

# Package ‘potools’

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**Type** Package

**Title** Tools for Internationalization and Portability in R Packages

**Version** 0.2.4

**Description** Translating messages in R packages is managed using the po top-level directory and the 'gettext' program. This package provides some helper functions for building this support in R packages, e.g. common validation & I/O tasks.

**License** GPL-3

**URL** <https://github.com/MichaelChirico/potools>,  
<https://michaelchirico.github.io/potools/>

**BugReports** <https://github.com/MichaelChirico/potools/issues>

**Depends** R (>= 4.0.0)

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check\_cracked\_messages

*Check for cracked messages more suitable for templating*

---

**Description**

Diagnose the R messages in a package to discover the presence of "cracked" messages better served for translation by templating. See Details.

**Usage**

```
check_cracked_messages(message_data)
```

**Arguments**

message\_data    A data.table, or object convertible to one.

**Details**

Error messages built like `stop("You gave ", n, " arguments, but ", m, " are needed.")` are in general hard for translators – the correct translation may be in a totally different order (e.g., this is often the case for Japanese). It is preferable instead to use `base::gettextf()` to build a templated message like `stop(gettextf("You gave %d arguments but %d are needed.", n, m))`. Translators are then free to rearrange the template to put the numeric pattern where it fits most naturally in the target language.

**Value**

A data.table with columns `call`, `file`, `line_number`, and `replacement` summarizing the results.

**Author(s)**

Michael Chirico

**See Also**[translate\\_package\(\)](#), [update\\_pkg\\_po\(\)](#)**Examples**

```
pkg <- file.path(system.file(package = 'potools'), 'pkg')
# copy to a temporary location to be able to read/write/update below
tmp_pkg <- file.path(tempdir(), "pkg")
dir.create(tmp_pkg)
file.copy(pkg, dirname(tmp_pkg), recursive = TRUE)

# first, extract message data
message_data = get_message_data(tmp_pkg)

# now, diagnose the messages for any "cracked" ones
check_cracked_messages(message_data)

# cleanup
unlink(tmp_pkg, recursive = TRUE)
rm(pkg, tmp_pkg, message_data)
```

---

`check_potools_sys_reqs`

*Check if the proper system utilities for running package translation are installed*

---

**Description**

potools uses the same gettext command line tools that R itself does to run translation. These are required for translation to work properly; this function is mainly for testing use & checks whether the current environment is equipped for translation.

**Usage**

```
check_potools_sys_reqs(which = SYSTEM_REQUIREMENTS)
```

**Arguments**

which	Which requirements to test for. Defaults to all of the command-line utilities on which potools relies, namely, <ul style="list-style-type: none"><li>• msgmerge</li><li>• msgfmt</li><li>• msginit</li><li>• msgconv</li></ul>
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## Details

Specifically, potools relies on these command-line utilities:

## Value

TRUE if the system is ready for translation, otherwise a message suggesting how to proceed.

## Author(s)

Michael Chirico

## See Also

[tools::update\\_pkg\\_po\(\)](#)

---

check\_untranslated\_cat

*Check for untranslated messages emitted by cat*

---

## Description

Diagnose the R messages in a package to discover the presence of messages emitted by `cat()` which haven't been translated (i.e., passed through `gettext()`, `gettextf()`, or `ngettext()`).

## Usage

```
check_untranslated_cat(message_data)
```

## Arguments

`message_data` A `data.table`, or object convertible to one.

## Details

The function `cat` is commonly used to emit messages to users (e.g., for a verbose mode), but it is not equipped for translation. Instead, messages must first be translated and then emitted. Any character literals found in the package's R code used in `cat` but not translated will be flagged by this function.

For flagged calls, a potential replacement is offered, built using `gettext` or `gettextf` (depending on whether one or more `...` arguments are supplied to `cat`). For the `gettextf` case, the suggested template is always `%s` (string) since this works for all inputs; the author should tighten this to the appropriate `sprintf()` template marker as appropriate, for example if the author knows the input is an integer, use `%d` or `%i` instead of `%s`.

NB: not all `cat` calls are included – in particular, no `cat` call specifying a non-default file are flagged, nor are any where the supplied `sep` is not a character literal (e.g., `sep=x` instead of `sep=""`)

**Value**

A `data.table` with columns `call`, `file`, `line_number`, and `replacement` summarizing the results.

**Author(s)**

Michael Chirico

**See Also**

[translate\\_package\(\)](#), [update\\_pkg\\_po\(\)](#)

**Examples**

```
pkg <- file.path(system.file(package = 'potools'), 'pkg')
# copy to a temporary location to be able to read/write/update below
tmp_pkg <- file.path(tempdir(), "pkg")
dir.create(tmp_pkg)
file.copy(pkg, dirname(tmp_pkg), recursive = TRUE)

# first, extract message data
message_data = get_message_data(tmp_pkg)

# now, diagnose the messages for any untranslated strings shown through cat()
check_untranslated_cat(message_data)

# cleanup
unlink(tmp_pkg, recursive = TRUE)
rm(pkg, tmp_pkg, message_data)
```

---

check\_untranslated\_src

*Check for cracked messages in C/C++ sources*

---

**Description**

Diagnose the C/C++ messages in a package to discover untranslated messages

**Usage**

```
check_untranslated_src(message_data)
```

**Arguments**

`message_data` A `data.table`, or object convertible to one.

## Details

This diagnostic looks for literal char arrays passed to messaging functions (as identified by `translate_package()`) which are not marked for translation (by tagging them for translation with `_` or `N_` macros). These strings cannot be translated until they are so marked.

## Value

A `data.table` with columns `call`, `file`, `line_number`, and `replacement` summarizing the results. `replacement` is `NA` at this time, i.e., no replacement is provided.

## Author(s)

Michael Chirico

## See Also

[translate\\_package\(\)](#), [update\\_pkg\\_po\(\)](#)

## Examples

```
pkg <- file.path(system.file(package = 'potools'), 'pkg')
# copy to a temporary location to be able to read/write/update below
tmp_pkg <- file.path(tempdir(), "pkg")
dir.create(tmp_pkg)
file.copy(pkg, dirname(tmp_pkg), recursive = TRUE)

# first, extract message data
message_data = get_message_data(
  tmp_pkg,
  custom_translation_functions = list(src = "ReverseTemplateMessage:2")
)

# now, diagnose the messages for any untranslated messages in C/C++
check_untranslated_src(message_data)

# cleanup
unlink(tmp_pkg, recursive = TRUE)
rm(pkg, tmp_pkg, message_data)
```

---

get\_message\_data

*Extract user-visible messages from a package*

---

## Description

This function looks in the `R` and `src` directories of a package for user-visible messages and compiles them as a `data.table::data.table()` to facilitate analyzing this corpus as such.

**Usage**

```
get_message_data(
  dir = ".",
  custom_translation_functions = list(R = NULL, src = NULL),
  style = NULL,
  verbose = !is_testing()
)
```

**Arguments**

dir	Character, default the present directory; a directory in which an R package is stored.
custom_translation_functions	A list with either/both of two components, R and src, together governing how to extract any non-standard strings from the package. See Details in <a href="#">translate_package()</a> .
style	Translation style, either "base" or "explicit". The default, NULL, reads from the DESCRIPTION field Config/potools/style so you can specify the style once for your package. Both styles extract strings explicitly flagged for translation with <code>gettext()</code> or <code>ngettext()</code> . The base style additionally extracts strings in calls to <code>stop()</code> , <code>warning()</code> , and <code>message()</code> , and to <code>stopf()</code> , <code>warningf()</code> , and <code>messagef()</code> if you have added those helpers to your package. The explicit style also accepts <code>tr_()</code> as a short hand for <code>gettext()</code> . See <code>vignette("developer")</code> for more details.
verbose	Logical, default TRUE (except during testing). Should extra information about progress, etc. be reported?

**Value**

A data.table with the following schema:

- message\_source: character, either "R" or "src", saying whether the string was found in the R or the src folder of the package
- type: character, either "singular" or "plural"; "plural" means the string came from [ngettext\(\)](#) and can be pluralized
- file: character, the file where the string was found
- msgid: character, the string (character literal or char array as found in the source); missing for all type == "plural" strings
- msgid\_plural: list(character, character), the strings (character literals or char arrays as found in the source); the first applies in English for n=1 (see `ngettext()`), while the second applies for n!=1; missing for all type == "singular" strings
- call: character, the full call containing the string that was found
- line\_number: integer, the line in file where the string was found
- is\_repeat: logical, whether the msgid is a duplicate within this message\_source

- `is_marked_for_translation`: logical, whether the string is marked for translation (e.g., in R, all character literals supplied to a ... argument in `stop()` are so marked)
- `is_templated`, logical, whether the string is templatable (e.g., uses %s or other formatting markers)

**Author(s)**

Michael Chirico

**See Also**

`translate_package()`, `write_po_file()`

**Examples**

```
pkg <- system.file('pkg', package = 'potools')
get_message_data(pkg)

# includes strings provided to the custom R wrapper function catf()
get_message_data(pkg, custom_translation_functions = list(R = "catf:fmt|1"))

# includes untranslated strings provided to the custom
# C/C++ wrapper function ReverseTemplateMessage()
get_message_data(
  pkg,
  custom_translation_functions = list(src = "ReverseTemplateMessage:2")
)

# cleanup
rm(pkg)
```

---

po\_compile

*Compile .po files to .mo*

---

**Description**

This function compiles the plain text .po files that translators work with into the binary .mo files that are installed with packages and used for live translations.

**Usage**

```
po_compile(dir = ".", package = NULL, lazy = TRUE, verbose = TRUE)
```



**Arguments**

dir	Path to package root directory.
package	Name of package. If not supplied, read from DESCRIPTION.
lazy	If TRUE, only .mo functions that are older than .po files be updated
verbose	If TRUE, print information as it goes.

---

po\_create                      *Create a new .po file*

---

**Description**

po\_create() creates a new po/{languages}.po containing the messages to be translated.

Generally, we expect you to use po\_create() to create new .po files but if you call it with an existing translation, it will update it with any changes from the .pot. See [po\\_update\(\)](#) for details.

**Usage**

```
po_create(languages, dir = ".", verbose = !is_testing())
```

**Arguments**

languages	Language identifiers. These are typically two letters (e.g. "en" = English, "fr" = French, "es" = Spanish, "zh" = Chinese), but can include an additional suffix for languages that have regional variations (e.g. "fr_CN" = French Canadian, "zh_CN" = simplified characters as used in mainland China, "zh_TW" = traditional characters as used in Taiwan.)
dir	Character, default the present directory; a directory in which an R package is stored.
verbose	Logical, default TRUE (except during testing). Should extra information about progress, etc. be reported?

---

po\_explain\_plurals            *Explain plural message criteria verbally*

---

**Description**

The nplural syntax in .po file metadata can be hard to grok, even for native speakers. This function tries to de-mystify this by providing verbal expressions of which numbers apply to which index in the msgstr array.

**Usage**

```
po_explain_plurals(language, index)
```

**Arguments**

language	A single locale code. See <a href="#">translate_package()</a> for details.
index	Optional. If supplied, a 0-based index to explain for a given language. If not supplied, all plurals for the supplied language are described.

---

po_extract	<i>Extract messages for translation into a .pot file</i>
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---

**Description**

`po_extract()` scans your package for strings to be translated and saves them into a `.pot` template file (in the package's `po` directory). You should never modify this file by hand; instead modify the underlying source code and re-run `po_extract()`.

If you have existing translations, call `po_update()` after `po_extract()` to update them with the changes.

**Usage**

```
po_extract(
  dir = ".",
  custom_translation_functions = list(),
  verbose = !is_testing(),
  style = NULL
)
```

**Arguments**

dir	Character, default the present directory; a directory in which an R package is stored.
custom_translation_functions	A list with either/both of two components, <code>R</code> and <code>src</code> , together governing how to extract any non-standard strings from the package. See Details in <a href="#">translate_package()</a> .
verbose	Logical, default TRUE (except during testing). Should extra information about progress, etc. be reported?
style	Translation style, either "base" or "explicit". The default, NULL, reads from the DESCRIPTION field <code>Config/potools/style</code> so you can specify the style once for your package. Both styles extract strings explicitly flagged for translation with <code>gettext()</code> or <code>ngettext()</code> . The base style additionally extracts strings in calls to <code>stop()</code> , <code>warning()</code> , and <code>message()</code> , and to <code>stopf()</code> , <code>warningf()</code> , and <code>messagef()</code> if you have added those helpers to your package. The explicit style also accepts <code>tr_()</code> as a short hand for <code>gettext()</code> . See <code>vignette("developer")</code> for more details.

**Value**

The extracted messages as computed by `get_message_data()`, invisibly.

---

po_update	<i>Update all .po files with changes in .pot</i>
-----------	--------------------------------------------------

---

**Description**

`po_update()` updates existing .po file after the .pot file has changed. There are four cases:

- New messages: added with blank msgstr.
- Deleted messages: marked as deprecated and moved to the bottom of the file.
- Major changes to existing messages: appear as an addition and a deletion.
- Minor changes to existing messages: will be flagged as fuzzy.

```
#, fuzzy, c-format
#| msgid "Generating en@quot translations"
msgid "Updating '%s' %s translation"
msgstr "memperbarui terjemahan bahasa en@quot..."
```

The previous message is given in comments starting with `#|`. Translators need to update the actual (uncommented) msgstr manually, using the old msgid as a potential reference, then delete the old translation and the fuzzy comment (c-format should remain, if present).

**Usage**

```
po_update(dir = ".", lazy = TRUE, verbose = !is_testing())
```

**Arguments**

dir	Character, default the present directory; a directory in which an R package is stored.
lazy	If TRUE, only .po files that are older than their corresponding .pot file will be updated.
verbose	Logical, default TRUE (except during testing). Should extra information about progress, etc. be reported?

---

translate_package	<i>Interactively provide translations for a package's messages</i>
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---

### Description

This function handles the "grunt work" of building and updating translation libraries. In addition to providing a friendly interface for supplying translations, some internal logic is built to help make your package more translation-friendly.

To get started, the package developer should run `translate_package()` on your package's source to produce a template `.pot` file (or files, if your package has both R and C/C++ messages to translated), e.g.

To add translations in your desired language, include the target language: in the `translate_package(languages = "es")` call.

### Usage

```
translate_package(
  dir = ".",
  languages = NULL,
  diagnostics = list(check_cracked_messages, check_untranslated_cat,
    check_untranslated_src),
  custom_translation_functions = list(R = NULL, src = NULL),
  max_translations = Inf,
  use_base_rules = package %chin% .potools$base_package_names,
  copyright = NULL,
  bugs = "",
  verbose = !is_testing()
)
```

### Arguments

<code>dir</code>	Character, default the present directory; a directory in which an R package is stored.
<code>languages</code>	Character vector; locale codes to which to translate. Must be a valid language accepted by <code>gettext</code> . This almost always takes the form of (1) an ISO 639 2-letter language code; or (2) <code>ll_CC</code> , where <code>ll</code> is an ISO 639 2-letter language code and <code>CC</code> is an ISO 3166 2-letter country code e.g. <code>es</code> for Spanish, <code>es_AR</code> for Argentinian Spanish, <code>ro</code> for Romanian, etc. See <code>base::Sys.getlocale()</code> for some helpful tips about how to tell which locales are currently available on your machine, and see the References below for some web resources listing more locales.
<code>diagnostics</code>	A list of diagnostic functions to be run on the package's message data. See Details.
<code>custom_translation_functions</code>	A list with either/both of two components, <code>R</code> and <code>src</code> , together governing how to extract any non-standard strings from the package. See Details.

max_translations	Numeric; used for setting a cap on the number of translations to be done for each language. Defaults to Inf, meaning all messages in the package.
use_base_rules	Logical; Should internal behavior match base behavior as strictly as possible? TRUE if being run on a base package (i.e., base or one of the default packages like utils, graphics, etc.). See Details.
copyright	Character; passed on to <a href="#">write_po_file()</a> .
bugs	Character; passed on to <a href="#">write_po_file()</a> .
verbose	Logical, default TRUE (except during testing). Should extra information about progress, etc. be reported?

## Value

This function returns nothing invisibly. As a side effect, a `.pot` file is written to the package's `'po'` directory (updated if one does not yet exist, or created from scratch otherwise), and a `.po` file is written in the same directory for each element of languages.

## Phases

`translate_package()` goes through roughly three "phases" of translation.

1. Setup – `dir` is checked for existing translations (toggling between "update" and "new" modes), and R files are parsed and combed for user-facing messages.
2. Diagnostics: see the Diagnostics section below. Any diagnostic detecting "unhealthy" messages will result in a yes/no prompt to exit translation to address the issues before continuing.
3. Translation. All of the messages found in phase one are iterated over – the user is shown a message in English and prompted for the translation in the target language. This process is repeated for each domain in languages.

An attempt is made to provide hints for some translations that require special care (e.g. that have escape sequences or use templates). For templated messages (e.g., that use `%s`), the user-provided message must match the templates of the English message. The templates *don't* have to be in the same order – R understands template reordering, e.g. `%2$s` says "interpret the second input as a string". See [sprintf\(\)](#) for more details.

After each language is completed, a corresponding `.po` file is written to the package's `'po'` directory (which is created if it does not yet exist).

There are some discrepancies in the default behavior of `translate_package` and the translation workflow used to generate the `.po'/.pot'` files for R itself (mainly, the suite of functions from `tools`, [tools::update\\_pkg\\_po\(\)](#), [tools::xgettext2pot\(\)](#), [tools::xgettext\(\)](#), and [tools::xgettext\(\)](#)). They should only be superficial (e.g., whitespace or comments), but nevertheless may represent a barrier to smoothly submitting patchings to R Core. To make the process of translating base R and the default packages (`tools`, `utils`, `stats`, etc.) as smooth as possible, set the `use_base_rules` argument to TRUE and your resulting `.po'/.pot'/.mo'` file will match base's.

### Custom translation functions

base R provides several functions for messaging that are natively equipped for translation (they all have a domain argument): `stop()`, `warning()`, `message()`, `gettext()`, `gettextf()`, `ngettext()`, and `packageStartupMessage()`.

While handy, some developers may prefer to write their own functions, or to write wrappers of the provided functions that provide some enhanced functionality (e.g., templating or automatic wrapping). In this case, the default R tooling for translation (`xgettext()`, `xngettext()`, `xgettext2pot()`, `update_pkg_po()` from `tools`) will not work, but `translate_package()` and its workhorse `get_message_data()` provide an interface to continue building translations for your workflow.

Suppose you wrote a function `stopf()` that is a wrapper of `stop(gettextf())` used to build templated error messages in R, which makes translation easier for translators (see below), e.g.:

```
stopf = function(fmt, ..., domain = NULL) {
  stop(gettextf(fmt, ...), domain = domain, call. = FALSE)
}
```

Note that `potools` itself uses just such a wrapper internally to build error messages! To extract strings from calls in your package to `stopf()` and mark them for translation, use the argument `custom_translation_functions`:

```
get_message_data(
  '/path/to/my_package',
  custom_translation_functions = list(R = 'stopf:fmt|1')
)
```

This invocation tells `get_message_data()` to look for strings in the `fmt` argument in calls to `stopf()`. `1` indicates that `fmt` is the first argument.

This interface is inspired by the `--keyword` argument to the `xgettext` command-line tool. This argument consists of a list with two components, `R` and `src` (either can be excluded), owing to differences between R and C/C++. Both components, if present, should consist of a character vector.

For R, there are two types of input: one for named arguments, the other for unnamed arguments.

- Entries for **named** arguments will look like `"fname:arg|num"` (singular string) or `"fname:arg1|num1,arg2|num2"` (plural string). `fname` gives the name of the function/call to be extracted from the R source, `arg/arg1/arg2` specify the name of the argument to `fname` from which strings should be extracted, and `num/num1/num2` specify the *order* of the named argument within the signature of `fname`.
- Entries for **unnamed** arguments will look like `"fname:... \xarg1,...,xargn"`, i.e., `fname`, followed by `:`, followed by `...` (three dots), followed by a backslash (`\`), followed by a comma-separated list of argument names. All strings within calls to `fname` *except* those supplied to the arguments named among `xarg1, ..., xargn` will be extracted.

To clarify, consider the how we would (redundantly) specify `custom_translation_functions` for some of the default messagers, `gettext`, `gettextf`, and `ngettext`: `custom_translation_functions = list(R = c("gettext:... \domain", "gettextf:fmt|1", "ngettext:msg1|2,msg2|3"))`.

For `src`, there is only one type of input, which looks like `"fname:num"`, which says to look at the `num` argument of calls to `fname` for char arrays.

Note that there is a difference in how translation works for `src` vs. `R` – in `R`, all strings passed to certain functions are considered marked for translations, but in `src`, all translatable strings must be explicitly marked as such. So for `src` translations, `custom_translation_functions` is not used to customize which strings are marked for translation, but rather, to expand the set of calls which are searched for potentially *untranslated* arrays (i.e., arrays passed to the specified calls that are not explicitly marked for translation). These can then be reported in the `check_untranslated_src()` diagnostic, for example.

## Diagnostics

### Cracked messages:

A cracked message is one like:

```
stop("There are ", n, " good things and ", m, " bad things.")
```

In its current state, translators will be asked to translate three messages independently:

- "There are"
- "good things and"
- "bad things."

The message has been cracked; it might not be possible to translate a string as generic as "There are" into many languages – context is key!

To keep the context, the error message should instead be build with `gettextf` like so:

```
stop(domain=NA, gettextf("There are %d good things and %d bad things."))
```

Now there is only one string to translate! Note that this also allows the translator to change the word order as they see fit – for example, in Japanese, the grammatical order usually puts the verb last (where in English it usually comes right after the subject).

`translate_package` detects such cracked messages and suggests a `gettextf`-based approach to fix them.

### Untranslated R messages produced by `cat()`:

Only strings which are passed to certain base functions are eligible for translation, namely `stop`, `warning`, `message`, `packageStartupMessage`, `gettext`, `gettextf`, and `ngettext` (all of which have a `domain` argument that is key for translation).

However, it is common to also produce some user-facing messages using `cat` – if your package does so, it must first use `gettext` or `gettextf` to translate the message before sending it to the user with `cat`.

`translate_package` detects strings produced with `cat` and suggests a `gettext`- or `gettextf`-based fix.

### Untranslated C/C++ messages:

This diagnostic detects any literal char arrays provided to common messaging functions in C/C++, namely `ngettext()`, `Rprintf()`, `REprintf()`, `Rvprintf()`, `REvprintf()`, `R_ShowMessage()`, `R_Suicide()`, `warning()`, `Rf_warning()`, `error()`, `Rf_error()`, `dgettext()`, and `snprintf()`. To actually translate these strings, pass them through the translation macro `_`.

NB: Translation in C/C++ requires some additional `#includes` and declarations, including defining the `_` macro. See the Internationalization section of *Writing R Extensions* for details.

### Custom diagnostics

A diagnostic is a function which takes as input a `data.table` summarizing the translatable strings in a package (e.g. as generated by `get_message_data()`), evaluates whether these messages are "healthy" in some sense, and produces a digest of "unhealthy" strings and (optionally) suggested replacements.

The diagnostic function must have an attribute named `diagnostic_tag` that describes what the diagnostic does; it is reproduced in the format `Found {nrow(result)} {diagnostic_tag}:`. For example, `check_untranslated_cat()` has `diagnostic_tag = "untranslated messaging calls passed through cat()"`.

The output diagnostic result has the following schema:

- `call`: character, the call identified as problematic
- `file`: character, the file where call was found
- `line_number`: integer, the line in file where call was found
- `replacement`: character, *optional*, a suggested fix to make the call "healthy"

See `check_cracked_messages()`, `check_untranslated_cat()`, and `check_untranslated_src()` for examples of diagnostics.

### Author(s)

Michael Chirico

### References

<https://cran.r-project.org/doc/manuals/r-release/R-exts.html#Internationalization>  
<https://cran.r-project.org/doc/manuals/r-release/R-admin.html#Internationalization>  
<https://cran.r-project.org/doc/manuals/r-release/R-ints.html#Internationalization-in-the-R-sources>  
<https://developer.r-project.org/Translations30.html>  
<https://web.archive.org/web/20230108213934/https://www.isi-web.org/resources/glossary-of-statistica>  
<https://www.gnu.org/software/gettext/>  
[https://www.gnu.org/software/gettext/manual/html\\_node/Usual-Language-Codes.html#Usual-Language-Codes](https://www.gnu.org/software/gettext/manual/html_node/Usual-Language-Codes.html#Usual-Language-Codes)  
[https://www.gnu.org/software/gettext/manual/html\\_node/Country-Codes.html#Country-Codes](https://www.gnu.org/software/gettext/manual/html_node/Country-Codes.html#Country-Codes)  
<https://www.stats.ox.ac.uk/pub/Rtools/goodies/gettext-tools.zip>  
<https://saimana.com/list-of-country-locale-code/>

### See Also

`get_message_data()`, `write_po_file()`, `tools::xgettext()`, `tools::update_pkg_po()`, `tools::checkPoFile()`, `base::gettext()`

### Examples

```
pkg <- system.file('pkg', package = 'potools')
# copy to a temporary location to be able to read/write/update below
tmp_pkg <- file.path(tempdir(), "pkg")
```



```

dir.create(tmp_pkg)
file.copy(pkg, dirname(tmp_pkg), recursive = TRUE)

# run translate_package() without any languages
# this will generate a .pot template file and en@quot translations (in UTF-8 locales)
# we can also pass empty 'diagnostics' to skip the diagnostic step
# (skip if gettext isn't available to avoid an error)
if (isTRUE(check_potools_sys_reqs)) {
  translate_package(tmp_pkg, diagnostics = NULL)
}

## Not run:
# launches the interactive translation dialog for translations into Estonian:
translate_package(tmp_pkg, "et_EE", diagnostics = NULL, verbose = TRUE)

## End(Not run)

# cleanup
unlink(tmp_pkg, recursive = TRUE)
rm(pkg, tmp_pkg)

```

---

write\_po\_file

*Write a .po or .pot file corresponding to a message database*


---

## Description

Serialize a message database in the ‘.po’ and ‘.pot’ formats recognized by the gettext ecosystem.

## Usage

```

write_po_file(
  message_data,
  po_file,
  metadata,
  width = 79L,
  wrap_at_newline = TRUE,
  use_base_rules = metadata$package %chin% .potools$base_package_names
)

po_metadata(
  package = "",
  version = "",
  language = "",
  author = "",
  email = "",
  bugs = "",
  copyright = NULL,
  ...
)

```

```
)

## S3 method for class 'po_metadata'
format(x, template = FALSE, use_plurals = FALSE, ...)

## S3 method for class 'po_metadata'
print(x, ...)
```

## Arguments

message_data	data.table, as returned from <a href="#">get_message_data()</a> . NB: R creates separate domains for R and C/C++ code; it is recommended you do the same by filtering the <code>get_message_data</code> output for <code>message_source == "R"</code> or <code>message_source == "src"</code> . Other approaches are untested.
po_file	Character vector giving a destination path. Paths ending in <code>‘.pot’</code> will be written with template files (e.g., <code>msgstr</code> entries will be blanked).
metadata	A <code>po_metadata</code> object as returned by <code>po_metadata()</code> .
width	Numeric governing the wrapping width of the output file. Default is 79L to match the behavior of the <code>xgettext</code> utility. <code>Inf</code> turns off wrapping (except for file source markers comments).
wrap_at_newline	Logical, default <code>TRUE</code> to match the <code>xgettext</code> utility’s behavior. If <code>TRUE</code> , any <code>msgid</code> or <code>msgstr</code> will always be wrapped at an internal newline (i.e., literally matching <code>\n</code> ).
use_base_rules	Logical; Should internal behavior match base behavior as strictly as possible? <code>TRUE</code> if being run on a base package (i.e., base or one of the default packages like <code>utils</code> , <code>graphics</code> , etc.). See <a href="#">Details</a> .
package	Character; the name of the package being translated.
version	Character; the version of the package being translated.
language	Character; the language of the <code>msgstr</code> . See <a href="#">translate_package()</a> for details.
author	Character; an author (combined with email) to whom to attribute the translations (as <code>Last-Translator</code> ).
email	Character; an e-mail address associated with author.
bugs	Character; a URL where issues with the translations can be reported.
copyright	An object used to construct the initial Copyright reference in the output. If <code>NULL</code> , no such comment is written. If a list, it should the following structure: <ul style="list-style-type: none"> <li>• <code>year</code>: Required, A year or hyphen-separated range of years</li> <li>• <code>holder</code>: Required, The name of the copyright holder</li> <li>• <code>title</code>: Optional, A title for the <code>‘.po’</code></li> <li>• <code>additional</code>: Optional, A character vector of additional lines for the copyright comment section</li> </ul> <p>If a character scalar, it is interpreted as the holder and the year is set as the <code>POT-Creation-Date</code>’s year.</p>

...	Additional (named) components to add to the metadata. For <code>print.po_metadata</code> , passed on to <code>format.po_metadata</code>
x	A <code>po_metadata</code> object.
template	Logical; format the metadata as in a '.pot' template?
use_plurals	Logical; should the Plural-Forms entry be included?

## Details

Three components are set automatically if not provided:

- `pot_timestamp` - A POSIXct used to write the POT-Creation-Date entry. Defaults to the `Sys.time()` at run time.
- `po_timestamp` - A POSIXct used to write the PO-Revision-Date entry. Defaults to be the same as `pot_timestamp`.
- `language_team` - A string used to write the Language-Team entry. Defaults to be the same as language; if provided manually, the format `LANGUAGE <LL@li.org>` is recommended.

The charset for output is always set to "UTF-8"; this is intentional to make it more cumbersome to create non-UTF-8 files.

## Value

For `po_metadata`, an object of class `po_metadata` that has a `format` method used to serialize the metadata.

## Author(s)

Michael Chirico

## References

[https://www.gnu.org/software/gettext/manual/html\\_node/Header-Entry.html](https://www.gnu.org/software/gettext/manual/html_node/Header-Entry.html)

## See Also

[translate\\_package\(\)](#), [get\\_message\\_data\(\)](#), [tools::xgettext2pot\(\)](#), [tools::update\\_pkg\\_po\(\)](#)

## Examples

```
message_data <- get_message_data(system.file('pkg', package='potools'))
desc_data <- read.dcf(system.file('pkg', 'DESCRIPTION', package='potools'), c('Package', 'Version'))
metadata <- po_metadata(
  package = desc_data[, "Package"], version = desc_data[, "Version"],
  language = 'ar_SY', author = 'R User', email = 'ruser@gmail.com',
  bugs = 'https://github.com/ruser/potoolsExample/issues'
)

# add fake translations
```

```
message_data[type == "singular", msgstr := "<arabic translation>"]
# Arabic has 6 plural forms
message_data[type == "plural", msgstr_plural := .(as.list(sprintf("<%d translation>", 0:5)))]

# Preview metadata
print(metadata)
# write .po file
write_po_file(
  message_data[message_source == "R"],
  tmp_po <- tempfile(fileext = '.po'),
  metadata
)
writeLines(readLines(tmp_po))

# write .pot template
write_po_file(
  message_data[message_source == "R"],
  tmp_pot <- tempfile(fileext = '.pot'),
  metadata
)
writeLines(readLines(tmp_pot))

# cleanup
file.remove(tmp_po, tmp_pot)
rm(message_data, desc_data, metadata, tmp_po, tmp_pot)
```

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