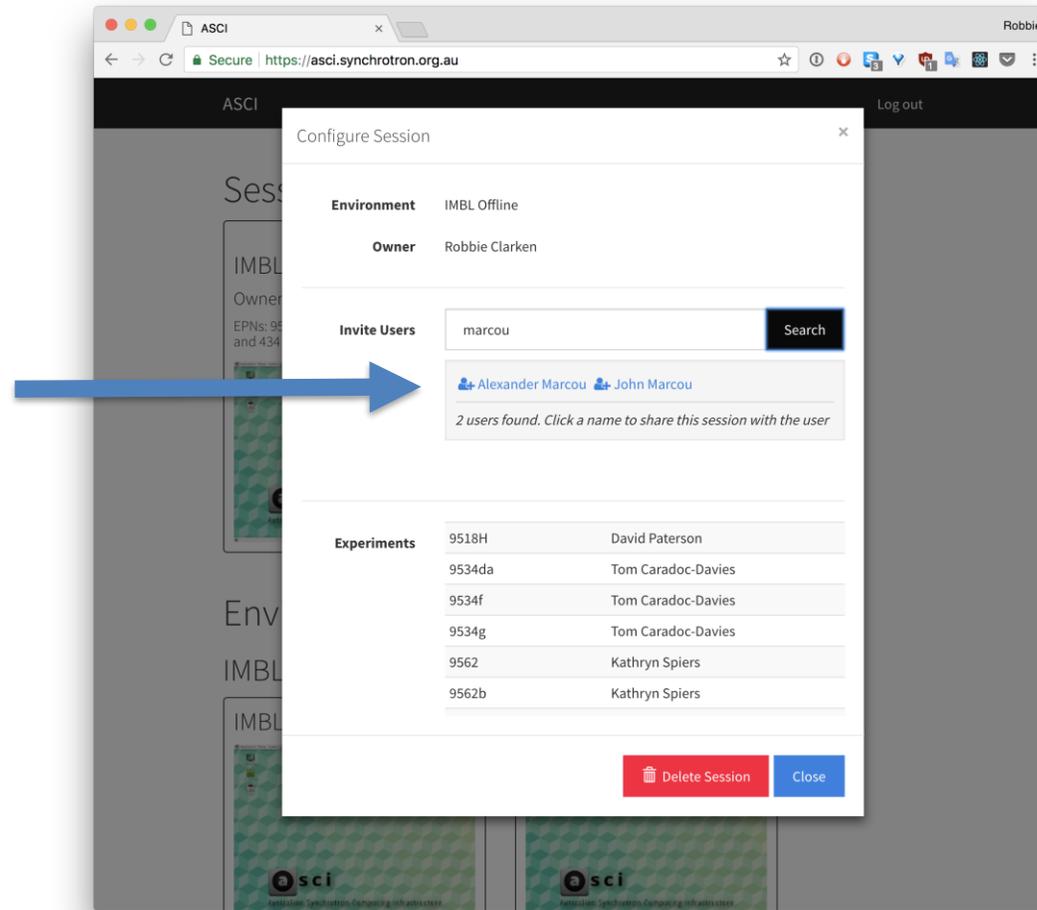
- The user who creates the session is the “owner”
- Initially only the owner can connect to the session
- Owner can share the session with any other ASCII user
- When multiple users connect, they each see the same desktop
- Both users can control the mouse cursor and enter keyboard input

# Sharing a Session



# Sharing a Session

Search for users and  
click their name to  
share



# Experiment Data

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- 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](mailto:ascomputing@ansto.gov.au)

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