

# Package Management

Making it (in theory) easy to install your software on other machines

# Background

- Develop Java machine learning applications
- Mostly deploy on Windows
- Moving into Docker, using Ubuntu as base
- .deb package instead of zip file would be nice
- Came across defunct project for Maven  
<https://sourceforge.net/projects/debian-maven/>
- Forked it and maintaining it now  
<https://github.com/fracpete/debian-maven-plugin>

# What about non-Maven?

- .deb packages are relatively simple
- But, still a number of steps/tools involved  
dpkg-deb, fakeroot, lintian
- Plenty of guides (with lots of steps)
  - [Ubuntu Packaging Guide](#)
  - [How to make a “Basic” .deb](#)

# Meta-tools

- Graphical tools
  - [Ubucompiler](#) - defunct
  - [Debreate](#) - maintained, but Python 2.7 only
  - [deb-creator](#) - defunct
  - [debianpackagemaker](#) - defunct
  - [Deb Cup](#)
- Others
  - [Giftwrap](#) - defunct
  - [deb-o-matic](#) - defunct
  - [fpm](#) (effing package management) – the one I'll be presenting

# fpm

- Project: <https://github.com/jordansissel/fpm>
- Documentation: <https://fpm.readthedocs.io/en/latest/>
- Multi-format package support
  - Sources
    - gem, python modules, pear, directories, tar(.gz), rpm, deb, npm, pacman
  - Targets
    - deb, rpm, solaris, freebsd, tar, directories, osxpkg, pacman
- Installation: <https://fpm.readthedocs.io/en/latest/installing.html>
- Wiki with command-line options: <https://github.com/jordansissel/fpm/wiki>

# .deb from directory

- Source “dir”: <https://fpm.readthedocs.io/en/latest/source/dir.html>
- Package script (“hello-world”) for outputting a message from a config file (“hello-world.msg”)
- Command

```
fpm -s dir -n hello-world -t deb -v 0.0.1 \  
    src/hello-world=/usr/bin/hello-world  
    src/hello-world.msg=/etc/hello-world/hello-world.msg
```
- **from=to** allows the mapping of directories and files from source into target system

# .deb from Python packages

- Source “python”: <https://fpm.readthedocs.io/en/latest/source/python.html>

- Command:

```
fpm -s python -t deb -f --python-package-name-prefix python27 \  
  --python-bin /usr/bin/python2.7 --python-pip /usr/bin/pip \  
  --no-python-dependencies --depends python-numpy \  
  python-weka-wrapper
```

- Pitfall

Assumes that all Python dependencies are available through Debian packages (python-<pkgname>), which fails for packages only available via pip.

Use **--no-python-dependencies** to turn it off and **--depends** to manually specify other Debian dependencies.