

World Domination (the easy way!)

i18n + l10n

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bit.ly/wdom-i18n





A Villain's Monologue

My Motives & Plan

Ready player 1?

- i18n/l10n basics
- Presenting your project in a new language
- Help your community & leverage crowd-sourced translation work



In the year 20XX...

Some Background



What is **i18n**?

Internationalization:

(i + 18 letters + n = i18n)

What is i18n?

Engineering support to
enable worldwide content
presentation

What is **i18n**?

Performed once, as part of
feature development

What is l10n?

Localization:

(l + 10 letters + n = l10n)

What is **l10n**?

Adapting i18n'd software for
a **specific locale**

What is **l10n**?

Performed multiple times:
once per target region

Advantages of i18n

Enable future l10n to
increase your reach

Advantages of i18n

Be a good open
source citizen!

World 1-2

The I10n Pipeline



Step #1

Mark strings for i18n

Wrap strings with markers to indicate they need to be translated

```
def my_cool_function():
```

```
    welcome_msg = "Hello!"
```

```
from django.utils.translation
    import ugettext as _
```

```
def my_cool_function():
```

```
    welcome_msg = _("Hello!")
```


Step #2

Scrape the strings

Statically scrape marked strings into a
“.po” file

Django Toolkit

Scrape strings

django-admin.py makemessages

Step #3

Translate the strings

Create a .po file for each language

TIP: Knock It Out with Translation Tools

Transifex

Free crowdsourced accounts for open source projects

<https://www.transifex.com>

```
$ cat fr/django.po
```

```
#: views/awesome_feature.py:6
```

```
msgid "Hello!"
```

```
msgstr "Bonjour!"
```

Step #4

Serve the strings

Compile your “po”s to “mo”s

Django Toolkit

Scrape strings

django-admin.py makemessages

pos to mos

django-admin.py compilemessages

It's Time to Run

```
_("Hello!")
```



```
mo_file.get("Hello!", "Hello!")
```


RECAP MINIBOSS

1. Mark strings for i18n
2. Scrape the strings
3. Translate the strings
4. Serve the strings

The background is a pixel art illustration of a boxing ring. A referee in a black and white striped shirt is in the center, facing away from the viewer. The ring has blue ropes and a blue floor. In the top right corner, there is a scoreboard showing 'POINTS: 0' and 'Round 1'. In the bottom right corner, a small character is holding a sign that says 'TKO'.

Watch out for sucker punches

A Note of Caution

_ has static and dynamic contexts

```
def my_cool_function():
```

```
    welcome_msg = _("Hello!")
```

Lexical Marker AND Function Call!



```
msg = "Hello {name}!".format(  
    name=user.name  
)
```

```
msg = _(  
    "Hello {name}!".format(name=user.name)  
)
```

.po file has key "Hello {name}!"
At runtime, what's looked up in .mo file?



```
msg = _("Hello {name}!").format(  
    name=user.name  
)
```

.po file has key "Hello {name}!" AND
same key will be looked up in .mo file 😊



The background is a solid blue color with a faint, stylized illustration of various tools. Visible tools include a hammer at the top, a wrench on the left, a chain in the upper right, a circular saw blade with four teeth on the right, and a power drill at the bottom center.

Its Dangerous to Go Alone i18n Tools

Django toolkit

Docs:

bit.ly/django-i18n

Matt Croyden, PyCon 2010:

bit.ly/croyden-i18n-talk

Advanced applications

Mako

+ Underscore

+ Coffeescript

+ JavaScript

+ etc...

Advanced applications

- various file types
- po segmenting
- dümmý längüäge generation

github.com/edx/i18n-tools



“Frobulate the %d %s!”

Lost in Translation

Consider the Translator

Translators...

may be non-technical

Consider the Translator

Translators...

may not have seen the UX of
the rest of your application

Consider the Translator

Marking strings is
worthless without context

Consider the Translator

UNTRANSLATED STRING

Could not find the {0} file in the package.
.....

There are no instructions yet. Click here to add.

i

Type your translation here

Review

Save

Save all (0)

Suggestions

History

Glossary 1

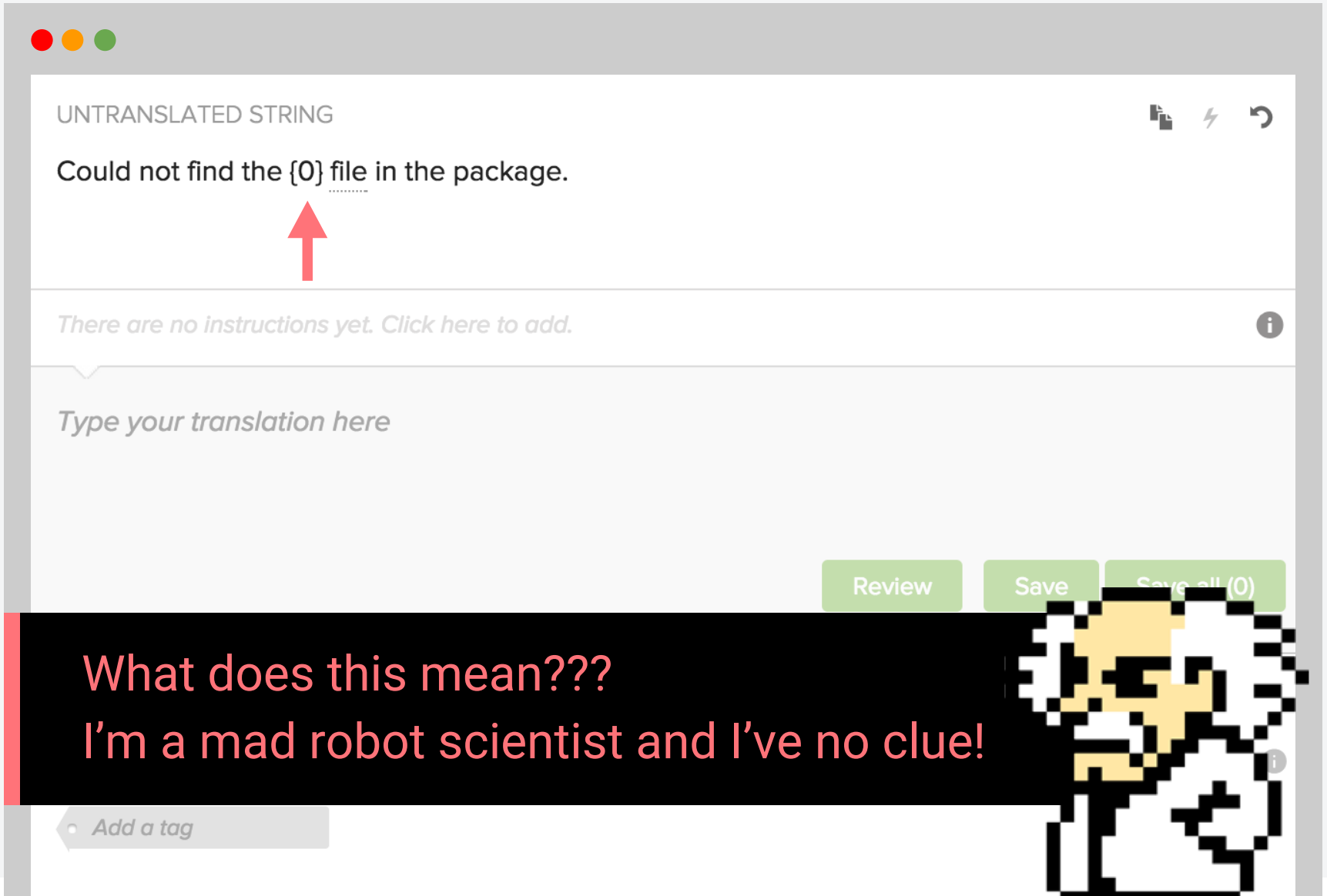
Comments

Details

Character limit: None

Add a tag

Consider the Translator



UNTRANSLATED STRING

Could not find the {0} file in the package.

There are no instructions yet. Click here to add.

Type your translation here

Review Save Save all (0)

What does this mean???

I'm a mad robot scientist and I've no clue!

Add a tag

The screenshot shows a translation management interface. At the top, there's a header with three colored circles (red, orange, green). Below it, a white box contains the text 'UNTRANSLATED STRING' and 'Could not find the {0} file in the package.' A red arrow points to the '{0}' placeholder. To the right of the text are three icons: a document, a lightning bolt, and a circular arrow. Below this is a grey bar with the text 'There are no instructions yet. Click here to add.' and an information icon. Underneath is a large text input area with the placeholder text 'Type your translation here'. At the bottom right of the interface are three green buttons: 'Review', 'Save', and 'Save all (0)'. A black banner with red text is overlaid on the bottom left, and a pixelated character is on the bottom right.

Consider the Translator



TRANSLATED BY , 9 MONTHS AGO.



Failed in authenticating {username}↵

There are no instructions yet. Click here to add.



{username} の認証に失敗しました

Review

Save

Save all (0)

Suggestions 5

History 1

Glossary 1

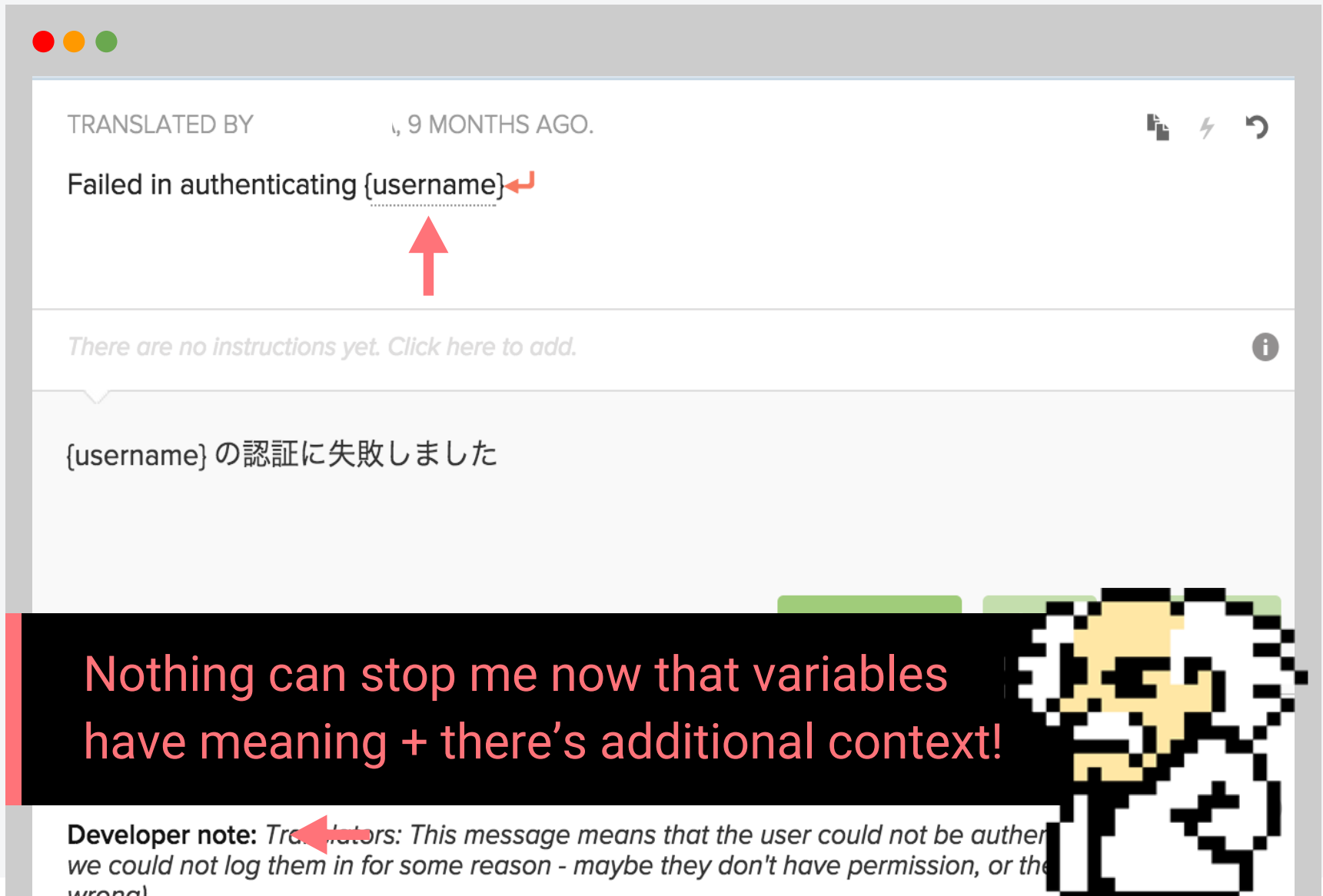
Comments

Details

Developer note: *Translators: This message means that the user could not be authenticated (that is, we could not log them in for some reason - maybe they don't have permission, or their password was wrong).*



Consider the Translator



TRANSLATED BY 9 MONTHS AGO.

Failed in authenticating {username}

There are no instructions yet. Click here to add.

{username} の認証に失敗しました

Nothing can stop me now that variables have meaning + there's additional context!

Developer note: Translators: This message means that the user could not be authenticated... we could not log them in for some reason - maybe they don't have permission, or the password is wrong!



Secrets of World Dominators Pro Tips for i18n

PRO TIP: Basic Rules

Use `.format` over `%s` & `%d` interpolation

Use named, not positional, variables
(`{user}` vs `{}` or `{0}`)

Add `# Translators:` comments

```
# Translators: This message means that the
# user could not be logged in to the site
msg = _(
    "Failed in authenticating {username}\n"
).format(
    username=eamap.uname
)
```

PRO TIP: Named Variables

```
_("Today is {} {}")
```

PRO TIP: Named Variables

```
_("Today is {} {}")
```



Doesn't allow reordering!
Use "{month} {day}"



PRO TIP: Keep Phrases Together

```
_("That is a ") + car.color +  
  _(" car")
```


PRO TIP: Keep Phrases Together

```
_("That is a ") + car.color +  
  _(" car")
```



En: "That is a blue car"

Fr: "C'est une bleue voiture"

Sacré Bleu!!!



PRO TIP: Keep Phrases Together

```
_(  
    "That is a {color} car"  
).format(color=car.color)
```



En: "That is a blue car"

Fr: "C'est une voiture bleue"

PRO TIP: Plurals with ngettext

```
from django.utils.translation
    import ngettext
```




```
msg = ngettext(
    "There is {num} file",
    "There are {num} files",
    num_files
).format(num=num_files)
```

PRO TIP: Plurals with ngettext

one

other

REVIEWED. TRANSLATION BY | , 2 MONTHS AGO



You only have {days} day left to verify for this course.

There are no instructions yet. Click here to add.

zero

one

two

few

many

other

RTL

تبقى لديك {days} أيام فقط لتثبيت هذا المساق.

Unreview

Save

Save all (0)

Fill in all plurals to continue

PRO TIP: Plurals with ngettext

```
if num_tags >= 2:  
    msg = _(  
        "There are {num} retweets!"  
    ).format(num=num_tags)
```

PRO TIP: Plurals with ngettext

```
if num_tags >= 2:  
    msg = _(  
        "There are {num} retweets!"  
    ).format(num=num_tags)
```

Darny darn darn! This breaks on
languages with differing plural forms.



PRO TIP: Plurals with ngettext

```
if num_tags >= 2:  
    msg = ungettext(  
        "There is {num} retweet!",  
        "There are {num} retweets!",  
        num_tags  
    ).format(num=num_tags)
```

PRO TIP: Remove HTML from Strings

```
"<em>Welcome!</em>"
```



```
u"<em>" + _("Welcome!") + u"</em>"
```


PRO TIP: Remove HTML from Strings

```
"Confirm <em>{action}</em>?"
```



```
_("Confirm {action}?").format(  
    action=u"<em>" + action + u"</em>"  
)
```

PRO TIP: Remove HTML from Strings

```
"<p class='blah'>Lots of words!</p>"
```



```
u"<p class='blah'>{text}</p>".format(  
    text=_("Lots of words!")  
)
```

PRO TIP: Don't Leave Order to Chance

Translators: Leave asterisk at end!
_("Password *")



_("Password") + u" *"

PRO TIP: Try to Keep Strings Constant

All changes to strings create
new entries in .po files

“login”, “Login”, “Log In”

PRO TIP: Take a Hit for the Team

Complex code
is better than
inscrutable translation
strings

The background is a blue-tinted screenshot of a Warp Zone from Super Mario Bros. It features a brick wall on the left, a horizontal pipe at the top, and three vertical warp pipes at the bottom. A Goomba enemy is on the left pipe, and a Koopa is in the air. The text "WELCOME TO WARP ZONE!" is visible in the background.

Welcome to the Warp Zone 18 Bonus Levels

Fight for the User (Experience)

Non-Latin characters may be
taller, wider

给你点颜色看看!!!



Fight for the User (Experience)

German, Dutch can have
extremely long words like...

Die deutsche Bevölkerungspyramide

Verflixt und zugenäht!!!



Fight for the User (Experience)

Be multi-directional with
Right to Left (RTL) support

عربي، תיכבול, ודרא, יסراف



یا سائر!!!

Fight for the User (Experience)

Responsive Design & Layout/Grid Management

Fight for the User (Experience)

bi-app Sass:

anasnakawa.github.io/bi-app-sass

Neat Grid Support:

neat.bourbon.io

Keep it Local with Localization

Don't forget
dates & numbers!

Larger & Commercial Projects

Hire a **Localization Manager**

Pay for **translation services**

Lost Levels (and Resources)

- Unicode sandwich
bit.ly/unipain
- edX's i18n guidelines
bit.ly/edx-i18n-rules
- bit.ly/wdom-i18n

The background is a solid blue color with a faint, pixelated blue robot character in the center. The robot has a round head, a smiling face, and its arms are spread out to the sides.

Thanks for playing! Now for Discussion

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[@robotsari](https://github.com/sarina)