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# Automated Model-Based Web Testing Using Selenium

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# What is Automated Model Based Testing?

- ▶ Behavior of a system is “modeled”
  - ▶ Tests are designed automatically
  - ▶ Tests are written automatically
  - ▶ Tests are executed automatically
- 
- ▶ Tests compare actual system to model
  - ▶ Primarily functional testing

# Key Differences

- ▶ Model is the only input
- ▶ Test Cases are automatically designed
  - ▶ More concise test cases
  - ▶ Certainty of coverage
- ▶ Executable scripts are automatically written
  - ▶ Scripts can be much longer
  - ▶ Scripts are zero maintenance
- ▶ Not reliant on libraries prone to change

# Formalization

Formalization: Process of defining a system in terms of inputs and expected responses

**Requirement:** When a search is conducted if results are found they should be displayed. If results are not found the “Your search did not match any documents” screen should appear.

Input	Expected Response
Search term with results	Results are displayed
Search term without results	No results screen displayed

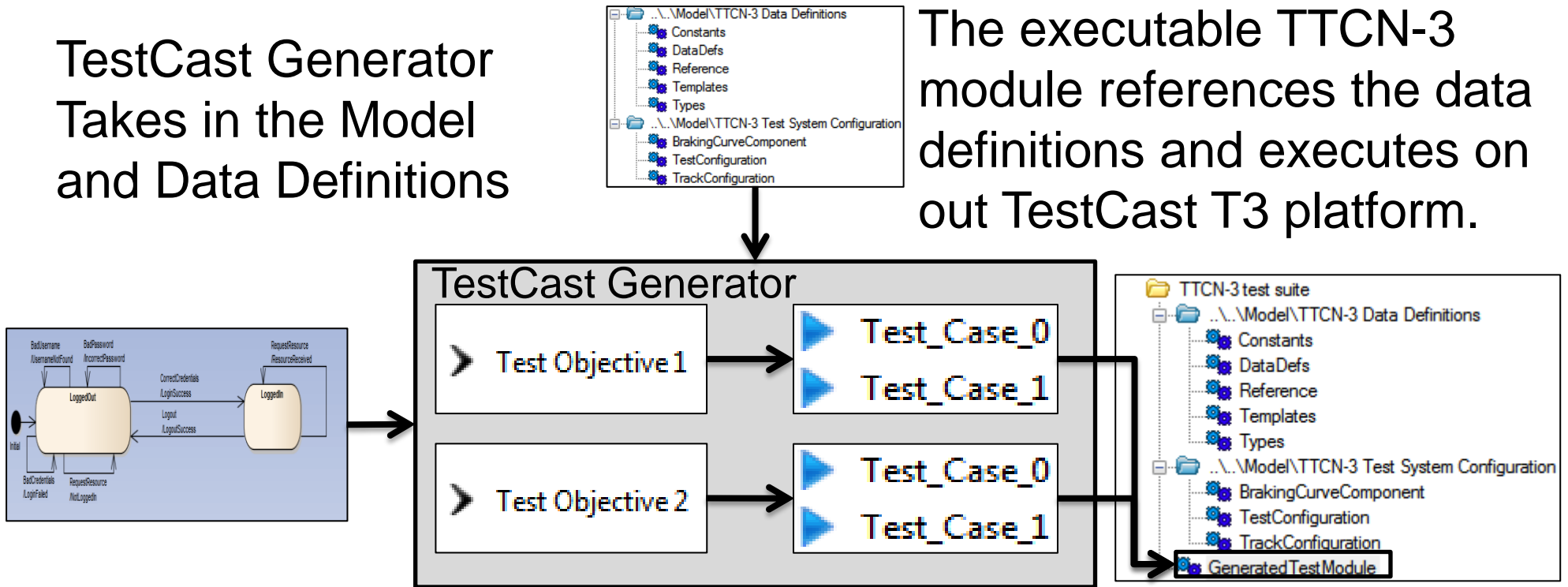


Into The Tools!

# How Test Generation Works

TestCast Generator  
Takes in the Model  
and Data Definitions

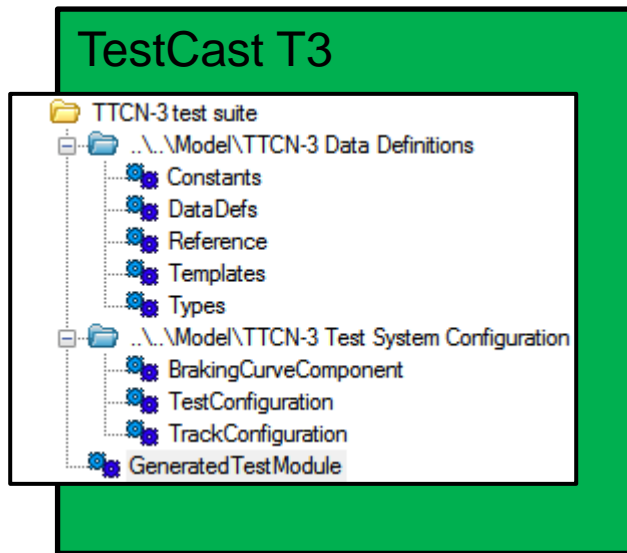
The executable TTCN-3  
module references the data  
definitions and executes on  
out TestCast T3 platform.



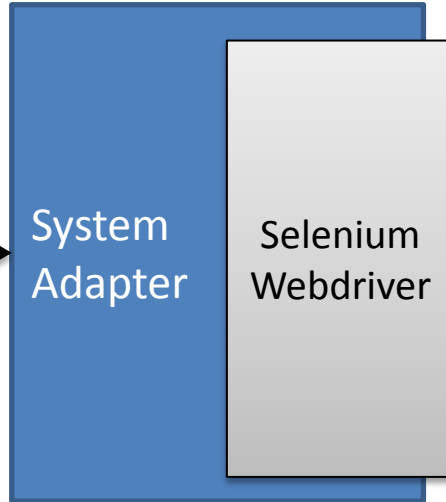
Test Objectives are defined by the user in terms of the model. These objectives are then generated into abstract test cases. The final output is an Executable TTCN-3 Module.

# How Test Execution Works

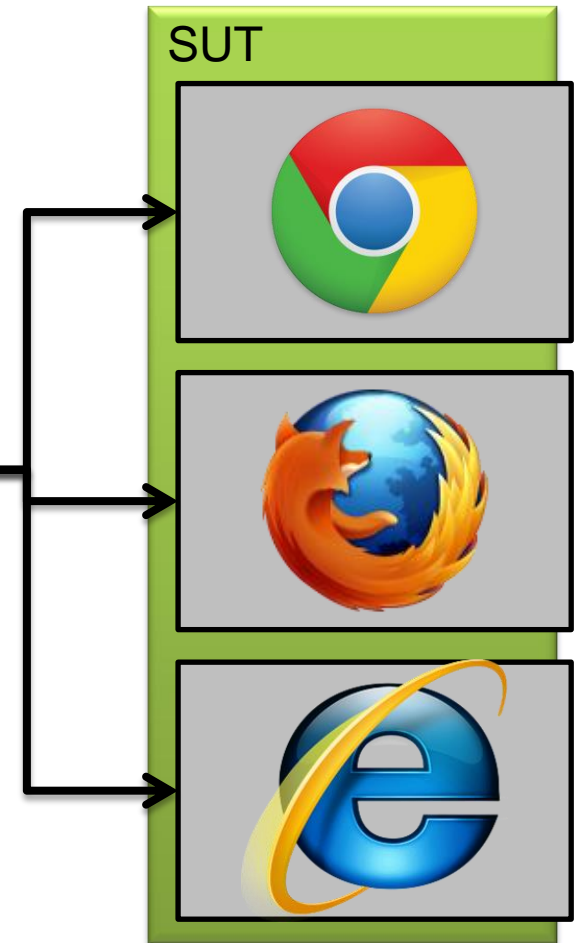
TestCast T3 takes data definitions and the generated test module and executes them on the SUT



The system adapter turns TTCN-3 messages selenium commands.



Responses are collected in the same manner.



# Thank you!



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