

---

# **py-deps Documentation**

***Release 0.2.0***

**Kouhei Maeda <mkouhei@palmtb.net>**

May 31, 2015



<b>1</b>	<b>About py-dep</b>	<b>3</b>
1.1	Status . . . . .	3
1.2	Requirements . . . . .	3
1.3	Features . . . . .	3
<b>2</b>	<b>Basic usage</b>	<b>5</b>
2.1	Search packages . . . . .	5
2.2	Initialize . . . . .	6
2.3	Generate rendering data . . . . .	6
2.4	Check cache . . . . .	8
<b>3</b>	<b>References</b>	<b>11</b>
<b>4</b>	<b>Design notes</b>	<b>15</b>
4.1	Memo . . . . .	15
<b>5</b>	<b>History</b>	<b>17</b>
5.1	0.4.2 (2015-05-31) . . . . .	17
5.2	0.4.1 (2015-05-28) . . . . .	17
5.3	0.4.0 (2015-05-20) . . . . .	17
5.4	0.3.0 (2015-05-12) . . . . .	17
5.5	0.2.0 (2015-05-10) . . . . .	17
5.6	0.1.1 (2015-05-08) . . . . .	18
5.7	0.1.0 (2015-05-07) . . . . .	18
5.8	0.0.1 (2015-04-29) . . . . .	18
<b>6</b>	<b>Indices and tables</b>	<b>19</b>
	<b>Python Module Index</b>	<b>21</b>



Contents:



---

## About py-dep

---

The `py-dep` provides parsing the dependencies of Python packages and generating the metadata for graph. The graph data is for [NetworkX](#), [Graphviz](#), [blockdiag](#), [Linkdraw](#), etc.

### 1.1 Status

### 1.2 Requirements

- Python 2.7 over or Python 3.3 over or PyPy 2.4.0 over
- pip 1.5.6 or 6.1.1 over
- wheel 0.24.0 over
- NetworkX 1.9 over

### 1.3 Features

- Generating Linkdraw data.
- Generating Networkx DiGraph object data.
- Cache the parsed dependencies.
- Searching packages from PyPI.





---

## Basic usage

---

py-deps provides parsing the Python deps and generating graph data.

### 2.1 Search packages

Search packages from PyPI:

```
$ python
>>> from py_deps import Package
>>> Package.search('deps')
[{'_pypi_ordering': False,
  'name': 'anybox.recipe.sysdeps',
  'summary': 'A buildout recipe to check system dependencies',
  'version': '0.5'},
 {'_pypi_ordering': False,
  'name': 'appdynamics-bindeps-linux-x64',
  'summary': 'Dependencies for AppDynamics Python agent',
  'version': '4.0.5.0'},
 {'_pypi_ordering': False,
  'name': 'appdynamics-bindeps-linux-x86',
  'summary': 'Dependencies for AppDynamics Python agent',
  'version': '4.0.5.0'},
 {'_pypi_ordering': False,
  'name': 'appdynamics-bindeps-osx-x64',
  'summary': 'Dependencies for AppDynamics Python agent',
  'version': '4.0.5.0'},
 {'_pypi_ordering': False,
  'name': 'deps',
  'summary': 'deps discovers your Python dependencies',
  'version': '0.1.0'},
 {'_pypi_ordering': False,
  'name': 'gtkeggdeps',
  'summary': 'Interactive egg dependency browser',
  'version': '0.0.7'},
 {'_pypi_ordering': False,
  'name': 'htmldeps',
  'summary': 'Expand CSS and javascript dependency links in HTML',
  'version': '1.2.1'},
 {'_pypi_ordering': False,
  'name': 'py-deps',
  'summary': 'parsing the Python deps and generating graph data',
  'version': '0.3.0'},
```

```
{'_pypi_ordering': False,
 'name': 'pydeps',
 'summary': 'Display module dependencies',
 'version': '1.2.1'},
{'_pypi_ordering': False,
 'name': 'runestone-test-deps',
 'summary': 'This is dependencies for RSI',
 'version': '0.1'},
{'_pypi_ordering': False,
 'name': 'tl.eggdeps',
 'summary': 'Compute a dependency graph between active Python eggs.',
 'version': '0.4'},
{'_pypi_ordering': False,
 'name': 'tt.eggdeps',
 'summary': 'Compute a dependency graph between active Python eggs.',
 'version': '0.5'}]
```

## 2.2 Initialize

Cache the parsed dependencies into the `py-deps.pickle` on current working directory. This file format is [pickle](#).

```
$ python
>>> from py_deps import Package
>>> pkg = Package('py-deps')
```

### 2.2.1 Change cache file

Use `cache_name` argument:

```
>>> pkg = Package('py-deps', cache_name='some-cache.name')
```

### 2.2.2 Override cache forcibly

Use `update_force` argument. (default: `False`):

```
>>> pkg = Package('py-deps', update_force=True)
```

## 2.3 Generate rendering data

Supports follows currently.

- pretty print
- Linkdraw

### 2.3.1 Pretty print

```
>>> print(pkg.draw())
py-deps -> [Sphinx, setuptools, pip, wheel, tox]
setuptools -> [certifi, wincertstore, setuptools[ssl], pytest]
pip -> [pytest, virtualenv, scripttest, mock, pytest, virtualenv,
       scripttest, mock]
wheel -> [ed25519ll, keyring, argparse, pyxdg, jsonschema, pytest,
         coverage, pytest-cov]
>>>
```

## 2.3.2 Linkdraw

```
>>> import json
>>> json.loads(pkg.draw('linkdraw'))
{'descr': u'py-deps dependencies',
 'lines': [{u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'py-deps', u'target': u'Sphinx', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'py-deps', u'target': u'setuptools', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'py-deps', u'target': u'pip', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'py-deps', u'target': u'wheel', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'py-deps', u'target': u'tox', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'setuptools', u'target': u'certifi', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'setuptools', u'target': u'wincertstore', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'setuptools', u'target': u'setuptools____ssl',
            u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'setuptools', u'target': u'pytest', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'pip', u'target': u'pytest', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'pip', u'target': u'virtualenv', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'pip', u'target': u'scripttest', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'pip', u'target': u'mock', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'pip', u'target': u'pytest', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'pip', u'target': u'virtualenv', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'pip', u'target': u'scripttest', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'pip', u'target': u'mock', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'wheel', u'target': u'ed25519ll', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'wheel', u'target': u'keyring', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'wheel', u'target': u'argparse', u'width': u'1'},
           {u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
            u'source': u'wheel', u'target': u'pyxdg', u'width': u'1'},
```

```
{u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
 u'source': u'wheel', u'target': u'jsonschema', u'width': u'1'},
{u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
 u'source': u'wheel', u'target': u'pytest', u'width': u'1'},
{u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
 u'source': u'wheel', u'target': u'coverage', u'width': u'1'},
{u'color': u'#5F9EA0', u'descr': u'->', u'link': u'',
 u'source': u'wheel', u'target': u'pytest-cov', u'width': u'1'}],
u'nodes': [{u'color': u'', u'link': u'https://github.com/mkouhei/py-deps',
 u'name': u'py-deps', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'Sphinx', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'https://bitbucket.org/pypa/setuptools',
 u'name': u'setuptools', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'https://pip.pypa.io/',
 u'name': u'pip', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'http://bitbucket.org/pypa/wheel/',
 u'name': u'wheel', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'tox', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'certifi', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'wincertstore',
 u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'setuptools____ssl',
 u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'pytest', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'virtualenv', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'scripttest', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'mock', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'ed25519ll', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'keyring', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'argparse', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'pyxdg', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'jsonschema', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'coverage', u'r': u'6'},
{u'color': u'#5F9EA0', u'link': u'', u'name': u'pytest-cov',
 u'r': u'6'}],
u'time': u'2015-05-08T03:52:59.542732'}
```

See also [How to use linkdraw](#).

### 2.3.3 NetworkX

```
>>> pkg.draw('networkx')
>>> <networkx.classes.digraph.DiGraph at 0x7fbe2311dbd0>
```

## 2.4 Check cache

Stores parsed dependency metadata to pickles data file. The file name is `py-deps.pickle` in default.

Listing cached data with the `list_data` method of `Container`..

```
>>> from py_deps import Container
>>> Container().list_data()
{'py-deps': [py-deps, setuptools, pip, wheel, networkx, decorator],
 (snip)}
```

Read the cached package with `read_data` method of `Container`. This method returns `Package.traced_chain`.

```
>>> Container().read_data('py-deps')
[py-deps, setuptools, pip, wheel, networkx, decorator]
```



---

## References

---

py\_deps.deps module.

**class** `py_deps.deps.Container` (*cache\_name=None*)  
Bases: `object`

Package container class.

**list\_data** ()  
Return dictionary stored package metadata.

**Return type** `dict`

**Returns** packages metadata

**load\_cache** ()  
Load cache file.

**read\_data** (*key*)  
Read traced\_chain data.

**Return type** `list`

**Returns** dependency chain list

**Parameters** **key** (*str*) – package name

**save\_cache** ()  
Save cache file.

**store\_data** (*key, data*)  
Store traced\_chain data.

**Parameters**

- **key** (*str*) – package name
- **data** (*list*) – traced dependency chain data

**class** `py_deps.deps.Node` (*name, version=None, url=None*)  
Bases: `object`

Node object class.

**add\_targets** (*nodes*)  
Add targets.

**add\_test\_targets** (*nodes*)  
Add test targets.

**remove\_targets** (\*nodes)

Remove targets.

**class** `py_deps.deps.Package` (name, cache\_name=None, update\_force=False)

Bases: `object`

Package class.

**cleanup** (alldir=False)

Cleanup temporary build directory.

**Parameters** **alldir** (bool) – Remove all temporary directories. (default: False)

**Return type** None

**draw** (draw\_type=None)

Generate drawing data.

**Parameters** **draw\_type** (str) – [dot|blockdiag|linkdraw]

**classmethod** **search** (pkg\_name, exactly=False)

Search package.

**Return type** list

**Returns** search packages

**Parameters**

- **pkg\_name** (str) – package name.
- **exactly** (bool) – exactly match only.

**trace\_chain** (pkg\_name=None)

Trace dependency chain.

**Parameters** **pkg\_name** (str) – package name

**class** `py_deps.deps.Target` (nodename, specs, extras=False)

Bases: `py_deps.deps.Node`

Target objects.

**add\_targets** (nodes)

Add targets.

**add\_test\_targets** (nodes)

Add test targets.

**remove\_targets** (\*nodes)

Remove targets.

`py_deps.deps.u2h` (name)

Change underscore to hyphen of package name.

**Return type** str

**Returns** string replaced underscore with hyphen

**Parameters** **name** (str) – package name

`py_deps.graph` module.

**class** `py_deps.graph.Graph` (chain\_data)

Bases: `object`

Graph data generate abstract class.



**generate\_nodes ()**  
Generate nodes data.

**class** `py_deps.graph.Linkdraw` (*chain\_data*)  
Bases: `py_deps.graph.Graph`

Linkdraw object class.

**generate\_data ()**  
Generate Linkdraw data.

**generate\_edges ()**  
Generate edges data.

**generate\_nodes ()**  
Generate nodes data.

**class** `py_deps.graph.Metadata`  
Bases: `object`

Metadata object class.

**class** `py_deps.graph.Networkx` (*chain\_data*)  
Bases: `py_deps.graph.Graph`

Networkx object class.

**generate\_data ()**  
Generate networkx graph data.

**generate\_edges ()**  
Generate edges data.

**generate\_nodes ()**  
Generate nodes data.

`py_deps.graph.pretty_print` (*chain\_data*)  
Pretty print on terminal.

**Parameters** **chain\_data** (*list*) – List of *deps.Node*

`py_deps.graph.router` (*chain\_data*, *draw\_type=None*)  
Routing drawing tool.



---

**Design notes**

---

**4.1 Memo**

purpose	setup.py	Egg	wheel (metadata.json)
requires	install_requires	requires.txt	run_requires.requires
no PyPI	dependency_links	dependency_links.txt	
optional	extras_require		extras
extra resource			run_requires.extra
test			test_requires.requires



---

## History

---

### 5.1 0.4.2 (2015-05-31)

- Fixes #7 not handling the failure of `python setup egg_info`.
- Adds `py_deps.exceptions` module.
- Adds `py_deps.logger` module.
- Fixes issues of `DistributionNotFound`, `InstallationError`.

### 5.2 0.4.1 (2015-05-28)

- Adds `Container.list_data` method.
- Unsupports wheel format for distribution.

### 5.3 0.4.0 (2015-05-20)

- Searching packages from PyPI.

### 5.4 0.3.0 (2015-05-12)

- Supports `NetworkX DiGraph` objects.
- Changes to use `mock` instead of `pip.req.RequirementSet.prepare_files`.
- Coverage 98% over.

### 5.5 0.2.0 (2015-05-10)

- Cache the parsed dependencies.
- Fixes setting the url of node and targets.

## 5.6 0.1.1 (2015-05-08)

- Fixes test data of pretty\_print, linkdraw.

## 5.7 0.1.0 (2015-05-07)

- Supports generating linkdraw data.
- Supports pip 6.1.1 over.
- Supports wheel format for distribution.
- Adds unit tests.

## 5.8 0.0.1 (2015-04-29)

- First release

---

## Indices and tables

---

- `genindex`
- `modindex`
- `search`





## p

`py_deps`, [5](#)  
`py_deps.deps`, [11](#)  
`py_deps.graph`, [12](#)



## A

`add_targets()` (`py_deps.deps.Node` method), 11  
`add_targets()` (`py_deps.deps.Target` method), 12  
`add_test_targets()` (`py_deps.deps.Node` method), 11  
`add_test_targets()` (`py_deps.deps.Target` method), 12

## C

`cleanup()` (`py_deps.deps.Package` method), 12  
`Container` (class in `py_deps.deps`), 11

## D

`draw()` (`py_deps.deps.Package` method), 12

## G

`generate_data()` (`py_deps.graph.Linkdraw` method), 13  
`generate_data()` (`py_deps.graph.Networkx` method), 13  
`generate_edges()` (`py_deps.graph.Linkdraw` method), 13  
`generate_edges()` (`py_deps.graph.Networkx` method), 13  
`generate_nodes()` (`py_deps.graph.Graph` method), 12  
`generate_nodes()` (`py_deps.graph.Linkdraw` method), 13  
`generate_nodes()` (`py_deps.graph.Networkx` method), 13  
`Graph` (class in `py_deps.graph`), 12

## L

`Linkdraw` (class in `py_deps.graph`), 13  
`list_data()` (`py_deps.deps.Container` method), 11  
`load_cache()` (`py_deps.deps.Container` method), 11

## M

`Metadata` (class in `py_deps.graph`), 13

## N

`Networkx` (class in `py_deps.graph`), 13  
`Node` (class in `py_deps.deps`), 11

## P

`Package` (class in `py_deps.deps`), 12  
`pretty_print()` (in module `py_deps.graph`), 13  
`py_deps` (module), 5

`py_deps.deps` (module), 11  
`py_deps.graph` (module), 12

## R

`read_data()` (`py_deps.deps.Container` method), 11  
`remove_targets()` (`py_deps.deps.Node` method), 11  
`remove_targets()` (`py_deps.deps.Target` method), 12  
`router()` (in module `py_deps.graph`), 13

## S

`save_cache()` (`py_deps.deps.Container` method), 11  
`search()` (`py_deps.deps.Package` class method), 12  
`store_data()` (`py_deps.deps.Container` method), 11

## T

`Target` (class in `py_deps.deps`), 12  
`trace_chain()` (`py_deps.deps.Package` method), 12

## U

`u2h()` (in module `py_deps.deps`), 12