GNUnited Nations Manual

Software for maintaining www.gnu.org translations
(last updated 31.07.2008)

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This manual is for GNUnited Nations, a suite for maintaining translations of www.gnu.org essays and other articles.
Last updated on 31.07.2008.

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1 Introduction to GNUnited Nations

GNUnited Nations (abbreviated GNUN) is a collection of makefiles and scripts that are supposed to make the life of `http://gnu.org` translators easier. Although it is specifically developed for the GNU Project's website, it could be customized, at least in theory, to fit the needs of other internationalized sites. GNUN is in early stage of development, but if it proves useful, and if there is sufficient interest (and time), it is possible to develop a robust configuration interface that would be appropriate for general usage.

It is vitally important to understand that GNUN is *not* a silver bullet that solves all problems. If we have to be honest, deploying GNUN in fact even does create some (see Section 1.4 [Disadvantages], page 4).

GNUnited Nations is free software, available under the GNU General Public License.

This manual is organized in way that is suitable both for translators and GNU Web Translation managers (plus eventually interested GNU Webmasters, if any). It may also serve as an introductory material and reference for new GNUN developers and contributors. Hopefully, it might be useful to people who customize and adopt the software for a third party site or for their own needs. Feel free to skip sections or entire chapters if they are irrelevant for your intended usage.

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1.1 Why GNUN is Being Developed

The GNU Project's website, `http://www.gnu.org`, has become considerably large over the years. Maintaining it requires significant effort, and sometimes a new web standard is developed faster than the time required to migrate all articles to the next widely adopted one.

When it comes to internationalization, the problems are so many that it is hard to enumerate them. It has become apparent that maintaining translations up-to-date is a major undertaking, involving tedious skimming through commit logs, reviewing diffs and other medieval techniques to catch up. Some translation teams have developed their own sets of scripts, but so far there has been no universal solution.

This unpleasant situation, combined with rapid and incompatible design changes, have lead some teams to neglect the important work of keeping their translation in line with the changing original articles. As a consequence, the GNU Project is facing the problem of maintaining them in suboptimal ways, in order to keep the information updated.

The reasons for developing GNUnited Nations are very similar to those that lead to the inception of GNU gettext, or GNOME Documentation Utilities (`gnome-doc-utils`) some years later.

1.2 What GNUnited Nations is and Should be

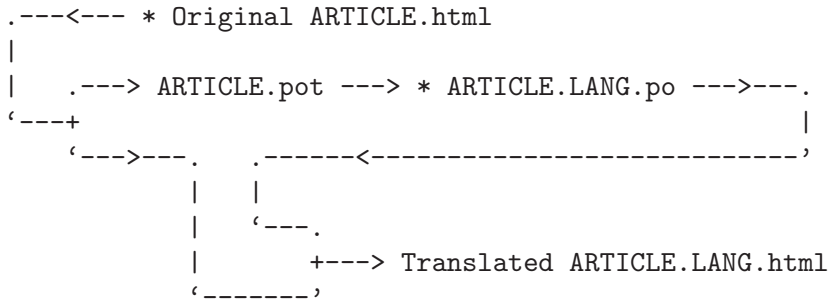
The basic concept behind GNUN is that localization of HTML articles is similar to localization of computer programs[1]. In articles, like in programs, not every string is considered translatable, so translatable strings must be identified first, and then collected in a file (called "PO template") for translation. Articles, like programs, tend to change in time, but not every change in the sources calls for a translation update. Sometimes the change does not affect the translatable

[1] Actually, it is much more closer to localization of software documentation, where typically strings (also known as "messages" in gettext's context) are longer than strings in programs. Nevertheless, all points raised still apply.

strings, but sometimes it does. So, translators must have means to identify those changes and apply the appropriate updates to the translation.

The GNU `gettext` package already provides the needed infrastructure for maintaining translations using PO files. See Section "Introduction" in *GNU gettext tools*, for a basic overview. GNUnited Nations fills the gaps to apply this infrastructure to articles in `http://gnu.org` web site.[2]

The following diagram summarizes the relation between the files handled by GNUN. It is followed by somewhat detailed explanations, which you should read while keeping an eye on the diagram. Having a clear understanding of these interrelations will surely help translators and web maintainers.



The indication '`*`' appears in two places in this picture, and means that the corresponding file is intended to be edited by humans. The author or web maintainer edits the original '*`article`*`.html`', and translators edit '*`article.lang`*`.po`'. All other files are regenerated by GNUN and any manual changes on them will be lost on the next run.

Arrows denote dependency relation between files, where a change in one file will affect the other. Those automatic changes will be applied by running '`make -C server/gnun`'. This is the primary way to invoke GNUN, since it is implemented as a set of recipes for GNU `make`.

First, GNUN extracts all translatable strings from the original English article '*`article`*`.html`' into '*`article`*`.pot`'. The resulted file is suitable for manipulation with the various GNU '`gettext`' utilities. It contains all original article strings and all translations are set to empty. The letter `t` in '`.pot`' marks this as a Template PO file, not yet oriented towards any particular language.

The first time though, there is no '*`article.lang`*`.po`' yet, so a translator must manually copy '*`article`*`.pot`' to '*`article.lang`*`.po`', where *lang* represents the target language. See Section 2.3.1 [New Translation], page 9, for details.

Then comes the initial translation of messages in '*`article.lang`*`.po`'. Translation in itself is a whole matter, whose complexity far overwhelms the level of this manual. Nevertheless, a few hints are given in some other chapter of this manual.

You may use any compatible PO editor to add translated messages into the PO file. See Section "Editing" in *GNU gettext tools*, for more information.

When the PO file actually exists (hopefully populated with initial translations), GNUN generates '*`article.lang`*`.html`' file. It takes its structure from the original '*`article`*`.html`', but all translatable strings are replaced with their translations specified in '*`article.lang`*`.po`'.

Original articles sometimes change. A new paragraph is being added or a tiny change in the wording is introduced. Also, some articles are dynamic in nature, like ones containing news entries or a list of other articles. If the original article changes, GNUN will automatically rebuild '*`article`*`.pot`', and will merge the changes to '*`article.lang`*`.po`'. Any outdated translations will be marked as fuzzy, any new strings will be added with empty translations, waiting to be

[2] The process of converting HTML to PO and the other way around is performed using po4a ("po for anything"), see `http://po4a.alioth.debian.org`.

translated. In the same run '*article.lang*.html' will be rebuilt so the relevant strings in the translation will be substituted with the original English text, until the translation teams update them in '*article.lang*.po'.

Those changes in the original article that do not affect the translatable strings will not lead to changes in '*article.lang*.po'. Thus, no actions from translators will be needed. '*article.lang*.html' will be automatically regenerated to reflect the changes.

The POT for every article under GNUN's control is kept in the 'www' repository under a special directory 'po/', which is a sub-directory of the relevant directory in the 'www' tree. So, for http://www.gnu.org/philosophy/free-sw.html that is 'philosophy/po/'. Except 'free-sw.pot', this directory holds the canonical source of every translation, like 'free-sw.bg.po', 'free-sw.ca.po', etc.

Several additional features are implemented, like automatic update of the list of the available translations. For example, if a new translation is added and the list of translations in 'free-sw.html' is updated, all translated 'free-sw.*lang*.html' will be regenerated. This saves a lot of tedious, repetitive work. There is a basic infrastructure to "inject" general information about a translation team—like a note how to contact the team, or how to report a bug/suggestion for improvement. Translators' credits are also handled, as well as translators' notes, if any.

GNUN can be extended, and new features will certainly be added. The 'TODO' file currently lists some of them, but new ideas pop up quite often. The plan is to make a solid foundation and develop front-ends—a web front-end, possibly based on Pootle, a statistics facility, probably a wiki compiler, and more.

1.3 Major Advantages of GNUN

Here is a simple list of situations where we hope this suite would prove to be useful.

- Automatic rebuild of all translations when the original article changes. This is the most important feature, as it prevents accumulation of seriously outdated translations.
- Global update of the whole site. Apply the previous point to the web server templates (under 'server/' in the 'www' repository). A single change to such a file will affect literally *all* articles, translated or not.
- Urgent notices. Sometimes an "urgent" notice is added by the webmasters, which should appear on all pages. Typically this is about an event where urgent action is needed, although often it is only relevant to a single country or even a particular city. Such a notice will propagate to all pages, and translators may choose whether to translate it or not. For example, the Urdu translation team may conclude that there are only a few Urdu speakers in Massachusetts, to participate in an event that will happen in Boston, so translating the "urgent" notice may not be very "urgent" for Urdu. However, such notice will appear in all translated pages and people who usually read gnu.org pages in their native language will see it, so they can take action as necessary. When the notice is removed, often in a week or two, it will disappear without translators' intervention, whether they translated it or not.
- Simplification of the translation process—lots of errors and typos come from the fact that translators basically have to duplicate the whole HTML markup of the original. The PO files eliminate most of the basic markup, which is where most of the validation errors come from.
- Markup consistency site-wide—it would be substantially easier to update the site to a future standard, because translations will naturally follow the changes in the original articles. This also means that translation teams do not have to undergo the boring process of converting their articles to the new SSI-based layout; this will be done automatically.
- Easy updates by translators. Modified paragraphs, links, etc. will appear as "fuzzy" strings in the PO files, newly added ones will appear as "untranslated", and deleted will appear

as “obsolete”. It is substantially easier to update a PO file, where a keystroke takes you to the part that needs updating, whatever it may be.

- Reporting and statistics. Since the basis is standard PO files, which are the canonical source of the translations, it is easy to manipulate them and extract useful information.

1.4 Known Bugs and Limitations

As it happens in real life, we don’t wear pink glasses and are aware of certain limitations and annoyances of this semi-automatic system.

- Often it is hard to figure out where precisely a change was made. A change in one single word in a long paragraph of the HTML article will lead to the whole of it being marked as “fuzzy” in the PO files. So don’t unsubscribe from `www-commits@gnu.org` yet, and be prepared to check the CVS history of the original article.
- We plan to invoke a build once a day, because doing it more often will potentially generate more messages to the mailing list in the form of commit notifications. This has its drawback, since translators will have to wait for a day until their PO files are updated, and another day for the ‘`.lang.html`’ articles to get generated, after they commit the updated POs.

2 General Usage

If anything may go wrong, it will definitely go wrong.
—Murphy's Law

Murphy is an optimist.
—O'Rielly's Law

GNUN currently consists of a few makefiles, scripts and optional '`generic.lang.html`' files, intended to contain article-independent but team-specific information. They are designed to reside in the '`server/gnun`' directory, but this may change. In all examples in this manual, "invoking" means executing on the command line `make -C server/gnun [target] [variable=value ...]` while the working directory is the root in the 'www' web repository. For the purpose of brevity, we will refer to the above command as simply `make`, which is equivalent to `cd server/gnun ; make`. It is desirable never to invoke `make` with the '`-k`' ('`--keep-going`') option, because an eventual error in only one make recipe might create a mess in many articles, both original and translated. Do this with caution, and generally only when debugging in a safe environment.

The build process is intended to be invoked by a cron job, although manual intervention to a certain degree is possible.

2.1 Invoking GNUN

The central part of GNUnited Nations is a makefile; actually a '`GNUmakefile`' since it heavily relies on features and extensions available in GNU Make. Thus, invoking a build consists of typing `make` on the command line, or within cron. If you are deploying the software on a non-GNU machine, probably GNU Make is installed and available as `gmake`. If not, you should seriously consider installing it, since as far as we know, the build will fail otherwise. See http://www.gnu.org/software/make for information how to download and install GNU Make.

If you don't specify a target, `make` by default builds the target `all`, which in this case is to rebuild all translations that are not up-to-date. However, there are special targets that do not depend on the standard `all` target, which can be built by `make target`. Some of the variables in the next section apply to them, and some do not.

2.1.1 Variables to Control the Build Process

The build process has several modes of operation, and they all relate to the handling of files that are to be added to the repository or performing certain sanity checks at build time. The variables are specified on the command line, after `make`, in the form `VARIABLE=value`, e.g. `make VCS=yes`. In the future, additional features will be implemented in a similar fashion.

'`VCS=no`'
'`...`'
: Do not add any files to the repository. This is the default. You may as well omit to define `VCS` entirely; there is no special code that expects assigning the value 'no'.

'`VCS=yes`'
: Automatically add any new files in the repository. These are any POT files, if they are generated for the first time, and the translated articles ('`.lang.html`') in HTML format. In addition, if there is no '`server/gnun/generic.lang.html`' file for the specific language an article is being generated, an empty file will be added. Finally, any missing PO and their HTML counterparts of the server templates will be added, computed on the basis of the `template-files` variable.

‘`VCS=always`’
: Because GNU Make considers the targets up-to-date after a successful build, if it was performed with no VCS interaction, the important newly created files will not be added (and committed when you do `cvs commit`) in the repository. Assigning this value enables additional check and forcefully adds all files. Use it sparingly, since it is very slow and generally less reliable.

‘`VALIDATE=no`’
‘`...`’
: Does not perform validation of the HTML articles and PO files. This is the default, and not defining this variable has the same effect.

‘`VALIDATE=yes`’
: Validates all original articles before generating the POTs, to ensure that the ultimate source is valid XHMTL. Also, validates all generated translations in HTML format and all PO files. It is highly recommended to run the build this way, even if it is a bit tedious to fix the errors that are reported as a result of enforcing validation.

‘`NOTIFY=no`’
‘`...`’
: Do not send email notifications about errors. This is the default.

‘`NOTIFY=yes`’
: If an error occurs, send a mail with a meaningful subject and the error message as body to the concerned party. The variables `devel-addr`, `web-addr` and `transl-addr` control the recipients; normally they should be set to the GNUN maintainers, webmasters and translators accordingly.

‘`VERBOSE=yes`’
: If defined, the value of the variables `templates-translated`, `home-translated`, `ALL_POTS` and `articles-translated` will be printed to the standard output. This is off by default, but recommended in general since it will show a bug in the computation of the basic variables.

‘`GRACE=`*`days`*’
: If defined, ordinary articles that have fuzzy strings and are not older than *days* will not be regenerated. This functionality is implemented specifically to prevent gratuitous replacement of translated strings with the English text when there are only minor formatting changes in the original. The translator has time (the “grace” period as defined in this variable) to review the changes and unfuzzy the strings, while keeping the online translation intact. Note that this variable has no effect on the homepage, the server templates, gnunews and all articles defined in the variable `no-grace-articles`.

‘`TEAM=`*`lang`*’
: The translation team which articles need to be checked for completeness. This variable is applicable only for the `report` target, and is mandatory for it. See Section 2.1.2.2 [report], page 7.

Note that `VCS=yes,always` is a valid combination: because POT files of the server templates are not handled by `always`, running the build this way will commit any newly added files as specified in `TEMPLATE_LINGUAS` and will perform additional check at the end, `cvs add`-ing all necessary files.

When validation is enabled (i.e. with `VALIDATE=yes`), the original English articles are validated first, before any commands that generate the other files, and `make` exits with an error on the first encountered article. This is done on purpose, to prevent the propagation of an eventual error in the markup of the original article to all translations.

By contrast, validation of the translated '.*lang*.html' is performed after it is generated and if VCS=yes the article will be committed in the repository. The build will fail again and further processing of the remaining articles will not be performed, but this particular translation will be installed. The translator has time until the next run to fix the error—usually by modifying the corresponding '.*lang*.po' file.

If notification is enabled (NOTIFY=yes), and the build system encounters errors (mostly when validating articles), email messages will be sent to the party that is expected to fix the error. The subject of the messages always include the problematic article, for example:

```
Subject: [GNUN Error] gnu/gnu.fa.html is not valid XHTML
```

2.1.2 Targets Specified on the Command Line

Some targets are not built by default, because they are only useful under certain circumstances. Think of them like semi-automated commands or canned command sequences that are more complicated, and more importantly, whose arguments are variables computed at the time make reads the makefiles—the filesets they affect are specific and already defined, one way or another.

2.1.2.1 The sync target

The sync target has a simple task: synchronize the *original English* articles from a canonical repository, like 'www'. It is very important that such synchronization happens, because it is desirable to develop the software and add more features in a testbed, while the 'official instance' operates on the official repository in a predictable way.

It is recommended that you 'build' the sync target from a cron job, some time before the general build occurs. That way, prerequisites (e.g. original '.html' articles) will be updated from the canonical repository and the subsequent make invocation, possibly run by cron as well, will update all translations.

The VCS variable affects the behavior: if it is defined to 'yes' then the synchronized files are committed to the 'testing' repository, i.e. the *destination*. In addition, if a file meant to be synchronized disappeared from the *source*, a warning mail will be sent to the address defined in the devel-addr variable (defined only in 'GNUmakefile'). The build will continue without failure, and will sync and commit all other files, but will send the same email message again if the file is still present in the files-to-sync variable during a subsequent invocation.

In addition, sync synchronizes all "verbatim" server templates that are not under GNUN's control, such as 'server/header.html', 'server/footer.html' and their translations, as defined in the verbatim-templates variable. This is important, as these files may change in the master repository, while the validation of the html files in the development repository will be performed with the old templates expanded, thus making this specific test more or less bogus.

VCS=always has no effect on this target, as well as VALIDATE.

2.1.2.2 The report target

This target exists solely for convenience to translators, enabling them to check which articles are not 100% translated and have to be updated. The way to check this is by running make report TEAM=*lang*, where *lang* is the language code, as usual. Thus, to check all French translations, one would run

```
make report TEAM=fr
```

Caution: This target checks only the PO files; if there are translations that are maintained in the old-fashioned way, they are not reported since there is no reasonable way to check if they are up-to-date. In fact, this is one of the main reasons GNUN is being developed, if you recall.

2.1.2.3 The `triggers` target

This is a special target intended to be run by the automatic build after the main build and *after* `cvs commit`.

When a GNUN build completes and some translations fail at the XHTML validation stage, the result is checked in the repository, as explained earlier (see Section 2.1.1 [Runtime Variables], page 5). Thus, CVS updates the $Date$ RCS keyword (or any other keywords, for that matter) and resets the file(s) timestamp. Next time `make` is invoked, the target appears newer than the prerequisite so no rebuild is triggered. The purpose of the `triggers` target is to "save" the information of the faulty targets during the main build, and to touch their prerequisites in order such invalid articles not to remain online unnoticed.

The `triggers` target currently executes the files named '*`article.lang`*`.html.hook`' in the '`server/gnun`' directory—these files are created during the main build and each of them contains the command to update the timestamp of the prerequisite based on the timestamp of the target that must be rebult. Finally, it deletes all those '`*.hook`' files.

To summarize, for effective operation GNUN should be invoked automatically as `make ; cvs commit -m ... ; make triggers`. To illustrate this, here is a concrete example showing the official job running at fencepost.gnu.org:

```
25 16 * * *  cd $HOME/projects/www ; cvs -q update &>/dev/null ; \
               make -C server/gnun VCS=yes VALIDATE=yes NOTIFY=yes \
               VERBOSE=yes GRACE=30 ; cvs commit -m \
               "Automatic update by GNUnited Nations." ; \
               make -C server/gnun triggers
```

In the future, this target may be extended further to do other useful things that should be "triggered" after the main build.

2.1.2.4 The `clean` target

Not implemented yet.

2.1.2.5 The `distclean` target

Not implemented yet.

2.2 Defining Articles to be Built

The file '`gnun.mk`' contains variable definitions, based on which almost all other important variables are computed. In other words, the variables defined in that file directly affect the overall behavior of the build process.

There are two types of variables, which are specifically separated in order to make translators' life easier: variables that translators are free to modify and variables that are modified by the web-translators staff[1], ideally after performing some local tests. A translation team leader should update only `TEMPLATE_LINGUAS` and `HOME_LINGUAS`; everything else is supposed to be built automagically, without manual intervention. If not, that is a bug that should be reported and fixed.

'`TEMPLATE_LINGUAS`'
: Add here your language code *if and only if* you have all the server templates translated, and have committed '`server/po/banner.`*`lang`*`.po`' and '`server/po/footer-text.`*`lang`*`.po`', as well as the templates that are not under GNUN's control, like '`server/header.`*`lang`*`.html`' and '`server/footer.`*`lang`*`.html`'.

[1] Only because presumably, they are more familiar with GNUnited Nations' internals. From a purely technical point of view, there is no difference.

'HOME_LINGUAS'
: Add your language code if you have already committed 'po/home.*lang*.po', that way the homepage for your language will be built. It is not acceptable to have your language code defined in this variable, but not in TEMPLATE_LINGUAS.

'ROOT'
: Add here articles that are in the server root, like 'keepingup.html' and 'provide.html'. Always write only the basename of the article, i.e. if you add these two articles, the value of ROOT should be keepingup provide. This is true for all the variables that expect values in the form of article names.

'ALL_DIRS'
: The list of directories containing articles, like 'philosophy', 'gnu', 'licenses', etc.

'gnu'
'philosophy'
'...directory...'
: A space-separated list of basenames for articles residing in *directory*, for which POTs will be generated and updated when the original article changes. If an article is missing here, there is no way its translations to be maintained via GNUN.

2.3 Working with PO Files

We anticipate that some gnu.org translators will find this format odd or inconvenient, if they never happened to work with PO files before. Don't worry, you will soon get accustomed to it. It is the established format for translations in the Free World, and you should have no problems if you have translated software before.

The most efficient way to edit a PO file is using a specialized PO editor, because each of them represents and treats gettext messages in a consistent and predictable way. It is possible to edit a PO file with an ordinary plain text editor, but extra effort would be necessary to make it valid. Here is a list of widely used PO editors:

- PO mode. We recommend using GNU Emacs in PO mode, because Emacs is the program that is suitable for performing any task when it comes to maintaining the GNU Project's website. Provided that you have GNU gettext installed, any '.po' file you visit should automatically switch to PO mode. You can enable/disable it by M-x po-mode RET. On some GNU/Linux distros such as gNewSense, PO mode is available in a separate package, gettext-el. See http://www.gnu.org/software/gettext.
- gTranslator—the GNOME PO editor. Has some known bugs, but they shouldn't affect gnu.org translations as formulas that express plural forms are not used. See http://gtranslator.sourceforge.net.
- KBabel—likewise for KDE. See http://kbabel.kde.org.
- Poedit—another editor that is based on the wxWidgets toolkit. See http://www.poedit.net.

2.3.1 Starting a New Translation

To start a new translation, the easiest way is to copy the existing POT as 'article.*lang*.po', where *lang* is your language code. For example, to prepare for a new translation of the essay http://www.gnu.org/philosophy/free-sw.html, you can simply do cd philosophy/po ; cp free-sw.pot free-sw.*lang*.po and then edit the latter. If 'free-sw.pot' does not exist it is because either the article is not yet "templated" (i.e. migrated to the new style), or the GNUN maintainers have not yet added it to the value of the appropriate variable in 'server/gnun/gnun.mk'. In that case, just ask them to do the necessary in order the POT to be generated.

You could also use the `msginit` utility that would populate the PO file header with the right information, provided your environment is set up correctly. See Section "msginit Invocation" in *GNU gettext tools*.

The PO file header as generated usually looks like this:

```
# SOME DESCRIPTIVE TITLE
# Copyright (C) YEAR Free Software Foundation, Inc.
# This file is distributed under the same license as the PACKAGE package.
# FIRST AUTHOR <EMAIL@ADDRESS>, YEAR.
#
#, fuzzy
msgid ""
msgstr ""
"Project-Id-Version: PACKAGE VERSION\n"
"POT-Creation-Date: 2008-02-06 16:25-0500\n"
"PO-Revision-Date: YEAR-MO-DA HO:MI+ZONE\n"
"Last-Translator: FULL NAME <EMAIL@ADDRESS>\n"
"Language-Team: LANGUAGE <LL@li.org>\n"
"MIME-Version: 1.0\n"
"Content-Type: text/plain; charset=CHARSET\n"
"Content-Transfer-Encoding: ENCODING"
```

You have to edit the header to match the already established conventions, and the rules for gnu.org translations. For reference, here is a list with all fields explained:

'`Project-Id-Version`'
: Add here the filename of the original article, without the sub-directory, like "banner.html" or "free-sw.html".

'`POT-Creation-Date`'
: Do not edit this field, it is already set when the POT is created.

'`PO-Revision-Date`'
: Likewise, do not edit. This field is automatically filled in when you save the file with any decent PO editor.

'`Last-Translator`'
: The name and email address of the last translator who have edited the translation. Pay attention that normally this is the name of a member of your team, it can be the translation team leader if he/she was the person who updated the translation. For example:

  ```
  Elvis Parsley <king@grassland.com>
  ```

'`Language-Team`'
: This field should contain the mailing list on which the translation team can be reached—sometimes this is the alias `web-translators-LANG@gnu.org`, but in some cases it is a separate, non-GNU list. It could be a URL of the team's homepage, provided that it contains contact details. Example:

  ```
  French <trad-gnu@april.org>
  ```

'`MIME-Version`'
: Leave it like it is.

'`Content-Type`'
: Usually this is `text/plain; charset=UTF-8`; change the charset accordingly.

'`Content-Transfer-Encoding`'
: Set this to `8bit`.

Here is an example of a properly edited header:

```
# Bulgarian translation of http://www.gnu.org/philosophy/free-sw.html
# Copyright (C) 2008 Free Software Foundation, Inc.
# This file is distributed under the same license as the gnu.org article.
# Yavor Doganov <yavor@gnu.org>, 2008.
#
msgid ""
msgstr ""
"Project-Id-Version: free-sw.html\n"
"POT-Creation-Date: 2008-02-06 16:25-0500\n"
"PO-Revision-Date: 2008-02-09 15:23+0200\n"
"Last-Translator: Yavor Doganov <yavor@gnu.org>\n"
"Language-Team: Bulgarian <dict@fsa-bg.org>\n"
"MIME-Version: 1.0\n"
"Content-Type: text/plain; charset=UTF-8\n"
"Content-Transfer-Encoding: 8-bit"
```

Notice the absence of the "fuzzy" marker; you should "unfuzzy" the header after entering the necessary information (this is done by simply pressing TAB in PO mode).

There are some special messages that appear in the POT and PO:

'`*GNUN-SLOT: TRANSLATOR'S NOTES*`'
: This is for translator's notes that are injected in the resulting translation. See Section 2.3.1.1 [Notes Slot], page 12, for more information. If your translation does not have notes, you *must* translate this as a space, that is, SPC.

'`*GNUN-SLOT: TRANSLATOR'S CREDITS*`'
: This is again optional, and should contain the name (and address) of the person who made the translation. "Translate" this string as a space (SPC) if you do not want your name to appear there. See Section 2.3.1.2 [Credits Slot], page 13.

Most of the PO editors do not wrap long lines that inevitably appear in `msgstr`'s. If that happens, long lines make reading subsequent diffs harder, and are generally annoying for most people. If this issue bothers you, you can "normalize" the already finished PO translation by executing on the command line `cat` *`file`*`.po | msgcat - -o` *`file`*`.po`, before installing it in the repository. Either way, the build system will treat it is a valid PO file.

For those lucky Emacs users, here is a code snippet that you can put in your '`.emacs`'; doing *`M-x po-wrap`* while in PO mode will wrap all long lines:

```
(defun po-wrap ()
  "Filter current po-mode buffer through ‘msgcat’ tool to wrap all lines."
  (interactive)
  (if (eq major-mode ’po-mode)
      (let ((tmp-file (make-temp-file "po-wrap."))
    (tmp-buf (generate-new-buffer "*temp*")))
(unwind-protect
    (progn
      (write-region (point-min) (point-max) tmp-file nil 1)
      (if (zerop
   (call-process
    "msgcat" nil tmp-buf t (shell-quote-argument tmp-file)))
  (let ((saved (point))
(inhibit-read-only t))
    (delete-region (point-min) (point-max))
    (insert-buffer tmp-buf)
    (goto-char (min saved (point-max))))
(with-current-buffer tmp-buf
  (error (buffer-string)))))
  (kill-buffer tmp-buf)
  (delete-file tmp-file)))))
```

It is highly desirable that you check if the PO file you finished translating (or editing) is valid, before committing it. This is done by running `msgfmt -cv -o /dev/null` *`file`* or by simply pressing *`V`* in PO mode. The build system automatically verifies each PO file when invoked with `VALIDATE=yes`, but you won't get a warm and fuzzy feeling if a stupid typo you made halts the whole update of all translations. Such things happen to everyone, so it is a good practice to check before you actually commit.

2.3.1.1 The Special Slot for Translator's Notes

Sometimes it is necessary to complement the translation of an essay with translator's notes. The special message `*GNUN-SLOT: TRANSLATOR'S NOTES*` is designed to serve this purpose. If your translation doesn't have notes, you should "translate" the `msgstr` as a space (SPC)—otherwise the text of the `msgid` will appear in the HTML translation, which is not what you want. Here is an example how to use translators' notes in a PO file:

```
# type: Content of: <p>
#: ../../philosophy/po/free-sw.proto:22
msgid ""
"To understand the concept, you should think of <q>free</q> "
"as in <q>free speech,</q> not as in <q>free beer.</q>"
msgstr ""
"Translated message, where you want to clarify beer<sup><a "
"href=\"#TransNote1\">1</a></sup>, presumably because the "
"expression in your language is different"
...
...
# type: Content of: <div>
#. TRANSLATORS: Use space (SPC) as msgstr if you don't have notes.
#: ../../philosophy/po/free-sw.proto:274
msgid "*GNUN-SLOT: TRANSLATOR'S NOTES*"
msgstr ""
"<b>Translator's notes</b>:\n"
"<ol>\n"
"<li id=\"TransNote1\">Note clarifying the text.</li>\n"
"</ol>\n"
```

Certainly, everything in the `msgstr`s should be in your native language; we use English here in order the example to be understood by everyone. If you have more notes, each subsequent one should be with incremented number, i.e. 'TransNote2', 'TransNote3', etc. and you have to add them as more `<li>` elements accordingly.

Do not worry about the `\n` character—it is inserted automatically when you press RET. It is not compulsory that notes start on a new line, this is the recommended way simply because it is easier to edit them.

It is important to follow this specification, because notes will look consistently in all languages and will be clearly distinguishable from authors' footnotes, if any. Furthermore, it would be easier to define a special CSS class for them, and also to convert the translations in other formats such as Texinfo—when these features are implemented.

2.3.1.2 The Special Slot for Translator's Credits

Most of the translators usually put their name under the translation, in the "footer" area. This is entirely acceptable, since some readers prefer to send buggestions directly to the translator. Also, giving credit where credit is due is a natural thing.

Like the previous slot, you should "translate" it as a SPC if you don't want your name to appear there.

Here is an example of the recommended way to specify credits:

```
<b>Traduction</b>: Benjamin Drieu
<a href="mailto:foo@example.org">&lt;foo@example.org&gt;</a>,
2007, 2008.
```

It is highly desirable to use this form, but you may omit the email address or add the homepage of the translator, provided that the translation team leader ensures that it constantly meets the linking criteria for gnu.org. Please follow the FSF HTML Style Sheet when adding URIs or other information.

2.3.2 Transforming existing translation in PO format

Migrating an existing translation to a PO file format is basically editing the header as described in the previous section, and populating each of the messages by copying the already translated text and/or markup from the existing translation in HTML format in the relevant message.

Typically, you will visit '`po/foo.lang.po`' (in PO mode) and '`foo.lang.html`' (in HTML mode) in another buffer. Then you can copy a paragraph or an element from the latter and yank it in the relevant message in the former. Be extra careful, since this is the time to check *precisely* that the translation corresponds to the original. Further changes will be reflected, but if your "initial" PO file is not a 100% match, that would not necessarily mean that it is an improvement. Since it is very easy to do this kind of check, because the relevant `msgid` and `msgstr` appear one above the other in the same buffer (or the similar concept in other PO editors), please *do* perform this initial sanity check even if you are confident that the translation you have been yanking strings from is a completely up-to-date translation.

There is no need to delete the existing HTML translation, GNUN will automatically overwrite it. The only thing a translator should do is to commit the PO file in the repository.

When an essay has been translated by several people through the years, it is important that this information is recorded and reflected in the PO file. In the future, special targets may be added to enable the FSF to check who translated a particular article, and when.

A recommended way to do this is as follows:

```
# French translation of http://www.gnu.org/philosophy/bsd.html
# Copyright (C) 2006, 2007, 2008 Free Software Foundation, Inc.
# This file is distributed under the same license as the gnu.org article.
# Cédric Corazza <cedric.corazza@wanadoo.fr>, 2006, 2008.
# Jerôme Dominguez <taz@gnu.org>, 2007.
```

In this example, it is clear that Cédric made the initial translation, Jerôme made some changes in 2007, and the original translator returned in 2008 and continued maintaining it.

2.3.3 Special Handling For GNU News

The GNU website has infrastructure for supporting "What's New", also known as "GNU News"—see http://www.gnu.org/server/standards/README.webmastering.html#polnews for details. Entries are added in a special plain text file, '`server/whatsnew.txt`' and are used to build '`server/whatsnew.include`' and '`gnusflashes.include`'. The former is used by '`server/whatsnew.html`', while the latter is included in the homepage.

GNUN has rules for building '`whatsnew.pot`', which contains all necessary strings for '`server/whatsnew.lang.html`', '`server/whatsnew.lang.include`' and '`gnusflashes.lang.include`'. There is nothing unusual in this POT file, so it should be translated like any other. When you commit '`whatsnew.lang.po`', it will be used to generate all three localized files. In addition, if there is a homepage for this language, it will be rebuilt when '`gnusflashes.lang.include`' is generated for the first time in order the translated homepage to include it instead of '`gnusflashes.include`'.

Note that localized RSS feeds are not supported on purpose, as it would be annoying for subscribers if new items appear in English and then once again translated.

2.3.4 Useful Hints For Editing PO Files

This section contains additional explanations, some in the form of advices and recommendations; not all of them are strictly related to PO files editing.

- When you install a new translation of an article (that is different from a server template or the homepage), all you need to do is to add your PO file in the appropriate '`/po`' subdirectory and add a link to it in the translations list of the original '`article.html`'. Use

only HTML entities for any non-ASCII characters and follow the established scheme. If language names in your native language are not capitalized (unlike for example in English or German), you should *not* capitalize the name of your language.

In the next build, your '`article.lang.html`' will be built and the link to it will propagate to all translations, provided that they are under GNUN's control.

- If you don't feel comfortable editing '`gnun.mk`', do not worry. Someone from the GNUN maintainers will notice and will amend `TEMPLATE_LINGUAS` or `HOME_LINGUAS` for you, as appropriate.
- Dealing with obsolete strings. Elements which are removed from the original articles appear in the PO files as "obsolete" strings—the translation is not lost, but they are marked in a special way at the end of the PO file. You don't have to update a PO file if it contains obsolete strings—do this only if it has "fuzzy" or "untranslated", and of course when you want to improve the existing translated ones. Sometimes these obsolete strings are useful, and they can save time. For example, if you anticipate that the deleted text may reappear some time in the future, you can preserve the string and hopefully it would be marked as "fuzzy" when this happens. Failing that, you can still copy it and yank it at the appropriate place.
- You can add comments to every message in a PO file—for example if you want to remember that you have to do something, or to remind you why this particular message is translated in a special way. These comments do not appear in the generated HTML source.
- Sometimes, especially when the original message contains many links, it is easier to copy it to `msgstr` and edit the latter by translating the English text. In PO mode, this is done by *`C-j`*. This is useful also for large chunks of text in `<pre>` elements, which normally you would want to preserve verbatim.
- To reduce the load on the webmasters RT queue, please replace `webmasters@gnu.org` in the standard footer with `web-translators@gnu.org`.
- If you translate "Free Software Foundation, Inc." in your native language in the copyright notice, then please prepend the English name to the `<address>`; otherwise it looks awkward in most languages. Example:

```
# type: Content of: <div><address>
#: ../../gnu/po/gnu.proto:85
msgid "51 Franklin St, Fifth Floor, Boston, MA 02110-1301, USA"
msgstr ""
"Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, "
"Boston, MA 02110-1301, USA"
```

- There is absolutely no reason to use HTML entities in translations as a replacement for common non-ASCII characters. They are harder to write and serve no purpose.
- Wrapping of `msgstr` using *`M-q`* in Emacs (or other means) is considered harmful. It is best to leave GNUN (or more precisely, Po4a) to do the wrapping—that way all generated HTML translations will have predictable results. This will help tremendously for the conversion to other formats, like Texinfo. Also, note that not all elements are wrapped by default, so deliberately wrapping the text inside the `msgstr` could lead to an invalid page or a page that is valid, but is rendered incorrectly by the web browser.

2.3.5 The '`generic.lang.html`' file

The files '`server/gnun/generic.lang.html`' are special: if no such file exists for your language, an empty file will be created (and added to the repository if specified `VCS=yes`). This file is optional, and should contain a short message in your native language, ideally providing more information about the translation team or where to report bugs. For example:

```
<p>To join the Fooish translation team, see <a
href="http://gnu.org/server/standards/translations/www-foo">the
Foo team homepage</a>.</p>
```

The contents of '`generic.lang.html`' is injected right after the translators' credits, if any, and before the timestamp. It should be valid XHTML markup.

When you modify this file, for example, adding a message to the existing empty file or changing a URL, such modification will affect *all* articles of the language *lang* in '`generic.lang.html`'. The next time a build occurs, all translations of the language code *lang* (i.e. all '`.lang.html`', including the homepage), will be modified to include the contents of this special file.

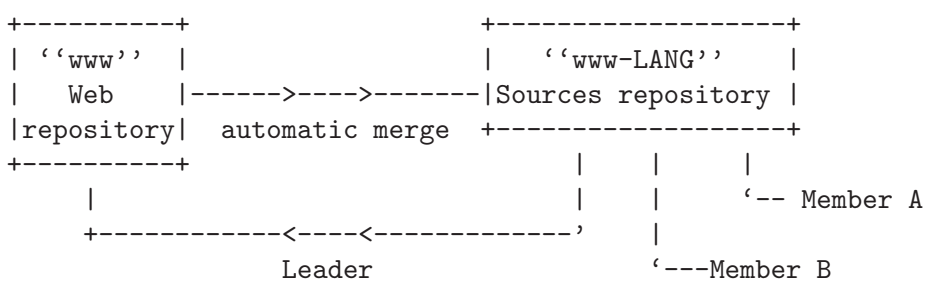
2.3.6 Maintaining Translations in Your Team's Repository

GNUN operates on the "official" Web repository of the Savannah project 'www', where normally only the coordinators of translation teams have write access. However, all translation teams have their own projects, so it is possible to take advantage of Savannah as a hosting facility to make the team work more comfortable.

The PO files provide an excellent and natural way to review each other's translations, because the translation appears right below the original message. Mutual reviews and proof-reading of translations is a crucial part of the process. Furthermore, team work is great for the community spirit; automating some of the operations also result in more time for all members to concentrate on the important tasks.

The file '`gnun/server/gnun/GNUmakefile.team`' in the Sources repository of the 'transcoord' project is a template, aimed for all translation teams who wish to use their own project's repository as a place to keep their draft translations, until they ripe and are ready to be installed officially.

The following diagram illustrates a typical workflow—it is applicable for small, medium and large teams:



All members and the team leader(s) commit in their project's repository—when a translation is ready, the leader checks it in in the official 'www' repository. If an original article changes, a build could be invoked to synchronize (i.e. merge) the changes and optionally automatically commit them so that the draft PO files are updated. A translator would then normally update the PO file, and commit it again in the project's Sources repository, from where the coordinator will pick it up and install it in 'www'.

To take advantage of this semi-automation, rename this template '`GNUmakefile.team`' as '`GNUmakefile`' and install it in the root of your project's Sources repository. Then create directories and sub-directories exactly as they are in 'www'. Do not create the '`/po`' sub-directories; they are redundant here. Instead, install the PO files in the normal locations where the corresponding '`.lang.html`' resides in 'www', for example:

```
Root
  |
  |--GNUmakefile
  |--home.lang.po
  |--...
  |--gnu
  |   |
  |   |
  |   +--linux-and-gnu.lang.po
  |   +--manifesto.lang.po
  |   +--...
  |
  |
  +--philosophy
  |     |
  |     |
  |     +--free-sw.lang.po
  |     +--not-ipr.lang.po
  |     +--open-source-misses-the-point.lang.po
  |     +--...
  |
  +--...
```

The next sections explain how to adopt the makefile for your team and how to invoke a "build".

2.3.6.1 Adopting 'GNUmakefile.team' For a Specific Team

To adjust the makefile for your team, you need to edit two variables.

'TEAM' Set this to the language code, like bg or pt-br.

'wwwdir' The relative path to the working copy of the master 'www' repository. So if you have checked out your project's Sources repository at '~/projects/www-*lang*' and the 'www' Web repository at '~/projects/www', the value of wwwdir should be ../www/. Note the slash at the end, it is important.

Technically speaking, two variants of one language sharing the same project and repository (such as zh-cn and zh-tw) are not supported—patches welcome. As a workaround, there could be two directories with two 'GNUmakefile's and each directory having its own tree.

Some variables are specified on the command line, and alter the behavior of the build process.

'VERBOSE=yes'
Print more information from cvs and msgmerge; off by default. Note that VERBOSE can be defined to any string, it will have the same effect.

'VCS=yes' Update both 'www' and 'www-*lang*' repositories, then commit the merged PO files in the latter repository. By default, there is no CVS interaction.

Targets in 'GNUmakefile.team'

update Updates the repositories. Does nothing unless VCS=yes.

sync Merges all available PO files from the corresponding POT in 'www'.

report Verifies which translations are complete, and prints a list (with statistics) of those that need to be updated.

`make VCS=yes` is the recommended command to be run periodically. To check the status of the translations, run `make report`.

Feel free to replace all strings with equivalents in your native language and of course—do not hesitate to extend this file and modify it as much as you like. For example, useful extra functionality would be a target that will check which files have not yet been committed in the official repository, or which files have to be updated there (i.e. they were updated by the team members but not installed by the coordinator). Either way, if you come up with something interesting, it would be nice to send a message to trans-coord-devel@gnu.org, so that '`GNUmakefile.team`' gets updated for all teams' benefit.

2.3.6.3 Automatic Synchronization and Status Reports

It is convenient to invoke such synchronization automatically, for example once every day. If you have enabled commit notifications for the project's repository, any new changes will be visible for subscribers. Here is an example crontab entry:

```
# m h  dom mon dow   command
@daily              cd $HOME/projects/www-lang ; make VCS=yes
```

It is not necessary the job to be run on the team leader's machine, since all team members have write access to their project repository.

If desired, you could set up another job to report the status of the translations weekly or fortnightly, for example:

```
# m h  dom mon dow   command
@weekly             cd $HOME/projects/www-lang ; \
                       make report | mail -s "Weekly statistics" \
                       www-lang-list@gnu.org
```

Caution: Most cron implementations do not allow the character '\' as a line continuation character—the example shown is made that way for better readability.

2.4 Tips and Hints for Webmasters

This section contains some tips and general recommendations for webmasters in no particular order—it is not mandatory to follow them, but doing so will make translators' lives substantially easier.

First and foremost, respect translators' work—it is ungrateful and hard, undoubtedly much harder than translation of programs. It is important to have as many and as better as possible translations, and you don't have to make titanic efforts to help.

If you plan to edit a certain page extensively, please do so within the period between two adjacent GNUN builds—i.e. within a day. That way, the POT will be regenerated only once, and translators who are quick to update it immediately won't be disappointed if it changes again in the next run.

Use *only* US-ASCII characters and HTML entities for the others. This is required because the English text in the articles serves as a replacement of the translation when the latter is not complete. So if you use, say, the character é (e-acute) directly in an English page—which is UTF-8 as declared in '`server/header.html`', it will appear broken on those translated pages who use a different encoding. This specific advice is pretty much mandatory—the build fails if the original article contains such characters—but we are ready to fix any errors a webmaster makes.

The script `validate-html` is useful for webmasters who want to verify if their (potentially intrusive) changes result in a valid markup. It is recommended to make a symlink somewhere in your `PATH` (like '`~/bin`')—that way you will automatically use the latest version, provided that

you regularly update your working copy. Before committing your changes, you can check if it is valid by running

```
validate-html philosophy/not-ipr.html
```

See Section 3.1.2 [validate-html], page 21, for more information.

If you want a comment to be visible for translators, place it *inside* the element, for example:

```
<p>
<!--TRANSLATORS: Note that foo is bar in this context.-->
The fooish bar mumbles bazzling.
</p>
```

This will result in:

```
# type: Content of: <p>
#. TRANSLATORS: Note that foo is bar in this context.
#: ../../foo/po/article.proto:126
msgid "The fooish bar mumbles bazzling."
msgstr ""
```

As per the established convention, start the comment with `TRANSLATORS:` to catch their attention, and do not add a space after the beginning of the HTML comment (`<!--`), since this will unnecessarily indent the comment in the POT.

Warning: Any structural diversion from '`boilerplate.html`' in a specific article is likely to result in errors from GNUN. Any unexpected updates to the server templates (such as changing the entire look & feel of the site) will most probably break *all* translations under GNUN's control. Of course, this does not mean that such changes should not happen—only that they must be applied in our sandbox first, to ensure a smooth transition.

3 Unexciting Information for GNUN's Operation

This chapter might be of interest probably only to people who would have special interest in the software, plan to enhance it or develop a front-end.

3.1 Internally Used Scripts

For the time being there are several helper scripts, used internally as commands with certain arguments in the makefile rules. They can be invoked separately, as stand-alone programs, and sometimes they are useful on their own.

3.1.1 The `make-prototype` Script

This is a Guile script which makes the "prototype" file, '`foo.lang.proto`', from which the POT is generated. GNUN is designed in such a way, because it would be no big improvement if links to other translations ended up in the POT—it would mean that translators would have to manually update their PO file when a new translation is added.

In addition, `make-prototype` guards the timestamp (the $Date$ RCS keyword) in order the timestamp of the translation to be updated *only* when there are actual changes, being automatic or not.

Finally, `make-prototype` "injects" the artificial elements '*GNUN-SLOT: TRANSLATOR'S NOTES*' and '*GNUN-SLOT: TRANSLATOR'S CREDITS*', thanks to which it is possible to insert the name of the translator and translator's notes, if necessary. See Section 2.3.1 [New Translation], page 9.

Here are the options that `make-prototype` accepts:

'`--article`'
: Process the input file as an article. This is the default.

'`--home`'
: Process the input article as a homepage. Specify this when you want to create a '`.proto`' file for a homepage.

'`-i`'
'`--input=file`'
: Input file, which can be a common article (essay) or a homepage.

'`-g`'
'`--generic=file`'
: Common notes for a translation team; this is the '`generic.lang.html`' file. See Section 2.3.5 [generic.LANG.html], page 15.

'`-o`'
'`--output=file`'
: The file where to write the output of the script.

'`-t`'
'`--translinks=file`'
: The file containing the translation links. This makes sense only for articles, since the homepage has its own '`translations.include`' which gets included via an SSI directive.

'`--version`'
: Print copyright and version information on the standard output.

'`--help`'
: Print usage information on stdout.

3.1.2 The `validate-html` Script

This is a Bash script whose purpose is to "validate" both the original and translated articles to make sure that they conform to the respective W3C standard. Sometimes webmasters make mistakes, and translators too, so this tool is useful to catch errors of that kind.

GNUN enforces XHTML validation at build time if invoked with `VALIDATE=yes`.

The script expects only one *file* as an argument and will exit with an error if it is not specified (which might be the case when an automatic variable is not expanded properly due to a bug in the makefile).

3.1.3 The `mailfail` Script

This is a helper script that runs a command, and mails the output of that command in case it exits with a non-zero exit status. `mailfail` depends on GNU Mailutils, or a compatible implementation, such as BSD's mailx.

Usage:

```
mailfail [--dry-run] RCPT SUBJECT CMD [ARG ...]
```

The `mailfail` script accepts the following options:

'`--dry-run`'
: Does not send the email message.

'`RCPT`'
: The recipient of the message in a valid format, like `someone@somehost.org`.

'`SUBJECT`'
: The subject of the message; if it is longer than a word you should guard it with quotes.

'`CMD`'
: The command you want to run and send a mail in case it fails.

'`ARG...`'
: The arguments of `CMD`, if any.

Here is a typical example, similar to the way it is used in GNUN:

```
mailfail translators@example.org "Bad PO" msgfmt -cv -o /dev/null bg.po
```

This will check the validity of '`bg.po`' with the `msgfmt` program and in case there are errors, a message will be sent to the specified address with 'Bad PO' as subject and the error output from `msgfmt` as body.

`mailfail` inherits the exit status of the command being run. If an argument is missing, the usage information is printed to the standard output and the exit code is 1.

3.1.4 The `validate-html-notify` Script

This script is a wrapper around `validate-html` (see Section 3.1.2 [validate-html], page 21); it is necessary because it is hard to capture the output of the program from a program that itself captures the output of another program that it runs.

Usage:

```
validate-html-notify [--dry-run] RCPT FILE
```

'`--dry-run`'
: Does not actually send the message, just like `mailfail`.

'`RCPT`'
: The recipient of the message.

'`FILE`'
: The HTML file that has to be validated for compliance with the W3C standard.

The subject of the message is hardcoded in the script, since this wrapper has a specific task and cannot be used to invoke an arbitrary command—use `mailfail` for that. See Section 3.1.3 [mailfail], page 21.

3.2 How The Recipes Work

Read the source code, then please tell us :-)

4 Reporting Bugs

GNUnited Nations, like any other software, is not bug free. There are some known bugs and annoyances, which are listed in the 'TODO' file, but it is absolutely certain that there are more which we know nothing about.

If you encounter a bug, or if you have suggestions of any kind, please do not hesitate to report them at trans-coord-devel@gnu.org or https://savannah.gnu.org/bugs/?func=additem&group=trans-coord, category -- GNUnited Nations --.

Appendix A GNU Free Documentation License

Version 1.2, November 2002

0. PREAMBLE

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