

# Oryx – Sharing Conceptual Models on the Web

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In recent years, the complexity of software systems has risen sharply, so that the role of conceptual modeling is more important than ever. To capture this complexity, different groups of individuals are now involved in modeling different aspects of the system, rather than a few people modeling internals of a software system. These different groups of persons concentrate their modeling effort on different aspects of the system and use different modeling techniques, for instance UML structure diagrams and the Business Process Modeling Notation.

Conceptual models are developed in a collaborative way, models are shared, reviewed, and finally agreed upon. In process modeling, for instance, experts from different companies discuss their business processes and how these interact.

In this paper we report on Oryx, an extensible modeling framework that makes use of Web 2.0 technologies. In Oryx, each model artifact is identified by a URL, so that models can be shared by passing references, rather than by exchanging model documents in email attachments. Since models are created using a browser and models are just “a bookmark away”, contribution and sharing of conceptual models is eased. Oryx is realized as web-oriented solution that runs in off-the-shelf web browsers. Oryx supports the following use cases.

**Support for Multiple Languages.** Modeling takes a central role in various disciplines of computer science. They are domain-specific abstractions used for documentation and exchange of ideas, decisions, and operation guidelines, but also as blueprint for system design and development. Even within one individual domain there is a wide range of notations in use.

**Meta-Information and Feature Extensions.** Much effort is spent on using models for building new systems. An obvious example is a process model, which is instantiated by a workflow engine resulting in a system behavior according to the encoded process specification. Execution environments typically require large sets of meta-information augmenting. For instance, in case Web service are used to execute processes, technical configurations need to be represented. To do so, there must be a strategy how to extend models and how to provide plugins operating on these extensions.

**Data Portability.** Models are relevant to many stakeholders, e.g. system architects, developers, customers, and end-users. Their individual use-cases for models varies to a large extent. Consequently, stakeholders will use different tools when working with a model, e.g. the software architect needs an editor, the analyst uses a validator, the developer wants input to a code-generator, and end-users need a viewer to get an understanding of the model. Data portability means to use well documented data formats that can be used by different tools.

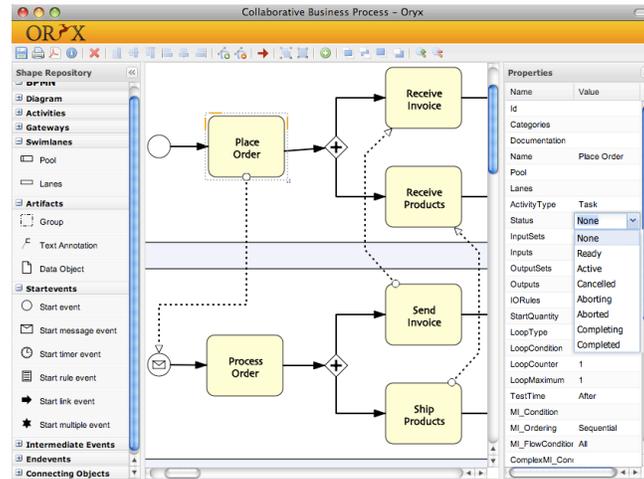


Fig. 1. Oryx supports the Business Process Modeling Notation

Oryx itself is realized as set of Javascript routines loaded into a modern web browser. Models are represented in RDF format.

**Language Support via Stencil Sets.** Stencil sets provide explicit typing, connection rules, visual appearance, and other features differentiating a model editor from a generic drawing tool. While there currently is a focus on business processes, it is also possible to create stencil sets for other modeling languages.

**Feature Extensions via Plugins.** Plugins allow for both generic as well as notation specific extensions. E.g. even element selection and cut & paste are plugin features, as they are not needed for an Oryx viewer. More advanced plugins realized allow for complex model checking.

**Data Portability beyond Oryx.** Any model element is addressable via a URI. The returned representation will normally turn into an Oryx editor. Yet, the same representation can be accessed and processed by other systems.

Oryx is an extensible framework for conceptual modeling on the web. In research collaborations, extensions have already been added easily. Oryx is available under MIT license. The Oryx homepage can be found at <http://oryx-editor.org>. Interested parties are welcome to use Oryx and to contribute to it.

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## References

1. Business Process Modeling Notation (BPMN) Specification, Final Adopted Specification. Technical report, Object Management Group (OMG), February 2006.
2. G. Vossen and S. Hagemann. *Unleashing Web 2.0: From Concepts to Creativity*. Morgan Kaufmann, 2007.