第四章 cmake 生成器表达式

1. 301cmake_exp

2. 什么是表达式

2.1. 替代复杂的if

2.2. 在构建系统生成期间评估生成器表达式以生成特定于每个构建配置的信息

2.3. 大多数 CMake 命令在配置的时候执行

2.4. 如果你想要他们在构建或者安装的时候运行呢

3. 使用场景

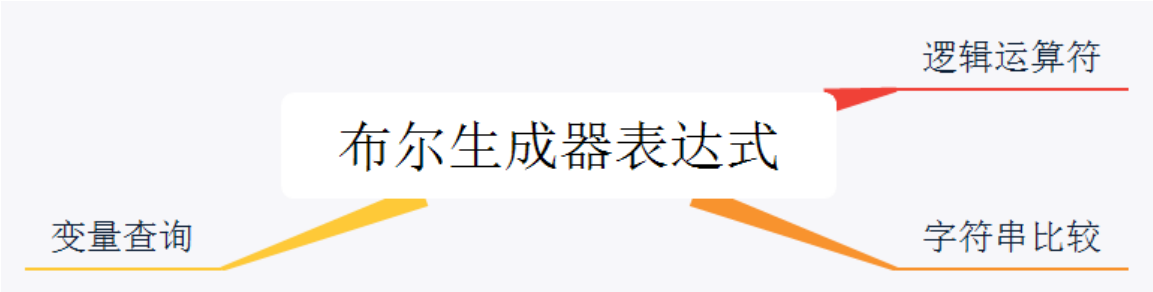
3.1. 修改目标配置

3.1.1. target_link_libraries

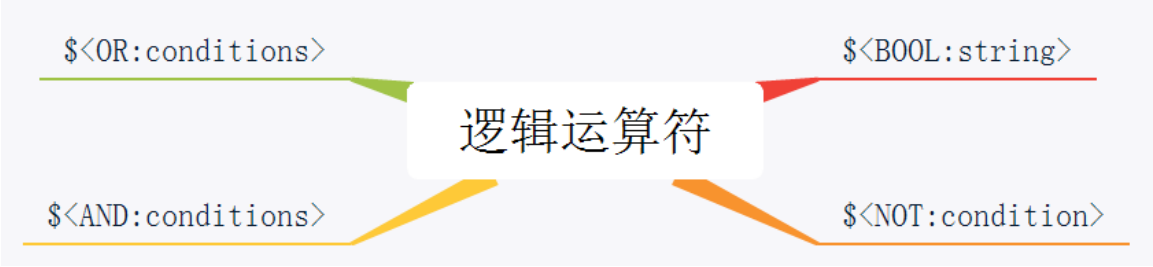
3.1.2. 例如LINK_LIBRARIES,INCLUDE_DIRECTORIES, COMPILE_DEFINITIONS

3.1.3. 例如target_link_libraries(), target_include_directories(),target_compile_definitions()

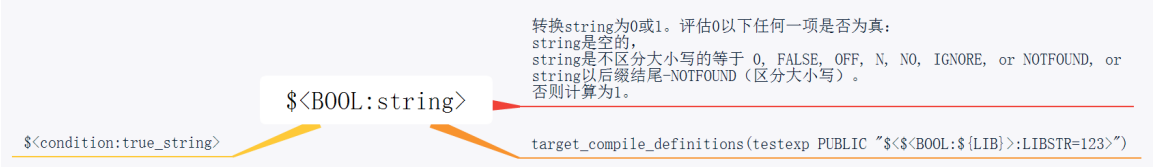
4. 布尔生成器表达式



4.1. 逻辑运算符



4.1.1. $<BOOL:string>



转换string为0或1。评估0以下任何一项是否为真：

string是空的，

string是不区分大小写的等于 0, FALSE, OFF, N, NO, IGNORE, or NOTFOUND, or

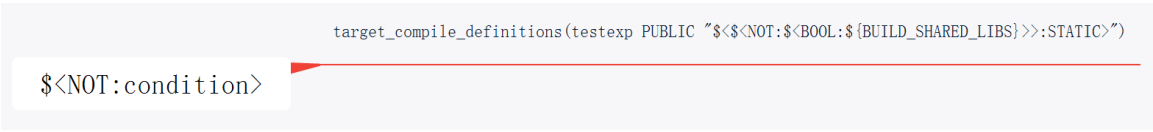
string以后缀结尾-NOTFOUND（区分大小写）。

否则计算为1。

target_compile_definitions(testexp PUBLIC "$<$<BOOL:${LIB}>:LIBSTR=123>")

$<condition:true_string>

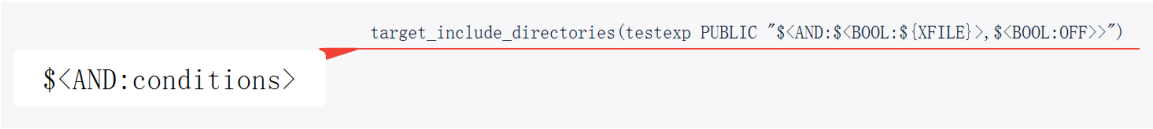
4.1.2. $<NOT:condition>



target_compile_definitions(testexp PUBLIC

"$<$<NOT:$<BOOL:${BUILD_SHARED_LIBS}>>:STATIC>")

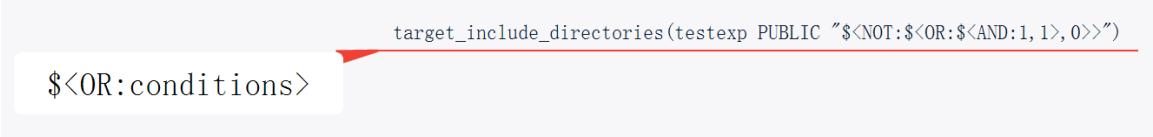
4.1.3. $<AND:conditions>



target_include_directories(testexp PUBLIC

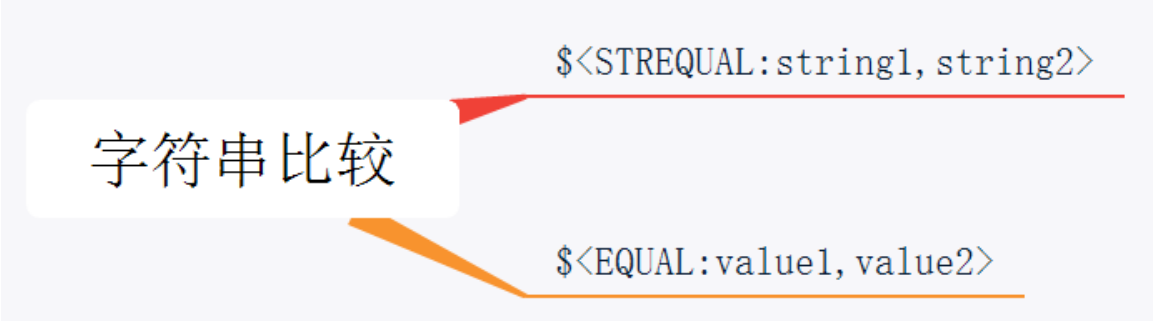
"$<AND:$<BOOL:${XFILE}>,$<BOOL:OFF>>")

4.1.4. $<OR:conditions>

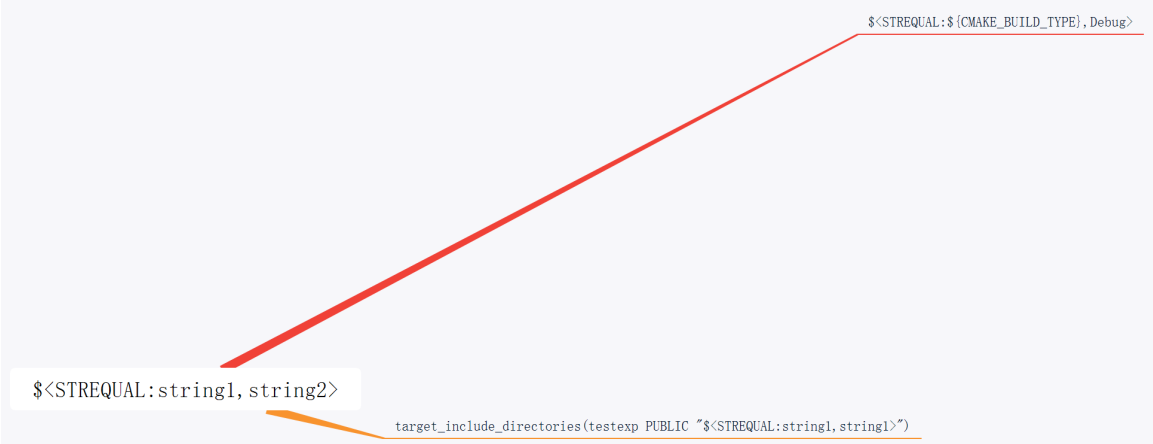


target_include_directories(testexp PUBLIC "$<NOT:$<OR:$<AND:1,1>,0>>")

4.2. 字符串比较



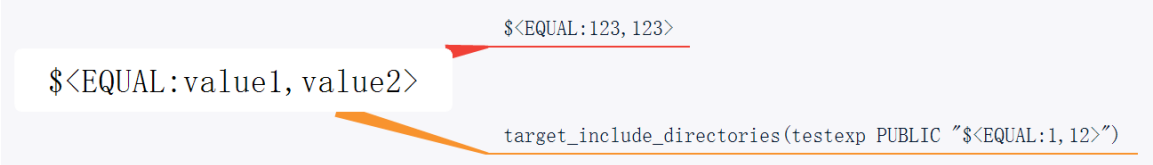
4.2.1. $<STREQUAL:string1,string2>



$<STREQUAL:${CMAKE_BUILD_TYPE},Debug>

target_include_directories(testexp PUBLIC "$<STREQUAL:string1,string1>")

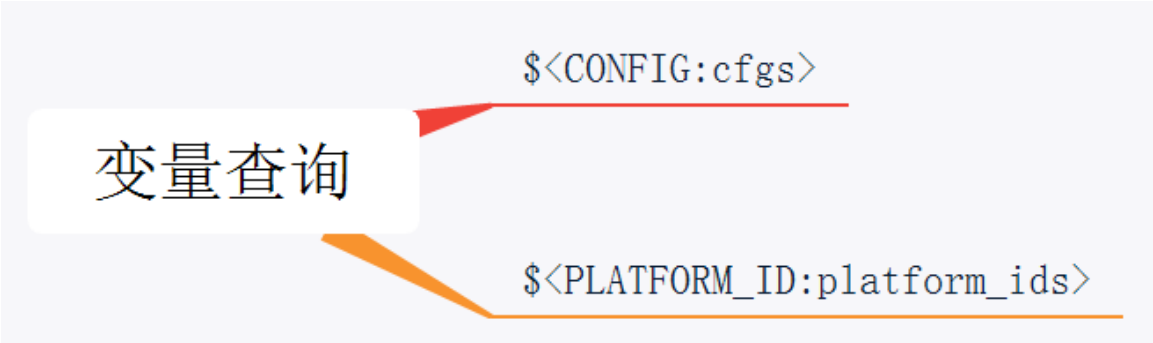
4.2.2. $<EQUAL:value1,value2>



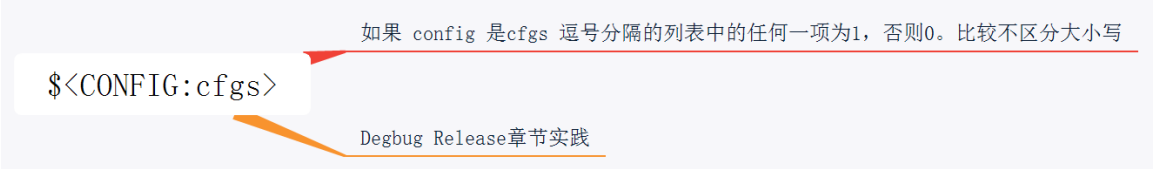
$<EQUAL:123,123>

target_include_directories(testexp PUBLIC "$<EQUAL:1,12>")

4.3. 变量查询



4.3.1. $<CONFIG:cfgs>

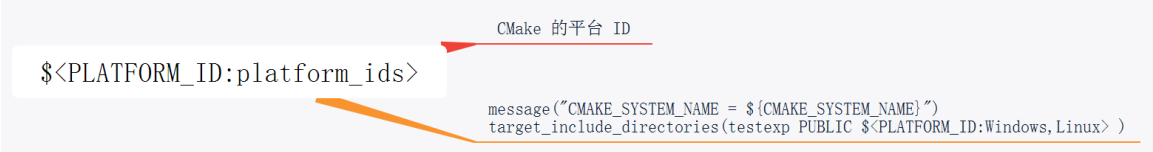


如果 config 是cfgs

逗号分隔的列表中的任何一项为1，否则0。比较不区分大小写

Degbug Release章节实践

4.3.2. $<PLATFORM_ID:platform_ids>

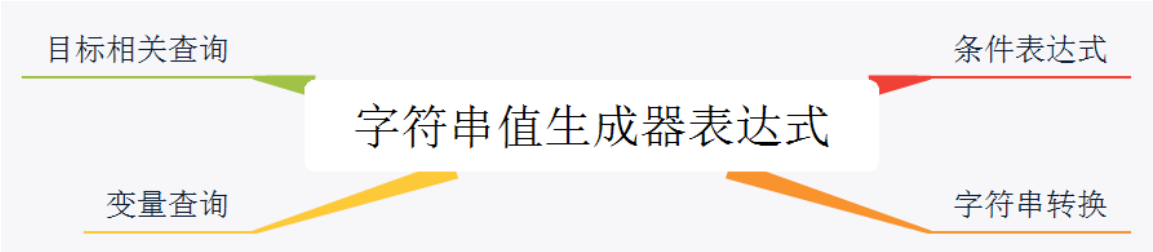


CMake 的平台 ID

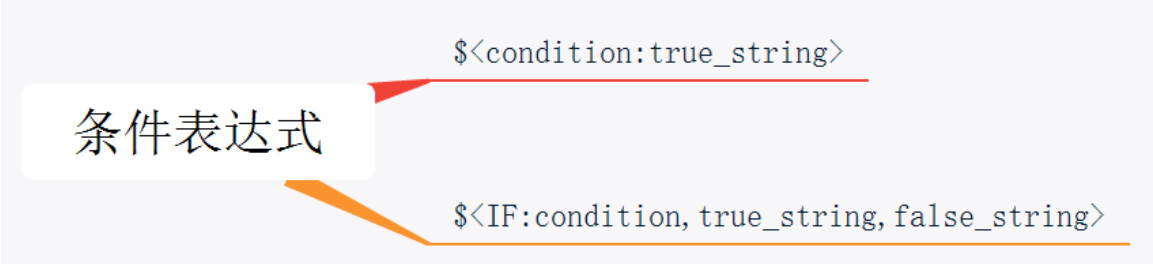
CMAKE_SYSTEM_NAME

```
message("CMAKE_SYSTEM_NAME = ${CMAKE_SYSTEM_NAME}")
target_include_directories(testexp PUBLIC $<PLATFORM_ID:Windows,Linux> )
```

5. 字符串值生成器表达式



5.1. 条件表达式



5.1.1. $<condition:true_string>

5.1.2. $<IF:condition,true_string,false_string>

5.2. 字符串转换

5.2.1. $<LOWER_CASE:string>

5.2.2. $<UPPER_CASE:string>

5.3. 变量查询

5.3.1. $<CONFIG>

5.3.2. $<PLATFORM_ID>

5.4. 目标相关查询

5.4.1. 查询引用一个目标tgt。可以是任何运行时目标，如：

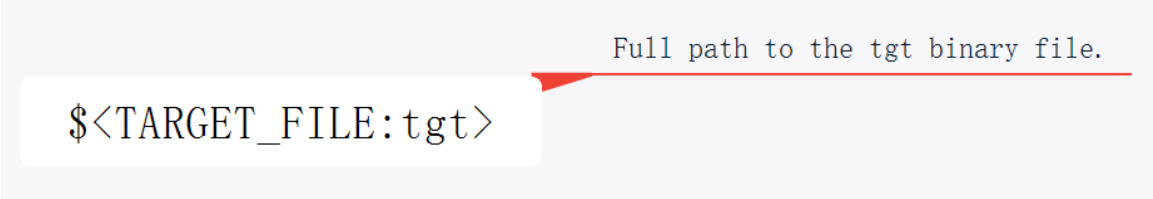
由add_executable()创建的可执行目标

由add_library()创建的共享库目标（.so，.dll但不是它们的.lib导入库）

由add_library()创建的静态库目标

5.4.2. $<TARGET_NAME_IF_EXISTS:tgt>

5.4.3. $<TARGET_FILE:tgt>

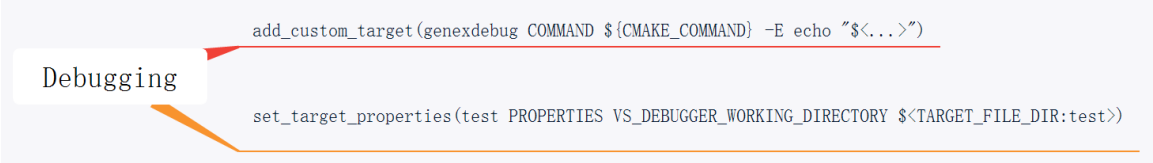


Full path to the tgt binary file.

5.4.4. $<TARGET_PROPERTY:tgt,prop>

Value of the property prop on the target tgt.

6. Debugging



6.1. add_custom_target(genexdebug COMMAND ${CMAKE_COMMAND} -E echo "$<...>")

6.2. set_target_properties(test PROPERTIES VS_DEBUGGER_WORKING_DIRECTORY $<TARGET_FILE_DIR:test>)