

Introduction to Modern CMake

C++ dependency tutorial

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Available at

[https://homepages.laas.fr/gsaurel/talks/
modern-cmake.pdf](https://homepages.laas.fr/gsaurel/talks/modern-cmake.pdf)

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Source

`https://gitlab.laas.fr/gsaurel/talks :
modern-cmake.md`

Discussions

`https://im.laas.fr/#/room/#modern-cmake:laas.fr`

Configure

- Find the dependencies you need
- Declare the options you want

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Run

- Start your executable with its associated *.so

Example

- You develop a library called “my-lib”
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```
└─ $A_DEP_INSTALL_PREFIX
    └─ include
        └─ a-dep
            └─ fwd.hpp
    └─ lib
        └─ liba-dep.so
```


FindA-dep.cmake

```
find_path(a_dep_INCLUDE_DIRS NAMES a-dep/fwd.hpp)  
find_library(a_dep_LIBRARIES NAMES liba-dep.so)
```

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find_path(a_dep_INCLUDE_DIRS NAMES a-dep/fwd.hpp)
```

```
find_library(a_dep_LIBRARIES NAMES liba-dep.so)
```

CMakeLists.txt

```
find_package(a-dep REQUIRED)
```

```
include_directories(${a_dep_INCLUDE_DIRS})
```

```
link_libraries(${a_dep_LIBRARIES})
```

```
add_library(my-prog main.cpp include/my-proj/fwd.hpp)
```

CMakeLists.txt

```
find_package(a-dep REQUIRED)
add_library(my-lib main.cpp include/my-prog/fwd.hpp)
target_link_libraries(my-prog PUBLIC a-dep::a-dep)
```

a-dep-config.cmake

```
add_library(a-dep::a-dep SHARED IMPORTED)
set_target_properties(a-dep::a-dep PROPERTIES
    LINK_LIBRARIES "liba-dep.so"
    INCLUDE_DIRECTORIES "${_IMPORTED_PREFIX}/include")
```

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```
set(A_DEP_INCLUDE_DIRS ${a_dep_INCLUDE_DIRS})  
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```
set(a_dep_INCLUDE_DIR ${a_dep_INCLUDE_DIRS})
```

3 Relocatable packages

my-lib-config.cmake from legacy a-dep

```
add_library(my-lib::my-lib SHARED IMPORTED)
set_target_properties(my-lib::my-lib PROPERTIES
  LINK_LIBRARIES "libmy-lib.so;/usr/lib/liba-dep.so"
  INCLUDE_DIRECTORIES
    "${_IMPORTED_PREFIX}/include;/usr/include")
```

my-lib-config.cmake from legacy a-dep

```
add_library(my-lib::my-lib SHARED IMPORTED)
set_target_properties(my-lib::my-lib PROPERTIES
    LINK_LIBRARIES "libmy-lib.so;/usr/lib/liba-dep.so"
    INCLUDE_DIRECTORIES
    "${_IMPORTED_PREFIX}/include;/usr/include")
```

my-lib-config.cmake from modern a-dep

```
find_dependency(a-dep REQUIRED)
add_library(my-lib::my-lib SHARED IMPORTED)
set_target_properties(my-lib::my-lib PROPERTIES
    LINK_DEPENDENT_LIBRARIES "a-dep::a-dep"
    LINK_LIBRARIES "libmy-lib.so"
    INCLUDE_DIRECTORIES "${_IMPORTED_PREFIX}/include")
```


That's all folks !

Thanks for your time :)