libaescprintf Documentation

Release 1.0.0

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ONE

LIBAESCPRINTF (ANSI ESCAPE SEQUENCE COLOR PRINT FORMAT).

library libaescprintf

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website <http://www.open-source-projects.net/libaescprintf/libaescprintf>

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1.1 Introduction

libaescprintf is a little library based on the `ANSI escape sequences` and only compatible with terminals *ANSI escape sequences* compliant terminals.

Most of terminal that I have tested works well but not all.

But in addition **libaescprintf** provides

some styles features like **bold**, **strike-trough**, **italic**, and so on...

Note: You can insert the *ANSI escapes sequences*

into an **echo** command or using the binary **tput**

but with this library you can use it into a source code.

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note *The goal* of this library is to provide a lightweight textual pretty output.

1.2 libaescprintf

- **libaescprintf** can be divided into 2 different output functions types.

  - `printf(...)()`

    For simply formatting the output.

  and

  - `fprintf(...)()`

    For using the `FILE *` **stream** you want.

    And why not serializing to a file...

- **`libaescprintf`** can be divided into *background and foreground* colors.

  The colors can be divided into Light and Dark colors.

- **`libaescprintf`** provides styles features.

CHAPTER

TWO

TYPES OF LIBAESCPRINTF

libaescprintf make usage of different types of colors and styles:

```
// Building a color and a style type. (Used into library functions).

enum style_enum { normal = 0 , bold = 1 , dim = 2 , italic = 3, underline =␣
↪4 , blink = 5, inverted = 7, hidden = 8, strikethrough = 9 } ;

//typedef enum color_enum  color_t ;
typedef enum style_enum  style_t ;

// Building a foreground color type. (Used into library functions).

                     // Foreground Normal >= 30   <= 37   (8 colors)
                     // Foreground Light  >= 90   <= 97   (8 colors)
enum fg_color_enum { fg_black     = 30,     fg_darkgray     = 90,
                     fg_red       = 31,     fg_lightred     = 91,
                     fg_green     = 32,     fg_lightgreen   = 92,
                     fg_yellow    = 33,     fg_lightyellow  = 93,
                     fg_blue      = 34,     fg_lightblue    = 94,
                     fg_pink      = 35,     fg_lightpink    = 95,
                     fg_cyan      = 36,     fg_lightcyan    = 96,
                     fg_lightgray = 37,     fg_white        = 97,

                     fg_default   = 39 } ;


// Building a background color type. (Used into library functions).

                     // Background Normal >= 40   <= 47   (8 colors)
                     // Background Light  >= 100  <= 107  (8 colors)
enum bg_color_enum { bg_black     = (30+10),     bg_darkgray    = (90+10),
                     bg_red       = (31+10),     bg_lightred    = (91+10),
                     bg_green     = (32+10),     bg_lightgreen  = (92+10),
                     bg_yellow    = (33+10),     bg_lightyellow = (93+10),
                     bg_blue      = (34+10),     bg_lightblue   = (94+10),
                     bg_pink      = (35+10),     bg_lightpink   = (95+10),
                     bg_cyan      = (36+10),     bg_lightcyan   = (96+10),
                     bg_lightgray = (37+10),     bg_white       = (97+10),

                     bg_default   = (39+10) } ;

typedef enum fg_color_enum  fg_color_t ;
typedef enum bg_color_enum  bg_color_t ;
```

Which you can use in various functions from this library.

2.1 Styles

- normal
- bold
- dim
- italic
- underline
- blink
- inverted
- hidden
- strikethrough

2.2 Colors

2.2.1 Foreground colors values

- fg_black
- fg_darkgray
- fg_red
- fg_lightred
- fg_green
- fg_lightgreen
- fg_yellow
- fg_lightyellow
- fg_blue
- fg_lightblue
- fg_pink
- fg_lightpink
- fg_cyan
- fg_lightcyan
- fg_lightgray
- fg_white
- fg_default (Your current terminal foreground color).

2.2.2 Background colors values

- bg_black
- bg_darkgray
- bg_red
- bg_lightred
- bg_green
- bg_lightgreen
- bg_yellow
- bg_lightyellow
- bg_blue
- bg_lightblue
- bg_pink
- bg_lightpink
- bg_cyan
- bg_lightcyan
- bg_lightgray
- bg_white
- bg_default (Your current terminal background color).

CHAPTER

THREE

DEFINES OF LIBAESCPRINTF

The ANSI escape sequences are defines as well into **`libaescprintf`**:

```
/** You can use this defines into raw string formatting. **/

#define ESC   "\033"  // Escape sequence (octal format).

// Dark colors defines.
#define DB    ESC "[30m"  // Dark Black.
#define DR    ESC "[31m"  // Dark Red.
#define DG    ESC "[32m"  // Dark Green.
#define DY    ESC "[33m"  // Dark Yellow.
#define DS    ESC "[34m"  // Dark Sky. (Dark blue)
#define DP    ESC "[35m"  // Dark Pink.
#define DC    ESC "[36m"  // Dark Cyan.
#define DW    ESC "[37m"  // Dark white. (Light Gray)

// Light colors defines.
#define LB    ESC "[90m"  // Light Black.
#define LR    ESC "[91m"  // Light Red.
#define LG    ESC "[92m"  // Light Green.
#define LY    ESC "[93m"  // Light Yellow.
#define LS    ESC "[94m"  // Light Sky.  (Light blue)
#define LP    ESC "[95m"  // Light Pink.
#define LC    ESC "[96m"  // Light Cyan.
#define LW    ESC "[97m"  // Light White.

#define DD    ESC "[39m"  // Default color.

// Styles defines
#define RESET           ESC "[0m"   // Reset.
#define BOLD            ESC "[1m"   // Bold.
#define DIM             ESC "[2m"   // DIM
#define ITALIC          ESC "[3m"   // Italic.
#define UNDERSTRIKE     ESC "[4m"   // Under-strike.
#define BLINK           ESC "[5m"   // Blink (Doesn't work on all terminals␣
↪look at xterm it work's on it !).
#define INVERTED        ESC "[7m"   // Inverted (Invert foreground and␣
↪background).
#define HIDDEN          ESC "[8m"   // Hidden (Print only background color).
#define STRIKETROUGHT   ESC "[9m"   // Strike-through.
```

You can simply make usage of them into `printf()` family functions.

CHAPTER

FOUR

THE STYLED COLORED `PRINTF()` FUNCTIONS:

4.1 Styled Print Format:

int **`s_printf`** (style_t *style*, const char **fmt*, ...)

Parameters

- **`style`** – the *style* to apply to the text.
- **`fmt`** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type `int`.

4.2 Color Foreground Print Format:

int **`cfg_printf`** (fg_color_t *color*, const char **fmt*, ...)

Parameters

- **`fg_color`** – The *foreground color* to apply.
- **`fmt`** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type `int`.

4.3 Color Background Print Format:

int **`cbg_printf`** (bg_color_t *bgcolor*, const char **fmt*, ...)

Parameters

- **`bg_color`** – The *foreground color* to apply.
- **`fmt`** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type `int`.

4.4 Styled Foreground Color Print Format:

int **scfg_printf** (style_t *style*, fg_color_t *fg_color*, const char **fmt*, ...)

Parameters

- **style** – the *style* to apply to the text.
- **fg_color** – The *foreground color* to apply.
- **fmt** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type int.

4.5 Styled Background Color Print Format:

int **scbg_printf** (style_t *style*, bg_color_t *bg_color*, const char **fmt*, ...)

Parameters

- **style** – the *style* to apply to the text.
- **bg_color** – The *background color* to apply.
- **fmt** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type int.

4.6 Color Foreground Background Print Format:

int **cfgbg_printf** (fg_color_t *fg_color*, bg_color_t *bg_color*, const char **fmt*, ...)

Parameters

- **fg_color** – The *foreground color* to apply.
- **bg_color** – The *foreground color* to apply.
- **fmt** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type int.

4.7 Styled Color Foreground Background Print Format:

int **scfgbg_printf** (style_t *style*, fg_color_t *fg_color*, bg_color_t *bg_color*, const char **fmt*, ...)

Parameters

- **style** – the *style* to apply to the text.
- **fg_color** – The *foreground color* to apply.
- **bg_color** – The *foreground color* to apply.

- **fmt** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type int.

CHAPTER

FIVE

THE STYLED COLORED `FPRINTF()` FUNCTIONS

5.1 File Styled Print Format:

int **`s_fprintf`** (FILE **fp*, style_t *style*, const char **fmt*, ...)

Parameters

- **`fp`** – A `FILE` pointer.
- **`style`** – the *style* to apply to the text.
- **`fmt`** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type `int`.

5.2 File Color Foreground Print Format:

int **`cfg_fprintf`** (FILE **fp*, fg_color_t *color*, const char **fmt*, ...)

Parameters

- **`fp`** – A `FILE` pointer.
- **`fg_color`** – The *foreground color* to apply.
- **`fmt`** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type `int`.

5.3 File Color Background Print Format:

int **`cbg_fprintf`** (FILE **fp*, bg_color_t *bgcolor*, const char **fmt*, ...)

Parameters

- **`fp`** – A `FILE` pointer.
- **`bg_color`** – The *foreground color* to apply.
- **`fmt`** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type int.

5.4 File Styled Foreground Color Print Format:

int **scfg_fprintf** (FILE **fp*, style_t *style*, fg_color_t *fg_color*, const char **fmt*, ...)

Parameters

- **fp** – A FILE pointer.
- **style** – the *style* to apply to the text.
- **fg_color** – The *foreground color* to apply.
- **fmt** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type int.

5.5 Styled Background Color Print Format:

int **scbg_printf** (FILE **fp*, style_t *style*, bg_color_t *bg_color*, const char **fmt*, ...)

Parameters

- **fp** – A FILE pointer.
- **style** – the *style* to apply to the text.
- **bg_color** – The *background color* to apply.
- **fmt** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type int.

5.6 File Color Foreground Background Print Format:

int **cfgbg_fprintf** (FILE **fp*, fg_color_t *fg_color*, bg_color_t *bg_color*, const char **fmt*, ...)

Parameters

- **fp** – A FILE pointer.
- **fg_color** – The *foreground color* to apply.
- **bg_color** – The *foreground color* to apply.
- **fmt** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type int.

5.7 File Styled Color Foreground Background Print Format:

int **scfgbg_fprintf** (FILE **fp*, style_t *style*, fg_color_t *fg_color*, bg_color_t *bg_color*, const char **fmt*, ...)

Parameters

- **fp** – A `FILE` pointer.
- **style** – the *style* to apply to the text.
- **fg_color** – The *foreground color* to apply.
- **bg_color** – The *foreground color* to apply.
- **fmt** – The format string for the output.

Returns The number of characters from the output string or -1 in case of error.

Return type `int`.

CHAPTER

SIX

ABOUT LIBAESCPRINTF

At first I often try myself to find the generic function into termcap to get the colors and styles codes
for building a library compliant with any terminal and I fail to find it...
So I often try to get some help from a terminal dinosaur which master termcap or termios to
make a more generic library.
But nobody **HOME**...

Note: I can do more with terminal Sequences as displaying a True Color image (RGB) into a terminal
(xterm, terminals build with libvte-2.91 on GNU/Linux)
But I must reduce the cursor to the minimum size
for doing this but I can't restore a normal cursor size...

enjoy So enjoy using **libaescprintf** for ANSI art as I enjoy to write this little library.

6.1 Compatibility

libaescprintf was tested on as many terminals I could find into the repositories,
sometimes some terminals either don't blink or don't accept **ANSI** escape sequences at all.
But most of the time it works well.
It works in most of the terminals: konsole as gnome-terminal and many others.
But the old bug concern the background and the linefeed appears on some terminals:
if you set the background color other than default and set an linefeed the entire line is
background highlighted with the chosen color per example the Apple-Terminal do this one
(but the blinking effect works well with it).

6.2 Note from the author

I don't try to reinvent the wheel but simply provide this minimalist library
in the following goals:

1. At first to provide a lightweight library for only textual effect.

2. To catch your attention so that someone can help me to make the library universal, using termcap (or termios).

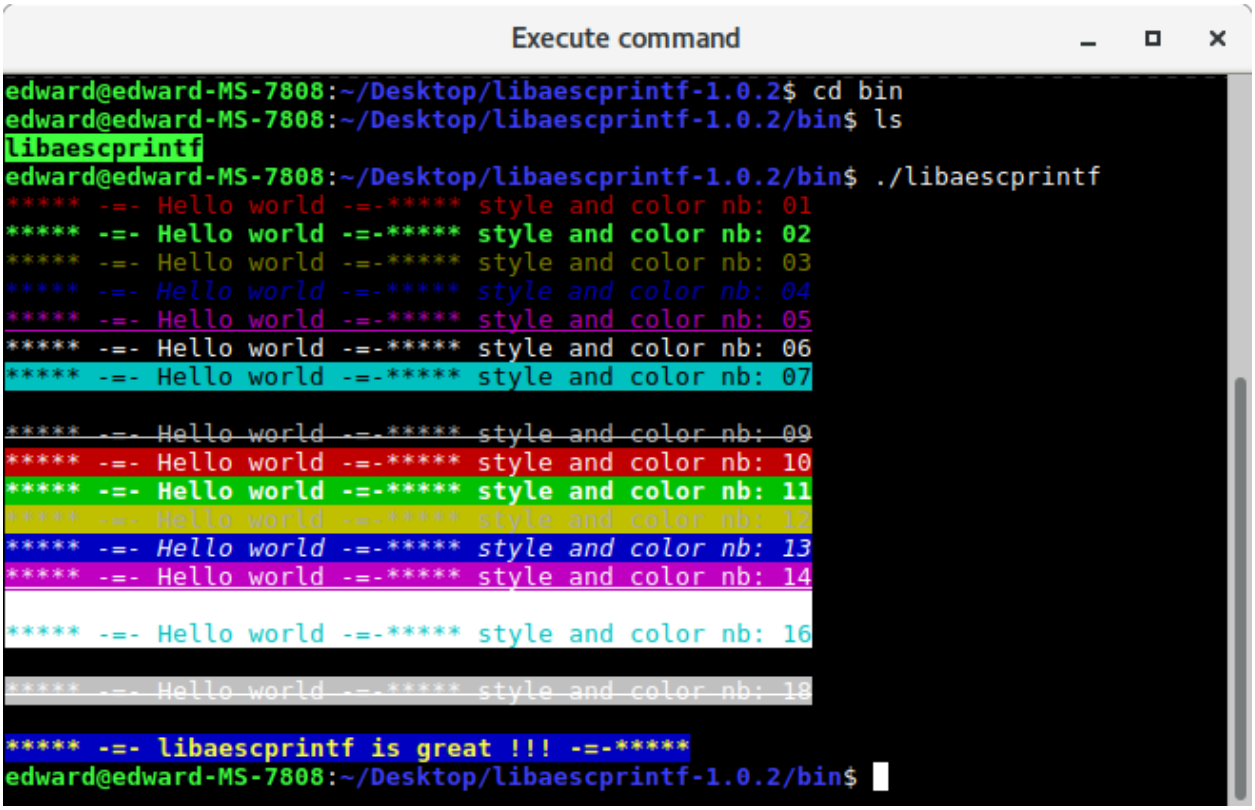
CHAPTER

SEVEN

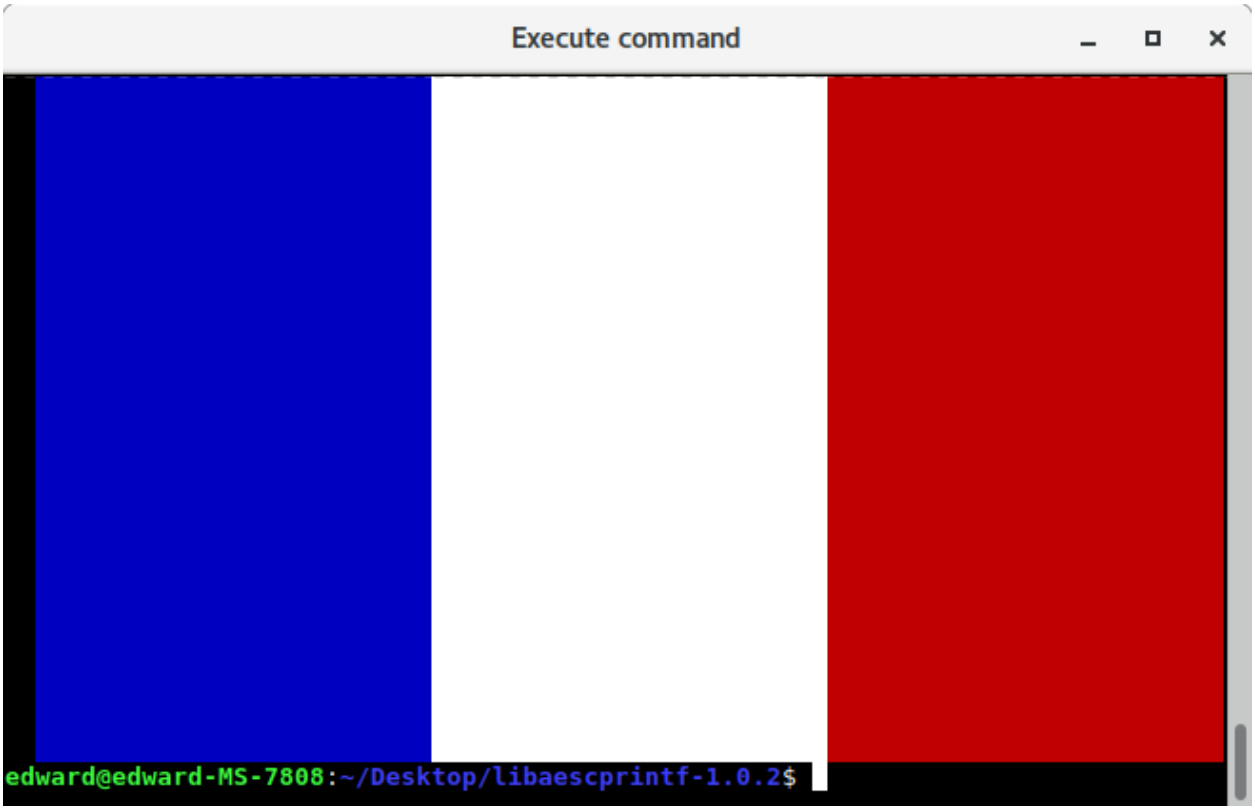
LIBAESCPRINTF SCREEN-SHOTS:

7.1 Matrix output

7.2 Text output



7.3 Flags output



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EIGHT

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