

GNU GENERAL PUBLIC LICENSE

Version 1, February 1989

Copyright © 1989 Free Software Foundation, Inc.
675 Mass Ave, Cambridge, MA 02139, USA

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

Preamble

The license agreements of most software companies try to keep users at the mercy of those companies. By contrast, our General Public License is intended to guarantee your freedom to share and change free software—to make sure the software is free for all its users. The General Public License applies to the Free Software Foundation’s software and to any other program whose authors commit to using it. You can use it for your programs, too.

When we speak of free software, we are referring to freedom, not price. Specifically, the General Public License is designed to make sure that you have the freedom to give away or sell copies of free software, that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of a such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must tell them their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author’s protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors’ reputations.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

1. This License Agreement applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The “Program”, below, refers to any such program or work, and a “work based on the Program” means either the Program or any work containing the Program or a portion of it, either verbatim or with modifications. Each licensee is addressed as “you”.
2. You may copy and distribute verbatim copies of the Program’s source code as you receive it, in any medium, provided that you conspicuously and appropriately publish

on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this General Public License and to the absence of any warranty; and give any other recipients of the Program a copy of this General Public License along with the Program. You may charge a fee for the physical act of transferring a copy.

3. You may modify your copy or copies of the Program or any portion of it, and copy and distribute such modifications under the terms of Paragraph 1 above, provided that you also do the following:
 - cause the modified files to carry prominent notices stating that you changed the files and the date of any change; and
 - cause the whole of any work that you distribute or publish, that in whole or in part contains the Program or any part thereof, either with or without modifications, to be licensed at no charge to all third parties under the terms of this General Public License (except that you may choose to grant warranty protection to some or all third parties, at your option).
 - If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the simplest and most usual way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this General Public License.
 - You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

Mere aggregation of another independent work with the Program (or its derivative) on a volume of a storage or distribution medium does not bring the other work under the scope of these terms.

4. You may copy and distribute the Program (or a portion or derivative of it, under Paragraph 2) in object code or executable form under the terms of Paragraphs 1 and 2 above provided that you also do one of the following:
 - accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Paragraphs 1 and 2 above; or,
 - accompany it with a written offer, valid for at least three years, to give any third party free (except for a nominal charge for the cost of distribution) a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Paragraphs 1 and 2 above; or,
 - accompany it with the information you received as to where the corresponding source code may be obtained. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form alone.)

Source code for a work means the preferred form of the work for making modifications to it. For an executable file, complete source code means all the source code for all modules it contains; but, as a special exception, it need not include source code for modules which are standard libraries that accompany the operating system on which the executable file runs, or for standard header files or definitions files that accompany that operating system.

5. You may not copy, modify, sublicense, distribute or transfer the Program except as expressly provided under this General Public License. Any attempt otherwise to copy, modify, sublicense, distribute or transfer the Program is void, and will automatically terminate your rights to use the Program under this License. However, parties who have received copies, or rights to use copies, from you under this General Public License will not have their licenses terminated so long as such parties remain in full compliance.
6. By copying, distributing or modifying the Program (or any work based on the Program) you indicate your acceptance of this license to do so, and all its terms and conditions.
7. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein.
8. The Free Software Foundation may publish revised and/or new versions of the General Public 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.
Each version is given a distinguishing version number. If the Program specifies a version number of the license which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the license, you may choose any version ever published by the Free Software Foundation.
9. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

10. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
11. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT

LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to humanity, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the “copyright” line and a pointer to where the full notice is found.

```
one line to give the program's name and a brief idea of what it does.  
Copyright (C) 19yy name of author
```

```
This program is free software; you can redistribute it and/or modify  
it under the terms of the GNU General Public License as published by  
the Free Software Foundation; either version 1, or (at your option)  
any later version.
```

```
This program is distributed in the hope that it will be useful,  
but WITHOUT ANY WARRANTY; without even the implied warranty of  
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the  
GNU General Public License for more details.
```

```
You should have received a copy of the GNU General Public License  
along with this program; if not, write to the Free Software  
Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.
```

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

```
Gnomovision version 69, Copyright (C) 19yy name of author  
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type 'show w'.  
This is free software, and you are welcome to redistribute it  
under certain conditions; type 'show c' for details.
```

The hypothetical commands ‘show w’ and ‘show c’ should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than ‘show w’ and ‘show c’; they could even be mouse-clicks or menu items—whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a “copyright disclaimer” for the program, if necessary. Here a sample; alter the names:

```
Yoyodyne, Inc., hereby disclaims all copyright interest in the  
program 'Gnomovision' (a program to direct compilers to make passes  
at assemblers) written by James Hacker.
```

```
signature of Ty Coon, 1 April 1989  
Ty Coon, President of Vice
```

That's all there is to it!

1 General introduction to GNU sort.

This is an MS-DOS port of the (unreleased) external sort program for the GNU project, written by Mike Haertel.

- **PLEASE NOTE:** Mike Haertel (the original author) allowed me to distribute this program under the condition that I make clear that this program has not been tested extensively and is to be considered as in a pre-alpha test state.

I have decided to distribute this program anyway, because it outclasses *any* external sort program I have seen for MS-DOS: both in performance and functionality.

- Performance:
 1. When used with a fast (preferably cached) disk, this program is as fast as V. Buerg's `sortf` (if the latter is used with large, non default keys, GNU `sort` is *considerably* faster).
 2. There are (almost) no build-in hard limits! (I have put one hard and one soft limit in the MS-DOS version, see Chapter 4 [MS-DOS], page 9).
- Functionality:
 1. GNU `sort` works as a filter.
 2. GNU `sort` has lots of **useful** options (see Chapter 3 [Options], page 8).

This distribution is different from the other ports of GNU software for MS-DOS: it contains the full, unabridged source code and no context diffs. This is because GNU `sort` has not yet been released by the Free Software Foundation, and therefore you can't pick up the official source from prep. But: **all** changes (which are very few) are conditionalized with `MSDOS`.

Please send bug reports (preferably with fixes (**context diff**'s!)) to

Thorsten Ohl
<td12@ddagsi3.bitnet>

I can make no promises to fix it immediately, but I might want to!

2 How to install the MS-DOS version of GNU sort.

1. Edit the following variables in the makefile

LIBS Remove `glob.obj`, `msd_dir.obj`, and `_cwild.obj` if you don't have `glob.c`, `msd_dir.c`, `msd_dir.h`, and `_cwild.c` from the other MS-DOS ports (e.g. `fileutils`), or if you do not want a reasonable filename globbing.

VPATH Include path for `glob.c`, `msd_dir.c`, `msd_dir.h`, and `_cwild.c` on *your* system. If you have a loosing (non GNU) `make` that doesn't understand `VPATH`, copy the sources in your current directory.

CFLAGS, LDFLAGS

These are for the Microsoft C compiler Version 6.0, edit them for your system:

`-AC` Compact memory model

`-W4` Full warnings!

`-Ocgilt` (Almost) maximal optimization.

`-Za`

`-DSTDC_HEADERS`
ANSI C.

`-DUSG` Microsoft's C looks more like System V than BSD.

`/e` Pack the executable.

`/st:0x8000`
Large stack.

`/noe` If duplicate symbols in object files and libraries, use the one from the object file.

2. Say `make`.

That's all.

3 Options for GNU sort

```
sort [-cmuV] [-t c] [-o file] [-T dir]
      [-bdfiMnr] [+n [-m] ...] [file ...]
```

The following is a guide to GNU `sort`, *not* a collection of *documented options* that can be relied on.

3.1 Options affecting all sort keys

- '-c' Check sort order only.
- '-m' Merge presorted files (avoids resorting of already sorted files, which is generally a slow operation).
- '-ofile' Send output to `file` (overwriting).
- '-tc' Use `c` as field separator.
- '-Tprefix' Use `prefix` as prefix for temporary files (e.g. `prefix/sort3141.137`), default is '\$TMP'.
- '-u' Delete duplicate lines from the output.
- '-V' Print the version string

See Section 3.3 [Local], page 8, for more options that can affect all keys.

3.2 How to specify the sort keys

Keys are zero based, thus the first field has number 0, and so on.

- '+num1.num2' Start a new key at character `num2` of field `num1`.
- '-num1.num2' Extend the key upto (not including) character `num2` of field `num1`.

3.3 Options affecting one or all sort keys

These option apply either globally to all sort keys (if they are specified before the keys on the command line), or to a single key (if they are appended to the key specification).

- '-b' Skip white space.
- '-d' Dictionary mode: ignore punctuation.
- '-f' Fold to lowercase.
- '-i' Ignore nonprinting characters.
- '-M' Sort as english (three character) month names.
- '-n' Sort numerically.
- '-r' Sort in reverse.

4 How the MS-DOS version differs

- The maximum line length has been reduced to 32k. While the introduction of arbitrary upper limits is alien to the GNU project, this particular limit seems to be o.k. for MS-DOS applications and tremendously decreases the number of required changes in the original source.
- The maximum number of lines per input buffer is restricted to about 4000. This limit can only be reached by files with an average linelength smaller than 8 characters. To allow the sorting of such files, the following option has been included to reduce the input buffer size:

‘-S *num*’ Set the input buffer size (default 32k) to *num*.