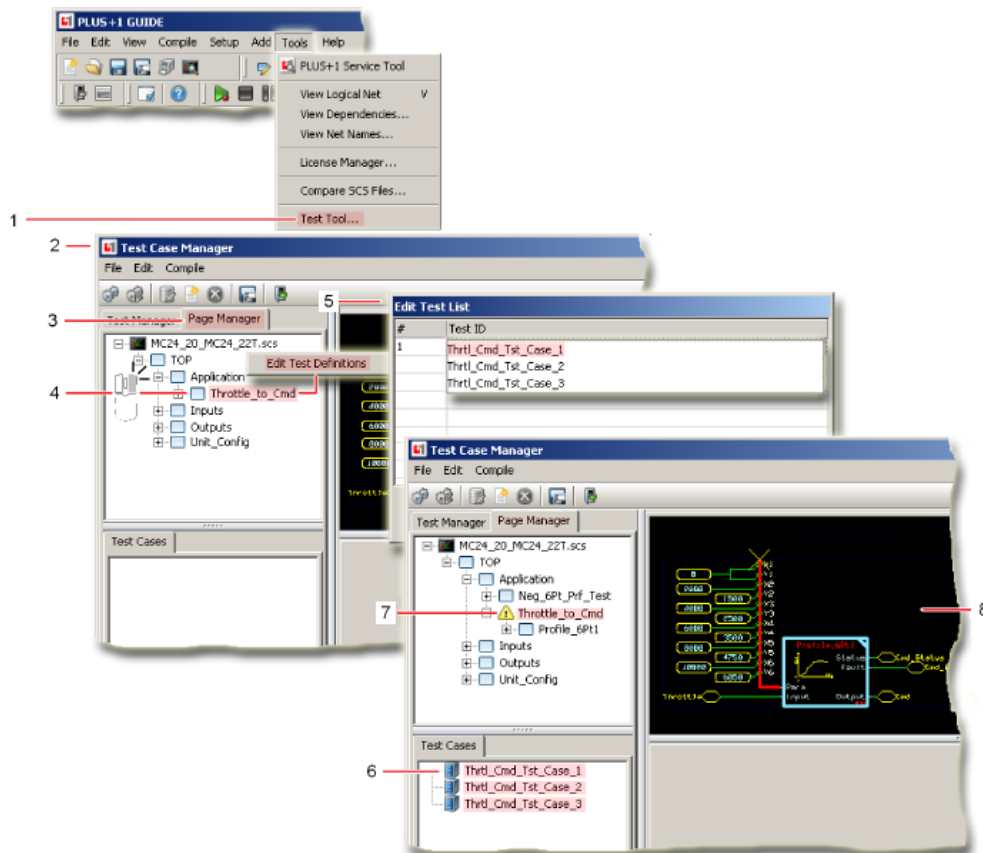


PLUS+1[®] GUIDE Software Test Tool Excel XLSX/XLSM Import



Revisions

Revision History

Table of Revisions

Date	Page	Changed	Rev.
4 February 2019	All	Initial Version	

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Getting Started

General Notes

- Components that are bi-directional, such as NV Memory, will need to have a #IN or #OUT appended to the end of the signals name.
 - Given the example of a NV component with the name "NV_Speed_Setpoint."
 - If one desires to read the current value on the NV, a #IN would be used in the signal name. "NV_Speed_Setpoint#IN"
 - If one desires to write to the current value on the NV, a #OUT would be used in the signal name. "NV_Speed_Setpoint#OUT"
- About CAN injection(SendCAN) into the test application.
 - A CAN message will be injected for every iteration in a test line.
 - Example:

T0003: Outer page: CAN Transmiss		This test shows howCAN	
	Verdict	SendCAN	Exp
Iterations	Failed		
1	4 Failed		1
2	1 Failed		1
 - The first line in this test sequence would inject 4 CAN messages. One on each loop as it executes.
 - If only a single CAN message is desired to be injected, then use an iteration of 1.
- About CAN reception(ExpCAN) from the test application.
 - The CAN message(s) transmitted by the application are only seen at the last iteration in a test line.
 - 1st Iteration: Application transmitted CAN msg
 - 2nd Iteration: No transmission
 - 3rd Iteration: No transmission
 - 4th Iteration: No transmission
 - Reported by test: No message received
 - To properly receive a message, using a single iteration can help.
 - For example, pulse a send command into the application. The application is setup to transmit a message 20 ms after the pulse.
 - The format of the test could then be.:
 - 1 iteration: pulse send
 - 19 iterations: wait
 - 1 iteration: Receive CAN message.
- In a test list, if a test name exists that is not in the file, then the test results file will be empty. Something as simple as a misspelling could cause this.
- All test names must be unique for an application.
 - Recommendation is to apply a unique identifier to the beginning of a test name to help avoid this issue. i.e. T0001:
 - Additionally a T[] can be added to the name of a test and the "Generate IDs" button will then generate the unique ID.
- Differences between old xls test format and new format
 - The Received CAN messages now appear inline under the RecCAN heading, instead of in a separate sheet.
 - All test "sequences" now have an overall verdict that appears directly below verdict.
- Both Hex and Decimal number formats are supported, Hex values simply need a 0x prepended.

Getting Started (continued)

Formatting

CAN Definitions:

12	DefCAN														
13		idx	CanID	Ext	Rtr	Length	data0	data1	data2	data3	data4	data5	data6	data7	
14	LevelMin	1	0x18FE5600		1	0	8	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00
15	EndDef														

Left most column, starts with "DefCAN."

The next row contains the headings for the message.

These headings must follow one after another in the order shown to reduce errors.

The first column is only for reference and gives a meaningful name to a CAN message.

Idx, unique ID for the test file, is used by ExpCAN and SendCAN as a link to the message.

If length is less than 8 then the corresponding data cell(s) can be left blank.

The definitions then end with "EndDef" Note: leaving a blank row between a definition and EndDef will likely create problems.

Test List:

StartList	Run All Outer Page Tests	This will run all outer page tests in the file.
TestName	List_Verdict	
T0002: Outer page: Set Value signals		
T0003: Outer page: CAN Transmission Reception		
EndList		

The StartList and EndList tags define a test list section.

To the right one cell, the mandatory Test List name is defined, right one more cell is the optional description.


In this section the column heading TestName is used to indicate the column where the data is located.

List_Verdict is an optional custom column tag that the macro in the excel sheet can use to place the test's verdict and also a link to the test inside the document.

Getting Started (continued)

Formatting (continued)

Test Sequence:

29	StartSeq	T0001: Inner page: Bus signals	This test demonstrates how Bus signals can be used to inject signals								
30		Verdict	In	Out	Meas	RecCAN					
31	Iterations	Passed	Input_B	Output_A	Output_A						
32		1 Passed		16 0x10		16 ID: 53 Ext: 1 DLC: 1 b0: 255 b1: b2: b3: b4: b5: b6: b7: ID: 54 Ext: 1 DL					
33		1 Passed		16 0x20		32 ID: 53 Ext: 1 DLC: 1 b0: 255 b1: b2: b3: b4: b5: b6: b7: ID: 54 Ext: 1 DL					
34		1 Passed		0 0x00		0 ID: 53 Ext: 1 DLC: 1 b0: 255 b1: b2: b3: b4: b5: b6: b7: ID: 54 Ext: 1 DL					
35		1 Passed		8 0x18		24 ID: 53 Ext: 1 DLC: 1 b0: 255 b1: b2: b3: b4: b5: b6: b7: ID: 54 Ext: 1 DL					
36	EndSeq	plus+1://C:/svn/VectorTesting/GuideTestTool/Guide_Test_Tool_Example/Guide_Test_Tool_Example?page=MC050_128_nLTTTOP/Basic_Page1/Test_Page									

Begins with StartSeq, ends with EndSeq.

One cell to the right of StartSeq defines the name of the test.

Two cells to the right of StartSeq defines the test description.

Verdict is always over one and down one from StartSeq.

The column headings are always one row after StartSeq. The following heading tags are defined.

In, Out, Lo, Low, Hi, High, Meas, SendCAN, ExpCAN, RecCAN

Using Low/High takes priority over an Out if they're defined.

One cell below StartSeq, the “Reset” tag can be placed. If this tag exists, the test application will act as though a software reset occurred, i.e. a power cycle.

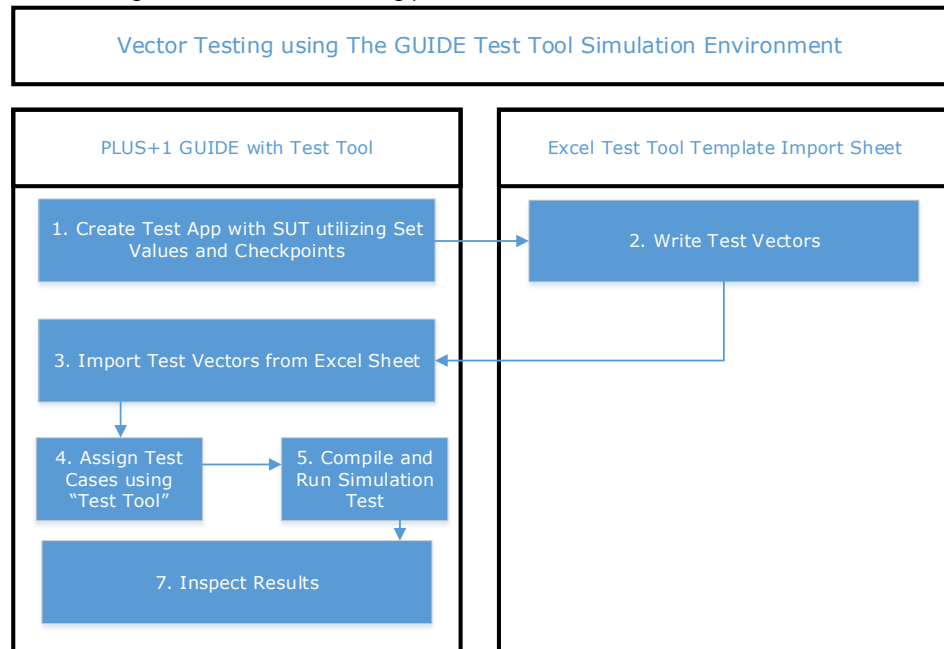
The iterations tag is two cells down from StartSeq.

To set the execution time of a controller the In signal, "OS.ExecTime" is set.

To signal a "Don't Care" for an input or Output the minus sign "-" can be used. If used on an input it just tells it not to change.

Testing a Function

The following section details the testing procedure from start to finish.



Setting up the GUIDE App

When testing a function, the inputs of a block will need to be connected. These can be constants if testing lower levels of a block or they can be Set Values if the tests are performed at the top level. The following naming conventions are recommended for connection names.

Checkpoints: CP_
Set Values: SV_
Set Pulse: SP_

Setting up the Test File

Next is the test file. The first step is to assign the macros to Personal.xlsb, this is detailed in the Quick Start document. Using the interface defined in the application you can then write vector tests in the sheet.

The Iteration column is how many loops to run the test line.

The In column is used to "Set" values for a sequence.

The Out column is the expected result is.

Low and High are used to create an expected output range.

The Meas column is where results are filled in after the tests have run.

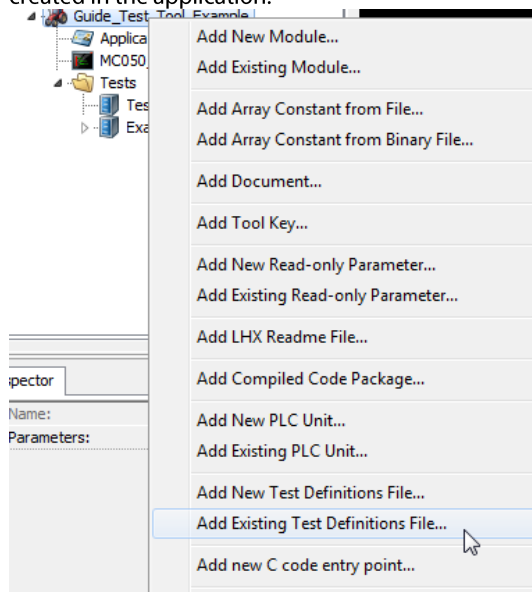
The SendCAN column is used to send a CAN message, the number listed is defined in the DefCAN section. If multiple iterations are used during a CAN send then the CAN message will send every loop for the iterations.

The ExpCAN column is used to define what CAN message is expected to be received, the number listed is defined in the DefCAN section. If multiple iterations are used during a CAN receive then only the final iteration will be compared against and shown in RecCAN.

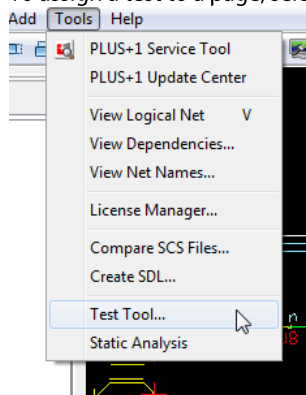
The RecCAN column is where CAN messages sent in the applications are filled in after tests have been ran.

Importing the Test into GUIDE

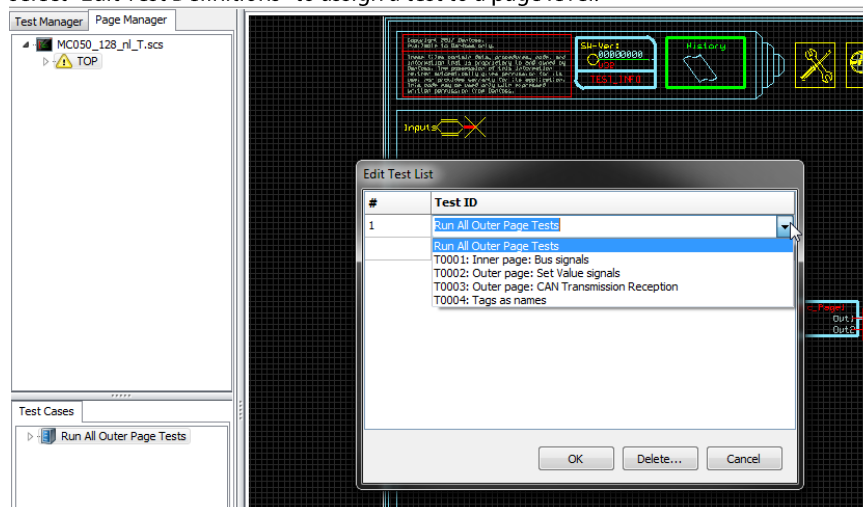
For the initial import, right click on the application in the Project Manager tab and select "Add Existing Test Definitions File..." Then select the excel file that was created. Once imported a Tests folder is created in the application.



To assign a test to a page, select the "Test Tool..." option in the Tools menu.

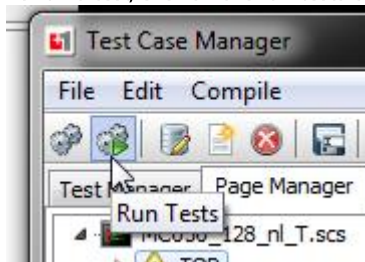


This will launch the test case manager. In the Page Manager tab you can right click in the tree and select "Edit Test Definitions" to assign a test to a page level.

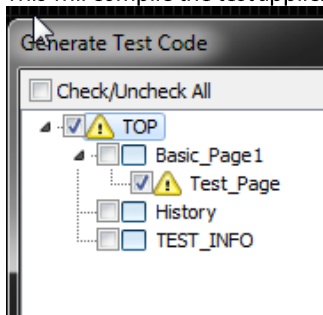


Running Tests

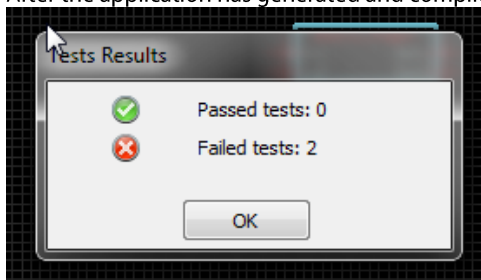
To run a test, click on the run tests button.



This will compile the test application and run the tests.



First the entire application is compiled, then the test code page(s) are compiled. After the application has generated and compiled the test code the results are shown.



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