

CMake

Organization

- **Directories** that contain **CMakeLists.txt** are the entry point for the build system generator. Subdirectories can be added with the **add_subdirectory()** and must contain a **CMakeLists.txt** too.
- **Scripts** are **<script>.cmake** files that can be executed with the **cmake -P <script>.cmake**. Not all commands are supported.
- **Modules** are **<script>.cmake** files located in the **CMAKE_MODULE_PATH**. Modules can be loaded with the **include()** command.

Commands

command_name(space seperated list of strings)

- Scripting commands change the state of command processor
 - set variables
 - change behavior of other commands
- Project commands
 - create build targets
 - modify build targets
- Command invocations are not expressions.

Variables

set(myvar world)

message(STATUS "hello \${myvar}")

- Set with the **set()** command.
- Expand with **\${}**.
- Variables and values are strings.
- Lists are ; seperated strings.
- CMake variables are not environment variables (unlike **Makefile**).
- Unset variable expands to empty string.

Comments

Use # for single line comments.

Custom Functions/Macros

- Commands can be added with **function()** or **macro()**.
- When a new command replaces an existing command, the old one can be accessed with a **_** prefix.

```
function(my_command input output)
# some comment
set(${output} ... PARENT_SCOPE)
endfunction()

my_command(foo bar)
```

- Variables are scoped to the function unless set with the **PARENT_SCOPE**.

- Available variables: **input**, **output**, **ARGC**, **ARGN**, **ARG0**, **ARG1**, ...
- Example: **\${output}** expands to **bar**.

```
macro(my_command input output)
  # some comment
endmacro()
my_command(foo bar)
```

- No extra scope with macros.
- Text replacements: **\${input}**, **\${output}**, **\${ARGC}**, **\${ARGV}**, **\${ARGN}**, **\${ARG0}**, ...
- Example: **\${output}** is **replace** by **bar**.

CREATE macros to wrap commands that have output parameters. Otherwise, create functions.

References

<https://www.youtube.com/watch?v=bsXLMQ6WgIk>