The menoci-based Research Data Platform concept for life science consortia at Göttingen Campus

DINI/nestor-AG Forschungsdaten 2022
15.09.2022

Timo Henne, Luca Freckmann, Christian Henke, Linus Weber, Robert Kossen, Ulrich Sax, Harald Kusch

Timo Henne https://orcid.org/0000-0002-8165-4780
Harald Kusch https://orcid.org/0000-0002-9895-2469

University of Göttingen https://ror.org/01y9bpm73
University Medical Center Göttingen https://ror.org/021ft0n22
Research Data Platform motivation

• Need for FAIR tools in biomedical basic research
  – Especially for the research output of large scientific consortia

• Provide management tools to practically support research data handling

• Connect to expert networks to integrate state of the art research data management processes and tools
Research Data Platform concept

Application level:

- Consortium
- Göttingen Campus
- Research community

Consultation/Example tools:

- Research Data Platform
- Göttingen Research Online
- Gene Expression Omnibus

Implementation/adaption of selected tool setup
Research Data Platform concept

- FAIR representation of data with menoci
- operation for >12 years
- self-hosted and administrated
  - Restricted support from local data-center for special software requirements

https://menoci.io/
Published Data Registry

Supplement: Zafeiriou - 2022 - 10.1038/s41467-020-17521-W

Description:
Supplemental files for doi:10.1038/s41467-020-17521-w (mbexc_pdr:66)
These files are originally deposited here: 1, 2, 3, 4, 5, 6, 7

Files
Zafeiriou - 2022 - 10.1038/s41467-020-17521-w.zip (46.72 MB)
Created: 2022-09-06 18:01:47
Last modified: 2022-09-06 18:01:48
Checksum: cac8a55f739eb9d7d9f83d3ff571466d2

https://mbexc.uni-goettingen.de/literature/publications/66
Göttingen eResearch Alliance

- Run **jointly** by Library and IT-Centre
  - GWDG: ~150 people, 30 in eResearch
  - SUB: ~450 people, 40 in eResearch

- Close **cooperation** with
  - Department of Medical Informatics
  - Research Department

- **Brokering-Office** with currently 5 staff members
  - Team from different disciplines with eResearch expertise
  - Actual services and projects in individual organisations
  - Network with eResearch experts across the campus
  - Translate discipline-specific requirements into information-infrastructure tasks

https://www.eresearch.uni-goettingen.de/
### Göttingen eResearch Alliance

<table>
<thead>
<tr>
<th>Consulting</th>
<th>Training</th>
<th>Digital Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Data management requirements</td>
<td>• Data management</td>
<td>• Storage</td>
</tr>
<tr>
<td>• Data integration</td>
<td>• eResearch topics</td>
<td>• Computing</td>
</tr>
<tr>
<td>• Data policies</td>
<td>• Digital literacy</td>
<td>• Communication</td>
</tr>
<tr>
<td>• DMPs</td>
<td>• Expert network</td>
<td>• Cooperation</td>
</tr>
<tr>
<td>• Legal aspects</td>
<td>• Open Science</td>
<td>• Project participation</td>
</tr>
<tr>
<td>• Expert network</td>
<td>• ...</td>
<td>• Foster reuse of solutions</td>
</tr>
<tr>
<td>• ...</td>
<td></td>
<td>• Sustain solutions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Development of new services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ...</td>
</tr>
</tbody>
</table>
Göttingen Research Online
GRO.data: Cross-linking citable data

https://mbexc.uni-goettingen.de/literature?ext_id=11
**GRO.publications**

*Cross-linking consortial publication records*

<table>
<thead>
<tr>
<th>URL</th>
<th><a href="http://dx.doi.org/10.1073/pnas.2014472118">http://dx.doi.org/10.1073/pnas.2014472118</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pages</td>
<td>e2014472118</td>
</tr>
<tr>
<td>Issue</td>
<td>118</td>
</tr>
<tr>
<td>Volume</td>
<td>118</td>
</tr>
<tr>
<td>Journal Abbreviation</td>
<td>Proc Natl Acad Sci U S A</td>
</tr>
<tr>
<td>Authors</td>
<td>Keppeler D, Kampshoff CA, Thirumalai A, Duque-Afonso B</td>
</tr>
<tr>
<td>First Author</td>
<td>Keppeler D</td>
</tr>
<tr>
<td>Last Author</td>
<td>Moser T</td>
</tr>
</tbody>
</table>

**Multiscale photonic imaging of the native and implanted cochlea**

*Zitiervorschlag*

Multiscale photonic imaging of the native and implanted cochlea
Proceedings of the National Academy of Sciences of the United States of America, 118(10), e2014472118.

**Links zur Publikation**

GRO publierte Link

**Alternativen**

DOI: [PMID](https://mbexc.uni-goettingen.de/literature?ext_id=48)
Upscaling as a challenge

• Menoci operation with multiple instances (e.g. consortia at Göttingen Campus)
  – Started as project for one consortia, now used for several consortia
  – Increasing maintenance effort

• Orchestration of multiple instances requires efficient measures
  – **Goal**: diminish time-consuming operational tasks
  – Including e.g. updating routines and administrative tasks
Methods

• Use GitLab CI/CD pipelines to automate:
  – Building of Docker images:
    • menoci base image
    • menoci consortia images (based on menoci base image)
  – Deploying Docker images to VMs

• Dedicated runner executes pipelines
  – Runner itself is encapsulated in a Docker container
Remaining challenges

- IT personnel resources dedicated to server operation for research are largely limited in academia
  - optimization of basic server managing tasks is time consuming
  - benefits often merely visible for the target user groups

- although different menoci instances share a wide range of their components
  - each use case requires an adapted setup of modules/ interfaces with additional digital infrastructures
  - This complicates the construction of automation pipelines

- version leaps of major IT components (e.g. Drupal) require large additional work loads that are hardly compatible with available resources
INF Team

PD Dr. Sara Nußbeck
(TP INF-Leader IT)
orcid.org/0000-0003-1223-6494

PD Dr. Laura Zelarayán-Behrendt
(TP INF-Leader Research)
orcid.org/0000-0002-9001-0346

Dr. Harald Kusch
(PostDoc)
orcid.org/0000-0002-9895-2469

Dr. Robert Kossen
(PostDoc)
orcid.org/0000-0003-1236-0815

Christian Henke
(Technical coordination)
orcid.org/0000-0002-4541-4018

Luca Freckmann
(Technical coordination)
orcid.org/0000-0002-8285-2586

Linus Weber
(Technical coordination)
orcid.org/0000-0001-7973-7491

Student assistants:
Georg Aschenbrandt
Leonhard Braun
Bastian Gerhards
Tammo Gerhard Klaaßen
Vanessa Klauenberg
Jonas Adrian Rieling
Maik Darius Taylor

Georg-August University Göttingen
ror.org/01y9bpm73

University Medical Center Göttingen
ror.org/021ff0n22