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# **kubernetes-python-client Documentation**

**Kubernetes**

**Aug 22, 2019**



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## Kubernetes Python Client

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Python client for the [kubernetes](#) API.

### 1.1 Installation

From source:

```
git clone --recursive https://github.com/kubernetes-client/python.git
cd python
python setup.py install
```

From [PyPi](#) directly:

```
pip install kubernetes
```

### 1.2 Examples

list all pods:

```
from kubernetes import client, config

# Configs can be set in Configuration class directly or using helper utility
config.load_kube_config()

v1 = client.CoreV1Api()
print("Listing pods with their IPs:")
ret = v1.list_pod_for_all_namespaces(watch=False)
for i in ret.items:
    print("%s\t%s\t%s" % (i.status.pod_ip, i.metadata.namespace, i.metadata.name))
```

watch on namespace object:

```
from kubernetes import client, config, watch

# Configs can be set in Configuration class directly or using helper utility
config.load_kube_config()

v1 = client.CoreV1Api()
count = 10
w = watch.Watch()
for event in w.stream(v1.list_namespace, _request_timeout=60):
    print("Event: %s %s" % (event['type'], event['object'].metadata.name))
    count -= 1
    if not count:
        w.stop()

print("Ended.")
```

More examples can be found in [examples](#) folder. To run examples, run this command:

```
python -m examples.example1
```

(replace example1 with the example base filename)

## 1.3 Documentation

All APIs and Models' documentation can be found at the [Generated client's README file](#)

## 1.4 Compatibility

client-python follows [semver](#), so until the major version of client-python gets increased, your code will continue to work with explicitly supported versions of Kubernetes clusters.

### 1.4.1 Compatibility matrix

Key:

- ✓ Exactly the same features / API objects in both client-python and the Kubernetes version.
- + client-python has features or api objects that may not be present in the Kubernetes cluster, but everything they have in common will work.
- – The Kubernetes cluster has features the client-python library can't use (additional API objects, etc).

See the [CHANGELOG](#) for a detailed description of changes between client-python versions.

Key:

- ✓ Changes in main Kubernetes repo are manually ([should be automated](#)) published to client-python when they are available.
- No longer maintained; please upgrade.

Kubernetes supports [three minor releases](#) at a time. “Support” means we expect users to be running that version in production, though we may not port fixes back before the latest minor version. For example, when v1.3 comes out,



v1.0 will no longer be supported. In consistent with Kubernetes support policy, we expect to support **three GA major releases** (corresponding to three Kubernetes minor releases) at a time.

Note: There would be no maintenance for alpha/beta releases except the latest one.

## 1.5 Community, Support, Discussion

If you have any problem on using the package or any suggestions, please start with reaching the [Kubernetes clients slack channel](#), or filing an [issue](#) to let us know. You can also reach the maintainers of this project at [SIG API Machinery](#), where this project falls under.

### 1.5.1 Code of Conduct

Participation in the Kubernetes community is governed by the [CNCF Code of Conduct](#).

## 1.6 Troubleshooting

### 1.6.1 SSLError on macOS

If you get an `SSLError`, you likely need to update your version of python. The version that ships with macOS may not be supported.

Install the latest version of python with [brew](#):

```
brew install python
```

Once installed, you can query the version of OpenSSL like so:

```
python -c "import ssl; print ssl.OPENSSL_VERSION"
```

You'll need a version with OpenSSL version 1.0.0 or later.

### 1.6.2 Hostname doesn't match

If you get an `ssl.CertificateError` complaining about hostname match, your installed packages does not meet version [requirements](#). Specifically check `ipaddress` and `urllib3` package versions to make sure they met requirements in [requirements.txt](#) file.

### 1.6.3 Why Exec/Attach calls doesn't work

Starting from 4.0 release, we do not support directly calling `exec` or `attach` calls. you should use `stream` module to call them. so instead of `resp = api.connect_get_namespaced_pod_exec(name, ...)` you should call `resp = stream(api.connect_get_namespaced_pod_exec, name, ...)`. See more at [exec example](#).



## CHAPTER 2

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### Installation

---

At the command line:

```
$ pip install kubernetes
```

Or, if you have virtualenvwrapper installed:

```
$ mkvirtualenv kubernetes  
$ pip install kubernetes
```



The `examples` directory contains a few examples on how to use the client.

### 3.1 Deployments

Here is a simple usage of creating a deployment from a yaml file:

```
# Copyright 2016 The Kubernetes Authors.
#
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# you may not use this file except in compliance with the License.
# You may obtain a copy of the License at
#
#     http://www.apache.org/licenses/LICENSE-2.0
#
# Unless required by applicable law or agreed to in writing, software
# distributed under the License is distributed on an "AS IS" BASIS,
# WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
# See the License for the specific language governing permissions and
# limitations under the License.

from os import path

import yaml

from kubernetes import client, config

def main():
    # Configs can be set in Configuration class directly or using helper
    # utility. If no argument provided, the config will be loaded from
    # default location.
    config.load_kube_config()
```

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```

with open(path.join(path.dirname(__file__), "nginx-deployment.yaml")) as f:
    dep = yaml.safe_load(f)
    k8s_apps_v1 = client.AppsV1Api()
    resp = k8s_apps_v1.create_namespaced_deployment(
        body=dep, namespace="default")
    print("Deployment created. status='%s'" % resp.metadata.name)

if __name__ == '__main__':
    main()

```

The following example demonstrates how to create, update and delete deployments without the need to read a file from the disk:

```

# Copyright 2016 The Kubernetes Authors.
#
# Licensed under the Apache License, Version 2.0 (the "License");
# you may not use this file except in compliance with the License.
# You may obtain a copy of the License at
#
#     http://www.apache.org/licenses/LICENSE-2.0
#
# Unless required by applicable law or agreed to in writing, software
# distributed under the License is distributed on an "AS IS" BASIS,
# WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
# See the License for the specific language governing permissions and
# limitations under the License.

"""
This example shows how to work with AppsV1Api to create, modify and delete
deployments
"""

from kubernetes import client, config

DEPLOYMENT_NAME = "nginx-deployment"

def create_deployment_object():
    # Configureate Pod template container
    container = client.V1Container(
        name="nginx",
        image="nginx:1.15.4",
        ports=[client.V1ContainerPort(container_port=80)])
    # Create and configure a spec section
    template = client.V1PodTemplateSpec(
        metadata=client.V1ObjectMeta(labels={"app": "nginx"}),
        spec=client.V1PodSpec(containers=[container]))
    # Create the specification of deployment
    spec = client.V1DeploymentSpec(
        replicas=3,
        template=template,
        selector={'matchLabels': {'app': 'nginx'}})
    # Instantiate the deployment object
    deployment = client.V1Deployment(

```

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```

        api_version="apps/v1",
        kind="Deployment",
        metadata=client.V1ObjectMeta(name=DEPLOYMENT_NAME),
        spec=spec)

    return deployment

def create_deployment(api_instance, deployment):
    # Create deployment
    api_response = api_instance.create_namespaced_deployment(
        body=deployment,
        namespace="default")
    print("Deployment created. status='%s'" % str(api_response.status))

def update_deployment(api_instance, deployment):
    # Update container image
    deployment.spec.template.spec.containers[0].image = "nginx:1.16.0"
    # Update the deployment
    api_response = api_instance.patch_namespaced_deployment(
        name=DEPLOYMENT_NAME,
        namespace="default",
        body=deployment)
    print("Deployment updated. status='%s'" % str(api_response.status))

def delete_deployment(api_instance):
    # Delete deployment
    api_response = api_instance.delete_namespaced_deployment(
        name=DEPLOYMENT_NAME,
        namespace="default",
        body=client.V1DeleteOptions(
            propagation_policy='Foreground',
            grace_period_seconds=5))
    print("Deployment deleted. status='%s'" % str(api_response.status))

def main():
    # Configs can be set in Configuration class directly or using helper
    # utility. If no argument provided, the config will be loaded from
    # default location.
    config.load_kube_config()
    apps_v1 = client.AppsV1Api()
    # Create a deployment object with client-python API. The deployment we
    # created is same as the `nginx-deployment.yaml` in the /examples folder.
    deployment = create_deployment_object()

    create_deployment(apps_v1, deployment)

    update_deployment(apps_v1, deployment)

    delete_deployment(apps_v1)

if __name__ == '__main__':
    main()

```





## 4.1 kubernetes package

### 4.1.1 Subpackages

kubernetes.client package

#### Subpackages

kubernetes.client.apis package

#### Submodules

kubernetes.client.apis.apis\_api module

kubernetes.client.apis.apps\_api module

kubernetes.client.apis.apps\_v1beta1\_api module

kubernetes.client.apis.authentication\_api module

kubernetes.client.apis.authentication\_v1beta1\_api module

kubernetes.client.apis.authorization\_api module

kubernetes.client.apis.authorization\_v1beta1\_api module

`kubernetes.client.apis.autoscaling_api` module

`kubernetes.client.apis.autoscaling_v1_api` module

`kubernetes.client.apis.batch_api` module

`kubernetes.client.apis.batch_v1_api` module

`kubernetes.client.apis.batch_v2alpha1_api` module

`kubernetes.client.apis.certificates_api` module

`kubernetes.client.apis.certificates_v1alpha1_api` module

`kubernetes.client.apis.core_api` module

`kubernetes.client.apis.core_v1_api` module

`kubernetes.client.apis.extensions_api` module

`kubernetes.client.apis.extensions_v1beta1_api` module

`kubernetes.client.apis.logs_api` module

`kubernetes.client.apis.policy_api` module

`kubernetes.client.apis.policy_v1beta1_api` module

`kubernetes.client.apis.rbac_authorization_api` module

`kubernetes.client.apis.rbac_authorization_v1alpha1_api` module

`kubernetes.client.apis.storage_api` module

`kubernetes.client.apis.storage_v1beta1_api` module

`kubernetes.client.apis.version_api` module

Module contents

`kubernetes.client.models` package

Submodules

`kubernetes.client.models.intstr_int_or_string` module

`kubernetes.client.models.resource_quantity` module

`kubernetes.client.models.runtime_raw_extension` module

`kubernetes.client.models.unversioned_api_group` module

`kubernetes.client.models.unversioned_api_group_list` module

`kubernetes.client.models.unversioned_api_resource` module

`kubernetes.client.models.unversioned_api_resource_list` module

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#### 4.1.2 Module contents



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## Contributing Guidelines

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### 5.1 How to become a contributor and submit your own code

#### 5.1.1 Contributor License Agreements

We'd love to accept your patches! Before we can take them, we have to jump a couple of legal hurdles.

Please fill out either the individual or corporate Contributor License Agreement (CLA).

- If you are an individual writing original source code and you're sure you own the intellectual property, then you'll need to sign an [individual CLA](#).
- If you work for a company that wants to allow you to contribute your work, then you'll need to sign a [corporate CLA](#).

Follow either of the two links above to access the appropriate CLA and instructions for how to sign and return it. Once we receive it, we'll be able to accept your pull requests.

#### 5.1.2 Contributing A Patch

1. Submit an issue describing your proposed change to the repo in question.
2. The [repo owners](#) will respond to your issue promptly.
3. If your proposed change is accepted, and you haven't already done so, sign a Contributor License Agreement (see details above).
4. Fork the desired repo, develop and test your code changes.
5. Submit a pull request.

#### 5.1.3 Adding Dependencies

If your patch depends on new packages, add those packages to [requirements.txt](#) and [setup.py](#).



## CHAPTER 6

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### Indices and tables

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