
Argos Translate

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Argos Open Technologies, LLC

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Open-source offline translation library written in Python

Argos Translate uses OpenNMT for translations, SentencePiece for tokenization, Stanza for sentence boundary detection, and PyQt for GUI. Argos Translate can be used as either a Python library, command-line, or GUI application. LibreTranslate is an API and web-app built on top of Argos Translate.

Argos Translate supports installing language model packages which are zip archives with a “.argosmodel” extension with the data needed for translation.

Argos Translate also manages automatically pivoting through intermediate languages to translate between languages that don't have a direct translation between them installed. For example, if you have a es_en and en_fr translation installed you are able to translate from es_fr as if you had that translation installed. This allows for translating between a wide variety of languages at the cost of some loss of translation quality.

PYTHON EXAMPLE

```
import argostranslate.package
import argostranslate.translate

from_code = "en"
to_code = "es"

# Download and install Argos Translate package
argostranslate.package.update_package_index()
available_packages = argostranslate.package.get_available_packages()
available_package = list(
    filter(
        lambda x: x.from_code == from_code and x.to_code == to_code, available_packages
    )
)[0]
download_path = available_package.download()
argostranslate.package.install_from_path(download_path)

# Translate
installed_languages = argostranslate.translate.get_installed_languages()
from_lang = list(filter(
    lambda x: x.code == from_code,
    installed_languages))[0]
to_lang = list(filter(
    lambda x: x.code == to_code,
    installed_languages))[0]
translation = from_lang.get_translation(to_lang)
translatedText = translation.translate("Hello World!")
print(translatedText)
# ¡Hola Mundo!
```


COMMAND LINE INTERFACE EXAMPLE

2.1 Settings

2.1.1 Set package index

Reads package index at <https://raw.githubusercontent.com/argosopentech/argospm-index/main/index.json>

```
export ARGOS_PACKAGE_INDEX="https://raw.githubusercontent.com/argosopentech/argospm-  
↪index/main"
```

2.1.2 View debugging information

Argos Translate prints more verbose logging

```
export ARGOS_DEBUG=1
```

2.1.3 Chunk Type

Configure Sentence Boundary Detection (SBD) model

The seq2seq neural networks that Argos Translate uses for translation can only handle ~150 tokens of input at a time. Argos Translate uses a separate SBD model to split text into sentences before translation. By default, Argos Translate uses the Stanza SBD model when available. Spacy is used as a fallback when Stanza is not available and is typically faster than Stanza. However, Spacy doesn't support as many languages as Stanza.

```
export ARGOS_CHUNK_TYPE="SPACY"
```

2.1.4 Set packages dir

```
export ARGOS_PACKAGES_DIR="/home/user/.local/share/argos-translate/packages/"
```

2.1.5 Set device

```
export ARGOS_DEVICE_TYPE="cpu"
export ARGOS_DEVICE_TYPE="cuda"
```

2.2 Command Line Interface

```
argos-translate --from-lang en --to-lang es "Hello World"
Hola Mundo

echo "Text to translate" | argos-translate --from-lang en --to-lang es
Texto para traducir

argospm --help
usage: argospm [-h] {update,search,install,list,remove} ...

positional arguments:
  {update,search,install,list,remove}
                                Available commands.
  update                        Downloads remote package index.
  search                         Search package from remote index.
  install                        Install package.
  list                           List installed packages.
  remove                         Remove installed package.

optional arguments:
  -h, --help                    show this help message and exit
```

Translate a string from English to Spanish.

Note: If you do not have the language pair that you are calling installed, you will get a *Traceback* error.:

```
argos-translate --from-lang en --to-lang es "Hello World."
Hola Mundo
```

Translate with shorter flag namesj

```
argos-translate -f en -t es "Hello World." Hola Mundo
```

Translate longer text piped into *argos-translate*.:

```
echo "Text to translate" | argos-translate --from-lang en --to-lang es
Texto para traducir
```

2.2.1 Update

Downloads remote package index.

```
argospm update
```

2.2.2 Search

Search package from remote index.

```
argospm search --from-lang en --to-lang es
```

2.2.3 Install

Install package.

```
argospm install translate-en_es
```

2.2.4 List

List installed packages.

```
argospm list
```

2.2.5 Remove

Remove installed package.

```
argospm remove translate-en_es
```

2.2.6 Enable tab completion for Bash

```
curl -sSL https://raw.githubusercontent.com/argosopentech/argos-translate/master/scripts/
↵completion.bash > /etc/bash_completion.d/argospm.bash
```

2.2.7 Importing new pairs through the CLI

- Update list of available language pairs: *argospm update*
- List all available language pairs: *argospm search*
- Install new pair syntax: *argospm install *lang_pair_name**

For example, install Turkish to English pair: *argospm install translate-tr_en*

Optionally, you could install all language pairs using BASH.:

```
for i in $(argospm search | sed 's/:.*$/g'); do argospm install $i ; done
```

2.2.8 Removing a pair through the CLI

1. Remove the Turkish to English pair: `argospm remove translate-tr_en`

Optionally, you could remove all language pairs using BASH if you need to free space fast.

```
for i in $(argospm list); do argospm remove $i ; done
```

2.3 Graphical User Interface

Run the GUI version of Argos Translate.

```
argos-translate-gui
```

2.3.1 Installing a language

When installing with snap a .desktop file should also be installed which will make Argos Translate available from the desktop menu.

Languages are chosen as drop down choices. More languages pairs can be installed.

The left text box translates into the right box.

Example workflow translating from Vietnamese into English:

- Set the left drop down to *Vietnamese* and the right drop down to *English*.
- Replace the default text *Text to translate from* in the left text box with some text in Vietnamese. A quick way to do this is to click in the left text box and press the keyboard shortcut `CTRL+a` to select all and then `CTRL+v` to paste.
- Wait patiently.
- When text appears in the right text box, read the translation!

If the output looks similar to the input, try changing the origin language as some languages appear similar if you are unfamiliar with them.

2.3.2 Adding language pair models from the graphical interface

Language pairs are on average 100MB each.

2.3.3 Installing new pairs through the GUI

- Open Argos Translate: *argos-translate-gui*
- Click on the *Manage Packages* menu item.
- Click on the *Download packages* button.
- Click on the down arrow beside a language pair that you want to add.
- Wait for the hourglass icon to change into a check mark icon.
- Repeat the last two steps until you have all of the language pairs that you want.
- Click on the X in the top right to close the *Download packages* window.
- Click on the X in the top right to close the *Manage Packages* window.

Note: The *Download packages* screen does not seem to have a scroll bar so you will probably need to follow the next set of instructions to import new pairs through the GUI.

2.3.4 Importing new pairs through the GUI

- Download or make new pairs. Model links can be downloaded from <https://www.argosopentech.com/argospm/index/> or <https://raw.githubusercontent.com/argosopentech/argospm-index/main/index.json>
- Open Argos Translate: *argos-translate-gui*
- Click on the *Manage Packages* menu item.
- Click on the *Install package file* button.
- Navigate to where you downloaded the new language pairs, click on the *.argosmodel* file, and click on the *Open* button.
- Repeat the last two steps until you have all of the language pairs that you want.
- Click on the X in the top right to close the *Manage Packages* window.

2.3.5 Removing a pair through the GUI

- Open Argos Translate: *argos-translate-gui*
- Click on the *Manage Packages* menu item.
- Click on the trash can icon besides the pair you want to remove.
- Click on the X in the top right to close the *Manage Packages* window.

2.4 Examples

2.4.1 Basic Python example

```
import argostranslate.package
import argostranslate.translate

from_code = "en"
to_code = "es"
```

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```
# Download and install Argos Translate package
argostranslate.package.update_package_index()
available_packages = argostranslate.package.get_available_packages()
package_to_install = next(
    filter(
        lambda x: x.from_code == from_code and x.to_code == to_code, available_packages
    )
)
argostranslate.package.install_from_path(package_to_install.download())

# Translate
translatedText = argostranslate.translate.translate("Hello World", from_code, to_code)
print(translatedText)
# '¡Hola Mundo!'
```

2.4.2 Install package from file path

```
import pathlib

import argostranslate.package

package_path = pathlib.Path("/root/translate-en_it-2_0.argosmodel")

argostranslate.package.install_from_path(package_path)
```