

C Coding Guidelines

Variables

Local: *{name_of_var}*

Global: *g_{detailed_name_of_var}*

```
int i;
extern int g_alien_cnt;
```

Functions

Names

{libLabel}_{object}[_]{action_or_verb} or *{libLabel}_{action_or_verb}_{object}*

```
sfSyl_welcome_txt_print ();
sfSyl_print_welcome_txt ();
```

Definitions

```
[attributes ]{type}
{function_name}( {args} )
{
    /*...*/
}
```

```
noreturn void
usage( int status )
{
    /*...*/
    exit( status );
}
```

- Rationale: easier to `grep ("^func_name")`

Pointers

*{type} *{var}*

```
int *var1, *var2;    /* 2 pointers */
int *var1, var2;     /* 1 pointer, 1 int ! */
```

Typedefs

```
[libLabel_] {name}_t  
superint_t i;  
sfs_superint_t j;
```

Structures

```
{name_of_struct}_s, {name_of_struct}_var}  
datstruct_s this_is_a_struct;
```

Enums

```
{name_of_enum}_e, {ENUM_CONST}, {name_of_enum}_var}  
enum mood_e { TAKE_IT, GIVE_IT, KEEP_IT } my_mood;
```

Gotos

```
[GT_] {ThisPart} or [GT_] {this_part}  
EmergencyClosure:  
GT_EmergencyClosure:  
GT_emergency_closure:
```

Define

```
[TYPE_] {NAME_OF_DEF}  
#define ALIENS_ON_PLANET_CNT 1234
```

Macro (DEFINES)

```
[M_] {OBJECT}_ {VERB} or [M_] {VERB}_ {OBJECT}  
#define ALIENS_ON_PLANET_LOCATE ()  
#define M_ALIENS_ON_PLANET_LOCATE ()  
#define LOCATE_ALIENS_ON_PLANET ()
```

Macro (header guards)

`{NAME_OF_HEADER}_H`

`MY_COOL_LIB_H`

- Rationale: `_`- and `__`-starting header guards are used by standard library headers `##` Parenthesis / braces `{func}({args})`;

```
printf( "spaces btwn args and parenthesis : %d", true_dat );
```

```
{statement} ({condition}) {  
/*...*/  
}
```

```
if (true_dat == 1) {  
/*...*/  
} else {  
/*...*/  
}
```

Code example

```
#ifndef THAT_GUARD_THOUGH_H  
#define THAT_GUARD_THOUGH_H
```

```
#include "myheader.h"
```

```
#include <header1.h>
```

```
#include <header2.h>
```

```
#define STR_SIZE_OF_PLANET "BIG"
```

```
noreturn void
```

```
f_datFunc( void )
```

```
{
```

```
    unsigned int aliens_cnt = 100;
```

```
    int happn = 0;
```

```
    printf( "This planet is %s.\n", STR_SIZE_OF_PLANET );
```

```
    if (aliens_cnt > 50) {
```

```
        puts( "it's happening" );
```

```
        happn = 1;
```

```
    } else if (aliens_cnt > 0) {
```

```
        puts( "we still have time" );
```

```
        happn = 0;
```

```
    } else { puts( "ERROR" ); goto GT_Habbenning; }
```

```

switch (happn) {
case 0:
    return( EXIT_SUCCESS );
default:
GT_Habbenning:
    return( EXIT_FAILURE );
}
}

#endif          /* ndef _THAT_GUARD_THOUGH_ */

```

General advices

- *snake_case*: easier to type, harder to read
 - Though: some of the best ever written softwares were made in *snake_case*
- *camelCase*: harder to type, easier to read
 - Microsoft uses it...
- Dividing the code in functions increase its comprehension and readability.
- Code must not be generic, but very specific to what exactly you're doing.
- Code for debug purpose must be removed from the final form of the code.
- Always use header guards in header files.
- Put braces even on one-line statements.

Linux kernel coding style

GNU `indent` now has an option to format your code according to the Linux kernel coding style: `indent -linux [file]`. Doc: <https://www.kernel.org/doc/html/v4.10/process/coding-style.html>

References/resources

- *Notes on Programming in C*, Rob Pike
 - *C Header File Guidelines*, David Kieras, University of Michigan
-

Project tree

Tree

```
[PROJECT DIRECTORY]/
|-- bin
|   |-- data -> ../data
|   |-- Project
|   |-- Project.exe
|   +-- log.Project
|-- data
|   |-- images
|   +-- ...
|-- etc
|   +-- conf.project
|-- lib32
|   |-- libcsfml-audio.dll
|   +-- ...
|-- lib64
|   |-- libcsfml-audio.so.1.6
|   +-- ...
|-- man
|   +-- project.6
|-- readme.d
|   |-- AUTHORS.txt
|   |-- LICENSE.SFML.txt
|   |-- LICENSE.txt
|   |-- changelog
|   +-- copyright
|-- src
|   |-- font
|   |   +-- usedGPLFont.zip
|   |-- inc
|   |   +-- SFML
|   |       |-- Audio
|   |           |-- AudioResource.hpp
|   |           |-- Types.h
|   |           +-- ...
|   |       |-- Graphics
|   |           +-- ...
|   |       +-- ...
|   |-- Makefile
|   |-- libsfsys.c
|   |-- libsfsys.h
|   |-- project.c
```

```

| |-- project.h
| |-- mod.c
| |-- mod.h
| |-- utils.c
| +-- utils.h
|-- wip
| |-- DevLog
| | |-- Screenshot - 12142013 - 02:44:22 PM.png
| | +-- ...
| |-- datMusicParts
| | +-- ...
| +-- ...
|-- NOTES
|-- README
+-- TODO

```

Directories

[Name]	[Content]
./	Regular README files and possibly other (few) things
./bin	Binaries ; where the program is built
./data	Project data (images, sounds, fonts, etc...)
./etc	Configuration files
./lib32	32-bit libraries (*.lib, *.so, *.a, *.dll)
./lib64	64-bit libraries (*.lib, *.so, *.a, *.dll)
./man	Linux manual pages
./readme.d	Remaining licensing information and other informative text files (not mandatory)
./src	Source files
./src/inc	Included external headers
./wip	“Work In Progress” material

Releasing

When releasing the project to a wider audience, it’s necessary to remove useless files and directory such as:

* ./wip