



The PLANETS Testbed

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WePreserve

DPE/Planets/CASPAR/nestor Joint Training Event

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<http://www.wepreserve.eu/events/barcelona-2009/>

Why do we need a Testbed for Digital Preservation?

- Today: Practices and processes in digital preservation are more craft and art than science
 - Substantial conceptual work required
 - Many ad-hoc projects and local solutions
- Lack of systematic analysis of preservation tools, services and strategies
- Result:
 - Insufficient and inconsistent decision making

Why do we need a Testbed for Digital Preservation?

- Need for an experimentation framework that supports design and practice of digital preservation research
- Testbed for systematic assessment of preservation approaches and tools

The Planets Digital Preservation Testbed

- Digital preservation community needs a controlled research environment for evaluation of preservation tools and approaches
- Planets Testbed provides:
 - Methodology for systematic execution of experiments by distributed actors
 - (Automated) evaluation of experiment results
 - Shared access to the experiments themselves
 - Reproducibility of experiments
 - Long-term availability of structured experiment documentation

The Planets Testbed: a definition

“A controlled environment for experimentation and evaluation, with metrics and benchmark content that allow comparison of preservation tools and strategies”

Main Participants

- Austrian National Library
- Humanities Advanced Technology and Information Institute at the University of Glasgow (HATII)
- National Archives of the Netherlands
- Austrian Research Centers
- British Library
- National Library of the Netherlands
- Vienna University of Technology
- University at Cologne

Testbed in the Digital Preservation context

- To preserve digital objects, we need:
 - Preservation tools or services
 - Identification / characterisation / preservation action
 - A preservation plan
 - Based on an understanding which tools best serve our needs
 - Tailored to institutional context and requirements

→ *The Planets Testbed provides ...*

... The Planets Testbed provides:

- Information on the usability of preservation tools and services in various conditions / on various types of data
 - Based on the outcomes of practical experimentation
 - Examples:
 - Degree of preservation of certain characteristics of data
 - Performance of tool
- Aggregated, institution independent results
 - Focus on tools and data
- Experiment data
 - Can be made visible to the community and exported to publicly available registries
- Mechanisms to repeat experiments in order to validate the results

... this enables:

- Informed decisions on the applicability of tools in various settings
 - Decisions grounded in a growing knowledge base of experiments results
 - Common understanding of the best preservation approaches for specific types of data in specific situations
- This information can be used to build and assess preservation plans

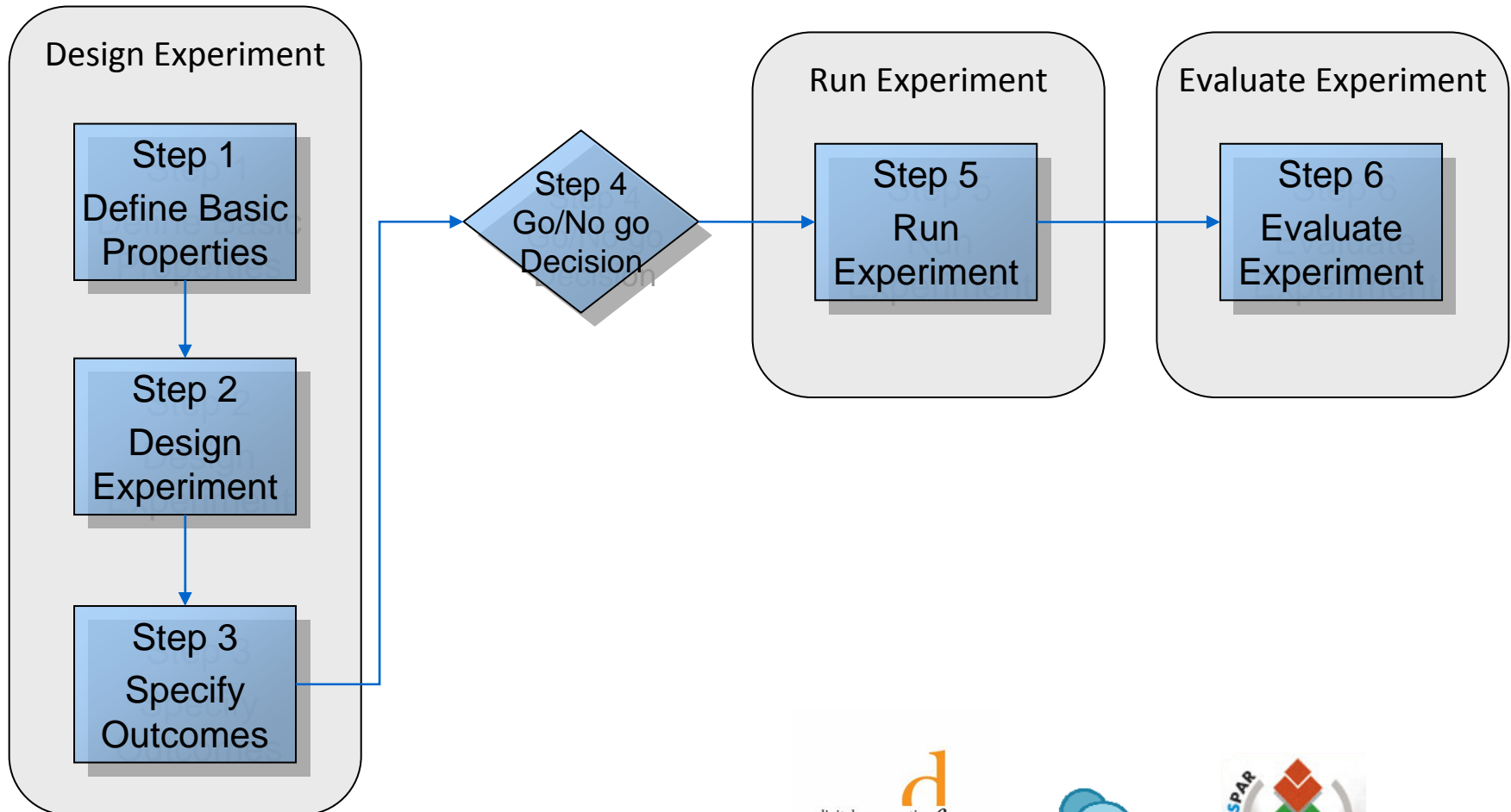
Testbed Origins

- National Archives of the Netherlands developed the idea of a digital preservation Testbed in 1999
 - ‘Dutch Digital Preservation Testbed’ software rolled out in 2001
 - Four file types covered
- DELOS Testbed Research Framework based on this
- Planets Testbed built upon these systems
 - Focus on formalisation of experiment design
 - Strong emphasis on comparability and traceability of results
 - Focus on automation
 - Integration in Planets Interoperability Framework

What are the Testbed benefits?

- Enables users to understand which tools best serve their digital preservation needs
- Provides a controlled environment where
 - preservation tools and services can be tested and evaluated,
 - data (test corpora) can be shared,
 - results of experiments can be compared.


The Testbed Experiment Process





PLANETS Testbed - Welcome

THE TESTBED AND YOU

 Log into the Testbed and test tools and services against benchmark content or your own data. If you have any interest in which digital preservation tools and approaches perform the best in a variety of situations you can browse through the experiments database and learn from the successes and failures of other experiments. You may even choose to replicate earlier experiments to validate the outcomes that were noted. By making experiment results available the testbed will provide scientific value to the broader community of content owners and memory institutions.

Welcome to the Planets Testbed.

There are countless approaches to digital preservation available, making use of a variety of **migration**, **characterisation** and **emulation** tools, but which is the best approach to take? The Planets Testbed provides a **dedicated research environment** where **services** and **data** can be experimented upon, results can be evaluated and outcomes shared with the wider community. By providing a dedicated hardware and software environment the Testbed allows different approaches to be analysed systematically, so that results can be **benchmarked** and outcomes can be **empirically compared**.

[Click here to log into the Testbed](#)

Forgotten your username or password? Need help registering for an account?
 Email the helpdesk: helpdesktb@planets-project.eu



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Browse Services

Look through all the services available in the Testbed

Browse Experiments

Look through the collection of previous experiments

Browse Corpora

Look through the collections of benchmark data

Perform An Experiment

Test tools or services against benchmark content or your own data

Help & Support

About the Testbed



PLANETS Testbed - New Experiment - 1. Define Basic Properties

EXPERIMENT PROGRESS

- 1. Define Basic Properties ●
- 2. Design Experiment ●
- 3. Specify Outcomes ●
- 4. Experiment Approval ●
- 5. Run Experiment ●
- 6. Evaluate Experiment ●

1. Define Basic Properties Save Save experiment & continue to Stage 2

Create a new experiment using the form below. Once you have supplied the required information and have submitted the form the experiment will be added to your list of experiments as found in the My Experiments section.

General Information

Experiment Name: ?

Summary: ?

Participants: ?

Contact Information

Contact Name: ?

Contact Email: ?

Contact Tel: ?

Contact Address: ?

References

External Reference ID: ?

Experiment References:

+ Add ?

Literature References:

Description: ?

URI: ?

Title: ?

Author: ?

Add another literature reference.

Further Information

Purpose: ?

Testbed Walkthrough

→ *Walkthrough of the Testbed software will be demonstrated by Brian Aitken (HATII, Glasgow) after this presentation*

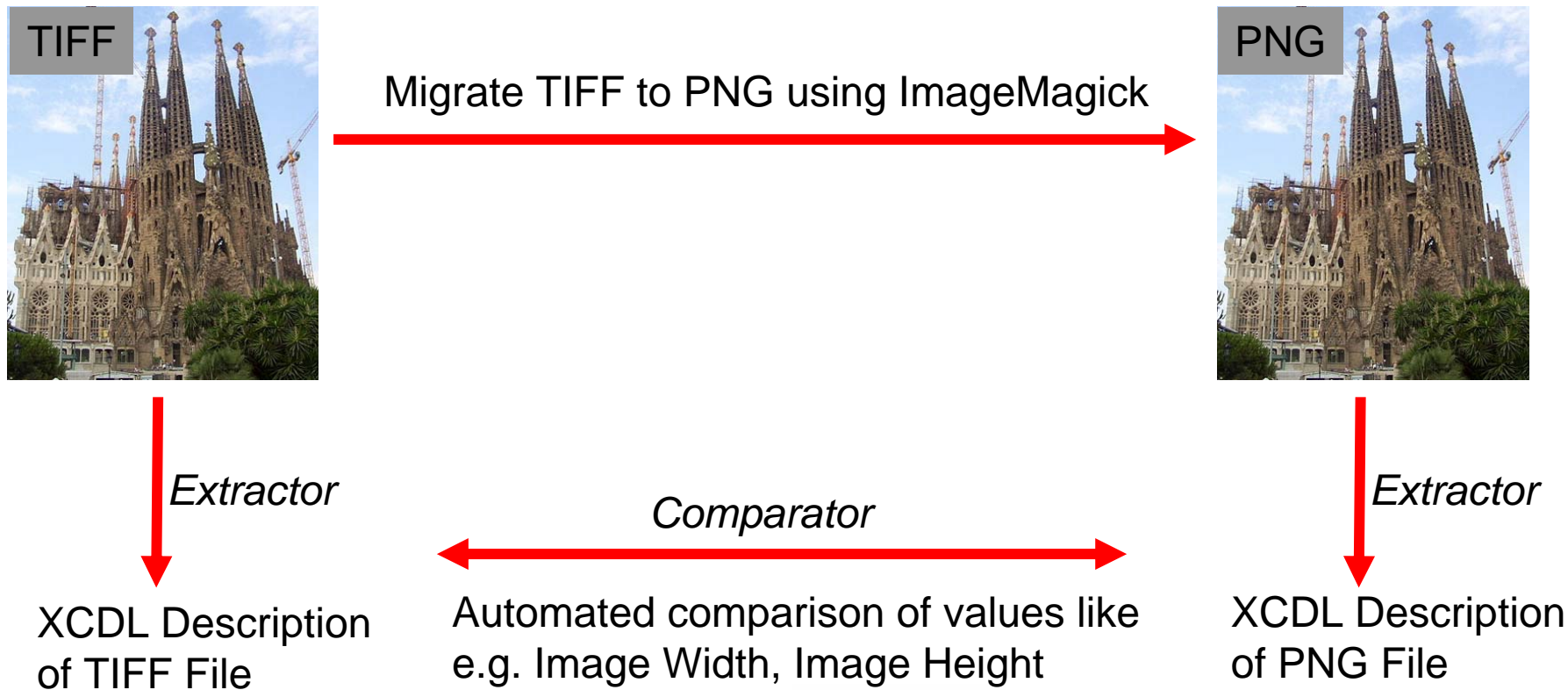
Typical experiment scenario

- Single characterisation or migration experiment
- or:**
- Workflow based experiment, following a sequence of steps:
 - Invoke a characterisation service on input data to determine significant properties and appropriate migration tools
 - Invoke a migration service for execution of data migration
 - Invoke second characterisation service to automatically assess the results of the migration

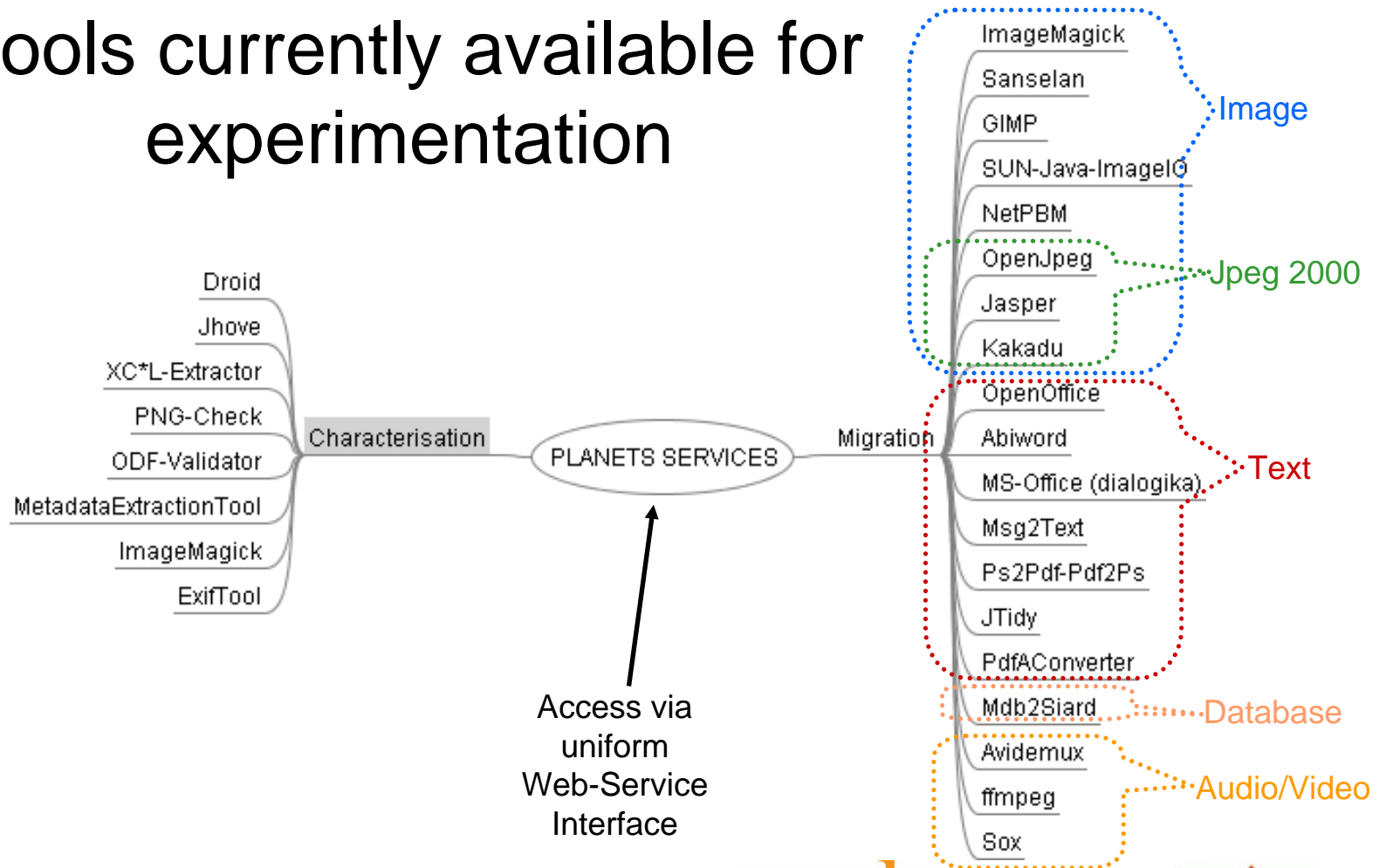
Automated evaluation of experiment results

- Experiments supported by automatic extraction and comparison of technical properties of input and output objects
 - Planets Comparator and XCDL language
- Advantages:
 - Comparison of particular objects before and after treatment with a preservation tool
 - Assess impact of preservation action

Automated evaluation of experiment results



Tools currently available for experimentation



Testbed Corpora

- Use of digital preservation corpora as test data
 - Annotated collection of digital objects
 - Ensure that a sufficient knowledge base is available for each experiment
 - Annotations will contain the criteria against which given algorithms will be evaluated
- Integration of publicly available corpora
- Material provided by Planets partners

Testbed Central Instance and Testbed software

- Testbed Central Instance hosted by HATII at the University of Glasgow
 - Currently only available to Planets partners
 - Experimenters are encouraged to use this central instance to ensure the seamless aggregation of experiment results
 - Will be made available to limited public by May 2009
- Downloadable instance of the Testbed software available for local installation at
 - <http://gforge.planets-project.eu/gf/project/ptb>

Testbed Architecture: Key Principles

1. Designed to be platform independent, robust and scalable
 - Java Enterprise Edition
2. Designed to execute experiments on a wide array of preservation tools and services
 - Web Service approach: tools wrapped as web services can be accessed by the Testbed application by means of a platform-independent URI
3. Designed to be a part of the overall Planets software suite
 - Sharing of common components across the entire project
 - Testbed development can focus primarily on the components that are unique to the TB

Web Service Approach

- All preservation tools required for Testbed experiments are deployed and accessed as Web Services
- All preservation tools must be wrapped as Web Services so that
 - Services can be registered with the Testbed
 - Service templates can be created
 - Experimenters can then access these templates to simulate the specific usage of a tool
- Steps involved in registering and configuring a service are handled by the Testbed administrator

Current status of the Planets Testbed

- Autumn 2006 – Spring 2007: requirements, specification, start of implementation
- September 2007: First Testbed prototype release
- March 2008: First Planets-wide release
- July 2008: V.07: Release to be used by Planets partners for testing
- December 2008: V.08
- May 2009: V.09 – First external release

Summary: Testbed Key Benefits | 1

- Access and evaluate digital preservation tools which have been wrapped and are deployed in the Testbed
- Remove institutional barriers by using tools in the Testbed rather than having to deploy them locally
- Access and compare structured experimental results which have been generated in contexts similar to institutions' own
- Create and/or access experimental data for decision support in digital preservation
- Contribute to the Testbed knowledge base

Summary: Testbed Key Benefits | 2

- Use the Testbed Corpora in order to perform experiments without having to expose the institution's own content
- Make use of XCDL to extract and compare digital content before and after treatment
- Share knowledge, browse the knowledge tree of experiments that have already taken place and explore their results
- Find institutions and people with the same challenges and share preservation experiences
- Test tools by wrapping and deploying them in the Testbed and making them available to a wide community

Planets Testbed and Users | 1

- Heritage institutions and content holders:
 - Use a set of available digital content (corpora) for experiments or upload their own files
 - Experiment with available tools and services
 - Execute experiments with corpora without exposing their own material
 - Get information on behaviour of tools at a „one-stop-shop“
 - Share results with others and contribute to building up a digital preservation knowledge base

Planets Testbed and Users | 2

- Tool and service providers:
 - Understand the needs of their user community
 - Test their tools on available content to see whether they produce the expected behaviour

Testbed experimentation – Next steps

- Early Summer 2009: Go public for external institutions
 - Experimentation with beta version by a small number of external institutions
- Autumn 2009: Large scale experimentation by selected external partners
- First half 2010: Full external release

Testbed experimentation – Target groups

- Libraries
- Museums
- Archives
- Content holders
- Documentation centres
- Service providers
- Software developers
- *...anyone with interest in digital preservation!*

Planets Testbed – How to take part?

1. You register at
 - www.planets-project.eu/community
2. You will receive
 - Information package (Explanations, walk through,...)
 - Initial guidance through experiments
3. Use Testbed
 - Conduct experiments
4. Provide feedback via survey

Interested?

- Interested in the Planets Testbed?
 - Register without any obligations at:
www.planets-project.eu/community
- Want to carry out experiments?
 - Contact Testbed Helpdesk: helpdesk@planets-project.eu
 - Information on how to become an active partner
 - Further information on training events, community,...
- First full Planets Testbed Training event
 - Copenhagen (Royal Library), 22–24 June, 2009

Further Information

- Planets Website: <http://www.planets-project.eu>
- Brian Aitken et al. (2008): The Planets Testbed: Science for Digital Preservation. In: Code4Lib 3 (2008), <http://journal.code4lib.org/articles/83>
- Planets (2009): Close encounters of the Digital Preservation Kind: Spotlight on the Planets Testbed. In: Planetarium. The News Bulletin of the Planets Programme 6 (2009), p 2–4, <http://www.planets-project.eu/docs/newsletters/NewsletterIssue6.pdf>

Thank
you!



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Questions

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