
Python Jenkins Documentation

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CHAPTER 1

README

Python Jenkins is a python wrapper for the [Jenkins REST API](#) which aims to provide a more conventionally pythonic way of controlling a Jenkins server. It provides a higher-level API containing a number of convenience functions.

We like to use python-jenkins to automate our Jenkins servers. Here are some of the things you can use it for:

- Create new jobs
- Copy existing jobs
- Delete jobs
- Update jobs
- Get a job's build information
- Get Jenkins master version information
- Get Jenkins plugin information
- Start a build on a job
- Create nodes
- Enable/Disable nodes
- Get information on nodes
- Create/delete/reconfig views
- Put server in shutdown mode (quiet down)
- List running builds
- Create/delete/update folders¹
- Set the next build number²
- Install plugins

¹ The free [Cloudbees Folders Plugin](#) provides support for a subset of the full folders functionality. For the complete capabilities you will need the paid for version of the plugin.

² The [Next Build Number Plugin](#) provides support for setting the next build number.

- and many more..

To install:

```
$ sudo python setup.py install
```

Online documentation:

- <http://python-jenkins.readthedocs.org/en/latest/>

1.1 Developers

Bug report:

- <https://bugs.launchpad.net/python-jenkins>

Repository:

- <https://git.openstack.org/cgit/openstack/python-jenkins>

Cloning:

- `git clone https://git.openstack.org/openstack/python-jenkins`

Patches are submitted via Gerrit at:

- <https://review.openstack.org/>

Please do not submit GitHub pull requests, they will be automatically closed.

More details on how you can contribute is available on our wiki at:

- <http://docs.openstack.org/infra/manual/developers.html>

1.2 Writing a patch

We ask that all code submissions be `flake8` clean. The easiest way to do that is to run `tox` before submitting code for review in Gerrit. It will run `flake8` in the same manner as the automated test suite that will run on proposed patchsets.

1.3 Installing without setup.py

Then install the required python packages using `pip`:

```
$ sudo pip install python-jenkins
```

2.1 API reference

See examples at *Using Python-Jenkins*

exception `jenkins.JenkinsException`

General exception type for jenkins-API-related failures.

exception `jenkins.NotFoundException`

A special exception to call out the case of receiving a 404.

exception `jenkins.EmptyResponseException`

A special exception to call out the case receiving an empty response.

exception `jenkins.BadHTTPException`

A special exception to call out the case of a broken HTTP response.

exception `jenkins.TimeoutException`

A special exception to call out in the case of a socket timeout.

`jenkins.auth_headers` (*username*, *password*)

Simple implementation of HTTP Basic Authentication.

Returns the 'Authentication' header value.

class `jenkins.Jenkins` (*url*, *username=None*, *password=None*, *timeout=<object object>*)

Create handle to Jenkins instance.

All methods will raise *JenkinsException* on failure.

Parameters

- **username** – Server username, `str`
- **password** – Server password, `str`
- **url** – URL of Jenkins server, `str`
- **timeout** – Server connection timeout in secs (default: not set), `int`

maybe_add_crumb (*req*)

get_job_info (*name, depth=0, fetch_all_builds=False*)

Get job information dictionary.

Parameters

- **name** – Job name, `str`
- **depth** – JSON depth, `int`
- **fetch_all_builds** – If true, all builds will be retrieved from Jenkins. Otherwise, Jenkins will only return the most recent 100 builds. This comes at the expense of an additional API call which may return significant amounts of data. `bool`

Returns dictionary of job information

get_job_info_regex (*pattern, depth=0, folder_depth=0*)

Get a list of jobs information that contain names which match the `regex` pattern.

Parameters

- **pattern** – regex pattern, `str`
- **depth** – JSON depth, `int`
- **folder_depth** – folder level depth to search `int`

Returns List of jobs info, `list`

get_job_name (*name*)

Return the name of a job using the API.

That is roughly an identity method which can be used to quickly verify a job exist or is accessible without causing too much stress on the server side.

Parameters **name** – Job name, `str`

Returns Name of job or `None`

debug_job_info (*job_name*)

Print out job info in more readable format.

jenkins_open (*req, add_crumb=True*)

Utility routine for opening an HTTP request to a Jenkins server.

This should only be used to extends the *Jenkins* API.

get_build_info (*name, number, depth=0*)

Get build information dictionary.

Parameters

- **name** – Job name, `str`
- **number** – Build number, `int`
- **depth** – JSON depth, `int`

Returns dictionary of build information, `dict`

Example:

```

>>> next_build_number = server.get_job_info('build_name')['nextBuildNumber']
>>> output = server.build_job('build_name')
>>> from time import sleep; sleep(10)
>>> build_info = server.get_build_info('build_name', next_build_number)
>>> print(build_info)
{'building': False, 'changeSet': {'items': [{'date': u'2011-12-19T18:01:52.540557Z', 'msg': u'test', 'revision': 66, 'user': u'unknown', 'paths': [{'editType': u'edit', 'file': u'/branches/demo/index.html'}]}, {'kind': u'svn', 'revisions': [{'module': u'http://eaas-svn01.i3.level3.com/eaas', 'revision': 66}]}, 'builtOn': u'', 'description': None, 'artifacts': [{'relativePath': u'dist/eaas-87-2011-12-19_18-01-57.war', 'displayPath': u'eaas-87-2011-12-19_18-01-57.war', 'fileName': u'eaas-87-2011-12-19_18-01-57.war'}, {'relativePath': u'dist/eaas-87-2011-12-19_18-01-57.war.zip', 'displayPath': u'eaas-87-2011-12-19_18-01-57.war.zip', 'fileName': u'eaas-87-2011-12-19_18-01-57.war.zip'}], 'timestamp': 1324317717000, 'number': 87, 'actions': [{'parameters': [{'name': u'SERVICE_NAME', 'value': u'eaas'}, {'name': u'PROJECT_NAME', 'value': u'demo'}]}, {'causes': [{'userName': u'anonymous', 'shortDescription': u'Started by user anonymous'}]}, {}, {}, {}], 'id': u'2011-12-19_18-01-57', 'keepLog': False, 'url': u'http://eaas-jenkins01.i3.level3.com:9080/job/build_war/87/', 'culprits': [{'absoluteUrl': u'http://eaas-jenkins01.i3.level3.com:9080/user/unknown', 'fullName': u'unknown'}], 'result': u'SUCCESS', 'duration': 8826, 'fullDisplayName': u'build_war #87'}

```

get_queue_info()

Returns list of job dictionaries, [dict]

Example::

```

>>> queue_info = server.get_queue_info()
>>> print(queue_info[0])
{'task': {'url': u'http://your_url/job/my_job/', 'color': u'aborted_anime', 'name': u'my_job'}, 'stuck': False, 'actions': [{'causes': [{'shortDescription': u'Started by timer'}]}], 'buildable': False, 'params': u'', 'buildableStartMilliseconds': 1315087293316, 'why': u'Build #2,532 is already in progress (ETA:10 min)', 'blocked': True}

```

cancel_queue(id)

Cancel a queued build.

Parameters *id* – Jenkins job id number for the build, int

get_info(item="", query=None)

Get information on this Master or item on Master.

This information includes job list and view information and can be used to retrieve information on items such as job folders.

Parameters

- **item** – item to get information about on this Master
- **query** – xpath to extract information about on this Master

Returns dictionary of information about Master or item, dict

Example:

```
>>> info = server.get_info()
>>> jobs = info['jobs']
>>> print(jobs[0])
{'url': u'http://your_url_here/job/my_job/', u'color': u'blue',
 u'name': u'my_job'}
```

get_whoami()

Get information about the user account that authenticated to Jenkins. This is a simple way to verify that your credentials are correct.

Returns Information about the current user dict

Example:

```
>>> me = server.get_whoami()
>>> print me['fullName']
>>> 'John'
```

get_version()

Get the version of this Master.

Returns This master's version number str

Example:

```
>>> info = server.get_version()
>>> print info
>>> 1.541
```

get_plugins_info(depth=2)

Get all installed plugins information on this Master.

This method retrieves information about each plugin that is installed on master returning the raw plugin data in a JSON format.

Deprecated since version 0.4.9: Use `get_plugins()` instead.

Parameters `depth` – JSON depth, int

Returns info on all plugins [dict]

Example:

```
>>> info = server.get_plugins_info()
>>> print(info)
[{'backupVersion': None, u'version': u'0.0.4', u'deleted': False,
 u'supportsDynamicLoad': u'MAYBE', u'hasUpdate': True,
 u'enabled': True, u'pinned': False, u'downgradable': False,
 u'dependencies': [], u'url':
 u'http://wiki.jenkins-ci.org/display/JENKINS/Gearman+Plugin',
 u'longName': u'Gearman Plugin', u'active': True, u'shortName':
 u'gearman-plugin', u'bundled': False}, ..]
```

get_plugin_info(name, depth=2)

Get an installed plugin information on this Master.

This method retrieves information about a specific plugin and returns the raw plugin data in a JSON format. The passed in plugin name (short or long) must be an exact match.

Note: Calling this method will query Jenkins fresh for the information for all plugins on each call. If

you need to retrieve information for multiple plugins it's recommended to use `get_plugins()` instead, which will return a multi key dictionary that can be accessed via either the short or long name of the plugin.

Parameters

- **name** – Name (short or long) of plugin, `str`
- **depth** – JSON depth, `int`

Returns a specific plugin `dict`

Example:

```
>>> info = server.get_plugin_info("Gearman Plugin")
>>> print(info)
{'backupVersion': None, u'version': u'0.0.4', u'deleted': False,
 u'supportsDynamicLoad': u'MAYBE', u'hasUpdate': True,
 u'enabled': True, u'pinned': False, u'downgradable': False,
 u'dependencies': [], u'url':
 u'http://wiki.jenkins-ci.org/display/JENKINS/Gearman+Plugin',
 u'longName': u'Gearman Plugin', u'active': True, u'shortName':
 u'gearman-plugin', u'bundled': False}
```

`get_plugins (depth=2)`

Return plugins info using helper class for version comparison

This method retrieves information about all the installed plugins and uses a Plugin helper class to simplify version comparison. Also uses a multi key dict to allow retrieval via either short or long names.

When printing/dumping the data, the version will transparently return a unicode string, which is exactly what was previously returned by the API.

Parameters **depth** – JSON depth, `int`

Returns info on all plugins [`dict`]

Example:

```
>>> j = Jenkins()
>>> info = j.get_plugins()
>>> print(info)
{('gearman-plugin', 'Gearman Plugin'):
 {u'backupVersion': None, u'version': u'0.0.4',
 u'deleted': False, u'supportsDynamicLoad': u'MAYBE',
 u'hasUpdate': True, u'enabled': True, u'pinned': False,
 u'downgradable': False, u'dependencies': [], u'url':
 u'http://wiki.jenkins-ci.org/display/JENKINS/Gearman+Plugin',
 u'longName': u'Gearman Plugin', u'active': True, u'shortName':
 u'gearman-plugin', u'bundled': False}, ...}
```

`get_jobs (folder_depth=0, view_name=None)`

Get list of jobs.

Each job is a dictionary with 'name', 'url', 'color' and 'fullname' keys.

If the `view_name` parameter is present, the list of jobs will be limited to only those configured in the specified view. In this case, the job dictionary 'fullname' key would be equal to the job name.

Parameters

- **folder_depth** – Number of levels to search, `int`. By default 0, which will limit search to toplevel. None disables the limit.
- **view_name** – Name of a Jenkins view for which to retrieve jobs, `str`. By default, the job list is not limited to a specific view.

Returns list of jobs, `[{str: str, str: str, str: str, str: str}]`

Example:

```
>>> jobs = server.get_jobs()
>>> print(jobs)
[{'name': u'all_tests',
  'url': u'http://your_url.here/job/all_tests/',
  'color': u'blue',
  'fullname': u'all_tests'
}]
```

get_all_jobs (*folder_depth=None*)

Get list of all jobs recursively to the given folder depth.

Each job is a dictionary with 'name', 'url', 'color' and 'fullname' keys.

Parameters **folder_depth** – Number of levels to search, `int`. By default None, which will search all levels. 0 limits to toplevel.

Returns list of jobs, `[{ str: str }]`

Note: On instances with many folders it may be more efficient to use the `run_script` method to retrieve all jobs instead.

Example:

```
server.run_script("""
    import groovy.json.JsonBuilder;

    // get all projects excluding matrix configuration
    // as they are simply part of a matrix project.
    // there may be better ways to get just jobs
    items = Jenkins.instance.getAllItems(AbstractProject);
    items.removeAll {
        it instanceof hudson.matrix.MatrixConfiguration
    };

    def json = new JsonBuilder()
    def root = json {
        jobs items.collect {
            [
                name: it.name,
                url: Jenkins.instance.getRootUrl() + it.getUrl(),
                color: it.getIconColor().toString(),
                fullname: it.getFullName()
            ]
        }
    }

    // use json.toPrettyString() if viewing
    println json.toString()
""")
```

copy_job (*from_name, to_name*)

Copy a Jenkins job.

Will raise an exception whenever the source and destination folder for this jobs won't be the same.

Parameters

- **from_name** – Name of Jenkins job to copy from, `str`
- **to_name** – Name of Jenkins job to copy to, `str`

Throws `JenkinsException` whenever the source and destination folder are not the same

rename_job (*from_name, to_name*)

Rename an existing Jenkins job

Will raise an exception whenever the source and destination folder for this jobs won't be the same.

Parameters

- **from_name** – Name of Jenkins job to rename, `str`
- **to_name** – New Jenkins job name, `str`

Throws `JenkinsException` whenever the source and destination folder are not the same

delete_job (*name*)

Delete Jenkins job permanently.

Parameters **name** – Name of Jenkins job, `str`

enable_job (*name*)

Enable Jenkins job.

Parameters **name** – Name of Jenkins job, `str`

disable_job (*name*)

Disable Jenkins job.

To re-enable, call `Jenkins.enable_job()`.

Parameters **name** – Name of Jenkins job, `str`

set_next_build_number (*name, number*)

Set a job's next build number.

The current next build number is contained within the job information retrieved using `Jenkins.get_job_info()`. If the specified next build number is less than the last build number, Jenkins will ignore the request.

Note that the [Next Build Number Plugin](#) must be installed to enable this functionality.

Parameters

- **name** – Name of Jenkins job, `str`
- **number** – Next build number to set, `int`

Example:

```
>>> next_bn = server.get_job_info('job_name')['nextBuildNumber']
>>> server.set_next_build_number('job_name', next_bn + 50)
```

job_exists (*name*)

Check whether a job exists

Parameters **name** – Name of Jenkins job, `str`

Returns `True` if Jenkins job exists

jobs_count ()

Get the number of jobs on the Jenkins server

Returns Total number of jobs, `int`

Note: On instances with many folders it may be more efficient to use the `run_script` method to retrieve the total number of jobs instead.

Example:

```
# get all projects excluding matrix configuration
# as they are simply part of a matrix project.
server.run_script(
    "print (Hudson.instance.getAllItems ("
    "    hudson.model.AbstractProject).count {"
    "        ! (it instanceof hudson.matrix.MatrixConfiguration) "
    "    } ) ")
```

assert_job_exists (*name*, *exception_message='job[%s] does not exist'*)

Raise an exception if a job does not exist

Parameters

- **name** – Name of Jenkins job, `str`
- **exception_message** – Message to use for the exception. Formatted with *name*

Throws *JenkinsException* whenever the job does not exist

create_job (*name*, *config_xml*)

Create a new Jenkins job

Parameters

- **name** – Name of Jenkins job, `str`
- **config_xml** – config file text, `str`

get_job_config (*name*)

Get configuration of existing Jenkins job.

Parameters **name** – Name of Jenkins job, `str`

Returns job configuration (XML format)

reconfig_job (*name*, *config_xml*)

Change configuration of existing Jenkins job.

To create a new job, see *Jenkins.create_job()*.

Parameters

- **name** – Name of Jenkins job, `str`
- **config_xml** – New XML configuration, `str`

build_job_url (*name*, *parameters=None*, *token=None*)

Get URL to trigger build job.

Authenticated setups may require configuring a token on the server side.

Parameters

- **parameters** – parameters for job, or None., dict
- **token** – (optional) token for building job, str

Returns URL for building job

build_job (*name*, *parameters=None*, *token=None*)
Trigger build job.

Parameters

- **name** – name of job
- **parameters** – parameters for job, or None, dict
- **token** – Jenkins API token

run_script (*script*)
Execute a groovy script on the jenkins master.

Parameters **script** – The groovy script, string

Returns The result of the script run.

Example::

```
>>> info = server.run_script("println(Jenkins.instance.pluginManager.
↳plugins)")
>>> print(info)
u'[Plugin:windows-slaves, Plugin:ssh-slaves, Plugin:translation,
Plugin:cvs, Plugin:nodelabelparameter, Plugin:external-monitor-job,
Plugin:mailer, Plugin:jquery, Plugin:antisamy-markup-formatter,
Plugin:maven-plugin, Plugin:pam-auth]'
```

install_plugin (*name*, *include_dependencies=True*)

Install a plugin and its dependencies from the Jenkins public repository at <http://repo.jenkins-ci.org/repo/org/jenkins-ci/plugins>

Parameters

- **name** – The plugin short name, string
- **include_dependencies** – Install the plugin's dependencies, bool

Returns Whether a Jenkins restart is required, bool

Example::

```
>>> info = server.install_plugin("jabber")
>>> print(info)
True
```

stop_build (*name*, *number*)

Stop a running Jenkins build.

Parameters

- **name** – Name of Jenkins job, str
- **number** – Jenkins build number for the job, int

get_running_builds()

Return list of running builds.

Each build is a dict with keys 'name', 'number', 'url', 'node', and 'executor'.

Returns List of builds, [{ str: str, str: int, str:str, str: str, str: int}]

Example::

```
>>> builds = server.get_running_builds()
>>> print(builds)
[{'node': 'foo-slave', 'url': 'https://localhost/job/test/15/',
 'executor': 0, 'name': 'test', 'number': 15}]
```

get_nodes()

Get a list of nodes connected to the Master

Each node is a dict with keys 'name' and 'offline'

Returns List of nodes, [{ str: str, str: bool}]

get_node_info(name, depth=0)

Get node information dictionary

Parameters

- **name** – Node name, str
- **depth** – JSON depth, int

Returns Dictionary of node info, dict

node_exists(name)

Check whether a node exists

Parameters **name** – Name of Jenkins node, str

Returns True if Jenkins node exists

assert_node_exists(name, exception_message='node[%s] does not exist')

Raise an exception if a node does not exist

Parameters

- **name** – Name of Jenkins node, str
- **exception_message** – Message to use for the exception. Formatted with name

Throws *JenkinsException* whenever the node does not exist

delete_node(name)

Delete Jenkins node permanently.

Parameters **name** – Name of Jenkins node, str

disable_node(name, msg="")

Disable a node

Parameters

- **name** – Jenkins node name, str
- **msg** – Offline message, str

enable_node (*name*)

Enable a node

Parameters **name** – Jenkins node name, `str`

create_node (*name*, *numExecutors*=2, *nodeDescription*=None, *remoteFS*='/var/lib/jenkins',
labels=None, *exclusive*=False, *launcher*='hudson.slaves.CommandLauncher',
launcher_params={})

Create a node

Parameters

- **name** – name of node to create, `str`
- **numExecutors** – number of executors for node, `int`
- **nodeDescription** – Description of node, `str`
- **remoteFS** – Remote filesystem location to use, `str`
- **labels** – Labels to associate with node, `str`
- **exclusive** – Use this node for tied jobs only, `bool`
- **launcher** – The launch method for the slave, `jenkins.LAUNCHER_COMMAND`,
`jenkins.LAUNCHER_SSH`, `jenkins.LAUNCHER_JNLP`, `jenkins.LAUNCHER_WINDOWS_SERVICE`
- **launcher_params** – Additional parameters for the launcher, `dict`

get_node_config (*name*)

Get the configuration for a node.

Parameters **name** – Jenkins node name, `str`

reconfig_node (*name*, *config_xml*)

Change the configuration for an existing node.

Parameters

- **name** – Jenkins node name, `str`
- **config_xml** – New XML configuration, `str`

get_build_console_output (*name*, *number*)

Get build console text.

Parameters

- **name** – Job name, `str`
- **number** – Build number, `int`

Returns Build console output, `str`

get_view_name (*name*)

Return the name of a view using the API.

That is roughly an identity method which can be used to quickly verify a view exists or is accessible without causing too much stress on the server side.

Parameters **name** – View name, `str`

Returns Name of view or None

assert_view_exists (*name*, *exception_message*='view[%s] does not exist')

Raise an exception if a view does not exist

Parameters

- **name** – Name of Jenkins view, `str`
- **exception_message** – Message to use for the exception. Formatted with `name`

Throws `JenkinsException` whenever the view does not exist

`view_exists (name)`

Check whether a view exists

Parameters **name** – Name of Jenkins view, `str`

Returns `True` if Jenkins view exists

`get_views ()`

Get list of views running.

Each view is a dictionary with 'name' and 'url' keys.

Returns list of views, [{ `str`: `str` }]

`delete_view (name)`

Delete Jenkins view permanently.

Parameters **name** – Name of Jenkins view, `str`

`create_view (name, config_xml)`

Create a new Jenkins view

Parameters

- **name** – Name of Jenkins view, `str`
- **config_xml** – config file text, `str`

`reconfig_view (name, config_xml)`

Change configuration of existing Jenkins view.

To create a new view, see `Jenkins.create_view()`.

Parameters

- **name** – Name of Jenkins view, `str`
- **config_xml** – New XML configuration, `str`

`get_view_config (name)`

Get configuration of existing Jenkins view.

Parameters **name** – Name of Jenkins view, `str`

Returns view configuration (XML format)

`get_promotion_name (name, job_name)`

Return the name of a promotion using the API.

That is roughly an identity method which can be used to quickly verify a promotion exists for a job or is accessible without causing too much stress on the server side.

Parameters

- **job_name** – Job name, `str`
- **name** – Promotion name, `str`

Returns Name of promotion or `None`

assert_promotion_exists (*name, job_name, exception_message='promotion[%s] does not exist for job[%s]'*)

Raise an exception if a job lacks a promotion

Parameters

- **job_name** – Job name, `str`
- **name** – Name of Jenkins promotion, `str`
- **exception_message** – Message to use for the exception. Formatted with name and job_name

Throws `JenkinsException` whenever the promotion does not exist on a job

promotion_exists (*name, job_name*)

Check whether a job has a certain promotion

Parameters

- **job_name** – Job name, `str`
- **name** – Name of Jenkins promotion, `str`

Returns True if Jenkins promotion exists

get_promotions_info (*job_name, depth=0*)

Get promotion information dictionary of a job

Parameters

- **name** – job_name, `str`
- **depth** – JSON depth, `int`

Returns Dictionary of promotion info, `dict`

get_promotions (*job_name*)

Get list of promotions running.

Each promotion is a dictionary with 'name' and 'url' keys.

Parameters **job_name** – Job name, `str`

Returns list of promotions, [{ `str`: `str` }]

delete_promotion (*name, job_name*)

Delete Jenkins promotion permanently.

Parameters

- **job_name** – Job name, `str`
- **name** – Name of Jenkins promotion, `str`

create_promotion (*name, job_name, config_xml*)

Create a new Jenkins promotion

Parameters

- **name** – Name of Jenkins promotion, `str`
- **job_name** – Job name, `str`
- **config_xml** – config file text, `str`

reconfig_promotion (*name, job_name, config_xml*)

Change configuration of existing Jenkins promotion.

To create a new promotion, see *Jenkins.create_promotion()*.

Parameters

- **name** – Name of Jenkins promotion, *str*
- **job_name** – Job name, *str*
- **config_xml** – New XML configuration, *str*

get_promotion_config (*name, job_name*)

Get configuration of existing Jenkins promotion.

Parameters

- **name** – Name of Jenkins promotion, *str*
- **job_name** – Job name, *str*

Returns promotion configuration (XML format)

quiet_down ()

Prepare Jenkins for shutdown.

No new builds will be started allowing running builds to complete prior to shutdown of the server.

wait_for_normal_op (*timeout*)

Wait for jenkins to enter normal operation mode.

Parameters **timeout** – number of seconds to wait, *int* Note this is not the same as the connection timeout set via `__init__` as that controls the socket timeout. Instead this is how long to wait until the status returned.

Returns `True` if Jenkins became ready in time, `False` otherwise.

Setting timeout to be less than the configured connection timeout may result in this waiting for at least the connection timeout length of time before returning. It is recommended that the timeout here should be at least as long as any set connection timeout.

class `jenkins.plugins.Plugin` (**args, **kwargs*)

Dictionary object containing plugin metadata.

Populates dictionary using json object input.

accepts same arguments as python *dict* class.

class `jenkins.plugins.PluginVersion` (*version*)

Class providing comparison capabilities for plugin versions.

Parse plugin version and store it for comparison.

2.2 Using Python-Jenkins

The `python-jenkins` library allows management of a Jenkins server through the Jenkins REST endpoints. Below are examples to get you started using the library. If you need further help take a look at the [API reference](#) docs for more details.

2.2.1 Example 1: Get version of Jenkins

This is an example showing how to connect to a Jenkins instance and retrieve the Jenkins server version.

```
import jenkins

server = jenkins.Jenkins('http://localhost:8080', username='myuser', password=
↳ 'mypassword')
user = server.get_whoami()
version = server.get_version()
print('Hello %s from Jenkins %s' % (user['fullName'], version))
```

The above code prints the `fullName` attribute of the user and the version of the Jenkins master running on `localhost:8080`. For example, it may print “Hello John from Jenkins 2.0”.

From Jenkins version 1.426 onward you can specify an API token instead of your real password while authenticating the user against the Jenkins instance. Refer to the [Jenkins Authentication](#) wiki for details about how you can generate an API token. Once you have an API token you can pass the API token instead of a real password while creating a Jenkins instance.

2.2.2 Example 2: Logging into Jenkins using kerberos

Kerberos support is only enabled if you have “kerberos” python package installed. You can install the “kerberos” package from PyPI using the obvious pip command.

```
pip install kerberos
```

Note: This might require python header files as well as kerberos header files.

If you have “kerberos” python package installed, `python-jenkins` tries to authenticate using kerberos automatically when the Jenkins server replies “401 Unauthorized” and indicates it supports kerberos. That is, kerberos authentication should work automatically. For a quick test, just try the following.

```
import jenkins

server = jenkins.Jenkins('http://localhost:8080')
print server.jobs_count()
```

Note: Jenkins as such does not support kerberos, it needs to be supported by the Servlet container or a reverse proxy sitting in front of Jenkins.

2.2.3 Example 3: Working with Jenkins Jobs

This is an example showing how to create, configure and delete Jenkins jobs.

```
server.create_job('empty', jenkins.EMPTY_CONFIG_XML)
jobs = server.get_jobs()
print jobs
my_job = server.get_job_config('cool-job')
print(my_job) # prints XML configuration
server.build_job('empty')
```

```
server.disable_job('empty')
server.copy_job('empty', 'empty_copy')
server.enable_job('empty_copy')
server.reconfig_job('empty_copy', jenkins.RECONFIG_XML)

server.delete_job('empty')
server.delete_job('empty_copy')

# build a parameterized job
# requires creating and configuring the api-test job to accept 'param1' & 'param2'
server.build_job('api-test', {'param1': 'test value 1', 'param2': 'test value 2'})
last_build_number = server.get_job_info('api-test')['lastCompletedBuild']['number']
build_info = server.get_build_info('api-test', last_build_number)
print build_info

# get all jobs from the specific view
jobs = server.get_jobs(view_name='View Name')
print jobs
```

2.2.4 Example 4: Working with Jenkins Views

This is an example showing how to create, configure and delete Jenkins views.

```
server.create_view('EMPTY', jenkins.EMPTY_VIEW_CONFIG_XML)
view_config = server.get_view_config('EMPTY')
views = server.get_views()
server.delete_view('EMPTY')
print views
```

2.2.5 Example 5: Working with Jenkins Plugins

This is an example showing how to retrieve Jenkins plugins information.

```
plugins = server.get_plugins_info()
print plugins
```

The above example will print a dictionary containing all the plugins that are installed on the Jenkins server. An example of what you can expect from the `get_plugins_info()` method is documented in the [API reference doc](#).

2.2.6 Example 6: Working with Jenkins Nodes

This is an example showing how to add, configure, enable and delete Jenkins nodes.

```
server.create_node('slavel')
nodes = get_nodes()
print nodes
node_config = server.get_node_info('slavel')
print node_config
server.disable_node('slavel')
server.enable_node('slavel')

# create node with parameters
params = {
```

```

    'port': '22',
    'username': 'juser',
    'credentialsId': '10f3a3c8-be35-327e-b60b-a3e5edb0e45f',
    'host': 'my.jenkins.slave1'
}
server.create_node(
    'slave1',
    nodeDescription='my test slave',
    remoteFS='/home/juser',
    labels='precise',
    exclusive=True,
    launcher=jenkins.LAUNCHER_SSH,
    launcher_params=params)

```

2.2.7 Example 7: Working with Jenkins Build Queue

This is an example showing how to retrieve information on the Jenkins queue.

```

server.build_job('foo')
queue_info = server.get_queue_info()
id = queue_info[0].get('id')
server.cancel_queue(id)

```

2.2.8 Example 8: Working with Jenkins Cloudbees Folders

Requires the [Cloudbees Folders Plugin](#) for Jenkins.

This is an example showing how to create, configure and delete Jenkins folders.

```

server.create_job('folder', jenkins.EMPTY_FOLDER_XML)
server.create_job('folder/empty', jenkins.EMPTY_FOLDER_XML)
server.copy_job('folder/empty', 'folder/empty_copy')
server.delete_job('folder/empty_copy')
server.delete_job('folder')

```

2.2.9 Example 9: Updating Next Build Number

Requires the [Next Build Number Plugin](#) for Jenkins.

This is an example showing how to update the next build number for a Jenkins job.

```

next_bn = server.get_job_info('job_name')['nextBuildNumber']
server.set_next_build_number('job_name', next_bn + 50)

```

2.2.10 Example 9: Working with Build Promotions

Requires the [Promoted Builds Plugin](#) for Jenkins.

This is an example showing how to create, configure and delete a promotion process for an existing job.

The job in this example is named *prom_job* and it needs to have this config xml snippet before creating the promotion:

```
::
```

```
<properties>
  <hudson.plugins.promoted__builds.JobPropertyImpl> <activeProcessNames>
    <string>prom_name</string>
  </activeProcessNames>
</hudson.plugins.promoted__builds.JobPropertyImpl>
</properties>
```

where *prom_name* is the name of the promotion that will get added to the job.

```
:: server.create_promotion('prom_name', 'prom_job', jenkins.EMPTY_PROMO_CONFIG_XML)
server.promotion_exists('prom_name', 'prom_job') print server.get_promotions('prom_job')

server.reconfig_promotion('prom_name', 'prom_job', jenkins.PROMO_RECONFIG_XML) print
server.get_promotion_config('prom_name', 'prom_job')

server.delete_promotion('prom_name', 'prom_job')
```

2.2.11 Example 10: Waiting for Jenkins to be ready

It is possible to ask the API to wait for Jenkins to be ready with a given timeout. This can be used to aid launching of Jenkins and then waiting for the REST API to be responsive before continuing with subsequent configuration.

```
:: # timeout here is the socket connection timeout, for each connection # attempt it will wait at most 5 seconds
before assuming there is # nothing listening. Useful where firewalls may black hole connections. server =
jenkins.Jenkins('http://localhost:8080', timeout=5)

# wait for at least 30 seconds for Jenkins to be ready if server.wait_for_normal_op(30):
# actions once running ...

else: print("Jenkins failed to be ready in sufficient time") exit 2
```

Note that the timeout arg to *jenkins.Jenkins()* is the socket connection timeout. If you set this to be more than the timeout value passed to *wait_for_normal_op()*, then in cases where the underlying connection is not rejected (firewall black-hole, or slow connection) then *wait_for_normal_op()* may wait at least the connection timeout, or a multiple of it where multiple connection attempts are made. A connection timeout of 5 seconds and a wait timeout of 8 will result in potentially waiting 10 seconds if both connections attempts do not get responses.

2.3 Installing

The module is known to pip and Debian-based distributions as `python-jenkins`.

pip:

```
pip install python-jenkins
```

easy_install:

```
easy_install python-jenkins
```

The module has been packaged since Ubuntu Oneiric (11.10):

```
apt-get install python-jenkins
```

And on Fedora 19 and later:

```
yum install python-jenkins
```

For development:

```
python setup.py develop
```

2.3.1 Documentation

Documentation is included in the `doc` folder. To generate docs locally execute the command:

```
tox -e docs
```

The generated documentation is then available under `doc/build/html/index.html`.

2.3.2 Unit Tests

Unit tests have been included and are in the `tests` folder. We recently started including unit tests as examples in our documentation so to keep the examples up to date it is very important that we include unit tests for every module. To run the unit tests, execute the command:

```
tox -e py27
```

- Note: View `tox.ini` to run tests on other versions of Python.

Due to how the tests are split up into a dedicated class per API method, it is possible to execute tests against a single API at a time. To execute the tests for the `Jenkins.get_version()` API execute the command:

```
tox -e py27 -- tests.test_version.JenkinsVersionTest
```

For further details on how to list tests available and different ways to execute them, see <https://wiki.openstack.org/wiki/Testr>.

2.3.3 Test Coverage

To measure test coverage, execute the command:

```
tox -e cover
```


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