How to create a project using STM32IDE

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How to create a new project with STM32IDE software

PREREQUISITES

Software needed:

- STM32IDE

Hardware used in this example:

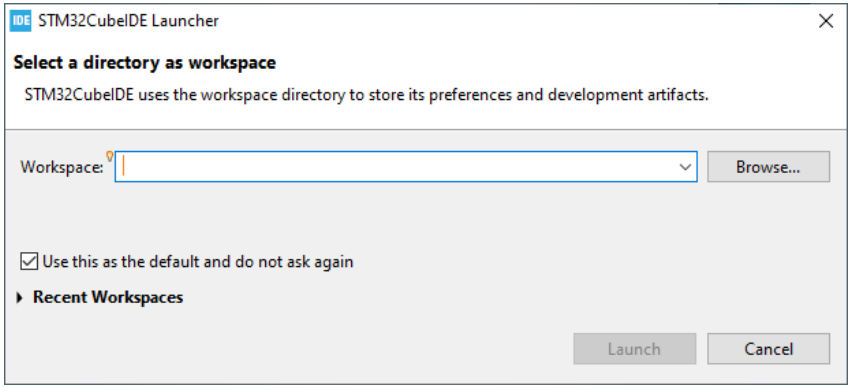
- **NUCLEO-F446ZE**

Start a new project

When you open the STM32IDE software for the first time, the following windows appears.

Choose a path for the ***workspace*** folder and click *Launch*.

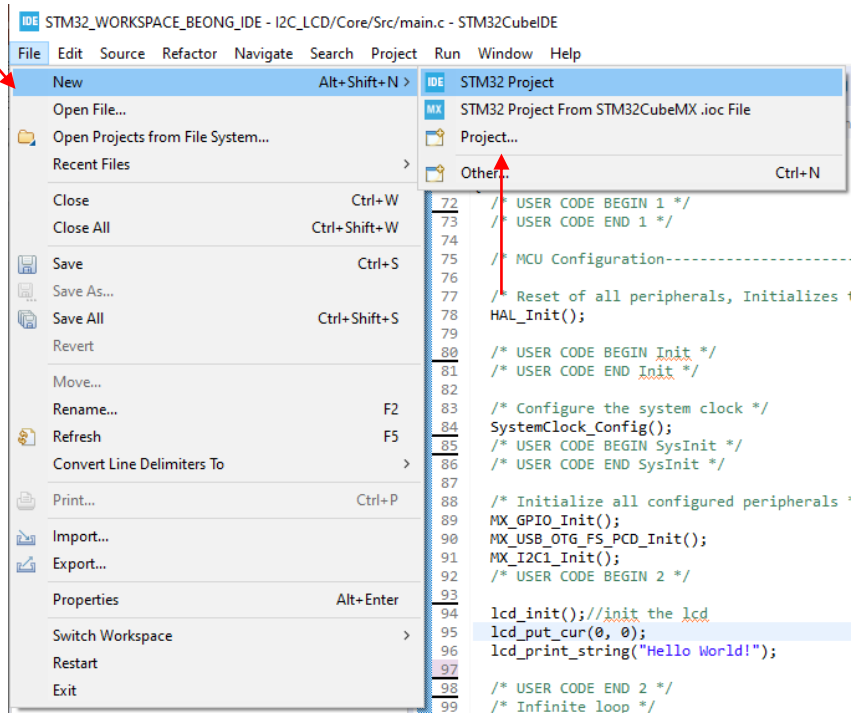
The workspace folder will contain all the future projects.



Start a new project

Click on *file → new → STM32 project.*

The project wizard will show up.



Start a new project

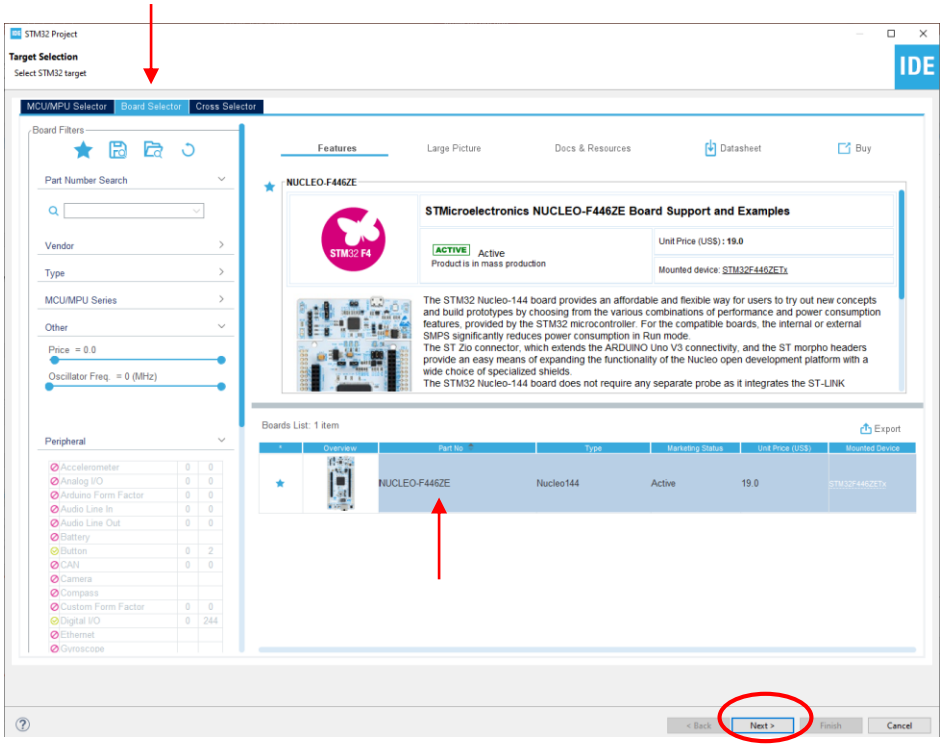
From this perspective we choose the uC that we are using for our application.

If you are developing your project on a dev-Board you can choose the board selector tab to find your board.

In our example we select the NUCLEO-F446ZE board.

It’s possible to add a list of favorite boards checking the star icon.

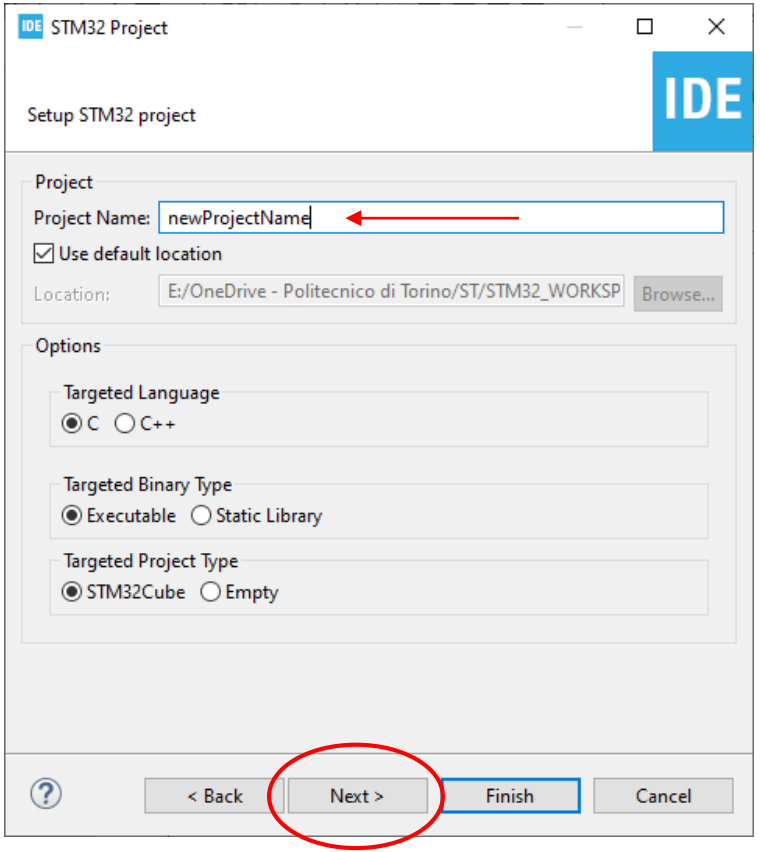
Select your desired board and click next.



Start a new project

Type the name of your project and click next.

By default the project will be created in the workspace folder.



Start a new project

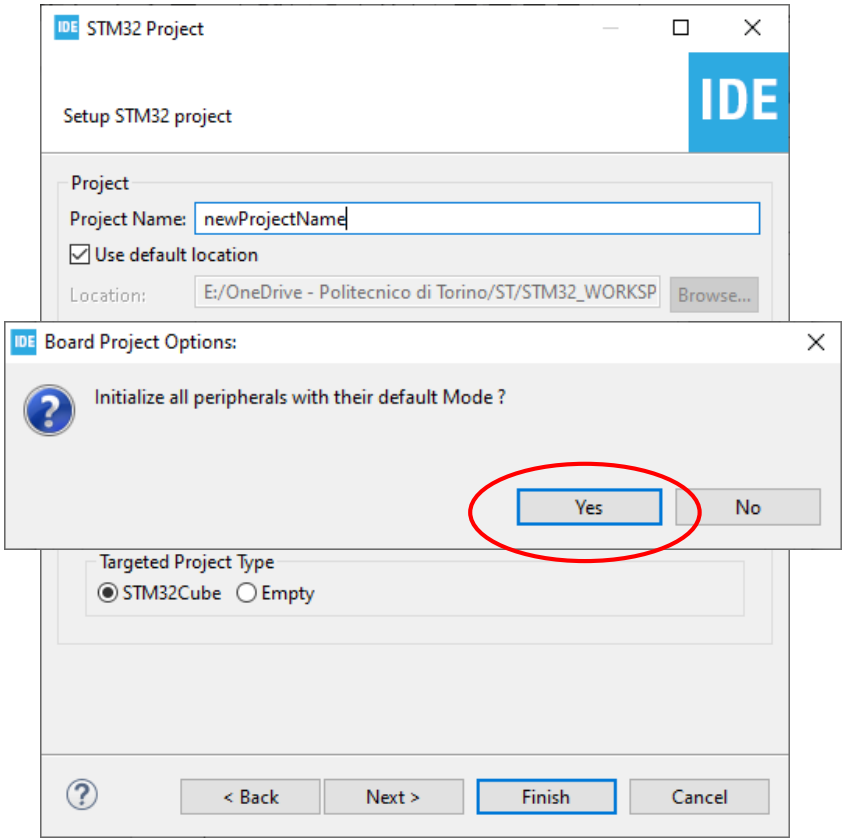
Type the name of your project and click next.

By default the project will be created in the *workspace* folder.

The *STM32IDE* has the option to initialize all the peripheral with their ***default*** mode:

Clicking *Yes* the *USART3*, all the *LEDs* and the blue *UserButton* will be configured as default.

Click *Yes*.

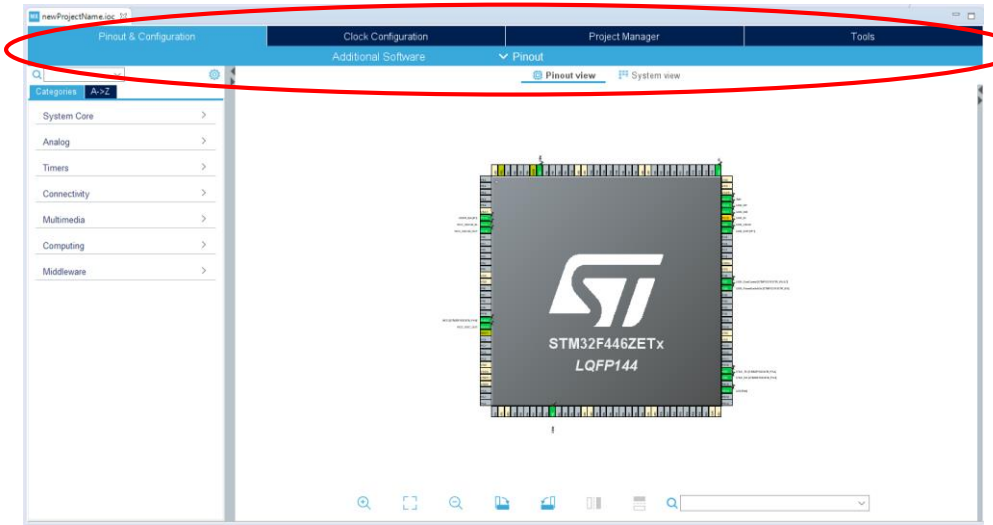


Device configuration tool Perspective

The “Device configuration tool Perspective” view will open (the old CubeMX).

This view is divided in four Tabs:

- *Pinout & configuration*
- *Clock Configuration*
- *Project Manager*
- *Tools*

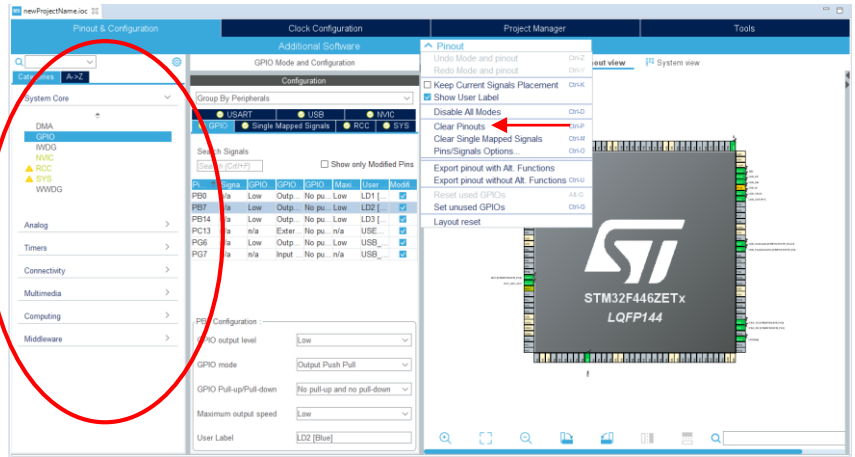


Pinout & Configuration

From this view It's possible to configure all the peripherals needed for the project such as GPIO, Timers, I2C, USART, SPI, ecc.

If you have initialized the peripheral with their default value you can see a lot of green pins: the software configured those for us, such as the blue user button or the led mounted on the board.

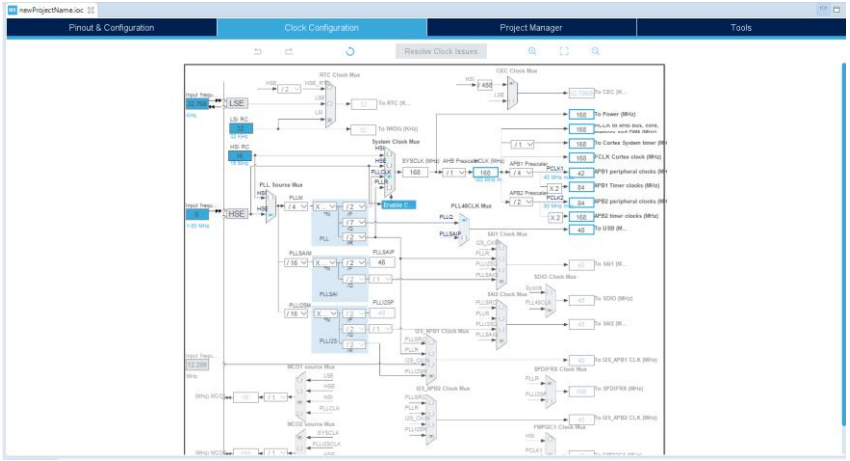
If you wish, you can clear your pinout from the *pinout* menu.



Clock

In the ***Clock Configuration*** you can define the clock frequency and sources for all the peripherals.

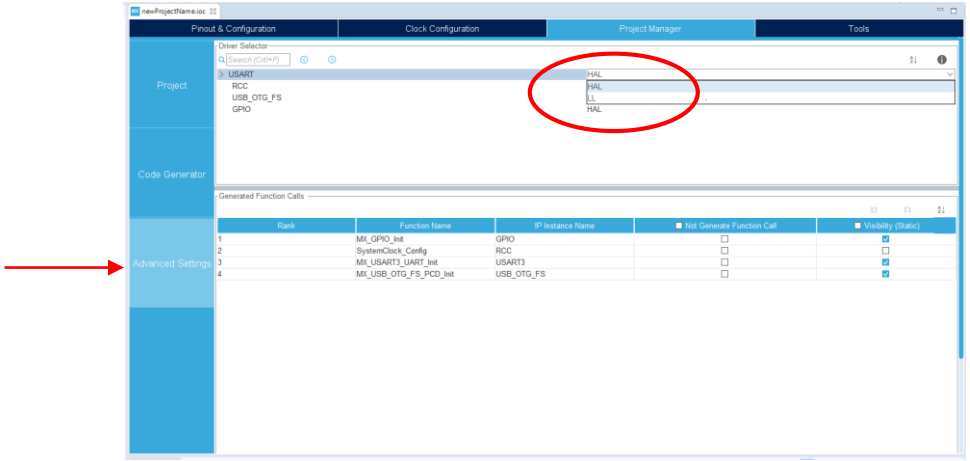
It’s very useful for application wherethe control on the clock frequency is needed: an example could be low power application where the clock frequency configuration is critical.



Project Manager

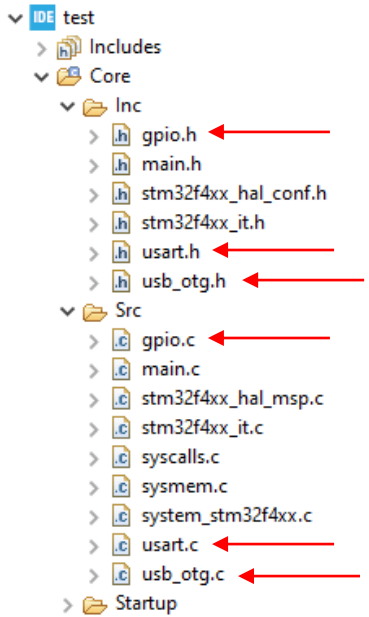
The ***Project Manager*** Tab is divided in 3 submenus. From here you can control for example the path of your project and so.

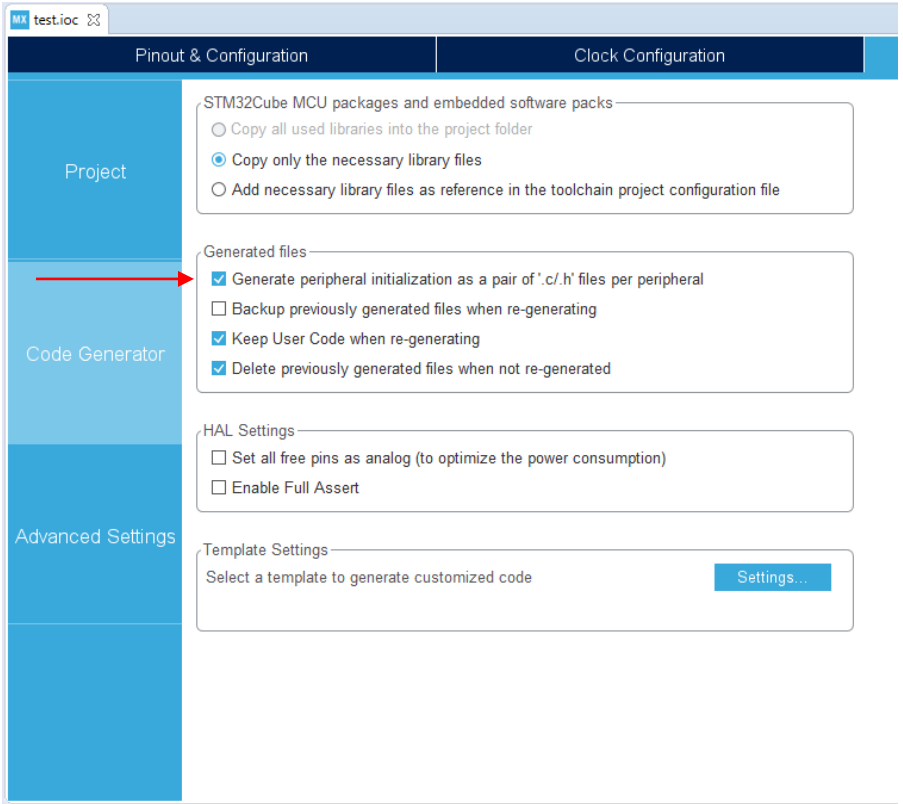
The most important tab is *Advanced Setting* : from here we can decide to use *HAL* or *LL* libraries to program the peripherals.



Project Manager

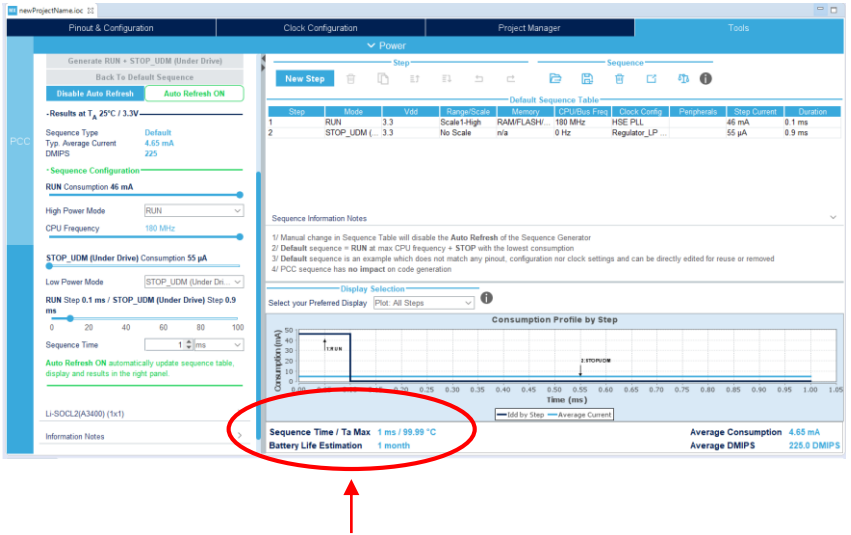
In the Code Generator Tab check the ***Generate peripheral initialization […]*** box: each periperhal will have a disting *periph.c* and *periph.h* files.





Tools

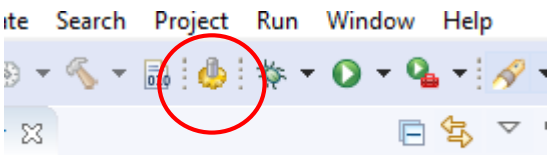
From the ***Tools*** tab it's possible to simulate the behavior of the uC in terms of power consumption and have information about the *battery life estimation*, ecc.

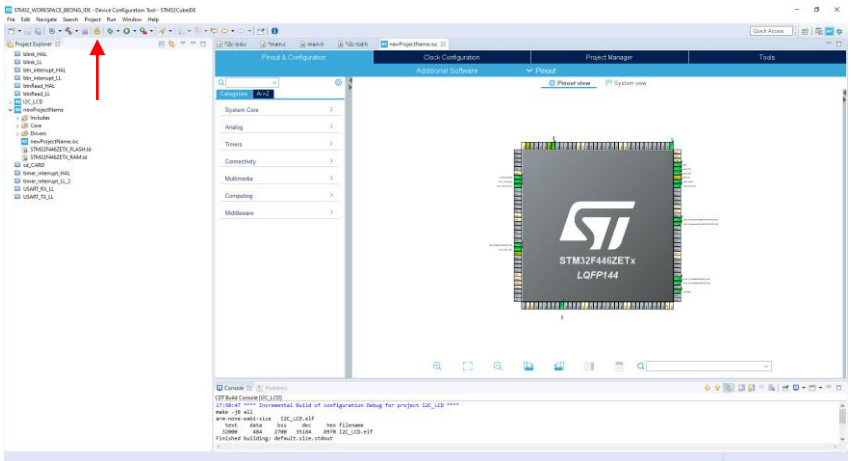


Code Generation

The next step is to ***generate*** the code: this process will generate all the files needed for the project such as the *main.c* and *main.h* files where it's possible to find all the configuration functions generated for our application.

Click on the generate icon (the gear) to generate the code.

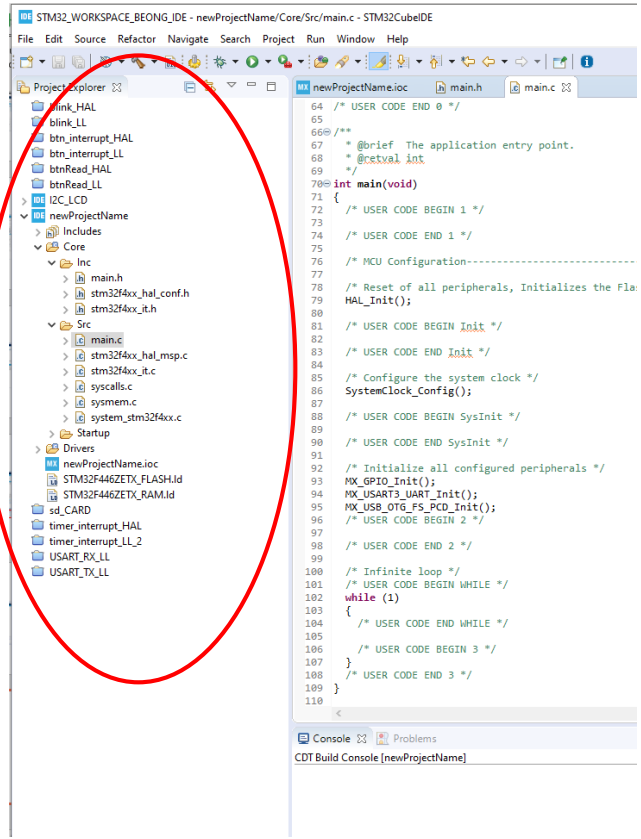




Project Explorer

On the left there is the ***Project Explorer*** where all the files are displayed.

From here you can manage your projects, add, remove or move files.



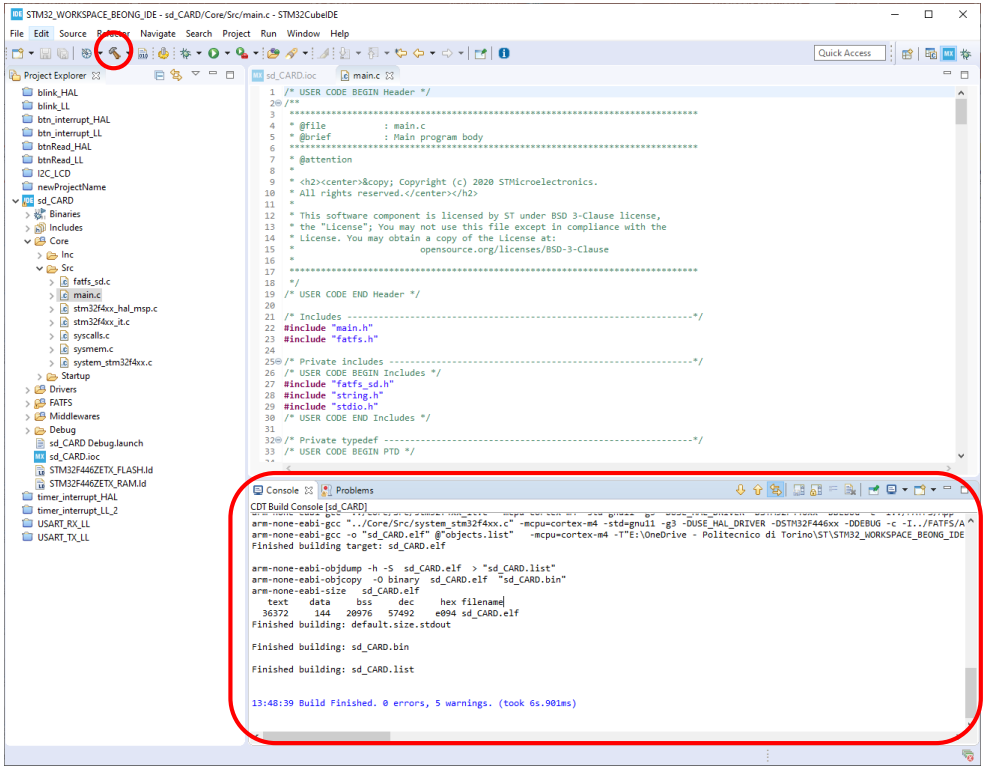
Build your project

Before run the program on your board it's a good idea to check for errors:

Compile the project by clicking on the Build icon  .

The result will be shown in the console box.

If there are non errors, continue by downloading the project to your board.



Download your Program on the board

In order to download the program on the board there are two ways:

- ***Run***: all the files will be download on the board and the program will start automatically
- ***Debug***: in this mode it's possible to debug your application using breakpoints or moving step by step in the code using the arrows.