

# Papyrus Industrial Consortium – Open Source Modeling-based Engineering Tools in Industry

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**Abstract.** Model-based engineering (MBE) has proven to be very effective in systems and software developing organizations in, for instance, the automotive sector, the systems engineering industry, and to a certain extent also in the software engineering domain. MBE is used in many contexts ranging from architecture design, interface definition, system simulation, automatic code generation, through to validation and verification. The use of models in the development of complex systems is most successful when highly customized domain-specific modeling languages and modeling editors are adopted in order to reflect the specific needs of the different types of developers involved in the development of a system. One of the most important obstacles for a broad adoption of MBE, however, has been the fact that existing off-the-shelf industrial MBE tools neither have been capable of covering the diverse development aspects that are considered crucial for the specific domains and types of developers, nor have off-the-shelf tools been customizable and extensible enough to be tailored towards the specific needs of the respective application domain. As a consequence, systems and software developing organizations increasingly turn away from off-the-shelf MBE tools and are beginning to adopt open-source software modeling tools and platforms, as these can be more easily extended and customized to their domain-specific needs.

One of the most popular open-source MBE tools is Eclipse Papyrus, which is a standards-based platform for developing domain-specific modeling tools. Its core strengths are customizability, its active community, as well as its huge ecosystem of tools and components, ranging from model simulation, model validation, code generation, to its team support for collaborative modeling. Eclipse Papyrus and all of its components are not only free of charge, they are open in the sense that everyone has access to its source code and hence can easily adopt, customize, and extend it according to their needs, without having to worry about vendors lock-in. This flexibility nurtures collaboration and innovation across the organizational borders of software providers, adopters, and researchers.

In this talk, we report on the proceedings in the Papyrus IC, an industrial consortium that has been established to collaborate on the development of an advanced, industry-ready, open source, model-based engineering (MBE) tool suite, and open tool platform based on Papyrus. We demonstrate a few technologies that are being developed in the context of the Papyrus IC and discuss the underlying cross-organizational collaborations, future plans, and opportunities for researchers, adopters, and technology providers.

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