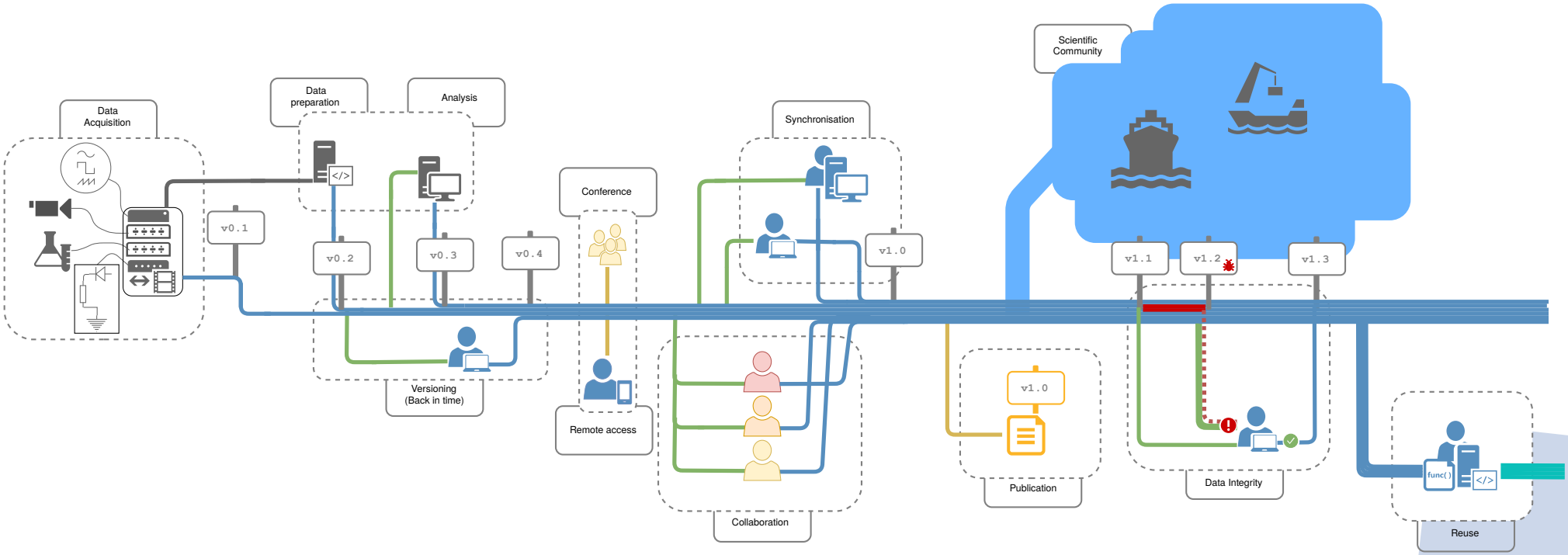
German Neuroinformatics Node

Research Data Management, Hosting and Sharing

- GIN research data platform
- NIX neuroscience data format
- odML metadata format

GIN - G-Node Infrastructure

Data management from acquisition to publication

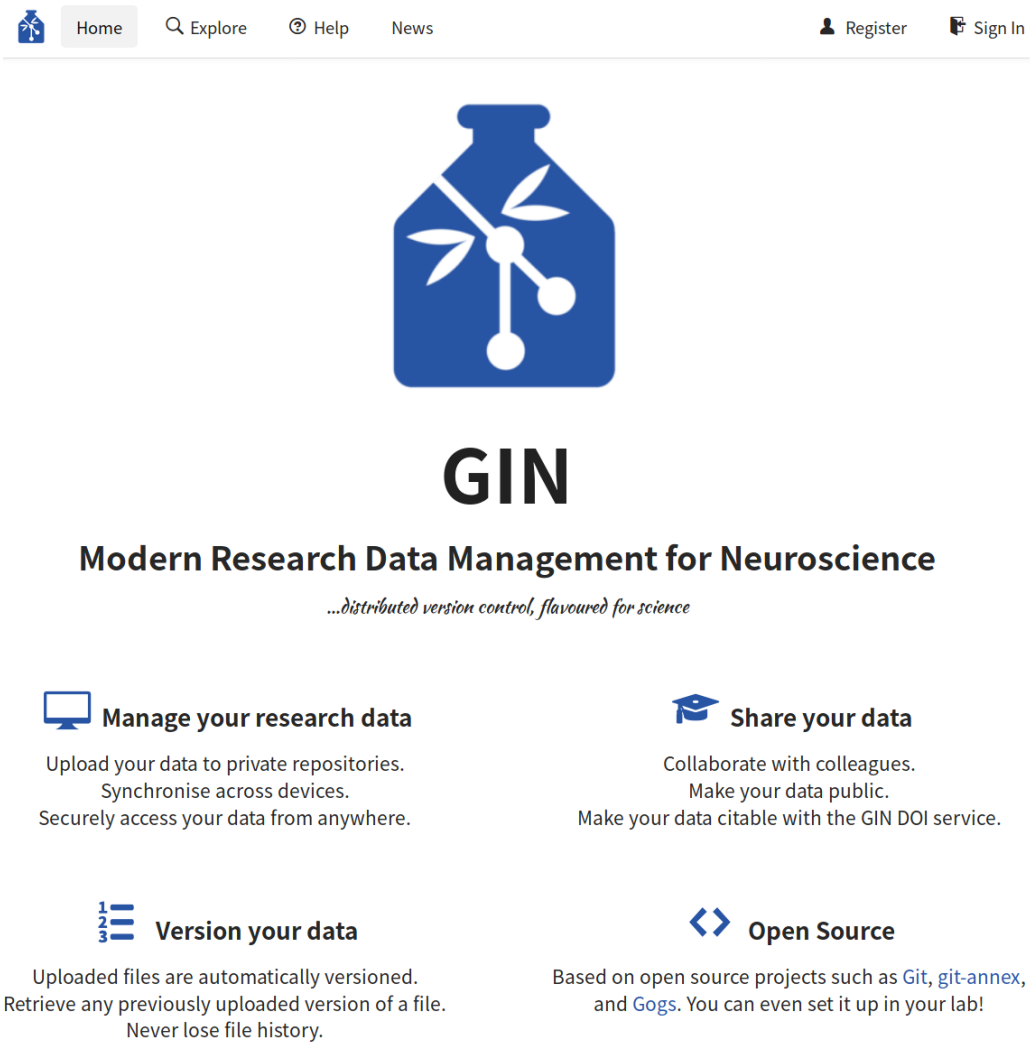


LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

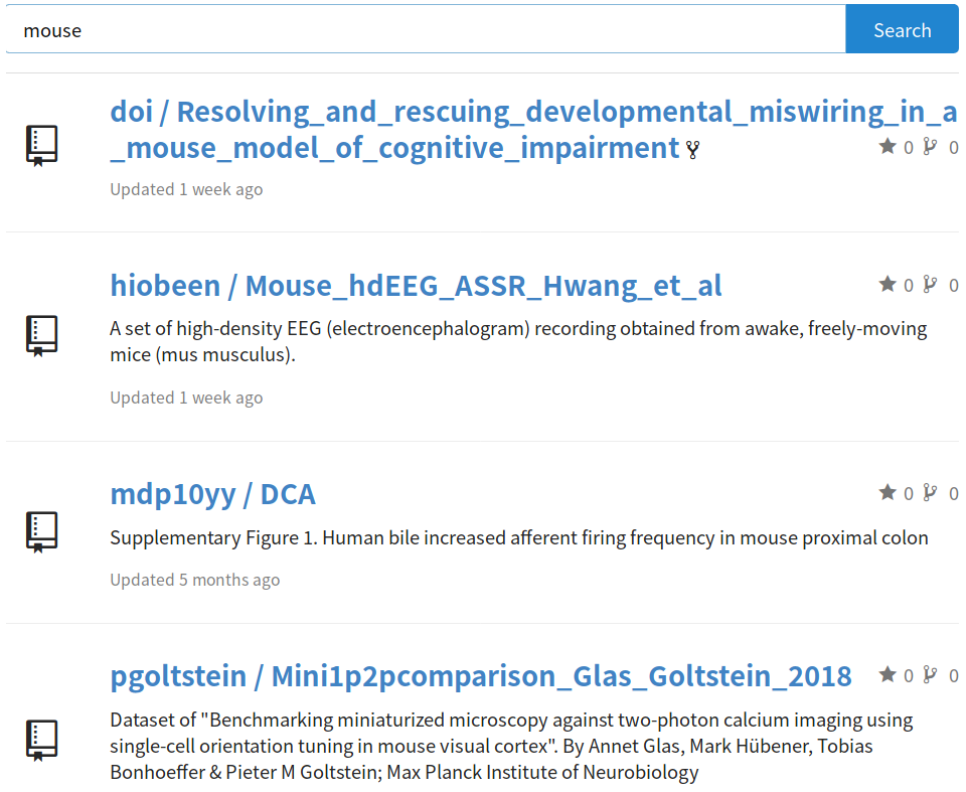
G-Node

https://gin.g-node.org

GIN - G-Node Infrastructure



Scientific data hosting service



LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

G-Node

https://gin.g-node.org

GIN - G-Node Infrastructure

Research data management services

- location independent data access
- secure access and user management
- sharing and collaboration
- built-in versioning
- manual and automated workflow integration
- free storage for scientific data
- platform independent

GIN - G-Node Infrastructure

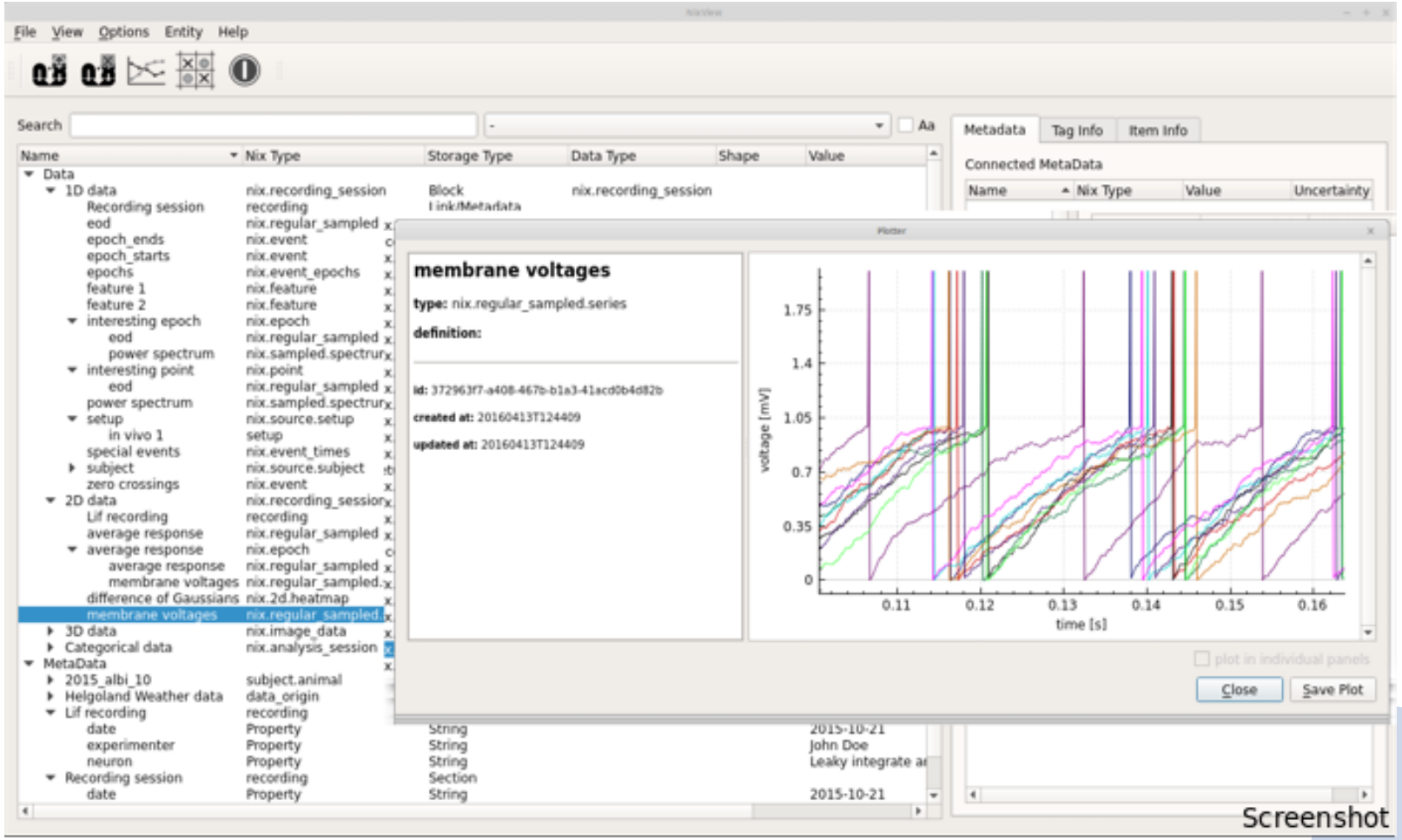
- Neuroscience data repository recommended by:

- Statistics
  - ~ 2000 repositories (800 public)
  - ~ 2000 users
  - 40 TB of research data (all repositories)

GIN Microservices

- Publication https://doi.gin.g-node.org
  - free data publication service
  - citable datasets (DOI)
  - 200 published data sets
  - total published data size: 7.5TiB
- Validation https://valid.gin.g-node.org
  - automated validation of new data
    - BIDS, NIX, odML
    - custom validators

NIX - Neuroscience Exchange format



http://bendalab.github.io/NixView

Open neuroscience file format

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

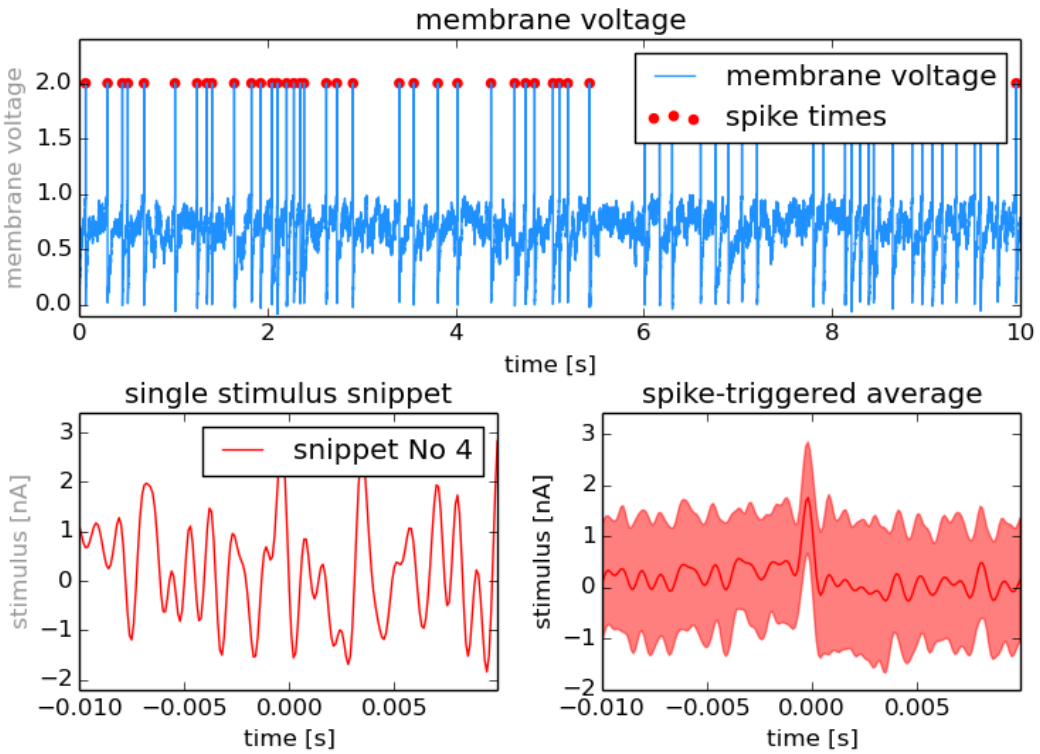
G-Node

http://g-node.org/nix

NIX overview

- flexible data model for various kinds of data
- data and metadata in the same HDF5 file
- descriptive association between data and metadata
- multiple language support and tools
- data compression
- stream-to-file

Raw and analyzed data in one file

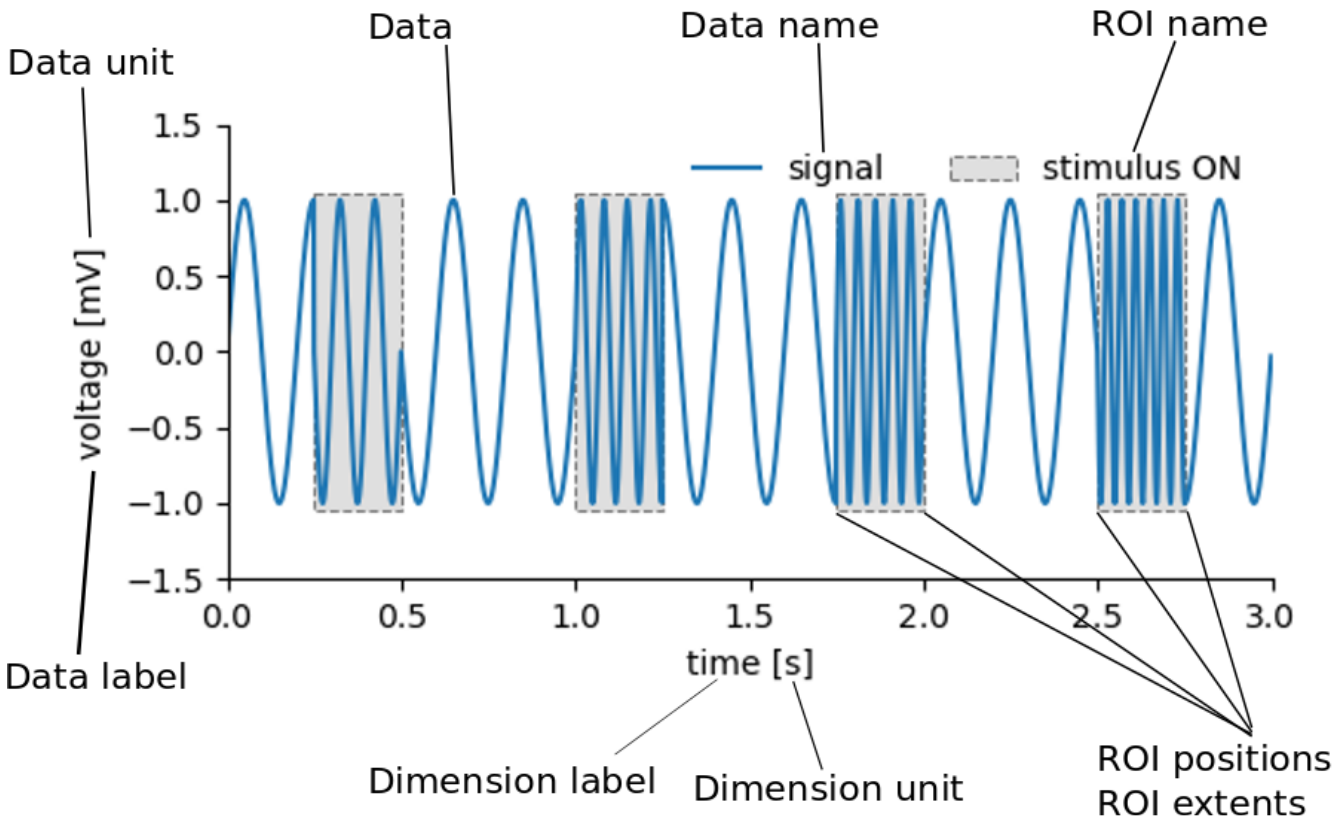


LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

G-Node

http://g-node.org/nix

NIX overview



The fully annotated file contains all information required to understand and interpret the data and their properties.

NIX interoperability

- Neo ephys format reader integration
- MNE - EEG/MEG data analysis and visualization
- Neurodata without borders (NWB) format
- SpikeInterface (Open ephys)

http://neuralensemble.org/neo

https://mne.tools

https://www.nwb.org
https://github.com/G-Node/nix-nwb

https://open-ephys.org/spikeinterface

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

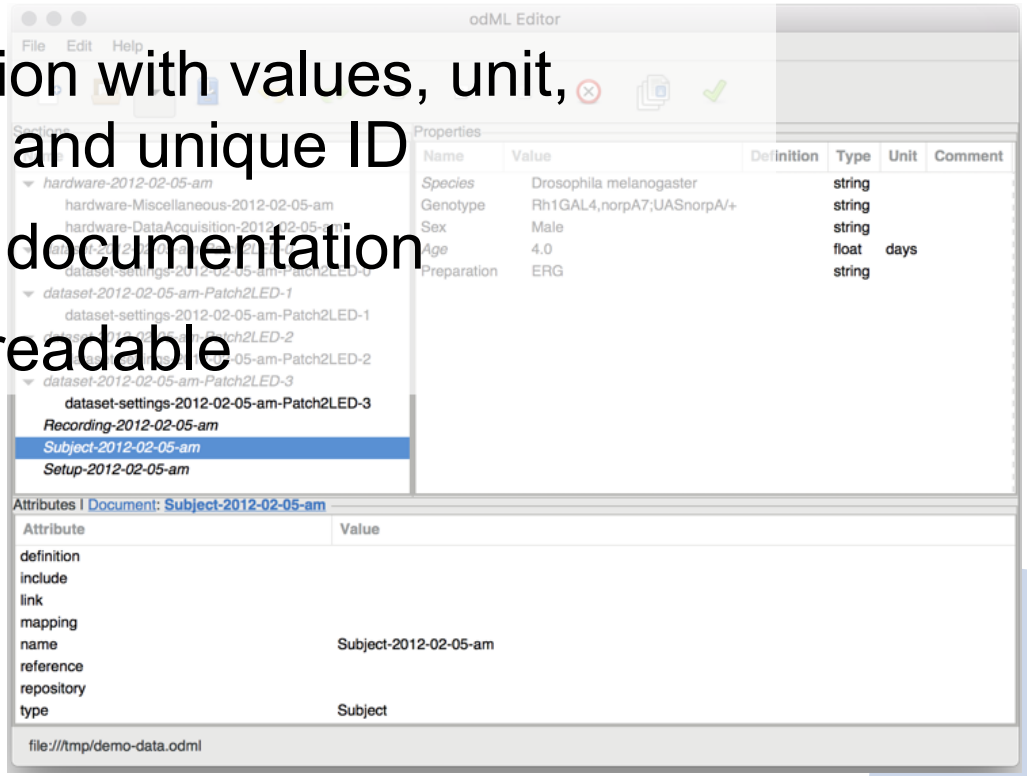
G-Node

http://g-node.org/nix

odML - open metadata markup language

open metadata file format

- store diverse metadata in a common format
- full metadata description with values, unit, uncertainty, comment and unique ID
- automate experiment documentation
- human and machine readable
- highly flexible



Grewe et al (2011), doi:10.3389/fninf.2011.00016

http://g-node.org/odml

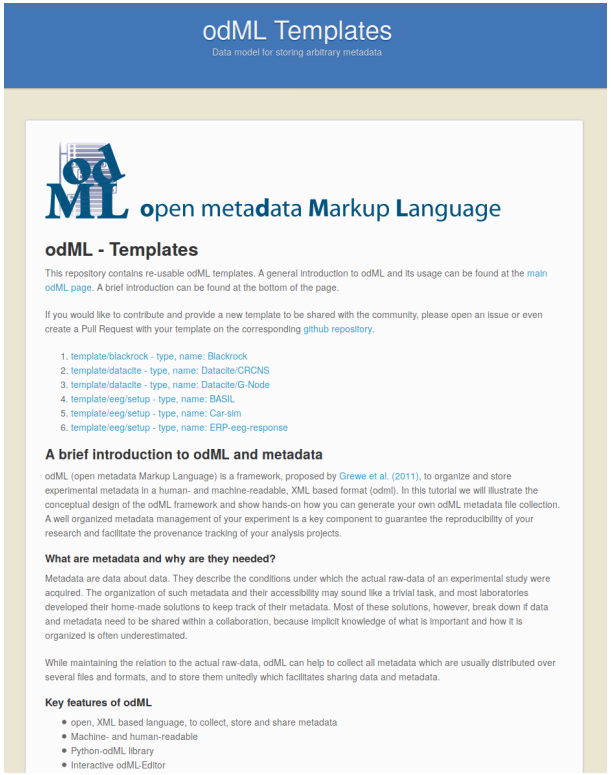
LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

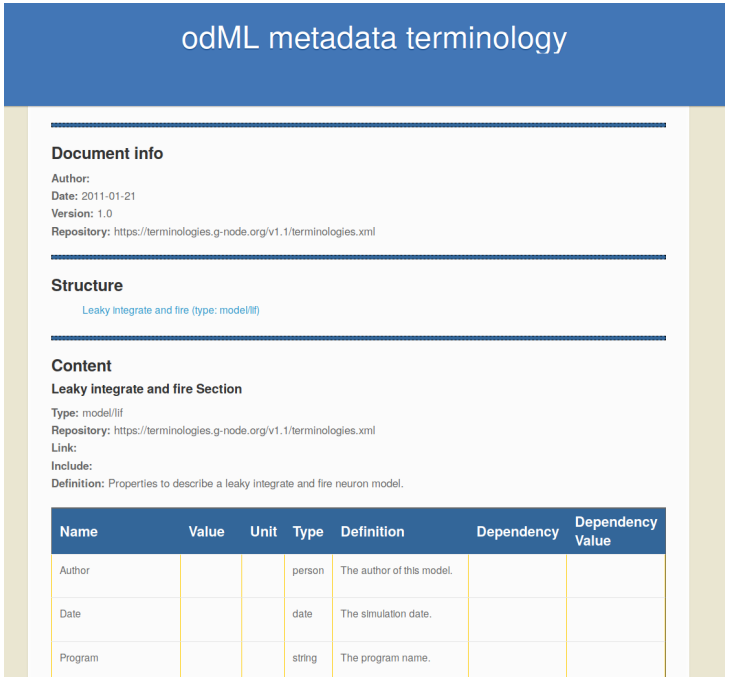
G-Node

odML - templates and terminologies

Automate metadata collection

- terminologies: odML building blocks
- templates: reusable odML documents



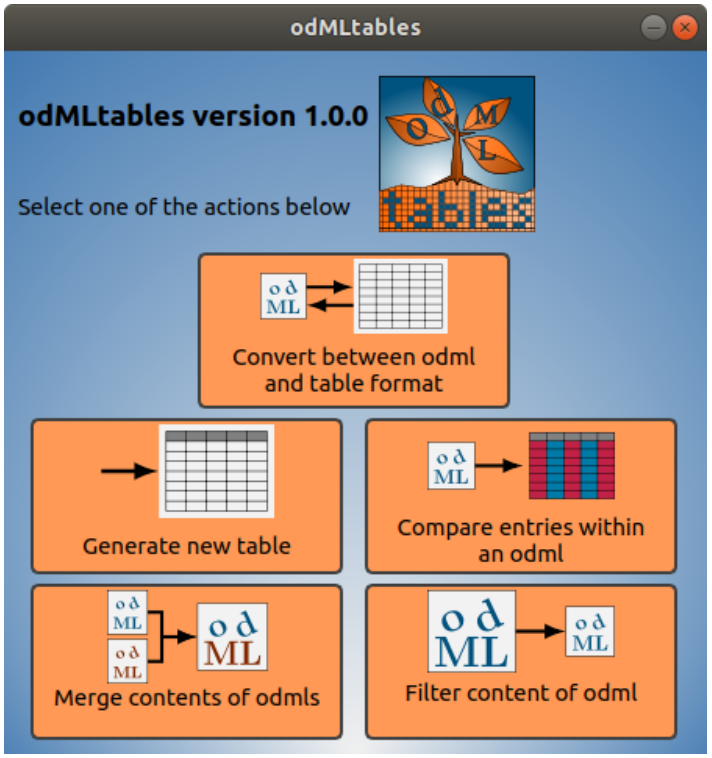


https://terminologies.g-node.org
https://templates.g-node.org
http://g-node.org/odml

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

G-Node

odMLtables



- odML ↔ spreadsheet conversion
- odML document filter
- odML filter content export
- data collision handling on files merge
- command line and GUI

JÜLICH Forschungszentrum

Sprenger et al. (2019) doi: 10.3389/fninf.2019.00062

https://odmltables.readthedocs.io

http://g-node.org/odml

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

G-Node

Get in touch

- ask any question here at the booth

  Michael Sonntag

- join our poster presentation

  #159, Collaboration and publication with the G-Node research data infrastructure services
  Thu, Sep 23, 18:00 – 19:15

- email us at

  info@g-node.org