

Internationalization and localization with Limnoria / Supybot

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Contents

I	Internationalizing your plugins	2
1	About gettext	2
2	Importing the i18n module	2
3	It is time to internationalize!	2
3.1	Internationalize the docstrings	2
3.2	Internationalize the strings	3
4	Generate the POT file	3
II	Localizing plugins into your language	5
5	Understanding the file formats	5
6	The tools	5
7	The files architecture used by Limnoria for its translations	5
8	Generate the PO file	5
9	Translate the PO file	6

Part I

Internationalizing your plugins

1 About gettext

Gettext is a really powerful tool to internationalize software, and many other tools come with it, that's why I first wanted to use it. But, the problem was gettext need to have a single catalog for the whole software, but that is impossible for Supybot because of its modularity: each plugin needs to have its own catalog of translations.

Then, I choosed to write my own internationalization tool, compatible with tools designed for gettext (such as PoEdit or pygettext), fully integrated with Limnoria.

For plugins developpers, the syntax to use is nearly the same.

2 Importing the i18n module

i18n is the short version of "internationalization". It is also the name I gave to the module which handles internationalization and localization in Limnoria. All internationalized plugins need to import and use it.

If you created your plugin with the modified version of supybot-plugin-create provided with Limnoria, your plugin already imports the i18n module. If you didn't use the modified tool, append this code after the imports, in *plugin.py* and *config.py*:

```
from supybot.i18n import PluginInternationalization
from supybot.i18n import internationalizeDocstring
_ = PluginInternationalization('<NAME OF YOUR PLUGIN>')
```

But this code has a problem: as you see, it requires the module *supybot.i18n*, and this module exists only in Limnoria (at the moment). Then, I suggest you to use this code:

```
try:
    from supybot.i18n import PluginInternationalization
    from supybot.i18n import internationalizeDocstring
    _ = PluginInternationalization('<NAME OF YOUR PLUGIN>')
except:
    _ = lambda x:x
    internationalizeDocstring = lambda x:x
```

As you can see, if the import fails, the functions are replaced by functions which takes an argument, and return it verbatim. Of course, the string won't be localized, but it is still better than an error.

3 It is time to internationalize!

3.1 Internationalize the docstrings

As you probably noticed, Supybot uses the docstrings of the command as help. This help should be internationalized.

To do that, the i18n module provides the function *internationalizeDocstring*. I know this name is long, I have to use it for all commands I write for my plugins, but I think having an explicit name is more important than having a short name. Thanks to this long name, you know what it does: it internationalizes the docstrings!

Actually, this function is a decorator. If you don't know what a decorator is, that is not important. You just have to add a line before every command, like that:

```
@internationalizeDocstring # <= This is the line
def mycommand(self, irc, msg, args, arg1, arg2):
    """<argument 1> <argument 2>

    This command does that"""
    # The code of the command
mycommand = wrap(mycommand, ['something', 'something'])
```

Additionally, you can also decorate the class:

```
@internationalizeDocstring # <= This is the line
class MyPlugin:
    """My plugin does that."""
    # The code of the plugin

Class = MyPlugin
```

3.2 Internationalize the strings

There is two types of strings: those displayed on IRC (`irc.reply()`, `irc.error()`, ...), and those which are not (`log.debug()`, `log.info()`, ...). I consider the bot owner (the only one who can read the logs) should be able to understand English, so we translate only the string displayed on IRC. This shorten the painful work of translating.

To internationalize a string, the syntax is the same as gettext, because it is a good syntax, but also because it allows us to use tools designed for gettext (as `pygettext`). If you never used gettext, you will like the easiness of this syntax:

```
irc.reply(_('This is an internationalized string.'))
```

Really easy, isn't it?

Now, we have another problem: how to insert variables into the string? You probably want to use one of this lines:

```
irc.reply(_('There is ' + count + ' packages on this repository'))
irc.reply(_('There is %i packages on this repository' % count))
```

But you are wrong: in the best case, you will get an error. In the worst, the string won't be localized. The good syntax is:

```
irc.reply(_('There is %i packages on this repository') % count)
```

4 Generate the POT file

All internationalized plugins should come with a POT file, usually named `messages.pot`. If you already used gettext, you probably want to use the `gettext` command to generate this file, but you are wrong. Do you remember the docstrings needs to (and will) be localized, even if we did not `__()`-ize them? But gettext picks out only `__()`-ized strings, so, it is not the tool we need.

Fortunately, a such tool exists! It is called `pygettext` and should be installed with Python. Here is the command to use:

```
pygettext --docstring config.py plugin.py
```

It will create a file called `messages.pot`, which is needed by the translators.

Part II

Localizing plugins into your language

5 Understanding the file formats

The localization process deals with three file types

a .pot – Contains untranslated strings. Human readable, but doesn't need to be read

a .po per language – Also called "catalog". It is the translation of the strings. Human readable.

a .mo per .po – The compiled version of the .po. Not human readable.

As I said before, Limnoria uses my own implementation of gettext; and this implementation does not need the .mo files: it reads directly the .po (actually, at the moment I was writing the i18n module, I did not know .mo files exist ;)).

6 The tools

I personally use PoEdit, because it does everything one could expect on a PO editor: create the PO from the POT, nice PO editor, and PO -> MO compiler (even if we do not need the last one).

But, PoEdit is not *the* universal tool, there is many other graphic tools or in the console. I will not cover this other tools here because I never tried them, but there is probably nice documentation somewhere else, but the process is nearly the same.

7 The files architecture used by Limnoria for its translations

There is two kind of localization files: for the core itself, and for the plugins.

The core: The localization files of the core are in the directory locale/, located at the root of the source. There is two files per language: a fr.po and fr.py (fr is of course the language representation).

The first one is easy to understand and translate, it is a big classic PO file, translatable with PoEdit.

fr.py is slightly more tricky: it contains additional Python code used to "say" how to do some stuff related to the language, such as pluralization. If you want to localize it, you need to be a Python programmer (actually, a beginner should be able to do it, it is easy).

The plugins: All plugins should have a locale/ directory (create it if it does not exist), containing the PO files.

8 Generate the PO file

If you are editing an existing translation, skip this step.

For Limnoria core, the POT is in the locale/ directory. For the plugins, it is in the directory of the plugin. (It is easy to remember, isn't it?) PoEdit allows you to create a

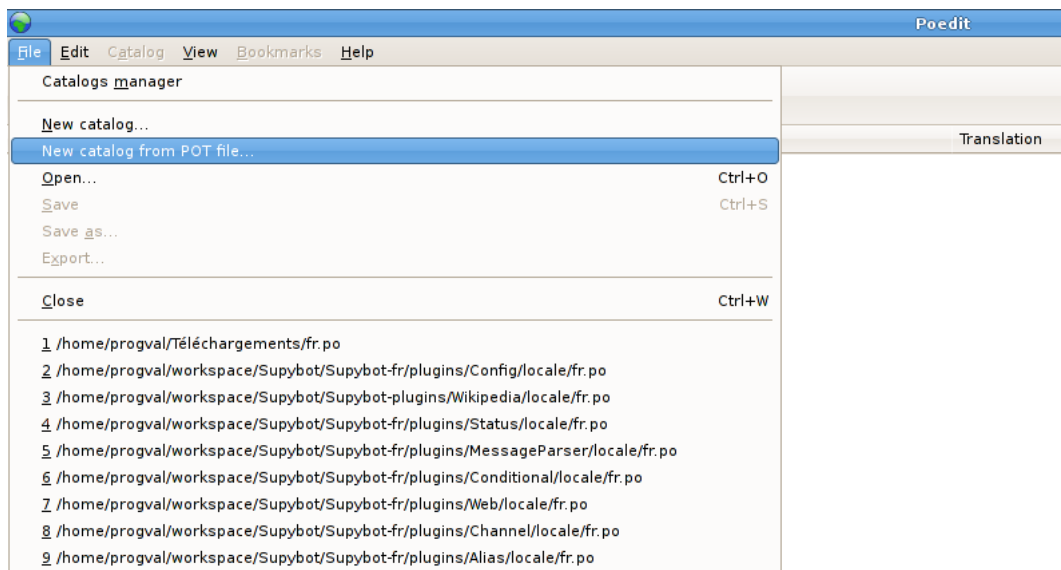


Figure 1: Creating a catalog from a .pot file

catalog from the POT easily, from the File menu, as in figure 1. Now you created the PO file, save it as `plugins/<plugin name>/locale/<language code>.po` if it is for a plugin or as `locale/<language code>.po` if it is for the core.

9 Translate the PO file

Now, the most important step: translating the plugin/bot. Open it with PoEdit or with your favorite PO editor, and translate it, as in figure 2.

There is two things you have to keep in mind:

- In the untranslated string, there is many `\n` and line break. You can ignore them safely, they are useless...
- ... but you need to have two `\n` after the syntax of commands. That is important, Limnoria uses them to detect what is the syntax and what is the real help (when displayed on IRC, the syntax is bold).

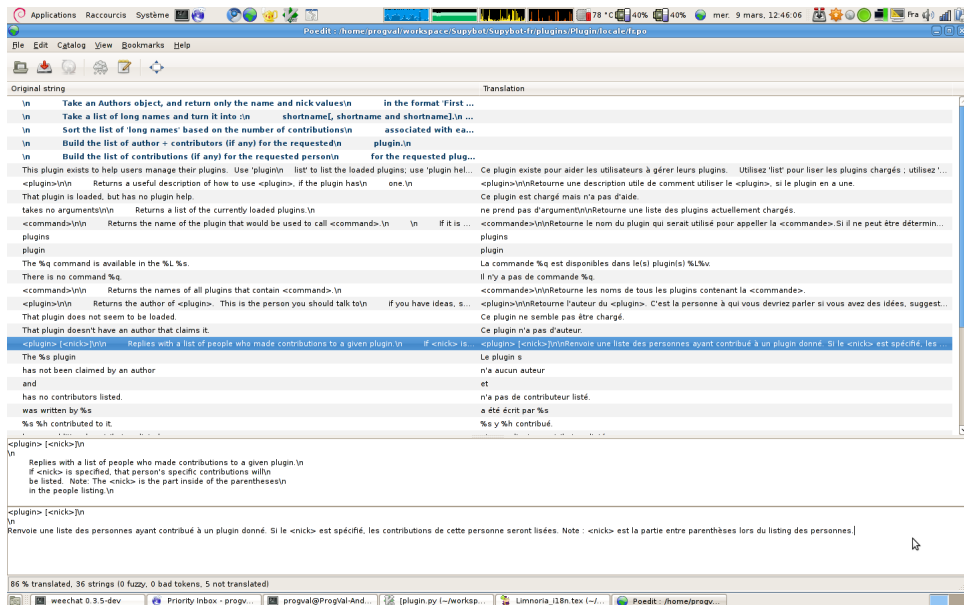


Figure 2: Translating the strings

About

More informations

If you need more informations, you can contact me on #supybot or #supybot-fr on Freenode IRC Network. You can also contact me by email, I should answer in less than a week.

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