A Playground for the Modelica Language

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This paper introduces a Modelica playground which allows users to experiment with the Modelica language without having to install any specific Modelica tools. This web-based application also contains content and lessons that provide users with a guided tour of the language and the opportunity for advanced users to create domain specific content built on top of this same infrastructure. This paper will explain the various open source technologies employed in creating this application and discuss potential future work to further enhance the experience for the user as well as the reach for Modelica itself.

To help "onboard" users, many programming languages include a web-based environment that allows users to see working fragments of code in that language. What makes such an environment a playground is that it allows these code fragments to be edited and compiled as well. This enables users to explore the language and understand at least the basics of different syntactic constructs without having to install any of the normal tooling associated with the language.

These playgrounds are not only useful tools for users to "try out" a language before committing to installing all the tooling, they are also very useful as educational tools.

Such playgrounds often include examples of specific features of the languages. In a sense, they are used to help "sell" users on the design of the language or help explain difficult concepts by giving the users running examples (created by language experts) to help users understand the particularly idiomatic ways of accomplishing various tasks in that language.

The goals of this project are as follows. First, the playground should be freely available that anybody can easily find. In addition, it should be possible to visualize the results of simulating a model. Furthermore, the playground content should support linking directly to complete playground examples including both models and visualizations.

Finally, it should be possible for others to create content for the playground without having to having access or changing the source code for the playground itself. All of these goals should be achieved while maintaining the privacy of the users.