

# Jenkins API with Python

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## 简介

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本次我们将要学习JenkinsAPI接口，我们先用Python-jenkins这个库完成。

仓库Pypi : <https://pypi.org/project/python-jenkins/>

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

当前环境Python版本 v3.7.0

## 功能

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- Create new jobs 创建新项目
- Copy existing jobs 复制已存在的项目
- Delete jobs 删除项目
- Update jobs 更新项目
- Get a job's build information 获取一个项目的构建信息
- Get Jenkins master version information 获取Jenkins master的版本信息
- Get Jenkins plugin information 过去jenkins插件信息
- Start a build on a job 构建一个项目
- Create nodes 创建一个节点
- Enable/Disable nodes 启用/禁用节点
- Get information on nodes 获取节点信息
- Create/delete/reconfig views 创建/删除/更新视图
- Put server in shutdown mode (quiet down) 关机
- List running builds 列出构建中的项目
- Delete builds 删除构建
- Wipeout job workspace
- Create/delete/update folders 创建/删除/更新文件夹
- Set the next build number 设置下次构建ID
- Install plugins 安装插件

## 学习使用思路

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例如我要创建一个项目

1. 要先找到创建项目的方法
2. 然后根据API文档查阅如何使用 [每个接口的使用方法](#)

### 3. 打开一个python解释器调试

## 初始化配置

### 安装python-jenkins

```
pip install python-jenkins==1.6.0
```

### 测试

```
ZeyangdeMacBook-Pro:~ zeyang$ python3
Python 3.7.4 (v3.7.4:e09359112e, Jul 8 2019, 14:54:52)
[Clang 6.0 (clang-600.0.57)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
>>> import jenkins
>>> server =
jenkins.Jenkins("http://127.0.0.1:8080",username="admin",password="admin")
>>> server.get_whoami()
{'_class': 'hudson.model.User', 'absoluteUrl':
'http://127.0.0.1:8080/user/admin', 'description': '', 'fullName': 'admin',
'id': 'admin', 'property': [{'_class': 'jenkins.security.ApiTokenProperty'},
{'_class': 'jenkins.security.LastGrantedAuthoritiesProperty'}, {'_class':
'hudson.model.MyViewsProperty'}, {'_class':
'hudson.model.PaneStatusProperties'}, {'_class':
'hudson.security.HudsonPrivateSecurityRealm$Details'}, {'_class':
'org.jenkinsci.main.modules.cli.auth.ssh.UserPropertyImpl'}, {'_class':
'jenkins.security.seed.UserSeedProperty'}, {'_class':
'hudson.search.UserSearchProperty', 'insensitiveSearch': True}, {'_class':
'hudson.model.TimeZoneProperty'}]}
```

### 查看 所有的方法

```
>>> dir(server)
['_class_', '__delattr__', '__dict__', '__dir__', '__doc__', '__eq__',
 '__format__', '__ge__', '__getattribute__', '__gt__', '__hash__', '__init__',
 '__init_subclass__', '__le__', '__lt__', '__module__', '__ne__', '__new__',
 '__reduce__', '__reduce_ex__', '__repr__', '__setattr__', '__sizeof__',
 '__str__', '__subclasshook__', '__weakref__', '_add_missing_builds',
 '_auth_resolved', '_auths', '_build_url', '_get_encoded_params',
 '_get_job_folder', '_get_tag_text', '_get_view_jobs', '_maybe_add_auth',
 '_request', '_response_handler', '_session', '_timeout_warning_issued',
 'assert_credential_exists', 'assert_folder', 'assert_job_exists',
 'assert_node_exists', 'assert_promotion_exists', 'assert_view_exists', 'auth',
 'build_job', 'build_job_url', 'cancel_queue', 'check_jenkinsfile_syntax',
 'copy_job', 'create_credential', 'create_folder', 'create_job', 'create_node',
 'create_promotion', 'create_view', 'credential_exists', 'crumb',
 'debug_job_info', 'delete_build', 'delete_credential', 'delete_job',
 'delete_node', 'delete_promotion', 'delete_view', 'disable_job',
 'disable_node', 'enable_job', 'enable_node', 'get_all_jobs',
 'get_build_console_output', 'get_build_env_vars', 'get_build_info',
 'get_build_test_report', 'get_credential_config', 'get_credential_info',
 'get_info', 'get_job_config', 'get_job_info', 'get_job_info_regex',
 'get_job_name', 'get_jobs', 'get_node_config', 'get_node_info', 'get_nodes',
 'get_plugin_info', 'get_plugins', 'get_plugins_info', 'get_promotion_config',
 'get_promotion_name', 'get_promotions', 'get_promotions_info',
 'get_queue_info', 'get_queue_item', 'get_running_builds', 'get_version',
 'get_view_config', 'get_view_name', 'get_views', 'get_whoami',
 'install_plugin', 'is_folder', 'jenkins_open', 'jenkins_request',
 'job_exists', 'jobs_count', 'list_credentials', 'maybe_add_crumb',
 'node_exists', 'promotion_exists', 'quiet_down', 'reconfig_credential',
 'reconfig_job', 'reconfig_node', 'reconfig_promotion', 'reconfig_view',
 'rename_job', 'run_script', 'server', 'set_next_build_number', 'stop_build',
 'timeout', 'upsert_job', 'view_exists', 'wait_for_normal_op',
 'wipeout_job_workspace']
```

## do操作方法

功能	python方法
项目操作	create_job disable_job delete_job copy_job enable_job job_exists jobs_count upsert_job
构建操作	build_job delete_build build_job_url stop_build
凭据操作	create_credential delete_credentialcredential_exists
视图操作	create_view delete_view view_exists
节点操作	create_node disable_node delete_node enable_node node_exists
晋级操作	create_promotion delete_promotion promotion_exists
取消队列	cancel_queue
检查jenkinsfile 语法	check_jenkinsfile_syntax
检查项目信息	debug_job_info
文件夹操作	is_folder create_folder
安装插件	install_plugin

## get获取方法

功能	python方法
获取项目信息	get_all_jobs get_job_config get_job_info get_job_info_regex get_job_name get_jobs
获取构建信息	get_build_console_output get_build_env_vars get_build_info get_build_test_report
获取凭据信息	get_credential_config get_credential_info list_credentials
	get_info
获取节点信息	get_node_config get_node_info get_nodes
获取插件信息	get_plugin_info get_plugins get_plugins_info
获取晋级信息	get_promotion_config get_promotion_name get_promotions get_promotions_info
获取队列信息	get_queue_info get_queue_item
获取运行中构建	get_running_builds
获取版本	get_version
获取视图信息	get_view_config get_view_name get_views
获取当前用户	get_whoami
	jenkins_open
	jenkins_request

## 更新操作

功能	python方法
关机	quiet_down
更新凭据	reconfig_credential
更新项目	reconfig_job
更新节点	reconfig_node
更新晋级	reconfig_promotion
更新视图	reconfig_view
重命名项目	rename_job
运行脚本	run_script
设置下次构建id	set_next_build_number

## 演示实例

每个接口的使用方法：<https://python-jenkins.readthedocs.io/en/latest/api.html>

## 项目操作


我们需要认识一下Jenkins项目的config.xml，大部分API在创建项目的时候会使用xml文件。

首先创建一个项目（任何类型的都可以不必纠结）

Enter an item name

demo-test

» Required field



**Freestyle project**  
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

OK

然后我们进入\$JENKINS\_HOME/jobs/目录查看我们这个项目生成的config.xml文件。

builds存放项目的构建信息。

```
ZeyangdeMacBook-Pro:jobs zeyang$ ls
demo-test
ZeyangdeMacBook-Pro:jobs zeyang$ ls demo-test/
builds      config.xml
```

## config.xml

可以看到jenkins的文件存储都是以xml方式存储的。（后面我们需要利用这个xml创建一个新项目）

```
<?xml version='1.1' encoding='UTF-8'?>
<project>
  <description>test</description>
  <keepDependencies>false</keepDependencies>
  <properties/>
  <scm class="hudson.scm.NullSCM"/>
  <canRoam>true</canRoam>
  <disabled>false</disabled>
  <blockBuildWhenDownstreamBuilding>false</blockBuildWhenDownstreamBuilding>
  <blockBuildWhenUpstreamBuilding>false</blockBuildWhenUpstreamBuilding>
  <triggers/>
  <concurrentBuild>false</concurrentBuild>
  <builders/>
  <publishers/>
  <buildWrappers/>
</project>
```

## 使用方法获取项目配置信息

```
server.get_job_config("demo-test")

'<?xml version=\'1.1\' encoding=\'UTF-8\'?>\n<project>\n
<description>test</description>\n
<keepDependencies>false</keepDependencies>\n  <properties/>\n  <scm
class="hudson.scm.NullSCM"/>\n  <canRoam>true</canRoam>\n
<disabled>false</disabled>\n
<blockBuildWhenDownstreamBuilding>false</blockBuildWhenDownstreamBuilding>\n
<blockBuildWhenUpstreamBuilding>false</blockBuildWhenUpstreamBuilding>\n
<triggers/>\n  <concurrentBuild>false</concurrentBuild>\n  <builders/>\n
<publishers/>\n  <buildWrappers/>\n</project>'
```

## 掌握创建项目的方法使用

```
create_job(name, config_xml)
```

- name 项目名称 字符串类型
- config\_xml 配置文件 字符串类型

## 新建项目demo-test-02

```
config_xml = server.get_job_config("demo-test")
server.create_job("demo-test-02", config_xml)
```

## 验证项目是否创建成功

```
server.job_exists("demo-test-02")
True
```

## 复制一个新项目demo-test-03

```
copy_job(from_name, to_name)
```

- from\_name 源项目 字符串类型
- to\_name 目标项目 字符串类型

当源项目名称与目标项目名称一致的时候会报错。JenkinsException

```
>>> server.copy_job("demo-test-02", "demo-test-03")
>>> server.job_exists("demo-test-03")
True
```

## 写一个脚本用于项目创建

新建一个项目，增加一个参数 `srcType` 用于分辨项目所使用的版本控制系统类型。参数可以是 (svn,git)。

我们要完成的是基于一个项目模板，创建新的项目并替换相关的参数。模板项目名称 `demo-devops-service`。



☒ This project is parameterized

String Parameter

X

?

?

?

?

?

Name

srcType

Default Value

svn

Description

[Plain text] [Preview](#)

☐ Trim the string

Add Parameter ▼

```
import jenkins

#login
serverUrl = "http://127.0.0.1:8080"
username = "admin"
password = "admin"
server = jenkins.Jenkins(serverUrl,username,password)

defProjectName = "demo-devops-service"
newProjectName = "demo-test-service"

if server.job_exists(newProjectName) != True :
    print("项目不存在开始新建项目")

    config_xml=server.get_job_config(defProjectName)
    newconfig_xml = config_xml.replace("<defaultValue>svn</defaultValue>", "<defaultValue>git</defaultValue>")

    print(newconfig_xml)

    server.create_job(newProjectName,newconfig_xml)
else:
    print("项目已存在!")
```

运行输出

```
ZeyangdeMacBook-Pro:codes zeyang$ python3 josbtest.py
项目不存在开始新建项目
<?xml version='1.1' encoding='UTF-8'?>
<project>
```









```

<actions/>
<description></description>
<keepDependencies>false</keepDependencies>
<properties>
  <hudson.model.ParametersDefinitionProperty>
    <parameterDefinitions>
      <hudson.model.StringParameterDefinition>
        <name>srcType</name>
        <description></description>
        <defaultValue>git</defaultValue>
        <trim>false</trim>
      </hudson.model.StringParameterDefinition>
    </parameterDefinitions>
  </hudson.model.ParametersDefinitionProperty>
</properties>
<scm class="hudson.scm.NullSCM"/>
<canRoam>true</canRoam>
<disabled>false</disabled>
<blockBuildWhenDownstreamBuilding>false</blockBuildWhenDownstreamBuilding>
<blockBuildWhenUpstreamBuilding>false</blockBuildWhenUpstreamBuilding>
<triggers/>
<concurrentBuild>false</concurrentBuild>
<builders/>
<publishers/>
<buildWrappers/>
</project>

```

## 效果

Jenkins
demo-test-service

 Back to Dashboard
 Status
 Changes
 Workspace
 Build with Parameters
 Delete Project
 Configure
 Rename

## Project demo-test-service

This build requires parameters:

srcType

Build

