

# Interlocking Controller Software

## The Task

A multi-national railway signalling company needs automation tools to develop interlocking controller firmware. Railroad interlocking firmware drives controllers that actuate railroad points and change signal aspects in real-time, based on sensor and timer input. The firmware programs, mimicking physical relays, are written in variants of domain specific programming languages (DSL). The programs have to comply with a control table specifying allowable states of railroad equipment. Previously, the translation of control tables into code was done manually, and hence subject to costly review and rework cycles. For the new project the model driven toolset is implemented as an automated process. The two domain specific languages, the control table and the firmware logic are modelled completely. A generation infrastructure transforms all the models to firmware code.



## The Highlights

The generated software works impeccably. The toolset automatically loads the domain data into a model instance. Meanwhile the resource factory parses the data and checks it against a broad number of quality conditions, to ensure its correctness for further use.

The convincing results keep possibilities for further changes open and the process can be adapted easily to new requirements.

## The Benefits

- Modelling an expandable solution saves time and resources.
- The maintenance effort for the modular interlocking program is reduced.
- Building a new variant of the tool offers the possibility to acquire new clients and railroad types.
- The need for precisely defined processes is understood and is applied to further projects.