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OW2

DECODER: a new DevOps toolbox for software code exploration and analysis

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Eclipse-OW2 Webinar
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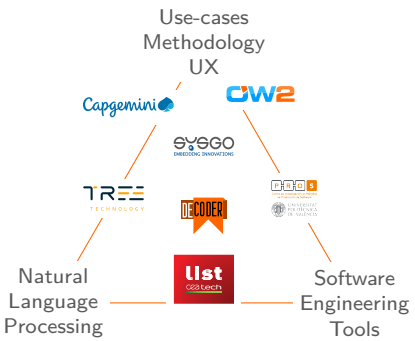
DEveloper COmpanion for Documented and annotatEd code Reference

Project at a glance

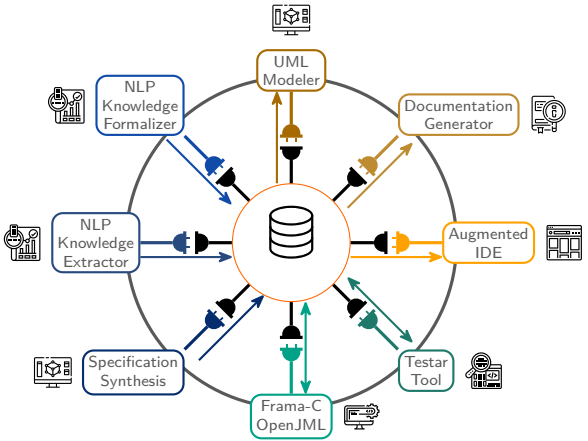
- `https://www.decoder-project.eu/`
- Started in January 2019, for 36 months
- Provide a unified platform for managing all kinds of information on a given codebase.
- Target all stakeholders in software development life cycle:
  - developers
  - reviewers
  - maintainers

Coordination: TECHNIKON

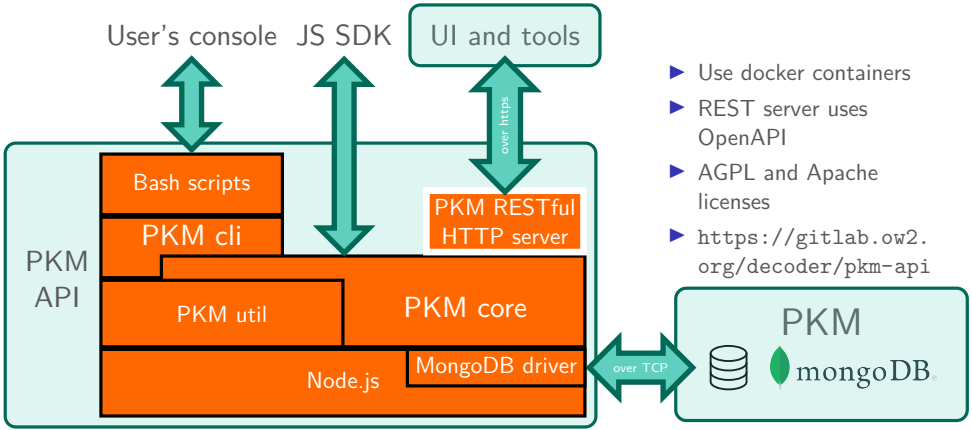


Persistent Knowledge Monitor - PKM

- Database storing all relevant documents for a software project
  - documentation (manuals, comments, bug tracker, ...)
  - formal specifications
  - source code
  - analysis and testing results
  - and evolutions (e.g. commits)
- Tools for feeding the database
- Tools for querying the database
- Common Json schema to ease interactions

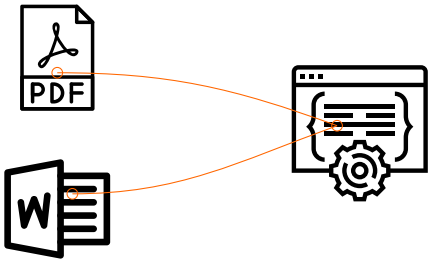


PKM Architecture



- Use docker containers
- REST server uses OpenAPI
- AGPL and Apache licenses
- `https://gitlab.ow2.org/decoder/pkm-api`

Informal documents and Formal Specification



Natural Language Processing

- Knowledge extraction from informal documents and correspondance with relevant code pieces
- Knowledge extraction from code and semi-automated documentation generation

Abstract Semi-Formal Models

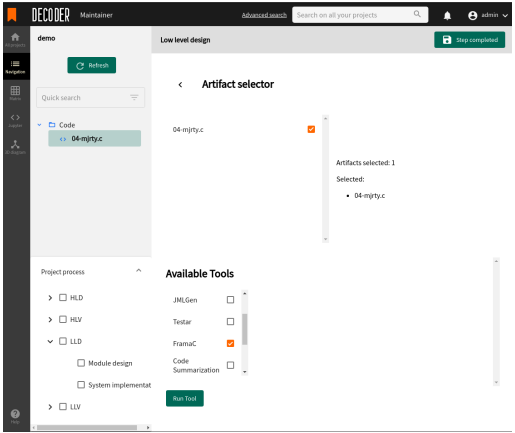
At a glance

- Graphical language to describe effects of a function on the data structures involved
- Semi-automated generation of ASFM diagrams
- Animation of the diagrams (graphical debugging)

Current status

- Common part understood by all tools
- Extensible with tool-specific content
- Provide an abstraction layer on top of PKM's lower-level documents
- Conversion tools to ASFM (doc-to-asfm) available as prototypes

Decoder Front-end



- browser-based
- under heavy development
- basic support for the main tools feeding the PKM

Next steps

Beta-testing PKM Server

- Internally
  - Add functionalities to the API
  - Integrate more tools (NLP)
  - Continue client development
- Externally
  - Interface with existing tools (e.g. THEIA)
  - Export standard queries (e.g. LSP) where possible
  - Use ReachOut! `https://www.reachout-project.eu/`
    - first beta campaign on doc-to-asfm for the end of the year
    - beta-campaign for the whole PKM stack in 2021

Contacts

- https://www.decoder-project.eu/
- https://www.decoder-project.eu/view/Main/Contacts
- decoderproject
- Decoder H2020
- DecoderProject

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