Development and Analysis of AADL Models with MASIW Framework

Tutorial

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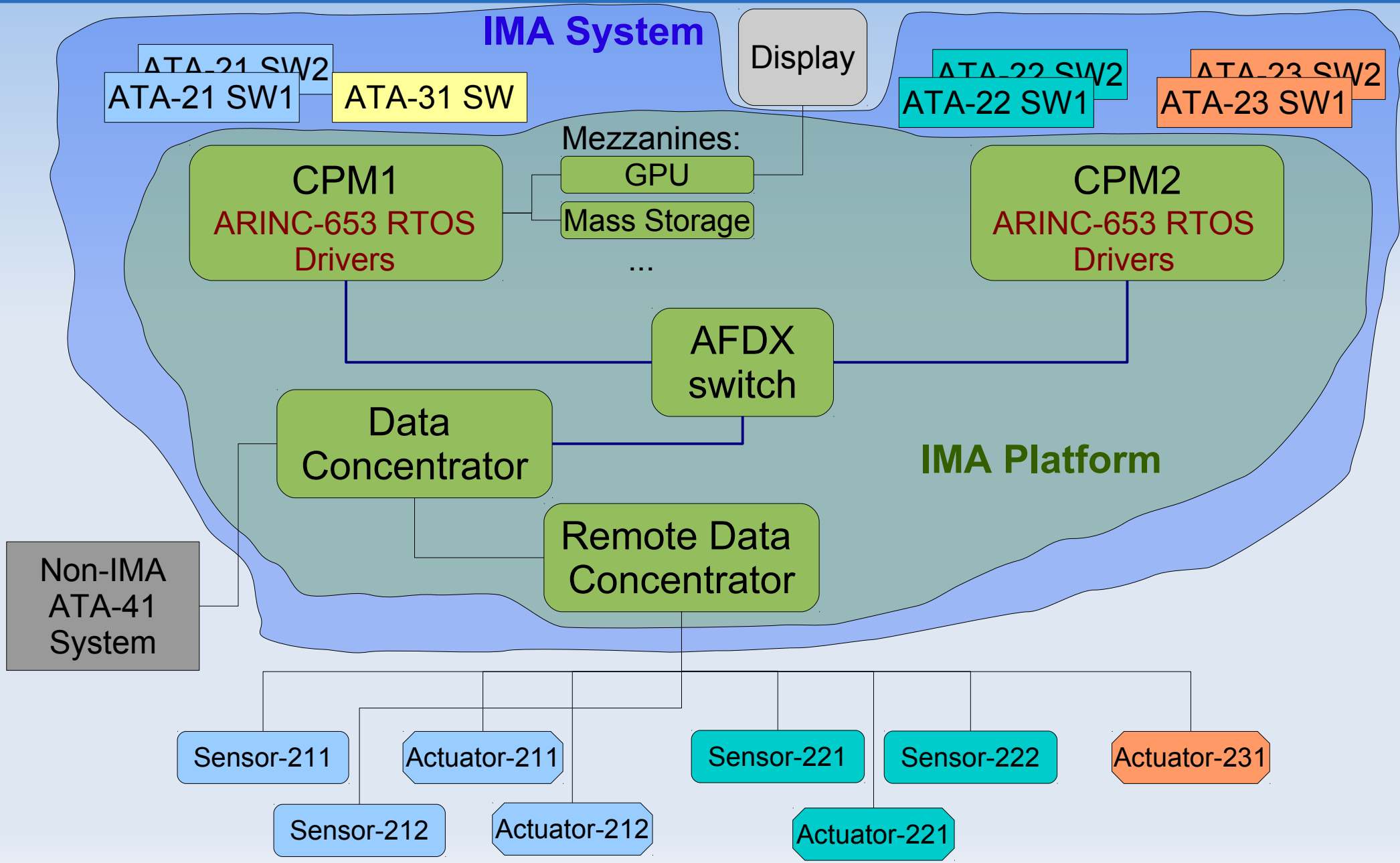
AADL User Days, Fall 2013

IMA System Design (1)

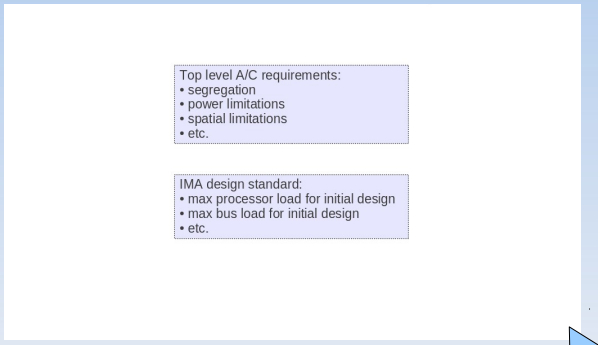


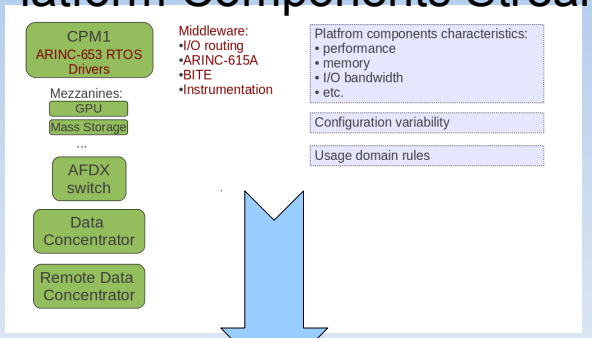
IMA System Design (2)

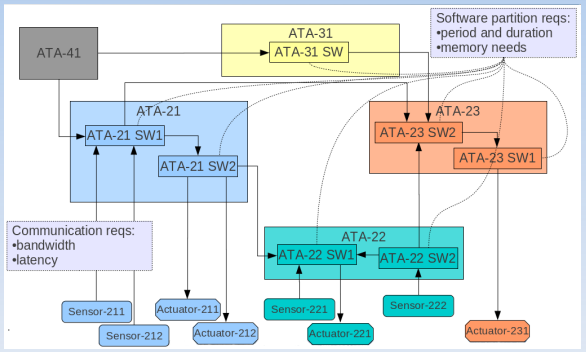
(1) A/C Stream

(2) Platform Components Stream

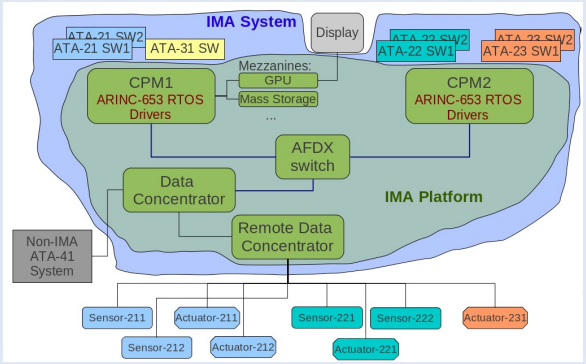
(3) ATA-XX Stream



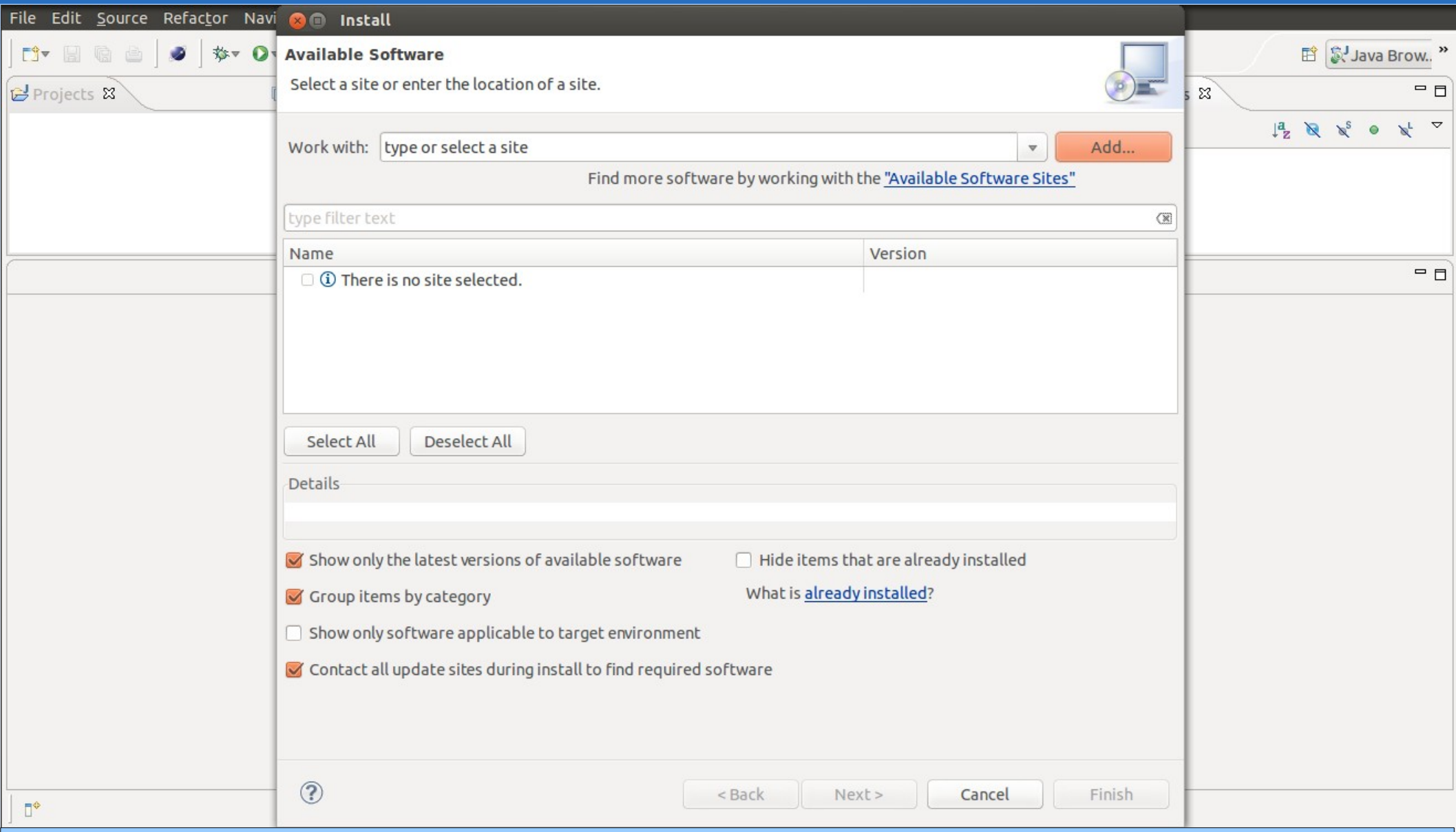




IMA System Designer

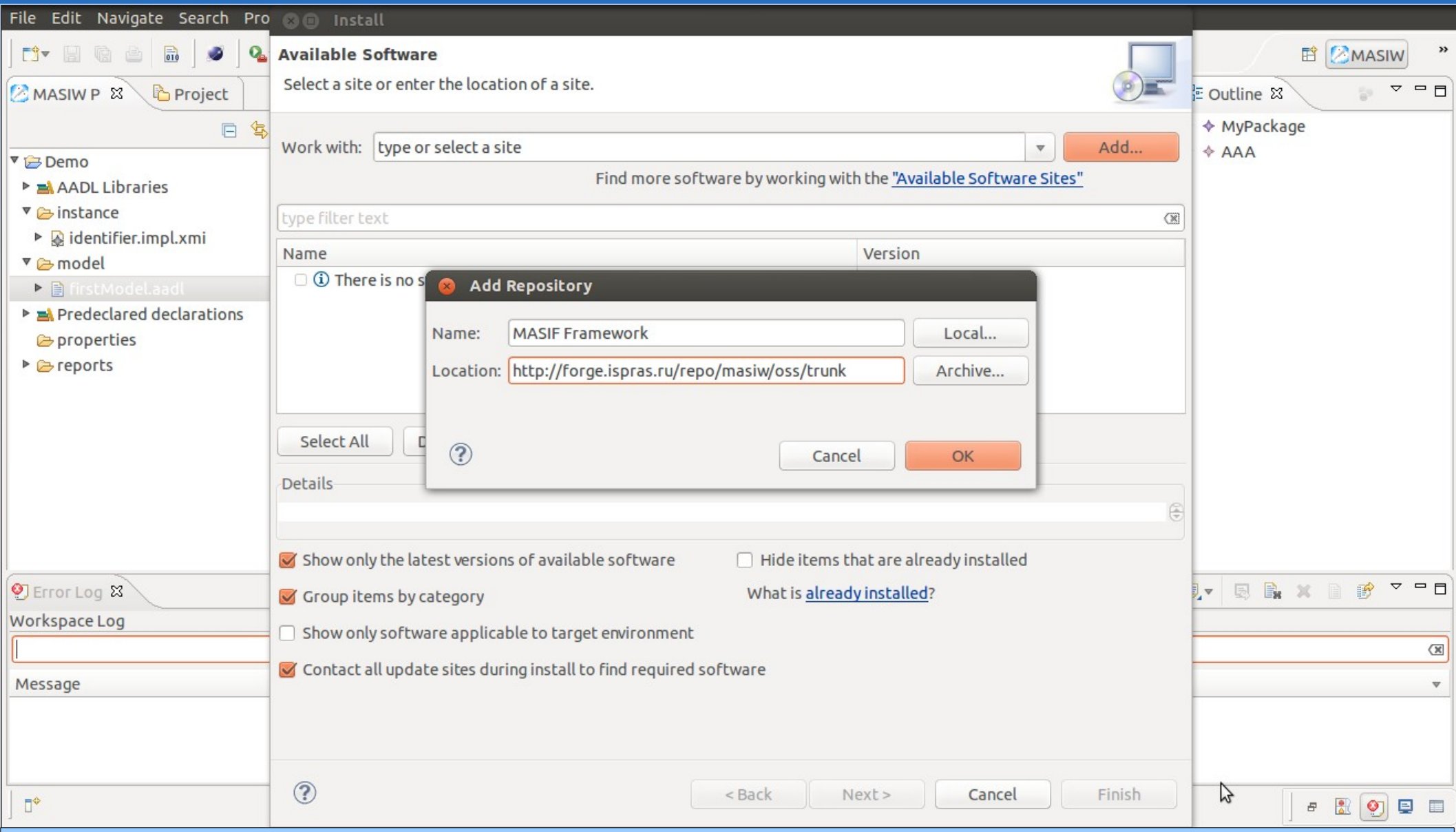


MASIW Installation (1)



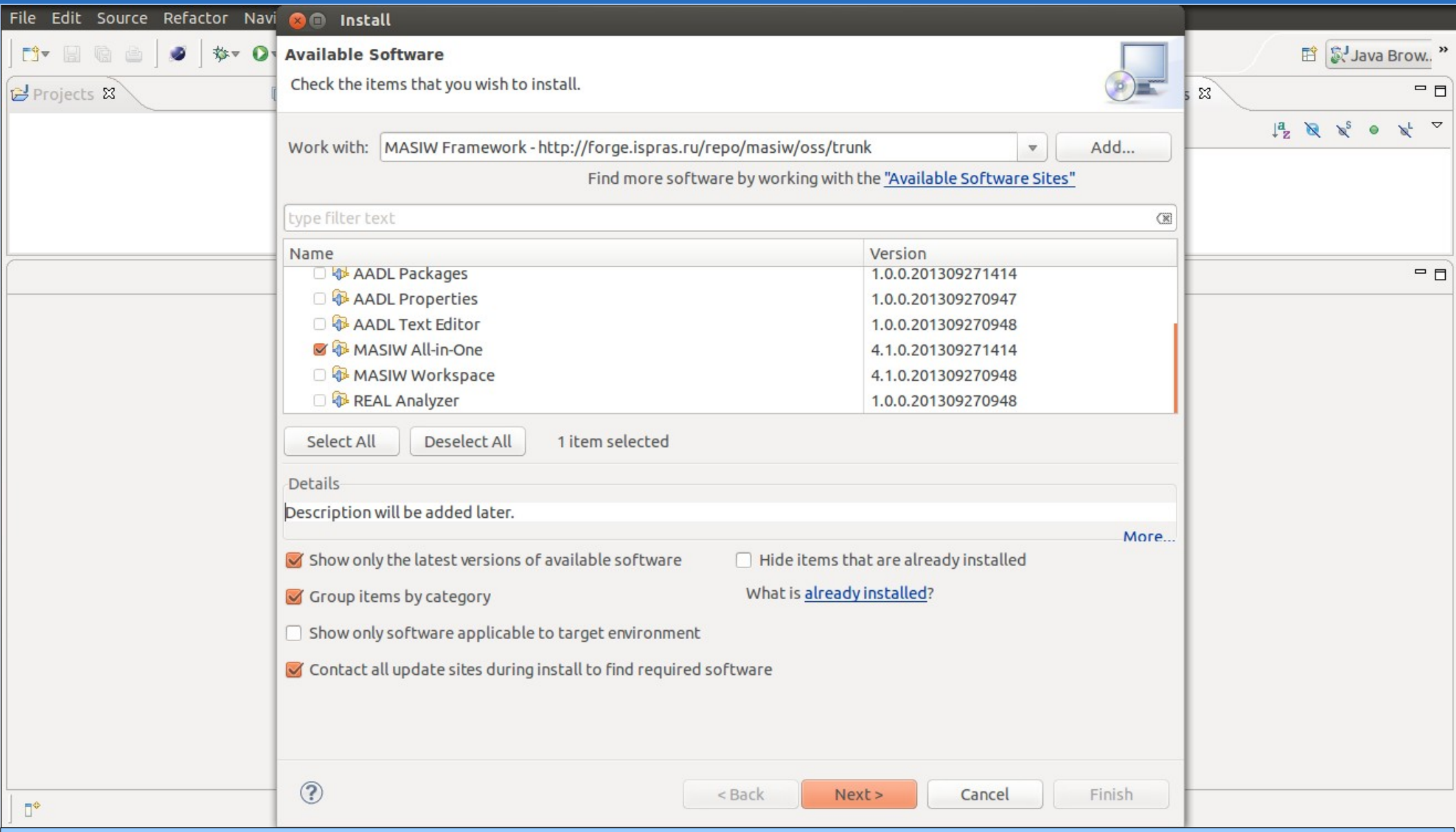
Help->Install new software...-->Add...

MASIW Installation (2)



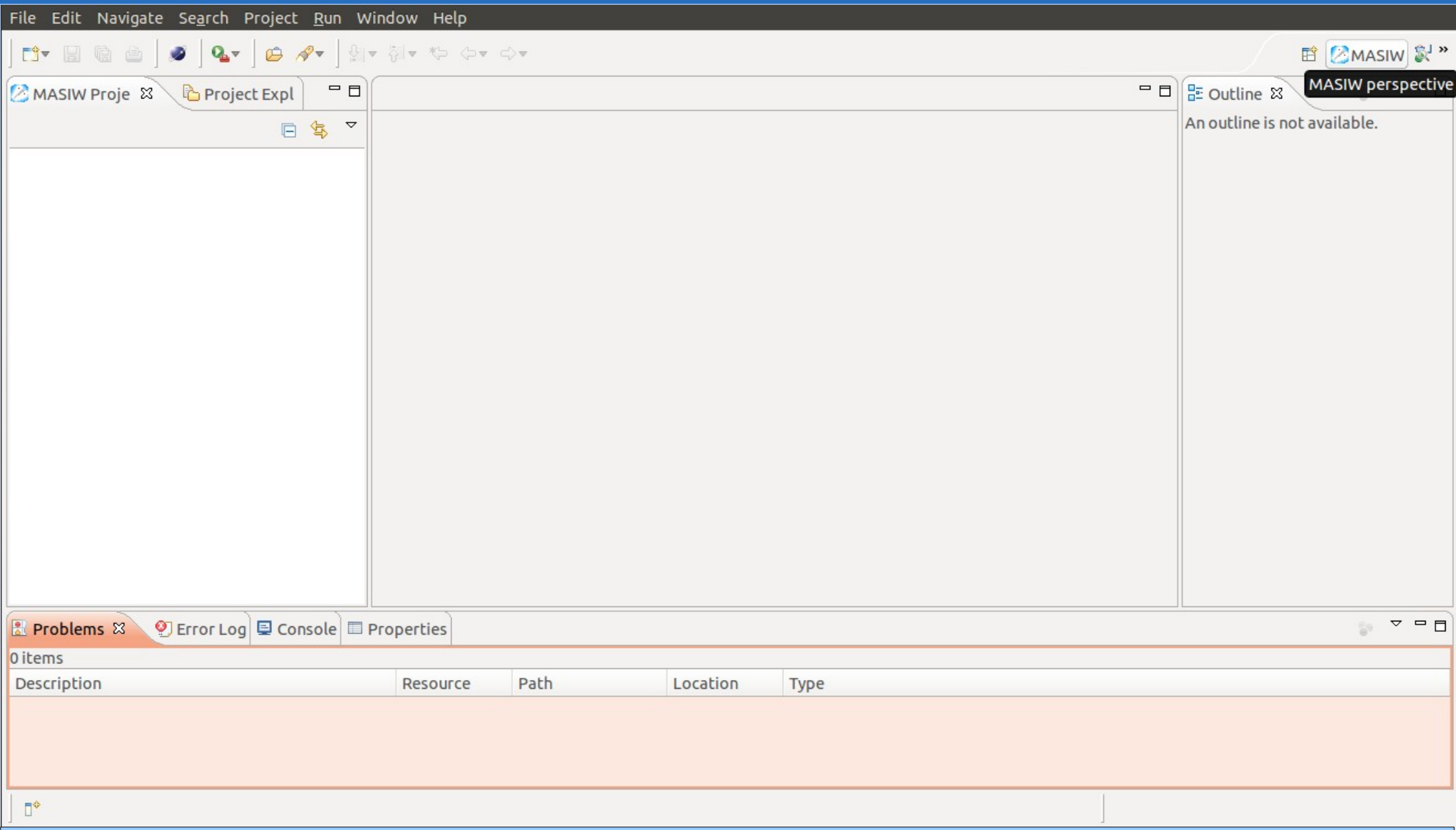
Name: MASIW Framework
Location: http://forge.ispras.ru/repo/masiw/oss/trunk

MASIW Installation (3)



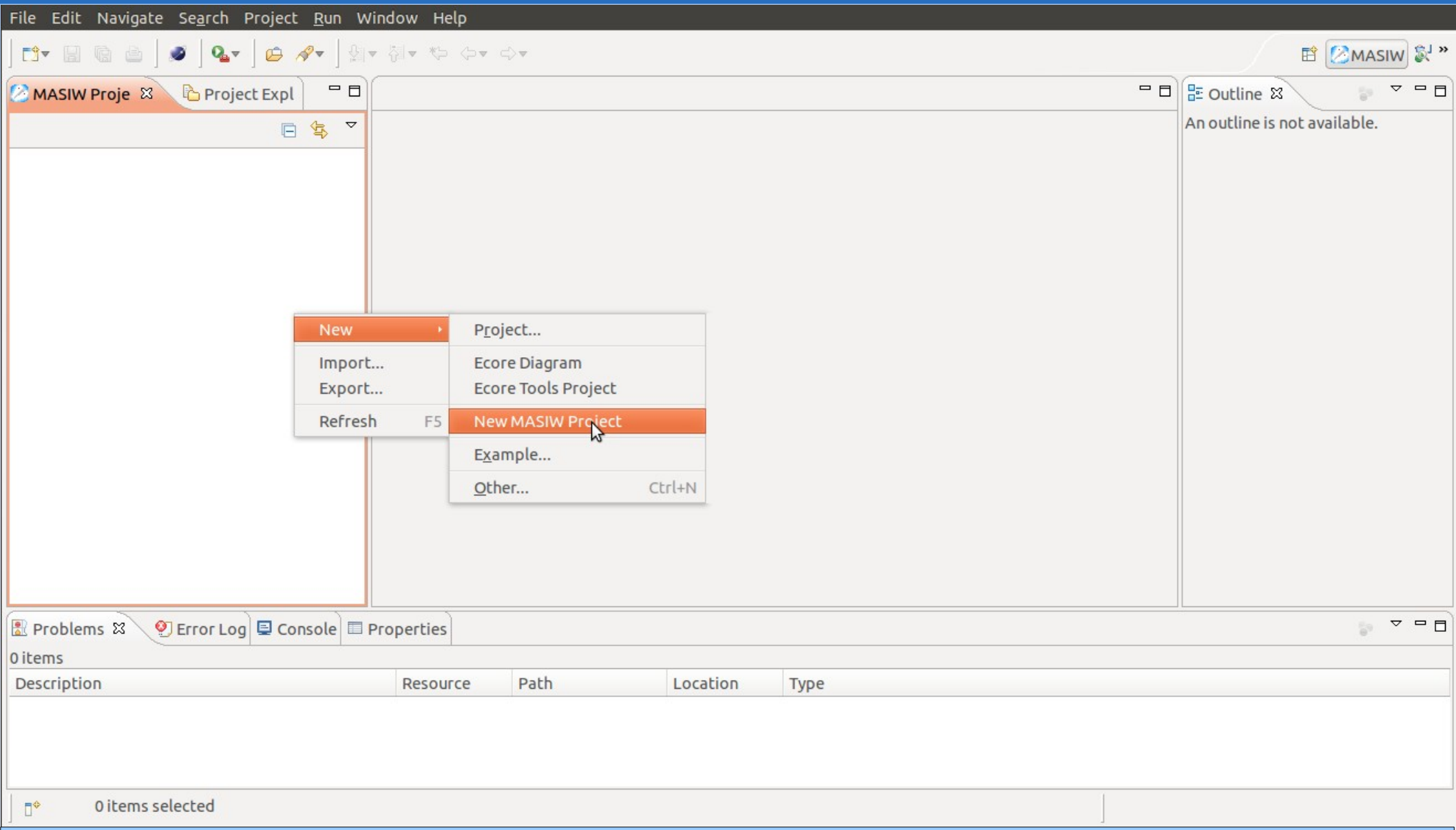
Choose the only component: MASIW All-in-One

MASIW Perspective



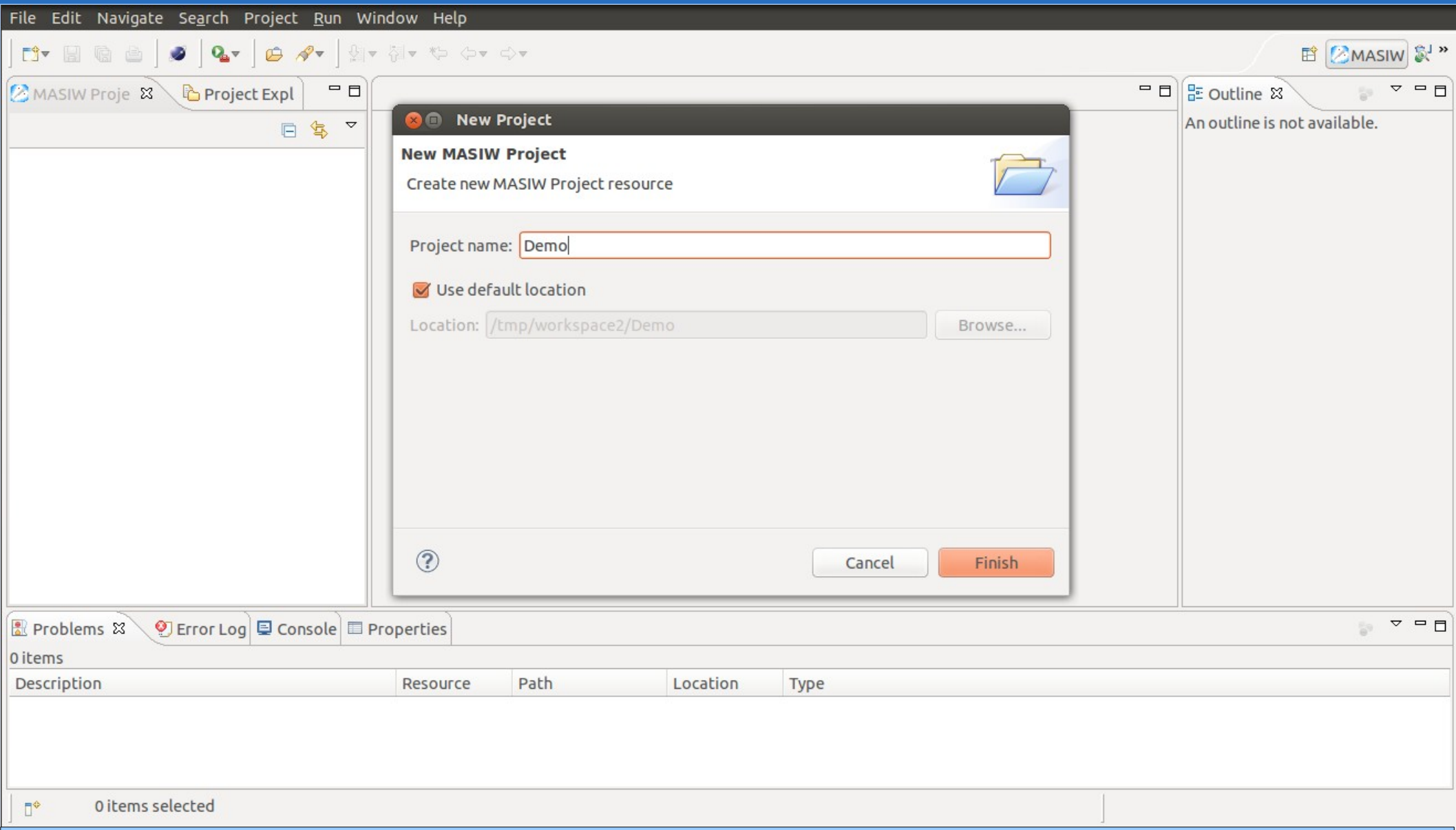
Open MASIW perspective

New MASIW Project (1)



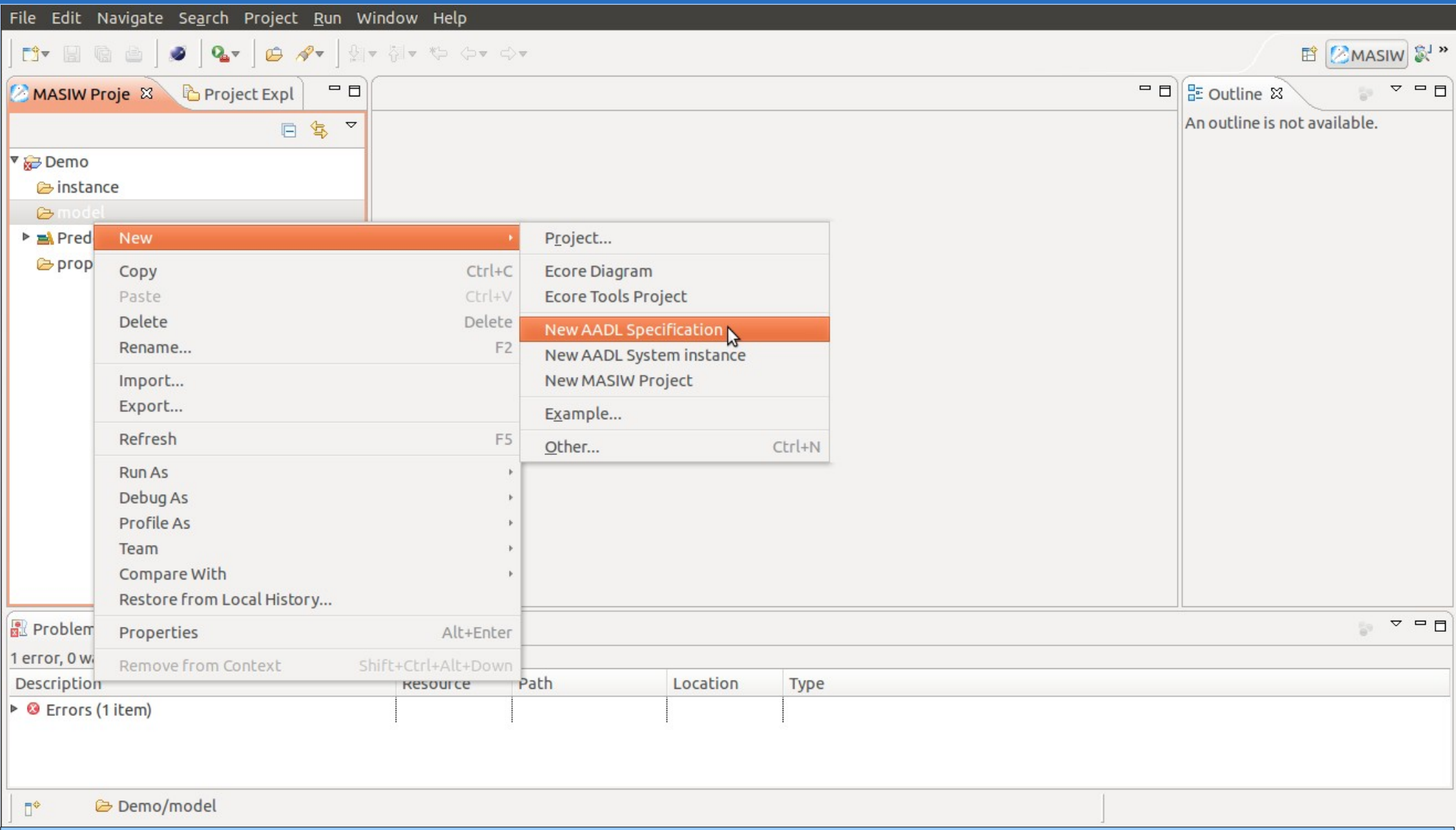
Context menu in MASIW Projects: New->New MASIW Project

New MASIW Project (2)



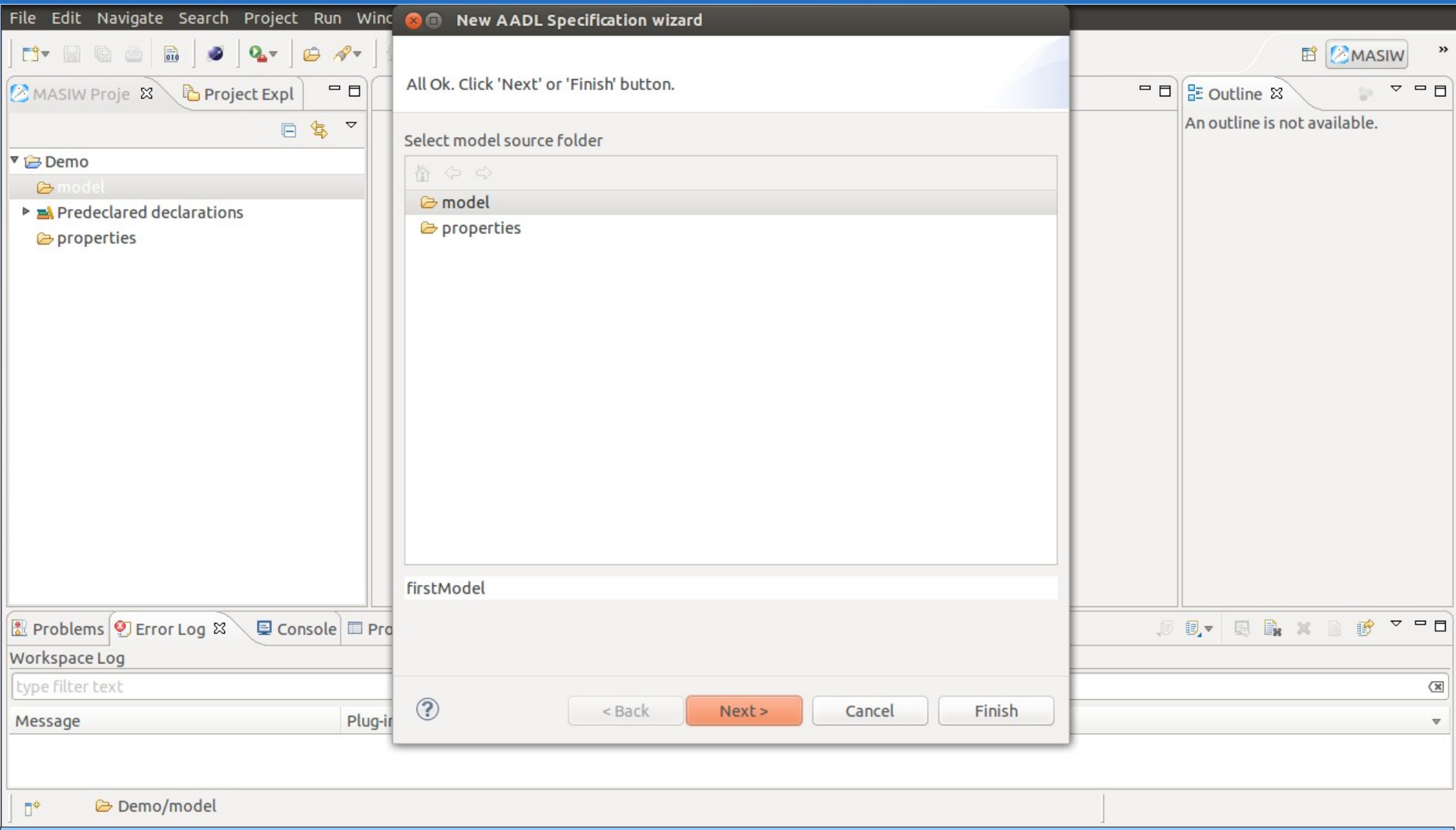
Define project name and clink on Finish button

New MASIW Specification (1)



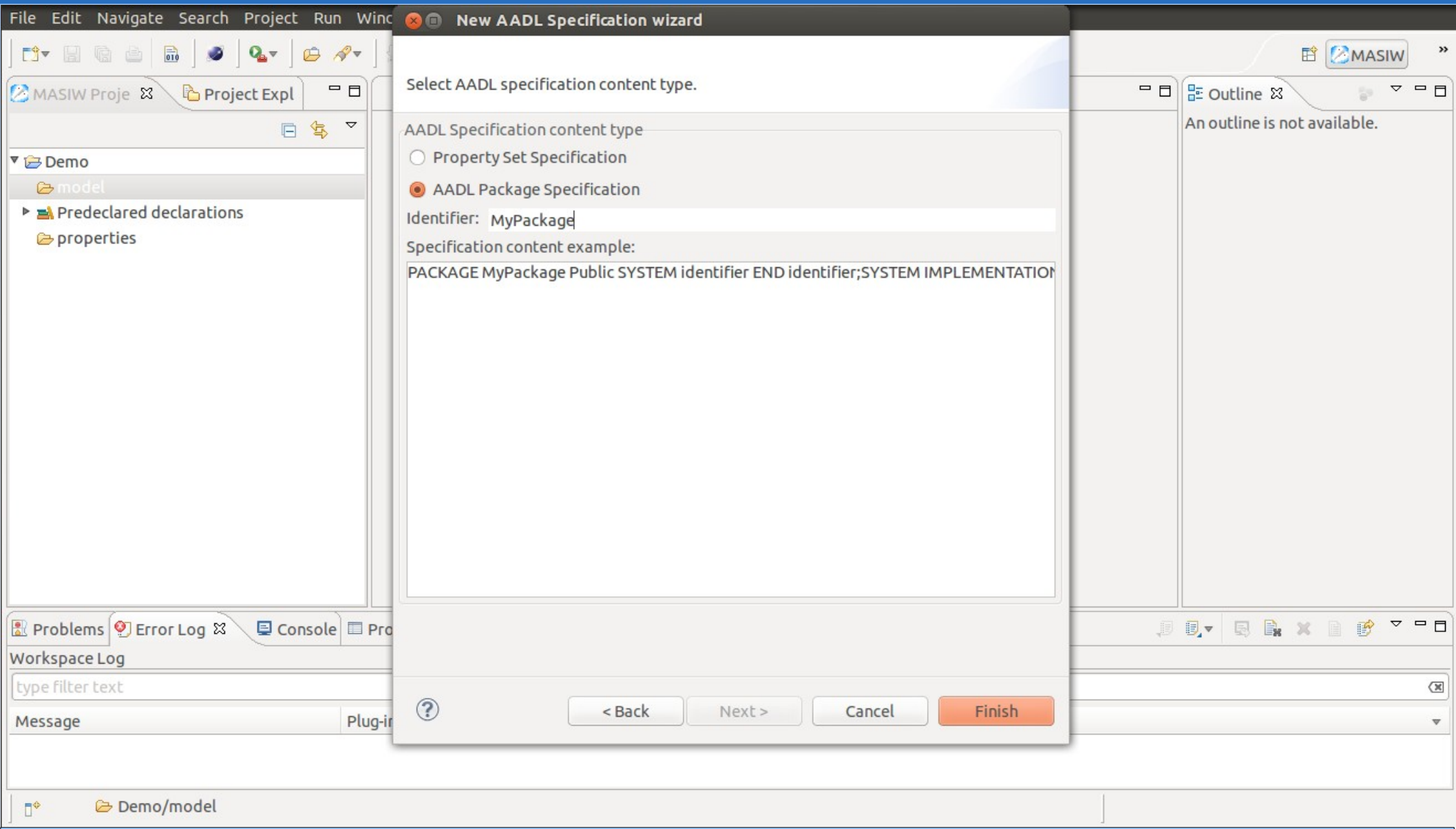
Context menu in MASIW Projects: New->New AADL Specification

New MASIW Specification (2)



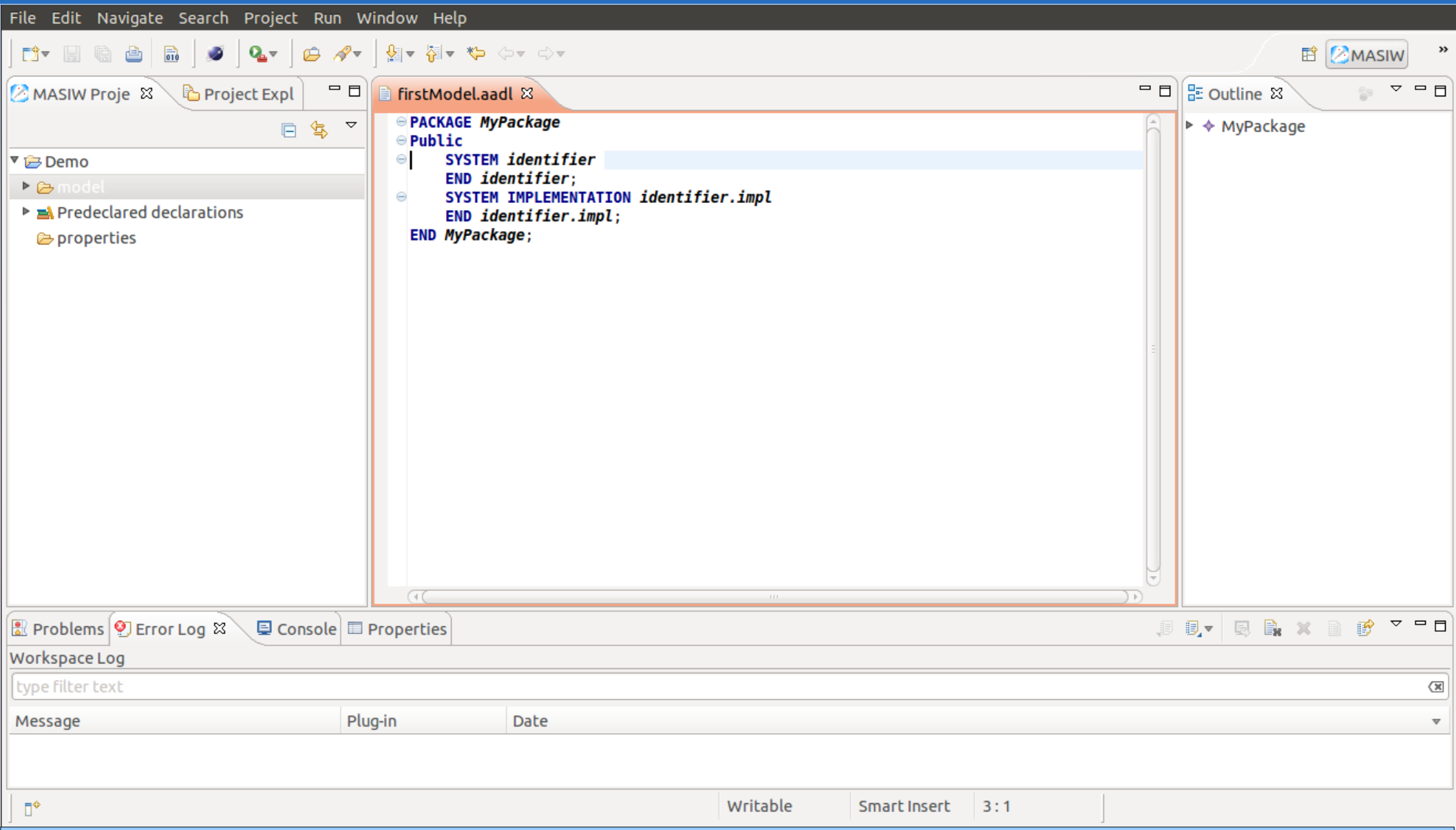
Define name of a new aadl file and click on Next> button

New MASIW Specification (3)



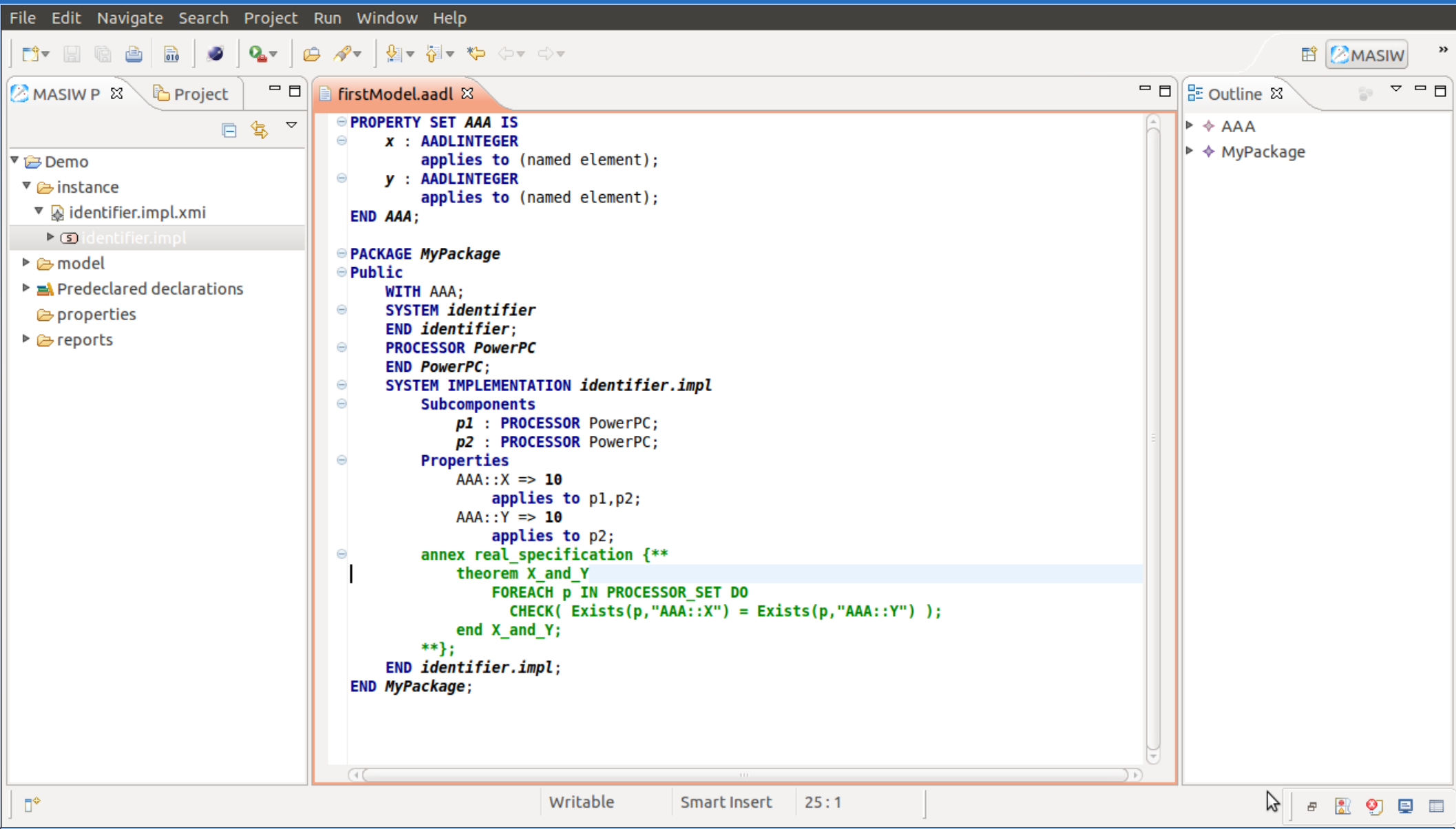
Choose AADL Package Specification, define name of the package and click on Finish button

New MASIW Specification (4)



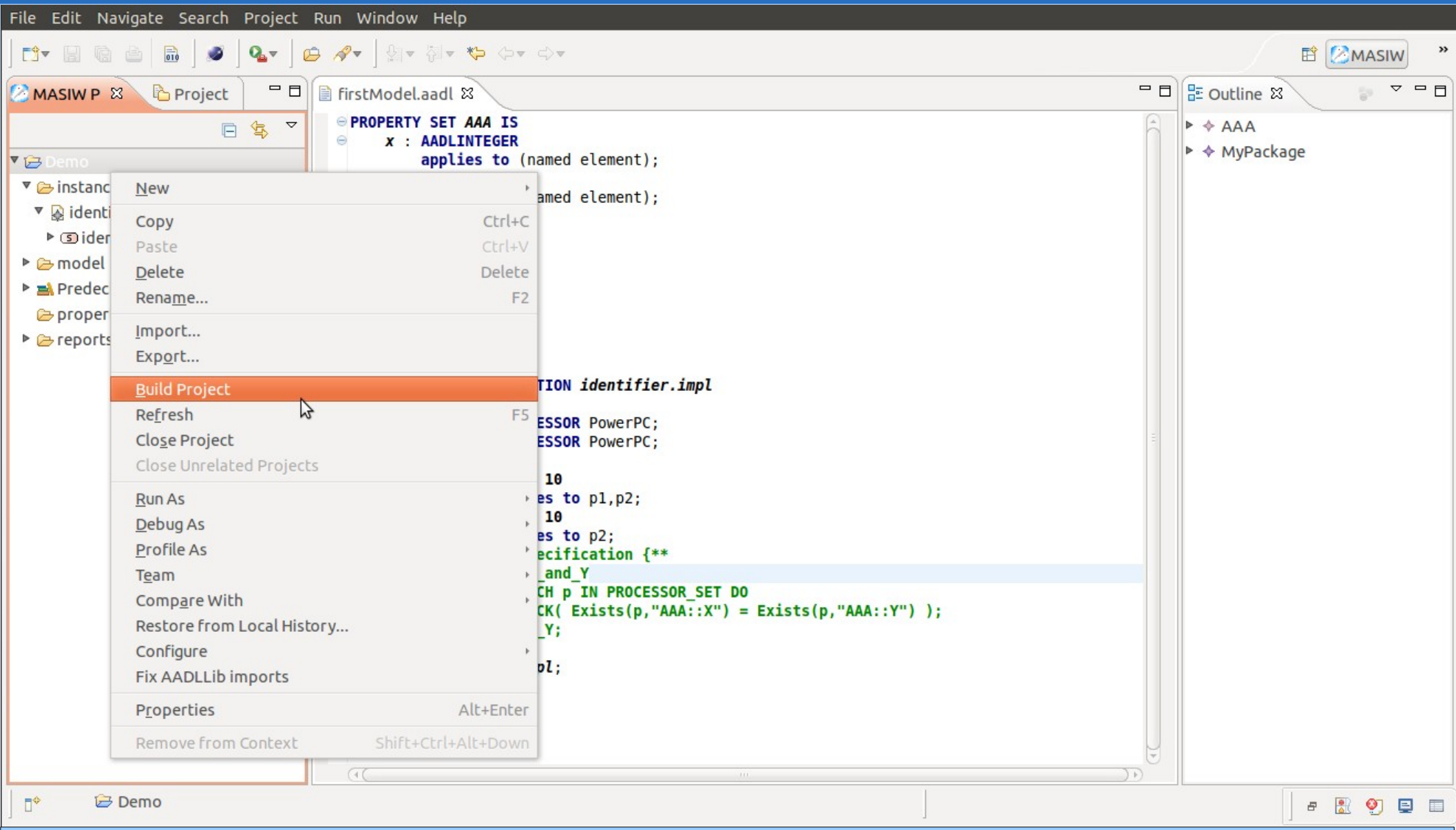
Use Ctrl-Shift-F to format aadl specification

MASIW Textual Editor



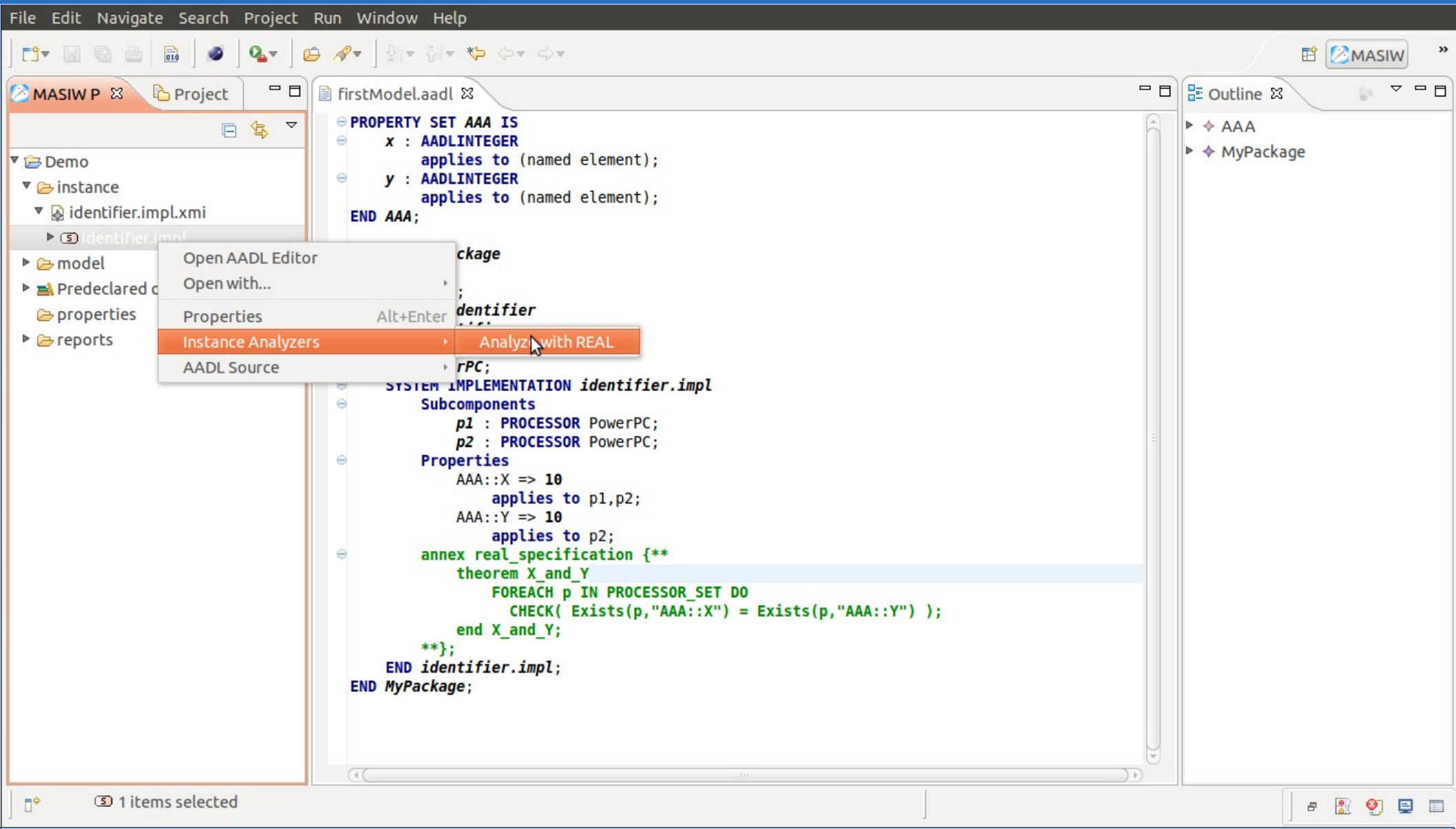
Define property set, package with a system implementation containing a couple of processors and a REAL theorem that check presence of both properties

Checking Theorems (1)



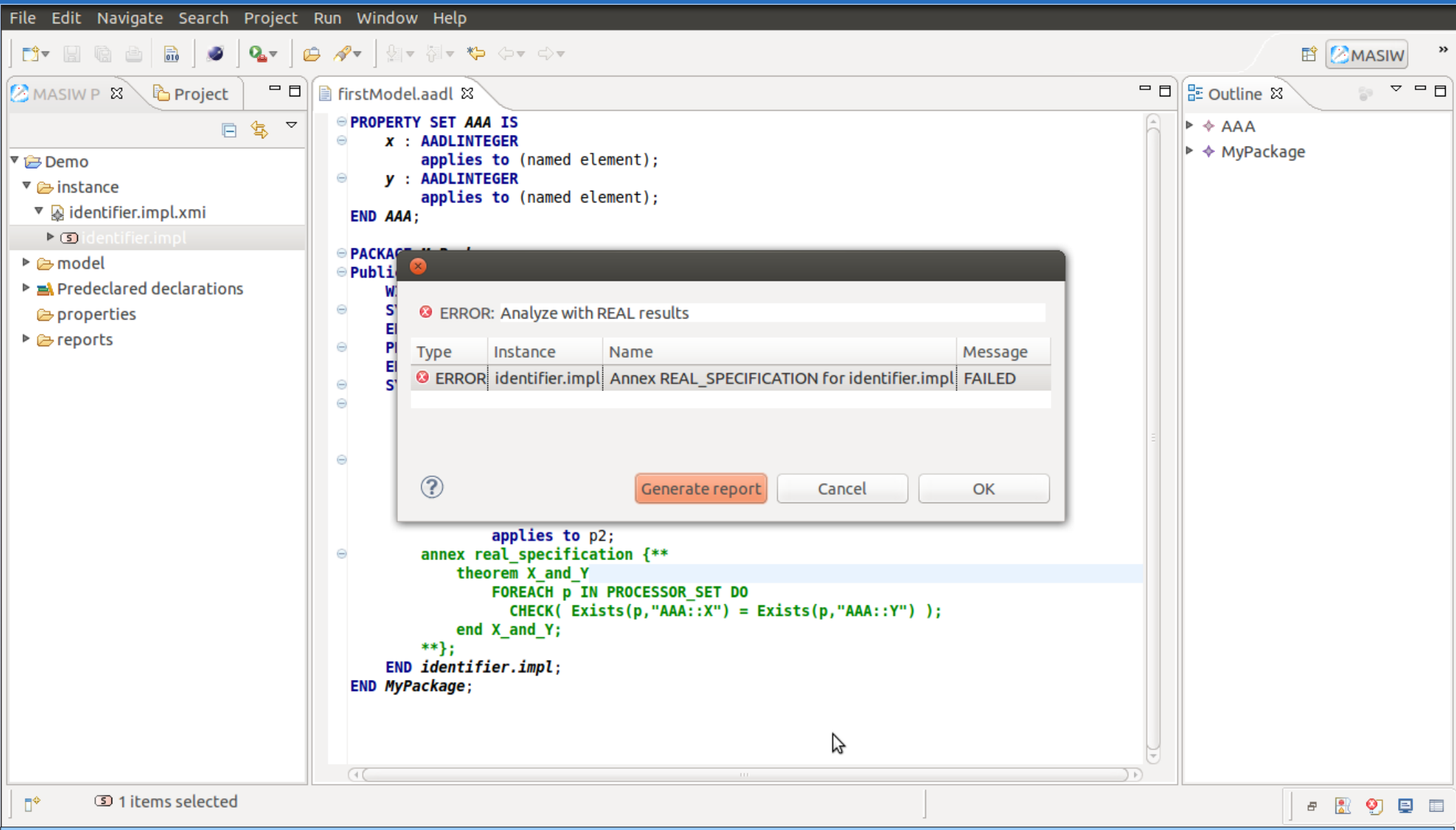
Context menu in MASIW Projects: Build Project

Checking Theorems (2)



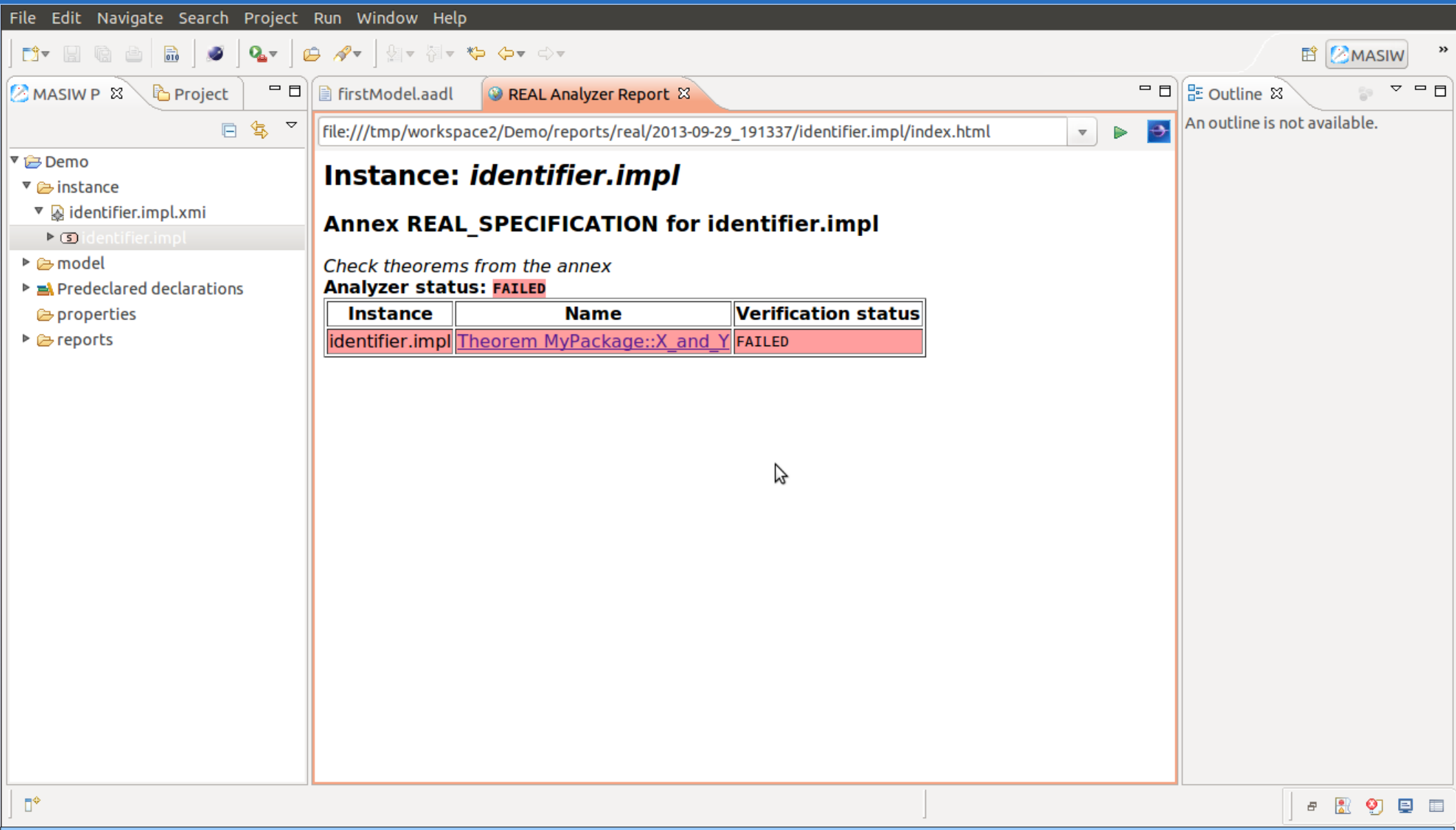
Context menu in MASIW Projects: Instance Analyzers->Analyze with REAL

Checking Theorems (3)



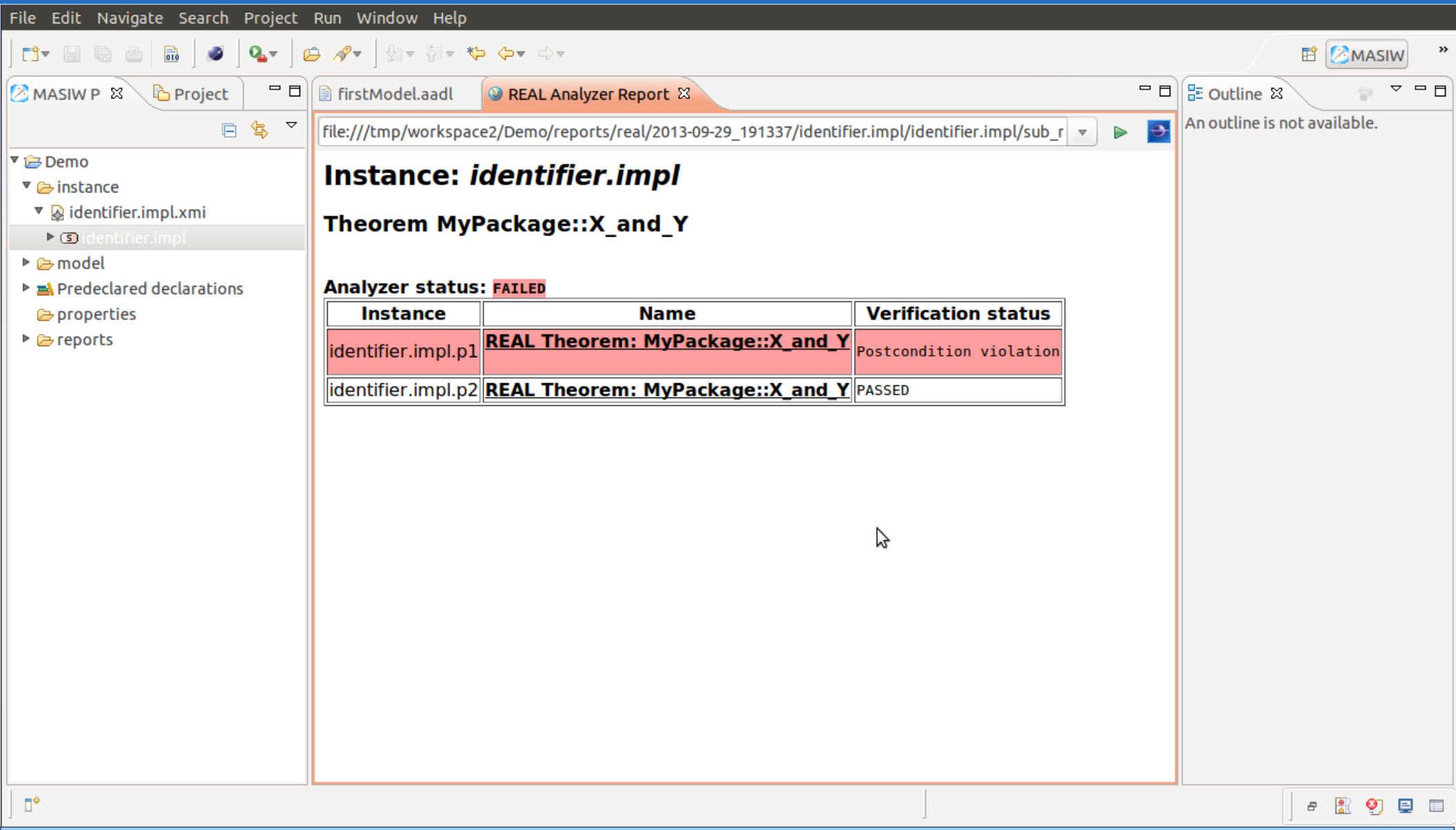
Click on 'Generate report' button

Checking Theorems (4)



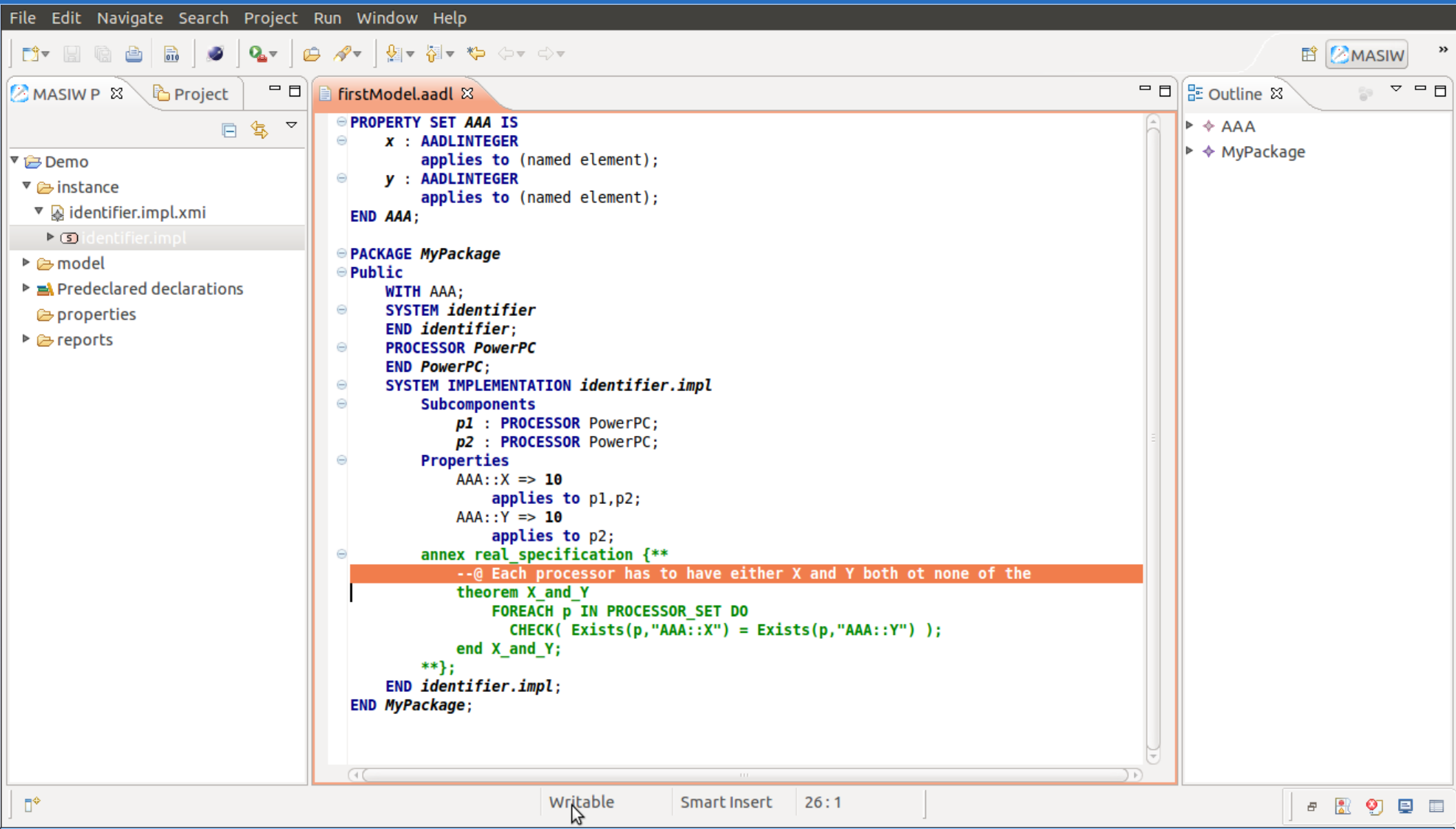
Click on the FAILED row to see details

Checking Theorems (5)



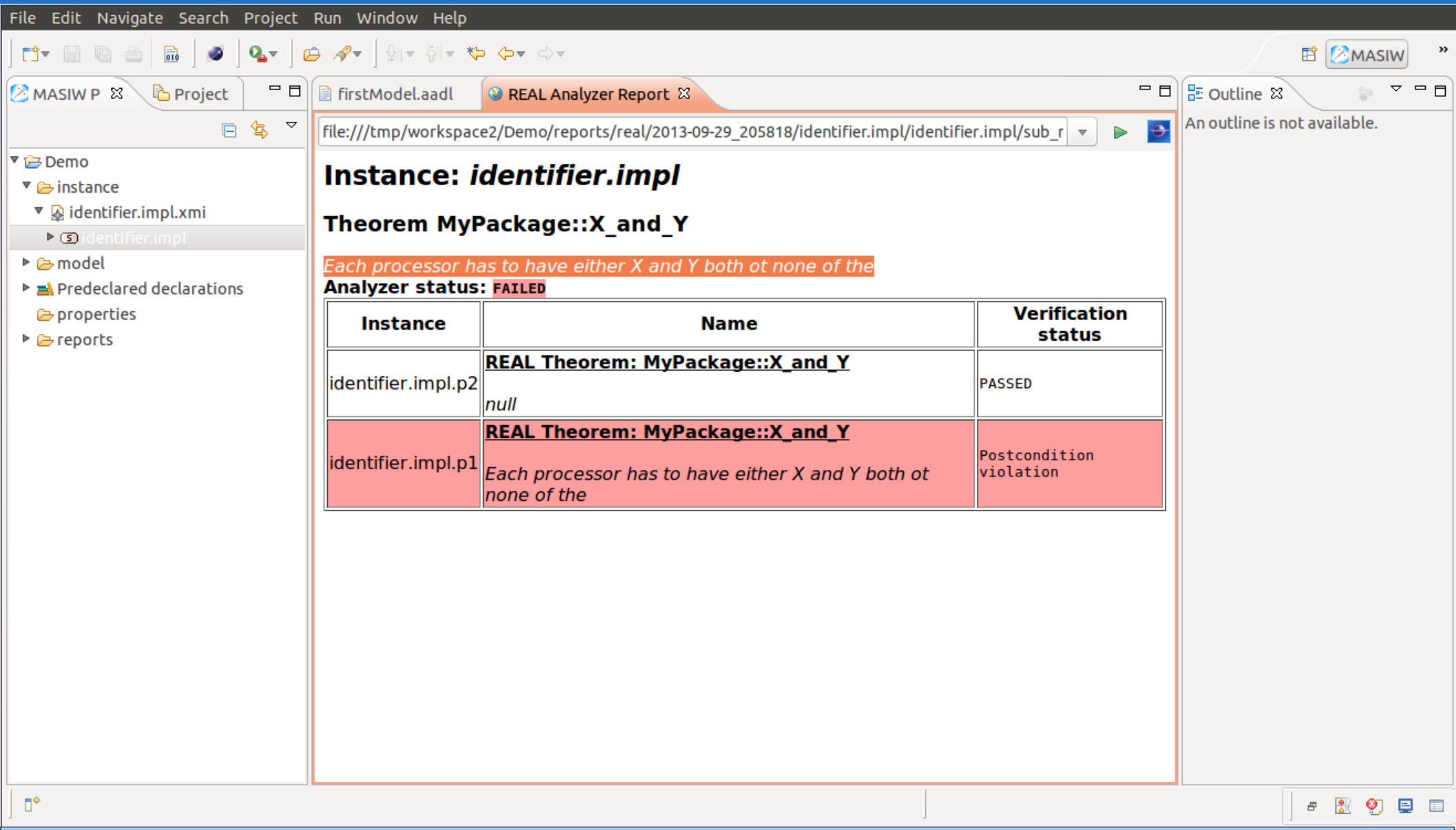
REAL theorem X_and_Y is failed for processor p1 of system identifier.impl,
but it is not very helpful description for AADL model developer

Checking Theorems (6)



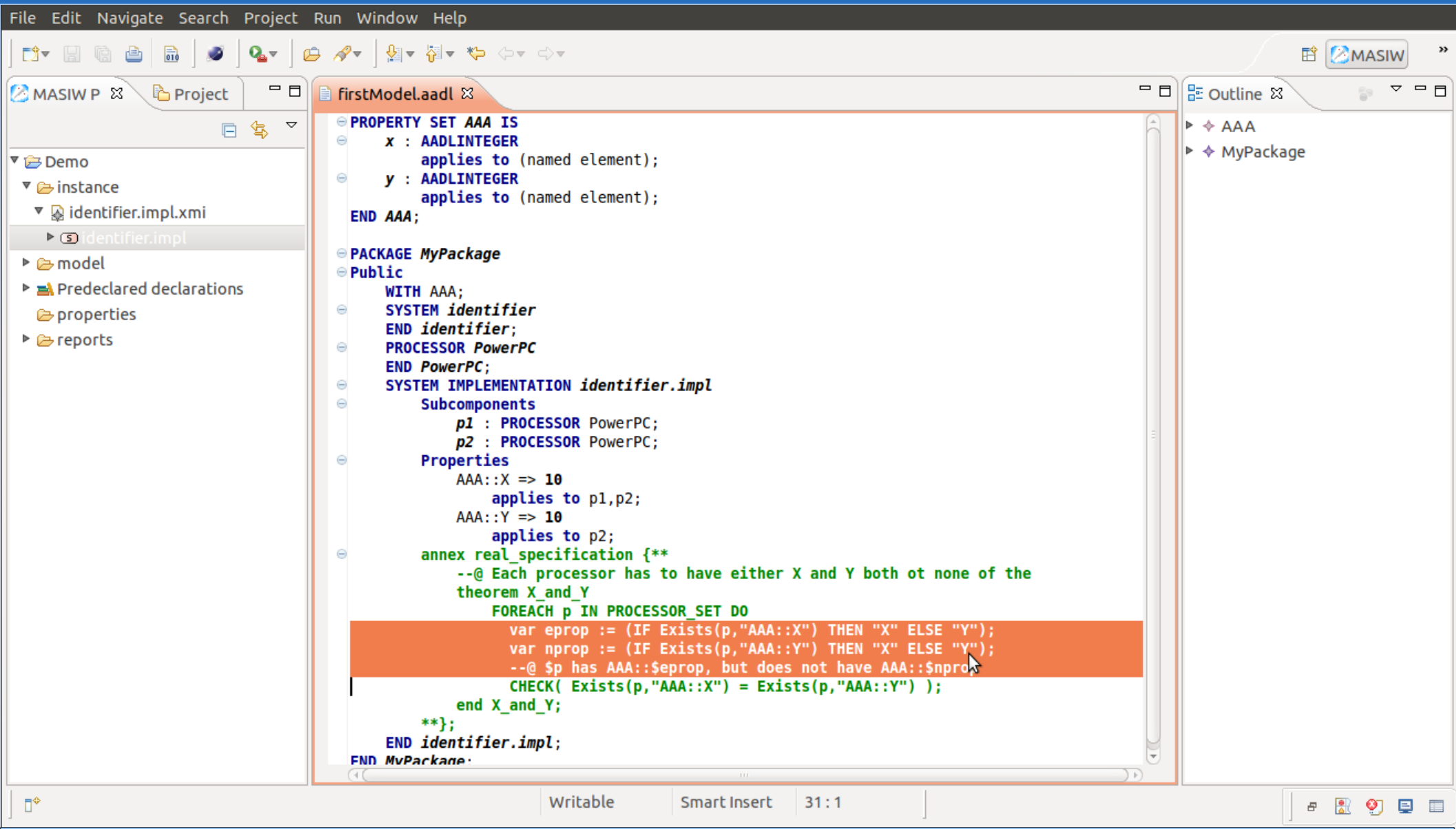
Let us add a description of the theorem in a comment starting with '--@'

Checking Theorems (7)



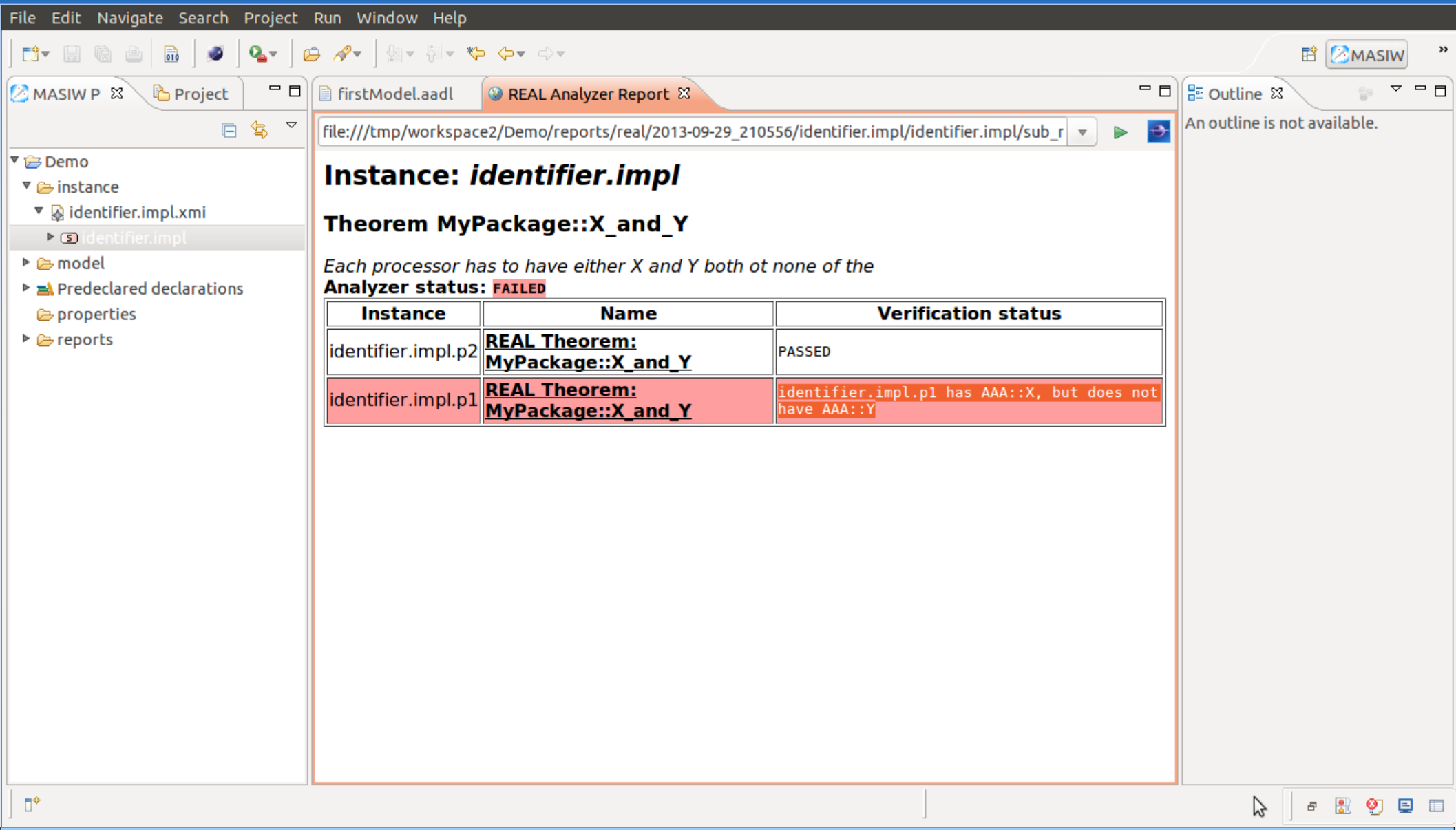
After 'Build Project', then 'Instance Analyzers->Analyze with REAL'
a new report contains the description helping user to understand the detected issue

Checking Theorems (8)



But in complex cases static description is often not enough.
Let us add a runtime generated message that describe specific of the issue.

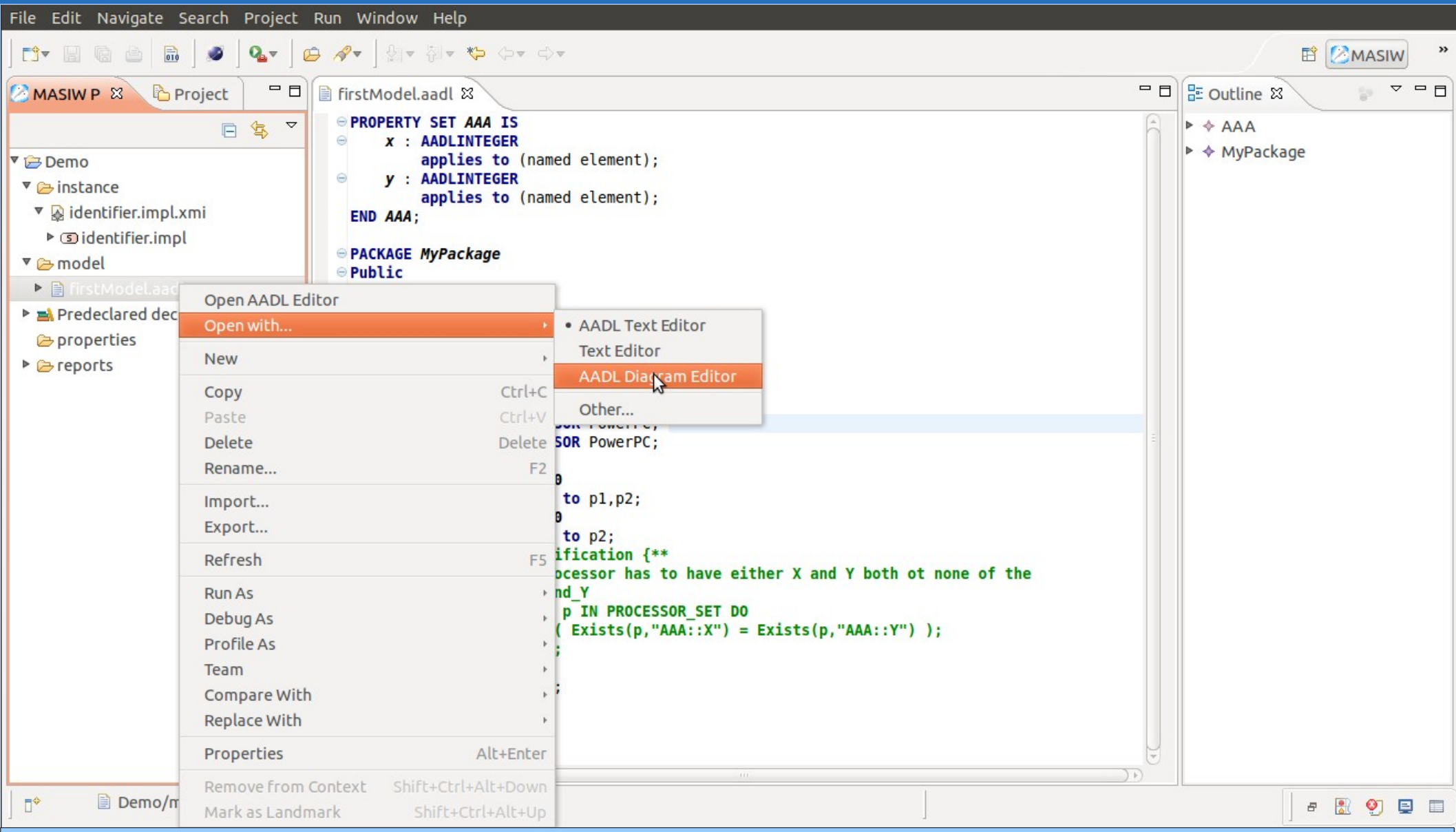
Checking Theorems (9)



After 'Build Project', then 'Instance Analyzers->Analyze with REAL'
a new report contains the specific description of this particular issue

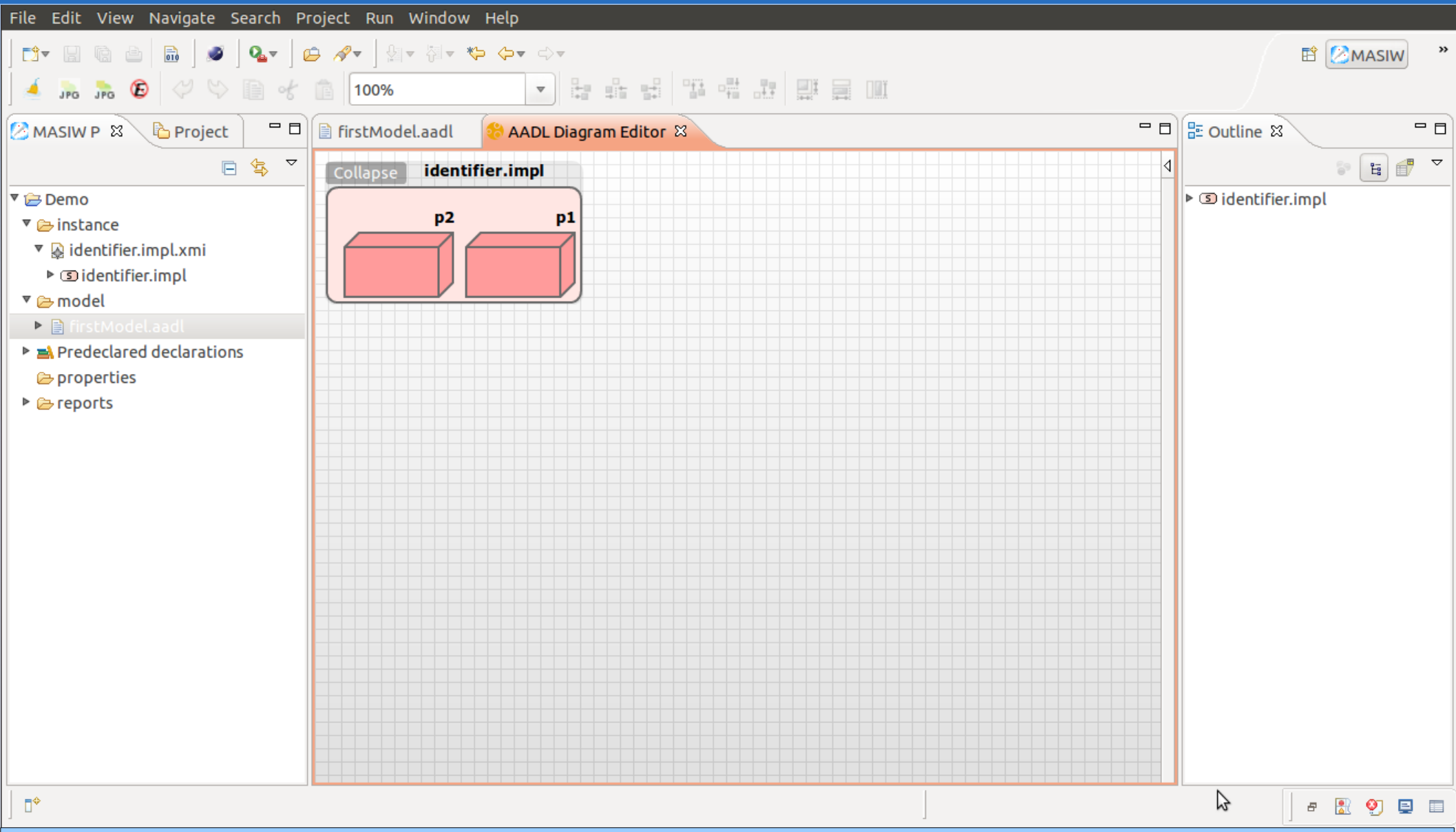
MASIW Graphical Editor

MASIW Graphical Editor (1)

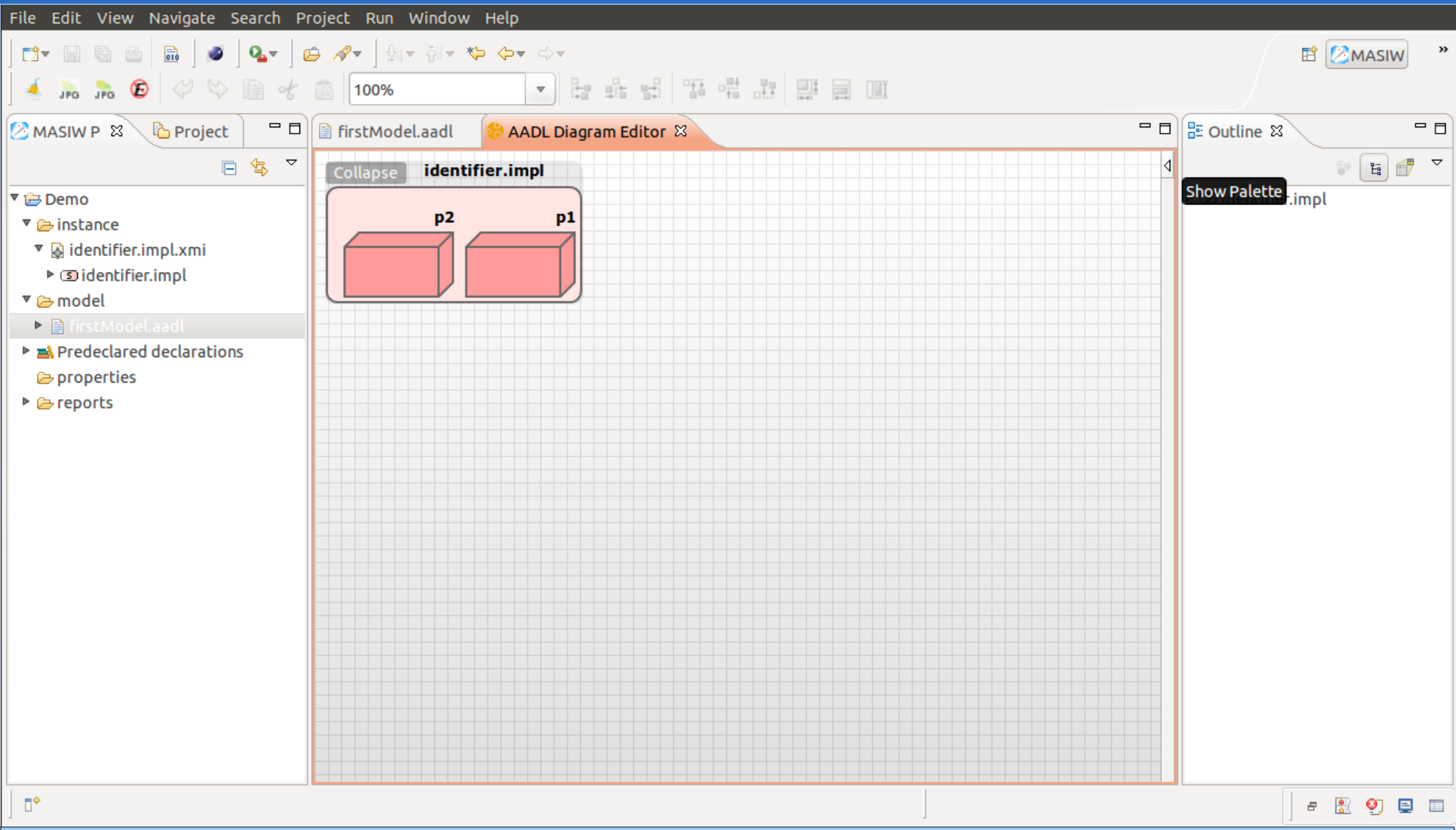


Context menu for aadl file: Open with...->AADL Diagram Editor

MASIW Graphical Editor (2)

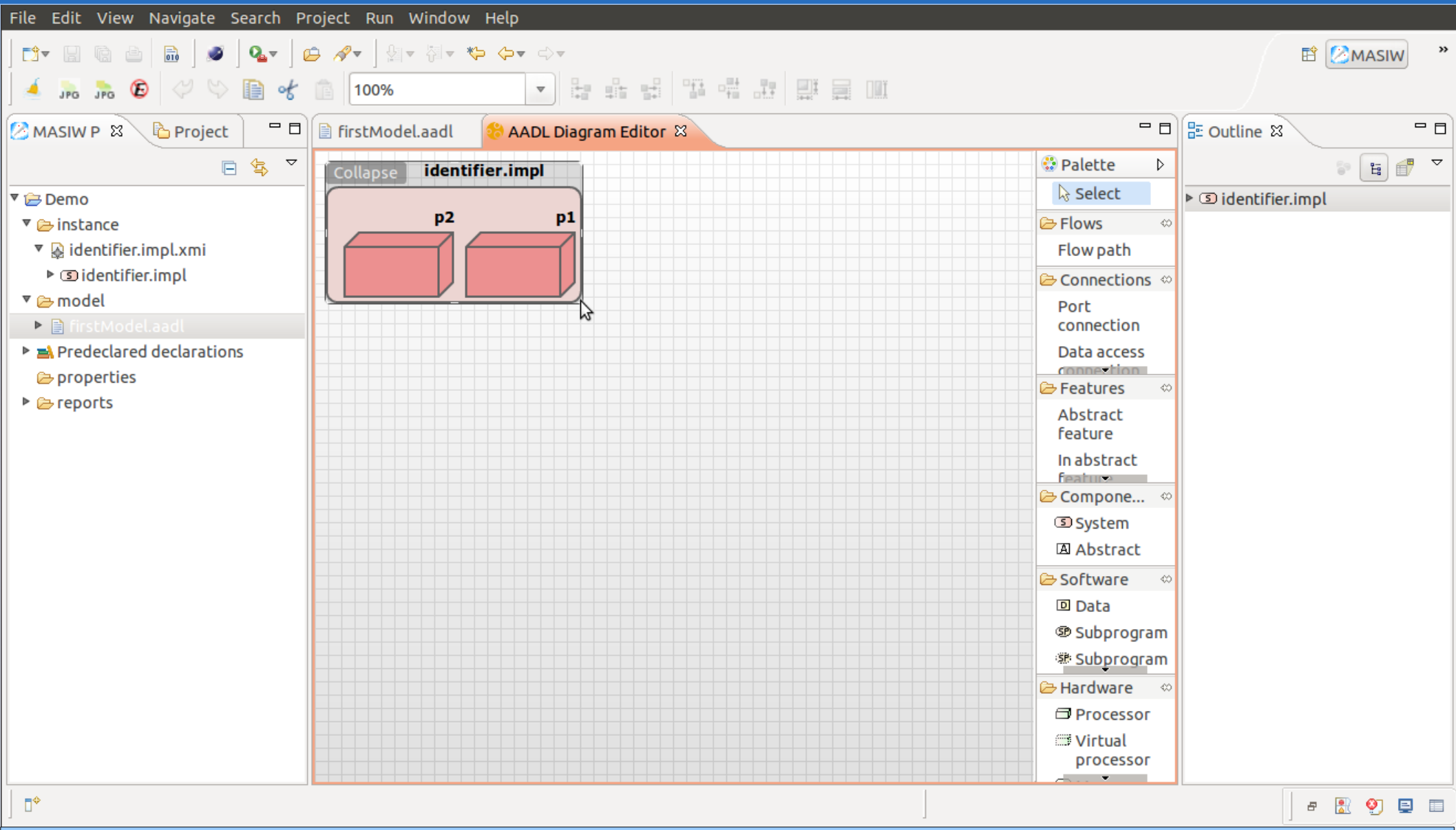


MASIW Graphical Editor (3)



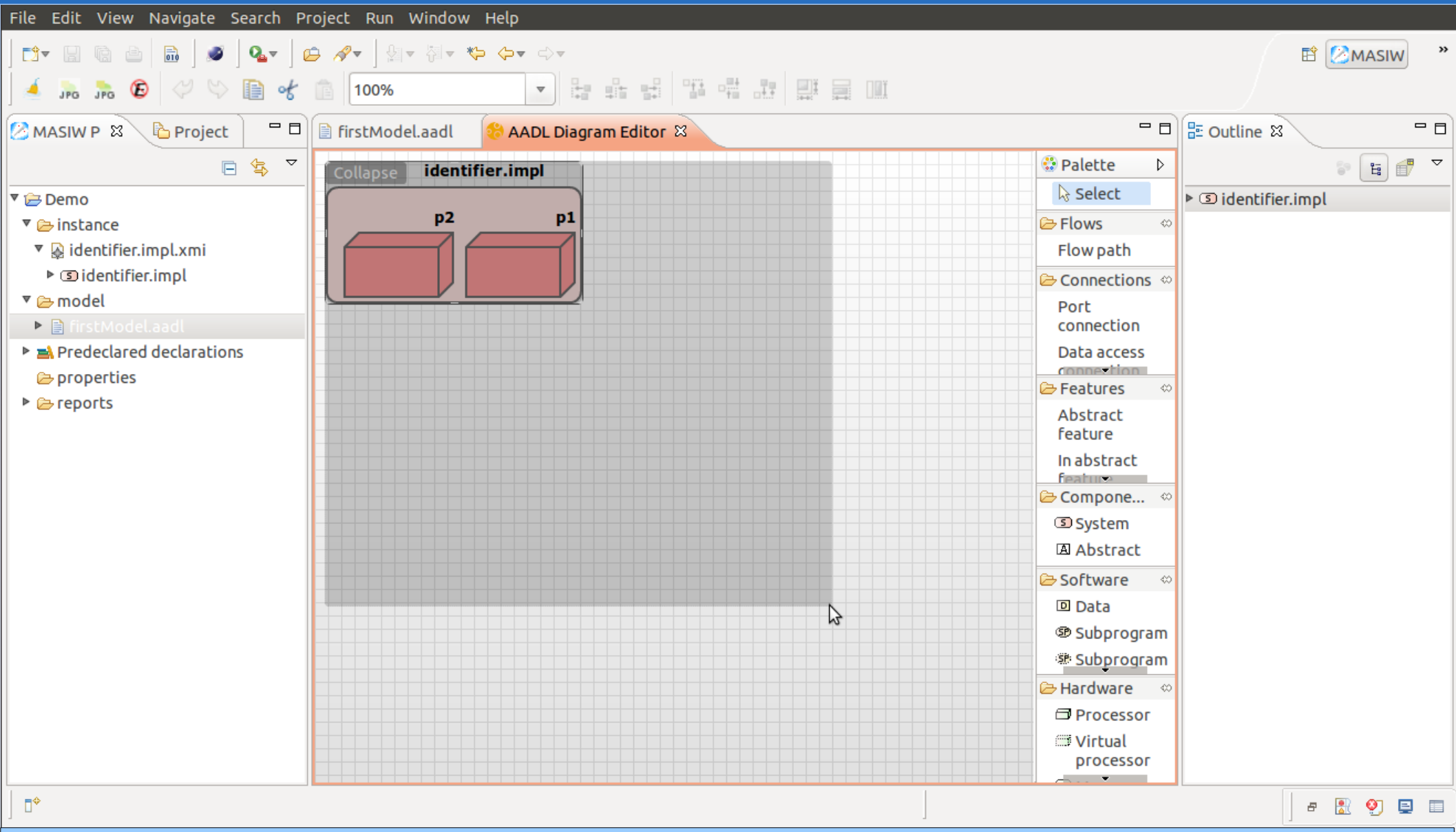
Click on a triangle in the right top corner to open pallete

MASIW Graphical Editor (4)

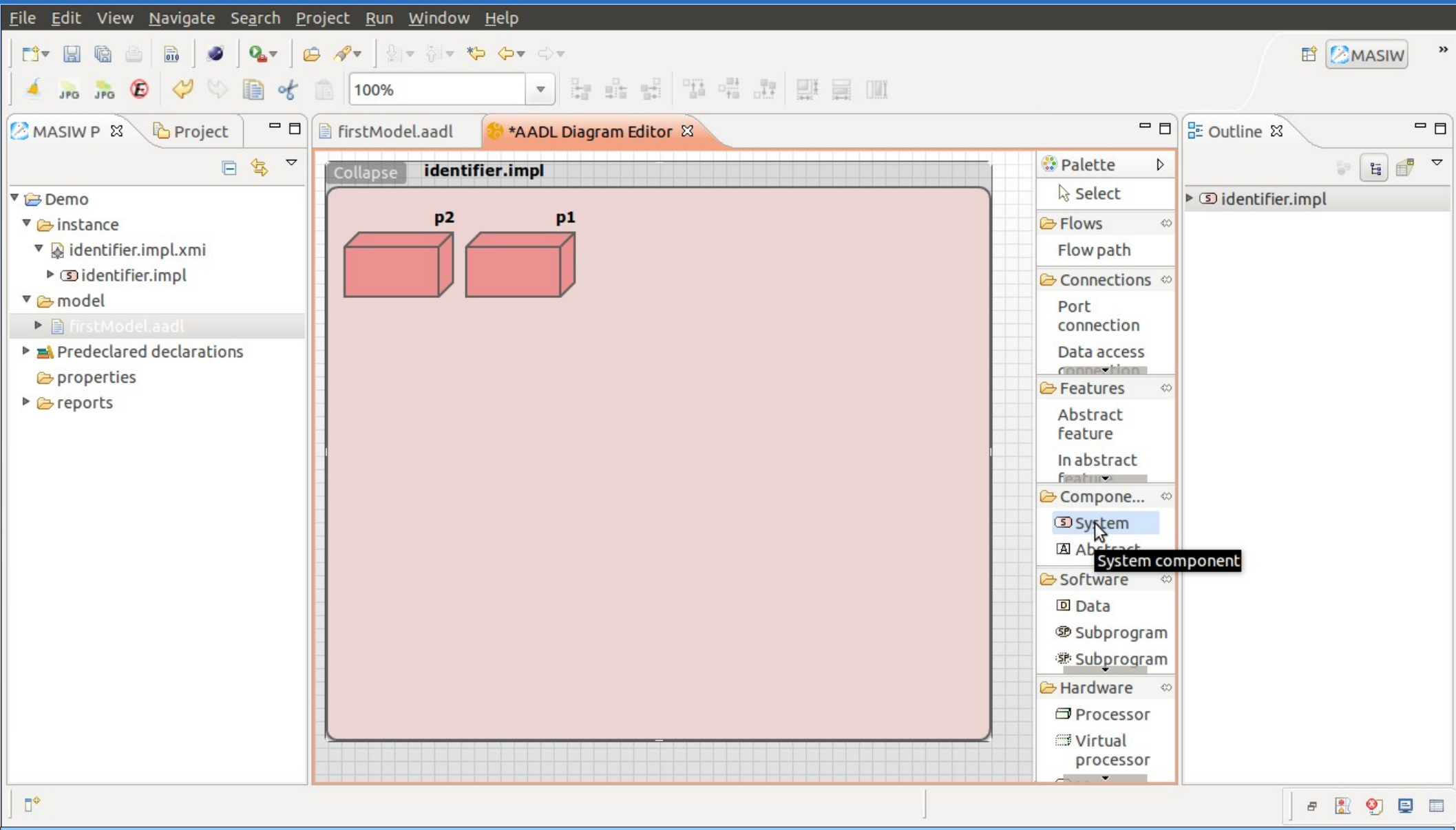


Select 'identifier.impl' system and use right bottom corner to resize it

MASIW Graphical Editor (5)

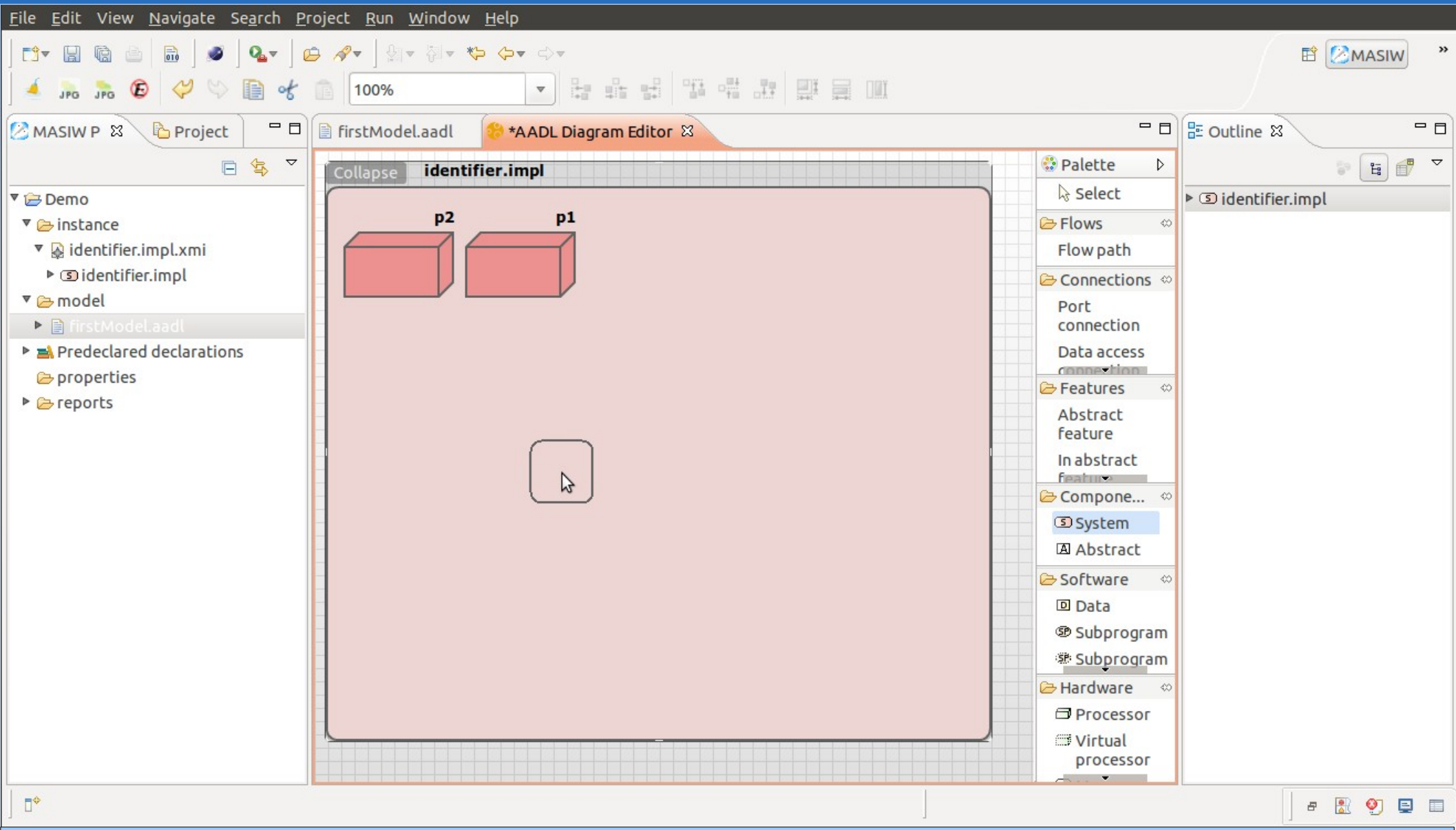


MASIW Graphical Editor (6)



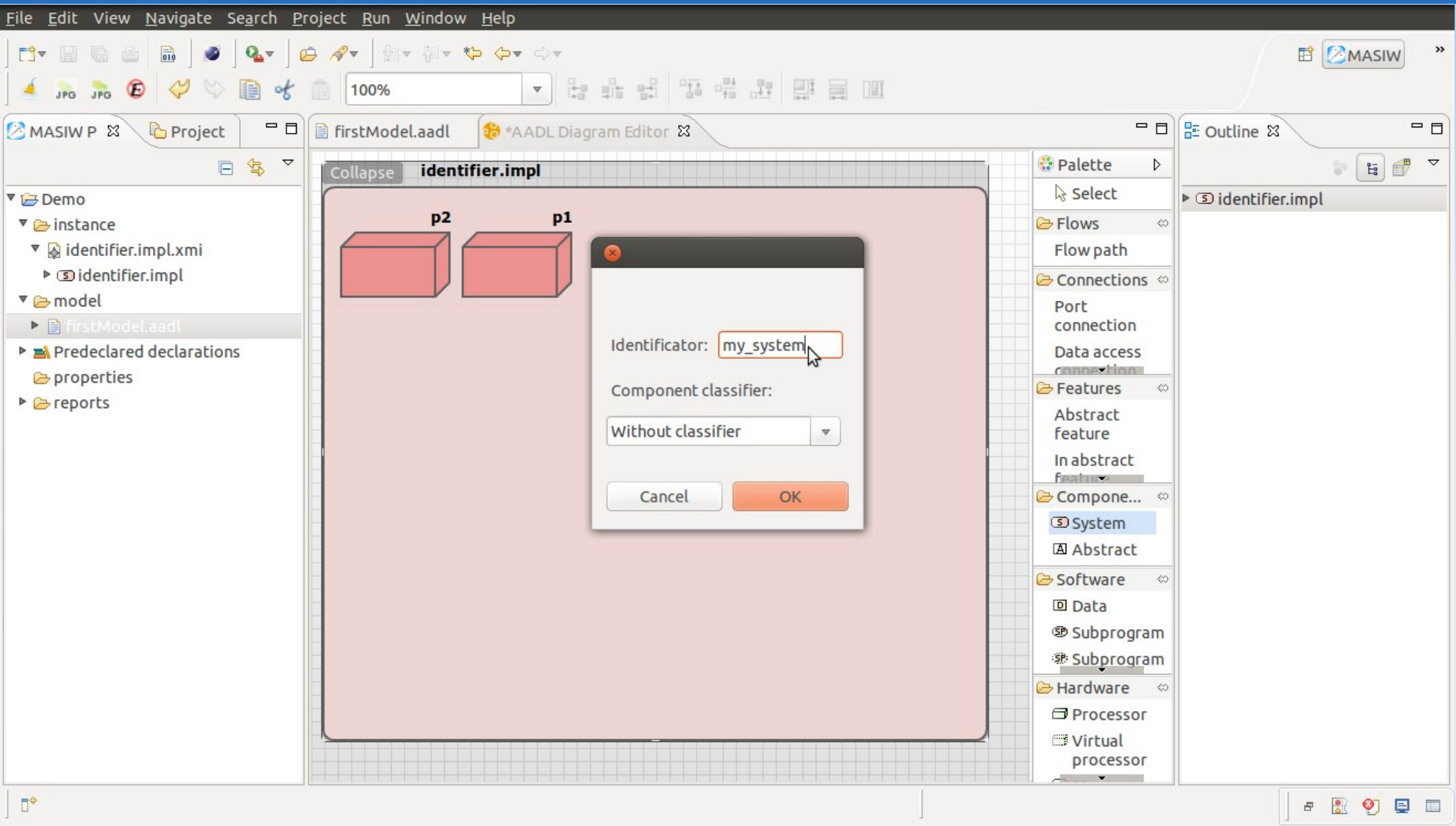
Click on system in pallete to add a system

MASIW Graphical Editor (7)



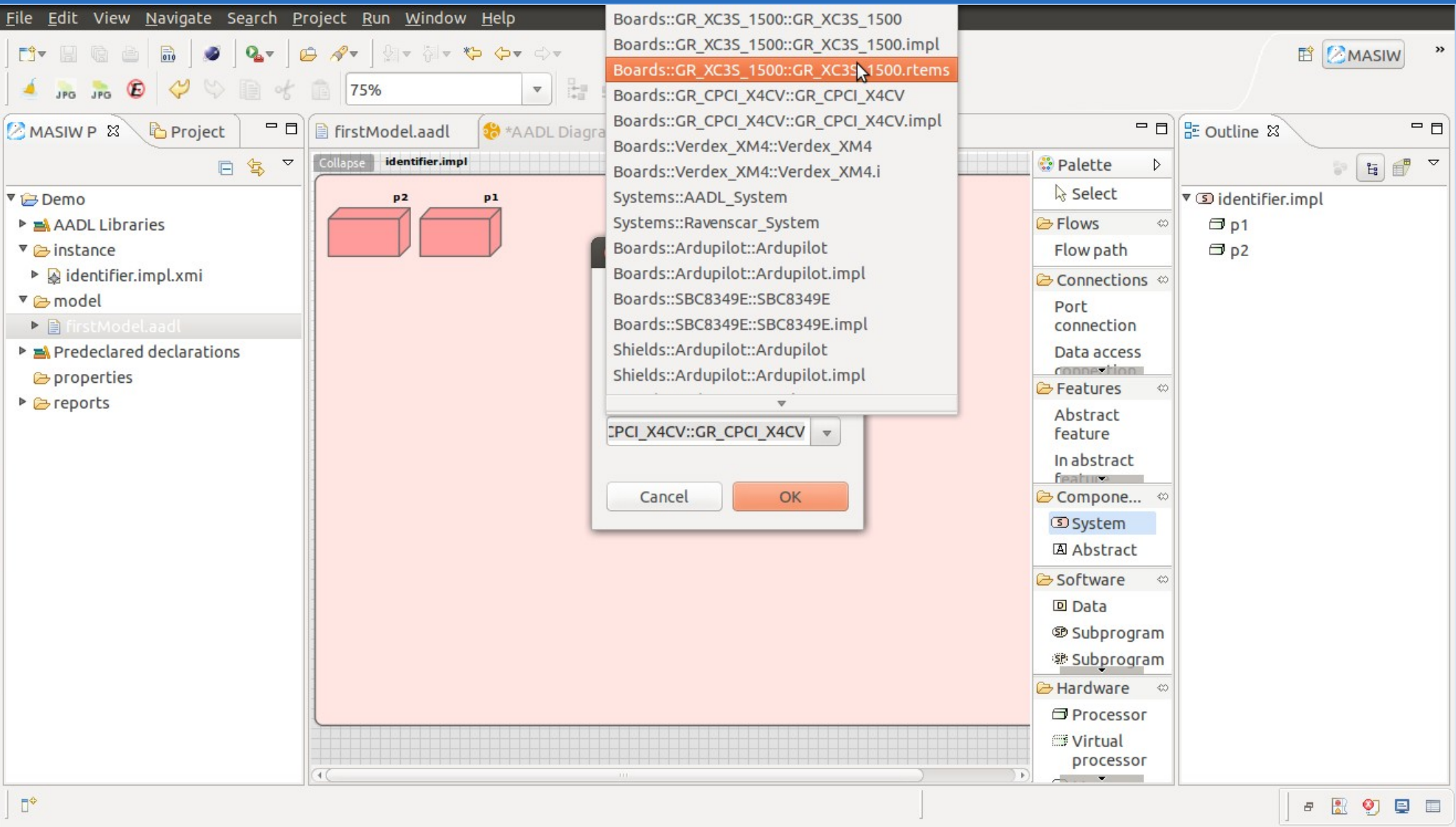
Click on system in pallete to add a system,
and then click on the system you want a new system is added to

MASIW Graphical Editor (8)



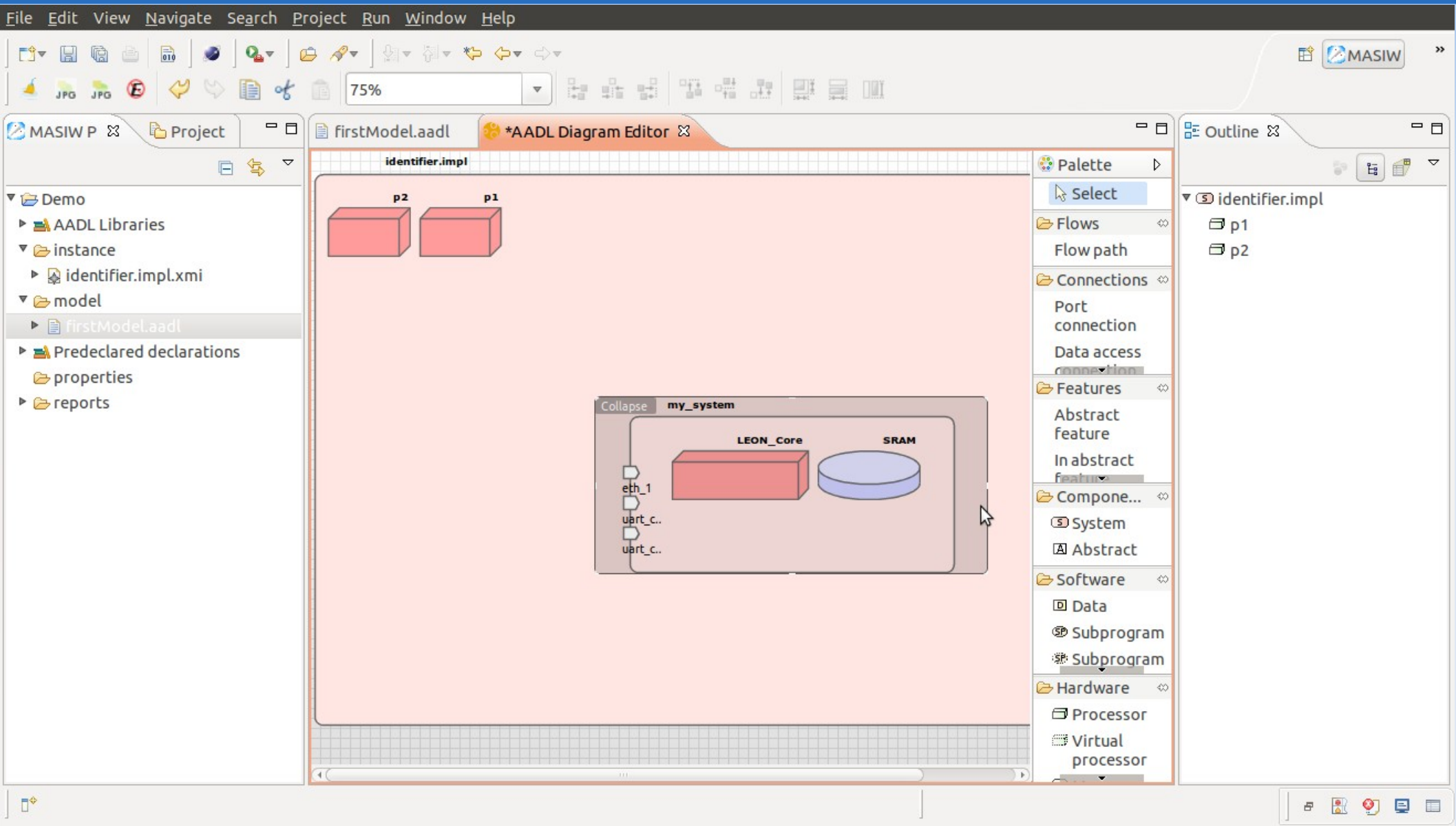
Define an identifier for the system

MASIW Graphical Editor (9)



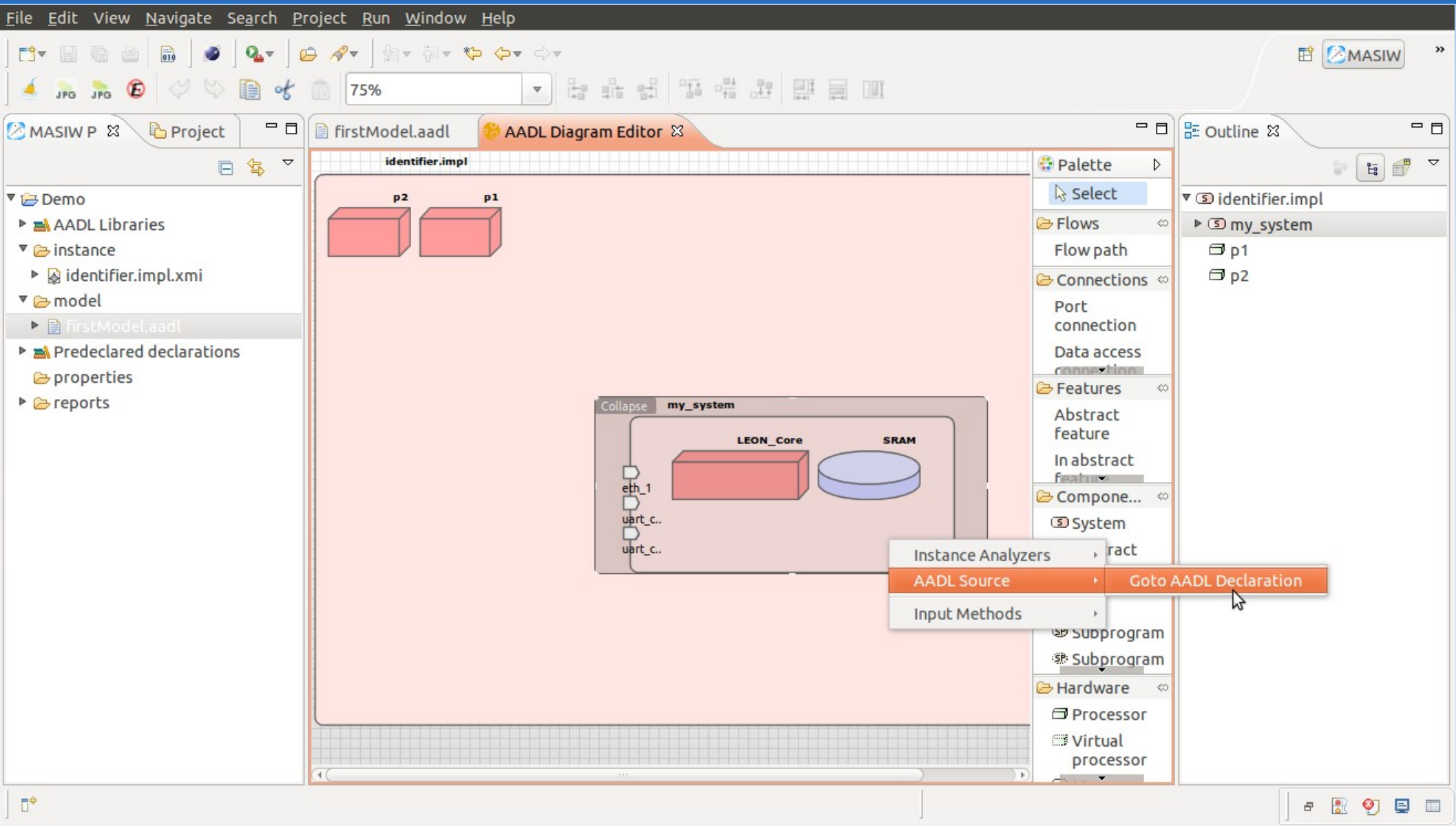
Define an identifier for the system,
and choose a classifier that a new system will extend

MASIW Graphical Editor (10)



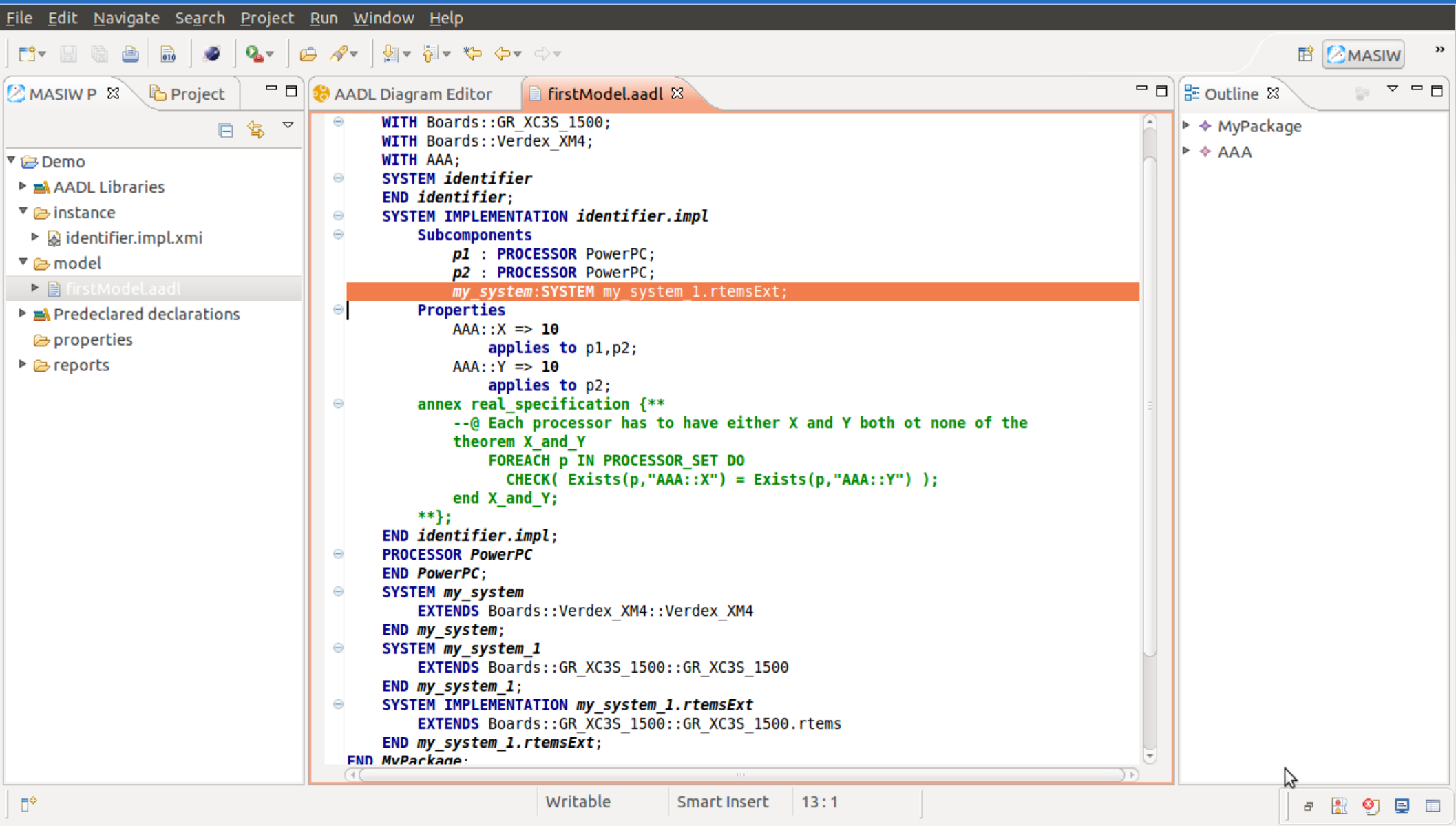
A new system is added

MASIW Graphical Editor (11)



Context menu on figures in graphical editor allows to go to declaration of the components in textual form and to run analyzers

MASIW Graphical Editor (12)



Context menu on figures in graphical editor allows to go to declaration of the components in textual form and to run analyzers

Thank you!

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