Lab Exercises

Supported Targets:

- PSoC6 BLE Pioneer Kit
- PSoC6 WIFI-BT Pioneer Kit
- CY8CPROTO-062-4343W

Software:

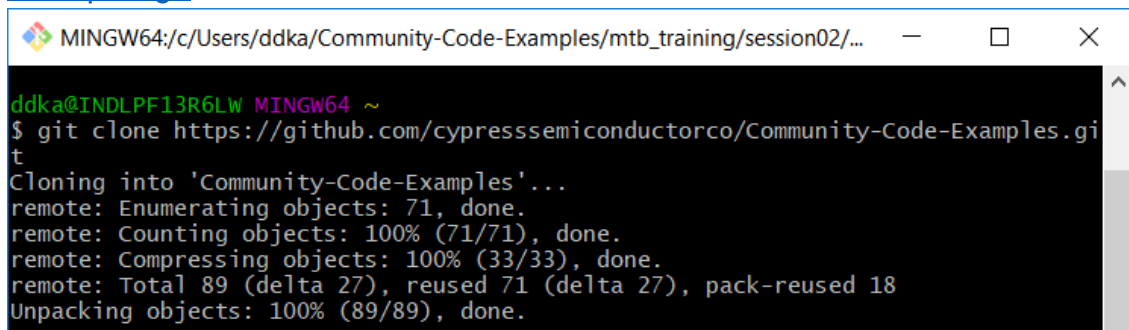[ModusToolbox™ 2.1](#)

Repository Link:

https://github.com/cypresssemiconductorco/Community-Code-Examples/tree/master/mtb_training/session02

Importing the exercises:

Here are the steps to import the projects into Eclipse IDE workspace

1. Clone the projects using the command:
   git clone https://github.com/cypresssemiconductorco/Community-Code-Examples.git

2. You will find all the exercises in the path *mtb_training/session02/* as shown:

```
~/Community-Code-Examples/mtb_training/session02                              —    □    ×
ddka@INDLPF13R6LW ~
$ cd Community-Code-Examples/mtb_training/session02/

ddka@INDLPF13R6LW ~/Community-Code-Examples/mtb_training/session02
$ ls
mtb_02_ex01_smartio_rgb              mtb_02_ex04_timer_hal        mtb_02_ex07_i2c_brightness_control
mtb_02_ex02_pwm_blinkled             mtb_02_ex05_timer_pdl        mtb_02_ex08_spi_master
mtb_02_ex03_pwm_brightness_control   mtb_02_ex06_counter_dutycycle mtb_02_ex09_uart
```
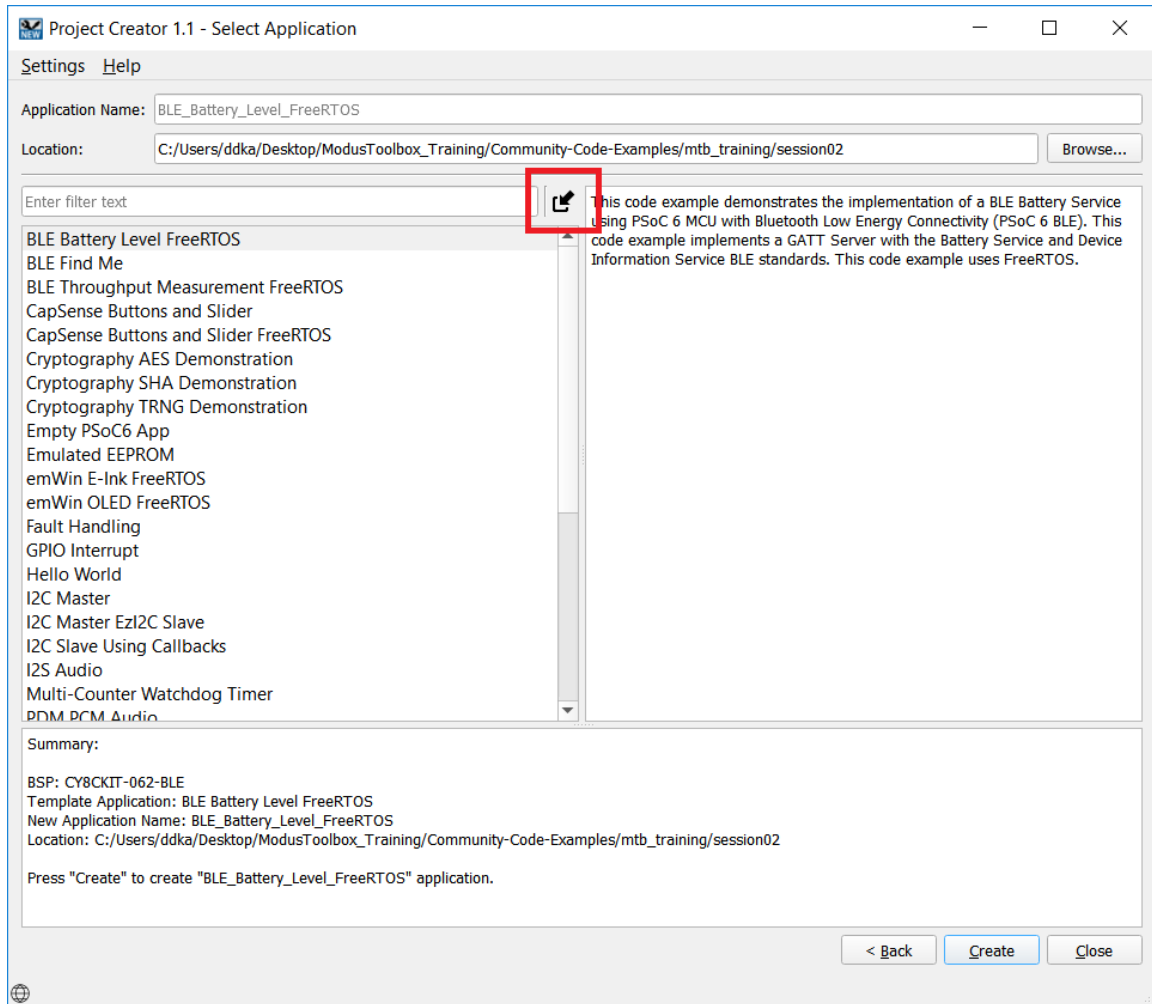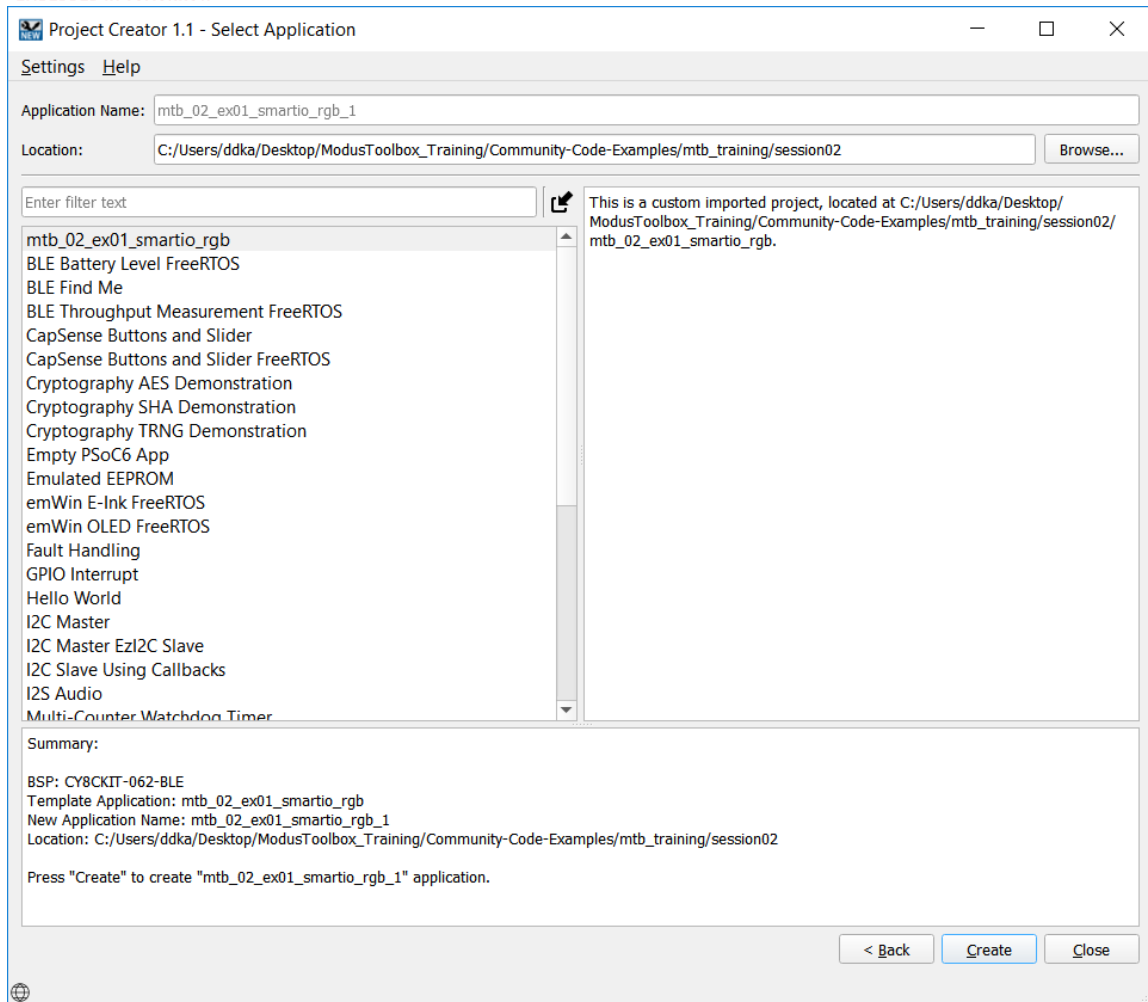
3. Open ModusToolbox and create a workspace folder of choice.

4. Once the Eclipse IDE is open, click **New Application > Choose BSP.**
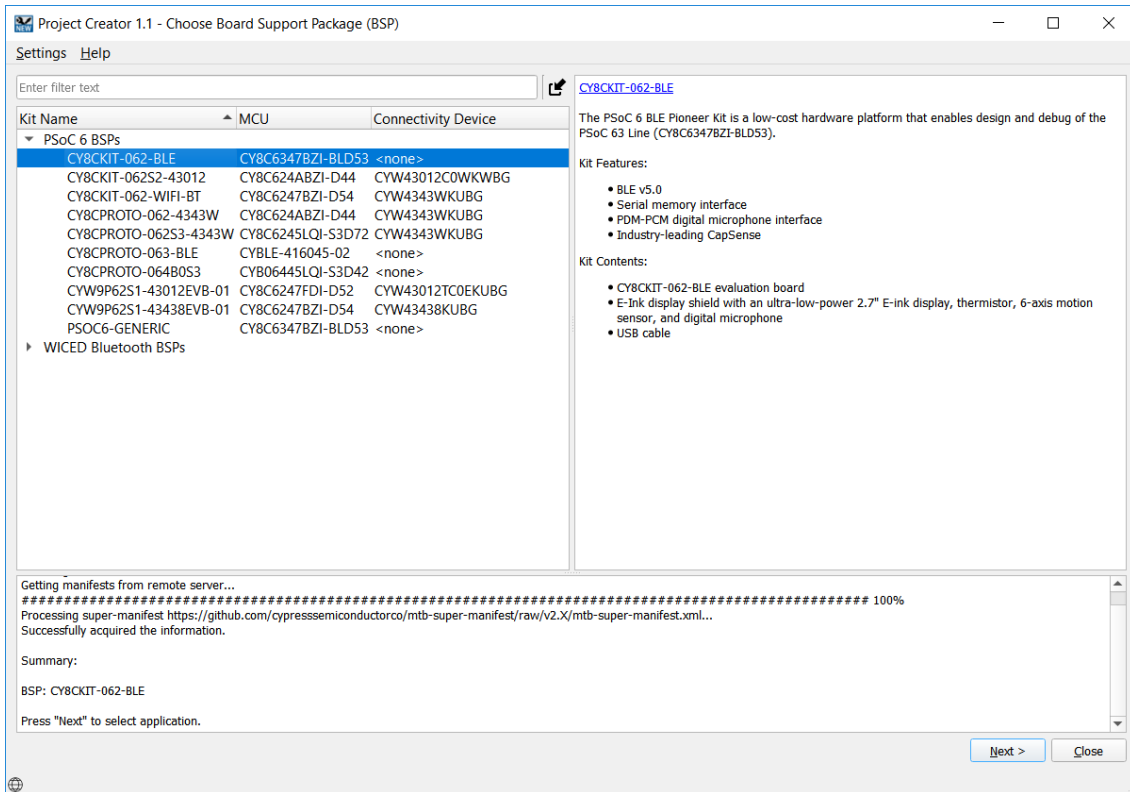
5. Click the Import symbol as shown below:

6. Point to the directory of the exercise containing the Makefile. Once selected you should see the name of the exercise visible under Application Name as shown below:
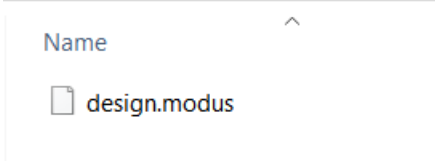
7. Click **Create** and then **Close**.

8. If the exercise you are working with uses PDL APIs, then it will contain a folder named "*design_deps*". It contains the supported target folders.
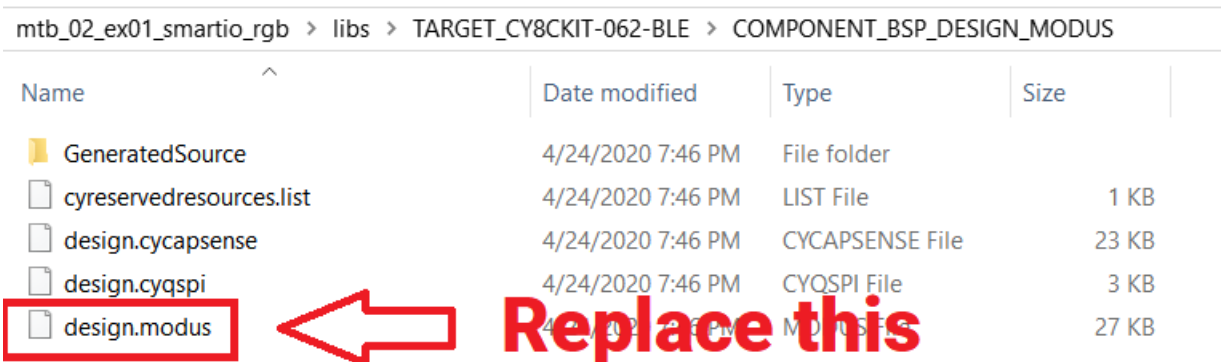

Each of these targets will contain a *design.modus* file as shown below.

> design_deps > CY8CKIT-062-BLE

Name

design.modus

9. Copy the *design.modus* file of the target board you are working with and paste it into the following directory:
<exercise_name>\libs\TARGET_<BOARD_NAME>\COMPONENT_BSP_DESIGN_MODUS

10. Delete the GenerateSource folder in the path:
<exercise_name>\libs\TARGET_<BOARD_NAME>\COMPONENT_BSP_DESIGN_MODUS

Running the exercises:

1. Open the Library Manager to choose the **Active BSP** and then click **Apply**.

2. Clean your application (mandatory step)

3. Build your application.

4. You can find the project description in the file *main.c* which explains the project and explains the pin connections and the expected output.

```
main.c ⊠
    * system or application assumes all risk of such use and in doing so agrees to
    * indemnify Cypress against all liability.
    ********************************************************************************/

⊖/* Project Description
    *
    * In this project, the SMART-IO Block has been configured in the PDL which
    * does the following:
    * (1) Takes the PWM outputs as input on Chip1 and inverts it into I/O0 (P9[0])
    * (2) Takes the LUT1,2,4 as inputs and outputs it into P9[1], P[2] and P9[4] respectively
    *
    * To observe the outputs, the USER LED and RGB Leds are used. The outputs of the SMART-IO are
    * fed into pins 5[0] to 5[3]. The value on these pins are read and written into USER LED and
    * the RGB LEDs.
    *
    * Connections:
    *      P9[0] ---> P5[0]
    *      P9[1] ---> P5[1]
    *      P9[2] ---> P5[2]
    *      P9[4] ---> P5[3]
    *
    * Output: You should see USER LED blinking every 1s and RGB LEDs changing color in this fashion:
    *      OFF --> RED --> GREEN --> YELLOW --> BLUE --> PINK --> INDIGO --> WHITE --> OFF
    *
    *      Note: For PSoC6 Proto Kit, you will only see the output
    *         in USER LED since it doesn't have RGB.
    */
```

5. Program the device.