
rodario Documentation

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A simple, redis-backed Python actor framework

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CHAPTER 1

Connection

By default, rodario will use a `StrictRedis` connection to localhost on the default port. If you wish to override this behavior, then replace the `rodario.get_redis_connection` method after import:

```
from redis import StrictRedis
import rodario
rodario.get_redis_connection = lambda: StrictRedis(host='1.2.3.4')
```



```
class rodario.registry.Registry
    Actor registry class (singleton wrapper)

    static __new__ (prefix=None)
        Retrieve the singleton instance for Registry.

        Parameters prefix (str) – Optional prefix for redis key names
        Return type rodario.registry._RegistrySingleton

class rodario.registry._RegistrySingleton (prefix=None)
    Singleton for actor registry

    __init__ (prefix=None)
        Initialize the registry.

        Parameters prefix (str) – Optional prefix for redis key names

    actors
        Retrieve a list of registered actors.

        Return type set

    exists (uuid)
        Test whether an actor exists in the registry.

        Parameters uuid (str) – UUID of the actor to check for
        Return type bool

    get_proxy (uuid)
        Return an ActorProxy for the given UUID.

        Parameters uuid (str) – The UUID to return a proxy object for
        Return type rodario.actors.ActorProxy

    register (uuid)
        Register a new actor.
```

Parameters `uuid` (*str*) – The UUID of the actor to register

unregister (*uuid*)

Unregister an existing actor.

Parameters `uuid` (*str*) – The UUID of the actor to unregister

CHAPTER 3

Actors and Proxies

```
class rodario.actors.Actor (uuid=None)
    Base Actor class

    __init__ (uuid=None)
        Initialize the Actor object.

        Parameters uuid (str) – Optionally-provided UUID

    is_alive
        Return True if this Actor is still alive.

        Return type bool

    join (channel, func=None)
        Join this Actor to a pubsub cluster channel.

        Parameters
        • channel (str) – The channel to join
        • func (callable) – The message handler function

    part (channel)
        Remove this Actor from a pubsub cluster channel.

        Parameters channel (str) – The channel to part

    proxy ()
        Wrap this Actor in an ActorProxy object.

        Return type rodario.actors.ActorProxy

    start ()
        Fire up the message handler thread.

    stop ()
        Kill the message handler thread.

class rodario.actors.ActorProxy (actor=None, uuid=None)
    Proxy object that fires calls to an actor over redis pubsub
```

__init__ (*actor=None, uuid=None*)

Initialize instance of ActorProxy.

Accepts either an Actor object to clone or a UUID, but not both.

Parameters

- **actor** (*rodario.actors.Actor*) – Actor to clone
- **uuid** (*str*) – UUID of Actor to clone

_proxy (*method_name, *args, **kwargs*)

Proxy a method call to redis pubsub.

This method is not meant to be called directly. Instead, it is used by the proxy's self-generated methods to provide the proxy with the same public API as the actor it represents.

Parameters

- **method_name** (*str*) – The method to proxy
- **args** (*tuple*) – The arguments to pass
- **kwargs** (*dict*) – The keyword arguments to pass

Return type *multiprocessing.Queue*

proxyid = None

This proxy object's UUID for creating unique channels

class *rodario.actors.ClusterProxy* (*channel*)

Proxy object responsible for multiple actors

This class is meant to be inherited by child objects which can provide their own API methods for coordinating the Actors in their channel.

__init__ (*channel*)

Initialize instance of ClusterProxy.

Parameters **channel** (*str*) – The cluster channel to use

_proxy (*method_name, *args, **kwargs*)

Proxy a method call to redis pubsub.

Use this method in your child objects which inherit from ClusterProxy to provide the proxy with some representation of the public API for the Actors it represents.

Paramstr method_name The method to proxy

Parameters

- **args** (*tuple*) – The arguments to pass
- **kwargs** (*dict*) – The keyword arguments to pass

Return type *rodario.future.Future*

Returns A Future whose first value is the number of expected responses

channel = None

Cluster channel

proxyid = None

This proxy object's UUID for creating unique channels

class *rodario.future.Future* (*queue*)

Custom response type for proxied method calls

__init__ (*queue*)

Initialize the Future by saving a reference to the Queue

Parameters **queue** (*multiprocessing.Queue*) – The response queue to wrap

get (**args, **kwargs*)

Resolve and return the proxied method call's value.

Return type *mixed*

ready

Return True if the response value is available.

Return type *bool*

class `rodario.decorators.DecoratedMethod` (*func*, *decorations=None*, *before=None*, *after=None*)

Generic decorated method

__init__ (*func*, *decorations=None*, *before=None*, *after=None*)

Wrap the given function.

Parameters

- **func** (*function*) – The function to wrap
- **decorations** (*set*) – The decorator tags to attach
- **before** (*list*) – The list of before-hook functions
- **after** (*list*) – The list of after-hook functions

after = []

List of after-hook functions

before = []

List of before-hook functions

static decorate (*func*, *decorations=None*, *before=None*, *after=None*)

Decorate the given function. If it is already a *DecoratedMethod*, it will be appended to rather than overwritten.

Parameters

- **decorations** (*set*) – The decorator tags to attach
- **before** (*list*) – The list of before-hook functions
- **after** (*list*) – The list of after-hook functions

Return type `rodario.decorators.DecoratedMethod`

Returns A *DecoratedMethod* wrapper around *func*

decorations = `set([])`

Set of decorator tags

`rodario.decorators.singular` (*func*)

First-come, first-served cluster channel call. Needs some work; should accept parameters for context and expiry.

Parameters `func` (*function*) – The function to wrap

Return type `rodario.decorators.DecoratedMethod`

CHAPTER 5

Exceptions

class `rodario.exceptions.InvalidActorException`
Raised when a referenced actor does not exist

class `rodario.exceptions.InvalidProxyException`
Raised when a proxy is not given a valid object to wrap

class `rodario.exceptions.UUIDInUseException`
Raised during UUID registration if the UUID is already taken

class `rodario.exceptions.RegistrationException`
Raised when actor registration fails

class `rodario.exceptions.EmptyClusterException`
Raised when a message is passed to an empty cluster channel

Utility module for rodario framework

`rodario.util.acquire_lock` (*name*, *expiry=None*, *context=None*, *conn=None*)

Acquire a lock in redis.

Parameters

- **name** (*str*) – Name of the lock to acquire
- **expiry** (*int*) – The duration of the lock (in seconds)
- **context** (*str*) – The context to apply to the lock name
- **conn** (*redis.Connection*) – The redis connection to use

Return type `bool`

Returns Whether or not the lock was acquired

CHAPTER 7

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