We present a reusable state machine code generator, developed by the Universidad Tecnica Federico Santa Maria and the European Southern Observatory. The generator itself is based on the open source project architecture, and uses UML State Chart models as input. This allows for a modular design and a clean separation between generator and generated code. The generated state machine code has well-defined interfaces that are independent of the implementation artefacts such as the middle-ware. This allows using the generator in the substantially different observatory software of the Atacama Large Millimeter Array and the ESO Very Large Telescope. A project-specific mapping layer for event and transition notification connects the state machine code to its environment, which can be the Common Software of these projects, or any other project.

This approach even allows to automatically create tests for a generated state machine, using techniques from software testing, such as path-coverages.

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References