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Script Language Enhancements
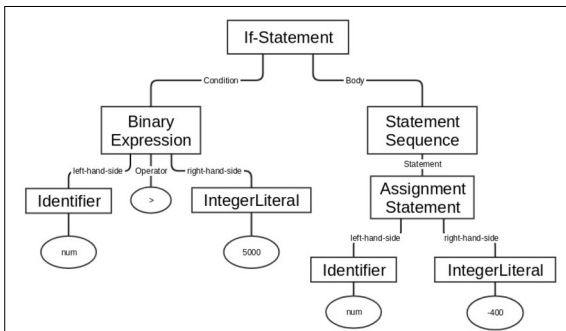
Syntax Tree
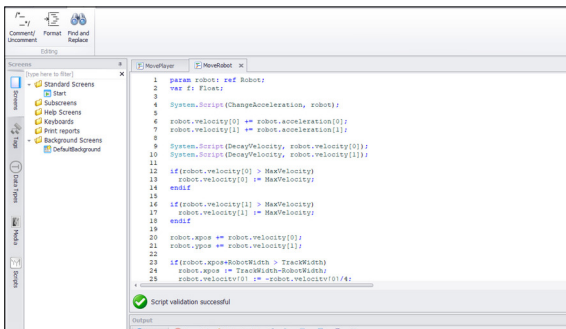
Galileo Development Enviroment

Introduction: Eaton, an international power management company, manufactures automation control solutions featuring displays with a customizable user interface. For customizing those panels, Eaton provides an in-house solution called Galileo. Galileo is a simple-to-use visual development environment that can be programmed using their own language Galileo Script.

Objective: The aim of this thesis is the addition of new programming language features to the Galileo development system. At the beginning of the project, we analyzed the current state of the Galileo Script. Based on our findings, we made recommendations for potential new features that bring significant improvements to the users of Galileo. We eventually implemented the discussed, adjusted and prioritized features.

Solution: We extended Galileo Script with these new features:

- Multiple "if-else" statements can be simplified with "elseif".
- Each script has its own set of local variables.
- Scripts can be used as functions supporting parameters with copy or reference passing semantics.
- Ranges allow assignment of a value to a slice of an array.
- Repetitive operations on arrays can be written with a "foreach" statement. It can also be applied to an array slice by using the range syntax.
- Arrays or user-defined type instances can be copied to a tag of the same type by a single assignment.

These improvements will enable Galileo users to write more concise, well structured, intuitive and reusable code.

Running Galileo Example