

CMake

讓make變得更簡單

Make

- 讀取叫做「makefile」的檔案，來自動建構你的軟體
- GNU Make, BSD make
- namke(windows), qmake(Qt), Rake(Ruby), ...

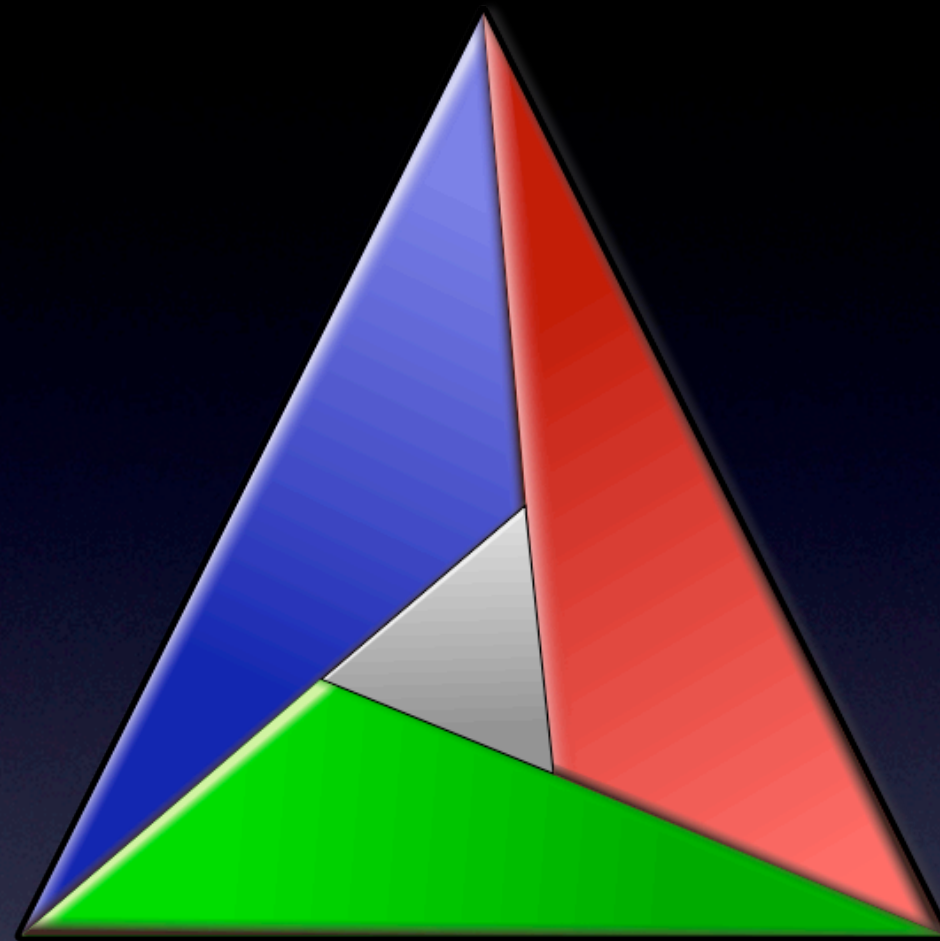
Make help

- 三不一沒有
 - 看不懂、不會寫、編不對
 - 沒有時間寫 code
 - 花在makefile的時間上比code還多
- Make helps you?
or Make you call for help?

Makefile Sucks

% make love

make: *** No rule to make target 'love'. Stop.



CMake
make love again

What is CMake?

- Cross platform Make
- 跨(軟體)平台的工具
- Unix : Makefile / Windows : Projects /
MacOS : XCode
- 有名的使用專案: KDE4

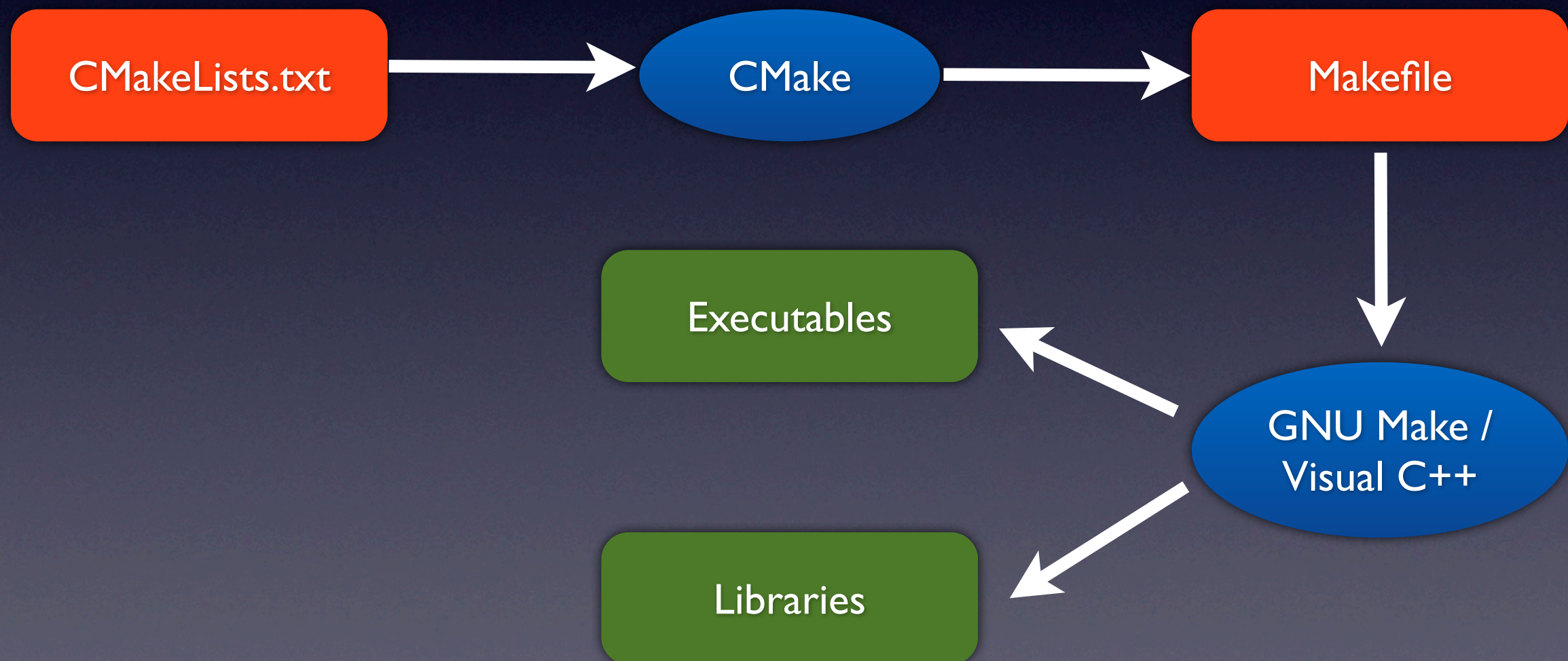
但我們只需要Linux

跨平台...殺雞焉用牛刀？



管他什麼刀，順手就行

How CMake Works?



We, CMake, and Make

- 簡單的CMakeLists.txt：我們寫
- 複雜的Makefile：讓CMake產生
- 因為CMakeLists.txt簡單
 - 容易debug、有可讀性
- 因為Makefile複雜
 - 能夠充分利用GNU Make

CMakeLists.txt

```
project(taco)
```

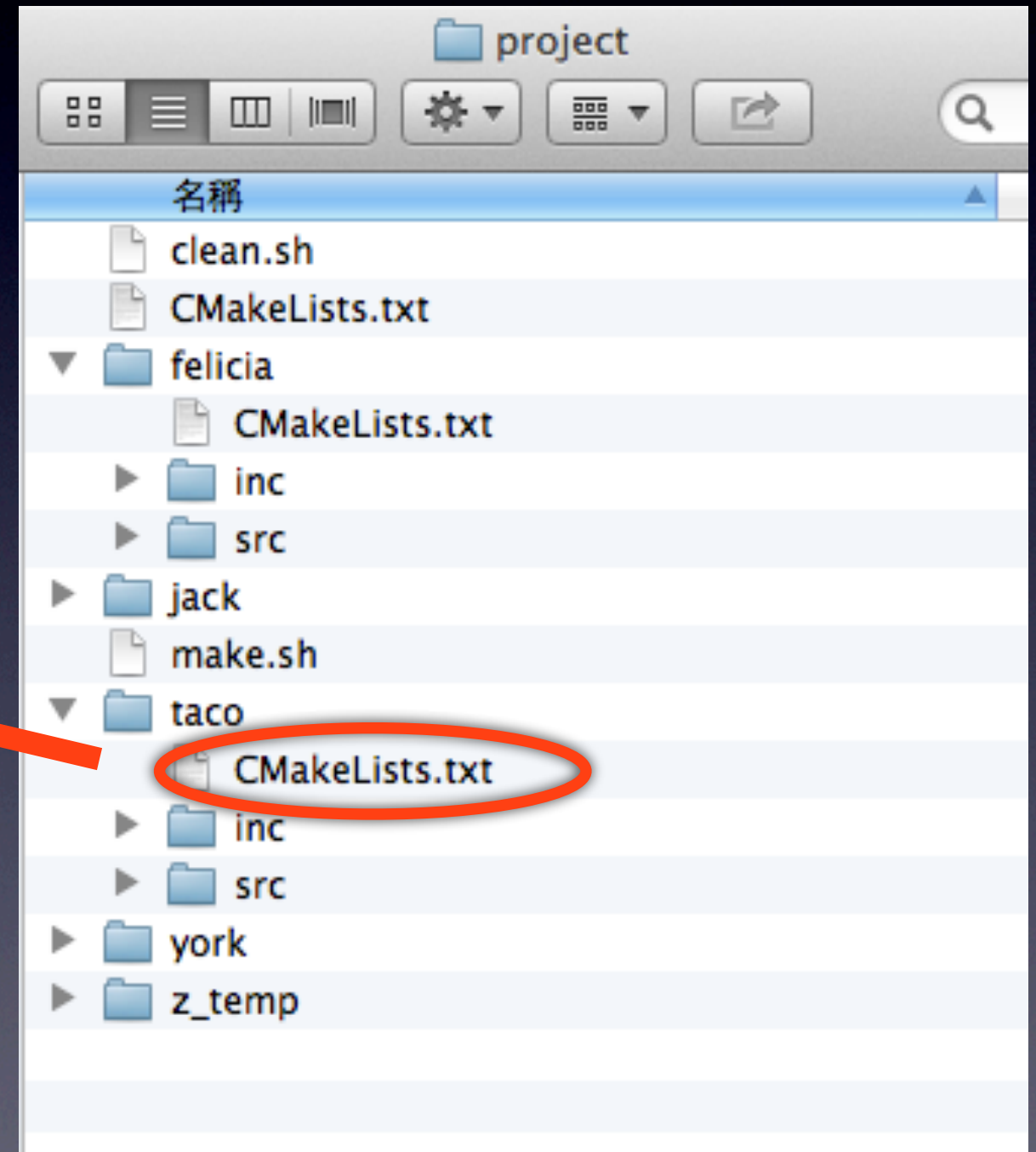
```
aux_source_directory( src  
source_files_list )
```

```
include_directories(inc)
```

```
add_executable( tacoExe  
${source_files_list} )
```

```
target_link_libraries( tacoExe felicia )
```

```
include_directories( ../felicia/inc )
```



How to write it?

- CMake的scripting language

- Comments

this is a comment

- Lists

A; B; C / A B C # 以分號或是空格區隔

- Commands

COMMAND(參數1 參數2 ...)

- Variables

\${變數名稱}

- Flow Control

IF(條件)

Command

- COMMAND(參數1 “參數2 包含空白 ABC” \${A_LIST} “\${A_STRING}”)
- 範例
 - target_link_libraries(tacoExe felicia)
 - TargEt_liNk_liBrarles(tacoExe felicia)

Command 本身不分大小寫 但是參數要

Variables

- 字串
- 利用 `set` 這個 Command 來設定值
- 範例
 - `SET(NAME “taco”)`
 - `set(A_LIST ${A_LIST} “newMem”)`
 - 類似 `A_LIST=${A_LIST:}newMem`

Flow Control

```
if ( condition )  
    message("Yes")  
else ( condition )  
    message("No")  
endif( )
```

```
foreach( k ${list} )  
    message( " k is ${k}" )  
endforeach()
```

```
macro( taco_macro arg1 arg2)  
    message( "arg1 is ${arg1}")  
    set( ${arg2} "world" )  
endmacro()
```

==

```
taco_macro( "Hello" output)  
message("Hello ${output}")
```


Example : Hello

Hello

- hello : 單純的 hello world
- hello+ : out-of-source build
- hello+2 : make install
- hello+3 : include header file
- hello+4 : 多目錄
- hello-win32 : 跨平台至visual studio

Example : Project

Project

- project : 同時使用 daemon + static library + shared library
- project+ : 改成類似目前使用的 trunk 架構
- project+2 : 使用 include *.cmake / rules 用法

% make love

love make

參考資料

- 把玩CMake的第一步
 - <http://tinyurl.com/cqem2m5>
- CMake手冊詳解
 - <http://tinyurl.com/bqt5a3j>
- CMake維基教科書
 - <http://tinyurl.com/alljha5>