

# Python packaging simplified

for end users,  
app developers,  
and open source contributors

Asheesh Laroia

# Changes

No Debian vs. ???

No compiled code talking,  
except wheel

No focus on Django apps

# Goals

1. Be able to install

# Goals

1. Be able to install
2. Be able to distribute

# Goals

1. Be able to install
2. Be able to distribute
3. Know how to learn more

# Installation

```
$ python
```

```
$ python  
>>> import numbers
```

```
$ python
>>> import numbers
>>> numbers
<module 'numbers' from
'/usr/lib/python2.7/numbers.pyc'>
```

```
>>> import sys  
>>> sys.path
```

```
>>> import sys  
>>> sys.path  
[ '',  
  '/usr/lib/python2.7',  
  '/usr/lib/python2.7/plat-x86_64-linux-gnu',  
  '/usr/lib/python2.7/lib-tk',  
  '/usr/lib/python2.7/lib-old',  
  '/usr/lib/python2.7/lib-dynload',  
  '/home/me/.local/lib/python2.7/site-packages'  
  '/usr/local/lib/python2.7/dist-packages',  
  '/usr/lib/python2.7/dist-packages',  
  '/usr/lib/python2.7/dist-packages/PIL',  
  '/usr/lib/python2.7/dist-packages/gst-0.10',  
  '/usr/lib/python2.7/dist-packages/gtk-2.0',  
  '/usr/lib/pymodules/python2.7',  
 ]
```

```
>>> import sys  
>>> sys.path  
[ '',  
  '/usr/lib/python2.7',  
  '/usr/lib/python2.7/plat-x86_64-linux-gnu',  
  '/usr/lib/python2.7/lib-tk',  
  '/usr/lib/python2.7/lib-old',  
  '/usr/lib/python2.7/lib-dynload',  
  '/home/me/.local/lib/python2.7/site-packages'  
  '/usr/local/lib/python2.7/dist-packages',  
  '/usr/lib/python2.7/dist-packages',  
  '/usr/lib/python2.7/dist-packages/PIL',  
  '/usr/lib/python2.7/dist-packages/gst-0.10',  
  '/usr/lib/python2.7/dist-packages/gtk-2.0',  
  '/usr/lib/pymodules/python2.7',  
 ]
```

```
$ python
>>> import numbers
>>> numbers
<module 'numbers' from
'/usr/lib/python2.7/numbers.pyc'>
```

**Jumbo Peanut Butter Chip Dipped Cookies HURRICANE  
SANDY SPECIAL**

**\$25.00 USD**



Eat dessert first!!

Etsy

```
>>> import etsy
```



```
>>> import etsy
```

cheeseshop  
pypi.python.org

```
>>> import etsy
```

cheeseshop  
pypi.python.org

[etsy wrapper]

 search

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Package	Weight*	Description
<a href="#">python-etsy 0.1.2</a>	9	Python wrapper for the Etsy api
<a href="#">gstatsd 0.6</a>	2	A statsd service and client in Python + gevent

\*: occurrence of search term weighted by field (name, summary, keywords, description, author, maintainer)

 search

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# Index of Packages Matching 'etsy wrapper'

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\*: occurrence of search term weighted by field (name, summary, keywords, description, author, maintainer)

```
>>> import python-etsy  
File "<stdin>", line 1  
    import python-etsy  
           ^
```

```
SyntaxError: invalid syntax
```

 search

» Package Index > python-etsy > 0.1.2

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# python-etsy

## 0.1.2

Downloads ↓

*Python wrapper for the  
Etsy api*

## Why?

To make it easier to  
interact with the Etsy API in Python.

## Installation

```
| sudp pip install python-etsy
```

## Usage

## Initialization

### Not Logged In

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*Python wrapper for the  
Etsy api*

## Why?

To make it easier to  
interact with the Etsy API in Python.

## Installation

```
| sudp pip install python-etsy
```

## Usage

### Initialization

```
>>> from etsy import Etsy  
>>> e = Etsy(consumer_key, consumer_secr
```

### Get info for user

```
>>> e.get_user_info('priestc')  
{u'count': 1,
```

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*Python wrapper for the  
Etsy api*

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Status

[Nothing to report](#)

## Why?

To make it easier to  
interact with the Etsy API in Python.

## Installation

```
| sudp pip install python-etsy
```

## Usage

## Initialization

```
>>> from etsy import Etsy  
>>> e = Etsy(consumer_key, consumer_secr
```

## Get info for user

```
>>> e.get_user_info('priestc')  
{u'count': 1,
```

```
$ sudo pip install python-etsy
```



```
$ sudo pip install python-etsy
```



Genki Sudo

World Order

```
>>> import sys  
>>> sys.path  
[ '',  
# ...  
' /home/me/.local/lib/python2.7/  
site-packages ',  
]
```

```
$ pip install --user python-etsy
```

```
$ pip install --user python-etsy  
Downloading/unpacking python-etsy  
  Downloading python-etsy-0.1.2.tar.gz
```

```
$ pip install --user python-etsy  
Downloading/unpacking python-etsy  
  Downloading python-etsy-0.1.2.tar.gz
```

```
Successfully installed python-etsy  
Cleaning up...
```

```
$ pip install --user python-etsy  
Downloading/unpacking python-etsy  
  Downloading python-etsy-0.1.2.tar.gz
```

Successfully installed python-etsy

Cleaning up...

```
$ python  
>>> import etsy
```

```
$ pip install --user python-etsy  
Downloading/unpacking python-etsy  
  Downloading python-etsy-0.1.2.tar.gz
```

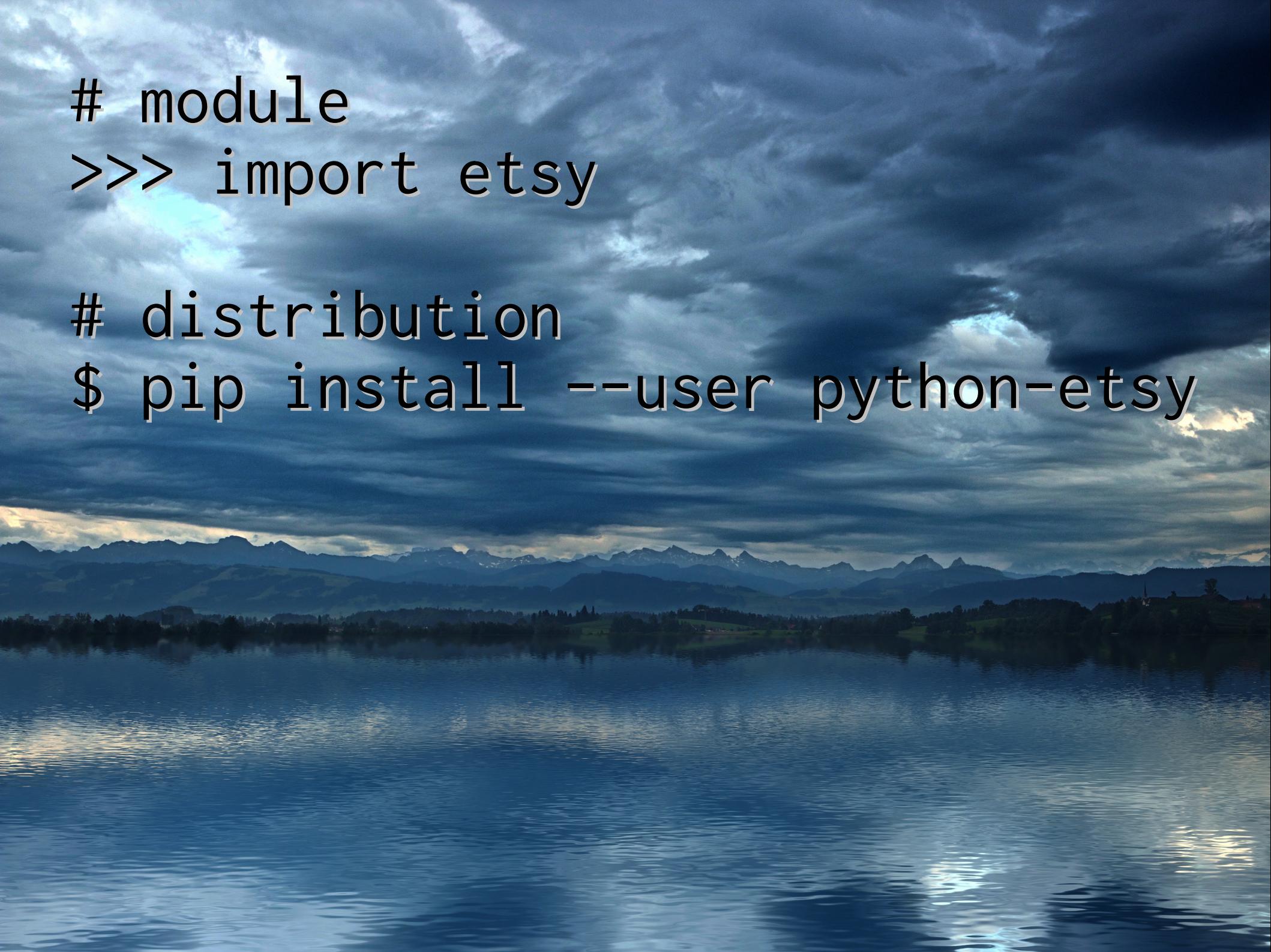
```
Successfully installed python-etsy  
Cleaning up...
```

```
$ python  
>>> import etsy  
>>> etsy  
<module 'etsy' from  
'/home/me/.local/lib/python2.7/  
site-packages/etsy/__init__.pyc'>
```



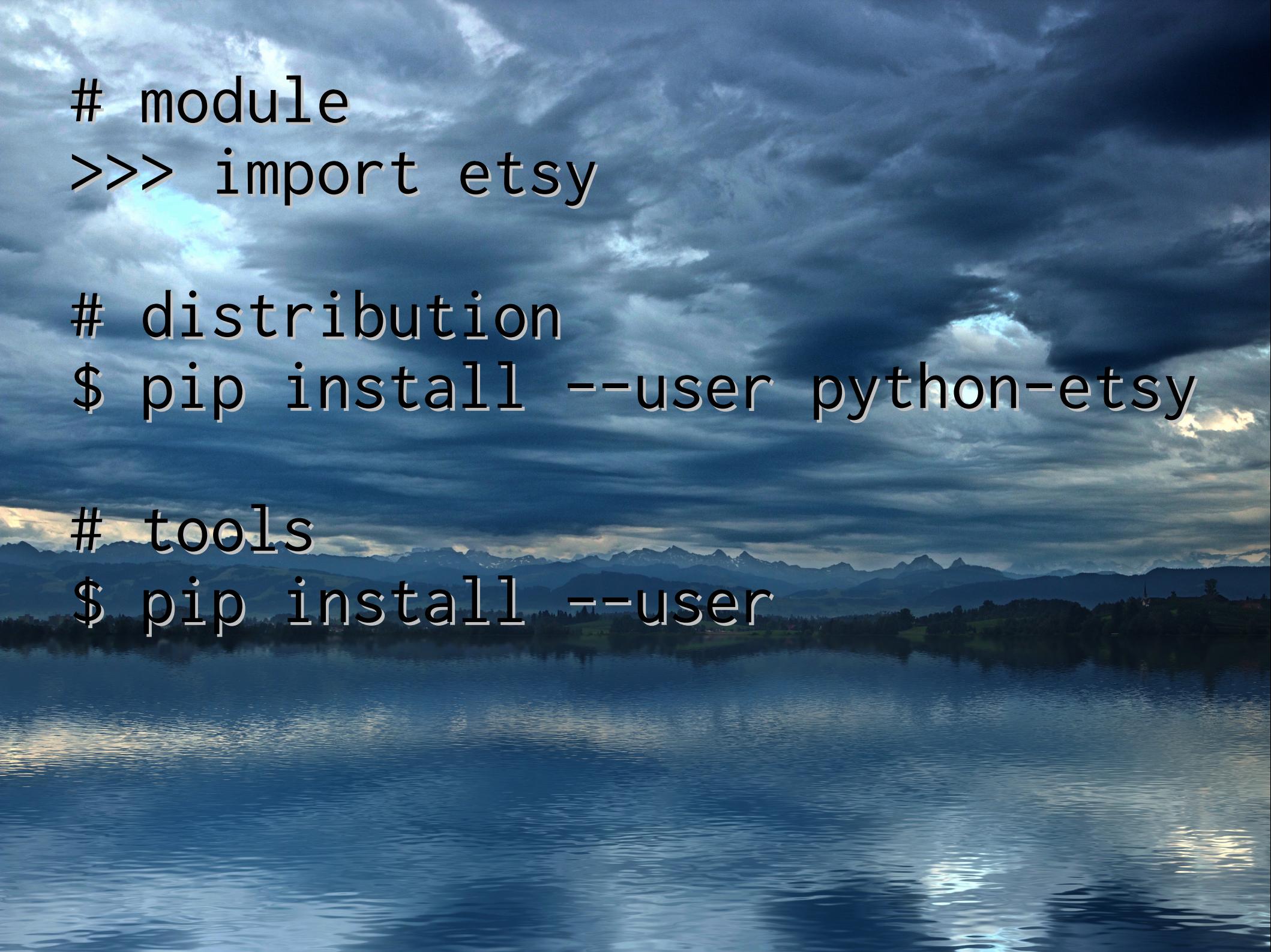
The background image shows a wide-angle view of a lake, likely Lake Lucerne, in Switzerland. The water is calm with gentle ripples. In the distance, a range of mountains is visible under a sky filled with dark, heavy clouds. A few bright, sunlit patches are visible through the clouds, particularly on the right side.

# module  
">>>> import etsy

The background of the image is a wide-angle photograph of a natural landscape. In the foreground, there is a calm body of water, likely a lake. Beyond the water, there are several layers of mountains, all covered in a dense green forest. The sky above is filled with heavy, dark clouds, with some lighter areas where sunlight is breaking through, creating a dramatic and somewhat moody atmosphere.

# module  
>>> import etsy

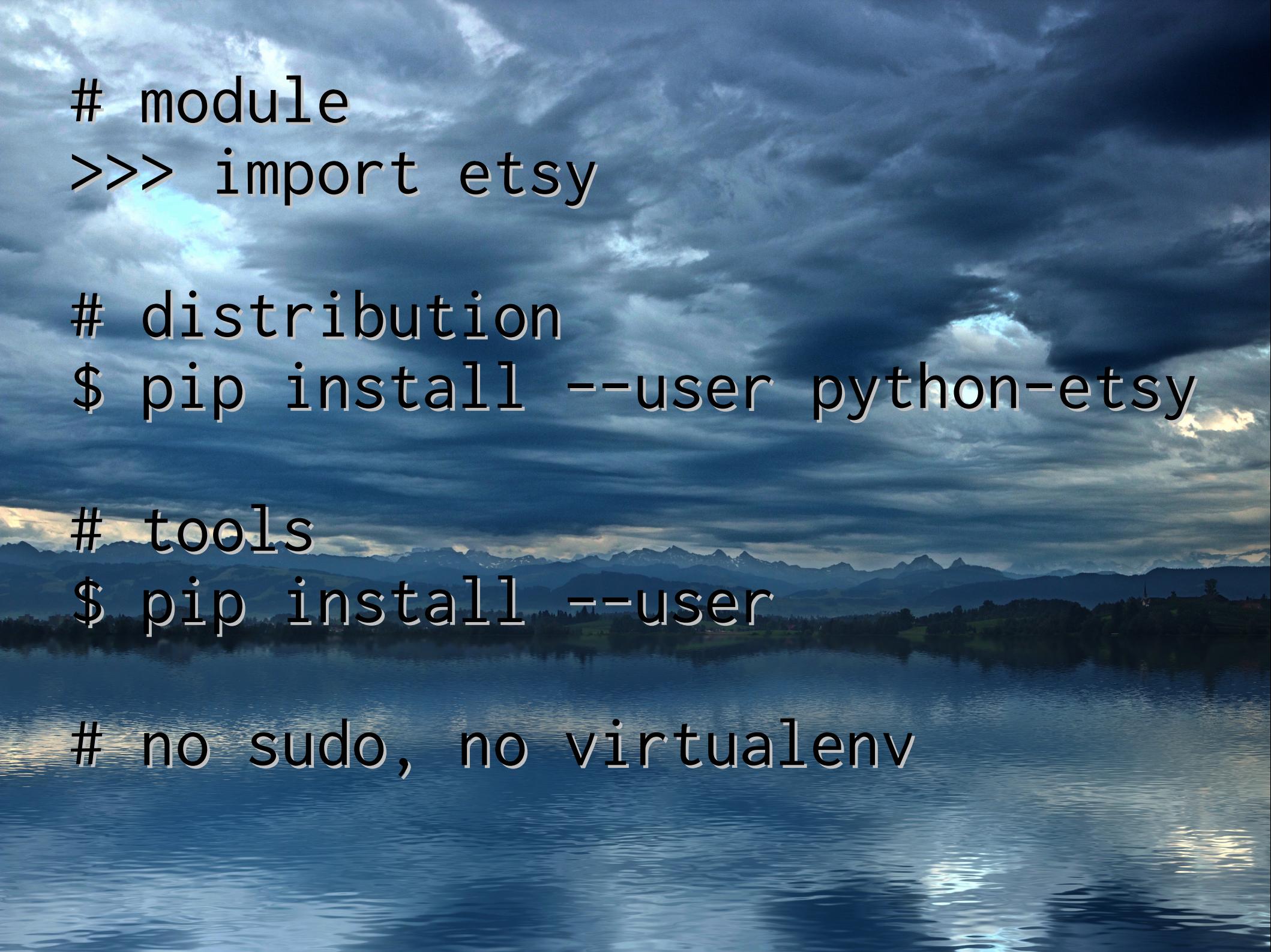
# distribution  
\$ pip install --user python-etsy

The background of the image is a photograph of a serene landscape. In the foreground, there is a calm body of water, likely a lake. Beyond the water, a range of mountains is visible under a dramatic sky filled with dark, heavy clouds. A few bright, sunlit patches are visible through the clouds, particularly on the left and right sides. The overall atmosphere is moody and peaceful.

```
# module
>>> import etsy

# distribution
$ pip install --user python-etsy

# tools
$ pip install --user
```

The background of the slide features a wide-angle photograph of a natural landscape. In the foreground, there is a calm body of water, likely a lake. Beyond the water, a range of mountains is visible under a dramatic sky filled with dark, heavy clouds. A few bright, sunlit patches are visible through the clouds, particularly on the left and right sides. The overall atmosphere is moody and atmospheric.

```
# module  
>>> import etsy  
  
# distribution  
$ pip install --user python-etsy  
  
# tools  
$ pip install --user  
  
# no sudo, no virtualenv
```

A vintage-style Quality Ice Cream truck is shown from a low angle. The truck has a white body with blue and red stripes. A large menu board on top displays various ice cream flavors like Vanilla, Chocolate, and Strawberry. The background shows a brick building and trees.

```
$ pip install --user etsy
```

A vintage-style Quality Inn ice cream truck is shown from a low angle. The truck has a white body with a dark brown front. A large red sign on top reads "Quality Inn" in a stylized font, with "Ice Cream" below it in a smaller oval. A menu board is attached to the side of the truck, listing various items like "TOP SECRET", "CHOCOLATE", "VANILLA", and "PEACH".

\$ pip install --user etsy  
ValueError: Invalid IPv6 URL

A vintage-style Quality Inn ice cream truck is shown from a three-quarter front angle. The truck is white with a red stripe and features a large, illuminated sign on top that reads "Kuvality Ice Cream". The word "Kuvality" is in a stylized orange font, and "Ice Cream" is in a white font inside a red, rounded rectangular frame. The truck has several windows displaying various flavors of ice cream. A person's arm is visible on the right side, pointing towards the truck.

PyPI:

Wrong or missing  
download URLs

A blurry photograph of a Quality Ice Cream shop. The shop has a large red sign with white lettering that reads "Quality Ice Cream". Below the sign is a menu board with various ice cream flavor options listed. In the foreground, there are several large tubs of ice cream in different colors (orange, green, blue, etc.) and some smaller containers. A person's arm is visible on the right side, pointing towards the menu.

PyPI:

Wrong or missing  
download URLs

no  
verification



PyPI:

Wrong or missing  
download URLs  
(fixed w/ pip 1.5)

no  
verification  
(remains)

pip:

under python 3.2:

```
$ pip install --user jinja2  
Downloading/unpacking jinja2
```

pip:

under python 3.2:

```
$ pip install --user jinja2  
Downloading/unpacking jinja2
```

```
# ...
```



File "jinja2/runtime.py",  
line 44  
SyntaxError: invalid syntax



File "jinja2/runtime.py",  
line 44

SyntaxError: invalid syntax

Successfully installed jinja2  
Cleaning up...

```
>>> import jinja2
```



```
>>> import jinja2
      File ".../jinja2/environment.py",
line 639
          u'...'.encode('iso-8859-15')
                                         ^
SyntaxError: invalid syntax
```

# Uninstallation

```
$ python  
>>> import etsy
```

```
$ python  
>>> import etsy
```

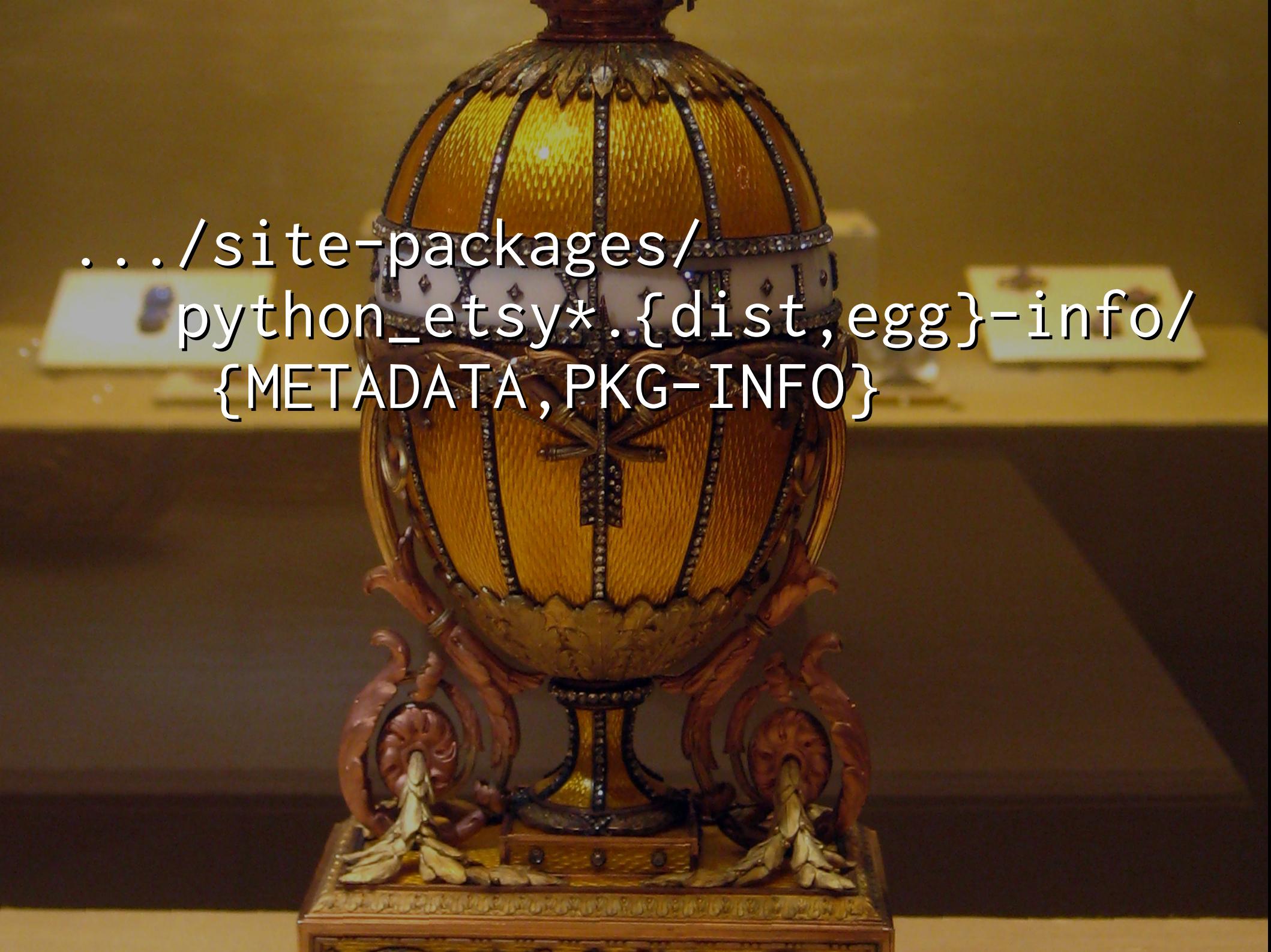
```
$ pip uninstall etsy  
Cannot uninstall requirement  
etsy, not installed
```

```
$ python  
>>> import etsy
```

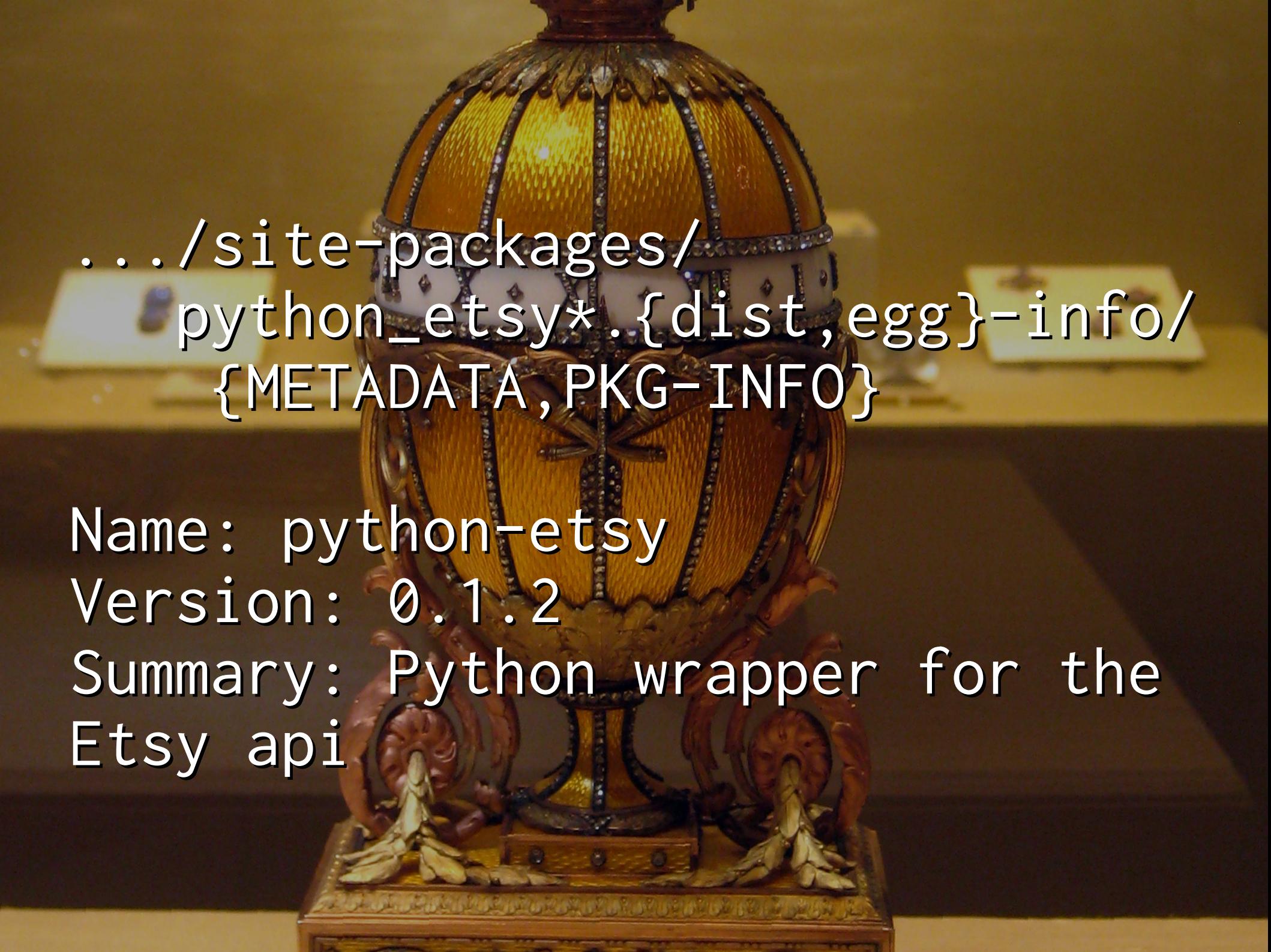
```
$ pip uninstall etsy  
Cannot uninstall requirement  
etsy, not installed
```

```
$ pip uninstall python-etsy
```

.../site-packages/  
python\_etsy\*.egg-info/  
PKG-DATA

A detailed photograph of a Fabergé-style egg sculpture. The egg is primarily yellow-gold with intricate patterns of diamonds set into its surface. It features a multi-tiered, ornate base with floral and scrollwork motifs, and a small pedestal at the bottom. The egg is mounted on a stand with four legs, each ending in a claw-like foot. The background is dark and out of focus.

.../site-packages/  
python\_etsy\*.{dist,egg}-info/  
{METADATA,PKG-INFO}



```
.../site-packages/  
    python_etsy*.{dist,egg}-info/  
    {METADATA,PKG-INFO}
```

Name: python-etsy

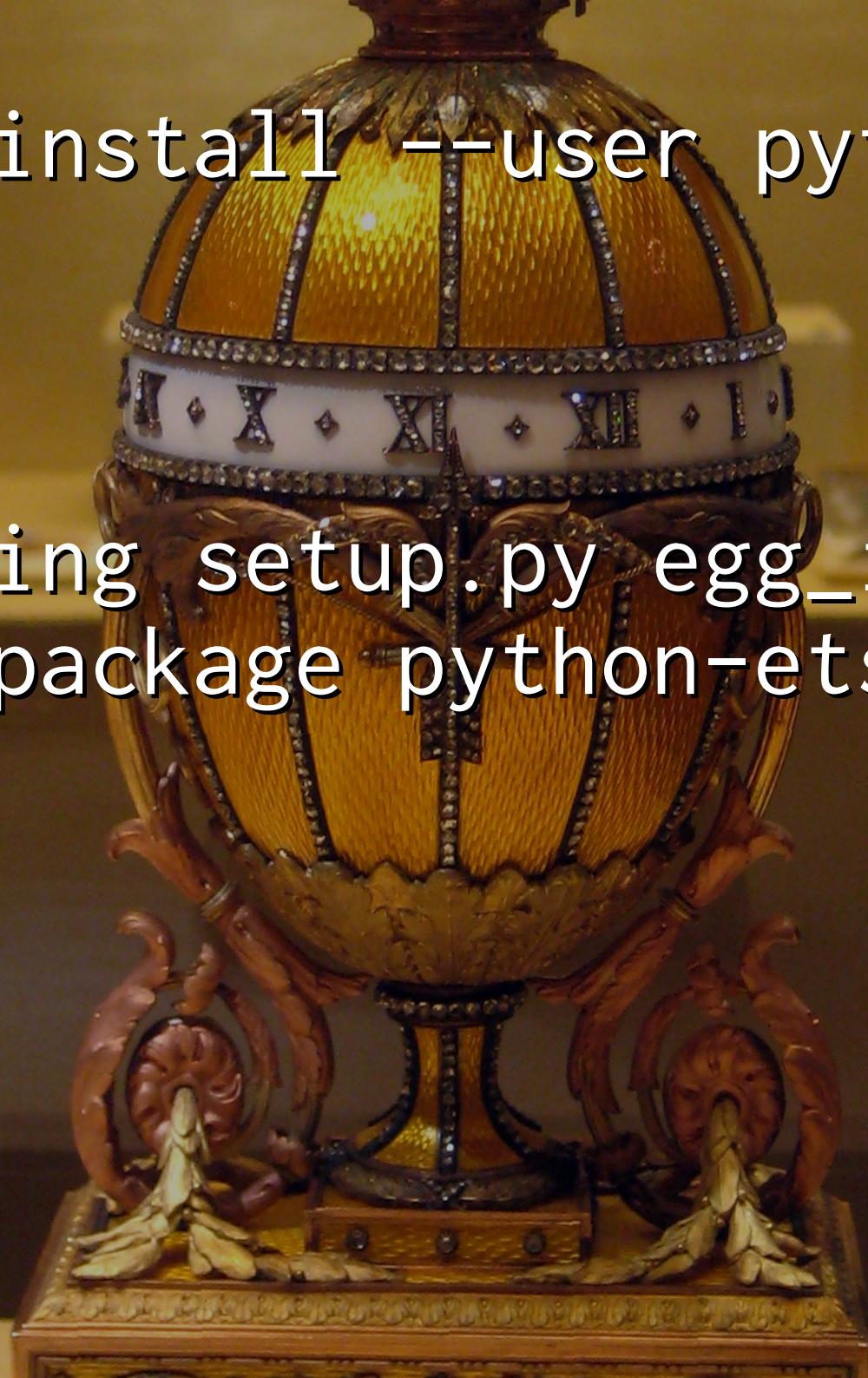
Version: 0.1.2

Summary: Python wrapper for the  
Etsy api

```
$ pip install --user python-etsy
```

```
# ...
```

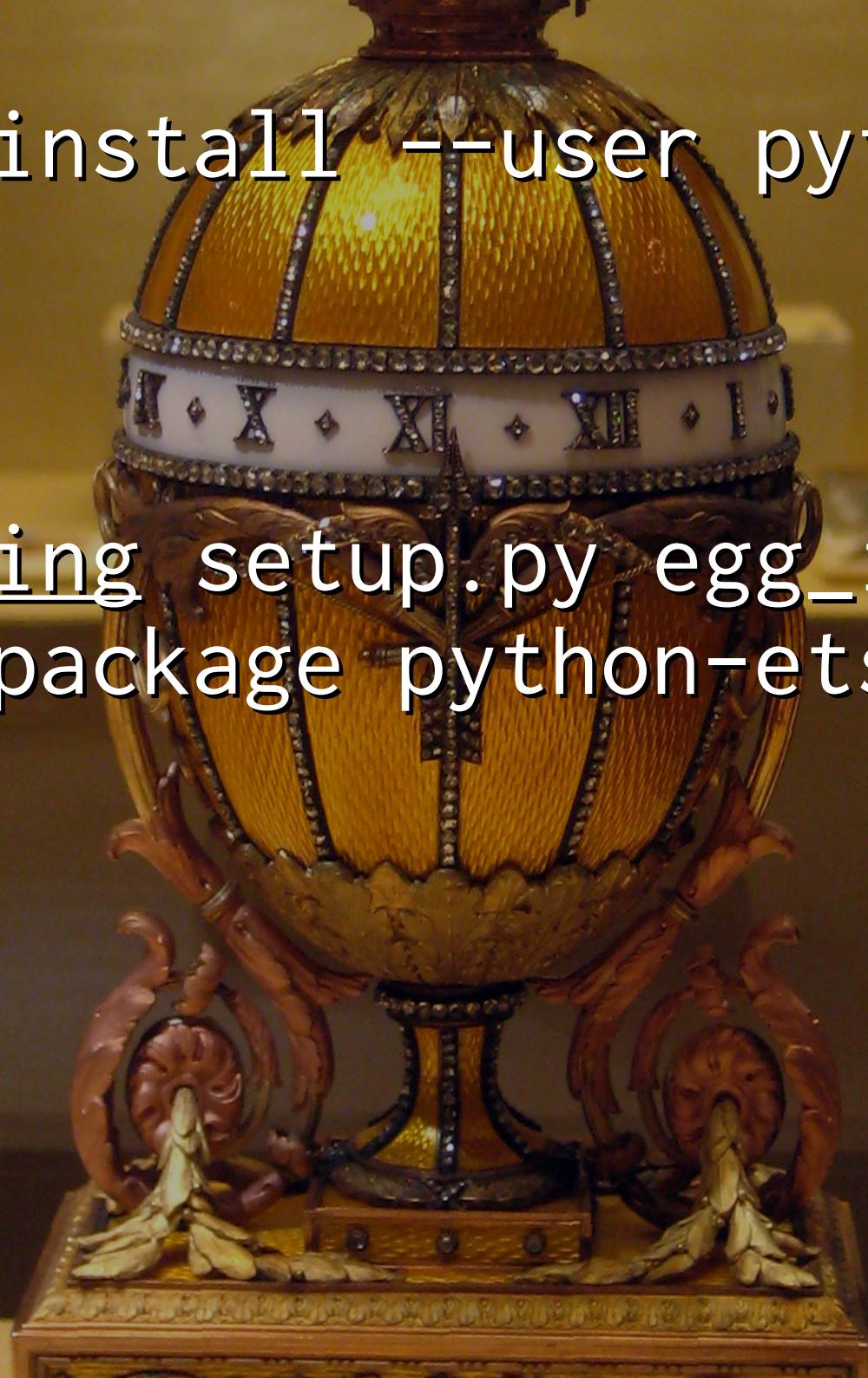
```
Running setup.py egg_info  
for package python-etsy
```



```
$ pip install --user python-etsy
```

```
# ...
```

Running setup.py egg\_info  
for package python-etsy



# Installation of pip

```
$ pip  
pip: Command not found.
```

```
$ pip  
pip: Command not found.  
$ # download get-pip.py
```

```
$ pip  
pip: Command not found.  
$ # download get-pip.py  
$ python get-pip.py --user
```

```
$ pip  
pip: Command not found.  
$ # download get-pip.py  
$ python get-pip.py --user  
$ pip  
pip: Command not found.
```

```
$ pip  
pip: Command not found.  
$ # download get-pip.py  
$ python get-pip.py --user  
$ pip  
pip: Command not found.  
$ PATH=~/local/bin:$PATH
```

```
$ pip
pip: Command not found.
$ # download get-pip.py
$ python get-pip.py --user
$ pip
pip: Command not found.
$ PATH=~/local/bin:$PATH
$ pip --version
pip 1.5.4 from
/home/me/local/lib/python2.7/
site-packages (python 2.7)
```

Distributing  
your code

```
~ $ cd get-octopi
```

```
~ $ cd get-octopi  
~/get-octopi $ ls  
octopi_getter.py
```

```
~ $ cd get-octopi  
~/get-octopi $ ls  
octopi_getter.py
```

```
# time passes
```

```
~ $ cd get-octopi  
~/get-octopi $ ls  
octopi_getter.py
```

```
# time passes  
~/get-octopi $ ls  
octopi_getter.py setup.py LICENSE
```

```
$ python setup.py register
```

```
$ python setup.py register  
running register  
running check
```

```
$ python setup.py register  
running register  
running check  
Registering get-octopi to  
https://pypi.python.org/pypi
```

```
$ python setup.py sdist upload
```

```
$ python setup.py sdist upload  
python setup.py sdist upload  
running sdist  
running check
```

```
$ python setup.py sdist upload
python setup.py sdist upload
running sdist
running check
creating get-octopi-1.0
creating dist
Creating tar archive
running upload
```

```
$ python setup.py sdist upload
python setup.py sdist upload
running sdist
running check
creating get-octopi-1.0
creating dist
Creating tar archive
running upload
Submitting dist/get-octopi-
1.0.tar.gz to
https://pypi.python.org/pypi
```

```
from distutils.core import setup

setup(
    name='get-octopi',
    version='1.0',
    packages=['octopi_getter'],
)
```

```
from distutils.core import setup

setup(
    name='get-octopi',
    version='1.0',
    py_modules=['octopi_getter'],
)
```

```
from distutils.core import setup

if __name__ == '__main__':
    setup(
        name='get-octopi',
        version='1.0',
        py_modules=['octopi_getter'],
    )
```

```
from distutils.core import setup

setup(
    name='get-octopi',
    version='1.0',
    py_modules=['octopi_getter'],
)
```

```
from distutils.core import setup

setup(
    name='get-octopi',
    version='1.0',
    py_modules=['octopi_getter'],
    author='Asheesh Laroia',
    email='asheesh@asheesh.org',
)
```

```
>>> import octopi_getter  
>>> octopi_getter.main  
<function main at 0x7f2d64849500>
```

```
from distutils.core import setup

# within setup()

entry_points = {
    'console_scripts': [
        'get-now = octopi_getter:main',
    ],
},
}
```

```
from distutils.core import setup

# within setup()

entry_points = {
    'console_scripts': [
        'get-now = octopi_getter:main',
    ],
},
# finally
$ pip install --user .
```

\$ get-now





\$ get-now  
get-now: Command not found.



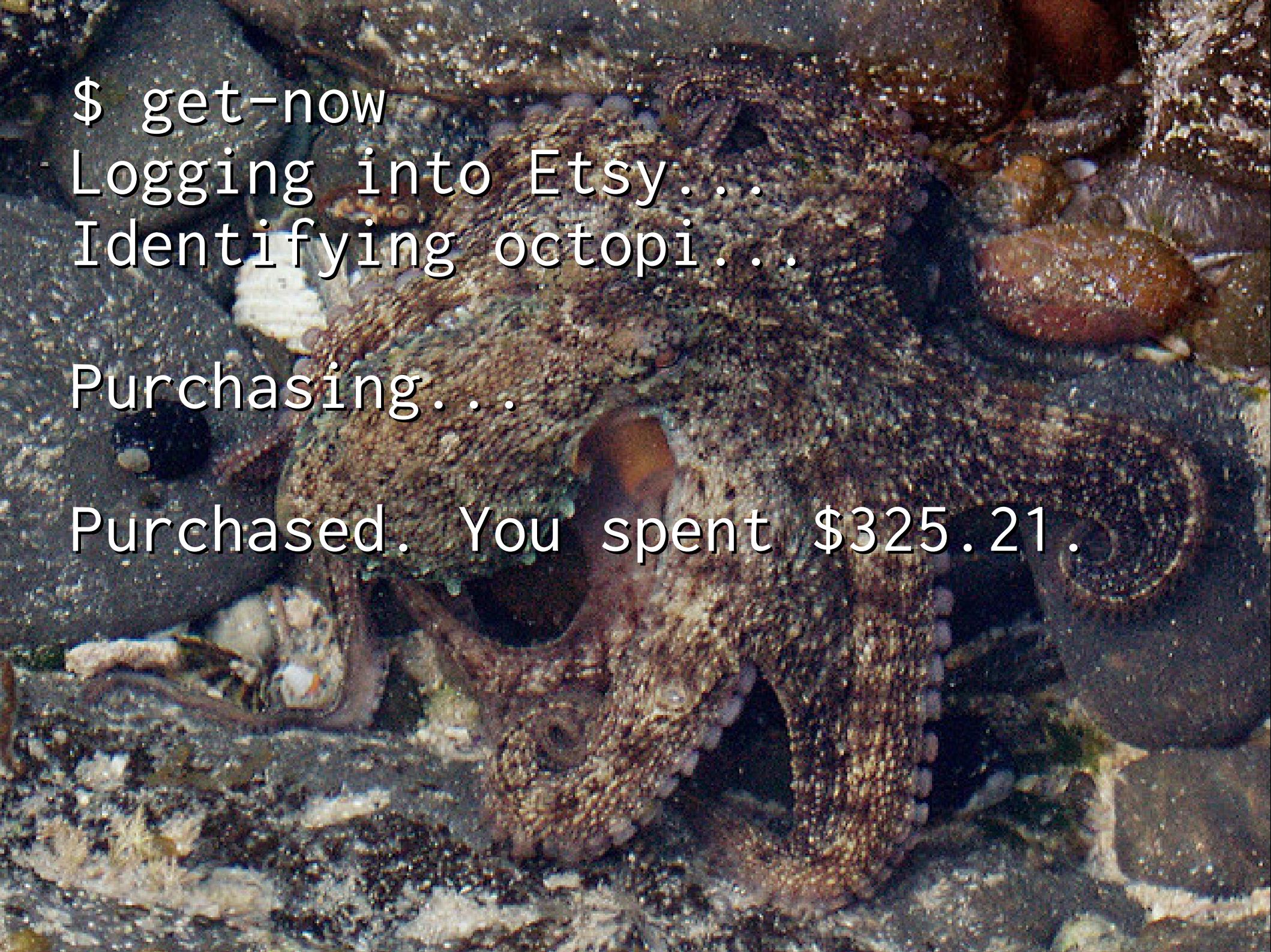
```
$ get-now  
get-now: Command not found.  
$ PATH=$PATH:~/local/bin
```

\$ get-now





\$ get-now  
Logging into Etsy...



\$ get-now  
Logging into Etsy...  
Identifying octopi...

Purchasing...

Purchased. You spent \$325.21.

\$ get-now





```
$ get-now  
ImportError: No module named etsy
```

```
from distutils.core import setup

setup(
    name='get-octopi',
    version='1.0',
    py_modules=['octopi_getter'],
)
```

```
from distutils.core import setup

setup(
    name='get-octopi',
    version='1.0',
    py_modules=['octopi_getter'],
    install_requires=[
        'python-etsy',
    ],
)
```

zc.buildout vs  
requirements.txt vs

```
setup(  
    install_requires=[  
        'python-etsy',  
    ],  
)
```

Developing  
your code

```
$ pip install --user .
```

```
$ pip install --user .
```

```
$ python
>>> import octopi_getter
>>> octopi_getter
<module '...' from '.../site-
packages/octopi_getter.pyc'>
```

```
$ pip install --user --editable .
```

```
$ python
>>> import octopi_getter
>>> octopi_getter
<module '...' from '/home/me/
get-octopi/octopi_getter.pyc'>
```

```
$ pip install --user --editable .
# aka setup.py develop --user
```

```
$ python
>>> import octopi_getter
>>> octopi_getter
<module '...' from '/home/me/
get-octopi/octopi_getter.pyc'>
```

```
from distutils.core import setup  
from setuptools import setup  
from distribute import setup
```

```
from distutils.core import setup  
from setuptools import setup  
from distribute import setup
```

```
from distutils.core import setup  
## safe and featureless
```

```
from setuptools      import setup  
## pip provides this for free
```

```
from distribute     import setup
```

```
from distutils.core import setup

setup(
    name='get-octopi',
    version='1.0',
    py_modules=['octopi_getter'],
    install_requires=[
        'python-etsy>0.1.1',
    ],
)
```

```
$ pip install --user --editable .
```

```
# ...
```

```
CONFLICT
```

```
$ pip install --user --editable .
```

```
# ...
```

# CONFLICT

```
$ virtualenv .
```

```
New python executable in ./bin/python
```

```
Installing setuptools, pip...done.
```

```
$ source bin/activate
```

```
(get-octopi) $
```

```
$ pip install --user --editable .
```

```
# ...
```

# CONFLICT

```
$ virtualenv .
```

```
New python executable in ./bin/python
```

```
Installing setuptools, pip...done.
```

```
$ source bin/activate
```

```
(get-octopi) $ pip install --editable .
```

```
$ pip install --user --editable .
```

```
# ...
```

# CONFLICT

```
$ virtualenv .
```

```
New python executable in ./bin/python
```

```
Installing setuptools, pip...done.
```

```
$ source bin/activate
```

```
(get-octopi) $ pip install -e .
```

```
(get-octopi) $ pip install --user  
--editable .
```



```
(get-octopi) $ pip install --user  
--editable .
```

Can not perform a '--user' install. User site-packages are not visible in this virtualenv.

(get-octopi) \$



© Rekl

(get-octopi) \$

(new terminal window)

\$

A vintage-style Quality Ice Cream truck is shown from a low angle. The top sign reads "Quality Ice Cream" in red letters on a white background. Below the sign is a menu board with various items listed. The truck has a white body with blue and red stripes on the front. A person's arm is visible on the right side.

vendor/

[kitsune vendor library]

```
(get-octopi) $ pip install lxml  
unable to execute 'x86_64-linux-gnu-gcc': No such file or directory  
  
error: command 'x86_64-linux-gnu-gcc' failed with exit status 1
```

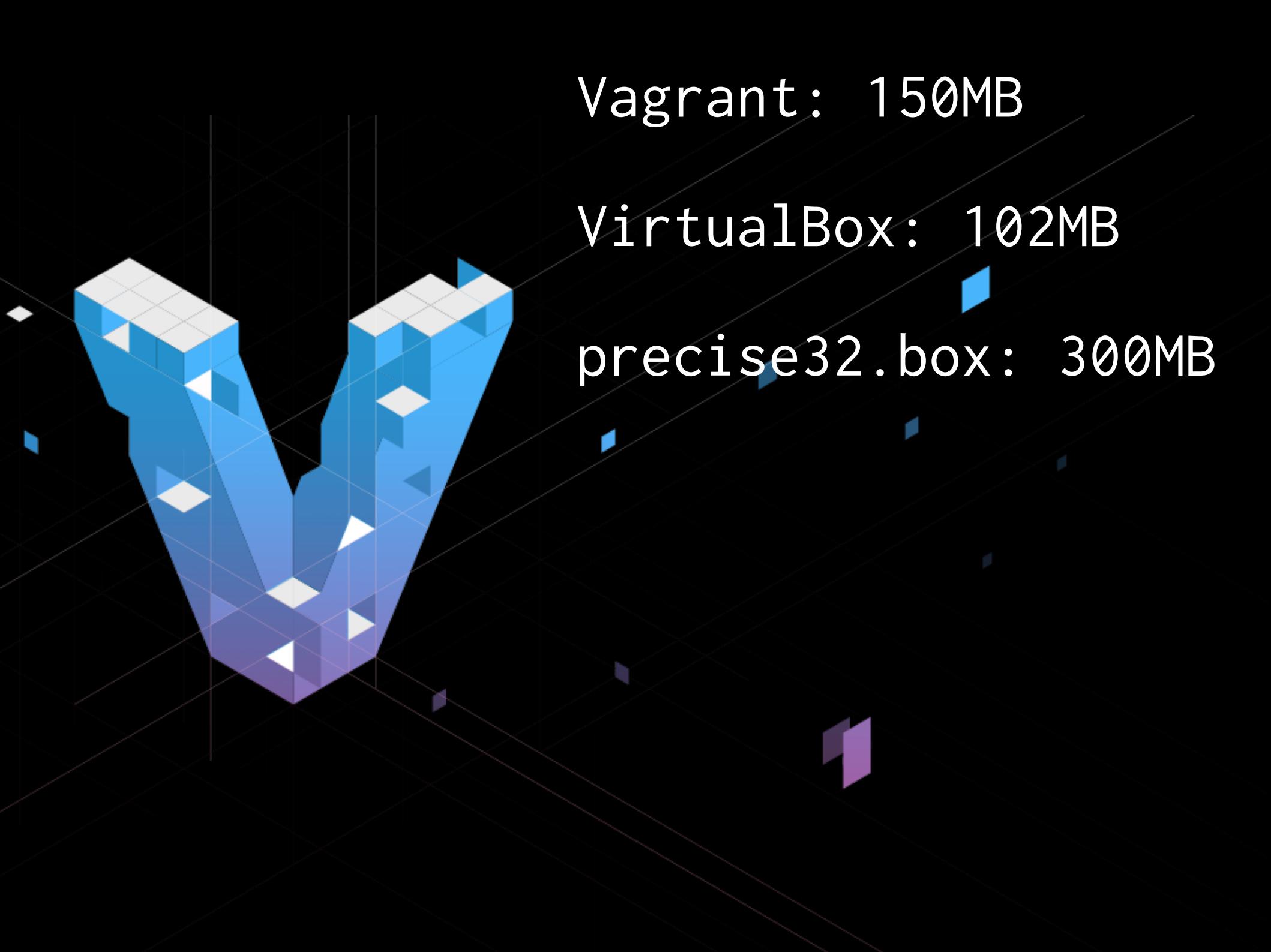
```
$ sudo apt-get install python-lxml  
$ python  
">>>> import lxml  
">>>>  
$ pip install lxml  
Requirement already satisfied (use  
--upgrade to upgrade): lxml in  
/usr/lib/python2.7/dist-packages  
Cleaning up...
```

```
$ sudo apt-get install python-lxml  
$ python  
>>> import lxml  
>>>
```

```
$ source bin/activate  
(get-octopi) $ python  
>>> import lxml  
ImportError: No module called lxml.
```

```
$ sudo apt-get install python-lxml  
$ python  
>>> import lxml  
>>>  
  
$ source bin/activate  
(get-octopi) $ python  
>>> import lxml  
ImportError: No module called lxml  
  
$ sudo apt-get build-dep python-lxml
```

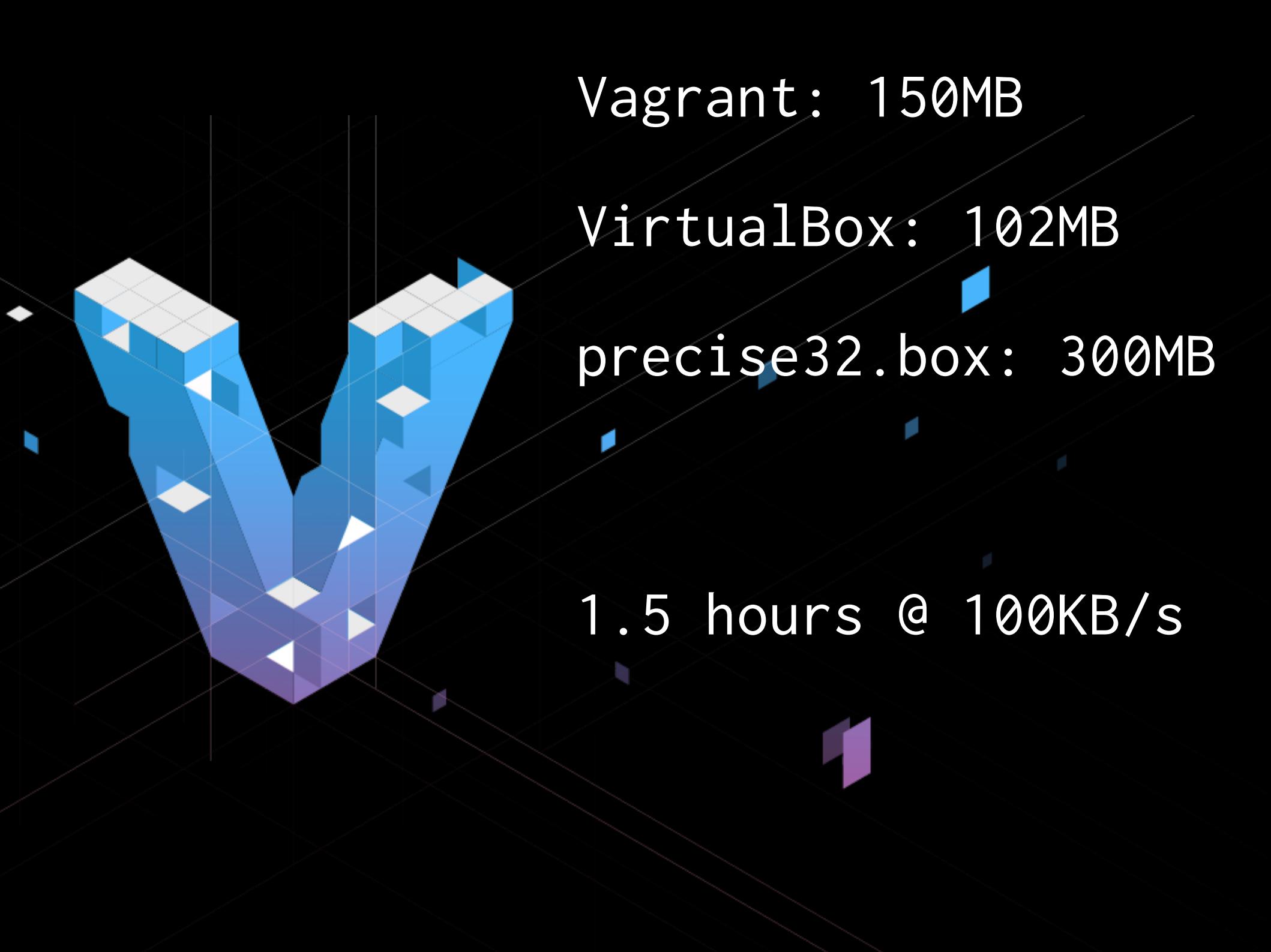




Vagrant: 150MB

VirtualBox: 102MB

precise32.box: 300MB



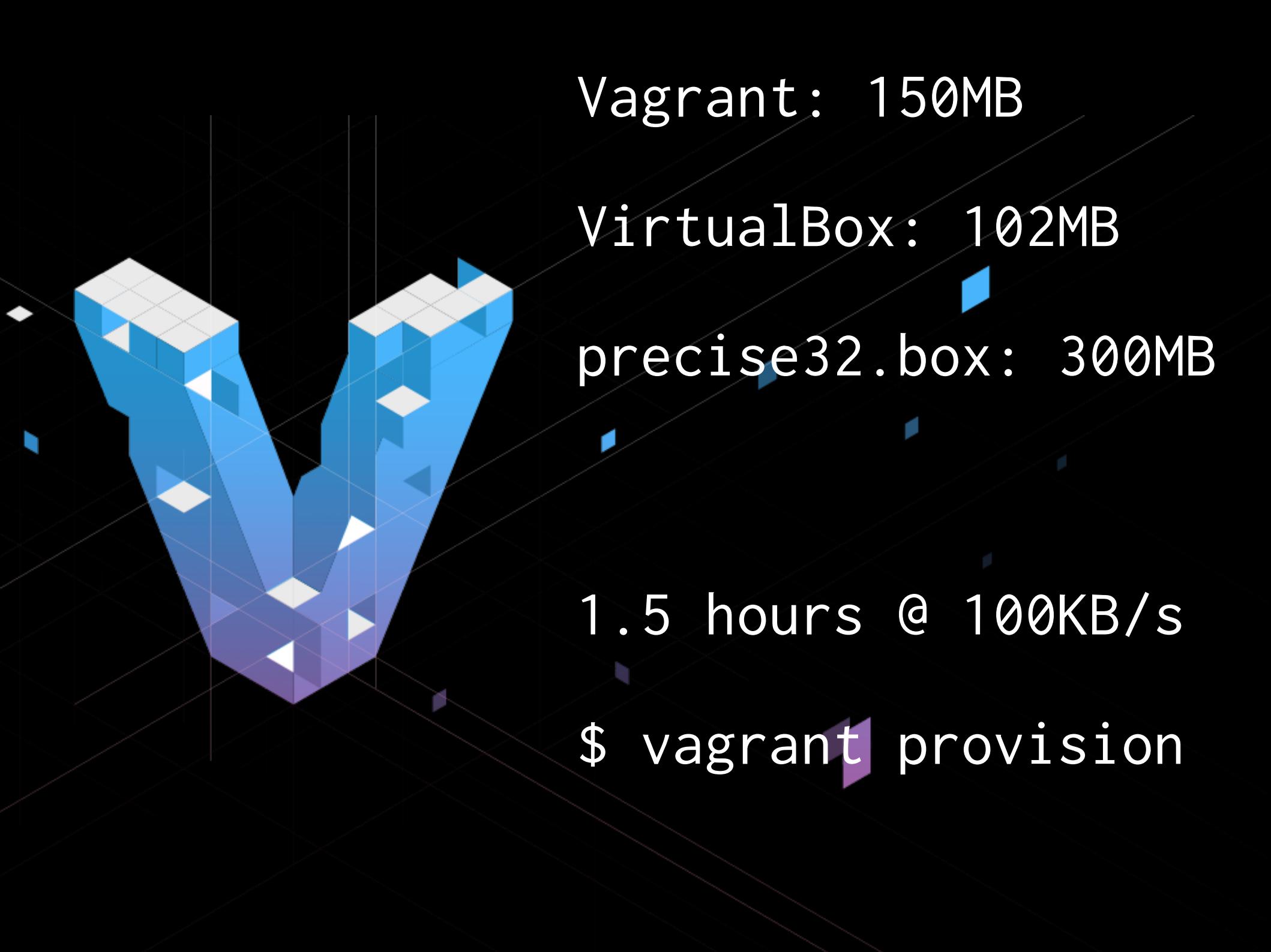
Vagrant: 150MB

VirtualBox: 102MB

precise32.box: 300MB

1.5 hours @ 100KB/s





Vagrant: 150MB

VirtualBox: 102MB

precise32.box: 300MB

1.5 hours @ 100KB/s

\$ vagrant  provision



new engineers



new engineers

new contributors



new engineers

new contributors

save your self



openhatch/  
oh-mainline

django in 5 min



- no virtualenv



- no virtualenv
- no pip install



- no virtualenv
- no pip install
- no C compiler



- no virtualenv
- no pip install
- no C compiler
- purely sqlite

```
# No compiler, no problem
```

```
# Load Python Imaging Library  
import Image
```

```
# No compiler, no problem
```

```
# Load Python Imaging Library
try:
    import Image
except:
```

```
# No compiler, no problem
```

```
# Load Python Imaging Library
```

```
try:
```

```
    import Image
```

```
except:
```

```
    import sys
```

```
    sys.modules['Image'] = (
```

```
        sys.modules['sys'])
```

```
# No compiler, no problem
```

```
# Load Python Imaging Library
try:
    import Image
except:
    # beloved Django ImageField
    import sys
    sys.modules['Image'] = (
        sys.modules['sys'])
```

# No compiler, no problem

```
@skipIf(base.depends.Image is None)
def test():
    # ...
```

```
# No virtualenv
```

```
vendor/
```

```
# No virtualenv
```

```
vendor/
```

```
>>> sys.path.append(...)
```

```
# No virtualenv  
vendor/  
  
>>> sys.path.append(...)  
  
search for: [kitsune vendor library]
```

```
# settings.py

DATABASES = {
    'default': {
        'NAME': 'site.db',
        'ENGINE': 'sqlite3',
    },
}
```

```
# settings.py

DATABASES = {
    'default': {
        'NAME': 'site.db',
        'ENGINE': 'sqlite3',
    },
}

if os.environ.get('USE_MYSQL', ''):
    DATABASES['default'] = (
        OTHER_DATABASES['mysql'])
```

<openhatch\_jenkins>

Make sure the install  
instructions work (daily)

build #230:

SUCCESS in 2 min 51 sec

<openhatch\_jenkins>

Make sure the install  
instructions work (daily)

build #230:

SUCCESS in 2 min 51 sec

+ humans

```
$ time pip install twisted  
41.277s total
```

```
$ time pip install twisted  
41.277s total
```

```
$ time pip install twisted  
5.653s total
```

```
$ time pip install twisted  
41.277s total
```

```
$ time pip install twisted  
5.653s total
```

PIP\_DOWNLOAD\_CACHE  
PIP\_FIND\_LINKS  
PIP\_USE\_WHEEL  
PIP\_WHEEL\_DIR

```
$ time pip install twisted  
41.277s total
```

```
$ time pip install twisted  
5.653s total
```

[glyph.im/pip](http://glyph.im/pip)

O WHEELY

also conda

# Goals

1. Be able to install
2. Be able to distribute
3. Know how to learn more

[asheesh.org/scratch/Preso](http://asheesh.org/scratch/Preso)

[packaging.python.org](http://packaging.python.org)

[glyph.im/pip](http://glyph.im/pip)

Stick around for coderanger!

[asheesh.org](http://asheesh.org)  
@asheeshlaroia

(apologies & thanks)

[asheesh.org/scratch/Preso](http://asheesh.org/scratch/Preso)

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