phial Documentation

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phial is a Slack bot framework, modelled loosely on Flask

CHAPTER

ONE

PHIAL PACKAGE

1.1 Submodules

1.2 phial.bot module

The core of phial.

class phial.bot.**Phial**(*token*, *config={'autoReconnect': True, 'baseHelpText': 'All available commands:', 'hotReload': False, 'loopDelay': 0.001, 'maxThreads': 4, 'prefix': '!', 'registerHelpCommand': True}*)

Bases: object

The Phial class acts as the main interface to Slack.

It handles registraion and execution of user defined commands, as well as providing a wrapper around slackclient.SlackClient to make sending messages to Slack simpler.

add_command(*pattern*, *func*, *case_sensitive=False*, *help_text_override=None*, *hide_from_help_command=False*)

Registers a command with the bot.

This method can be used as a decorator via *command()*

Parameters

- **pattern** (str) – The pattern that a Message's text must match for the command to be invoked.
- **func** (Callable[..., Union[None, str, *Response*, *Attachment*]]) – The fucntion to be executed when the command is invoked
- **case_sensitive** (bool) – Whether the pattern should respect case sensitivity.

  Defaults to False
- **help_text_override** (Optional[str]) – Text that should be used as a description of the command using the inbuilt help function.

  If not overriden the command's docstring will be used as the help text.

  Defaults to None
- **hide_from_help_command** (Optional[bool]) – A flag to specify whether or not the inbuilt help command should hide this command from the list it generates.

  Defaults to False

Raises **ValueError** – If command with the same pattern is already registered

Example

```
def hello():
    return "world"
bot.add_command('hello', world)
```

Is the same as

```
@bot.command('hello')
def hello():
    return "world"
```

Return type None

add_fallback_command(*func*)

Add a fallback command.

Registers a 'fallback' function to run when a user tries to execute a command that doesn't exist.

This method can be used as a decorator via *fallback_command()*

Parameters **func** (Callable[[*Message*], Union[None, str, *Response*, *Attachment*]]) – The function to be executed when the user tries to execute a command that doesn't exist

Example

```
def error_handler(message: Message) -> str:
    return "Oops that command doesn't seem to exist"

bot.add_fallback_command(error_handler)
```

Is the same as

```
@bot.fallback_command()
def error_handler(message: Message) -> str:
    return "Oops that command doesn't seem to exist"
```

Return type None

add_middleware(*func*)

Adds a middleware function to the bot.

Middleware functions get passed every message the bot recieves from slack before the bot process the message itself. Returning None from a middleware function will prevent the bot from processing it.

This method can be used as a decorator via *middleware()*.

Parameters **middleware_func** – The function to be added to the middleware pipeline

Example

```
def intercept(messaage):
    return message
bot.add_middleware(intercept)
```

Is the same as

```
@bot.middleware()
def intercept(messaage):
    return message
```

Return type None

add_scheduled(*schedule*, *func*)
Adds a scheduled function to the bot.

This method can be used as a decorator via *scheduled()*.

Parameters

- **schedule** (*Schedule*) – The schedule used to run the function
- **scheduled_func** – The function to be run in accordance to the schedule

Example

```
def scheduled_beep():
    bot.send_message(Response(text="Beep",
                              channel="channel-id"))
bot.add_scheduled(Schedule().every().day(), scheduled_beep)
```

Is the same as

```
@bot.scheduled(Schedule().every().day())
def scheduled_beep():
    bot.send_message(Response(text="Beep",
                              channel="channel-id"))
```

Return type None

alias(*pattern*)
A decorator that is used to register an alias for a command.

Parameters **pattern** (str) – The pattern that a Message's text must match for the command to be invoked.

Example

```
@bot.command('hello')
@bot.alias('goodbye')
def hello():
    return "world"
```

Return type Callable

command(*pattern*, *case_sensitive=False*, *help_text_override=None*, *hide_from_help_command=False*)
Registers a command with the bot.

This command is a decorator version of *add_command()*

Parameters

- **pattern** (str) – The pattern that a Message's text must match for the command to be invoked.
- **case_sensitive** (bool) – Whether the pattern should respect case sensitivity.

  Defaults to False
- **help_text_override** (Optional[str]) – Text that should be used as a description of the command using the inbuilt help function.

  If not overriden the command's docstring will be used as the help text.

  Defaults to None
- **hide_from_help_command** (Optional[bool]) – A flag to specify whether or not the inbuilt help command should hide this command from the list it generates.

  Defaults to False

Example

```
@bot.command('hello')
def hello():
    return "world"

@bot.command('caseSensitive', case_sensitive=True)
def case_sensitive():
    return "You typed caseSensitive"
```

Return type Callable

default_config = {'autoReconnect': True, 'baseHelpText': 'All available commands:',
Default configuration

fallback_command()
A decorator to add a fallback command.

See *add_fallback_command()* for more information on fallback commands

Example

```
@bot.fallback_command()
def error_handler(message: Message) -> str:
    return "Oops that command doesn't seem to exist"
```

Return type Callable

middleware()
A decorator to add a middleware function to the bot.

See *add_middleware()* for more information about middleware

Example

```
@bot.middleware()
def intercept(messaage):
    return message
```

Return type Callable

run()
Run the bot.

Return type None

scheduled(*schedule*)
A decorator that is used to register a scheduled function.

See *add_scheduled()* for more information on scheduled jobs.

Parameters **schedule** (*Schedule*) – The schedule used to determine when the function should be run

Example

```
@bot.scheduled(Schedule().every().day())
def scheduled_beep():
    bot.send_message(Response(text="Beep",
                              channel="channel-id">))
```

Return type Callable

send_message(*message*)
Sends a message to Slack.

Parameters **message** (*Response*) – The message to be sent to Slack

Return type None

send_reaction(*response*)
Sends a reaction to a Slack Message.

Parameters **response** (*Response*) – Response containing the reaction to be sent to Slack

Return type None

upload_attachment(*attachment*)
Upload a file to Slack.

Parameters **attachment** (*Attachment*) – The attachment to be uploaded to Slack

Return type None

1.3 phial.scheduler module

The classes related to scheduling of regular jobs in phial.

class phial.scheduler.**Schedule**
Bases: object

A schedule stores the relative time for something to happen.

It can be used to compute when the next instance of an event should occur.

at(*hour*, *minute*, *second=0*)
Specifies the time of day the next occurnce will happen.

NOTE: 'at' can only be used with *day()*.

```
schedule = Schedule().every().day().at(12,00)
```

Parameters

- **hour** (int) – The hour of day the next event should happen, when combined with the minute
- **minute** (int) – The minute of day the next event should happen, when combined with the hour
- **second** (int) – The second of day the next event should happen, when combined with the hour and minute. Defaults to 0

Return type *Schedule*

day()
Adds a day to the relative time till the next event.

```
schedule = Schedule().every().day()
```

Return type *Schedule*

days(*value*)
Set the days till the next instance of the event.

Adds the specified number of days to the relative time till the next event.

```
schedule = Schedule().every().days(2)
```

Parameters **value** (int) – The number of days to wait between events

Return type *Schedule*

every()
Syntantic sugar to make schedule declaration more readable.

Syntatic sugar to allow the declaration of schedules to be more like an English sentence.

```
schedule = Schedule().every().day()
```

Return type *Schedule*

get_next_run_time(*last_run*)
Get the next time the job should run.

Calculates the next time to run, based on the last time the event was run.

Parameters **last_run** (datetime) – The last time the event happened

Return type datetime

Returns A datetime of when the event should next happen

hour()
Adds an hour to the relative time till the next event.

```
schedule = Schedule().every().hour()
```

Return type *Schedule*

hours(*value*)
Sets the hours till the next instance of the event.

Adds the specified number of hours to the relative time till the next event.

```
schedule = Schedule().every().hours(2)
```

Parameters **value** (int) – The number of hours to wait between events

Return type *Schedule*

minute()
Adds a minute to the relative time till the next event.

```
schedule = Schedule().every().minute()
```

Return type *Schedule*

minutes(*value*)
Sets the minutes till the next instance of the event.

Adds the specified number of minutes to the relative time till the next event.

```
schedule = Schedule().every().minutes(2)
```

Parameters **value** (int) – The number of minutes to wait between events

Return type *Schedule*

second()
Adds a second to the relative time till the next event.

```
schedule = Schedule().every().second()
```

Return type *Schedule*

seconds(*value*)
Sets the seconds till the next instance of the event.

Adds the specified number of seconds to the relative time till the next event.

```
schedule = Schedule().every().seconds(2)
```

Parameters **value** (int) – The number of seconds to wait between events

Return type *Schedule*

class phial.scheduler.**ScheduledJob**(*schedule*, *func*)
Bases: object

A function with a schedule.

run()
Runs the function and calculates + stores the next run time.

Return type None

should_run()
Checks whether the function needs to be run based on the schedule.

Return type bool

Returns A bool of whether or not to run

class phial.scheduler.**Scheduler**
Bases: object

A store for Scheduled Jobs.

add_job(*job*)
Adds a scheuled job to the scheduler.

Parameters **job** (*ScheduledJob*) – The job to be added to the scheduler

Return type None

run_pending()
Runs any pending scheduled jobs.

Runs any ScheduledJobs in the store, where job.should_run() returns true

Return type None

1.4 phial.wrappers module

Contains models for phial to use.

class phial.wrappers.**Attachment**(*channel*, *filename*, *content*)
Bases: object

A file to be uploaded to Slack.

Parameters

- **channel** (str) – The Slack channel ID the file will be sent to
- **filename** (str) – The filename of the file
- **content** (IO'>[AnyStr]) – The file to send to Slack. Open file using open('<file>', 'rb')

Example

```
Attachment('channel', 'file_name', open('file', 'rb'))
```

class phial.wrappers.**Command**(*pattern*, *func*, *case_sensitive=False*, *help_text_override=None*, *hide_from_help_command=False*)
Bases: object

An action executable from Slack.

Parameters

- **pattern** (str) – A string that a Slack Message must match to trigger execution
- **func** (Callable[..., Union[None, str, *Response*, *Attachment*]]) – The function that will be triggered when the command is invoked
- **case_sensitive** (bool) – Whether the pattern should enforce case sensitivity
- **help_text_override** (Optional[str]) – Overrides the function's docstring in the standard help command
- **hide_from_help_command** (Optional[bool]) – Prevents function from being displayed by the standard help command

property help_text

A description of the command's function.

Return type Optional[str]

pattern_matches(*message*)

Check if message should invoke the command.

Checks whether the text of a *Message* matches the command's pattern, or any of it's aliased patterns.

Return type Optional[Dict[str, str]]

class phial.wrappers.**Message**(*text*, *channel*, *user*, *timestamp*, *team*, *bot_id=None*)

Bases: object

A representation of a Slack message.

Parameters

- **text** (str) – The message contents
- **channel** (str) – The Slack channel ID the message was sent from
- **user** (str) – The user who sent the message
- **timestamp** (str) – The message's timestamp
- **team** (Optional[str]) – The Team ID of the Slack workspace the message was sent from
- **bot_id** (Optional[str]) – If the message was sent by a bot the ID of that bot. Defaults to None.

phial.wrappers.**PhialResponse = typing.Union[NoneType, str, ForwardRef('Response'), ForwardR**

A union of all response types phial can use

class phial.wrappers.**Response**(*channel*, *text=None*, *original_ts=None*, *reaction=None*, *ephemeral=False*, *user=None*, *attachments=None*)

Bases: object

A response to be sent to Slack.

When returned in a command function will send a message, or reaction to Slack depending on contents.

Parameters

- **channel** (str) – The Slack channel ID the response will be sent to
- **text** (Optional[str]) – The response contents

- **original_ts** (Optional[str]) – The timestamp of the original message. If populated will put the text response in a thread
- **reation** – A valid slack emoji name. NOTE: will only work when original_ts is populated
- **attachments** (Optional[List[Dict[str, Union[str, int, float, bool, List[~T]]]]]) – Any Slack Message Attachments
- **ephemeral** (bool) – Whether to send the message as an ephemeral message
- **user** (Optional[str]) – The user id to display the ephemeral message to

Examples

The following would send a message to a slack channel when executed

```
@slackbot.command('ping')
def ping():
    return Response(text="Pong", channel='channel_id')
```

The following would send a reply to a message in a thread

```
@slackbot.command('hello')
def hello():
    return Response(text="hi",
                    channel='channel_id',
                    original_ts='original_ts')
```

The following would send a reaction to a message

```
@slackbot.command('react')
def react():
    return Response(reaction="x",
                    channel='channel_id',
                    original_ts='original_ts')
```

CHAPTER

TWO

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