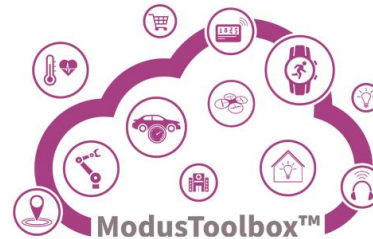


Getting Started with RDK3

Getting Started with CYB06447BZI-BLD53 Development Platform – **RDK3**



1.) Register or/and login to the Infineon website, press on „myInfineon“ tab.

<https://www.infineon.com>

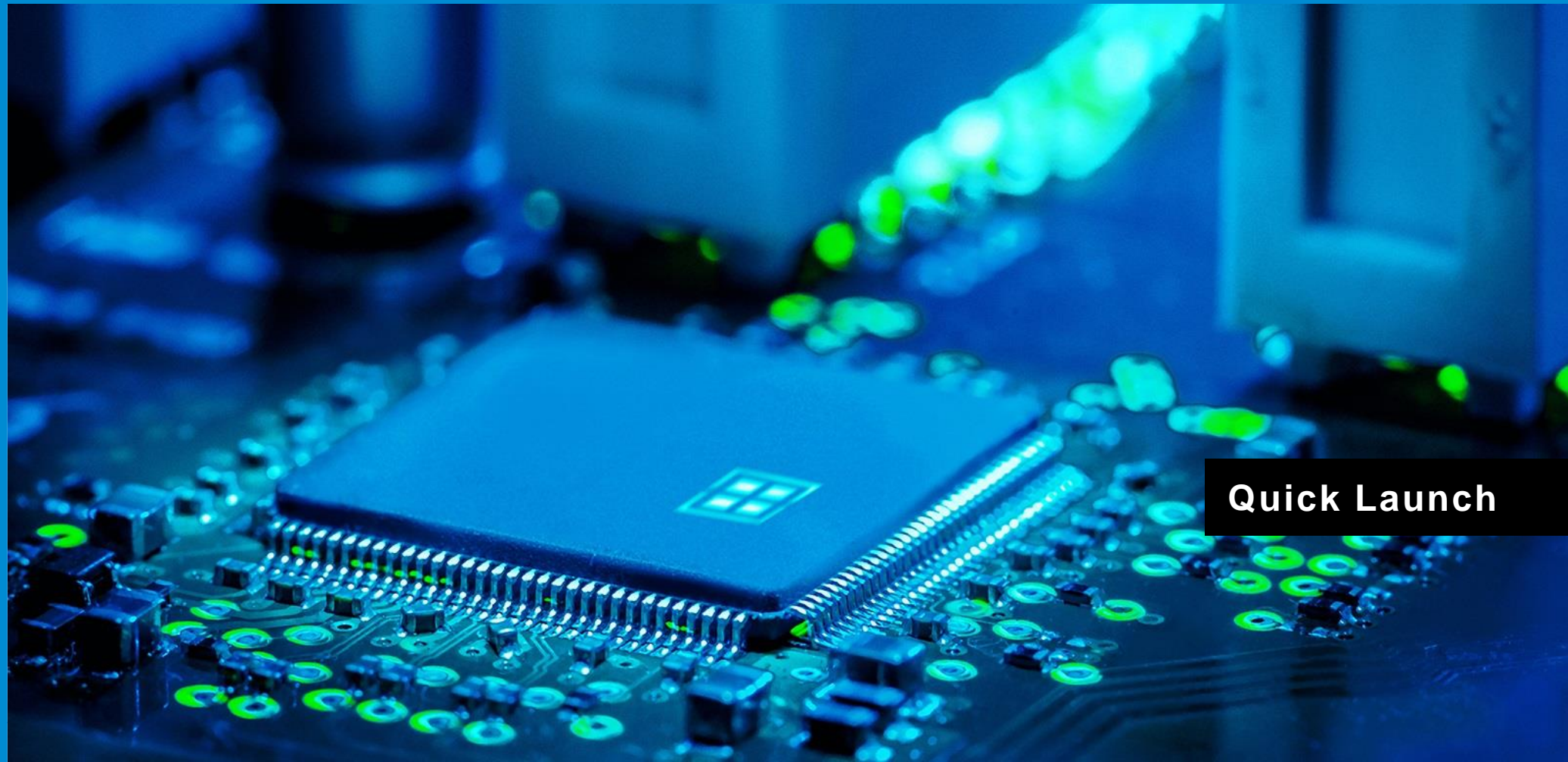
2.) Download and install the latest [ModusToolbox™](#) software.

3.) For the [ModusToolbox™](#) v3.2 please install the [Python](#) for Windows OS.

- Make sure the Python installation is added to the path variable.
- Use this command to install the [cysecuretools](#) package: `pip install cysecuretools`
- Unzip the [secure policy configurator](#) tool to your ModusToolbox tools_3.2 directory for example, `C:\Users\userX\ModusToolbox\tools_3.2`



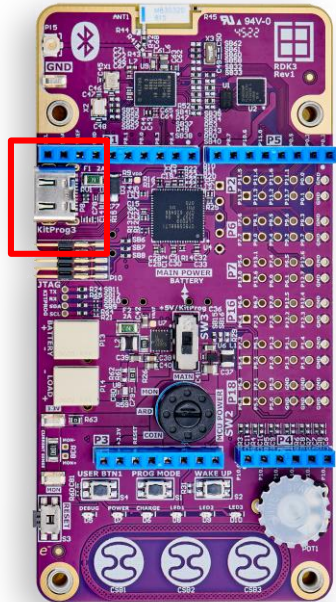
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Quick Launch

Connect the RDK3

Connect the RDK3 to your PC.



**Look for the USB-C
socket with a
marking "KitProg3"**



**Have a USB
Type-C cable**



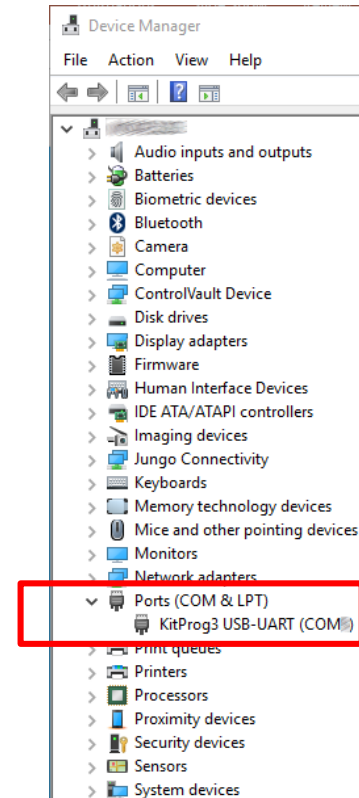
**Connect it
with your PC**

Connect the RDK3

Check if the RDK3 is ready.



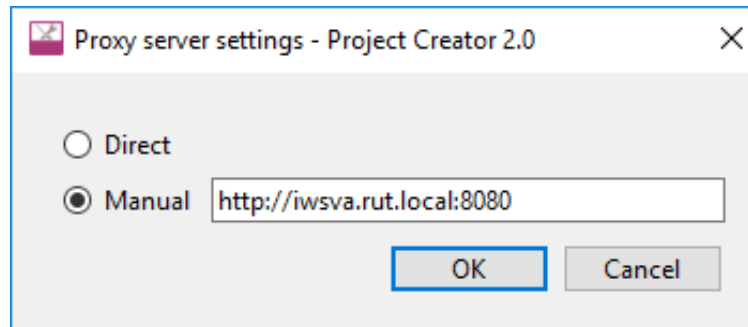
“POWER” and “DEBUG” LEDs must shine constantly. The “CHARGE” LED will be blinking if no battery is connected.



The “KitProg3” must be seen in the “Device Manager” window.

If you are working with your personal PC, (not the Rutronik provided Laptop PC) please skip this setup.

Open the File→New→ “ModusToolbox Application” → Settings → Proxy server settings and enter the proxy address: `http://iwsva.rut.local:8080`





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A close-up photograph of a microprocessor mounted on a circuit board. The image has a strong blue color cast. The microprocessor is a square chip with a grid of pins along its edges. On its top surface, there is a small square logo with a 3x3 grid pattern, identical to the Rutronik logo. The surrounding circuit board is populated with various electronic components, including capacitors and other integrated circuits. In the background, out of focus, are some electronic components and a glowing blue light source.

The Provisioning of the RDK3

- The RDK3 is equipped with a PSoC™ 64 "Secure" MCU CYB06447BZI-BLD53.
- The PSoC™64 device must be provisioned with keys and policies before being programmed.
- If the unsigned or not properly signed image will be written to the RDK3 PSoC™64 – the microcontroller will not startup.
- You may also refer to the ["Secure Policy" Configurator guide](#).

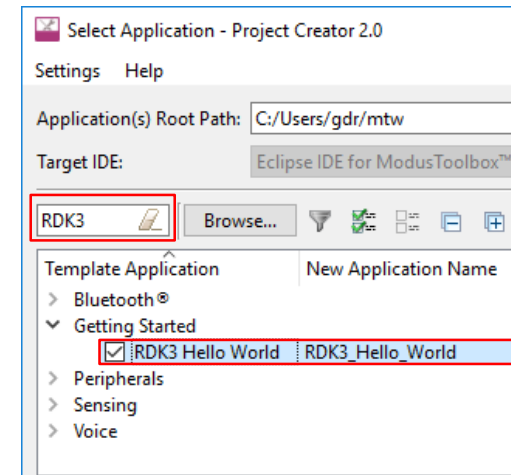
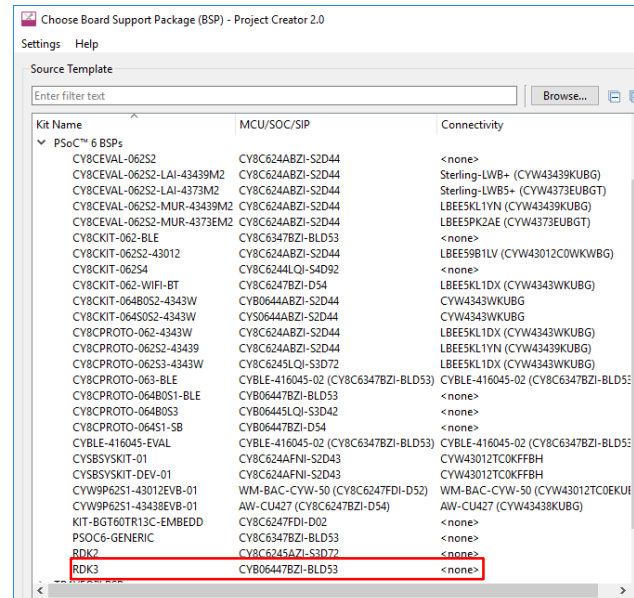
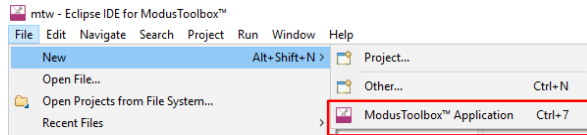
Additional Information

[PSoC™ 64 - Secured MCU](#)

[PSoC™ 64 Provisioning Specification](#)

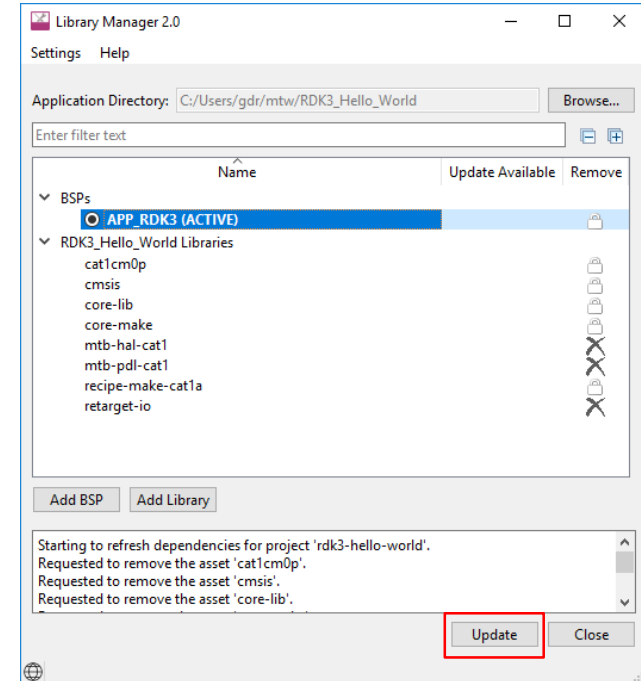
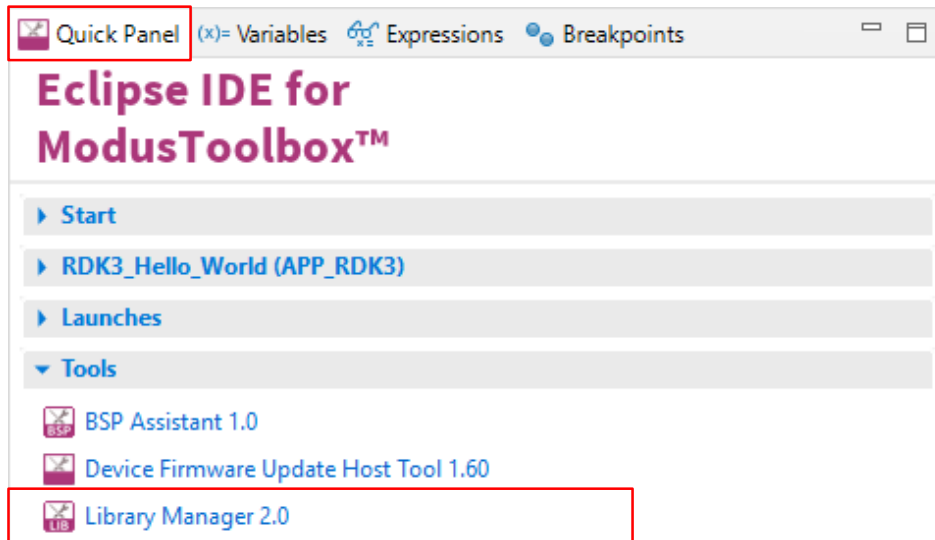
The Provisioning of the RDK3

- 1.) Open the “Project Creator” tool: File → New → ModusToolbox™ Application
- 2.) Select the “RDK3” BSP. It is in PSoC™ 6 BSPs list.
- 3.) Click on “Next”.
- 4.) Write a “RDK3” in a Search... window. Select the example from given categories list.
- 5.) Click on “Create”.



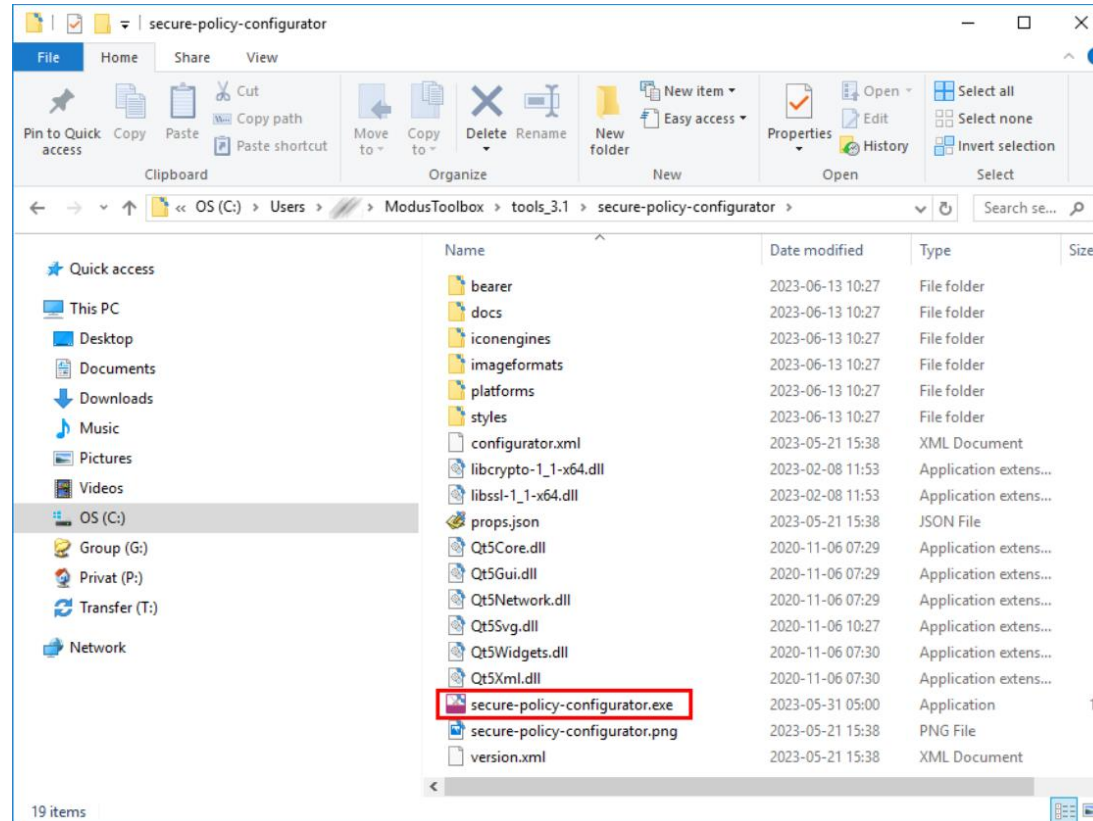
The Provisioning of the RDK3

6.) After project creation is finished - update libraries with “Library Manager” tool.



The Provisioning of the RDK3

7.) Load the “Secure Policy Configurator”.

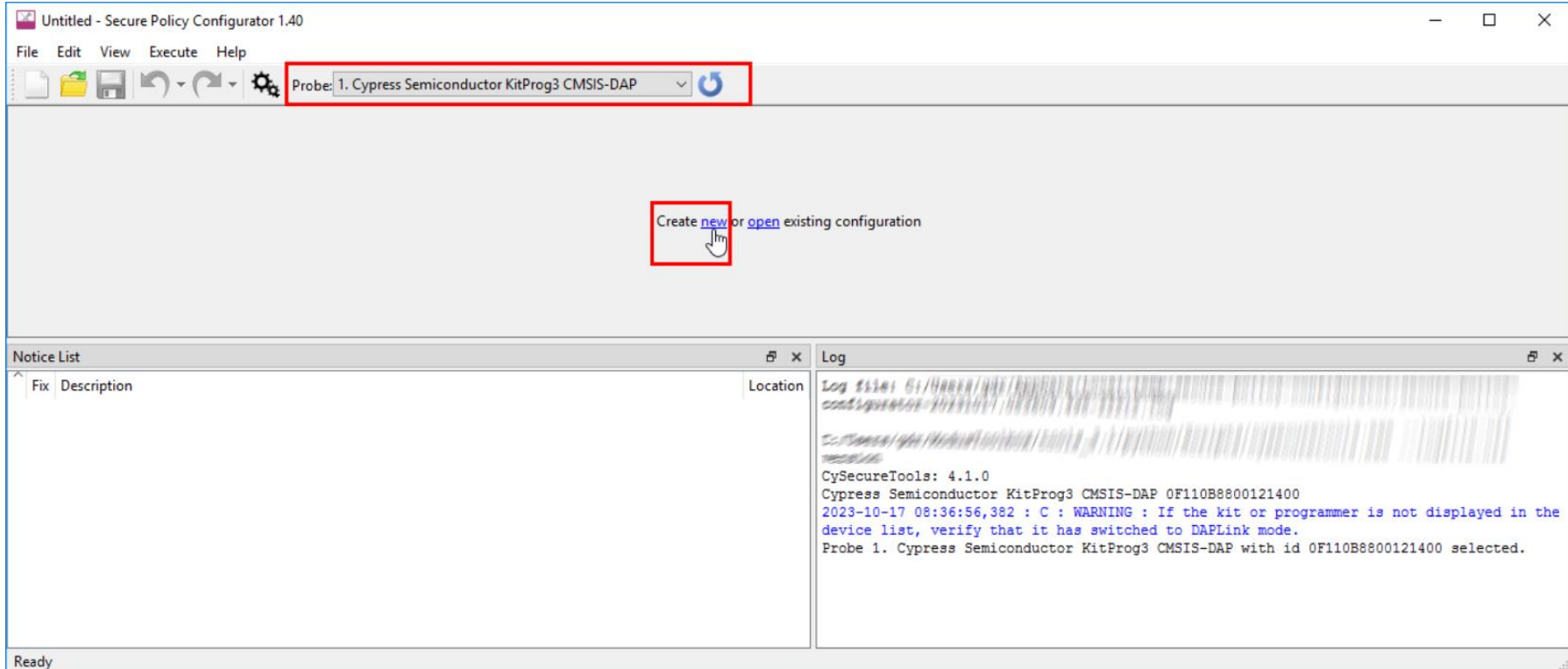


The Provisioning of the RDK3

8.) Load the "Secure Policy Configurator".

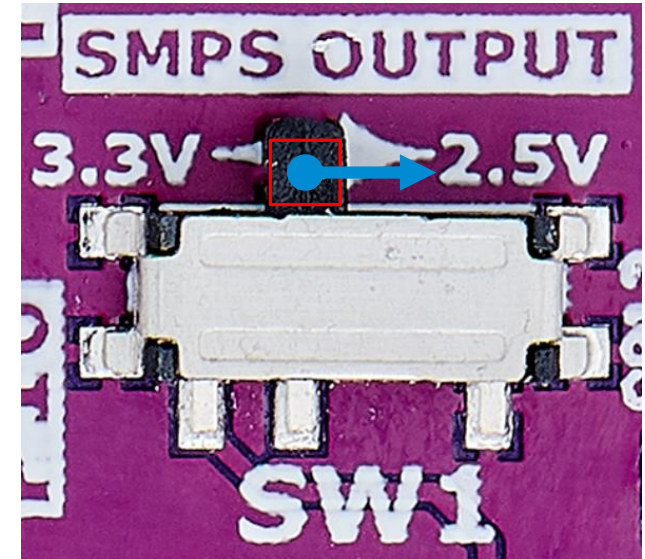
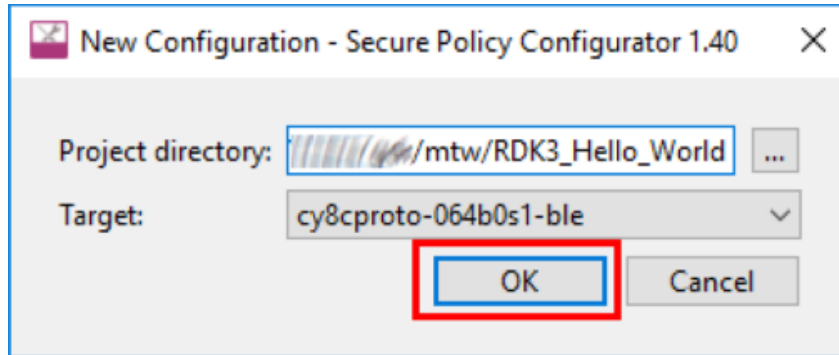
9.) Select the probe: Cypress Semiconductor KitProg3 CMSIS-DAP [press the PROG MODE button if the CMSIS-DAP is not present in a list].

10.) Press on Create new configuration.



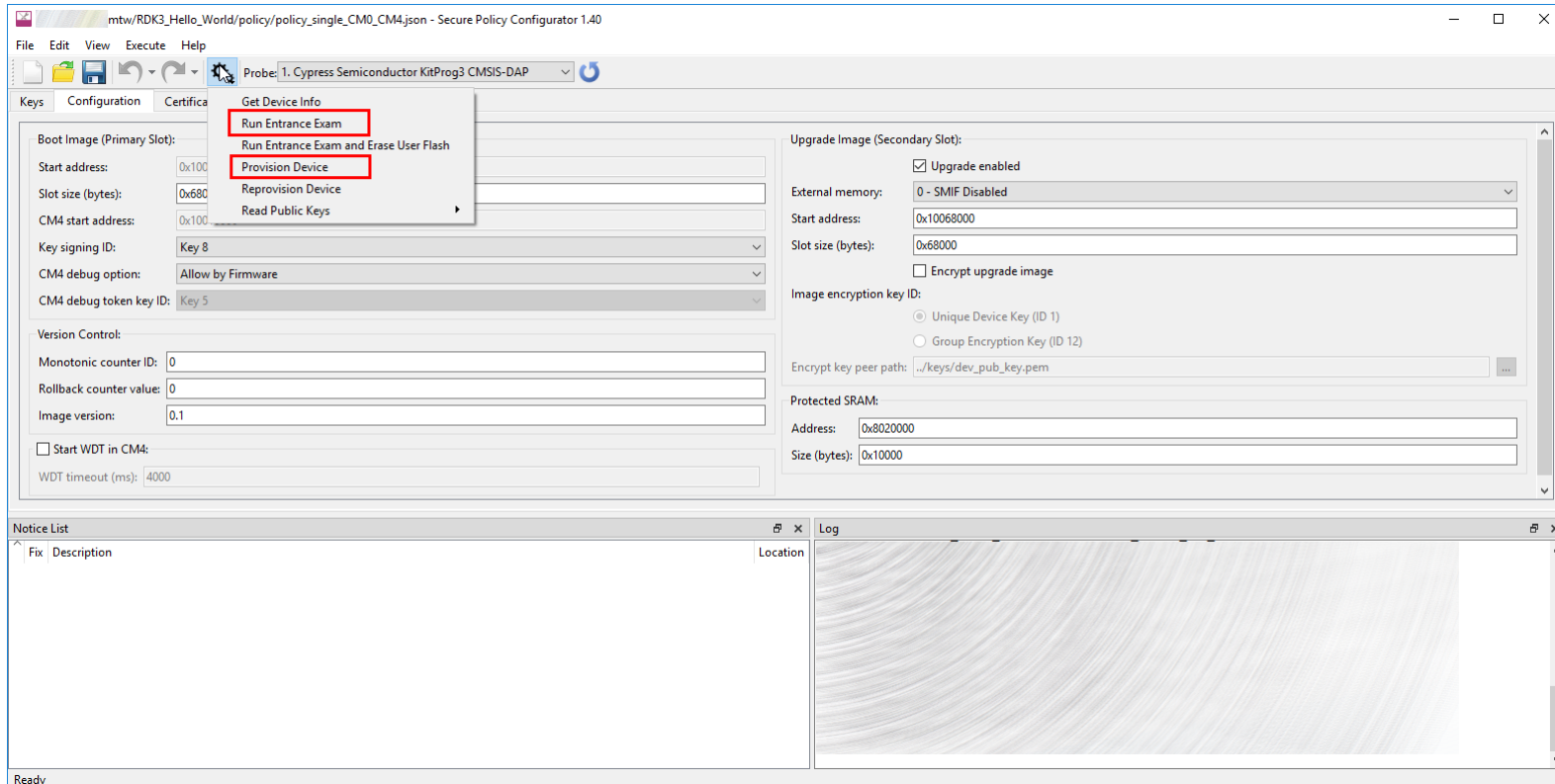
The Provisioning of the RDK3

- 11.) Choose your RDK3_Hello_World Project Directory. The Target is cy8cproto-064b0s1-ble.
- 12.) Set the SW1 "SMPS OUTPUT" to the 2.5V position.

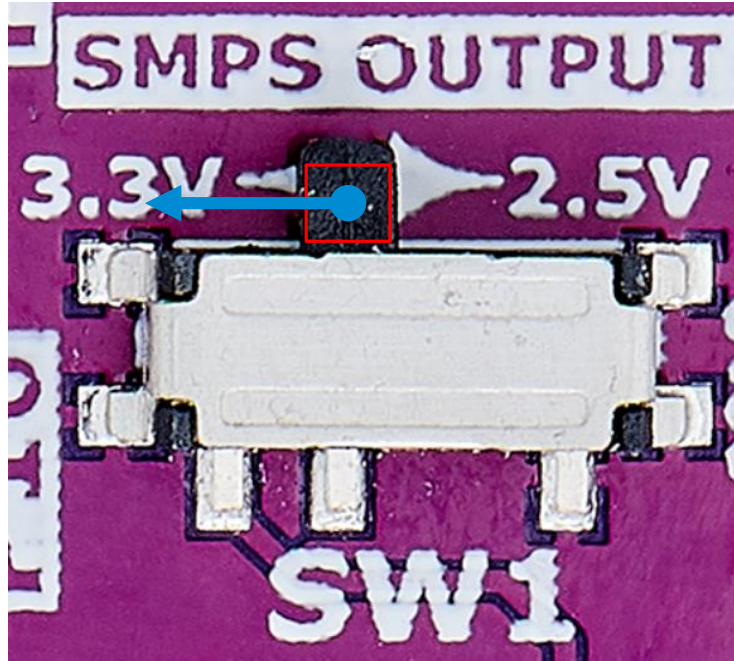


The Provisioning of the RDK3

- 13.) Configure the settings according to your needs or leave them as it is.
- 14.) “Run The Entrance Exam” and then “Provision the Device”

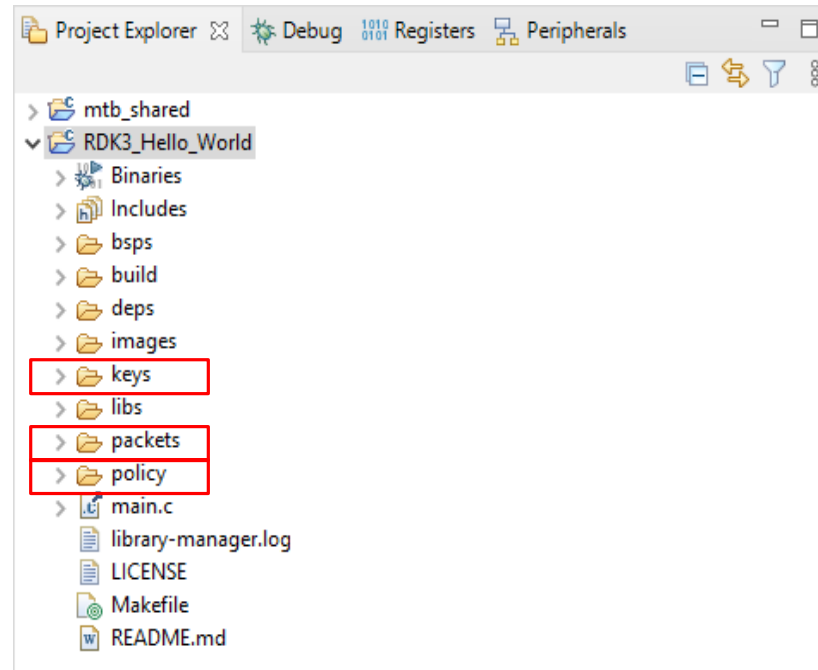


15.) Switch the power supply back to 3.3V



The Provisioning of the RDK3

Please store the “keys”, “policy” and “packets” folders with all the content in a safe location for later use.





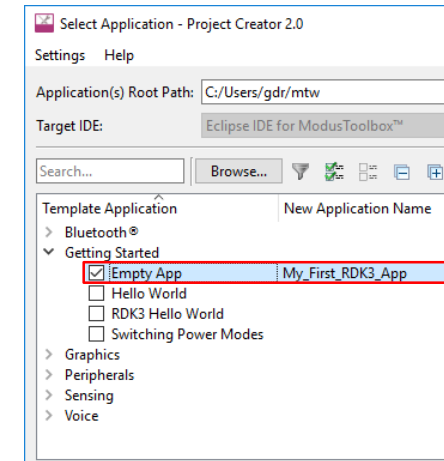
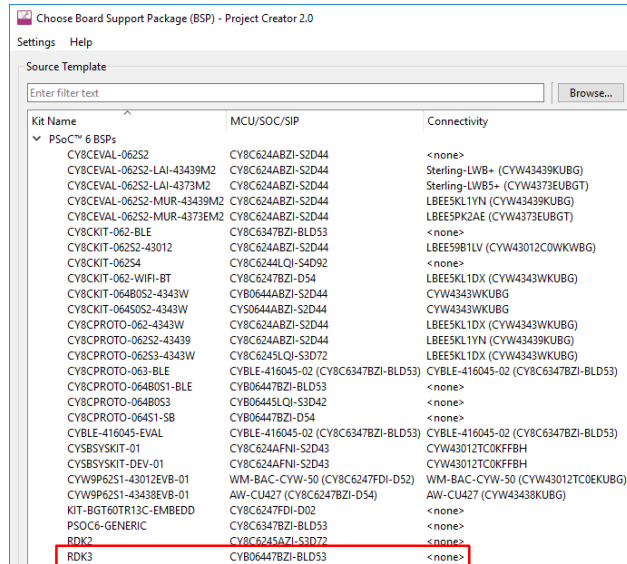
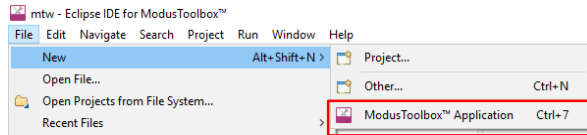
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A close-up, blue-tinted photograph of a microchip on a circuit board. The chip is a square component with many pins, mounted on a dark board with various electronic components and solder points visible. The lighting is dramatic, with bright highlights on the chip and surrounding components, creating a sense of depth and focus.

Creating a new project for the RDK3

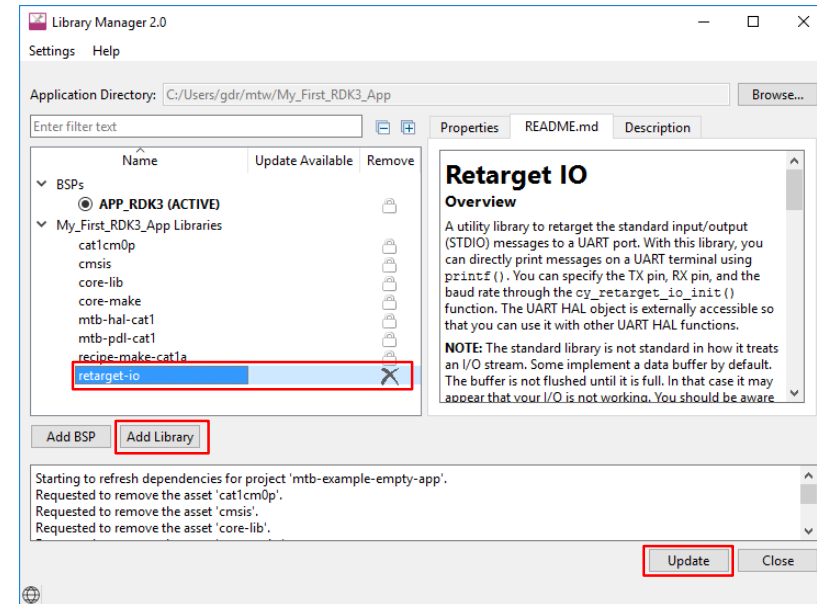
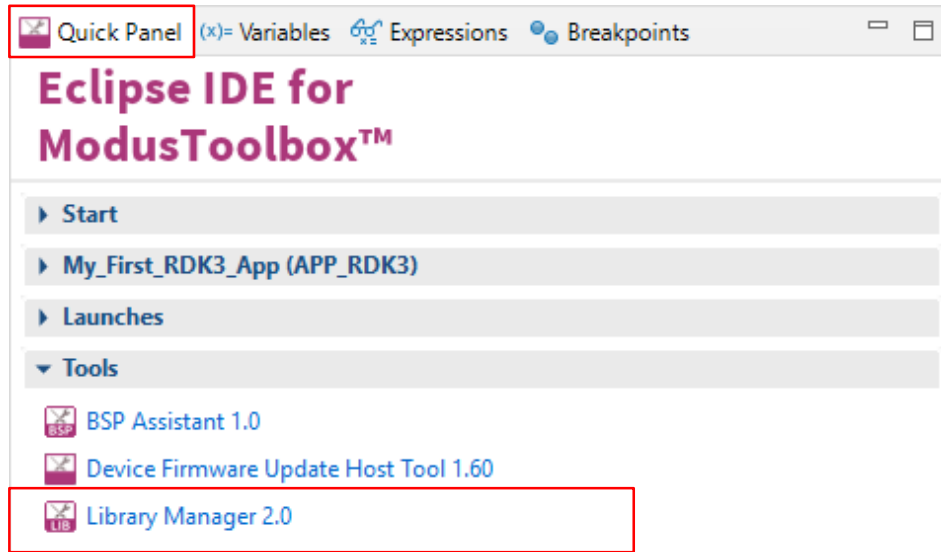
Creating new projects with “Project Creator” tool

- 1.) Open the “Project Creator” tool: File → New → ModusToolbox™ Application
- 2.) Select the “RDK3” BSP. It is in PSoC™ 6 BSPs list.
- 3.) Click on “Next”.
- 4.) Select a “Empty App” in a “Getting Started” category. Name it “My_First_RDK3_App”.
- 5.) Click on “Create”.



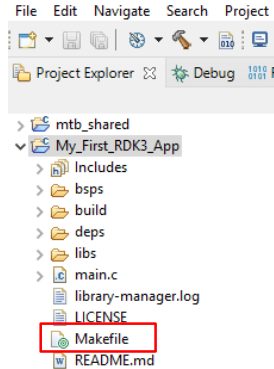
Creating new projects with “Project Creator” tool

6.) Include the “retarget-io” library in a “Library Manager” tool and press “Update”.



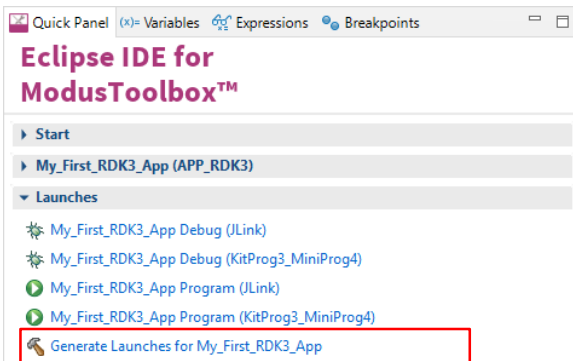
Creating new projects with “Project Creator” tool

7.) Modify the “Makefile” to disable code optimisation*



APPNAME=my-first-rdk3-app
CONFIG=Custom
CFLAGS =-O0

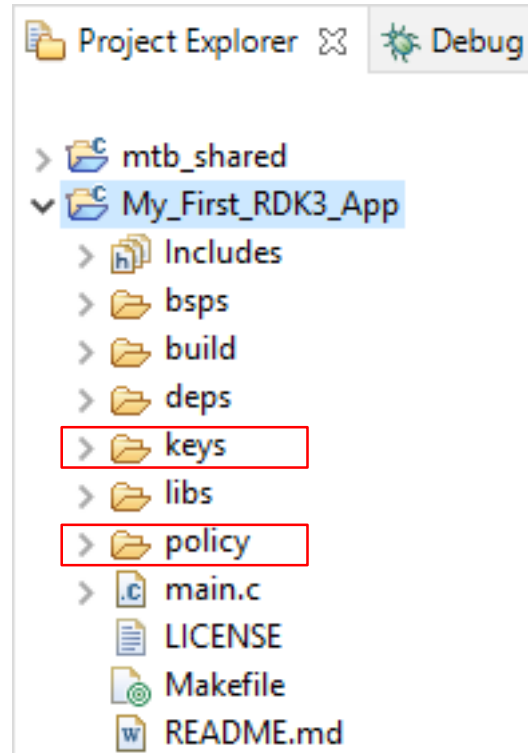
8.) Press “Generate Launches” in Quick Panel



*only for debugging, learning and demo purposes. Normally, code optimisations should never be disabled.

Creating new projects with “Project Creator” tool

9.) Copy and paste the “keys” and “policy” folders with all the files into your project. If the RDK3 came provisioned from RUTRONIK, you may take the keys from our [GitHub](#).



10.) Copy/Paste and save the code example to the “main.c” file.

```
#include "cy_pdl.h"
#include "cyhal.h"
#include "cybsp.h"
#include "cy_retarget_io.h"

int main(void)
{
    cy_rslt_t result;

    /* Initialize the device and board peripherals */
    result = cybsp_init();
    if (result != CY_RSLT_SUCCESS)
    {
        CY_ASSERT(0);
    }

    __enable_irq();

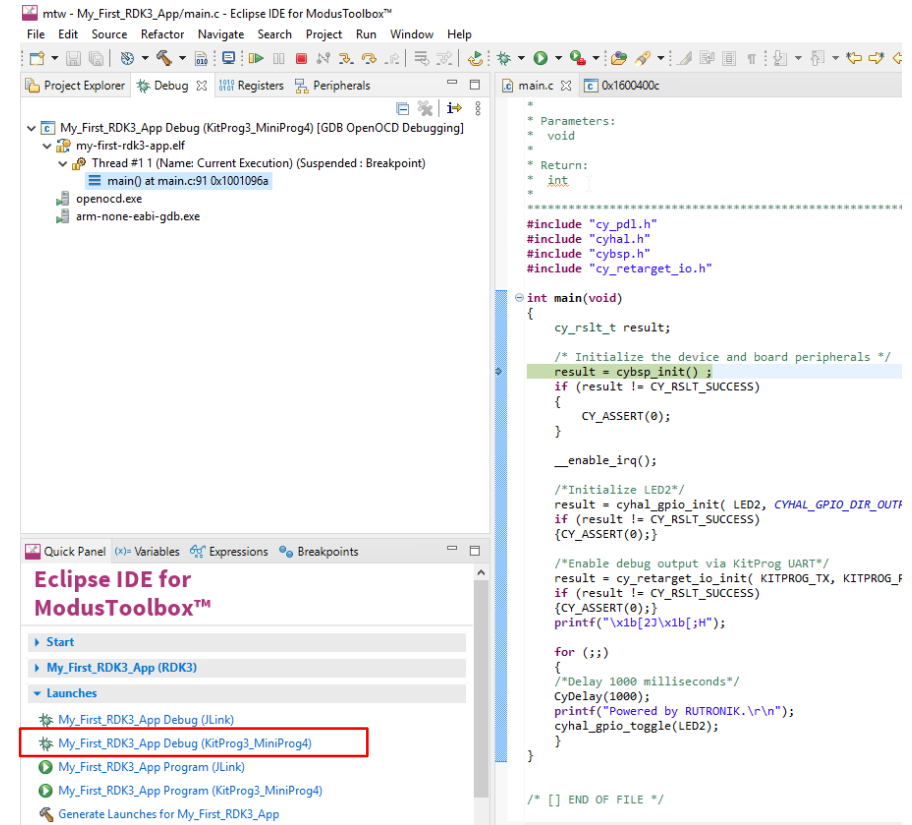
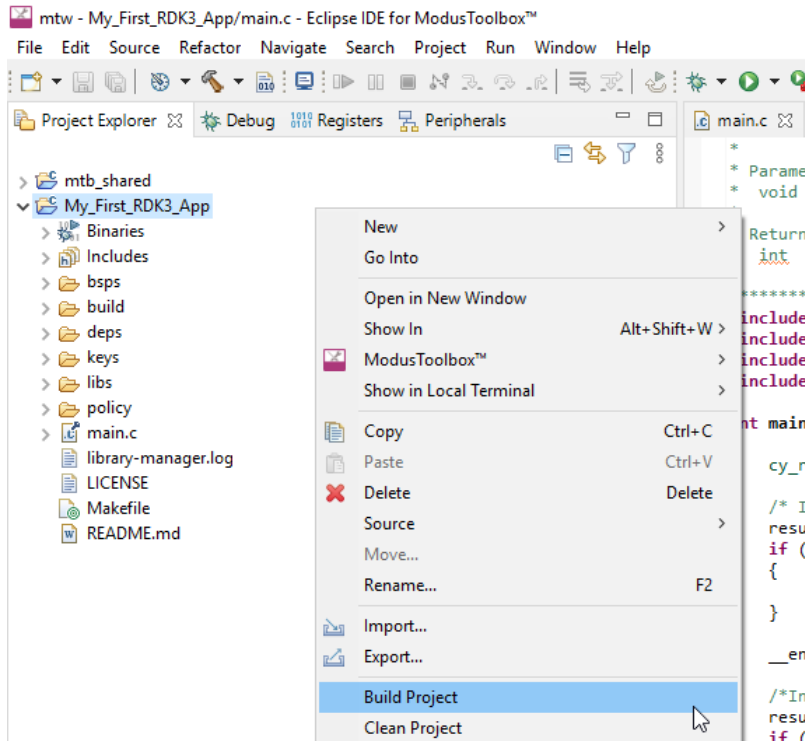
    /*Initialize LED2*/
    result = cyhal_gpio_init( LED2, CYHAL_GPIO_DIR_OUTPUT, CYHAL_GPIO_DRIVE_STRONG, CYBSP_LED_STATE_OFF);
    if (result != CY_RSLT_SUCCESS)
    {CY_ASSERT(0);}

    /*Enable debug output via KitProg UART*/
    result = cy_retarget_io_init( KITPROG_TX, KITPROG_RX, CY_RETARGET_IO_BAUDRATE);
    if (result != CY_RSLT_SUCCESS)
    {CY_ASSERT(0);}
    printf("\x1b[2J\x1b[;H");

    for (;;)
    {
        /*Delay 1000 milliseconds*/
        CyDelay(1000);
        printf("Powered by RUTRONIK.\r\n");
        cyhal_gpio_toggle(LED2);
    }
}
```

Creating new projects with “Project Creator” tool

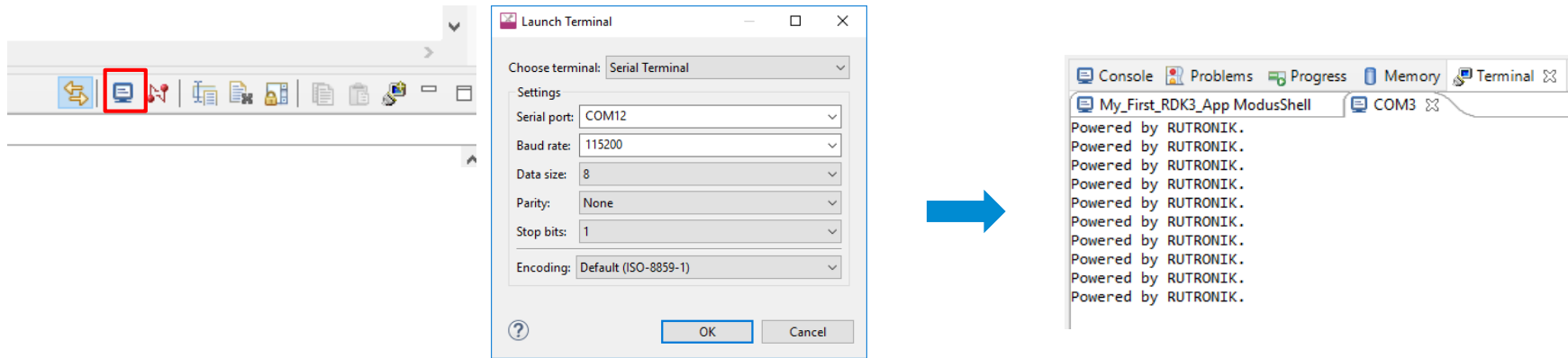
11.) Build and Debug the active project.



Creating new projects with “Project Creator” tool

The final result is a blinking LED2 on the RDK3 board and text on the terminal window:

ModusToolbox Terminal





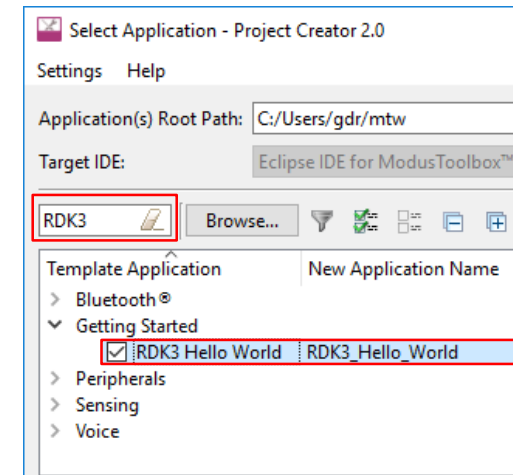
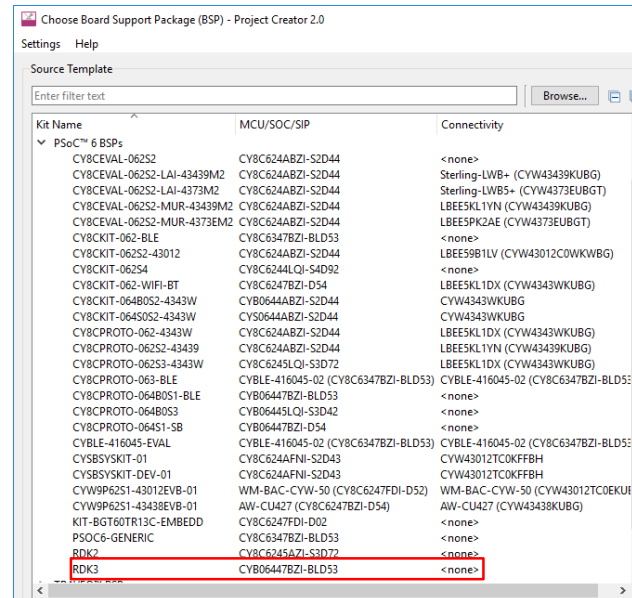
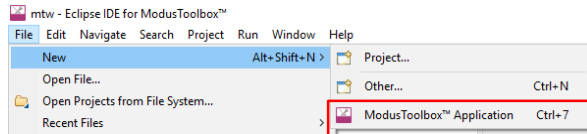
RUTRONIK
ELECTRONICS WORLDWIDE

A close-up photograph of a microchip mounted on a circuit board, with various electronic components and solder joints visible. The image is overlaid with a blue gradient.

Importing the existing firmware examples for the RDK3

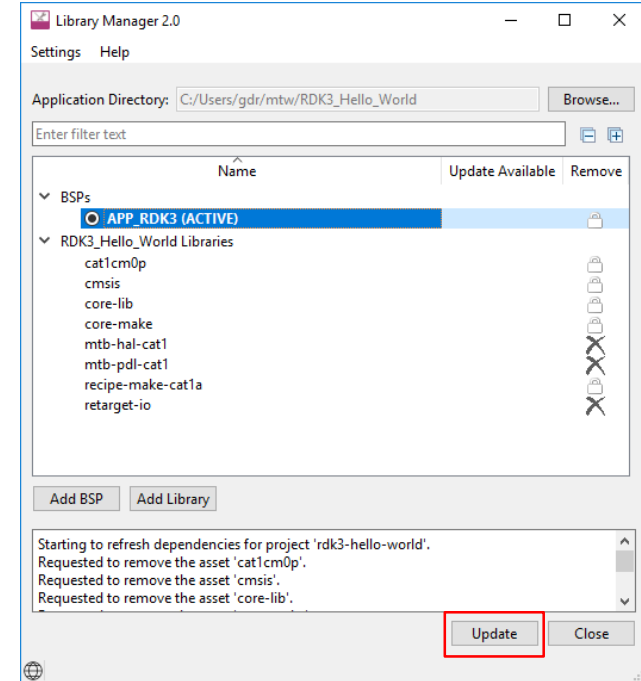
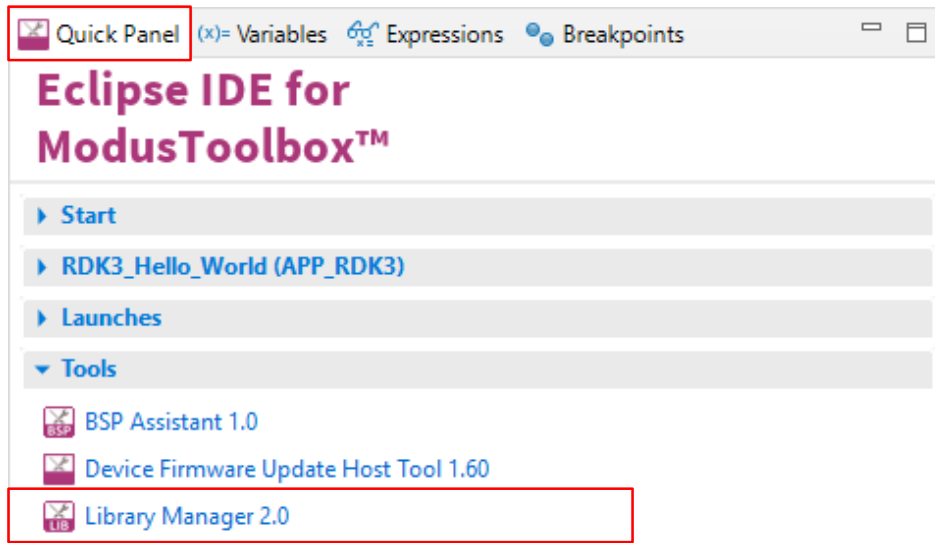
Importing firmware examples with “Project Creator” tool

- 1.) Open the “Project Creator” tool: File → New → ModusToolbox™ Application
- 2.) Select the “RDK3” BSP. It is in PSoC™ 6 BSPs list.
- 3.) Click on “Next”.
- 4.) Write a “RDK3” in a Search... window. Select the example from given categories list.
- 5.) Click on “Create”.



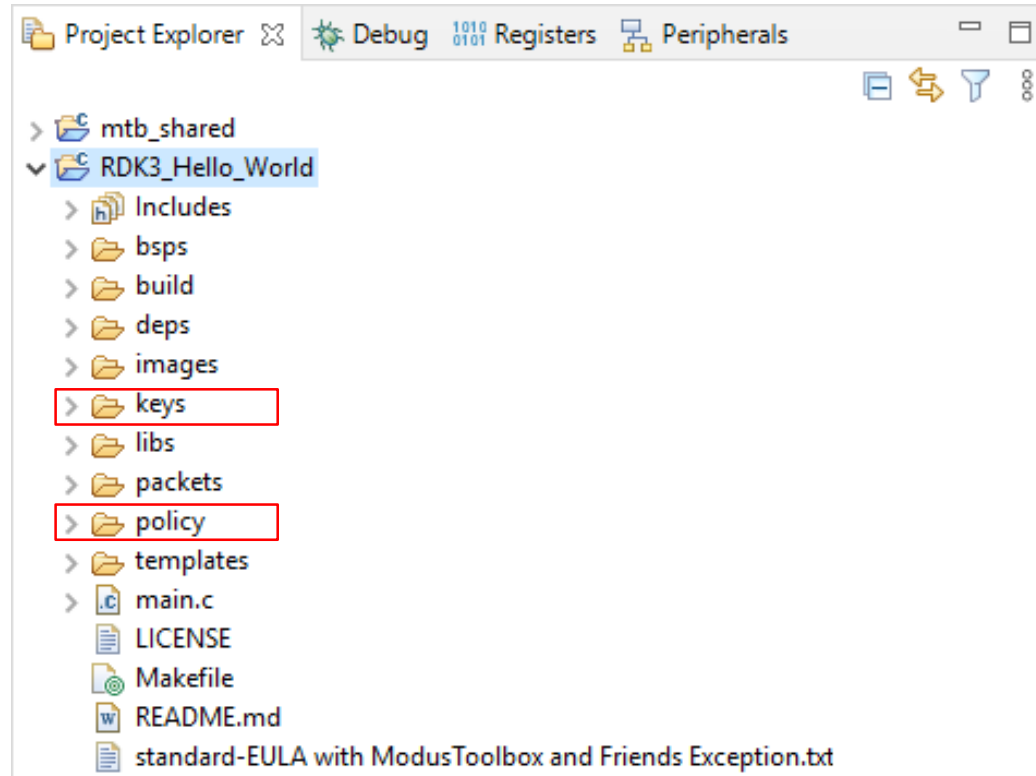
Importing firmware examples with “Project Creator” tool

6.) After project creation is finished - update libraries with “Library Manager” tool.



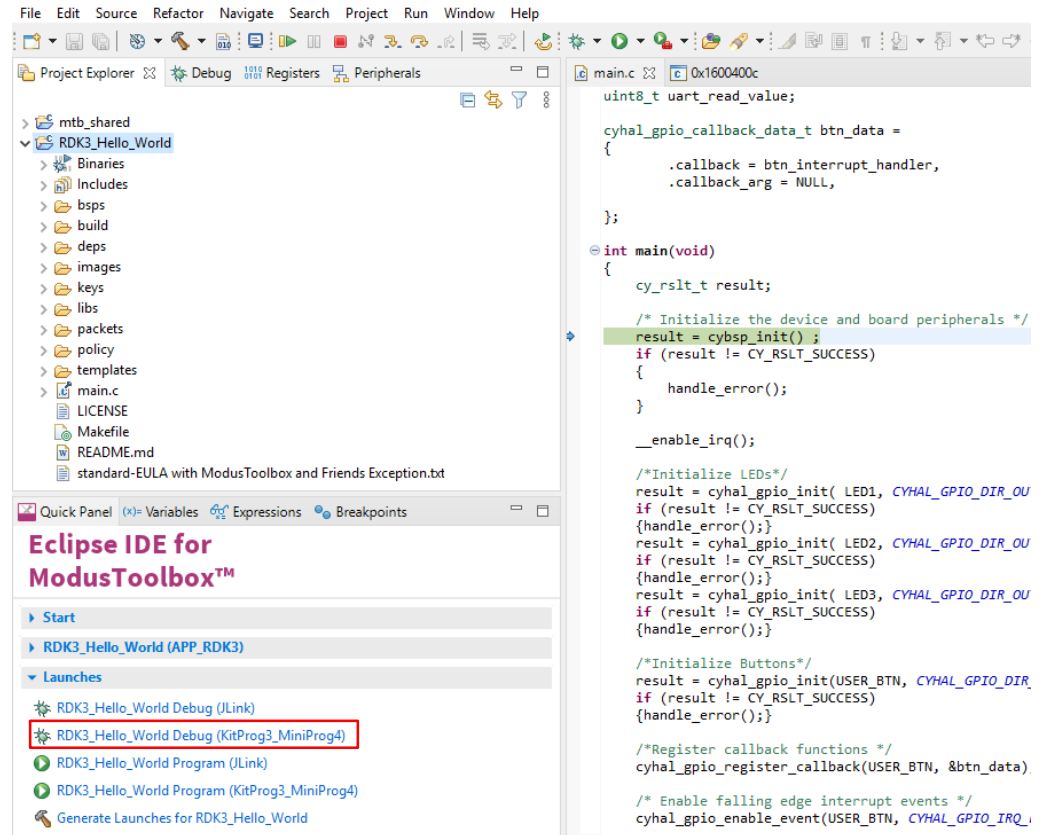
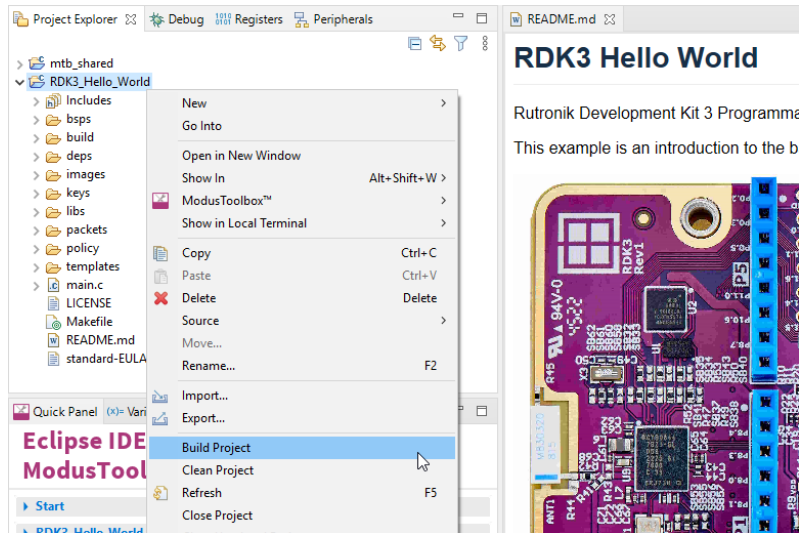
Importing firmware examples with “Project Creator” tool

7.) Copy and paste the “keys” and “policy” folders with all the files into your project. The folder “packets” is optional, needed only for the provisioning. If the RDK3 came provisioned from RUTRONIK, you may take the keys from our [GitHub](#).

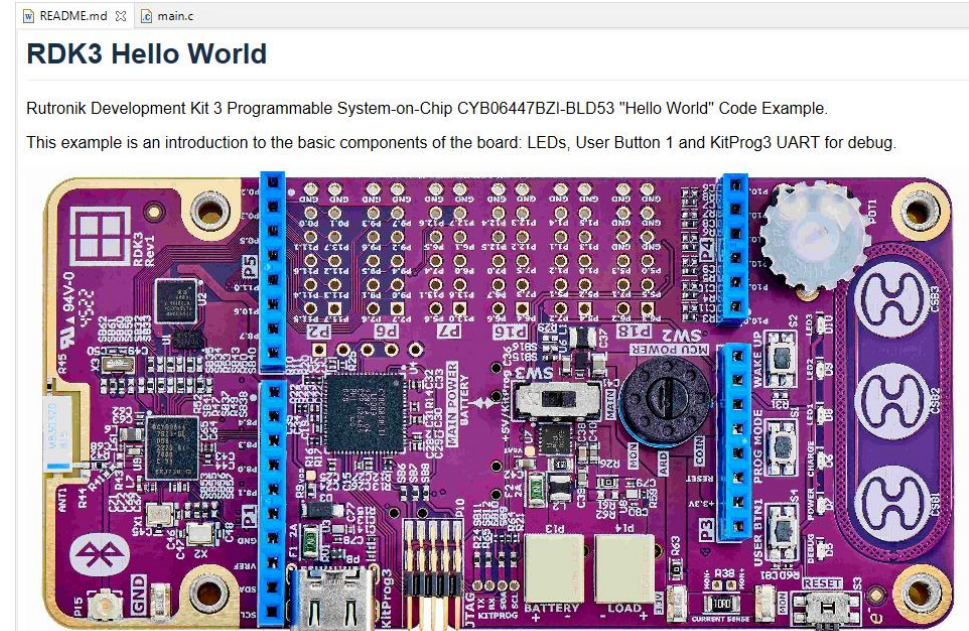
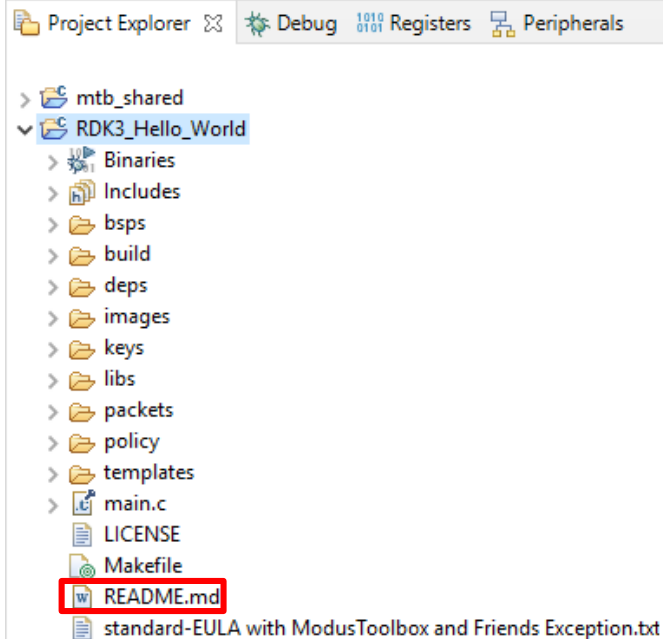


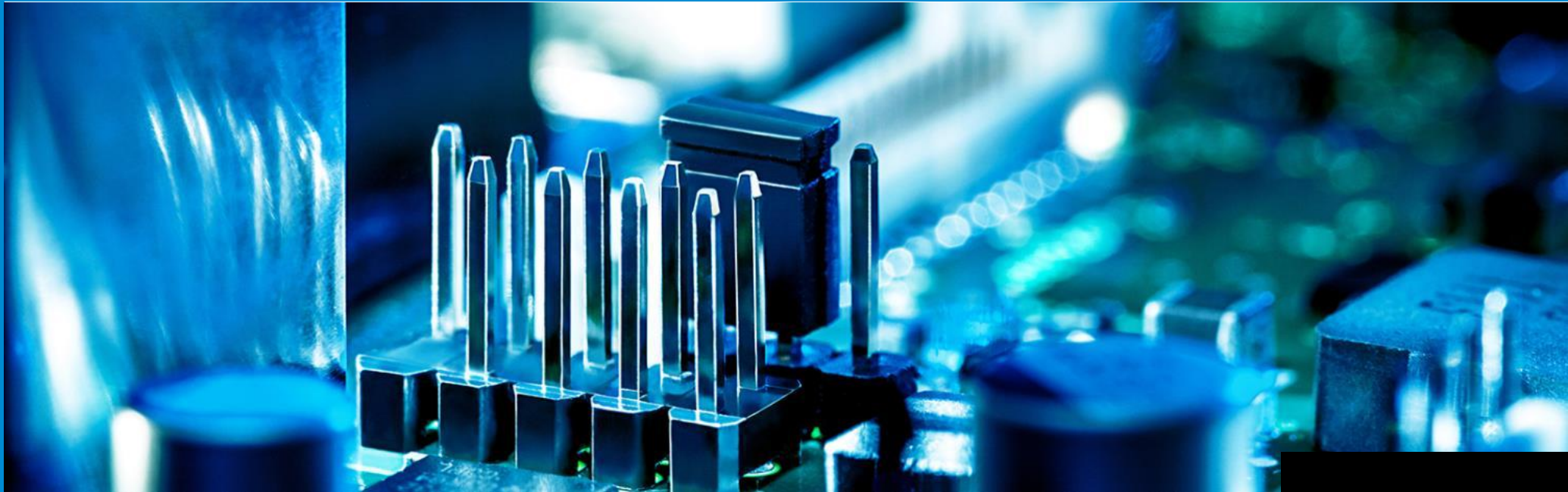
Creating new projects with “Project Creator” tool

8.) Build and Debug the project.



Check the README.md file before starting to explore the code example. You may find important hints or what else is needed to have firmware running properly.





Gintaras Drukteinis

Technical Support

eMail : gdr@rutronik.com