

# MetaEdit+ for EAST-ADL

Concept Presentation

2011



# Concept presentation roadmap

- Short description:
  - MetaEdit+ Workbench – A metamodeling tool to specify EAST-ADL
  - MetaEdit+ Modeler – A modeling tool for EAST-ADL language
  - Tool architecture
- EAST-ADL support
  - Native metamodel support: concepts, constraints, checkings, notation
  - Views: Feature, FAA, FDA, HDA, Requirements
  - Representations: Diagram, Table, Matrix, Hierarchical trees
- MetaEdit+ integration capabilities
  - EAST-ADL XML interchange format
  - Tool specific format (Simulink mdl, hips-hops internal format etc)
  - Programmable API that other tools or plug-ins can use

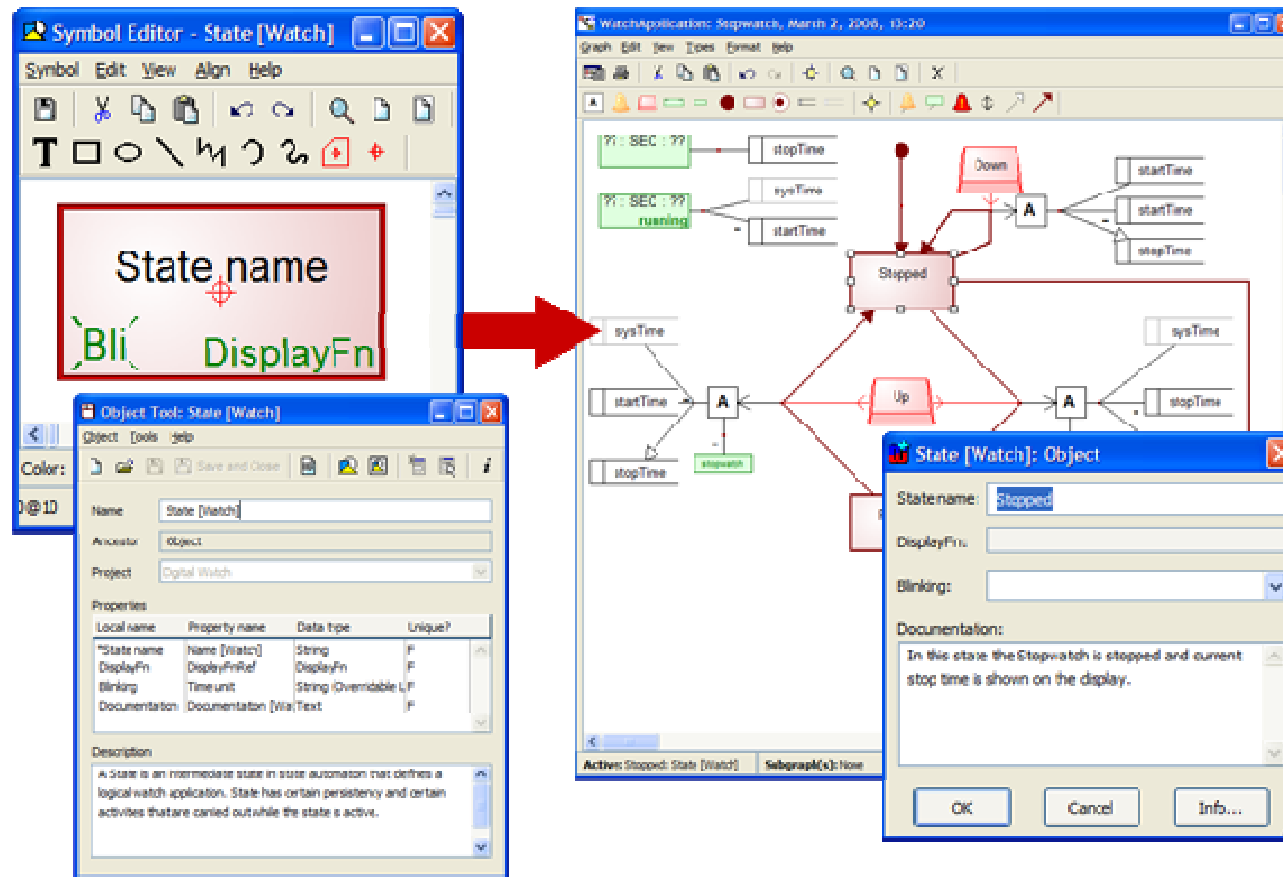
# MetaEdit+ environment

Workbench

Design your language →

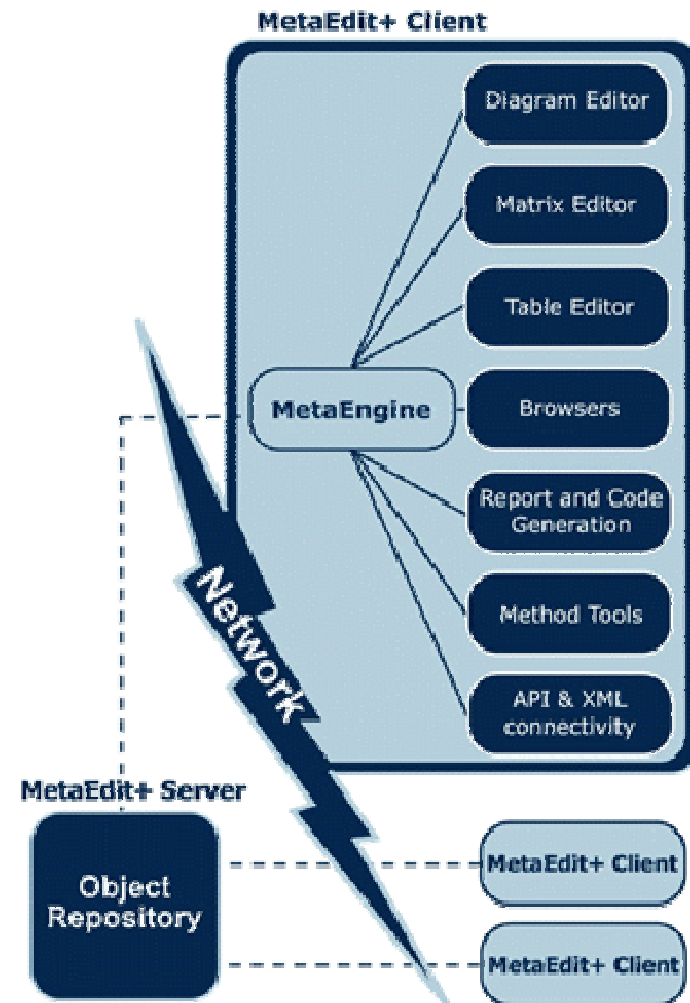
Modeler:

Use your language



# Architecture: Multi-user & multi-platform

- Windows
- Linux
- Mac OS X
- Other unixes



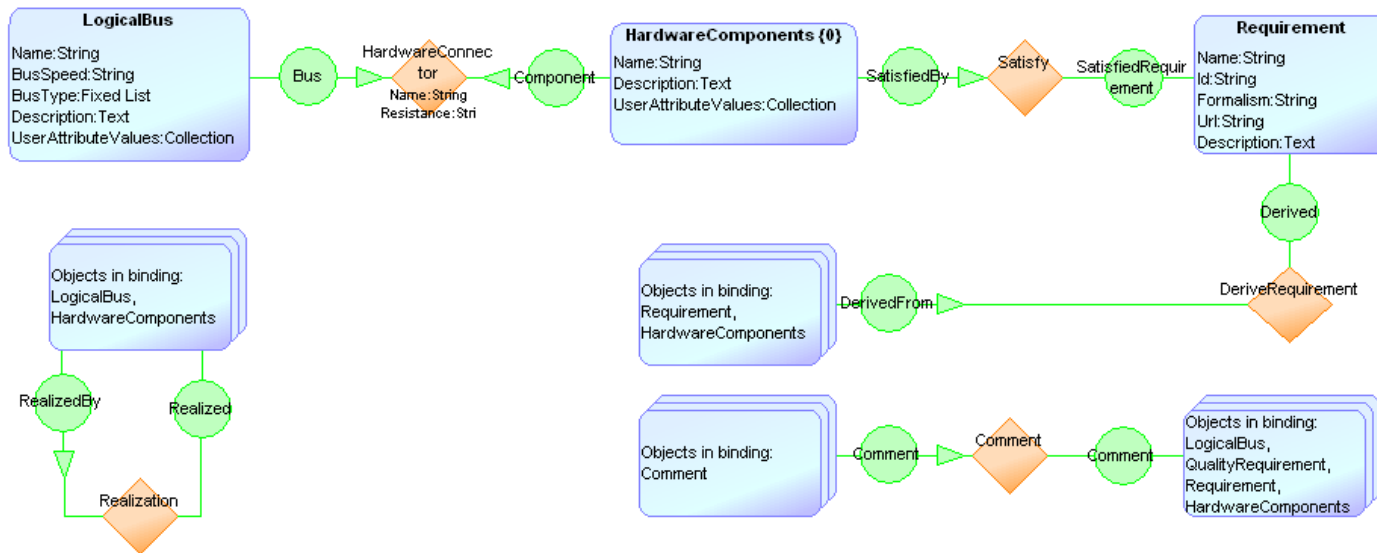
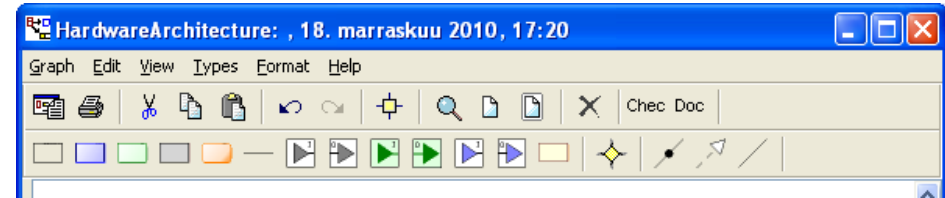
# Tool support for EAST-ADL covers

- Language concepts
- Constraints
- Checking rules
- Notation
- Generators
  - EAXML, documentation, SUSA, simulink, etc.
- Dedicated tool behavior dedicated to
  - dialogs, toolbar, icons in toolbar etc

# Tool support for EAST-ADL covers

- Language concepts

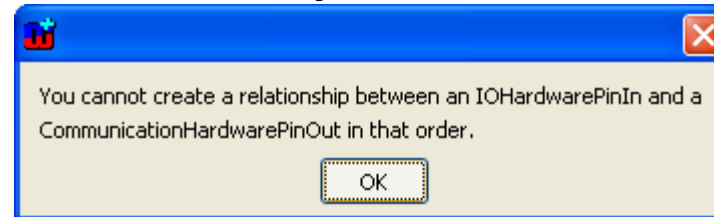
- Are defined in the metamodel
- Become available in the toolbars, dialogs etc.



# Tool support for EAST-ADL covers

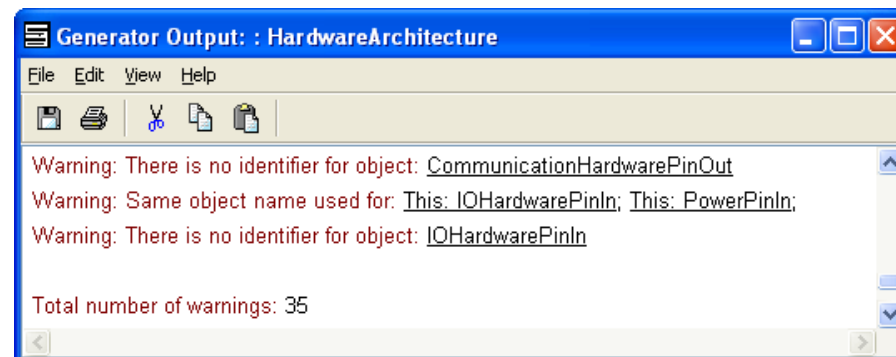
- Constraints

- E.g. PinOut can connect only to PinIn, etc



- Checking rules

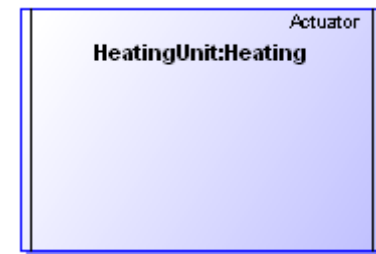
- Completeness, consistency, naming rules etc.



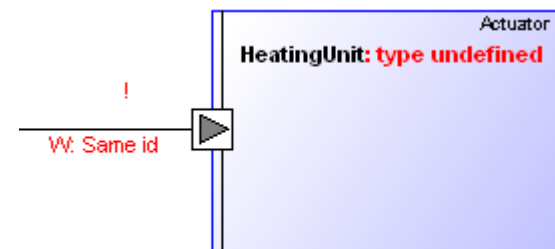
# Tool support for EAST-ADL covers

- Notation

- E.g. an Actuator has two vertical lines on the right and left borders of the rectangle etc



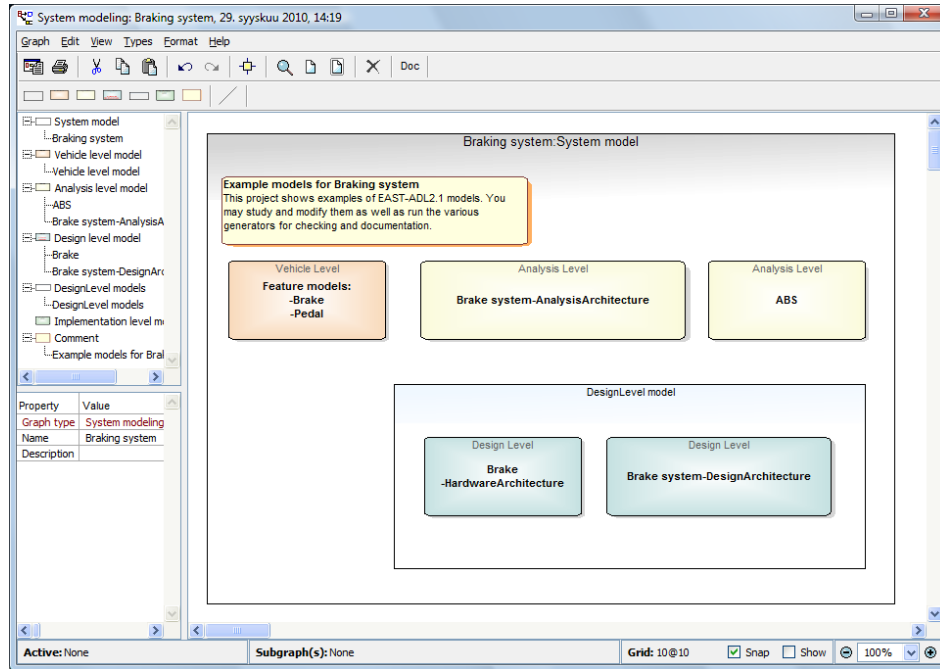
- Notation used to annotate errors, missing data etc.



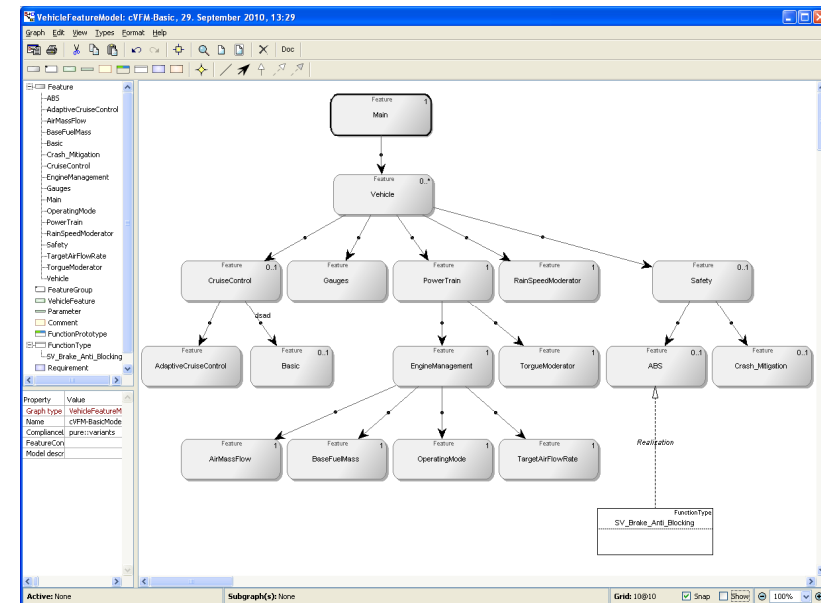
# MetaEdit+ & EAST-ADL

- Implemented views/languages
  - System Model
  - Vehicle Feature Model
  - Functional Analysis Architecture
  - Functional Design Architecture
  - Hardware Design Architecture
  - Requirements Model

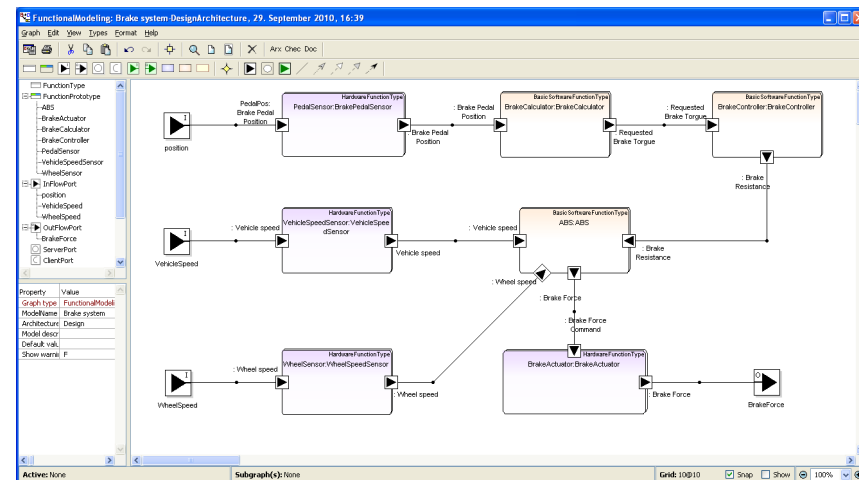
# Sample models 1



SystemModeling

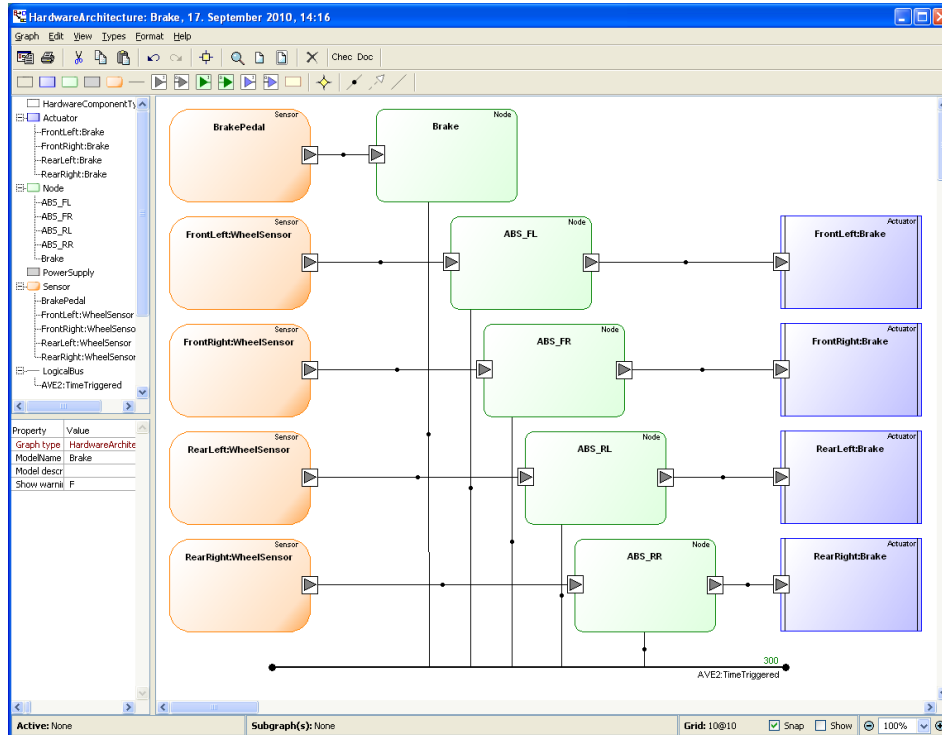


VehicleFeatureModeling

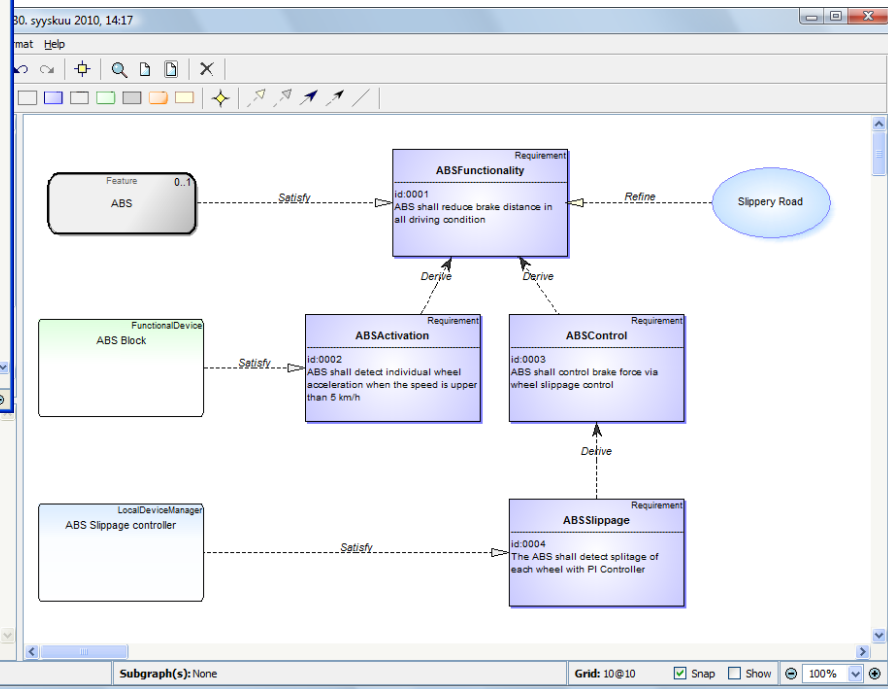


FunctionalDesignArchitecture

# Sample models 2



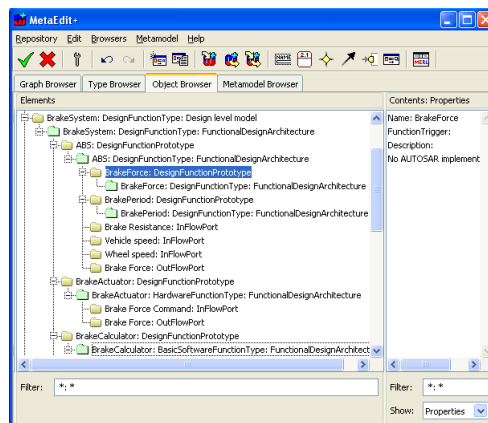
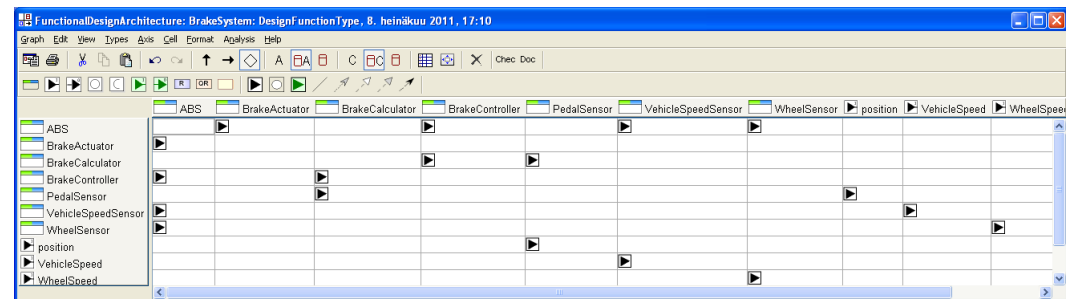
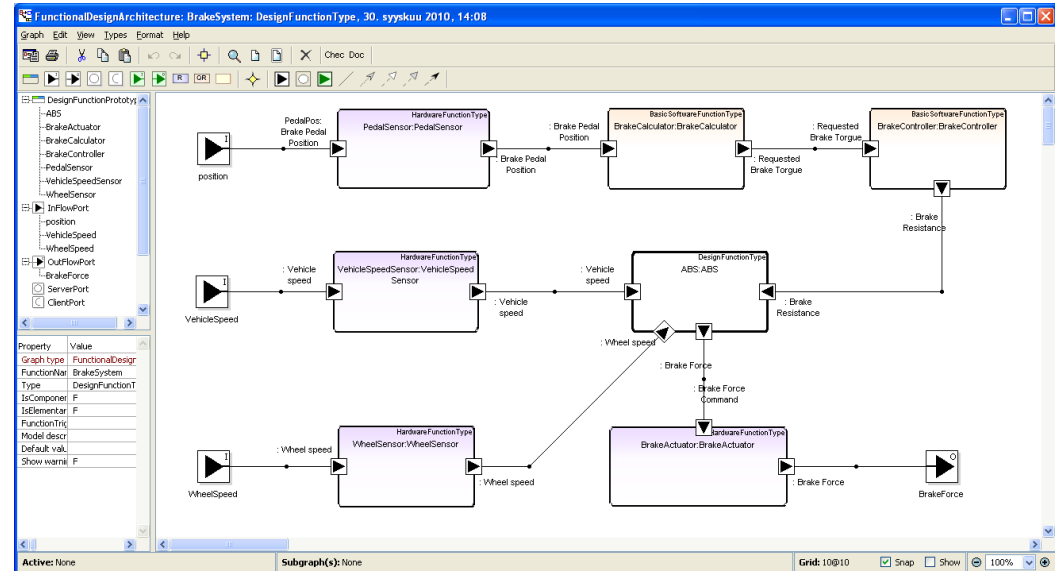
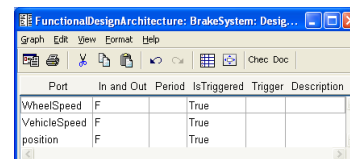
HardwareDesignArchitecture



RequirementModeling

# Representations

- Diagram
- Matrix
- Table
- Tree view

FunctionalDesignArchitecture: BrakeSystem: Desig...

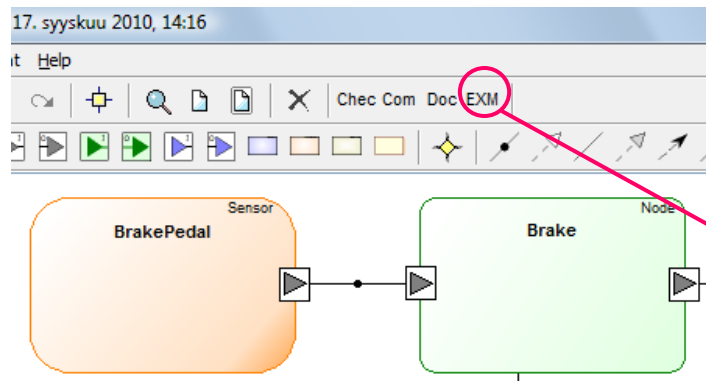
Port	In	Out	Period	IsTriggered	Trigger	Description
WheelSpeed	F			True		
VehicleSpeed	F			True		
position	F			True		

# MetaEdit+ integration capabilities

- MetaEdit+ provides a modeling tool and integrated with other tools, namely analysis tools via:
  - EAST-ADL XML interchange format
  - Tool specific format (Simulink mdl, hips-hops internal format etc.)
  - Programmable API that other tools or plug-ins can use

# EAXML export

- Generator for EAXML export



```

1 <?xml version="1.0" encoding="UTF-8"?>
2 <EAXML xmlns="http://autosar.org/3.1.4" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3   xsi:schemaLocation="http://autosar.org/3.1.4 file:EAST_ADL_small_2010-03-22.xsd">
4   <TOP-LEVEL-PACKAGES>
5     <EA-PACKAGE>
6       <SHORT-NAME>Test</SHORT-NAME>
7     </EA-PACKAGE>
8     <ELEMENTS>
9       <!-- Actuator_4_5743 -->
10      <ACTUATOR UUID="Actuator_4_5743">
11        <SHORT-NAME>Actuator1</SHORT-NAME>
12        <NAME>Actuator_4_5743</NAME>
13      </ACTUATOR>
14      <!-- HardwareComponentType_4_5935 -->
15      <HARDWARE-COMPONENT-TYPE UUID="HardwareComponentType_4_5935">
16        <SHORT-NAME>HCT3</SHORT-NAME>
17        <NAME>HardwareComponentType_4_5935</NAME>
18        <CONNECTORS>
19          <!-- HardwareConnector_4_6004 -->
20          <HARDWARE-CONNECTOR UUID="HardwareConnector_4_6004">
21            <SHORT-NAME>HardwareConnector</SHORT-NAME>
22            <NAME>HardwareConnector_4_6004</NAME>
23          </HARDWARE-CONNECTOR>
24          <!-- HardwareConnector_4_6035 -->
25          <HARDWARE-CONNECTOR UUID="HardwareConnector_4_6035">
26            <SHORT-NAME>HardwareConnector</SHORT-NAME>
27            <NAME>HardwareConnector_4_6035</NAME>
28          </HARDWARE-CONNECTOR>
29        </CONNECTORS>
30      </HARDWARE-COMPONENT-TYPE>
31    </ELEMENTS>
32  </EA-PACKAGE>
33 </TOP-LEVEL-PACKAGES>
34 </EAXML>

```

Text Grid Author

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