

DCMTK - Bug #839

CMake function "CHECK_FUNCTION_EXISTS" does not work on 32-bit Windows platforms

2018-07-02 13:42 - Marco Eichelberg

Status:	Closed	Start date:	2018-07-02
Priority:	High	Due date:	
Assignee:	Jan Schlamelcher	% Done:	100%
Category:	Library and Apps	Estimated time:	0:00 hour
Target version:	3.6.4	Compiler:	
Module:	CMake		
Operating System:			
Description			
<p>Our CMake script "GenerateDCMTKConfigure.cmake" contains several calls to the CMake function "CHECK_FUNCTION_EXISTS". This function apparently does not work reliably on Windows in 32 bit mode, because of name mangling in the ABI calling conventions.</p> <p>For example, on library level, the function gethostname() has the symbol __imp__gethostname@8, and the test</p> <pre>CHECK_FUNCTION_EXISTS (gethostname HAVE_GETHOSTNAME)</pre> <p>returns "not found" on 32-bit Windows despite the function being present.</p> <p>This is even documented in the CMake manual: [[https://cmake.org/cmake/help/v3.8/module/CheckFunctionExists.html]]</p> <p>Prefer using CheckSymbolExists instead of this module, for the following reasons:</p> <ul style="list-style-type: none">• check_function_exists() can't detect functions that are inlined in headers or specified as a macro.• check_function_exists() can't detect anything in the 32-bit versions of the Win32 API, because of a mismatch in calling conventions.• check_function_exists() only verifies linking, it does not verify that the function is declared in system headers. <p>Using "CHECK_SYMBOL_EXISTS" is not a solution because it checks the declaration of a function in a header file, and not the presence of a symbol in a library. On some platforms, like Solaris, there are some functions present in a system library but the declaration in the header files is missing, and some tests explicitly look for that situation. This would break if we just moved all tests to "CHECK_SYMBOL_EXISTS".</p> <p>I would propose to define a new test function that calls CHECK_SYMBOL_EXISTS when running on (32 bit?) Windows and CHECK_FUNCTION_EXISTS in all other cases. This new function should then replace all calls to "CHECK_FUNCTION_EXISTS" in "GenerateDCMTKConfigure.cmake". This will make sure that the tests for missing function declarations continue to work, while making sure that system functions are found correctly on Windows. The case where a system function exists but is not declared in any header file has not occurred yet on Windows, so the inability of the new function to detect this situation is acceptable.</p>			

History

#1 - 2018-11-22 14:20 - Jan Schlamelcher

- Assignee set to Jan Schlamelcher

Close by [commit #a3102b2b7576dcf2](#).

#2 - 2018-11-22 14:20 - Jan Schlamelcher

- Status changed from New to Closed

- % Done changed from 0 to 100