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Interoperable Research Workspaces and the Mesh

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In our collective efforts to deliver data services to the research community the separation between data and service is often blurred. Research data services are often either highly specific to the data or generalised across all possible domains. Features and functions are overlapping or redundant, and research integrity is at risk from data stored across multiple systems (“Research Workspaces”), where data becomes hard to manage, publish and archive. Such Research Workspaces include public and private cloud storage and compute services and applications such as data repositories, code repositories, electronic notebooks, online surveys and instrument data applications.

To address these issues an Australian consortium including the University of Technology Sydney, the University of Wollongong, Queensland Cyber Infrastructure Foundation and AARNet are developing a sustainable approach to managing Research Workspaces and the interchange of data and metadata.

The approach is to extend research data management platforms, such as the Australian ReDBox platform, to provision Research Workspaces in platforms such as AARNet’s CloudStor. This provisioning will happen during the creation of research Data Management Plans (DMPs) or Data Management Records (DMRs). DMPs/DMRs are then linked to one or multiple Research Workspaces and surfaces metadata to assist in the Findability and Accessibility of data (the “F” and “A” in FAIR[1]). As data is generated and managed in these Research Workspaces, the metadata is subsequently enriched.

This approach will allow institutional, national and international linking of a wide variety of Research Workspace applications. Combined into CS3Mesh enabled environments researchers can work in a variety of applications, move data between them and be assured that they will always be able to export their data into a neutral archival/preservation package. Currently in development for ReDBox is the utilisation of the emerging specifications of OCFL[2] and ROCrate[3], this approach ensures data are not locked-in to particular platforms or applications - making data Interoperable and maximising the potential for Reuse (the “I” and “R” in FAIR).

[1] FAIR Data - Findable, Accessible, Interoperable, and Reusable, <http://wilkinsonlab.info/node/FAIR>

[2] OCFL: Oxford Common File Layout, <https://ocfl.io/>

[3] ROCrate: Research Object Crate, <https://researchobject.github.io/ro-crate/>

Primary authors: KENNEDY, Gavin (AARNet); Dr SEFTON, Peter (University of Technology Sydney); NAIRNSEY, Jason (University of Wollongong); BRAZZATTI, Andrew (Queensland Cyber Infrastructure Foundation); Dr KEMP, Carina (AARNet)

Presenter: KENNEDY, Gavin (AARNet)

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