

Using a Dummy Function for Verification

CoverageMaster winAMS V3.3 or later

1. The Dummy Function

Normally when using CoverageMaster winAMS it is unnecessary to make changes to the application (C program) to be unit tested. However, in some cases the debug information that the cross compiler creates does not include the function's argument (parameter) information (e.g. argument order, argument bit width) required by CoverageMaster. When this occurs, the input values set in the test CSV file cannot be applied to the function's argument through the winAMS process.

As a workaround, a dummy function can be created for use as a "test driver" that calls the function to be tested. Through the dummy function, the desired input values can be set to the function's arguments.

Creating the Dummy Function

The dummy function can be created directly within the program source files. However, in order to avoid modifications to the program source code, we recommend creating the dummy function in a separate source file.

In the following example, the function `func1()` within the program source file will be tested using a dummy function created in a separate source file, `dummy.c`.

Program source file of function to be tested

```
struct ST_PARAM
{
    int data;
    int ret_code;
} gb_result;

void func1( int enable, int mode, int input ) /* target function to test */
{
    if( enable )
    {
        /* code for enable true */
    }
    else
    {
        gb_result.data = 0;
        gb_result.ret_code = FALSE;
    }
}
```

Dummy function source code (dummy.c)

```
struct DUMMY_ST_PARAM /* dummy function output variables */
{
    int data;
    int ret_code;
} DUMMY_gb_result;

int DUMMY_enable; /* dummy function input variables */
int DUMMY_mode; /* dummy function input variables */
int DUMMY_input; /* dummy function input variables */

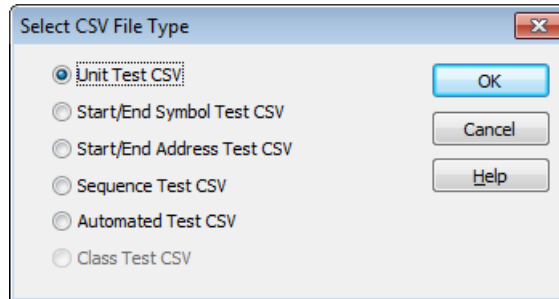
/* prototype declaration of target function to test */
extern void func1(int, int, int);

void DUMMY_func1_New(void) /* dummy function */
{
    func1(DUMMY_enable, DUMMY_mode, DUMMY_input);

    DUMMY_gb_result.data = gb_result.data;
    DUMMY_gb_result.ret_code = gb_result.ret_code;
}
```

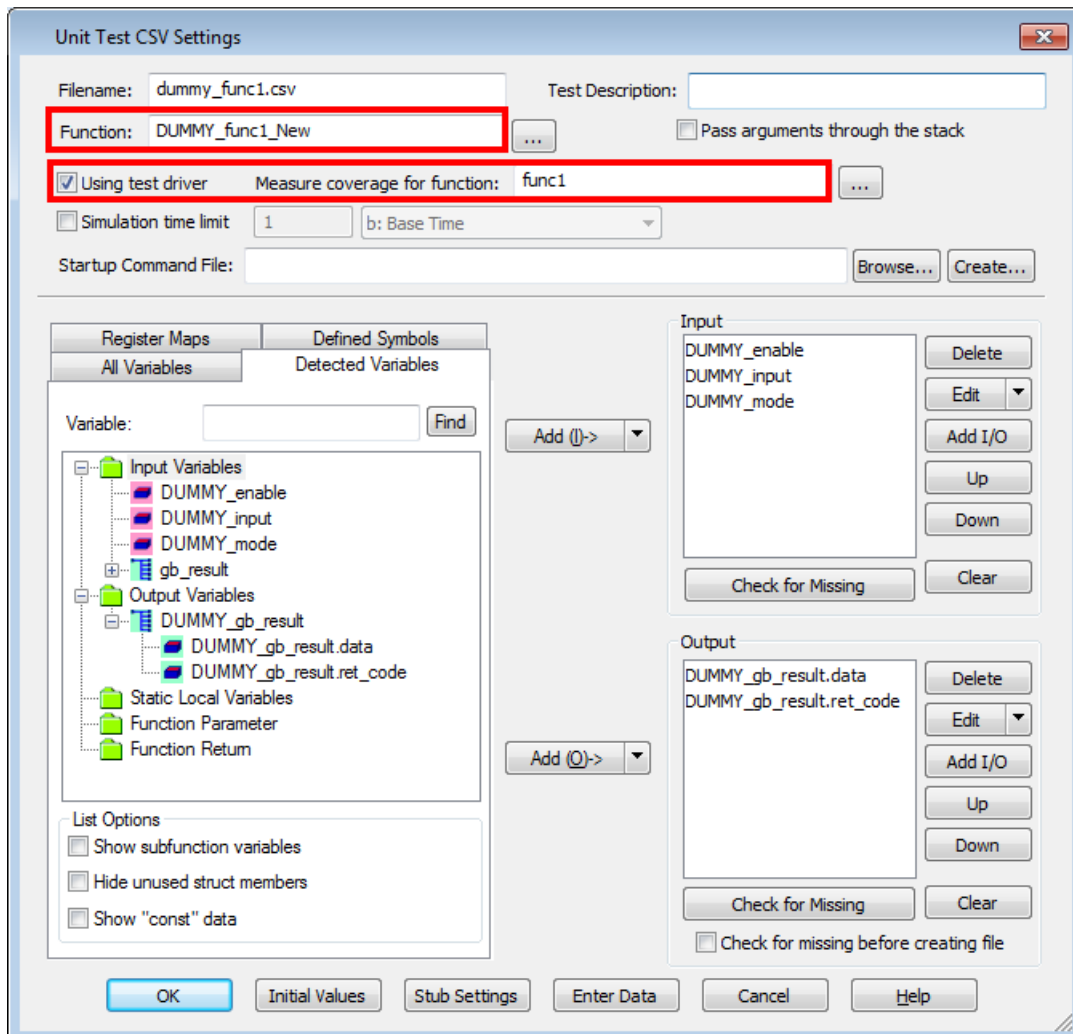
2. Create the Test CSV File and Test Data

Create a Unit Test CSV.

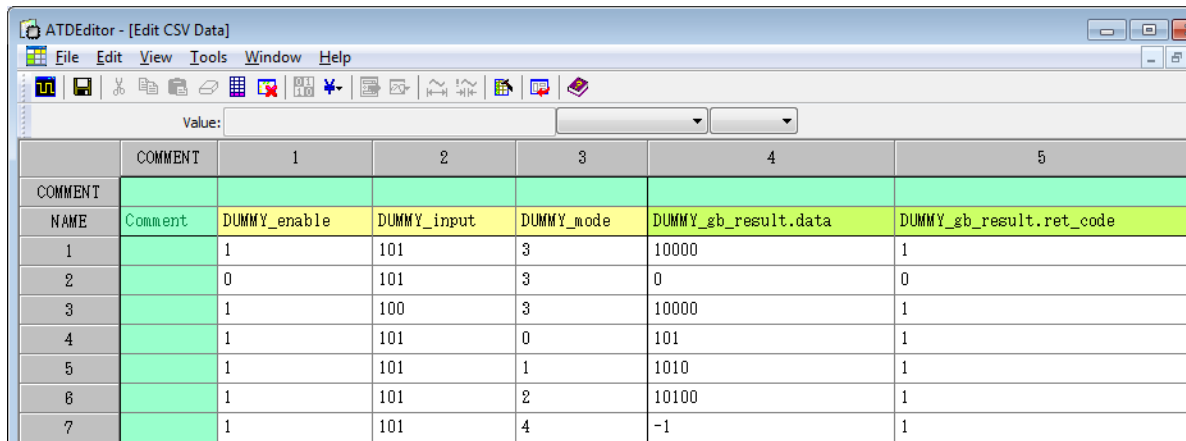


Unit Test CSV Settings

- Set the dummy function “DUMMY_func1_New” as the “Function”
- Enable the “Using test driver” setting
- Set the function to be tested, “func1”, as the “Measure coverage for function”
- Set the Input variables as the dummy function’s input variables
- Set the output variables as the dummy function’s output variables



Test Data



	COMMENT	1	2	3	4	5
COMMENT						
NAME	Comment	DUMMY_enable	DUMMY_input	DUMMY_mode	DUMMY_gb_result.data	DUMMY_gb_result.ret_code
1		1	101	3	10000	1
2		0	101	3	0	0
3		1	100	3	10000	1
4		1	101	0	101	1
5		1	101	1	1010	1
6		1	101	2	10100	1
7		1	101	4	-1	1

The input variables: "DUMMY_enable", "DUMMY_input", "DUMMY_mode" are the dummy variables used to assign test data values to the test function's (func1) arguments. Enter input data values into these dummy input variables.

The output variables: "DUMMY_gb_result.data" and "DUMMY_gb_result.ret_code" are the dummy variables to capture the test function's (func1) output. Enter the expected output values into these dummy output variables.

Note: the example image above uses the built-in ATDEditor. MS Excel can also be used to set the test data values.

3. Coverage Results and the Test Report

Even though the dummy function is executed, coverage will be measured for the function set in the “Measure coverage for function” setting as shown below.

Date Tested: 2015/07/23 14:07:52			
Total Coverage			
C0:	100%	C1:	100%
Function	C0	C1	
func1	100%	100%	
Other Functions	C0	C1	
DUMMY_func1_New	100%	100%	

Test Report

CSV File name	Type	Test Title	Function	Tested Function	Used Stub Function/Original Function	Test Vector	Tested Date	Exec. on Simulator	Exec. on Board	Check
func1_dummy.csv	mod		func1	DUMMY_func1_New		7	2015/07/23 14:07:53	2003 ms	0.00539 ms	No Check

Coverage Report

Function	C0 Coverage	C1 Coverage	Coverage Log
func1	100%	100%	TestCoverLog#main.c#func1&0001.txt
DUMMY_func1_New	100%	100%	TestCoverLog#dummy.c#DUMMY_func1_New&0006.txt



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