

## Introduction

Compiling software is an important chore that is often overlooked. In this exercise we will become proficient using one particular build system - namely make.

## Content and reflection

### Themes

- From source to executable[2, sec 1-1.11][1][7, chap. 3-3.4]
- Makefiles[2, sec 1-1.11][1][3, chap. 5-5.4] ([4])  
*As an optional - see the makefile fundamentals video[4]*
- Quick reference for makefiles[5]  
*E.g. The quick reference material is mostly for getting an overview and in helping completing the assignment.*
- Shell scripting[6]

### Questions

- Which two processes are involved in generating an executable based on some sources. E.g. what do each of them do?
- What is the purpose of using makefiles
- Describe the 3 main terms
  - target (or goal)<sup>1</sup>
  - pre-requisites/dependencies
  - recipe
- Variables
  - What are used for in this context
  - How do you denote a variable
- Why do you need *.PHONY* on occasion?
- If I want to add the contents of one `makefile` into another, how is that accomplished?

## Material

### Slides

[1] S. Hansen, *C++ programming in linux*, Slides - see course repos.

<sup>1</sup>If in doubt - read the literature or take a look at the slides.

## Online

- [2] Maemo.org. (2014). “Gnu make and makefiles,” [Online]. Available: [http://wiki.maemo.org/Documentation/Maemo\\_5\\_Developer\\_Guide/GNU\\_Build\\_System](http://wiki.maemo.org/Documentation/Maemo_5_Developer_Guide/GNU_Build_System).
- [3] P. D. S. Richard M. Stallman Roland McGrath. (2014). “Gnu make,” [Online]. Available: <https://www.gnu.org/software/make/manual/make.pdf>.
- [4] P. Programming. (2015). “How to create a simple makefile - introduction to makefiles,” [Online]. Available: [https://www.youtube.com/watch?v=\\_r7i5X0rXJk](https://www.youtube.com/watch?v=_r7i5X0rXJk).
- [5] e. a. Richard M. Stallman. (). “Makefile - quick reference,” [Online]. Available: [https://www.gnu.org/software/make/manual/html\\_node/Quick-Reference.html](https://www.gnu.org/software/make/manual/html_node/Quick-Reference.html).
- [6] V. G. Gite. (). “Unix shell scripting tutorial,” [Online]. Available: [https://www.kau.edu.sa/files/830/files/60761\\_linux.pdf](https://www.kau.edu.sa/files/830/files/60761_linux.pdf).

## Hardback

- [7] M. Kerrisk, *The Linux Programming Interface*. No Starch Press, Inc, 2010, ISBN: 978-1-59327-220-3.