Linux - Compiling

# Overview

Package managers make install application much easier, by downloading pre-compiled programs, which are made for the local machine, and resolving and installing any dependencies that program may require.

Compiling is the process of translating a human readable program into another language, generally machine code for an executable program (binary). Sometime pre-compiled applications which are downloaded from linux packages do not contain all the modules required by the end user, and therefore the application may need to be compiled manually from the sourcecode.

# Building a Binary

## Tools

Source files are normally written in C, C++, or other low level langauges to allow for maximum performance. To compile these langauges specific tools are required, one package of these tools on ubuntu is 'build-essential'.

sudo apt install build-essential

## Download source code

Download the source code of the application, a common http downloader on linux is wget (web-get). For example, downloading the source code of nmap:

wget -v https://nmap.org/dist/nmap-7.70.tar.bz2

Extract using tar and check the files. They will need compiling the local machine OS, chip type, etc.

## Compile

The INSTALL file will generally have basic instructions for the compilation of the binaries. A typical install file would be:

./configure

make

sudo make install

* configure - checks server for configuration
* make - compiles the software, typically GNU compiler gcc
* make install - takes the compiled files and installs them along with documentation, sudo required to install for all users on the machine