Research Software Engineering
Inside and Outside the Library

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Applications Developer (Research Computing)
RLUK Conference 2017
Research Software Engineering
Inside and Outside the Library

• Introduction of the Research Computing team at St Andrews
• Working as RSEs from inside the Library
• Supporting RSEs outside the Library
Research Computing at St Andrews

- Started over 10 years ago as a service providing support for Arts and Humanities projects
- 2012 – renamed Research Computing and remit widened to all researchers
- 2015 – moved from IT Services to the new Digital Research division of the Library
Research Computing at St Andrews

- 3 Applications Developers (2.5 FTE)
Research Computing at St Andrews

- 3 Applications Developers
- Research Software Engineers (2.5 FTE)
- Reporting to Senior Librarian (Digital Humanities and Research Computing)
Digital Research Division

- Open Access
- Research Data Management
- Research Systems
- Digital Humanities
- Research Computing
Research Computing

• Supports research in two principal ways
  • As a development resource available to researchers across the University
  • By supporting research software engineering across the University
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RSEs Inside the Library

• Assistance with funding applications
  • Advice on appropriate technologies, working within the St Andrews IT context
  • Specifying software development to be carried out during the project
  • Team members costed into applications
RSEs Inside the Library

- Project Websites
  - The most common type of support provided
  - Own hosting platform

![Project Website Example](image-url)
RSEs Inside the Library

- Repositories
- Islandora
- Image Database
RSEs Inside the Library

• Custom applications
  • Databases
  • TEI encoding
  • Document Indexes
• Web Applications
Publishing the Philosophical Transactions

• PI: Dr. Aileen Fyfe, School of History

• AHRC project investigating scholarly publishing over the 350 year history of the *Philosophical Transactions of The Royal Society*
Publishing the Philosophical Transactions

• Virtual Registry of Papers
  • Database populated initially with details (inc. DOIs!) of all published articles
  • Researchers expanding on these with details of publication process from Royal Society records
  • Also adding records for unpublished papers

• Key Fact Generator
  • Dynamically generated datasheet for specified year
    • Overview
    • Editorial and management details
    • Print/circulation details
    • Financial details
  • Will be available via website
The Islamisation of Anatolia

- PI: Dr. Andrew Peacock, School of History
- An ERC-funded examination of the formation of Anatolian Islamic society through extensive but largely unstudied literary evidence
- Research Computing have helped construct a searchable index of that evidence
Arab Cultural Semantics in Transition

- PI: Dr. Kirill Dmitriev, School of Modern Languages
- An ERC-funded project to explore the pivotal role of language consciousness in the history of Arab culture
- Research Computing are developing an Analytical Database of Arabic Poetry
RSEs Inside the Library

• This work has been the core function of the team since before moving to the Library
  • Enabling researchers to identify and address new questions
  • Research data management
  • Facilitating collaboration and dissemination of research
• The relationship with academics has developed
  • Providing a service → working in partnership
RSEs Inside the Library

• Library Applications for Digital Humanities
  • Digital Collections
  • Biographical Register
  • Transcription Platform
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RSEs Outside the Library

• We aren’t the only RSEs at the University
  • Who are the others?
  • What are they doing?
  • How are they doing it?
  • What support do they need?
RSEs Outside St Andrews

- Software Sustainability Institute
- [Supporting] the UK’s research software community - a community that includes the majority of UK’s researchers.
- software.ac.uk
- @SoftwareSaved

http://software.ac.uk/attach/Flyer.pdf
RSEs Outside St Andrews

• Research Software Engineers Association

• Influencing academia to recognise the fundamental role that software plays in today’s research.

• rse.ac.uk

• @ResearchSoftEng

http://rse.ac.uk/wp-content/uploads/2017/01/cropped-UKRSE_website_logo.png
RSEs Outside St Andrews

- Software Carpentry
- Teaching basic lab skills for research computing
- software-carpentry.org
- @swcarpentry
RSEs Outside the Library

- February 2016: Blogpost: *Do you write software for research?*
  - ~300 views
  - ~50 responses
- March 2016: Mailing list
  - ~75 subscribers

https://commons.wikimedia.org/wiki/File:Prog-languages.png
RSEs Outside the Library

• June 2016: Research Computing Network launch event

• ~30 people

• Issues raised:
  • Availability of appropriate version control systems
  • Training, especially for PGRs and early career researchers
In July 2016, the Library conducted a survey of research data management practices:

- Sent to 2000 research staff and students
- 300 responses covering every School

What is your School?

- Other
- School of Economics and Finance
- School of Art History
- School of Modern Languages
- School of Classics
- School of English
- School of International Relations
- School of Management
- School of Psychology and Neuroscience
- School of Computer Science
- School of Philosophical, Anthropological and Film Studies
- School of Geography and Geosciences
- School of Divinity
- School of History
- School of Mathematics and Statistics
- School of Medicine
- School of Physics and Astronomy
- School of Biology
- School of Chemistry
RSEs Outside the Library

• Do you write, develop or maintain programs, scripts or other code as part of your research?

Yes: 124
(41% of 299 respondents)
RSEs Outside the Library

• Do you use a code repository or version control software (e.g. Git, Mercurial, Subversion) to manage your code?

Yes: 35
(28% of 124 developers)
RSEs Outside the Library

• Follow-up survey
  • Nov/Dec 2016
  • Sent to ~100 people
    • From previous survey and mailing list
  • 29 responses
RSEs Outside the Library

• Version Control:
  • GitHub.com is good enough for most people most of the time…
  • But there are some requirements around access control and data security which could only be met by an institutional system
  • Working on project proposal to put such a system in place
RSEs Outside the Library

• Training
  • 45% of respondents were “self-taught/learned on the job”
  • All but 1 respondent interested in one or more Software Carpentry lessons for themselves or their PGRs
  • Working with CAPOD, our Professional Development service
    • 2 workshops this semester
    • More to be offered on ongoing basis

https://zenodo.org/api/files/00000000-0000-0000-0000-000000000000/swcarpentry/logo.png
RSEs Outside the Library

• Developing guidance on good practice for RSEs in order to
  • Make software better
  • Make research more reproducible
  • Demonstrate impact
  • Save effort

• Developing openly on GitHub:
  • https://github.com/StAResComp/sta-rse-guidance
RSEs Outside the Library

• None of this was part of our service before moving to the Library

• Fits on a continuum of Open Research support:
  • OA → RDM → RSE

• Complements the support provided by the Digital Humanities service
Research Software Engineering
Inside and Outside the Library

• RSEs in the Library working with academics to develop the solutions they need
• The Library supporting RSEs across the University so they can develop their own solutions
Thank-you!

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