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Project Information				
Project Acronym	HiH (Hydrangea in Hull)			
Project Title	Hydrangea: letting the repository flower			
Start Date	01/02/2011	**End Date**		30/09/2011
Lead Institution	The University of Hull			
Project Director	Chris Awre, Head of Information Management			
Project Manager & contact details	Richard Green, Independent consultant			
Partner Institutions				
Project Web URL	http://hydrangeainhull.wordpress.com/			
Programme Name (and number)	Repositories take-up and embedding (15/10)			
Programme Manager	Balviar Notay			

Document Name			
Document Title	Project Plan		
Reporting Period			
Author(s) & project role	Chris Awre, Project Director Richard Green, Project Manager		
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Document title: JISC Project Plan
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Overview of Project

1. Background

"If you want to go fast, go alone. If you want to go far, go together" African proverb

The Hydra project[1] is a collaboration initiated in 2008 by Fedora Commons, now part of DuraSpace[2], to investigate and work towards a reusable framework for multipurpose, multifunction, multi-institutional repository-enabled solutions. It is based on two fundamental assumptions:

- No single institution can resource the development of a full range of digital content management solutions on its own,
  - …yet each needs the flexibility to tailor solutions to local demands and workflows.
- No single system can provide the full range of repository-based solutions for a given institution's needs,
  - …yet sustainable solutions require a common repository infrastructure

The founder partners in the project have been Stanford University, the University of Virginia and the University of Hull. The purpose of coming together was in recognition specifically of the first of these assumptions, and realising that we were better placed working together on how to address our digital content management needs rather than trying to do this alone. From the beginning a key aim has been to enable others to join the open source Hydra project as and when they wished, and to establish a framework for sustaining the community as much as any technical outputs that may emerge.

The common technical link between the founding Hydra partners is their use of Fedora as the repository infrastructure. The Fedora repository architecture allows for highly flexible management of many types of digital content. Whilst acknowledging this real strength, a key issue for Fedora has been the lack of a regular user interface, with different repository implementations frequently developing them locally (a flexible strength of its own, but one that has sometimes prevented adoption due to the development effort required). Hydra set out to develop a model that would enable the building of easy to use interfaces and workflows over a sound technical architecture, with the scalable ability to apply this to different content types and use cases as required: the concept of different Hydra heads to the common underlying repository.

Some of the use cases highlighted during the project thus far are as follows:

- ETD management: a single PDF with possible auxiliary files
- Digitisation workflow: potentially hundreds of files, of different types
- Open access research outputs: single PDFs with self-deposit
- Dataset management: a variety of datasets of different types and sizes

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[1] Hydra project, https://wiki.duraspace.org/display/hydra/The+Hydra+Project
[2] DuraSpace, http://www.duraspace.org/

- Image/video management: accommodating various formats of the same content
- Digital archives: multiple content types with specific arrangement requirements
- Institutional repository: multiple content types from different sources

The basis of the Hydra project has not, though, been technical development, but a focus on how the repository could be used to address these multiple use cases in a way that allowed for software implementation in different ways. As such, a full definition of a Hydra head is the use case plus the software stack used to implement this. At the heart of Hydra is the way that content and metadata is structured within the repository. Fedora's digital object model[3] allows great flexibility in how this can be achieved, although such modelling principles could be applied in other systems. A temptation is to be very detailed to provide a strong structure for the repository. Whilst recognising that individual repositories may wish to apply this detail, Hydra has adopted a simpler approach that seeks to allow different types of content to be modelled using common building blocks. This has provided the basis from which others can develop.

Hull's involvement in Hydra stems from work carried out through the JISC-funded RepoMMan[4] and REMAP[5] projects, which sought to enable upstream interaction with a repository through the use of workflow. Tools to manage deposit into a Fedora repository came out of this work, and we have made use of an interface development from Australia, Muradora, since launching in October 2008.[6] From this work came a recognition that the best way to sustain the interfaces we need was to work with others. Hydra seeks to enable the full CRUD (create, read, update, delete) set of interactions with the repository based on the firm modelling of content, offering the ability to replace multiple user interfaces with one integrated one.

Notwithstanding this primary user interface onto the repository, the work being carried out in the JISC-funded CLIF project,[7] on the integration of Fedora with SharePoint and Sakai, is being taken forward using the same Hydra modelling principles; these developments can be considered as separate Hydra heads – different views and points of access onto a common repository. Closely related to this is our current adoption of the Converis research information system[8] and its integration with the repository.

It is one thing to model content in a sustainable and scalable way. It is necessary to show how this can be implemented, though, to demonstrate its value. The Hydra project, specifically Stanford in conjunction with MediaShelf LLC,[9] has, thus, developed an implementation, Hydrangea,[10] that encapsulates the modelling principles and enables repository interaction for institutional repository use, with particular emphasis on open access and datasets. (This early implementation is likely to be replaced imminently by an enhanced version incorporating additional work undertaken at the University of Virginia.)

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[3] See also DuraSpace wiki page on Fedora's digital object model, https://wiki.duraspace.org/display/FCR30/Fedora+Digital+Object+Model
[4] RepoMMan project, http://www.hull.ac.uk/esig/repomman/
[5] REMAP project, http://www2.hull.ac.uk/discover/remap.aspx
[6] Development of this interface has now ceased, highlighting a danger of a community failing to be built around a very good piece of initial software development.
[7] CLIF project, http://www2.hull.ac.uk/discover/clif.aspx
[8] Converis, http://www.avedas.com/en/converis.html
[9] MediaShelf LLC, http://yourmediashelf.com/
[10] Hydrangea, https://wiki.duraspace.org/display/hydra/Hydrangea

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Version: 1.0
Contact: Richard Green (r.green@hull.ac.uk)
Date: 25/02/2011

This project proposes to take the Hydrangea tools and implement them at Hull.

2. Aims and Objectives

The main aim of the project is to implement the Hydrangea software.

In doing so, we plan

- To document and feed back the experiences and benefits of such implementation, including the use of Ruby on Rails for repository applications, and use of the Hydra models to the Hydra and wider repository communities
- To embed the use of Hydrangea within the local cataloguing team and other institutional users wishing to deposit content, and document changes to processes required
- To implement the Hydra models within systems integrated with the repository to aid consistency of content management using Hydrangea
- To make recommendations on the further development of Hydrangea
- To generate requirements for other Hydra heads

3. Overall Approach

The project will use a methodology that has been tried and tested in past successful projects carried out at the University of Hull. This places the user at the centre of technical development to ensure that the work carried out is relevant to the purpose at hand.

HiH is not a 'clean-slate' project; rather it builds on the successful repository already operating at the University. For this reason, the initial implementation of Hydrangea will deliberately echo some of the design of the existing system so that users do not experience a culture shock when coming to the new interface. Over time (largely beyond the period of this project) the design and functionality can evolve further.

The first phase of this project will see a virtual machine infrastructure commissioned to support the new system. This will take account of the need for three levels of hardware: a development server, a testing server (to pre-test software upgrades etc) and a production server. In practice the testing and development servers are likely to comprise three machines each in order to separate resource hungry elements of the technology stack. The new servers will be loaded with the necessary versions of software.

Work will then take place to convert the existing repository content, built for Fedora 2.x to a Hydra-compliant Fedora 3.4.x format. This involves the creation of conversion routines based on XSLT scripts. These will need to be able to cope with appropriate translation of the wide range of content types held by the current repository. It is envisaged that there may be a small number of existing objects that are effectively 'edge cases' that do not justify the development of dedicated XSLT and which will be converted by hand. The conversion process will be staged: the first pass will convert a small but representative number of objects for testing purposes. Second and subsequent passes will convert increasing numbers as the new system demonstrates its ability to display them.

Hydrangea, as an exemplar implementation, provides full CRUD capability for only a small range of object types. Thus, in implementing Hydrangea, Hull will also need to extend its capabilities.

In phase one of the work, we intend to produce a read-only implementation that is capable of discovery and access across the entire range of repository content but which does not support editing, creation or deletion. The target date for this is the end of March 2011. Phase two (June 2011) will see this extended to provide metadata editing for a range (but not the full set) of object types, whilst phase three (August 2011) will add the ability to create (and potentially delete) the same range of object types. This project is not an end in itself and work will take place subsequently to bring further object types to full CRUD capability. It is not necessary that Hull's Hydrangea implementation immediately cope with all object types in the repository as some are created and maintained by other systems.

Once we have a working read-only interface across the full range of repository content, potential users will be invited to test and comment on the initial interface we have supplied, one which significantly mimics the current, successful system. Any major issues will be dealt with at this stage. In the second and third phases of work, for which there is no exactly equivalent interface at present, potential users will be an integral part of iterative development recognising their stakeholder interest in the finished product.

As a working Hydrangea-based system is developed in concert with its potential users, work will take place to train users in its operation and jointly to develop the processes and policies which will allow it to be successfully embedded in the University's day-to-day operation.

As noted above, this project is not an end in itself and, as it plays out, it will be appropriate to set out a roadmap for developments after its completion. It is already clear that these will include the extension of CRUD capability to a wider range of existing object types and full support for new object types. It is likely also that serious consideration will be given to extending the scope of the discovery capability to encompass also the University libraries' Millennium catalogue (design work within this project is intended to be compatible with that possibility).[11] A part of the roadmap will be a date for turning off the existing repository interface.

4. Project Outputs

This project proposes to take the Hydrangea tools and implement them at Hull, to act as a reference implementation in the UK for others to use in their own consideration of the Hydra model. UK community interest has, to date, emerged from LSE, Glasgow Caledonian, National Library of Scotland, and Oxford.[12] The project will, specifically, enhance our workflow processes by using the Hydra modelling to inform how all our repository access points support a common repository and allow content to flow between them. Hydrangea has a more streamlined and user friendly interface than our current UI, being based on the open source Blacklight resource discovery system, and will

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[11] Hull recently undertook a six-month JISC funded project, Blacklight @ Hull, to examine the possibility of layering Blacklight over the University's Millennium catalogue. The project blog is at: http://blacklightathull.wordpress.com/

[12] See US and other interested parties at https://wiki.duraspace.org/display/hydra/Project+Contributors

allow us to engage more users locally in using the repository directly through all parts of the digital content lifecycle workflow.

Specific deliverables are:

- a project plan, progress/final reports, associated project documentation; dissemination materials
- a Fedora repository infrastructure configured for Hydrangea, brief report describing this infrastructure
- converted content from our existing repository implementation, conversion scripts (adaptable by others), a report on experiences and issues arising from converting content to the Hydra model
- implemented Hydrangea tools, allowing create, retrieve, update and delete through a user-friendly, single interface over a Fedora repository. (As this will be a production repository, others will be able to use the search and delivery interface with Hull's publicly available content as a reference implementation.)
- a user testing and usability report, outlining the procedures carried out and the outcomes from this
- a process and policy document describing how Hydrangea will be used at Hull
- a roadmap for future Hydrangea development in Hull and suggestions for the international Hydra and Hydrangea roadmap

5. Project Outcomes

The project outputs described in section four will facilitate a number of important outcomes for the University and for the wider community:

- a Hydra-based repository system for the University which can be viewed as a reference implementation by others
- a UK body of experience around implementation of the Hydra and Hydrangea technology stack and development of the corresponding software which can be shared with the community
- a more robust repository delivery and management system that will enable the University better to serve the needs of its users (both end-users and content managers)
- better long-term engagement of users with the repository development process at the University as the result of having been involved in development for this project
- a roadmap for future Hydrangea development in Hull and suggestions for the international Hydra and Hydrangea roadmap

6. Stakeholder Analysis

Stakeholder	Interest / stake	Communication route(s)	Importance
Digital content owners and managers	The availability of easy-to-use tools to support digital content management	- Appropriate mailing lists	High/medium
Repository administrators	The ability to manage repository submission in a dispersed manner	- UKCoRR	Medium/High
Hydra community	Interest in an exemplar of implementing the initial software outputs from the Hydra project	- Hydra wiki and mailing list	High
Fedora community	Interest in a toolset that allows easier adoption of Fedora	- Fedora wiki and mailing list	High
JISC	The Hydra models as a guide to structuring digital content in a repository	- Programme Manager and meetings	High
HE institutions	The flexibility to manage many different content types	- ARMA - OER community	Medium/High

7. Risk Analysis

Risk	Probability (1-5)	Severity (1-5)	Score (P x S)	Action to Prevent/Manage Risk
Staffing				
Staff leave during project	1	3	3	Backup for each member of staff has been identified. All staff are in place
Organisational				
University changes strategy, affecting repository plans	2	2	4	Continue to develop local business case for the repository
Users find Hydrangea difficult to use	2	3	6	Identify key issues affecting interaction and adjust local interface to address concerns: also feed back to Hydra partners for consideration
Technical				
Hydrangea tools fail to meet requirements	1	5	5	Involvement in Hydra project has meant all requirements have been accounted for
Support for and use of Ruby not developed	2	4	8	Current knowledge is sufficient for Hydrangea implementation: work with ICT department to establish appropriate support
External				
Hydra community does not develop	1	3	3	Continue to develop Hydra community model

8. Standards

Name of standard or specification	Version	Notes
Ruby	1.8.7 (Enterprise Ruby)	
Rails	2.3.5	Hydra and Hydrangea may update to Rails 3.0 in the very near future; if so, Hull will follow suit in order to take advantage of some new features around Ruby gems
Solr	1.4	
Fedora Commons repository software	3.4.2	
Blacklight	2.5	(Or later stable release)
Tomcat	6.0.29	
Java	6.0.x	
Hydrangea	Hydrangea stack as at the beginning of the project (as yet un-numbered)	Subject to update
Hydra object specifications for Fedora	As at the beginning of the project (as yet un-numbered)	Subject to minor local adaptation

9. Technical Development

Technical development within the project will follow an iterative, agile process such that testing (and user feedback, if appropriate) informs subsequent development cycles. In this way we hope to ensure that the resulting system is a good match to user needs.

Ruby development encourages the use of inbuilt test routines and RSpec and Culerity will be used to provide these where appropriate and possible. It is anticipated that a Hudson (soon to be renamed 'Jenkins') continuous integration server will be used so that these tests can be run in automated fashion against each build.

10. Intellectual Property Rights

All software from the Hydra project and within the Hydrangea technical stack is made available under an Apache 2 licence. All local adaptation of Hydrangea will be released under the same licence. The University of Hull will retain rights in any scripts or local software development outside of Hydra or Hydrangea, but the outputs will made available to the community in perpetuity.

Project Resources

11. Project Partners

None.

12. Project Management

Chris Awre (Project Director) – Head of Information Management at the University of Hull, responsible for management of external and internal resources managed through the library, including institutional repository developments at Hull. He is Project Director of CLIF and (until its recent completion) Blacklight@Hull, and has acted as institutional lead for Hull's involvement in the Hydra project since its start. Chris will oversee the project throughout its eight months of operation.

Richard Green (Project Manager) –Richard has previously successfully managed the JISC RepoMMan, RIDIR, REMAP, CLIF and Blacklight@Hull projects examining a range of repository-related issues. He has been involved in the Hydra project since its commencement and leads on documenting the Hydra modelling of content for dissemination. Richard will be responsible for the day-to-day running of the project.

Simon Lamb (Software developer) – Simon carried out the technical work on the RepoMMan and REMAP projects prior to taking up a full-time post at the University involving repository development. Simon has implemented a pilot of Blacklight for our library catalogue as part of the Blacklight@Hull project. Simon will be responsible for the software implementation of the project.

Diane Leeson (Head of Content & Access) – Diane has day-to-day responsibility for Hull's Millennium library system and submission of new content to the institutional repository. She carried out the usability testing for the Blacklight@Hull project and has advised on the presentation of catalogued records through this interface. Diane will lead the usability and testing element of the project and is key to process embedding with the library's Content and Access Team.

Andy Hastings (IT Support Officer) – Andy is a member of the University's IT support team, and has extensive experience in the provision of customer-facing systems. He has recently attended the Hydra camp[13] run by MediaShelf with Stanford University and will be contributing to local Hydrangea user interface development during the project and beyond. Andy will assist with the usability and testing element of the project.

13. Programme Support

No specific requirements.

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[13] Hydra camp, http://hydracamp2010.eventbrite.com/

14. Budget

See Appendix A.

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Detailed Project Planning

15. Workpackages

See Appendix B.

16. Evaluation Plan

Timing (End of month)	Factor to Evaluate	Questions to Address	Method	Measure of Success
February	Infrastructure readiness	Is infrastructure in place and ready for use?	Project team review, Hydra partner review	Signed off infrastructure
March	Content availability	Is content converted?	Project team review, Hydra partner review	Completely converted content
April	Initial implementation of Hydrangea	What issues arose from initial implementation?	Project team review	Documentation of issues for addressing
June	User testing	What is the user response?	Review of user report	High level of user satisfaction
August	Final implementation	What outstanding issues remain?	Project team review	Clear information for roadmap development
August	Process and policy embedding	Have processes and policy been established?	Review of process and policy document	Agreement to document by content owners and managers

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17. Quality Plan

Output	Infrastructure report				
Timing	**Quality criteria**	**QA method(s)**	**Evidence of compliance**	**Quality responsibilities**	**Quality tools (if applicable)**
February	Fit for purpose	Peer review	Acceptance by reviewer(s)	SL, RG	

Output	Conversion scripts				
Timing	**Quality criteria**	**QA method(s)**	**Evidence of compliance**	**Quality responsibilities**	**Quality tools (if applicable)**
March	Fit for purpose	Operational testing	Compliant converted objects	SL, RG	

Output	Conversion report				
Timing	**Quality criteria**	**QA method(s)**	**Evidence of compliance**	**Quality responsibilities**	**Quality tools (if applicable)**
March	Fit for purpose	Peer review	Acceptance by reviewer(s)	RG, SL	

Output	Implemented system				
Timing	**Quality criteria**	**QA method(s)**	**Evidence of compliance**	**Quality responsibilities**	**Quality tools (if applicable)**
August	Fully operational within the project parameters	Operational testing	Bug-free operation	SL, RG, CA	RSpec and Culerity will be used where appropriate

Output	User testing and usability report				
Timing	**Quality criteria**	**QA method(s)**	**Evidence of compliance**	**Quality responsibilities**	**Quality tools (if applicable)**
June	Fit for purpose	Peer review	Acceptance by reviewer(s)	DL, RG	

Output	Process and policy document				
Timing	**Quality criteria**	**QA method(s)**	**Evidence of compliance**	**Quality responsibilities**	**Quality tools (if applicable)**
August	Fit for purpose	Peer review	Acceptance by reviewer(s)	DL, CA, RG	

Output	Roadmap				
Timing	**Quality criteria**	**QA method(s)**	**Evidence of compliance**	**Quality responsibilities**	**Quality tools (if applicable)**
September	Fit for purpose	Management review	Acceptance in principle	CA, RG, DL, SL	

18. Dissemination Plan

Dissemination Activities and timing	Audiences	Purpose	Key Messages
- Project website (a blog – throughout project) - Conference presentation (OR11 – June 2011) - Twitter hashtag and feed (throughout project) - User group meetings - Mailings to lists (as required)	- Hydra community - Fedora community (particularly UK&I) - Other stakeholders - University of Hull academic community	To communicate the experience of implementing Hydrangea and using the Hydra model as a toolset over Fedora generally	- Hydrangea is a software implementation of the Hydra models and principles - Experience of implementing Hydrangea - How Hydrangea can be embedded as part of an overall institutional repository strategy - Further ideas for ongoing Hydra/Hydrangea development

19. Exit and Sustainability Plans

Project Output	Action for Take-up & Embedding	Action for Exit
Project documentation and reports	Promotion of project documentary outputs through dissemination activities	Place all documentation outputs on project website and in both JISC's and institutional repository
Fedora infrastructure for Hydrangea/implemented Hydrangea tools	The work within workpackage 6 will address the embedding of the infrastructure locally	There will be no exit as such, other than ongoing use of the Hydrangea tools to support local repository management

Project Outputs	Why Sustainable	Scenarios for Taking Forward	Issues to Address
Conversion scripts	These will be made available for use by others to adapt (as a starting point, noting that other Fedora instances will be differently structured)	Scripts will be made available on request from Simon Lamb and announced via the project blog.	
Institutional repository	University infrastructure	University service. The publicly viewable elements of the Hydrangea implementation will be available to others as a reference implementation.	

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Appendixes

Appendix A. Project Budget

Directly Incurred Staff	Aug 10–Jul 11	Aug 11–Jul 12	TOTAL £
Project Manager (External consultant)	£ 12,000	£ 4,000	£ 16,000
Total Directly Incurred Staff (A)	**£ 12,000**	**£ 4,000**	**£ 16,000**
Non-Staff	**Aug 10– Jul 11**	**Aug 11–Jul 12**	**TOTAL £**
Travel and expenses	£ 3,000	£ 1,000	£ 4,000
Dissemination	£ -	£ 500	£ 500
Consumables	£ 300	£ -	£ 300
Total Directly Incurred Non-Staff (B)	**£ 3,300**	**£ 1,500**	**£ 4,800**
Directly Incurred Total (C) (A+B=C)	**£ 15,300**	**£ 5,500**	**£ 20,800**
Directly Allocated	**Aug 10–Jul 11**	**Aug 11–Jul 12**	**TOTAL £**
Staff	£25,325	£8442	£33767
Estates	£ 1,100	£ 367	£ 1,467
Directly Allocated Total (D)	**£ 26,425**	**£ 8,809**	**£ 35,234**
Indirect Costs (E)	**£ 6,600**	**£ 2,200**	**£ 8,800**
Total Project Cost (C+D+E)	**£ 48,325**	**£ 16,509**	**£ 64,834**
Amount Requested from JISC	**£ 21,075**	**£ 7,425**	**£ 28,500**
Institutional Contributions	**£ 27,250**	**£ 9,084**	**£ 36,334**
Percentage Contributions over the life of the project	**JISC 44%**	**Partners 56%**	**Total 100%**

Nature of Institutional Contributions

Directly Incurred Staff			
Staff #1, 0.05FTE	£ 3,123	£ 1,041	£ 4,164
Staff #2, 0.4FTE	£ 17,352	£ 5,784	£ 23,136
Staff #3, 0.05FTE	£ 2,681	£ 894	£ 3,575
Staff #4, 0.05FTE	£ 2,169	£ 723	£ 2,892
Directly Incurred Non Staff			
Hardware/Software etc.	£0	£0	£0

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Directly Allocated			
Staff	£ 25,325	£ 8,442	£ 33,767
Estates	£ 275	£ 92	£ 367
Indirect Costs			
Indirect Costs	£ 1,650	£ 550	£ 2,200
Total Institutional Contributions	**£ 27,250**	**£ 9,084**	**£ 36,334**

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Appendix B. Workpackages

WORKPACKAGES	1	2	3	4	5	6	7	8
2011	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1: Project management	▓	▓	▓	▓	▓	▓	▓	▓
2: Preparation for Hydrangea implementation	▓							
3: Conversion of existing digital content		▓						
4: Hydrangea implementation		▓	▓		▓	▓	▓	
5: User testing and training			▓	▓	▓			
6: Process embedding				▓	▓	▓	▓	
7: Future roadmap development								▓

Project start date: February 2011
Project completion date: September 2011
Duration: 8 months

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				Milestone	Responsibility
WORKPACKAGE 1: Project management **Objective:** Management of the work including: planning; coordination with Hydra partners; monitoring progress on technical work; advocacy and dissemination; documentation.	Feb 2011	Sep 2011			
			Project plan	Feb 2011	RG, CA
			Blog	Feb 2011	RG
			Twitter hashtag and feed		CA
			General documentation		RG
			JISC reports		RG, CA
			Dissemination materials	Sep 2011	All
			Coordination with Hydra partners		RG, CA

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| WORKPACKAGE 2: Preparation for Hydrangea implementation

Objective:
Implementation of Hydrangea requires a fresh implementation of a Fedora repository instance over which Hydrangea can be applied. This workpackage will implement this using a virtual machine infrastructure, based on current experience of running Fedora. For Hydrangea this will include specific requirements including the use of Ruby in an enterprise environment.	Feb 2011				
			Required infrastructure	Feb 2011	SL
			Brief report detailing infrastructure	Feb 2011	SL, RG

WORKPACKAGE 3: Conversion of existing digital content **Objective:** The modelling principles outlined by Hydra, and implemented within Hydrangea, are variants on those currently used within our production repository. As such, all existing content will need to be converted (in essence, mapped from one structure to another). This will involve the creation of conversion scripts and, whilst not a completely automated process, will allow us to seamlessly transfer current content to the new model. Where possible, Culerity and/or other similar software will be used for unit testing throughout this process to check on accuracy, and the results will be checked with the content owners.	Mar 2011				
			Converted content	Mar 2011	RG, SL
			Conversion scripts	Mar 2011	SL, RG
			Brief report	Mar 2011	RG, SL

WORKPACKAGE 4: Hydrangea implementation **Objective**: This workpackage will implement the Hydrangea suite of software. This will be in two phases: • WP4a – Implementation of Solr and Blacklight. This will index the converted content and make it available through Blacklight. • WP4b – Implementation of Hydra plugin. This will take the Hydrangea framework and apply it to our own local management of open access articles and datasets. We shall also adapt the framework to work with e-theses and local student handbooks. The implementation of both phases will jointly address the customisation of the user interface to meet local needs regarding metadata editing, browser compatibility, and design requirements. The work is split into two periods to cover initial implementation, and then further work taking account of issues that arise from user testing and process embedding on an iterative basis.	a) Mar 2011 b) Jun 2011	Apr 2011 Aug 2011			
			Implemented system	Aug 2011	All

WORKPACKAGE 5: User testing and training	Apr 2011	Jun 2011			
Objective: Once implemented we plan to test the new system and interface with the range of users who will experience it. These fall into two camps: those who will use the retrieval interface for searching and browsing, and those who will be using the system to add content to the repository and/or edit or delete what is already in the repository. The former group will include students and staff; the latter group will include cataloguing staff plus the range of users who currently maintain or have expressed an interest in maintaining their own records in the repository.					
CA			User testing and usability report	Jun 2011	DL, AH, RG, CA

WORKPACKAGE 6: Process embedding	May 2011	Aug 2011			
Objective: It is not possible to implement a new set of repository tools and train people in their use without the need to establish the processes and policies around how the system should be used to meet local requirements. This workpackage will establish these processes and policies in conjunction with local users and ensure that the Hydrangea tools become embedded in all aspects of how we use the repository locally. This will include setting target dates for switching off current repository tools.					
			Process and policy document	Aug 2011	CA, RG, DL

WORKPACKAGE 7: Future roadmap development	Sep 2011				
Objective: Once implemented the project will lay out a roadmap for future development. This is likely to encompass the addition of new content types to what Hydrangea can manage, plus an exploration of new collections that can benefit from the flexibility and local management that Hydrangea offers. This will be undertaken in conjunction with the Hydra project, and seek to feed back all local developments for wider use by others.					
			Roadmap	Sep 2011	CA, RG, DL, SL

Members of Project Team:

Chris Awre (Project director)
Richard Green (Project manager)
Simon Lamb (Software developer)
Diane Leeson (Head of content and access)
Andy Hastings (IT support officer)