



Language Interfaces on the Web

<http://lionweb.io>
info@lionweb.io

MISSION

To create an ecosystem of interoperable components for building language-oriented modeling tools on the web.

We believe that a lively ecosystem will facilitate the adoption of language engineering and modeling solutions by reducing vendor lock-in. Development of advanced solutions will be accelerated by mixing and matching components, potentially sourced from different vendors or open source initiatives. It will also foster innovation, as incremental improvements can be defined on top of the existing libraries and components.



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ACTIVITIES

1. The main focus is the **definition of protocols** for the communication between participating software components such as repositories and clients. To make this feasible, we also define a meta-metamodel as well as a reference architecture.
2. Where appropriate, in order to support the protocols, LionWeb defines **programming language-level APIs** to access models and metamodels and to encapsulate the protocols.
3. A third activity is to create a **collaboration hub** for the developers of such components, to empower other software developers to develop web-based modeling solutions, and to educate the public about the benefits of this approach.

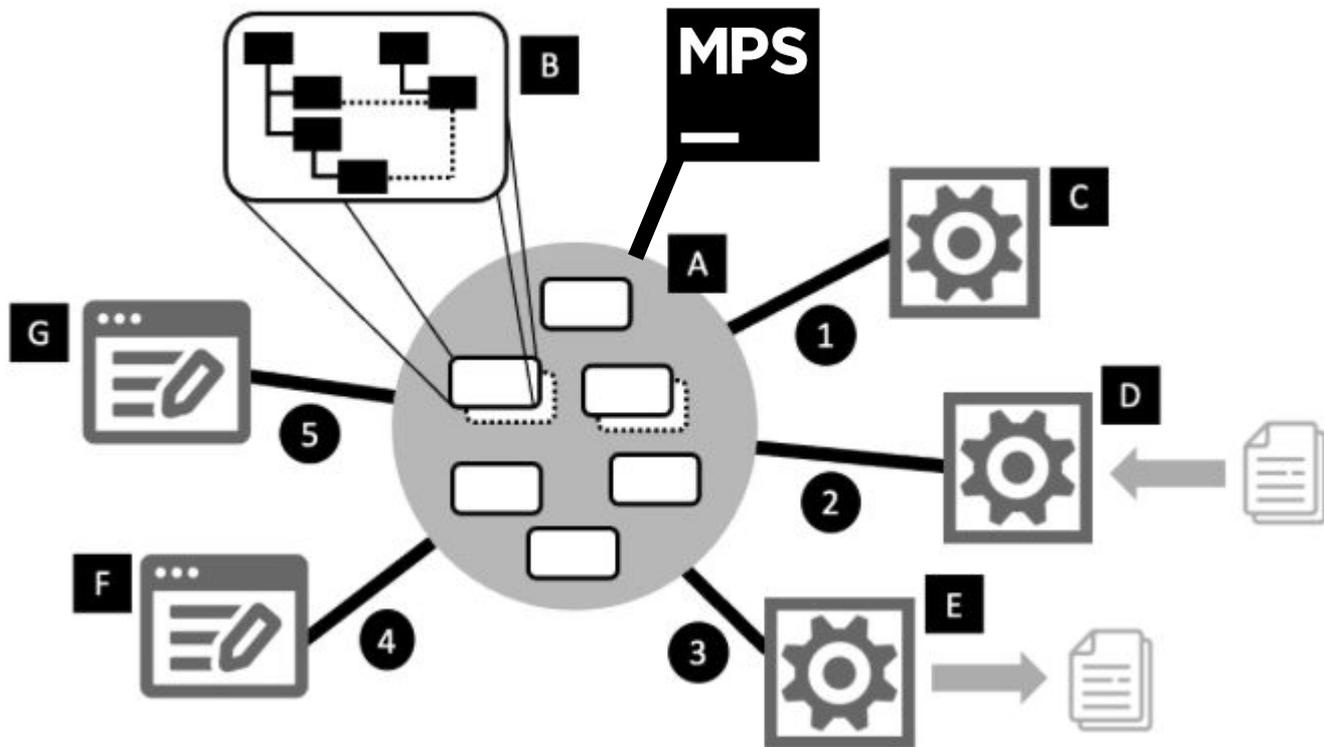


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REFERENCE ARCHITECTURE

"LSP for models"



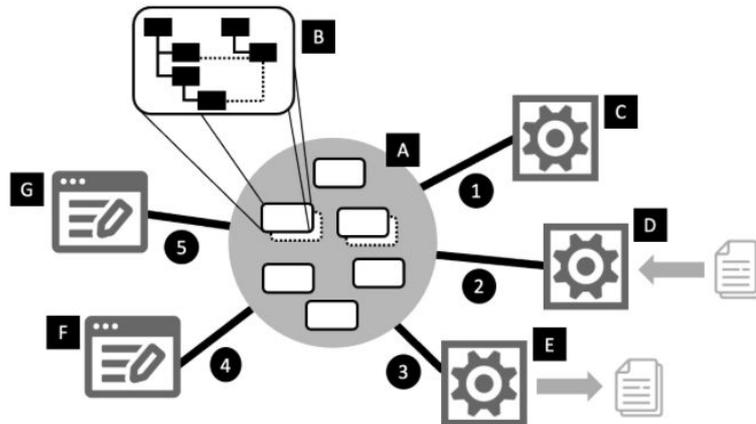


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REFERENCE ARCHITECTURE

"LSP for models"



Primary Models

Edited by the user (ASTs)

Derived Models

Produced by processors based on other models; associated with primary models

Bulk Access

Load a part of the model, modify, store it back

Load a part of the model, derive something else

Delta Access

Initialise with a part of the model, get notified of changes, write back changes continuously



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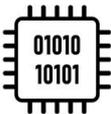
WORK PRODUCTS



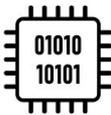
Specifications for the communication protocols; this also requires the definition of a meta-metamodel



A reference architecture for cloud-based modeling tools (necessarily mainly to be able to produce the others)



Where appropriate, bindings for these protocols in several programming languages



Reference implementations and examples of how to build systems using the LionWeb protocols (in particular, using some of the systems mentioned in the History section)

Priority

All our specifications and code is released as **open source** under the [Apache 2.0](#). It explicitly allows commercial use. LionWeb is currently not its own legal entity, it's just a voluntary collaboration of people.



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PARTICIPATION

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DEMO CONTENTS

1. Generate LlonWeb metamodel from Kotlin classes
2. Parse properties file and store as LlonWeb instance model
3. Import metamodel into MPS
4. Convert to MPS languages
5. Import properties instance model into MPS
6. Show instance model in Freon web editor, served from MPS via LlonWeb protocol
7. Change some values in Freon
8. Store changes back to MPS
9. Export example instance from MPS to LlonWeb
10. Unparse example instance



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EXISTING PROTOCOLS

Bulk Read

Bulk Store

EXISTING CODE

APIs in Typescript

APIs in Java/Kotlin

(APIs in C#)

Integration with MPS

Integration with Freon

Integration with Modelix

Integration with StarLasu

Integration with EMF



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NEAR TERM FOCUS

- Finalize Bulk Protocols and document them
- Start Work on delta protocols / collaboration
- Refine meta-metamodel
- Improve reference implementations and examples
- Support integration with more tools



**WE NEED
YOU**

If you want to join and work with us, talk to any of the current members.

Or contact us all: info@lionweb.io

If you just want to stay in touch and use our stuff, please join our Slack:

https://join.slack.com/t/lionweb/shared_invite/zt-1uvaly9eb-z529c694OIN5oBh9FH1vhQ

