

# GNU GLOBAL Source Code Tag System

---

Edition 4.8.6, for GNU GLOBAL version 4.8.6  
12 May 2005

by Tama Communications Corporation

---

Copyright © 2000, 2001, 2002, 2003, 2004 Tama Communications Corporation

This is the first edition of the GNU GLOBAL documentation,  
and is consistent with 4.8.6.

Published by Tama Communications Corporation  
Tama-shi, Tokyo, Japan.

Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.1 or any later version published by the Free Software Foundation; with no Invariant Sections, with no Front-Cover Texts, and with no Back-Cover Texts. A copy of the license is included in the section entitled "GNU Free Documentation License".

# 1 Overview of the tools

## 1.1 What is this?

GNU GLOBAL is a source code tag system that works the same way across diverse environments. You can locate a specified object in the source files and move there easily. It is useful for hacking a large project containing many subdirectories, many `#ifdef` and many `main()` functions.

It is similar to `ctags` or `etags` but is different from them at the point of independence of any editor.

## 1.2 Concept of project.

GNU GLOBAL can treat a source tree containing subdirectories as a project. It is similar to CVS. You can get the relative path of your object from anywhere in the source tree.

You need not specify where the tag file is. Instead, `global(1)` will locate the tag file by itself. If tag file isn't found in the current directory, `global(1)` search parent directories for tag file.

User's position (current directory) is the first argument for GLOBAL's command.

## 1.3 Features.

GNU GLOBAL has following features:

- support C, C++, Yacc, Java, PHP4 and assembly.
- work the same way across diverse environments. Currently, support followings:
  - Shell command line
  - Bash shell.
  - Vi editor clone (`nvi`, `elvis`, `vim`)
  - Less viewer
  - Emacs editor (`emacs`, `mule`, `xemacs`)
  - Glimmer editor
  - Web browser
- find the locations of a specified object quickly.
- locate not only object definitions but also object references.
- allows duplicate objects.
- locate also path which includes specified pattern.
- search not only in a source tree but also in library paths.
- understand POSIX 1003.2 regular expressions.
- support external search engine (`grep` and `id-utils`).

- generate hypertext of source code.
- tag files are independent of machine architecture.
- plugged-in parser is available to treat new language.
- compact format is available to save disk space.
- support incremental updating of tag files.
- support customizing with gtags.conf.
- generate completion list for completing input method.

## 2 Command line GLOBAL

You can use tag facilities from shell command line. It is a big merit of GLOBAL compared with any other tag system.

### 2.1 Preparation.

First of all, you must execute `gtags(1)`(See See [Section 5.2 \[gtags\], page 37.](#)) at the root of source tree. For example, if you want to browse `vi`'s source code:

```
$ cd /usr/src/usr.bin/vi
$ gtags
```

Gtags traverse subdirectories and makes four databases at the root of the source tree.

```
$ ls G*
GPATH  GRTAGS  GSYMS  GTAGS
```

- 'GTAGS' database of object definitions
- 'GRTAGS' database of object references
- 'GSYMS' database of other symbols
- 'GPATH' database of path names

## 2.2 Basic usage.

Consider the following source tree:

```

ROOT/          <- the root of source tree (GTAGS,GRTAGS,...)
|
|- DIR1/
| |
| |- fileA.c   ..... +-----+
| |               |main(){
| |               |     func1();|
| |               |     func2();|
| |               |}           |
| |               +-----+
| |
| |- fileB.c   ..... +-----+
| |               |func1(){ ... }|
| |               +-----+
|- DIR2/
|
| |- fileC.c   ..... +-----+
| |               |#ifdef X
| |               |func2(){ i++; }|
| |               |#else
| |               |func2(){ i--; }|
| |               |#endif
| |               |func3(){
| |               |     func1();|
| |               |}           |
| |               +-----+

```

- You can get the relative path of your object from anywhere in the source tree. You need not specify where the tag file is. Global will locate the tag file by itself.

```

$ cd ROOT
$ global func1
DIR1/fileB.c          # func1() is defined in fileB.c
$ cd DIR1
$ global func1
fileB.c               # relative path from DIR1
$ cd ../DIR2
$ global func1
../DIR1/fileB.c       # relative path from DIR2

```

- The ‘-r’ option locates object references.

```
$ global -r func2
```

```
../DIR1/fileA.c          # func2() is referred from fileA.c
```

- You can use POSIX regular expressions.

```
$ cd ROOT
$ global 'func[1-3]'
DIR1/fileB.c             # func1, func2 and func3 are matched
DIR2/fileC.c
```

- The '-x' option shows the details. It is similar to the '-x' option in ctags(1).

```
$ global func2
DIR2/fileC.c
$ global -x func2
func2          2 DIR2/fileC.c      func2(){ i++; }
func2          4 DIR2/fileC.c      func2(){ i--; }
```

- The '-a' option produces the absolute path name.

```
$ global -a func1
/home/user/ROOT/DIR1/fileB.c
```

- The -s command locates any symbols which are not defined in 'GTAGS'.

```
$ global -xs X
X              1 DIR2/fileC.c #ifdef X
```

- The -g command locates any patterns including symbols. It is similar to grep(1).

```
$ global -xg '#ifdef'
#ifdef        1 DIR2/fileC.c #ifdef X
```

- The -P command enables you to locate path which includes specified string.

```
$ global -P fileB
DIR1/fileB.c
$ global -P '1/'
DIR1/fileA.c
DIR1/fileB.c
$ global -P '\.c$'
DIR1/fileA.c
DIR1/fileB.c
DIR2/fileC.c
```

- The -f command enables you see the list of objects of specified file.

```
$ global -f DIR2/fileC.c
func2          2 DIR2/fileC.c  func2(){ i++; }
func2          4 DIR2/fileC.c  func2(){ i--; }
func3          6 DIR2/fileC.c  func3(){
```



## 2.3 Applied usage.

You can make multiple tag files. For example, you can execute gtags at ROOT/, version1.0/ and version2.0/.

```

ROOT/                                <- the root of source tree    (GTAGS,...)
|
|- version1.0/                       <- the root of version1.0    (GTAGS,...)
| |
| |- file.c      ..... +-----+
|                  |func1(){ i++; }|
|                  +-----+
|
|- version2.0/                       <- the root of version2.0    (GTAGS,...)
|
| |- file.c      ..... +-----+
|                  |func1(){ i--; }|
|                  +-----+

```

- When you are in the version1.0 directory, global will only locate objects that are in version1.0.

```

$ cd ROOT/version1.0
$ global -x func1
func1          1 file.c          func1(){ i++; }

```

- When you are in the version2.0, global will only locate objects that are in version2.0.

```

$ cd ROOT/version2.0
$ global -x func1
func1          1 file.c          func1(){ i--; }

```

- If you are at ROOT/, or you set the GTAGSROOT environment variable to ROOT, then global will locate objects in both directories.

```

$ cd ROOT
$ global -x func1
func1          1 version1.0/file.c  func1(){ i++; }
func1          1 version2.0/file.c  func1(){ i--; }

```

There is another usage of GTAGSROOT.

- If your source files are on a read-only device, such as CDROM, then you cannot make databases at the root of the source tree. In such cases, please do the following:

```
$ mkdir /var/dbpath
$ cd /cdrom/src                    # the root of source tree
$ gtags /var/dbpath                # make tag file in /var/dbpath
$ export GTAGSROOT='pwd'
$ export GTAGSDBPATH=/var/dbpath
$ global func
```

- If you want all references to an object that is not defined in the source tree to be treated as calls to library functions or system calls, then you can specify library directories with the GTAGSLIBPATH environment variable.

You should execute gtags at each directory of the path. If 'GTAGS' is not found in a directory, global ignores that directory.

```
$ pwd
/develop/src/mh                    # this is the source tree
$ gtags
$ ls G*TAGS
GRTAGS  GTAGS
$ global mhl
uip/mhlsbr.c                       # mhl() is found
$ global strlen                    # strlen() is not found
$ (cd /usr/src/lib; gtags)         # library source
$ (cd /usr/src/sys; gtags)        # kernel source
$ export GTAGSLIBPATH=/usr/src/lib:/usr/src/sys
$ global strlen
../../../../usr/src/lib/libc/string/strlen.c # found in library
$ global access
../../../../usr/src/sys/kern/vfs_syscalls.c  # found in kernel
```

Of course, the user program does not call kernel functions directly, but at least it is useful.

- If you forget a object name, you can use the -c (complete) command.

```
$ global -c kmem                    # maybe k..k.. kmem..
kmem_alloc
kmem_alloc_pageable
kmem_alloc_wait
kmem_free
kmem_free_wakeup
kmem_init
kmem_malloc
kmem_suballoc                      # This is what I need!
$ global kmem_suballoc
../vm/vm_kern.c
```

- You can use the -c command with complete command in shell.

In bash:

```

$ funcs()
> {
>     local cur
>     cur=${COMP_WORDS[COMP_CWORD]}
>     COMPREPLY=(`global -c $cur`)
> }
$ complete -F funcs global
$ global kmem_TABTAB
kmem_alloc          kmem_alloc_wait      kmem_init
kmem_alloc_nofault  kmem_free          kmem_malloc
kmem_alloc_pageable kmem_free_wakeup    kmem_suballoc
$ global kmem_sTAB
$ global kmem_suballoc
../vm/vm_kern.c

```

In tcsh:

```

% set funcs=('global -c')
% complete global 'n*/$funcs/'
% global kmem_TAB
kmem_alloc          kmem_free_wakeup
kmem_alloc_pageable kmem_init
kmem_alloc_wait     kmem_malloc
kmem_free           kmem_suballoc
% global kmem_sTAB
% global kmem_suballoc
../vm/vm_kern.c

```

- You can edit all files that include a specified object by typing one command, for example:

```
$ vi 'global func1'      # edit fileB.c
```

- If you want to browse many files in order, do the following:

```

$ global -xr fork | awk '{printf "view +%s %s\n",$2,$3}'
view +650 ../dev/aic7xxx/aic7xxx_asm.c
view +250 ibcs2/ibcs2_misc.c
view +401 linux/linux_misc.c
view +310 ../kern/init_main.c
view +318 ../kern/init_main.c
view +336 ../kern/init_main.c
view +351 ../kern/init_main.c
$ !! | sh          # from now on, go to next tag with 'ZZ'.

```

## 3 Various applications

### 3.1 Global facility for Bash

Special support for bash is available.

#### 3.1.1 Features.

- Vi-like tag stack is available.
- Emacs-like tag name completion is available.
- Editor or viewer is automatically invoked.
- Tag mark facility is available.
- You can manage directory list by cookie facility.

#### 3.1.2 Preparation.

First, do the preparation of global. (Please see See [Section 2.1 \[Preparation\]](#), page 3.). And you can invoke bash(1) with `—rcfile` option.

```
$ bash --rcfile /usr/local/share/gtags/globash.rc
```

You will see a prompt like this:

```
[/usr/src/sys]/kern _
```

This prompt means that the current directory is `'/usr/src/sys/kern'` and the root of the source tree is `'/usr/src/sys'`. Tag and marker are valid only in a project.

When you get out of the project, globash warns like:

```
[/usr/src/sys] cd ..  
You are going to get out of current project.  
Tag stack and marker will be removed. Sure? ([y]/n)_
```

If you answer `'y'` and *RET* or just *RET* in above example then tag stack and marker will be removed.

If you need help then please type `'ghelp'`.

### 3.1.3 Basic usage.

- Almost `global(1)` (See See [Section 5.1 \[global\], page 33.](#))'s command character is available as a command.

```

[/usr/src/sys] x fork                <- (global -x fork)
> 1 fork                            94 kern/kern_fork.c fork(p, uap)
[/usr/src/sys] r                    <- (global -xr fork)
> 1 fork                            85 alpha/linux/linux_machdep.c
  2 fork                            184 i386/linux/linux_machdep.c
[/usr/src/sys] s lbolt              <- (global -xs lbolt)
> 1 lbolt                          1210 i386/isa/wd_cd.c      tsleep((cad
  2 lbolt                          1211 i386/isa/wd_cd.c      tsleep((cad
  3 lbolt                          709 i386/isa/wfd.c       tsleep ((caddr
...
[/usr/src/sys] g                    <- (global -xg lbolt)
> 1 lbolt                          1210 i386/isa/wd_cd.c      tsleep((cad
...
[/usr/src/sys] P init               <- (global -xP init)
> 1 path      1 dev/hea/eni_init.c
  2 path      1 dev/hfa/fore_init.c
  3 path      1 i386/i386/initcpu.c
  4 path      1 kern/init_main.c
  5 path      1 kern/init_sysent.c
  6 path      1 kern/vfs_init.c
  7 path      1 vm/vm_init.c
[/usr/src/sys] _

```

If no tag name is specified then it is assumed the latest tag name.

- You can select a tag by `show` command.

```

[/usr/src/sys] x main
> 1 main      70 alpha/alpha/gensetdefs.c main(in
  2 main      1500 alpha/alpha/ieee_float.c main(i
  3 main      227 boot/alpha/boot1/boot1.c main()
....
[/usr/src/sys] show 3
(Load editor and show boot/alpha/boot1/boot1.c at line 227.)

```

The default editor is `vi(1)` but you can specify it statically by `EDITOR` environment variable or temporarily by option.

```

[/usr/src/sys] show -e 3
(Preloaded emacs show boot/alpha/boot1/boot1.c at line 227.)
[/usr/src/sys] show -l 3
(Load less and show boot/alpha/boot1/boot1.c at line 227.)
[/usr/src/sys] show -g 3

```

(Preloaded mozilla show boot/alpha/boot1/boot1.c at line 227.)

- You can use vi-like tag stack. You can return previous tag list by pop or *CTL-T* command.

```
[/usr/src/sys] x main
> 1 main          70 alpha/alpha/gensetdefs.c main(in
  2 main          1500 alpha/alpha/ieee_float.c main(i
  3 main          227 boot/alpha/boot1/boot1.c main()
....
[/usr/src/sys] show 3
(Load editor and show boot/alpha/boot1/boot1.c at line 227.)
[/usr/src/sys] x fork      <- push new tag on tag stack.
> 1 fork          94 kern/kern_fork.c fork(p, uap)
[/usr/src/sys] pop        <- pop tag stack.
[/usr/src/sys] show
(Load editor and show boot/alpha/boot1/boot1.c at line 227.)
```

### 3.1.4 Applied usage.

- You can memory tags using 'mark' command.

```
[/usr/src/sys] x fork
> 1 fork          94 kern/kern_fork.c fork(p, uap)
[/usr/src/sys] mark
[/usr/src/sys] x main
> 1 main          70 alpha/alpha/gensetdefs.c main(in
  2 main          1500 alpha/alpha/ieee_float.c main(i
  3 main          227 boot/alpha/boot1/boot1.c main()
....
[/usr/src/sys] mark -l      <- show marker list.
  1 fork          94 kern/kern_fork.c fork(p, uap)
[/usr/src/sys] mark 1      <- select a marker.
(Load editor and show kern/kern_fork.c at line 227.)
[/usr/src/sys] list
> 1 main          70 alpha/alpha/gensetdefs.c main(in
  2 main          1500 alpha/alpha/ieee_float.c main(i
  3 main          227 boot/alpha/boot1/boot1.c main()
....
```

Marked tags are valid until you get out of current project or quit current bash session.

- You can memory directories using 'cookie' command.

```
[/usr/src/sys] cookie      <- drop cookie.
[/usr/src/sys] cd kern
[/usr/src/sys]/kern cookie <- drop cookie again.
[/usr/src/sys]/kern cd ../i386
```

```

[/usr/src/sys]/i386 cookie -l      <- show cookie list.
    1 /usr/src/sys/kern
    2 /usr/src/sys
[/usr/src/sys]/i386 warp 2         <- warp to selected cookie.
[/usr/src/sys] _

```

Cookie directories are valid until you delete them.

## 3.2 Less using GLOBAL.

You can use GLOBAL as a tag system of less instead of ctags.

### 3.2.1 Features.

- You can use most of GLOBAL's facilities from less-370 or the later.
- Less viewer support duplicated tag.

### 3.2.2 Preparation.

First, do the preparation of global. (Please see See [Section 2.1 \[Preparation\], page 3.](#)).

Second, to use global from less, you need to set environment variable LESSGLOBALTAGS to "global".

```
$ export LESSGLOBALTAGS=global
```

### 3.2.3 Basic usage.

- To go to func1, you can say

```
$ less -t func1
```

Please note that if 'tags' exist then less use it. If you want to use 'GTAGS' even if 'tags' exist then please specify tag file explicitly like this.

```
$ less -TGTAGS -t func1
```

- To go to the referenced point of func1, please specify 'GRTAGS'.

```
$ less -TGRTAGS -t func1
```

In the same way, you can use 'GTAGS', 'GRTAGS', 'GSYMS', 'GPATh' as tag file.

- If a number of objects are located, less goes to the first tag. You can go to next tag by typing `t` and back by typing `T`.  
`t`            go to next tag.  
`T`            go to previous tag.
- From less session, you can use `:t` command to locate new symbol. But in this case, you cannot change tag file from one specified by `-T` option.

### 3.2.4 Applied usage.

- With `-T-` option, less read standard input as tag file. It is very valuable. You can connect global and less with pipe line.

```
$ global -x func | less -T-
```

In the same way, you can use following command lines.

```
# pattern match with grep(1).
$ global -xg 'lseek(*)' | less -T-

# pattern match with id-utils(1).
$ global -xI func | less -T-

# all objects definitions in *.c.
$ global -f *.c | less -T-

# all files includes 'init' in its path.
$ global -Px init | less -T-
```

- If your editor doesn't support GLOBAL directly then you can use less as a footstool.

```
# invoke less
$ less -t main
main(int argc, char **argv)
{
  int i;
  .....
[xxx/main.c (tag 1 of 55)]

# type 'v'(vi) command in less session.
v

# load vi and show the same position.
.....
main((int argc, char **argv)
{
  int i;
  .....
[xxx/main.c 313 lines, 7783 char]
```



```
# type 'ZZ' command in vi session.
ZZ

# exit vi and back to less session.
main(int argc, char **argv)
{
    int i;
    .....
    [xxx/main.c (tag 1 of 55)]
```

### 3.3 Extended nvi-1.79 using GLOBAL.

You can use GLOBAL as a tag system of Nvi editor instead of ctags.

#### 3.3.1 Features.

- You can use most of GLOBAL's facilities from the editor.
- Recognition of the current token and its type.
- Extended nvi is completely backward-compatible with the original nvi. You can use GLOBAL's facilities only in 'gtags mode'.

#### 3.3.2 Preparation.

First, do the preparation of global. (Please see See [Section 2.1 \[Preparation\]](#), page 3.).

Second, to use global from nvi, you need to get into *gtagsmode*. There are several ways to do this:

1. Start nvi with '-G' option

```
$ nvi -G file.c
```

2. Start nvi and execute `set gtagsmode`.

```
$ nvi file.c
~
~
~
:set gtagsmode
```

3. Write the above set command to the '.exrc' or '.nexrc' and start nvi

```
$HOME/.exrc
+-----
```

```
|set gtagsmode
```

You must start nvi under the source tree described in See [Section 2.1 \[Preparation\]](#), [page 3](#).

### 3.3.3 Basic usage.

- To go to func1, you can say

```
:tag func1
```

It seems the same as original nvi, but extended nvi use 'GTAGS' instead of 'tags'.

- To go to the referenced point of func1, add the option `-r`

```
:tag -r func1
```

Extended nvi use 'GRTAGS'.

- If a number of objects are located, extended nvi goes to the first tag. You can go to next tag by typing `:tagnext` and back by typing `:tagprev`.

```
Suggested .nexrc:
set gtagsmode
map ^N :tagnext^M
map ^P :tagprev^M
```

- `CTL-]` command is available. In gtags mode, if current token is not a function then it is equivalent to `:tag -s current token`. Otherwise, if you are in the first column of a line, it is equivalent to `:tag -r current token` else it is equivalent to `:tag current token`.
- You can use the `-s` option. It locates any symbols which are not defined in 'GTAGS'.

```
:tag -s pat
```

Extended nvi use 'GSYMS'.

- The `-g`, `-f` and `-P` option are also available. It works like command line. Extended nvi use no index file.

```
:tag -g pat
```

- Other tag commands are also available:

```
CTL-T      Return to the most recent tag context.
:tagpop    Go to the specified tag in the tags stack.
:tagtop    Go to the top tag in the tags stack.
```

```
:display tags
```

Display the tags stack.

### 3.3.4 Applied usage.

- In large projects that include many `main()` function like MH, you can start `nvi` like this:

```
$ nvi -G -t main
```

You can browse all commands sequentially.

- When you want to check objects the name of which start with "set" or "get", use:

```
$ nvi -G -t '^[sg]et'
```

Of course, the following command is also available:

```
:tag ^[sg]et
```

- If your source files are on a read only device like a CD-ROM, please do the following:

```
$ mkdir /var/dbpath           # directory for the tag file
$ cd /cdrom/src               # the root of the source tree
$ gtags /var/dbpath           # make tag files in /var/dbpath
$ export GTAGSROOT='pwd'
$ export GTAGSDBPATH=/var/dbpath
$ nvi -G -t main
```

- If you want all references to an object that is not defined in the source tree to be treated as references to library functions or as system calls, do the following:

```
$ cd /usr/src/lib
$ gtags                        # probably as a root
$ cd /usr/src/sys
$ gtags
$ export GTAGSLIBPATH=/usr/src/lib:/usr/src/sys
```

- If you examine `vi`'s source,

```
$ cd /usr/src/usr.bin/vi
$ gtags
$ nvi -G -t main
```

You can start from `nvi` and browse the whole unix world as if you were using hypertext.

## 3.4 nvi-1.81.5 using GLOBAL.

You can use GLOBAL as a tag system of Nvi editor instead of ctags.

### 3.4.1 Features.

- You can use most of GLOBAL's facilities from the editor.
- Recognition of the current token and its type.

### 3.4.2 Preparation.

First, do the preparation of global. (Please see See [Section 2.1 \[Preparation\]](#), page 3.).

Second, to use global from nvi, you need write to `$.nexrc` like this: It assumed that `gtags.pl` is put on `$.HOME/perl`.

```
$.HOME/$.nexrc
+-----
|perl use lib "$ENV{'HOME'}/perl"
|perl require 'gtags.pl'
|map ^P :tagprev^M
|map ^N :tagnext^M
|map ^] :perl tag^M
|ab gtag perl tag qw(
|ab gta perl tag qw(
|ab gt perl tag qw(
```

You must start nvi under the source tree described in See [Section 2.1 \[Preparation\]](#), page 3.

### 3.4.3 Basic usage.

- To go to func1, you can say

```
:perl tag qw(func1)
```

```
Suggested $.nexrc:
ab gtag perl tag qw(
ab gta perl tag qw(
ab gt perl tag qw(
```

- To go to the referenced point of func1, add the option `-r`

```
:perl tag qw(-r func1)
```

- If a number of objects are located, nvi goes to the first tag. You can go to next tag by typing `:tagnext` and back by typing `:tagprev`.

```
Suggested .nexrc:
map ^N :tagnext^M
map ^P :tagprev^M
```

- If you don't specify any argument. `:perl tag` command do the followings: If current token is not a function then it is equivalent to `:perl tag qw(-s current token)`. Otherwise, if you are in the first column of a line, it is equivalent to `:perl tag qw(-r current token)` else it is equivalent to `:perl tag qw(current token)`.

```
Suggested .nexrc:
map ^] :perl tag^M
```

It is similar to `CTL-J` command.

- You can use the `-s` option. It locates any symbols which are not defined in 'GTAGS'.

```
:perl tag qw(-s pat)
```

- The `-g`, `-f` and `-P` option are also available. It works like command line.

```
:perl tag qw(-g pat)
```

- When you want to check objects the name of which start with "set" or "get", use:

```
:perl tag qw(^[sg]et)
```

- Other tag commands are also available:

```
CTL-T      Return to the most recent tag context.
:tagpop    Go to the specified tag in the tags stack.
:tagtop    Go to the top tag in the tags stack.
:display tags
           Display the tags stack.
```

## 3.5 Elvis using global

Elvis 2.1 has new `tagprg` and `tagprgonce` variables for running an external tag search program. You can use them with GLOBAL.

### 3.5.1 Features.

- You can use most of GLOBAL's facilities from the editor.

- No source level patch is needed.
- Mouse events are supported.

### 3.5.2 Preparation.

First, do the preparation of global. (Please see See [Section 2.1 \[Preparation\]](#), page 3.).  
Second, start elvis and execute `set tagprg="global -t $1"` like this.

```
$ elvis
~
~
~
~
~
~
~
:set tagprg="global -t $1"
```

### 3.5.3 Basic usage.

- To go to func1, you can say

```
:tag func1
```

It seems the same as original elvis, but elvis execute `global -t func1` internally and read it instead of tags file.

- To go to the referenced point of func1, add ‘-r’ option.

```
:tag -r func1
```

Elvis executes command like `global -t -r func1` internally.

- To go to any symbols which are not defined in ‘GTAGS’, try this.

```
:tag -s lbolt
```

- To go to any strings other than symbols, try this.

```
:tag -g Copyright
```

- When using -r, -s or -g, you had better to use browse command.

```
:browse -r fork
```

It brings a following selection list. You can select tag and go to the point.

```

Browse -r fork (2 matches)
+-----+-----+-----+
| TAG NAME      | SOURCE FILE    | SOURCE LINE
+-----+-----+-----+
|fork           |ux/linux_misc.c | (line 565)
|fork           |ern/init_main.c | (line 191)
+-----+-----+-----+

```

- To get list of objects in a file, use -f command.

```
:browse -f main.c          <- locate definitions in main.c
```

- Other tag commands are also available:

```

CTL-]      go to the definition of current token.
CTL-T      return to the most recent tag context.
:tag       without argument, go to the next tag.
:pop       return to the most recent tag context.
:stack     display the tags stack.
:stag      creates a new window and moves its cursor to the tag's definition point.
:sbrowse   same with 'browse' but show in a new window.

```

### 3.5.4 Applied usage.

- You can use POSIX regular expressions.

```

:tag ^put_          <- locate objects start with 'put_'
:browse -g 'fseek(*L_SET)' <- locate fseek() using L_SET argument

```

- You can browse object list of many files.

```
:browse -f *.c      <- locate objects in *.c
```

- You can browse project files whose path includes specified pattern.

```

:browse -P /vm/      <- under vm/ directory
:browse -P \.h$      <- all include files
:browse -P init       <- path including 'init'

```

- You can use mouse to select tag.

TAG NAME	SOURCE FILE	SOURCE LINE
fork	ux/linux_misc.c	(line 565)
fork	ern/init_main.c	(line 191)

Please select tag name with mouse cursor and double click on the left button and you go to the tag's point. In source screen, also select an object name and double click on the left button and you can go to the point that the object is defined. To come back, double click on the right button.

## 3.6 Vim using global

In vim 6.2 or later, you can use gtags.vim script.

### 3.6.1 Features.

- You can use most of GLOBAL's facilities from the editor.
- Intelligent recognition of the current token and its type.
- Special character '%', '#' and input completion are available.

### 3.6.2 Preparation.

First, do the preparation of global. (Please see See [Section 2.1 \[Preparation\], page 3.](#)). Second, copy 'gtags.vim' to your plugin directory or source it from your vimrc.

```
$ cp /usr/local/share/gtags/gtags.vim $HOME/.vim/plugin
```

### 3.6.3 Basic usage.

- To go to main, you can say

```
:Gtags main
```

Vim execute `global -t main`, parse the output, list located objects in quickfix window and load the first entry. The quickfix windows is like this:

```
gctags/gctags.c|119| main
global/global.c|154| main
```



```
gozilla/gozilla.c|156| main
gtags/gtags.c|199| main
libglibc/getopt.c|701| main
libglibc/getopt1.c|93| main
[Error List]
```

You can go to any entry using quickfix command.

```
:cn      go to the next entry.
:cp      go to the previous entry.
:ccN     go to the N'th entry.
:cl      list all entries.
```

You can see the help of quickfix like this:

```
:h quickfix
```

- To go to the referenced point of func1, add '-r' option.

```
:Gtags -r func1
```

vim executes command like `global -t -r func1` internally.

- To go to any symbols which are not defined in 'GTAGS', try this.

```
:Gtags -s lbolt
```

- To go to any strings other than symbols, try this.

```
:Gtags -g Copyright
```

- To get list of objects in a file, use -f command.

```
:Gtags -f main.c          <- locate objects in main.c
```

If you are editing 'main.c' itself, you can use '%' instead.

```
:Gtags -f %              <- locate objects in main.c
```

### 3.6.4 Applied usage.

- You can use POSIX regular expressions.

```
:Gtags ^put_             <- locate objects start with 'put_'
```

```
:Gtags -g fseek(. *SEEK_SET) <- locate fseek() using SEEK_SET
```

- Input completion is available.

```
:Gtags fuTAB
```

```
:Gtags func1 <- 'nc1' is appended by vim
```

- You can browse project files whose path includes specified pattern.

```
:Gtags -P /vm/          <- under vm/ directory
:Gtags -P \.h$          <- all include files
:Gtags -P init          <- path including 'init'
```

- You can use all options of `global(1)` except for the `-c`, `-p`, `-u` and all long name options. They are sent to `global(1)` as is. For example,

```
:Gtags -gi paTtern      <- match to both 'PATTERN' and 'pattern'.
```

About the other options, See [Section 5.1 \[global\], page 33](#).

- The `GtagsCursor` command brings you to the definition or reference of the current token in C language. The `GtagsCursor` is not perfect though is considerably wise. If current token is not a function then it is equivalent to `:Gtags -s current token`. Otherwise, if you are in the first column of a line, it is equivalent to `:Gtags -r current token` else it is equivalent to `:Gtags current token`.

```
:GtagsCursor
```

Suggested map:

```
map <C-]> :GtagsCursor<CR>
```

- If you have the hypertext generated by `htags(1)` then you can display the same place on mozilla browser. Let's load mozilla and try this:

```
:Gozilla
```

Suggested map:

```
map <C-g> :Gozilla<CR>
```

- If you want to load vim with all `main()`s then following command line is useful.

```
$ vim '+Gtags main'
```

### 3.7 Extended emacs using global

You can use GLOBAL as a tag system of Emacs editor instead of `etags`.

### 3.7.1 Features.

- You can use most of GLOBAL's facilities from the editor.
- More intelligent recognition of the current token and its type.
- Tag completion is available for input tag name.
- Mouse events are supported.

### 3.7.2 Preparation.

First, do the preparation of global. (Please see See [Section 2.1 \[Preparation\], page 3.](#)).

Second, to use global from emacs, you need to load the 'gtags.el' and execute gtags-mode function in it.

1. Write the autoload function to the '\$HOME/.emacs', start emacs and execute the gtags-mode function. If you don't put 'gtags.el' in standard macro directory, you need to add the directory to load-path.

```
$HOME/.emacs
+-----+
|(setq load-path (cons "/home/owner/global" load-path))|
|(autoload 'gtags-mode "gtags" "" t)|

$ emacs

|
|J_:-----Mule: *scratch*          (Lisp Interaction)--L16--All----
|M-x gtags-mode[RET]
+-----+
```

If you want to get into gtags-mode on c-mode then you can append followings into the '\$HOME/.emacs'.

```
(setq c-mode-hook
      '(lambda ()
          (gtags-mode 1)
      ))
```

2. Specify the root directory of the source tree using gtags-visit-rootdir. If you have tag files in /usr/src/sys then please do like this:

```
Visit root directory: /usr/src/sys
```

### 3.7.3 Basic usage.

- To go to `func1`, invoke `gtags-find-tag` and you can see a prompt in mini-buffer. Then input the tag name.

```
Find tag: func1 <- 'Find tag: ' is a prompt
```

- To go to a point that references `func1`, invoke `gtags-find-rtag`.

```
Find tag (reference): func1
```

- Tag name completion is available. You need to execute `gtags-make-complete-list` command before it.

```
Find tag: fuTAB
```

```
Find tag: func1 <- 'nc1' is appended by emacs
```

- If a number of objects are located, emacs goes into *GTAGS SELECT MODE* like this:

```
+-----+
|main          347 i386/isa/ultra14f.c main()
|main          128 kern/init_main.c  main(framep)
|main          104 netiso/clnp_debug.c main()
|main          164 netiso/xebec/main.c main(argc, argv)
|
|
|
|
|J_:--%*-Mule: *scratch*      (Gtags Select)--L1--All----
|[GTAGS SELECT MODE] 4 lines
+-----+
```

You can select a tag line by using any emacs command and pressing *RET*, and you can go to the tag's point. When you want to go to the next or the previous tag, you can return to 'GTAGS SELECT MODE' with `gtags-pop-stack` and reselect.

- `gtags-find-tag-from-here` command is available.  
If current token is a definition, it is equivalent to *Find tag (reference): current tokenRET*, otherwise it is equivalent to *Find tag: current tokenRET*. (GLOBAL decides this intelligently, but may sometimes misunderstand.)
- To go to any symbols which are not defined in 'GTAGS', try `gtags-find-symbol`.

```
Find symbol: lbolt <- 'Find symbol:' is a prompt
```

- To go to any strings other than symbols, try `gtags-find-with-grep`.

Find pattern: Copyright

### 3.7.4 Applied usage.

- You can use POSIX regular expressions.

Find tag: `^put_`                      <- locate tags start with 'put\_'

- If your source files are on a read-only device like a CDROM, please do the following:

```
$ mkdir /var/dbpath           # directory for the tag file
$ cd /cdrom/src               # the root of the source tree
$ gtags /var/dbpath           # make tag files in /var/dbpath
$ export GTAGSROOT='pwd'
$ export GTAGSDBPATH=/var/dbpath
$ emacs -f gtags-mode
```

- If you want all references to an object that is not defined in the source tree to be treated as references to library functions or as system calls, do the following:

```
$ cd /usr/src/lib
$ gtags                       <- probably as a root
$ cd /usr/src/sys
$ gtags
$ export GTAGSLIBPATH=/usr/src/lib:/usr/src/sys
$ emacs -f gtags-mode
```

- Mouse command is available.

If you use X version emacs, try the following

Move the mouse cursor to an object name and click the middle button. You will then go to the object's definition, or to its references, depending on the context. In 'GTAGS SELECT MODE', move the mouse cursor to a line and click the center button.

To return to the previous position, click the right button.

## 3.8 Hypertext generator

You can use GLOBAL's facilities from WWW browser.

### 3.8.1 Features.

- Htags makes hypertext from C, C++, Yacc and Java source files.
- Once the hypertext is generated, you need nothing other than a WWW browser.

- You can move the hypertext to anywhere. It is independent of the source code.
- You can use all of your browser's functions, such as search, history, bookmark, save, frames, windows.

### 3.8.2 Preparation.

At first, you must ensure that you have a lot of disk space. Hypertext needs a great amount of disk space. For example, the source code of FreeBSD kernel needs:

source code(/usr/src/sys)	14.0MB
GTAGS	1.5MB
GRTAGS	8.0MB
GSYMS	12.0MB
HTML/	55MB(!!!)
-----	
total	77MB

Please invoke `gtags(1)`(See See [Section 5.2 \[gtags\], page 37.](#)) and `htags(1)`(See See [Section 5.3 \[htags\], page 40.](#)) in order like this:

```
(at your source directory)
$ gtags          # make the tag database(GTAGS,GRTAGS,GSYMS)
$ htags          # make the hypertext(HTML/)
```

Then you will find an 'HTML' subdirectory in the current directory.

### 3.8.3 Usage.

Please start a web browser like this:

```
$ lynx HTML/index.html
```

You will understand the usage by looking at the examples.

You can move the HTML directory to anywhere. It is independent of the source code.

Using mozilla, you can also utilize hypertext from your command line like this:

```
$ mozilla # load mozilla
$ global -x main
main      10 main.c main(int argc, char *argv[]) {
$ gozilla +10 main.c # usage is similar to vi editor.
(show main.c at 10 on mozilla's screen.)
```

But in this case, you must not move HTML directory from the source directory.

## 4 Other topics

### 4.1 How to config GLOBAL.

You can customize GLOBAL using configuration file.

```
# cp gtags.conf /etc/gtags.conf          # system wide configuration file.
# vi /etc/gtags.conf

$ cp gtags.conf $HOME/.globalrc          # personal configuration file.
$ vi $HOME/.globalrc
```

If '\$HOME/.globalrc' exists then GLOBAL use it. Else if '/etc/gtags.conf' exists then GLOBAL use it. Otherwise default value will be used. The format of 'gtags.conf' is resemble to termcap(5). By default, 'default' target is used. About the capabilities, please see each command manual. (See See [Chapter 5 \[Reference\]](#), page 33.)

### 4.2 How to plug in a parser.

You can write new parser and use as a plugged-in parser.

Copy 'gtags.conf' to '/etc/gtags.conf' or '\$HOME/.globalrc'.

For example, if you would like to use ctags based on etags (included by Emacs),

```
$ cd /emacs source directory/lib-src
$ make ctags
# cp ctags /usr/local/bin/ctags-emacs
$ export GTAGSLABEL=ctags-emacs          # see gtags.conf
$ gtags
$ ls G*
GPATH  GTAGS
```

Or if you would like to use exuberant ctags (included by Vim editor),

```
$ cd /vim source directory/src/ctags
$ cp Makefile.unix Makefile
$ make
# cp ctags /usr/local/bin/ctags-exuberant
$ export GTAGSLABEL=ctags-exuberant      # see gtags.conf
$ gtags
$ ls G*
GPATH  GTAGS
```

‘GRTAGS’ and ‘GSYMS’ don’t exist, simply because these parsers don’t support the ‘-r’ option and ‘-s’ option like gtags-parser(1) does. All plugged-in parsers must print tag information to standard output in the same style as `ctags -x`, ie.:

```

[1]      [2] [3]          [4]
-----
main      20 ./main.c      main(argc, argv)      /* xxx */

[1] tag name
[2] line number the tag appeared
[3] path name. It must be equal to argument path name.
[4] line image
```

Otherwise, you can make a suitable wrapper for the plug-in parser.



### 4.3 Compact format.

You can save disk space with the compact format.

- To specify the use of the compact format on the command line, add the ‘-c’ option:

```
$ gtags -c
```

- To specify the use of the compact format in the configuration file:

```
+-----
|...
|default:\
|         format=compact:...

```

- If you will publish hypertext generated by htags then use the ‘-c’ option of htags too:

```
$ htags -c
```

With the ‘-c’ option, htags makes gzipped hypertext. You need to set up an HTTP server so that gzipped files can be read (see ‘HTML/.htaccess’).

Example:

	Standard	Compact	Compressed rate
-----			
GTags	1744896 bytes	720896 bytes	-59%
GRTags	10133504 bytes	1409024 bytes	-86%
GSYMS	11911168 bytes	9306112 bytes	-22%
-----			
	Standard	Compact	Compressed rate
-----			
HTML/	56618 kbytes	15219 kbytes	-73%

## 4.4 Incremental updating.

Modifying some source files, you need not remake whole tag files. Instead, you can use incremental updating facility ('-u' option).

```
$ gtags
$ cd kern
$ vi tty.c                                # modify tty.c
...
:wq
$ global -vu                              # -v means verbose
[Sun Dec  6 16:27:47 JST 1998] Gtags started
Tag found in '/usr/src/sys'.
Incremental update.
Updating tags of 'kern/tty.c' ...GTAGS..GRTAGS..GSYMS.. Done.
Global databases have been modified.
[Sun Dec  6 16:28:30 JST 1998] Done.
$ global -vu                              # try again
[Sun Dec  6 16:28:48 JST 1998] Gtags started
Tag found in '/usr/src/sys'.
Incremental update.
Global databases are up to date.          # do nothing
[Sun Dec  6 16:28:52 JST 1998] Done.
```

## 5 Reference manual

### 5.1 global - print the locations of specified object.

#### NAME

global - print the locations of specified object.

#### SYNOPSIS

```
global [-aGlnqrstTvx][-e] pattern
global -c[qsv] prefix
global -f[anqrstvx] files
global -g[aGlnqstvx][-e] pattern
global -I[ailnqstvx][-e] pattern
global -p[qrv]
global -P[aGlnqstvx][-e] pattern
global -u[qv]
```

#### DESCRIPTION

Global find the locations of specified object in C, C++, Yacc, Java, PHP and Assembly source files. Global can treat a source tree, that is, a directory that has subdirectories and source files. You can get the relative path of objects from anywhere within the tree. Global can locate not only function definitions but also function references and other symbols. Duplicate entries are allowed.

In advance of using this command, you must execute gtags(1) at the root directory of the source tree to make tag files. Then you can execute at anywhere in the source tree.

#### COMMANDS

The following commands are available:

**pattern**      Print object which match to the pattern. Extended regular expressions which are the same as those accepted by egrep(1) are available.

**‘-c’, ‘--completion’ [prefix]**

Print candidate function names which start with specified prefix. Prefix is not specified, print all function names.

**‘-f’, ‘--file’ files**

Print all function definitions in the files. This option implies -x option.

**‘-g’, ‘--grep’**

Print all lines which match to the pattern.

‘-I’, ‘--idutils’

Print all lines which match to the pattern. This function use id-utils(1) as a search engine. To use this command, you need to install id-utils(1) in your system and you must execute gtags(1) with ‘-I’ option.

‘-p’, ‘--print-dbpath’

Print the location of ‘GTAGS’.

‘-P’, ‘--path’ [pattern]

Print the path which match to the pattern. If no pattern specified, print all.

‘-u’, ‘--update’

Locate tag files and update them incrementally.

‘--version’

Show version number.

‘--help’ Show help.

## OPTIONS

The following options are available:

‘-a’, ‘--absolute’

Print absolute path name. By default, print relative path name.

‘-e’, ‘--regexp’ pattern

Use pattern as the pattern; useful to protect patterns beginning with -.

‘-G’, ‘--basic-regexp’

Interpret pattern as a basic regular expression. The default is extended regular expression. This option is valid for the ‘-g’ and ‘-P’ command.

‘-i’, ‘--ignore-case’

ignore case distinctions in pattern.

‘-l’, ‘--local’

Print just objects which exist under the current directory.

‘-n’, ‘--nofilter’

Suppress sort filter and path conversion filter.

‘-o’, ‘--other’

Search pattern in not only source files but also other files like ‘README’. This option is valid only with ‘-g’ or ‘-P’ command.

‘-q’, ‘--quiet’

Quiet mode.

‘-r’, ‘--reference’, ‘--rootdir’

Print the locations of object references. By default, print object definitions. With the ‘-p’ option, print the root directory of source tree.

‘-s’, ‘--symbol’

Print the locations of specified symbol other than function names. You need ‘GSYMS’ tags file. See gtags(1).

‘-t’, ‘--tags’

Print with standard ctags format.

‘-T’, ‘--through’

Go through all the tag files listed in *GTAGSLIBPATH*. By default, stop searching when tag is found. This option is ignored when either ‘-s’, ‘-r’ or ‘-l’ option is specified.

‘-v’, ‘--verbose’

Verbose mode.

‘-x’, ‘--cxref’

In addition to the default output, produce the line number and the line contents.

## EXAMPLES

```
$ ls -F
Makefile      src/      lib/
$ gtags
$ global main
src/main.c
$ global -x main
main          10 src/main.c  main (argc, argv) {
$ global -x '[sg]et'
set_num       20 lib/util.c  set_num(values)
get_num       30 lib/util.c  get_num() {
$ global -rx '[sg]et'
set_num       113 src/op.c    set_num(32);
set_num       225 src/opop.c  if (set_num(0) > 0) {
get_num       90 src/op.c    while (get_num() > 0) {
$ cd lib
$ global -rx '[sg]et'
set_num       113 ../src/op.c  set_num(32);
set_num       225 ../src/opop.c if (set_num(0) > 0) {
get_num       90 ../src/op.c  while (get_num() > 0) {
$ global strlen
$ (cd /usr/src/sys; gtags)
$ export GTAGSLIBPATH=/usr/src/sys
$ global strlen
../../../../usr/src/sys/libkern/strlen.c
$ (cd /usr/src/lib; gtags)
$ GTAGSLIBPATH=/usr/src/lib:/usr/src/sys
$ global strlen
../../../../usr/src/lib/libc/string/strlen.c
```

## FILES

‘GTAGS’ Tag file for function definitions.

‘GRTAGS’ Tag file for function references.

‘GSYMS’ Tag file for other symbols.

**‘GPATH’** Tag file for path of source files.

**‘GTAGSROOT’**  
If environment variable *GTAGSROOT* is not set and **‘GTAGSROOT’** exist in the same directory with **‘GTAGS’** then use the value as *GTAGSROOT*.

**‘/etc/gtags.conf’, ‘\$HOME/.globalrc’**  
Configuration file.

## ENVIRONMENT

The following environment variables affect the execution of global:

*GTAGSROOT*

The directory which is the root of source tree.

*GTAGSDBPATH*

The directory on which gtags database exist. This value is ignored when *GTAGSROOT* is not defined.

*GTAGSLIBPATH*

If this variable is set, it is used as the path to search for library functions. If the specified function is not found in a source tree, global also search in these paths.

*GTAGSLABEL*

If this variable is set, its value is used as the label of configuration file. The default is **default**.

## CONFIGURATION

The following configuration variables affect the execution of global:

**icase\_path**(boolean)

Ignore case distinctions in the pattern.

## DIAGNOSTICS

Global exits with a non 0 value if an error occurred, 0 otherwise.

## SEE ALSO

gtags-parser(1), gtags(1), htags(1), less(1).

GNU GLOBAL source code tag system  
(<http://www.gnu.org/software/global/>).

## AUTHOR

Tama Communications Corporation.

## HISTORY

The global command appeared in FreeBSD 2.2.2.

## 5.2 gtags - create tag files for global.

### NAME

gtags - create tag files for global.

### SYNOPSIS

```
gtags [-c][-i][-I][-o][-P][-q][-v][-w][dbpath]
```

### DESCRIPTION

Gtags recursively collect the source files under the current directory, pickup symbols and write the cross-reference data into tag files ('GTAGS', 'GRTAGS', 'GSYMS' and 'GPATH'). You should execute this command at the root of the source tree.

C, C++, yacc, java, PHP and Assembly source files are supported. Files whose names end in '.c' or '.h' are assumed to be C source files and are searched for C style routine and macro definitions. Files whose names end in '.c++' '.cc' '.cpp' '.cxx' '.hxx' '.hpp' '.C' '.H' are assumed to be C++ source files. Files whose names end in '.y' are assumed to be YACC source files. Files whose names end in '.java' are assumed to be Java source files. Files whose names end in '.php' '.php3' '.phtml' are assumed to be PHP source files. Files whose names end in '.s' or '.S' are assumed to be Assembler source files. Other files are searched for C style definitions.

### OPTIONS

The following options are available:

'-c', '--compact'

Make tag files with compact format.

'--config' name

Show the value of config variable name. If name is not specified then show whole of config entry.

'--gtagsconf' file

Load user's configuration from file.

'--gtagslabel' label

label is used as the label of configuration file. The default is **default**.

'-i', '--incremental'

Update tag files incrementally. You had better use global(1) with the -u option.

'-I', '--idutils'

Make index files for id-utils(1).

'--info' info

Pass info string to external system. Currently you can use it with -P option.

- ‘-o’, ‘--omit-gsyms’  
 Suppress making ‘GSYMS’ file. Use this option if you don’t use -s option of global(1).
- ‘-q’, ‘--quiet’  
 Quiet mode.
- ‘-v’, ‘--verbose’  
 Verbose mode.
- ‘-w’, ‘--warning’  
 Print warning messages.
- dbpath      The directory in which tag files are generated. The default is the current directory. It is useful when your source directory is on a read only device like CDROM.

## EXAMPLES

```
$ ls -F
Makefile      src/      lib/
$ gtags -v
$ global -x main
main          10 src/main.c  main (argc, argv) {
```

## FILES

- ‘GTAGS’      Tag file for function definitions.
- ‘GRTAGS’    Tag file for function references.
- ‘GSYMS’      Tag file for other symbols.
- ‘GPATH’      Tag file for path of source files.
- ‘/etc/gtags.conf’, ‘\$HOME/.globalrc’  
 Configuration file.

## ENVIRONMENT

The following environment variables affect the execution of gtags:

### *GTAGSCONF*

If this variable is set, its value is used as the configuration file. The default is ‘\$HOME/.globalrc’.

### *GTAGSLABEL*

If this variable is set, its value is used as the label of configuration file. The default is **default**.

### *GTAGSCACHE*

If this variable is set, its value is used as the size of btree cache. The default is 500000 (bytes).



## CONFIGURATION

The following configuration variables affect the execution of gtags. You can see the default value for each variable with the ‘`--config`’ option.

**GTags**(string)

If this variable is set, its value is used as the command line of parser for GTags. The default is ‘`gtags-parser -dt %s`’.

**GRTags**(string)

If this variable is set, its value is used as the command line of parser for GRTags. The default is ‘`gtags-parser -dtr %s`’.

**GSYMS**(string)

If this variable is set, its value is used as the command line of parser for GSYMS. The default is ‘`gtags-parser -dts %s`’.

**skip**(comma separated list)

Gtags skips files which listed in this list. As a special exception, gtags collect values from multiple **skip** variables. If the value ends with ‘/’, it assumed as a directory and gtags skips all files under it. If the value start with ‘/’, it assumed relative path from the root of source directory.

**suffixes**(comma separated list)

Suffixes of target source file. As a special exception, gtags collect values from multiple **suffixes** variables. This variable is obsoleted. If the langmap variable is defined gtags no longer refers this.

**format**(standard|compact)

Format of tag files. The default is **standard**. Compact format is same to ‘`-c`’(‘`--compact`’).

**icase\_path**(boolean)

Ignore case distinctions in the path. Suffixes check are affected by this capability.

**langmap**(comma separated list)

Language mapping. Each comma-separated map consists of the language name, a colon, and a list of file extensions. Default mapping is ‘`c:.c,h,yacc:.y,asm:.s,S,java:.java,cpp:.c+`’.

## DIAGNOSTICS

Gtags exits with a non 0 value if an error occurred, 0 otherwise.

## MESSAGE FORMAT

Verbose message has important level. The most important level is 0, the second is 1 and so on. All the message has level numbers leading blanks.

## SEE ALSO

gtags-parser(1), global(1), htags(1).

GNU GLOBAL source code tag system  
(<http://www.gnu.org/software/global/>).

## BUG

‘GTAGS’, ‘GRTAGS’ and ‘GSYMS’ are very large. In advance of using this command, check the space of your disk.

Assembler support is far from complete. It extracts only ENTRY() and ALTENTRY() from source file. Probably valid only for FreeBSD and Linux kernel source.

There is no concurrency control about tag files.

Symbols in Assembly source files are not extracted for ‘GSYMS’.

## AUTHOR

Tama Communications Corporation.

## HISTORY

The gtags command appeared in FreeBSD 2.2.2.

## 5.3 htags - generate hypertext from source code.

## NAME

htags - generate hypertext from source code.

## SYNOPSIS

```
htags [-a][-c][-D][-f][-F][-g][-n][-o][-s][-v][-w][-x][-d dbpath][-m name][-S cgidir][-t title][htmldir]
```

## DESCRIPTION

Htags makes hypertext of C, C++, Yacc, Java, PHP and Assembly source code.

In advance of using this command, you must execute gtags(1) from the root directory of the source tree. Then you can execute htags from the same place. Htags makes an directory named ‘HTML’ and generates hypertext in it. You can start browsing from ‘HTML/index.html’.

Since htags generates static hypertext as long as the ‘-D’ or ‘-f’ option is not specified, you can move it anywhere and browse it with any browser without web server.

You must use same parser for both gtags(1) and htags. If you use the default parser, it is not necessary to consider for it.

## OPTIONS

The following options are available:

- '-a', '--alphabet'  
Make an alphabetical function index which is suitable for a large project.
- '--caution'  
Include caution message to prohibit downloading.
- '-c', '--compact'  
Compress html files by gzip(1). You need to set up a web server so that gzip(1) is invoked for each compressed file. See 'HTML/.htaccess' that is generated by htags.
- '--cvsweb' url  
Include cvsweb URL. url is used as base of URL.
- '--cvsweb-cvsroot' cvsroot  
Specifies cvsroot in cvsweb URL.
- '-D', '--dynamic'  
Generate object lists dynamically using CGI program. By default, object lists are generated statically. Though this option decrease both the size and the generation time of the hypertext, you need to set up a web server, and you cannot move the hypertext from the source directroy.
- '-d', '--dbpath' dbpath  
Specifies the directory in which 'GTAGS' and 'GRTAGS' exist. The default is the current directory.
- '-f', '--form'  
Support search form using CGI program. You need to set up a web server, and you cannot move the hypertext from the source directroy.
- '-F', '--frame'  
Use frame for each part of the contents.
- '-g', '--gtags'  
Execute gtags(1) before creating hypertext. The '-v', '-w' and dbpath are passed to gtags.
- '--gtagsconf' file  
Load user's configuration from file.
- '--gtagslabel' label  
label is used for the label of configuration file. The default is **default**.
- '--insert-header' file  
Insert custom header derived from file after <body> tag.
- '--insert-footer' file  
Insert custom footer derived from file before </body> tag.
- '-m', '--main-func' name  
Specify the main function name. The default is **main**.

<code>'-n', '--line-number'</code>	Print line numbers. By default, doesn't print them.
<code>'--no-map-file'</code>	Doesn't generate 'MAP' and 'FILEMAP' file. By default, htags generates them.
<code>'-o', '--other'</code>	Pick up not only source files but also other files except for binary files.
<code>'--statistics'</code>	Print statistics information.
<code>'--style-sheet' file</code>	Load style sheet file and insert it into <head> tag. If you use the <code>'--xhtml'</code> option, you should use <code>'style.css'</code> instead.
<code>'-s', '--symbol'</code>	Make anchors not only for functions but also other symbols. 'GSYMS' tag file needed.
<code>'-S', '--secure-cgi' cgidir</code>	Write CGI programs into the cgidir to realize a centralised CGI program. Script alias is <code>'/cgi-bin'</code> by default. You can overwrite this value using config variable <code>script_alias</code> in <code>'gtags.conf'</code> .
<code>'-t', '--title' title</code>	The title of this hypertext. The default is the last component of the current directory.
<code>'-v', '--verbose'</code>	Verbose mode.
<code>'-w', '--warning'</code>	Print warning messages.
<code>'-x', '--xhtml'</code>	Generate XHTML hypertext instead of HTML. If the <code>'--frame'</code> option is specified then generate XHTML-1.0 Frameset for index.html and generate XHTML-1.0 Transitional for other files, else if config variable <code>xhtml_version</code> is set to 1.1 then generate XHTML-1.1 else XHTML 1.0 Transitional.
<code>htmldir</code>	The directory in which hypertext is generated. The default is the current directory.

## EXAMPLES

```
$ cd /usr/src/sys
# gtags -v
# htags -fFvnt 'Welcom to FreeBSD kernel source tour!'
$ lynx HTML/index.html

$ htags -v --gtags
$ awk '$1 == "main" {print $2}' HTML/MAP
D/348.html
```

```
$ lynx HTML/D/348.html

$ cd global
$ htags -gv --cvsweb=http://savannah.gnu.org/cgi-bin/viewcvs/global/global/■
```

## FILES

‘GTAGS’      Tag file for function definitions.

‘GRTAGS’     Tag file for function references.

‘GSYMS’      Tag file for other symbols.

‘GPATH’      Tag file for path of source files.

‘/etc/gtags.conf’, ‘\$HOME/.globalrc’  
              Configuration file.

‘HTML/index.html’  
              Index file for hypertext.

‘HTML/MAP’  
              Mapping file for converting tag into path of hypertext. External system utilize this file. See EXAMPLES.

‘HTML/FILEMAP’  
              Mapping file for converting file name into path of hypertext. External system utilize this file.

‘HTML/style.css’  
              Style sheet file. This file is generated when the ‘--xhtml’ option is specified.

## ENVIRONMENT

The following environment variables affect the execution of htags:

*TMPPDIR*    If this variable is set, its value is used as the directory to make temporary files. The default is ‘/tmp’.

*GTAGSCONF*  
              If this variable is set, its value is used as the configuration file. The default is ‘\$HOME/.globalrc’.

*GTAGSLABEL*  
              If this variable is set, its value is used as the label of configuration file. The default is **default**.

*GTAGSCACHE*  
              If this variable is set, its value is used as the size of btree cache. The default is 500000 (bytes).

## CONFIGURATION

The following configuration variables affect the execution of htags: If the ‘`--xhtml`’ option is specified then all definitions of HTML tag are ignored. Instead, you can customize the appearance using style sheet file (‘`style.css`’).

`datadir`(string)

Shared data directory. The default is ‘`/usr/local/share`’ but you can change the value using configure script. Htags lookup template files in the ‘`gtags`’ directory in this data directory.

`htags_options`(string)

Default options for htags. This value is inserted into the head of arguments.

`xhtml_version`(1.0|1.1)

XHTML version. 1.0 and 1.1 are acceptable. The default is 1.0.

`body_begin`(string)

Begin tag for body. The default is ‘`<body>`’.

`body_end`(string)

End tag for body. The default is ‘`</body>`’.

`table_begin`(string)

Begin tag for table. The default is ‘`<table>`’.

`table_end`(string)

End tag for table. The default is ‘`</table>`’.

`title_begin`(string)

Begin tag for Title. The default is ‘`<h1><font color=#cc0000>`’.

`title_end`(string)

End tag for Title. The default is ‘`</font></h1>`’.

`comment_begin`(string)

Begin tag for comments. The default is ‘`<i><font color=green>`’.

`comment_end`(string)

End tag for comments. The default is ‘`</font></i>`’.

`dynamic`(bool)

Generate object list dynamically.

`sharp_begin`(string)

Begin tag for ‘define’. The default is ‘`<font color=darkred>`’.

`sharp_end`(string)

End tag for ‘define’. The default is ‘`</font>`’.

`brace_begin`(string)

Begin tag for brace. The default is ‘`<font color=blue>`’.

`brace_end`(string)

End tag for brace. The default is ‘`</font>`’.

`reserved_begin(string)`  
Begin tag for reserved word. The default is '`<b>`'.

`reserved_end(string)`  
End tag for reserved word. The default is '`</b>`'.

`position_begin(string)`  
Begin tag for position mark. The default is '`<font color=gray>`'.

`position_end(string)`  
End tag for position mark. The default is '`</font>`'.

`colorize_warned_line(boolean)`  
Colorize warned line using `warned_line_begin` and `warned_line_end`. The default is false.

`warned_line_begin(string)`  
Begin tag for line which htags warned. The default is '`<span style="background-color:yellow">`'.

`warned_line_end(string)`  
End tag for line which htags warned. The default is '`</span>`'.

`hr(string)` Horizontal rules. The default is '`<hr>`'.

`ncol(number)`  
Columns of line number. The default is 4.

`tabs(number)`  
Tab stop. The default is 8.

`full_path(boolean)`  
List file names with full path in file index. By default, list just the last component of a path.

`table_list(boolean)`  
List tags using table tag. The default is false.

`normal_suffix(string)`  
Suffix for normal html file. The default is '`html`'.

`no_map_file(boolean)`  
Doesn't generate '`MAP`' file. The default is false.

`gzipped_suffix(string)`  
Suffix for compressed html file. The default is '`ghhtml`'.

`script_alias(string)`  
Script alias for safe cgi script ('`-S`').

`show_position(boolean)`  
Show position per function definition. The default is false.

`symbol(boolean)`  
Make anchors not only for functions but also other symbols. '`GSYMS`' tag file needed.

`definition_header(no|before|right|after)`

Position of link header. The default is 'no'.

`other_files(boolean)`

File index includes not only source files but also other files. The default is false.

`enable_grep(boolean)`

Enable grep search using CGI program. The default is false. When this function is enabled, you cannot move hypertext from source directory.

`enable_idutils(boolean)`

Enable id-utils search using CGI program. The default is false. When this function is enabled, you cannot move hypertext from source directory.

`include_file_suffixes(comma separated list)`

Suffixes of include file. The default is 'h,hxx,hpp,H,inc.php'.

`langmap(comma separated list)`

Language mapping. Each comma-separated map consists of the language name, a colon, and a list of file extensions. Default mapping is 'c:.c,h,yacc:.y,asm:.s,S,java:.java,cpp:.c++'.

`copy_files(boolean)`

Copy files instead of linking. When the '-f' option is used, htags make links of tag files in 'cgi-bin' directory by default.

## DIAGNOSTICS

Htags exits with a non 0 value if an error occurred, 0 otherwise.

## MESSAGE FORMAT

Verbose message has important level. The most important level is 0, the second it 1 and so on. All the message has level numbers leading blanks.

## SEE ALSO

gtags-parser(1), global(1), gtags(1).

GNU GLOBAL source code tag system  
(<http://www.gnu.org/software/global/>).

## BUG

Generated hypertext is VERY LARGE. In advance, check the space of your disk.

PHP supprt is far from complete.

## AUTHOR

Tama Communications Corporation.

## HISTORY

The htags command appeared in FreeBSD 2.2.2.



## 5.4 gtags-parser - print cross reference list for gtags.

### NAME

gtags-parser - print cross reference list for gtags.

### SYNOPSIS

gtags-parser [-bdenrstvw] file ...

### DESCRIPTION

Gtags-parser print cross reference list for gtags(1) from the specified C, C++, yacc, java, PHP and Assembly source to standard output. Each line of output contains the object name, the line number which it appears, the file in which it is defined, and a line image separated by white-space. It's same with the output of ctags(1) with '-x' option.

Depending upon the options provided to gtags-parser, objects will consist of function definitions, function references and other symbols.

Files whose names end in '.c' or '.h' are assumed to be C source files and are searched for C style routine and macro definitions. Files whose names end in '.c++' '.cc' '.cpp' '.cxx' '.hxx' '.hpp' '.C' '.H' are assumed to be C++ source files. Files whose names end in '.y' are assumed to be YACC source files. Files whose names end in '.java' are assumed to be Java source files. Files whose names end in '.php' '.php3' '.phtml' are assumed to be PHP source files. Files whose names end in '.s' or '.S' are assumed to be Assembler source files. Other files are searched for C style definitions.

Yacc files each have a special tag. yyparse is the start of the second section of the yacc file.

This command is the default parser of GLOBAL source code tag system.

### OPTIONS

The following options are available:

'-b', '--begin-block'

Force level 1 block to begin when reach a left brace at the first column. (C only)

'-d', '--define'

Pick up not only function but also macro without argument as a definition.

'-e', '--end-block'

Force level 1 block to end when reach a right brace at the first column. (C only)

'-n', '--no-tags'

Suppress output of tags. It is useful to use with '-w' option.

**‘-r’, ‘--reference’**

Locate function references instead of function definitions. ‘GTAGS’ is needed at the current directory. (C, C++ and Java source only) By default, locate function definitions.

**‘-s’, ‘--symbol’**

Collect symbols other than functions. By default, locate function definitions.

**‘-t’, ‘--typedef’**

Pick up not only function but also typedef name and enum member as a definition.

**‘-v’, ‘--verbose’**

Verbose mode.

**‘-w’, ‘--warning’**

Print warning message.

**‘--langmap’=map**

Language mapping. Each comma-separated map consists of the language name, a colon, and a list of file extensions. Default mapping is ‘c:.c.h,yacc:.y,asm:.s,S,java:.java,cpp:.c++’.

The ‘-r’ and ‘-s’ options override each other; the last one specified determines the method used.

## DIAGNOSTICS

Gtags-parser exits with a non 0 value if an error occurred, 0 otherwise. Duplicate objects are not considered errors.

## SEE ALSO

global(1), gtags(1), htags(1).

GNU GLOBAL source code tag system  
(<http://www.gnu.org/software/global/>).

## BUG

Gtags-parser relies on the input being well formed, and any syntactical errors will completely confuse it.

Assembler support is far from complete. Probably valid only for FreeBSD and Linux kernel source.

## AUTHOR

Tama Communications Corporation.

## HISTORY

The gtags-parser(gctags) command appeared in FreeBSD 2.2.2.

## 5.5 gozilla - force mozilla to display specified source file.

### NAME

gozilla - force mozilla to display specified source file.

### SYNOPSIS

```
gozilla [-b browser][-p][+no] file
gozilla [-b browser][-p] -d name
```

### DESCRIPTION

Gozilla force mozilla to display specified source file as a hypertext.

In advance of using this command, [1] you must execute gtags(1) and htags(1) at the root directory of the source tree to make tag files, and [2] execute mozilla in you computer. Then you can execute gozilla at anywhere in the source tree.

First form:

You can specify source file and the line number optionally.

Second form:

You can specify definition name directly. Definition name must exist in 'GTAGS' tag file.

### OPTIONS

The following options are available:

- '+no'           line number. It must be a line on which function definition or function reference is exist. If you execute htags(1) with '-1' option, you can specify any line.
- '-b' browser    browser to use. By default, it is assumed mozilla. If you specify another browser, gozilla waits for exiting of the browser.
- '-p'            just print generated target URL.
- file            path of source file or alias name.
- '-d' name       print function.
- '-q', '--quiet'    Quiet mode.
- '-v', '--verbose'   Verbose mode.
- '--version'        Show version number.
- '--help'          Show help.

## FILES

‘HTML/’      hypertext of source tree.  
 ‘GTAGS/’      tags file for function definitions.  
 ‘\$HOME/.gozillarc’  
               alias file. Please read source code for the detail.

## ENVIRONMENT

### *GTAGSROOT*

The directory which is the root of source tree.

### *GTAGSDBPATH*

The directory on which gtags database exist. This value is ignored when *GTAGSROOT* is not defined.

### *BROWSER*

browser to use. By default, it is assumed mozilla.

## EXAMPLES

```
$ gtags
$ htags
$ mozilla &
$ global -x main
main          82 ctags.c          main(argc, argv)
$ gozilla +82 ctags.c
```

## DIAGNOSTICS

Gozilla exits with a non 0 value if an error occurred, 0 otherwise.

## SEE ALSO

global(1), gtags(1), htags(1), mozilla(1).  
 GNU GLOBAL source code tag system  
 (<http://www.gnu.org/software/global/>).

## NOTES

Gozilla means ‘Global for mozilla’.

## BUGS

Gozilla can treat not only source file but also normal file, directory, HTML file and even URL, because it is omnivorous.

I don’t know whether or not gozilla works well in Windows32 environment.

## **AUTHORS**

Tama Communications Corporation.

## **HISTORY**

The gozilla command appeared in FreeBSD 2.2.2 but did not installed by default.

# GNU Free Documentation License

Version 1.1, March 2000

Copyright (C) 2000 Free Software Foundation, Inc.

59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

## Preamble

The purpose of this License is to make a manual, textbook, or other written document “free” in the sense of freedom: to assure everyone the effective freedom to copy and redistribute it, with or without modifying it, either commercially or noncommercially. Secondly, this License preserves for the author and publisher a way to get credit for their work, while not being considered responsible for modifications made by others.

This License is a kind of “copyleft”, which means that derivative works of the document must themselves be free in the same sense. It complements the GNU General Public License, which is a copyleft license designed for free software.

We have designed this License in order to use it for manuals for free software, because free software needs free documentation: a free program should come with manuals providing the same freedoms that the software does. But this License is not limited to software manuals; it can be used for any textual work, regardless of subject matter or whether it is published as a printed book. We recommend this License principally for works whose purpose is instruction or reference.

## APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work that contains a notice placed by the copyright holder saying it can be distributed under the terms of this License. The “Document”, below, refers to any such manual or work. Any member of the public is a licensee, and is addressed as “you”.

A “Modified Version” of the Document means any work containing the Document or a portion of it, either copied verbatim, or with modifications and/or translated into another language.

A “Secondary Section” is a named appendix or a front-matter section of the Document that deals exclusively with the relationship of the publishers or authors of the Document to the Document’s overall subject (or to related matters) and contains nothing that could fall directly within that overall subject. (For example, if the Document is in part a textbook of mathematics, a Secondary Section may not explain any mathematics.) The relationship could be a matter of historical connection with the subject or with related matters, or of legal, commercial, philosophical, ethical or political position regarding them.

The “Invariant Sections” are certain Secondary Sections whose titles are designated, as being those of Invariant Sections, in the notice that says that the Document is released under this License.

The “Cover Texts” are certain short passages of text that are listed, as Front-Cover Texts or Back-Cover Texts, in the notice that says that the Document is released under this License.

A “Transparent” copy of the Document means a machine-readable copy, represented in a format whose specification is available to the general public, whose contents can be viewed and edited directly and straightforwardly with generic text editors or (for images composed of pixels) generic paint programs or (for drawings) some widely available drawing editor, and that is suitable for input to text formatters or for automatic translation to a variety of formats suitable for input to text formatters. A copy made in an otherwise Transparent file format whose markup has been designed to thwart or discourage subsequent modification by readers is not Transparent. A copy that is not “Transparent” is called “Opaque”.

Examples of suitable formats for Transparent copies include plain ASCII without markup, Texinfo input format, LaTeX input format, SGML or XML using a publicly available DTD, and standard-conforming simple HTML designed for human modification. Opaque formats include PostScript, PDF, proprietary formats that can be read and edited only by proprietary word processors, SGML or XML for which the DTD and/or processing tools are not generally available, and the machine-generated HTML produced by some word processors for output purposes only.

The “Title Page” means, for a printed book, the title page itself, plus such following pages as are needed to hold, legibly, the material this License requires to appear in the title page. For works in formats which do not have any title page as such, “Title Page” means the text near the most prominent appearance of the work’s title, preceding the beginning of the body of the text.

## VERBATIM COPYING

You may copy and distribute the Document in any medium, either commercially or noncommercially, provided that this License, the copyright notices, and the license notice saying this License applies to the Document are reproduced in all copies, and that you add no other conditions whatsoever to those of this License. You may not use technical measures to obstruct or control the reading or further copying of the copies you make or distribute. However, you may accept compensation in exchange for copies. If you distribute a large enough number of copies you must also follow the conditions in section 3.

You may also lend copies, under the same conditions stated above, and you may publicly display copies.

## COPYING IN QUANTITY

If you publish printed copies of the Document numbering more than 100, and the Document’s license notice requires Cover Texts, you must enclose the copies in covers that carry, clearly and legibly, all these Cover Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on the back cover. Both covers must also clearly and legibly identify you as the publisher of these copies. The front cover must present the full title with all words of the title equally prominent and visible. You may add other material on the covers in addition. Copying with changes limited to the covers, as long as they preserve the title of

the Document and satisfy these conditions, can be treated as verbatim copying in other respects.

If the required texts for either cover are too voluminous to fit legibly, you should put the first ones listed (as many as fit reasonably) on the actual cover, and continue the rest onto adjacent pages.

If you publish or distribute Opaque copies of the Document numbering more than 100, you must either include a machine-readable Transparent copy along with each Opaque copy, or state in or with each Opaque copy a publicly-accessible computer-network location containing a complete Transparent copy of the Document, free of added material, which the general network-using public has access to download anonymously at no charge using public-standard network protocols. If you use the latter option, you must take reasonably prudent steps, when you begin distribution of Opaque copies in quantity, to ensure that this Transparent copy will remain thus accessible at the stated location until at least one year after the last time you distribute an Opaque copy (directly or through your agents or retailers) of that edition to the public.

It is requested, but not required, that you contact the authors of the Document well before redistributing any large number of copies, to give them a chance to provide you with an updated version of the Document.

## MODIFICATIONS

You may copy and distribute a Modified Version of the Document under the conditions of sections 2 and 3 above, provided that you release the Modified Version under precisely this License, with the Modified Version filling the role of the Document, thus licensing distribution and modification of the Modified Version to whoever possesses a copy of it. In addition, you must do these things in the Modified Version:

- A. Use in the Title Page (and on the covers, if any) a title distinct from that of the Document, and from those of previous versions (which should, if there were any, be listed in the History section of the Document). You may use the same title as a previous version if the original publisher of that version gives permission.
- B. List on the Title Page, as authors, one or more persons or entities responsible for authorship of the modifications in the Modified Version, together with at least five of the principal authors of the Document (all of its principal authors, if it has less than five).
- C. State on the Title page the name of the publisher of the Modified Version, as the publisher.
- D. Preserve all the copyright notices of the Document.
- E. Add an appropriate copyright notice for your modifications adjacent to the other copyright notices.
- F. Include, immediately after the copyright notices, a license notice giving the public permission to use the Modified Version under the terms of this License, in the form shown in the Addendum below.
- G. Preserve in that license notice the full lists of Invariant Sections and required Cover Texts given in the Document's license notice.



- H. Include an unaltered copy of this License.
- I. Preserve the section entitled “History”, and its title, and add to it an item stating at least the title, year, new authors, and publisher of the Modified Version as given on the Title Page. If there is no section entitled “History” in the Document, create one stating the title, year, authors, and publisher of the Document as given on its Title Page, then add an item describing the Modified Version as stated in the previous sentence.
- J. Preserve the network location, if any, given in the Document for public access to a Transparent copy of the Document, and likewise the network locations given in the Document for previous versions it was based on. These may be placed in the “History” section. You may omit a network location for a work that was published at least four years before the Document itself, or if the original publisher of the version it refers to gives permission.
- K. In any section entitled “Acknowledgements” or “Dedications”, preserve the section’s title, and preserve in the section all the substance and tone of each of the contributor acknowledgements and/or dedications given therein.
- L. Preserve all the Invariant Sections of the Document, unaltered in their text and in their titles. Section numbers or the equivalent are not considered part of the section titles.
- M. Delete any section entitled “Endorsements”. Such a section may not be included in the Modified Version.
- N. Do not retitle any existing section as “Endorsements” or to conflict in title with any Invariant Section.

If the Modified Version includes new front-matter sections or appendices that qualify as Secondary Sections and contain no material copied from the Document, you may at your option designate some or all of these sections as invariant. To do this, add their titles to the list of Invariant Sections in the Modified Version’s license notice. These titles must be distinct from any other section titles.

You may add a section entitled “Endorsements”, provided it contains nothing but endorsements of your Modified Version by various parties—for example, statements of peer review or that the text has been approved by an organization as the authoritative definition of a standard.

You may add a passage of up to five words as a Front-Cover Text, and a passage of up to 25 words as a Back-Cover Text, to the end of the list of Cover Texts in the Modified Version. Only one passage of Front-Cover Text and one of Back-Cover Text may be added by (or through arrangements made by) any one entity. If the Document already includes a cover text for the same cover, previously added by you or by arrangement made by the same entity you are acting on behalf of, you may not add another; but you may replace the old one, on explicit permission from the previous publisher that added the old one.

The author(s) and publisher(s) of the Document do not by this License give permission to use their names for publicity for or to assert or imply endorsement of any Modified Version.

## COMBINING DOCUMENTS

You may combine the Document with other documents released under this License, under the terms defined in section 4 above for modified versions, provided that you include

in the combination all of the Invariant Sections of all of the original documents, unmodified, and list them all as Invariant Sections of your combined work in its license notice.

The combined work need only contain one copy of this License, and multiple identical Invariant Sections may be replaced with a single copy. If there are multiple Invariant Sections with the same name but different contents, make the title of each such section unique by adding at the end of it, in parentheses, the name of the original author or publisher of that section if known, or else a unique number. Make the same adjustment to the section titles in the list of Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections entitled “History” in the various original documents, forming one section entitled “History”; likewise combine any sections entitled “Acknowledgements”, and any sections entitled “Dedications”. You must delete all sections entitled “Endorsements.”

## COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents released under this License, and replace the individual copies of this License in the various documents with a single copy that is included in the collection, provided that you follow the rules of this License for verbatim copying of each of the documents in all other respects.

You may extract a single document from such a collection, and distribute it individually under this License, provided you insert a copy of this License into the extracted document, and follow this License in all other respects regarding verbatim copying of that document.

## AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate and independent documents or works, in or on a volume of a storage or distribution medium, does not as a whole count as a Modified Version of the Document, provided no compilation copyright is claimed for the compilation. Such a compilation is called an “aggregate”, and this License does not apply to the other self-contained works thus compiled with the Document, on account of their being thus compiled, if they are not themselves derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these copies of the Document, then if the Document is less than one quarter of the entire aggregate, the Document’s Cover Texts may be placed on covers that surround only the Document within the aggregate. Otherwise they must appear on covers around the whole aggregate.

## TRANSLATION

Translation is considered a kind of modification, so you may distribute translations of the Document under the terms of section 4. Replacing Invariant Sections with translations requires special permission from their copyright holders, but you may include translations of some or all Invariant Sections in addition to the original versions of these Invariant Sections. You may include a translation of this License provided that you also include the original English version of this License. In case of a disagreement between the translation and the original English version of this License, the original English version will prevail.

## TERMINATION

You may not copy, modify, sublicense, or distribute the Document except as expressly provided for under this License. Any other attempt to copy, modify, sublicense or distribute the Document is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

## FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions of the GNU Free Documentation License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. See <http://www.gnu.org/copyleft/>.

Each version of the License is given a distinguishing version number. If the Document specifies that a particular numbered version of this License “or any later version” applies to it, you have the option of following the terms and conditions either of that specified version or of any later version that has been published (not as a draft) by the Free Software Foundation. If the Document does not specify a version number of this License, you may choose any version ever published (not as a draft) by the Free Software Foundation.

## ADDENDUM: How to use this License for your documents

To use this License in a document you have written, include a copy of the License in the document and put the following copyright and license notices just after the title page:

Copyright (c) YEAR YOUR NAME.

Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.1

or any later version published by the Free Software Foundation;

with the Invariant Sections being LIST THEIR TITLES, with the

Front-Cover Texts being LIST, and with the Back-Cover Texts being LIST.

A copy of the license is included in the section entitled "GNU

Free Documentation License".

If you have no Invariant Sections, write “with no Invariant Sections” instead of saying which ones are invariant. If you have no Front-Cover Texts, write “no Front-Cover Texts” instead of “Front-Cover Texts being LIST”; likewise for Back-Cover Texts.

If your document contains nontrivial examples of program code, we recommend releasing these examples in parallel under your choice of free software license, such as the GNU General Public License, to permit their use in free software.

Option Index

-		-P .....	5, 21, 24
-a .....	5	-r .....	4, 20, 23, 30
-c .....	8, 31	-s .....	5, 20, 23, 30
-f .....	5, 21, 23	-t .....	20
-g .....	5, 20, 21, 23	-u .....	32
		-x .....	5

# Table of Contents

<b>1</b>	<b>Overview of the tools .....</b>	<b>1</b>
1.1	What is this? .....	1
1.2	Concept of project.....	1
1.3	Features. ....	1
<b>2</b>	<b>Command line GLOBAL .....</b>	<b>3</b>
2.1	Preparation. ....	3
2.2	Basic usage. ....	4
2.3	Applied usage. ....	7
<b>3</b>	<b>Various applications .....</b>	<b>10</b>
3.1	Global facility for Bash .....	10
3.1.1	Features.....	10
3.1.2	Preparation.....	10
3.1.3	Basic usage.....	11
3.1.4	Applied usage. ....	12
3.2	Less using GLOBAL.....	13
3.2.1	Features.....	13
3.2.2	Preparation.....	13
3.2.3	Basic usage.....	13
3.2.4	Applied usage. ....	14
3.3	Extended nvi-1.79 using GLOBAL.....	15
3.3.1	Features.....	15
3.3.2	Preparation.....	15
3.3.3	Basic usage.....	16
3.3.4	Applied usage. ....	17
3.4	nvi-1.81.5 using GLOBAL.....	18
3.4.1	Features.....	18
3.4.2	Preparation.....	18
3.4.3	Basic usage.....	18
3.5	Elvis using global .....	19
3.5.1	Features.....	19
3.5.2	Preparation.....	20
3.5.3	Basic usage.....	20
3.5.4	Applied usage. ....	21
3.6	Vim using global .....	22
3.6.1	Features.....	22
3.6.2	Preparation.....	22
3.6.3	Basic usage.....	22
3.6.4	Applied usage. ....	23
3.7	Extended emacs using global .....	24
3.7.1	Features.....	25

3.7.2	Preparation.....	25
3.7.3	Basic usage.....	25
3.7.4	Applied usage. ....	27
3.8	Hypertext generator.....	27
3.8.1	Features.....	27
3.8.2	Preparation.....	28
3.8.3	Usage.....	28
<b>4</b>	<b>Other topics.....</b>	<b>29</b>
4.1	How to config GLOBAL.....	29
4.2	How to plug in a parser.....	29
4.3	Compact format.....	31
4.4	Incremental updating.....	32
<b>5</b>	<b>Reference manual.....</b>	<b>33</b>
5.1	global - print the locations of specified object.....	33
	NAME.....	33
	SYNOPSIS.....	33
	DESCRIPTION.....	33
	COMMANDS.....	33
	OPTIONS.....	34
	EXAMPLES.....	35
	FILES.....	35
	ENVIRONMENT.....	36
	CONFIGURATION.....	36
	DIAGNOSTICS.....	36
	SEE ALSO.....	36
	AUTHOR.....	36
	HISTORY.....	36
5.2	gtags - create tag files for global.....	37
	NAME.....	37
	SYNOPSIS.....	37
	DESCRIPTION.....	37
	OPTIONS.....	37
	EXAMPLES.....	38
	FILES.....	38
	ENVIRONMENT.....	38
	CONFIGURATION.....	39
	DIAGNOSTICS.....	39
	MESSAGE FORMAT.....	39
	SEE ALSO.....	39
	BUG.....	40
	AUTHOR.....	40
	HISTORY.....	40
5.3	htags - generate hypertext from source code.....	40
	NAME.....	40
	SYNOPSIS.....	40
	DESCRIPTION.....	40

OPTIONS .....	41
EXAMPLES .....	42
FILES .....	43
ENVIRONMENT .....	43
CONFIGURATION .....	44
DIAGNOSTICS .....	46
MESSAGE FORMAT .....	46
SEE ALSO .....	46
BUG .....	46
AUTHOR .....	46
HISTORY .....	46
5.4 gtags-parser - print cross reference list for gtags. ....	47
NAME .....	47
SYNOPSIS .....	47
DESCRIPTION .....	47
OPTIONS .....	47
DIAGNOSTICS .....	48
SEE ALSO .....	48
BUG .....	48
AUTHOR .....	48
HISTORY .....	48
5.5 gozilla - force mozilla to display specified source file. ....	49
NAME .....	49
SYNOPSIS .....	49
DESCRIPTION .....	49
OPTIONS .....	49
FILES .....	50
ENVIRONMENT .....	50
EXAMPLES .....	50
DIAGNOSTICS .....	50
SEE ALSO .....	50
NOTES .....	50
BUGS .....	50
AUTHORS .....	51
HISTORY .....	51

<b>GNU Free Documentation License .....</b>	<b>52</b>
Preamble .....	52
APPLICABILITY AND DEFINITIONS .....	52
VERBATIM COPYING .....	53
COPYING IN QUANTITY .....	53
MODIFICATIONS .....	54
COMBINING DOCUMENTS .....	55
COLLECTIONS OF DOCUMENTS .....	56
AGGREGATION WITH INDEPENDENT WORKS .....	56
TRANSLATION .....	56
TERMINATION .....	57
FUTURE REVISIONS OF THIS LICENSE .....	57
ADDENDUM: How to use this License for your documents .....	57
 <b>Option Index .....</b>	 <b>58</b>