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# **libConsole Documentation**

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**ANSI**

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## OVERVIEW

The libconsole provides a simple interface between serial devices, such as UART or USART, and the tasks.

### 1.1 Limitations

This library is not designed for holding multiple serial lines concurrently.

<p><b>Warning:</b> The libconsole does not configure any hardware control flow. Deactivate this feature from your serial console client</p>
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## 2.1 Initializing the console

Initialize the console is made by two functions:

```
#include "libconsole.h"

mbed_error_t console_early_init(uint8_t usart_id, uint32_t speed);
mbed_error_t console_init(void);
```

`console_early_init()` function must be called during the task *initialization phase* while the former `console_init()` must be called after, during the *nominal phase*.

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**Note:** The `console_early_init()` can not make the whole initialization because the device is still not mapped in task's memory space.

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The `usart_id` argument is the identifier of the USART device ,typically 1 to 6 on STM32F4xx SoCs.

The `speed` argument is the serial console speed in bauds (typical values are 115200, 57600, 38400, 14400 or 9200). It is possible to set any speed (such as 1Mb/s or older 1200 bps) if it's supported by the peer.

## 2.2 Printing data on the console

The console library provides a high level, easy to use logging function to print-out formatted strings on the serial console:

```
#include "libconsole.h"

void console_log(const char *fmt, ...);
```

This function supported formatted output strings the way the `printf()` family functions of the EwoK libstd API handle them.

**Warning:** This function handle up to 128 bytes length formatted output string. Longer strings are truncated

## 2.3 Reading a line from the console

When interacting with a peer through a serial console, a `readline()` function is requested. This function is a blocking function returning the command sent by the peer when a carriage return is sent.

Reading lines on the console interface is done with the following API:

```
#include "libconsole.h"

mbed_error_t console_readline(char *str, uint32_t *len, uint32_t maxlen);
```

This function is a blocking function, waiting for a command to be sent on the serial line. The command is considered as sent (and the function is unlocking its execution) when a *carriage return* is received. When this event happens, the following is done:

- The command sent is copied in the `str` argument, and may be truncated to `maxlen` if the command length is bigger than the current command length
- The current command buffer is reinitialized
- If the command copy truncates the received command, the function returns `MBED_ERROR_NOSTORAGE`. Otherwise, the function returns `MBED_ERROR_NONE`

## 2.4 Prompting

The libconsole supports prompt printing on demand. The goal is to show a prompt character, followed by a space, on the console:

```
#include "libconsole.h"

void console_show_prompt(void);
```

### **3.1 Is it possible to declare multiple serial console in a same task ?**

Not yet. The libconsole is using a single global context which does not permit to handle multiple serial lines in the same time.

### **3.2 Is it possible to read multiple lines at a time ?**

Not at a time, but it is possible to read one line, parse it, and decide to read another one if needed (for e.g. if the last non-space character is a backslash)

### **3.3 Is the console USART device unmappable ?**

Not by now. the serial device is mapped automatically by the kernel.