

Packaging Python modules and applications

present and future of Python helper tools

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python-stdeb

Debian source/binary packages from distutils based projects

- `py2dsc Mako (no sudo easy_install Mako!)`
- `py2dsc Mako-0.3.4.tar.gz`
- `python setup.py --command-packages=stdeb.command debianize`

outline

- 1 introduction
- 2 current helpers
 - dh_python
 - python-central
 - python-support
- 3 new dh_python helpers
 - dh_python2
 - dh_python3
- 4 packaging teams

debian python policy

- `import foo` → `python-foo`
`import foo.bar` → `python-foo.bar`
- separate stack
 - `python` **vs.** `python3`
`python-foo` **vs.** `python3-foo`
 - `pyversions` **vs.** `py3versions`
 - `XS-Python-Version` **vs.** `X-Python3-Version`

deb.li/dpp

before invoking helpers

- describe supported versions (`pyversions -vr`)
- build depend on `python` | `python-dev` | `python-all` | `python-all-dev` | `python-dbg` | `python-all-dbg`
- install to standard locations (`--install-layout=deb`)
 - `/usr/lib/python2.5/site-packages/`
 - `/usr/local/lib/python2.5/site-packages/`
 - `/usr/lib/python2.6/dist-packages/`
 - `/usr/local/lib/python2.6/dist-packages/`
- ... or to private directory (`--install-lib`, `--install-scripts`)
- depend on `${python:Depends}`

python-support

- `XS-Python-Version` or `debian/pyversions`

Example

```
"2.4-", "2.2-2.6", "-2.7", "2.6"
```

- default in `dh`,
`DEB_PYTHON_SYSTEM=pysupport` in CDBS
- `update-python-modules -p`
- namespace feature

python-central

- `XS-Python-Version`

Example

```
">= 2.4", ">= 2.2, << 2.6", "<< 2.7",  
"all", "current", "current, >= 2.6"
```

- `XB-Python-Version: ${python:Versions}`
- `--with pycentral` in `dh`,
`DEB_PYTHON_SYSTEM=pycentral` in CDBS
- Lenny → Squeeze upgrades

dh_python2

- all files in the package
 - dpkg friendly
 - available out of the box
 - upgrades friendly
- architecture independent packages need (N)MUs
- handles debug packages
- simple and fast at runtime

dh_python2

- XS-Python-Version, debian/pyversions or -V
- --with python2 in dh
- dh_python2 /usr/share/private_dir
- automatic dependencies
- dh_python2 -p foo -recommends 'Mako >= 0.2'

debian/pydist-overrides

Example

```
numpy python-numpy
SQLAlchemy python-sqlalchemy (>= 0.6)
foo python-foo(>= 1), python-foo (<< 2)
```

deb.li/pydist

debian/python-foo.pydist

- installed to /usr/share/python/dist/python-foo
- read by dh_python2:
 - requires.txt
 - --depends, --recommends, --suggests

Example

```
Mako python-mako
SQLAlchemy -2.6 python-sqlalchemy; PEP382 s/^1:/
```

Example (no version translation)

```
SQLAlchemy python-sqlalchemy (>= 0.6)
```

Example (API/ABI change)

```
numpy python-numpy(>= 1:1.4.1), python-numpy (<< 1:1.5)
```

diff dh_python2 dh_python3

- no /usr/share/py3shared
- /usr/lib/python3 (PEP3147, PEP3149)
- --with python3 in dh
- debian/python3-foo.py3dist
- debian/py3dist-overrides

upstream changes (done)

- PEP 3147 – common directory for .py files
 - /usr/lib/python3/foo.py
 - foo.pyc → __pycache__/foo.cpython-32.pyc
- PEP 3149 – extensions in the same directory
 - foo.so → foo.cpython-32u.so
 - /usr/lib/python3/foo.cpython-32.so

packaging teams

- Debian Python Modules Team (DPMT)
- Python Applications Packaging Team (PAPT)

deb.li/jpt

upstream changes (pending)

- PEP 384 – stable ABI for extensions
foo.so → foo.abi3.so
- PEP 382 – namespace packages
 - __path__
 - .pth files

Questions?