

RO-Index: A survey of Research Object usage

This manuscript ([permalink](#)) was automatically generated from [stain/ro-index-paper@b3d3e23](#) on August 5, 2019.

Authors

- **Stian Soiland-Reyes**

 [0000-0001-9842-9718](#) ·  [stain](#) ·  [soilandreyes](#)

Department of Computer Science, The University of Manchester, UK; Informatics Institute, Faculty of Science, University of Amsterdam, NL · Funded by BioExcel-2 (European Commission H2020-INFRAEDI-02-2018-823830)

- **Paul Groth**

 [0000-0003-0183-6910](#) ·  [pgroth](#)

Informatics Institute, Faculty of Science, University of Amsterdam, NL

Introduction

Protocol

Data sources

Proto-research objects

- [myExperiment packs](#)
- [COMBINE archives](#) [1,2]
- VoID datasets <http://www.openphacts.org/specs/2013/WD-datadesc-20130912/> [1,3]
- DataONE Data packages [4]

ORE-based research objects

- CWL Viewer <https://view.commonwl.org/workflows> [5]
- RO Bundle <https://researchobject.github.io/specifications/bundle/> [6]
- Workflow PROV corpus [7]
- CWLProv 10.1093/gigascience/giz095 aka [8]
- <http://www.rohub.org/> [9]
- <http://rohub.linkeddata.es/>
- SEEK: <https://fairdomhub.org/investigations>
- BDBags with MinID <http://minid.bd2k.org/> [10;]
- Zenodo e.g. [11]
- Mendeley Data eg [12]
- Maven <https://repository.mygrid.org.uk/artifactory/ops/org/openphacts/data/>
- DocumentObject <https://github.com/binfalse/DocumentObjectCompiler/>
- GitHub
- EOSC-Life (too early?)

2nd generation ROs

- DataCrate: https://github.com/UTS-eResearch/datacrate/blob/master/spec/1.0/data_crate_specification_v1.0.md#examples
- RO-Crate: <https://data.research.uts.edu.au/examples/ro-crate/0.2/>

Conclusions/Discussion

Author contributions

- Conceptualization:
- Data Curation:
- Formal Analysis:
- Funding Acquisition: SSR, CAG
- Investigation:
- Methodology:
- Project Administration:
- Resources:
- Software: SSR
- Supervision: PG
- Validation:
- Visualization:
- Writing – Original Draft Preparation: SSR
- Writing – Review & Editing:

Competing interests

Grant Information

This work has been done as part of the BioExcel CoE (www.bioexcel.eu), a project funded by the European Union contracts [H2020-INFRAEDI-02-2018-823830](#), [H2020-EINFRA-2015-1-675728](#).

References

1. **COMBINE archive and OMEX format: one file to share all information to reproduce a modeling project**

Frank T Bergmann, Richard Adams, Stuart Moodie, Jonathan Cooper, Mihai Glont, Martin Golebiewski, Michael Hucka, Camille Laibe, Andrew K Miller, David P Nickerson, ... Nicolas Le Novère
BMC Bioinformatics (2014-12) <https://doi.org/gb8wc5>
DOI: [10.1186/s12859-014-0369-z](https://doi.org/10.1186/s12859-014-0369-z) · PMID: [25494900](https://pubmed.ncbi.nlm.nih.gov/25494900/) · PMCID: [PMC4272562](https://pubmed.ncbi.nlm.nih.gov/PMC4272562/)

2. **Ro-Combine-Archive**

Stian Soiland-Reyes, Matthew Gamble
Zenodo (2014-04-28) <https://doi.org/gf5m6t>
DOI: [10.5281/zenodo.10439](https://doi.org/10.5281/zenodo.10439)

3. **Applying linked data approaches to pharmacology: Architectural decisions and implementation**

Gray Alasdair J.G., Groth Paul, Loizou Antonis, Askjaer Sune, Brenninkmeijer Christian, Burger Kees, Chichester Christine, Evelo Chris T., Goble Carole, Harland Lee, ... Williams Antony J.
Semantic Web (2014) <https://doi.org/gf5m6j>
DOI: [10.3233/sw-2012-0088](https://doi.org/10.3233/sw-2012-0088)

4. **Preserving Reproducibility: Provenance and Executable Containers in DataONE Data Packages**

Bryce Mecum, Matthew B. Jones, Dave Viegla, Craig Willis
2018 IEEE 14th International Conference on e-Science (e-Science) (2018-10) <https://doi.org/gf5m6q>
DOI: [10.1109/escience.2018.00019](https://doi.org/10.1109/escience.2018.00019)

5. **CWL Viewer: the common workflow language viewer**

Mark Robinson, Stian Soiland-Reyes, Michael R. Crusoe, Carole Goble
F1000Research (2017) <https://doi.org/cbq2>
DOI: [10.7490/f1000research.1114375.1](https://doi.org/10.7490/f1000research.1114375.1)

6. **Research Object Bundle 1.0**

Stian Soiland-Reyes, Matthew Gamble, Robert Haines
Zenodo (2014-11-05) <https://doi.org/gf5m6k>
DOI: [10.5281/zenodo.12586](https://doi.org/10.5281/zenodo.12586)

7. **A workflow PROV-corpus based on taverna and wings**

Khalid Belhajjame, Jun Zhao, Daniel Garijo, Aleix Garrido, Stian Soiland-Reyes, Pinar Alper, Oscar Corcho
Proceedings of the Joint EDBT/ICDT 2013 Workshops on - EDBT '13 (2013) <https://doi.org/gf5m6r>
DOI: [10.1145/2457317.2457376](https://doi.org/10.1145/2457317.2457376)

8. **Sharing interoperable workflow provenance: A review of best practices and their practical application in CWLProv**

Farah Zaib Khan, Stian Soiland-Reyes, Richard O. Sinnott, Andrew Lonie, Carole Goble, Michael R. Crusoe
Zenodo (2019-07-15) <https://doi.org/gf5tg8>
DOI: [10.5281/zenodo.1208477](https://doi.org/10.5281/zenodo.1208477)

9. **ROHub — A Digital Library of Research Objects Supporting Scientists Towards Reproducible Science**

Raúl Palma, Piotr Hołubowicz, Oscar Corcho, José Manuel Gómez-Pérez, Cezary Mazurek
Communications in Computer and Information Science (2014) <https://doi.org/gf5m6p>
DOI: [10.1007/978-3-319-12024-9_9](https://doi.org/10.1007/978-3-319-12024-9_9)

10. Reproducible big data science: A case study in continuous FAIRness

Ravi Madduri, Kyle Chard, Mike D'Arcy, Segun C. Jung, Alexis Rodriguez, Dinanath Sulakhe, Eric Deutsch, Cory Funk, Ben Heavner, Matthew Richards, ... Ian Foster
PLOS ONE (2019-04-11) <https://doi.org/gf5m6s>
DOI: [10.1371/journal.pone.0213013](https://doi.org/10.1371/journal.pone.0213013) · PMID: [30973881](https://pubmed.ncbi.nlm.nih.gov/30973881/) · PMCID: [PMC6459504](https://pubmed.ncbi.nlm.nih.gov/PMC6459504/)

11. W2Share Case Study: Workflow Research Object (Wro)

Lucas Carvalho, Claudia Bauzer Medeiros
Zenodo (2018-10-18) <https://doi.org/gf5m6m>
DOI: [10.5281/zenodo.1465897](https://doi.org/10.5281/zenodo.1465897)

12. CWL run of Alignment Workflow (CWLProv 0.6.0 Research Object)

Stian Soiland-Reyes
Mendeley (2018-12-04) <https://doi.org/gf5m6h>
DOI: [10.17632/6wtpgr3kbj.1](https://doi.org/10.17632/6wtpgr3kbj.1)