

Preservation-friendly digital objects – tools to support the automation of digital preservation tasks



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CITRA Conference
Oslo 14-16 September 2010



Topics

- The case for sharing the digital preservation know-how
- The Protage solution
- Application of agent technologies in support of digital preservation for everyone



Common DP questions

- Why should we preserve digital materials?
- Who should do it?
- What should they do?
- Where should they do it?
- When should it be done?
- How should it be done?
- For how long should we do it?
- How should we fund preservation?



Repository-centric model

- Digital objects require management if they are to maintain their recurring value
- Management of digital objects is currently (best) done in digital repositories
- Digital repositories lie at the heart of the current generation of digital preservation approaches
- Can this model be maintained into the longer-term future?



The PROTAGE project

- **PReservation Organisations using Tools in AGent Environments (PROTAGE)**
- A three-year STREP co-funded under FP7 ICT Theme 4.1 Digital libraries and technology-enhanced learning (Contract no. 216746)
- Period: November 2007 – October 2010
- Task: to investigate and initiate complementary new approaches to digital preservation





Project consortium



STATENS ARKIV
Riksarkivet och Landsarkiven

National Archives of Sweden, Coordinator



Luleå University of Technology (Sweden)



RAHVUSARHIIV
THE NATIONAL ARCHIVES OF ESTONIA

National Archives of Estonia



Fraunhofer
Institut
Digitale
Medientechnologie

**Fraunhofer Gesellschaft zur Förderung
der angewandten Forschung e.V. (Germany)**



**UNIVERSITY OF
BRADFORD**
MAKING KNOWLEDGE WORK

University of Bradford (U. K.)



EASY Innova S.L. (Spain)



eXact (Giunti Labs S.r.l.) (Italy)





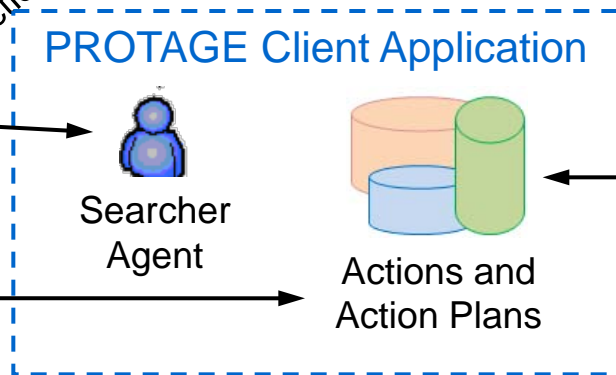
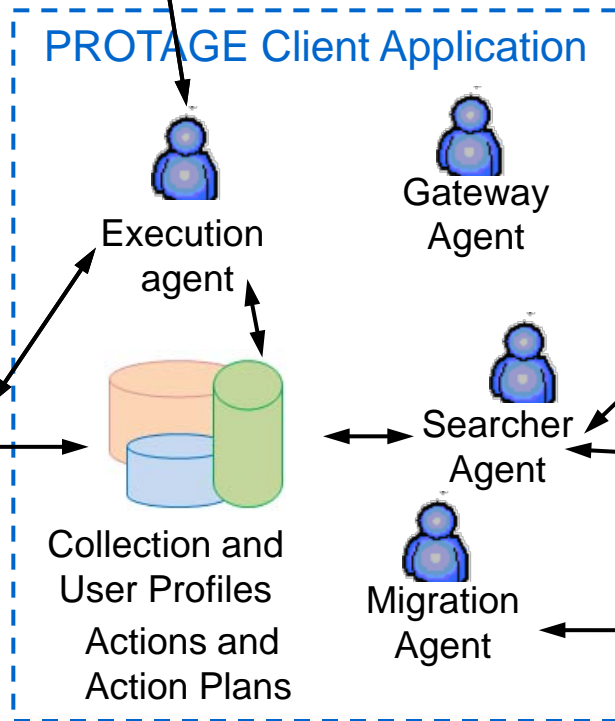
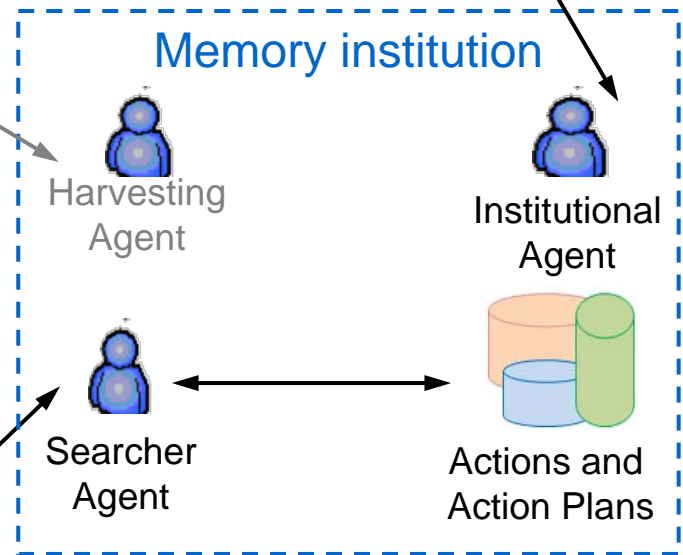
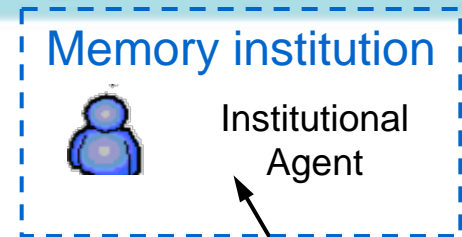
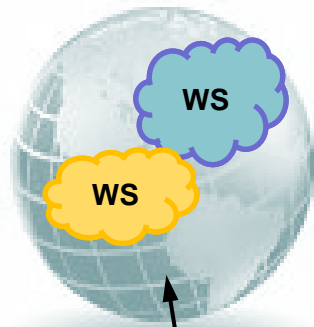
Project objectives

- Study the potential of software agents to support the automation of digital preservation tasks
- Demonstrate technical feasibility of such a system
- Analyse its implementation in different organisational environments
- Explore possible integration with other digital preservation environments



Scope of Protage

- Targeted users
 - Information creators – individual and corporate users
 - Information users - memory institutions, individual users
- Primary functionality
 - analysis and monitoring of preservation needs
 - context and trust based search for recommendations in the form of preservation workflows
 - execution of preservation workflows using external applications and webservice
 - rate and comment on tools and workflows to improve the trustworthy knowledge in support of decision-making



My Collections My Pictures (ID: 1) My Action Plans JPG Image Conversion (ID: 6, Version: 2) Execute Rating 0 Update Rating

History

| ID | Collections | ActionPlans | Dates | Rate |
|----|-------------|------------------------|-----------|------|
| 5 | My Pictures | Tech metadata extra... | 13/09/... | 0 |
| 4 | My Pictures | Calc MD5 | 13/09/... | 0 |
| 3 | My Pictures | Remote AV Check | 13/09/... | 0 |
| 2 | My Pictures | PNG Image Conversion | 13/09/... | 0 |
| 1 | My Pictures | JPG Image Conversion | 13/09/... | 0 |

Execution Details

My Collection: [My Pictures](#) **My Action Plan:** [JPG Image Conversion](#)
ID: 1 **ID:** 6
Type: Images **Description:** This plan performs a file conversion

| Input Records | Size | Number |
|--|------|--------|
| D:\Europrojektid\Protage\Prototype3\Fin... | 2 MB | 12 |

Output records: D:\Europrojektid\Protage\Prototype3\Final\Output

Stop 100% execute sequential WF

| My Collections | My Action Plan | Action Order | Actions | Status |
|----------------|----------------------|--------------|---------------------|-----------|
| My Pictures | JPG Image Conversion | 1 | JPG Image Converter | Completed |
| My Pictures | JPG Image Conversion | 2 | Metadata Extraction | Completed |
| My Pictures | JPG Image Conversion | 3 | Calc MD5 | Completed |

Details:

```

D:\Europrojektid\Protage\Prototype3\Final\input\0001.jpg
13/09/2010 12:01:00.486 starting!
13/09/2010 12:01:00.486 null is in progress!
Version: 1
Type: Metadata Checking
Status: Draft
Description: This action calcs MD5 of file
13/09/2010 12:01:00.517 Calc MD5 is completed! Elapsed time: 31 ms

```

View Out

Delete Out



Benefits of software agents

Agent-based systems are useful when:

- Users are spread across space or jurisdictions
- Preservation requirements are not well defined or too strict
- Users need guidance and constant monitoring of situation/risks
- The number of users and trusted knowledge within the agent ecosystem is sizeable



Why Protage?

Protage supports digital preservation in memory institutions by:

- **reducing the time** for developing and evaluating preservation workflows • it allows simple reuse of knowledge created by other trusted Protage users
- **monitoring and constantly adapting** to changes in user's collection, context and external environment
- offering a fully **scalable, simple** to implement, platform-independent java implementation on-top of the digital collection
- **automatically detecting** new knowledge and workflows added by other memory institutions



Implementing Protage

- Protage prototype as part of other systems:
 - Personal collection management (photo, audiovisual collections)
 - Digital repository ingest, storage and preservation management functions
 - Storage systems and controllers
- As a test-environment when developing repository systems and/or using preservation systems



Future of the Protage solution

- Open testing period until October 20th
- Recommendations on using agents in digital preservation (Final Report): end of October
- Exploitation Plan for the project results – project results will be freely available for non-commercial deployment
- All project partners are committed to maintaining the prototype system into the near future
- Commercialisation of project results is possible, but no clear plans exist to date



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