

Using ASAP Information

1 Abstract

TESSY provides a close integration of the “Working Group for the Standardization of Calibration Systems” (“Arbeitskreis zur Standardisierung von Applikationssystemen”, ASAP) standard version 2, allowing the usage of ASAP conversion rules for physical to integer conversion of test data and displaying other ASAP information like unit names, min/max values and descriptions within the perspectives of TESSY (e.g. TIE, TDE, Test Report).

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2 Introduction

TESSY provides a parser for ASAP files to extract the following information that is useful for testing:

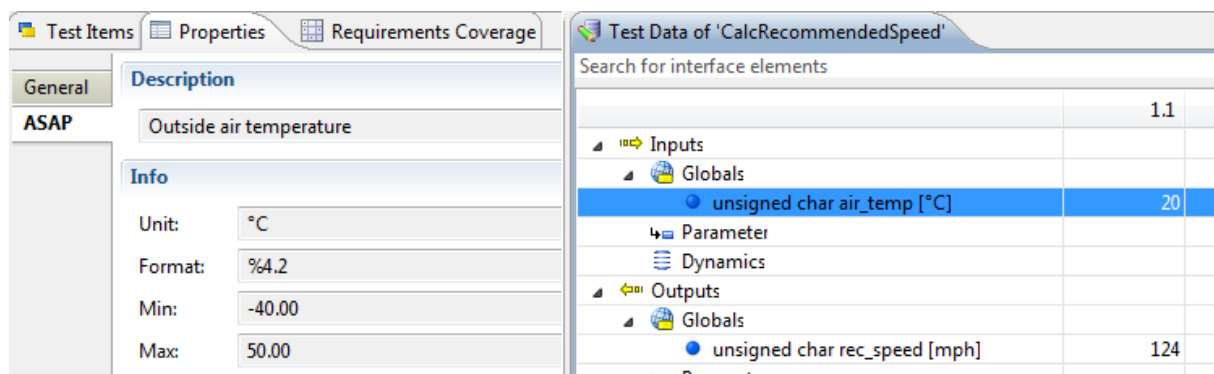
- Conversion rules for input and output values
- Unit names of variables
- Min/Max values of variables
- Descriptions of variables

Refer to the sample ASAP file provided within the TESSY installation directory for details:

TESSY_INSTALL_PATH\Examples\ASAPConversion\asap.a21

Please note: The ASAP file must not contain UTF-8 characters.

The ASAP information allows you to specify physical values for input and expected data within TDE. The specified values will automatically be converted to integer values and vice versa during test execution.



The screenshot shows two windows from the TESSY application. The left window is the 'Properties' view for an ASAP variable. It has tabs for 'General', 'Properties', and 'Requirements Coverage'. The 'ASAP' section is active, showing the variable name 'Outside air temperature'. The 'Info' section displays the following details:

Unit:	°C
Format:	%4.2
Min:	-40.00
Max:	50.00

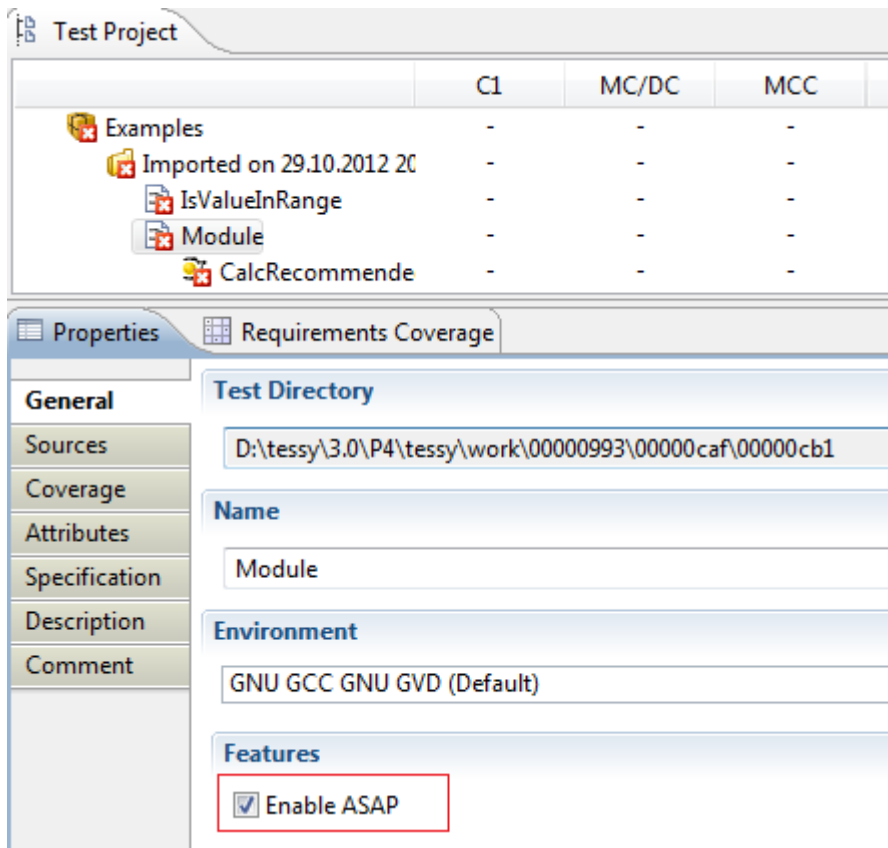
The right window is titled 'Test Data of 'CalcRecommendedSpeed''. It has a search bar for interface elements. Below it is a table showing test data:

Search for interface elements	
	1.1
Inputs	
Globals	
unsigned char air_temp [°C]	20
Parameter	
Dynamics	
Outputs	
Globals	
unsigned char rec_speed [mph]	124
Parameter	

The ASAP information will be displayed within the **Properties** view and within the TIE and the TDE perspective as shown above.

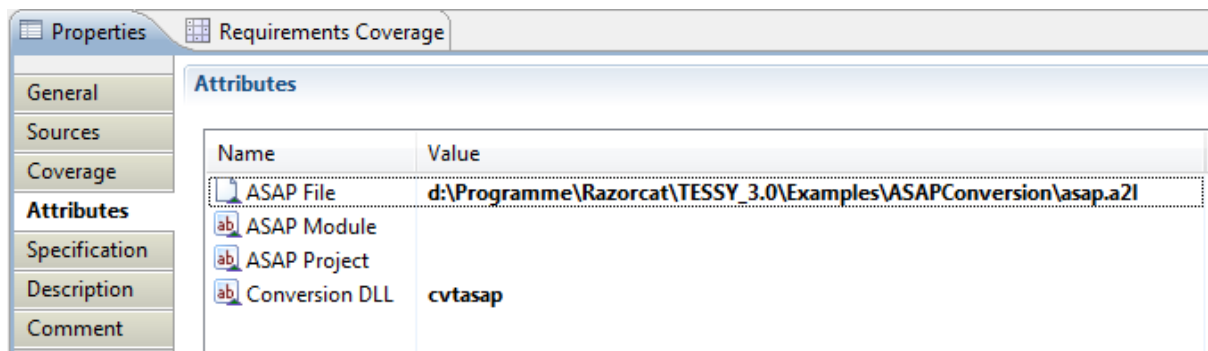
3 Specifying the ASAP file

To activate the ASAP support, choose the ASAP feature within the module properties as shown below.



The following attributes will now be visible within the attributes tab:

- The mandatory **ASAP File** attribute specifies the file containing the ASAP information.
- The **ASAP Project** and **ASAP Module** attributes specify the corresponding project and module within the ASAP file. If these attributes are left blank, the first project and/or module within the ASAP file will be used.
- The attribute "Conversion DLL" is filled-in automatically



4 Add an additional ASAP file for test specific variables

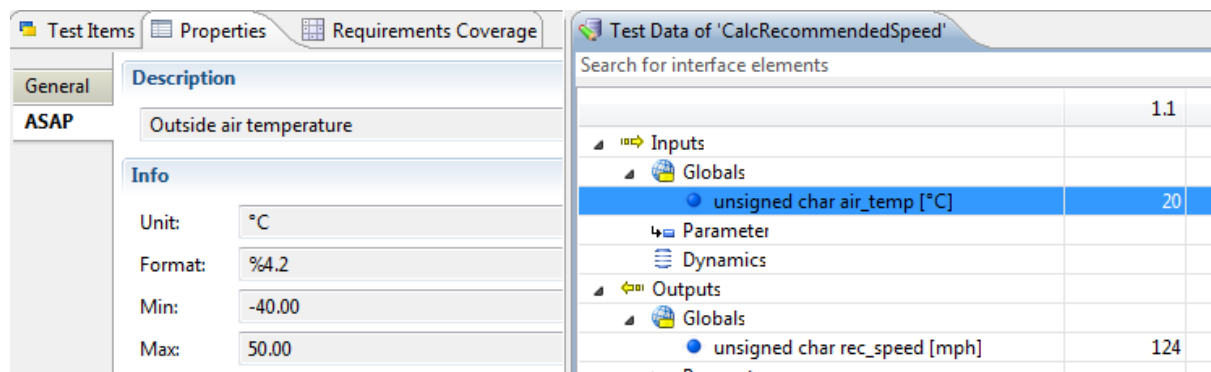
It might be helpful to add an additional ASAP file for test specific variables. If a file within the same directory as where the primary ASAP file lies is found with the same name extended by `.test`, TESSY will add this file as well to the ASAP configuration. So, for example, if the ASAP file is called `asap.a21` and it has next to it a file called `asap.a21.test` within the same directory, then the latter one is considered as well. However, the `asap.a21.test` file has to refer to the same project and module name as the `asap.a21` file. This feature can be disabled by setting attribute **Enable ASAP Test File** to `false`. The default value is `true`.

5 Displaying ASAP Information

If you have specified an ASAP file within the attribute list and the specified ASAP project and ASAP module are present within the ASAP file, then TESSY will analyze the ASAP file and extract all necessary ASAP information for the current TESSY module. TESSY will check the actual contents of the original ASAP file each time the module is opened (if the time stamp of the ASAP file has changed). If ASAP information is present, TESSY will display the information within the TIE, the TDE and within the test report.

5.1 Description, Unit, Formatting

The ASAP information is displayed within the **Properties** view when selecting a variable within TIE, TDE or IDA.

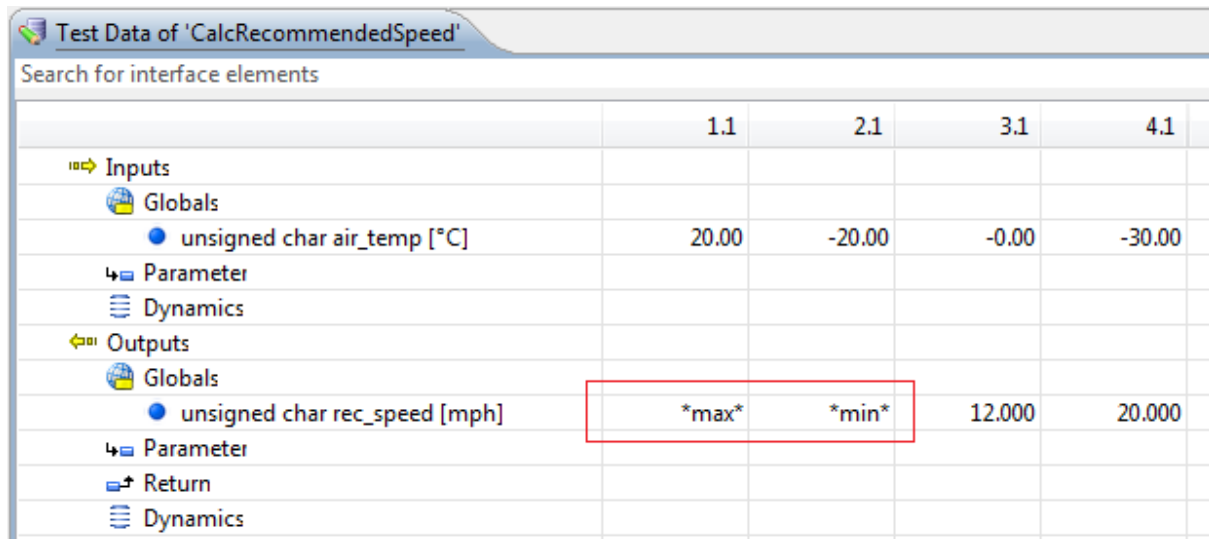


5.2 Min/Max Values

You can use the ASAP min and max values as test data or expected results as well. TESSY will automatically convert those values to the actual min/max values found within the variable provided within the ASAP file for test execution. This may be useful when working with different ASAP files for calibration of a certain application. So that changing the ASAP file may result in different min/max values used for testing.

Please note: The ASAP information will be parsed during module opening, thus a new ASAP file requires the module to be closed and re-opened!

The example below demonstrates the usage of min/max values:



Search for interface elements		1.1	2.1	3.1	4.1
Inputs					
Globals					
•	unsigned char air_temp [°C]	20.00	-20.00	-0.00	-30.00
↳ Parameter					
↳ Dynamics					
Outputs					
Globals					
•	unsigned char rec_speed [mph]	*max*	*min*	12.000	20.000
↳ Parameter					
↳ Return					
↳ Dynamics					

You can enter the special string `*min*` or `*max*` directly into the value field of each ASAP variable.

After running the test, you will see the actual min/max values from the ASAP file printed within the test report as shown below:

Test Case 5 ✓			
Description Very hot outside			
Test Step 5.1 ✓			
Name	Input Value		
air_temp [°C]	*max* (50.00)		
Name	Actual Value	Expected Value	Result
rec_speed [mph]	20.000	> *min* (0.000)	✓

When running the test with a different ASAP file (with different min/max values), you may get different results for your test object.

6 Conversion Rules

TESSY also extracts the conversion rules from the ASAP file. These rules determine how to convert physical values (provided as input and expected values within TESSY) into integer values for executing the test object on the target. The resulting actual values from the target are automatically converted back into physical values (to be displayed within TESSY).

TESSY supports the following ASAP conversion methods:

`IDENTICAL` `RAT_FUNC` `TAB_INTN` `TAB_NOINTN` `TAB_VERB` `FORM`

6.1 Test Execution

All conversions made will be logged to the file **conversion.log** within the testarea directory (normally "c:\tessy\testarea"). If you want to check certain value conversions, please refer to that file to check the conversion results. The file contains entries like

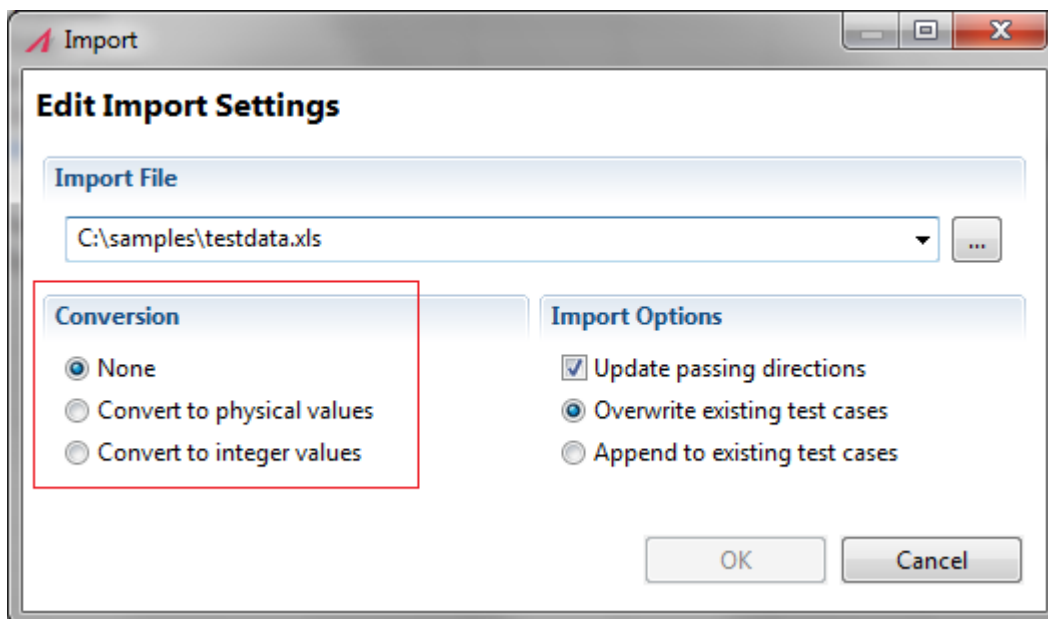
```
cvtasap.dll: convert physical (-40.000000) to integer (0) -- RAT_FUNC
cvtasap.dll: convert integer (5) to physical ( 20.000) -- RAT_FUNC
```

for each input and output variable. At the end of the line, you will find the conversion method used (e.g. RAT_FUNC for the polynomial function within the ASAP standard).

The output values will be printed according to the format string provided within the ASAP file for each individual variable.

6.2 Import/Export

Test data may be converted from integer to physical during the import. Within the import/export dialog you may select to convert the imported values by selecting the appropriate toggle button as shown below:



The above selection will cause no conversion but the imported values will be snapped-in such that they are valid physical values according to the conversion rules: Each value will be converted into integer and back into physical value.

You may use the conversion feature of this dialog to import integer test data from other tools.