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# **docker-sdk-python Documentation**

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A Python library for the Docker Engine API. It lets you do anything the `docker` command does, but from within Python apps – run containers, manage containers, manage Swarms, etc.

For more information about the Engine API, [see its documentation](#).



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# Installation

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The latest stable version is available on [PyPI](#). Either add `docker` to your `requirements.txt` file or install with `pip`:

```
pip install docker
```





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## Getting started

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To talk to a Docker daemon, you first need to instantiate a client. You can use `from_env()` to connect using the default socket or the configuration in your environment:

```
import docker
client = docker.from_env()
```

You can now run containers:

```
>>> client.containers.run("ubuntu", "echo hello world")
'hello world\n'
```

You can run containers in the background:

```
>>> client.containers.run("bfirsh/reticulate-splines", detach=True)
<Container '45e6d2de7c54'>
```

You can manage containers:

```
>>> client.containers.list()
[<Container '45e6d2de7c54'>, <Container 'db18e4f20eaa'>, ...]

>>> container = client.containers.get('45e6d2de7c54')

>>> container.attrs['Config']['Image']
"bfirsh/reticulate-splines"

>>> container.logs()
"Reticulating spline 1...\n"

>>> container.stop()
```

You can stream logs:

```
>>> for line in container.logs(stream=True):
...     print line.strip()
Reticulating spline 2...
Reticulating spline 3...
...
```

You can manage images:

```
>>> client.images.pull('nginx')
<Image 'nginx'>

>>> client.images.list()
[<Image 'ubuntu'>, <Image 'nginx'>, ...]
```

That's just a taste of what you can do with the Docker SDK for Python. For more, *take a look at the reference*.

## Client

### Creating a client

To communicate with the Docker daemon, you first need to instantiate a client. The easiest way to do that is by calling the function `from_env()`. It can also be configured manually by instantiating a `DockerClient` class.

**from\_env()**

Return a client configured from environment variables.

The environment variables used are the same as those used by the Docker command-line client. They are:

**DOCKER\_HOST**

The URL to the Docker host.

**DOCKER\_TLS\_VERIFY**

Verify the host against a CA certificate.

**DOCKER\_CERT\_PATH**

A path to a directory containing TLS certificates to use when connecting to the Docker host.

**Parameters**

- **version** (*str*) – The version of the API to use. Set to `auto` to automatically detect the server's version. Default: `1.30`
- **timeout** (*int*) – Default timeout for API calls, in seconds.
- **ssl\_version** (*int*) – A valid [SSL version](#).
- **assert\_hostname** (*bool*) – Verify the hostname of the server.
- **environment** (*dict*) – The environment to read environment variables from. Default: the value of `os.environ`
- **credstore\_env** (*dict*) – Override environment variables when calling the credential store process.

### Example

```
>>> import docker
>>> client = docker.from_env()
```

## Client reference

**class DockerClient**

A client for communicating with a Docker server.

## Example

```
>>> import docker
>>> client = docker.DockerClient(base_url='unix:///var/run/docker.sock')
```

### Parameters

- **base\_url** (*str*) – URL to the Docker server. For example, `unix:///var/run/docker.sock` or `tcp://127.0.0.1:1234`.
- **version** (*str*) – The version of the API to use. Set to `auto` to automatically detect the server's version. Default: `1.30`
- **timeout** (*int*) – Default timeout for API calls, in seconds.
- **tls** (bool or *TLSConfig*) – Enable TLS. Pass `True` to enable it with default options, or pass a *TLSConfig* object to use custom configuration.
- **user\_agent** (*str*) – Set a custom user agent for requests to the server.
- **credstore\_env** (*dict*) – Override environment variables when calling the credential store process.

### configs

An object for managing configs on the server. See the [configs documentation](#) for full details.

### containers

An object for managing containers on the server. See the [containers documentation](#) for full details.

### images

An object for managing images on the server. See the [images documentation](#) for full details.

### networks

An object for managing networks on the server. See the [networks documentation](#) for full details.

### nodes

An object for managing nodes on the server. See the [nodes documentation](#) for full details.

### plugins

An object for managing plugins on the server. See the [plugins documentation](#) for full details.

### secrets

An object for managing secrets on the server. See the [secrets documentation](#) for full details.

### services

An object for managing services on the server. See the [services documentation](#) for full details.

### swarm

An object for managing a swarm on the server. See the [swarm documentation](#) for full details.

### volumes

An object for managing volumes on the server. See the [volumes documentation](#) for full details.

### close()

Closes all adapters and as such the session

### df()

Get data usage information.

**Returns** A dictionary representing different resource categories and their respective data usage.

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

### `events()`

Get real-time events from the server. Similar to the `docker events` command.

#### Parameters

- **since** (*UTC datetime or int*) – Get events from this point
- **until** (*UTC datetime or int*) – Get events until this point
- **filters** (*dict*) – Filter the events by event time, container or image
- **decode** (*bool*) – If set to true, stream will be decoded into dicts on the fly. False by default.

**Returns** A `docker.types.daemon.CancellableStream` generator

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> for event in client.events(decode=True):
...     print(event)
{'from': 'image/with:tag',
 'id': 'container-id',
 'status': 'start',
 'time': 1423339459}
...
```

or

```
>>> events = client.events()
>>> for event in events:
...     print(event)
>>> # and cancel from another thread
>>> events.close()
```

### `info()`

Display system-wide information. Identical to the `docker info` command.

**Returns** The info as a dict

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

### `login()`

Authenticate with a registry. Similar to the `docker login` command.

#### Parameters

- **username** (*str*) – The registry username
- **password** (*str*) – The plaintext password
- **email** (*str*) – The email for the registry account
- **registry** (*str*) – URL to the registry. E.g. `https://index.docker.io/v1/`
- **reauth** (*bool*) – Whether or not to refresh existing authentication on the Docker server.

- **dockercfg\_path** (*str*) – Use a custom path for the Docker config file (default `$HOME/.docker/config.json` if present, otherwise `“$HOME/.dockercfg”`)

**Returns** The response from the login request

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

**ping()**

Checks the server is responsive. An exception will be raised if it isn't responding.

**Returns** (bool) The response from the server.

**Raises** `docker.errors.APIError` – If the server returns an error.

**version()**

Returns version information from the server. Similar to the `docker version` command.

**Returns** The server version information

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

## Configs

Manage configs on the server.

Methods available on `client.configs`:

**class ConfigCollection**

**create** (*\*\*kwargs*)

Create a config

**Parameters**

- **name** (*string*) – Name of the config
- **data** (*bytes*) – Config data to be stored
- **labels** (*dict*) – A mapping of labels to assign to the config

Returns (dict): ID of the newly created config

**get** (*config\_id*)

Get a config.

**Parameters** **config\_id** (*str*) – Config ID.

**Returns** The config.

**Return type** (*Config*)

**Raises**

- `docker.errors.NotFound` – If the config does not exist.
- `docker.errors.APIError` – If the server returns an error.

**list** (*\*\*kwargs*)

List configs. Similar to the `docker config ls` command.

**Parameters** **filters** (*dict*) – Server-side list filtering options.

**Returns** The configs.

**Return type** (list of *Config*)

**Raises** `docker.errors.APIError` – If the server returns an error.

## Config objects

**class Config**

A config.

**id**

The ID of the object.

**name**

**attrs**

The raw representation of this object from the server.

**reload()**

Load this object from the server again and update `attrs` with the new data.

**remove()**

Remove this config.

**Raises** `docker.errors.APIError` – If config failed to remove.

## Containers

Run and manage containers on the server.

Methods available on `client.containers`:

**class ContainerCollection** (*client=None*)

**run** (*image, command=None, \*\*kwargs*)

Run a container. By default, it will wait for the container to finish and return its logs, similar to `docker run`.

If the `detach` argument is `True`, it will start the container and immediately return a *Container* object, similar to `docker run -d`.

### Example

Run a container and get its output:

```
>>> import docker
>>> client = docker.from_env()
>>> client.containers.run('alpine', 'echo hello world')
b'hello world\n'
```

Run a container and detach:

```
>>> container = client.containers.run('bfirsh/reticulate-splines',
                                     detach=True)
>>> container.logs()
'Reticulating spline 1...\nReticulating spline 2...\n'
```

### Parameters

- **image** (*str*) – The image to run.
- **command** (*str or list*) – The command to run in the container.
- **auto\_remove** (*bool*) – enable auto-removal of the container on daemon side when the container's process exits.
- **blkio\_weight\_device** – Block IO weight (relative device weight) in the form of: [{"Path": "device\_path", "Weight": weight}].
- **blkio\_weight** – Block IO weight (relative weight), accepts a weight value between 10 and 1000.
- **cap\_add** (*list of str*) – Add kernel capabilities. For example, ["SYS\_ADMIN", "MKNOD"].
- **cap\_drop** (*list of str*) – Drop kernel capabilities.
- **cpu\_count** (*int*) – Number of usable CPUs (Windows only).
- **cpu\_percent** (*int*) – Usable percentage of the available CPUs (Windows only).
- **cpu\_period** (*int*) – The length of a CPU period in microseconds.
- **cpu\_quota** (*int*) – Microseconds of CPU time that the container can get in a CPU period.
- **cpu\_shares** (*int*) – CPU shares (relative weight).
- **cpuset\_cpus** (*str*) – CPUs in which to allow execution (0-3, 0, 1).
- **cpuset\_mems** (*str*) – Memory nodes (MEMs) in which to allow execution (0-3, 0, 1). Only effective on NUMA systems.
- **detach** (*bool*) – Run container in the background and return a *Container* object.
- **device\_cgroup\_rules** (*list*) – A list of cgroup rules to apply to the container.
- **device\_read\_bps** – Limit read rate (bytes per second) from a device in the form of: [{"Path": "device\_path", "Rate": rate}]
- **device\_read\_iops** – Limit read rate (IO per second) from a device.
- **device\_write\_bps** – Limit write rate (bytes per second) from a device.
- **device\_write\_iops** – Limit write rate (IO per second) from a device.
- **devices** (*list*) – Expose host devices to the container, as a list of strings in the form <path\_on\_host>:<path\_in\_container>:<cgroup\_permissions>. For example, /dev/sda:/dev/xvda:rwm allows the container to have read-write access to the host's /dev/sda via a node named /dev/xvda inside the container.
- **dns** (*list*) – Set custom DNS servers.
- **dns\_opt** (*list*) – Additional options to be added to the container's resolv.conf file.
- **dns\_search** (*list*) – DNS search domains.

- **domainname** (*str or list*) – Set custom DNS search domains.
- **entrypoint** (*str or list*) – The entrypoint for the container.
- **environment** (*dict or list*) – Environment variables to set inside the container, as a dictionary or a list of strings in the format `["SOMEVARIABLE=xxx"]`.
- **extra\_hosts** (*dict*) – Additional hostnames to resolve inside the container, as a mapping of hostname to IP address.
- **group\_add** (*list*) – List of additional group names and/or IDs that the container process will run as.
- **healthcheck** (*dict*) – Specify a test to perform to check that the container is healthy.
- **hostname** (*str*) – Optional hostname for the container.
- **init** (*bool*) – Run an init inside the container that forwards signals and reaps processes
- **init\_path** (*str*) – Path to the docker-init binary
- **ipc\_mode** (*str*) – Set the IPC mode for the container.
- **isolation** (*str*) – Isolation technology to use. Default: *None*.
- **labels** (*dict or list*) – A dictionary of name-value labels (e.g. `{"label1": "value1", "label2": "value2"}`) or a list of names of labels to set with empty values (e.g. `["label1", "label2"]`)
- **links** (*dict*) – Mapping of links using the `{'container': 'alias'}` format. The alias is optional. Containers declared in this dict will be linked to the new container using the provided alias. Default: *None*.
- **log\_config** (*LogConfig*) – Logging configuration.
- **mac\_address** (*str*) – MAC address to assign to the container.
- **mem\_limit** (*int or str*) – Memory limit. Accepts float values (which represent the memory limit of the created container in bytes) or a string with a units identification char (100000b, 1000k, 128m, 1g). If a string is specified without a units character, bytes are assumed as an intended unit.
- **mem\_swappiness** (*int*) – Tune a container's memory swappiness behavior. Accepts number between 0 and 100.
- **memswap\_limit** (*str or int*) – Maximum amount of memory + swap a container is allowed to consume.
- **mounts** (*list*) – Specification for mounts to be added to the container. More powerful alternative to `volumes`. Each item in the list is expected to be a `docker.types.Mount` object.
- **name** (*str*) – The name for this container.
- **nano\_cpus** (*int*) – CPU quota in units of 1e-9 CPUs.
- **network** (*str*) – Name of the network this container will be connected to at creation time. You can connect to additional networks using `Network.connect()`. Incompatible with `network_mode`.
- **network\_disabled** (*bool*) – Disable networking.
- **network\_mode** (*str*) – One of:
  - `bridge` Create a new network stack for the container on on the bridge network.



- `none` No networking for this container.
- `container:<name|id>` Reuse another container's network stack.
- `host` Use the host network stack.

Incompatible with `network`.

- **`oom_kill_disable`** (*bool*) – Whether to disable OOM killer.
- **`oom_score_adj`** (*int*) – An integer value containing the score given to the container in order to tune OOM killer preferences.
- **`pid_mode`** (*str*) – If set to `host`, use the host PID namespace inside the container.
- **`pids_limit`** (*int*) – Tune a container's pids limit. Set `-1` for unlimited.
- **`platform`** (*str*) – Platform in the format `os[/arch[/variant]]`. Only used if the method needs to pull the requested image.
- **`ports`** (*dict*) – Ports to bind inside the container.

The keys of the dictionary are the ports to bind inside the container, either as an integer or a string in the form `port/protocol`, where the protocol is either `tcp` or `udp`.

The values of the dictionary are the corresponding ports to open on the host, which can be either:

- The port number, as an integer. For example, `{ '2222/tcp': 3333 }` will expose port 2222 inside the container as port 3333 on the host.
- `None`, to assign a random host port. For example, `{ '2222/tcp': None }`.
- A tuple of (`address`, `port`) if you want to specify the host interface. For example, `{ '1111/tcp': ('127.0.0.1', 1111) }`.
- A list of integers, if you want to bind multiple host ports to a single container port. For example, `{ '1111/tcp': [1234, 4567] }`.

- **`privileged`** (*bool*) – Give extended privileges to this container.
- **`publish_all_ports`** (*bool*) – Publish all ports to the host.
- **`read_only`** (*bool*) – Mount the container's root filesystem as read only.
- **`remove`** (*bool*) – Remove the container when it has finished running. Default: `False`.
- **`restart_policy`** (*dict*) – Restart the container when it exits. Configured as a dictionary with keys:
  - `Name` One of `on-failure`, or `always`.
  - `MaximumRetryCount` Number of times to restart the container on failure.

For example: `{ "Name": "on-failure", "MaximumRetryCount": 5 }`

- **`security_opt`** (*list*) – A list of string values to customize labels for MLS systems, such as SELinux.
- **`shm_size`** (*str or int*) – Size of `/dev/shm` (e.g. 1G).
- **`stdin_open`** (*bool*) – Keep `STDIN` open even if not attached.
- **`stdout`** (*bool*) – Return logs from `STDOUT` when `detach=False`. Default: `True`.
- **`stderr`** (*bool*) – Return logs from `STDERR` when `detach=False`. Default: `False`.
- **`stop_signal`** (*str*) – The stop signal to use to stop the container (e.g. `SIGINT`).

- **storage\_opt** (*dict*) – Storage driver options per container as a key-value mapping.
- **stream** (*bool*) – If true and detach is false, return a log generator instead of a string. Ignored if detach is true. Default: False.
- **sysctls** (*dict*) – Kernel parameters to set in the container.
- **tmpfs** (*dict*) – Temporary filesystems to mount, as a dictionary mapping a path inside the container to options for that path.

For example:

```
{
    '/mnt/vol2': '',
    '/mnt/vol1': 'size=3G,uid=1000'
}
```

- **tty** (*bool*) – Allocate a pseudo-TTY.
- **ulimits** (*list*) – Ulimits to set inside the container, as a list of *docker.types.Ulimit* instances.
- **user** (*str or int*) – Username or UID to run commands as inside the container.
- **usersns\_mode** (*str*) – Sets the user namespace mode for the container when user namespace remapping option is enabled. Supported values are: host
- **volume\_driver** (*str*) – The name of a volume driver/plugin.
- **volumes** (*dict or list*) – A dictionary to configure volumes mounted inside the container. The key is either the host path or a volume name, and the value is a dictionary with the keys:
  - **bind** The path to mount the volume inside the container
  - **mode** Either rw to mount the volume read/write, or ro to mount it read-only.

For example:

```
{'/home/user1/': {'bind': '/mnt/vol2', 'mode': 'rw'},
 '/var/www': {'bind': '/mnt/vol1', 'mode': 'ro'}}
```

- **volumes\_from** (*list*) – List of container names or IDs to get volumes from.
- **working\_dir** (*str*) – Path to the working directory.
- **runtime** (*str*) – Runtime to use with this container.

### Returns

The container logs, either `STDOUT`, `STDERR`, or both, depending on the value of the `stdout` and `stderr` arguments.

`STDOUT` and `STDERR` may be read only if either `json-file` or `journald` logging driver used. Thus, if you are using none of these drivers, a `None` object is returned instead. See the [Engine API documentation](#) for full details.

If `detach` is `True`, a *Container* object is returned instead.

### Raises

- `docker.errors.ContainerError` – If the container exits with a non-zero exit code and `detach` is `False`.
- `docker.errors.ImageNotFound` – If the specified image does not exist.

- `docker.errors.APIError` – If the server returns an error.

**create** (*image*, *command=None*, *\*\*kwargs*)

Create a container without starting it. Similar to `docker create`.

Takes the same arguments as `run()`, except for `stdout`, `stderr`, and `remove`.

**Returns** A `Container` object.

**Raises**

- `docker.errors.ImageNotFound` – If the specified image does not exist.
- `docker.errors.APIError` – If the server returns an error.

**get** (*id\_or\_name*)

Get a container by name or ID.

**Parameters** `container_id` (*str*) – Container name or ID.

**Returns** A `Container` object.

**Raises**

- `docker.errors.NotFound` – If the container does not exist.
- `docker.errors.APIError` – If the server returns an error.

**list** (*\*\*kwargs*)

List containers. Similar to the `docker ps` command.

**Parameters**

- **all** (*bool*) – Show all containers. Only running containers are shown by default
- **since** (*str*) – Show only containers created since Id or Name, include non-running ones
- **before** (*str*) – Show only container created before Id or Name, include non-running ones
- **limit** (*int*) – Show *limit* last created containers, include non-running ones
- **filters** (*dict*) – Filters to be processed on the image list. Available filters:
  - **exited** (*int*): Only containers with specified exit code
  - **status** (*str*): One of **restarting**, **running**, **paused**, **exited**
  - **label** (*str*): format either "key" or "key=value"
  - **id** (*str*): The id of the container.
  - **name** (*str*): The name of the container.
  - **ancestor** (*str*): **Filter by container ancestor. Format of** `<image-name>[:tag]`, `<image-id>`, or `<image@digest>`.
  - **before** (*str*): **Only containers created before a particular** container. Give the container name or id.
  - **since** (*str*): **Only containers created after a particular** container. Give container name or id.

A comprehensive list can be found in the documentation for `docker ps`.

- **sparse** (*bool*) – Do not inspect containers. Returns partial information, but guaranteed not to block. Use `Container.reload()` on resulting objects to retrieve all attributes. Default: `False`

- **ignore\_removed** (*bool*) – Ignore failures due to missing containers when attempting to inspect containers from the original list. Set to `True` if race conditions are likely. Has no effect if `sparse=True`. Default: `False`

**Returns** (list of *Container*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**prune** (*filters=None*)

Delete stopped containers

**Parameters** **filters** (*dict*) – Filters to process on the prune list.

**Returns**

A dict containing a list of deleted container IDs and the amount of disk space reclaimed in bytes.

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

## Container objects

**class Container**

Local representation of a container object. Detailed configuration may be accessed through the *attrs* attribute. Note that local attributes are cached; users may call *reload()* to query the Docker daemon for the current properties, causing *attrs* to be refreshed.

**attrs**

**id**

The ID of the object.

**image**

The image of the container.

**labels**

The labels of a container as dictionary.

**name**

The name of the container.

**short\_id**

The ID of the object, truncated to 10 characters.

**status**

The status of the container. For example, `running`, or `exited`. The raw representation of this object from the server.

**attach** (*\*\*kwargs*)

Attach to this container.

*logs()* is a wrapper around this method, which you can use instead if you want to fetch/stream container output without first retrieving the entire backlog.

**Parameters**

- **stdout** (*bool*) – Include stdout.
- **stderr** (*bool*) – Include stderr.
- **stream** (*bool*) – Return container output progressively as an iterator of strings, rather than a single string.

- **logs** (*bool*) – Include the container’s previous output.

**Returns**

By default, the container’s output as a single string.

If `stream=True`, an iterator of output strings.

**Raises** `docker.errors.APIError` – If the server returns an error.

**attach\_socket** (*\*\*kwargs*)

Like `attach()`, but returns the underlying socket-like object for the HTTP request.

**Parameters**

- **params** (*dict*) – Dictionary of request parameters (e.g. `stdout`, `stderr`, `stream`).
- **ws** (*bool*) – Use websockets instead of raw HTTP.

**Raises** `docker.errors.APIError` – If the server returns an error.

**commit** (*repository=None, tag=None, \*\*kwargs*)

Commit a container to an image. Similar to the `docker commit` command.

**Parameters**

- **repository** (*str*) – The repository to push the image to
- **tag** (*str*) – The tag to push
- **message** (*str*) – A commit message
- **author** (*str*) – The name of the author
- **changes** (*str*) – Dockerfile instructions to apply while committing
- **conf** (*dict*) – The configuration for the container. See the [Engine API documentation](#) for full details.

**Raises** `docker.errors.APIError` – If the server returns an error.

**diff** ()

Inspect changes on a container’s filesystem.

**Returns** (*str*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**exec\_run** (*cmd, stdout=True, stderr=True, stdin=False, tty=False, privileged=False, user='', detach=False, stream=False, socket=False, environment=None, workdir=None, demux=False*)

Run a command inside this container. Similar to `docker exec`.

**Parameters**

- **cmd** (*str or list*) – Command to be executed
- **stdout** (*bool*) – Attach to stdout. Default: `True`
- **stderr** (*bool*) – Attach to stderr. Default: `True`
- **stdin** (*bool*) – Attach to stdin. Default: `False`
- **tty** (*bool*) – Allocate a pseudo-TTY. Default: `False`
- **privileged** (*bool*) – Run as privileged.
- **user** (*str*) – User to execute command as. Default: `root`

- **detach** (*bool*) – If true, detach from the exec command. Default: False
- **stream** (*bool*) – Stream response data. Default: False
- **socket** (*bool*) – Return the connection socket to allow custom read/write operations. Default: False
- **environment** (*dict or list*) – A dictionary or a list of strings in the following format ["PASSWORD=xxx"] or {"PASSWORD": "xxx"}.
- **workdir** (*str*) – Path to working directory for this exec session
- **demux** (*bool*) – Return stdout and stderr separately

### Returns

A tuple of (exit\_code, output)

**exit\_code**: (*int*): Exit code for the executed command or None if either stream or socket is True.

**output**: (*generator or bytes*): If stream=True, a generator yielding response chunks. If socket=True, a socket object for the connection. A bytestring containing response data otherwise.

**Return type** (ExecResult)

**Raises** `docker.errors.APIError` – If the server returns an error.

**export** (*chunk\_size=2097152*)

Export the contents of the container's filesystem as a tar archive.

**Parameters** **chunk\_size** (*int*) – The number of bytes returned by each iteration of the generator. If None, data will be streamed as it is received. Default: 2 MB

**Returns** The filesystem tar archive

**Return type** (str)

**Raises** `docker.errors.APIError` – If the server returns an error.

**get\_archive** (*path, chunk\_size=2097152*)

Retrieve a file or folder from the container in the form of a tar archive.

**Parameters**

- **path** (*str*) – Path to the file or folder to retrieve
- **chunk\_size** (*int*) – The number of bytes returned by each iteration of the generator. If None, data will be streamed as it is received. Default: 2 MB

**Returns** First element is a raw tar data stream. Second element is a dict containing stat information on the specified path.

**Return type** (tuple)

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> f = open('./sh_bin.tar', 'wb')
>>> bits, stat = container.get_archive('/bin/sh')
>>> print(stat)
{'name': 'sh', 'size': 1075464, 'mode': 493,
```

```
'mtime': '2018-10-01T15:37:48-07:00', 'linkTarget': ''}
>>> for chunk in bits:
...     f.write(chunk)
>>> f.close()
```

**kill** (*signal=None*)

Kill or send a signal to the container.

**Parameters** **signal** (*str or int*) – The signal to send. Defaults to SIGKILL

**Raises** `docker.errors.APIError` – If the server returns an error.

**logs** (*\*\*kwargs*)

Get logs from this container. Similar to the `docker logs` command.

The `stream` parameter makes the `logs` function return a blocking generator you can iterate over to retrieve log output as it happens.

#### Parameters

- **stdout** (*bool*) – Get STDOUT. Default `True`
- **stderr** (*bool*) – Get STDERR. Default `True`
- **stream** (*bool*) – Stream the response. Default `False`
- **timestamps** (*bool*) – Show timestamps. Default `False`
- **tail** (*str or int*) – Output specified number of lines at the end of logs. Either an integer of number of lines or the string `all`. Default `all`
- **since** (*datetime or int*) – Show logs since a given datetime or integer epoch (in seconds)
- **follow** (*bool*) – Follow log output. Default `False`
- **until** (*datetime or int*) – Show logs that occurred before the given datetime or integer epoch (in seconds)

**Returns** Logs from the container.

**Return type** (generator or str)

**Raises** `docker.errors.APIError` – If the server returns an error.

**pause** ()

Pauses all processes within this container.

**Raises** `docker.errors.APIError` – If the server returns an error.

**put\_archive** (*path, data*)

Insert a file or folder in this container using a tar archive as source.

#### Parameters

- **path** (*str*) – Path inside the container where the file(s) will be extracted. Must exist.
- **data** (*bytes*) – tar data to be extracted

**Returns** `True` if the call succeeds.

**Return type** (bool)

**Raises** `APIError` If an error occurs.

**reload()**

Load this object from the server again and update `attrs` with the new data.

**remove** (*\*\*kwargs*)

Remove this container. Similar to the `docker rm` command.

**Parameters**

- **v** (*bool*) – Remove the volumes associated with the container
- **link** (*bool*) – Remove the specified link and not the underlying container
- **force** (*bool*) – Force the removal of a running container (uses `SIGKILL`)

**Raises** `docker.errors.APIError` – If the server returns an error.

**rename** (*name*)

Rename this container. Similar to the `docker rename` command.

**Parameters** **name** (*str*) – New name for the container

**Raises** `docker.errors.APIError` – If the server returns an error.

**resize** (*height, width*)

Resize the tty session.

**Parameters**

- **height** (*int*) – Height of tty session
- **width** (*int*) – Width of tty session

**Raises** `docker.errors.APIError` – If the server returns an error.

**restart** (*\*\*kwargs*)

Restart this container. Similar to the `docker restart` command.

**Parameters** **timeout** (*int*) – Number of seconds to try to stop for before killing the container. Once killed it will then be restarted. Default is 10 seconds.

**Raises** `docker.errors.APIError` – If the server returns an error.

**start** (*\*\*kwargs*)

Start this container. Similar to the `docker start` command, but doesn't support attach options.

**Raises** `docker.errors.APIError` – If the server returns an error.

**stats** (*\*\*kwargs*)

Stream statistics for this container. Similar to the `docker stats` command.

**Parameters**

- **decode** (*bool*) – If set to true, stream will be decoded into dicts on the fly. Only applicable if `stream` is True. False by default.
- **stream** (*bool*) – If set to false, only the current stats will be returned instead of a stream. True by default.

**Raises** `docker.errors.APIError` – If the server returns an error.

**stop** (*\*\*kwargs*)

Stops a container. Similar to the `docker stop` command.

**Parameters** **timeout** (*int*) – Timeout in seconds to wait for the container to stop before sending a `SIGKILL`. Default: 10

**Raises** `docker.errors.APIError` – If the server returns an error.



**top** (*\*\*kwargs*)

Display the running processes of the container.

**Parameters** **ps\_args** (*str*) – An optional arguments passed to ps (e.g. aux)

**Returns** The output of the top

**Return type** (*str*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**unpause** ()

Unpause all processes within the container.

**Raises** `docker.errors.APIError` – If the server returns an error.

**update** (*\*\*kwargs*)

Update resource configuration of the containers.

**Parameters**

- **blkio\_weight** (*int*) – Block IO (relative weight), between 10 and 1000
- **cpu\_period** (*int*) – Limit CPU CFS (Completely Fair Scheduler) period
- **cpu\_quota** (*int*) – Limit CPU CFS (Completely Fair Scheduler) quota
- **cpu\_shares** (*int*) – CPU shares (relative weight)
- **cpuset\_cpus** (*str*) – CPUs in which to allow execution
- **cpuset\_mems** (*str*) – MEMs in which to allow execution
- **mem\_limit** (*int or str*) – Memory limit
- **mem\_reservation** (*int or str*) – Memory soft limit
- **memswap\_limit** (*int or str*) – Total memory (memory + swap), -1 to disable swap
- **kernel\_memory** (*int or str*) – Kernel memory limit
- **restart\_policy** (*dict*) – Restart policy dictionary

**Returns** Dictionary containing a Warnings key.

**Return type** (*dict*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**wait** (*\*\*kwargs*)

Block until the container stops, then return its exit code. Similar to the `docker wait` command.

**Parameters**

- **timeout** (*int*) – Request timeout
- **condition** (*str*) – Wait until a container state reaches the given condition, either not-running (default), next-exit, or removed

**Returns**

The API's response as a Python dictionary, including the container's exit code under the `StatusCode` attribute.

**Return type** (*dict*)

**Raises**

- `requests.exceptions.ReadTimeout` – If the timeout is exceeded.
- `docker.errors.APIError` – If the server returns an error.

## Images

Manage images on the server.

Methods available on `client.images`:

**class ImageCollection**

**build** (*\*\*kwargs*)

Build an image and return it. Similar to the `docker build` command. Either `path` or `fileobj` must be set.

If you have a tar file for the Docker build context (including a Dockerfile) already, pass a readable file-like object to `fileobj` and also pass `custom_context=True`. If the stream is compressed also, set `encoding` to the correct value (e.g `gzip`).

If you want to get the raw output of the build, use the `build()` method in the low-level API.

### Parameters

- **path** (*str*) – Path to the directory containing the Dockerfile
- **fileobj** – A file object to use as the Dockerfile. (Or a file-like object)
- **tag** (*str*) – A tag to add to the final image
- **quiet** (*bool*) – Whether to return the status
- **nocache** (*bool*) – Don't use the cache when set to `True`
- **rm** (*bool*) – Remove intermediate containers. The `docker build` command now defaults to `--rm=true`, but we have kept the old default of `False` to preserve backward compatibility
- **timeout** (*int*) – HTTP timeout
- **custom\_context** (*bool*) – Optional if using `fileobj`
- **encoding** (*str*) – The encoding for a stream. Set to `gzip` for compressing
- **pull** (*bool*) – Downloads any updates to the FROM image in Dockerfiles
- **forcerm** (*bool*) – Always remove intermediate containers, even after unsuccessful builds
- **dockerfile** (*str*) – path within the build context to the Dockerfile
- **buildargs** (*dict*) – A dictionary of build arguments
- **container\_limits** (*dict*) – A dictionary of limits applied to each container created by the build process. Valid keys:
  - **memory** (*int*): set memory limit for build
  - **memswap** (*int*): Total memory (memory + swap), -1 to disable swap
  - **cpushares** (*int*): CPU shares (relative weight)
  - **cpusetcpus** (*str*): CPUs in which to allow execution, e.g., "0-3", "0,1"

- **shmsize** (*int*) – Size of `/dev/shm` in bytes. The size must be greater than 0. If omitted the system uses 64MB
- **labels** (*dict*) – A dictionary of labels to set on the image
- **cache\_from** (*list*) – A list of images used for build cache resolution
- **target** (*str*) – Name of the build-stage to build in a multi-stage Dockerfile
- **network\_mode** (*str*) – networking mode for the run commands during build
- **squash** (*bool*) – Squash the resulting images layers into a single layer.
- **extra\_hosts** (*dict*) – Extra hosts to add to `/etc/hosts` in building containers, as a mapping of hostname to IP address.
- **platform** (*str*) – Platform in the format `os[/arch[/variant]]`.
- **isolation** (*str*) – Isolation technology used during build. Default: *None*.

#### Returns

The first item is the *Image* object for the image that was build. The second item is a generator of the build logs as JSON-decoded objects.

**Return type** (tuple)

#### Raises

- `docker.errors.BuildError` – If there is an error during the build.
- `docker.errors.APIError` – If the server returns any other error.
- `TypeError` – If neither `path` nor `fileobj` is specified.

#### **get** (*name*)

Gets an image.

**Parameters** **name** (*str*) – The name of the image.

**Returns** The image.

**Return type** (*Image*)

#### Raises

- `docker.errors.ImageNotFound` – If the image does not exist.
- `docker.errors.APIError` – If the server returns an error.

#### **get\_registry\_data** (*name*)

Gets the registry data for an image.

**Parameters** **name** (*str*) – The name of the image.

**Returns** The data object.

**Return type** (*RegistryData*)

**Raises** `docker.errors.APIError` – If the server returns an error.

#### **list** (*\*\*kwargs*)

List images on the server.

#### Parameters

- **name** (*str*) – Only show images belonging to the repository name
- **all** (*bool*) – Show intermediate image layers. By default, these are filtered out.

- **filters** (*dict*) – Filters to be processed on the image list. Available filters: - dangling (bool) - label (str): format either key or key=value

**Returns** The images.

**Return type** (list of *Image*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**load** (*data*)

Load an image that was previously saved using `save()` (or `docker save`). Similar to `docker load`.

**Parameters** **data** (*binary*) – Image data to be loaded.

**Returns** The images.

**Return type** (list of *Image*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**prune** (*filters=None*)

Delete unused images

**Parameters** **filters** (*dict*) – Filters to process on the prune list. Available filters: - dangling (bool): When set to true (or 1), prune only unused and untagged images.

**Returns**

A dict containing a list of deleted image IDs and the amount of disk space reclaimed in bytes.

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

**pull** (*repository, tag=None, \*\*kwargs*)

Pull an image of the given name and return it. Similar to the `docker pull` command. If no tag is specified, all tags from that repository will be pulled.

If you want to get the raw pull output, use the `pull()` method in the low-level API.

**Parameters**

- **repository** (*str*) – The repository to pull
- **tag** (*str*) – The tag to pull
- **auth\_config** (*dict*) – Override the credentials that `login()` has set for this request. `auth_config` should contain the `username` and `password` keys to be valid.
- **platform** (*str*) – Platform in the format `os[/arch[/variant]]`

**Returns**

The image that has been pulled. If no `tag` was specified, the method will return a list of *Image* objects belonging to this repository.

**Return type** (*Image* or list)

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> # Pull the image tagged 'latest' in the busybox repo
>>> image = client.images.pull('busybox:latest')
```

```
>>> # Pull all tags in the busybox repo
>>> images = client.images.pull('busybox')
```

**push** (*repository*, *tag=None*, *\*\*kwargs*)

Push an image or a repository to the registry. Similar to the `docker push` command.

#### Parameters

- **repository** (*str*) – The repository to push to
- **tag** (*str*) – An optional tag to push
- **stream** (*bool*) – Stream the output as a blocking generator
- **auth\_config** (*dict*) – Override the credentials that `login()` has set for this request. `auth_config` should contain the `username` and `password` keys to be valid.
- **decode** (*bool*) – Decode the JSON data from the server into dicts. Only applies with `stream=True`

**Returns** The output from the server.

**Return type** (generator or str)

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> for line in cli.push('yourname/app', stream=True, decode=True):
...     print(line)
{'status': 'Pushing repository yourname/app (1 tags)'}
{'status': 'Pushing', 'progressDetail': {}, 'id': '511136ea3c5a'}
{'status': 'Image already pushed, skipping', 'progressDetail': {},
 'id': '511136ea3c5a'}
...
```

**remove** (*\*args*, *\*\*kwargs*)

Remove an image. Similar to the `docker rmi` command.

#### Parameters

- **image** (*str*) – The image to remove
- **force** (*bool*) – Force removal of the image
- **noprune** (*bool*) – Do not delete untagged parents

**search** (*\*args*, *\*\*kwargs*)

Search for images on Docker Hub. Similar to the `docker search` command.

**Parameters** **term** (*str*) – A term to search for.

**Returns** The response of the search.

**Return type** (list of dicts)

**Raises** `docker.errors.APIError` – If the server returns an error.

## Image objects

### class `Image`

An image on the server.

#### **attrs**

The raw representation of this object from the server.

#### **id**

The ID of the object.

#### **labels**

The labels of an image as dictionary.

#### **short\_id**

The ID of the image truncated to 10 characters, plus the `sha256:` prefix.

#### **tags**

The image's tags.

#### **history()**

Show the history of an image.

**Returns** The history of the image.

**Return type** (str)

**Raises** `docker.errors.APIError` – If the server returns an error.

#### **reload()**

Load this object from the server again and update `attrs` with the new data.

#### **save** (*chunk\_size=2097152, named=False*)

Get a tarball of an image. Similar to the `docker save` command.

##### Parameters

- **chunk\_size** (*int*) – The generator will return up to that much data per iteration, but may return less. If `None`, data will be streamed as it is received. Default: 2 MB
- **named** (*str or bool*) – If `False` (default), the tarball will not retain repository and tag information for this image. If set to `True`, the first tag in the `tags` list will be used to identify the image. Alternatively, any element of the `tags` list can be used as an argument to use that specific tag as the saved identifier.

**Returns** A stream of raw archive data.

**Return type** (generator)

**Raises** `docker.errors.APIError` – If the server returns an error.

## Example

```
>>> image = cli.get_image("busybox:latest")
>>> f = open('/tmp/busybox-latest.tar', 'wb')
>>> for chunk in image:
>>>     f.write(chunk)
>>> f.close()
```

**tag** (*repository*, *tag=None*, *\*\*kwargs*)

Tag this image into a repository. Similar to the `docker tag` command.

**Parameters**

- **repository** (*str*) – The repository to set for the tag
- **tag** (*str*) – The tag name
- **force** (*bool*) – Force

**Raises** `docker.errors.APIError` – If the server returns an error.

**Returns** `True` if successful

**Return type** (`bool`)

## RegistryData objects

**class RegistryData**

Image metadata stored on the registry, including available platforms.

**attrs**

The raw representation of this object from the server.

**id**

The ID of the object.

**short\_id**

The ID of the image truncated to 10 characters, plus the `sha256:` prefix.

**has\_platform** (*platform*)

Check whether the given platform identifier is available for this digest.

**Parameters** **platform** (*str or dict*) – A string using the `os[/arch[/variant]]` format, or a platform dictionary.

**Returns** `True` if the platform is recognized as available, `False` otherwise.

**Return type** (`bool`)

**Raises** `docker.errors.InvalidArgument` – If the platform argument is not a valid descriptor.

**pull** (*platform=None*)

Pull the image digest.

**Parameters**

- **platform** (*str*) – The platform to pull the image for.
- **Default** – `None`

**Returns** A reference to the pulled image.

**Return type** (*Image*)

**reload** ()

Load this object from the server again and update `attrs` with the new data.

## Networks

Create and manage networks on the server. For more information about networks, [see the Engine documentation](#).

Methods available on `client.networks`:

**class NetworkCollection**

**create** (*name*, \**args*, \*\**kwargs*)

Create a network. Similar to the `docker network create`.

### Parameters

- **name** (*str*) – Name of the network
- **driver** (*str*) – Name of the driver used to create the network
- **options** (*dict*) – Driver options as a key-value dictionary
- **ipam** (*IPAMConfig*) – Optional custom IP scheme for the network.
- **check\_duplicate** (*bool*) – Request daemon to check for networks with same name. Default: `None`.
- **internal** (*bool*) – Restrict external access to the network. Default `False`.
- **labels** (*dict*) – Map of labels to set on the network. Default `None`.
- **enable\_ipv6** (*bool*) – Enable IPv6 on the network. Default `False`.
- **attachable** (*bool*) – If enabled, and the network is in the global scope, non-service containers on worker nodes will be able to connect to the network.
- **scope** (*str*) – Specify the network's scope (`local`, `global` or `swarm`)
- **ingress** (*bool*) – If set, create an ingress network which provides the routing-mesh in swarm mode.

**Returns** The network that was created.

**Return type** (*Network*)

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

A network using the bridge driver:

```
>>> client.networks.create("network1", driver="bridge")
```

You can also create more advanced networks with custom IPAM configurations. For example, setting the subnet to `192.168.52.0/24` and gateway address to `192.168.52.254`.

```
>>> ipam_pool = docker.types.IPAMPool(
    subnet='192.168.52.0/24',
    gateway='192.168.52.254'
)
>>> ipam_config = docker.types.IPAMConfig(
    pool_configs=[ipam_pool]
)
>>> client.networks.create(
```



```
"network1",
driver="bridge",
ipam=ipam_config
)
```

**get** (*network\_id*, \*args, \*\*kwargs)

Get a network by its ID.

#### Parameters

- **network\_id** (*str*) – The ID of the network.
- **verbose** (*bool*) – Retrieve the service details across the cluster in swarm mode.
- **scope** (*str*) – Filter the network by scope (swarm, global or local).

**Returns** (*Network*) The network.

#### Raises

- `docker.errors.NotFound` – If the network does not exist.
- `docker.errors.APIError` – If the server returns an error.

**list** (\*args, \*\*kwargs)

List networks. Similar to the `docker networks ls` command.

#### Parameters

- **names** (*list*) – List of names to filter by.
- **ids** (*list*) – List of ids to filter by.
- **filters** (*dict*) – Filters to be processed on the network list. Available filters: - `driver=[<driver-name>]` Matches a network's driver. - `label=[<key>]` or `label=[<key>=<value>]`. - `type=["custom"|"builtin"]` Filters networks by type.
- **greedy** (*bool*) – Fetch more details for each network individually. You might want this to get the containers attached to them.

**Returns** (list of *Network*) The networks on the server.

**Raises** `docker.errors.APIError` – If the server returns an error.

**prune** (*filters=None*)

Delete unused networks

**Parameters** **filters** (*dict*) – Filters to process on the prune list.

#### Returns

A dict containing a list of deleted network names and the amount of disk space reclaimed in bytes.

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

## Network objects

**class Network**

A Docker network.

**id**

The ID of the object.

**short\_id**

The ID of the object, truncated to 10 characters.

**name**

The name of the network.

**containers**

The containers that are connected to the network, as a list of *Container* objects.

**attrs**

The raw representation of this object from the server.

**connect** (*container*, \**args*, \*\**kwargs*)

Connect a container to this network.

#### Parameters

- **container** (*str*) – Container to connect to this network, as either an ID, name, or *Container* object.
- **aliases** (*list*) – A list of aliases for this endpoint. Names in that list can be used within the network to reach the container. Defaults to *None*.
- **links** (*list*) – A list of links for this endpoint. Containers declared in this list will be linked to this container. Defaults to *None*.
- **ipv4\_address** (*str*) – The IP address of this container on the network, using the IPv4 protocol. Defaults to *None*.
- **ipv6\_address** (*str*) – The IP address of this container on the network, using the IPv6 protocol. Defaults to *None*.
- **link\_local\_ips** (*list*) – A list of link-local (IPv4/IPv6) addresses.

**Raises** `docker.errors.APIError` – If the server returns an error.

**disconnect** (*container*, \**args*, \*\**kwargs*)

Disconnect a container from this network.

#### Parameters

- **container** (*str*) – Container to disconnect from this network, as either an ID, name, or *Container* object.
- **force** (*bool*) – Force the container to disconnect from a network. Default: *False*

**Raises** `docker.errors.APIError` – If the server returns an error.

**reload** ()

Load this object from the server again and update *attrs* with the new data.

**remove** ()

Remove this network.

**Raises** `docker.errors.APIError` – If the server returns an error.

## Nodes

Get and list nodes in a swarm. Before you can use these methods, you first need to *join or initialize a swarm*.

Methods available on `client.nodes`:

**class NodeCollection**

**get** (*id\_or\_name*)

Get a node.

**Parameters** **node\_id** (*string*) – ID of the node to be inspected.

**Returns** A *Node* object.

**Raises** `docker.errors.APIError` – If the server returns an error.

**list** (*\*\*kwargs*)

List swarm nodes.

**Parameters** **filters** (*dict*) – Filters to process on the nodes list. Valid filters: `id`, `name`, `membership` and `role`. Default: `None`

**Returns** A list of *Node* objects.

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> client.nodes.list(filters={'role': 'manager'})
```

## Node objects

**class Node**

A node in a swarm.

**id**

The ID of the object.

**short\_id**

The ID of the object, truncated to 10 characters.

**attrs**

The raw representation of this object from the server.

**version**

The version number of the service. If this is not the same as the server, the `update()` function will not work and you will need to call `reload()` before calling it again.

**reload()**

Load this object from the server again and update `attrs` with the new data.

**update** (*node\_spec*)

Update the node's configuration.

**Parameters** **node\_spec** (*dict*) – Configuration settings to update. Any values not provided will be removed. Default: `None`

**Returns** *True* if the request went through.

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> node_spec = {'Availability': 'active',
                  'Name': 'node-name',
                  'Role': 'manager',
                  'Labels': {'foo': 'bar'}}
>>> node.update(node_spec)
```

## Plugins

Manage plugins on the server.

Methods available on `client.plugins`:

**class** `PluginCollection`

**get** (*name*)

Gets a plugin.

**Parameters** *name* (*str*) – The name of the plugin.

**Returns** The plugin.

**Return type** (*Plugin*)

**Raises**

- `docker.errors.NotFound` If the plugin does not exist.
- `docker.errors.APIError` – If the server returns an error.

**install** (*remote\_name*, *local\_name=None*)

Pull and install a plugin.

**Parameters**

- **remote\_name** (*string*) – Remote reference for the plugin to install. The `:latest` tag is optional, and is the default if omitted.
- **local\_name** (*string*) – Local name for the pulled plugin. The `:latest` tag is optional, and is the default if omitted. Optional.

**Returns** The installed plugin

**Return type** (*Plugin*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**list** ()

List plugins installed on the server.

**Returns** The plugins.

**Return type** (list of *Plugin*)

**Raises** `docker.errors.APIError` – If the server returns an error.

## Plugin objects

### class `Plugin`

A plugin on the server.

#### `id`

The ID of the object.

#### `short_id`

The ID of the object, truncated to 10 characters.

#### `name`

The plugin's name.

#### `enabled`

Whether the plugin is enabled.

#### `settings`

A dictionary representing the plugin's configuration.

#### `attrs`

The raw representation of this object from the server.

#### `configure (options)`

Update the plugin's settings.

**Parameters** `options` (*dict*) – A key-value mapping of options.

**Raises** `docker.errors.APIError` – If the server returns an error.

#### `disable ()`

Disable the plugin.

**Raises** `docker.errors.APIError` – If the server returns an error.

#### `enable (timeout=0)`

Enable the plugin.

**Parameters** `timeout` (*int*) – Timeout in seconds. Default: 0

**Raises** `docker.errors.APIError` – If the server returns an error.

#### `reload ()`

Load this object from the server again and update `attrs` with the new data.

#### `push ()`

Push the plugin to a remote registry.

**Returns** A dict iterator streaming the status of the upload.

**Raises** `docker.errors.APIError` – If the server returns an error.

#### `remove (force=False)`

Remove the plugin from the server.

**Parameters** `force` (*bool*) – Remove even if the plugin is enabled. Default: False

**Raises** `docker.errors.APIError` – If the server returns an error.

#### `upgrade (remote=None)`

Upgrade the plugin.

**Parameters** `remote` (*string*) – Remote reference to upgrade to. The `:latest` tag is optional and is the default if omitted. Default: this plugin's name.

**Returns** A generator streaming the decoded API logs

## Secrets

Manage secrets on the server.

Methods available on `client.secrets`:

**class SecretCollection**

**create** (*\*\*kwargs*)

Create a secret

**Parameters**

- **name** (*string*) – Name of the secret
- **data** (*bytes*) – Secret data to be stored
- **labels** (*dict*) – A mapping of labels to assign to the secret
- **driver** (*DriverConfig*) – A custom driver configuration. If unspecified, the default `internal` driver will be used

Returns (*dict*): ID of the newly created secret

**get** (*secret\_id*)

Get a secret.

**Parameters** **secret\_id** (*str*) – Secret ID.

**Returns** The secret.

**Return type** (*Secret*)

**Raises**

- `docker.errors.NotFound` – If the secret does not exist.
- `docker.errors.APIError` – If the server returns an error.

**list** (*\*\*kwargs*)

List secrets. Similar to the `docker secret ls` command.

**Parameters** **filters** (*dict*) – Server-side list filtering options.

**Returns** The secrets.

**Return type** (list of *Secret*)

**Raises** `docker.errors.APIError` – If the server returns an error.

## Secret objects

**class Secret**

A secret.

**id**

The ID of the object.

**name**

**attrs**

The raw representation of this object from the server.

**reload()**

Load this object from the server again and update `attrs` with the new data.

**remove()**

Remove this secret.

**Raises** `docker.errors.APIError` – If secret failed to remove.

## Services

Manage services on a swarm. For more information about services, [see the Engine documentation](#).

Before you can use any of these methods, you first need to [join or initialize a swarm](#).

Methods available on `client.services`:

**class ServiceCollection**

**create** (*image*, *command=None*, *\*\*kwargs*)

Create a service. Similar to the `docker service create` command.

### Parameters

- **image** (*str*) – The image name to use for the containers.
- **command** (*list of str or str*) – Command to run.
- **args** (*list of str*) – Arguments to the command.
- **constraints** (*list of str*) – *Placement* constraints.
- **preferences** (*list of tuple*) – *Placement* preferences.
- **platforms** (*list of tuple*) – A list of platform constraints expressed as (*arch*, *os*) tuples.
- **container\_labels** (*dict*) – Labels to apply to the container.
- **endpoint\_spec** (*EndpointSpec*) – Properties that can be configured to access and load balance a service. Default: `None`.
- **env** (*list of str*) – Environment variables, in the form `KEY=val`.
- **hostname** (*string*) – Hostname to set on the container.
- **isolation** (*string*) – Isolation technology used by the service's containers. Only used for Windows containers.
- **labels** (*dict*) – Labels to apply to the service.
- **log\_driver** (*str*) – Log driver to use for containers.
- **log\_driver\_options** (*dict*) – Log driver options.
- **mode** (*ServiceMode*) – Scheduling mode for the service. Default: `None`
- **mounts** (*list of str*) – Mounts for the containers, in the form `source:target:options`, where `options` is either `ro` or `rw`.
- **name** (*str*) – Name to give to the service.
- **networks** (*list of str*) – List of network names or IDs to attach the service to. Default: `None`.

- **resources** ([Resources](#)) – Resource limits and reservations.
- **restart\_policy** ([RestartPolicy](#)) – Restart policy for containers.
- **secrets** (list of [docker.types.SecretReference](#)) – List of secrets accessible to containers for this service.
- **stop\_grace\_period** (*int*) – Amount of time to wait for containers to terminate before forcefully killing them.
- **update\_config** ([UpdateConfig](#)) – Specification for the update strategy of the service. Default: None
- **rollback\_config** ([RollbackConfig](#)) – Specification for the rollback strategy of the service. Default: None
- **user** (*str*) – User to run commands as.
- **workdir** (*str*) – Working directory for commands to run.
- **tty** (*boolean*) – Whether a pseudo-TTY should be allocated.
- **groups** (*list*) – A list of additional groups that the container process will run as.
- **open\_stdin** (*boolean*) – Open stdin
- **read\_only** (*boolean*) – Mount the container’s root filesystem as read only.
- **stop\_signal** (*string*) – Set signal to stop the service’s containers
- **healthcheck** ([Healthcheck](#)) – Healthcheck configuration for this service.
- **hosts** (*dict*) – A set of host to IP mappings to add to the container’s *hosts* file.
- **dns\_config** ([DNSConfig](#)) – Specification for DNS related configurations in resolver configuration file.
- **configs** (*list*) – List of [ConfigReference](#) that will be exposed to the service.
- **privileges** ([Privileges](#)) – Security options for the service’s containers.

**Returns** The created service.

**Return type** [Service](#)

**Raises** `docker.errors.APIError` – If the server returns an error.

**get** (*service\_id*, *insert\_defaults=None*)  
Get a service.

**Parameters**

- **service\_id** (*str*) – The ID of the service.
- **insert\_defaults** (*boolean*) – If true, default values will be merged into the output.

**Returns** The service.

**Return type** [Service](#)

**Raises**

- `docker.errors.NotFound` – If the service does not exist.
- `docker.errors.APIError` – If the server returns an error.
- `docker.errors.InvalidVersion` – If one of the arguments is not supported with the current API version.



**list** (*\*\*kwargs*)  
List services.

**Parameters** **filters** (*dict*) – Filters to process on the nodes list. Valid filters: `id`, `name`, `label` and `mode`. Default: `None`.

**Returns** The services.

**Return type** list of *Service*

**Raises** `docker.errors.APIError` – If the server returns an error.

## Service objects

**class Service**  
A service.

**id**  
The ID of the object.

**short\_id**  
The ID of the object, truncated to 10 characters.

**name**  
The service's name.

**version**  
The version number of the service. If this is not the same as the server, the `update()` function will not work and you will need to call `reload()` before calling it again.

**attrs**  
The raw representation of this object from the server.

**force\_update()**  
Force update the service even if no changes require it.

**Returns** `True` if successful.

**Return type** `bool`

**logs** (*\*\*kwargs*)  
Get log stream for the service. Note: This method works only for services with the `json-file` or `journald` logging drivers.

**Parameters**

- **details** (*bool*) – Show extra details provided to logs. Default: `False`
- **follow** (*bool*) – Keep connection open to read logs as they are sent by the Engine. Default: `False`
- **stdout** (*bool*) – Return logs from `stdout`. Default: `False`
- **stderr** (*bool*) – Return logs from `stderr`. Default: `False`
- **since** (*int*) – UNIX timestamp for the logs starting point. Default: `0`
- **timestamps** (*bool*) – Add timestamps to every log line.
- **tail** (*string or int*) – Number of log lines to be returned, counting from the current end of the logs. Specify an integer or `'all'` to output all log lines. Default: `all`

**Returns** Logs for the service.

**Return type** generator

**reload()**

Load this object from the server again and update `attrs` with the new data.

**remove()**

Stop and remove the service.

**Raises** `docker.errors.APIError` – If the server returns an error.

**scale** (*replicas*)

Scale service container.

**Parameters** **replicas** (*int*) – The number of containers that should be running.

**Returns** `True` if successful.

**Return type** `bool`

**tasks** (*filters=None*)

List the tasks in this service.

**Parameters** **filters** (*dict*) – A map of filters to process on the tasks list. Valid filters: `id`, `name`, `node`, `label`, and `desired-state`.

**Returns** List of task dictionaries.

**Return type** `list`

**Raises** `docker.errors.APIError` – If the server returns an error.

**update** (*\*\*kwargs*)

Update a service's configuration. Similar to the `docker service update` command.

Takes the same parameters as `create()`.

**Raises** `docker.errors.APIError` – If the server returns an error.

## Swarm

Manage Docker Engine's swarm mode.

To use any swarm methods, you first need to make the Engine part of a swarm. This can be done by either initializing a new swarm with `init()`, or joining an existing swarm with `join()`.

These methods are available on `client.swarm`:

**class Swarm**

**get\_unlock\_key()**

Get the unlock key for this Swarm manager.

**Returns** A dict containing an `UnlockKey` member

**init()**

Initialize a new swarm on this Engine.

**Parameters**

- **advertise\_addr** (*str*) – Externally reachable address advertised to other nodes. This can either be an address/port combination in the form `192.168.1.1:4567`, or an interface followed by a port number, like `eth0:4567`. If the port number is omitted, the port number from the listen address is used.

If not specified, it will be automatically detected when possible.

- **listen\_addr** (*str*) – Listen address used for inter-manager communication, as well as determining the networking interface used for the VXLAN Tunnel Endpoint (VTEP). This can either be an address/port combination in the form `192.168.1.1:4567`, or an interface followed by a port number, like `eth0:4567`. If the port number is omitted, the default swarm listening port is used. Default: `0.0.0.0:2377`
- **force\_new\_cluster** (*bool*) – Force creating a new Swarm, even if already part of one. Default: `False`
- **task\_history\_retention\_limit** (*int*) – Maximum number of tasks history stored.
- **snapshot\_interval** (*int*) – Number of logs entries between snapshot.
- **keep\_old\_snapshots** (*int*) – Number of snapshots to keep beyond the current snapshot.
- **log\_entries\_for\_slow\_followers** (*int*) – Number of log entries to keep around to sync up slow followers after a snapshot is created.
- **heartbeat\_tick** (*int*) – Amount of ticks (in seconds) between each heartbeat.
- **election\_tick** (*int*) – Amount of ticks (in seconds) needed without a leader to trigger a new election.
- **dispatcher\_heartbeat\_period** (*int*) – The delay for an agent to send a heartbeat to the dispatcher.
- **node\_cert\_expiry** (*int*) – Automatic expiry for nodes certificates.
- **external\_ca** (*dict*) – Configuration for forwarding signing requests to an external certificate authority. Use `docker.types.SwarmExternalCA`.
- **name** (*string*) – Swarm's name
- **labels** (*dict*) – User-defined key/value metadata.
- **signing\_ca\_cert** (*str*) – The desired signing CA certificate for all swarm node TLS leaf certificates, in PEM format.
- **signing\_ca\_key** (*str*) – The desired signing CA key for all swarm node TLS leaf certificates, in PEM format.
- **ca\_force\_rotate** (*int*) – An integer whose purpose is to force swarm to generate a new signing CA certificate and key, if none have been specified.
- **autolock\_managers** (*boolean*) – If set, generate a key and use it to lock data stored on the managers.
- **log\_driver** (*DriverConfig*) – The default log driver to use for tasks created in the orchestrator.

**Returns** `True` if the request went through.

**Raises** `docker.errors.APIError` – If the server returns an error.

## Example

```
>>> client.swarm.init(
    advertise_addr='eth0', listen_addr='0.0.0.0:5000',
    force_new_cluster=False, snapshot_interval=5000,
    log_entries_for_slow_followers=1200
)
```

### `join()`

Make this Engine join a swarm that has already been created.

#### Parameters

- **remote\_addrs** (*list*) – Addresses of one or more manager nodes already participating in the Swarm to join.
- **join\_token** (*string*) – Secret token for joining this Swarm.
- **listen\_addr** (*string*) – Listen address used for inter-manager communication if the node gets promoted to manager, as well as determining the networking interface used for the VXLAN Tunnel Endpoint (VTEP). Default: *None*
- **advertise\_addr** (*string*) – Externally reachable address advertised to other nodes. This can either be an address/port combination in the form 192.168.1.1:4567, or an interface followed by a port number, like eth0:4567. If the port number is omitted, the port number from the listen address is used. If AdvertiseAddr is not specified, it will be automatically detected when possible. Default: *None*

**Returns** *True* if the request went through.

**Raises** `docker.errors.APIError` – If the server returns an error.

### `leave()`

Leave a swarm.

**Parameters** **force** (*bool*) – Leave the swarm even if this node is a manager. Default: *False*

**Returns** *True* if the request went through.

**Raises** `docker.errors.APIError` – If the server returns an error.

### `unlock()`

Unlock a locked swarm.

**Parameters** **key** (*string*) – The unlock key as provided by `get_unlock_key()`

#### Raises

- `docker.errors.InvalidArgument` – If the key argument is in an incompatible format
- `docker.errors.APIError` – If the server returns an error.

**Returns** *True* if the request was successful.

## Example

```
>>> key = client.get_unlock_key()
>>> client.unlock_node(key)
```

**update()**

Update the swarm's configuration.

It takes the same arguments as `init()`, except `advertise_addr`, `listen_addr`, and `force_new_cluster`. In addition, it takes these arguments:

**Parameters**

- **rotate\_worker\_token** (*bool*) – Rotate the worker join token. Default: `False`.
- **rotate\_manager\_token** (*bool*) – Rotate the manager join token. Default: `False`.

**Raises** `docker.errors.APIError` – If the server returns an error.

**reload()**

Inspect the swarm on the server and store the response in `attrs`.

**Raises** `docker.errors.APIError` – If the server returns an error.

**version**

The version number of the swarm. If this is not the same as the server, the `update()` function will not work and you will need to call `reload()` before calling it again.

**attrs**

The raw representation of this object from the server.

## Volumes

Manage volumes on the server.

Methods available on `client.volumes`:

**class VolumeCollection****create** (*name=None, \*\*kwargs*)

Create a volume.

**Parameters**

- **name** (*str*) – Name of the volume. If not specified, the engine generates a name.
- **driver** (*str*) – Name of the driver used to create the volume
- **driver\_opts** (*dict*) – Driver options as a key-value dictionary
- **labels** (*dict*) – Labels to set on the volume

**Returns** The volume created.

**Return type** (*Volume*)

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> volume = client.volumes.create(name='foobar', driver='local',
    driver_opts={'foo': 'bar', 'baz': 'false'},
    labels={"key": "value"})
```

**get** (*volume\_id*)

Get a volume.

**Parameters** **volume\_id** (*str*) – Volume name.

**Returns** The volume.

**Return type** (*Volume*)

**Raises**

- `docker.errors.NotFound` – If the volume does not exist.
- `docker.errors.APIError` – If the server returns an error.

**list** (*\*\*kwargs*)

List volumes. Similar to the `docker volume ls` command.

**Parameters** **filters** (*dict*) – Server-side list filtering options.

**Returns** The volumes.

**Return type** (list of *Volume*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**prune** (*filters=None*)

Delete unused volumes

**Parameters** **filters** (*dict*) – Filters to process on the prune list.

**Returns**

A dict containing a list of deleted volume names and the amount of disk space reclaimed in bytes.

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

## Volume objects

**class Volume**

A volume.

**id**

The ID of the object.

**short\_id**

The ID of the object, truncated to 10 characters.

**name**

The name of the volume.

**attrs**

The raw representation of this object from the server.

**reload** ()

Load this object from the server again and update `attrs` with the new data.

**remove** (*force=False*)

Remove this volume.

**Parameters** **force** (*bool*) – Force removal of volumes that were already removed out of band by the volume driver plugin.

**Raises** `docker.errors.APIError` – If volume failed to remove.

## Low-level API

The main object-orientated API is built on top of `APIClient`. Each method on `APIClient` maps one-to-one with a REST API endpoint, and returns the response that the API responds with.

It's possible to use `APIClient` directly. Some basic things (e.g. running a container) consist of several API calls and are complex to do with the low-level API, but it's useful if you need extra flexibility and power.

```
class APIClient (base_url=None, version=None, timeout=60, tls=False, user_agent='docker-sdk-  
python/3.7.0-dev', num_pools=25, credstore_env=None)
```

A low-level client for the Docker Engine API.

### Example

```
>>> import docker
>>> client = docker.APIClient(base_url='unix:///var/run/docker.sock')
>>> client.version()
{'u'ApiVersion': u'1.33',
 u'Arch': u'amd64',
 u'BuildTime': u'2017-11-19T18:46:37.000000000+00:00',
 u'GitCommit': u'f4ffd2511c',
 u'GoVersion': u'go1.9.2',
 u'KernelVersion': u'4.14.3-1-ARCH',
 u'MinAPIVersion': u'1.12',
 u'Os': u'linux',
 u'Version': u'17.10.0-ce'}
```

### Parameters

- **base\_url** (*str*) – URL to the Docker server. For example, `unix:///var/run/docker.sock` or `tcp://127.0.0.1:1234`.
- **version** (*str*) – The version of the API to use. Set to `auto` to automatically detect the server's version. Default: `1.30`
- **timeout** (*int*) – Default timeout for API calls, in seconds.
- **tls** (bool or *TLSConfig*) – Enable TLS. Pass `True` to enable it with default options, or pass a *TLSConfig* object to use custom configuration.
- **user\_agent** (*str*) – Set a custom user agent for requests to the server.
- **credstore\_env** (*dict*) – Override environment variables when calling the credential store process.

## Configs

```
class ConfigApiMixin
```

```
configs (filters=None)
    List configs
```

### Parameters

- **filters** (*dict*) – A map of filters to process on the configs
- **Available filters** (*list.*) – names

Returns (list): A list of configs

**create\_config** (*name, data, labels=None*)

Create a config

**Parameters**

- **name** (*string*) – Name of the config
- **data** (*bytes*) – Config data to be stored
- **labels** (*dict*) – A mapping of labels to assign to the config

Returns (dict): ID of the newly created config

**inspect\_config** (*id*)

Retrieve config metadata

**Parameters** **id** (*string*) – Full ID of the config to remove

Returns (dict): A dictionary of metadata

**Raises** `docker.errors.NotFound` – if no config with that ID exists

**remove\_config** (*id*)

Remove a config

**Parameters** **id** (*string*) – Full ID of the config to remove

Returns (boolean): True if successful

**Raises** `docker.errors.NotFound` – if no config with that ID exists

## Containers

**class ContainerApiMixin**

**attach** (*container, stdout=True, stderr=True, stream=False, logs=False, demux=False*)

Attach to a container.

The `.logs()` function is a wrapper around this method, which you can use instead if you want to fetch/stream container output without first retrieving the entire backlog.

**Parameters**

- **container** (*str*) – The container to attach to.
- **stdout** (*bool*) – Include stdout.
- **stderr** (*bool*) – Include stderr.
- **stream** (*bool*) – Return container output progressively as an iterator of strings, rather than a single string.
- **logs** (*bool*) – Include the container's previous output.
- **demux** (*bool*) – Keep stdout and stderr separate.



**Returns**

By default, the container's output as a single string (two if `demux=True`: one for stdout and one for stderr).

If `stream=True`, an iterator of output strings. If `demux=True`, two iterators are returned: one for stdout and one for stderr.

**Raises** `docker.errors.APIError` – If the server returns an error.

**attach\_socket** (*container*, *params=None*, *ws=False*)

Like `attach`, but returns the underlying socket-like object for the HTTP request.

**Parameters**

- **container** (*str*) – The container to attach to.
- **params** (*dict*) – Dictionary of request parameters (e.g. `stdout`, `stderr`, `stream`). For `detachKeys`, `~/.docker/config.json` is used by default.
- **ws** (*bool*) – Use websockets instead of raw HTTP.

**Raises** `docker.errors.APIError` – If the server returns an error.

**commit** (*container*, *repository=None*, *tag=None*, *message=None*, *author=None*, *changes=None*, *conf=None*)

Commit a container to an image. Similar to the `docker commit` command.

**Parameters**

- **container** (*str*) – The image hash of the container
- **repository** (*str*) – The repository to push the image to
- **tag** (*str*) – The tag to push
- **message** (*str*) – A commit message
- **author** (*str*) – The name of the author
- **changes** (*str*) – Dockerfile instructions to apply while committing
- **conf** (*dict*) – The configuration for the container. See the [Engine API documentation](#) for full details.

**Raises** `docker.errors.APIError` – If the server returns an error.

**containers** (*quiet=False*, *all=False*, *trunc=False*, *latest=False*, *since=None*, *before=None*, *limit=-1*, *size=False*, *filters=None*)

List containers. Similar to the `docker ps` command.

**Parameters**

- **quiet** (*bool*) – Only display numeric Ids
- **all** (*bool*) – Show all containers. Only running containers are shown by default
- **trunc** (*bool*) – Truncate output
- **latest** (*bool*) – Show only the latest created container, include non-running ones.
- **since** (*str*) – Show only containers created since Id or Name, include non-running ones
- **before** (*str*) – Show only container created before Id or Name, include non-running ones
- **limit** (*int*) – Show *limit* last created containers, include non-running ones

- **size** (*bool*) – Display sizes
- **filters** (*dict*) – Filters to be processed on the image list. Available filters:
  - *exited* (*int*): Only containers with specified exit code
  - *status* (*str*): One of **restarting**, **running**, **paused**, **exited**
  - *label* (*str*): format either "key" or "key=value"
  - *id* (*str*): The id of the container.
  - *name* (*str*): The name of the container.
  - *ancestor* (*str*): **Filter by container ancestor. Format of**  
    <image-name>[:tag], <image-id>, or <image@digest>.
  - *before* (*str*): **Only containers created before a particular** container. Give the container name or id.
  - *since* (*str*): **Only containers created after a particular** container. Give container name or id.

A comprehensive list can be found in the documentation for [docker ps](#).

**Returns** A list of dicts, one per container

**Raises** `docker.errors.APIError` – If the server returns an error.

**create\_container** (*image*, *command=None*, *hostname=None*, *user=None*, *detach=False*, *stdin\_open=False*, *tty=False*, *ports=None*, *environment=None*, *volumes=None*, *network\_disabled=False*, *name=None*, *entrypoint=None*, *working\_dir=None*, *domainname=None*, *host\_config=None*, *mac\_address=None*, *labels=None*, *stop\_signal=None*, *networking\_config=None*, *healthcheck=None*, *stop\_timeout=None*, *runtime=None*)

Creates a container. Parameters are similar to those for the `docker run` command except it doesn't support the attach options (`-a`).

The arguments that are passed directly to this function are host-independent configuration options. Host-specific configuration is passed with the *host\_config* argument. You'll normally want to use this method in combination with the [create\\_host\\_config\(\)](#) method to generate *host\_config*.

### Port bindings

Port binding is done in two parts: first, provide a list of ports to open inside the container with the *ports* parameter, then declare bindings with the *host\_config* parameter. For example:

```
container_id = cli.create_container(
    'busybox', 'ls', ports=[1111, 2222],
    host_config=cli.create_host_config(port_bindings={
        1111: 4567,
        2222: None
    })
)
```

You can limit the host address on which the port will be exposed like such:

```
cli.create_host_config(port_bindings={1111: ('127.0.0.1', 4567)})
```

Or without host port assignment:

```
cli.create_host_config(port_bindings={1111: ('127.0.0.1',)})
```

If you wish to use UDP instead of TCP (default), you need to declare ports as such in both the config and host config:

```
container_id = cli.create_container(
    'busybox', 'ls', ports=[(1111, 'udp'), 2222],
    host_config=cli.create_host_config(port_bindings={
        '1111/udp': 4567, 2222: None
    })
)
```

To bind multiple host ports to a single container port, use the following syntax:

```
cli.create_host_config(port_bindings={
    1111: [1234, 4567]
})
```

You can also bind multiple IPs to a single container port:

```
cli.create_host_config(port_bindings={
    1111: [
        ('192.168.0.100', 1234),
        ('192.168.0.101', 1234)
    ]
})
```

### Using volumes

Volume declaration is done in two parts. Provide a list of paths to use as mountpoints inside the container with the `volumes` parameter, and declare mappings from paths on the host in the `host_config` section.

```
container_id = cli.create_container(
    'busybox', 'ls', volumes=['/mnt/vol1', '/mnt/vol2'],
    host_config=cli.create_host_config(binds={
        '/home/user1/': {
            'bind': '/mnt/vol2',
            'mode': 'rw',
        },
        '/var/www': {
            'bind': '/mnt/vol1',
            'mode': 'ro',
        }
    })
)
```

You can alternatively specify binds as a list. This code is equivalent to the example above:

```
container_id = cli.create_container(
    'busybox', 'ls', volumes=['/mnt/vol1', '/mnt/vol2'],
    host_config=cli.create_host_config(binds=[
        '/home/user1:/mnt/vol2',
        '/var/www:/mnt/vol1:ro',
    ])
)
```

### Networking

You can specify networks to connect the container to by using the `networking_config` parameter. At the time of creation, you can only connect a container to a single networking, but you can create more

connections by using `connect_container_to_network()`.

For example:

```
networking_config = docker_client.create_networking_config({
    'network1': docker_client.create_endpoint_config(
        ipv4_address='172.28.0.124',
        aliases=['foo', 'bar'],
        links=['container2']
    )
})

ctr = docker_client.create_container(
    img, command, networking_config=networking_config
)
```

### Parameters

- **image** (*str*) – The image to run
- **command** (*str or list*) – The command to be run in the container
- **hostname** (*str*) – Optional hostname for the container
- **user** (*str or int*) – Username or UID
- **detach** (*bool*) – Detached mode: run container in the background and return container ID
- **stdin\_open** (*bool*) – Keep STDIN open even if not attached
- **tty** (*bool*) – Allocate a pseudo-TTY
- **ports** (*list of ints*) – A list of port numbers
- **environment** (*dict or list*) – A dictionary or a list of strings in the following format ["PASSWORD=xxx"] or {"PASSWORD": "xxx"}.
- **volumes** (*str or list*) – List of paths inside the container to use as volumes.
- **network\_disabled** (*bool*) – Disable networking
- **name** (*str*) – A name for the container
- **entrypoint** (*str or list*) – An entrypoint
- **working\_dir** (*str*) – Path to the working directory
- **domainname** (*str*) – The domain name to use for the container
- **host\_config** (*dict*) – A dictionary created with `create_host_config()`.
- **mac\_address** (*str*) – The Mac Address to assign the container
- **labels** (*dict or list*) – A dictionary of name-value labels (e.g. {"label1": "value1", "label2": "value2"}) or a list of names of labels to set with empty values (e.g. ["label1", "label2"])
- **stop\_signal** (*str*) – The stop signal to use to stop the container (e.g. SIGINT).
- **stop\_timeout** (*int*) – Timeout to stop the container, in seconds. Default: 10
- **networking\_config** (*dict*) – A networking configuration generated by `create_networking_config()`.
- **runtime** (*str*) – Runtime to use with this container.

- **healthcheck** (*dict*) – Specify a test to perform to check that the container is healthy.

**Returns** A dictionary with an image ‘Id’ key and a ‘Warnings’ key.

**Raises**

- `docker.errors.ImageNotFound` – If the specified image does not exist.
- `docker.errors.APIError` – If the server returns an error.

**create\_container\_config** (*\*args, \*\*kwargs*)

**create\_container\_from\_config** (*config, name=None*)

**create\_endpoint\_config** (*\*args, \*\*kwargs*)

Create an endpoint config dictionary to be used with `create_networking_config()`.

**Parameters**

- **aliases** (*list*) – A list of aliases for this endpoint. Names in that list can be used within the network to reach the container. Defaults to `None`.
- **links** (*dict*) – Mapping of links for this endpoint using the `{'container': 'alias'}` format. The alias is optional. Containers declared in this dict will be linked to this container using the provided alias. Defaults to `None`.
- **ipv4\_address** (*str*) – The IP address of this container on the network, using the IPv4 protocol. Defaults to `None`.
- **ipv6\_address** (*str*) – The IP address of this container on the network, using the IPv6 protocol. Defaults to `None`.
- **link\_local\_ips** (*list*) – A list of link-local (IPv4/IPv6) addresses.

**Returns** (*dict*) An endpoint config.

## Example

```
>>> endpoint_config = client.create_endpoint_config(
    aliases=['web', 'app'],
    links={'app_db': 'db', 'another': None},
    ipv4_address='132.65.0.123'
)
```

**create\_host\_config** (*\*args, \*\*kwargs*)

Create a dictionary for the `host_config` argument to `create_container()`.

**Parameters**

- **auto\_remove** (*bool*) – enable auto-removal of the container on daemon side when the container’s process exits.
- **binds** (*dict*) – Volumes to bind. See `create_container()` for more information.
- **blkio\_weight\_device** – Block IO weight (relative device weight) in the form of: `[{"Path": "device_path", "Weight": weight}]`.
- **blkio\_weight** – Block IO weight (relative weight), accepts a weight value between 10 and 1000.

- **cap\_add** (*list of str*) – Add kernel capabilities. For example, `["SYS_ADMIN", "MKNOD"]`.
- **cap\_drop** (*list of str*) – Drop kernel capabilities.
- **cpu\_period** (*int*) – The length of a CPU period in microseconds.
- **cpu\_quota** (*int*) – Microseconds of CPU time that the container can get in a CPU period.
- **cpu\_shares** (*int*) – CPU shares (relative weight).
- **cpuset\_cpus** (*str*) – CPUs in which to allow execution (0–3, 0, 1).
- **cpuset\_mems** (*str*) – Memory nodes (MEMs) in which to allow execution (0–3, 0, 1). Only effective on NUMA systems.
- **device\_cgroup\_rules** (*list*) – A list of cgroup rules to apply to the container.
- **device\_read\_bps** – Limit read rate (bytes per second) from a device in the form of: `[{"Path": "device_path", "Rate": rate}]`
- **device\_read\_iops** – Limit read rate (IO per second) from a device.
- **device\_write\_bps** – Limit write rate (bytes per second) from a device.
- **device\_write\_iops** – Limit write rate (IO per second) from a device.
- **devices** (*list*) – Expose host devices to the container, as a list of strings in the form `<path_on_host>:<path_in_container>:<cgroup_permissions>`.  
For example, `/dev/sda:/dev/xvda:rwm` allows the container to have read-write access to the host's `/dev/sda` via a node named `/dev/xvda` inside the container.
- **dns** (*list*) – Set custom DNS servers.
- **dns\_opt** (*list*) – Additional options to be added to the container's `resolv.conf` file
- **dns\_search** (*list*) – DNS search domains.
- **extra\_hosts** (*dict*) – Additional hostnames to resolve inside the container, as a mapping of hostname to IP address.
- **group\_add** (*list*) – List of additional group names and/or IDs that the container process will run as.
- **init** (*bool*) – Run an init inside the container that forwards signals and reaps processes
- **init\_path** (*str*) – Path to the docker-init binary
- **ipc\_mode** (*str*) – Set the IPC mode for the container.
- **isolation** (*str*) – Isolation technology to use. Default: `None`.
- **links** (*dict*) – Mapping of links using the `{'container': 'alias'}` format. The alias is optional. Containers declared in this dict will be linked to the new container using the provided alias. Default: `None`.
- **log\_config** (`LogConfig`) – Logging configuration
- **lxc\_conf** (*dict*) – LXC config.

- **mem\_limit** (*float or str*) – Memory limit. Accepts float values (which represent the memory limit of the created container in bytes) or a string with a units identification char (100000b, 1000k, 128m, 1g). If a string is specified without a units character, bytes are assumed as an
- **mem\_swappiness** (*int*) – Tune a container’s memory swappiness behavior. Accepts number between 0 and 100.
- **memswap\_limit** (*str or int*) – Maximum amount of memory + swap a container is allowed to consume.
- **mounts** (*list*) – Specification for mounts to be added to the container. More powerful alternative to `binds`. Each item in the list is expected to be a `docker.types.Mount` object.
- **network\_mode** (*str*) – One of:
  - `bridge` Create a new network stack for the container on on the bridge network.
  - `none` No networking for this container.
  - `container:<name|id>` Reuse another container’s network stack.
  - `host` Use the host network stack.
- **oom\_kill\_disable** (*bool*) – Whether to disable OOM killer.
- **oom\_score\_adj** (*int*) – An integer value containing the score given to the container in order to tune OOM killer preferences.
- **pid\_mode** (*str*) – If set to `host`, use the host PID namespace inside the container.
- **pids\_limit** (*int*) – Tune a container’s pids limit. Set `-1` for unlimited.
- **port\_bindings** (*dict*) – See `create_container()` for more information.
- **privileged** (*bool*) – Give extended privileges to this container.
- **publish\_all\_ports** (*bool*) – Publish all ports to the host.
- **read\_only** (*bool*) – Mount the container’s root filesystem as read only.
- **restart\_policy** (*dict*) – Restart the container when it exits. Configured as a dictionary with keys:
  - `Name` One of `on-failure`, or `always`.
  - `MaximumRetryCount` Number of times to restart the container on failure.
- **security\_opt** (*list*) – A list of string values to customize labels for MLS systems, such as SELinux.
- **shm\_size** (*str or int*) – Size of `/dev/shm` (e.g. 1G).
- **storage\_opt** (*dict*) – Storage driver options per container as a key-value mapping.
- **sysctls** (*dict*) – Kernel parameters to set in the container.
- **tmpfs** (*dict*) – Temporary filesystems to mount, as a dictionary mapping a path inside the container to options for that path.

For example:

```
{
    '/mnt/vol2': '',
    '/mnt/vol1': 'size=3G,uid=1000'
}
```

- **ulimits** (list) – Ulimits to set inside the container, as a list of *docker.types.Ulimit* instances.
- **usersns\_mode** (str) – Sets the user namespace mode for the container when user namespace remapping option is enabled. Supported values are: host
- **uts\_mode** (str) – Sets the UTS namespace mode for the container. Supported values are: host
- **volumes\_from** (list) – List of container names or IDs to get volumes from.
- **runtime** (str) – Runtime to use with this container.

**Returns** (dict) A dictionary which can be passed to the `host_config` argument to *create\_container()*.

### Example

```
>>> cli.create_host_config(privileged=True, cap_drop=['MKNOD'],
                           volumes_from=['nostalgic_newton'])
{'CapDrop': ['MKNOD'], 'LxcConf': None, 'Privileged': True,
 'VolumesFrom': ['nostalgic_newton'], 'PublishAllPorts': False}
```

**create\_networking\_config** (\*args, \*\*kwargs)

Create a networking config dictionary to be used as the `networking_config` parameter in *create\_container()*.

**Parameters** **endpoints\_config** (dict) – A dictionary mapping network names to endpoint configurations generated by *create\_endpoint\_config()*.

**Returns** (dict) A networking config.

### Example

```
>>> docker_client.create_network('network1')
>>> networking_config = docker_client.create_networking_config({
    'network1': docker_client.create_endpoint_config()
})
>>> container = docker_client.create_container(
    img, command, networking_config=networking_config
)
```

**diff** (container)

Inspect changes on a container's filesystem.

**Parameters** **container** (str) – The container to diff

**Returns** (str)

**Raises** `docker.errors.APIError` – If the server returns an error.

**export** (container, chunk\_size=2097152)

Export the contents of a filesystem as a tar archive.



**Parameters**

- **container** (*str*) – The container to export
- **chunk\_size** (*int*) – The number of bytes returned by each iteration of the generator. If None, data will be streamed as it is received. Default: 2 MB

**Returns** The archived filesystem data stream

**Return type** (generator)

**Raises** `docker.errors.APIError` – If the server returns an error.

**get\_archive** (*container, path, chunk\_size=2097152*)

Retrieve a file or folder from a container in the form of a tar archive.

**Parameters**

- **container** (*str*) – The container where the file is located
- **path** (*str*) – Path to the file or folder to retrieve
- **chunk\_size** (*int*) – The number of bytes returned by each iteration of the generator. If None, data will be streamed as it is received. Default: 2 MB

**Returns** First element is a raw tar data stream. Second element is a dict containing `stat` information on the specified `path`.

**Return type** (tuple)

**Raises** `docker.errors.APIError` – If the server returns an error.

**Example**

```
>>> c = docker.APIClient()
>>> f = open('./sh_bin.tar', 'wb')
>>> bits, stat = c.get_archive(container, '/bin/sh')
>>> print(stat)
{'name': 'sh', 'size': 1075464, 'mode': 493,
 'mtime': '2018-10-01T15:37:48-07:00', 'linkTarget': ''}
>>> for chunk in bits:
...     f.write(chunk)
>>> f.close()
```

**inspect\_container** (*container*)

Identical to the `docker inspect` command, but only for containers.

**Parameters** **container** (*str*) – The container to inspect

**Returns** Similar to the output of `docker inspect`, but as a single dict

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

**kill** (*container, signal=None*)

Kill a container or send a signal to a container.

**Parameters**

- **container** (*str*) – The container to kill
- **signal** (*str or int*) – The signal to send. Defaults to `SIGKILL`

**Raises** `docker.errors.APIError` – If the server returns an error.

**logs** (*container*, *stdout=True*, *stderr=True*, *stream=False*, *timestamps=False*, *tail='all'*, *since=None*, *follow=None*, *until=None*)

Get logs from a container. Similar to the `docker logs` command.

The `stream` parameter makes the `logs` function return a blocking generator you can iterate over to retrieve log output as it happens.

#### Parameters

- **container** (*str*) – The container to get logs from
- **stdout** (*bool*) – Get STDOUT. Default `True`
- **stderr** (*bool*) – Get STDERR. Default `True`
- **stream** (*bool*) – Stream the response. Default `False`
- **timestamps** (*bool*) – Show timestamps. Default `False`
- **tail** (*str or int*) – Output specified number of lines at the end of logs. Either an integer of number of lines or the string `all`. Default `all`
- **since** (*datetime or int*) – Show logs since a given datetime or integer epoch (in seconds)
- **follow** (*bool*) – Follow log output. Default `False`
- **until** (*datetime or int*) – Show logs that occurred before the given datetime or integer epoch (in seconds)

**Returns** (generator or `str`)

**Raises** `docker.errors.APIError` – If the server returns an error.

**pause** (*container*)

Pauses all processes within a container.

**Parameters** **container** (*str*) – The container to pause

**Raises** `docker.errors.APIError` – If the server returns an error.

**port** (*container*, *private\_port*)

Lookup the public-facing port that is NAT-ed to `private_port`. Identical to the `docker port` command.

#### Parameters

- **container** (*str*) – The container to look up
- **private\_port** (*int*) – The private port to inspect

**Returns** The mapping for the host ports

**Return type** (list of dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
$ docker run -d -p 80:80 ubuntu:14.04 /bin/sleep 30
7174d6347063a83f412fad6124c99cffd25ffela0807eb4b7f9cec76ac8cb43b
```

```
>>> cli.port('7174d6347063', 80)
[{'HostIp': '0.0.0.0', 'HostPort': '80'}]
```

**prune\_containers** (*filters=None*)

Delete stopped containers

**Parameters** **filters** (*dict*) – Filters to process on the prune list.

**Returns**

A dict containing a list of deleted container IDs and the amount of disk space reclaimed in bytes.

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

**put\_archive** (*container, path, data*)

Insert a file or folder in an existing container using a tar archive as source.

**Parameters**

- **container** (*str*) – The container where the file(s) will be extracted
- **path** (*str*) – Path inside the container where the file(s) will be extracted. Must exist.
- **data** (*bytes*) – tar data to be extracted

**Returns** True if the call succeeds.

**Return type** (bool)

**Raises** `docker.errors.APIError` – If the server returns an error.

**remove\_container** (*container, v=False, link=False, force=False*)

Remove a container. Similar to the `docker rm` command.

**Parameters**

- **container** (*str*) – The container to remove
- **v** (*bool*) – Remove the volumes associated with the container
- **link** (*bool*) – Remove the specified link and not the underlying container
- **force** (*bool*) – Force the removal of a running container (uses SIGKILL)

**Raises** `docker.errors.APIError` – If the server returns an error.

**rename** (*container, name*)

Rename a container. Similar to the `docker rename` command.

**Parameters**

- **container** (*str*) – ID of the container to rename
- **name** (*str*) – New name for the container

**Raises** `docker.errors.APIError` – If the server returns an error.

**resize** (*container, height, width*)

Resize the tty session.

**Parameters**

- **container** (*str or dict*) – The container to resize

- **height** (*int*) – Height of tty session
- **width** (*int*) – Width of tty session

**Raises** `docker.errors.APIError` – If the server returns an error.

**restart** (*container*, *timeout=10*)

Restart a container. Similar to the `docker restart` command.

#### Parameters

- **container** (*str or dict*) – The container to restart. If a dict, the `Id` key is used.
- **timeout** (*int*) – Number of seconds to try to stop for before killing the container. Once killed it will then be restarted. Default is 10 seconds.

**Raises** `docker.errors.APIError` – If the server returns an error.

**start** (*container*, *\*args*, *\*\*kwargs*)

Start a container. Similar to the `docker start` command, but doesn't support attach options.

**Deprecation warning:** Passing configuration options in `start` is no longer supported. Users are expected to provide host config options in the `host_config` parameter of `create_container()`.

**Parameters** **container** (*str*) – The container to start

#### Raises

- `docker.errors.APIError` – If the server returns an error.
- `docker.errors.DeprecatedMethod` – If any argument besides `container` are provided.

## Example

```
>>> container = cli.create_container(  
...     image='busybox:latest',  
...     command='/bin/sleep 30')  
>>> cli.start(container=container.get('Id'))
```

**stats** (*container*, *decode=None*, *stream=True*)

Stream statistics for a specific container. Similar to the `docker stats` command.

#### Parameters

- **container** (*str*) – The container to stream statistics from
- **decode** (*bool*) – If set to true, stream will be decoded into dicts on the fly. Only applicable if `stream` is True. False by default.
- **stream** (*bool*) – If set to false, only the current stats will be returned instead of a stream. True by default.

**Raises** `docker.errors.APIError` – If the server returns an error.

**stop** (*container*, *timeout=None*)

Stops a container. Similar to the `docker stop` command.

#### Parameters

- **container** (*str*) – The container to stop

- **timeout** (*int*) – Timeout in seconds to wait for the container to stop before sending a SIGKILL. If None, then the StopTimeout value of the container will be used. Default: None

**Raises** `docker.errors.APIError` – If the server returns an error.

**top** (*container*, *ps\_args=None*)

Display the running processes of a container.

#### Parameters

- **container** (*str*) – The container to inspect
- **ps\_args** (*str*) – An optional arguments passed to ps (e.g. `aux`)

**Returns** The output of the top

**Return type** (*str*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**unpause** (*container*)

Unpause all processes within a container.

**Parameters** **container** (*str*) – The container to unpause

**update\_container** (*container*, *blkio\_weight=None*, *cpu\_period=None*, *cpu\_quota=None*, *cpu\_shares=None*, *cpuset\_cpus=None*, *cpuset\_mems=None*, *mem\_limit=None*, *mem\_reservation=None*, *memswap\_limit=None*, *kernel\_memory=None*, *restart\_policy=None*)

Update resource configs of one or more containers.

#### Parameters

- **container** (*str*) – The container to inspect
- **blkio\_weight** (*int*) – Block IO (relative weight), between 10 and 1000
- **cpu\_period** (*int*) – Limit CPU CFS (Completely Fair Scheduler) period
- **cpu\_quota** (*int*) – Limit CPU CFS (Completely Fair Scheduler) quota
- **cpu\_shares** (*int*) – CPU shares (relative weight)
- **cpuset\_cpus** (*str*) – CPUs in which to allow execution
- **cpuset\_mems** (*str*) – MEMs in which to allow execution
- **mem\_limit** (*int or str*) – Memory limit
- **mem\_reservation** (*int or str*) – Memory soft limit
- **memswap\_limit** (*int or str*) – Total memory (memory + swap), -1 to disable swap
- **kernel\_memory** (*int or str*) – Kernel memory limit
- **restart\_policy** (*dict*) – Restart policy dictionary

**Returns** Dictionary containing a `Warnings` key.

**Return type** (*dict*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**wait** (*container*, *timeout=None*, *condition=None*)

Block until a container stops, then return its exit code. Similar to the `docker wait` command.

#### Parameters

- **container** (*str or dict*) – The container to wait on. If a dict, the `Id` key is used.
- **timeout** (*int*) – Request timeout
- **condition** (*str*) – Wait until a container state reaches the given condition, either `not-running` (default), `next-exit`, or `removed`

**Returns**

The API's response as a Python dictionary, including the container's exit code under the `StatusCode` attribute.

**Return type** (dict)

**Raises**

- `requests.exceptions.ReadTimeout` – If the timeout is exceeded.
- `docker.errors.APIError` – If the server returns an error.

## Images

### class ImageApiMixin

**get\_image** (*image, chunk\_size=2097152*)

Get a tarball of an image. Similar to the `docker save` command.

**Parameters**

- **image** (*str*) – Image name to get
- **chunk\_size** (*int*) – The number of bytes returned by each iteration of the generator. If `None`, data will be streamed as it is received. Default: 2 MB

**Returns** A stream of raw archive data.

**Return type** (generator)

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> image = cli.get_image("busybox:latest")
>>> f = open('/tmp/busybox-latest.tar', 'wb')
>>> for chunk in image:
>>>     f.write(chunk)
>>> f.close()
```

**history** (*image*)

Show the history of an image.

**Parameters** **image** (*str*) – The image to show history for

**Returns** The history of the image

**Return type** (str)

**Raises** `docker.errors.APIError` – If the server returns an error.

**images** (*name=None, quiet=False, all=False, filters=None*)

List images. Similar to the `docker images` command.

#### Parameters

- **name** (*str*) – Only show images belonging to the repository name
- **quiet** (*bool*) – Only return numeric IDs as a list.
- **all** (*bool*) – Show intermediate image layers. By default, these are filtered out.
- **filters** (*dict*) – Filters to be processed on the image list. Available filters: -  
dangling (*bool*) - label (*str*): format either `key` or `key=value`

**Returns** A list if `quiet=True`, otherwise a dict.

**Return type** (dict or list)

**Raises** `docker.errors.APIError` – If the server returns an error.

**import\_image** (*src=None, repository=None, tag=None, image=None, changes=None, stream\_src=False*)

Import an image. Similar to the `docker import` command.

If `src` is a string or unicode string, it will first be treated as a path to a tarball on the local system. If there is an error reading from that file, `src` will be treated as a URL instead to fetch the image from. You can also pass an open file handle as `src`, in which case the data will be read from that file.

If `src` is unset but `image` is set, the `image` parameter will be taken as the name of an existing image to import from.

#### Parameters

- **src** (*str or file*) – Path to tarfile, URL, or file-like object
- **repository** (*str*) – The repository to create
- **tag** (*str*) – The tag to apply
- **image** (*str*) – Use another image like the `FROM` Dockerfile parameter

**import\_image\_from\_data** (*data, repository=None, tag=None, changes=None*)

Like `import_image()`, but allows importing in-memory bytes data.

#### Parameters

- **data** (*bytes collection*) – Bytes collection containing valid tar data
- **repository** (*str*) – The repository to create
- **tag** (*str*) – The tag to apply

**import\_image\_from\_file** (*filename, repository=None, tag=None, changes=None*)

Like `import_image()`, but only supports importing from a tar file on disk.

#### Parameters

- **filename** (*str*) – Full path to a tar file.
- **repository** (*str*) – The repository to create
- **tag** (*str*) – The tag to apply

**Raises** `IOError` – File does not exist.

**import\_image\_from\_image** (*image, repository=None, tag=None, changes=None*)

Like `import_image()`, but only supports importing from another image, like the `FROM` Dockerfile parameter.

**Parameters**

- **image** (*str*) – Image name to import from
- **repository** (*str*) – The repository to create
- **tag** (*str*) – The tag to apply

**import\_image\_from\_stream** (*stream*, *repository=None*, *tag=None*, *changes=None*)

**import\_image\_from\_url** (*url*, *repository=None*, *tag=None*, *changes=None*)

Like `import_image()`, but only supports importing from a URL.

**Parameters**

- **url** (*str*) – A URL pointing to a tar file.
- **repository** (*str*) – The repository to create
- **tag** (*str*) – The tag to apply

**inspect\_distribution** (*image*)

Get image digest and platform information by contacting the registry.

**Parameters** **image** (*str*) – The image name to inspect

**Returns** A dict containing distribution data

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

**inspect\_image** (*image*)

Get detailed information about an image. Similar to the `docker inspect` command, but only for images.

**Parameters** **image** (*str*) – The image to inspect

**Returns** Similar to the output of `docker inspect`, but as a

**Return type** (dict)

single dict

**Raises** `docker.errors.APIError` – If the server returns an error.

**load\_image** (*data*, *quiet=None*)

Load an image that was previously saved using `get_image()` (or `docker save`). Similar to `docker load`.

**Parameters**

- **data** (*binary*) – Image data to be loaded.
- **quiet** (*boolean*) – Suppress progress details in response.

**Returns**

**Progress output as JSON objects. Only available for** API version `>= 1.23`

**Return type** (generator)

**Raises** `docker.errors.APIError` – If the server returns an error.

**prune\_images** (*filters=None*)

Delete unused images

**Parameters** **filters** (*dict*) – Filters to process on the prune list. Available filters: - dangling (bool): When set to true (or 1), prune only unused and untagged images.



**Returns**

A dict containing a list of deleted image IDs and the amount of disk space reclaimed in bytes.

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

**pull** (*repository*, *tag=None*, *stream=False*, *auth\_config=None*, *decode=False*, *platform=None*)

Pulls an image. Similar to the `docker pull` command.

**Parameters**

- **repository** (*str*) – The repository to pull
- **tag** (*str*) – The tag to pull
- **stream** (*bool*) – Stream the output as a generator. Make sure to consume the generator, otherwise pull might get cancelled.
- **auth\_config** (*dict*) – Override the credentials that `login()` has set for this request. `auth_config` should contain the `username` and `password` keys to be valid.
- **decode** (*bool*) – Decode the JSON data from the server into dicts. Only applies with `stream=True`
- **platform** (*str*) – Platform in the format `os[/arch[/variant]]`

**Returns** The output

**Return type** (generator or str)

**Raises** `docker.errors.APIError` – If the server returns an error.

**Example**

```
>>> for line in cli.pull('busybox', stream=True, decode=True):
...     print(json.dumps(line, indent=4))
{
  "status": "Pulling image (latest) from busybox",
  "progressDetail": {},
  "id": "e72ac664f4f0"
}
{
  "status": "Pulling image (latest) from busybox, endpoint: ...",
  "progressDetail": {},
  "id": "e72ac664f4f0"
}
```

**push** (*repository*, *tag=None*, *stream=False*, *auth\_config=None*, *decode=False*)

Push an image or a repository to the registry. Similar to the `docker push` command.

**Parameters**

- **repository** (*str*) – The repository to push to
- **tag** (*str*) – An optional tag to push
- **stream** (*bool*) – Stream the output as a blocking generator

- **auth\_config** (*dict*) – Override the credentials that `login()` has set for this request. `auth_config` should contain the `username` and `password` keys to be valid.
- **decode** (*bool*) – Decode the JSON data from the server into dicts. Only applies with `stream=True`

**Returns** The output from the server.

**Return type** (generator or str)

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> for line in cli.push('yourname/app', stream=True, decode=True):
...     print(line)
{'status': 'Pushing repository yourname/app (1 tags)'}
{'status': 'Pushing', 'progressDetail': {}, 'id': '511136ea3c5a'}
{'status': 'Image already pushed, skipping', 'progressDetail': {},
 'id': '511136ea3c5a'}
...
```

**remove\_image** (*image*, *force=False*, *noprune=False*)

Remove an image. Similar to the `docker rmi` command.

#### Parameters

- **image** (*str*) – The image to remove
- **force** (*bool*) – Force removal of the image
- **noprune** (*bool*) – Do not delete untagged parents

**search** (*term*)

Search for images on Docker Hub. Similar to the `docker search` command.

**Parameters** **term** (*str*) – A term to search for.

**Returns** The response of the search.

**Return type** (list of dicts)

**Raises** `docker.errors.APIError` – If the server returns an error.

**tag** (*image*, *repository*, *tag=None*, *force=False*)

Tag an image into a repository. Similar to the `docker tag` command.

#### Parameters

- **image** (*str*) – The image to tag
- **repository** (*str*) – The repository to set for the tag
- **tag** (*str*) – The tag name
- **force** (*bool*) – Force

**Returns** True if successful

**Return type** (bool)

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> client.tag('ubuntu', 'localhost:5000/ubuntu', 'latest',
               force=True)
```

## Building images

### class BuildApiMixin

**build** (*path=None, tag=None, quiet=False, fileobj=None, nocache=False, rm=False, timeout=None, custom\_context=False, encoding=None, pull=False, forcerm=False, dockerfile=None, container\_limits=None, decode=False, buildargs=None, gzip=False, shmsize=None, labels=None, cache\_from=None, target=None, network\_mode=None, squash=None, extra\_hosts=None, platform=None, isolation=None*)

Similar to the `docker build` command. Either `path` or `fileobj` needs to be set. `path` can be a local path (to a directory containing a Dockerfile) or a remote URL. `fileobj` must be a readable file-like object to a Dockerfile.

If you have a tar file for the Docker build context (including a Dockerfile) already, pass a readable file-like object to `fileobj` and also pass `custom_context=True`. If the stream is compressed also, set `encoding` to the correct value (e.g `gzip`).

### Example

```
>>> from io import BytesIO
>>> from docker import APIClient
>>> dockerfile = '''
... # Shared Volume
... FROM busybox:buildroot-2014.02
... VOLUME /data
... CMD ["/bin/sh"]
... '''
>>> f = BytesIO(dockerfile.encode('utf-8'))
>>> cli = APIClient(base_url='tcp://127.0.0.1:2375')
>>> response = [line for line in cli.build(
...     fileobj=f, rm=True, tag='yourname/volume'
... )]
>>> response
[{"stream": " ---\u003e a9eb17255234\n"},
 {"stream": "Step 1 : VOLUME /data\n"},
 {"stream": " ---\u003e Running in abdc1e6896c6\n"},
 {"stream": " ---\u003e 713bca62012e\n"},
 {"stream": "Removing intermediate container abdc1e6896c6\n"},
 {"stream": "Step 2 : CMD [\"/bin/sh\"]\n"},
 {"stream": " ---\u003e Running in dba30f2a1a7e\n"},
 {"stream": " ---\u003e 032b8b2855fc\n"},
 {"stream": "Removing intermediate container dba30f2a1a7e\n"},
 {"stream": "Successfully built 032b8b2855fc\n"}]
```

### Parameters

- **path** (*str*) – Path to the directory containing the Dockerfile
- **fileobj** – A file object to use as the Dockerfile. (Or a file-like object)

- **tag** (*str*) – A tag to add to the final image
- **quiet** (*bool*) – Whether to return the status
- **nocache** (*bool*) – Don't use the cache when set to True
- **rm** (*bool*) – Remove intermediate containers. The `docker build` command now defaults to `--rm=true`, but we have kept the old default of *False* to preserve backward compatibility
- **timeout** (*int*) – HTTP timeout
- **custom\_context** (*bool*) – Optional if using `fileobj`
- **encoding** (*str*) – The encoding for a stream. Set to `gzip` for compressing
- **pull** (*bool*) – Downloads any updates to the FROM image in Dockerfiles
- **forcerm** (*bool*) – Always remove intermediate containers, even after unsuccessful builds
- **dockerfile** (*str*) – path within the build context to the Dockerfile
- **buildargs** (*dict*) – A dictionary of build arguments
- **container\_limits** (*dict*) – A dictionary of limits applied to each container created by the build process. Valid keys:
  - **memory** (*int*): set memory limit for build
  - **memswap** (*int*): **Total memory (memory + swap), -1 to disable** swap
  - **cpushares** (*int*): CPU shares (relative weight)
  - **cpusetcpus** (*str*): **CPUs in which to allow execution, e.g., "0-3", "0,1"**
- **decode** (*bool*) – If set to True, the returned stream will be decoded into dicts on the fly. Default *False*
- **shmsize** (*int*) – Size of `/dev/shm` in bytes. The size must be greater than 0. If omitted the system uses 64MB
- **labels** (*dict*) – A dictionary of labels to set on the image
- **cache\_from** (*list*) – A list of images used for build cache resolution
- **target** (*str*) – Name of the build-stage to build in a multi-stage Dockerfile
- **network\_mode** (*str*) – networking mode for the run commands during build
- **squash** (*bool*) – Squash the resulting images layers into a single layer.
- **extra\_hosts** (*dict*) – Extra hosts to add to `/etc/hosts` in building containers, as a mapping of hostname to IP address.
- **platform** (*str*) – Platform in the format `os[/arch[/variant]]`
- **isolation** (*str*) – Isolation technology used during build. Default: *None*.

**Returns** A generator for the build output.

**Raises**

- `docker.errors.APIError` – If the server returns an error.
- `TypeError` – If neither `path` nor `fileobj` is specified.

**prune\_builds()**

Delete the builder cache

#### Returns

A dictionary containing information about the operation's result. The `SpaceReclaimed` key indicates the amount of bytes of disk space reclaimed.

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

## Networks

class **NetworkApiMixin**

**connect\_container\_to\_network** (*container, net\_id, ipv4\_address=None, ipv6\_address=None, aliases=None, links=None, link\_local\_ips=None*)

Connect a container to a network.

#### Parameters

- **container** (*str*) – container-id/name to be connected to the network
- **net\_id** (*str*) – network id
- **aliases** (*list*) – A list of aliases for this endpoint. Names in that list can be used within the network to reach the container. Defaults to `None`.
- **links** (*list*) – A list of links for this endpoint. Containers declared in this list will be linked to this container. Defaults to `None`.
- **ipv4\_address** (*str*) – The IP address of this container on the network, using the IPv4 protocol. Defaults to `None`.
- **ipv6\_address** (*str*) – The IP address of this container on the network, using the IPv6 protocol. Defaults to `None`.
- **link\_local\_ips** (*list*) – A list of link-local (IPv4/IPv6) addresses.

**create\_network** (*name, driver=None, options=None, ipam=None, check\_duplicate=None, internal=False, labels=None, enable\_ipv6=False, attachable=None, scope=None, ingress=None*)

Create a network. Similar to the `docker network create`.

#### Parameters

- **name** (*str*) – Name of the network
- **driver** (*str*) – Name of the driver used to create the network
- **options** (*dict*) – Driver options as a key-value dictionary
- **ipam** (`IPAMConfig`) – Optional custom IP scheme for the network.
- **check\_duplicate** (*bool*) – Request daemon to check for networks with same name. Default: `None`.
- **internal** (*bool*) – Restrict external access to the network. Default `False`.
- **labels** (*dict*) – Map of labels to set on the network. Default `None`.
- **enable\_ipv6** (*bool*) – Enable IPv6 on the network. Default `False`.

- **attachable** (*bool*) – If enabled, and the network is in the global scope, non-service containers on worker nodes will be able to connect to the network.
- **scope** (*str*) – Specify the network’s scope (*local*, *global* or *swarm*)
- **ingress** (*bool*) – If set, create an ingress network which provides the routing-mesh in swarm mode.

**Returns** The created network reference object

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

A network using the bridge driver:

```
>>> client.create_network("network1", driver="bridge")
```

You can also create more advanced networks with custom IPAM configurations. For example, setting the subnet to `192.168.52.0/24` and gateway address to `192.168.52.254`.

```
>>> ipam_pool = docker.types.IPAMPool(
    subnet='192.168.52.0/24',
    gateway='192.168.52.254'
)
>>> ipam_config = docker.types.IPAMConfig(
    pool_configs=[ipam_pool]
)
>>> docker_client.create_network("network1", driver="bridge",
                                ipam=ipam_config)
```

**disconnect\_container\_from\_network** (*container*, *net\_id*, *force=False*)

Disconnect a container from a network.

#### Parameters

- **container** (*str*) – container ID or name to be disconnected from the network
- **net\_id** (*str*) – network ID
- **force** (*bool*) – Force the container to disconnect from a network. Default: `False`

**inspect\_network** (*net\_id*, *verbose=None*, *scope=None*)

Get detailed information about a network.

#### Parameters

- **net\_id** (*str*) – ID of network
- **verbose** (*bool*) – Show the service details across the cluster in swarm mode.
- **scope** (*str*) – Filter the network by scope (*swarm*, *global* or *local*).

**networks** (*names=None*, *ids=None*, *filters=None*)

List networks. Similar to the `docker networks ls` command.

#### Parameters

- **names** (*list*) – List of names to filter by
- **ids** (*list*) – List of ids to filter by

- **filters** (*dict*) – Filters to be processed on the network list. Available filters: - driver=[<driver-name>] Matches a network's driver. - label=[<key>] or label=[<key>=<value>]. - type=["custom"|"builtin"] Filters networks by type.

**Returns** List of network objects.

**Return type** (*dict*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**prune\_networks** (*filters=None*)

Delete unused networks

**Parameters** **filters** (*dict*) – Filters to process on the prune list.

**Returns**

A dict containing a list of deleted network names and the amount of disk space reclaimed in bytes.

**Return type** (*dict*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**remove\_network** (*net\_id*)

Remove a network. Similar to the `docker network rm` command.

**Parameters** **net\_id** (*str*) – The network's id

## Volumes

**class VolumeApiMixin**

**create\_volume** (*name=None, driver=None, driver\_opts=None, labels=None*)

Create and register a named volume

**Parameters**

- **name** (*str*) – Name of the volume
- **driver** (*str*) – Name of the driver used to create the volume
- **driver\_opts** (*dict*) – Driver options as a key-value dictionary
- **labels** (*dict*) – Labels to set on the volume

**Returns** The created volume reference object

**Return type** (*dict*)

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> volume = cli.create_volume(name='foobar', driver='local',
                                driver_opts={'foo': 'bar', 'baz': 'false'},
                                labels={"key": "value"})
>>> print(volume)
{u'Driver': u'local',
 u'Labels': {u'key': u'value'},
```

```
u'Mountpoint': u'/var/lib/docker/volumes/foobar/_data',
u'Name': u'foobar',
u'Scope': u'local'}
```

**inspect\_volume** (*name*)

Retrieve volume info by name.

**Parameters** **name** (*str*) – volume name

**Returns** Volume information dictionary

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> cli.inspect_volume('foobar')
{u'Driver': u'local',
 u'Mountpoint': u'/var/lib/docker/volumes/foobar/_data',
 u'Name': u'foobar'}
```

**prune\_volumes** (*filters=None*)

Delete unused volumes

**Parameters** **filters** (*dict*) – Filters to process on the prune list.

**Returns**

A dict containing a list of deleted volume names and the amount of disk space reclaimed in bytes.

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

**remove\_volume** (*name, force=False*)

Remove a volume. Similar to the `docker volume rm` command.

**Parameters**

- **name** (*str*) – The volume's name
- **force** (*bool*) – Force removal of volumes that were already removed out of band by the volume driver plugin.

**Raises** `docker.errors.APIError` – If volume failed to remove.

**volumes** (*filters=None*)

List volumes currently registered by the docker daemon. Similar to the `docker volume ls` command.

**Parameters** **filters** (*dict*) – Server-side list filtering options.

**Returns** Dictionary with list of volume objects as value of the `Volumes` key.

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.



### Example

```
>>> cli.volumes()
{'Volumes': [{u'Driver': u'local',
  u'Mountpoint': u'/var/lib/docker/volumes/foobar/_data',
  u'Name': u'foobar'},
  {u'Driver': u'local',
  u'Mountpoint': u'/var/lib/docker/volumes/baz/_data',
  u'Name': u'baz'}]}
```

## Executing commands in containers

### class ExecApiMixin

**exec\_create** (*container, cmd, stdout=True, stderr=True, stdin=False, tty=False, privileged=False, user='', environment=None, workdir=None, detach\_keys=None*)

Sets up an exec instance in a running container.

#### Parameters

- **container** (*str*) – Target container where exec instance will be created
- **cmd** (*str or list*) – Command to be executed
- **stdout** (*bool*) – Attach to stdout. Default: True
- **stderr** (*bool*) – Attach to stderr. Default: True
- **stdin** (*bool*) – Attach to stdin. Default: False
- **tty** (*bool*) – Allocate a pseudo-TTY. Default: False
- **privileged** (*bool*) – Run as privileged.
- **user** (*str*) – User to execute command as. Default: root
- **environment** (*dict or list*) – A dictionary or a list of strings in the following format ["PASSWORD=xxx"] or {"PASSWORD": "xxx"}.
- **workdir** (*str*) – Path to working directory for this exec session
- **detach\_keys** (*str*) – Override the key sequence for detaching a container. Format is a single character [*a-Z*] or *ctrl-**<value>*** where **<value>** is one of: *a-z*, *@*, *^*, *[*, *,* or *\_*. *~/.docker/config.json* is used by default.

**Returns** A dictionary with an `exec Id` key.

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

**exec\_inspect** (*exec\_id*)

Return low-level information about an exec command.

**Parameters** **exec\_id** (*str*) – ID of the exec instance

**Returns** Dictionary of values returned by the endpoint.

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

**exec\_resize** (*exec\_id*, *height=None*, *width=None*)

Resize the tty session used by the specified exec command.

**Parameters**

- **exec\_id** (*str*) – ID of the exec instance
- **height** (*int*) – Height of tty session
- **width** (*int*) – Width of tty session

**exec\_start** (*exec\_id*, *detach=False*, *tty=False*, *stream=False*, *socket=False*, *demux=False*)

Start a previously set up exec instance.

**Parameters**

- **exec\_id** (*str*) – ID of the exec instance
- **detach** (*bool*) – If true, detach from the exec command. Default: False
- **tty** (*bool*) – Allocate a pseudo-TTY. Default: False
- **stream** (*bool*) – Stream response data. Default: False
- **socket** (*bool*) – Return the connection socket to allow custom read/write operations.
- **demux** (*bool*) – Return stdout and stderr separately

**Returns** If *stream=True*, a generator yielding response chunks. If *socket=True*, a socket object for the connection. A string containing response data otherwise. If *demux=True*, stdout and stderr are separated.

**Return type** (generator or str or tuple)

**Raises** `docker.errors.APIError` – If the server returns an error.

## Swarms

class **SwarmApiMixin**

**create\_swarm\_spec** (*\*args*, *\*\*kwargs*)

Create a `docker.types.SwarmSpec` instance that can be used as the *swarm\_spec* argument in `init_swarm()`.

**Parameters**

- **task\_history\_retention\_limit** (*int*) – Maximum number of tasks history stored.
- **snapshot\_interval** (*int*) – Number of logs entries between snapshot.
- **keep\_old\_snapshots** (*int*) – Number of snapshots to keep beyond the current snapshot.
- **log\_entries\_for\_slow\_followers** (*int*) – Number of log entries to keep around to sync up slow followers after a snapshot is created.
- **heartbeat\_tick** (*int*) – Amount of ticks (in seconds) between each heartbeat.
- **election\_tick** (*int*) – Amount of ticks (in seconds) needed without a leader to trigger a new election.

- **dispatcher\_heartbeat\_period** (*int*) – The delay for an agent to send a heartbeat to the dispatcher.
- **node\_cert\_expiry** (*int*) – Automatic expiry for nodes certificates.
- **external\_cas** (*list*) – Configuration for forwarding signing requests to an external certificate authority. Use a list of `docker.types.SwarmExternalCA`.
- **name** (*string*) – Swarm’s name
- **labels** (*dict*) – User-defined key/value metadata.
- **signing\_ca\_cert** (*str*) – The desired signing CA certificate for all swarm node TLS leaf certificates, in PEM format.
- **signing\_ca\_key** (*str*) – The desired signing CA key for all swarm node TLS leaf certificates, in PEM format.
- **ca\_force\_rotate** (*int*) – An integer whose purpose is to force swarm to generate a new signing CA certificate and key, if none have been specified.
- **autolock\_managers** (*boolean*) – If set, generate a key and use it to lock data stored on the managers.
- **log\_driver** (*DriverConfig*) – The default log driver to use for tasks created in the orchestrator.

**Returns** `docker.types.SwarmSpec`

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> spec = client.create_swarm_spec(
    snapshot_interval=5000, log_entries_for_slow_followers=1200
)
>>> client.init_swarm(
    advertise_addr='eth0', listen_addr='0.0.0.0:5000',
    force_new_cluster=False, swarm_spec=spec
)
```

#### **get\_unlock\_key()**

Get the unlock key for this Swarm manager.

**Returns** A dict containing an `UnlockKey` member

**init\_swarm** (*advertise\_addr=None, listen\_addr='0.0.0.0:2377', force\_new\_cluster=False, swarm\_spec=None*)

Initialize a new Swarm using the current connected engine as the first node.

#### **Parameters**

- **advertise\_addr** (*string*) – Externally reachable address advertised to other nodes. This can either be an address/port combination in the form `192.168.1.1:4567`, or an interface followed by a port number, like `eth0:4567`. If the port number is omitted, the port number from the listen address is used. If `advertise_addr` is not specified, it will be automatically detected when possible. Default: `None`
- **listen\_addr** (*string*) – Listen address used for inter-manager communication, as well as determining the networking interface used for the VXLAN

Tunnel Endpoint (VTEP). This can either be an address/port combination in the form `192.168.1.1:4567`, or an interface followed by a port number, like `eth0:4567`. If the port number is omitted, the default swarm listening port is used. Default: `'0.0.0.0:2377'`

- **force\_new\_cluster** (*bool*) – Force creating a new Swarm, even if already part of one. Default: `False`
- **swarm\_spec** (*dict*) – Configuration settings of the new Swarm. Use `APIClient.create_swarm_spec` to generate a valid configuration. Default: `None`

**Returns** `True` if successful.

**Raises** `docker.errors.APIError` – If the server returns an error.

**inspect\_node** (*node\_id*)

Retrieve low-level information about a swarm node

**Parameters** **node\_id** (*string*) – ID of the node to be inspected.

**Returns** A dictionary containing data about this node.

**Raises** `docker.errors.APIError` – If the server returns an error.

**inspect\_swarm** ()

Retrieve low-level information about the current swarm.

**Returns** A dictionary containing data about the swarm.

**Raises** `docker.errors.APIError` – If the server returns an error.

**join\_swarm** (*remote\_addrs*, *join\_token*, *listen\_addr*=`'0.0.0.0:2377'`, *advertise\_addr*=`None`)

Make this Engine join a swarm that has already been created.

**Parameters**

- **remote\_addrs** (*list*) – Addresses of one or more manager nodes already participating in the Swarm to join.
- **join\_token** (*string*) – Secret token for joining this Swarm.
- **listen\_addr** (*string*) – Listen address used for inter-manager communication if the node gets promoted to manager, as well as determining the networking interface used for the VXLAN Tunnel Endpoint (VTEP). Default: `None`
- **advertise\_addr** (*string*) – Externally reachable address advertised to other nodes. This can either be an address/port combination in the form `192.168.1.1:4567`, or an interface followed by a port number, like `eth0:4567`. If the port number is omitted, the port number from the listen address is used. If `AdvertiseAddr` is not specified, it will be automatically detected when possible. Default: `None`

**Returns** `True` if the request went through.

**Raises** `docker.errors.APIError` – If the server returns an error.

**leave\_swarm** (*force*=`False`)

Leave a swarm.

**Parameters** **force** (*bool*) – Leave the swarm even if this node is a manager. Default: `False`

**Returns** `True` if the request went through.

**Raises** `docker.errors.APIError` – If the server returns an error.

**nodes** (*filters=None*)

List swarm nodes.

**Parameters** **filters** (*dict*) – Filters to process on the nodes list. Valid filters: `id`, `name`, `membership` and `role`. Default: `None`

**Returns** A list of dictionaries containing data about each swarm node.

**Raises** `docker.errors.APIError` – If the server returns an error.

**remove\_node** (*node\_id, force=False*)

Remove a node from the swarm.

**Parameters**

- **node\_id** (*string*) – ID of the node to be removed.
- **force** (*bool*) – Force remove an active node. Default: `False`

**Raises**

- `docker.errors.NotFound` – If the node referenced doesn't exist in the swarm.
- `docker.errors.APIError` – If the server returns an error.

**Returns** `True` if the request was successful.

**unlock\_swarm** (*key*)

Unlock a locked swarm.

**Parameters** **key** (*string*) – The unlock key as provided by `get_unlock_key()`

**Raises**

- `docker.errors.InvalidArgument` – If the key argument is in an incompatible format
- `docker.errors.APIError` – If the server returns an error.

**Returns** `True` if the request was successful.

## Example

```
>>> key = client.get_unlock_key()
>>> client.unlock_node(key)
```

**update\_node** (*node\_id, version, node\_spec=None*)

Update the node's configuration

**Parameters**

- **node\_id** (*string*) – ID of the node to be updated.
- **version** (*int*) – The version number of the node object being updated. This is required to avoid conflicting writes.
- **node\_spec** (*dict*) – Configuration settings to update. Any values not provided will be removed. Default: `None`

**Returns** `True` if the request went through.

**Raises** `docker.errors.APIError` – If the server returns an error.

### Example

```
>>> node_spec = {'Availability': 'active',
                  'Name': 'node-name',
                  'Role': 'manager',
                  'Labels': {'foo': 'bar'}}
>>> client.update_node(node_id='24ifsmvkjbyhk', version=8,
                       node_spec=node_spec)
```

**update\_swarm**(*version*, *swarm\_spec*=None, *rotate\_worker\_token*=False, *rotate\_manager\_token*=False)  
Update the Swarm's configuration

#### Parameters

- **version** (*int*) – The version number of the swarm object being updated. This is required to avoid conflicting writes.
- **swarm\_spec** (*dict*) – Configuration settings to update. Use `create_swarm_spec()` to generate a valid configuration. Default: None.
- **rotate\_worker\_token** (*bool*) – Rotate the worker join token. Default: False.
- **rotate\_manager\_token** (*bool*) – Rotate the manager join token. Default: False.

**Returns** True if the request went through.

**Raises** `docker.errors.APIError` – If the server returns an error.

## Services

class **ServiceApiMixin**

**create\_service**(*task\_template*, *name*=None, *labels*=None, *mode*=None, *update\_config*=None, *networks*=None, *endpoint\_config*=None, *endpoint\_spec*=None, *rollback\_config*=None)  
Create a service.

#### Parameters

- **task\_template** (`TaskTemplate`) – Specification of the task to start as part of the new service.
- **name** (*string*) – User-defined name for the service. Optional.
- **labels** (*dict*) – A map of labels to associate with the service. Optional.
- **mode** (`ServiceMode`) – Scheduling mode for the service (replicated or global). Defaults to replicated.
- **update\_config** (`UpdateConfig`) – Specification for the update strategy of the service. Default: None
- **rollback\_config** (`RollbackConfig`) – Specification for the rollback strategy of the service. Default: None

- **networks** (*list*) – List of network names or IDs to attach the service to. Default: `None`.
- **endpoint\_spec** (*EndpointSpec*) – Properties that can be configured to access and load balance a service. Default: `None`.

**Returns** A dictionary containing an ID key for the newly created service.

**Raises** `docker.errors.APIError` – If the server returns an error.

**inspect\_service** (*service*, *insert\_defaults=None*)

Return information about a service.

**Parameters**

- **service** (*str*) – Service name or ID.
- **insert\_defaults** (*boolean*) – If true, default values will be merged into the service inspect output.

**Returns**

A dictionary of the server-side representation of the service, including all relevant properties.

**Return type** (*dict*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**inspect\_task** (*task*)

Retrieve information about a task.

**Parameters** **task** (*str*) – Task ID

**Returns** Information about the task.

**Return type** (*dict*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**remove\_service** (*service*)

Stop and remove a service.

**Parameters** **service** (*str*) – Service name or ID

**Returns** `True` if successful.

**Raises** `docker.errors.APIError` – If the server returns an error.

**service\_logs** (*service*, *details=False*, *follow=False*, *stdout=False*, *stderr=False*, *since=0*, *timestamps=False*, *tail='all'*, *is\_tty=None*)

Get log stream for a service. Note: This endpoint works only for services with the `json-file` or `journald` logging drivers.

**Parameters**

- **service** (*str*) – ID or name of the service
- **details** (*bool*) – Show extra details provided to logs. Default: `False`
- **follow** (*bool*) – Keep connection open to read logs as they are sent by the Engine. Default: `False`
- **stdout** (*bool*) – Return logs from `stdout`. Default: `False`
- **stderr** (*bool*) – Return logs from `stderr`. Default: `False`
- **since** (*int*) – UNIX timestamp for the logs starting point. Default: `0`

- **timestamps** (*bool*) – Add timestamps to every log line.
- **tail** (*string or int*) – Number of log lines to be returned, counting from the current end of the logs. Specify an integer or 'all' to output all log lines. Default: all
- **is\_tty** (*bool*) – Whether the service's `ContainerSpec` enables the TTY option. If omitted, the method will query the Engine for the information, causing an additional roundtrip.

Returns (generator): Logs for the service.

**services** (*filters=None*)

List services.

**Parameters** **filters** (*dict*) – Filters to process on the nodes list. Valid filters: id, name, label and mode. Default: None.

**Returns** A list of dictionaries containing data about each service.

**Raises** `docker.errors.APIError` – If the server returns an error.

**tasks** (*filters=None*)

Retrieve a list of tasks.

**Parameters** **filters** (*dict*) – A map of filters to process on the tasks list. Valid filters: id, name, service, node, label and desired-state.

**Returns** List of task dictionaries.

**Return type** (*list*)

**Raises** `docker.errors.APIError` – If the server returns an error.

**update\_service** (*service, version, task\_template=None, name=None, labels=None, mode=None, update\_config=None, networks=None, endpoint\_config=None, endpoint\_spec=None, fetch\_current\_spec=False, rollback\_config=None*)

Update a service.

**Parameters**

- **service** (*string*) – A service identifier (either its name or service ID).
- **version** (*int*) – The version number of the service object being updated. This is required to avoid conflicting writes.
- **task\_template** (`TaskTemplate`) – Specification of the updated task to start as part of the service.
- **name** (*string*) – New name for the service. Optional.
- **labels** (*dict*) – A map of labels to associate with the service. Optional.
- **mode** (`ServiceMode`) – Scheduling mode for the service (replicated or global). Defaults to replicated.
- **update\_config** (`UpdateConfig`) – Specification for the update strategy of the service. Default: None.
- **rollback\_config** (`RollbackConfig`) – Specification for the rollback strategy of the service. Default: None
- **networks** (*list*) – List of network names or IDs to attach the service to. Default: None.



- **endpoint\_spec** (`EndpointSpec`) – Properties that can be configured to access and load balance a service. Default: `None`.
- **fetch\_current\_spec** (`boolean`) – Use the undefined settings from the current specification of the service. Default: `False`

**Returns** `True` if successful.

**Raises** `docker.errors.APIError` – If the server returns an error.

## Plugins

**class PluginApiMixin**

**configure\_plugin** (*name*, *options*)

Configure a plugin.

**Parameters**

- **name** (*string*) – The name of the plugin. The `:latest` tag is optional, and is the default if omitted.
- **options** (*dict*) – A key-value mapping of options

**Returns** `True` if successful

**create\_plugin** (*name*, *plugin\_data\_dir*, *gzip=False*)

Create a new plugin.

**Parameters**

- **name** (*string*) – The name of the plugin. The `:latest` tag is optional, and is the default if omitted.
- **plugin\_data\_dir** (*string*) – Path to the plugin data directory. Plugin data directory must contain the `config.json` manifest file and the `rootfs` directory.
- **gzip** (*bool*) – Compress the context using `gzip`. Default: `False`

**Returns** `True` if successful

**disable\_plugin** (*name*)

Disable an installed plugin.

**Parameters** **name** (*string*) – The name of the plugin. The `:latest` tag is optional, and is the default if omitted.

**Returns** `True` if successful

**enable\_plugin** (*name*, *timeout=0*)

Enable an installed plugin.

**Parameters**

- **name** (*string*) – The name of the plugin. The `:latest` tag is optional, and is the default if omitted.
- **timeout** (*int*) – Operation timeout (in seconds). Default: `0`

**Returns** `True` if successful

**inspect\_plugin** (*name*)

Retrieve plugin metadata.

**Parameters** **name** (*string*) – The name of the plugin. The `:latest` tag is optional, and is the default if omitted.

**Returns** A dict containing plugin info

**plugin\_privileges** (*name*)

Retrieve list of privileges to be granted to a plugin.

**Parameters** **name** (*string*) – Name of the remote plugin to examine. The `:latest` tag is optional, and is the default if omitted.

**Returns** A list of dictionaries representing the plugin's permissions

**plugins** ()

Retrieve a list of installed plugins.

**Returns** A list of dicts, one per plugin

**pull\_plugin** (*remote, privileges, name=None*)

Pull and install a plugin. After the plugin is installed, it can be enabled using `enable_plugin()`.

**Parameters**

- **remote** (*string*) – Remote reference for the plugin to install. The `:latest` tag is optional, and is the default if omitted.
- **privileges** (*list*) – A list of privileges the user consents to grant to the plugin. Can be retrieved using `plugin_privileges()`.
- **name** (*string*) – Local name for the pulled plugin. The `:latest` tag is optional, and is the default if omitted.

**Returns** An iterable object streaming the decoded API logs

**push\_plugin** (*name*)

Push a plugin to the registry.

**Parameters** **name** (*string*) – Name of the plugin to upload. The `:latest` tag is optional, and is the default if omitted.

**Returns** `True` if successful

**remove\_plugin** (*name, force=False*)

Remove an installed plugin.

**Parameters**

- **name** (*string*) – Name of the plugin to remove. The `:latest` tag is optional, and is the default if omitted.
- **force** (*bool*) – Disable the plugin before removing. This may result in issues if the plugin is in use by a container.

**Returns** `True` if successful

**upgrade\_plugin** (*name, remote, privileges*)

Upgrade an installed plugin.

**Parameters**

- **name** (*string*) – Name of the plugin to upgrade. The `:latest` tag is optional and is the default if omitted.
- **remote** (*string*) – Remote reference to upgrade to. The `:latest` tag is optional and is the default if omitted.

- **privileges** (*list*) – A list of privileges the user consents to grant to the plugin. Can be retrieved using `plugin_privileges()`.

**Returns** An iterable object streaming the decoded API logs

## Secrets

class **SecretApiMixin**

**create\_secret** (*name, data, labels=None, driver=None*)

Create a secret

### Parameters

- **name** (*string*) – Name of the secret
- **data** (*bytes*) – Secret data to be stored
- **labels** (*dict*) – A mapping of labels to assign to the secret
- **driver** (*DriverConfig*) – A custom driver configuration. If unspecified, the default internal driver will be used

Returns (*dict*): ID of the newly created secret

**inspect\_secret** (*id*)

Retrieve secret metadata

**Parameters** **id** (*string*) – Full ID of the secret to remove

Returns (*dict*): A dictionary of metadata

**Raises** `docker.errors.NotFound` – if no secret with that ID exists

**remove\_secret** (*id*)

Remove a secret

**Parameters** **id** (*string*) – Full ID of the secret to remove

Returns (*boolean*): True if successful

**Raises** `docker.errors.NotFound` – if no secret with that ID exists

**secrets** (*filters=None*)

List secrets

### Parameters

- **filters** (*dict*) – A map of filters to process on the secrets
- **Available filters** (*list.*) – names

Returns (*list*): A list of secrets

## The Docker daemon

class **DaemonApiMixin**

**df** ()

Get data usage information.

**Returns** A dictionary representing different resource categories and their respective data usage.

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

**events** (*since=None, until=None, filters=None, decode=None*)

Get real-time events from the server. Similar to the `docker events` command.

**Parameters**

- **since** (*UTC datetime or int*) – Get events from this point
- **until** (*UTC datetime or int*) – Get events until this point
- **filters** (*dict*) – Filter the events by event time, container or image
- **decode** (*bool*) – If set to true, stream will be decoded into dicts on the fly. False by default.

**Returns** A `docker.types.daemon.CancellableStream` generator

**Raises** `docker.errors.APIError` – If the server returns an error.

## Example

```
>>> for event in client.events(decode=True):
...     print(event)
{'from': u'image/with:tag',
 u'id': u'container-id',
 u'status': u'start',
 u'time': 1423339459}
...
```

or

```
>>> events = client.events()
>>> for event in events:
...     print(event)
>>> # and cancel from another thread
>>> events.close()
```

**info()**

Display system-wide information. Identical to the `docker info` command.

**Returns** The info as a dict

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

**login** (*username, password=None, email=None, registry=None, reauth=False, docker-cfg\_path=None*)

Authenticate with a registry. Similar to the `docker login` command.

**Parameters**

- **username** (*str*) – The registry username
- **password** (*str*) – The plaintext password
- **email** (*str*) – The email for the registry account

- **registry** (*str*) – URL to the registry. E.g. `https://index.docker.io/v1/`
- **reauth** (*bool*) – Whether or not to refresh existing authentication on the Docker server.
- **dockercfg\_path** (*str*) – Use a custom path for the Docker config file (default `$HOME/.docker/config.json` if present, otherwise `“$HOME/.dockercfg”`)

**Returns** The response from the login request

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

**ping()**

Checks the server is responsive. An exception will be raised if it isn't responding.

**Returns** (bool) The response from the server.

**Raises** `docker.errors.APIError` – If the server returns an error.

**version** (*api\_version=True*)

Returns version information from the server. Similar to the `docker version` command.

**Returns** The server version information

**Return type** (dict)

**Raises** `docker.errors.APIError` – If the server returns an error.

## Configuration types

**class ConfigReference** (*config\_id, config\_name, filename=None, uid=None, gid=None, mode=292*)

Config reference to be used as part of a `ContainerSpec`. Describes how a config is made accessible inside the service's containers.

### Parameters

- **config\_id** (*string*) – Config's ID
- **config\_name** (*string*) – Config's name as defined at its creation.
- **filename** (*string*) – Name of the file containing the config. Defaults to the config's name if not specified.
- **uid** (*string*) – UID of the config file's owner. Default: 0
- **gid** (*string*) – GID of the config file's group. Default: 0
- **mode** (*int*) – File access mode inside the container. Default: 0o444

**class ContainerSpec** (*image, command=None, args=None, hostname=None, env=None, workdir=None, user=None, labels=None, mounts=None, stop\_grace\_period=None, secrets=None, tty=None, groups=None, open\_stdin=None, read\_only=None, stop\_signal=None, healthcheck=None, hosts=None, dns\_config=None, configs=None, privileges=None, isolation=None*)

Describes the behavior of containers that are part of a task, and is used when declaring a `TaskTemplate`.

### Parameters

- **image** (*string*) – The image name to use for the container.
- **command** (*string or list*) – The command to be run in the image.

- **args** (*list*) – Arguments to the command.
- **hostname** (*string*) – The hostname to set on the container.
- **env** (*dict*) – Environment variables.
- **workdir** (*string*) – The working directory for commands to run in.
- **user** (*string*) – The user inside the container.
- **labels** (*dict*) – A map of labels to associate with the service.
- **mounts** (*list*) – A list of specifications for mounts to be added to containers created as part of the service. See the [Mount](#) class for details.
- **stop\_grace\_period** (*int*) – Amount of time to wait for the container to terminate before forcefully killing it.
- **secrets** (*list*) – List of [SecretReference](#) to be made available inside the containers.
- **tty** (*boolean*) – Whether a pseudo-TTY should be allocated.
- **groups** (*list*) – A list of additional groups that the container process will run as.
- **open\_stdin** (*boolean*) – Open stdin
- **read\_only** (*boolean*) – Mount the container’s root filesystem as read only.
- **stop\_signal** (*string*) – Set signal to stop the service’s containers
- **healthcheck** ([Healthcheck](#)) – Healthcheck configuration for this service.
- **hosts** (*dict*) – A set of host to IP mappings to add to the container’s `hosts` file.
- **dns\_config** ([DNSConfig](#)) – Specification for DNS related configurations in resolver configuration file.
- **configs** (*list*) – List of [ConfigReference](#) that will be exposed to the service.
- **privileges** ([Privileges](#)) – Security options for the service’s containers.
- **isolation** (*string*) – Isolation technology used by the service’s containers. Only used for Windows containers.

**class DNSConfig** (*nameservers=None, search=None, options=None*)

Specification for DNS related configurations in resolver configuration file (`resolv.conf`). Part of a [ContainerSpec](#) definition.

#### Parameters

- **nameservers** (*list*) – The IP addresses of the name servers.
- **search** (*list*) – A search list for host-name lookup.
- **options** (*list*) – A list of internal resolver variables to be modified (e.g., `debug`, `ndots:3`, etc.).

**class DriverConfig** (*name, options=None*)

Indicates which driver to use, as well as its configuration. Can be used as `log_driver` in a [ContainerSpec](#), for the `driver_config` in a volume [Mount](#), or as the driver object in `create_secret()`.

#### Parameters

- **name** (*string*) – Name of the driver to use.
- **options** (*dict*) – Driver-specific options. Default: `None`.

**class EndpointSpec** (*mode=None, ports=None*)

Describes properties to access and load-balance a service.

#### Parameters

- **mode** (*string*) – The mode of resolution to use for internal load balancing between tasks ('vip' or 'dnsrr'). Defaults to 'vip' if not provided.
- **ports** (*dict*) – Exposed ports that this service is accessible on from the outside, in the form of { published\_port: target\_port } or { published\_port: <port\_config\_tuple> }. Port config tuple format is (target\_port [,protocol [,publish\_mode]]). Ports can only be provided if the vip resolution mode is used.

**class Healthcheck** (*\*\*kwargs*)

Defines a healthcheck configuration for a container or service.

#### Parameters

- **test** (*list or str*) – Test to perform to determine container health. Possible values:
  - Empty list: Inherit healthcheck from parent image
  - ["NONE"]: Disable healthcheck
  - ["CMD", args...]: exec arguments directly.
  - ["CMD-SHELL", command]: RUn command in the system's default shell.

If a string is provided, it will be used as a CMD-SHELL command.

- **interval** (*int*) – The time to wait between checks in nanoseconds. It should be 0 or at least 1000000 (1 ms).
- **timeout** (*int*) – The time to wait before considering the check to have hung. It should be 0 or at least 1000000 (1 ms).
- **retries** (*integer*) – The number of consecutive failures needed to consider a container as unhealthy.
- **start\_period** (*integer*) – Start period for the container to initialize before starting health-retries countdown in nanoseconds. It should be 0 or at least 1000000 (1 ms).

**class IPAMConfig** (*driver='default', pool\_configs=None, options=None*)

Create an IPAM (IP Address Management) config dictionary to be used with `create_network()`.

#### Parameters

- **driver** (*str*) – The IPAM driver to use. Defaults to default.
- **pool\_configs** (*list*) – A list of pool configurations (*IPAMPool*). Defaults to empty list.
- **options** (*dict*) – Driver options as a key-value dictionary. Defaults to *None*.

### Example

```
>>> ipam_config = docker.types.IPAMConfig(driver='default')
>>> network = client.create_network('network1', ipam=ipam_config)
```

**class IPAMPool** (*subnet=None, iprange=None, gateway=None, aux\_addresses=None*)

Create an IPAM pool config dictionary to be added to the `pool_configs` parameter of *IPAMConfig*.

### Parameters

- **subnet** (*str*) – Custom subnet for this IPAM pool using the CIDR notation. Defaults to None.
- **iprange** (*str*) – Custom IP range for endpoints in this IPAM pool using the CIDR notation. Defaults to None.
- **gateway** (*str*) – Custom IP address for the pool’s gateway.
- **aux\_addresses** (*dict*) – A dictionary of key -> ip\_address relationships specifying auxiliary addresses that need to be allocated by the IPAM driver.

### Example

```
>>> ipam_pool = docker.types.IPAMPool(
    subnet='124.42.0.0/16',
    iprange='124.42.0.0/24',
    gateway='124.42.0.254',
    aux_addresses={
        'reserved1': '124.42.1.1'
    }
)
>>> ipam_config = docker.types.IPAMConfig(
    pool_configs=[ipam_pool])
```

### class LogConfig (\*\*kwargs)

Configure logging for a container, when provided as an argument to `create_host_config()`. You may refer to the [official logging driver documentation](#) for more information.

### Parameters

- **type** (*str*) – Indicate which log driver to use. A set of valid drivers is provided as part of the `LogConfig.types` enum. Other values may be accepted depending on the engine version and available logging plugins.
- **config** (*dict*) – A driver-dependent configuration dictionary. Please refer to the driver’s documentation for a list of valid config keys.

### Example

```
>>> from docker.types import LogConfig
>>> lc = LogConfig(type=LogConfig.types.JSON, config={
...     'max-size': '1g',
...     'labels': 'production_status,geo'
... })
>>> hc = client.create_host_config(log_config=lc)
>>> container = client.create_container('busybox', 'true',
...     host_config=hc)
>>> client.inspect_container(container)['HostConfig']['LogConfig']
{'Type': 'json-file', 'Config': {'labels': 'production_status,geo', 'max-size':
  ↳ '1g'}}
```

### class Mount (target, source, type='volume', read\_only=False, consistency=None, propagation=None, no\_copy=False, labels=None, driver\_config=None, tmpfs\_size=None, tmpfs\_mode=None)

Describes a mounted folder’s configuration inside a container. A list of `Mount` would be used as part of a `ContainerSpec`.



### Parameters

- **target** (*string*) – Container path.
- **source** (*string*) – Mount source (e.g. a volume name or a host path).
- **type** (*string*) – The mount type (bind / volume / tmpfs / npipe). Default: volume.
- **read\_only** (*bool*) – Whether the mount should be read-only.
- **consistency** (*string*) – The consistency requirement for the mount. One of
- **consistent, cached, delegated.** (*default ','*) –
- **propagation** (*string*) – A propagation mode with the value [r]private, [r]shared, or [r]slave. Only valid for the bind type.
- **no\_copy** (*bool*) – False if the volume should be populated with the data from the target. Default: False. Only valid for the volume type.
- **labels** (*dict*) – User-defined name and labels for the volume. Only valid for the volume type.
- **driver\_config** (*DriverConfig*) – Volume driver configuration. Only valid for the volume type.
- **tmpfs\_size** (*int or string*) – The size for the tmpfs mount in bytes.
- **tmpfs\_mode** (*int*) – The permission mode for the tmpfs mount.

**class Placement** (*constraints=None, preferences=None, platforms=None*)

Placement constraints to be used as part of a [TaskTemplate](#)

### Parameters

- **constraints** (*list of str*) – A list of constraints
- **preferences** (*list of tuple*) – Preferences provide a way to make the scheduler aware of factors such as topology. They are provided in order from highest to lowest precedence and are expressed as (*strategy,descriptor*) tuples. See [PlacementPreference](#) for details.
- **platforms** (*list of tuple*) – A list of platforms expressed as (*arch,os*) tuples

**class PlacementPreference** (*strategy, descriptor*)

Placement preference to be used as an element in the list of preferences for [Placement](#) objects.

### Parameters

- **strategy** (*string*) – The placement strategy to implement. Currently, the only supported strategy is spread.
- **descriptor** (*string*) – A label descriptor. For the spread strategy, the scheduler will try to spread tasks evenly over groups of nodes identified by this label.

**class Privileges** (*credentialspec\_file=None, credentialspec\_registry=None, selinux\_disable=None, selinux\_user=None, selinux\_role=None, selinux\_type=None, selinux\_level=None*)

Security options for a service's containers. Part of a [ContainerSpec](#) definition.

### Parameters

- **credentialspec\_file** (*str*) – Load credential spec from this file. The file is read by the daemon, and must be present in the CredentialSpecs subdirectory in the docker data directory, which defaults to C:\ProgramData\Docker\ on Windows. Can not be combined with credentialspec\_registry.

- **credentialspec\_registry** (*str*) – Load credential spec from this value in the Windows registry. The specified registry value must be located in: HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Virtualization\Containers\CredentialSpecs. Can not be combined with `credentialspec_file`.
- **selinux\_disable** (*boolean*) – Disable SELinux
- **selinux\_user** (*string*) – SELinux user label
- **selinux\_role** (*string*) – SELinux role label
- **selinux\_type** (*string*) – SELinux type label
- **selinux\_level** (*string*) – SELinux level label

**class Resources** (*cpu\_limit=None, mem\_limit=None, cpu\_reservation=None, mem\_reservation=None, generic\_resources=None*)

Configures resource allocation for containers when made part of a *ContainerSpec*.

#### Parameters

- **cpu\_limit** (*int*) – CPU limit in units of  $10^9$  CPU shares.
- **mem\_limit** (*int*) – Memory limit in Bytes.
- **cpu\_reservation** (*int*) – CPU reservation in units of  $10^9$  CPU shares.
- **mem\_reservation** (*int*) – Memory reservation in Bytes.
- **generic\_resources** (*dict or list*) – Node level generic resources, for example a GPU, using the following format: { `resource_name`: `resource_value` }. Alternatively, a list of resource specifications as defined by the Engine API.

**class RestartPolicy** (*condition='none', delay=0, max\_attempts=0, window=0*)

Used when creating a *ContainerSpec*, dictates whether a container should restart after stopping or failing.

#### Parameters

- **condition** (*string*) – Condition for restart (`none`, `on-failure`, or `any`). Default: `none`.
- **delay** (*int*) – Delay between restart attempts. Default: 0
- **max\_attempts** (*int*) – Maximum attempts to restart a given container before giving up. Default value is 0, which is ignored.
- **window** (*int*) – Time window used to evaluate the restart policy. Default value is 0, which is unbounded.

**class RollbackConfig** (*parallelism=0, delay=None, failure\_action='continue', monitor=None, max\_failure\_ratio=None, order=None*)

Used to specify the way container rollbacks should be performed by a service

#### Parameters

- **parallelism** (*int*) – Maximum number of tasks to be rolled back in one iteration (0 means unlimited parallelism). Default: 0
- **delay** (*int*) – Amount of time between rollbacks, in nanoseconds.
- **failure\_action** (*string*) – Action to take if a rolled back task fails to run, or stops running during the rollback. Acceptable values are `continue`, `pause` or `rollback`. Default: `continue`

- **monitor** (*int*) – Amount of time to monitor each rolled back task for failures, in nanoseconds.
- **max\_failure\_ratio** (*float*) – The fraction of tasks that may fail during a rollback before the failure action is invoked, specified as a floating point number between 0 and 1. Default: 0
- **order** (*string*) – Specifies the order of operations when rolling out a rolled back task. Either `start_first` or `stop_first` are accepted.

**class SecretReference** (*secret\_id, secret\_name, filename=None, uid=None, gid=None, mode=292*)

Secret reference to be used as part of a [ContainerSpec](#). Describes how a secret is made accessible inside the service's containers.

#### Parameters

- **secret\_id** (*string*) – Secret's ID
- **secret\_name** (*string*) – Secret's name as defined at its creation.
- **filename** (*string*) – Name of the file containing the secret. Defaults to the secret's name if not specified.
- **uid** (*string*) – UID of the secret file's owner. Default: 0
- **gid** (*string*) – GID of the secret file's group. Default: 0
- **mode** (*int*) – File access mode inside the container. Default: 0o444

**class ServiceMode** (*mode, replicas=None*)

Indicate whether a service should be deployed as a replicated or global service, and associated parameters

#### Parameters

- **mode** (*string*) – Can be either `replicated` or `global`
- **replicas** (*int*) – Number of replicas. For replicated services only.

**class SwarmExternalCA** (*url, protocol=None, options=None, ca\_cert=None*)

Configuration for forwarding signing requests to an external certificate authority.

#### Parameters

- **url** (*string*) – URL where certificate signing requests should be sent.
- **protocol** (*string*) – Protocol for communication with the external CA.
- **options** (*dict*) – An object with key/value pairs that are interpreted as protocol-specific options for the external CA driver.
- **ca\_cert** (*string*) – The root CA certificate (in PEM format) this external CA uses to issue TLS certificates (assumed to be to the current swarm root CA certificate if not provided).

**class SwarmSpec** (*\*args, \*\*kwargs*)

Describe a Swarm's configuration and options. Use [create\\_swarm\\_spec\(\)](#) to instantiate.

**class TaskTemplate** (*container\_spec, resources=None, restart\_policy=None, placement=None, log\_driver=None, networks=None, force\_update=None*)

Describe the task specification to be used when creating or updating a service.

#### Parameters

- **container\_spec** ([ContainerSpec](#)) – Container settings for containers started as part of this task.

- **log\_driver** (`DriverConfig`) – Log configuration for containers created as part of the service.
- **resources** (`Resources`) – Resource requirements which apply to each individual container created as part of the service.
- **restart\_policy** (`RestartPolicy`) – Specification for the restart policy which applies to containers created as part of this service.
- **placement** (`Placement`) – Placement instructions for the scheduler. If a list is passed instead, it is assumed to be a list of constraints as part of a `Placement` object.
- **networks** (`list`) – List of network names or IDs to attach the containers to.
- **force\_update** (`int`) – A counter that triggers an update even if no relevant parameters have been changed.

**class Ulimit** (*\*\*kwargs*)

Create a ulimit declaration to be used with `create_host_config()`.

#### Parameters

- **name** (`str`) – Which ulimit will this apply to. A list of valid names can be found [here](#).
- **soft** (`int`) – The soft limit for this ulimit. Optional.
- **hard** (`int`) – The hard limit for this ulimit. Optional.

#### Example

```
>>> nproc_limit = docker.types.Ulimit(name='nproc', soft=1024)
>>> hc = client.create_host_config(ulimits=[nproc_limit])
>>> container = client.create_container(
    'busybox', 'true', host_config=hc
)
>>> client.inspect_container(container)['HostConfig']['Ulimits']
[{'Name': 'nproc', 'Hard': 0, 'Soft': 1024}]
```

**class UpdateConfig** (*parallelism=0, delay=None, failure\_action='continue', monitor=None, max\_failure\_ratio=None, order=None*)

Used to specify the way container updates should be performed by a service.

#### Parameters

- **parallelism** (`int`) – Maximum number of tasks to be updated in one iteration (0 means unlimited parallelism). Default: 0.
- **delay** (`int`) – Amount of time between updates, in nanoseconds.
- **failure\_action** (`string`) – Action to take if an updated task fails to run, or stops running during the update. Acceptable values are `continue`, `pause`, as well as `rollback` since API v1.28. Default: `continue`
- **monitor** (`int`) – Amount of time to monitor each updated task for failures, in nanoseconds.
- **max\_failure\_ratio** (`float`) – The fraction of tasks that may fail during an update before the failure action is invoked, specified as a floating point number between 0 and 1. Default: 0
- **order** (`string`) – Specifies the order of operations when rolling out an updated task. Either `start_first` or `stop_first` are accepted.

## Using TLS

Both the main *DockerClient* and low-level *APIClient* can connect to the Docker daemon with TLS.

This is all configured automatically for you if you're using *from\_env()*, but if you need some extra control it is possible to configure it manually by using a *TLSConfig* object.

### Examples

For example, to check the server against a specific CA certificate:

```
tls_config = docker.tls.TLSConfig(ca_cert='/path/to/ca.pem')
client = docker.DockerClient(base_url='<https_url>', tls=tls_config)
```

This is the equivalent of `docker --tlsverify --tlscacert /path/to/ca.pem ....`

To authenticate with client certs:

```
tls_config = docker.tls.TLSConfig(
    client_cert=('/path/to/client-cert.pem', '/path/to/client-key.pem')
)
client = docker.DockerClient(base_url='<https_url>', tls=tls_config)
```

This is the equivalent of `docker --tls --tlscert /path/to/client-cert.pem --tlskey /path/to/client-key.pem ....`

### Reference

#### class **TLSConfig**

TLS configuration.

##### Parameters

- **client\_cert** (*tuple of str*) – Path to client cert, path to client key.
- **ca\_cert** (*str*) – Path to CA cert file.
- **verify** (*bool or str*) – This can be `False` or a path to a CA cert file.
- **ssl\_version** (*int*) – A valid [SSL version](#).
- **assert\_hostname** (*bool*) – Verify the hostname of the server.

## User guides and tutorials

### Handling multiplexed streams

---

**Note:** The following instruction assume you're interested in getting output from an `exec` command. These instructions are similarly applicable to the output of `attach`.

---

First create a container that runs in the background:

```
>>> client = docker.from_env()
>>> container = client.containers.run(
...     'bfirsh/reticulate-splines', detach=True)
```

Prepare the command we are going to use. It prints “hello stdout” in *stdout*, followed by “hello stderr” in *stderr*:

```
>>> cmd = '/bin/sh -c "echo hello stdout ; echo hello stderr >&2"'
We'll run this command with all four the combinations of ``stream``
and ``demux``.
With ``stream=False`` and ``demux=False``, the output is a string
that contains both the ``stdout`` and the ``stderr`` output:
>>> res = container.exec_run(cmd, stream=False, demux=False)
>>> res.output
b'hello stderr\nhello stdout\n'
```

With *stream=True*, and *demux=False*, the output is a generator that yields strings containing the output of both *stdout* and *stderr*:

```
>>> res = container.exec_run(cmd, stream=True, demux=False)
>>> next(res.output)
b'hello stdout\n'
>>> next(res.output)
b'hello stderr\n'
>>> next(res.output)
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
StopIteration
```

With *stream=True* and *demux=True*, the generator now separates the streams, and yield tuples (*stdout*, *stderr*):

```
>>> res = container.exec_run(cmd, stream=True, demux=True)
>>> next(res.output)
(b'hello stdout\n', None)
>>> next(res.output)
(None, b'hello stderr\n')
>>> next(res.output)
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
StopIteration
```

Finally, with *stream=False* and *demux=True*, the whole output is returned, but the streams are still separated:

```
>>> res = container.exec_run(cmd, stream=False, demux=True)
>>> next(res.output)
(b'hello stdout\n', None)
>>> next(res.output)
(None, b'hello stderr\n')
>>> next(res.output)
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
StopIteration
```

## Swarm services

Warning: This is a stale document and may contain outdated information. Refer to the API docs for updated classes and method signatures.

Starting with Engine version 1.12 (API 1.24), it is possible to manage services using the Docker Engine API. Note that the engine needs to be part of a Swarm cluster before you can use the service-related methods.

### Creating a service

The `APIClient.create_service` method lets you create a new service inside the cluster. The method takes several arguments, `task_template` being mandatory. This dictionary of values is most easily produced by instantiating a `TaskTemplate` object.

```
container_spec = docker.types.ContainerSpec(
    image='busybox', command=['echo', 'hello']
)
task_tmpl = docker.types.TaskTemplate(container_spec)
service_id = client.create_service(task_tmpl, name=name)
```

### Listing services

List all existing services using the `APIClient.services` method.

```
client.services(filters={'name': 'mysql'})
```

### Retrieving service configuration

To retrieve detailed information and configuration for a specific service, you may use the `APIClient.inspect_service` method using the service's ID or name.

```
client.inspect_service(service='my_service_name')
```

### Updating service configuration

The `APIClient.update_service` method lets you update a service's configuration. The mandatory version argument (used to prevent concurrent writes) can be retrieved using `APIClient.inspect_service`.

```
container_spec = docker.types.ContainerSpec(
    image='busybox', command=['echo', 'hello world']
)
task_tmpl = docker.types.TaskTemplate(container_spec)

svc_version = client.inspect_service(svc_id)['Version']['Index']

client.update_service(
    svc_id, svc_version, name='new_name', task_template=task_tmpl
)
```

## Removing a service

A service may be removed simply using the `APIClient.remove_service` method. Either the service name or service ID can be used as argument.

```
client.remove_service('my_service_name')
```

## Change log

### 3.6.0

[List of PRs / issues for this release](#)

#### Features

- Added support for connecting to the Docker Engine over SSH. Additional dependencies for this feature can be installed with `pip install "docker[ssh]"`
- Added support for the `named` parameter in `Image.save`, which may be used to ensure the resulting tarball retains the image's name on save.

#### Bugfixes

- Fixed a bug where builds on Windows with a context path using the `\\?\` prefix would fail with some relative Dockerfile paths.
- Fixed an issue where pulls made with the `DockerClient` would fail when setting the `stream` parameter to `True`.

#### Miscellaneous

- The minimum requirement for the `requests` dependency has been bumped to 2.20.0

### 3.5.1

[List of PRs / issues for this release](#)

#### Miscellaneous

- Bumped version of `pyOpenSSL` in `requirements.txt` and `setup.py` to prevent installation of a vulnerable version
- Docs fixes

### 3.5.0

[List of PRs / issues for this release](#)



## Deprecation warning

- Support for Python 3.3 will be dropped in the 4.0.0 release

## Features

- Updated dependencies to ensure support for Python 3.7 environments
- Added support for the `uts_mode` parameter in `HostConfig`
- The `UpdateConfig` constructor now allows `rollback` as a valid value for `failure_action`
- Added support for `rollback_config` in `APIClient.create_service`, `APIClient.update_service`, `DockerClient.services.create` and `Service.update`.

## Bugfixes

- Credential helpers are now properly leveraged by the `build` method
- Fixed a bug that caused placement preferences to be ignored when provided to `DockerClient.services.create`
- Fixed a bug that caused a user value of 0 to be ignored in `APIClient.create_container` and `DockerClient.containers.create`

### 3.4.1

[List of PRs / issues for this release](#)

## Bugfixes

- Fixed a bug that caused auth values in config files written using one of the legacy formats to be ignored
- Fixed issues with handling of double-wildcard `**` patterns in `.dockerignore` files

### 3.4.0

[List of PRs / issues for this release](#)

## Features

- The `APIClient` and `DockerClient` constructors now accept a `credstore_env` parameter. When set, values in this dictionary are added to the environment when executing the credential store process.

## Bugfixes

- `DockerClient.networks.prune` now properly returns the operation's result
- Fixed a bug that caused custom Dockerfile paths in a subfolder of the build context to be invalidated, preventing these builds from working
- The `plugin_privileges` method can now be called for plugins requiring authentication to access

- Fixed a bug that caused attempts to read a data stream over an unsecured TCP socket to crash on Windows clients
- Fixed a bug where using the `read_only` parameter when creating a service using the `DockerClient` was being ignored
- Fixed an issue where `Service.scale` would not properly update the service's mode, causing the operation to fail silently

### 3.3.0

[List of PRs / issues for this release](#)

#### Features

- Added support for `prune_builds` in `APIClient` and `DockerClient.images`
- Added support for `ignore_removed` parameter in `DockerClient.containers.list`

#### Bugfixes

- Fixed an issue that caused builds to fail when an in-context Dockerfile would be specified using its absolute path
- Installation with pip 10.0.0 and above no longer fails
- Connection timeout for `stop` and `restart` now gets properly adjusted to allow for the operation to finish in the specified time
- Improved docker credential store support on Windows

### 3.2.1

[List of PRs / issues for this release](#)

#### Bugfixes

- Fixed a bug with builds not properly identifying Dockerfile paths relative to the build context
- Fixed an issue where builds would raise a `ValueError` when attempting to build with a Dockerfile on a different Windows drive.

### 3.2.0

[List of PRs / issues for this release](#)

#### Features

- Generators returned by `attach()`, `logs()` and `events()` now have a `cancel()` method to let consumers stop the iteration client-side.
- `build()` methods can now handle Dockerfiles supplied outside of the build context.
- Added `sparse` argument to `DockerClient.containers.list()`

- Added `isolation` parameter to `build()` methods.
- Added `close()` method to `DockerClient`
- Added `APIClient.inspect_distribution()` method and `DockerClient.images.get_registry_data()`
  - The latter returns an instance of the new `RegistryData` class

### 3.1.4

[List of PRs / issues for this release](#)

#### Bugfixes

- Fixed a bug where build contexts containing directory symlinks would produce invalid tar archives

### 3.1.3

#### Bugfixes

- Regenerated invalid wheel package

### 3.1.2

[List of PRs / issues for this release](#)

#### Bugfixes

- Fixed a bug that led to a Dockerfile not being included in the build context in some situations when the Dockerfile's path was prefixed with `./`

### 3.1.1

[List of PRs / issues for this release](#)

#### Bugfixes

- Fixed a bug that caused costly DNS lookups on Mac OSX when connecting to the engine through UNIX socket
- Fixed a bug that caused `.dockerignore` comments to be read as exclusion patterns

### 3.1.0

[List of PRs / issues for this release](#)

## Features

- Added support for `device_cgroup_rules` in host config
- Added support for `generic_resources` when creating a `Resources` object.
- Added support for a configurable `chunk_size` parameter in `export`, `get_archive` and `get_image` (`Image.save`)
- Added a `force_update` method to the `Service` class.
- In `Service.update`, when the `force_update` parameter is set to `True`, the current `force_update` counter is incremented by one in the update request.

## Bugfixes

- Fixed a bug where authentication through `login()` was being ignored if the SDK was configured to use a credential store.
- Fixed a bug where download methods would use an absurdly small chunk size, leading to slow data retrieval
- Fixed a bug where using `DockerClient.images.pull` to pull an image by digest would lead to an exception being raised.
- `.dockerignore` rules should now be respected as defined by the spec, including respect for last-line precedence and proper handling of absolute paths
- The `pass` credential store is now properly supported.

### 3.0.1

List of PRs / issues for this release

## Bugfixes

- Fixed a bug where `APIClient.login` didn't populate the `_auth_configs` dictionary properly, causing subsequent `pull` and `push` operations to fail
- Fixed a bug where some build context files were incorrectly recognized as being inaccessible.
- Fixed a bug where files with a negative `mtime` value would cause errors when included in a build context

### 3.0.0

List of PRs / issues for this release

## Breaking changes

- Support for API version `< 1.21` has been removed.
- The following methods have been removed:
  - `APIClient.copy` has been removed. Users should use `APIClient.get_archive` instead.
  - `APIClient.insert` has been removed. Users may use `APIClient.put_archive` combined with `APIClient.commit` to replicate the method's behavior.

- `utils.ping_registry` and `utils.ping` have been removed.
- The following parameters have been removed:
  - `stream` in `APIClient.build`
  - `cpu_shares`, `cpuset`, `dns`, `mem_limit`, `memswap_limit`, `volume_driver`, `volumes_from` in `APIClient.create_container`. These are all replaced by their equivalent in `create_host_config`
  - `insecure_registry` in `APIClient.login`, `APIClient.pull`, `APIClient.push`, `DockerClient.images.push` and `DockerClient.images.pull`
  - `viz` in `APIClient.images`
- The following parameters have been renamed:
  - `endpoint_config` in `APIClient.create_service` and `APIClient.update_service` is now `endpoint_spec`
  - `name` in `DockerClient.images.pull` is now `repository`
- The return value for the following methods has changed:
  - `APIClient.wait` and `Container.wait` now return a dict representing the API's response instead of returning the status code directly.
  - `DockerClient.images.load` now returns a list of Image objects that have for the images that were loaded, instead of a log stream.
  - `Container.exec_run` now returns a tuple of (`exit_code`, `output`) instead of just the output.
  - `DockerClient.images.build` now returns a tuple of (`image`, `build_logs`) instead of just the image object.
  - `APIClient.export`, `APIClient.get_archive` and `APIClient.get_image` now return generators streaming the raw binary data from the server's response.
  - When no tag is provided, `DockerClient.images.pull` now returns a list of Images associated to the pulled repository instead of just the latest image.

## Features

- The Docker Python SDK is now officially supported on Python 3.6
- Added `scale` method to the Service model ; this method is a shorthand that calls `update_service` with the required number of replicas
- Added support for the `platform` parameter in `APIClient.build`, `DockerClient.images.build`, `APIClient.pull` and `DockerClient.images.pull`
- Added support for the `until` parameter in `APIClient.logs` and `Container.logs`
- Added support for the `workdir` argument in `APIClient.exec_create` and `Container.exec_run`
- Added support for the `condition` argument in `APIClient.wait` and `Container.wait`
- Users can now specify a publish mode for ports in `EndpointSpec` using the `{published_port: (target_port, protocol, publish_mode)}` syntax.
- Added support for the `isolation` parameter in `ContainerSpec`, `DockerClient.services.create` and `Service.update`
- `APIClient.attach_socket`, `APIClient.exec_create` now allow specifying a `detach_keys` combination. If unspecified, the value from the `config.json` file will be used

- TLS connections now default to using the TLSv1.2 protocol when available

## Bugfixes

- Fixed a bug where whitespace-only lines in `.dockerignore` would break builds on Windows
- Fixed a bug where broken symlinks inside a build context would cause the build to fail
- Fixed a bug where specifying volumes with Windows drives would cause incorrect parsing in `DockerClient.containers.run`
- Fixed a bug where the networks data provided to `create_service` and `update_service` would be sent incorrectly to the Engine with API < 1.25
- Pulling all tags from a repository with no latest tag using the `DockerClient` will no longer raise a `NotFound` exception

## 2.7.0

List of PRs / issues for this release

## Features

- Added `unlock_swarm` and `get_unlock_key` methods to the `APIClient`.
  - Added `unlock` and `get_unlock_key` to `DockerClient.swarm`.
- Added a `greedy` parameter to `DockerClient.networks.list`, yielding additional details about the listed networks.
- Added `cpu_rt_runtime` and `cpu_rt_period` as parameters to `APIClient.create_host_config` and `DockerClient.containers.run`.
- Added the `order` argument to `UpdateConfig`.
- Added `fetch_current_spec` to `APIClient.update_service` and `Service.update` that will retrieve the current configuration of the service and merge it with the provided parameters to determine the new configuration.

## Bugfixes

- Fixed a bug where the `build` method tried to include inaccessible files in the context, leading to obscure errors during the build phase (inaccessible files inside the context now raise an `IOError` instead).
- Fixed a bug where the `build` method would try to read from FIFOs present inside the build context, causing it to hang.
- `APIClient.stop` will no longer override the `stop_timeout` value present in the container's configuration.
- Fixed a bug preventing removal of networks with names containing a space.
- Fixed a bug where `DockerClient.containers.run` would crash if the `auto_remove` parameter was set to `True`.
- Changed the default value of `listen_addr` in `join_swarm` to match the one in `init_swarm`.
- Fixed a bug where handling HTTP errors with no body would cause an unexpected exception to be thrown while generating an `APIError` object.

## 2.6.1

List of PRs / issues for this release

### Bugfixes

- Fixed a bug on Python 3 installations preventing the use of the `attach` and `exec_run` methods.

## 2.6.0

List of PRs / issues for this release

### Features

- Added support for mounts in `APIClient.create_host_config` and `DockerClient.containers.run`
- Added support for consistency, `tmpfs_size` and `tmpfs_mode` when creating mount objects.
- Mount objects now support the `tmpfs` and `npipe` types.
- Added support for `extra_hosts` in the build methods.
- Added support for the configs API:
  - In `APIClient`: `create_config`, `inspect_config`, `remove_config`, `configs`
  - In `DockerClient`: `configs.create`, `configs.get`, `configs.list` and the `Config` model.
  - Added `configs` parameter to `ContainerSpec`. Each item in the `configs` list must be a `docker.types.ConfigReference` instance.
- Added support for the following parameters when creating a `ContainerSpec` object: `groups`, `open_stdin`, `read_only`, `stop_signal`, `healthcheck`, `hosts`, `ns_config`, `configs`, `privileges`.
- Added the following configuration classes to `docker.types`: `ConfigReference`, `DNSConfig`, `Privileges`, `SwarmExternalCA`.
- Added support for `driver` in `APIClient.create_secret` and `DockerClient.secrets.create`.
- Added support for `scope` in `APIClient.inspect_network` and `APIClient.create_network`, and their `DockerClient` equivalent.
- Added support for the following parameters to `create_swarm_spec`: `external_cas`, `labels`, `signing_ca_cert`, `signing_ca_key`, `ca_force_rotate`, `autolock_managers`, `log_driver`. These additions also apply to `DockerClient.swarm.init`.
- Added support for `insert_defaults` in `APIClient.inspect_service` and `DockerClient.services.get`.

### Bugfixes

- Fixed a bug where reading a 0-length frame in log streams would incorrectly interrupt streaming.
- Fixed a bug where the `id` member on `Swarm` objects wasn't being populated.

- Fixed a bug that would cause some data at the beginning of an upgraded connection stream (`attach`, `exec_run`) to disappear.

## 2.5.1

[List of PRs / issues for this release](#)

### Bugfixes

- Fixed a bug where patterns ending with `**` in `.dockerignore` would raise an exception
- Fixed a bug where using `attach` with the `stream` argument set to `False` would raise an exception

## 2.5.0

[List of PRs / issues for this release](#)

### Features

- Added support for the `squash` parameter in `APIClient.build` and `DockerClient.images.build`.
- When using API version 1.23 or above, `load_image` will now return a generator of progress as JSON dicts.
- `remove_image` now returns the content of the API's response.

### Bugfixes

- Fixed an issue where the `auto_remove` parameter in `DockerClient.containers.run` was not taken into account.
- Fixed a bug where `.dockerignore` patterns starting with a slash were ignored.
- Fixed an issue with the handling of `**` patterns in `.dockerignore`
- Fixed a bug where building FROM a private Docker Hub image when not using a cred store would fail.
- Fixed a bug where calling `create_service` or `update_service` with `task_template` as a dict would raise an exception.
- Fixed the handling of TTY-enabled containers in `attach` and `exec_run`.
- `DockerClient.containers.run` will no longer attempt to stream logs if the log driver doesn't support the operation.

### Miscellaneous

- Added extra requirements for better TLS support on some platforms. These can be installed or required through the `docker[tls]` notation.

## 2.4.2

[List of PRs / issues for this release](#)



## Bugfixes

- Fixed a bug where the `split_port` utility would raise an exception when passed a non-string argument.

## 2.4.0

List of PRs / issues for this release

## Features

- Added support for the `target` and `network_mode` parameters in `APIClient.build` and `DockerClient.images.build`.
- Added support for the `runtime` parameter in `APIClient.create_container` and `DockerClient.containers.run`.
- Added support for the `ingress` parameter in `APIClient.create_network` and `DockerClient.networks.create`.
- Added support for placement configuration in `docker.types.TaskTemplate`.
- Added support for `tty` configuration in `docker.types.ContainerSpec`.
- Added support for `start_period` configuration in `docker.types.Healthcheck`.
- The `credHelpers` section in Docker's configuration file is now recognized.
- Port specifications including IPv6 endpoints are now supported.

## Bugfixes

- Fixed a bug where instantiating a `DockerClient` using `docker.from_env` wouldn't correctly set the default timeout value.
- Fixed a bug where `DockerClient.secrets` was not accessible as a property.
- Fixed a bug where `DockerClient.build` would sometimes return the wrong image.
- Fixed a bug where values for `HostConfig.nano_cpus` exceeding  $2^{32}$  would raise a type error.
- `Image.tag` now properly returns `True` when the operation is successful.
- `APIClient.logs` and `Container.logs` now raise an exception if the `since` argument uses an unsupported type instead of ignoring the value.
- Fixed a bug where some methods would raise a `NullResource` exception when the resource ID was provided using a keyword argument.

## Miscellaneous

- `APIClient` instances can now be pickled.

## 2.3.0

List of PRs / issues for this release

## Features

- Added support for the following `HostConfig` parameters: `volume_driver`, `cpu_count`, `cpu_percent`, `nano_cpus`, `cpuset_mems`.
- Added support for `verbose` parameter in `APIClient.inspect_network` and `DockerClient.networks.get`.
- Added support for the `environment` parameter in `APIClient.exec_create` and `Container.exec_run`.
- Added `reload_config` method to `APIClient`, that lets the user reload the `config.json` data from disk.
- Added `labels` property to the `Image` and `Container` classes.
- Added `image` property to the `Container` class.

## Bugfixes

- Fixed a bug where setting `replicas` to zero in `ServiceMode` would not register as a valid entry.
- Fixed a bug where `DockerClient.images.build` would report a failure after a successful build if a `tag` was set.
- Fixed an issue where `DockerClient.images.pull` would fail to return the corresponding image object if a `tag` was set.
- Fixed a bug where a list of `mounts` provided to `APIClient.create_service` would sometimes be parsed incorrectly.
- Fixed a bug where calling `Network.containers` would crash when no containers were associated with the network.
- Fixed an issue where `Network.connect` and `Network.disconnect` would not accept some of the documented parameters.
- Fixed a bug where the `cpuset_cpus` parameter would not be properly set in `APIClient.create_host_config`.

## Miscellaneous

- The invalid `networks` argument in `DockerClient.containers.run` has been replaced with a (working) singular `network` argument.

### 2.2.1

[List of PRs / issues for this release](#)

## Bugfixes

- Fixed a bug where the `status_code` attribute of `APIError` exceptions would not reflect the expected value.
- Fixed an issue where the `events` method would time out unexpectedly if no data was sent by the engine for a given amount of time.

## 2.2.0

[List of PRs / issues for this release](#)

### Features

- Default API version has been bumped to 1.26 (Engine 1.13.1+)
- Upgrade plugin:
  - Added the `upgrade_plugin` method to the `APIClient` class
  - Added the `upgrade` method to the `Plugin` class
- Service logs:
  - Added the `service_logs` method to the `APIClient` class
  - Added the `logs` method to the `Service` class
- Added the `df` method to `APIClient` and `DockerClient`
- Added support for `init` and `init_path` parameters in `HostConfig` and `DockerClient.containers.run`
- Added support for `hostname` parameter in `ContainerSpec` and `DockerClient.service.create`
- Added support for port range to single port in port mappings (e.g. `8000-8010:80`)

### Bugfixes

- Fixed a bug where a missing container port in a port mapping would raise an unexpected `TypeError`
- Fixed a bug where the `events` method in `APIClient` and `DockerClient` would not respect custom headers set in `config.json`

## 2.1.0

[List of PRs / issues for this release](#)

### Features

- Added the following pruning methods:
  - In `APIClient`: `prune_containers`, `prune_images`, `prune_networks`, `prune_volumes`
  - In `DockerClient`: `containers.prune`, `images.prune`, `networks.prune`, `volumes.prune`
- Added support for the plugins API:
  - In `APIClient`: `configure_plugin`, `create_plugin`, `disable_plugin`, `enable_plugin`, `inspect_plugin`, `pull_plugin`, `plugins`, `plugin_privileges`, `push_plugin`, `remove_plugin`
  - In `DockerClient`: `plugins.create`, `plugins.get`, `plugins.install`, `plugins.list`, and the `Plugin` model.
- Added support for the secrets API:

- In `APIClient`: `create_secret`, `inspect_secret`, `remove_secret`, `secrets`
- In `DockerClient`: `secret.create`, `secret.get`, `secret.list` and the `Secret` model.
- Added `secrets` parameter to `ContainerSpec`. Each item in the `secrets` list must be a `docker.types.SecretReference` instance.
- Added support for `cache_from` in `APIClient.build` and `DockerClient.images.build`.
- Added support for `auto_remove` and `storage_opt` in `APIClient.create_host_config` and `DockerClient.containers.run`
- Added support for `stop_timeout` in `APIClient.create_container` and `DockerClient.containers.run`
- Added support for the `force` parameter in `APIClient.remove_volume` and `Volume.remove`
- Added support for `max_failure_ratio` and `monitor` in `UpdateConfig`
- Added support for `force_update` in `TaskTemplate`
- Made `name` parameter optional in `APIClient.create_volume` and `DockerClient.volumes.create`

## Bugfixes

- Fixed a bug where building from a directory containing socket-type files would raise an unexpected `AttributeError`.
- Fixed an issue that was preventing the `DockerClient.swarm.init` method to take into account arguments passed to it.
- `Image.tag` now correctly returns a boolean value upon completion.
- Fixed several issues related to passing volumes in `DockerClient.containers.run`
- Fixed an issue where `DockerClient.image.build` wouldn't return an `Image` object even when the build was successful

## 2.0.2

List of PRs / issues for this release

## Bugfixes

- Installation of the package now fails if the `docker-py` package is installed in order to prevent obscure naming conflicts when both packages co-exist.
- Added missing `filters` parameter to `APIClient.networks`.
- Resource objects generated by the `DockerClient` are now hashable.
- Fixed a bug where retrieving untagged images using `DockerClient` would raise a `TypeError` exception.
- `mode` parameter in `create_service` is now properly converted to a valid data type for the Engine API. Use `ServiceMode` for advanced configurations.
- Fixed a bug where the decoded `APIClient.events` stream would sometimes raise an exception when a container is stopped or restarted.

## 2.0.1

List of PRs / issues for this release

### Bugfixes

- Fixed a bug where forward slashes in some `.dockerignore` patterns weren't being parsed correctly on Windows
- Fixed a bug where `Mount.parse_mount_string` would never set the `read_only` parameter on the resulting `Mount`.
- Fixed a bug where `Mount.parse_mount_string` would incorrectly mark host binds as being of volume type.

## 2.0.0

List of PRs / issues for this release

### Breaking changes

- Dropped support for Python 2.6
- `docker.Client` has been renamed to `docker.APIClient`
- `docker.from_env` now creates a `DockerClient` instance instead of an `APIClient` instance.
- Removed `HostConfig` parameters from `APIClient.start`
- The minimum supported API version is now 1.21 (Engine version 1.9.0+)
- The name of the pip package is now `docker` (was: `docker-py`). New versions of this library will only be published as `docker` from now on.
- `docker.ssladapter` is now `docker.transport.ssladapter`
- The package structure has been flattened in certain cases, which may affect import for `docker.auth` and `docker.utils.ports`
- `docker.utils.types` has been moved to `docker.types`
- `create_host_config`, `create_ipam_pool` and `create_ipam_config` have been removed from `docker.utils`. They have been replaced by the following classes in `docker.types`: `HostConfig`, `IPAMPool` and `IPAMConfig`.

### Features

- Added a high-level, user-focused API as `docker.DockerClient`. See the README and documentation for more information.
- Implemented `update_node` method in `APIClient`.
- Implemented `remove_node` method in `APIClient`.
- Added support for `restart_policy` in `update_container`.
- Added support for `labels` and `shm_size` in `build`.
- Added support for `attachable` in `create_network`

- Added support for `healthcheck` in `create_container`.
- Added support for `isolation` in `HostConfig`.
- Expanded support for `pid_mode` in `HostConfig` (now supports arbitrary values for API version  $\geq 1.24$ ).
- Added support for `options` in `IPAMConfig`
- Added a `HealthCheck` class to `docker.types` to be used in `create_container`.
- Added an `EndpointSpec` class to `docker.types` to be used in `create_service` and `update_service`.

## Bugfixes

- Fixed a bug where auth information would not be properly passed to the engine during a build if the client used a credentials store.
- Fixed an issue with some exclusion patterns in `build`.
- Fixed an issue where context files were bundled with the wrong permissions when calling `build` on Windows.
- Fixed an issue where auth info would not be retrieved from its default location on Windows.
- Fixed an issue where lists of networks in `create_service` and `update_service` wouldn't be properly converted for the engine.
- Fixed an issue where `endpoint_config` in `create_service` and `update_service` would be ignored.
- `endpoint_config` in `create_service` and `update_service` has been deprecated in favor of `endpoint_spec`
- Fixed a bug where `constraints` in a `TaskTemplate` object wouldn't be properly converted for the engine.
- Fixed an issue where providing a dictionary for `env` in `ContainerSpec` would provoke an `APIError` when sent to the engine.
- Fixed a bug where providing an `env_file` containing empty lines in `create_container` would raise an exception.
- Fixed a bug where `detach` was being ignored by `exec_start`.

## Documentation

- Documentation for classes and methods is now included alongside the code as docstrings.

## 1.10.6

[List of PRs / issues for this release](#)

## Bugfixes

- Fixed an issue where setting a `NpipeSocket` instance to blocking mode would put it in non-blocking mode and vice-versa.

## 1.10.5

List of PRs / issues for this release

### Bugfixes

- Fixed an issue where concurrent attempts to access to a named pipe by the client would sometimes cause recoverable exceptions to be raised.

## 1.10.4

List of PRs / issues for this release

### Bugfixes

- Fixed an issue where `RestartPolicy.condition_types.ON_FAILURE` would yield an invalid value.
- Fixed an issue where the SSL connection adapter would receive an invalid argument.
- Fixed an issue that caused the Client to fail to reach API endpoints when the provided `base_url` had a trailing slash.
- Fixed a bug where some `environment` values in `create_container` containing unicode characters would raise an encoding error.
- Fixed a number of issues tied with named pipe transport on Windows.
- Fixed a bug where inclusion patterns in `.dockerignore` would cause some excluded files to appear in the build context on Windows.

### Miscellaneous

- Adjusted version requirements for the `requests` library.
- It is now possible to run the docker-py test suite on Windows.

## 1.10.3

List of PRs / issues for this release

### Bugfixes

- Fixed an issue where identity tokens in configuration files weren't handled by the library.

### Miscellaneous

- Increased the default number of connection pools from 10 to 25. This number can now be configured using the `num_pools` parameter in the `Client` constructor.

## 1.10.2

List of PRs / issues for this release

### Bugfixes

- Updated the docker-pycreds dependency as it was causing issues for some users with dependency resolution in applications using docker-py.

## 1.10.1

List of PRs / issues for this release

### Bugfixes

- The `docker.utils.types` module was removed in favor of `docker.types`, but some applications imported it explicitly. It has been re-added with an import warning advising to use the new module path.

## 1.10.0

List of PRs / issues for this release

### Features

- Added swarm mode and service management methods. See the documentation for details.
- Added support for IPv6 Docker host addresses in the `Client` constructor.
- Added (read-only) support for the Docker credentials store.
- Added support for custom `auth_config` in `Client.push`.
- Added support for `labels` in `Client.create_volume`.
- Added support for `labels` and `enable_ipv6` in `Client.create_network`.
- Added support for `force` param in `Client.disconnect_container_from_network`.
- Added support for `pids_limit`, `sysctls`, `userns_mode`, `cpuset_cpus`, `cpu_shares`, `mem_reservation` and `kernel_memory` parameters in `Client.create_host_config`.
- Added support for `link_local_ips` in `create_endpoint_config`.
- Added support for a `changes` parameter in `Client.import_image`.
- Added support for a `version` parameter in `Client.from_env`.

### Bugfixes

- Fixed a bug where `Client.build` would crash if the `config.json` file contained a `HttpHeaders` entry.
- Fixed a bug where passing `decode=True` in some streaming methods would crash when the daemon's response had an unexpected format.



- Fixed a bug where environment values with unicode characters weren't handled properly in `create_container`.
- Fixed a bug where using the `npipe` protocol would sometimes break with `ValueError: buffer size must be strictly positive`.

## Miscellaneous

- Fixed an issue where URL-quoting in `docker-py` was inconsistent with the quoting done by the Docker CLI client.
- The client now sends TCP upgrade headers to hint potential proxies about connection hijacking.
- The client now defaults to using the `npipe` protocol on Windows.

## 1.9.0

[List of PRs / issues for this release](#)

## Features

- Added **experimental** support for Windows named pipes (`npipe://` protocol).
- Added support for Block IO constraints in `Client.create_host_config`. This includes parameters `blkio_weight`, `blkio_weight_device`, `device_read_bps`, `device_write_bps`, `device_read_iops` and `device_write_iops`.
- Added support for the `internal` param in `Client.create_network`.
- Added support for `ipv4_address` and `ipv6_address` in `utils` function `create_endpoint_config`.
- Added support for custom user agent setting in the `Client` constructor. By default, `docker-py` now also declares itself in the `User-Agent` header.

## Bugfixes

- Fixed an issue where the HTTP timeout on streaming responses would sometimes be set incorrectly.
- Fixed an issue where explicit relative paths in `.dockerignore` files were not being recognized.

## 1.8.1

[List of PRs / issues for this release](#)

## Bugfixes

- Fixed a bug where calling `login()` against the default registry would fail with the 1.10.x engine
- Fixed a bug where values in environment files would be parsed incorrectly if they contained an equal sign.
- Switched to a better supported backport of the `match_hostname` function, fixing dependency issues in some environments.

## 1.8.0

List of PRs / issues for this release

### Features

- Added `Client.update_container` method (Update resource configs of a container)
- Added support for gzipped context in `Client.build`
- Added ability to specify IP address when connecting a container to a network
- Added tmpfs support to `Client.create_host_config`
- Added support for the `changes` param in `Client.commit`
- Added support for the `follow` param in `Client.logs`
- Added support for the `check_duplicate` param in `Client.create_network`
- Added support for the `decode` param in `Client.push` and `Client.pull`
- Added `docker.from_env` shortcut function. Instantiates a client with `kwargs_from_env`
- `kwargs_from_env` now supports an optional `environment` parameter. If present, values will be fetched from this dictionary instead of `os.environ`

### Bugfixes

- Fixed a bug where TLS verification would fail when using IP addresses in the certificate's `subjectAltName` fields
- Fixed an issue where the default TLS version in `TLSConfig` would break in some environments. `docker-py` now uses `TLSv1` by default This setting can be overridden using the `ssl_version` param in `kwargs_from_env` or the `TLSConfig` constructor
- Fixed a bug where `tcp` hosts would fail to connect to TLS-enabled endpoints
- Fixed a bug where loading a valid docker configuration file would fail
- Fixed a bug where some environment variables specified through `create_container` would be improperly formatted
- Fixed a bug where using the unix socket connection would raise an error in some edge-case situations

### Miscellaneous

- Default API version is now 1.22 (introduced in Docker 1.10.0)

## 1.7.2

List of PRs / issues for this release

### Bugfixes

- Fixed a bug where TLS verification was improperly executed when providing a custom CA certificate.

## 1.7.1

List of PRs / issues for this release

### Features

- Added support for `shm_size` in `Client.create_host_config`

### Bugfixes

- Fixed a bug where Dockerfile would sometimes be excluded from the build context.
- Fixed a bug where a docker config file containing unknown keys would raise an exception.
- Fixed an issue with SSL connections behaving improperly when pyOpenSSL was installed in the same environment.
- Several TLS configuration improvements

## 1.7.0

List of PRs / issues for this release

### Features

- Added support for custom IPAM configuration in `Client.create_network`
- Added input support to `Client.exec_create`
- Added support for `stop_signal` in `Client.create_host_config`
- Added support for custom HTTP headers in Docker config file.
- Added support for unspecified transfer protocol in `base_url` when TLS is enabled.

### Bugfixes

- Fixed a bug where the `filters` parameter in `Client.volumes` would not be applied properly.
- Fixed a bug where memory limits would parse to incorrect values.
- Fixed a bug where the `devices` parameter in `Client.create_host_config` would sometimes be misinterpreted.
- Fixed a bug where instantiating a `Client` object would sometimes crash if `base_url` was unspecified.
- Fixed a bug where an error message related to TLS configuration would link to a non-existent (outdated) docs page.

### Miscellaneous

- Processing of `.dockerignore` has been made significantly faster.
- Dropped explicit support for Python 3.2

## 1.6.0

[List of PRs / issues for this release](#)

### Features

- Added support for the `since` param in `Client.logs` (introduced in API version 1.19)
- Added support for the `DOCKER_CONFIG` environment variable when looking up auth config
- Added support for the `stream` param in `Client.stats` (when set to `False`, allows user to retrieve a single snapshot instead of a constant data stream)
- Added support for the `mem_swappiness`, `oom_kill_disable` params in `Client.create_host_config`
- Added support for build arguments in `Client.build` through the `buildargs` param.

### Bugfixes

- Fixed a bug where streaming data over HTTPS would sometimes behave incorrectly with Python 3.x
- Fixed a bug where commands containing unicode characters would be incorrectly handled by `Client.create_container`.
- Fixed a bug where auth config credentials containing unicode characters would cause failures when pushing / pulling images.
- Setting `tail=0` in `Client.logs` no longer shows past logs.
- Fixed a bug where `Client.pull` and `Client.push` couldn't handle image names containing a dot.

### Miscellaneous

- Default API version is now 1.21 (introduced in Docker 1.9.0)
- Several test improvements and cleanup that should make the suite easier to expand and maintain moving forward.

## 1.5.0

[List of PRs / issues for this release](#)

### Features

- Added support for the networking API introduced in Docker 1.9.0 (`Client.networks`, `Client.create_network`, `Client.remove_network`, `Client.inspect_network`, `Client.connect_container_to_network`, `Client.disconnect_container_from_network`).
- Added support for the volumes API introduced in Docker 1.9.0 (`Client.volumes`, `Client.create_volume`, `Client.inspect_volume`, `Client.remove_volume`).
- Added support for the `group_add` parameter in `create_host_config`.
- Added support for the CPU CFS (`cpu_quota` and `cpu_period`) parameteres in `create_host_config`.
- Added support for the archive API endpoint (`Client.get_archive`, `Client.put_archive`).

- Added support for `ps_args` parameter in `Client.top`.

## Bugfixes

- Fixed a bug where specifying volume binds with unicode characters would fail.
- Fixed a bug where providing an explicit protocol in `Client.port` would fail to yield the expected result.
- Fixed a bug where the priority protocol returned by `Client.port` would be UDP instead of the expected TCP.

## Miscellaneous

- Broke up Client code into several files to facilitate maintenance and contribution.
- Added contributing guidelines to the repository.

## 1.4.0

List of PRs / issues for this release

## Deprecation warning

- `docker.utils.create_host_config` is deprecated in favor of `Client.create_host_config`.

## Features

- Added `utils.parse_env_file` to support env-files. See [docs](#) for usage.
- Added support for arbitrary log drivers
- Added support for URL paths in the docker host URL (`base_url`)
- Drastically improved support for `.dockerignore` syntax

## Bugfixes

- Fixed a bug where `exec_inspect` would allow invocation when the API version was too low.
- Fixed a bug where `docker.utils.ports.split_port` would break if an open range was provided.
- Fixed a bug where invalid image IDs / container IDs could be provided to bypass or reroute request URLs
- Default `base_url` now adapts depending on the OS (better Windows support)
- Fixed a bug where using an integer as the user param in `Client.create_container` would result in a failure.

## Miscellaneous

- Docs fixes
- Integration tests are now run as part of our continuous integration.
- Updated dependency on `six` library

### 1.3.1

List of PRs / issues for this release

#### Bugfixes

- Fixed a bug where empty chunks in streams was misinterpreted as EOF.
- `datetime` arguments passed to `Client.events` parameters `since` and `until` are now always considered to be UTC.
- Fixed a bug with Docker 1.7.x where the wrong auth headers were being passed in `Client.build`, failing builds that depended on private images.
- `Client.exec_create` can now retrieve the `Id` key from a dictionary for its container param.

#### Miscellaneous

- 404 API status now raises `docker.errors.NotFound`. This exception inherits `APIError` which was used previously.
- Docs fixes
- Test fixes

### 1.3.0

List of PRs / issues for this release

#### Deprecation warning

- As announced in the 1.2.0 release, `Client.execute` has been removed in favor of `Client.exec_create` and `Client.exec_start`.

#### Features

- `extra_hosts` parameter in host config can now also be provided as a list.
- Added support for `memory_limit` and `memswap_limit` in host config to comply with recent deprecations.
- Added support for `volume_driver` in `Client.create_container`
- Added support for advanced modes in volume binds (using the `mode` key)
- Added support for `decode` in `Client.build` (decodes JSON stream on the fly)
- `docker-py` will now look for login configuration under the new config path, and fall back to the old `~/.dockercfg` path if not present.

## Bugfixes

- Configuration file lookup now also work on platforms that don't define a `$HOME` environment variable.
- Fixed an issue where pinging a v2 private registry wasn't working properly, preventing users from pushing and pulling.
- `pull` parameter in `Client.build` now defaults to `False`. Fixes a bug where the default options would try to force a pull of non-remote images.
- Fixed a bug where getting logs from tty-enabled containers wasn't working properly with more recent versions of Docker
- `Client.push` and `Client.pull` will now raise exceptions if the HTTP status indicates an error.
- Fixed a bug with adapter lookup when using the Unix socket adapter (this affected some weird edge cases, see issue #647 for details)
- Fixed a bug where providing `timeout=None` to `Client.stop` would result in an exception despite the usecase being valid.
- Added `git@` to the list of valid prefixes for remote build paths.

## Dependencies

- The websocket-client dependency has been updated to a more recent version. This new version also supports Python 3.x, making `attach_socket` available on those versions as well.

## Documentation

- Various fixes

## 1.2.3

[List of PRs / issues for this release](#)

## Deprecation warning

- Passing `host config` in the `Client.start` method is now deprecated. Please use the `host_config` in `Client.create_container` instead.

## Features

- Added support for `privileged` param in `Client.exec_create` (only available in API  $\geq$  1.19)
- Volume binds can now also be specified as a list of strings.

## Bugfixes

- Fixed a bug where the `read_only` param in `host_config` wasn't handled properly.
- Fixed a bug in `Client.execute` (this method is still deprecated).
- The `cpuset` param in `Client.create_container` is also passed as the `CpusetCpus` param (`Cpuset` deprecated in recent versions of the API)

- Fixed an issue with integration tests being run inside a container (`make integration-test`)
- Fixed a bug where an empty string would be considered a valid container ID or image ID.
- Fixed a bug in `Client.insert`

## Documentation

- Various fixes

## 1.2.2

### Bugfixes

- Fixed a bug where parameters passed to `Client.exec_resize` would be ignored (#576)
- Fixed a bug where auth config wouldn't be resolved properly in `Client.pull` (#577)

## 1.2.1

### Bugfixes

- Fixed a bug where the `check_resource` decorator would break with some argument-passing methods. (#573)

## 1.2.0

List of PRs / issues for this release

### Deprecation warning

- `Client.execute` is being deprecated in favor of the more dev-friendly `Client.exec_start` and `Client.exec_create`. **It will be removed in 1.3.0**

### Features

- Added `exec_create`, `exec_start`, `exec_inspect` and `exec_resize` to client, accurately mirroring the [Exec API](#)
- Added `auth_config` param to `Client.pull` (allows to use one-off credentials for this pull request)
- Added support for `ipc_mode` in host config.
- Added support for the `log_config` param in host config.
- Added support for the `ulimit` param in host config.
- Added support for container resource limits in `Client.build`.
- When a resource identifier (image or container ID) is passed to a Client method, we now check for `None` values to avoid crashing (now raises `docker.errors.NullResource`)
- Added tools to parse port ranges inside the new `docker.utils.ports` package.
- Added a `version_info` attribute to the `docker` package.



## Bugfixes

- Fixed a bug in `Client.port` where absence of a certain key in the container's JSON would raise an error (now just returns `None`)
- Fixed a bug with the `trunc` parameter in `Client.containers` having no effect (moved functionality to the client)
- Several improvements have been made to the `Client.import_image` method.
- Fixed pushing / pulling to [v2 registries](#)
- Fixed a bug where passing a container dictionary to `Client.commit` would fail

## Miscellaneous

- Default API version has been bumped to 1.18 (Docker Engine 1.6.0)
- Several testing coverage improvements
- Docs fixes and improvements

## 1.1.0

### Features

- Added `dockerfile` param support to `Client.build` (mirrors `docker build -f` behavior)
- Added the ability to specify 'auto' as version in `Client.__init__`, allowing the constructor to autodetect the daemon's API version.

### Bugfixes

- Fixed a bug where decoding a result stream using the `decode` parameter would break when using Python 3.x
- Fixed a bug where some files in `.dockerignore` weren't being handled properly
- Fixed `resolve_authconfig` issues by bringing it closer to Docker Engine's behavior. This should fix all issues encountered with private registry auth
- Fixed an issue where passwords containing a colon weren't being handled properly.
- Bumped `requests` version requirement, which should fix most of the SSL issues encountered recently.

### Miscellaneous

- Several integration test improvements.
- Fixed some unclosed resources in unit tests.
- Several docs improvements.

## 1.0.0

### Features

- Added new `Client.rename` method (`docker rename`)
- Added new `Client.stats` method (`docker stats`)
- Added `read_only` param support to `utils.create_host_config` and `Client.start` (`docker run --read-only`)
- Added `pid_mode` param support to `utils.create_host_config` and `Client.start` (`docker run --pid='host'`)
- Added `since`, `until` and `filters` params to `Client.events`.
- Added `decode` parameter to `Client.stats` and `Client.events` to decode JSON objects on the fly (False by default).

### Bugfixes

- Fixed a bug that caused `Client.build` to crash when the provided source was a remote source.

### Miscellaneous

- Default API version has been bumped to 1.17 (Docker Engine 1.5.0)
- `Client.timeout` is now a public attribute, and users are encouraged to use it when request timeouts need to be changed at runtime.
- Added `Client.api_version` as a read-only property.
- The `memswap_limit` argument in `Client.create_container` now accepts string type values similar to `mem_limit` ('6g', '120000k', etc.)
- Improved documentation

## 0.7.2

### Features

- Added support for `mac_address` in `Client.create_container`

### Bugfixes

- Fixed a bug where streaming responses (`pull`, `push`, `logs`, etc.) were unreliable (#300)
- Fixed a bug where `resolve_authconfig` wouldn't properly resolve configuration for private repositories (#468)
- Fixed a bug where some errors wouldn't be properly constructed in `client.py`, leading to unhelpful exceptions bubbling up (#466)
- Fixed a bug where `Client.build` would try to close context when externally provided (`custom_context == True`) (#458)
- Fixed an issue in `create_host_config` where empty sequences wouldn't be interpreted properly (#462)

## Miscellaneous

- Added `resolve_authconfig` tests.

## 0.7.1

### Bugfixes

- `setup.py` now indicates a maximum version of requests to work around the `boot2docker / assert_hostname` bug.
- Removed invalid exception when using the Registry Hub's FQDN when pulling.
- Fixed an issue where early HTTP errors weren't handled properly in streaming responses.
- Fixed a bug where sockets would close unexpectedly using Python 3.x
- Various fixes for integration tests.

## Miscellaneous

- Small doc fixes

## 0.7.0

### Breaking changes

- Passing `dns` or `volumes_from` in `Client.start` with API version `< 1.10` will now raise an exception (previously only triggered a warning)

### Features

- Added support for `host_config` in `Client.create_container`
- Added utility method `docker.utils.create_host_config` to help build a proper `HostConfig` dictionary.
- Added support for the `pull` parameter in `Client.build`
- Added support for the `forcerm` parameter in `Client.build`
- Added support for `extra_hosts` in `Client.start`
- Added support for a custom `timeout` in `Client.wait`
- Added support for custom `.dockercfg` loading in `Client.login` (`dockercfg_path` argument)

### Bugfixes

- Fixed a bug where some output wouldn't be streamed properly in streaming chunked responses
- Fixed a bug where the `devices` param didn't recognize the proper delimiter
- `Client.login` now properly expands the `registry` URL if provided.
- Fixed a bug where unicode characters in passed for `environment` in `create_container` would break.

## Miscellaneous

- Several unit tests and integration tests improvements.
- `Client` constructor now enforces passing the `version` parameter as a string.
- Build context files are now ordered by filename when creating the archive (for consistency with docker mainline behavior)

## 0.6.0

- **This version introduces breaking changes!**

## Breaking changes

- The default SSL protocol is now the highest TLS v1.x (was SSL v2.3 before) (Poodle fix)
- The `history` command now returns a dict instead of a raw JSON string.

## Features

- Added the `execute` command.
- Added `pause` and `unpause` commands.
- Added support fo the `cpuset` param in `create_container`
- Added support for host devices (`devices` param in `start`)
- Added support for the `tail` param in `logs`.
- Added support for the `filters` param in `images` and `containers`
- The `kwargs_from_env` method is now available in the `docker.utils` module. This should make it easier for boot2docker user to connect to their daemon.

## Bugfixes

- Fixed a bug where empty directories weren't correctly included when providing a context to `Client.build`.
- Fixed a bug where UNIX socket connections weren't properly cleaned up, causing `ResourceWarnings` to appear in some cases.
- Fixed a bug where docker-py would crash if the docker daemon was stopped while reading a streaming response
- Fixed a bug with streaming responses in Python 3
- `remove_image` now supports a dict containing an `Id` key as its `id` parameter (similar to other methods requiring a resource ID)

## Documentation

- Added new MkDocs documentation. Currently hosted on [ReadTheDocs](#)

## Miscellaneous

- Added tests to sdist
- Added a Makefile for running tests in Docker
- Updated Dockerfile

## 0.5.3

- Fixed attaching when connecting to the daemon over a UNIX socket.

## 0.5.2

- Fixed a bug where sockets were closed immediately when attaching over TLS.

## 0.5.1

- Added a `assert_hostname` option to `TLSConfig` which can be used to disable verification of hostnames.
- Fixed SSL not working due to an incorrect version comparison
- Fixed streams not working on Windows

## 0.5.0

- **This version introduces breaking changes!**
- Added `insecure_registry` parameter in `Client.push` and `Client.pull`. *It defaults to False and code pushing to non-HTTPS private registries might break as a result.*
- Added support for adding and dropping capabilities
- Added support for restart policy
- Added support for string values in `Client.create_container`'s `mem_limit`
- Added support for `.dockerignore` file in `Client.build`

## Bugfixes

- Fixed timeout behavior in `Client.stop`

## Miscellaneous

- `Client.create_container` provides better validation of the `volumes` parameter
- Improved integration tests

## 0.4.0

- **This version introduces breaking changes!**
- The `base_url` parameter in the `Client` constructor should now allow most of the `DOCKER_HOST` environment values (except for the `fd://` protocol)
  - As a result, URLs that don't specify a port are now invalid (similar to the official client's behavior)
- Added TLS support (see [documentation](#))

### Bugfixes

- Fixed an issue with `Client.build` streamed logs in Python 3

### Miscellaneous

- Added unit tests coverage
- Various integration tests fixes

## 0.3.2

- Default API version is now 1.12 (support for docker 1.0)
- Added new methods `Client.get_image` and `Client.load_image` (docker save and docker load)
- Added new method `Client.ping`
- Added new method `Client.resize`
- `Client.build` can now be provided with a custom context using the `custom_context` parameter.
- Added support for `memswap_limit` parameter in `create_container`
- Added support for `force` parameter in `remove_container`
- Added support for `force` and `noprune` parameters in `remove_image`
- Added support for `timestamps` parameter in `logs`
- Added support for `dns_search` parameter in `start`
- Added support for `network_mode` parameter in `start`
- Added support for `size` parameter in `containers`
- Added support for `volumes_from` and `dns` parameters in `start`. As of API version  $\geq 1.10$ , these parameters no longer belong to `create_container`
- `Client.logs` now uses the logs endpoint when API version is sufficient

### Bugfixes

- Fixed a bug in pull where the `repo:tag` notation wasn't interpreted properly
- Fixed a bug in streaming methods with python 3 (unicode, bytes/str related)
- Fixed a bug in `Client.start` where legacy notation for volumes wasn't supported anymore.

## Miscellaneous

- The client now raises `DockerExceptions` when appropriate. You can import `DockerException` (and its subclasses) from the `docker.errors` module to catch them if needed.
- `docker.APIError` has been moved to the new `docker.errors` module as well.
- `Client.insert` is deprecated in API version > 1.11
- Improved integration tests should now run much faster.
- There is now a single source of truth for the docker-py version number.

## 0.3.1

- Default API version is now 1.9
- Streaming responses no longer yield blank lines.
- `Client.create_container` now supports the `domainname` parameter.
- `volumes_from` parameter in `Client.create_container` now supports iterables.
- Auth credentials are provided to the docker daemon when using `Client.build` (new feature in API version 1.9)

## Bugfixes

- Various fixes for response streams (logs, pull, etc.).
- Fixed a bug with `Client.push` when using API version < 1.5
- Fixed a bug with API version checks.

## Miscellaneous

- `mock` has been removed from the runtime requirements.
- Added installation instructions in the README.

## 0.3.0

- **This version introduces breaking changes!**
- Support for API version 1.7 through 1.9 (Docker 0.8.0+)
- Default API version is now 1.8
- The client has been updated to support Requests 2.x. `requests==2.2.1` is now the recommended version.
- Links can now be specified as tuples in `Client.start` (see docs for more information)
- Added support for various options in `Client.create_container` (`network_disabled`, `cpu_shares`, `working_dir` and `entrypoint`)
- `Client.attach` has been reworked to work similarly to `Client.logs` minus the historical data.
- Logs can now be streamed using the `stream` parameter.
- Added support for `tcp://` URLs as `client_base_url`.

- Various auth improvements.
- Added support for custom `Client.build` timeout.

## Bugfixes

- Fixed a bug where determining the protocol of a private registry would sometimes yield the wrong result.
- Fixed a bug where `Client.copy` wouldn't accept a dict as argument.
- Fixed several streaming bugs.
- Removed unused parameter in `Client.import_image`.
- The client's `base_url` now tolerates trailing slashes.

## Miscellaneous

- Updated integration tests
- Small doc fixes

## 0.2.3

- Support for API version 1.6
- Added support for links
- Added support for global request timeout
- Added `signal` parameter in `Client.kill`
- Added support for `publish_all_ports` in `Client.start`
- `Client.pull`, `Client.push` and `Client.build` can be streamed now
- Added support for websockets in `Client.attach`
- Fixed ports for Docker 0.6.5+
- Added `Client.events` method (access to the `/events` endpoint)
- Changed the way the ports and volumes are provided in `Client.start` and `Client.create_container` to make them simpler and more intuitive.

## Bugfixes

- Fixed a bug where private registries on HTTPS weren't handled properly
- Fixed a bug where auth would break with Python 3

## Miscellaneous

- Test improvements
- Slight doc improvements



## 0.2.2

- Added support for the `rm` parameter in `Client.build`
- Added support for tarball imports in `Client.import_image` through `data` parameter.
- The `command` parameter in `Client.create_container` is now optional (for containers that include a default run command)

### Bugfixes

- Fixed Python 3 support
- Fixed a bug where anonymous push/pull would break when no authconfig is present
- Fixed a bug where the `quiet` parameter wouldn't be taken into account in `Client.containers`
- Fixed a bug where `Client.push` would break when pushing to private registries.
- Removed unused `registry` parameter in `Client.pull`.
- Removed obsolete custom error message in `Client.create_container`.

### Miscellaneous

- `docker-py` is now unit-tested, and Travis-CI has been enabled on the source repository.

## 0.2.1

- Improvements to the `tox.ini` file

### Bugfixes

- Fixed a bug where the package would fail with an `ImportError` if `requests` was installed using `apt-get`
- Fixed a bug where `Client.build` would fail if given a `path` parameter.
- Fixed several bugs in `Client.login`. It should now work with API versions 1.4, 1.5.
- Please note that `Client.login` currently doesn't write auth to the `.dockercfg` file, thus **auth is not persistent when using this method**.

## 0.2.0

- **This version introduces breaking changes!**
- `Client.kill`, `Client.remove_container`, `Client.remove_image`, `Client.restart`, `Client.start`, `Client.stop` and `Client.wait` don't support `varargs` anymore.
- Added commands `Client.top` and `Client.copy`
- Added `lxc_conf` parameter to `Client.start`
- Added support for authentication in `Client.pull` (API version `>=1.5`)
- Added support for privileged containers.
- Error management overhaul. The new version should be more consistent and

- All methods that expected a container ID as argument now also support a dict containing an `Id` key.
- Added license header to python files.
- Several `README.md` updates.

## Bugfixes

- Fixed several bugs with auth config parsing.
- Fixed a bug in `Client.push` where it would raise an exception if the auth config wasn't loaded.
- Fixed a bug in `Client.pull` where private registry images wouldn't be parsed properly if it contained port information.

## 0.1.5

- `Client.build` now uses tempfiles to store build context instead of storing it in memory
- Added `nocache` option to `Client.build`
- `Client.remove_container` now raises an exception when trying to remove a running container
- `Client.create_container` now accepts dicts for the `environment` parameter

## Bugfixes

- Fixed a bug in `Client.create_container` on Python 2.6 where unicode commands would fail to be parsed
- Fixed a bug in `Client.build` where the `tag` parameter would not be taken into account

## 0.1.4

- Added support for API connection through UNIX socket (default for docker 0.5.2+)

## 0.1.3

- The client now tries to load the auth config from `~/.dockercfg`. This is necessary to use the push command if API version is `>1.0`

## 0.1.2

- Added a `quiet` parameter to `Client.build` (mirrors the `q` parameter in the API)

## 0.1.1

- Fixed a bug where the build command would list tar contents before sending the request
- Fixed a bug in `Client.port`

## 0.1.0

- **This version introduces breaking changes!**
- Switched to server side build system
- Removed the BuilderClient
- Added support for contextual builds
- Added support for remote URL builds
- Added python 3 support
- Added bind mounts support
- Added API version support
- Fixed a bug where `Client.port` would fail if provided with a port of type number
- Fixed a bug where `Client._post_json` wouldn't set the Content-Type header to `application/json`

## 0.0.6

- Added support for custom loggers in `Client.build`
- Added `Client.attach` command
- Added support for ADD command in builder
- Fixed a bug in `Client.logs`
- Improved unit tests

## 0.0.5

- Added tag support for the builder
- Use `shlex` to parse plain string commands when creating a container
- Fixed several bugs in the builder
- Fixed the `quiet` option in `Client.images`
- Unit tests

## 0.0.4

- Improved error reporting

## 0.0.3

- Fixed a bug in `Client.tag`
- Fixed a bug where generated images would be removed after a successful build

## 0.0.2

- Implemented first version of the builder client



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