This document describes how to enable the debug print (`printf`) in the STM32F7 board.

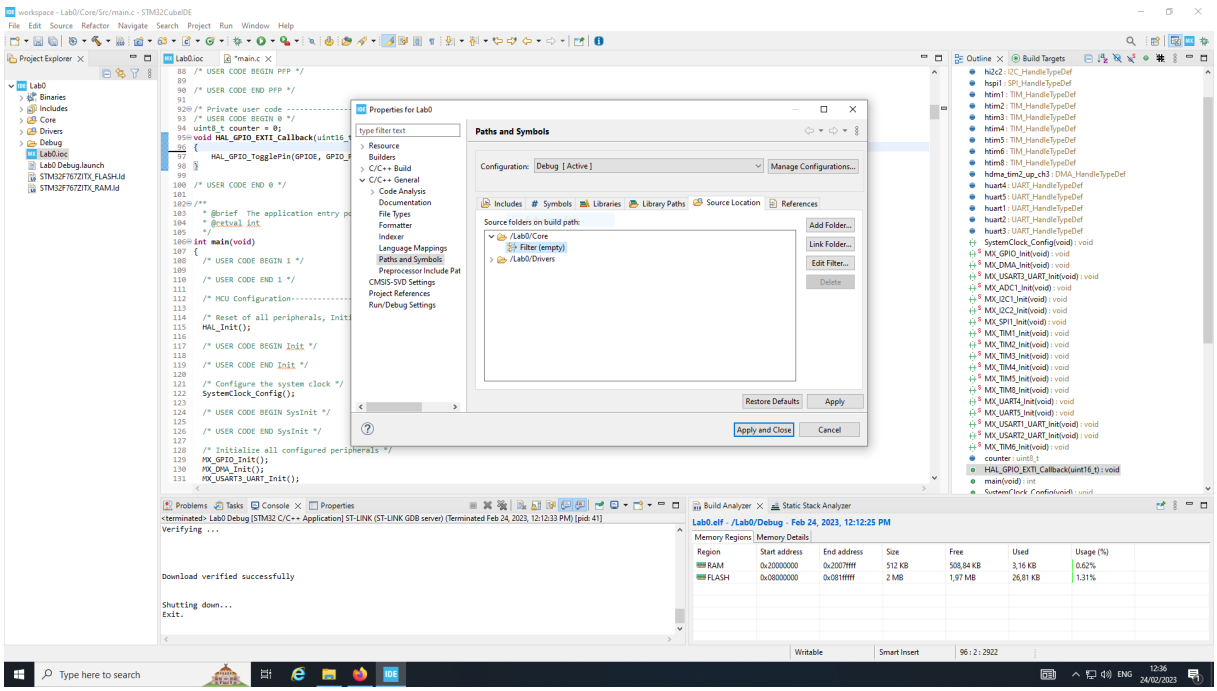
# 1 Enable semihosting

1- To start, go to `Project` > `Properties`.

2- Go in to `C/C++ General` > `Paths and Symbols`.

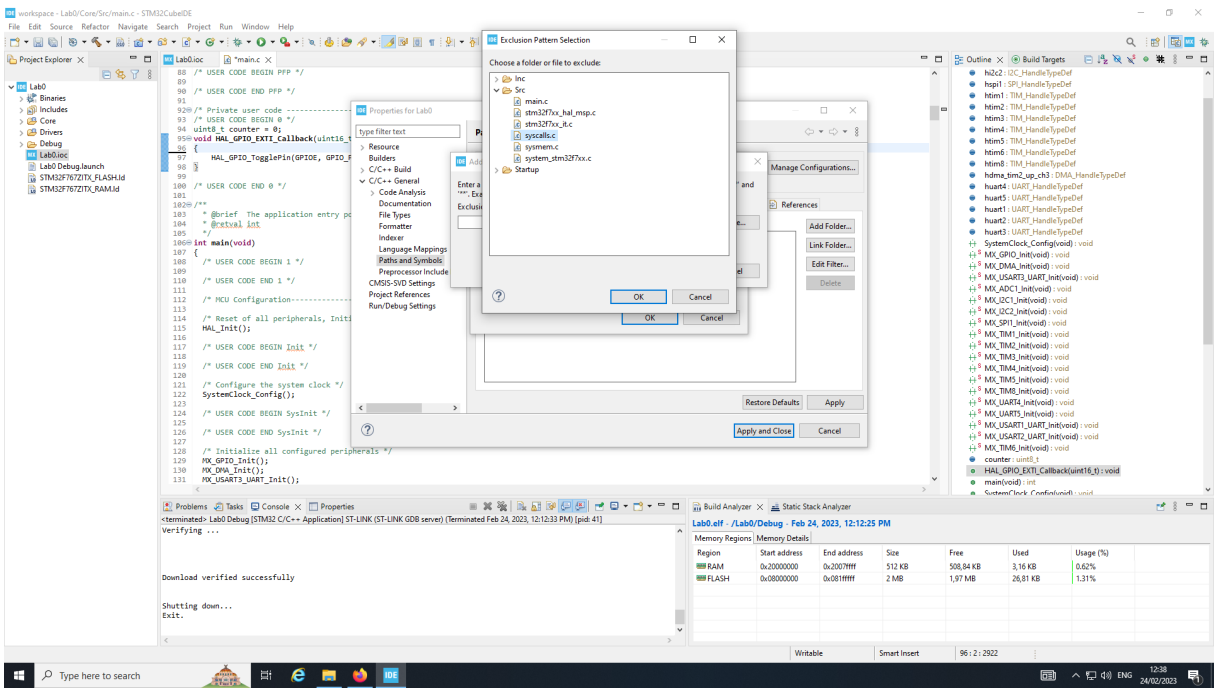
3- Click on the `Source Location` tab.

4- Click on the arrow next to `/<project name>/Core` to view the filter.




5- Select `Filter (empty)` and click the `Edit Filter...` button.

6- Add `syscalls.c` to the Exclusion patterns list and click `OK`.



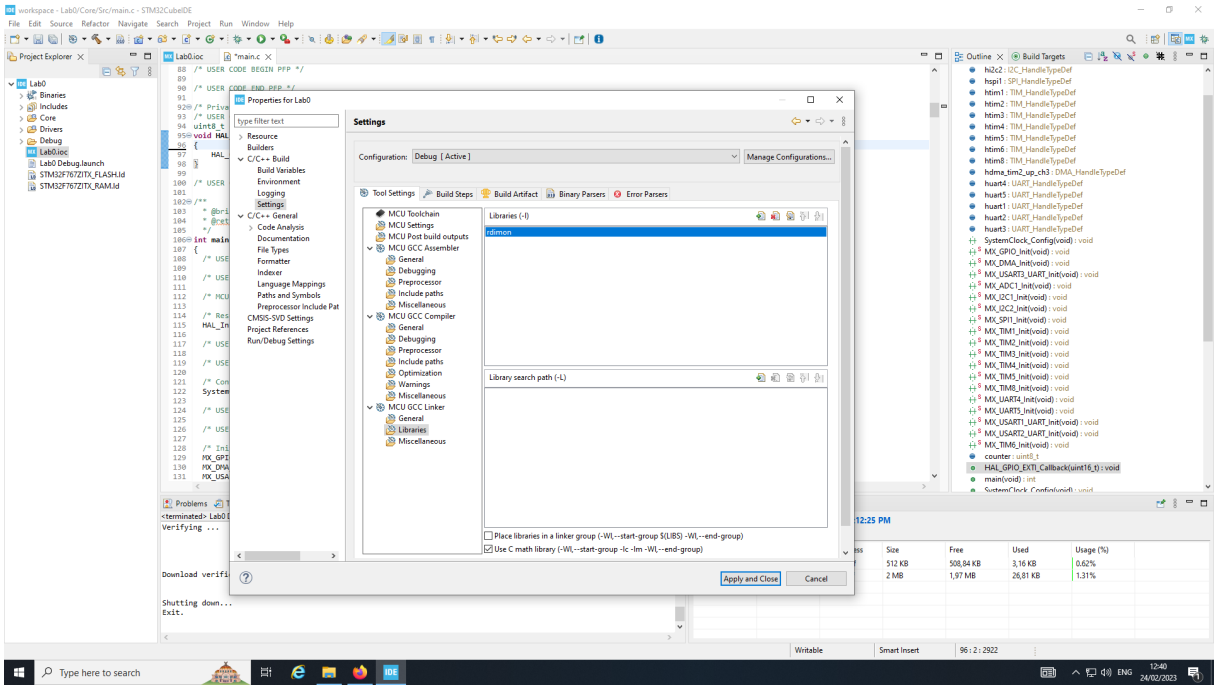

7- Click `Apply`.

8- On the left-side pane, go into `C/C++ Build` > `Settings`

9- Select the `Tool Settings` tab.

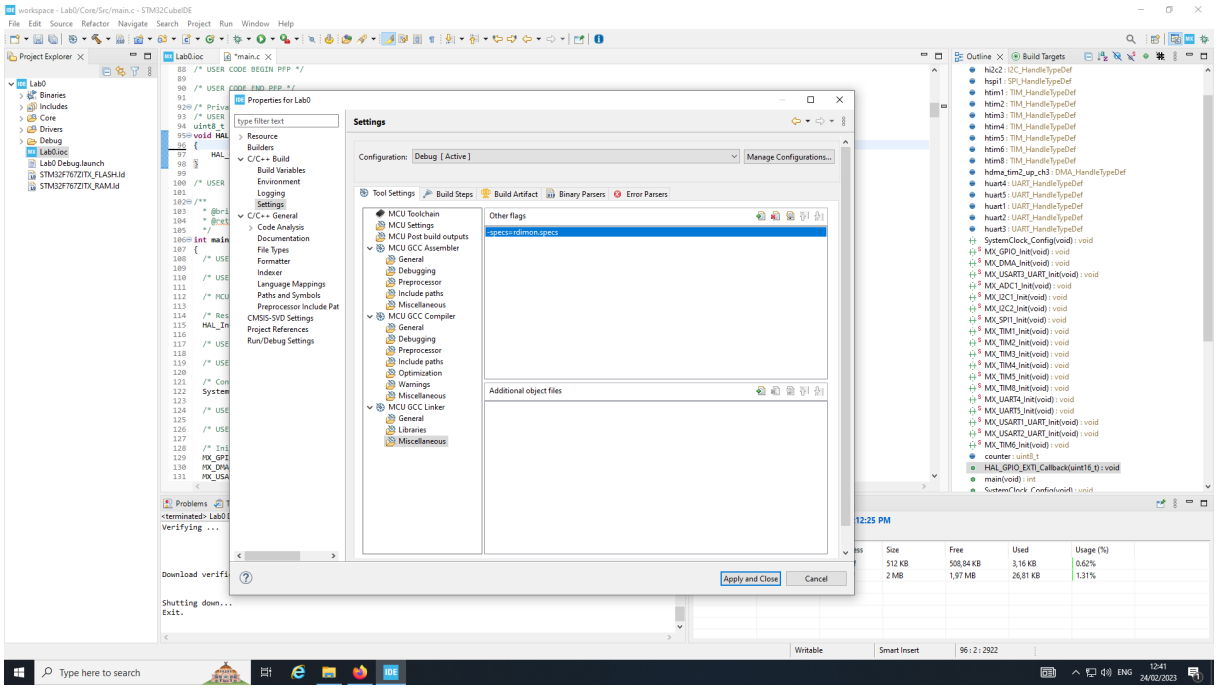
10- Select `MCU GCC Linker` > `Libraries`.

11- In the `Libraries` pane, click the `Add...` button and enter `rdimon`. This enables librdimon for us to make system calls with semihosting.




12- Click on `MCU GCC Linker` > `Miscellaneous` while still in the `Tool Settings` tab.

13- Click the `Add...` button and enter `-specs=rdimon.specs` into the dialog box.




14- Click `Apply and Close`.

## 2 Initialize the debug print in the main function

1- Declare this function in the `main.c` file. Place it near all the other function declarations.

```
extern void initialise_monitor_handles(void);
```

2- In `int main(void)` (before the `while(1)` loop), add the following line (I put mine in the USER CODE 1 section):

```
initialise_monitor_handles();
```

3- Finally, inside the `while(1)` loop, add the following:

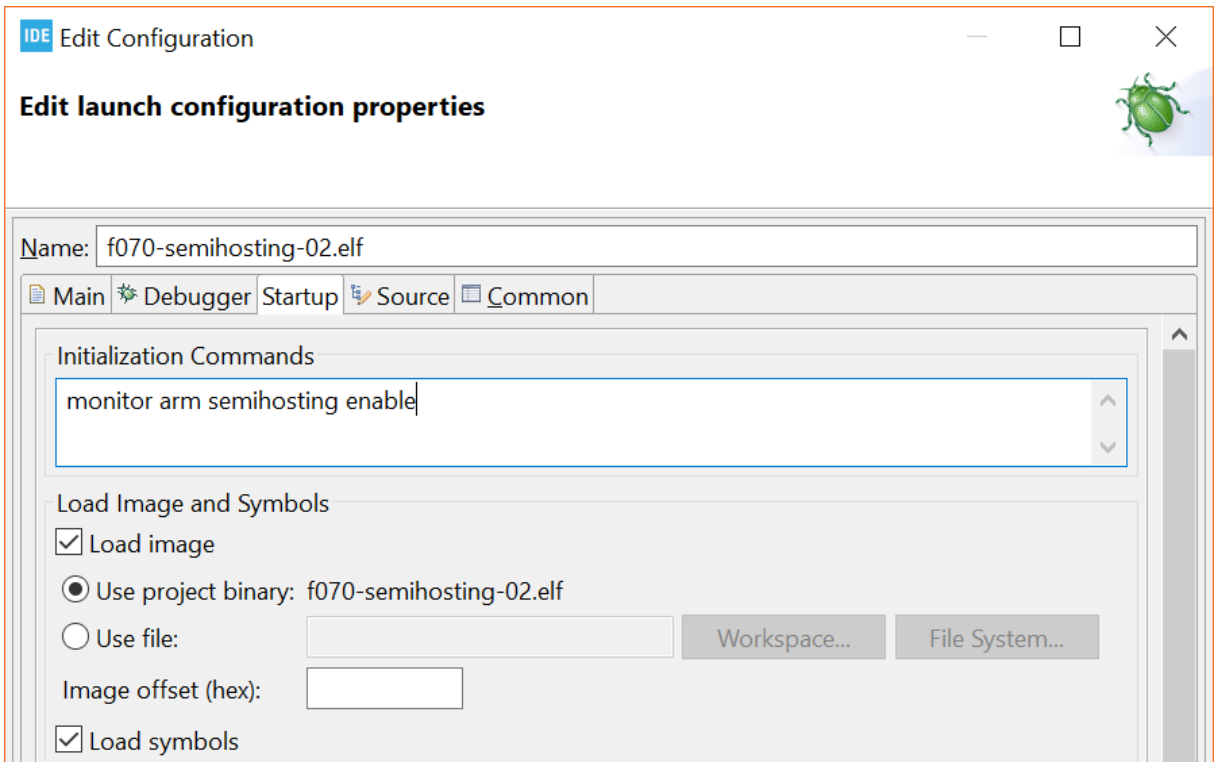
```
printf("Hello, World!\n");
HAL_Delay(1000);
```

## 3 Set the debug configuration

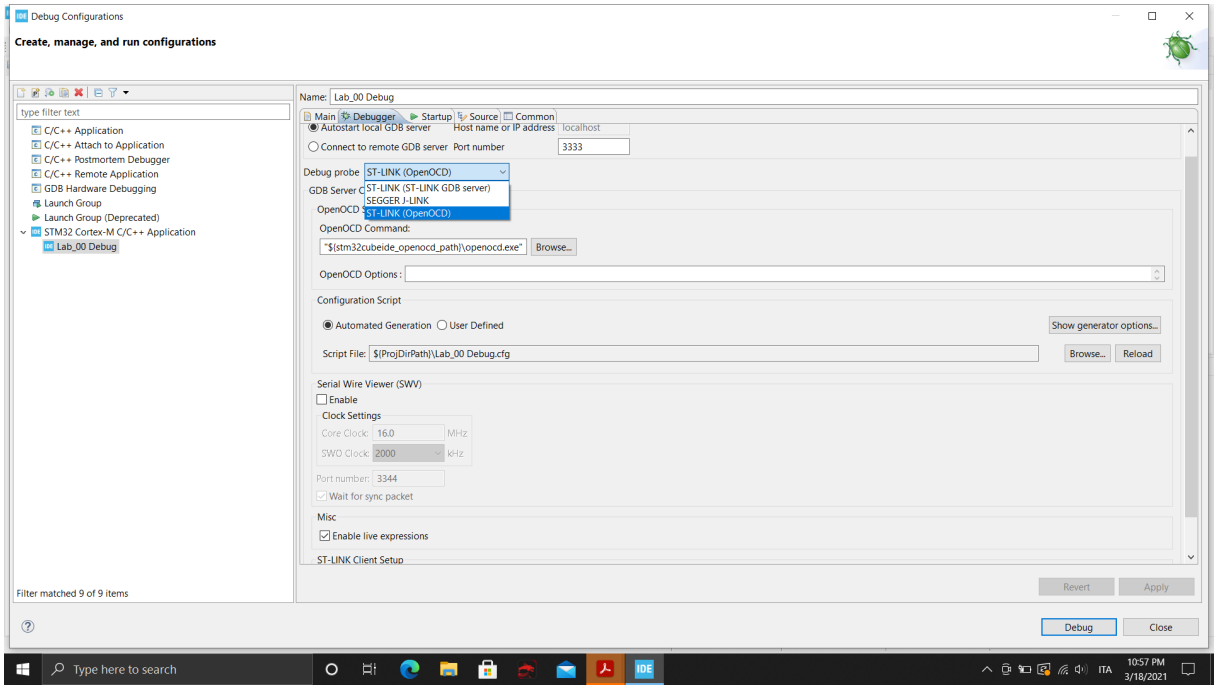
1- On the Project Explorer, right click on the project name and select `Debug As` > `Debug Configurations...`.

2- Go to the `Startup` tab and inside the `Initialization Commands` section, add the following line:

```
monitor arm semihosting enable
```




3- Go to the `Debugger` tab and in `Debug probe` select `ST-LINK (OpenOCD)` from the drop-down menu.



## 4 Run the program

To run the program, click on the Debug button.