

A Web Framework for Workflow Submission and Monitoring via UNICORE 6 based on Distributable Scientific Workflow Templates

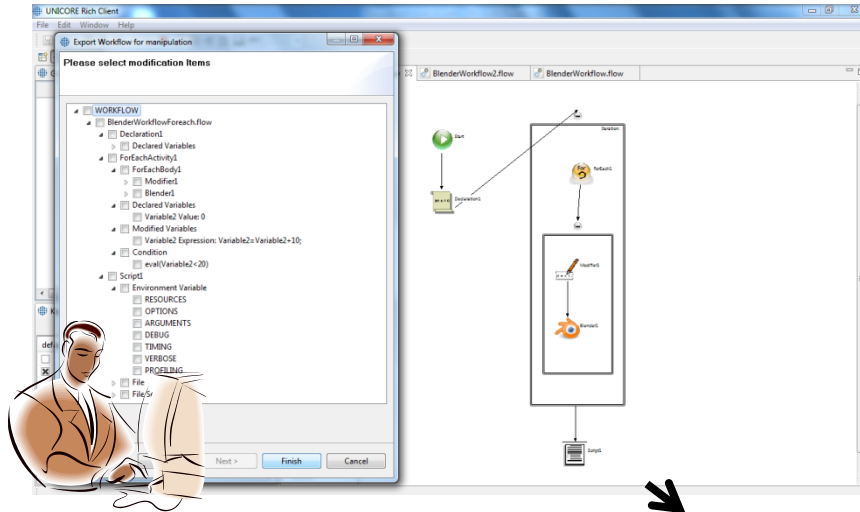
8. Juli 2011

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Jülich Supercomputing Centre

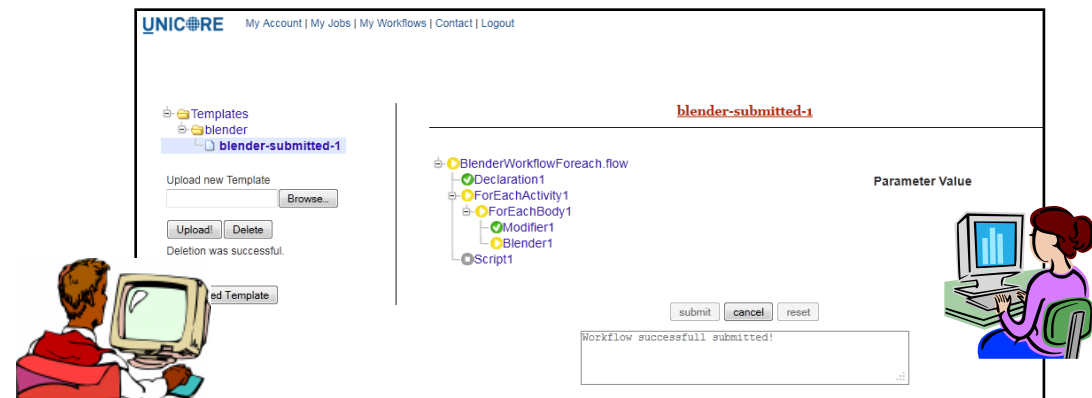
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Motivation



UNICORE Rich Client

Web application



Outline

UNICORE

- Workflow editor and parameters

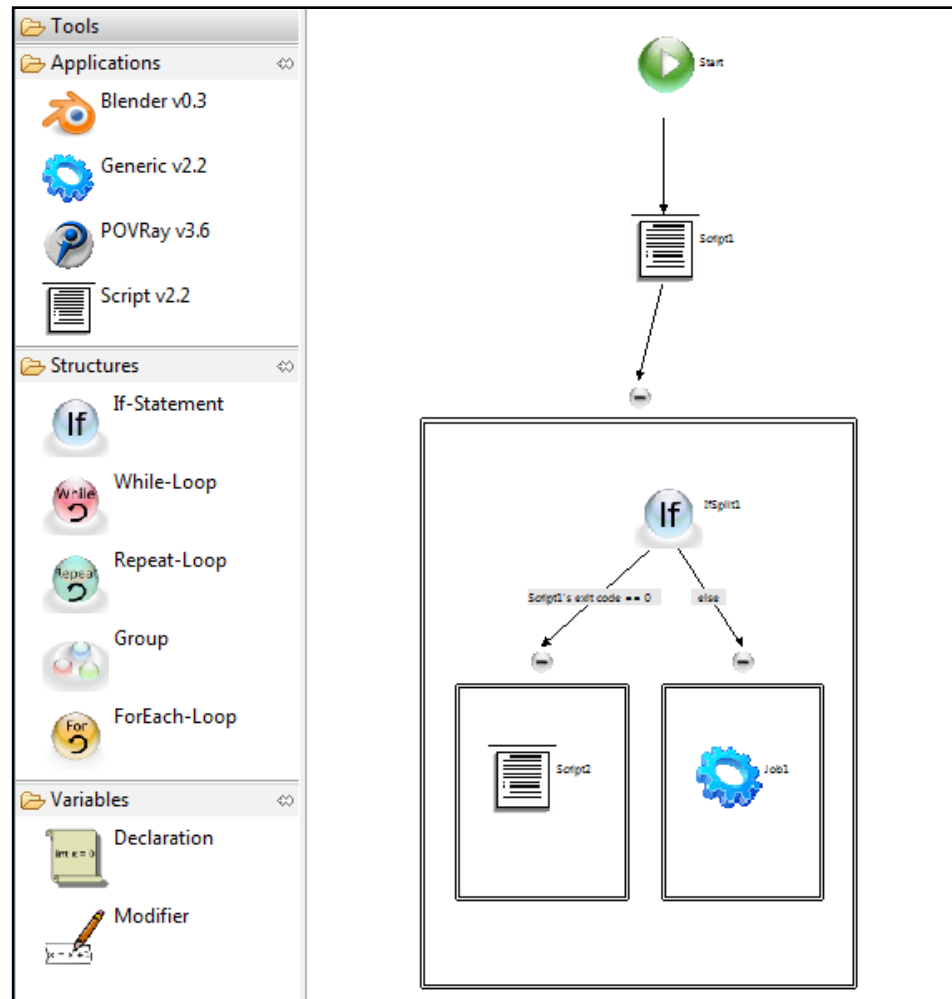
Developed components

- Export function
- Web application

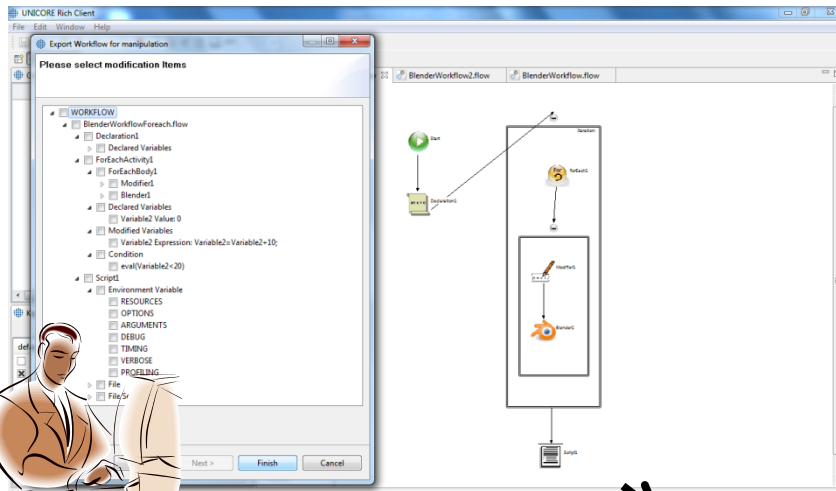
Demo

Conclusion and future work

UNICORE workflow editor



Design of developed components



UNICORE Rich Client

Export function to create workflow templates

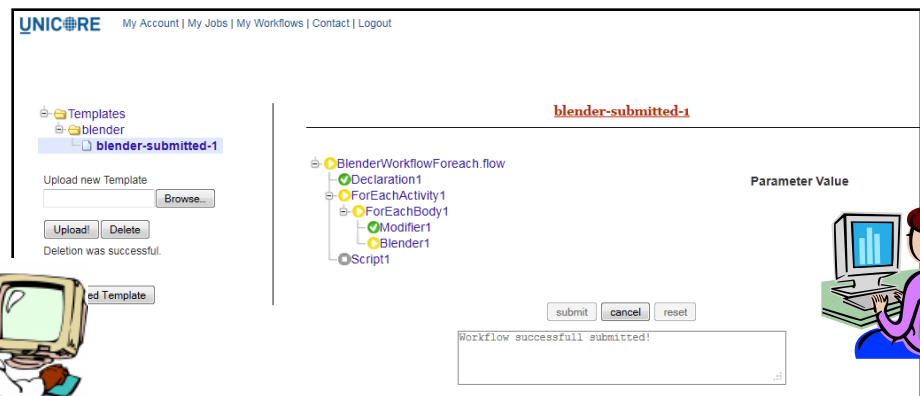


Blender.jar

Web application

Workflow template repository

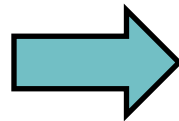
- Upload and manipulation of workflow templates
- Submission and monitoring of workflows



UNICORE Rich Client – export function

1. Workflow engine selection

- Registry 1
 - Workflow Engine 1
 - Workflow Engine 2
- Registry 2
 - Workflow Engine 3



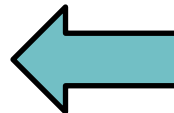
2. Storage selection and input file upload

- Registry 1
 - Storage 1
 - Storage 2



3. Template parameter selection

- Workflow
 - Job1
 - Job2
 - Parameter 1
 - Parameter 2
 - Loop 1
 - Variable 1
 - Modifier
 - Condition
 - Job 3



4. Archive creation

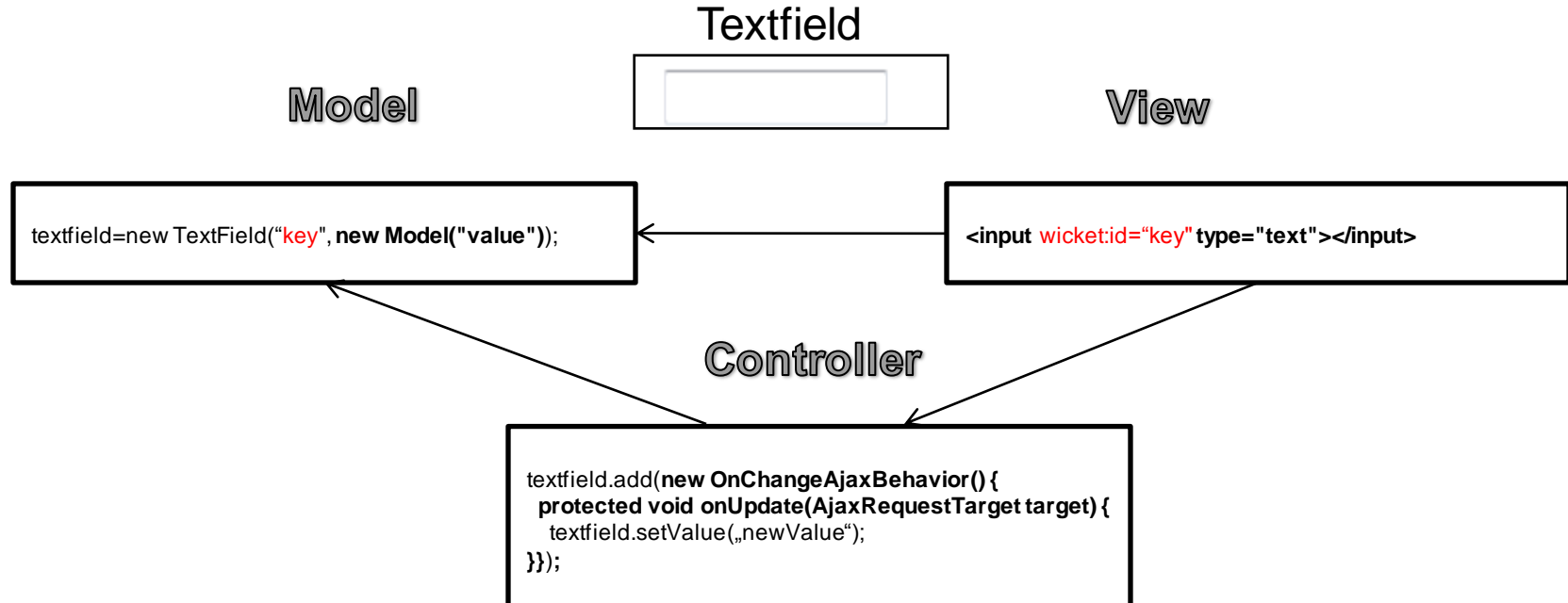
- XML workflow template
- Template model
- Groovy & HTML description
- META-INF/Manifest.mf



APACHEWICKET

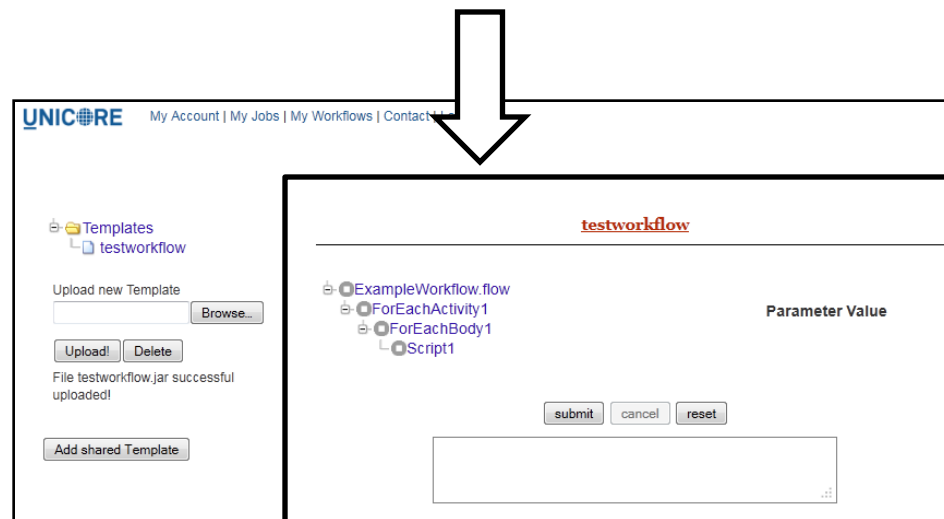
Web application – Apache Wicket

- Development of Web applications
- Open source project, first version 2004
- Implementation with Java and HTML



Web application – Visualisation of workflow templates

Groovy ~~Java~~ + HTML



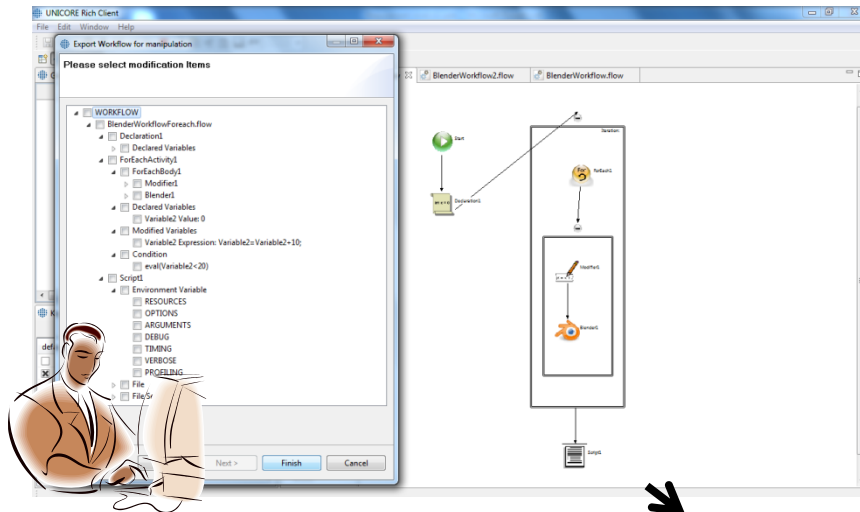
Web application – Groovy



- Since 2004
- Object-oriented programming language
- Script is compiled to Java byte code
- Influenced by Ruby, Python, Smalltalk

Advantage: no Java compilation during the export process

Demo



Blender application:

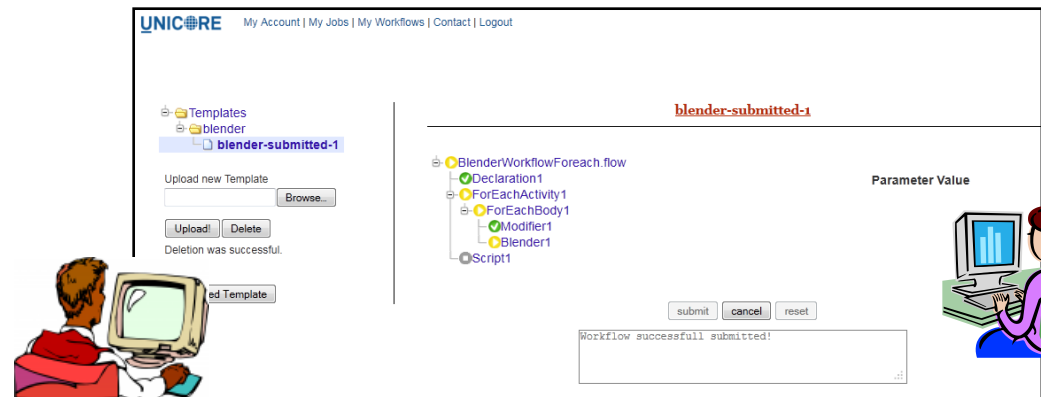
- Open source application
- 3D rendering software



Blender.jar

Template parameters:

- End condition of for-each loop
- Input file of Blender application



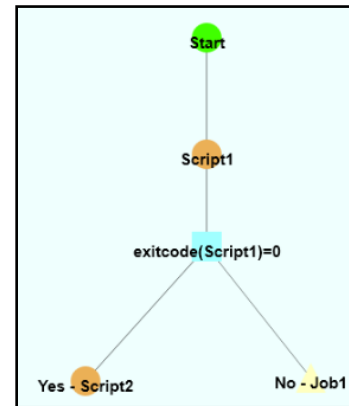
Conclusion

- Export function:
 - Create workflow templates in 4 simple steps
- Web application:
 - Workflow template repository
 - Change template parameter values
 - Functions for submission and monitoring of workflows

Future work

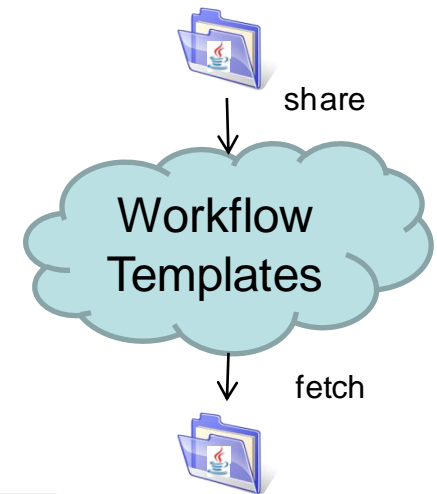
- TheJIT

- Java Script InfoVis Toolkit
- Workflow presentation



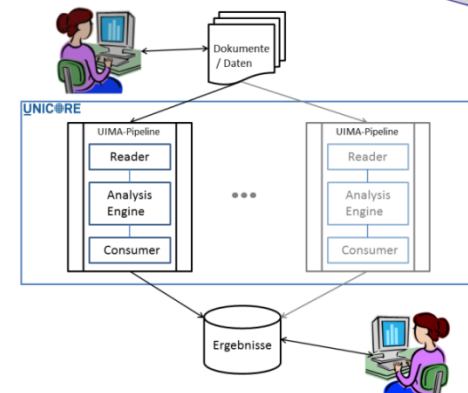
- Sharing of workflow templates

- Creation of global workflow template repositories
- Template categories, search functions



- Exploitation in projects like UIMA HPC

- Workflow for the analysis of patents
- Defined workflow structure
- Changing input files



Thank you for your attention!

Questions?

