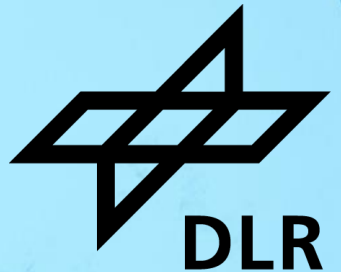


RESEARCH SOFTWARE ENGINEERING @ DLR

Institut für Softwaretechnologie

Carina Haupt



Deutsches Zentrum für Luft- und Raumfahrt (DLR)



In Zahlen

- 10.000 Mitarbeitende
- 55 Institute und Einrichtungen
- 35 Standorte und Büros



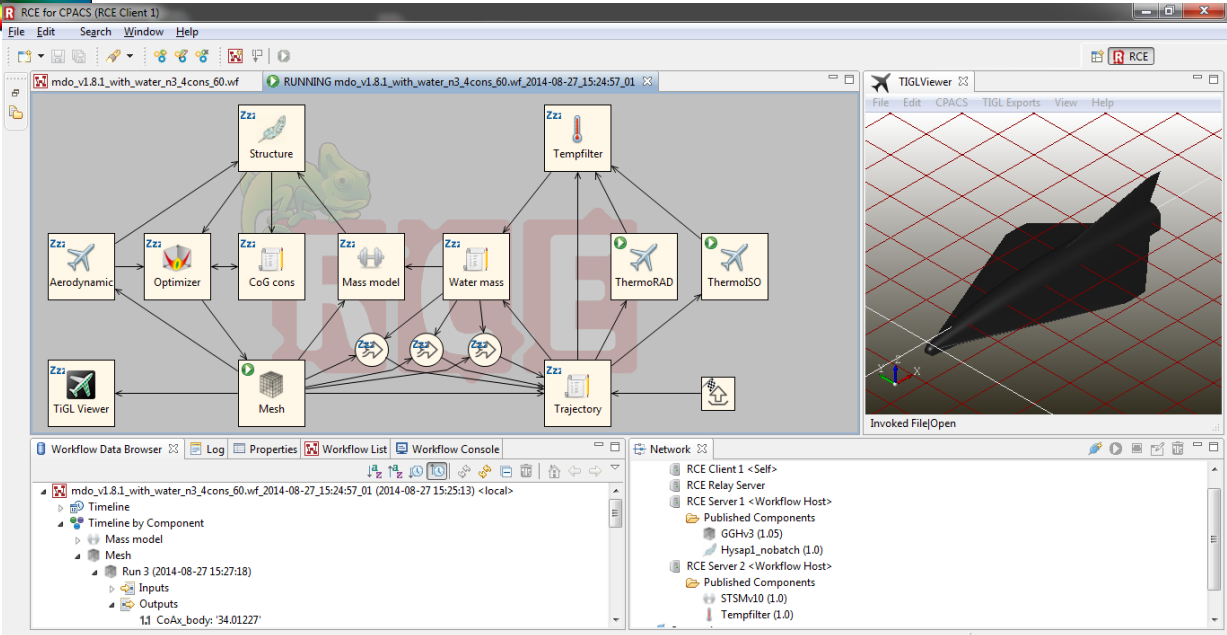
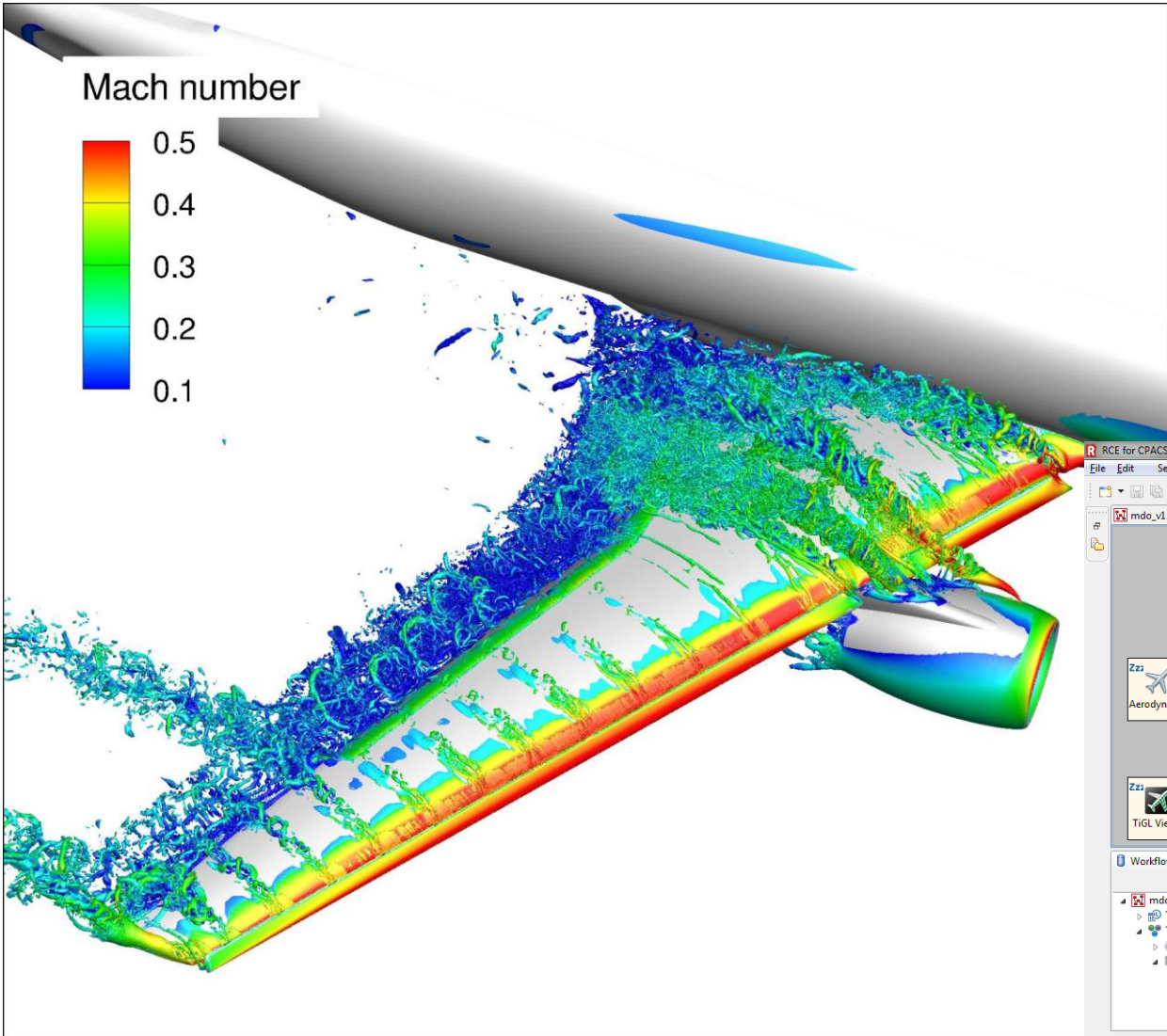




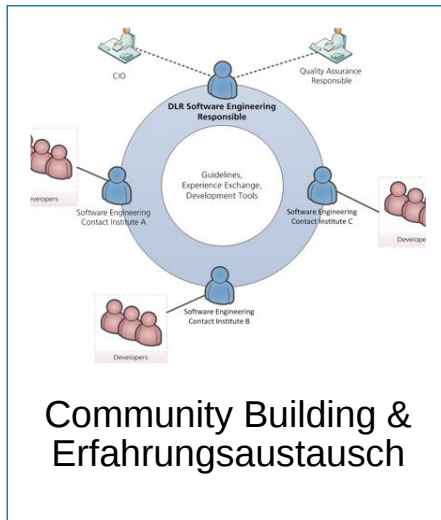




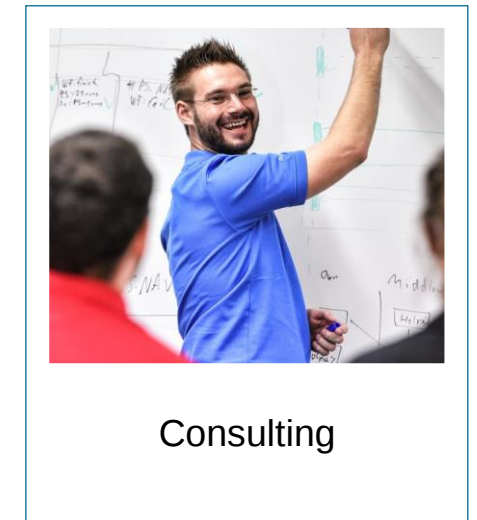
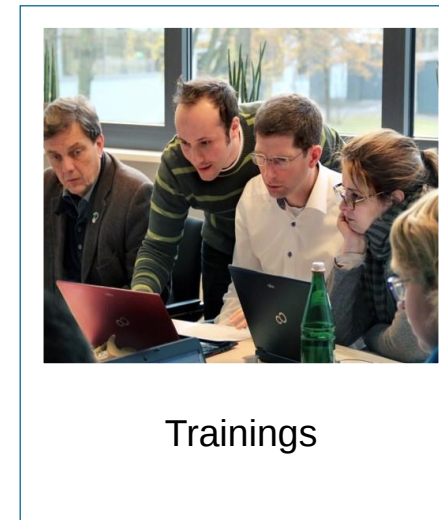
Beispiele für DLR Software



Software Engineering Initiative des DLR



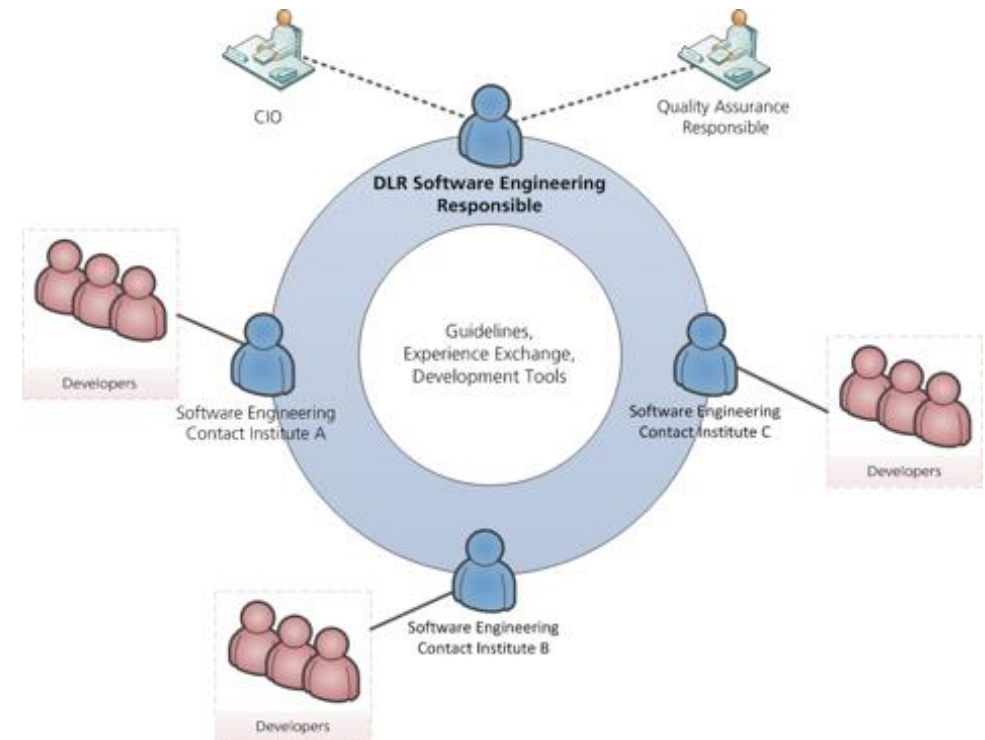
Change Management	
Recommendation	Comment
EAM.2: The most important information describing how to contribute to development are stored in a central location. (from application class 1)	Build steps are missing
EAM.5: Known bugs, important unresolved tasks and ideas are at least noted in bullet point form and stored centrally. (from application class 1)	
EAM.7: A repository is set up in a version control system. The repository is adequately structured and ideally contains all artifacts for building a usable software version and for testing it. (from application class 1)	
EAM.8: Every change of the repository ideally serves a specific purpose, contains an understandable description and leaves the software in a consistent, working state. (from application class 1)	



- 2005 gestartet
- 2017 Fokussierung auf Entwicklung von Forschungssoftware
- Angetrieben durch Institut für Softwaretechnologie, finanziert durch DLR IT & HIFIS

Community Building & Erfahrungsaustausch

- SE Netzwerk
- Wissensaustauschworkshops
- DLR Software Mattermost Team
- SoftwareEngineering.Wiki



Checkliste

Richtlinie

Empfehlungen für Entwickelnde

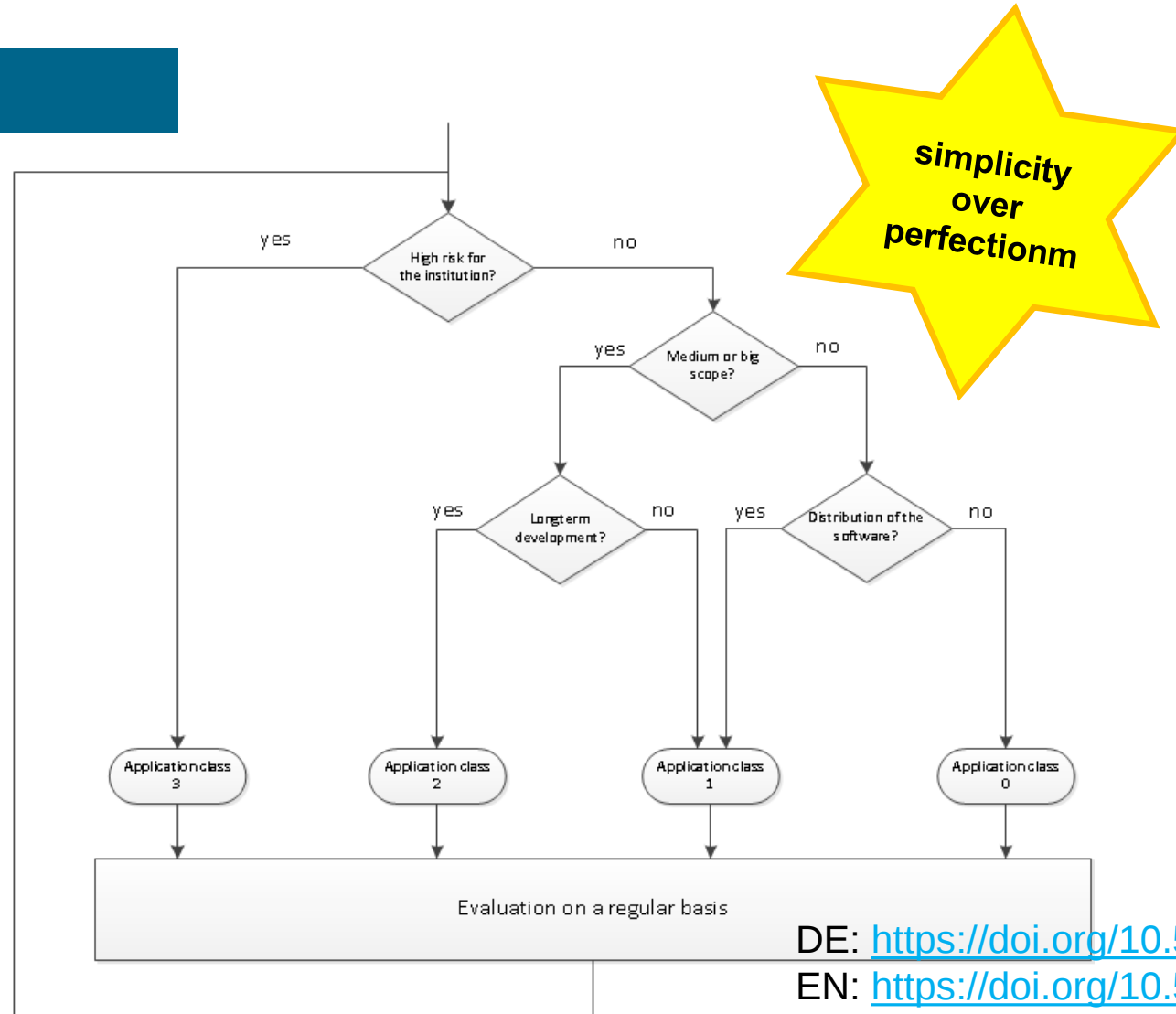
Change Management

Recommendation	Comment	Status
EÄM.2: The most important information describing how to contribute to development are stored in a central location. <i>(from application class 1)</i>	Build steps are missing	todo
EÄM.5: Known bugs, important unresolved tasks and ideas are at least noted in bullet point form and stored centrally. <i>(from application class 1)</i>		ok
EÄM.7: A repository is set up in a version control system. The repository is adequately structured and ideally contains all artifacts for building a usable software version and for testing it. <i>(from application class 1)</i>		ok
EÄM.8: Every change of the repository ideally serves a specific purpose, contains an understandable description and leaves the software in a consistent, working state. <i>(from application class 1)</i>		ok

The repository is the central entry point for development. All main artifacts are stored in a safe way and are available at a single location. Each change is comprehensible and can be traced back to the originator. In addition, the version control system ensures the consistency of all changes.

The repository directory structure should be aligned with established conventions. References are usually the version control system, the build tool ([see the Automation and Dependency Management section](#)) or the community of the used programming language or framework. Two examples:

Tailoring



DE: <https://doi.org/10.5281/zenodo.1344608>

EN: <https://doi.org/10.5281/zenodo.1344612>

Tools

Tools um Empfehlungen umzusetzen

Git

Issue Tracker

Continuous
Integration

Collaboration

...

DLR Gitlab Instanz

Trainings

- Introduction to Git and Gitlab
- Foundations of Research Software Publication
- Gitlab for Software Development in Teams

<https://codebase.helmholtz.cloud/hifis/software/education/hifis-workshops>



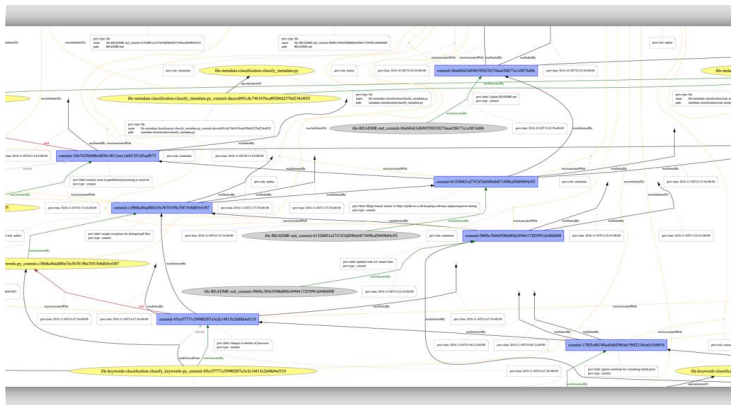
CONSULTING

(R)SE SOFTWARE PROJEKTE

Software Engineering Prozesse analysieren

Software Repository Mining

Gitlab2Prov



Analysing Software Engineering Processes with Provenance-based Knowledge Graphs



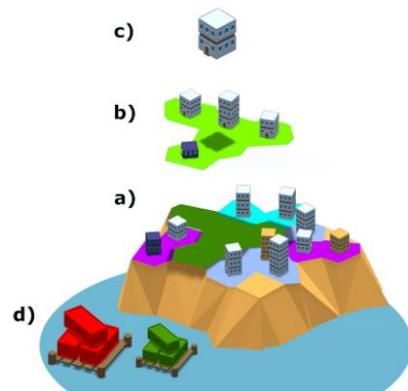
Beispiel Use Case: CWA



- Tool Entwicklung
- Analyse und Bewertung von Softwareprojekten
- Forschung

IslandViz

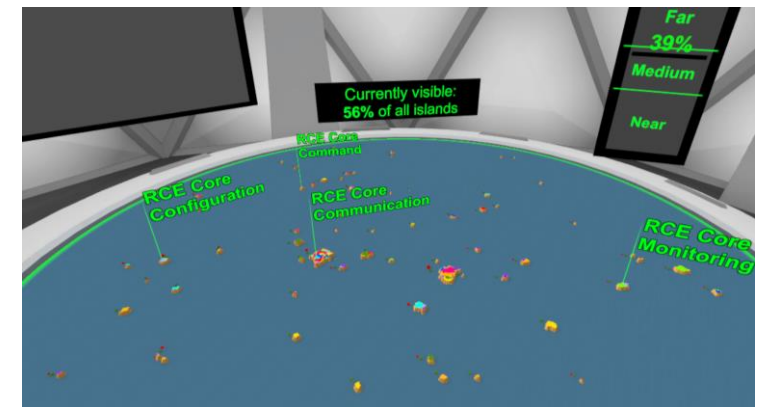
Elemente



Beziehungen



Assistenten



- Darstellung von Softwareprojekten mittels Insel-Metapher
- Interaktiv und Explorativ
- Assistentensysteme (Sprache, Chat, ...)

Administration

Info

Import

Rooms

Users

Permissions

Custom Sounds

Custom Emoji

Integrations

Mailer

OAuth Apps

View Logs

SETTINGS

Search

Accounts

Assets

Atlassian Crowd

Bots

CAS

Chatops

Custom Sounds Filesystem

Email

Custom Emoji Filesystem

File Upload

General

IRC

#general

Start of conversation

February 15, 2017

stefan

Admin

7:00 PM

Has joined the channel.

February 17, 2017

so

Sofia

8:15 PM

Has joined the channel.

June 21, 2017

BO

Bob

10:06 AM

Has joined the channel.

stefan

Admin

10:07 AM

I've got a bug (see ticket) that relates to the login function. Did anybody know where I should start to looking for a potential solution?

BO

Bob

10:08 AM

Oh year you should look into the login bundle and maybe also into the gui bundle

stefan

Admin

10:09 AM

Okay thanks, I will look into the code 😊

Project:

Revision:

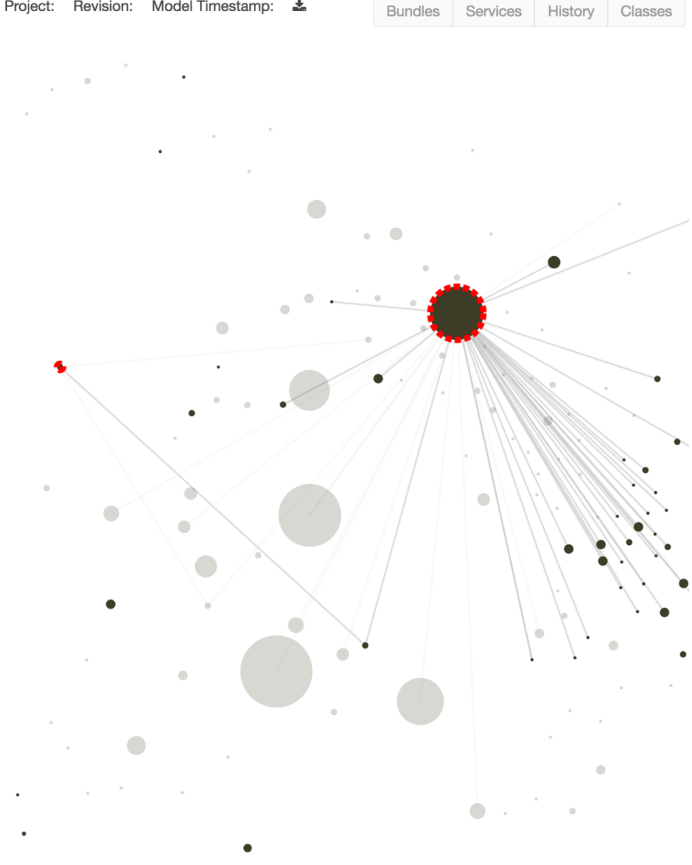
Model Timestamp:

Bundles

Services

History

Classes



Message

bold _italics_ ~strike~

[inline_code]

*** multi line ***

[KaTeX]

>quote



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#WIRROCKENSOFTWARE