
Watson - Events

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Trigger and handle event flow with your application.

Build Status

Installation

```
pip install watson-events
```

Testing

Watson can be tested with `pytest`. Simply activate your `virtualenv` and run `python setup.py test`.

Contributing

If you would like to contribute to Watson, please feel free to issue a pull request via Github with the associated tests for your code. Your name will be added to the AUTHORS file under contributors.

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5.1 Usage

Using the event dispatcher is a three step process.

1. Create the event dispatcher
2. Add your event listener to the dispatcher
3. Trigger the dispatcher

```
from watson.events import dispatcher, types

dispatcher = dispatcher.EventDispatcher() # create the dispatcher
dispatcher.add('MyEvent', lambda x: x.name) # add your event listener
result = dispatcher.trigger(types.Event('SampleEvent')) # trigger the event

print(result.first()) # 'SampleEvent'
```

5.2 Reference Library

5.2.1 watson.events.collections

class `watson.events.collections.Listener`

A list of listeners to be used in an EventDispatcher.

A Listener Collection is a list of callbacks that are to be triggered by an event dispatcher. Each item in the list contains the callback, a priority, and whether or not the callback should only be triggered once.

add (*callback*, *priority=1*, *only_once=False*)

Adds a new callback to the collection.

Parameters

- **callback** (*callable*) – the function to be triggered
- **priority** (*int*) – how important the callback is in relation to others
- **only_once** (*bool*) – the callback should only be fired once and then removed

Raises `TypeError` if non-callable is added. –

remove (*callback*)

Removes all callbacks matching *callback* from the collection.

Parameters **callback** (*callable*) – the callback to be removed.

sort_priority ()

Sort the collection based on the priority of the callbacks.

`watson.events.collections.ListenerDefinition`

alias of `Listener`

class `watson.events.collections.Result`

A list of responses from a `EventDispatcher.trigger` call.

A result collection contains all the resulting output from an event that has been triggered from an event dispatcher. It provides some convenience methods to deal with the results.

first (*default=None*)

Return the first result from the list.

Parameters **default** (*mixed*) – The value to return if the index doesn't exist

Returns The first result

Return type *mixed*

last (*default=None*)

Return the last result from the list.

Parameters **default** (*mixed*) – The value to return if the index doesn't exist

Returns The first result

Return type *mixed*

5.2.2 watson.events.dispatcher

class `watson.events.dispatcher.EventDispatcher`

Register and trigger events that will be executed by callables.

The `EventDispatcher` allows user defined events to be specified. Any listener that is triggered will have the event that was triggered passed to it as the first argument. Attributes can be added to the event params (see `watson.events.types.Event`) which can then be accessed by the listener.

Example:

```
dispatcher = EventDispatcher()
dispatcher.add('MyEvent', lambda x: x.name)
result = dispatcher.trigger(Event('SampleEvent'))
result.first() # 'SampleEvent'
```

add (*event, callback, priority=1, only_once=False*)

Add an event listener to the dispatcher.

Adds an event listener to the relevant event listener collection. If a listener is set to `once_only`, it will be removed when the event is triggered on the `EventDispatcher`.

Parameters

- **event** (*string*) – The name of the event
- **callback** (*callable*) – A callable function to be triggered
- **priority** (*int*) – The priority of the listener (higher == more important)
- **once_only** (*boolean*) – When triggered, the listener will be removed

Returns A list of listeners attached to the event

Return type ListCollection

clear ()

Clears all registered events from the event dispatcher.

events

Returns the events registered on the event dispatcher.

has (event, callback=None)

Return whether or not a callback is found for a particular event.

remove (event, callback=None)

Remove an event listener from the dispatcher.

Removes an event listener from the relevant Listener. If no callback is specified, all event listeners for that event are removed.

Parameters

- **event** (*string*) – The name of the event
- **callback** (*callable*) – A callable function to be triggered

Returns A list of listeners attached to the event

Return type Listener

trigger (event)

Fire an event and return a list of results from all listeners.

Dispatches an event to all associated listeners and returns a list of results. If the event is stopped (Event.stopped) then the Result returned will only contain the response from the first listener in the stack.

Parameters **event** (*watson.events.types.Event*) – The event to trigger

Returns A list of all the responses

Return type Result

class `watson.events.dispatcher.EventDispatcherAware`

Provides an interface for event dispatchers to be injected.

dispatcher

Retrieve the event dispatcher. If no event dispatcher exists, create a default one.

Returns An EventDispatcher object

5.2.3 watson.events.types

class `watson.events.types.Event` (*name, target=None, params=None*)

A base event that can be subclassed for use with an EventDispatcher.

Example:

```
def my_listener(event):
    print(event.params['config'])

dispatcher.add('MyEvent', my_listener)

event = Event('MyEvent')
event.params['config'] = {'some': 'config'}
dispatcher.trigger(event)
```

`__init__(name, target=None, params=None)`

Initializes the event.

Initialize the Event based on an event name. The name will be used when the event is triggered from the event dispatcher.

Parameters

- **name** (*string*) – the name of the event
- **target** (*mixed*) – the originating target of the event
- **params** (*dict*) – the params associated with the event

name

The name of the event

params

A dictionary of parameters that can be included within an Event.

stop_propagation()

Prevents the event from triggering any more event listeners.

This should be used within an event listener when you wish to halt any further listeners from being triggered.

stopped

Return whether or not the event has been stopped.

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