

CS 445 Laboratory 4

We are moving on to BrickOS as the operating system that we want to use for the time being. Under Linux, there are some problems installing BrickOS, primarily due to incompatibilities with the newer gcc compilers. One of the handouts is an installation guide for brickos-0.2.6.10.6, which is a bit behind the latest version, but it works. If you want to use 0.9.0, you need to do some patching. The best source of fixes for problems I have found is at <http://www.lugnet.com/robotics/rcx/legos/>.

In order to use BrickOS, you need to add `/usr/local/bin` into your execute path (`$PATH`) as that is where the executables are located. In there you will find a number of things including the H8300 compilers, assemblers, loaders and utilities, and the BrickOS top-level utilities which include:

- `firmdl3` - the firmware downloader
- `dll` - the program downloader

There are also some utilities that are used by the Makefiles

- `makelx` - builds downloadable programs
- `fixdeps` - fixes dependencies in makefiles
- `merge-map` - handles the mapping of programs to the firmware

When you plug your Lego tower in, it should be recognized by Linux and the correct device created. For Fedora, this is `/dev/legoustower0`. Check to see if its there. Is so, you should be able to proceed. The first thing you need to do is download the BrickOS firmware. You can do that with:

```
firmdl3 --tty /dev/legoustower0 /usr/local/lib/brickos/brickOS.srec
```

If you get tired of typing the `-tty` option, you can set:

```
export RCXTTY=/dev/legoustower0
```

each time or in your `.bashrc` file.

To download a program, the easy way is to copy the `/usr/local/src/brickos-0.2.6.10.6` to your local directory and work with your programs in the demo directory. It is set up for all the appropriate make files and locations of the utilities. We will improve on this later.

For the lab first lab, you need to compile one of the demo programs and get it downloaded to your robot. Then modify the program in some way and repeat the process.

If you want to install BrickOS on Linux, these instructions seem to work:

[Install BrickOS on Linux](#)