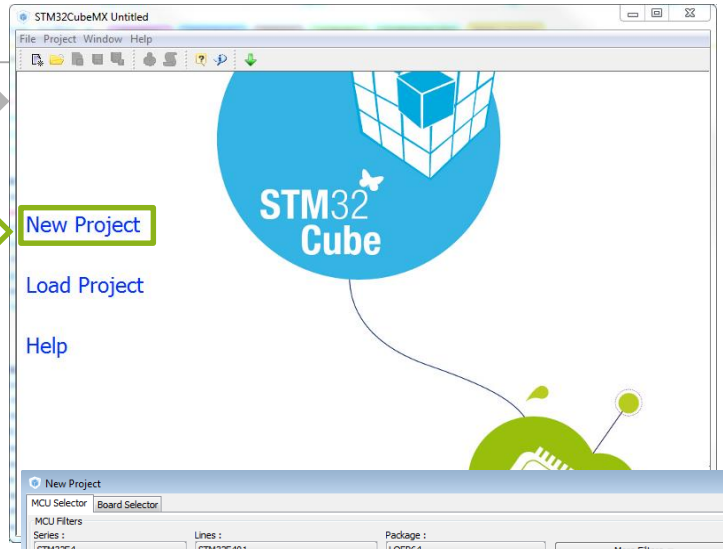
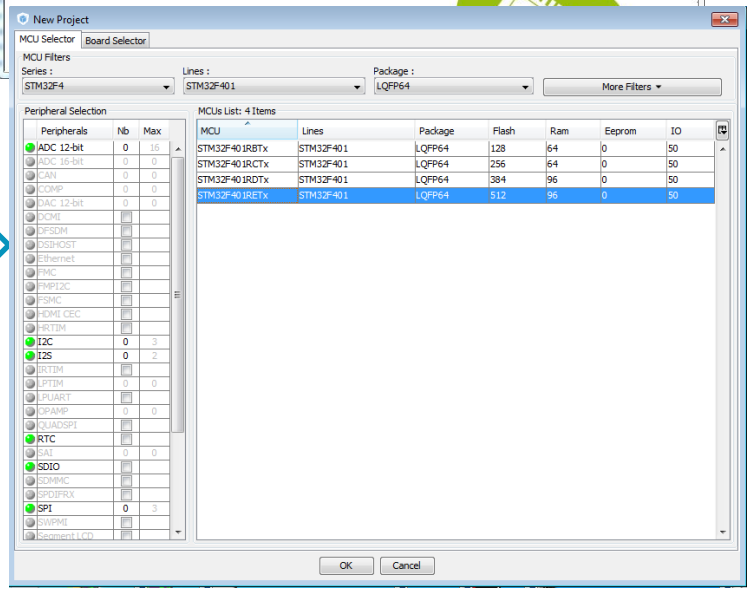
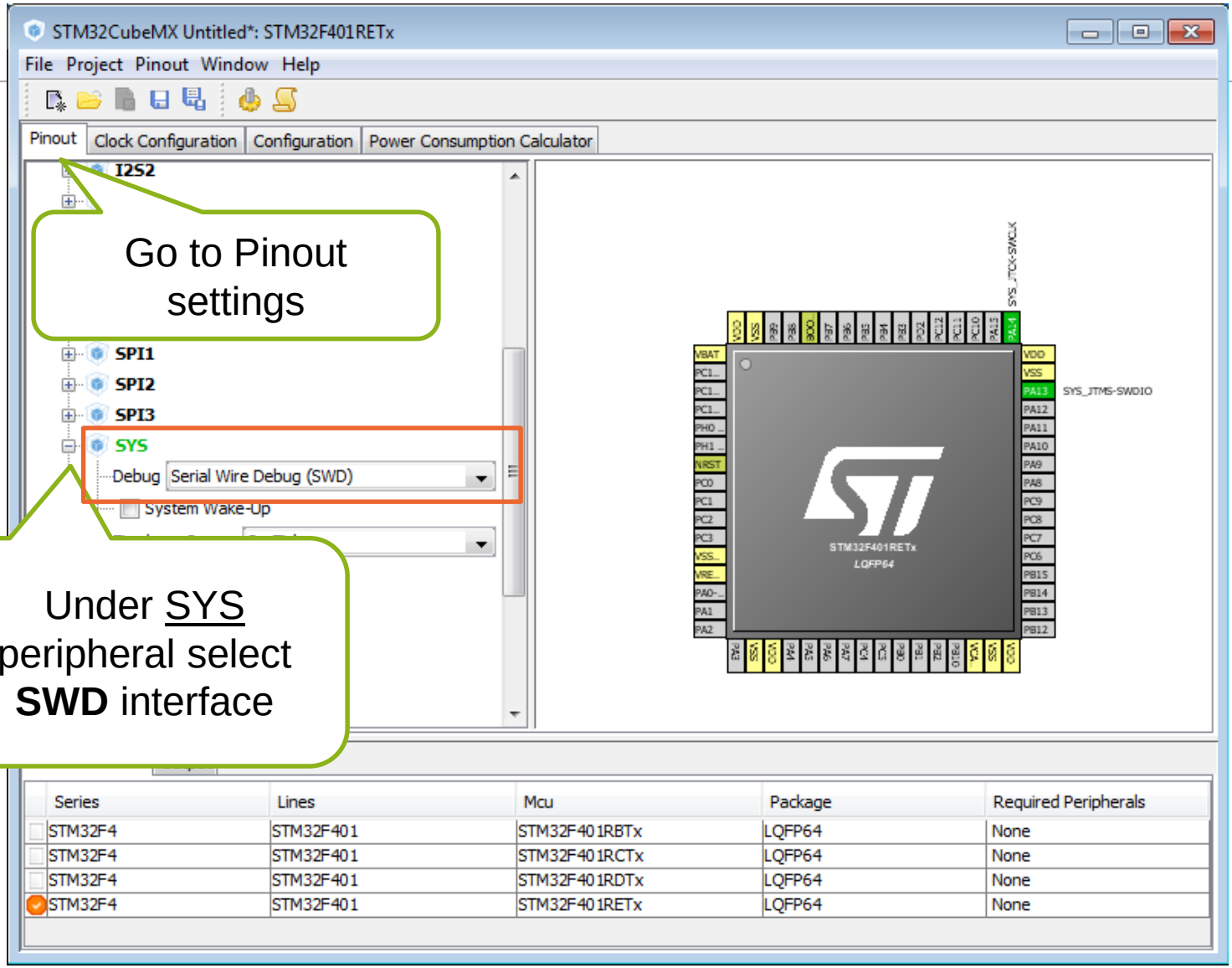
Create new project using CubeMX

- Run CubeMX tool
- Start **new project**
  - Click “New Project” desktop shortcut, or
  - Go to “Menu->File->New Project”
- Filter:
  - Series: STM32F4
  - Line: STM32F401
  - Package: LQFP64
- Select: **STM32F401RE**

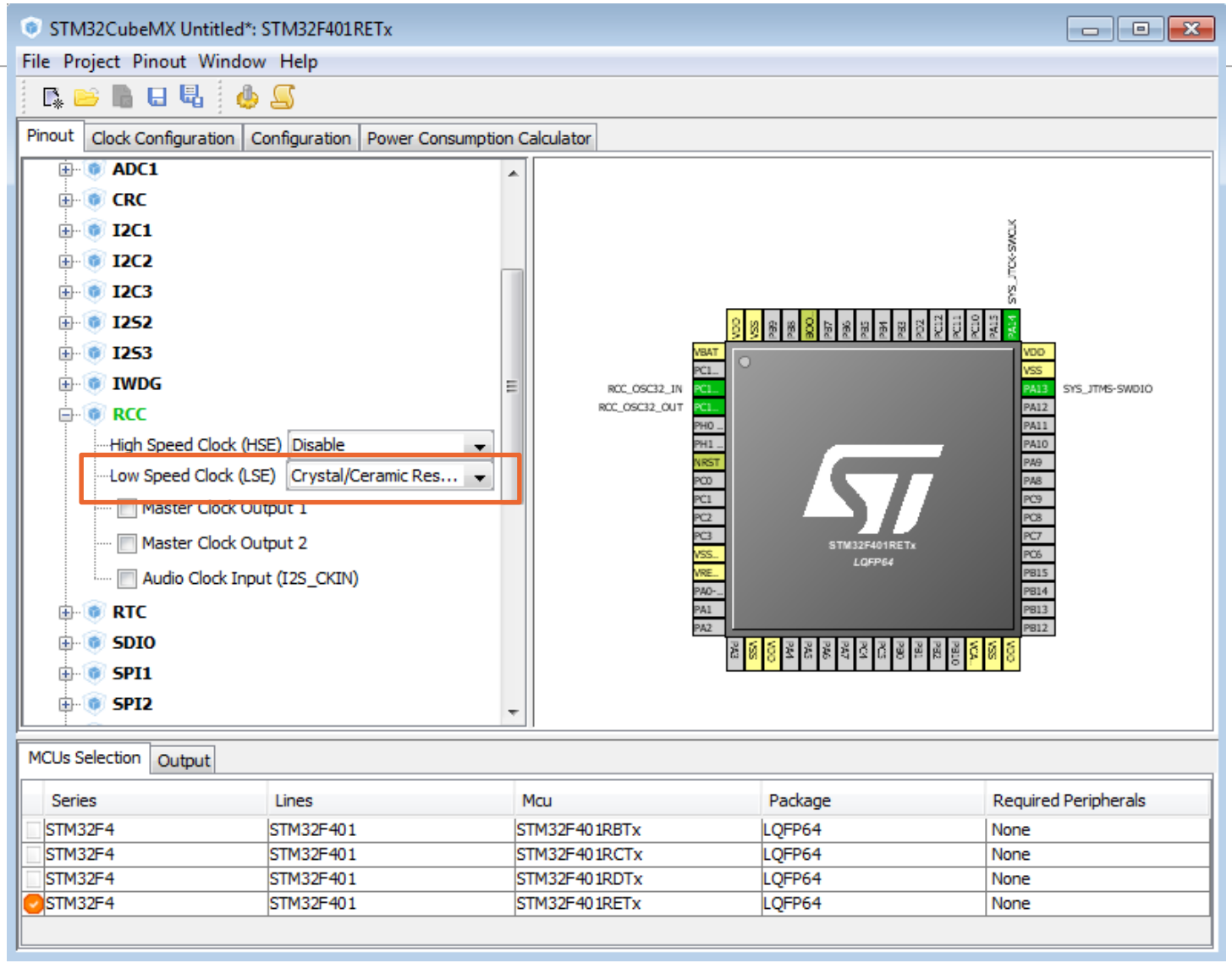




Configure debug interface

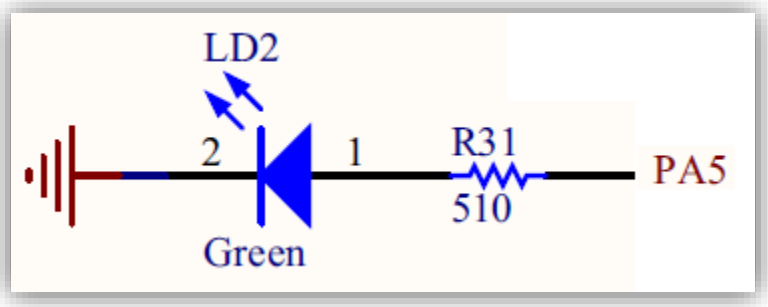


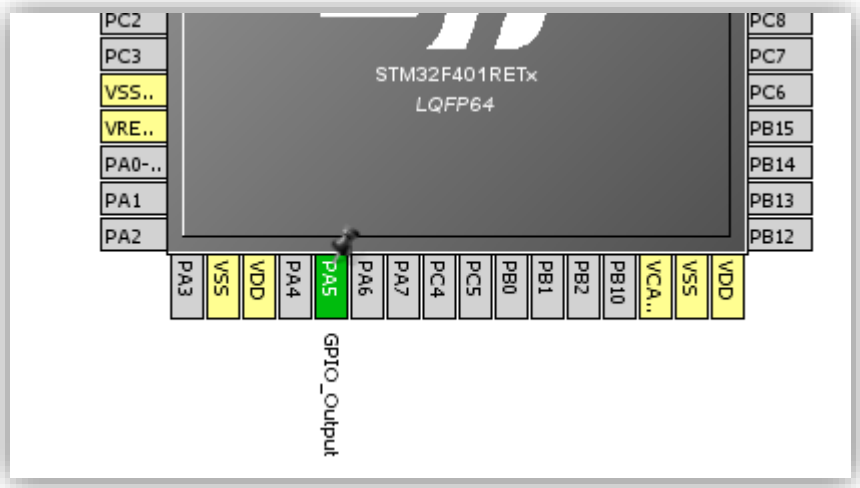
Configure LSE resonator (32,768 KHz)



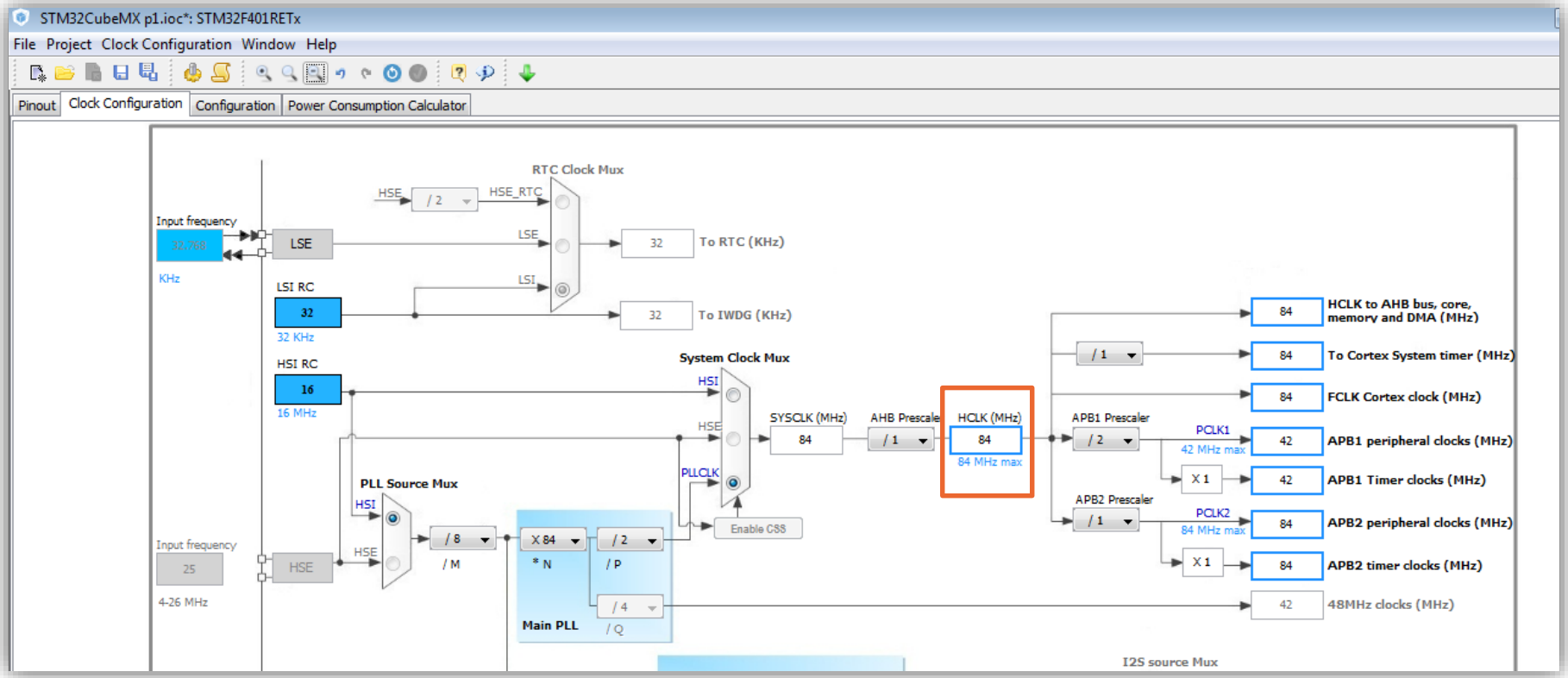
Configure GPIO for LED toggling

Configure LED pin as GPIO_Output

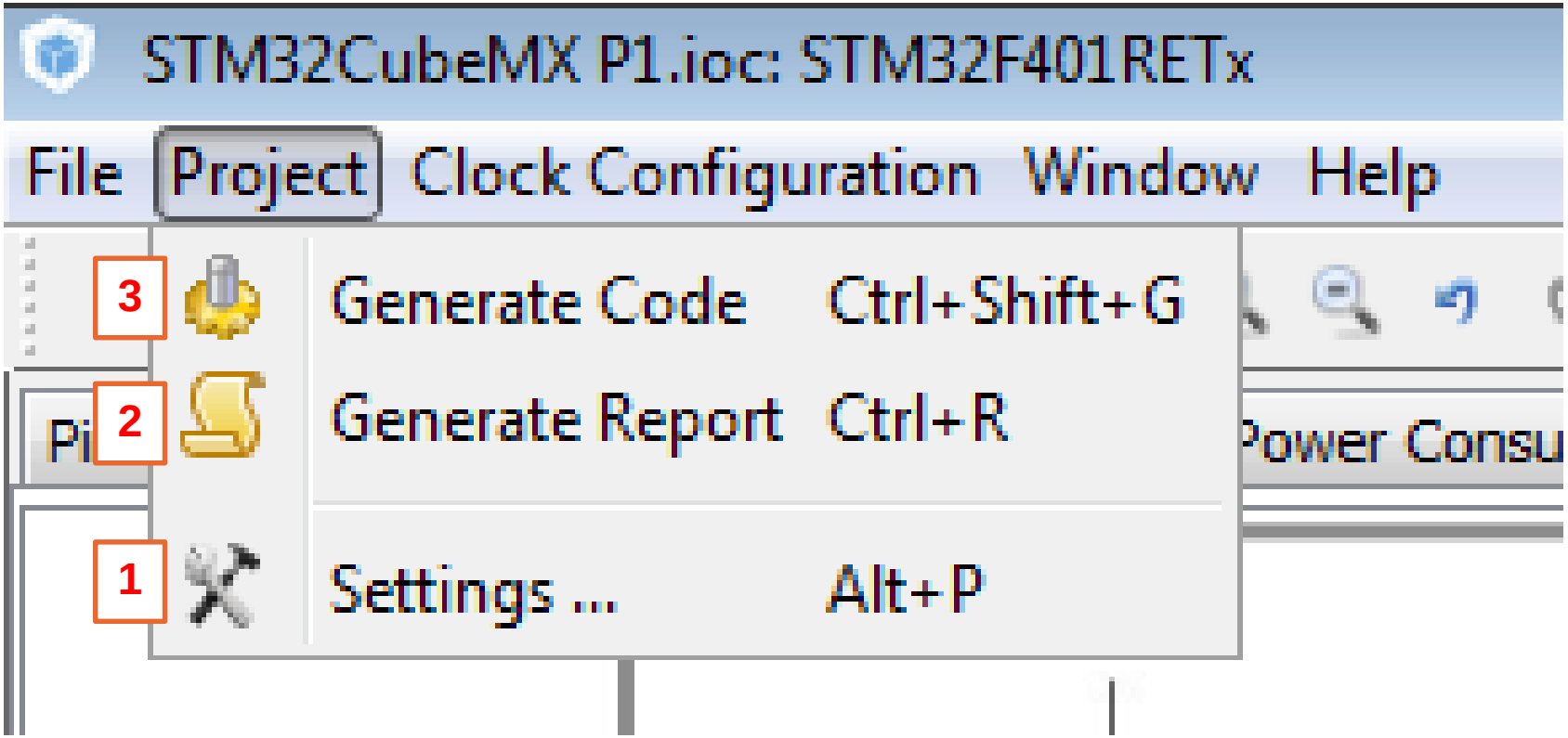




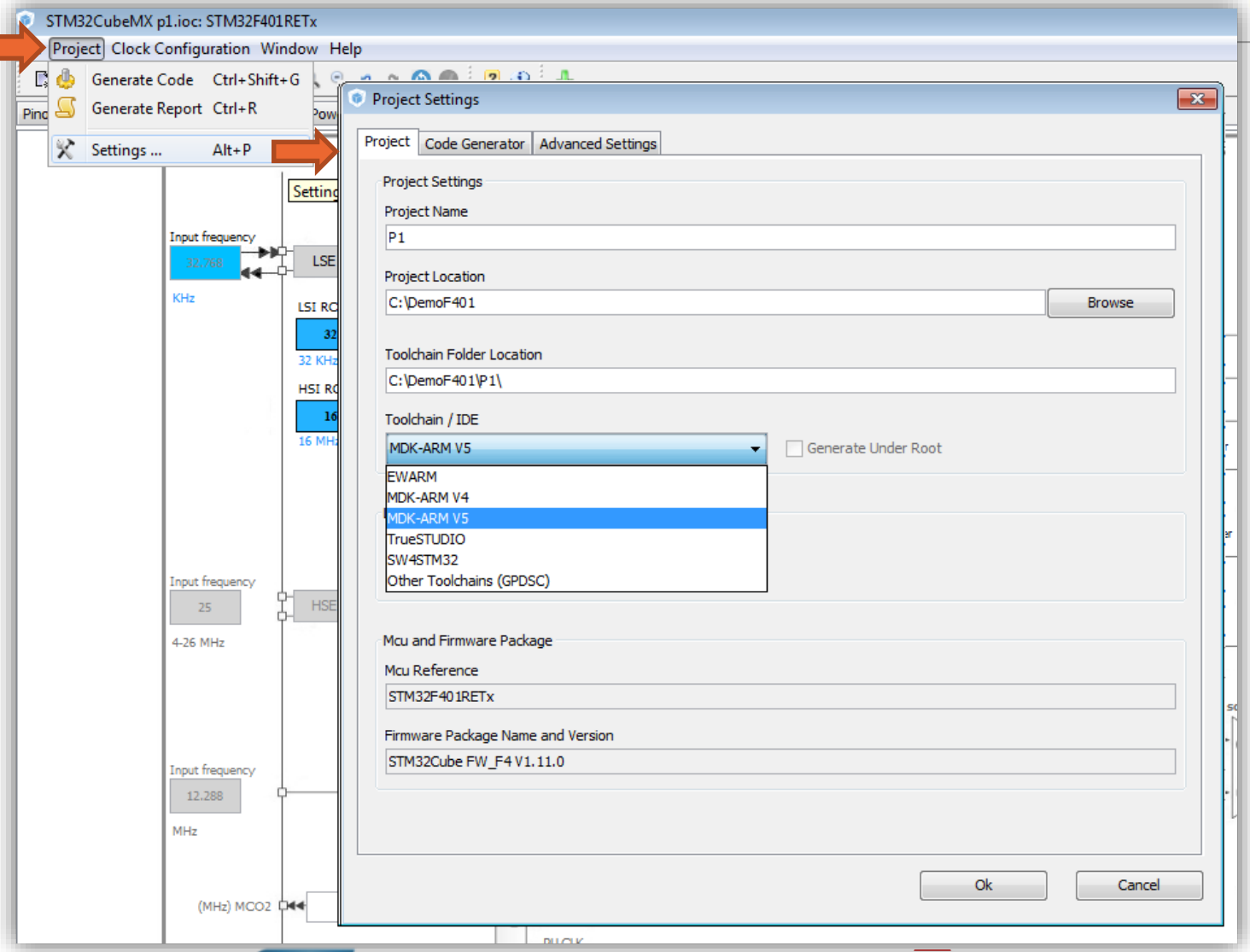
Clock configuration



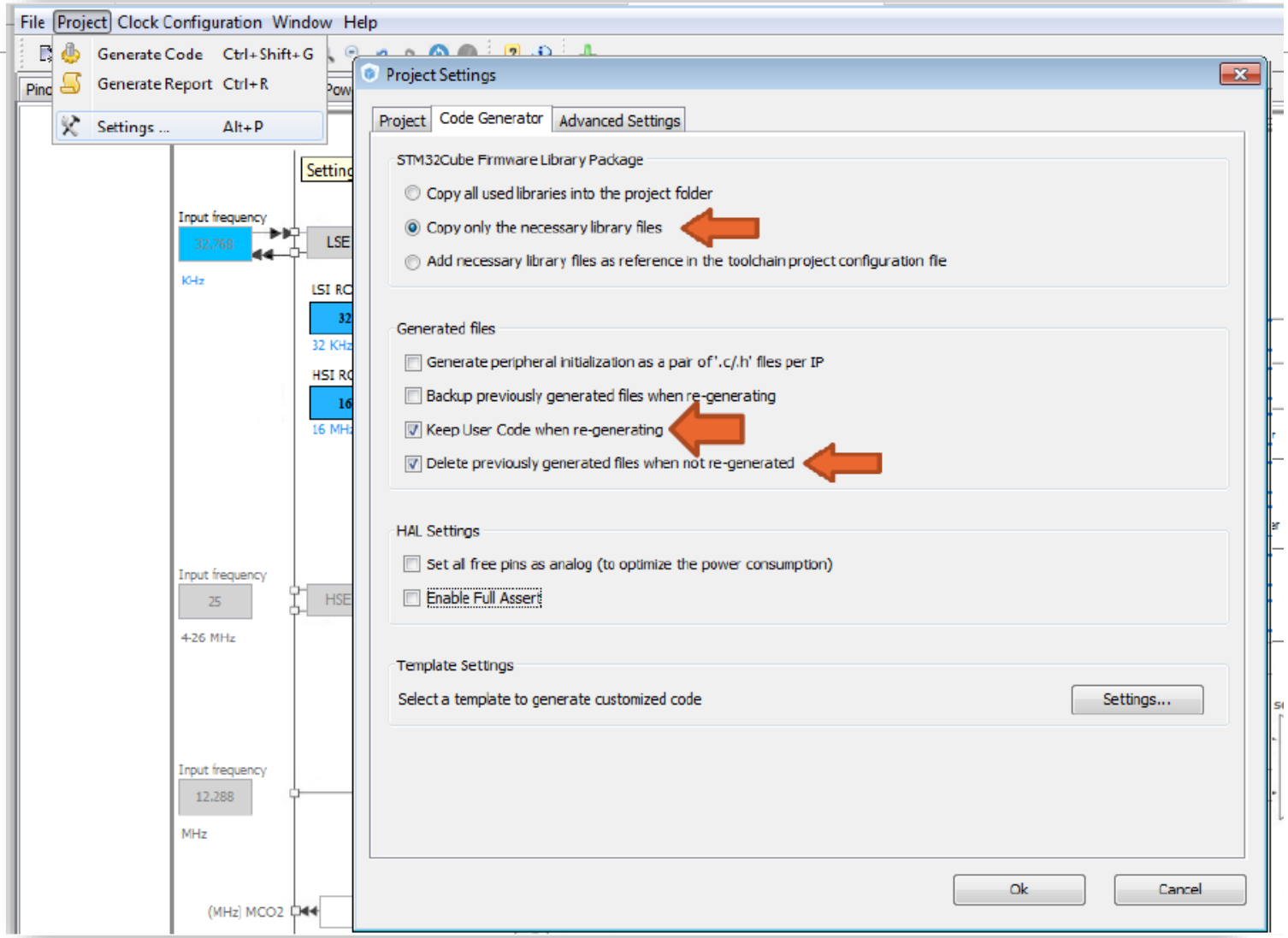
CubeMX generate the code for some GUI 1/3



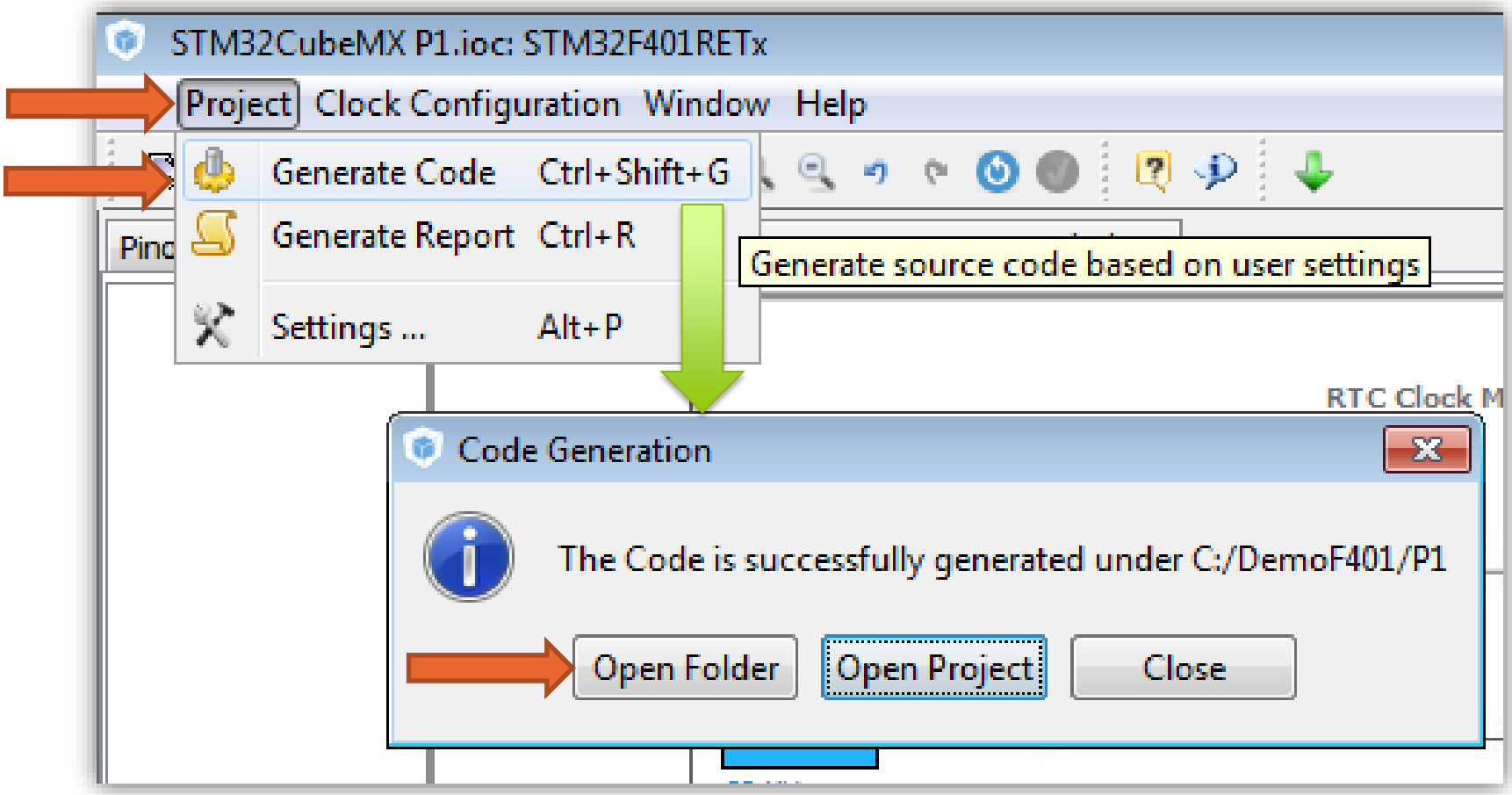
CubeMX generate the code for some GUI 2/3



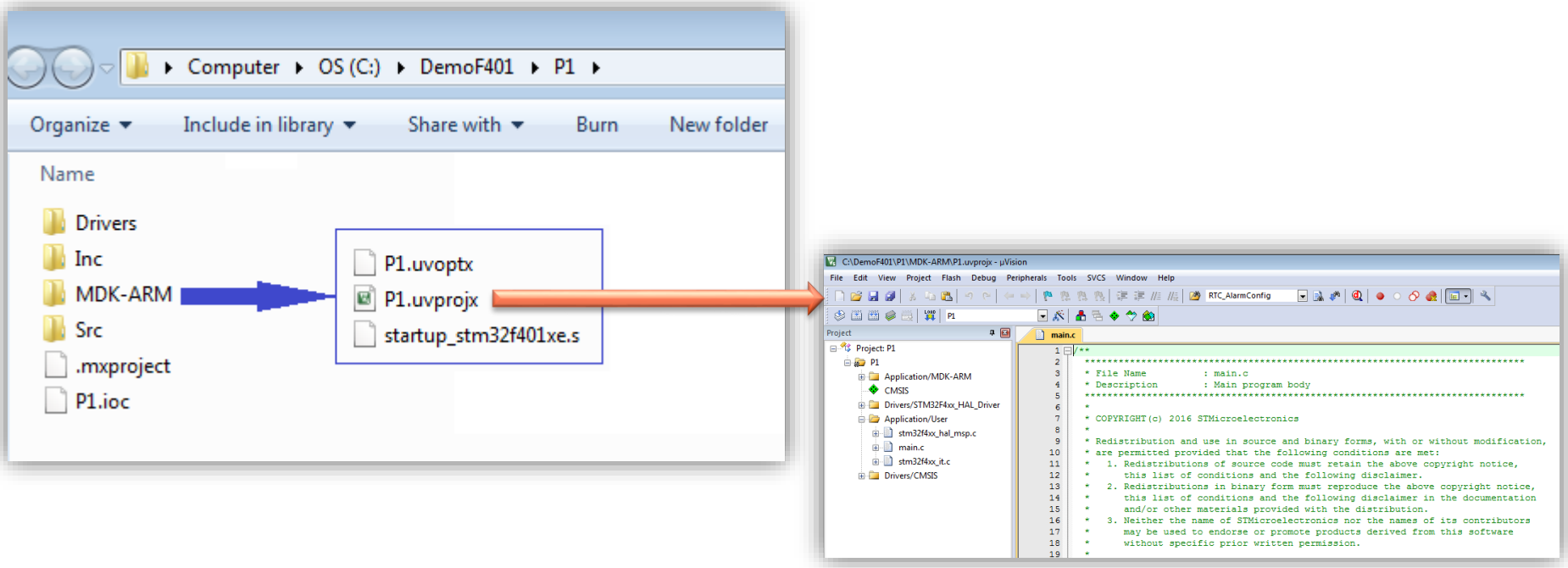
CubeMX generate the code for some GUI 3/3



CubeMX generate the code 1/3



CubeMX generate the code 2/3



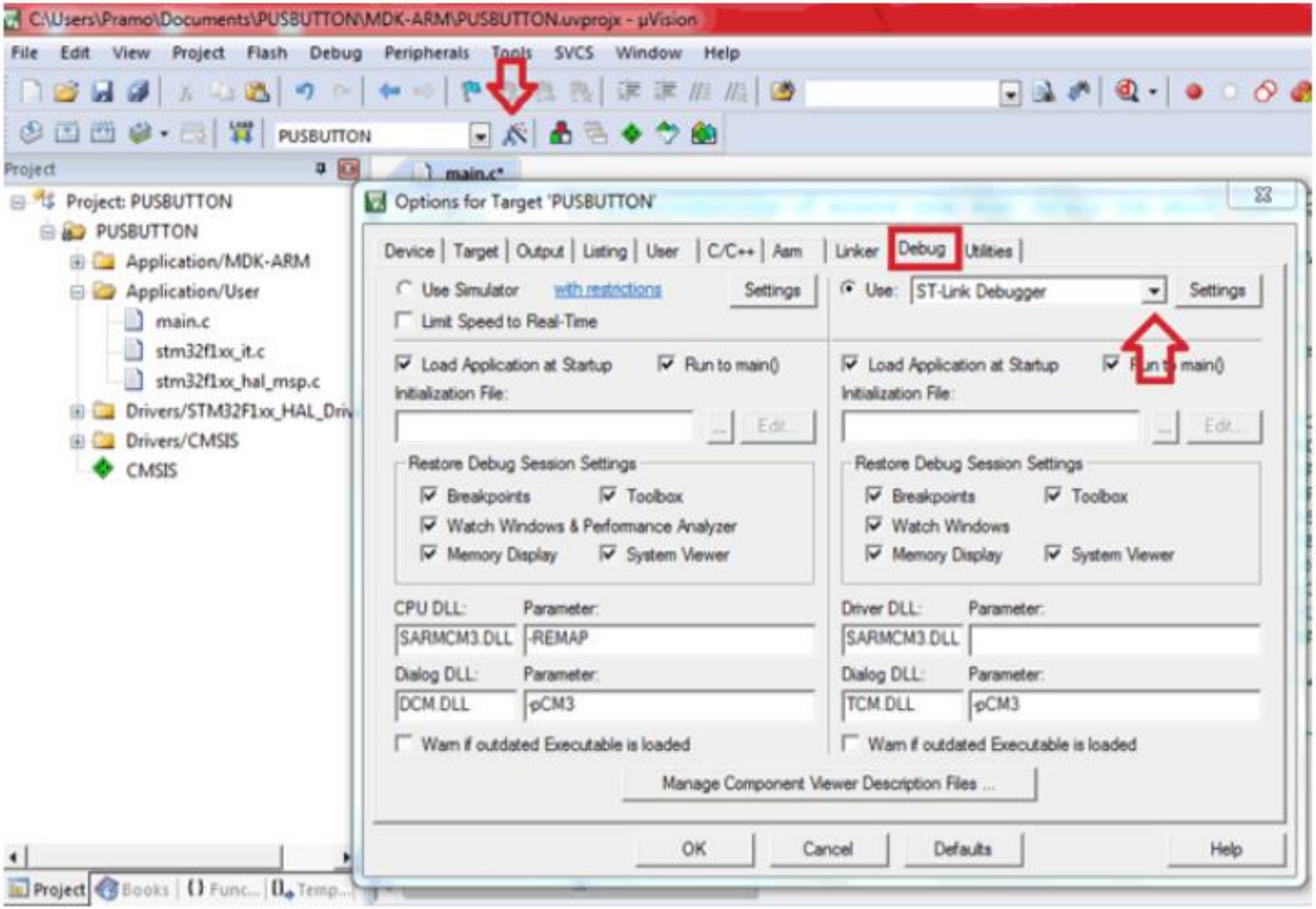
CubeMX add code for flashing LEDs

```
68
69    /* Reset of all peripherals, Initializes the Flash interface and the Systick. */
70    HAL_Init();
71
72    /* Configure the system clock */
73    SystemClock_Config();
74
75    /* Initialize all configured peripherals */
76    MX_GPIO_Init();
77
78    /* USER CODE BEGIN 2 */
79
80    /* USER CODE END 2 */
81
82    /* Infinite loop */
83    /* USER CODE BEGIN WHILE */
84    while (1)
85    {
86    /* USER CODE END WHILE */
87
88    /* USER CODE BEGIN 3 */
89      HAL_GPIO_TogglePin(GPIOA, GPIO_PIN_5);
90      HAL_Delay(200);
91    }
92    /* USER CODE END 3 */
93
94  }
```

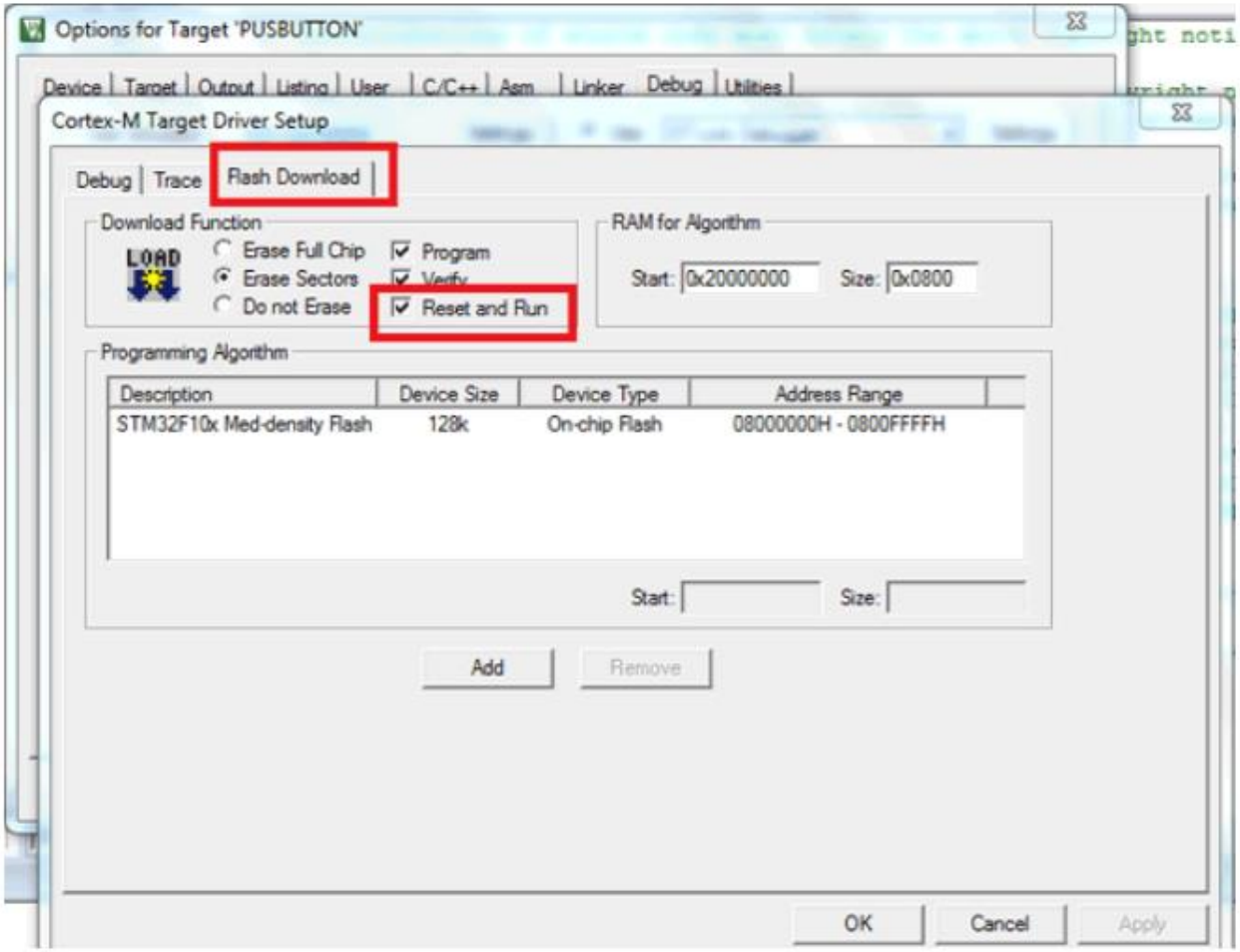
The C code generated by CubeMX provides user sections as illustrated here.
They allow user C code to be inserted and preserved at next C code generation. So add your code in these dedicated sections so as to be kept by CubeMX upon regeneration.

See the:
UM1725 - Description of STM32F4 HAL drivers

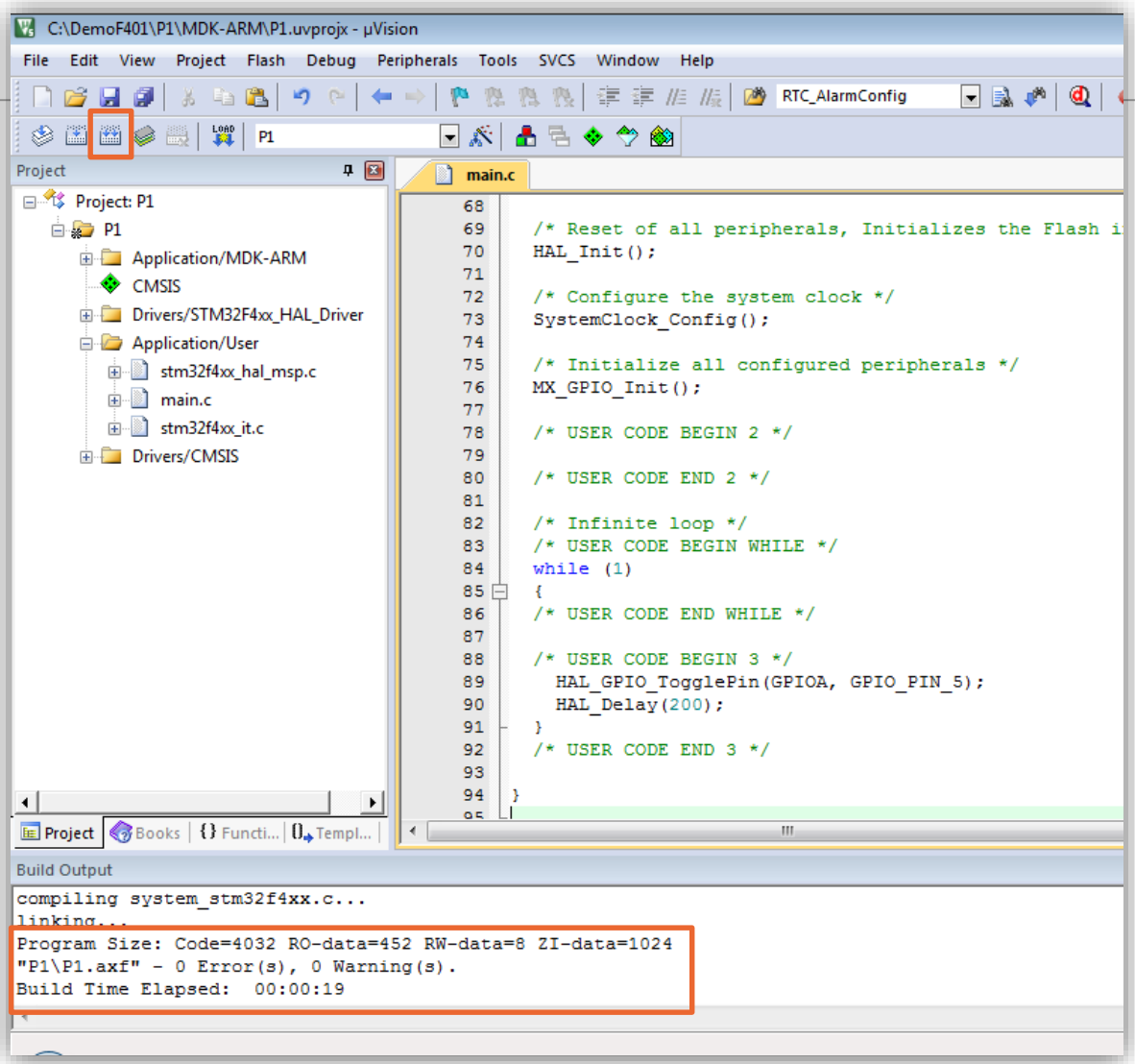
After finish editing the code, click the ***Options for Target*** icon under the **debug tab select ST-LINK Debugger**



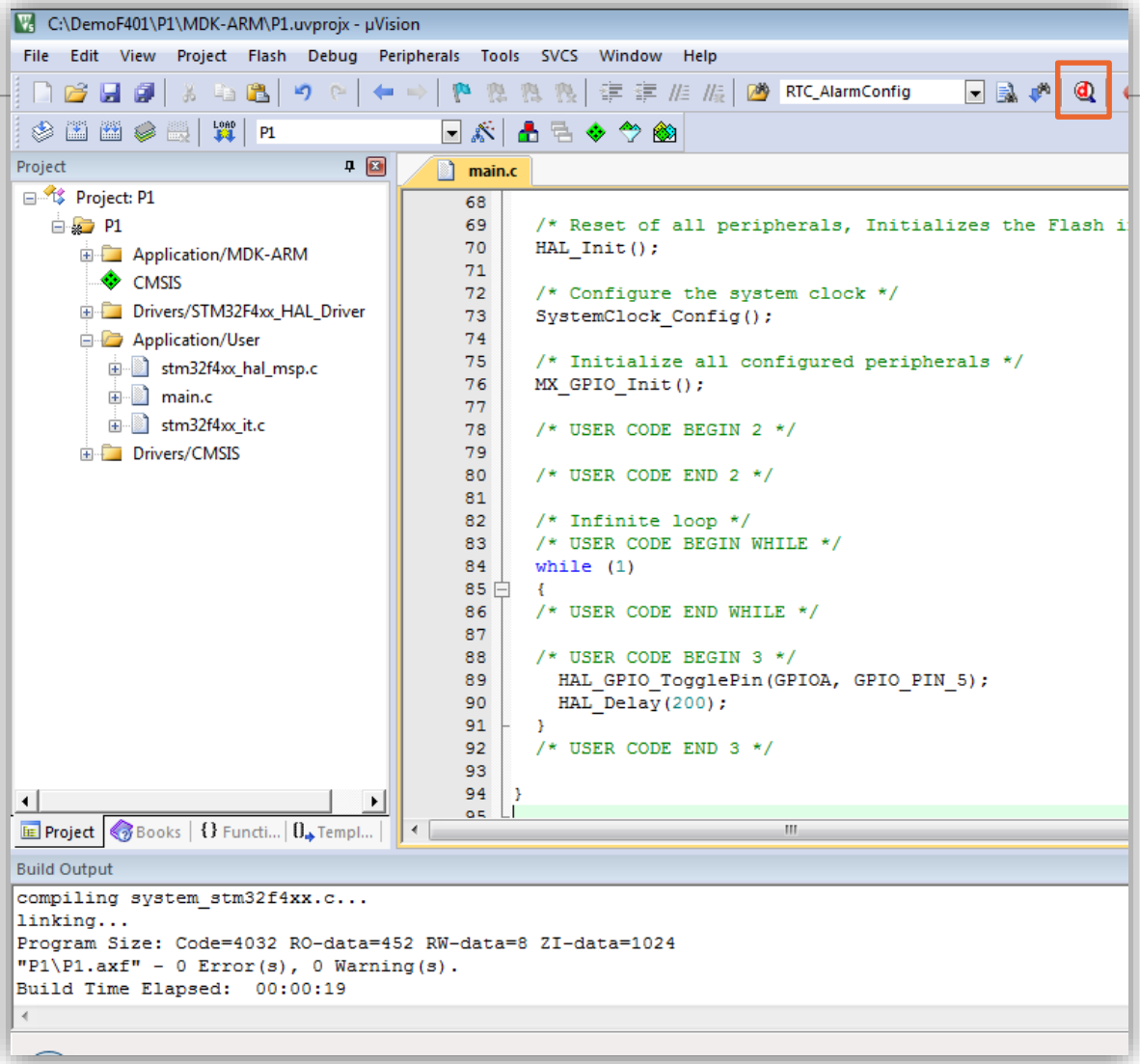
Also, click on ***Settings*** button and then under ***Flash Download*** tab tick the ***Reset and Run*** check box and click 'ok'.



CubeMX compile and debug – 1/3



CubeMX compile and debug – 2/3



CubeMX compile and debug – 3/3