GNAT Coding Style A Guide for GNAT Developers

GNAT Coding Style: A Guide for GNAT Developers , Jun 02, 2025
AdaCore
Copyright © 2008-2025, Free Software Foundation

Table of Contents

1 General 1

2 Lexical Elements 2

2.1 Character Set and Separators 2
2.2 Identifiers 2
2.3 Numeric Literals 2
2.4 Reserved Words 2
2.5 Comments 3

3 Declarations and Types 4

4 Expressions and Names 5

5 Statements 6

5.1 Simple and Compound Statements 6
5.2 If Statements 6
5.3 Case Statements 7
5.4 Loop Statements 7
5.5 Block Statements 8

6 Subprograms 9

6.1 Subprogram Declarations 9
6.2 Subprogram Bodies 9

7 Packages and Visibility Rules 12

8 Program Structure and Compilation Issues .. 13

8.1 GNU Free Documentation License 13

Index 20

1 General

Most of GNAT is written in Ada using a consistent style to ensure readability of the code. This document has been written to help maintain this consistent style, while having a large group of developers work on the compiler.

For the coding style in the C parts of the compiler and run time, see the GNU Coding Guidelines.

This document is structured after the Ada Reference Manual. Those familiar with that document should be able to quickly lookup style rules for particular constructs.

2 Lexical Elements

2.1 Character Set and Separators

* The character set used should be plain 7-bit ASCII. The only separators allowed are space and the end-of-line sequence. No other control character or format effector (such as `HT`, `VT`, `FF`) should be used. The normal end-of-line sequence is used, which may be `LF`, `CR/LF` or `CR`, depending on the host system. An optional `SUB` (`16#1A#`) may be present as the last character in the file on hosts using that character as file terminator.
* Files that are checked in or distributed should be in host format.
* A line should never be longer than 79 characters, not counting the line separator.
* Lines must not have trailing blanks.
* Indentation is 3 characters per level for `if` statements, loops, and `case` statements. For exact information on required spacing between lexical elements, see file style.adb.

2.2 Identifiers

* Identifiers will start with an upper case letter, and each letter following an underscore will be upper case.

  Short acronyms may be all upper case. All other letters are lower case. An exception is for identifiers matching a foreign language. In particular, we use all lower case where appropriate for C.
* Use underscores to separate words in an identifier.
* Try to limit your use of abbreviations in identifiers. It is ok to make a few abbreviations, explain what they mean, and then use them frequently, but don't use lots of obscure abbreviations. An example is the `ALI` word which stands for Ada Library Information and is by convention always written in upper-case when used in entity names.

  ```
  procedure Find_ALI_Files;
  ```
* Don't use the variable name `I`, use `J` instead; `I` is too easily confused with `1` in some fonts. Similarly don't use the variable `O`, which is too easily mistaken for the number `0`.

2.3 Numeric Literals

* Numeric literals should include underscores where helpful for readability.

  ```
  1_000_000
  16#8000_0000#
  3.14159_26535_89793_23846
  ```

2.4 Reserved Words

* Reserved words use all lower case.

  ```
  return else
  ```
* The words `Access`, `Delta` and `Digits` are capitalized when used as attribute_designator.

2.5 Comments

* A comment starts with `--` followed by two spaces. The only exception to this rule (i.e. one space is tolerated) is when the comment ends with a single space followed by `--`. It is also acceptable to have only one space between `--` and the start of the comment when the comment is at the end of a line, after some Ada code.
* Every sentence in a comment should start with an upper-case letter (including the first letter of the comment).
* When declarations are commented with 'hanging' comments, i.e. comments after the declaration, there is no blank line before the comment, and if it is absolutely necessary to have blank lines within the comments, e.g. to make paragraph separations within a single comment, these blank lines 'do' have a `--` (unlike the normal rule, which is to use entirely blank lines for separating comment paragraphs). The comment starts at same level of indentation as code it is commenting.

```
z : Integer;
--  Integer value for storing value of z
--
--  The previous line was a blank line.
```

* Comments that are dubious or incomplete, or that comment on possibly wrong or incomplete code, should be preceded or followed by `???`.
* Comments in a subprogram body must generally be surrounded by blank lines. An exception is a comment that follows a line containing a single keyword (`begin`, `else`, `loop`):

```
begin
   --  Comment for the next statement

   A := 5;

   --  Comment for the B statement

   B := 6;
end;
```

* In sequences of statements, comments at the end of the lines should be aligned.

```
My_Identifier := 5;      --  First comment
Other_Id := 6;           --  Second comment
```

* Short comments that fit on a single line are 'not' ended with a period. Comments taking more than a line are punctuated in the normal manner.
* Comments should focus on 'why' instead of 'what'. Descriptions of what subprograms do go with the specification.
* Comments describing a subprogram spec should specifically mention the formal argument names. General rule: write a comment that does not depend on the names of things. The names are supplementary, not sufficient, as comments.
* 'Do not' put two spaces after periods in comments.

3 Declarations and Types

* In entity declarations, colons must be surrounded by spaces. Colons should be aligned.

```
Entity1   : Integer;
My_Entity : Integer;
```

* Declarations should be grouped in a logical order. Related groups of declarations may be preceded by a header comment.
* All local subprograms in a subprogram or package body should be declared before the first local subprogram body.
* Do not declare local entities that hide global entities.
* Do not declare multiple variables in one declaration that spans lines. Start a new declaration on each line, instead.
* The defining_identifiers of global declarations serve as comments of a sort. So don't choose terse names, but look for names that give useful information instead.
* Local names can be shorter, because they are used only within one context, where comments explain their purpose.
* When starting an initialization or default expression on the line that follows the declaration line, use 2 characters for indentation.

```
Entity1 : Integer :=
  Function_Name (Parameters, For_Call);
```

* If an initialization or default expression needs to be continued on subsequent lines, the continuations should be indented from the start of the expression.

```
Entity1 : Integer := Long_Function_Name
                        (parameters for call);
```

4 Expressions and Names

* Every operator must be surrounded by spaces. An exception is that this rule does not apply to the exponentiation operator, for which there are no specific layout rules. The reason for this exception is that sometimes it makes clearer reading to leave out the spaces around exponentiation.

```
E := A * B**2 + 3 * (C - D);
```

* Use parentheses where they clarify the intended association of operands with operators:

```
(A / B) * C
```

5 Statements

5.1 Simple and Compound Statements

* Use only one statement or label per line.
* A longer sequence_of_statements may be divided in logical groups or separated from surrounding code using a blank line.

5.2 If Statements

* When the `if`, `elsif` or `else` keywords fit on the same line with the condition and the `then` keyword, then the statement is formatted as follows:

```
if condition then
   ...
elsif condition then
   ...
else
   ...
end if;
```

When the above layout is not possible, `then` should be aligned with `if`, and conditions should preferably be split before an `and` or `or` keyword a follows:

```
if long_condition_that_has_to_be_split
  and then continued_on_the_next_line
then
   ...
end if;
```

The `elsif`, `else` and `end if` always line up with the `if` keyword. The preferred location for splitting the line is before `and` or `or`. The continuation of a condition is indented with two spaces or as many as needed to make nesting clear. As an exception, if conditions are closely related either of the following is allowed:

```
if x = lakdsjfhlkashfdlkflkdsalkhfsalkdhflkjdsahf
     or else
   x = asldkjhalkdsjfhhfd
     or else
   x = asdfadsfadsf
then
  ...
end if;

if x = lakdsjfhlkashfdlkflkdsalkhfsalkdhflkjdsahf or else
   x = asldkjhalkdsjfhhfd                         or else
   x = asdfadsfadsf
then
  ...
end if;
```

* Conditions should use short-circuit forms (`and then`, `or else`), except when the operands are boolean variables or boolean constants.
* Complex conditions in `if` statements are indented two characters:

```
if this_complex_condition
  and then that_other_one
  and then one_last_one
then
   ...
end if;
```

  There are some cases where complex conditionals can be laid out in manners that do not follow these rules to preserve better parallelism between branches, e.g.

```
if xyz.abc (gef) = 'c'
     or else
   xyz.abc (gef) = 'x'
then
   ...
end if;
```

* Every `if` block is preceded and followed by a blank line, except where it begins or ends a sequence_of_statements.

```
A := 5;

if A = 5 then
   null;
end if;

A := 6;
```

5.3 Case Statements

* Layout is as below. For long `case` statements, the extra indentation can be saved by aligning the `when` clauses with the opening `case`.

```
case expression is
   when condition =>
      ...
   when condition =>
      ...
end case;
```

5.4 Loop Statements

* When possible, have `for` or `while` on one line with the condition and the `loop` keyword.

```
for J in S'Range loop
   ...
end loop;
```

  If the condition is too long, split the condition (see 'If statements' above) and align `loop` with the `for` or `while` keyword.

```
while long_condition_that_has_to_be_split
  and then continued_on_the_next_line
loop
   ...
end loop;
```

If the loop_statement has an identifier, it is laid out as follows:

```
Outer : while not condition loop
   ...
end Outer;
```

5.5 Block Statements

* The `declare` (optional), `begin` and `end` words are aligned, except when the block_statement is named. There is a blank line before the `begin` keyword:

```
Some_Block : declare
   ...

begin
   ...
end Some_Block;
```

6 Subprograms

6.1 Subprogram Declarations

* Do not write the `in` for parameters.

```
function Length (S : String) return Integer;
```

* When the declaration line for a procedure or a function is too long to fit the entire declaration (including the keyword procedure or function) on a single line, then fold it, putting a single parameter on a line, aligning the colons, as in:

```
procedure Set_Heading
  (Source : String;
   Count  : Natural;
   Pad    : Character := Space;
   Fill   : Boolean   := True);
```

  In the case of a function, if the entire spec does not fit on one line, then the return may appear after the last parameter, as in:

```
function Head
  (Source : String;
   Count  : Natural;
   Pad    : Character := Space) return String;
```

  Or it may appear on its own as a separate line. This form is preferred when putting the return on the same line as the last parameter would result in an overlong line. The return type may optionally be aligned with the types of the parameters (usually we do this aligning if it results only in a small number of extra spaces, and otherwise we don't attempt to align). So two alternative forms for the above spec are:

```
function Head
  (Source : String;
   Count  : Natural;
   Pad    : Character := Space)
   return   String;

function Head
  (Source : String;
   Count  : Natural;
   Pad    : Character := Space)
   return String;
```

6.2 Subprogram Bodies

* Function and procedure bodies should usually be sorted alphabetically. Do not attempt to sort them in some logical order by functionality. For a sequence of subprogram specs, a general alphabetical sorting is also usually appropriate, but occasionally it makes sense to group by major function, with appropriate headers.
* All subprograms have a header giving the function name, with the following format:

```
-----------------
```

```
-- My_Function --
-----------------

procedure My_Function is
begin
  ...
end My_Function;
```

Note that the name in the header is preceded by a single space, not two spaces as for other comments. These headers are used on nested subprograms as well as outer level subprograms. They may also be used as headers for sections of comments, or collections of declarations that are related.

* Every subprogram body must have a preceding subprogram_declaration, which includes proper client documentation so that you do not need to read the subprogram body in order to understand what the subprogram does and how to call it. All subprograms should be documented, without exceptions.

* A sequence of declarations may optionally be separated from the following begin by a blank line. Just as we optionally allow blank lines in general between declarations, this blank line should be present only if it improves readability. Generally we avoid this blank line if the declarative part is small (one or two lines) and the body has no blank lines, and we include it if the declarative part is long or if the body has blank lines.

* If the declarations in a subprogram contain at least one nested subprogram body, then just before the `begin` of the enclosing subprogram, there is a comment line and a blank line:

```
--  Start of processing for Enclosing_Subprogram

begin
  ...
end Enclosing_Subprogram;
```

* When nested subprograms are present, variables that are referenced by any nested subprogram should precede the nested subprogram specs. For variables that are not referenced by nested procedures, the declarations can either also be before any of the nested subprogram specs (this is the old style, more generally used). Or then can come just before the begin, with a header. The following example shows the two possible styles:

```
procedure Style1 is
   Var_Referenced_In_Nested      : Integer;
   Var_Referenced_Only_In_Style1 : Integer;

   proc Nested;
   --  Comments ...

   ------------
   -- Nested --
   ------------
```

```
   procedure Nested is
   begin
      ...
   end Nested;

--  Start of processing for Style1

begin
   ...
end Style1;

procedure Style2 is
   Var_Referenced_In_Nested : Integer;

   proc Nested;
   --  Comments ...

   ------------
   -- Nested --
   ------------

   procedure Nested is
   begin
      ...
   end Nested;

   --  Local variables

   Var_Referenced_Only_In_Style2 : Integer;

--  Start of processing for Style2

begin
   ...
end Style2;
```

For new code, we generally prefer Style2, but we do not insist on modifying all legacy occurrences of Style1, which is still much more common in the sources.

7 Packages and Visibility Rules

* All program units and subprograms have their name at the end:

```
package P is
   ...
end P;
```

* We will use the style of `use` -ing `with` -ed packages, with the context clauses looking like:

```
with A; use A;
with B; use B;
```

* Names declared in the visible part of packages should be unique, to prevent name clashes when the packages are `use` d.

```
package Entity is
   type Entity_Kind is ...;
   ...
end Entity;
```

* After the file header comment, the context clause and unit specification should be the first thing in a program_unit.

* Preelaborate, Pure and Elaborate_Body pragmas should be added right after the package name, indented an extra level and using the parameterless form:

```
package Preelaborate_Package is
   pragma Preelaborate;
   ...
end Preelaborate_Package;
```

8 Program Structure and Compilation Issues

* Every GNAT source file must be compiled with the `-gnatg` switch to check the coding style. (Note that you should look at style.adb to see the lexical rules enforced by `-gnatg`).
* Each source file should contain only one compilation unit.
* Filenames should be 8 or fewer characters, followed by the `.adb` extension for a body or `.ads` for a spec.
* Unit names should be distinct when 'krunch'ed to 8 characters (see krunch.ads) and the filenames should match the unit name, except that they are all lower case.

8.1 GNU Free Documentation License

Version 1.3, 3 November 2008

Copyright 2000, 2001, 2002, 2007, 2008 Free Software Foundation, Inc '`https://fsf.org/`'

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 functional and useful 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. Secondarily, 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.

'1. APPLICABILITY AND DEFINITIONS'

This License applies to any manual or other work, in any medium, that contains a notice placed by the copyright holder saying it can be distributed under the terms of this License. Such a notice grants a world-wide, royalty-free license, unlimited in duration, to use that work under the conditions stated herein. The 'Document', below, refers to any such manual or work. Any member of the public is a licensee, and is addressed as "'you'". You accept the license if you copy, modify or distribute the work in a way requiring permission under copyright law.

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. (Thus, 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. If a section does not fit the above definition of Secondary then it is not allowed to be designated as Invariant. The Document may contain zero Invariant Sections. If the Document does not identify any Invariant Sections then there are none.

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 Front-Cover Text may be at most 5 words, and a Back-Cover Text may be at most 25 words.

A "'Transparent'" copy of the Document means a machine-readable copy, represented in a format whose specification is available to the general public, that is suitable for revising the document 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, or absence of markup, has been arranged to thwart or discourage subsequent modification by readers is not Transparent. An image format is not Transparent if used for any substantial amount of text. 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, PostScript or PDF designed for human modification. Examples of transparent image formats include PNG, XCF and JPG. Opaque formats include 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, PostScript or PDF 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.

The "'publisher'" means any person or entity that distributes copies of the Document to the public.

A section "'Entitled XYZ'" means a named subunit of the Document whose title either is precisely XYZ or contains XYZ in parentheses following text that translates XYZ in another language. (Here XYZ stands for a specific section name mentioned below, such as "'Acknowledgements'", "'Dedications'", "'Endorsements'", or "'History'".) To "'Preserve the Title'" of such a section when you modify the Document means that it remains a section "Entitled XYZ" according to this definition.

The Document may include Warranty Disclaimers next to the notice which states that this License applies to the Document. These Warranty Disclaimers are considered to be included by reference in this License, but only as regards disclaiming warranties: any other implication that these Warranty Disclaimers may have is void and has no effect on the meaning of this License.

'2. 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.

'3. COPYING IN QUANTITY'

If you publish printed copies (or copies in media that commonly have printed covers) 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 computer-network location from which the general network-using public has access to download using public-standard network protocols a complete Transparent copy of the Document, free of added material. 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.

'4. 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 fewer than five), unless they release you from this requirement.

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", Preserve 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. For any section Entitled "Acknowledgements" or "Dedications", Preserve the Title of the section, 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 to be Entitled "Endorsements" or to conflict in title with any Invariant Section.

O. Preserve any Warranty Disclaimers.

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.

'5. 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, and that you preserve all their Warranty Disclaimers.

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".

'6. 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.

'7. 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, is called an

"aggregate" if the copyright resulting from the compilation is not used to limit the legal rights of the compilation's users beyond what the individual works permit. When the Document is included in an aggregate, this License does not apply to the other works in the aggregate which 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 half of the entire aggregate, the Document's Cover Texts may be placed on covers that bracket the Document within the aggregate, or the electronic equivalent of covers if the Document is in electronic form. Otherwise they must appear on printed covers that bracket the whole aggregate.

'8. 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, and all the license notices in the Document, and any Warranty Disclaimers, provided that you also include the original English version of this License and the original versions of those notices and disclaimers. In case of a disagreement between the translation and the original version of this License or a notice or disclaimer, the original version will prevail.

If a section in the Document is Entitled "Acknowledgements", "Dedications", or "History", the requirement (section 4) to Preserve its Title (section 1) will typically require changing the actual title.

'9. TERMINATION'

You may not copy, modify, sublicense, or distribute the Document except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, or distribute it is void, and will automatically terminate your rights under this License.

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, receipt of a copy of some or all of the same material does not give you any rights to use it.

'10. 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 '`https://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. If the Document specifies that a proxy can decide which future versions of this License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Document.

'11. RELICENSING'

"Massive Multiauthor Collaboration Site" (or "MMC Site") means any World Wide Web server that publishes copyrightable works and also provides prominent facilities for anybody to edit those works. A public wiki that anybody can edit is an example of such a server. A "Massive Multiauthor Collaboration" (or "MMC") contained in the site means any set of copyrightable works thus published on the MMC site.

"CC-BY-SA" means the Creative Commons Attribution-Share Alike 3.0 license published by Creative Commons Corporation, a not-for-profit corporation with a principal place of business in San Francisco, California, as well as future copyleft versions of that license published by that same organization.

"Incorporate" means to publish or republish a Document, in whole or in part, as part of another Document.

An MMC is "eligible for relicensing" if it is licensed under this License, and if all works that were first published under this License somewhere other than this MMC, and subsequently incorporated in whole or in part into the MMC, (1) had no cover texts or invariant sections, and (2) were thus incorporated prior to November 1, 2008.

The operator of an MMC Site may republish an MMC contained in the site under CC-BY-SA on the same site at any time before August 1, 2009, provided the MMC is eligible for relicensing.

'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 © YEAR YOUR NAME. Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.3 or any later version published by the Free Software Foundation; with no Invariant Sections, no Front-Cover Texts, and no Back-Cover Texts. A copy of the license is included in the section entitled "GNU Free Documentation License".

If you have Invariant Sections, Front-Cover Texts and Back-Cover Texts, replace the "with . . . Texts." line with this:

> with the Invariant Sections being LIST THEIR TITLES, with the Front-Cover Texts being LIST, and with the Back-Cover Texts being LIST.

If you have Invariant Sections without Cover Texts, or some other combination of the three, merge those two alternatives to suit the situation.

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.

Index

—

-gnatg option (to gcc) 13

A

Alignment (in a block statement) 8
Alignment (in a loop statement) 7
Alignment (in an if statement) 6
Alignment (in comments) 3
Alignment (in declarations) 4
ASCII 2

B

Blank lines (in an if statement) 7
Blank lines (in comments) 3
Blank lines (in subprogram bodies) 10

C

Casing (for identifiers) 2
Casing (for reserved words) 2
Casing (in comments) 3
Character set 2

E

End-of-line 2

F

File name length 13

H

Hiding of outer entities 4

I

Indentation 2, 3
Indentation (in if statements) 7

K

krunch.ads file 13

L

Line length 2

N

Name clash avoidance 12

O

Operators 5

P

Parenthesization of expressions 5

S

Separators 2
Short-circuit forms 7
style.adb file 2, 13

U

Underscores 2
use clauses 12