



## Model Based System Test

Diplomaufgabe für Johannes Franz Hochrainer  
Matrikelnummer 0056224  
k0056224@students.jku.at

### Background

Although testing takes up to 50 % of the whole development time the integration in the other development stages is not efficient enough. To improve the integration similar tools and languages are needed.

UML is a prevailing industrial standard in software development. To use UML also in testing OMG published a first final specification of the UML 2.0 Testing Profile [U2TP] in 2003. It uses well known UML 2.0 concepts and extends them with some new concepts in order to describe, design, visualize and document the artefacts of a test system.

For the system test there are different methodologies on the market. One of them is Action Word [AW]. It is a keyword-driven separation of test data and test scripts. Short, expressive phrases are used to describe stimuli for a system. Verification Action Words are used to check the reaction of the system. Behind every Action Word stands a script that executes the meaning of the Action Word. To make them re-useable it is possible to set parameters.

### Idea

The purpose of this diploma theses is to integrate the Action Word methodology into UML 2.0 Testing Profile. Therefore the following points should be addressed:

- Describe UML 2.0 Testing Profile and the Action Word methodology.
- Integrate the Action Word methodology into UML 2.0 Testing Profile.
- Investigate how this integration can be used for regression tests and for random tests.
- The Eclipse Test and Performance Tools Platform Project [TPTP] implements some basic concepts of the UML 2.0 Testing Profile. Extend this project for the ActionWord – UML 2.0 Testing Profile integration.
- Develop some test cases to show the success of this integration. The test cases should be modelled as UML diagrams and should be executed with agents on a remote system.

The software of a ultrasound system of the Danish company BK-Medical [BK] serves as system under test. BK-Medical has been using ActionWords to describe their regression tests for years.

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Betreuer: Dr. Herbert Prähofer

## References

- [AW] Fewster M., Graham D.: Software Test Automation - Effective use of test execution tools, pages 446-465, Addison-Wesley, 1999
  
- [BK] BK-Medical, [www.bkmed.com](http://www.bkmed.com)
  
- [TPTP] Eclipse Test & Performance Tools Platform Project,  
<http://www.eclipse.org/test-and-performance/index.html>
  
- [U2TP] UML 2.0 Testing Profile,  
[http://www.omg.org/technology/documents/modeling\\_spec\\_catalog.htm#UML\\_for\\_Testing](http://www.omg.org/technology/documents/modeling_spec_catalog.htm#UML_for_Testing)