Err Documentation

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CONTENTS

Errbot is a chatbot, a daemon that connects to your favorite chat service and brings your tools into the conversation.

The goal of the project is to make it easy for you to write your own plugins so you can make it do whatever you want: a deployment, retrieving some information online, trigger a tool via an API, troll a co-worker,...

Errbot is being used in a lot of different contexts: chatops (tools for devops), chatroom engagement, home security, socials platform (such as Slack, Discord, IRC), etc.

CHAPTER

ONE

SCREENSHOTS

CHAPTER

TWO

SIMPLE TO BUILD UPON

Extending Errbot and adding your own commands can be done by creating a plugin, which is simply a class derived from *BotPlugin*. The docstrings will be automatically reused by the *!help* command:

```
from errbot import BotPlugin, botcmd

class HelloWorld(BotPlugin):
    """Example 'Hello, world!' plugin for Errbot."""

    @botcmd
    def hello(self, msg, args):
        """Say hello to the world."""
        return "Hello, world!"
```

Once you said "!hello" in your chatroom, the bot will answer "Hello, world!".

CHAPTER

THREE

BATTERIES INCLUDED

We aim to give you all the tools you need to build a customized bot safely, without having to worry about basic functionality. As such, Errbot comes with a wealth of features out of the box.

3.1 Multiple server backends

Errbot has support for a number of different networks and is architectured in a way that makes it easy to write new backends in order to support more. Currently, the following networks are supported:

- XMPP *(Any standards-compliant XMPP/Jabber server should work - Google Talk/Hangouts included)*
- IRC
- Slack
- Telegram
- Bot Framework (maintained separately)
- Cisco Webex Teams (maintained separately)
- Discord (maintained separately)
- Gitter (maintained separately)
- Mattermost (maintained separately)
- Skype (maintained separately)
- Tox (maintained separately)
- VK (maintained separately)
- Zulip (maintained separately)

3.2 Core features

- Multi User Chatroom (MUC) support
- A dynamic plugin architecture: Bot admins can install/uninstall/update/enable/disable plugins dynamically just by chatting with the bot
- Advanced security/access control features (see below)
- A *!help* command that dynamically generates documentation for commands using the docstrings in the plugin source code

- A per-user command history system where users can recall previous commands
- The ability to proxy and route one-to-one messages to MUC so it can enable simpler XMPP notifiers to be MUC compatible (for example the Jira XMPP notifier)

3.3 Built-in administration and security

- Can be setup so a restricted list of people have administrative rights
- Fine-grained *access controls* may be defined which allow all or just specific commands to be limited to specific users and/or rooms
- Plugins may be hosted publicly or privately and dynamically installed (by admins) via their Git url
- Plugins can be configured directly from chat (no need to change setup files for every plugin)
- Configs can be exported and imported again with two commands (!export and !import respectively)
- Technical logs can be logged to file, inspected from the chat or optionally *logged to Sentry*

3.4 Extensive plugin framework

- Hooks and callbacks for various types of events, such as `callback_connect()` for when the bot has connected or `callback_message()` for when a message is received.
- Local text consoles for easy testing and development
- Plugins get out of the box support for subcommands
- We provide an automatic persistence store per plugin
- There's really simple webhooks integration
- As well as a polling framework for plugins
- An easy configuration framework
- A test backend for unittests for plugins which can make assertions about issued commands and their responses
- And a templating framework to display fancy HTML messages. Automatic conversion from HTML to plaintext when the backend doesn't support HTML means you don't have to make separate text and HTML versions of your command output yourself

CHAPTER

FOUR

SHARING

One of the main goals of Errbot is to make it easy to share your plugin with others as well.

Errbot features a built-in *repositories command* (*!repos*) which can be used to install, uninstall and update plugins made available by the community. Making your plugin available through this command only requires you to publish it as a publicly available Git repository.

You may also discover plugins from the community on our plugin list that we update from plugins found on github.

CHAPTER

FIVE

COMMUNITY

You can interact directly with the community online from the “Open Chat” button at the bottom of this page. Don’t be shy and feel free to ask any question there, we are more than happy to help you.

If you think you hit a bug or the documentation is not clear enough, you can open an issue or even better, open a pull request.

CHAPTER

SIX

USER GUIDE

6.1 Setup

6.1.1 Prerequisites

Errbot runs under Python 3.6+ on Linux, Windows and Mac.

6.1.2 Installation

Option 1: Use the package manager of your distribution (if available)

On some distributions, Errbot is also available as a package via your usual package manager. In these cases, it is generally recommended to use your distribution's package instead of installing from PyPi but note that the version packaged with your distribution may be a few versions behind.

Example of packaged versions of Errbot:

- Arch: https://aur.archlinux.org/packages/python-err/
- Docker: https://hub.docker.com/r/errbotio/errbot
- Gentoo: https://packages.gentoo.org/packages/net-im/err

Option 2: Installing Errbot in a virtualenv (preferred)

Installing into a virtualenv is **strongly** recommended. If you have virtualenv installed, you can do for example:

```
virtualenv --python `which python3` ~/.errbot-ve
~/.errbot-ve/bin/pip install errbot
```

If you have virtualenvwrapper installed it is even simpler:

```
mkvirtualenv -p `which python3` errbot-ve
pip install errbot
```

Option 3: Installing Errbot at the system level (not recommended)

Errbot may be installed directly from PyPi using pip by issuing:

```
pip3 install errbot
```

Note: Some of errbot's dependencies need to build C extensions which means you need to have development headers for some libraries installed. On Debian/Ubuntu these may be installed with *apt-get install python3-dev libssl-dev libffi-dev* Package names may differ on other OS's.

First run

You can quickly configure Errbot by first creating a working directory and calling *errbot –init*:

```
mkdir ~/errbot-root
cd ~/errbot-root
errbot --init
```

This will create a minimally working errbot in text (development) mode. You can try it right away:

```
errbot
[...]
>>>
```

`>>>` is a prompt, you can talk to errbot directly. You can try:

```
!tryme
!help
!about
```

6.1.3 Configuration

Once you have installed errbot and did `errbot --init`, you will have to tweak the generated *config.py* to connect to your desired chat network.

You can use `config-template.py` as a base for your *config.py*.

We'll go through the options that you absolutely must check now so that you can quickly get started and make further tweaks to the configuration later on.

Open *config.py* in your favorite editor. The first setting to check or change if *BOT_DATA_DIR* if correct. This is the directory where the bot will store configuration data.

The first setting to check or change *BOT_LOG_FILE* to be sure it point to a writeable directory on your system.

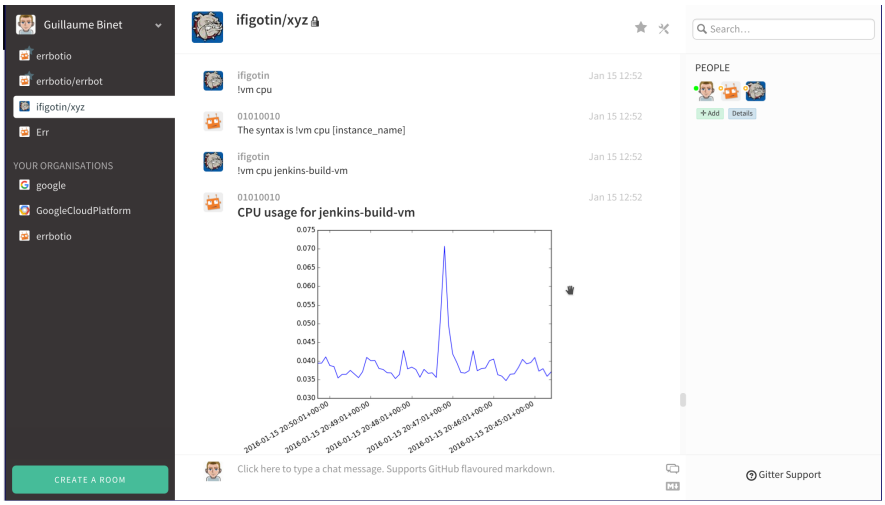
The final configuration we absolutely must do is setting up a correct *BACKEND* which is set to *Text* by `errbot --init` but you can change to the name of the chat system you want to connect to (see the template above for valid values).

You absolutely need a *BOT_IDENTITY* entry to set the credentials Errbot will use to connect to the chat system.

You can find here more details about configuring Errbot for some specific chat systems:

Gitter Backend

This is a backend for Gitter for errbot. The source code is hosted on github.



Requirements

- A github account to be used by the bot.
- The client id and client secret, received when authorising the bot as gitter application or a personal access token.

Installation

Checkout the backend using git:

```
git checkout https://github.com/errbotio/err-backend-gitter
```

Edit errbot's configuration file (*config.py*) and set the backend and backend directory variables:

```
BACKEND = 'Gitter'
BOT_EXTRA_BACKEND_DIR = '/path_to/backend'
```

Authentication

From there you have can either add an application or use a personal token from a user reserved to the bot.

Adding an application, workflow for auth

1. pip install bottle requests
2. execute the script: *./oauth.py* ` and it will guide you

Adding as a real user

1. authenticate as the bot user (new incognito window helps ;))
2. go visit https://developer.gitter.im/apps
3. use directly the token like this in you config.py

```
BOT_IDENTITY = {
    'token' : '54537fa855b9a7bbbbbbbbbbc568ea7c069d8c34d'
}
```

Contributing

1. Fork it!
2. Create your feature branch: *git checkout -b my-new-feature* `
3. Commit your changes: `git commit -am 'Add some feature'`
4. Push to the branch: `git push origin my-new-feature`
5. Submit a pull request :D

IRC backend configuration

This backend lets you connect to any IRC server. To select this backend, set *BACKEND = 'IRC'*.

Extra Dependencies

You need to install this dependency before using Errbot with IRC:

```
pip install irc
```

Account setup

Configure the account by setting up *BOT_IDENTITY* as follows:

```
BOT_IDENTITY = {
    'nickname' : 'err-chatbot',
    # 'username' : 'err-chatbot',    # optional, defaults to nickname if omitted
    # 'password' : None,             # optional
    'server' : 'irc.freenode.net',
    # 'port': 6667,                  # optional
    # 'ssl': False,                  # optional
```

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```
    # 'ipv6': False,                # optional
    # 'nickserv_password': None,    # optional

    ## Optional: Specify an IP address or hostname (vhost), and a
    ## port, to use when making the connection. Leave port at 0
    ## if you have no source port preference.
    ##    example: 'bind_address': ('my-errbot.io', 0)
    # 'bind_address': ('localhost', 0),
}
```

You will at a minimum need to set the correct values for *nickname* and *server* above. The rest of the options can be left commented, but you may wish to set some of them.

Bot admins

You can set *BOT_ADMINS* to configure which IRC users are bot administrators. For example: *BOT_ADMINS = ('gbin!gbin@*', '*!*@trusted.host.com')*

Note: The default syntax for users on IRC is *{nick}!{user}@{host}* but this can be changed by adjusting the *IRC_ACL_PATTERN* setting.

Channels

If you want the bot to join a certain channel when it starts up then set *CHATROOM_PRESENCE* with a list of channels to join. For example: *CHATROOM_PRESENCE = ('#errbotio',)*

Note: You may leave the value for *CHATROOM_FN* at its default as it is ignored by this backend.

Flood protection

Many IRC servers have flood protection enabled, which means the bot will get kicked out of a channel when sending too many messages in too short a time.

Errbot has a built-in message ratelimiter to avoid this situation. You can enable it by setting *IRC_CHANNEL_RATE* and *IRC_PRIVATE_RATE* to ratelimit channel and private messages, respectively.

The value for these options is a (floating-point) number of seconds to wait between each message it sends.

Rejoin on kick/disconnect

Errbot won't rejoin a channel by default when getting kicked out of one. If you want the bot to rejoin channels on kick, you can set *IRC_RECONNECT_ON_KICK = 5* (to join again after waiting 5 seconds).

Similarly, to rejoin channels after being disconnected from the server you may set *IRC_RECONNECT_ON_DISCONNECT = 5*.

Mattermost Backend

Requirements

- Mattermost with APIv4
- Python >= 3.4
- websockets 3.2
- mattermostdriver greater than version 4.0

Installation

- `git clone https://github.com/errbotio/err-backend-mattermost`
- Create an account for the bot on the server.
- Install the requirements.
- Open errbot's config.py:
- If the bot has problems doing some actions, you should make it system admin, some actions won't work otherwise.

Cards/Attachments

Cards are called attachments in Mattermost. If you want to send attachments, you need to create an incoming Webhook in Mattermost and add the webhook id to your errbot *config.py* in *BOT_IDENTITY*. This is not an ideal solution, but AFAIK Mattermost does not support sending attachments over the api like slack does.

APIv3

Use the APIv3 branch for that. It is no longer supported and not guaranteed to work!

Attention: The *BOT_IDENTITY* config options are different for V3 and V4!

Known issues

- Channelmentions in messages aren't accounted for (this is a possible issue but is unconfirmed)

FAQ

The Bot does not answer my direct messages

If you have multiple teams, check that you are both members of the same team!

Acknowledgements

Thanks to http://errbot.io and all the contributors to the bot. Most of this code was build with help from the already existing backends, especially: `https://github.com/errbotio/errbot/blob/master/errbot/backends/slack.py`

Slack v3 Backend

This backend lets you connect to the Slack messaging service using the Real-time Messaging Protocol, Events Request-URL or Events Socket mode.

Note: The use of the Real-time messaging protocol is not recommended by Slack and they urge people to move to the Event based protocol. https://api.slack.com/changelog/2021-10-rtm-start-to-stop

---

To select this backend, set *BACKEND = 'SlackV3'*.

Dependencies

You need to install Slackv3 dependencies before using Errbot with Slack. In the below example, it is assumed slackv3 has been download to the /opt/errbot/backends directory and errbot has been installed in a python virtual environment (adjust the command to your errbot's installation):

```
git clone https://github.com/errbotio/err-backend-slackv3.git
source /opt/errbot/bin/activate
/opt/errbot/bin/pip install -r /opt/errbot/backends/err-backend-slackv3/requirements.txt
```

Connection Methods

Over the years, Slack has changed to their OAuth and API architecture that can be a source of confusion. No matter which OAuth bot token you're using or the API architecture in your environment, slackv3 can handle it.

The backend will automatically detect which token and architecture you have and start listening for Slack events in the right way:

Legacy tokens (OAuthv1) with Real Time Messaging (RTM) API

When the following oauth scopes are detected, the RTM protocol will be used. These scopes are automatically present when using a legacy token.

```
"apps"
"bot"
"bot:basic"
"client"
"files:write:user"
"identify"
"post"
"read"
```

- Current token (OAuthv2) with Event API using the Event Subscriptions and Request URL.
- Current token (OAuthv2) with Event API using the Socket-mode client.

Backend Installation

These instructions are for errbot running inside a Python virtual environment. You will need to adapt these steps to your own errbot instance setup. The virtual environment is created in */opt/errbot/virtualenv* and errbot initialised in */opt/errbot*. The extra backend directory is in */opt/errbot/backend*.

1. Create the errbot virtual environment

```
mkdir -p /opt/errbot/backend
virtualenv --python=python3 /opt/errbot/virtualenv
```

2. Install and initialise errbot. See here for details

```
source /opt/errbot/virtualenv/bin/activate
pip install errbot
cd /opt/errbot
errbot --init
```

3. Configure the slackv3 backend and extra backend directory. Located in */opt/errbot/config.py*

```
BACKEND="SlackV3"
BOT_EXTRA_BACKEND_DIR=/opt/errbot/backend
```

4. Clone *err-backend-slackv3* into the backend directory and install module dependencies.

```
cd /opt/errbot/backend
git clone https://github.com/errbotio/err-backend-slackv3
pip install -r /opt/errbot/backend/err-backend-slackv3/requirements.txt
```

5. Configure the slack bot token, signing secret (Events API with Request URLs) and/or app token (Events API with Socket-mode). Located in */opt/errbot/config.py*

```
BOT_IDENTITY = {
    'token': 'xoxb-...',
    'signing_secret': "<hexadecimal value>",
    'app_token': "xapp-..."
}
```

Setting up Slack application

Legacy token with RTM

This was the original method for connecting a bot to Slack. Create a bot token, configure errbot with it and start using Slack. Pay attention when reading real time messaging explaining how to create a "classic slack application". Slack does not allow Legacy bot tokens to use the Events API.

Current token with Events Request URLs

This is by far the most complex method of having errbot communicate with Slack. The architecture involves server to client communication over HTTP. This means the Slack server must be able to reach errbot's */slack/events* endpoint via the internet using a valid SSL connection. How to set up such an architecture is outside the scope of this readme and is left as an exercise for the reader. Read slack events api document for details on how to configure the Slack app and request URL.

Current token with Events Socket-mode client

Create a current bot token, enable socket mode. Configure errbot to use the bot and app tokens and start using Slack. Read socket-mode for instructions on setting up Socket-mode.

Ensure the bot is also subscribed to the following events:

- *file_created*
- *file_public*
- *message.channels*
- *message.groups*
- *message.im*

Telegram backend configuration

This backend lets you connect to Telegram Messenger. To select this backend, set *BACKEND = 'Telegram'*.

Extra Dependencies

You need to install this dependency before using Errbot with Telegram:

```
pip install python-telegram-bot
```

Account setup

You will first need to create a bot account on Telegram for errbot to use. You can do this by talking to @BotFather (see also: BotFather docs). Make sure you take note of the token you receive, you'll need it later.

Once you have created a bot account on Telegram you may configure the account in errbot by setting up *BOT_IDENTITY* as follows:

```
BOT_IDENTITY = {
    'token': '103419016:AAbcd1234...',
}
```

Bot admins

You can setup *BOT_ADMINS* to designate which users are bot admins, but on Telegram this is a little more difficult to do. In order to configure a user here you will have to obtain their user ID.

The easiest way to do this is to start the bot with no *BOT_ADMINS* defined. Then, have the user for which you want to obtain the user ID message the bot and send it the *!whoami* command.

This will print some info about the user, including the following: *string representation is '123669037'*. It is this number that needs to be filled in for *BOT_ADMINS*. For example: *BOT_ADMINS = (123669037,)*

Rooms

Telegram does not expose any room management to bots. As a group admin, you will have to add a bot to a groupchat at which point it will automatically join.

By default the bot will not receive any messages which makes interacting with it in a groupchat difficult.

To give the bot access to all messages in a groupchat, you can use the */setprivacy* command when talking to @BotFather.

Note: Because Telegram does not support room management, you must set *CHATROOM_PRESENCE = ()* otherwise you will see errors.

Slash commands

Telegram treats messages which start with a / differently, which is designed specifically for interacting with bots.

We therefor suggest setting *BOT_PREFIX = '/'* to take advantage of this.

XMPP backend configuration

This backend lets you connect to any Jabber/XMPP server. To select this backend, set *BACKEND = 'XMPP'*.

Extra Dependencies

You need to install this dependency before using Errbot with XMPP:

```
pip install slixmpp pyasn1 pyasn1-modules
```

Account setup

You must manually register an XMPP account for the bot on the server you wish to use. Errbot does not support XMPP registration itself.

Configure the account by setting up *BOT_IDENTITY* as follows:

```
BOT_IDENTITY = {
    'username': 'err@server.tld',  # The JID of the user you have created for the bot
    'password': 'changeme',        # The corresponding password for this user
    # 'server': ('host.domain.tld',5222), # server override
}
```

By default errbot will query SRV records for the correct XMPP server and port, which should work with a properly configured server.

If your chosen XMPP server does not have correct SRV records setup, you can also set the *server* key to override this.

A random resource ID is assigned when errbot starts up. You may fix the resource by appending it to the user name:

```
BOT_IDENTITY = {
    'username': 'err@server.tld/resource',
...
```

Bot admins

You can set *BOT_ADMINS* to configure which XMPP users are bot administrators. For example: *BOT_ADMINS = ('gbin@someplace.com', 'zoni@somewhere.else.com')*

MUC rooms

If you want the bot to join a certain chatroom when it starts up then set *CHATROOM_PRESENCE* with a list of MUCs to join. For example: *CHATROOM_PRESENCE = ('err@conference.server.tld',)*

Note: don't omit the comma under any circumstance!

You can configure the username errbot should use in chatrooms by setting *CHATROOM_FN*.

6.1.4 Starting the daemon

The first time you start Errbot, it is recommended to run it in foreground mode. This can be done with:

```
errbot
```

If you installed errbot into a virtualenv (as recommended), call it by prefixing the virtualenv *bin/* directory:

```
/path/to/my/virtualenv/bin/errbot
```

Please pass -h or –help to errbot to get a list of supported parameters. Depending on your situation, you may need to pass –config (or -c) pointing to the directory holding your *config.py* when starting Errbot.

If all that worked out, you can now use the -d (or –daemon) parameter to run it in a detached mode:

```
errbot --daemon
```

If you are going to run your bot all the time then using some process control system such as supervisor is highly recommended. Installing and configuring such a system is outside the scope of this document, however, we do provide some sample daemon configurations below.

Note: There are two ways to gracefully shut down a running bot.

You can use the `!shutdown` command to do so via chat or you can send a *SIGINT* signal to the errbot process to do so from the commandline

If you're running errbot in the foreground then pressing Ctrl+C is equivalent to sending *SIGINT*.

Daemon Configurations

These are a few example configurations using common init daemons:

supervisord (*/etc/supervisor/conf.d/errbot.conf*)

```
[program:errbot]
command = /path/to/errbot/virtualenv/bin/errbot --config /path/to/errbot/config.py
user = errbot
stdout_logfile = /var/log/supervisor/errbot.log
stderr_logfile = NONE
redirect_stderr = true
directory = /path/to/errbot/
startsecs = 3
stopsignal = INT
environment = LC_ALL="en_US.UTF-8"
```

systemd (*/etc/systemd/system/errbot.service*)

```
[Unit]
Description=Start Errbot chatbot
After=network.service

[Service]
Environment="LC_ALL=en_US.UTF-8"
Environment="PATH=/usr/bin:/bin:/usr/sbin:/sbin:/usr/local/bin:/path/to/errbot/
```

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```
↪virtualenv/bin"
ExecStart=/path/to/errbot/virtualenv/bin/errbot --config /path/to/errbot/config.py
WorkingDirectory=/path/to/errbot/
User=errbot
Restart=always
KillSignal=SIGINT

[Install]
WantedBy=multi-user.target
```

Note: Running errbot within a daemon process can have security implications if the daemon is started with an account containing elevated privileges. We encourage errbot **not** be run under a *root* or *administrator* account but under a non-privileged account. The command below creates a non-privileged *errbot* account on Linux:

```
$ useradd --no-create-home --no-user-group -g nogroup -s /bin/false errbot
```

6.1.5 Upgrading

Errbot comes bundled with a plugin which automatically performs a periodic update check. Whenever there is a new release on PyPI, this plugin will notify the users set in *BOT_ADMINS* about the new version.

Assuming you originally installed errbot using pip (see *installation*), you can upgrade errbot in much the same way. If you used a virtualenv:

```
/path/to/my/virtualenv/bin/pip install --upgrade errbot
```

Or if you used pip without virtualenv:

```
pip install --upgrade errbot
```

It's recommended that you review the changelog before performing an upgrade in case backwards-incompatible changes have been introduced in the new version. The changelog for the release you will be installing can always be found on PyPI.

6.1.6 Provisioning (advanced)

See the provisioning documentation

6.2 Administration

This document describes how to configure, administer and interact with errbot.

6.2.1 Configuration

There is a split between two types of configuration within errbot. On the one hand there is "setup" information, such as the (chat network) backend to use, storage selection and other settings related to how errbot should run. These settings are all configured through the *config.py* configuration file as explained in *configuration*.

The other type of configuration is the "runtime" configuration such as the plugin settings. Plugins can be dynamically configured through chatting with the bot by using the `!plugin config <plugin name>` command.

There are a few other commands which adjust the runtime configuration, such as the `!plugin blacklist <plugin>` command to unload and blacklist a specific plugin.

You can view a list of all these commands and their help documentation by using the built-in help function.

The built-in help function

To get a list of all available commands, you can issue:

```
!help
```

If you just wish to know more about a specific command you can issue:

```
!help <command>
```

6.2.2 Installing plugins

Errbot plugins can be installed via these methods

- *!repos install* bot command
- Cloning a GitHub repository
- Extracting a tar/zip file
- Using pip

Using a bot command

Plugins installed via the `!repos` command are managed by errbot itself and stored inside the *BOT_DATA_DIR* you set in *config.py*.

We periodically crawl GitHub for errbot plugin repositories and publish the results for people to browse.

You can have your bot display the same list of repos by issuing:

```
!repos
```

Searching can be done by specifying one or more keywords, for example:

```
!repos search hello
```

To install a plugin from the list, issue:

```
!repos install <name of plugin>
```

You aren't limited to installing public plugins though. You can install plugins from any git repository you have access to, whether public or private, hosted on GitHub, BitBucket or elsewhere. The *!repos install* command can take any git URI as argument.

If you're unhappy with a plugin and no longer want it, you can always uninstall a plugin again with:

```
!repos uninstall <plugin>
```

You will probably also want to update your plugins periodically. This can be done with:

```
!repos update all
```

Cloning a repository or tar/zip install

Using a git repository or tar/zip file to install plugins is setting up your plugins to be managed manually.

Plugins installed from cloning a repository need to be placed inside the *BOT_EXTRA_PLUGIN_DIR* path specified in the *config.py* file.

Assuming *BOT_EXTRA_PLUGIN_DIR* is set to */opt/plugins*:

```
$ git clone https://github.com/errbotio/err-helloworld /opt/plugins/err-helloworld
$ tar -zxvf err-helloworld.tar.gz -C /opt/plugins/
```

Note: If a repo is cloned and the git remote information is present, updating the plugin may be possible via *!repos update*

Using pip for plugins

Plugins published to to pypi.org can be installed using pip.:

```
$ pip install errbot-plugin-helloworld
```

As part of the packaging configuration for the plugin, it should install all necessary dependencies for the plugin to work.

Dependencies

Please pay attention when you install a plugin as it may have additional dependencies. If the plugin contains a *requirements.txt* file then Errbot will automatically check the requirements listed within and warn you when you are missing any.

Additionally, if you set `AUTOINSTALL_DEPS` to `True` in your **config.py**, Errbot will use pip to install any missing dependencies automatically. If you have installed Errbot in a virtualenv, this will run the equivalent of `pip install -r requirements.txt`. If no virtualenv is detected, the equivalent of `pip install --user -r requirements.txt` is used to ensure the package(s) is/are only installed for the user running Err.

6.2.3 Disabling plugins

You have a number of options available to you if you need to disable a plugin for any reason. Plugins can be temporarily disabled by using the `!plugin deactivate <plugin name>` command, which deactivates the plugin until the bot is restarted (or activated again via `!plugin activate <plugin name>`.

If you want to prevent a plugin from being loaded at all during bot startup, the `!plugin blacklist <plugin name>` command may be used.

It's also possible to strip errbot down even further by disabling some of its core plugins which are otherwise activated by default. You may for example want to this if you're building a very specialized bot for a specific purpose.

Disabling core plugins can be done by setting the *CORE_PLUGINS* setting in *config.py*. For example, setting *CORE_PLUGINS = ()* would disable all of the core plugins which even removes the plugin and repository management commands described above.

6.2.4 Restricting access

Errbot features a number of options to limit and restrict access to commands of your bot. All of these are configured through the *config.py* file as explained in *configuration*.

The first of these is *BOT_ADMINS*, which sets up the administrators for your bot. Some commands are hardcoded to be admin-only so the people listed here will be given access to those commands (the users listed here will also receive warning messages generated by the `warn_admins()` plugin function).

More advanced access controls can be set up using the *ACCESS_CONTROLS* and *ACCESS_CONTROLS_DEFAULT* options which allow you to set up sophisticated rules.

Access controls, allowing commands to be restricted to specific users/rooms. Available filters (you can omit a filter or set it to None to disable it):

- *allowusers*: Allow command from these users only
- *denyusers*: Deny command from these users
- *allowrooms*: Allow command only in these rooms (and direct messages)
- *denyrooms*: Deny command in these rooms
- *allowargs*: Allow a command's argument from these users only
- *denyargs*: Deny a command's argument from these users
- *allowprivate*: Allow command from direct messages to the bot
- *allowmuc*: Allow command inside rooms

Rules listed in *ACCESS_CONTROLS_DEFAULT* are applied by default and merged with any commands found in *ACCESS_CONTROLS*.

The options allowusers, denyusers, allowrooms and denyrooms, allowargs, denyargs support unix-style globbing similar to *BOT_ADMINS*.

Command names also support unix-style globs and can optionally be restricted to a specific plugin by prefixing the command with the name of a plugin, separated by a colon. For example, *Health:status* will match the *!status* command of the *Health* plugin and *Health:** will match all commands defined by the *Health* plugin.

Note: The first command match found will be used so if you have overlapping patterns you must used an OrderedDict instead of a regular dict: https://docs.python.org/3/library/collections.html#collections.OrderedDict

---

Example:

```
ACCESS_CONTROLS_DEFAULT = {} # Allow everyone access by default
ACCESS_CONTROLS = {
    "status": {
        "allowrooms": ("someroom@conference.localhost",)
    },
    "about": {
        "denyusers": ("*@evilhost",),
        "allowrooms": ("room1@conference.localhost", "room2@conference.localhost")
    },
    "uptime": {"allowusers": BOT_ADMINS},
    "help": {"allowmuc": False},
    "ChatRoom:*": {"allowusers": BOT_ADMINS},
}
```

The example `config.py` file contains this information about the format of these options.

If you don't like encoding access controls into the config file, a member of the errbot community has also created a dynamic ACL module which can be administered through chat commands instead.

Another community solution allows LDAP groups to be checked for membership before allowing the command to be executed. LDAP ACL module is practical for managing large groups. This module functions by decorating bot commands directly in the plugin code, which differs from configuration based ACLs.

Note: Different backends have different formats to identify users. Refer to the backend-specific notes at the end of the *configuration* chapter to see which format you should use.

6.2.5 Command filters

If our built-in access controls don't fit your needs, you can always create your own easily using *command filters*. Command filters are functions which are called automatically by errbot whenever a user executes a command. They allow the command to be allowed, blocked or even modified based on logic you implement yourself. In fact, the restrictions enforced by *BOT_ADMINS* and *ACCESS_CONTROLS* above are implemented using a command filter themselves so they can serve as a good *example* (be sure to view the module source).

You can add command filters to your bot by including them as part of any regular errbot plugin, it will find and register them automatically when your plugin is loaded. Any method in your plugin which is decorated by *cmdfilter()* will then act as a command filter.

Overriding CommandNotFoundFilter

In some cases, it may be necessary to run other filters before the *CommandNotFoundFilter*. Since the *CommandNotFoundFilter* is part of the core plugin list loaded by errbot, it can not be directly overridden from another plugin. Instead, to prevent *CommandNotFoundFilter* from being called before other filters, exclude the *CommandNotFoundFilter* plugin in the *CORE_PLUGINS* setting in *config.py* and explicitly call the *CommandNotFoundFilter* function from the overriding filter.

6.3 Plugin development

Plugins form the heart of Errbot. From the ground up, it is designed to be extended entirely through plugins. In this guide we will explain the basics of writing simple plugins, which we then follow up on further with sets of recipes on a range of topics describing how to handle more advanced use-cases.

6.3.1 Intro

Before we get started I would like to make sure you have all the necessary requirements installed and give you an idea of which knowledge you should already possess in order to follow along without difficulty.

Requirements

This guide assumes that you've already installed and configured Errbot and have successfully managed to connect it to a chatting service server. See *Setup* if you have not yet managed to install or start Errbot.

Prior knowledge

You can most definitely work with Errbot if you only have basic Python knowledge, but you should know about data structures such as dictionaries, tuples and lists, know what docstrings are and have a basic understanding of decorators.

6.3.2 Development environment

Before we dive in and start writing our very first plugin, I'd like to take a moment to show you some tools and features which help facilitate the development process.

Loading plugins from a local directory

Normally, you manage and install plugins through the built-in *!repos* command. This installs plugins by cloning them via git, and allows updating of them through the *!repos update* command.

During development however, it would be easier if you could load your plugin(s) directly, without having to commit them to a Git repository and instructing Errbot to pull them down.

This can be achieved through the *BOT_EXTRA_PLUGIN_DIR* setting in the *config.py* configuration file. If you set a path here pointing to a directory on your local machine, Errbot will (recursively) scan that directory for plugins and attempt to load any it may find.

Local test mode

You can run Errbot in a local single-user mode that does not require any server connection by passing in the *–text* (or *-T*) option flag when starting the bot.

In this mode, a very minimal back-end is used which you can interact with directly on the command-line. It looks like this:

```
$ errbot -T
[...]
INFO:Plugin activation done.
Talk to  me >> _
```

Plugin scaffolding

Plugins consist of two parts, a special *.plug* file and one or more Python (*.py*) files containing the actual code of your plugin (both of these are explained in-depth in the next section). Errbot can automatically generate these files for you so that you do not have to write boilerplate code by hand.

To create a new plugin, run *errbot –new-plugin* (optionally specifying a directory where to create the new plugin - it will use the current directory by default). It will ask you a few questions such as the name for your plugin, a description and which versions of errbot it will work with and generate a plugin skeleton from this with all the information filled out automatically for you.

6.3.3 Hello, world!

On the *homepage*, we showed you the following *"Hello world!"* plugin as an example:

```
from errbot import BotPlugin, botcmd

class HelloWorld(BotPlugin):
    """Example 'Hello, world!' plugin for Errbot"""

    @botcmd
    def hello(self, msg, args):
        """Say hello to the world"""
        return "Hello, world!"
```

In this chapter, you will learn exactly how this plugin works.

I will assume you've configured the *BOT_EXTRA_PLUGIN_DIR* as described in the previous chapter. To get started, create a new, empty directory named *HelloWorld* inside this directory.

Create a new file called *helloworld.py* inside the *HelloWorld* directory you just created. This file contains all the logic for your plugin, so copy and paste the above example code into it.

Anatomy of a BotPlugin

Although this plugin is only 9 lines long, there is already a lot of interesting stuff going on here. Lets go through it step by step.

```
from errbot import BotPlugin, botcmd
```

This should be pretty self-explanatory. Here we import the *BotPlugin* class and the `botcmd()` decorator. These let us build a class that can be loaded as a plugin and allow us to mark methods of that class as bot commands.

```
class HelloWorld(BotPlugin):
    """Example 'Hello, world!' plugin for Errbot"""
```

Here we define the class that makes up our plugin. The name of your class, *HelloWorld* in this case, is what will make up the name of your plugin. This name will be used in commands such as *!status*, *!plugin load* and *!plugin unload*

The class' docstring is used to automatically populate the built-in command documentation. It will be visible when issuing the *!help* command.

> **Warning:** A plugin should only ever contain a single class inheriting from *BotPlugin*

```
@botcmd
def hello(self, msg, args):
    """Say hello to the world"""
    return "Hello, world!"
```

This method, *hello*, is turned into a bot command which can be executed because it is decorated with the `botcmd()` decorator. Just as with the class docstring above, the docstring here is used to populate the *!help* command.

The name of the method, *hello* in this case, will be used as the name of the command. That means this method creates the *!hello* command.

Note: The method name must comply with the usual Python naming conventions for identifiers , that is, they may not begin with a digit (like `911` but only with a letter or underscore, so `_911` would work) and cannot be any of the reserved keywords such as `pass` (instead use `password`) etc.

Note: Should multiple plugins define the same command, they will be dynamically renamed (by prefixing them with the plugin name) so that they no longer clash with each other.

If we look at the function definition, we see it takes two parameters, *msg* and *args*. The first is a `Message` object, which represents the full message object received by Errbot. The second is a string (or a list, if using the *split_args_with* parameter of `botcmd()`) with the arguments passed to the command.

For example, if a user were to say *!hello Mister Errbot*, *args* would be the string *"Mister Errbot"*.

Finally, you can see we return with the string *Hello, world!*. This defines the response that Errbot should give. In this case, it makes all executions of the *!hello* command return the message *Hello, world!*.

Note: If you return *None*, Errbot will not respond with any kind of message when executing the command.

Plugin metadata

We have our plugin itself ready, but if you start the bot now, you'll see it still won't load your plugin. What gives?

As it turns out, you need to supply a file with some meta-data alongside your actual plugin file. This is a file that ends with the extension *.plug* and it is used by Errbot to identify and load plugins.

Lets go ahead and create ours. Place the following in a file called *helloworld.plug*:

```
[Core]
Name = HelloWorld
Module = helloworld

[Python]
Version = 3

[Documentation]
Description = Example "Hello, world!" plugin
```

Note: This INI-style file is parsed using the Python configparser class. Make sure to use a valid file structure.

Lets look at what this does. We see two sections, *[Core]* , and *[Documentation]*. The *[Core]* section is what tells Errbot where it can actually find the code for this plugin.

The key *Module* should point to a module that Python can find and import. Typically, this is the name of the file you placed your code in with the *.py* suffix removed.

The key *Name* should be identical to the name you gave to the class in your plugin file, which in our case was *HelloWorld*. While these names can differ, doing so is not recommended.

Note: If you're wondering why you have to specify it when it should be the same as the class name anyway, this has to do with technical limitations that we won't go into here.

The *[Documentation]* section will be explained in more detail further on in this guide, but you should make sure to at least have the *Description* item here with a short description of your plugin.

Python Submodules

In cases where the plugin code base is large and complex, it may be desirable to break the code into submodules to be imported by the plugin. The following directory tree shows a commonly used layout for submodules:

```
plugins
├── LICENSE
├── helloworld.plug
├── helloworld.py
├── README.md
├── requirements.txt
├── lib
    ├── __init__.py
    ├── moduleA.py
    ├── moduleB.py
    ├── moduleC.py
```

The presence of *__init__.py* indicates *lib* is a Python regular package. Assuming *moduleA* has the function *invert_string()*, the *helloworld* plugin can import it and use it with the following syntax:

```
from lib.moduleA import invert_string
from errbot import BotPlugin, botcmd

class HelloWorld(BotPlugin):
    """Example 'Hello, world!' plugin for Errbot"""

    @botcmd
    def hello(self, msg, args):
        """Say hello to the world"""
        return invert_string("Hello, world!")
```

Packaging

A plugin can be packaged and distributed through pypi.org. The errbot plugin system uses entrypoints in setuptools to find available plugins.

The two entrypoint available are

- *errbot.plugins* - normal plugin and flows
- *errbot.backend_plugins* - backend plugins for collaboration providers

To get this setup, add this block of code to *setup.py*.

```
entry_points = {
    "errbot.plugins": [
        "helloworld = helloWorld:HelloWorld",
    ]
}
```

Optionally, you may need to include a *MANIFEST.in* to include files of the repo

```
include *.py *.plug
```

Wrapping up

If you've followed along so far, you should now have a working *Hello, world!* plugin for Errbot. If you start your bot, it should load your plugin automatically.

You can verify this by giving the *!status* command, which should respond with something like the following:

```
Yes I am alive...
With these plugins (A=Activated, D=Deactivated, B=Blacklisted, C=Needs to be configured):
[A] ChatRoom
[A] HelloWorld
[A] VersionChecker
[A] Webserver
```

If you don't see your plugin listed or it shows up as unloaded, make sure to start your bot with *DEBUG*-level logging enabled and pay close attention to what it reports. You will most likely see an error being reported somewhere along the way while Errbot starts up.

Next steps

You now know enough to create very simple plugins, but we have barely scratched the surface of what Errbot can do. The rest of this guide will be a recipe-style set of topics that cover all the advanced features Errbot has to offer.

6.3.4 Advanced bot commands

Automatic argument splitting

With the *split_args_with* argument to `botcmd()`, you can specify a delimiter of the arguments and it will give you an array of strings instead of a string:

```
@botcmd(split_args_with=None)
def action(self, mess, args):
    # if you send it !action one two three
    # args will be ['one', 'two', 'three']
```

Note: *split_args_with* behaves exactly like `str.split()`, therefore the value *None* can be used to split on any type of whitespace, such as multiple spaces, tabs, etc. This is recommended over ' ' for general use cases but you're free to use whatever argument you see fit.

Subcommands

If you put an _ in the name of the function, Errbot will create what looks like a subcommand for you. This is useful to group commands that belong to each other together.

```
@botcmd
def basket_add(self, mess, args):
    # Will respond to !basket add
    pass

@botcmd
def basket_remove(self, mess, args):
    # Will respond to !basket remove
    pass
```

Note: It will still respond to !basket_add and !basket_remove as well.

Argparse argument splitting

With the `arg_botcmd()` decorator you can specify a command's arguments in argparse format. The decorator can be used multiple times, and each use adds a new argument to the command. The decorator can be passed any valid add_arguments() parameters.

```
@arg_botcmd('first_name', type=str)
@arg_botcmd('--last-name', dest='last_name', type=str)
@arg_botcmd('--favorite', dest='favorite_number', type=int, default=42)
def hello(self, mess, first_name=None, last_name=None, favorite_number=None):
    # if you send it !hello Err --last-name Bot
    # first_name will be 'Err'
    # last_name will be 'Bot'
    # favorite_number will be 42
```

Note:

- An argument's *dest* parameter is used as its kwargs key when your command is called.
- *favorite_number* would be *None* if we removed *default=42* from the `arg_botcmd()` call.

Commands using regular expressions

In addition to the fixed commands created with the `botcmd()` decorator, Errbot supports an alternative type of bot function which can be triggered based on a regular expression. These are created using the `re_botcmd()` decorator. There are two forms these can be used, with and without the usual bot prefix.

In both cases, your method will receive the message object same as with a regular `botcmd()`, but instead of an *args* parameter, it takes a *match* parameter which will receive an `re.MatchObject`.

Note: By default, only the first occurrence of a match is returned, even if it can match multiple parts of the message. If you specify *matchall=True*, you will instead get a list of `re.MatchObject` items, containing all the non-overlapping matches that were found in the message.

With a bot prefix

You can define commands that trigger based on a regular expression, but still require a bot prefix at the beginning of the line, in order to create more flexible bot commands. Here's an example of a bot command that lets people ask for cookies:

```
from errbot import BotPlugin, re_botcmd

class CookieBot(BotPlugin):
    """A cookiemonster bot"""

    @re_botcmd(pattern=r"^(([Cc]an|[Mm]ay) I have a )?cookie please\?$")
    def hand_out_cookies(self, msg, match):
        """
        Gives cookies to people who ask me nicely.

        This command works especially nice if you have the following in
        your `config.py`:

        BOT_ALT_PREFIXES = ('Err',)
        BOT_ALT_PREFIX_SEPARATORS = (':', ',', ';')

        People are then able to say one of the following:

        Err, can I have a cookie please?
        Err: May I have a cookie please?
        Err; cookie please?
        """
        yield "Here's a cookie for you, {}".format(msg.frm)
        yield "/me hands out a cookie."
```

Without a bot prefix

It's also possible to trigger commands even when no bot prefix is specified, by passing *prefixed=False* to the `re_botcmd()` decorator. This is especially useful if you want to trigger on specific keywords that could show up anywhere in a conversation:

```
import re
from errbot import BotPlugin, re_botcmd

class CookieBot(BotPlugin):
    """A cookiemonster bot"""

    @re_botcmd(pattern=r"(^| )cookies?( |$)", prefixed=False, flags=re.IGNORECASE)
    def listen_for_talk_of_cookies(self, msg, match):
        """Talk of cookies gives Errbot a craving..."""
        return "Somebody mentioned cookies? Om nom nom!"
```

6.3.5 Messaging

Returning multiple responses

Often, with commands that take a long time to run, you may want to be able to send some feedback to the user that the command is progressing. Instead of using a single *return* statement you can use *yield* statements for every line of output you wish to send to the user.

In the following example, the output will be "Going to sleep", followed by a 10 second wait period and "Waking up" in the end.

```
from errbot import BotPlugin, botcmd
from time import sleep

class PluginExample(BotPlugin):
    @botcmd
    def longcompute(self, mess, args):
        yield "Going to sleep"
        sleep(10)
        yield "Waking up"
```

Sending a message to a specific user or room

Sometimes, you may wish to send a message to a specific user or a groupchat, for example from pollers or on webhook events. You can do this with *send()*:

```
self.send(
    self.build_identifier("user@host.tld/resource"),
    "Boo! Bet you weren't expecting me, were you?",
)
```

send() requires a valid *Identifier* instance to send to. *build_identifier()* can be used to build such an identifier. The format(s) supported by *build_identifier* will differ depending on which backend you are using. For example, on Slack it may support *#channel* and *@user*, for XMPP it includes *user@host.tld/resource*, etc.

Templating

It's possible to send Markdown responses using Jinja2 templates.

To do this, first create a directory called *templates* in the directory that also holds your plugin's *.plug* file.

Inside this directory, you can place Markdown templates (with a *.md* extension) in place of the content you wish to show. For example this *hello.md*:

```
Hello, {{name}}!
```

Note: See the Jinja2 Template Designer Documentation for more information on the available template syntax.

Next, tell Errbot which template to use by specifying the *template* parameter to `botcmd()` (leaving off the *.md* suffix).

Finally, instead of returning a string, return a dictionary where the keys refer to the variables you're substituting inside the template (*{{name}}* in the above template example):

```
from errbot import BotPlugin, botcmd

class Hello(BotPlugin):
    @botcmd(template="hello")
    def hello(self, msg, args):
        """Say hello to someone"""
        return {'name': args}
```

It's also possible to use templates when using *self.send()*, but in this case you will have to do the template rendering step yourself, like so:

```
from errbot import BotPlugin, botcmd
from errbot.templating import tenv

class Hello(BotPlugin):
    @botcmd(template="hello")
    def hello(self, msg, args):
        """Say hello to someone"""
        response = tenv().get_template('hello.md').render(name=args)
        self.send(msg.frm, response)
```

Cards

Errbot cards are a canned format for notifications. It is possible to use this format to map to some native format in backends like Slack (Attachment).

Similar to a *self.send()* you can use *send_card()* to send a card.

The following code demonstrate the various available fields.

```
from errbot import BotPlugin, botcmd

class Travel(BotPlugin):
    @botcmd
    def hello_card(self, msg, args):
        """Say a card in the chatroom."""
```

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```
        self.send_card(title='Title + Body',
                       body='text body to put in the card',
                       thumbnail='https://raw.githubusercontent.com/errbotio/errbot/
↪master/docs/_static/errbot.png',
                       image='https://www.google.com/images/branding/googlelogo/2x/
↪googlelogo_color_272x92dp.png',
                       link='http://www.google.com',
                       fields=(('First Key','Value1'), ('Second Key','Value2')),
                       color='red',
                       in_reply_to=msg)
```

Trigger a callback with every message received

It's possible to add a callback that will be called on every message sent either directly to the bot, or to a chatroom that the bot is in:

```
from errbot import BotPlugin

class PluginExample(BotPlugin):
    def callback_message(self, mess):
        if mess.body.find('cookie') != -1:
            self.send(
                mess.frm,
                "What what somebody said cookie!?",
            )
```

6.3.6 Presence

Presence describes the concept of a person's availability state, such as *online* or *away*, possibly with an optional message.

Callbacks for presence changes

Plugins may override *callback_presence()* in order to receive notifications of presence changes. You will receive a *Presence* object for every presence change received by Errbot.

Here's an example which simply logs each presence change to the log when it includes a status message:

```
from errbot import BotPlugin

class PluginExample(BotPlugin):
    def callback_presence(self, presence):
        if presence.get_message() is not None:
            self.log.info(presence)
```

Change the presence or status of the bot

You can also, depending on the backend you use, change the current status of the bot. This allows you to make a moody bot that leaves the room when it is in a bad mood ;)

```
from errbot import BotPlugin, botcmd, ONLINE, AWAY

class PluginExample(BotPlugin):
    @botcmd
    def grumpy(self, mess, args):
        self.change_presence(AWAY, 'I am tired of you all!')

    @botcmd
    def happy(self, mess, args):
        self.change_presence(ONLINE, 'I am back and so happy to see you!')
```

6.3.7 Mentions

Depending on the backend used, users can mention and notify other users by using a special syntax like *@gbin*. With this feature, a plugin can listen to the mentioned users in the chat.

How to use it

Here is an example to listen to every mention and report them back on the chat.

```
from errbot import BotPlugin

class PluginExample(BotPlugin):

    def callback_mention(self, message, mentioned_people):
        for identifier in mentioned_people:
            self.send(message.frm, 'User %s has been mentioned' % identifier)
```

Identifying if the bot itself has been mentioned

Simply test the presence of the bot identifier within the *mentioned_people*:

```
from errbot import BotPlugin

class PluginExample(BotPlugin):

    def callback_mention(self, message, mentioned_people):
        if self.bot_identifier in mentioned_people:
            self.send(message.frm, 'Errbot has been mentioned !')
```

6.3.8 Persistence

Persistence describes the ability for the plugins to persist data even if Errbot is restarted.

How to use it

Your plugin *is* the store, simply use self as a dictionary.

Here is a simple example for storing and retrieving a value from the store.

```
from errbot import BotPlugin, botcmd

class PluginExample(BotPlugin):
    @botcmd
    def remember(self, msg, args):
        self['TODO'] = args

    @botcmd
    def recall(self, msg, args):
        return self['TODO']
```

Caveats

The storing occurs when you *assign the key*:

```
# THIS WON'T WORK
d = {}
self['FOO'] = d
d['subkey'] = 'NONONONONONO'
```

What you need to do instead: (manual method)

```
# THIS WORKS
d = {}
self['FOO'] = d

# later ...
d['subkey'] = 'NONONONONONO'
self['FOO'] = d  # restore the full key if something changed in memory.
```

Or use the mutable contex manager:

```
# THIS WORKS AND IS CLEANER
d = {}
self['FOO'] = d

# later ...

with self.mutable('FOO') as d:
    d['subkey'] = 'NONONONONONO'
# it will save automatically the key
```

6.3.9 Configuration

Plugin configuration through the built-in *!config* command

Errbot can keep a simple python object for the configuration of your plugin. This avoids the need for admins to configure settings in some kind of configuration file, instead allowing configuration to happen directly through chat commands.

In order to enable this feature, you need to provide a configuration template (ie. a config example) by overriding the *get_configuration_template()* method. For example, a plugin might request a dictionary with 2 entries:

```
from errbot import BotPlugin

class PluginExample(BotPlugin):
    def get_configuration_template(self):
        return {'ID_TOKEN': '00112233445566778899aabbccddeeff',
                'USERNAME':'changeme'}
```

With this in place, an admin will be able to request the default configuration template with *!plugin config PluginExample*. He or she could then give the command *!plugin config PluginExample {'ID_TOKEN' : '00112233445566778899aabbccddeeff', 'USERNAME':'changeme'}* to enable that configuration.

It will also be possible to recall the configuration template, as well as the config that is actually set, by issuing *!plugin config PluginExample* again.

Within your code, the config that is set will be in *self.config*:

```
@botcmd
def mycommand(self, mess, args):
    # oh I need my TOKEN !
    token = self.config['ID_TOKEN']
```

Warning: If there is no configuration set yet, *self.config* will be *None*.

Supplying partial configuration

Sometimes you want to allow users to only supply a part of the configuration they wish to override from the template instead of having to copy-paste and modify the complete entry.

This can be achieved by overriding *configure()*:

```
from itertools import chain

CONFIG_TEMPLATE = {'ID_TOKEN': '00112233445566778899aabbccddeeff',
                   'USERNAME':'changeme'}

def configure(self, configuration):
    if configuration is not None and configuration != {}:
        config = dict(chain(CONFIG_TEMPLATE.items(),
                            configuration.items()))
    else:
        config = CONFIG_TEMPLATE
    super(PluginExample, self).configure(config)
```

What this achieves is that it creates a Python dictionary object which contains all the values from our *CONFIG_TEMPLATE* and then updates that dictionary with the configuration received when calling the *!config* command. *!config* must be passed a dictionary for this to work.

If you wish to reset the configuration to its defaults all you need to do is pass an empty dictionary to *!config*.

You'll now also need to override *get_configuration_template()* and return the *CONFIG_TEMPLATE* in that function:

```
def get_configuration_template(self):
    return CONFIG_TEMPLATE
```

Using custom configuration checks

By default, Errbot will check the supplied configuration against the configuration template, and raise an error if the structure of the two doesn't match.

You need to override the *check_configuration()* method if you wish do some other form of configuration validation. This method will be called automatically when an admin configures your plugin with the *!config* command.

> **Warning:** If there is no configuration set yet, it will pass *None* as parameter. Be mindful of this situation.

Using the partial configuration trick as shown above requires you to override *check_configuration()*, so at a minimum you'll need this:

```
def check_configuration(self, configuration):
    pass
```

We suggest that you at least do some validation instead of nothing but that is up to you.

6.3.10 Streams

Streams are file transfers. It can be used to store documents, index them, send generated content on the fly etc.

Waiting for incoming file transfers

The bot can be sent files from the users. You only have to implement the *callback_stream()* method on your plugin to be notified for new incoming file transfer requests.

Note: not all backends supports this, check if it has been correctly implemented from the backend itself.

For example, getting the initiator of the transfer and the content, see *Stream* for more info about the various fields.

```
from errbot import BotPlugin, botcmd

class PluginExample(BotPlugin):

    def callback_stream(self, stream):
        self.send(stream.identifier, "File request from :" + str(stream.identifier))
        stream.accept()
        self.send(stream.identifier, "Content:" + str(stream.fsource.read()))
```

Sending a file to a user or a room

You can use *send_stream_request()* to initiate a transfer:

```
stream = self.send_stream_request(msg.frm, open('/tmp/myfile.zip', 'r'), name='bills.zip
↪', stream_type='application/zip')
```

The returned stream object can be used to monitor the progress of the transfer with *stream.status*, *stream.transfered* etc... See *Stream* for more details.

6.3.11 Plugin Dependencies

Sometimes you need to be able to share a plugin feature with another. For example imagine you have a series of plugin configured the same way, you might want to make them depend on a central plugin taking care of the configuration that would share it with all the others.

Declaring dependencies

If you want to be able to use a plugin from another, the later needs to be activated before the former. You can ask Errbot to do so by adding a comma separated name list of the plugins your plugin is depending on in the **Core** section of your plug file like this:

```
[Core]
Name = MyPlugin
Module = myplugin
DependsOn = OtherPlugin1, OtherPlugin2
```

Using dependencies

Once a dependent plugin has been declared, you can use it as soon as your plugin is activated.

```
from errbot import BotPlugin, botcmd

class OtherPlugin1(BotPlugin):

    def activate(self):
        self.my_variable = 'hello'
        super().activate()
```

If you want to use it from MyPlugin:

```
from errbot import BotPlugin, botcmd

class MyPlugin(BotPlugin):

    @botcmd
    def hello(self, msg, args):
        return self.get_plugin('OtherPlugin1').my_variable
```

Important to note: if you want to use a dependent plugin from within activate, you need to be in activated state, for example:

```
from errbot import BotPlugin, botcmd

class MyPlugin(BotPlugin):

    def activate(self):
        super().activate()  # <-- needs to be *before* get_plugin
        self.other = self.get_plugin('OtherPlugin1')

    @botcmd
    def hello(self, msg, args):
        return self.other.my_variable
```

6.3.12 Dynamic plugins (advanced)

Sometimes the list of commands the bot wants to expose is not known at plugin development time.

For example, you have a remote service with commands that can be set externally.

This feature allows you to define and update on the fly plugins and their available commands.

Defining new commands

You can create a commands from scratch with *Command*. By default it will be a *botcmd()*.

```
# from a lambda
my_command1 = Command(lambda plugin, msg, args: 'received %s' % msg, name='my_command',␣
↪doc='documentation of my_command')

# or from a function
def my_command(plugin, msg, args):
    """
    documentation of my_command.
    """
    return 'received %s' % msg

my_command2 = Command(my_command)
```

Note: the function will by annotated by a border effect, be sure to use a local function if you want to derive commands for the same underlying function.

Registering the new plugin

Once you have your series of Commands defined, you can package them in a plugin and expose them on errbot with `create_dynamic_plugin()`.

```
# from activate, another bot command, poll etc.
self.create_dynamic_plugin('my_plugin', (my_command1, my_command2))
```

Refreshing a plugin

You need to destroy and recreate the plugin to refresh its commands.

```
self.destroy_dynamic_plugin('my_plugin')
self.create_dynamic_plugin('my_plugin', (my_command1, my_command2, my_command3))
```

Customizing the type of commands and parameters

You can use other type of commands by specifying cmd_type and pass them parameters with cmd_args and cmd_kwargs.

```
# for example a botmatch
re1 = Command(lambda plugin, msg, match: 'fffound',
              name='ffound',
              cmd_type=botmatch,
              cmd_args=(r'^.*cheese.*$',))

# or a split_args_with
saw = Command(lambda plugin, msg, args: '+'.join(args),
              name='splitme',
              cmd_kwargs={'split_args_with': ','})
```

6.3.13 Scheduling

Calling a function at a regular interval

It's possible to automatically call functions at regular intervals, using the *start_poller()* and *stop_poller()* methods.

For example, you could schedule a callback to be executed once every minute when your plugin gets activated:

```
from errbot import BotPlugin

class PluginExample(BotPlugin):
    def my_callback(self):
        self.log.debug('I am called every minute')

    def activate(self):
        super().activate()
        self.start_poller(60, self.my_callback)
```

It is also possible to specify the *times* parameter, which denotes how many times the function should be called, for instance:

```
from errbot import BotPlugin

class PluginExample(BotPlugin):
    def my_callback(self):
        self.log.debug('I got called after a minute (and just once)')

    def activate(self):
```

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```
        super().activate()
        self.start_poller(60, self.my_callback, times=1)
```

6.3.14 Webhooks

Errbot has a small integrated webserver that is capable of hooking up endpoints to methods inside your plugins.

You must configure the *Webserver* plugin before this functionality can be used. You can get the configuration template using *!plugin config Webserver*, from where it's just a simple matter of plugging in the desired settings.

Note: There is a *!generate certificate* command to generate a self-signed certificate in case you want to enable SSL connections and do not have a certificate.

Warning: It is not recommended to expose Errbot's webserver directly to the network. Instead, we recommend placing it behind a webserver such as nginx or Apache.

Simple webhooks

All you need to do for a plugin of yours to listen to a specific URI is to apply the *webhook()* decorator to your method. Whatever it returns will be returned in response to the request:

```
from errbot import BotPlugin, webhook

class PluginExample(BotPlugin):
    @webhook
    def test(self, request):
        self.log.debug(repr(request))
        return "OK"
```

This will listen for POST requests on http://yourserver.tld:yourport/test/, and return *"OK"* as the response body.

Note: If you return *None*, an empty 200 response will be sent.

You can also set a custom URI pattern by providing the *uri_rule* parameter:

```
from errbot import BotPlugin, webhook

class PluginExample(BotPlugin):
    @webhook('/example/<name>/<action>/')
    def test(self, request, name, action):
        return "User %s is performing %s" % (name, action)
```

Refer to the documentation on Flask's route for details on the supported syntax (Errbot uses Flask internally).

Handling JSON request

If an incoming request has the MIME media type set to *application/json* the request will automatically be decoded as JSON. You will receive the result of calling *json.loads()* on *request* automatically so that you won't have to do this yourself.

Handling form-encoded requests

Form-encoded requests (those with an *application/x-www-form-urlencoded* mimetype) are very simple to handle as well, you just need to specify the *form_param* parameter.

A good example for this is the GitHub format which posts a form with a *payload* parameter:

```
from errbot import BotPlugin, webhook

class Github(BotPlugin):
    @webhook('/github/', form_param = 'payload')
    def notification(self, payload):
        for room in self.bot_config.CHATROOM_PRESENCE:
            self.send(
                self.build_identifier(room),
                'Commit on %s!' % payload['repository']['name'],
            )
```

The raw request

The above webhooks are convenient for simple tasks, but sometimes you might wish to have more power and have access to the actual request itself. By setting the *raw* parameter of the `webhook()` decorator to *True*, you will be able to get the flask.Request which contains all the details about the actual request:

```
from errbot import BotPlugin, webhook

class PluginExample(BotPlugin):
    @webhook(raw=True)
    def test(self, request):
        user_agent = request.headers.get("user-agent", "Unknown")
        return f"Your user-agent is {user_agent}"
```

Returning custom headers and status codes

Adjusting the response headers, setting cookies or returning a different status code can all be done by manipulating the flask response object. The Flask docs on the response object explain this in more detail. Here's an example of setting a custom header:

```
from errbot import BotPlugin, webhook
from flask import after_this_request

class PluginExample(BotPlugin):
    @webhook
    def example(self, incoming_request):
        @after_this_request
```

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```
        def add_header(response):
            response.headers['X-Powered-By'] = 'Errbot'
        return "OK"
```

Flask also has various helpers such as the *abort()* method. Using this method we could, for example, return a 403 forbidden response like so:

```
from errbot import BotPlugin, webhook
from flask import abort

class PluginExample(BotPlugin):
    @webhook
    def example(self, incoming_request):
        abort(403, "Forbidden")
```

Testing a webhook through chat

You can use the *!webhook* command to test webhooks without making an actual HTTP request, using the following format:

```
!webhook test /[endpoint] [post_content]
```

For example:

```
!webhook test /test

!webhook test /github payload=%7B%22pusher%22%3A%7B%22name%22%3A%22gbin%22%2C%22email%22
↪%3A%22gbin%40gootz.net%22%7D%2C%22repository%22%3A%7B%22name%22%3A%22test%22%2C
↪%22created_at%22%3A%222012-08-12T16%3A09%3A43-07%3A00%22%2C%22has_wiki%22%3Atrue%2C
↪%22size%22%3A128%2C%22private%22%3Afalse%2C%22watchers%22%3A0%2C%22url%22%3A%22https%3A
↪%2F%2Fgithub.com%2Fgbin%2Ftest%22%2C%22fork%22%3Afalse%2C%22pushed_at%22%3A%222012-08-
↪12T16%3A26%3A35-07%3A00%22%2C%22has_downloads%22%3Atrue%2C%22open_issues%22%3A0%2C
↪%22has_issues%22%3Atrue%2C%22stargazers%22%3A0%2C%22forks%22%3A0%2C%22description%22%3A
↪%22ignore%20this%2C%20this%20is%20for%20testing%20the%20new%20err%20github
↪%20integration%22%2C%22owner%22%3A%7B%22name%22%3A%22gbin%22%2C%22email%22%3A%22gbin
↪%40gootz.net%22%7D%7D%2C%22forced%22%3Afalse%2C%22after%22%3A
↪%22b3cd9e66e52e4783c1a0b98fbaaad6258669275f%22%2C%22head_commit%22%3A%7B%22added%22%3A
↪%5B%5D%2C%22modified%22%3A%5B%22README.md%22%5D%2C%22timestamp%22%3A%222012-08-12T16
↪%3A24%3A25-07%3A00%22%2C%22removed%22%3A%5B%5D%2C%22author%22%3A%7B%22name%22%3A
↪%22Guillaume%20BINET%22%2C%22username%22%3A%22gbin%22%2C%22email%22%3A%22gbin%40gootz.
↪net%22%7D%2C%22url%22%3A%22https%3A%2F%2Fgithub.com%2Fgbin%2Ftest%2Fcommit
↪%2Fb3cd9e66e52e4783c1a0b98fbaaad6258669275f%22%2C%22id%22%3A
↪%22b3cd9e66e52e4783c1a0b98fbaaad6258669275f%22%2C%22distinct%22%3Atrue%2C%22message%22
↪%3A%22voila%22%2C%22committer%22%3A%7B%22name%22%3A%22Guillaume%20BINET%22%2C
↪%22username%22%3A%22gbin%22%2C%22email%22%3A%22gbin%40gootz.net%22%7D%7D%2C%22deleted
↪%22%3Afalse%2C%22commits%22%3A%5B%7B%22added%22%3A%5B%5D%2C%22modified%22%3A%5B
↪%22README.md%22%5D%2C%22timestamp%22%3A%222012-08-12T16%3A24%3A25-07%3A00%22%2C
↪%22removed%22%3A%5B%5D%2C%22author%22%3A%7B%22name%22%3A%22Guillaume%20BINET%22%2C
↪%22username%22%3A%22gbin%22%2C%22email%22%3A%22gbin%40gootz.net%22%7D%2C%22url%22%3A
↪%22https%3A%2F%2Fgithub.com%2Fgbin%2Ftest%2Fcommit
↪%2Fb3cd9e66e52e4783c1a0b98fbaaad6258669275f%22%2C%22id%22%3A
```

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```
↪%22b3cd9e66e52e4783c1a0b98fbaaad6258669275f%22%2C%22distinct%22%3Atrue%2C%22message%22
↪%3A%22voila%22%2C%22committer%22%3A%7B%22name%22%3A%22Guillaume%20BINET%22%2C
↪%22username%22%3A%22gbin%22%2C%22email%22%3A%22gbin%40gootz.net%22%7D%7D%5D%2C%22ref%22
↪%3A%22refs%2Fheads%2Fmaster%22%2C%22before%22%3A
↪%2229b1f5e59b7799073b6d792ce76076c200987265%22%2C%22compare%22%3A%22https%3A%2F
↪%2Fgithub.com%2Fgbin%2Ftest%2Fcompare%2F29b1f5e59b77...b3cd9e66e52e%22%2C%22created%22
↪%3Afalse%7D
```

Note: You can get a list of all the endpoints with the *!webstatus* command.

6.3.15 Testing your plugins

Just as Errbot has tests that validates that it behaves correctly so should your plugin. Errbot is tested using Python's py.test module and because we already provide some utilities for that we highly advise you to use *py.test* too.

We're going to write a simple plugin named *myplugin.py* with a *MyPlugin* class. It's tests will be stored in *test_myplugin.py* in the same directory.

Interacting with the bot

Lets go for an example, *myplugin.py*:

```
from errbot import BotPlugin, botcmd

class MyPlugin(BotPlugin):
    @botcmd
    def mycommand(self, message, args):
        return "This is my awesome command"
```

And *myplugin.plug*:

```
[Core]
Name = MyPlugin
Module = myplugin

[Documentation]
Description = my plugin
```

This does absolutely nothing shocking, but how do you test it? We need to interact with the bot somehow, send it *!mycommand* and validate the reply. Fortunately, Errbot provides some help.

Our test, *test_myplugin.py*:

```
pytest_plugins = ["errbot.backends.test"]

extra_plugin_dir = '.'

def test_command(testbot):
    testbot.push_message('!mycommand')
    assert 'This is my awesome command' in testbot.pop_message()
```

Lets walk through this line for line. First of all, we specify our pytest fixture location `test` in the backends tests, to allow us to spin up a bot for testing purposes and interact with the message queue. To avoid specifying the module in every test module, you can simply place this line in your conftest.py.

Then we set *extra_plugin_dir* to ., the current directory so that the test bot will pick up on your plugin.

After that we define our first *test_* method which simply sends a command to the bot using `push_message()` and then asserts that the response we expect, *"This is my awesome command"* is in the message we receive from the bot which we get by calling `pop_message()`.

You can assert the response of a command using the method assertInCommand of the testbot. *testbot.assertInCommand('!mycommand', 'This is my awesome command')* to achieve the equivalent of pushing message and asserting the response in the popped message.`

Helper methods

Often enough you'll have methods in your plugins that do things for you that are not decorated with *@botcmd* since the user never calls out to these methods directly.

Such helper methods can be either instance methods, methods that take *self* as the first argument because they need access to data stored on the bot or class or static methods, decorated with either *@classmethod* or *@staticmethod*:

```
class MyPlugin(BotPlugin):
    @botcmd
    def mycommand(self, message, args):
        return self.mycommand_helper()

    @staticmethod
    def mycommand_helper():
        return "This is my awesome command"
```

The *mycommand_helper* method does not need any information stored on the bot whatsoever or any other bot state. It can function standalone but it makes sense organisation-wise to have it be a member of the *MyPlugin* class.

Such methods can be tested very easily, without needing a bot:

```
import myplugin

def test_mycommand_helper():
    expected = "This is my awesome command"
    result = myplugin.MyPlugin.mycommand_helper()
    assert result == expected
```

Here we simply import *myplugin* and since it's a *@staticmethod* we can directly access it through *myplugin.MyPlugin.method()*.

Sometimes however a helper method needs information stored on the bot or manipulate some of that so you declare an instance method instead:

```
class MyPlugin(BotPlugin):
    @botcmd
    def mycommand(self, message, args):
        return self.mycommand_helper()

    def mycommand_helper(self):
        return "This is my awesome command"
```

Now what? We can't access the method directly anymore because we need an instance of the bot and the plugin and we can't just send *!mycommand_helper* to the bot, it's not a bot command (and if it were it would be *!mycommand helper* anyway).

What we need now is get access to the instance of our plugin itself. Fortunately for us, there's a method that can help us do just that:

```
extra_plugin_dir = '.'

def test_mycommand_helper(testbot):
    plugin = testbot._bot.plugin_manager.get_plugin_obj_by_name('MyPlugin')
    expected = "This is my awesome command"
    result = plugin.mycommand_helper()
    assert result == expected
```

There we go, we first grab our plugin using a helper method on *plugin_manager* and then simply execute the method and compare the result with the expected result. You can also access *@classmethod* or *@staticmethod* methods this way, but you don't have to.

Sometimes a helper method will be making HTTP or API requests which might not be possible to test directly. In that case, we need to mock that particular method and make it return the expected value without actually making the request.

```
URL = 'http://errbot.io'

class MyPlugin(BotPlugin):
    @botcmd
    def mycommand(self, message, args):
        return self.mycommand_helper()

    def mycommand_helper(self):
        return (requests.get(URL).status_code)
```

What we need now is to somehow replace the method making the request with our mock object and *inject_mocks* method comes in handy.

Refer unittest.mock for more information about mock.

```
from unittest.mock import MagicMock

extra_plugin_dir = '.'

def test_mycommand_helper(testbot):
    helper_mock = MagicMock(return_value='200')
    mock_dict = {'mycommand_helper': helper_mock}
    testbot.inject_mocks('MyPlugin', mock_dict)
    testbot.push_message('!mycommand')
    expected = '200'
    result = testbot.pop_message()
    assert result == expected
```

Pattern

It's a good idea to split up your plugin in two types of methods, those that directly interact with the user and those that do extra stuff you need.

If you do this the *@botcmd* methods should only concern themselves with giving output back to the user and calling different other functions it needs in order to fulfill the user's request.

Try to keep as many helper methods simple, there's nothing wrong with having an extra helper or two to avoid having to nest fifteen if-statements. It becomes more legible, easier to maintain and easier to test.

If you can, try to make your helper methods *@staticmethod* decorated functions, it's easier to test and you don't need a full running bot for those tests.

All together now

myplugin.py:

```
from errbot import BotPlugin, botcmd

class MyPlugin(BotPlugin):
    @botcmd
    def mycommand(self, message, args):
        return self.mycommand_helper()

    @botcmd
    def mycommand_another(self, message, args):
        return self.mycommand_another_helper()

    @staticmethod
    def mycommand_helper():
        return "This is my awesome command"

    def mycommand_another_helper(self):
        return "This is another awesome command"
```

myplugin.plug:

```
[Core]
Name = MyPlugin
Module = myplugin

[Documentation]
Description = my plugin
```

test_myplugin.py:

```
import myplugin

extra_plugin_dir = '.'

def test_mycommand(testbot):
    testbot.push_message('!mycommand')
    assert 'This is my awesome command' in testbot.pop_message()
```

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```
def test_mycommand_another(testbot):
    testbot.push_message('!mycommand another')
    assert 'This is another awesome command' in testbot.pop_message()

def test_mycommand_helper(testbot):
    expected = "This is my awesome command"
    result = myplugin.MyPlugin.mycommand_helper()
    assert result == expected

def test_mycommand_another_helper(testbot):
    plugin = testbot._bot.plugin_manager.get_plugin_obj_by_name('MyPlugin')
    expected = "This is another awesome command"
    result = plugin.mycommand_another_helper()
    assert result == expected
```

You can now simply run **py.test** to execute the tests.

PEP-8 and code coverage

If you feel like it you can also add syntax checkers like *pep8* into the mix to validate your code behaves to certain stylistic best practices set out in PEP-8.

First, install the pep8 for py.test: **pip install pytest-pep8**.

Then, simply add *–pep8* to the test invocation command: *py.test –pep8*.

You also want to know how well your tests cover you code.

To that end, install coverage: **pip install coverage** and then run your tests like this: **coverage run --source myplugin -m py.test --pep8**.

You can now have a look at coverage statistics through **coverage report**:

```
Name        Stmts   Miss  Cover
-------------------------------
myplugin       49      0   100%
```

It's also possible to generate an HTML report with **coverage html** and opening the resulting *htmlcov/index.html*.

Travis and Coveralls

Last but not least, you can run your tests on Travis-CI so when you update code or others submit pull requests the tests will automatically run confirming everything still works.

In order to do that you'll need a *.travis.yml* similar to this:

```
language: python
python:
  - 3.6
  - 3.7
install:
  - pip install -q errbot pytest pytest-pep8 --use-wheel
  - pip install -q coverage coveralls --use-wheel
script:
```

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```
  - coverage run --source myplugin -m py.test --pep8
after_success:
  - coveralls
notifications:
  email: false
```

Most of it is self-explanatory, except for perhaps the *after_success*. The author of this plugin uses Coveralls.io to keep track of code coverage so after a successful build we call out to coveralls and upload the statistics. It's for this reason that we *pip install [..] coveralls [..]* in the *.travis.yml*.

The *-q* flag causes pip to be a lot more quiet and *–use-wheel* will cause pip to use wheels if available, speeding up your builds if you happen to depend on something that builds a C-extension.

Both Travis-CI and Coveralls easily integrate with Github hosted code.

6.3.16 Logging

Logging information on what your plugin is doing can be a tremendous asset when managing your bot in production, especially when something is going wrong.

Errbot uses the standard Python logging library to log messages internally and provides a logger for your own plugins to use as well as *self.log*. You can use this logger to log status messages to the log like this:

```
from errbot import BotPlugin

class PluginExample(BotPlugin):
    def callback_message(self, message):
        self.log.info("I just received a message!")
```

6.3.17 Exception Handling

Properly handling exceptions helps you build plugins that don't crash or produce unintended side-effects when the user or your code does something you did not expect. Combined with logging, exceptions also allow you to get visibility of areas in which your bot is failing and ultimately address problems to improve user experience.

Exceptions in Errbot plugins should be handled slightly differently from how exceptions are normally used in Python. When an unhandled exception is raised during the execution of a command, Errbot sends a message like this:

```
Computer says nooo. See logs for details:
<exception message here>
```

The above is neither helpful nor user-friendly, as the exception message may be too technical or brief (notice there is no traceback) for the user to understand. Even if you were to provide your own exception message, the "Computer says nooo ..." part is neither particularly attractive or informative.

When handling exceptions, follow these steps:

- trap the exception as you usually would
- log the exception inside of the `except` block
  - `self.log.exception('Descriptive message here')`
  - import and use the logging module directly if you don't have access to `self`
  - `self.log` is just a convenience wrapper for the standard Python `logging` module

- send a message describing what the user did wrong and recommend a solution for them to try their command again
- do not re-raise your exception in the `except` block as you normally would. This is usually done in order to produce an entry in the error logs, but we've already logged the exception, and by not re-raising it, we prevent that automatic "Computer says nooo. …" message from being sent

Also, note that there is a `errbot.ValidationException` class which you can use inside your helper methods to raise meaningful errors and handle them accordingly.

Here's an example:

```
from errbot import BotPlugin, arg_botcmd, ValidationException

class FooBot(BotPlugin):
    """An example bot"""

    @arg_botcmd('first_name', type=str)
    def add_first_name(self, message, first_name):
        """Add your first name if it doesn't contain any digits"""
        try:
            FooBot.validate_first_name(first_name)
        except ValidationException as exc:
            self.log.exception(
                'first_name=%s contained a digit' % first_name
            )
            return 'Your first name cannot contain a digit.'

        # Add some code here to add the given name to your database

        return "Your name has been added."

    @staticmethod
    def validate_first_name(first_name):
        if any(char.isdigit() for char in first_name):
            raise ValidationException(
                "first_name=%s contained a digit" % first_name
            )
```

6.3.18 Plugin compatibility settings

Errbot compatibility

Sometimes when your plugin breaks under a specific version of Errbot, you might want to warn the user of your plugin and not load it.

You can do it by adding an **Errbot** section to your plug file like this:

```
[Core]
Name = MyPlugin
Module = myplugin

[Documentation]
Description = my plugin
```

(continues on next page)

(continued from previous page)

```
[Errbot]
Min=2.4.0
Max=2.6.0
```

If the **Errbot** section is omitted, it defaults to "compatible with any version".

If the **Min** option is omitted, there is no minimum version enforced.

If the **Max** option is omitted, there is no maximum version enforced.

Versions need to be a 3 dotted one (ie 2.4 is not allowed but 2.4.0 is). And it understands those suffixes:

- "-beta"
- "-rc1"
- "-rc2"
- etc.

For example: 2.4.0-rc1

note: -beta1 or -rc are illegal. Only rc can get a numerical suffix.

6.3.19 Backend-specifics

Errbot uses external libraries for most backends, which may offer additional functionality not exposed by Errbot in a generic, backend-agnostic fashion.

It is possible to access the underlying client used by the backend you are using in order to provide functionality that isn't otherwise available. Additionally, interacting directly with the bot internals gives you the freedom to control Errbot in highly specific ways that may not be officially supported.

> **Warning:** The following instructions describe how to interface directly with the underlying bot object and clients of backends. We offer no guarantees that these internal APIs are stable or that a given backend will continue to use a given client in the future. The following information is provided **as-is** without any official support. We can give **no** guarantees about API stability on the topics described below.

Getting to the bot object

From within a plugin, you may access *self._bot* in order to get to the instance of the currently running bot class. For example, with the Telegram backend this would be an instance of `TelegramBackend`:

```
>>> type(self._bot)
<class 'errbot.backends.TelegramBackend'>
```

To find out what methods each bot backend has, you can take a look at the documentation of the various backends in the *errbot.backends* package.

Plugins may use the *self._bot* object to offer tailored, backend-specific functionality on specific backends. To determine which backend is being used, a plugin can inspect the *self._bot.mode* property. The following table lists all the values for *mode* for the official backends:

Backend	Mode value
irc	irc
slack	slack
telegram_messenger	telegram
test	test
text	text
xmpp	xmpp

Here's an example of using a backend-specific feature. In Slack, emoji reactions can be added to messages the bot receives using the *add_reaction* and *remove_reaction* methods. For example, you could add an hourglass to messages that will take a long time to reply fully to.

```
from errbot import BotPlugin, botcmd

class PluginExample(BotPlugin):
    @botcmd
    def longcompute(self, mess, args):
        if self._bot.mode == "slack":
            self._bot.add_reaction(mess, "hourglass")
        else:
            yield "Finding the answer..."

        time.sleep(10)

        yield "The answer is: 42"
        if self._bot.mode == "slack":
            self._bot.remove_reaction(mess, "hourglass")
```

Getting to the underlying client library

Most of the backends use a third-party library in order to connect to their respective network. These libraries often support additional features which Errbot doesn't expose in a generic way so you may wish to make use of these in order to access advanced functionality.

Backends set their own attribute(s) to point to the underlying libraries' client instance(s). The following table lists these attributes for the official backends, along with the library used by the backend:

Backend	Library	Attribute(s)
irc	irc	`self._bot.conn` `self._bot.conn.connection`
slack	slackclient	`self._bot.sc`
telegram_messenger	telegram-python-bot	`self._bot.telegram`
xmpp	slixmpp	`self._bot.conn`

6.4 Flow development

Flows are a feature in Errbot to enable plugin designers to chain several plugin commands together into a "conversation".

For example, imagine interacting with a bot that needs more that one command, like setting up a poll in a chatroom:

```
User: !poll new Where do we go for lunch ?

Bot: Flow poll_setup started, you can continue with:
     !poll newoption <your option>

User: !poll newoption Greek

Bot: Option added, current options:
     - Greek

Bot: You can continue with:
     !poll newoption <your option>
     !poll start

User: !poll newoption French

Bot: Option added, current options:
     - Greek
     - French

Bot: You can continue with:
     !poll newoption <your option>
     !poll start

User: !poll start
[...]
```

In this guide we will explain the underlying concepts and basics of writing flows. Prerequisite: you need to be familiar with the normal errbot plugin development.

6.4.1 Flows Concepts

Static structure

Flows are represented as graphs. Those graphs have a root (FlowRoot), which is basically their entry point, and are composed of nodes (FlowNodes). Every node represents an Errbot command.

Fig. 1: Example of a flow construction.

This defines a simple flow where for example this sequence of commands is possible:

```
!command1 !command2 !command3 !command1 !command2 !command3 !last_command
```

On the connections of those nodes (), you can attach **predicates**, predicates are simple conditions to allow the flow to continue without any user intervention.

Execution

At execution time, Errbot will keep track of who started the flow, and at what step (node) it is currently. On top of that, Errbot will initialize a context for the entire conversation. The context is a simple Python dictionary and it is attached to only one conversation. Think of this like the persistence for plugins, but linked to a conversation only.

If you don't specify any predicate when you build your flow, every single step is "manual". It means that Errbot will wait for the user to execute one of the possible commands at every step to advance along the graph.

Predicates can be used to trigger a command automatically. Predicates are simple functions saying to Errbot, "this command has enough in the context to be able to execute without any user intervention". At any time if a predicate is verified after a step is executed, Errbot will proceed and execute the next step.

6.4.2 Basic Flow Definition

Flows are like plugins

They are defined by a `.flow` file, similar to the plugin ones:

```
[Core]
Name = MyFlows
Module = myflows

[Documentation]
Description = my documentation.

[Python]
Version = 3
```

Now in the `myflows.py` file you will have pretty familiar structure with a `BotFlow` as type and @botflow as flow decorator:

```
from errbot import botflow, FlowRoot, BotFlow

class MyFlows(BotFlow):
    """ Conversation flows for Errbot"""

    @botflow
    def example(self, flow: FlowRoot):
        """ Docs for the flow example comes here """
        # [...]
```

Errbot will pass the root of the flow as the only parameter to your flow definition so you can build your graph from there.

Making a simple graph

Within your flow, you can connect commands together. For example, to make a simple linear flow between `!first`, `!second` and `!third`:

```
@botflow
def example(self, flow: FlowRoot):
    first_step = flow.connect('first')           # first is a command name from any␣
↪loaded plugin.
    second_step = first_step.connect('second')
    third_step = second_step.connect('third')
```

You can represent this flow like this:

O is the state "not started" for the flow `example`.

You can start this flow manually by doing `!flows start example`.

The bot will tell you that it expects a `!first` command:

Once you have executed `!first`, you will be in that state:

The bot will tell you that it expects `!second`, etc.

Making a flow start automatically

Now, usually flows are linked to a first action your users want to do. For example: `!poll new`, `!vm create`, `!report init` or first commands like that that suggests that you will have a follow-up.

To trigger a flow automatically on those first commands, you can use `auto_trigger`.

```
@botflow
def example(self, flow: FlowRoot):
    first_step = flow.connect('first', auto_trigger=True)
    second_step = first_step.connect('second')
    third_step = second_step.connect('third')
```

You can still represent this flow like this:

BUT, when a user will execute a `!first` command, the bot will instantly instantiate a Flow in this state:

And tell the user that `!second` is the follow-up.

Flow ending

If a node has no more children and a user passed it, it will automatically end the flow.

Sometimes, with loops etc., you might want to explicitly mark an END FlowNode with a predicate. You can do it like this, for example for a guessing game plugin:

In the flow code…

```
from errbot import botflow, FlowRoot, BotFlow, FLOW_END

class GuessFlows(BotFlow):
    """ Conversation flows related to polls"""

    @botflow
    def guess(self, flow: FlowRoot):
        """ This is a flow that can set a guessing game."""
        # setup Flow
        game_created = flow.connect('tryme', auto_trigger=True)
        one_guess = game_created.connect('guessing')
        one_guess.connect(one_guess)  # loop on itself
        one_guess.connect(FLOW_END, predicate=lambda ctx: ctx['ended'])
```

6.4.3 Advanced Flow Definitions

Storing something in the flow context

Flows have a state the plugins can use to store some contextual information. Let's take back out simple linear flow:

```
@botflow
def example(self, flow: FlowRoot):
    first_step = flow.connect('first')
    second_step = first_step.connect('second')
    third_step = second_step.connect('third')
```

You can represent this flow like this:

You can store something in the context, for example in `!first` and retrieve it in `!second`. Like this:

```
@botcmd
def first(self, msg, args):
    msg.ctx['mydata'] = 'Hello'
    return 'First done!'

@botcmd
def second(self, msg, args):
    return msg.ctx['mydata'] + ' World!'
```

`msg.ctx` is a dictionary created every time a flow starts.

Making a step execute automatically

In our previous example, if `msg.ctx['mydata']` is populated, we can arguably expect that Errbot should not wait for the user to enter `!second` to execute it and just proceed by itself.

You can do that by defining a **predicate**, which is a simple function that returns `True` if the conditions to proceed to the next step are met. The function takes only one parameter, the context, the same one you get from `msg.ctx`.

```
@botflow
def example(self, flow: FlowRoot):
    first_step = flow.connect('first')
    second_step = first_step.connect('second',
                                     predicate=lambda ctx: 'mydata' in ctx)
    third_step = second_step.connect('third')
```

Now, after starting the flow with `!flows start example`, the state will be:

Errbot will wait for `!first`. But then, once the user executes `!first`, it will see that the predicate between `!first` and `!second` is verified, so will go on and execute `!second`, displaying 'Hello World' and proceed to wait for `!third`:

Branching in the graph

It is perfectly possible to branch out to several possibilities (possibly with different predicates).

```
@botflow
def example(self, flow: FlowRoot):
    first_step = flow.connect('first')
    second_step = first_step.connect('second',
                                     predicate=lambda ctx: 'mydata' in ctx)
    other = first_step.connect('other_second',
                               predicate= lambda ctx: 'otherdata' in ctx)
```

This will do something like that:

In manual mode, the bot will tell the user about his 2 possible options to continue.

Making a looping graph

You can also perfectly re-execute a part of a graph in a "loop". You can branch directly the node object instead of the command name in that case.

```
@botflow
def example(self, flow: FlowRoot):
    first_step = flow.connect('first')
    second_step = first_step.connect('second')
    third_step = second_step.connect('third')
    third_step.connect(first_step, predicate=...)
    final_step = third_step.connect('final', predicate=...)
```

You can represent this flow like this:

The typical use case is to repeatedly ask something to the user.

6.5 [Advanced] Backend development

A backend is the glue code to connect Errbot to a chatting service. Starting with Errbot 2.3.0, backends can be developed out of the main repository. This documentation is there to guide you making a new backend for a chatting service but is also interesting to understand more core concepts of Errbot.

It is important to understand the core concepts of Errbot before starting to work on a backend.

6.5.1 Architecture

Backends are just a specialization of the bot, they are what is instantiated as the bot and are the entry point of the bot.

Following this logic a backend must inherit from `ErrBot`.

`ErrBot` inherits itself from *Backend*. This is where you can find what Errbot is expecting from backend.

You'll see a series of methods simply throwing the exception `NotImplementedError`. Those are the one you need to implement to fill up the blanks.

6.5.2 Identifiers

Every backend have a very specific way of addressing who, where and how to speak to somebody.

Lifecycle: identifiers are either created internally by the backend or externally by the plugins from *build_identifier()*.

There are 2 types of identifiers:

- a person
- a person in a chatroom

6.5.3 Identifier for a person

It is important to note that for some backends you can infer what a person is from what a person in a chatroom is, but for privacy reason you cannot on some backends ie. you can send a private message to a person in a chatroom but if the person leaves the room you have no way of knowing how to contact her/him personally.

Backends must implement a specific Identifier class that matches their way of identifying those.

For example Slack has a notion of userid and channeid you can find in the `SlackIdentifier` which is completely opaque to ErrBot itself.

But you need to implement a mapping from those private parameters to those properties:

- person: this needs to be a string that identifies a person. This should be enough info for the backend to contact this person. This should be a *secure* and sure way to identify somebody.
- client: this will identify optionally as a string additional information or channel from where this person is sending a message. For example, some backends open a one to one room to chat, or some backends identifies the current peripheral from which the person is sending a message from (mobile, web, ...)

Some of those strings are completely unreadable for humans ie. *U00234FBE* for a person. So you need to provide more human readable info:

- nick: this would be the short name refering to that person. ie. *gbin*
- displayName: (optionally) this would give for example a full name ie. *Guillaume Binet*. This is often found in professional chatting services.

6.5.4 Identifier for a person in a chatroom

This is simply an Identifier with an added property: room. The string representation of room should give a chatroom identifier (see below).

See for example `SlackMUCIdentifier`

6.5.5 Chatrooms / MUCRooms

In order to implement the various MUC related APIs you'll find from *Backend*, you'll need to implement a Room class. To help guide you, you can inherit from `MUCRoom` and fill up the blanks from the NotImplementedError.

Lifecycle: Those are created either internally by the backend or externally through `join_room()` from a string identifier.

6.6 [Advanced] Storage Plugin development

A storage plugin is the glue code that tells Errbot how to store the persistent data the plugins and the bot itself are producing. Starting with Errbot 3.3.0, storage plugins can be developed out of the main repository. This documentation is there to guide you making a new storage plugin so you can connect Errbot to your favorite database.

6.6.1 Architecture

Storage plugins are instantiated in 2 stages.

The first stage is storage plugin discovery and is similar to normal bot plugins:

- Errbot scans *errbot/storage* and *config.BOT_EXTRA_STORAGE_PLUGINS_DIR* for *.plug* files pointing to plugins implementing *StoragePluginBase*.
- Once the correct plugin from *config.STORAGE* is found, it is built with the bot config as its *__init__* parameter.
- By calling *super().__init__* on *StoragePluginBase*, Errbot will populate *self._storage_config* from *config.STORAGE_CONFIG*. This configuration should contain the custom parameters needed by your plugin to be able to connect to your database/storage ie. url, port, path, credentials ... You need to document them clearly so your users can set *config.STORAGE_CONFIG* correctly.
- As you can see in *StoragePluginBase*, you just have to implement the *open* method there.

The second stage is opening the storage, which is done using the *open* method:

- Various parts of Errbot may need separate key/value storage, the *open* method has a namespace to track those. For example, the internal *BotPluginManager* will open the namespace *core* to store the bot plugins and their config, the installed repos, etc.
- *open* needs to return a *StorageBase*, which exposes the various actions that Errbot can call on the storage (set, get, ...).

- You don't need to track the lifecycle of the storage, it will be enforced externally: no double-close, double-open, *get* after close, etc.

Plugins are `collections.MutableMapping` and use *StoreMixin* as an adapter from the mapping accessors to the *StorageBase* implementation.

6.6.2 Testing

Storage plugins are completely independent from Errbot itself. It should be easy to instantiate and test them externally.

6.6.3 Example

You can have a look at the internal shelf implementation *ShelfStorage*

6.7 Logging to Sentry

According to the official website…

> Sentry is an event logging platform primarily focused on capturing and aggregating exceptions.
>
> It was originally conceived at DISQUS in early 2010 to solve exception logging within a Django application. Since then it has grown to support many popular languages and platforms, including Python, PHP, Java, Ruby, Node.js, and even JavaScript.

6.7.1 Come again? Just what is Sentry, exactly?

The official documentation explains it better:

> Sentry is a realtime event logging and aggregation platform. At its core it specializes in monitoring errors and extracting all the information needed to do a proper post-mortem without any of the hassle of the standard user feedback loop.

If that sounds like something you'd want to gift your precious Errbot instance with, then do keep on reading :)

6.7.2 Setting up Sentry itself

Installing and configuring sentry is beyond the scope of this document. However, there are two options available to you. You can either get a hosted account, or grab the code and run your own server instead.

6.7.3 Configuring Errbot to use Sentry

Once you have an instance of Sentry available, you'll probably want to create a team specifically for Errbot first.

When you have, you should be able to access a page called "Client configuration". There, you will be presented with a so-called DSN value, which has the following format:

> http://00000000000000000:00000000000000000@sentry.domain.tld/0

To setup Errbot with Sentry:

- Open up your bot's config.py
- Set **BOT_LOG_SENTRY** to *True* and fill in **SENTRY_DSN** with the DSN value obtained previously

- Optionally adjust **SENTRY_LOGLEVEL** to the desired level
- Optionally adjust **SENTRY_OPTIONS** to customise the rest of the initialization.
- Restart Errbot

You can find a list of Sentry options.

You should now see Exceptions and log messages show up in your Sentry stream.

CHAPTER

SEVEN

GETTING INVOLVED

7.1 Contributing

If you would like to contribute to the project, please do not hesitate to get involved! Here you can find how best to get started.

7.1.1 Contributing to Errbot itself

Clone Errbot

All development on Errbot happens on GitHub. If you'd like to get involved, just fork the repository and make changes in your own repo. When you are satisfied with your changes, just open a pull request with us and we'll get it reviewed as soon as we can! Depending on our thoughts, we might decide to merge it in right away, or we may ask you to change certain parts before we will accept the change.

Run Errbot from source

Clone you github fork repo locally and install errbot in development mode from the root of the repo with:

```
pip install -e .
```

From there, anytime you execute *errbot* it will run from the checked out version of Errbot with all your local changes taken into account.

Preparing your pull request

In order to make the process easy for everyone involved, please follow these guidelines as you open a pull request.

- Make your changes on a separate branch, preferably giving it a descriptive name.
- Split your work up into smaller commits if possible, while making sure each commit can still function on its own. Do not commit work-in-progress code - commit it once it's working.
- Run tox before opening your pull request, and make sure all tests pass. You can install tox with **`pip install tox`**
- If you can, please add tests for your code. We know large parts of our codebase are missing tests, so we won't reject your code if it lacks tests, though.

7.1.2 Contributing documentation & making changes to the website

errbot.io is created using Sphinx, which also doubles as a generator for our (API) documentation. The code for it is in the same repository as Errbot itself, inside the docs folder. To make changes to the documentation or the website, you can build the HTML locally as follows:

```
# Install the required extra dependencies from the root of the repository.
pip install -r docs/requirements.txt
# Go into the docs directory
cd docs/
# Generate the static HTML
make html
# Then, open the generated _build/html/index.html in a browser
```

To submit your changes back to us, please make your change in a separate branch as described in the previous section, then open a pull request with us.

Note: You must do this with Python 3, Python 2 is unsupported.

7.2 Issues and feature requests

Please report issues or feature requests on the issue tracker on GitHub.

When reporting issues, please be as specific as possible. Include things such as your Python version, platform, debug logs, and a description of what is happening. If you can tell us how to reproduce the issue ourselves, this makes it a lot easier for us to figure out what is going on, as well.

7.3 Getting help

The best place to get help if you get stuck with anything is to ask for advice on our Gitter chat room. If nobody is around to help you, opening an issue on the issue tracker is your next best option.

If you have a code-related question concerning (plugin) development it's best to ask your question on Stack Overflow, tagged errbot.

CHAPTER

EIGHT

API DOCUMENTATION

8.1 errbot package

8.1.1 Subpackages

errbot.backends package

Submodules

errbot.backends.base module

class errbot.backends.base.**Backend**(_)

Bases: ABC

Implements the basic Bot logic (logic independent from the backend) and leaves you to implement the missing parts.

MSG_ERROR_OCCURRED = 'Sorry for your inconvenience. An unexpected error occurred.'

__init__(_)

Those arguments will be directly those put in BOT_IDENTITY

abstract build_identifier(*text_representation: str*) → *Identifier*

build_message(*text: str*) → *Message*

You might want to override this one depending on your backend

abstract build_reply(*msg:* Message, *text: str = None*, *private: bool = False*, *threaded: bool = False*)

Should be implemented by the backend

abstract callback_presence(*presence:* Presence) → None

Implemented by errBot.

abstract callback_room_joined(*room:* Room) → None

See ErrBot

abstract callback_room_left(*room:* Room) → None

See ErrBot

abstract callback_room_topic(*room:* Room) → None

See ErrBot

abstract change_presence(*status: str = 'online'*, *message: str = ''*) → None

Signal a presence change for the bot. Should be overridden by backends with a super().send_message() call.

cmd_history = {}

connect() → Any

Connects the bot to server or returns current connection

abstract connect_callback() → None

abstract disconnect_callback() → None

is_from_self(*msg:* Message) → bool

Needs to be overridden to check if the incoming message is from the bot itself.

Return type
bool

Parameters
msg (*Message*) – The incoming message.

Returns
True if the message is coming from the bot.

abstract property mode: str

abstract prefix_groupchat_reply(*message:* Message, *identifier:* Identifier)

Patches message with the conventional prefix to ping the specific contact For example: @gbin, you forgot the milk !

abstract query_room(*room: str*) → *Room*

Query a room for information.

Return type
Room

Parameters
room (str) – The room to query for.

Returns
An instance of *Room*.

reset_reconnection_count() → None

Reset the reconnection count. Back-ends should call this after successfully connecting.

abstract property rooms: Sequence[*Room*]

Return a list of rooms the bot is currently in.

Returns
A list of *Room* instances.

abstract send_message(*msg:* Message) → None

Should be overridden by backends with a super().send_message() call.

serve_forever() → None

Connect the back-end to the server and serve forever.

Back-ends MAY choose to re-implement this method, in which case they are responsible for implementing reconnection logic themselves.

Back-ends SHOULD trigger *connect_callback()* and *disconnect_callback()* themselves after connection/disconnection.

serve_once() → None

Connect the back-end to the server and serve a connection once (meaning until disconnected for any reason).

Back-ends MAY choose not to implement this method, IF they implement a custom *serve_forever()*.

This function SHOULD raise an exception or return a value that evaluates to False in order to signal something went wrong. A return value that evaluates to True will signal the bot that serving is done and a shut-down is requested.

class errbot.backends.base.**Card**(*body: str = ''*, *frm:* Identifier *= None*, *to:* Identifier *= None*, *parent:* Message *= None*, *summary: str = None*, *title: str = ''*, *link: str = None*, *image: str = None*, *thumbnail: str = None*, *color: str = None*, *fields: Tuple[Tuple[str, str]] = ()*)

Bases: *Message*

Card is a special type of preformatted message. If it matches with a backend similar concept like on Slack it will be rendered natively, otherwise it will be sent as a regular message formatted with the card.md template.

__init__(*body: str = ''*, *frm:* Identifier *= None*, *to:* Identifier *= None*, *parent:* Message *= None*, *summary: str = None*, *title: str = ''*, *link: str = None*, *image: str = None*, *thumbnail: str = None*, *color: str = None*, *fields: Tuple[Tuple[str, str]] = ()*)

Creates a Card. :type color: `str` :type thumbnail: `str` :type image: `str` :type link: `str` :type title: `str` :type summary: `str` :type parent: *Message* :type to: *Identifier* :type frm: *Identifier* :type body: `str` :param body: main text of the card in markdown. :param frm: the card is sent from this identifier. :param to: the card is sent to this identifier (Room, RoomOccupant, Person...). :param parent: the parent message this card replies to. (threads the message if the backend supports it). :param summary: (optional) One liner summary of the card, possibly collapsed to it. :param title: (optional) Title possibly linking. :param link: (optional) url the title link is pointing to. :param image: (optional) link to the main image of the card. :param thumbnail: (optional) link to an icon / thumbnail. :param color: (optional) background color or color indicator. :param fields: (optional) a tuple of (key, value) pairs.

property color: str

property fields: Tuple[Tuple[str, str]]

property image: str

property link: str

property summary: str

property text_color: str

property thumbnail: str

property title: str

class errbot.backends.base.**Identifier**

Bases: `ABC`

This is just use for type hinting representing the Identifier contract,

NEVER TRY TO SUBCLASS IT OUTSIDE OF A BACKEND, it is just here to show you what you can expect from an Identifier. To get an instance of a real identifier, always use the properties from Message (to, from) or self.build_identifier to make an identifier from a String.

The semantics is anything you can talk to: Person, Room, RoomOccupant etc.

class errbot.backends.base.**Message**(*body: str = ''*, *frm: Identifier = None*, *to: Identifier = None*, *parent: Message = None*, *delayed: bool = False*, *partial: bool = False*, *extras: Mapping = None*, *flow=None*)

Bases: `object`

A chat message.

This class represents chat messages that are sent or received by the bot.

__init__(*body: str = ''*, *frm: Identifier = None*, *to: Identifier = None*, *parent: Message = None*, *delayed: bool = False*, *partial: bool = False*, *extras: Mapping = None*, *flow=None*)

Parameters

- **body** (`str`) – The markdown body of the message.
- **extras** – Extra data attached by a backend
- **flow** – The flow in which this message has been triggered.
- **parent** – The parent message of this message in a thread. (Not supported by all backends)
- **partial** (`bool`) – Indicates whether the message was obtained by breaking down the message to fit the `MESSAGE_SIZE_LIMIT`.

property body: str

Get the plaintext body of the message.

Returns
The body as a string.

clone() → *Message*

property delayed: bool

property extras: Mapping

property flow: *errbot.Flow*

Get the conversation flow for this message.

Returns
A *Flow*

property frm: *Identifier*

Get the sender of the message.

Returns
An *Identifier* identifying the sender.

property is_direct: bool

property is_group: bool

property is_threaded: bool

property parent: *Message* | None

property partial: bool

property to: *Identifier*

Get the recipient of the message.

Returns
A backend specific identifier representing the recipient.

class errbot.backends.base.**Person**

Bases: *Identifier*

This is just use for type hinting representing the Identifier contract,

NEVER TRY TO SUBCLASS IT OUTSIDE OF A BACKEND, it is just here to show you what you can expect from an Identifier. To get an instance of a real identifier, always use the properties from Message (to, from) or self.build_identifier to make an identifier from a String.

abstract property aclattr: **str**

Returns
returns the unique identifier that will be used for ACL matches.

abstract property client: **str**

Returns
a backend specific unique identifier representing the device or client the person is using to talk.

property email: **str**

Some backends have the email of a user.

Returns
the email of this user if available.

abstract property fullname: **str**

Some backends have the full name of a user.

Returns
the fullname of this user if available.

abstract property nick: **str**

Returns
a backend specific nick returning the nickname of this person if available.

abstract property person: **str**

Returns
a backend specific unique identifier representing the person you are talking to.

class errbot.backends.base.**Presence**(*identifier:* Identifier, *status: str = None*, *message: str = None*)

Bases: object

This class represents a presence change for a user or a user in a chatroom.

Instances of this class are passed to *callback_presence()* when the presence of people changes.

__init__(*identifier:* Identifier, *status: str = None*, *message: str = None*)

property identifier: *Identifier*

Identifier for whom its status changed. It can be a RoomOccupant or a Person. :return: the person or roomOccupant

property message: str

Returns a human readable message associated with the status if any. like : "BRB, washing the dishes" It can be None if it is only a general status update (see get_status)

property status: str

Returns the status of the presence change. It can be one of the constants ONLINE, OFFLINE, AWAY, DND, but can also be custom statuses depending on backends. It can be None if it is just an update of the status message (see get_message)

class errbot.backends.base.**Reaction**(*reactor: Identifier = None*, *reacted_to_owner: Identifier = None*, *action: str = None*, *timestamp: str = None*, *reaction_name: str = None*, *reacted_to: Mapping = None*)

Bases: object

This class represents a reaction event, either an added or removed reaction, to some message or object.

Instances of this class are passed to *callback_reaction()* when the reaction event is received.

Note: Reactions, at the time of implementation, are only provided by the Slack backend. This class is largely based on the Slack reaction event data.

__init__(*reactor: Identifier = None*, *reacted_to_owner: Identifier = None*, *action: str = None*, *timestamp: str = None*, *reaction_name: str = None*, *reacted_to: Mapping = None*)

property action: str

Returns the action performed It can be one of the constants REACTION_ADDED or REACTION_REMOVED It can also be backend specific

property reacted_to: Mapping

Returns the item that was reacted to Structure of the reacted to item is backend specific

property reacted_to_owner: *Identifier*

Identifier of the owner, if any, of the item that was reacted to. It can be a RoomOccupant or a Person. :return: the person or roomOccupant

property reaction_name: str

Returns the reaction that was added or removed Format of the reaction is backend specific

property reactor: *Identifier*

Identifier of the reacting individual. It can be a RoomOccupant or a Person. :return: the person or roomOccupant

property timestamp: str

Returns the timestamp string in which the event occurred Format of the timestamp string is backend specific

class errbot.backends.base.**Room**

Bases: *Identifier*

This class represents a Multi-User Chatroom.

property aclattr: str

Returns
returns the unique identifier that will be used for ACL matches.

create() → None

Create the room.

Calling this on an already existing room is a no-op.

destroy() → None

Destroy the room.

Calling this on a non-existing room is a no-op.

property exists: bool

Boolean indicating whether this room already exists or not.

Getter
Returns *True* if the room exists, *False* otherwise.

invite(**args*) → None

Invite one or more people into the room.

Parameters
***args** – One or more identifiers to invite into the room.

join(*username: str = None*, *password: str = None*) → None

Join the room.

If the room does not exist yet, this will automatically call *create()* on it first.

property joined: bool

Boolean indicating whether this room has already been joined.

Getter
Returns *True* if the room has been joined, *False* otherwise.

leave(*reason: str = None*) → None

Leave the room.

Parameters
reason (str) – An optional string explaining the reason for leaving the room.

property occupants: List[*RoomOccupant*]

The room's occupants.

Getter
Returns a list of occupant identities.

Raises
MUCNotJoinedError if the room has not yet been joined.

property topic: str

The room topic.

Getter
Returns the topic (a string) if one is set, *None* if no topic has been set at all.

Note: Back-ends may return an empty string rather than *None* when no topic has been set as a network may not differentiate between no topic and an empty topic.

Raises
MUCNotJoinedError if the room has not yet been joined.

exception errbot.backends.base.**RoomDoesNotExistError**

Bases: *RoomError*

Exception that is raised when performing an operation on a room that doesn't exist

exception errbot.backends.base.**RoomError**

Bases: Exception

General exception class for MUC-related errors

exception errbot.backends.base.**RoomNotJoinedError**

Bases: *RoomError*

Exception raised when performing MUC operations that require the bot to have joined the room

class errbot.backends.base.**RoomOccupant**

Bases: *Identifier*

abstract property room: Any

Some backends have the full name of a user.

Returns
the fullname of this user if available.

class errbot.backends.base.**Stream**(*identifier:* Identifier, *fsource: BinaryIO*, *name: str = None*, *size: int = None*, *stream_type: str = None*)

Bases: BufferedReader

This class represents a stream request.

Instances of this class are passed to *callback_stream()* when an incoming stream is requested.

__init__(*identifier:* Identifier, *fsource: BinaryIO*, *name: str = None*, *size: int = None*, *stream_type: str = None*)

accept() → None

Signal that the stream has been accepted.

ack_data(*length: int*) → None

Acknowledge data has been transfered.

clone(*new_fsource: BinaryIO*) → *Stream*

Creates a clone and with an alternative stream

error(*reason='unknown'*) → None

An internal plugin error prevented the transfer.

property identifier: *Identifier*

The identity the stream is coming from if it is an incoming request or to if it is an outgoing request.

property name: str

The name of the stream/file if it has one or None otherwise. !! Be carefull of injections if you are using this name directly as a filename.

reject() → None

Signal that the stream has been rejected.

property size: int

The expected size in bytes of the stream if it is known or None.

property status: str

The status for this stream.

property stream_type: str

The mimetype of the stream if it is known or None.

success() → None

The streaming finished normally.

property transfered: int

The currently transfered size.

exception errbot.backends.base.**UserDoesNotExistError**

Bases: Exception

Exception that is raised when performing an operation on a user that doesn't exist

exception errbot.backends.base.**UserNotUniqueError**

Bases: Exception

Exception raised to report a user has not been uniquely identified on the chat service.

errbot.backends.irc module

class errbot.backends.irc.**IRCBackend**(*config*)

Bases: *ErrBot*

__init__(*config*)

Those arguments will be directly those put in BOT_IDENTITY

aclpattern = '{nick}!{user}@{host}'

build_identifier(*txtrep: str*) → *IRCRoom* | *IRCRoomOccupant* | *IRCPerson*

build_message(*text: str*) → *Message*

You might want to override this one depending on your backend

build_reply(*msg:* Message, *text: str | None = None*, *private: bool = False*, *threaded: str = False*) → *Message*

Should be implemented by the backend

change_presence(*status: str = 'online'*, *message: str = ''*) → None

Signal a presence change for the bot. Should be overridden by backends with a super().send_message() call.

connect() → *IRCConnection*

Connects the bot to server or returns current connection

property mode: str

prefix_groupchat_reply(*message:* Message, *identifier:* Identifier)

Patches message with the conventional prefix to ping the specific contact For example: @gbin, you forgot the milk !

query_room(*room:* IRCRoom) → *IRCRoom*

Query a room for information.

Return type
IRCRoom

Parameters
room (*IRCRoom*) – The channel name to query for.

Returns
An instance of IRCMUCRoom.

rooms() → List[*IRCRoom*]

Return a list of rooms the bot is currently in.

Returns
A list of `IRCMUCRoom` instances.

send_message(*msg:* Message) → None

This needs to be overridden by the backends with a super() call.

Parameters
msg (*Message*) – the message to send.

Returns
None

send_stream_request(*identifier:* Identifier, *fsource: BinaryIO*, *name: str | None = None*, *size: int | None = None*, *stream_type: str | None = None*) → *Stream*

serve_forever() → None

Connect the back-end to the server and serve forever.

Back-ends MAY choose to re-implement this method, in which case they are responsible for implementing reconnection logic themselves.

Back-ends SHOULD trigger `connect_callback()` and `disconnect_callback()` themselves after connection/disconnection.

set_message_size_limit(*limit: int = 510*, *hard_limit: int = 510*) → None

IRC message size limit

shutdown() → None

class errbot.backends.irc.**IRCConnection**(*bot*, *nickname*, *server*, *port=6667*, *ssl=False*, *bind_address=None*, *ipv6=False*, *password=None*, *username=None*, *nickserv_password=None*, *private_rate=1*, *channel_rate=1*, *reconnect_on_kick=5*, *reconnect_on_disconnect=5*)

Bases: `SingleServerIRCBot`

__init__(*bot*, *nickname*, *server*, *port=6667*, *ssl=False*, *bind_address=None*, *ipv6=False*, *password=None*, *username=None*, *nickserv_password=None*, *private_rate=1*, *channel_rate=1*, *reconnect_on_kick=5*, *reconnect_on_disconnect=5*)

away(*message: str | None = ''*) → None

Extend the original implementation to support AWAY. To set an away message, set message to something. To cancel an away message, leave message at empty string.

connect(**args*, ***kwargs*) → None

Connect using the underlying connection

on_currenttopic(*connection: ServerConnection*, *event: Event*) → None

When you Join a room with a topic set this event fires up to with the topic information. If the room that you join don't have a topic set, nothing happens. Here is NOT the place to fire the *callback_room_topic()* event for that case exist on_topic.

Parameters

- **connection** (`ServerConnection`) – Is an 'irc.client.ServerConnection' object

- **event** (Event) – Is an 'irc.client.Event' object The event.arguments[0] contains the room name The event.arguments[1] contains the topic of the room.

on_dcc_connect(*dcc*, *event*) → None

on_dcc_disconnect(*dcc*, *event*)

on_dccmsg(*dcc*, *event*)

on_disconnect(*connection*, *event*) → None

on_endofnames(*connection: ServerConnection*, *event: Event*) → None

Handler of the enfofnames IRC message/event.

The endofnames message is sent to the client when the server finish to send the list of names of the room ocuppants. This usually happens when you join to the room. So in this case, we use this event to determine that our bot is finally joined to the room.

Parameters

- **connection** (ServerConnection) – Is an 'irc.client.ServerConnection' object
- **event** (Event) – Is an 'irc.client.Event' object the event.arguments[0] contains the channel name

on_join(*connection: ServerConnection*, *event: Event*) → None

Handler of the join IRC message/event. Is in response of a /JOIN client message.

Parameters

- **connection** (ServerConnection) – Is an 'irc.client.ServerConnection' object
- **event** (Event) – Is an 'irc.client.Event' object the event.target contains the channel name

on_kick(*_*, *e*) → None

on_notopic(*connection: ServerConnection*, *event: Event*) → None

This event fires ip when there is no topic set on a room

Parameters

- **connection** (ServerConnection) – Is an 'irc.client.ServerConnection' object
- **event** (Event) – Is an 'irc.client.Event' object The event.arguments[0] contains the room name

on_part(*connection: ServerConnection*, *event: Event*) → None

Handler of the part IRC Message/event.

The part message is sent to the client as a confirmation of a /PART command sent by someone in the room/channel. If the event.source contains the bot nickname then we need to fire the *callback_room_left()* event on the bot.

Parameters

- **connection** (ServerConnection) – Is an 'irc.client.ServerConnection' object
- **event** (Event) – Is an 'irc.client.Event' object The event.source contains the nickmask of the user that leave the room The event.target contains the channel name

on_privmsg(*_*, *e*) → None

on_privnotice(*_*, *e*) → None

on_pubmsg(_, *e*) → None

on_pubnotice(_, *e*) → None

on_topic(*connection: ServerConnection*, *event: Event*) → None

On response to the /TOPIC command if the room have a topic. If the room don't have a topic the event fired is on_notopic :type event: `Event` :type connection: `ServerConnection` :param connection: Is an 'irc.client.ServerConnection' object

Parameters
event – Is an 'irc.client.Event' object The event.target contains the room name. The event.arguments[0] contains the topic name

on_welcome(_, *e*) → None

static send_chunk(*stream*, *dcc*)

send_private_message(*to*, *line: str*) → None

send_public_message(*to*, *line: str*) → None

send_stream_request(*identifier:* Identifier, *fsource: BinaryIO*, *name: str | None = None*, *size: int | None = None*, *stream_type: str | None = None*) → *Stream*

class errbot.backends.irc.**IRCPerson**(*mask*)

Bases: *Person*

__init__(*mask*)

property aclattr

Returns
returns the unique identifier that will be used for ACL matches.

property client

Returns
a backend specific unique identifier representing the device or client the person is using to talk.

property email: str

Some backends have the email of a user.

Returns
the email of this user if available.

property fullname: None

Some backends have the full name of a user.

Returns
the fullname of this user if available.

property host: str

property nick: str

Returns
a backend specific nick returning the nickname of this person if available.

property person: str

Returns
a backend specific unique identifier representing the person you are talking to.

property user: str

class errbot.backends.irc.IRCRoom(*room:* Room, *bot*)

Bases: *Room*

Represent the specifics of a IRC Room/Channel.

This lifecycle of this object is:

- Created in IRCConnection.on_join
- The joined status change in IRCConnection on_join/on_part
- Deleted/destroyed in IRCConnection.on_disconnect

__init__(*room:* Room, *bot*)

cb_set_topic(*current_topic: str*) → None

Store the current topic for this room.

This method is called by the IRC backend when a *currenttopic*, *topic* or *notopic* IRC event is received to store the topic set for this channel.

This function is not meant to be executed by regular plugins. To get or set

create() → None

Not supported on this back-end. Will join the room to ensure it exists, instead.

destroy() → None

Not supported on IRC, will raise *RoomError*.

property exists: bool

Boolean indicating whether this room already exists or not.

Getter
Returns *True* if the room exists, *False* otherwise.

invite(**args*) → None

Invite one or more people into the room.

Parameters
***args** – One or more nicks to invite into the room.

join(*username: Any = None*, *password: str | None = None*) → None

Join the room.

If the room does not exist yet, this will automatically call *create()* on it first.

property joined: bool

Boolean indicating whether this room has already been joined.

Getter
Returns *True* if the room has been joined, *False* otherwise.

leave(*reason: str | None = None*) → None

Leave the room.

Parameters
reason – An optional string explaining the reason for leaving the room

property occupants: List[*IRCRoomOccupant*]
The room's occupants.

Getter
Returns a list of occupants. :raises: `MUCNotJoinedError` if the room has not yet been joined.

property topic: str | None
The room topic.

Getter
Returns the topic (a string) if one is set, *None* if no topic has been set at all.

class errbot.backends.irc.**IRCRoomOccupant**(*mask*, *room*)
Bases: *IRCPerson*, *RoomOccupant*

__init__(*mask*, *room*)

property room: *Room*
Some backends have the full name of a user.

Returns
the fullname of this user if available.

errbot.backends.irc.**irc_md**() → Markdown
This makes a converter from markdown to mirc color format.

errbot.backends.null module

class errbot.backends.null.**ConnectionMock**
Bases: `object`

send(*msg*)

send_message(*msg*)

class errbot.backends.null.**NullBackend**(**args*, ***kwargs*)
Bases: *ErrBot*

__init__(**args*, ***kwargs*)
Those arguments will be directly those put in BOT_IDENTITY

build_identifier(*strrep*)

build_reply(*msg*, *text=None*, *private=False*, *threaded=False*)
Should be implemented by the backend

change_presence(*status: str = 'online'*, *message: str = ''*) → None
Signal a presence change for the bot. Should be overridden by backends with a super().send_message() call.

conn = <errbot.backends.null.ConnectionMock object>

connect()
Connects the bot to server or returns current connection

property mode

prefix_groupchat_reply(*message*, *identifier*)

Patches message with the conventional prefix to ping the specific contact For example: @gbin, you forgot the milk !

query_room(*room*)

Query a room for information.

Parameters
room – The room to query for.

Returns
An instance of Room.

rooms()

Return a list of rooms the bot is currently in.

Returns
A list of *Room* instances.

running = True

serve_forever()

Connect the back-end to the server and serve forever.

Back-ends MAY choose to re-implement this method, in which case they are responsible for implementing reconnection logic themselves.

Back-ends SHOULD trigger `connect_callback()` and `disconnect_callback()` themselves after connection/disconnection.

shutdown()

errbot.backends.telegram_messenger module

exception errbot.backends.telegram_messenger.**RoomsNotSupportedError**(*message: str | None = None*)

Bases: *RoomError*

__init__(*message: str | None = None*)

class errbot.backends.telegram_messenger.**TelegramBackend**(*config*)

Bases: *ErrBot*

__init__(*config*)

Those arguments will be directly those put in BOT_IDENTITY

build_identifier(*txtrep: str*) → *TelegramPerson* | *TelegramRoom*

Convert a textual representation into a *TelegramPerson* or *TelegramRoom*.

build_reply(*msg:* Message, *text: str | None = None*, *private: bool = False*, *threaded: bool = False*) → *Message*

Should be implemented by the backend

change_presence(*status: str = 'online'*, *message: str = ''*) → None

Signal a presence change for the bot. Should be overridden by backends with a super().send_message() call.

property mode: text

prefix_groupchat_reply(*message:* Message, *identifier:* Identifier)

Patches message with the conventional prefix to ping the specific contact For example: @gbin, you forgot the milk !

query_room(*room:* TelegramRoom) → None

Not supported on Telegram.

Raises
RoomsNotSupportedError

rooms() → None

Not supported on Telegram.

Raises
RoomsNotSupportedError

send_message(*msg:* Message) → None

This needs to be overridden by the backends with a super() call.

Parameters
msg (*Message*) – the message to send.

Returns
None

send_stream_request(*identifier:* TelegramPerson | TelegramMUCOccupant, *fsource: str | dict | BinaryIO*, *name: str | None = 'file'*, *size: int | None = None*, *stream_type: str | None = None*) → str | *Stream*

Starts a file transfer.

Parameters

- **identifier** – TelegramPerson or TelegramMUCOccupant Identifier of the Person or Room to send the stream to.
- **fsource** – str, dict or binary data File URL or binary content from a local file. Optionally a dict with binary content plus metadata can be given. See *stream_type* for more details.
- **name** – str, optional Name of the file. Not sure if this works always.
- **size** – str, optional Size of the file obtained with os.path.getsize. This is only used for debug logging purposes.
- **stream_type** – str, optional Type of the stream. Choices: 'document', 'photo', 'audio', 'video', 'sticker', 'location'.

  If 'video', a dict is optional as {'content': fsource, 'duration': str}. If 'voice', a dict is optional as {'content': fsource, 'duration': str}. If 'audio', a dict is optional as {'content': fsource, 'duration': str, 'performer': str, 'title': str}.

  For 'location' a dict is mandatory as {'latitude': str, 'longitude': str}. For 'venue': TODO # see: https://core.telegram.org/bots/api#sendvenue

Return stream
str or Stream If *fsource* is str will return str, else return Stream.

serve_once() → None

Connect the back-end to the server and serve a connection once (meaning until disconnected for any reason).

Back-ends MAY choose not to implement this method, IF they implement a custom `serve_forever()`.

This function SHOULD raise an exception or return a value that evaluates to False in order to signal something went wrong. A return value that evaluates to True will signal the bot that serving is done and a shut-down is requested.

set_message_size_limit(*limit: int = 1024*, *hard_limit: int = 1024*) → None

Telegram message size limit

class errbot.backends.telegram_messenger.**TelegramBotFilter**

Bases: `object`

This is a filter for the logging library that filters the "No new updates found." log message generated by telegram.bot.

This is an INFO-level log message that gets logged for every getUpdates() call where there are no new messages, so is way too verbose.

static filter(*record*)

class errbot.backends.telegram_messenger.**TelegramIdentifier**(*id*)

Bases: *Identifier*

__init__(*id*)

property aclattr: str

property id: str

class errbot.backends.telegram_messenger.**TelegramMUCOccupant**(*id*, *room:* TelegramRoom, *first_name=None*, *last_name=None*, *username=None*)

Bases: *TelegramPerson*, *RoomOccupant*

This class represents a person inside a MUC.

__init__(*id*, *room:* TelegramRoom, *first_name=None*, *last_name=None*, *username=None*)

property room: *TelegramRoom*

Some backends have the full name of a user.

Returns
the fullname of this user if available.

property username: str

class errbot.backends.telegram_messenger.**TelegramPerson**(*id*, *first_name=None*, *last_name=None*, *username=None*)

Bases: *TelegramIdentifier*, *Person*

__init__(*id*, *first_name=None*, *last_name=None*, *username=None*)

property client: None

Returns
a backend specific unique identifier representing the device or client the person is using to talk.

property first_name: str

property fullname: str

Some backends have the full name of a user.

Returns
the fullname of this user if available.

property id: str

property last_name: str

property nick: str

Returns
a backend specific nick returning the nickname of this person if available.

property person: str

Returns
a backend specific unique identifier representing the person you are talking to.

property username: str

class errbot.backends.telegram_messenger.TelegramRoom(*id*, *title=None*)

Bases: *TelegramIdentifier*, *Room*

__init__(*id*, *title=None*)

create() → None

Create the room.

Calling this on an already existing room is a no-op.

destroy() → None

Destroy the room.

Calling this on a non-existing room is a no-op.

property exists: None

Boolean indicating whether this room already exists or not.

Getter
Returns *True* if the room exists, *False* otherwise.

property id: str

invite(**args*) → None

Invite one or more people into the room.

Parameters
***args** – One or more identifiers to invite into the room.

join(*username: str = None*, *password: str = None*) → None

Join the room.

If the room does not exist yet, this will automatically call *create()* on it first.

property joined: None

Boolean indicating whether this room has already been joined.

Getter
Returns *True* if the room has been joined, *False* otherwise.

leave(*reason: str = None*) → None

Leave the room.

Parameters
reason (str) – An optional string explaining the reason for leaving the room.

property occupants: None

The room's occupants.

Getter
Returns a list of occupant identities.

Raises
MUCNotJoinedError if the room has not yet been joined.

property title

Return the groupchat title (only applies to groupchats)

property topic: None

The room topic.

Getter
Returns the topic (a string) if one is set, *None* if no topic has been set at all.

Note: Back-ends may return an empty string rather than *None* when no topic has been set as a network may not differentiate between no topic and an empty topic.

Raises
MUCNotJoinedError if the room has not yet been joined.

errbot.backends.test module

class errbot.backends.test.**FullStackTest**(*methodName='runTest'*)

Bases: TestCase, *TestBot*

Test class for use with Python's unittest module to write tests against a fully functioning bot.

For example, if you wanted to test the builtin *!about* command, you could write a test file with the following:

```
from errbot.backends.test import FullStackTest

class TestCommands(FullStackTest):
    def test_about(self):
        self.push_message('!about')
        self.assertIn('Err version', self.pop_message())
```

setUp(*extra_plugin_dir=None*, *extra_test_file=None*, *loglevel=10*, *extra_config=None*) → None

Parameters

- **extra_plugin_dir** – Path to a directory from which additional plugins should be loaded.
- **extra_test_file** – [Deprecated but kept for backward-compatibility, use extra_plugin_dir instead] Path to an additional plugin which should be loaded.
- **loglevel** (int) – Logging verbosity. Expects one of the constants defined by the logging module.

- **extra_config** – Piece of extra bot config in a dict.

tearDown() → None

Hook method for deconstructing the test fixture after testing it.

class errbot.backends.test.**ShallowConfig**

Bases: object

class errbot.backends.test.**TestBackend**(*config*)

Bases: *ErrBot*

__init__(*config*)

Those arguments will be directly those put in BOT_IDENTITY

build_identifier(*text_representation*) → *TestPerson*

build_reply(*msg:* Message, *text=None*, *private: bool = False*, *threaded: bool = False*) → *Message*

Should be implemented by the backend

change_presence(*status: str = 'online'*, *message: str = ''*) → None

Signal a presence change for the bot. Should be overridden by backends with a super().send_message() call.

connect() → None

Connects the bot to server or returns current connection

property mode: str

pop_message(*timeout: int = 5*, *block: bool = True*)

prefix_groupchat_reply(*message:* Message, *identifier:* Identifier)

Patches message with the conventional prefix to ping the specific contact For example: @gbin, you forgot the milk !

push_message(*msg:* Message, *extras=''*)

push_presence(*presence*)

presence must at least duck type base.Presence

query_room(*room:* TestRoom) → *TestRoom*

Query a room for information.

Return type
TestRoom

Parameters
room (*TestRoom*) – The room to query for.

Returns
An instance of Room.

reset_rooms() → None

Reset/clear all rooms

rooms() → List[*TestRoom*]

Return a list of rooms the bot is currently in.

Returns
A list of *Room* instances.

send_message(*msg:* Message) → None

This needs to be overridden by the backends with a super() call.

Parameters
msg (*Message*) – the message to send.

Returns
None

send_stream_request(*user:* Identifier, *fsource: BinaryIO | None*, *name: str | None*, *size: int | None*, *stream_type: str | None*) → None

serve_forever() → None

Connect the back-end to the server and serve forever.

Back-ends MAY choose to re-implement this method, in which case they are responsible for implementing reconnection logic themselves.

Back-ends SHOULD trigger `connect_callback()` and `disconnect_callback()` themselves after connection/disconnection.

shutdown() → None

zap_queues() → None

class errbot.backends.test.**TestBot**(*extra_plugin_dir=None*, *loglevel=10*, *extra_config=None*)

Bases: `object`

A minimal bot utilizing the TestBackend, for use with unit testing.

Only one instance of this class should globally be active at any one time.

End-users should not use this class directly. Use *testbot()* or *FullStackTest* instead, which use this class under the hood.

__init__(*extra_plugin_dir=None*, *loglevel=10*, *extra_config=None*)

assertCommand(*command*, *response*, *timeout=5*, *dedent=False*)

Assert the given command returns the given response

assertCommandFound(*command*, *timeout=5*)

Assert the given command exists

assertInCommand(*command*, *response*, *timeout=5*, *dedent=False*)

Assert the given command returns the given response

property bot: *ErrBot*

exec_command(*command*, *timeout: int = 5*)

Execute a command and return the first response. This makes more py.test'ist like: assert 'blah' in exec_command('!hello')

inject_mocks(*plugin_name: str*, *mock_dict: dict*)

Inject mock objects into the plugin

Example:

```
mock_dict = {
    'field_1': obj_1,
    'field_2': obj_2,
```

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```
}
testbot.inject_mocks(HelloWorld, mock_dict)
assert 'blah' in testbot.exec_command('!hello')
```

pop_message(*timeout: int = 5*, *block: bool = True*)

push_message(*msg:* Message, *extras=''*)

push_presence(*presence:* Presence)

presence must at least duck type base.Presence

setup(*extra_plugin_dir: str | None = None*, *loglevel=10*, *extra_config=None*)

Parameters

- **extra_config** – Piece of extra configuration you want to inject to the config.
- **extra_plugin_dir** – Path to a directory from which additional plugins should be loaded.
- **loglevel** (int) – Logging verbosity. Expects one of the constants defined by the logging module.

start(*timeout: int = 2*) → None

Start the bot

Calling this method when the bot has already started will result in an Exception being raised. :type timeout: int :param timeout: Timeout for the ready message pop. pop will be done 60 times so the total timeout is 60*timeout

stop() → None

Stop the bot

Calling this method before the bot has started will result in an Exception being raised.

zap_queues()

class errbot.backends.test.**TestOccupant**(*person*, *room*)

Bases: *TestPerson*, *RoomOccupant*

This is a MUC occupant represented as a string. DO NOT USE THIS DIRECTLY AS IT IS NOT COMPATIBLE WITH MOST BACKENDS,

__init__(*person*, *room*)

property room: *Room*

Some backends have the full name of a user.

Returns

the fullname of this user if available.

class errbot.backends.test.**TestPerson**(*person*, *client=None*, *nick=None*, *fullname=None*, *email=None*)

Bases: *Person*

This is an identifier just represented as a string. DO NOT USE THIS DIRECTLY AS IT IS NOT COMPATIBLE WITH MOST BACKENDS, use self.build_identifier(identifier_as_string) instead.

Note to back-end implementors: You should provide a custom <yourbackend>Identifier object that adheres to this interface.

You should not directly inherit from SimpleIdentifier, inherit from object instead and make sure it includes all properties and methods exposed by this class.

__init__(*person*, *client=None*, *nick=None*, *fullname=None*, *email=None*)

property aclattr

This needs to return the part of the identifier pointing to a person.

property client: str | None

This needs to return the part of the identifier pointing to a client from which a person is sending a message from. Returns None is unspecified

property email: str | None

This needs to return an email for this identifier e.g. Guillaume.Binet@gmail.com. Returns None is unspecified

property fullname: str | None

This needs to return a long display name for this identifier e.g. Guillaume Binet. Returns None is unspecified

property nick: str | None

This needs to return a short display name for this identifier e.g. gbin. Returns None is unspecified

property person

This needs to return the part of the identifier pointing to a person.

class errbot.backends.test.**TestRoom**(*name: str*, *occupants: List[*TestOccupant*]* | *None* = *None*, *topic: str* | *None* = *None*, *bot:* ErrBot = *None*)

Bases: *Room*

__init__(*name: str*, *occupants: List[*TestOccupant*]* | *None* = *None*, *topic: str* | *None* = *None*, *bot:* ErrBot = *None*)

Parameters

- **name** (str) – Name of the room
- **occupants** – Occupants of the room
- **topic** – The MUC's topic

create() → None

Create the room.

Calling this on an already existing room is a no-op.

destroy() → None

Destroy the room.

Calling this on a non-existing room is a no-op.

property exists: bool

Boolean indicating whether this room already exists or not.

Getter
Returns *True* if the room exists, *False* otherwise.

find_croom() → *TestRoom* | None

find back the canonical room from a this room

invite(**args*)

Invite one or more people into the room.

Parameters
***args** – One or more identifiers to invite into the room.

join(*username: str | None = None*, *password: str | None = None*) → None

Join the room.

If the room does not exist yet, this will automatically call *create()* on it first.

property joined: bool

Boolean indicating whether this room has already been joined.

Getter
Returns *True* if the room has been joined, *False* otherwise.

leave(*reason: str | None = None*) → None

Leave the room.

Parameters
reason – An optional string explaining the reason for leaving the room.

property occupants: List[*TestOccupant*]

The room's occupants.

Getter
Returns a list of occupant identities.

Raises
MUCNotJoinedError if the room has not yet been joined.

property topic: str

The room topic.

Getter
Returns the topic (a string) if one is set, *None* if no topic has been set at all.

Note: Back-ends may return an empty string rather than *None* when no topic has been set as a network may not differentiate between no topic and an empty topic.

Raises
MUCNotJoinedError if the room has not yet been joined.

class errbot.backends.test.**TestRoomAcl**(*name*, *occupants=None*, *topic=None*, *bot=None*)

Bases: *TestRoom*

__init__(*name*, *occupants=None*, *topic=None*, *bot=None*)

Parameters

- **name** – Name of the room
- **occupants** – Occupants of the room
- **topic** – The MUC's topic

property aclattr

Returns
returns the unique identifier that will be used for ACL matches.

errbot.backends.test.**testbot**(*request*) → *TestBot*

Pytest fixture to write tests against a fully functioning bot.

For example, if you wanted to test the builtin *!about* command, you could write a test file with the following:

```
def test_about(testbot):
    testbot.push_message('!about')
    assert "Err version" in testbot.pop_message()
```

It's possible to provide additional configuration to this fixture, by setting variables at module level or as class attributes (the latter taking precedence over the former). For example:

```
extra_plugin_dir = '/foo/bar'

def test_about(testbot):
    testbot.push_message('!about')
    assert "Err version" in testbot.pop_message()
```

..or:

```
extra_plugin_dir = '/foo/bar'

class Tests:
    # Wins over `extra_plugin_dir = '/foo/bar'` above
    extra_plugin_dir = '/foo/baz'

    def test_about(self, testbot):
        testbot.push_message('!about')
        assert "Err version" in testbot.pop_message()
```

..to load additional plugins from the directory */foo/bar* or */foo/baz* respectively. This works for the following items, which are passed to the constructor of *TestBot*:

- *extra_plugin_dir*
- *loglevel*

errbot.backends.text module

class errbot.backends.text.**TextBackend**(*config*)

Bases: *ErrBot*

__init__(*config*)

Those arguments will be directly those put in BOT_IDENTITY

add_reaction(*msg:* Message, *reaction: str*) → None

build_identifier(*text_representation: str*) → *TextOccupant* | *TextRoom* | *TextPerson*

build_reply(*msg:* Message, *text: str = None*, *private: bool = False*, *threaded: bool = False*) → *Message*

Should be implemented by the backend

change_presence(*status: str = 'online'*, *message: str = ''*) → None

Signal a presence change for the bot. Should be overridden by backends with a super().send_message() call.

property mode

prefix_groupchat_reply(*message:* Message, *identifier:* Identifier)

Patches message with the conventional prefix to ping the specific contact For example: @gbin, you forgot the milk !

query_room(*room: str*) → *TextRoom*

Query a room for information.

Return type
TextRoom

Parameters
room (str) – The room to query for.

Returns
An instance of Room.

readline_support() → None

remove_reaction(*msg:* Message, *reaction: str*) → None

rooms() → List[*TextRoom*]

Return a list of rooms the bot is currently in.

Returns
A list of *Room* instances.

send_message(*msg:* Message) → None

This needs to be overridden by the backends with a super() call.

Parameters
msg (*Message*) – the message to send.

Returns
None

send_stream_request(*user:* Identifier, *fsource: BinaryIO*, *name: str = None*, *size: int = None*, *stream_type: str = None*) → *Stream*

Starts a file transfer. For Slack, the size and stream_type are unsupported

Return type
Stream

Parameters

- **user** (*Identifier*) – is the identifier of the person you want to send it to.
- **fsource** (BinaryIO) – is a file object you want to send.
- **name** (str) – is an optional filename for it.
- **size** (int) – not supported in Slack backend
- **stream_type** (str) – not supported in Slack backend

Return Stream
object on which you can monitor the progress of it.

serve_forever() → None

Connect the back-end to the server and serve forever.

Back-ends MAY choose to re-implement this method, in which case they are responsible for implementing reconnection logic themselves.

Back-ends SHOULD trigger `connect_callback()` and `disconnect_callback()` themselves after connection/disconnection.

class errbot.backends.text.**TextOccupant**(*person*, *room*)

Bases: *TextPerson*, *RoomOccupant*

__init__(*person*, *room*)

property room: *TextRoom*

Some backends have the full name of a user.

Returns
the fullname of this user if available.

class errbot.backends.text.**TextPerson**(*person*, *client=None*, *nick=None*, *fullname=None*)

Bases: *Person*

Simple Person implementation which represents users as simple text strings.

__init__(*person*, *client=None*, *nick=None*, *fullname=None*)

property aclattr: str

Returns
returns the unique identifier that will be used for ACL matches.

property client: str

Returns
a backend specific unique identifier representing the device or client the person is using to talk.

property email: str

Some backends have the email of a user.

Returns
the email of this user if available.

property fullname: str

Some backends have the full name of a user.

Returns
the fullname of this user if available.

property nick: str

Returns
a backend specific nick returning the nickname of this person if available.

property person: *Person*

Returns
a backend specific unique identifier representing the person you are talking to.

class errbot.backends.text.**TextRoom**(*name: str*, *bot:* ErrBot)

Bases: *Room*

__init__(*name: str*, *bot:* ErrBot)

create() → None

Create the room.

Calling this on an already existing room is a no-op.

destroy() → None

Destroy the room.

Calling this on a non-existing room is a no-op.

property exists: bool

Boolean indicating whether this room already exists or not.

Getter
Returns *True* if the room exists, *False* otherwise.

invite(**args*)

Invite one or more people into the room.

Parameters
***args** – One or more identifiers to invite into the room.

join(*username: str | None = None*, *password: str | None = None*) → None

Join the room.

If the room does not exist yet, this will automatically call *create()* on it first.

property joined: bool

Boolean indicating whether this room has already been joined.

Getter
Returns *True* if the room has been joined, *False* otherwise.

leave(*reason: str | None = None*) → None

Leave the room.

Parameters
reason – An optional string explaining the reason for leaving the room.

property occupants: List[*TextOccupant*]

The room's occupants.

Getter
Returns a list of occupant identities.

Raises
MUCNotJoinedError if the room has not yet been joined.

property topic: str

The room topic.

Getter
Returns the topic (a string) if one is set, *None* if no topic has been set at all.

Note: Back-ends may return an empty string rather than *None* when no topic has been set as a network may not differentiate between no topic and an empty topic.

Raises
`MUCNotJoinedError` if the room has not yet been joined.

`errbot.backends.text.`**`borderless_ansi`**`()` → Markdown

This makes a converter from markdown to ansi (console) format. It can be called like this: from errbot.rendering import ansi md_converter = ansi() # you need to cache the converter

ansi_txt = md_converter.convert(md_txt)

errbot.backends.xmpp module

class `errbot.backends.xmpp.`**`XMPPBackend`**`(`*config*`)`

Bases: *ErrBot*

`__init__``(`*config*`)`

Those arguments will be directly those put in BOT_IDENTITY

`build_identifier``(`*txtrep: str*`)` → *XMPPRoomOccupant* | *XMPPRoom* | *XMPPPerson*

`build_reply``(`*msg:* Message, *text: str = None*, *private: bool = False*, *threaded: bool = False*`)` → *Message*

Should be implemented by the backend

`change_presence``(`*status: str = 'online'*, *message: str = ''*`)` → None

Signal a presence change for the bot. Should be overridden by backends with a super().send_message() call.

`chat_topic``(`*event*`)` → None

`connected``(`*data*`)` → None

Callback for connection events

`contact_offline``(`*event*`)` → None

`contact_online``(`*event*`)` → None

`create_connection``()` → *XMPPConnection*

`disconnected``(`*data*`)` → None

Callback for disconnection events

`incoming_message``(`*xmppmsg: dict*`)` → None

Callback for message events

`property mode`

`prefix_groupchat_reply``(`*message:* Message, *identifier:* Identifier`)`

Patches message with the conventional prefix to ping the specific contact For example: @gbin, you forgot the milk !

`query_room``(`*room*`)` → *XMPPRoom*

Query a room for information.

Parameters
`room` – The JID/identifier of the room to query for.

Returns
An instance of `XMPPMUCRoom`.

room_factory

alias of *XMPPRoom*

roomoccupant_factory

alias of *XMPPRoomOccupant*

rooms() → List[*XMPPRoom*]

Return a list of rooms the bot is currently in.

Returns
A list of XMPPMUCRoom instances.

send_message(*msg:* Message) → None

This needs to be overridden by the backends with a super() call.

Parameters
msg – the message to send.

Returns
None

serve_forever() → None

Connect the back-end to the server and serve forever.

Back-ends MAY choose to re-implement this method, in which case they are responsible for implementing reconnection logic themselves.

Back-ends SHOULD trigger connect_callback() and disconnect_callback() themselves after connection/disconnection.

user_changed_status(*event*) → None

user_joined_chat(*event*) → None

user_left_chat(*event*) → None

class errbot.backends.xmpp.**XMPPConnection**(*jid*, *password*, *feature=None*, *keepalive=None*, *ca_cert=None*, *server=None*, *use_ipv6=None*, *bot=None*, *ssl_version=None*)

Bases: object

__init__(*jid*, *password*, *feature=None*, *keepalive=None*, *ca_cert=None*, *server=None*, *use_ipv6=None*, *bot=None*, *ssl_version=None*)

add_event_handler(*name: str*, *cb: Callable*) → None

connect() → *XMPPConnection*

del_event_handler(*name: str*, *cb: Callable*) → None

disconnect() → None

serve_forever() → None

session_start(_)

class errbot.backends.xmpp.**XMPPIdentifier**(*node*, *domain*, *resource*)

Bases: *Identifier*

This class is the parent and the basic contract of all the ways the backends are identifying a person on their system.

__init__(*node*, *domain*, *resource*)

property client

property domain: str

property email

property fullname: None

property nick: str

property node: str

property person: str

property resource: str

class errbot.backends.xmpp.XMPPPerson(*node*, *domain*, *resource*)

Bases: *XMPPIdentifier*, *Person*

property aclattr: str

Returns
returns the unique identifier that will be used for ACL matches.

class errbot.backends.xmpp.XMPPRoom(*room_jid*, *bot:* ErrBot)

Bases: *XMPPIdentifier*, *Room*

__init__(*room_jid*, *bot:* ErrBot)

configure() → None

Configure the room.

Currently this simply sets the default room configuration as received by the server. May be extended in the future to set a custom room configuration instead.

create() → None

Not supported on this back-end (Slixmpp doesn't support it). Will join the room to ensure it exists, instead.

destroy() → None

Destroy the room.

Calling this on a non-existing room is a no-op.

property exists: bool

Boolean indicating whether this room already exists or not.

Getter
Returns *True* if the room exists, *False* otherwise.

invite(**args*) → None

Invite one or more people into the room.

***argsargs**
One or more JID's to invite into the room.

join(*username: str | None = None*, *password: str | None = None*) → None

Join the room.

If the room does not exist yet, this will automatically call *create()* on it first.

property joined: bool

Boolean indicating whether this room has already been joined.

Getter
Returns *True* if the room has been joined, *False* otherwise.

leave(*reason: str | None = None*) → None

Leave the room.

Parameters
reason – An optional string explaining the reason for leaving the room

property occupants: List[*XMPPRoomOccupant*]

The room's occupants.

Getter
Returns a list of `MUCOccupant` instances.

Raises
`MUCNotJoinedError` if the room has not yet been joined.

property topic: str | None

The room topic.

Getter
Returns the topic (a string) if one is set, *None* if no topic has been set at all.

Raises
`RoomNotJoinedError` if the room has not yet been joined.

class errbot.backends.xmpp.**XMPPRoomOccupant**(*node*, *domain*, *resource*, *room*)

Bases: *XMPPPerson*, *RoomOccupant*

__init__(*node*, *domain*, *resource*, *room*)

property nick: str

Returns
a backend specific nick returning the nickname of this person if available.

property person

Returns
a backend specific unique identifier representing the person you are talking to.

property real_jid: str

The JID of the room occupant, they used to login. Will only work if the errbot is moderator in the MUC or it is not anonymous.

property room: *XMPPRoom*

Some backends have the full name of a user.

Returns
the fullname of this user if available.

errbot.backends.xmpp.**split_identifier**(*txtrep: str*) → Tuple[str, str, str]

Module contents

errbot.core_plugins package

Submodules

errbot.core_plugins.acls module

class errbot.core_plugins.acls.**ACLS**(*bot*, *name=None*)

Bases: *BotPlugin*

This plugin implements access controls for commands, allowing them to be restricted via various rules.

access_denied(*msg*, *reason*, *dry_run*)

acls(*msg*, *cmd*, *args*, *dry_run*)

Check command against ACL rules as defined in the bot configuration.

Parameters

- **msg** – The original chat message.
- **cmd** – The command name itself.
- **args** – Arguments passed to the command.
- **dry_run** – True when this is a dry-run.

errbot.core_plugins.acls.**ciglob**(*text*, *patterns*)

Case-insensitive version of glob.

Match text against the list of patterns according to unix glob rules. Return True if a match is found, False otherwise.

errbot.core_plugins.acls.**get_acl_room**(*room*)

Return the ACL attribute of the room used for a given message

errbot.core_plugins.acls.**get_acl_usr**(*msg*)

Return the ACL attribute of the sender of the given message

errbot.core_plugins.acls.**glob**(*text*, *patterns*)

Match text against the list of patterns according to unix glob rules. Return True if a match is found, False otherwise.

errbot.core_plugins.backup module

class errbot.core_plugins.backup.**Backup**(*bot*, *name=None*)

Bases: *BotPlugin*

Backup related commands.

backup(*msg*, *args*)

Backup everything. Makes a backup script called backup.py in the data bot directory. You can restore the backup from the command line with errbot –restore

errbot.core_plugins.chatRoom module

class errbot.core_plugins.chatRoom.**ChatRoom**(*bot*, *name=None*)

Bases: *BotPlugin*

callback_connect()

Triggered when the bot has successfully connected to the chat network.

Override this method to get notified when the bot is connected.

callback_message(*msg*)

Triggered on every message not coming from the bot itself.

Override this method to get notified on *ANY* message.

Parameters
message – representing the message that was received.

connected = False

deactivate()

Triggered on plugin deactivation.

Override this method if you want to do something at tear-down phase (don't forget to *super().deactivate()*).

room_create(*message*, *args*)

Create a chatroom.

Usage: !room create <room>

Examples (XMPP): !room create example-room@chat.server.tld

Examples (IRC): !room create #example-room

room_destroy(*message*, *args*)

Destroy a chatroom.

Usage: !room destroy <room>

Examples (XMPP): !room destroy example-room@chat.server.tld

Examples (IRC): !room destroy #example-room

room_invite(*message*, *args*)

Invite one or more people into a chatroom.

Usage: !room invite <room> <identifier1> [<identifier2>, ..]

Examples (XMPP): !room invite room@conference.server.tld bob@server.tld

Examples (IRC): !room invite #example-room bob

room_join(*message*, *args*)

Join (creating it first if needed) a chatroom.

Usage: !room join <room> [<password>]

Examples (XMPP): !room join example-room@chat.server.tld !room join example-room@chat.server.tld super-secret-password

Examples (IRC): !room join #example-room !room join #example-room super-secret-password !room join #example-room "password with spaces"

room_leave(*message*, *args*)

Leave a chatroom.

Usage: !room leave <room>

Examples (XMPP): !room leave example-room@chat.server.tld

Examples (IRC): !room leave #example-room

room_list(*message*, *args*)

List chatrooms the bot has joined.

Usage: !room list

Examples: !room list

room_occupants(*message*, *args*)

List the occupants in a given chatroom.

Usage: !room occupants <room 1> [<room 2> ..]

Examples (XMPP): !room occupants room@conference.server.tld

Examples (IRC): !room occupants #example-room #another-example-room

room_topic(*message*, *args*)

Get or set the topic for a room.

Usage: !room topic <room> [<new topic>]

Examples (XMPP): !room topic example-room@chat.server.tld !room topic example-room@chat.server.tld "Err rocks!"

Examples (IRC): !room topic #example-room !room topic #example-room "Err rocks!"

errbot.core_plugins.cnf_filter module

class errbot.core_plugins.cnf_filter.**CommandNotFoundFilter**(*bot*, *name=None*)

Bases: *BotPlugin*

cnf_filter(*msg*, *cmd*, *args*, *dry_run*, *emptycmd=False*)

Check if command exists. If not, signal plugins. This plugin will be called twice: once as a command filter and then again as a "command not found" filter. See the emptycmd parameter.

Parameters

- **msg** – Original chat message.
- **cmd** – Parsed command.
- **args** – Command arguments.
- **dry_run** – True when this is a dry-run.
- **emptycmd** (bool) – False when this command has been parsed and is valid. True if the command was not found.

errbot.core_plugins.flows module

class errbot.core_plugins.flows.**Flows**(*bot*, *name=None*)

Bases: *BotPlugin*

Management commands related to flows / conversations.

check_user(*msg*, *flow*)

Checks to make sure that either the user started the flow, or is a bot admin

flows_kill(*_*, *user*, *flow_name*)

usage: flows_kill [-h] user flow_name

Admin command to kill a specific flow.

positional arguments:
user flow_name

options:

-h, --help	show this help message and exit

flows_list(*msg*, *args*)

Displays the list of setup flows.

flows_show(*_*, *args*)

Shows the structure of a flow.

flows_start(*msg*, *args*)

Manually start a flow within the context of the calling user. You can prefeed the flow data with a json payload.

Example:
!flows start poll_setup {"title":"yeah!","options":["foo","bar","baz"]}

flows_status(*msg*, *args*)

Displays the list of started flows.

flows_stop(*msg*, *args*)

Stop flows you are in. optionally, stop a specific flow you are in.

recurse_node(*response: StringIO*, *stack*, *f:* FlowNode, *flow:* Flow = *None*)

errbot.core_plugins.health module

class errbot.core_plugins.health.**Health**(*bot*, *name=None*)

Bases: *BotPlugin*

restart(*msg*, *args*)

Restart the bot.

shutdown(*msg*, *confirmed*, *kill*)

usage: shutdown [-h] [–kill] [–confirm]

Shutdown the bot. Useful when the things are going crazy and you don't have access to the machine.

options:

-h, --help	show this help message and exit

--kill	kill the bot instantly, don't shut down gracefully
--confirm	confirm you want to shut down

status(*msg*, *args*)

If I am alive I should be able to respond to this one

status_gc(*_*, *args*)

shows the garbage collection details

status_load(*_*, *args*)

shows the load status

status_plugins(*_*, *args*)

shows the plugin status

uptime(*_*, *args*)

Return the uptime of the bot

errbot.core_plugins.help module

class errbot.core_plugins.help.**Help**(*bot*, *name=None*)

Bases: *BotPlugin*

MSG_HELP_TAIL = 'Type help <command name> to get more info about that specific command.'

MSG_HELP_UNDEFINED_COMMAND = 'That command is not defined.'

about(*msg*, *args*)

Return information about this Errbot instance and version

apropos(*msg*, *args*)

Returns a help string listing available options.

Automatically assigned to the "help" command.

help(*msg*, *args*)

Returns a help string listing available options. Automatically assigned to the "help" command.

is_git_directory(*path='.'*)

errbot.core_plugins.plugins module

class errbot.core_plugins.plugins.**Plugins**(*bot*, *name=None*)

Bases: *BotPlugin*

formatted_plugin_list(*active_only=True*)

Return a formatted, plain-text list of loaded plugins.

When active_only=True, this will only return plugins which are actually active. Otherwise, it will also include inactive (blacklisted) plugins.

plugin_activate(*_*, *args*)

activate a plugin. [calls .activate() on the plugin]

plugin_blacklist(_, *args*)

Blacklist a plugin so that it will not be loaded automatically during bot startup. If the plugin is currently activated, it will deactiveate it first.

plugin_config(_, *args*)

configure or get the configuration / configuration template for a specific plugin ie. !plugin config ExampleBot could return a template if it is not configured: {'LOGIN': 'example@example.com', 'PASSWORD': 'password', 'DIRECTORY': '/toto'} Copy paste, adapt so can configure the plugin: !plugin config ExampleBot {'LOGIN': 'my@email.com', 'PASSWORD': 'myrealpassword', 'DIRECTORY': '/tmp'} It will then reload the plugin with this config. You can at any moment retrieve the current values: !plugin config ExampleBot should return: {'LOGIN': 'my@email.com', 'PASSWORD': 'myrealpassword', 'DIRECTORY': '/tmp'}

plugin_deactivate(_, *args*)

deactivate a plugin. [calls .deactivate on the plugin]

plugin_info(_, *args*)

Gives you a more technical information about a specific plugin.

plugin_reload(_, *args*)

reload a plugin: reload the code of the plugin leaving the activation status intact.

plugin_unblacklist(_, *args*)

Remove a plugin from the blacklist

repos(_, *args*)

list the current active plugin repositories

repos_install(_, *args*)

install a plugin repository from the given source or a known public repo (see !repos to find those). for example from a known repo: !install err-codebot for example a git url: git@github.com:gbin/plugin.git or an url towards an archive: https://github.com/errbotio/err-helloworld/archive/refs/heads/master.zip

repos_search(_, *args*)

Searches the repo index. for example: !repos search jenkins

repos_uninstall(_, *repo_name*)

uninstall a plugin repository by name.

repos_update(_, *args*)

update the bot and/or plugins use: !repos update all to update everything or: !repos update repo_name repo_name ... to update selectively some repos

errbot.core_plugins.textcmds module

class errbot.core_plugins.textcmds.**TextModeCmds**(*bot*, *name=None*)

Bases: *BotPlugin*

Internal to TextBackend.

activate()

Triggered on plugin activation.

Override this method if you want to do something at initialization phase (don't forget to *super().activate()*).

asadmin(*msg*, _)

This puts you in a 1-1 chat with the bot.

asuser(*msg*, *args*)

This puts you in a room with the bot. You can specify a name otherwise it will default to 'luser'.

deactivate()

Triggered on plugin deactivation.

Override this method if you want to do something at tear-down phase (don't forget to *super().deactivate()*).

inperson(*msg*, _)

This puts you in a 1-1 chat with the bot.

inroom(*msg*, *args*)

This puts you in a room with the bot.

ml(*msg*, _)

Switch back and forth between normal mode and multiline mode. Use this if you want to test commands spanning multiple lines. Note: in multiline, press enter twice to end and send the message.

errbot.core_plugins.utils module

class errbot.core_plugins.utils.**Utils**(*bot*, *name=None*)

Bases: *BotPlugin*

echo(_, *args*)

A simple echo command. Useful for encoding tests etc …

history(*msg*, *args*)

display the command history

log_tail(*msg*, *args*)

Display a tail of the log of n lines or 40 by default use : !log tail 10

render_test(_, *args*)

Tests / showcases the markdown rendering on your current backend

whoami(*msg*, *args*)

A simple command echoing the details of your identifier. Useful to debug identity problems.

errbot.core_plugins.utils.**tail**(*f*, *window=20*)

errbot.core_plugins.vcheck module

class errbot.core_plugins.vcheck.**VersionChecker**(*bot*, *name=None*)

Bases: *BotPlugin*

activate()

Triggered on plugin activation.

Override this method if you want to do something at initialization phase (don't forget to *super().activate()*).

activated = False

callback_connect()

Triggered when the bot has successfully connected to the chat network.

Override this method to get notified when the bot is connected.

connected = False

deactivate()

Triggered on plugin deactivation.

Override this method if you want to do something at tear-down phase (don't forget to *super().deactivate()*).

version_check()

errbot.core_plugins.webserver module

class errbot.core_plugins.webserver.**Webserver**(**args*, ***kwargs*)

Bases: *BotPlugin*

__init__(**args*, ***kwargs*)

activate()

Triggered on plugin activation.

Override this method if you want to do something at initialization phase (don't forget to *super().activate()*).

check_configuration(*configuration*)

By default, this method will do only a BASIC check. You need to override it if you want to do more complex checks. It will be called before the configure callback. Note if the config_template is None, it will never be called.

It means recusively:

1. in case of a dictionary, it will check if all the entries and from the same type are there and not more.
2. in case of an array or tuple, it will assume array members of the same type of first element of the template (no mix typed is supported)

In case of validation error it should raise a errbot.ValidationException

Parameters
configuration – the configuration to be checked.

deactivate()

Triggered on plugin deactivation.

Override this method if you want to do something at tear-down phase (don't forget to *super().deactivate()*).

echo(*incoming_request*)

A simple test webhook

generate_certificate(*_*, *args*)

Generate a self-signed SSL certificate for the Webserver

get_configuration_template()

If your plugin needs a configuration, override this method and return a configuration template.

For example a dictionary like: return {'LOGIN' : 'example@example.com', 'PASSWORD' : 'password'}

Note: if this method returns None, the plugin won't be configured

run_server()

webhook_test(_, *args*)

Test your webhooks from within err.

The syntax is : !webhook test [relative_url] [post content]

It triggers the notification and generate also a little test report.

webstatus(*msg*, *args*)

Gives a quick status of what is mapped in the internal webserver

errbot.core_plugins.webserver.**make_ssl_certificate**(*key_path*, *cert_path*)

Generate a self-signed certificate

The generated key will be written out to key_path, with the corresponding certificate itself being written to cert_path. :param cert_path: path where to write the certificate. :param key_path: path where to write the key.

errbot.core_plugins.wsview module

class errbot.core_plugins.wsview.**WebView**(*func*, *form_param*, *raw*)

Bases: View

__init__(*func*, *form_param*, *raw*)

dispatch_request(**args*, ***kwargs*)

The actual view function behavior. Subclasses must override this and return a valid response. Any variables from the URL rule are passed as keyword arguments.

errbot.core_plugins.wsview.**reset_app**()

Zap everything here, useful for unit tests

errbot.core_plugins.wsview.**route**(*obj*)

Check for functions to route in obj and route them.

errbot.core_plugins.wsview.**strip_path**()

errbot.core_plugins.wsview.**try_decode_json**(*req*)

Module contents

errbot.rendering package

Submodules

errbot.rendering.ansiext module

class errbot.rendering.ansiext.**AnsiExtension**(***kwargs*)

Bases: Extension

(kinda hackish) This is just a private extension to postprocess the html text to ansi text

extendMarkdown(*md*)

Add the various processors and patterns to the Markdown Instance.

This method must be overridden by every extension.

Keyword arguments:

- md: The Markdown instance.

class errbot.rendering.ansiext.**AnsiPostprocessor**(*md=None*)

Bases: Postprocessor

Markdown generates html entities, this reputs them back to their unicode equivalent

run(*text*)

Subclasses of Postprocessor should implement a *run* method, which takes the html document as a single text string and returns a (possibly modified) string.

class errbot.rendering.ansiext.**AnsiPreprocessor**(*md*, *config*)

Bases: FencedBlockPreprocessor

run(*lines*)

Match and store Fenced Code Blocks in the HtmlStash.

class errbot.rendering.ansiext.**BorderlessTable**(*chr_table*)

Bases: object

__init__(*chr_table*)

add_col()

add_header()

begin_headers()

end_headers()

next_row()

write(*text*)

class errbot.rendering.ansiext.**CharacterTable**(*fg_black*, *fg_red*, *fg_green*, *fg_yellow*, *fg_blue*, *fg_magenta*, *fg_cyan*, *fg_white*, *fg_default*, *bg_black*, *bg_red*, *bg_green*, *bg_yellow*, *bg_blue*, *bg_magenta*, *bg_cyan*, *bg_white*, *bg_default*, *fx_reset*, *fx_bold*, *fx_italic*, *fx_underline*, *fx_not_italic*, *fx_not_underline*, *fx_normal*, *fixed_width*, *end_fixed_width*, *inline_code*, *end_inline_code*)

Bases: tuple

bg_black

Alias for field number 9

bg_blue

Alias for field number 13

bg_cyan

Alias for field number 15

bg_default
Alias for field number 17

bg_green
Alias for field number 11

bg_magenta
Alias for field number 14

bg_red
Alias for field number 10

bg_white
Alias for field number 16

bg_yellow
Alias for field number 12

end_fixed_width
Alias for field number 26

end_inline_code
Alias for field number 28

fg_black
Alias for field number 0

fg_blue
Alias for field number 4

fg_cyan
Alias for field number 6

fg_default
Alias for field number 8

fg_green
Alias for field number 2

fg_magenta
Alias for field number 5

fg_red
Alias for field number 1

fg_white
Alias for field number 7

fg_yellow
Alias for field number 3

fixed_width
Alias for field number 25

fx_bold
Alias for field number 19

fx_italic
Alias for field number 20

fx_normal
Alias for field number 24

fx_not_italic
Alias for field number 22

fx_not_underline
Alias for field number 23

fx_reset
Alias for field number 18

fx_underline
Alias for field number 21

inline_code
Alias for field number 27

class errbot.rendering.ansiext.**NSC**(*s*)
Bases: object

__init__(*s*)

class errbot.rendering.ansiext.**Table**(*chr_table*)
Bases: object

__init__(*chr_table*)

add_col()

add_header()

begin_headers()

end_headers()

next_row()

write(*text*)

errbot.rendering.ansiext.**enable_format**(*name*, *chr_table*, *borders=True*)

errbot.rendering.ansiext.**recurse**(*write*, *chr_table*, *element*, *table=None*, *borders=True*)

errbot.rendering.ansiext.**translate**(*element*, *chr_table=(<ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, <ansi.colour.base.Graphic object>, '', '', '', '')*, *borders=True*)

errbot.rendering.xhtmlim module

errbot.rendering.xhtmlim.**unescape**(*s*)

Module contents

class errbot.rendering.**Mde2mdConverter**

Bases: object

convert(*mde*)

errbot.rendering.**ansi**()

This makes a converter from markdown to ansi (console) format. It can be called like this: from errbot.rendering import ansi md_converter = ansi() # you need to cache the converter

ansi_txt = md_converter.convert(md_txt)

errbot.rendering.**imtext**()

This makes a converter from markdown to imtext (unicode) format. imtest is the format like gtalk, slack or skype with simple _ or * markup.

It can be called like this: from errbot.rendering import imtext md_converter = imtext() # you need to cache the converter

im_text = md_converter.convert(md_txt)

errbot.rendering.**md**()

This makes a converter from markdown-extra to markdown, stripping the attributes from extra.

errbot.rendering.**md_escape**(*txt*)

Call this if you want to be sure your text won't be interpreted as markdown :param txt: bare text to escape.

errbot.rendering.**text**()

This makes a converter from markdown to text (unicode) format. It can be called like this: from errbot.rendering import text md_converter = text() # you need to cache the converter

pure_text = md_converter.convert(md_txt)

errbot.rendering.**xhtml**()

This makes a converter from markdown to xhtml format. It can be called like this: from errbot.rendering import xhtml md_converter = xhtml() # you need to cache the converter

html = md_converter.convert(md_txt)

errbot.storage package

Submodules

errbot.storage.base module

class errbot.storage.base.**StorageBase**

Bases: object

Contract to implemement a storage.

abstract close() → None

Sync and close the storage. The caller of close will protect against close on non open and double close.

abstract get(*key: str*) → Any

Get the value stored for key. Raises KeyError if the key doesn't exist. The caller of get will protect against get on non open.

Return type
Any

Parameters
key (str) – the key

Returns
the value

abstract keys() → Iterable[str]

Returns
an iterator on all the entries

abstract len() → int

Returns
the number of keys set.

abstract remove(*key: str*) → None

Remove key. Raises KeyError if the key doesn't exist. The caller of get will protect against get on non open.

Parameters
key (str) – the key

abstract set(*key: str*, *value: Any*) → None

Atomically set the key to the given value. The caller of set will protect against set on non open.

Parameters

- **key** (str) – string as key
- **value** (Any) – pickalable python object

class errbot.storage.base.**StoragePluginBase**(*bot_config*)

Bases: object

Base to implement a storage plugin. This is a factory for the namespaces.

__init__(*bot_config*)

abstract open(*namespace: str*) → *StorageBase*

Open the storage with the given namespace (core, or plugin name) and config. The caller of open will protect against double opens.

Return type
StorageBase

Parameters
namespace (str) – a namespace to isolate the plugin storages.

Returns

errbot.storage.memory module

class errbot.storage.memory.**MemoryStorage**(*namespace*)

Bases: *StorageBase*

__init__(*namespace*)

close() → None

Sync and close the storage. The caller of close will protect against close on non open and double close.

get(*key: str*) → Any

Get the value stored for key. Raises KeyError if the key doesn't exist. The caller of get will protect against get on non open.

Return type
Any

Parameters
key (str) – the key

Returns
the value

keys()

Returns
an iterator on all the entries

len()

Returns
the number of keys set.

remove(*key: str*)

Remove key. Raises KeyError if the key doesn't exist. The caller of get will protect against get on non open.

Parameters
key (str) – the key

set(*key: str*, *value: Any*) → None

Atomically set the key to the given value. The caller of set will protect against set on non open.

Parameters

- **key** (str) – string as key
- **value** (Any) – pickalable python object

class errbot.storage.memory.**MemoryStoragePlugin**(*bot_config*)

Bases: *StoragePluginBase*

open(*namespace: str*) → *StorageBase*

Open the storage with the given namespace (core, or plugin name) and config. The caller of open will protect against double opens.

Return type
StorageBase

Parameters
namespace (str) – a namespace to isolate the plugin storages.

Returns

errbot.storage.shelf module

class errbot.storage.shelf.**ShelfStorage**(*path*)

Bases: *StorageBase*

__init__(*path*)

close() → None

Sync and close the storage. The caller of close will protect against close on non open and double close.

get(*key: str*) → Any

Get the value stored for key. Raises KeyError if the key doesn't exist. The caller of get will protect against get on non open.

Return type
Any

Parameters
key (str) – the key

Returns
the value

keys()

Returns
an iterator on all the entries

len()

Returns
the number of keys set.

remove(*key: str*)

Remove key. Raises KeyError if the key doesn't exist. The caller of get will protect against get on non open.

Parameters
key (str) – the key

set(*key: str*, *value: Any*) → None

Atomically set the key to the given value. The caller of set will protect against set on non open.

Parameters

- **key** (str) – string as key

- **value** (Any) – pickalable python object

class errbot.storage.shelf.**ShelfStoragePlugin**(*bot_config*)

Bases: *StoragePluginBase*

__init__(*bot_config*)

open(*namespace: str*) → *StorageBase*

Open the storage with the given namespace (core, or plugin name) and config. The caller of open will protect against double opens.

Return type
StorageBase

Parameters
namespace (str) – a namespace to isolate the plugin storages.

Returns

Module contents

exception errbot.storage.**StoreAlreadyOpenError**

Bases: *StoreException*

exception errbot.storage.**StoreException**

Bases: Exception

class errbot.storage.**StoreMixin**

Bases: MutableMapping

This class handle the basic needs of bot plugins and core like loading, unloading and creating a storage

__init__()

close_storage()

is_open_storage()

keys() → a set-like object providing a view on D's keys

mutable(*key*, *default=None*)

open_storage(*storage_plugin*, *namespace*)

exception errbot.storage.**StoreNotOpenError**

Bases: *StoreException*

8.1.2 Submodules

errbot.backend_plugin_manager module

class errbot.backend_plugin_manager.**BackendPluginManager**(*bot_config*, *base_module: str*, *plugin_name: str*, *base_class: Type*, *base_search_dir*, *extra_search_dirs=()*)

Bases: object

This is a one shot plugin manager for Backends and Storage plugins.

__init__(*bot_config*, *base_module: str*, *plugin_name: str*, *base_class: Type*, *base_search_dir*, *extra_search_dirs=()*)

load_plugin() → Any

exception errbot.backend_plugin_manager.PluginNotFoundException

Bases: Exception

errbot.backend_plugin_manager.enumerate_backend_plugins(*all_plugins_paths: List[str | Path]*) → Iterator[*PluginInfo*]

errbot.bootstrap module

errbot.bootstrap.bootstrap(*bot_class*, *logger: Logger*, *config: object*, *restore: str | None = None*) → None

Main starting point of Errbot.

Parameters

- **bot_class** – The backend class inheriting from Errbot you want to start.
- **logger** (Logger) – The logger you want to use.
- **config** (object) – The config.py module.
- **restore** – Start Errbot in restore mode (from a backup).

errbot.bootstrap.bot_config_defaults(*config: object*) → None

errbot.bootstrap.get_storage_plugin(*config: object*) → Callable

Find and load the storage plugin :type config: object :param config: the bot configuration. :return: the storage plugin

errbot.bootstrap.restore_bot_from_backup(*backup_filename: str*, ***, *bot*, *log: Logger*)

Restores the given bot by executing the 'backup' script.

The backup file is a python script which manually execute a series of commands on the bot to restore it to its previous state.

Parameters

- **backup_filename** (str) – the full path to the backup script.
- **bot** – the bot instance to restore
- **log** (Logger) – logger to use during the restoration process

errbot.bootstrap.setup_bot(*backend_name: str*, *logger: Logger*, *config: object*, *restore: str | None = None*) → *ErrBot*

errbot.botplugin module

class errbot.botplugin.ArgParserBase

Bases: object

The *ArgSplitterBase* class defines the API which is used for argument splitting (used by the *split_args_with* parameter on botcmd()).

parse_args(*args: str*)

This method takes a string of un-split arguments and parses it, returning a list that is the result of splitting.

If splitting fails for any reason it should return an exception of some kind.

Parameters
args (str) – string to parse

class errbot.botplugin.**BotPlugin**(*bot*, *name=None*)

Bases: *BotPluginBase*

activate() → None

Triggered on plugin activation.

Override this method if you want to do something at initialization phase (don't forget to *super().activate()*).

build_identifier(*txtrep: str*) → *Identifier*

Transform a textual representation of a user identifier to the correct Identifier object you can set in Message.to and Message.frm.

Return type
Identifier

Parameters
txtrep (str) – the textual representation of the identifier (it is backend dependent).

Returns
a user identifier.

callback_botmessage(*message:* Message) → None

Triggered on every message coming from the bot itself.

Override this method to get notified on all messages coming from the bot itself (including those from other plugins).

Parameters
message (*Message*) – An instance of *Message* representing the message that was received.

callback_connect() → None

Triggered when the bot has successfully connected to the chat network.

Override this method to get notified when the bot is connected.

callback_mention(*message:* Message, *mentioned_people: Sequence[*Identifier*]*) → None

Triggered if there are mentioned people in message.

Override this method to get notified when someone was mentioned in message. [Note: This might not be implemented by all backends.]

Parameters

- **message** (*Message*) – representing the message that was received.
- **mentioned_people** – all mentioned people in this message.

callback_message(*message:* Message) → None

Triggered on every message not coming from the bot itself.

Override this method to get notified on *ANY* message.

Parameters
message (*Message*) – representing the message that was received.

callback_presence(*presence:* Presence) → None

Triggered on every presence change.

Parameters
presence (*Presence*) – An instance of *Presence* representing the new presence state that was received.

callback_reaction(*reaction:* Reaction) → None

Triggered on every reaction event.

Parameters
reaction (*Reaction*) – An instance of *Reaction* representing the new reaction event that was received.

callback_room_joined(*room:* Room, *identifier:* Identifier, *invited_by:* Identifier | *None* = *None*) → None

Triggered when a user has joined a MUC.

Parameters

- **room** (*Room*) – An instance of MUCRoom representing the room that was joined.
- **identifier** (*Identifier*) – An instance of Identifier (Person). Defaults to bot
- **invited_by** – An instance of Identifier (Person). Defaults to None

callback_room_left(*room:* Room, *identifier:* Identifier, *kicked_by:* Identifier | *None* = *None*) → None

Triggered when a user has left a MUC.

Parameters

- **room** (*Room*) – An instance of MUCRoom representing the room that was left.
- **identifier** (*Identifier*) – An instance of Identifier (Person). Defaults to bot
- **kicked_by** – An instance of Identifier (Person). Defaults to None

callback_room_topic(*room:* Room) → None

Triggered when the topic in a MUC changes.

Parameters
room (*Room*) – An instance of MUCRoom representing the room for which the topic changed.

callback_stream(*stream:* Stream) → None

Triggered asynchronously (in a different thread context) on every incoming stream request or file transfer request. You can block this call until you are done with the stream. To signal that you accept / reject the file, simply call stream.accept() or stream.reject() and return.

Parameters
stream (*Stream*) – the incoming stream request.

change_presence(*status: str* = *'online'*, *message: str* = *''*) → None

Changes the presence/status of the bot.

Parameters

- **status** (str) – One of the constant defined in base.py : ONLINE, OFFLINE, DND,...
- **message** (str) – Additional message

Returns
None

check_configuration(*configuration: Mapping*) → None

By default, this method will do only a BASIC check. You need to override it if you want to do more complex checks. It will be called before the configure callback. Note if the config_template is None, it will never be called.

It means recusively:

1. in case of a dictionary, it will check if all the entries and from the same type are there and not more.
2. in case of an array or tuple, it will assume array members of the same type of first element of the template (no mix typed is supported)

In case of validation error it should raise a errbot.ValidationException

Parameters
configuration – the configuration to be checked.

configure(*configuration: Mapping*) → None

By default, it will just store the current configuration in the self.config field of your plugin. If this plugin has no configuration yet, the framework will call this function anyway with None.

This method will be called before activation so don't expect to be activated at that point.

Parameters
configuration – injected configuration for the plugin.

deactivate() → None

Triggered on plugin deactivation.

Override this method if you want to do something at tear-down phase (don't forget to *super().deactivate()*).

get_configuration_template() → Mapping

If your plugin needs a configuration, override this method and return a configuration template.

For example a dictionary like: return {'LOGIN' : 'example@example.com', 'PASSWORD' : 'password'}

Note: if this method returns None, the plugin won't be configured

query_room(*room: str*) → *Room*

Query a room for information.

Return type
Room

Parameters
room (str) – The JID/identifier of the room to query for.

Returns
An instance of MUCRoom.

Raises
RoomDoesNotExistError if the room doesn't exist.

rooms() → Sequence[*Room*]

The list of rooms the bot is currently in.

send(*identifier:* Identifier, *text: str*, *in_reply_to:* Message = *None*, *groupchat_nick_reply: bool* = *False*) → None

Send a message to a room or a user.

Parameters

- **groupchat_nick_reply** (bool) – if True the message will mention the user in the chatroom.
- **in_reply_to** (*Message*) – the original message this message is a reply to (optional). In some backends it will start a thread.
- **text** (str) – markdown formatted text to send to the user.
- **identifier** (*Identifier*) – An Identifier representing the user or room to message. Identifiers may be created with *build_identifier()*.

send_card(*body: str = ''*, *to:* Identifier *= None*, *in_reply_to:* Message *= None*, *summary: str = None*, *title: str = ''*, *link: str = None*, *image: str = None*, *thumbnail: str = None*, *color: str = 'green'*, *fields: Tuple[Tuple[str, str], ...] = ()*) → None

Sends a card.

A Card is a special type of preformatted message. If it matches with a backend similar concept like on Slack it will be rendered natively, otherwise it will be sent as a regular formatted message.

Parameters

- **body** (str) – main text of the card in markdown.
- **to** (*Identifier*) – the card is sent to this identifier (Room, RoomOccupant, Person...).
- **in_reply_to** (*Message*) – the original message this message is a reply to (optional).
- **summary** (str) – (optional) One liner summary of the card, possibly collapsed to it.
- **title** (str) – (optional) Title possibly linking.
- **link** (str) – (optional) url the title link is pointing to.
- **image** (str) – (optional) link to the main image of the card.
- **thumbnail** (str) – (optional) link to an icon / thumbnail.
- **color** (str) – (optional) background color or color indicator.
- **fields** – (optional) a tuple of (key, value) pairs.

send_stream_request(*user:* Identifier, *fsource: IOBase*, *name: str = None*, *size: int = None*, *stream_type: str = None*) → Callable

Sends asynchronously a stream/file to a user.

Parameters

- **user** (*Identifier*) – is the identifier of the person you want to send it to.
- **fsource** (IOBase) – is a file object you want to send.
- **name** (str) – is an optional filename for it.
- **size** (int) – is optional and is the espected size for it.
- **stream_type** (str) – is optional for the mime_type of the content.

It will return a Stream object on which you can monitor the progress of it.

send_templated(*identifier:* Identifier, *template_name: str*, *template_parameters: Mapping*, *in_reply_to:* Message *= None*, *groupchat_nick_reply: bool = False*) → None

Sends asynchronously a message to a room or a user.

Same as send but passing a template name and parameters instead of directly the markdown text. :type groupchat_nick_reply: bool :type in_reply_to: *Message* :type template_name: str :type identifier: *Identifier* :param template_parameters: arguments for the template. :param template_name: name of

the template to use. :param groupchat_nick_reply: if True it will mention the user in the chatroom. :param in_reply_to: optionally, the original message this message is the answer to. :param identifier: identifier of the user or room to which you want to send a message to.

start_poller(*interval: float*, *method: Callable[[...], None]*, *times: int = None*, *args: Tuple = None*, *kwargs: Mapping = None*)

Start to poll a method at specific interval in seconds.

Note: it will call the method with the initial interval delay for the first time

Also, you can program for example : self.program_poller(self, 30, fetch_stuff) where you have def fetch_stuff(self) in your plugin

Parameters

- **interval** (`float`) – interval in seconds
- **method** – targetted method
- **times** (`int`) – number of times polling should happen (defaults to``None`` which causes the polling to happen indefinitely)
- **args** – args for the targetted method
- **kwargs** – kwargs for the targetting method

stop_poller(*method: Callable[[...], None]*, *args: Tuple = None*, *kwargs: Mapping = None*)

stop poller(s).

If the method equals None -> it stops all the pollers you need to regive the same parameters as the original start_poller to match a specific poller to stop

Parameters

- **kwargs** – The initial kwargs you gave to start_poller.
- **args** – The initial args you gave to start_poller.
- **method** – The initial method you passed to start_poller.

warn_admins(*warning: str*) → None

Send a warning to the administrators of the bot.

Parameters
warning (`str`) – The markdown-formatted text of the message to send.

class errbot.botplugin.**BotPluginBase**(*bot*, *name=None*)

Bases: *StoreMixin*

This class handle the basic needs of bot plugins like loading, unloading and creating a storage It is the main contract between the plugins and the bot

__init__(*bot*, *name=None*)

activate() → None

Override if you want to do something at initialization phase (don't forget to super(Gnagna, self).activate())

property bot_config: module

Get the bot configuration from config.py. For example you can access: self.bot_config.BOT_DATA_DIR

property bot_identifier: *Identifier*

Get bot identifier on current active backend.

:return Identifier

create_dynamic_plugin(*name: str*, *commands: Tuple[Command]*, *doc: str = ''*) → None

Creates a plugin dynamically and exposes its commands right away.

Parameters

- **name** (str) – name of the plugin.
- **commands** – a tuple of command definition.
- **doc** (str) – the main documentation of the plugin.

deactivate() → None

Override if you want to do something at tear down phase (don't forget to super(Gnagna, self).deactivate())

destroy_dynamic_plugin(*name: str*) → None

Reverse operation of create_dynamic_plugin.

This allows you to dynamically refresh the list of commands for example. :type name: str :param name: the name of the dynamic plugin given to create_dynamic_plugin.

get_plugin(*name*) → *BotPlugin*

Gets a plugin your plugin depends on. The name of the dependency needs to be listed in [Code] section key DependsOn of your plug file. This method can only be used after your plugin activation (or having called super().activate() from activate itself). It will return a plugin object.

Parameters
name – the name

Returns
the BotPlugin object requested.

init_storage() → None

property mode: str

Get the current active backend.

Returns
the mode like 'tox', 'xmpp' etc…

property name: str

Get the name of this plugin as described in its .plug file.

Returns
The plugin name.

poller(*interval: float*, *method: Callable[[...], None]*, *times: int = None*, *args: Tuple = None*, *kwargs: Mapping = None*) → None

program_next_poll(*interval: float*, *method: Callable[[...], None]*, *times: int = None*, *args: Tuple = None*, *kwargs: Mapping = None*) → None

start_poller(*interval: float*, *method: Callable[[...], None]*, *times: int = None*, *args: Tuple = None*, *kwargs: Mapping = None*) → None

Starts a poller that will be called at a regular interval

Parameters

- **interval** (float) – interval in seconds
- **method** – targetted method
- **times** (int) – number of times polling should happen (defaults to``None`` which causes the polling to happen indefinitely)

- **args** – args for the targetted method
- **kwargs** – kwargs for the targetting method

stop_poller(*method: Callable[[...], None]*, *args: Tuple = None*, *kwargs: Mapping = None*) → None

class errbot.botplugin.**Command**(*function: Callable*, *cmd_type: Callable | None = None*, *cmd_args=None*, *cmd_kwargs=None*, *name: str | None = None*, *doc: str | None = None*)

Bases: `object`

This is a dynamic definition of an errbot command.

__init__(*function: Callable*, *cmd_type: Callable | None = None*, *cmd_args=None*, *cmd_kwargs=None*, *name: str | None = None*, *doc: str | None = None*)

Create a Command definition.

Parameters

- **function** – a function or a lambda with the correct signature for the type of command to inject for example *def mycmd(plugin, msg, args)* for a botcmd. Note: the first parameter will be the plugin itself (equivalent to self).
- **cmd_type** – defaults to *botcmd* but can be any decorator function used for errbot commands.
- **cmd_args** – the parameters of the decorator.
- **cmd_kwargs** – the kwargs parameter of the decorator.
- **name** – defaults to the name of the function you are passing if it is a first class function or needs to be set if you use a lambda.
- **doc** – defaults to the doc of the given function if it is a first class function. It can be set for a lambda or overridden for a function with this.

append_args(*args*, *kwargs*)

exception errbot.botplugin.**CommandError**(*reason: str*, *template: str = None*)

Bases: `Exception`

Use this class to report an error condition from your commands, the command did not proceed for a known "business" reason.

__init__(*reason: str*, *template: str = None*)

Parameters

- **reason** (`str`) – the reason for the error in the command.
- **template** (`str`) – apply this specific template to report the error.

class errbot.botplugin.**SeparatorArgParser**(*separator: str = None*, *maxsplit: int = -1*)

Bases: *ArgParserBase*

This argument splitter splits args on a given separator, like `str.split()` does.

__init__(*separator: str = None*, *maxsplit: int = -1*)

Parameters

- **separator** (`str`) – The separator on which arguments should be split. If sep is None, any whitespace string is a separator and empty strings are removed from the result.
- **maxsplit** (`int`) – If given, do at most this many splits.

parse_args(*args: str*) → List

This method takes a string of un-split arguments and parses it, returning a list that is the result of splitting.

If splitting fails for any reason it should return an exception of some kind.

Parameters
args (str) – string to parse

class errbot.botplugin.**ShlexArgParser**

Bases: *ArgParserBase*

This argument splitter splits args using posix shell quoting rules, like `shlex.split()` does.

parse_args(*args*)

This method takes a string of un-split arguments and parses it, returning a list that is the result of splitting.

If splitting fails for any reason it should return an exception of some kind.

Parameters
args – string to parse

exception errbot.botplugin.**ValidationException**

Bases: Exception

errbot.botplugin.**recurse_check_structure**(*sample: Any*, *to_check: Any*) → None

errbot.cli module

errbot.cli.**debug**(*sig*, *frame*) → None

Interrupt running process, and provide a python prompt for interactive debugging.

errbot.cli.**get_config**(*config_path: str*)

errbot.cli.**main**() → None

errbot.config-template module

errbot.core module

class errbot.core.**ErrBot**(*bot_config*)

Bases: *Backend*, *StoreMixin*

ErrBot is the layer taking care of commands management and dispatching.

MSG_ERROR_OCCURRED = 'Computer says nooo. See logs for details'

MSG_UNKNOWN_COMMAND = 'Unknown command: "%(command)s". '

__init__(*bot_config*)

Those arguments will be directly those put in BOT_IDENTITY

property all_commands: dict

Return both commands and re_commands together.

attach_plugin_manager(*plugin_manager*) → None

attach_repo_manager(*repo_manager*) → None

attach_storage_plugin(*storage_plugin*) → None

callback_mention(*msg:* Message, *people: List[*Identifier*]*) → None

callback_message(*msg:* Message) → None

Processes for commands and dispatches the message to all the plugins.

callback_presence(*pres:* Presence) → None

Implemented by errBot.

callback_reaction(*reaction*) → None

Triggered when a reaction occurs.

Parameters

reaction – An instance of *Reaction* representing the reaction event data

callback_room_joined(*room:* Room, *identifier:* Identifier | *None* = *None*, *invited_by:* Identifier | *None* = *None*) → None

Triggered when a user has joined a MUC.

Parameters

- **room** (*Room*) – An instance of MUCRoom representing the room that was joined.
- **identifier** – An instance of Identifier (Person). Defaults to bot
- **invited_by** – An instance of Identifier (Person). Defaults to None

callback_room_left(*room:* Room, *identifier:* Identifier | *None* = *None*, *kicked_by:* Identifier | *None* = *None*) → None

Triggered when a user has left a MUC.

Parameters

- **room** (*Room*) – An instance of MUCRoom representing the room that was left.
- **identifier** – An instance of Identifier (Person). Defaults to bot
- **kicked_by** – An instance of Identifier (Person). Defaults to None

callback_room_topic(*room:* Room) → None

Triggered when the topic in a MUC changes.

Parameters

room (*Room*) – An instance of MUCRoom representing the room for which the topic changed.

callback_stream(*stream*) → None

connect_callback() → None

disconnect_callback() → None

get_command_classes() → Tuple[Any]

get_doc(*command: Callable*) → str

Get command documentation

static get_plugin_class_from_method(*meth*)

initialize_backend_storage() → None

Initialize storage for the backend to use.

inject_command_filters_from(*instance_to_inject*) → None

inject_commands_from(*instance_to_inject*)

inject_flows_from(*instance_to_inject*) → None

property message_size_limit: int

prefix_groupchat_reply(*message:* Message, *identifier:* Identifier) → None

Patches message with the conventional prefix to ping the specific contact For example: @gbin, you forgot the milk !

process_message(*msg:* Message) → bool

Check if the given message is a command for the bot and act on it. It return True for triggering the callback_messages on the .callback_messages on the plugins.

Return type
bool

Parameters
msg (*Message*) – the incoming message.

static process_template(*template_name*, *template_parameters*)

remove_command_filters_from(*instance_to_inject*) → None

remove_commands_from(*instance_to_inject*) → None

remove_flows_from(*instance_to_inject*) → None

send(*identifier:* Identifier, *text: str*, *in_reply_to:* Message | *None* = *None*, *groupchat_nick_reply: bool* = *False*) → None

Sends a simple message to the specified user.

Parameters

- **identifier** (*Identifier*) – an identifier from build_identifier or from an incoming message
- **in_reply_to** – the original message the bot is answering from
- **text** (str) – the markdown text you want to send
- **groupchat_nick_reply** (bool) – authorized the prefixing with the nick form the user

send_card(*card:* Message) → None

Sends a card, this can be overriden by the backends *without* a super() call.

Parameters
card (*Message*) – the card to send.

Returns
None

send_message(*msg:* Message) → None

This needs to be overridden by the backends with a super() call.

Parameters
msg (*Message*) – the message to send.

Returns
None

send_simple_reply(*msg:* Message, *text: str*, *private: bool = False*, *threaded: bool = False*) → None

Send a simple response to a given incoming message

Parameters

- **private** (bool) – if True will force a response in private.
- **threaded** (bool) – if True and if the backend supports it, sends the response in a threaded message.
- **text** (str) – the markdown text of the message.
- **msg** (*Message*) – the message you are replying to.

send_templated(*identifier:* Identifier, *template_name*, *template_parameters*, *in_reply_to:* Message | *None = None*, *groupchat_nick_reply: bool = False*) → Callable

Sends a simple message to the specified user using a template.

Parameters

- **template_parameters** – the parameters for the template.
- **template_name** – the template name you want to use.
- **identifier** (*Identifier*) – an identifier from build_identifier or from an incoming message, a room etc.
- **in_reply_to** – the original message the bot is answering from
- **groupchat_nick_reply** (bool) – authorized the prefixing with the nick form the user

set_message_size_limit(*limit: int = 10000*, *hard_limit: int = 10000*) → None

Set backends message size limit and its maximum supported message size. The MESSAGE_SIZE_LIMIT can be overridden by setting it in the configuration file. A historical value of 10000 is used by default.

shutdown() → None

signal_connect_to_all_plugins() → None

split_and_send_message(*msg:* Message) → None

startup_time = datetime.datetime(2024, 1, 1, 22, 12, 37, 683869)

unknown_command(*_*, *cmd: str*, *args: str | None*) → str

Override the default unknown command behavior

warn_admins(*warning: str*) → None

Send a warning to the administrators of the bot.

Parameters

warning (str) – The markdown-formatted text of the message to send.

errbot.flow module

class errbot.flow.**BotFlow**(*bot*, *name=None*)

Bases: object

Defines a Flow plugin ie. a plugin that will define new flows from its methods with the @botflow decorator.

__init__(*bot*, *name=None*)

activate() → None

Override if you want to do something at initialization phase (don't forget to super(Gnagna, self).activate())

deactivate() → None

Override if you want to do something at tear down phase (don't forget to super(Gnagna, self).deactivate())

get_command(*command_name: str*)

Helper to get a specific command.

property name: str

Get the name of this flow as described in its .plug file.

Returns
The flow name.

errbot.flow.**FLOW_END = <errbot.flow._FlowEnd object>**

Flow marker indicating that the flow ends.

class errbot.flow.**Flow**(*root: FlowRoot*, *requestor: Identifier*, *initial_context: Mapping[str, Any]*)

Bases: object

This is a live Flow. It keeps context of the conversation (requestor and context). Context is just a python dictionary representing the state of the conversation.

__init__(*root: FlowRoot*, *requestor: Identifier*, *initial_context: Mapping[str, Any]*)

Parameters

- **root** (*FlowRoot*) – the root of this flow.
- **requestor** (*Identifier*) – the user requesting this flow.
- **initial_context** – any data we already have that could help executing this flow automatically.

advance(*next_step: FlowNode*, *enforce_predicate: bool = True*)

Move on along the flow.

Parameters

- **next_step** (*FlowNode*) – Which node you want to move the flow forward to.
- **enforce_predicate** (bool) – Do you want to check if the predicate is verified for this step or not. Usually, if it is a manual step, the predicate is irrelevant because the user will give the missing information as parameters to the command.

check_identifier(*identifier: Identifier*) → bool

property current_step: *FlowNode*

The current step this Flow is waiting on.

property name: str

Helper property to get the name of the flow.

next_autosteps() → List[*FlowNode*]

Get the next steps that can be automatically executed according to the set predicates.

next_steps() → List[*FlowNode*]

Get all the possible next steps after this one (predicates statisfied or not).

property root: *FlowRoot*

The original flowroot of this flow.

class errbot.flow.**FlowExecutor**(*bot*)

Bases: object

This is a instance that can monitor and execute flow instances.

__init__(*bot*)

add_flow(*flow:* FlowRoot) → None

Register a flow with this executor.

check_inflight_already_running(*user:* Identifier) → bool

Check if user is already running a flow. :rtype: bool :type user: *Identifier* :param user: the user

check_inflight_flow_triggered(*cmd: str*, *user:* Identifier) → Tuple[*Flow* | None, *FlowNode* | None]

Check if a command from a specific user was expected in one of the running flow. :type user: *Identifier* :type cmd: str :param cmd: the command that has just been executed. :param user: the identifier of the person who started this flow :returns: The name of the flow it triggered or None if none were matching.

execute(*flow:* Flow) → None

This is where the flow execution happens from one of the thread of the pool.

start_flow(*name: str*, *requestor:* Identifier, *initial_context: Mapping[str, Any]*) → *Flow*

Starts the execution of a Flow.

stop_flow(*name: str*, *requestor:* Identifier) → *Flow* | None

Stops a specific flow. It is a no op if the flow doesn't exist. Returns the stopped flow if found.

trigger(*cmd: str*, *requestor:* Identifier, *extra_context=None*) → *Flow* | None

Trigger workflows that may have command cmd as a auto_trigger or an in flight flow waiting for command. This assume cmd has been correctly executed. :type requestor: *Identifier* :type cmd: str :param requestor: the identifier of the person who started this flow :param cmd: the command that has just been executed. :param extra_context: extra context from the current conversation :returns: The flow it triggered or None if none were matching.

class errbot.flow.**FlowNode**(*command: str = None*, *hints: bool = True*)

Bases: object

This is a step in a Flow/conversation. It is linked to a specific botcmd and also a "predicate".

The predicate is a function that tells the flow executor if the flow can enter the step without the user intervention (automatically). The predicates defaults to False.

The predicate is a function that takes one parameter, the context of the conversation.

__init__(*command: str = None*, *hints: bool = True*) → None

Creates a FlowNone, takes the command to which the Node is linked to. :type hints: bool :type command: str :param command: the command this Node is linked to. Can only be None if this Node is a Root. :param hints: hints the users for the next steps in chat.

connect(*node_or_command: ~errbot.flow.FlowNode | str, predicate: ~typing.Callable[[~typing.Mapping[str, ~typing.Any]], bool] = <function FlowNode.<lambda>>, hints: bool = True*) → FlowNode

Construct the flow graph by connecting this node to another node or a command. The predicate is a function that tells the flow executor if the flow can enter the step without the user intervention (automatically).

Parameters

- **node_or_command** – the node or a string for a command you want to connect this Node to (this node or command will be the follow up of this one)
- **predicate** – function with one parameter, the context, to determine of the flow executor can continue automatically this flow with no user intervention.
- **hints** (bool) – hints the user on the next step possible.

Returns

the newly created node if you passed a command or the node you gave it to be easily chainable.

predicate_for_node(*node:* FlowNode) → Callable[[Mapping[str, Any]], bool] | None

gets the predicate function for the specified child node. :param node: the child node :return: the predicate that allows the automatic execution of that node.

class errbot.flow.**FlowRoot**(*name: str*, *description: str*)

Bases: *FlowNode*

This represent the entry point of a flow description.

__init__(*name: str*, *description: str*)

Parameters

- **name** (str) – The name of the conversation/flow.
- **description** (str) – A human description of what this flow does.
- **hints** – Hints for the next steps when triggered.

connect(*node_or_command: ~errbot.flow.FlowNode | str, predicate: ~typing.Callable[[~typing.Mapping[str, ~typing.Any]], bool] = <function FlowRoot.<lambda>>, auto_trigger: bool = False, room_flow: bool = False*) → FlowNode

See

FlowNode except fot auto_trigger

Parameters

- **predicate** –

  see

  FlowNode

- **node_or_command** –

  see

  FlowNode

- **auto_trigger** (bool) – Flag this root as autotriggering: it will start a flow if this command is executed in the chat.
- **room_flow** (bool) – Bind the flow to the room instead of a single person

exception errbot.flow.**InvalidState**

Bases: Exception

Raised when the Flow Executor is asked to do something contrary to the contraints it has been given.

errbot.logs module

errbot.logs.**format_logs**(*formatter: Formatter | None = None*, *theme_color: str | None = None*) → None

You may either use the formatter parameter to provide your own custom formatter, or the theme_color parameter to use the built in color scheme formatter.

errbot.logs.**get_log_colors**(*theme_color: str | None = None*) → str

Return a tuple containing the log format string and a log color dict

errbot.logs.**ispydevd**()

errbot.plugin_info module

class errbot.plugin_info.**PluginInfo**(*name: str*, *module: str*, *doc: str*, *core: bool*, *python_version: Tuple[int, int, int]*, *errbot_minversion: Tuple[int, int, int]*, *errbot_maxversion: Tuple[int, int, int]*, *dependencies: List[str]*, *location: pathlib.Path = None*)

Bases: object

__init__(*name: str*, *module: str*, *doc: str*, *core: bool*, *python_version: Tuple[int, int, int]*, *errbot_minversion: Tuple[int, int, int]*, *errbot_maxversion: Tuple[int, int, int]*, *dependencies: List[str]*, *location: Path = None*) → None

core: bool

dependencies: List[str]

doc: str

errbot_maxversion: Tuple[int, int, int]

errbot_minversion: Tuple[int, int, int]

static load(*plugfile_path: Path*) → *PluginInfo*

static load_file(*plugfile*, *location: Path*) → *PluginInfo*

load_plugin_classes(*base_module_name: str*, *baseclass: Type*)

location: Path = None

module: str

name: str

static parse(*config: ConfigParser*) → *PluginInfo*

Throws ConfigParserError with a meaningful message if the ConfigParser doesn't contain the minimal
information required.

python_version: Tuple[int, int, int]

errbot.plugin_manager module

Logic related to plugin loading and lifecycle

class errbot.plugin_manager.**BotPluginManager**(*storage_plugin: StoragePluginBase*, *extra_plugin_dir: str | None*, *autoinstall_deps: bool*, *core_plugins: Tuple[str, ...]*, *plugin_instance_callback: Callable[[str, Type[BotPlugin]], BotPlugin]*, *plugins_callback_order: Tuple[str | None, ...]*)

Bases: *StoreMixin*

__init__(*storage_plugin: StoragePluginBase*, *extra_plugin_dir: str | None*, *autoinstall_deps: bool*, *core_plugins: Tuple[str, ...]*, *plugin_instance_callback: Callable[[str, Type[BotPlugin]], BotPlugin]*, *plugins_callback_order: Tuple[str | None, ...]*)

Creates a Plugin manager :type autoinstall_deps: bool :type storage_plugin: *StoragePluginBase* :param storage_plugin: the plugin used to store to config for this manager :param extra_plugin_dir: an extra directory to search for plugins :param autoinstall_deps: if True, will install also the plugin deps from requirements.txt :param core_plugins: the list of core plugin that will be started :param plugin_instance_callback: the callback to instantiate a plugin (to inject the dependency on the bot) :param plugins_callback_order: the order on which the plugins will be callbacked

activate_flow(*name: str*) → None

activate_non_started_plugins() → None

Activates all plugins that are not activated, respecting its dependencies.

Returns

Empty string if no problem occurred or a string explaining what went wrong.

activate_plugin(*name: str*) → None

Activate a plugin with its dependencies.

blacklist_plugin(*name: str*) → str

deactivate_all_plugins() → None

deactivate_flow(*name: str*) → None

deactivate_plugin(*name: str*) → None

get_all_active_plugin_names() → List[str]

get_all_active_plugins() → List[*BotPlugin*]

This returns the list of plugins in the callback ordered defined from the config.

get_all_plugin_names() → List[str]

get_blacklisted_plugin() → List

get_plugin_by_path(*path: str*) → str | None

get_plugin_configuration(*name: str*) → Any | None

get_plugin_obj_by_name(*name: str*) → *BotPlugin*

get_plugins_activation_order() → List[str]

Calculate plugin activation order, based on their dependencies.

Returns

list of plugin names, in the best order to start them.

get_plugins_by_path(*path: str*)

is_plugin_blacklisted(*name: str*) → bool

reload_plugin_by_name(*name: str*) → None

Completely reload the given plugin, including reloading of the module's code :throws PluginActivationException: needs to be taken care of by the callers.

remove_plugin(*plugin:* BotPlugin) → None

Deactivate and remove a plugin completely. :type plugin: *BotPlugin* :param plugin: the plugin to remove :return:

remove_plugins_from_path(*root: str*) → None

Remove all the plugins that are in the filetree pointed by root.

set_plugin_configuration(*name: str*, *obj: Any*)

shutdown() → None

unblacklist_plugin(*name: str*) → str

update_plugin_places(*path_list: str*) → Dict[Path, str]

This updates where this manager is trying to find plugins and try to load newly found ones. :type path_list: `str` :param path_list: the path list where to search for plugins. :return: the feedback for any specific path in case of error.

exception errbot.plugin_manager.**IncompatiblePluginException**

Bases: *PluginActivationException*

exception errbot.plugin_manager.**PluginActivationException**

Bases: `Exception`

exception errbot.plugin_manager.**PluginConfigurationException**

Bases: *PluginActivationException*

class errbot.plugin_manager.**TopologicalSorter**(*graph=None*)

Bases: `TopologicalSorter`

find_cycle()

Wraps private method as public one.

errbot.plugin_manager.**check_errbot_version**(*plugin_info:* PluginInfo)

Checks if a plugin version between min_version and max_version is ok for this errbot. Raises IncompatiblePluginException if not.

errbot.plugin_manager.**check_python_plug_section**(*plugin_info:* PluginInfo) → bool

Checks if we have the correct version to run this plugin. Returns true if the plugin is loadable

errbot.plugin_manager.**install_packages**(*req_path: Path*)

Installs all the packages from the given requirements.txt

Return an exc_info if it fails otherwise None.

errbot.plugin_manager.**populate_doc**(*plugin_object:* BotPlugin, *plugin_info:* PluginInfo) → None

errbot.plugin_wizard module

errbot.plugin_wizard.**ask**(*question: str*, *valid_responses: List[str] | None = None*, *validation_regex: str | None = None*) → str | None

Ask the user for some input. If valid_responses is supplied, the user must respond with something present in this list.

errbot.plugin_wizard.**new_plugin_wizard**(*directory: str | None = None*) → None

Start the wizard to create a new plugin in the current working directory.

errbot.plugin_wizard.**render_plugin**(*values*) → Template

Render the Jinja template for the plugin with the given values.

errbot.repo_manager module

class errbot.repo_manager.**BotRepoManager**(*storage_plugin: StoragePluginBase*, *plugin_dir: str*, *plugin_indexes: Tuple[str, ...]*)

Bases: *StoreMixin*

Manages the repo list, git clones/updates or the repos.

__init__(*storage_plugin: StoragePluginBase*, *plugin_dir: str*, *plugin_indexes: Tuple[str, ...]*) → None

Make a repo manager. :type plugin_dir: `str` :type storage_plugin: *StoragePluginBase* :param storage_plugin: where the manager store its state. :param plugin_dir: where on disk it will git clone the repos. :param plugin_indexes: a list of URL / path to get the json repo index.

add_plugin_repo(*name: str*, *url: str*) → None

check_for_index_update() → None

get_all_repos_paths() → List[str]

get_installed_plugin_repos() → Dict[str, str]

get_repo_from_index(*repo_name: str*) → List[*RepoEntry*]

Retrieve the list of plugins for the repo_name from the index.

Parameters
repo_name (`str`) – the name of the repo

Returns
a list of RepoEntry

index_update() → None

install_repo(*repo: str*) → str

Install the repository from repo

Return type
`str`

Parameters
repo (`str`) –

The url, git url or path on disk of a repository. It can point to either a git repo or a .tar.gz of a plugin

Returns
The path on disk where the repo has been installed on.

Raises
RepoException if an error occured.

search_repos(*query: str*) → Generator[*RepoEntry*, None, None]
A simple search feature, keywords are AND and case insensitive on all the fields.

Parameters
query (str) – a string query

Returns
an iterator of RepoEntry

set_plugin_repos(*repos: Dict[str, str]*) → None
Used externally.

shutdown() → None

uninstall_repo(*name: str*) → None

update_all_repos() → Generator[Tuple[str, int, str], None, None]

update_repos(*repos*) → Generator[Tuple[str, int, str], None, None]
This git pulls the specified repos on disk. Yields tuples like (name, success, reason)

class errbot.repo_manager.**RepoEntry**(*entry_name*, *name*, *python*, *repo*, *path*, *avatar_url*, *documentation*)
Bases: tuple

avatar_url
Alias for field number 5

documentation
Alias for field number 6

entry_name
Alias for field number 0

name
Alias for field number 1

path
Alias for field number 4

python
Alias for field number 2

repo
Alias for field number 3

exception errbot.repo_manager.**RepoException**
Bases: Exception

errbot.repo_manager.**check_dependencies**(*req_path: Path*) → Tuple[str | None, Sequence[str]]
This methods returns a pair of (message, packages missing). Or None, [] if everything is OK.

errbot.repo_manager.**human_name_for_git_url**(*url: str*) → str

errbot.repo_manager.**makeEntry**(*repo_name: str*, *plugin_name: str*, *json_value: dict*) → *RepoEntry*

errbot.repo_manager.**tokenizeJsonEntry**(*json_dict: dict*) → set
Returns all the words in a repo entry.

errbot.repo_manager.**which**(*program: str*) → str | None

errbot.streaming module

class errbot.streaming.**Tee**(*incoming_stream*, *clients*)

Bases: object

Tee implements a multi reader / single writer

__init__(*incoming_stream*, *clients*)

clients is a list of objects implementing callback_stream

run()

streams to all the clients synchronously

start() → Thread

starts the transfer asynchronously

errbot.streaming.**repeatfunc**(*func: Callable[[...], None]*, *times: int | None = None*, **args*)

Repeat calls to func with specified arguments.

Example: repeatfunc(random.random)

Parameters

- **args** – params to the function to call.
- **times** – number of times to repeat.
- **func** – the function to repeatedly call.

errbot.templating module

errbot.templating.**add_plugin_templates_path**(*plugin_info:* PluginInfo) → None

errbot.templating.**make_templates_path**(*root: Path*) → Path

errbot.templating.**remove_plugin_templates_path**(*plugin_info:* PluginInfo) → None

errbot.templating.**tenv**() → Environment

errbot.utils module

errbot.utils.**collect_roots**(*base_paths: List*, *file_sig: str = '*.plug'*) → List

Collects all the paths from base_paths recursively that contains files of type *file_sig*.

Parameters

- **base_paths** – a list of base paths to walk from elements can be a string or a list/tuple of strings
- **file_sig** (str) – the file pattern to look for

Returns

a list of paths

class errbot.utils.**deprecated**(*new=None*)

Bases: object

deprecated decorator. emits a warning on a call on an old method and call the new method anyway

__init__(*new=None*)

errbot.utils.**entry_point_plugins**(*group*)

errbot.utils.**find_roots**(*path: str*, *file_sig: str = '*.plug'*) → List

Collects all the paths from path recursively that contains files of type *file_sig*.

Parameters

- **path** (str) – a base path to walk from
- **file_sig** (str) – the file pattern to look for

Returns
a list of paths

errbot.utils.**format_timedelta**(*timedelta*) → str

errbot.utils.**git_clone**(*url: str*, *path: str*) → None

Clones a repository from git url to path

errbot.utils.**git_pull**(*repo_path: str*) → None

Does a git pull on a repository

errbot.utils.**git_tag_list**(*repo_path: str*) → List[str]

Lists git tags on a cloned repo

errbot.utils.**global_restart**() → None

Restart the current process.

errbot.utils.**rate_limited**(*min_interval: float | int*)

decorator to rate limit a function.

Parameters
min_interval – minimum interval allowed between 2 consecutive calls.

Returns
the decorated function

errbot.utils.**split_string_after**(*str_: str*, *n: int*) → str

Yield chunks of length *n* from the given string

Return type
str

Parameters

- **n** (int) – length of the chunks.
- **str** (str) – the given string.

errbot.utils.**version2tuple**(*version: str*) → Tuple

errbot.version module

8.1.3 Module contents

class errbot.**BotFlow**(*bot*, *name=None*)

Bases: object

Defines a Flow plugin ie. a plugin that will define new flows from its methods with the @botflow decorator.

__init__(*bot*, *name=None*)

activate() → None

Override if you want to do something at initialization phase (don't forget to super(Gnagna, self).activate())

deactivate() → None

Override if you want to do something at tear down phase (don't forget to super(Gnagna, self).deactivate())

get_command(*command_name: str*)

Helper to get a specific command.

property name: str

Get the name of this flow as described in its .plug file.

Returns
The flow name.

class errbot.**BotPlugin**(*bot*, *name=None*)

Bases: *BotPluginBase*

activate() → None

Triggered on plugin activation.

Override this method if you want to do something at initialization phase (don't forget to *super().activate()*).

build_identifier(*txtrep: str*) → *Identifier*

Transform a textual representation of a user identifier to the correct Identifier object you can set in Message.to and Message.frm.

Return type
Identifier

Parameters
txtrep (str) – the textual representation of the identifier (it is backend dependent).

Returns
a user identifier.

callback_botmessage(*message:* Message) → None

Triggered on every message coming from the bot itself.

Override this method to get notified on all messages coming from the bot itself (including those from other plugins).

Parameters
message (*Message*) – An instance of *Message* representing the message that was received.

callback_connect() → None

Triggered when the bot has successfully connected to the chat network.

Override this method to get notified when the bot is connected.

callback_mention(*message:* Message, *mentioned_people: Sequence[*Identifier*]*) → None

Triggered if there are mentioned people in message.

Override this method to get notified when someone was mentioned in message. [Note: This might not be implemented by all backends.]

Parameters

- **message** (*Message*) – representing the message that was received.
- **mentioned_people** – all mentioned people in this message.

callback_message(*message:* Message) → None

Triggered on every message not coming from the bot itself.

Override this method to get notified on *ANY* message.

Parameters

message (*Message*) – representing the message that was received.

callback_presence(*presence:* Presence) → None

Triggered on every presence change.

Parameters

presence (*Presence*) – An instance of *Presence* representing the new presence state that was received.

callback_reaction(*reaction:* Reaction) → None

Triggered on every reaction event.

Parameters

reaction (*Reaction*) – An instance of *Reaction* representing the new reaction event that was received.

callback_room_joined(*room:* Room, *identifier:* Identifier, *invited_by:* Identifier | *None* = *None*) → None

Triggered when a user has joined a MUC.

Parameters

- **room** (*Room*) – An instance of MUCRoom representing the room that was joined.
- **identifier** (*Identifier*) – An instance of Identifier (Person). Defaults to bot
- **invited_by** – An instance of Identifier (Person). Defaults to None

callback_room_left(*room:* Room, *identifier:* Identifier, *kicked_by:* Identifier | *None* = *None*) → None

Triggered when a user has left a MUC.

Parameters

- **room** (*Room*) – An instance of MUCRoom representing the room that was left.
- **identifier** (*Identifier*) – An instance of Identifier (Person). Defaults to bot
- **kicked_by** – An instance of Identifier (Person). Defaults to None

callback_room_topic(*room:* Room) → None

Triggered when the topic in a MUC changes.

Parameters

room (*Room*) – An instance of MUCRoom representing the room for which the topic changed.

callback_stream(*stream:* Stream) → None

Triggered asynchronously (in a different thread context) on every incoming stream request or file transfer request. You can block this call until you are done with the stream. To signal that you accept / reject the file, simply call stream.accept() or stream.reject() and return.

Parameters
stream (*Stream*) – the incoming stream request.

change_presence(*status: str = 'online'*, *message: str = ''*) → None

Changes the presence/status of the bot.

Parameters

- **status** (str) – One of the constant defined in base.py : ONLINE, OFFLINE, DND,...
- **message** (str) – Additional message

Returns
None

check_configuration(*configuration: Mapping*) → None

By default, this method will do only a BASIC check. You need to override it if you want to do more complex checks. It will be called before the configure callback. Note if the config_template is None, it will never be called.

It means recusively:

1. in case of a dictionary, it will check if all the entries and from the same type are there and not more.
2. in case of an array or tuple, it will assume array members of the same type of first element of the template (no mix typed is supported)

In case of validation error it should raise a errbot.ValidationException

Parameters
configuration – the configuration to be checked.

configure(*configuration: Mapping*) → None

By default, it will just store the current configuration in the self.config field of your plugin. If this plugin has no configuration yet, the framework will call this function anyway with None.

This method will be called before activation so don't expect to be activated at that point.

Parameters
configuration – injected configuration for the plugin.

deactivate() → None

Triggered on plugin deactivation.

Override this method if you want to do something at tear-down phase (don't forget to *super().deactivate()*).

get_configuration_template() → Mapping

If your plugin needs a configuration, override this method and return a configuration template.

For example a dictionary like: return {'LOGIN' : 'example@example.com', 'PASSWORD' : 'password'}

Note: if this method returns None, the plugin won't be configured

query_room(*room: str*) → *Room*

Query a room for information.

Return type
Room

Parameters
room (str) – The JID/identifier of the room to query for.

Returns
An instance of MUCRoom.

Raises
RoomDoesNotExistError if the room doesn't exist.

rooms() → Sequence[*Room*]

The list of rooms the bot is currently in.

send(*identifier: Identifier*, *text: str*, *in_reply_to: Message = None*, *groupchat_nick_reply: bool = False*) → None

Send a message to a room or a user.

Parameters

- **groupchat_nick_reply** (bool) – if True the message will mention the user in the chatroom.
- **in_reply_to** (*Message*) – the original message this message is a reply to (optional). In some backends it will start a thread.
- **text** (str) – markdown formatted text to send to the user.
- **identifier** (*Identifier*) – An Identifier representing the user or room to message. Identifiers may be created with *build_identifier()*.

send_card(*body: str = ''*, *to: Identifier = None*, *in_reply_to: Message = None*, *summary: str = None*, *title: str = ''*, *link: str = None*, *image: str = None*, *thumbnail: str = None*, *color: str = 'green'*, *fields: Tuple[Tuple[str, str], ...] = ()*) → None

Sends a card.

A Card is a special type of preformatted message. If it matches with a backend similar concept like on Slack it will be rendered natively, otherwise it will be sent as a regular formatted message.

Parameters

- **body** (str) – main text of the card in markdown.
- **to** (*Identifier*) – the card is sent to this identifier (Room, RoomOccupant, Person...).
- **in_reply_to** (*Message*) – the original message this message is a reply to (optional).
- **summary** (str) – (optional) One liner summary of the card, possibly collapsed to it.
- **title** (str) – (optional) Title possibly linking.
- **link** (str) – (optional) url the title link is pointing to.
- **image** (str) – (optional) link to the main image of the card.
- **thumbnail** (str) – (optional) link to an icon / thumbnail.
- **color** (str) – (optional) background color or color indicator.
- **fields** – (optional) a tuple of (key, value) pairs.

send_stream_request(*user: Identifier*, *fsource: IOBase*, *name: str = None*, *size: int = None*, *stream_type: str = None*) → Callable

Sends asynchronously a stream/file to a user.

Parameters

- **user** (*Identifier*) – is the identifier of the person you want to send it to.
- **fsource** (IOBase) – is a file object you want to send.
- **name** (str) – is an optional filename for it.
- **size** (int) – is optional and is the espected size for it.
- **stream_type** (str) – is optional for the mime_type of the content.

It will return a Stream object on which you can monitor the progress of it.

send_templated(*identifier: Identifier*, *template_name: str*, *template_parameters: Mapping*, *in_reply_to: Message = None*, *groupchat_nick_reply: bool = False*) → None

Sends asynchronously a message to a room or a user.

Same as send but passing a template name and parameters instead of directly the markdown text. :type groupchat_nick_reply: bool :type in_reply_to: *Message* :type template_name: str :type identifier: *Identifier* :param template_parameters: arguments for the template. :param template_name: name of the template to use. :param groupchat_nick_reply: if True it will mention the user in the chatroom. :param in_reply_to: optionally, the original message this message is the answer to. :param identifier: identifier of the user or room to which you want to send a message to.

start_poller(*interval: float*, *method: Callable[[...], None]*, *times: int = None*, *args: Tuple = None*, *kwargs: Mapping = None*)

Start to poll a method at specific interval in seconds.

Note: it will call the method with the initial interval delay for the first time

Also, you can program for example : self.program_poller(self, 30, fetch_stuff) where you have def fetch_stuff(self) in your plugin

Parameters

- **interval** (float) – interval in seconds
- **method** – targetted method
- **times** (int) – number of times polling should happen (defaults to``None`` which causes the polling to happen indefinitely)
- **args** – args for the targetted method
- **kwargs** – kwargs for the targetting method

stop_poller(*method: Callable[[...], None]*, *args: Tuple = None*, *kwargs: Mapping = None*)

stop poller(s).

If the method equals None -> it stops all the pollers you need to regive the same parameters as the original start_poller to match a specific poller to stop

Parameters

- **kwargs** – The initial kwargs you gave to start_poller.
- **args** – The initial args you gave to start_poller.
- **method** – The initial method you passed to start_poller.

warn_admins(*warning: str*) → None

Send a warning to the administrators of the bot.

Parameters

warning (str) – The markdown-formatted text of the message to send.

class errbot.**Command**(*function: Callable*, *cmd_type: Callable | None = None*, *cmd_args=None*, *cmd_kwargs=None*, *name: str | None = None*, *doc: str | None = None*)

Bases: object

This is a dynamic definition of an errbot command.

__init__(*function: Callable*, *cmd_type: Callable | None = None*, *cmd_args=None*, *cmd_kwargs=None*, *name: str | None = None*, *doc: str | None = None*)

Create a Command definition.

Parameters

- **function** – a function or a lambda with the correct signature for the type of command to inject for example *def mycmd(plugin, msg, args)* for a botcmd. Note: the first parameter will be the plugin itself (equivalent to self).
- **cmd_type** – defaults to *botcmd* but can be any decorator function used for errbot commands.
- **cmd_args** – the parameters of the decorator.
- **cmd_kwargs** – the kwargs parameter of the decorator.
- **name** – defaults to the name of the function you are passing if it is a first class function or needs to be set if you use a lambda.
- **doc** – defaults to the doc of the given function if it is a first class function. It can be set for a lambda or overridden for a function with this.

append_args(*args*, *kwargs*)

exception errbot.**CommandError**(*reason: str*, *template: str = None*)

Bases: Exception

Use this class to report an error condition from your commands, the command did not proceed for a known "business" reason.

__init__(*reason: str*, *template: str = None*)

Parameters

- **reason** (str) – the reason for the error in the command.
- **template** (str) – apply this specific template to report the error.

class errbot.**Flow**(*root:* FlowRoot, *requestor:* Identifier, *initial_context: Mapping[str, Any]*)

Bases: object

This is a live Flow. It keeps context of the conversation (requestor and context). Context is just a python dictionary representing the state of the conversation.

__init__(*root:* FlowRoot, *requestor:* Identifier, *initial_context: Mapping[str, Any]*)

Parameters

- **root** (*FlowRoot*) – the root of this flow.
- **requestor** (*Identifier*) – the user requesting this flow.

- **initial_context** – any data we already have that could help executing this flow automatically.

advance(*next_step: FlowNode*, *enforce_predicate: bool = True*)

Move on along the flow.

Parameters

- **next_step** (*FlowNode*) – Which node you want to move the flow forward to.
- **enforce_predicate** (bool) – Do you want to check if the predicate is verified for this step or not. Usually, if it is a manual step, the predicate is irrelevant because the user will give the missing information as parameters to the command.

check_identifier(*identifier: Identifier*) → bool

property current_step: *FlowNode*

The current step this Flow is waiting on.

property name: str

Helper property to get the name of the flow.

next_autosteps() → List[*FlowNode*]

Get the next steps that can be automatically executed according to the set predicates.

next_steps() → List[*FlowNode*]

Get all the possible next steps after this one (predicates statisfied or not).

property root: *FlowRoot*

The original flowroot of this flow.

class errbot.**FlowRoot**(*name: str*, *description: str*)

Bases: *FlowNode*

This represent the entry point of a flow description.

__init__(*name: str*, *description: str*)

Parameters

- **name** (str) – The name of the conversation/flow.
- **description** (str) – A human description of what this flow does.
- **hints** – Hints for the next steps when triggered.

connect(*node_or_command: ~errbot.flow.FlowNode | str, predicate: ~typing.Callable[[~typing.Mapping[str, ~typing.Any]], bool] = <function FlowRoot.<lambda>>, auto_trigger: bool = False, room_flow: bool = False*) → *FlowNode*

See
FlowNode except fot auto_trigger

Parameters

- **predicate** –

  see
  FlowNode

- **node_or_command** –

  see
  FlowNode

- **auto_trigger** (bool) – Flag this root as autotriggering: it will start a flow if this command is executed in the chat.
- **room_flow** (bool) – Bind the flow to the room instead of a single person

errbot.**arg_botcmd**(**args*, *hidden: bool = None*, *name: str = None*, *admin_only: bool = False*, *historize: bool = True*, *template: str = None*, *flow_only: bool = False*, *unpack_args: bool = True*, ***kwargs*) → Callable[[*BotPlugin*, *Message*, Any], Any]

Decorator for argparse-based bot command functions

https://docs.python.org/3/library/argparse.html

This decorator creates an argparse.ArgumentParser and uses it to parse the commands arguments.

This decorator can be used multiple times to specify multiple arguments.

Any valid argparse.add_argument() parameters can be passed into the decorator. Each time this decorator is used it adds a new argparse argument to the command.

Parameters

- **hidden** (bool) – Prevents the command from being shown by the built-in help command when *True*.
- **name** (str) – The name to give to the command. Defaults to name of the function itself.
- **admin_only** (bool) – Only allow the command to be executed by admins when *True*.
- **historize** (bool) – Store the command in the history list (*!history*). This is enabled by default.
- **template** (str) – The template to use when using markdown output
- **flow_only** (bool) – Flag this command to be available only when it is part of a flow. If True and hidden is None, it will switch hidden to True.
- **unpack_args** (bool) – Should the argparser arguments be "unpacked" and passed on the the bot command individually? If this is True (the default) you must define all arguments in the function separately. If this is False you must define a single argument *args* (or whichever name you prefer) to receive the result of *ArgumentParser.parse_args()*.

This decorator should be applied to methods of *BotPlugin* classes to turn them into commands that can be given to the bot. The methods will be called with the original msg and the argparse parsed arguments. These methods are expected to have a signature like the following (assuming *unpack_args*=*True*):

```
@arg_botcmd('value', type=str)
@arg_botcmd('--repeat-count', dest='repeat', type=int, default=2)
def repeat_the_value(self, msg, value=None, repeat=None):
    return value * repeat
```

The given *msg* will be the full message object that was received, which includes data like sender, receiver, the plain-text and html body (if applicable), etc. *value* will hold the value passed in place of the *value* argument and *repeat* will hold the value passed in place of the *–repeat-count* argument.

If you don't like this automatic *"unpacking"* of the arguments, you can use *unpack_args*=*False* like this:

```
@arg_botcmd('value', type=str)
@arg_botcmd('--repeat-count', dest='repeat', type=int, default=2, unpack_args=False)
def repeat_the_value(self, msg, args):
    return arg.value * args.repeat
```

Note: The *unpack_args=False* only needs to be specified once, on the bottom *@args_botcmd* statement.

errbot.**botcmd**(**args*, *hidden: bool = None*, *name: str = None*, *split_args_with: str = ''*, *admin_only: bool = False*, *historize: bool = True*, *template: str = None*, *flow_only: bool = False*, *syntax: str = None*) → Callable[[*BotPlugin*, *Message*, Any], Any]

Decorator for bot command functions

Parameters

- **hidden** (bool) – Prevents the command from being shown by the built-in help command when *True*.
- **name** (str) – The name to give to the command. Defaults to name of the function itself.
- **split_args_with** (str) – Automatically split arguments on the given separator. Behaviour of this argument is identical to `str.split()`
- **admin_only** (bool) – Only allow the command to be executed by admins when *True*.
- **historize** (bool) – Store the command in the history list (*!history*). This is enabled by default.
- **template** (str) – The markdown template to use.
- **syntax** (str) – The argument syntax you expect for example: '[name] <mandatory>'.
- **flow_only** (bool) – Flag this command to be available only when it is part of a flow. If True and hidden is None, it will switch hidden to True.

This decorator should be applied to methods of *BotPlugin* classes to turn them into commands that can be given to the bot. These methods are expected to have a signature like the following:

```
@botcmd
def some_command(self, msg, args):
    pass
```

The given *msg* will be the full message object that was received, which includes data like sender, receiver, the plain-text and html body (if applicable), etc. *args* will be a string or list (depending on your value of *split_args_with*) of parameters that were given to the command by the user.

errbot.**botflow**(**args*, ***kwargs*)

Decorator for flow of commands.

TODO(gbin): example / docs

errbot.**botmatch**(**args*, ***kwargs*)

Decorator for regex-based message match.

Parameters

- ***args** – The regular expression a message should match against in order to trigger the command.
- **flags** – The *flags* parameter which should be passed to `re.compile()`. This allows the expression's behaviour to be modified, such as making it case-insensitive for example.
- **matchall** – By default, only the first match of the regular expression is returned (as a *re.MatchObject*). When *matchall* is *True*, all non-overlapping matches are returned (as a list of *re.MatchObject* items).

- **hidden** – Prevents the command from being shown by the built-in help command when *True*.
- **name** – The name to give to the command. Defaults to name of the function itself.
- **admin_only** – Only allow the command to be executed by admins when *True*.
- **historize** – Store the command in the history list (*!history*). This is enabled by default.
- **template** – The template to use when using Markdown output.
- **flow_only** – Flag this command to be available only when it is part of a flow. If True and hidden is None, it will switch hidden to True.

For example:

```
@botmatch(r'^(?:Yes|No)$')
def yes_or_no(self, msg, match):
    pass
```

errbot.**cmdfilter**(**args*, ***kwargs*)

Decorator for command filters.

This decorator should be applied to methods of *BotPlugin* classes to turn them into command filters.

These filters are executed just before the execution of a command and provide the means to add features such as custom security, logging, auditing, etc.

These methods are expected to have a signature and tuple response like the following:

```
@cmdfilter
def some_filter(self, msg, cmd, args, dry_run):
    """
    :param msg: The original chat message.
    :param cmd: The command name itself.
    :param args: Arguments passed to the command.
    :param dry_run: True when this is a dry-run.
       Dry-runs are performed by certain commands (such as !help)
       to check whether a user is allowed to perform that command
       if they were to issue it. If dry_run is True then the plugin
       shouldn't actually do anything beyond returning whether the
       command is authorized or not.
    """
    # If wishing to block the incoming command:
    return None, None, None
    # Otherwise pass data through to the (potential) next filter:
    return msg, cmd, args
```

Note that a cmdfilter plugin *could* modify *cmd* or *args* above and send that through in order to make it appear as if the user issued a different command.

errbot.**re_botcmd**(**args*, *hidden: bool = None*, *name: str = None*, *admin_only: bool = False*, *historize: bool = True*, *template: str = None*, *pattern: str = None*, *flags: int = 0*, *matchall: bool = False*, *prefixed: bool = True*, *flow_only: bool = False*, *re_cmd_name_help: str = None*) → Callable[[*BotPlugin*, *Message*, Any], Any]

Decorator for regex-based bot command functions

Parameters

- **pattern** (str) – The regular expression a message should match against in order to trigger the command.
- **flags** (int) – The *flags* parameter which should be passed to `re.compile()`. This allows the expression's behaviour to be modified, such as making it case-insensitive for example.
- **matchall** (bool) – By default, only the first match of the regular expression is returned (as a *re.MatchObject*). When *matchall* is *True*, all non-overlapping matches are returned (as a list of *re.MatchObject* items).
- **prefixed** (bool) – Requires user input to start with a bot prefix in order for the pattern to be applied when *True* (the default).
- **hidden** (bool) – Prevents the command from being shown by the built-in help command when *True*.
- **name** (str) – The name to give to the command. Defaults to name of the function itself.
- **admin_only** (bool) – Only allow the command to be executed by admins when *True*.
- **historize** (bool) – Store the command in the history list (*!history*). This is enabled by default.
- **template** (str) – The template to use when using markdown output
- **flow_only** (bool) – Flag this command to be available only when it is part of a flow. If True and hidden is None, it will switch hidden to True.

This decorator should be applied to methods of *BotPlugin* classes to turn them into commands that can be given to the bot. These methods are expected to have a signature like the following:

```
@re_botcmd(pattern=r'^some command$')
def some_command(self, msg, match):
    pass
```

The given *msg* will be the full message object that was received, which includes data like sender, receiver, the plain-text and html body (if applicable), etc. *match* will be a `re.MatchObject` containing the result of applying the regular expression on the user's input.

errbot.**webhook**(**args*, *methods: Tuple[str] = ('POST', 'GET')*, *form_param: str = None*, *raw: bool = False*) → Callable[[*BotPlugin*, Any], str]

Decorator for webhooks

Parameters

- **uri_rule** – The URL to use for this webhook, as per Flask request routing syntax. For more information, see:
  - http://flask.pocoo.org/docs/1.0/quickstart/#routing
  - http://flask.pocoo.org/docs/1.0/api/#flask.Flask.route
- **methods** – A tuple of allowed HTTP methods. By default, only GET and POST are allowed.
- **form_param** (str) – The key who's contents will be passed to your method's *payload* parameter. This is used for example when using the *application/x-www-form-urlencoded* mimetype.
- **raw** (bool) – When set to true, this overrides the request decoding (including form_param) and passes the raw http request to your method's *payload* parameter. The value of payload will be a Flask Request.

This decorator should be applied to methods of *BotPlugin* classes to turn them into webhooks which can be reached on Err's built-in webserver. The bundled *Webserver* plugin needs to be configured before these URL's become reachable.

Methods with this decorator are expected to have a signature like the following:

```
@webhook
def a_webhook(self, payload):
    pass
```

errbot.**webroute**(*obj*)

Check for functions to route in obj and route them.

CHAPTER

NINE

RELEASE HISTORY

9.1 v6.2.0 (2024-01-01)

breaking:

- backend/slack: remove slack and slack_rtm built-in backends (#1581)
- core/logging: deprecate SENTRY_TRANSPORT config (#1604)
- core: removing py37 support (#1652)

features:

- core/plugins: detect plugins using entrypoints (#1590)
- core/logging: add new SENTRY_OPTIONS config (#1597)
- core/plugins: make slack, mattermost and discord backends available as install requirements (#1611)

fixes:

- docs: add unreleased section (#1576)
- docs: update broken URL for Markdown Extra (#1572)
- chore: bump actions/setup-python version (#1575, #1593, #1609, #1626, #1642, #1650, #1659, #1674)
- backend/telegram: fix missing imports (#1574)
- chore: ci improvements (#1577, #1583)
- chore: add docs build to ci (#1582)
- backend/xmpp: fix forward type references (#1578)
- chore: remove campfire references (#1584)
- chore/setup: fix exception when installing on python <3.7 (#1585)
- docs: typos (#1589, #1594)
- chore: simplify isort config using black (#1595)
- fix: detecting entrypoint module paths (#1603)
- chore: fix Docker build to use local tree (#1608)
- chore: bump actions/checkout version (#1610, #1625, #1637, #1644, #1653, #1656, #1658, #1663)
- docs: link to external Discord plugin documentation (#1615)
- chore: add ARG to Dockerfile and add proper stop signal (#1613)
- fix: update module versions and build (#1627)

- chore: update setuptools version (#1628)
- refactor: detecting entry point plugins (#1630)
- chore: bump mr-smithers-excellent/docker-build-push version (#1633)
- docs: fix example code in the testing section (#1643)
- chore: update all core dependencies (#1651)
- fix: use template file for webserver plugin echo output (#1654)
- chore: update repos.json (#1660)
- docs: add readthedocs yaml config (#1661)
- fix: broken integration tests (#1668)
- style: replace format() with f-strings (#1667)
- migrate from external mock package to stdlib unittest.mock (#1673)
- fix: import of Mapping from collections.abc (#1675)
- backend: update irc, telegram and xmpp dependencies (#1655)

9.2 v6.1.9 (2022-06-11)

features:

- core: set default backend to Text (#1522)
- core: option to divert all commands to private or thread (#1528)
- core: add type hints to core and backend functions (#1542)
- docs: add ACL and numerous backends to official documentation (#1552)
- core: add Python 3.10 to automated tests (#1539)
- core: add room acl attribute (#1530)
- chore: refactor Dockerfile errbot install and python version bump (#1571)

fixes:

- core: success handling for update_repos (#1520)
- core/plugins: cascade dependency plugins (#1519)
- core/plugins: reload all repo plugins when updating a repo (#1521)
- plugin_manager: correct syntax error (#1524)
- backend/text: add stub send_stream_request method (#1527)
- backend/hipchat: remove HipChat backend (#1525)
- backend/test: shutdown sequence to address test failure (#1535)
- core: various minor logging improvements (#1536)
- chore: various minor formatting improvements (#1541)
- docs: update spark plugin reference (#1546)
- fix: python 2 version references in docs and init template (#1543)

- backends: deprecate built-in Slack and SlackRTM (#1526)
- chore: remove python 3.6 checks and test environment (#1540)
- chore: add/update issue templates (#1554)
- chore: pin all package dependencies (#1553, #1559)
- core/webserver: use errbot loglevel for consistent logging. (#1556)
- fix/core: prevent infinite loop when only BOT_PREFIX is passed (#1557)
- chore: bump actions/setup-python from 2 to 3.1.0 (#1563)
- chore: Set permissions for GitHub actions (#1565)
- fix: removed deprecated argument reconnection_interval for irc v20.0 (#1568)
- docs: Add Gentoo packages (#1567)
- chore: bump actions/setup-python from 3.1.0 to 3.1.2 (#1564)
- fix: circular dependencies error when there are none (#1505)

9.3 v6.1.8 (2021-06-21)

features:

- core/plugin: method to append argparse options to Command object (#1394)
- backends: Add identifier for room join and room leave callbacks (#1500)
- backends/test: allow attachments to pytest messages as extras (#1489)
- core/acl: Add allowargs / denyargs filters to ACL (#1509)
- core/bootstrap: Small logging fixes to BOT_LOG_FILE and FORMATTER (#1513)
- core/plugin: Support room names with spaces (#1262)

fixes:

- core/cli: failure when passing relative directory during –init (#1511)
- backend/xmpp: include message delayed for send/received messages (#1270)
- backend/xmpp: “unexpected keyword argument ‘wait’” when connecting (#1507)
- docs: update broken readme link to plugin development docs (#1504)
- close threadpool on exit (#1486)
- docs: remove matrix link (#1502)
- docs: Update backend screenshots (#1499)
- docs: Remove Google+ references (#1497)
- core: Split messages using *split()* instead of whitespace (#1496)
- chore/plugin: whoami formatting (#1459)
- backend/GUI: Remove GUI backend (#1495)

9.4 v6.1.7 (2020-12-18)

features:

- core: Add support for python3.9 (#1477)
- chore: Allow dependabot to check GitHub actions weekly (#1464)
- chore: Add Dockerfile (#1482)

fixes:

- core: AttributeError on Blacklisted plugins (#1369)
- chore: Remove travis configuration (#1478)
- chore: minor code cleanup (#1465)
- chore: Use black codestyle (#1457, #1485)
- chore: Use twine to check dist (#1485)
- chore: remove codeclimate and eslint configs (#1490)

9.5 v6.1.6 (2020-11-16)

features:

- core: Update code to support markdown 3 (#1473)

fixes:

- backends: Set email property as non-abstract (#1461)
- SlackRTM: username to userid method signature (#1458)
- backends: AttributeError in callback_reaction (#1467)
- docs: webhook examples (#1471)
- cli: merging configs with unknown keys (#1470)
- plugins: Fix error when plugin plug file is missing description (#1462)
- docs: typographical issues in setup guide (#1475)
- refactor: Split changelog by major versions (#1474)

9.6 v6.1.5 (2020-10-10)

features:

- XMPP: Replace sleekxmpp with slixmpp (#1430)
- New callback for reaction events (#1292)
- Added email property foriPerson object on all backends (#1186, #1456)
- chore: Add github actions (#1455)

fixes:

- Slack: Deprecated method calls (#1432, #1438)

- Slack: Increase message size limit. (#1333)
- docs: Remove Matrix backend link (#1445)
- SlackRTM: Missing 'id_' in argument (#1443)
- docs: fixed rendering with double hyphens (#1452)
- cli: merging configs via `--storage-merge` option (#1450)

9.7 v6.1.4 (2020-05-15)

fixes:

- 403 error when fetching plugin repos index (#1425)

9.8 v6.1.3 (2020-04-19)

features:

- Add security linter (#1314)
- Serve version.json on errbot.io and update version checker plugin (#1400)
- Serve repos.json on errbot.io (#1403, #1406)
- Include SlackRTM backend (beta) (#1416)

fixes:

- Make plugin name clashes deterministic (#1282)
- Fix error with Flows missing descriptions (#1405)
- Fix `!repos update` object attribute error (#1410)
- Fix updating remove repos using `!repos update` (#1413)
- Fix deprecation warning (#1423)
- Varios documentation fixes (#1404, #1411, #1415)

9.9 v6.1.2 (2019-12-15)

fixes:

- Add ability to re-run –init safely (#1390)
- fix #1375 by managing errors on lack of version endpoint.
- Fixed a deprecation warning for 3.9 on Mapping.
- removing the intermediate domain requiring a certificate.
- Fix package name for sentry-sdk flask integration
- Add support to sentry FlaskIntegration
- Migrate from raven (deprecated) to new sentry-sdk
- fix: Log errors when present

- Make chatroom log more descriptive
- Set admin check log as debug
- Add admin warnings to log
- Fix: Advanced loop graph does not reflect the image
- make the TestBot start timeout parameterized
- errbot/plugin_manager: only check for /proc/1/cgroup if path exists to fix warning
- removed (c) Apple asset we completely missed.
- fix double threading in slack backend if DIVERT_TO_THREAD is used
- pop up the timeout for travis
- Makes the timeout feedback better on tests. (#1366)
- Move all tox environments to use py37 (#1342)
- Remove empty "text" body on Slack send_card (#1336)
- Load class source in reloading plugins (#1347)
- test: Rename assertCommand -> assertInCommand (#1351)
- Enforce BOT_EXTRA_BACKEND_DIR is a list type. (#1358)
- Fix #1360 Cast pathlib.Path objects to strings for use with sys.path (#1361)

9.10 v6.1.1 (2019-06-22)

fixes:

- Installation using wheel distribution on python 3.6 or older

9.11 v6.1.0 (2019-06-16)

features:

- Use python git instead of system git binary (#1296)

fixes:

- `errbot -l` cli error (#1315)
- Slack backend by pinning slackclient to supported version (#1343)
- Make –storage-merge merge configs (#1311)
- Exporting values in backup command (#1328)
- Rename Spark to Webex Teams (#1323)
- Various documentation fixes (#1310, #1327, #1331)

9.12 v6.0.0 (2019-03-23)

features:

- TestBot: Implement inject_mocks method (#1235)
- TestBot: Add multi-line command test support (#1238)
- Added optional room arg to inroom
- Adds ability to go back to a previous room
- Pass telegram message id to the callback

fixes:

- Remove extra spaces in uptime output
- Fix/backend import error messages (#1248)
- Add docker support for installing package dependencies (#1245)
- variable name typo (#1244)
- Fix invalid variable name (#1241)
- sanitize comma quotation marks too (#1236)
- Fix missing string formatting in "Command not found" output (#1259)
- Fix webhook test to not call fixture directly
- fix: arg_botcmd decorator now can be used as plain method
- setup: removing dnspython
- pin markdown <3.0 because safe is deprecated

9.13 v6.0.0-alpha (2018-06-10)

major refactoring:

- Removed Yapsy dependency
- Replaced back Bottle and Rocket by Flask
- new Pep8 compliance
- added Python 3.7 support
- removed Python 3.5 support
- removed old compatibility cruft
- ported formats and % str ops to f-strings
- Started to add field types to improve type visibility across the codebase
- removed cross dependencies between PluginManager & RepoManager

fixes:

- Use sys.executable explicitly instead of just 'pip' (thx Bruno Oliveira)
- Pycodestyle fixes (thx Nitanshu)
- Help: don't add bot prefix to non-prefixed re cmds (#1199) (thx Robin Gloster)

- split_string_after: fix empty string handling (thx Robin Gloster)
- Escaping bug in dynamic plugins
- botmatch is now visible from the errbot module (fp to Guillaume Binet)
- flows: hint boolean was not forwarded
- Fix possible event without bot_id (#1073) (thx Roi Dayan)
- decorators were working only if kwargs were empty
- Message.clone was ignoring partial and flows

features:

- partial boolean to flag partial mesages (thx Meet Mangukiya)
- Slack: room joined callback (thx Jeremy Kenyon)
- XMPP: real_jid to get the jid the users logged in (thx Robin Gloster)
- The callback order set in the config is not globally respected
- Added a default parameter to the storage context manager

CHAPTER

TEN

LICENSE

Errbot is free software, available under the GPL-3 license. Please refer to the `full license text` for more details.

PYTHON MODULE INDEX

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