

# Planetarium

The News Bulletin of the  
Planets Programme  
Issue 9 – March 2010  
[www.planets-project.eu/publications](http://www.planets-project.eu/publications)

## OPEN PLANETS FOUNDATION POISED TO LAUNCH

Dr. Adam Farquhar, Planets Project Coordinator

Members of Planets have recognised the value of the technology, approaches, tools, and services that the project has established. Together, we have been looking for a way to sustain and build on this value beyond the close of the project itself. The Open Planets Foundation will provide this sustainable platform. It will build on the Planets community and bring content holders, solution providers, and researchers together.

The independent Foundation is a not-for-profit membership-supported organisation. Its primary objective is to provide practical solutions to members' digital preservation needs. It will do this by managing and coordinating further development of the open source Planets software suite, but the Foundation will go well beyond this. Its members will have access to hosted on-line Planets services as well as training and advice. It will start with the Planets community, but actively grow it internationally, across libraries and archives, and reach out to new areas. The Foundation will start with Planets results, but will work with its members to integrate the best available ideas, software, services, and techniques.

The idea for the Foundation stems from a workshop that we held in Brussels at the end of 2007. The workshop brought together experts from a wide range of backgrounds including entrepreneurs and venture capitalists. The not-for-profit Foundation approach emerged as a leading candidate. The Foundation will work with commercial organisations and even individual consultants to enhance the viability of the digital preservation market place. It will also be in an excellent position to work with projects or research groups to help them bring their results to the community.

The progress that members of the IPAL (Implementing Planets in Archives and Libraries) group have made over the last year has

really shown the value – not only of the Planets approach, but also of a forum for us to work together in.

**As this issue of Planetarium is published, we are actively recruiting a Director and staff for the Foundation. See [www.tfpl.com/recruitment/jobdesc.cfm?ID=HQ00012264&pageid=-9&js1=director&js2=a](http://www.tfpl.com/recruitment/jobdesc.cfm?ID=HQ00012264&pageid=-9&js1=director&js2=a) for more information. Applications close 31 March 2010.**

New organisations have been signing up to join the Foundation each week. They reflect the mix that makes the Planets community so vital with major content holders, key technical players, and advanced researcher groups. Organisations with high levels of capability or ones needing to learn more will all find real value. For a prospectus and information about membership, please call +44 (0)1937 546882 or email [membership@openplanetsfoundation.org](mailto:membership@openplanetsfoundation.org).

The results of the Planets project have matured quickly since the last issue of Planetarium. Scientific results continue to appear in journals and conferences with detailed reports that provide the underlying data available from the Planets web site. New software releases for major components provide increased robustness, speed, and features. The Testbed now provides an on-line service for any member of the Planets community to conduct and review experiments with preservation tools through an enhanced user interface. Going beyond the important results, the community of people and organisations who are able to implement and use them has grown rapidly through successful one and three day training events.

Almost 150 organisations have registered to experiment with the latest version (Public Beta) of Planets Testbed released this month. To find out more or to register, please see page 9.

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# RESEARCHERS RESPOND TO COMMUNICATION PRESERVATION CHALLENGES

**John W. Pattenden-Fail, University of Glasgow and Filip Kruse, State and University Library, Aarhus.**

The transition from analogue to digital media has led to fundamental changes in the way researchers work. Digital communication, such as e-mail, VOIP (voice over internet protocol), the internet and shared network spaces have become an integral part of day-to-day communications and sharing of ideas and information. To those concerned with the archiving and preservation of information this presents new challenges.

Over the past three years, Planets has carried out a series of field studies. These have explored the impact of the transition from analogue to digital communications on researchers and civil servants.

Consortium partner, State and University Library in Denmark, conducted a quantitative survey of 2,800 researchers. They received over 400 responses at Aarhus University spanning natural and health sciences (70 per cent), social sciences (18.5 per cent) and arts and humanities (9 per cent). In Scotland, the Humanities Advanced Technology and Information Institute (HATII) has carried out 20 in-depth quantitative interviews at the University of Glasgow.

Together, they aim to understand the types of communication that are preferred, when they are used and why; what researchers consider must be preserved, why and how and who is responsible. The results are intended to help academic libraries and archives make decisions about how the preservation should be carried out.

## Assessing research communications at Aarhus University

The Aarhus study highlights the growing importance of electronic communications and resources for research:

- Almost all of the respondents indicated that e-mail communication is 'Important' or 'Very important' for their research. Over two-thirds of the respondents believed that "all", "most" or "some" email should be preserved, while just 20 per cent believed it should not be preserved at all.
- The majority of respondents had a clear idea about what to preserve. Almost two-thirds believed they would benefit by preserving more and most did not wish to preserve less. The dominant view was that intermediate research results – notes, drafts and unpublished research efforts - should 'Always' or 'Often' be preserved. Ninety per cent felt that access to these preserved materials should not be restricted to the actual researchers involved. Opinion was however divided about who is responsible.
- Most researchers prefer digital data or information to print and find it easier to access. Digital data and printed data are trusted equally. However, two-thirds of respondents have experienced problems accessing digital data because it is old. Opinion was divided over the value of preserving personal web-sites and blogs.
- Just one third believed their organisations made it easy to preserve the intermediate results (drafts) of research and one-third did not know or have an opinion. Almost two-thirds were satisfied that software provided by their organisation was adequate to retrieve research related materials and the same proportion did not know; however, just two-fifths believed software provided by their organisation was adequate to preserve research-related materials and 30 per cent did not know.

- For almost all researchers, communication with their professional network is 'Always' or 'Often' important for the initiation as well as completion of new research projects. The composition of most researchers' professional networks is cross-organisational or cross-institutional as well as cross-national.
- Libraries are more important as a source of information to researchers in arts and humanities and the social sciences. Information provided by official institutions is especially important to social sciences researchers. Databases and datasets are important to all researchers.

The Aarhus results indicated researchers know what they need to preserve and believe they should retain more and not less information. This includes preservation and sharing of intermediate as well as final results. There is, however, a difference in opinion about who should preserve intermediate results – themselves or the organisation.

## Understanding preservation at the University of Glasgow

In order to further explore the results from the Aarhus study, qualitative interviews with 20 researchers in 11 faculties at the University of Glasgow were conducted:

Despite the diversity of viewpoints, key themes and divisions between disciplines emerged:

- Like Aarhus, the majority of interviewees said email is essential to research and believed some, but not all, should be retained. They held different views about the aspects of e-mail (all or just the attachments) that should be preserved.
- Researchers value their time and are concerned about the effort of preservation; while there may be valuable information in emails, telephone calls or meetings, they have confidence that the meaningful bits will emerge elsewhere. Most have developed their own ways to preserve research-related communications and outputs.
- All respondents indicated traditional research outputs such as journal articles and book articles are essential especially in the arts and humanities, social studies and health sciences. Researchers who produce datasets see this as the outputs to others. Databases and datasets are vital to any discipline where they are used. Conference proceedings may be valuable, especially where they are peer-refereed.
- The preservation of working papers, notes, or other intermediate materials may or may not be desirable or useful to others. Some respondents were uncomfortable with the idea of their unpublished material being preserved. There was uncertainty about who should be responsible.
- Few are concerned that elements of their published work may become lost. However, there was less confidence in the longevity of research published digitally, especially among arts and humanities and social science researchers. Most reported access problems are due to rights or legal reasons instead of obsolete file formats or decaying media.
- Social networking, blogs, and other features of modern web-based life are beginning to creep into the research environment. Digital resources are generally found to be more accessible than printed. The scientific community has embraced the use of

online sources of information. Arts and humanities and social science researchers are reluctant to trust or cite them. The need for at least some preservation of these materials is generally agreed upon, but there is no consensus about who should do it.

### The way forward

Both studies show a community that is increasingly dependent on digital sources of communication and research. This is particularly true of the scientific community. There is widespread recognition of the need to selectively preserve digital correspondence and research. However, views differ by individual and discipline about what should be preserved, how and by whom. Most have developed some sort of personal archiving system, which run to varying degrees alongside University systems. However, practices are as diverse as the number

of researchers interviewed. There is little fear about research, especially printed, being lost and only limited experience of being unable to access digital content because it is old. The studies possibly indicate the value of digital preservation policy to define in roles and responsibilities in clear terms.

A parallel qualitative study is being undertaken within Flemish and Dutch government agencies (see p10).

The full report on the Aarhus study can be found at: [www.planets-project.eu/docs/reports/Planets\\_DT7-D4\\_Questionnaire\\_Report.pdf](http://www.planets-project.eu/docs/reports/Planets_DT7-D4_Questionnaire_Report.pdf) and the report on the Glasgow survey at: [www.planets-project.eu/docs/reports/Reportonacademicresearchpractices.pdf](http://www.planets-project.eu/docs/reports/Reportonacademicresearchpractices.pdf)

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## SPOTLIGHT ON PRESERVATION PLANNING: Protecting Files For The Future

**Manfred Thaller and Volker Heydegger, University at Cologne**

Preserving digital content for the long-term requires many factors to be taken into consideration. In the previous issue of Planetarium, we looked at how to develop a digital preservation policy. In this issue, we consider the selection of file formats to prolong access to digital objects.

Storage media, hardware and software are continuously evolving. There are also many different types of file formats that data can be stored in including text, images and sound. However, few types of file formats are suitable for long-term digital preservation. This means that there is a gap between memory institutions' need to hold onto information for the long-term and the capacity for file formats to support it and requires action to be taken to prevent the loss of important digital information.

The process of preserving digital information begins with the creation of a preservation policy; the Planets preservation tool Plato can help organisations to plan and define their requirements, including the types of format they will accept into their archive.

### What makes a file format suitable for digital preservation?

There are a number of factors to take into account when selecting a file format to facilitate long-term preservation:

**Widely adopted:** if a file format is well-known and used in many content-holding institutions it is likely that it will be supported by appropriate format-processing software and that there will be continuing support for it.

**Open:** the specification of the format is publicly available, with no restrictions on license or usage and is controlled by a public standards body.

**Self-contained:** it should not rely on any external resources such as fonts, specific software or hardware.

**Embedded metadata:** embedding metadata within the file 'package' helps to ensure there is sufficient documentation to understand the meaning and context of the file.

**Aids to object navigation:** if required, interactive elements such as hyperlinks and bookmarks should be supported.

**Machine readability:** the capacity for a file format to be read by computers supports automated processing of archived materials.

**Established standards:** it is recommended that the Unicode/UCS scheme is used as defined by ISO 10646. It can represent all the known characters in use.

### Compressed file formats

An additional factor to consider is file compression. The two images below show a JPEG-file before (left) and after (right) file compression. One single byte has changed during the preservation process. The effect is visible and dramatic.



Compressed file formats tend to be less resilient against data corruption. Complexity can be introduced by various means. Data compression (as in this case) is probably the most important. Research on file format robustness reveals that files which do not make use of its compression feature, i.e. stored data uncompressed, are significantly less vulnerable to data errors

(see: [http://planets-project.eu/docs/papers/Heydegger\\_JustOneBit\\_ECDL2009.pdf](http://planets-project.eu/docs/papers/Heydegger_JustOneBit_ECDL2009.pdf)). However, if the budget for preservation is limited, compressing file formats means that users can store more data which will provide cost savings.

### Actions to be taken

A preservation policy is a vital first step to define the organisations' requirements, assess the risks involved, decide what needs to be preserved and how it should be preserved. The characteristics of file formats should be taken into account and the following questions addressed:

- Which file formats will be accepted for ingest into the archive?
- Which of these file formats will be used for storage of master files?
- How do we handle file formats which are unsuitable for long-term preservation – should they be migrated to another format?
- What about file formats that cannot be handled at the moment?
- How and when will the policy be reviewed?

Reducing the number of file formats that will be accepted into an archive makes preservation easier as interventions can be applied to a larger proportion of a repository's content.

Cooperation between those who produce information and those who preserve it is also important. Content-producers' choice of file format will determine how easy it will be to preserve. They are also best placed to document the metadata that describes their work and enables it to be interpreted in the future.

Taking these factors into account will help to ease and automate archival workflows and puts in place a clear framework for both content holders and providers to follow.

Planets can provide support for the selection of appropriate file formats through its Plato tool, the Planets Core Registry Extensible Characterisation Language tools and the Testbed.

### Conclusion

The simplest file formats to preserve are those that are widely-adopted, open and self-contained. They are also machine readable with supported links to interactive elements and stored in uncompressed form. Guidance setting out formats that will be accepted into institutions' archives can help to prolong the period over which it can be accessed without intervention and support dealings with content producers. Planets tools can support the processes of creating a policy and plans and selecting suitable formats.

### Examples of file formats suitable for digital archiving \*

PDF/A	Images
ODF	JPEG 2000
Office Open XML	JBIG2
HTML & XHTML	PNG
SGML	TIFF
XML	SVG
MHTML	
Plain text	XPS

\*For a full list of migration tools that are being wrapped by Planets see Planetarium #8 'Preservation Action Toolset Update'.

## COMMUNITIES IN FOCUS: Planets and the Research Community

In previous issues of Planetarium we have shown how archives & libraries and technology partners have contributed to the development of Planets tools and how they are implementing these within their organisations. In this issue, we focus on the research community:

### Austrian Institute of Technology –

Ross King



The Austrian Institute of Technology (AIT) is the largest non-university research institution in Austria. AIT employs nearly 900 scientists and support staff in five departments – Mobility, Energy, Health & Environment, Safety & Security, and Foresight Policy & Development. Its mission is to lead the way in the development and application of technology to meet the needs of industrial and public sector clients.

The Department of Safety and Security has established a new research field called Next Generation Content Management Systems (NGCMS), under the lead of Dr. Ross King. Research in NGCMS will address various aspects of the digital information life cycle, starting with the analysis and processing required for ingest, followed by storage policies, federated storage and long-term preservation, and ending with access and retrieval methods for interactive media and other complex data sources.

Planets and the application area of digital preservation are cornerstones of this new research field. AIT has led work to develop the Planets framework and software to orchestrate the deployment of tools and services within Planets workflows. It has also been integral to the development of the Planets Testbed application. As such, AIT has invested heavily in the development of the Planets open source code base. The work undertaken through the Planets project will contribute to AIT's ongoing research in the digital preservation field.

AIT will become a founding member of the Open Planets Foundation which seeks to provide continued support and development of the Planets software assets. AIT is taking a leading role in coordinating a follow-up integrated project proposal, to be submitted to the 6th call of the EU FP7 ICT programme, under the strategic objective Digital Libraries and Digital Preservation.

[www.ait.ac.at](http://www.ait.ac.at)





#### The Humanities Advanced Technology and Information Institute – Andrew McHugh

The Humanities Advanced Technology and Information Institute (HATII) at the University of Glasgow is a world-leading research institute specialising in the application of advanced technologies to curation and preservation of cultural and scientific heritage. It provides academic programmes in arts, media informatics and digital preservation.

Since 2001, HATII has been home to the Electronic Resource Preservation and Network (ERPANET) and the WePreserve umbrella organisation for EU's Framework Programme 6 digital preservation projects including Planets. These initiatives have helped institutions across Europe to improve their knowledge about digital curation and preservation. The Institute is also a lead partner in the UK's Digital Curation Centre (DCC), which is researching and raising awareness in the area of digital stewardship.

HATII has contributed to Planets activities in three key areas: outreach, development and research. The training provisions, led by HATII, have included the coordination of five three-day events and they are currently working to create video and written case studies documenting preservation approaches and institutional experiences of deploying Planets tools. In terms of software development, HATII has been involved in the construction of the Planets Testbed, which provides a robust platform to support future preservation experimentation.

Qualitative research has been undertaken by HATII which has contributed to Planets' understanding of data use requirements and habits within a range of academic, public service and creative organisations. HATII has also been investigating approaches for preservation characterisation and action, looking at transferable concepts from digital art and new media documentation. It has also looked at the opportunities for deploying binary translation as an alternative to existing preservation strategies such as emulation and migration.

HATII is already taking advantage of tools like Testbed and Plato to evaluate its own emerging approaches and tools. The Institute has been able, in the course of teaching the archival, information science and digital preservation practitioners of tomorrow, to direct attention to the Planets suite of technology. This is an invaluable vehicle for conveying preservation both in terms of its implicit challenges and the variety of solutions that are available.

[www.gla.ac.uk/hatii](http://www.gla.ac.uk/hatii)

#### University at Cologne – Manfred Thaller



The University at Cologne (UzK) is Germany's largest university with 58,000 students. The University has a research focus in Media Studies, which includes a degree program and research institute in Computer Science for the Humanities. The main applied research activities include a focus on various aspects of digital library systems. Software developed and maintained by the department supports some of Germany's largest (cultural heritage) digital libraries. Research into non-relational / native XML / multi-media databases has resulted in the development of a vast heterogeneous database backbone ("Prometheus") funded by the German Federal Ministry of Research for a pilot project testing the possibilities of a virtually unified server uniting the image collections of all German art history departments.

The Planets team at UzK provides two types of results to the project:

1. Theoretical concepts; the way in which information is extracted from files and mapped upon an abstract model.
2. Practical tools which can be introduced into applied engineering projects for the purpose of extracting and comparing the significant properties of digital objects.

To make the most of these different results UzK is following a twin strategy. The theoretical concepts are being transferred into teaching projects, providing an environment for follow-up research at graduate level. Secondly, the Planets team, together with the Computing Center of the University, has started to set up an experimental long-term storage repository to provide an operational platform for preservation experiments and aid tools development. Based on a bottom-up approach, the project will explore the intermediate level between the (content agnostic) storage solutions currently provided by the storage industry and organisational models for long-term repositories.

In addition to continuing the development of Planets tools, this platform will also be used more generally to study the technical robustness of today's digital objects for long-term survival and develop ways to store digital objects.

Talks are currently being held to discuss UzK's involvement as a technical partner in the Open Planets Foundation, in which this platform could be used as a regional strategy for long-term storage.



[www.uni-koeln.de](http://www.uni-koeln.de)



### University of Freiburg – Randolph Welte

The University of Freiburg has 11 faculties with 21,000 students studying over 140 subjects. It is considered to be one of Europe's most prestigious universities and is among the top research and teaching institutions.

Through its position as a leading research institution, it is one of the top nine German universities to have been awarded funding through the Initiative for Excellence by the German Federal and State Governments.

The institution cooperates with a number of partners from Germany, the EU, Brazil and the US. Research on virtualisation and the importance of emulation for long-term preservation of past digital environments began in 2003 in conjunction with the National Library of the Netherlands.

As a partner in the Planets consortium, the University's Communications Systems research group addresses numerous aspects of long-term archiving within the activities of its computer science department and the computer centre. Its research interests are influenced by both feasibility and rollout/scalability, and it has access to feedback from a large number of users. The main research fields include networking and mobile computing; long-term archiving; emulation and virtualisation of computer systems; rollout of large computer pools; identity management and impact of IT on law.

One of the main foci of the group is the development of emulation to preserve environments for a wide range of different digital objects. Dynamic and interactive objects like spreadsheets, multimedia, e-learning, audio, video streams and games are extremely challenging to preserve long-term and involve preserving the (virtual) hardware and software intact to access the files as well as the physical file.

Planets activities include evaluation of emulators and virtualisation tools; the classification and experimentation to test their suitability for long-term preservation; the development of wrappers to handle emulation through services like Testbed and the setup of an initial software archive of obsolete operating systems, hardware drivers and software packages.

As a research-oriented institution the University may not necessarily use the Planets framework directly, however, it will use the Planets results to improve the way in which digital data workflows are handled. The involvement in Planets has also provided a great opportunity to teach computer science students about long-term digital preservation, offer challenging projects for bachelor and master theses as well as teach students about the importance of international cooperation in research.

Technology comprises 10 people. It is playing a key role in national and international projects in the field of Digital Preservation. These projects include: Planets; the Digital Preservation Cluster of the DELOS Network of Excellence on Digital Libraries; the FP6 project Digital Preservation Europe (DPE); the German competence network NESTOR, and a recent national project Digital Memory Engineering (DME), developing digital preservation solutions for small and medium enterprises.



As a consultancy to agencies in Austria, Vienna University of Technology provides advice about issues of digital longevity to institutions including the Austrian Chamber of Commerce, the Austrian State Archives in cooperation and the Federal Chancellery of Austria.

The University is involved in various activities within Planets, with its main focus being on preservation planning. Its core contributions include the Planets Preservation Planning Approach and its reference implementation, the preservation planning tool, Plato which has a growing community of over 500 users. This work has produced a thorough definition of a preservation plan and its components. Case studies have been developed to provide examples of validating the planning approach, context establishment from semi-structured data sources, the development of an archiving system for small institutions (HOPPLA<sup>1</sup>), as well as research to establish solid means of evaluating emulation approaches.

Being part of a dynamic project such as Planets has helped put the department directly in touch with the next generation of digital preservation researchers and students.

Together with the Austrian National Library, the Vienna University of Technology is organising the Seventh International Conference on Preservation of Digital Objects, iPres 2010, and invites the digital preservation community to join them in Vienna for an exciting week of discussion in September 2010. For details on iPres, see [www.ifs.tuwien.ac.at/dp/ipres2010](http://www.ifs.tuwien.ac.at/dp/ipres2010).



# OAIS AND PLANETS: HOW DO THE FUNCTIONAL MODELS MEASURE UP?

Since 2003, the open archival information system (OAIS) model has provided an internationally recognised standard for creating and maintaining archives. Over the course of the project, Planets has worked to develop a functional model that specifically addresses long-term preservation of digital material. This has shown not only how Planets developments can be integrated within a digital repository but also facilitated the validation of the preservation planning function described within the OAIS model. Barbara Sierman and Paul Wheatley, Digital Preservation Managers at the National Library of the Netherlands and the British Library, describe the work and its potential impact.

The OAIS model sets out two primary functions for an archival repository: (i) preservation of information for the long-term and (ii) provision of access to the archived information. The model was created as the basis to develop: 'a broader consensus about what is required for an archive to provide permanent, or indefinite long-term, preservation of digital information<sup>2</sup>.' It was approved as ISO standard 14721 in January 2002. For an introductory guide to OAIS, see [www.dpconline.org/docs/lavoie\\_OAIS.pdf](http://www.dpconline.org/docs/lavoie_OAIS.pdf)

Planets is developing technology to support key digital preservation processes. Its work has included an activity to capture these developments with a high level functional model of preservation planning.

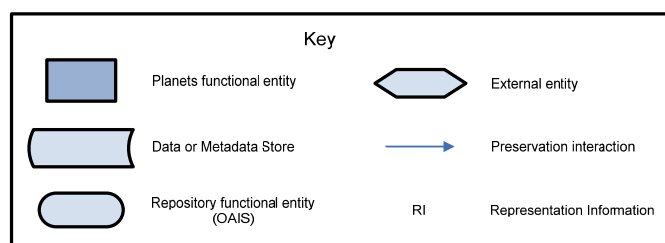
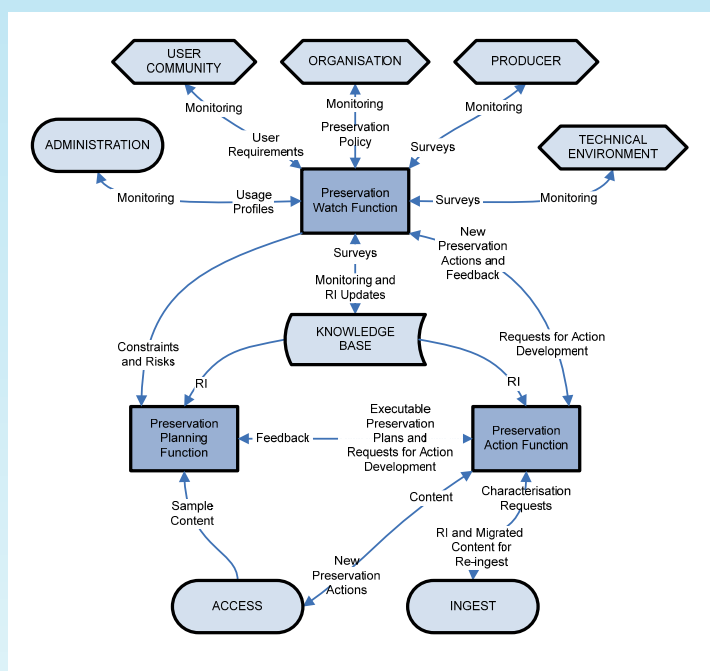
The Planets Functional Model shows how the key Planets functions (square boxes) relate and interact with the other components of a digital repository as described in the OAIS model. Preservation Watch monitors the content, environment and context of the repository and changes in state are analysed for potential preservation risks. If critical, a preservation planning process is triggered which focuses on the selection of the most appropriate preservation solution for the identified risk. Resulting preservation plans are enacted by the Preservation Action function, ensuring the ability to render digital objects over time.

Subsequently, a series of consultations have been carried out with Planets partners to review and refine the model. The model was then mapped against OAIS, making it possible to identify missing components in both and pin-point ill-defined or poorly articulated concepts.

This mapping showed that Planets products offer a valuable support to the three main functions (Preservation Watch, Preservation Planning and Preservation Action) while also showing that further research and development is needed in the area of preservation watch, quality control and scalability. To read the updated report visit:

[www.planets-project.eu/docs/reports/Planets\\_PP7-D3-4\\_ReportOnThePlanetsFunctionalModel.pdf](http://www.planets-project.eu/docs/reports/Planets_PP7-D3-4_ReportOnThePlanetsFunctionalModel.pdf).

Recent work has focused on adding further detail to the description of the Planets Functional Model. This includes creating scenarios for common preservation processes and mapping of Planets products to the Functional Model to show how Planets has realised the higher level functions described in this work. A further review of this work is in progress and the work will be completed with a revisit of the mapping to OAIS. This in turn will result in the creation of feedback on the OAIS model. The results of this work will be published on the Planets website in April.



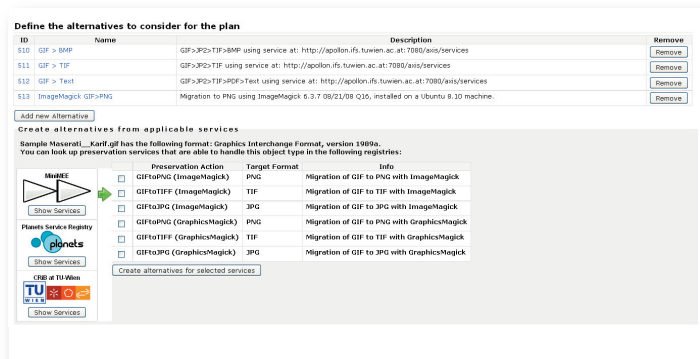
<sup>2</sup> <http://public.ccsds.org/publications/RefModel.aspx> and [http://www.iso.org/iso/iso\\_catalogue/catalogue\\_tc/catalogue\\_detail.htm?csnumber=24683](http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=24683)

# NEWS ROUND UP

## New Planets Software Tool Releases

### Version 2.1 of Plato Tool Released

The latest version of Planets preservation planning tool, Plato, is available to download from the Plato webpages.



Plato helps users to develop preservation plans in line with organisational goals and make an informed decision about the selection of a solution during the preservation planning process. The latest version incorporates several new features.

Hannes Kulovits, Vienna University of Technology, said :  
“The new version of Plato makes experimenting and evaluation easier. It has quality-aware migration services which measure quality and performance (time and memory) and automatically provides this information together with the result. Version 2.1 allows users to define their policies once and use these policies in preservation plans they create subsequently. JHove has also been integrated, making it possible for the user to compare the original and the migrated object side-by-side and identify changes resulting from the preservation process.”

The new version has the capacity to support 200MB of sample objects per plan. The user interface for objective trees has also been redesigned and there is a 'home' screen for a central point of entry.

To find out more about the new features or download Plato visit:  
[www.ifs.tuwien.ac.at/dp/plato/intro.html](http://www.ifs.tuwien.ac.at/dp/plato/intro.html)

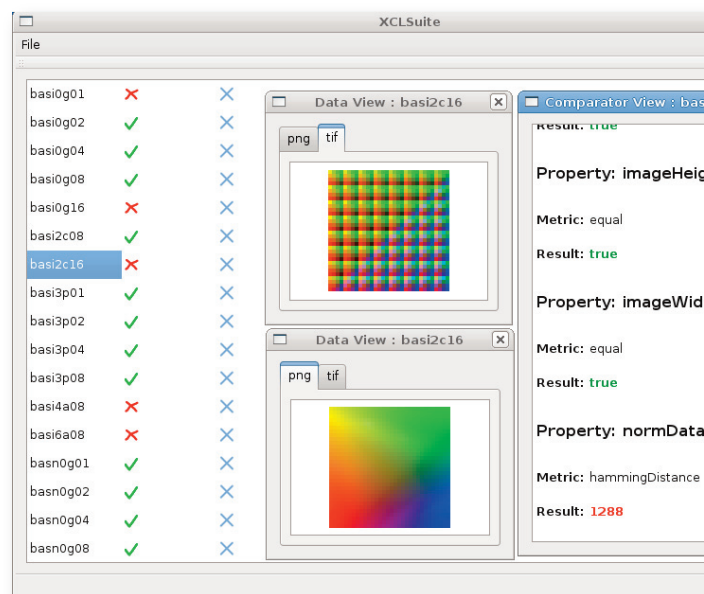
### New Comparator Tool

Working out whether preservation of a digital object has been successful and damage has been sustained can be tricky. Planets has released a new Comparator tool to address this.

File format migration is often considered to be the most useful approach to preserving digital content, especially when file formats are no longer supported by software. Unfortunately, there have been few tools available to control and verify the outcome of data migrations in an effective and comprehensive way.

The Comparator tool will make it possible to compare large collections before and after migration has taken place. It will also allow users to receive reports which identify any untoward changes to the collection and individual files as a result of preservation.

Developed by Consortium partner University at Cologne ([www.hki.uni-koeln.de/planets-cologne-team](http://www.hki.uni-koeln.de/planets-cologne-team)), the Comparator is one of two tools created as part of the overall work on the development of XCL (eXtensible Characterisation Languages).



Its counterpart, the Extractor, creates XCDL descriptions to extract content and technical properties from files (such as width, height, colour depth or font information). The Comparator then takes the XCDL descriptions and compares them using a broad range of measures to determine how similar (or different) the digital objects are.

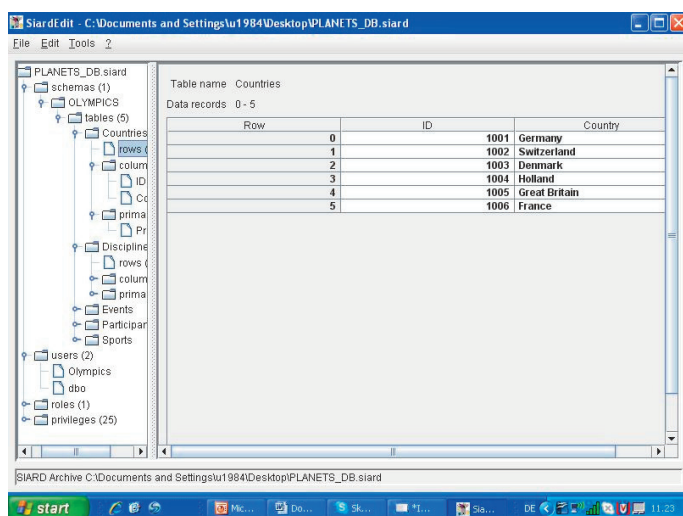
If you would like to read more or download the Extractor and Comparator tools, please visit the Planets XCL-website at:

[http://planetarium.hki.uni-koeln.de/planets\\_cms/index.php](http://planetarium.hki.uni-koeln.de/planets_cms/index.php).



## Database Archiving Toolset

Planets Consortium partner, the Swiss Federal Archives has released new freeware software to support the long-term archiving of relational databases.



The Software Independent Archiving of Relational Databases SIARD suite consists of open storage format for relational databases based on international standards (SQL 1999 and XML) and a software tool to support long-term archiving of database content.

This open storage format makes it possible to retain the content, relationships and metadata of relational databases. The software tool converts relational databases into SIARD, archive and upload them, when required.

Planets has adopted SIARD as its official format for preservation of relational databases.

Amir Bernstein, Planets project leader at the Swiss Federal Archives and SIARD owner said: "Most organisations holding relational databases need to preserve them for the long-term. Preserving databases is a complex task. It requires an application capable of interacting with a live database and extracting not only its content, but also the metadata and the relations. Storing these in a format suitable for the long-term preservation can then guarantee the data readability and understandability in the future. The SIARD format coupled with the SIARD Suite are the first to offer such capabilities."

For more information and to order SIARD free-of-charge, visit the Swiss Federal Archives' website at: [www.bar.admin.ch/dienstleistungen/00823/00825/index.html?lang=en](http://www.bar.admin.ch/dienstleistungen/00823/00825/index.html?lang=en)

## Planets User Community reaches 500 members

Almost 550 people from 51 countries around the world have now registered to receive regular updates on Planets project.

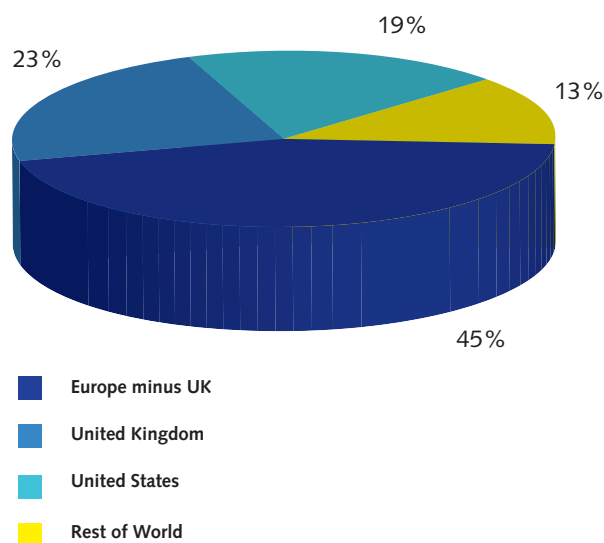
Launched in March 2009 the Planets User Community aimed to bring together people interested in digital preservation and the Planets project and to communicate regularly about developments and the latest results of the project.

Members receive e-bulletins about software releases, reports and papers. The User Community members also receives early notice about the release of Planetarium and can register one to two weeks ahead of general announcements going out about Planets events.

Over 20 e-bulletins were issued in the first six months announcing results such as the new version XCDL-Comparator, results of the Planets Market Survey, reports on Characterisation of Digital Art and Gap analysis and with links to papers presented at conferences such as ECDL and iPres.

Membership of the User Community is international and split between USA, the UK, and Europe and the rest of the world. Approximately 35 per cent of members are librarians or archivists; 20 per cent are IT specialists and seven per cent represent company directors.

To receive notice of new Planets publications, developments and releases, register to join the Planets User Community at: [www.planets-project.eu/community](http://www.planets-project.eu/community)



Geographical distribution of members

## Public Beta of Planets Testbed released

Max Kaiser, Austrian National Library

The latest version of the Planets Testbed (Public Beta) has now been released for public access and use.

Planets' Testbed is a web application for experimenting on the performance and behaviour of tools and digital objects in digital preservation. It offers a controlled hardware & software environment and provides structured processes for the arrangement and evaluation of preservation experiments.

The newly released Testbed (Public Beta) provides a scientifically sound environment for experiments on different methods in digital long-term preservation. Within Testbed v1.1 migration, emulation

and other experiments may be executed in an intuitively comprehensible 6-step workflow on annotated data (Corpus) or own files.

Readers are invited to sign-up to use the Testbed in their organisation.

To obtain a login, (or to ask a question about the Testbed, please contact our Helpdesk: [helpdesk@planets-project.eu](mailto:helpdesk@planets-project.eu)

For more information, take a look at <http://testbed.planets-project.eu/testbed/>

# LOOK OUT FOR...

## Coming soon: Planets Market Survey White Paper

A White Paper detailing the final results of the Planets Market Survey will be released in Spring 2010.

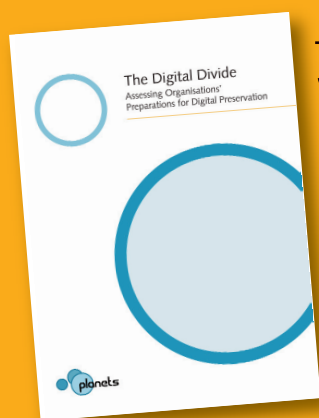
The white paper: 'The Digital Divide: Assessing Organisations' Preparations for Digital Preservation' presents the findings of the recent survey on Long-Term Management of Digital Information.

Initial results of the survey were presented at the iPres 2009 (Sixth International Conference on Preservation of Digital Objects) conference at California Digital Libraries in October and reported, in brief, in Planetarium issue 7.

The white paper puts the results in context to create a coherent narrative for non-specialists. It sets out the argument for why digital preservation affects us all, not just libraries, archives and museums, the importance of articulating a preservation policy and urges organisations to start tackling the issues now.

It is intended to act as a call to action for the non-specialist as well as those who are actively involved in digital preservation.

A companion paper summarising the findings of the Planets Supplier Vendor Briefing will be released in early Summer 2010.



To be the first to find out when the white papers are published, join the Planets User Community: [www.planets-project.eu/community](http://www.planets-project.eu/community).

## Communication and preservation preferences in Government – Bart Ballaux

Over recent decades, digital environments have made it possible to work within and without office hours and office environments. Digital archiving has created new possibilities to store and manage vast amounts of information and records. There is less paper even if the office has not become entirely paperless. E-business, e-commerce and e-government have arrived.

Alongside the field studies undertaken by State and University Library at the University of Aarhus and HATII at the University of Glasgow, the National Archives of the Netherlands has carried out qualitative field studies with civil servants in Dutch and Flemish agencies. The field studies aim to establish how far these new trends and opportunities have materialised in the daily work practices of an average civil servant in the Low Countries.

It comprised face-to-face interviews with around 70 civil servants spanning senior secretarial and advisory roles, project management and administration.

Civil servants were asked about:

- preferred communications channels;
- circumstances when they use face-to-face rather than digital communications;
- software programmes;
- how they organise paper and electronic information and records;
- filing and retrieval systems;
- preservation and disposal.

A report containing the findings will be released in late Spring 2010. The study will give the preservation community, a better insight into issues and highlight patterns and trends that are shaping civil servants' communication and information-sharing behaviours. It should make it possible to identify preservation priorities and procedures to meet needs and expectations.

The report will be published on the Planets website. Join the Planets User Community to receive advance notice of its release: [www.planets-project.eu/community](http://www.planets-project.eu/community).

## PUBLICATIONS AND EVENTS ROUND-UP

### Planets End of Project Conference 20 May, Crowne Plaza Hotel, Berlin

In May, the entire Planets team will gather in Berlin to exchange learning about the different aspects of the project.

There are a limited number of places available for members of the digital preservation community to join us to hear presentations by the developers of the Planets tools and services and meet those responsible for the many research outputs of the project. There will also be the opportunity to find out more about how the newly-formed Open Planets Foundation which will carry forward the work of the Planets Project. Delegates will each receive a commemorative USB stick with Planets presentations and information.

For more information visit [www.planets-project/events/berlin-2010/](http://www.planets-project/events/berlin-2010/)  
Registration will open on **Monday 12th April**.

### Swiss Federal Archives hosts Planets third training event

More than 60 delegates attended the third Planets outreach event on 'Digital Preservation – the Planets Way' in Bern, Switzerland on 17-19 November 2009.

The event attracted participants from archives, libraries and universities as well as commercial companies from across Europe and the USA.

Over three days, participants gained an in-depth introduction to the Planets approach to digital preservation, the preservation planning cycle and the Planets technology and tools.

They also took part in practical exercises in preservation planning and tools testing, delegates were also able to gain hands-on experience of some of the prominent Planets solutions for long-term digital preservation.

Highlights included case studies from the Head of Digital Library, Klaus Kempf,

of the Bavarian State Library and Jérémie Leuthold, Marguérite Bos and Urs Meyer from the Swiss Federal Archives.

**Delegates said:** The Planets methodology provides solid, reliable guidance. I was particularly impressed to see the Swiss Federal Archives' system in action and speak to the developer."

"There was a good balance between the theoretical side, the practical exercises and case studies."

#### Planets visits London

Over 70 delegates attended the penultimate Planets outreach and training event held at the British Computer Society and organised by the National Archives of the UK.

Representatives from Bibliothèque Nationale de France and Centre Informatique National de l'Enseignement presented a case study in which delegates learnt about different institutions in France that are accountable for the long-term preservation of digital objects depending on the context of production or content of those electronic documents. The two institutions are working closely to rollout a cross-replication mechanism between their data centres and prove that technical collaboration is possible at national level.

There was a second case study from the UK Houses of Parliament whose Parliamentary Archives are in the second year of four-year project to develop digital preservation services. The case study outlined the approach they are taking, their progress to date and their future plans as well as how the Planets integrated approach could be adopted.

William Kilbride, Director of the Digital Preservation Coalition (DPC) commented on his experience at the event:

"I attended the Planets workshop in London and was encouraged by the range and number of agencies that are taking digital preservation seriously. I was pleased that there was such a strong turn out from the DPC membership – with 38 delegates in total. I learned a lot in the constructive discussions provoked by using PLATO planning tool. This and other practical sessions were very helpful but they were thought-provoking and supportive too."

After this successful event the Planets events team is already looking forward to the upcoming and final outreach and training event in Rome.

#### Forthcoming final event

Digital Preservation - The Planets Way will make its final stop in Rome. This is the last chance to participate in the series of events which have taken place all across Europe. The Pontificia Università Gregoriana will co-host the event on 19-21 April 2010.

To find out more or to register visit:  
[www.planets-project.eu/events/rome-2010/](http://www.planets-project.eu/events/rome-2010/)

## List of external events/publications

### Events

#### DII (Document Interoperability Initiative) Event, 12 November 2009 at Brussels, Belgium

'Planets Conversion Tools ODF Translator'

Wolfgang Keber (Microsoft Research)

Presentation:

[www.documentinteroperability.org/diipresentationsanddocs/brusselsnov09.aspx](http://www.documentinteroperability.org/diipresentationsanddocs/brusselsnov09.aspx)

#### Digital Preservation Roadshow, Society of Archivists, 26 November 2009 at Dublin, Eire and Cardiff, UK on 15 February 2010

'Introduction to Planets'

Clive Billenness (The British Library)

Presentation:

[www.archives.org.uk/resources/billenness\\_dproadshow\\_l.pdf](http://www.archives.org.uk/resources/billenness_dproadshow_l.pdf)

#### Cultural Heritage online, International Conference 2009, 14-16 December 2009 at Florence, Italy

'The Planets Testbed: A collaborative environment for experimentation in digital preservation'

Sven Schlarb (Austrian National Library)

[www.rinascimento-digitale.it/eventi/conference2009/proceedings-2009/schlarb.pdf](http://www.rinascimento-digitale.it/eventi/conference2009/proceedings-2009/schlarb.pdf)

### Publications

#### Emulation: From Digital Artefact to Remotely Rendered Environments

Dirk von Suchodoletz (University of Freiburg), Jeffrey van der Hoeven (National Library of the Netherlands)

Conference paper from iPres2008.

In: International Journal of Digital Curation, Vol. 3, No. 4, 2009

[www.ijdc.net/index.php/ijdc/issue/view/10](http://www.ijdc.net/index.php/ijdc/issue/view/10)

#### From TIFF to JPEG 2000? Preservation Planning at the Bavarian State Library Using a Collection of Digitized 16th Century Printings

Hannes Kulovits, Andreas Rauber et al. (Vienna University of Technology)

In: D-Lib Magazine November/December 2009

[www.dlib.org/dlib/november09/kulovits/11kulovits.html](http://www.dlib.org/dlib/november09/kulovits/11kulovits.html)

#### ERICIM News 80, Special theme: Digital Preservation

The quarterly magazine of the European Research Consortium for Informatics and Mathematics features a number of articles about the latest developments in Planets and other European Commission funded digital preservation projects.

The following articles are about Planets:

- The Planets Interoperability Framework  
by Ross King (pp. 14-15)
- HOPPLA- Archiving System for Small Institutions  
by Michael Greifeneder, Stephan Strodl, Petar Petrov and Andreas Rauber (pp. 18-19)
- Tackling the Problem of Complex Interaction Processes in Emulation and Migration Strategies  
by Klaus Rechert and Dirk von Suchodoletz (pp.22-23)
- Trustworthy Preservation Planning with Plato  
by Christoph Becker, Hannes Kulovits and Andreas Rauber (pp. 24-25)
- The Planets Testbed: A Collaborative Research Environment for Digital Preservation  
by Brian Aitken and Andrew Lindley (pp. 33-35)
- The Art of Preserving Digital Creativity in Planets  
by Andrew McHugh and Leonidas Konstantelos (pp. 44-45)
- Communication and Preservation in Academic Research: Current Practices and Future Needs  
by Filip Kruse and Annette Balle Sørensen (pp. 47-48)
- Preservation Planning: User Requirements for Digitally Preserved Materials  
by Annette Balle Sørensen and Filip Kruse (pp. 48-49)

To read the articles and the full ERCIM News Special Theme on digital preservation, please visit: <http://ercim-news.ercim.eu/images/stories/EN80/EN80-web.pdf>

### Book

#### The eXtensible Characterisation Languages – XCL

Manfred Thaller, University at Cologne

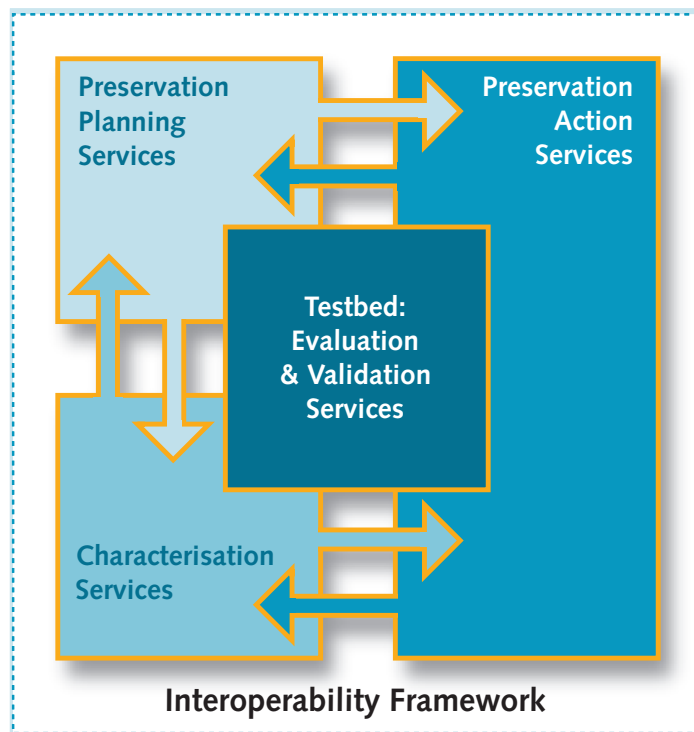


# BACKGROUND TO THE PLANETS PROJECT

Preservation and Long-term Access through Networked Services (Planets) is a European joint-venture for research and development in the field of digital preservation. The project is being delivered by sixteen institutions in Europe and coordinated by the British Library. It is co-funded by the European Commission under Framework Programme 6. (IST-033789).

Planets' is delivering a framework and set of practical tools and services that will enable institutions in Europe to manage and access digital collections for the long-term:

- **Models** to enable you to identify the digital preservation needs of your organisation, decide what information you want to keep and in what format you want to store it. They also help you to understand the ways in which end-users work with these collections.
- **Tools** to allow you to build, shape, compare and execute preservation plans in accordance with your preservation needs. Planets and third-party tools enable you to identify the significant properties of your collection; recommend and execute migration to convert old file formats into new ones or emulation to replicate the original environment; and to compare objects before and after preservation actions have taken place to quality assure and document the outcome.
- **Registry** containing descriptions of file formats, descriptions of available preservation actions and their suitability when applied to particular object types.
- **Architecture** providing access to Planets and third-party preservation tools through a single web-based application.
- **Testbed** and laboratory environment in which you can test these tools and services using real data in a secure environment, so you can make decisions based on scientific evidence.



## Planets Partners are:

The British Library  
The National Library of the Netherlands  
Austrian National Library  
The Royal Library of Denmark  
State and University Library, Denmark  
The National Archives of the Netherlands  
The National Archives of the United Kingdom  
Swiss Federal Archives  
University at Cologne  
University of Freiburg  
HATII at the University of Glasgow  
Vienna University of Technology  
Austrian Institute of Technology  
IBM Netherlands  
Microsoft Research Limited  
Tessella Support Services Plc

For more information, visit [www.planets-project.eu](http://www.planets-project.eu) or email [info@planets-projects.eu](mailto:info@planets-projects.eu)