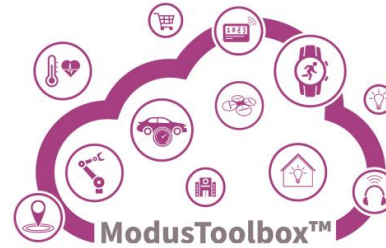


**Getting Started with RDK3**

# 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>

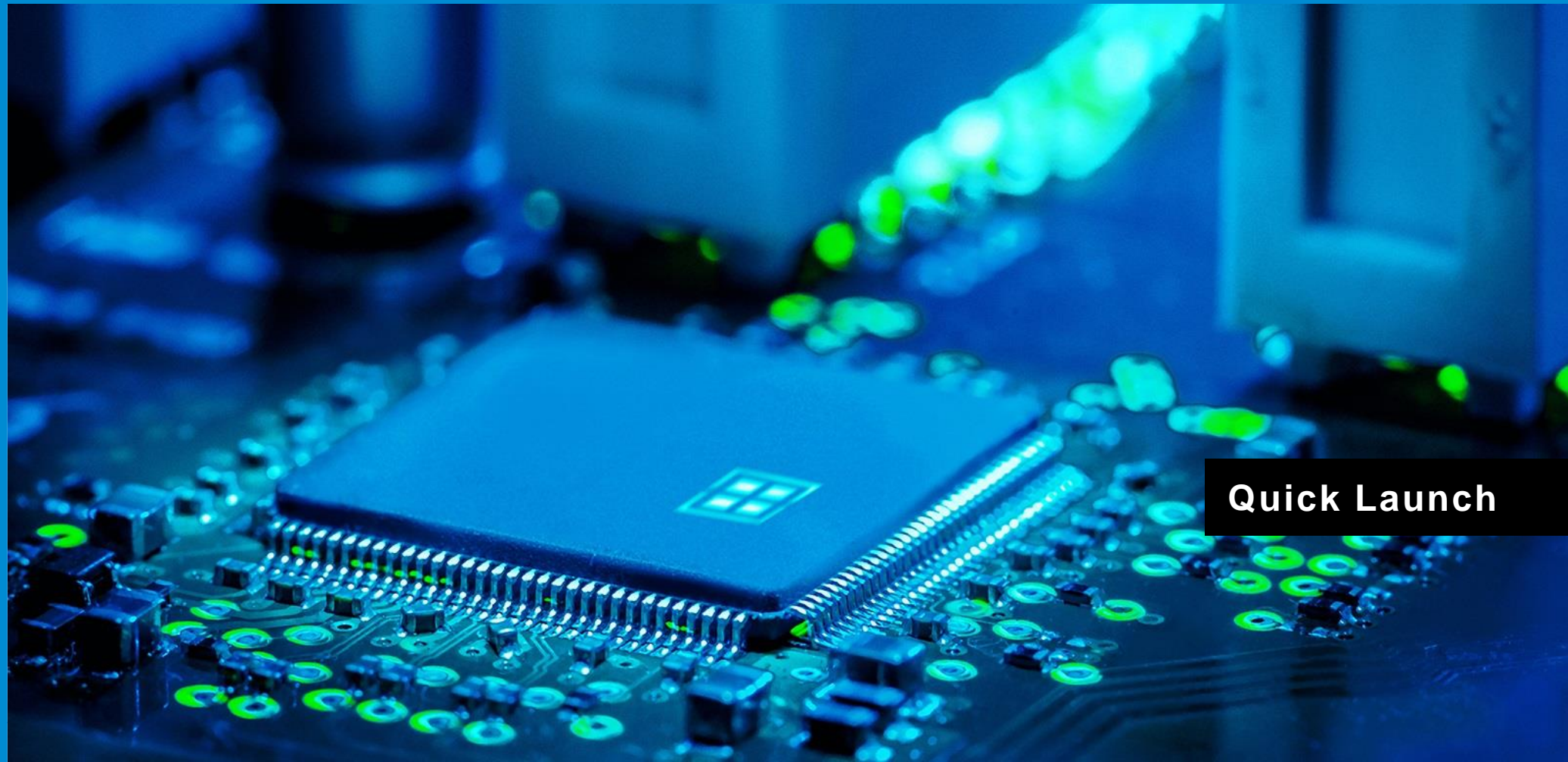
2.) Download and install the latest [ModusToolbox™](#) software.

3.) Get all the supported firmware examples including the BSP from the RDK3 homepage. Please also visit our GitHub <https://github.com/RutronikSystemSolutions>.

4.) [Optional] Download and install your preferred terminal emulator, for example: [PuTTY](#), [Tera Term](#), etc.



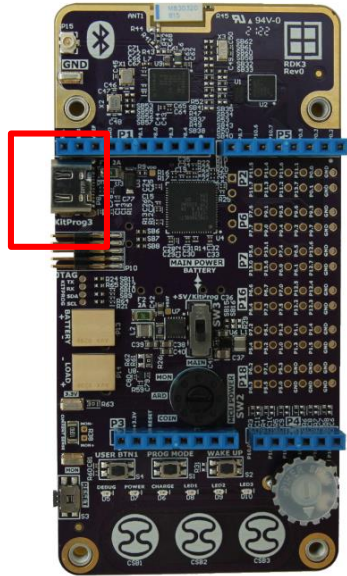
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**Quick Launch**

# 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**

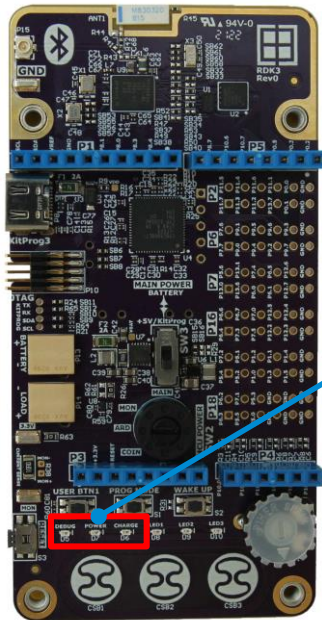


**Connect it  
with your PC**

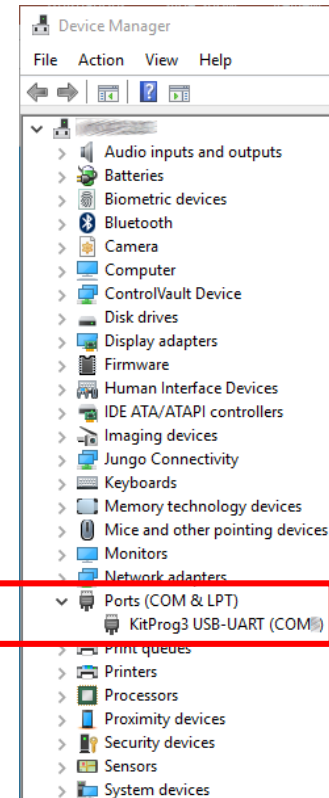
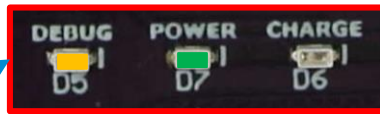


# Connect the RDK3

## Check if the RDK3 is ready.



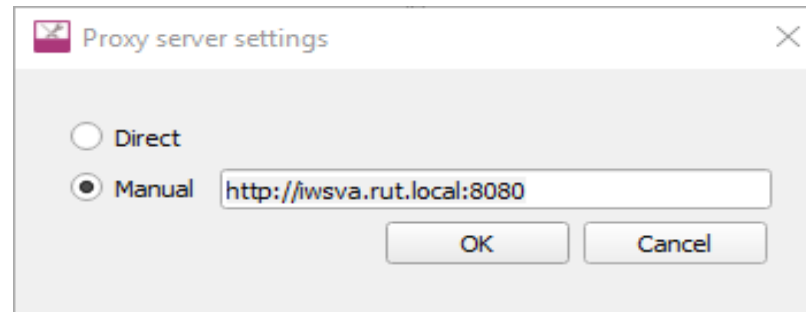
“POWER” and “DEBUG” LEDs must shine constantly. The “CHARGE” LED will be blinking if no battery is connected.



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

**If you are not working with the Rutronik provided Laptop/PC - please skip this step. This setup is for the Rutronik internal network only.**

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



**If you still have no Internet connection, please set the environment variables as shown here – “[ModusToolbox Project Creator and Library Manager report no Internet connection when accessing manifest files](#)”**



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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 consisting of a 3x3 grid of squares, with the top-left square being white and the others black. The surrounding circuit board is populated with various electronic components, including capacitors and resistors, some of which are highlighted by the blue light.

## 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

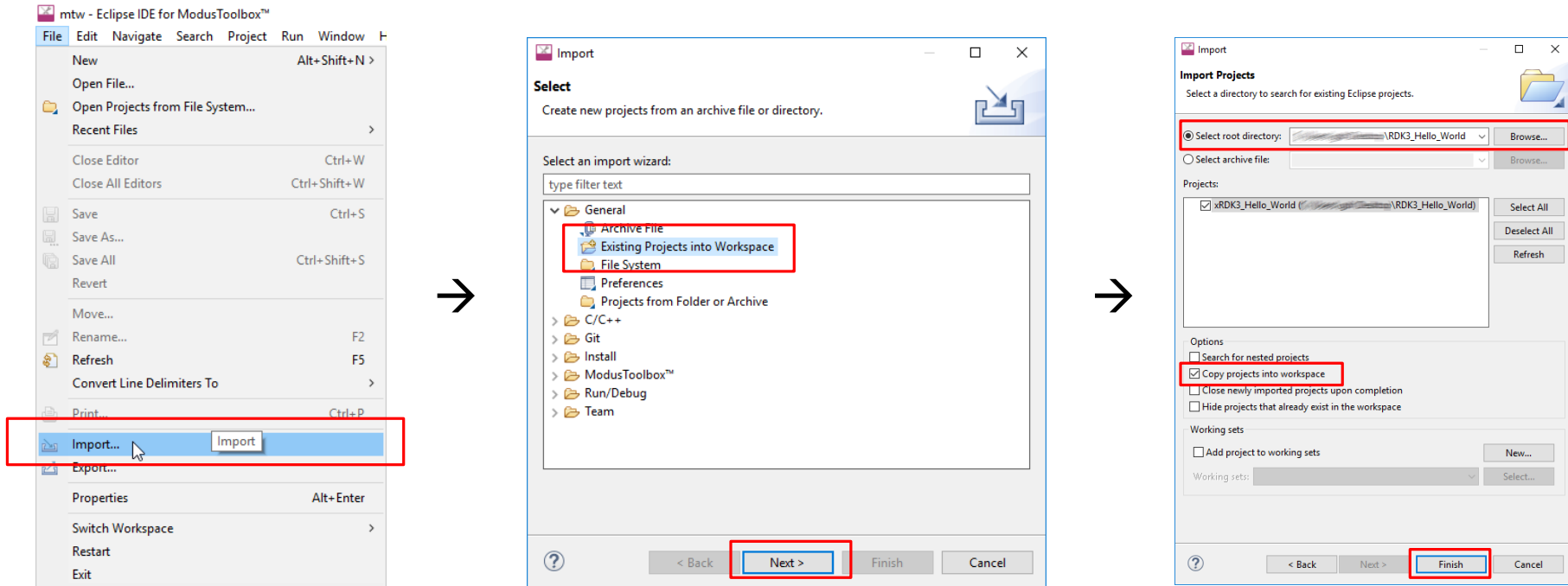
[PSoC™ 64 - Secured MCU](#)

[PSoC™ 64 Provisioning Specification](#)



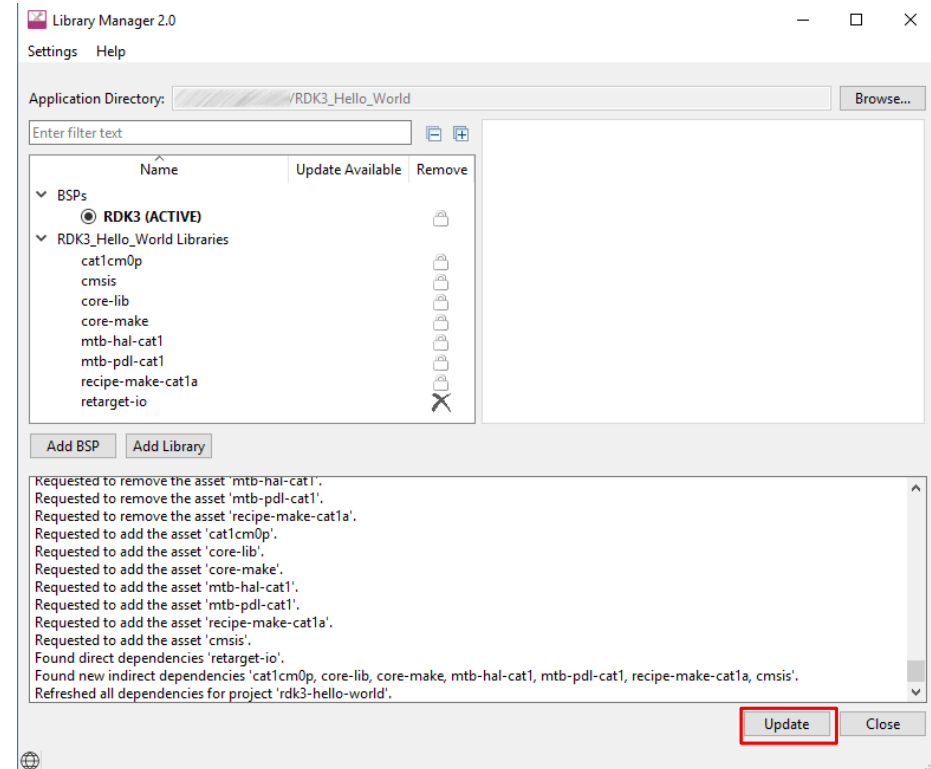
# The Provisioning of the RDK3

- 1.) Download the “RDK3\_Hello\_World” code example from [GitHub](#).
- 2.) Go: File → Import... → Existing Projects into Workspace → Next.
- 3.) Select a directory and the project to import, select “Copy projects into workspace” then click on “Finish”.



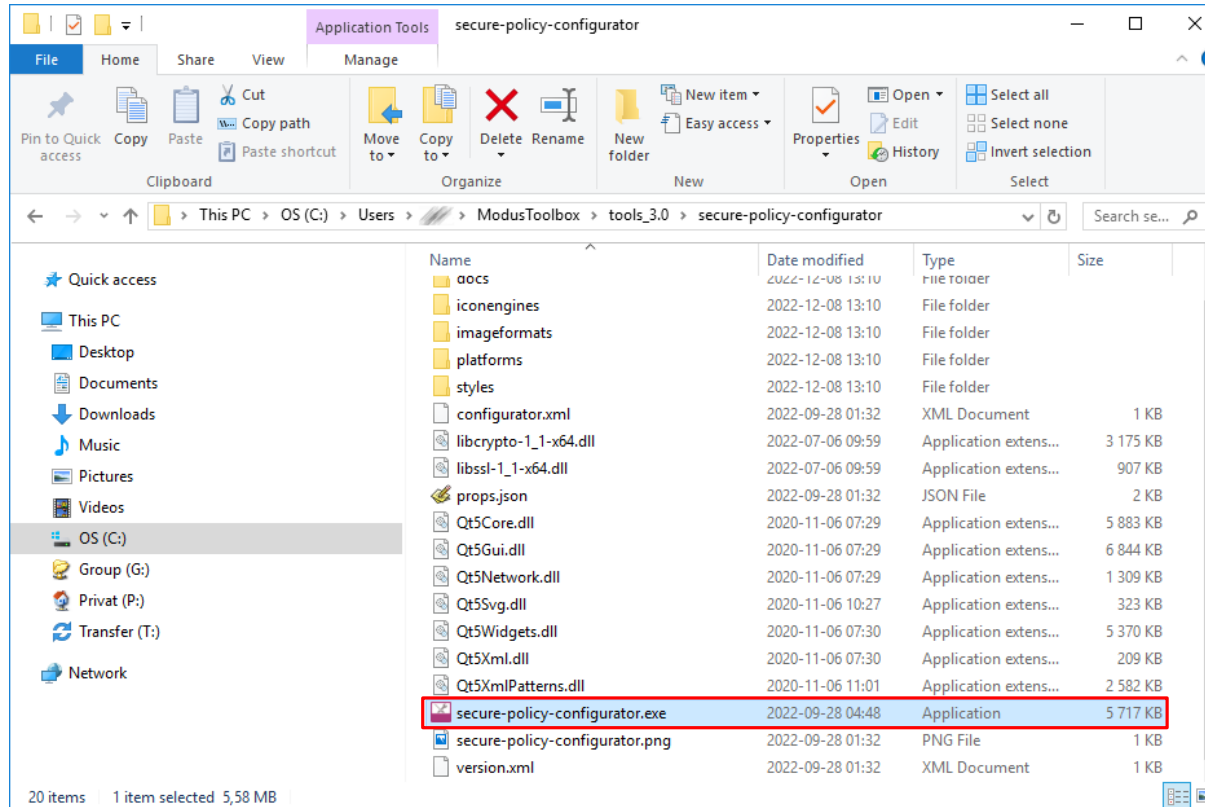
# The Provisioning of the RDK3

## 4.) Update the libraries using the “Library Manager”.



# The Provisioning of the RDK3

## 4.) Load the “Secure Policy Configurator”.

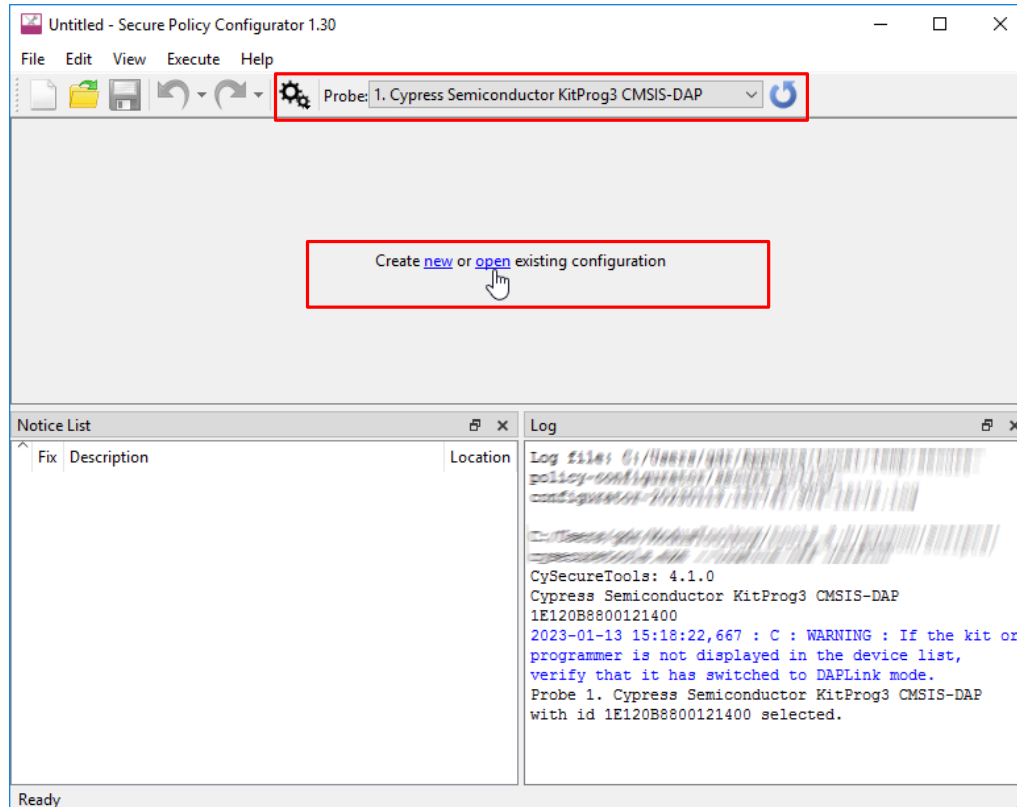


# The Provisioning of the RDK3

5.) Load the "Secure Policy Configurator".

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

7.) Open existing configuration [Select the RDK3\_Hello\_World directory\policy\policy\_single\_CM0\_CM4.json].



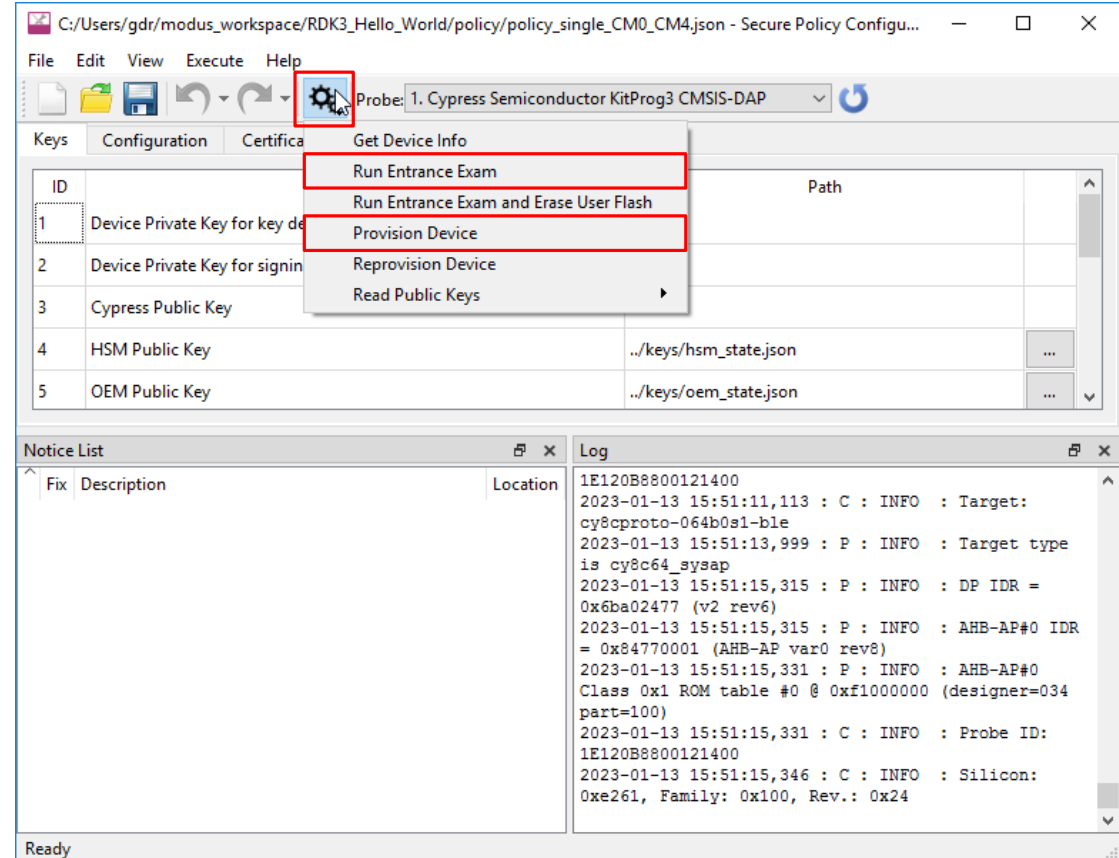
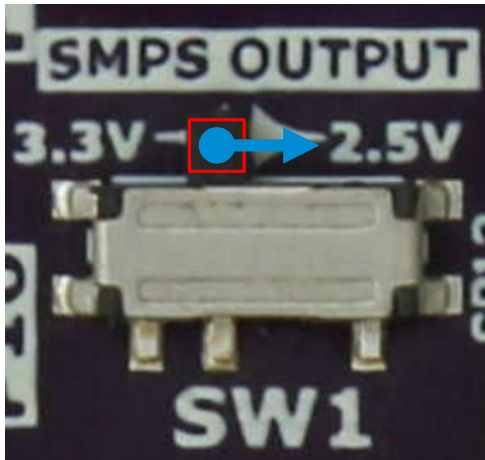


# The Provisioning of the RDK3

8.) Configure the settings according to your needs or leave them as it is.

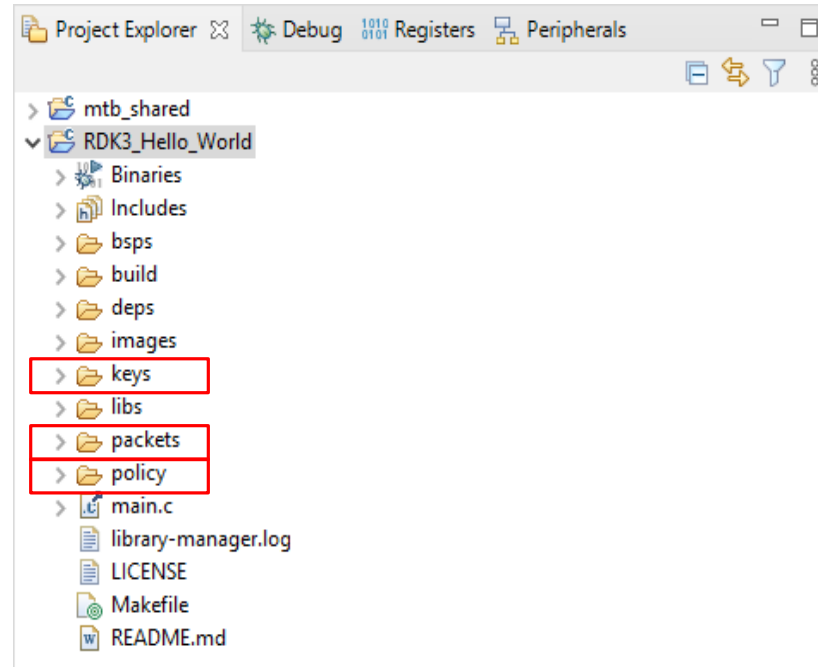
9.) Set the SW1 “SMPS OUTPUT” to the 2.5V position.

10.) “Run The Entrance Exam” and then “Provision the Device”



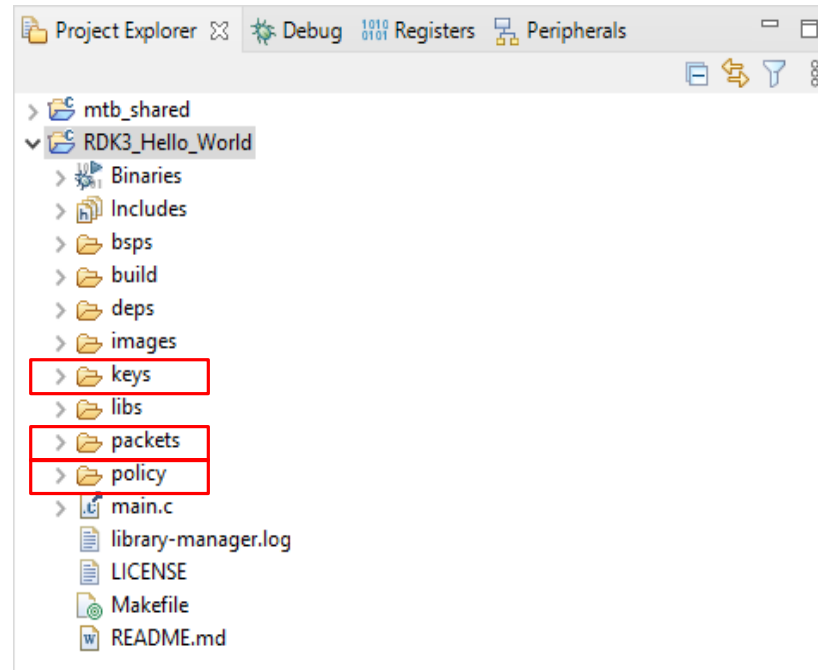
# The Provisioning of the RDK3

The provisioning procedure could also be done using a new project that was created using a RDK3 BSP. Load the “Secure Policy Configurator” and select Create “new” configuration. The “keys”, “packets”, and “policy” configurations will be created in your project directory.



# 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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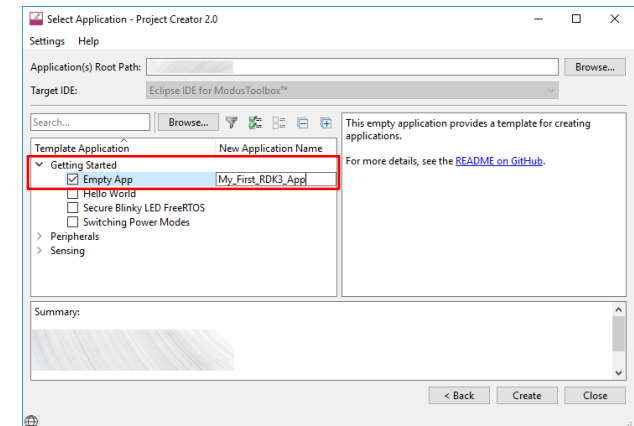
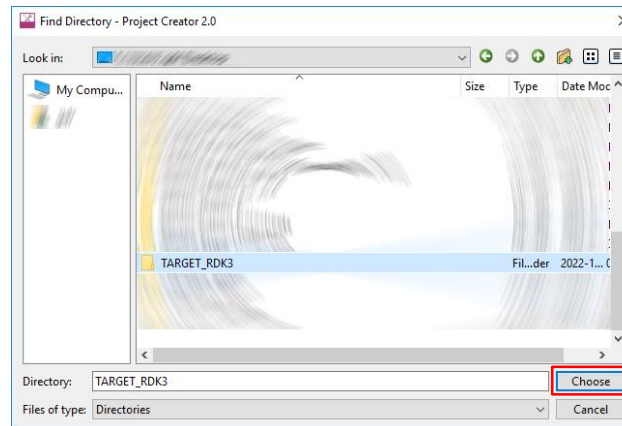
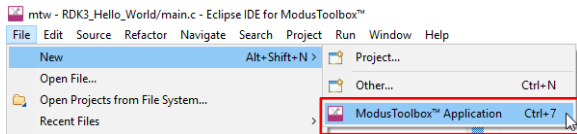
A close-up photograph of a microchip mounted on a circuit board. The image has a strong blue color cast. The chip is square with many pins visible along its edges. The surrounding circuit board has various components and traces visible.

Creating a new project for the RDK3



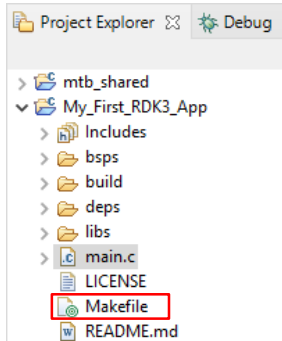
# Creating new projects using “RDK3 BSP”

- 1.) Download the RDK3 BSP [TARGET\\_RDK3](#).
- 2.) Click: File → New → ModusToolbox Application.
- 3.) Click: Import and select “TARGET\_RDK3” folder then Click on “Choose” and “Next”.
- 4.) Select “Empty PSoC6 App”, rename it and Click on “Create”.
- 5.) Wait until project creation is finished.



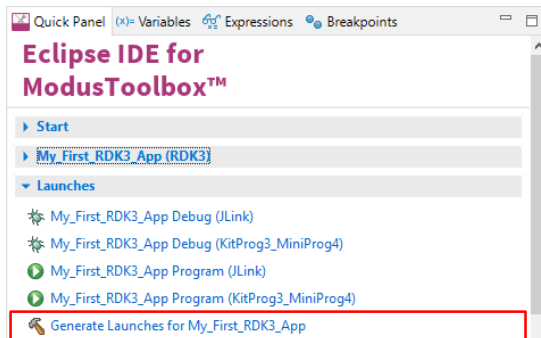
# Creating new projects using “RDK3 BSP”

## 6.) Modify the “Makefile” to disable code optimisation\*



**CONFIG=Costum**  
**CFLAGS=-O0**

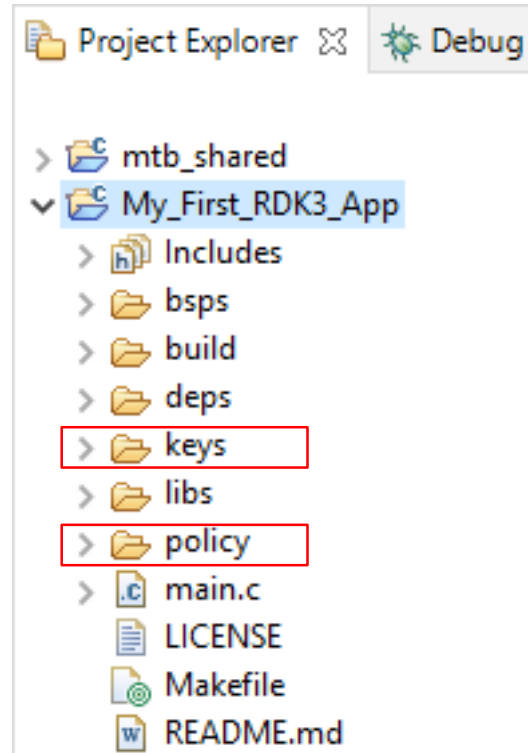
## 7.) Press “Generate Launches for (project name)” in Quick Panel



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

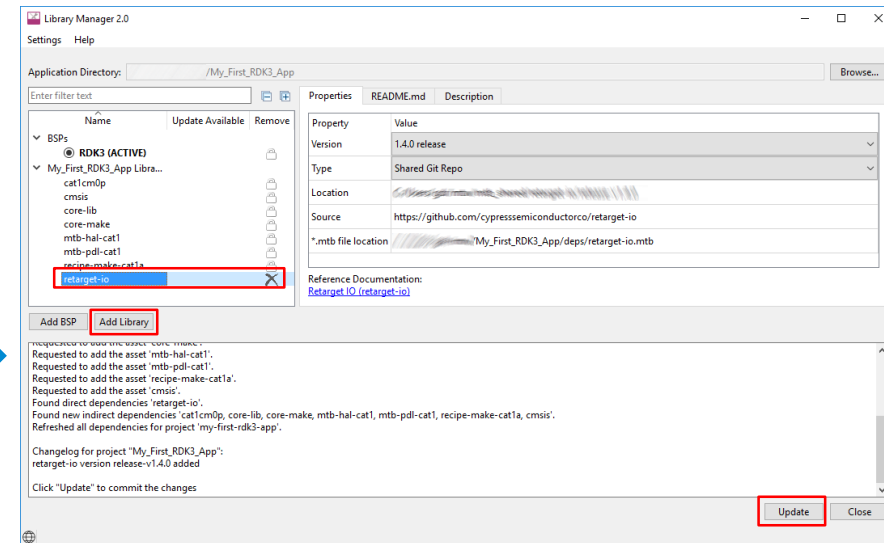
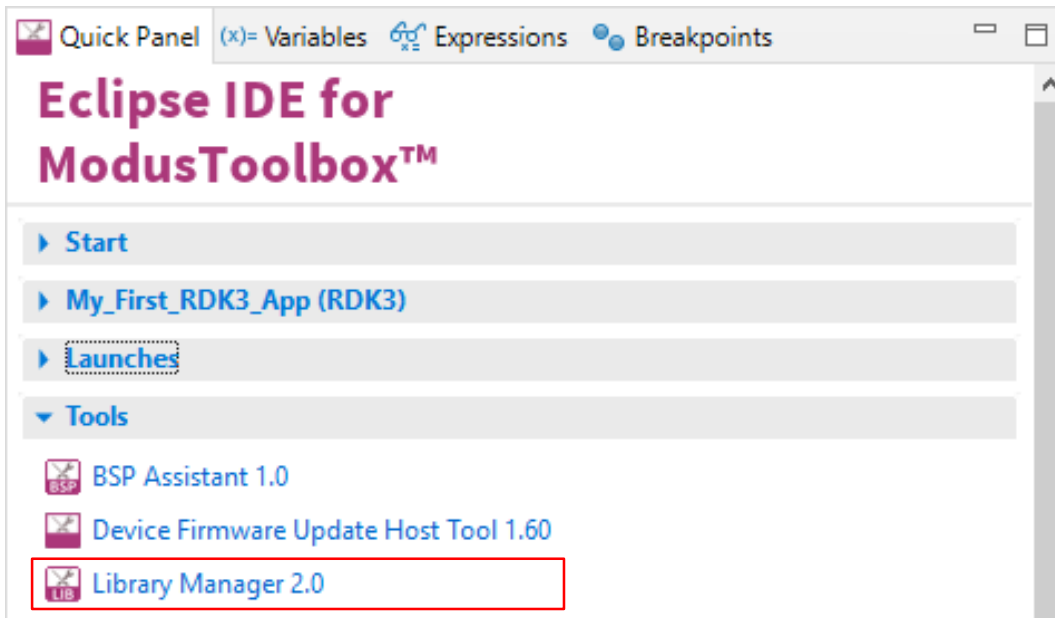
# Creating new projects using “RDK3 BSP”

8.) Copy and paste the “keys” and “policy” folders with all the files into your project.



# Creating new projects using “RDK3 BSP”

## 9.) Select “retarget-io” library in a “Library Manager” tool and press “Update”.





## 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();

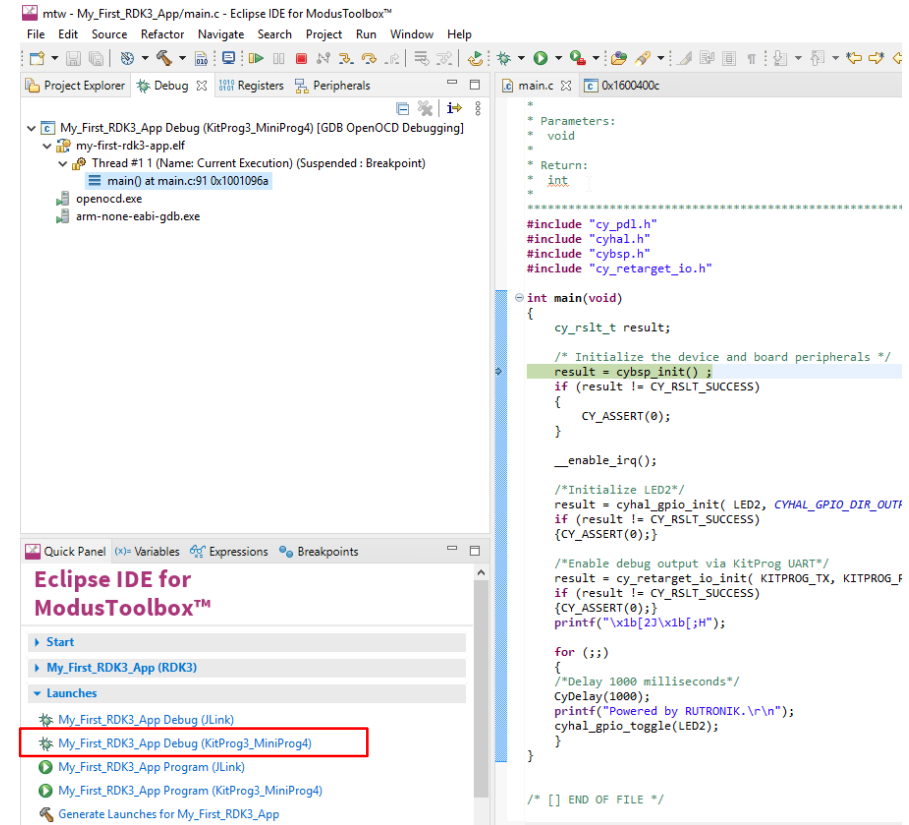
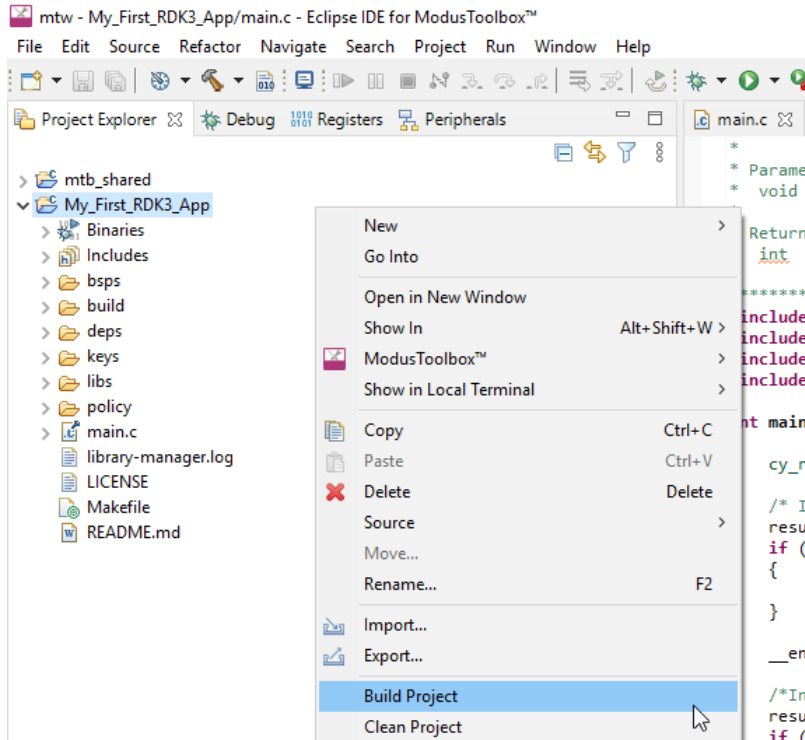
    /*Initialize LED2*/
    result = cyhal_gpio_init( LED2, CYHAL_GPIO_DIR_OUTPUT, CYHAL_GPIO_DRIVE_STRONG, CYBSP_LED_STATE_OFF);
    if (result != CY_RSLT_SUCCESS)
    {CY_ASSERT(0);}

    /*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 using “RDK3 BSP”

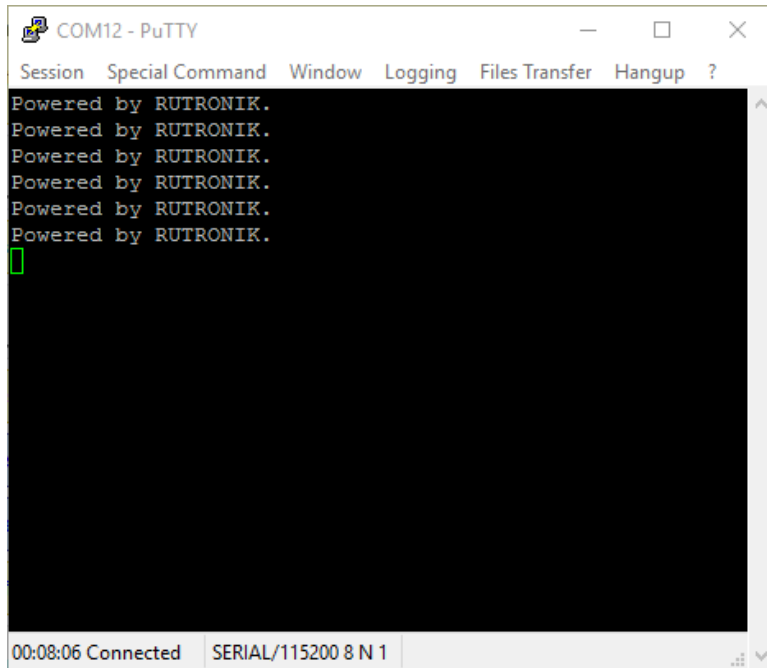
## 11.) Build and Debug the active project.



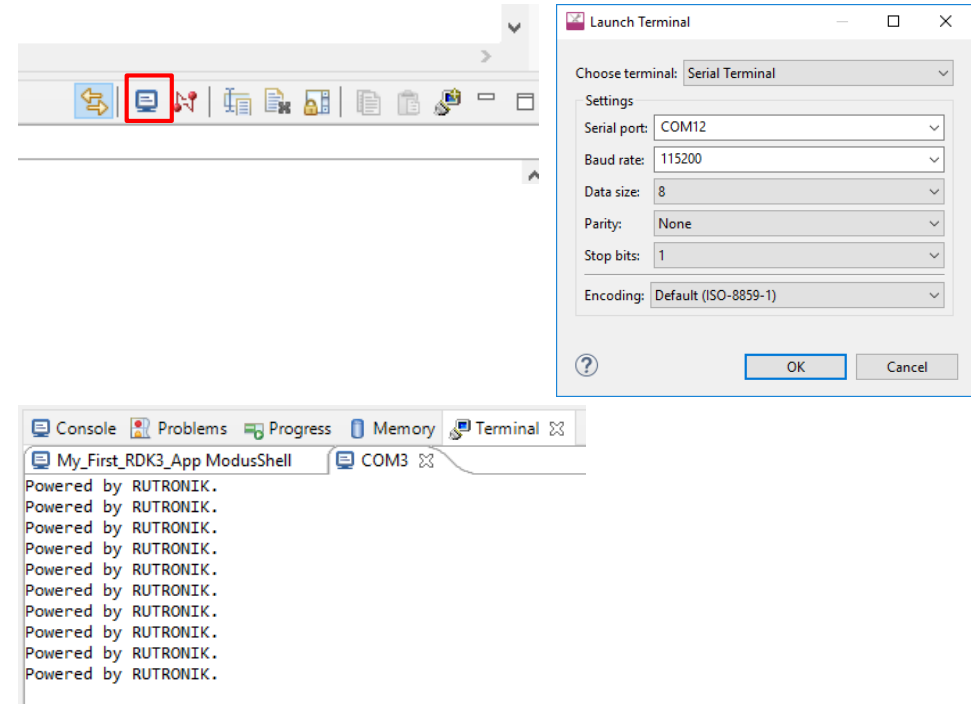
# Creating new projects using “RDK3 BSP”

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

## PuTTY Terminal



## ModusToolbox Terminal





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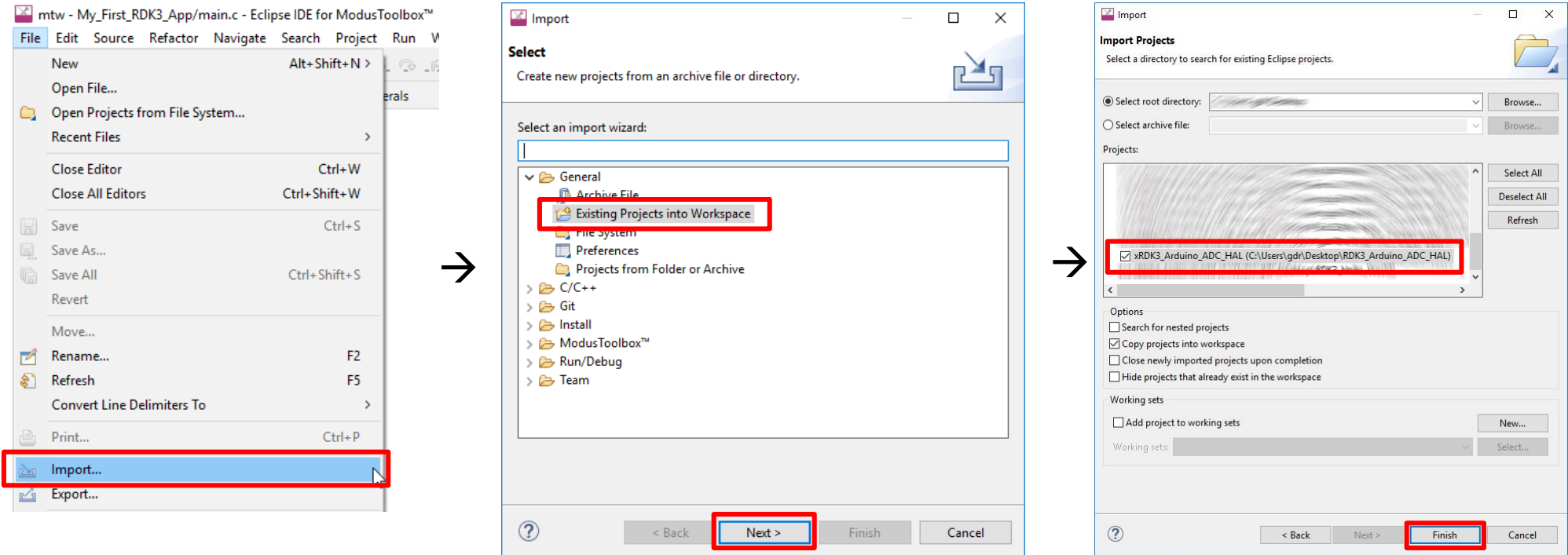
A close-up photograph of a microchip mounted on a circuit board, with various electronic components and solder joints visible. The image is overlaid with a blue gradient.

**Importing the existing firmware examples for the RDK3**



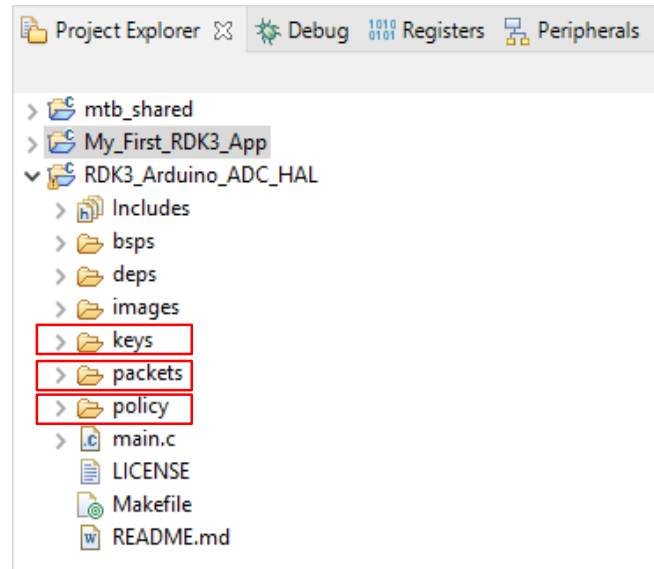
# Importing Existing Projects into Workspace

- 1.) Go: File → Import... → Existing Projects into Workspace → Next.
- 2.) Select a directory and the project to import, select “Copy projects into workspace” then click on “Finish”.

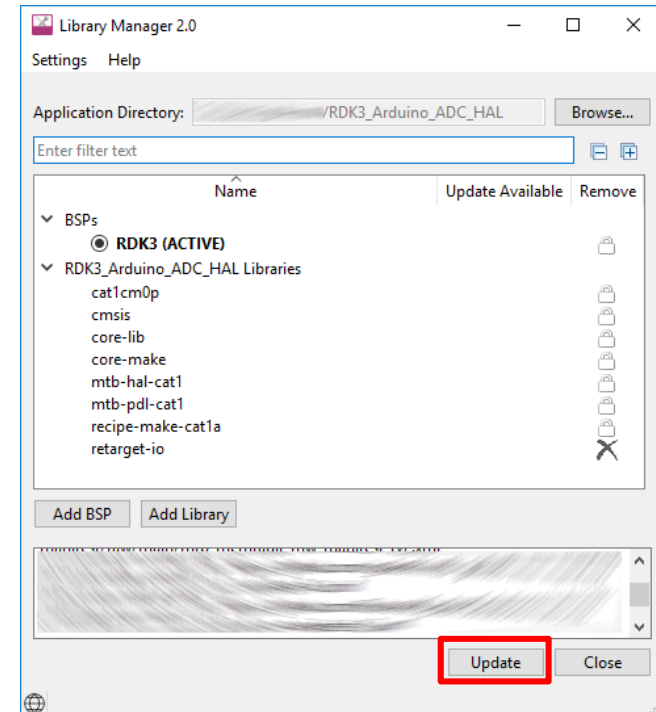
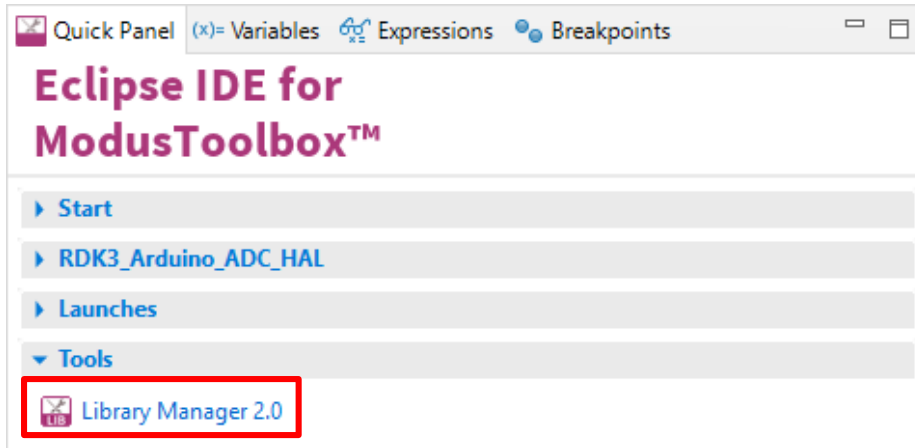


# Importing Existing Projects into Workspace

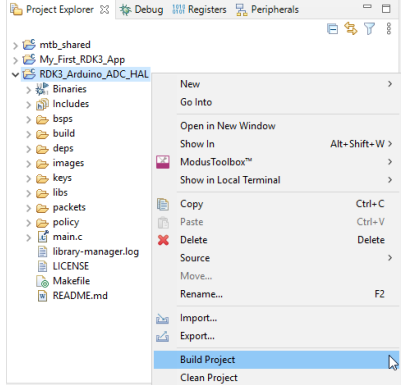
**3.) Copy and paste your “keys” and “policy” folders with all the files into the project directory. The folder “packets” is only needed for the provisioning.**



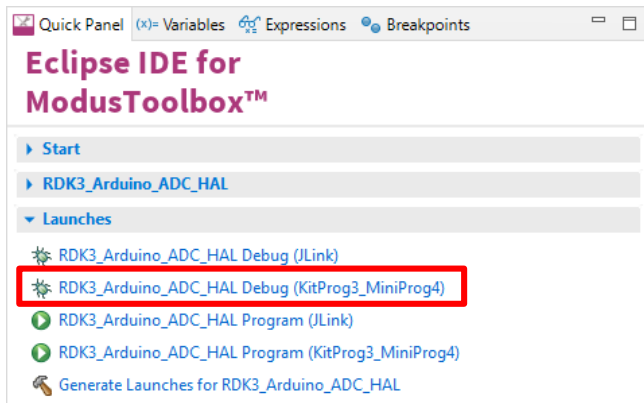
## 4.) Update the libraries using the “Library Manager”.



## 5.) Build: Right Click on the project and click “Build Project”.

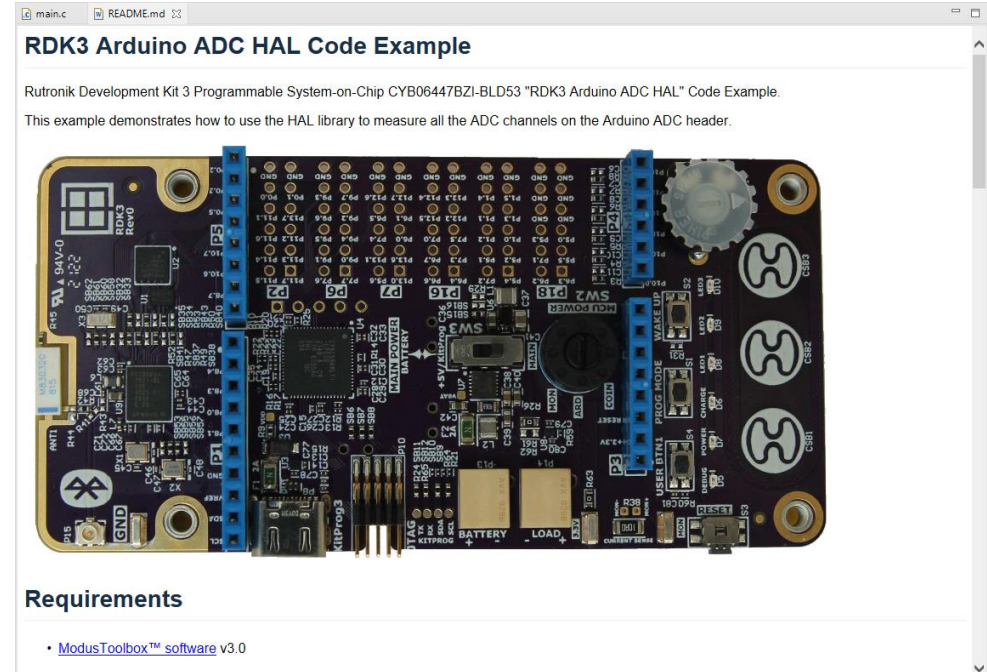
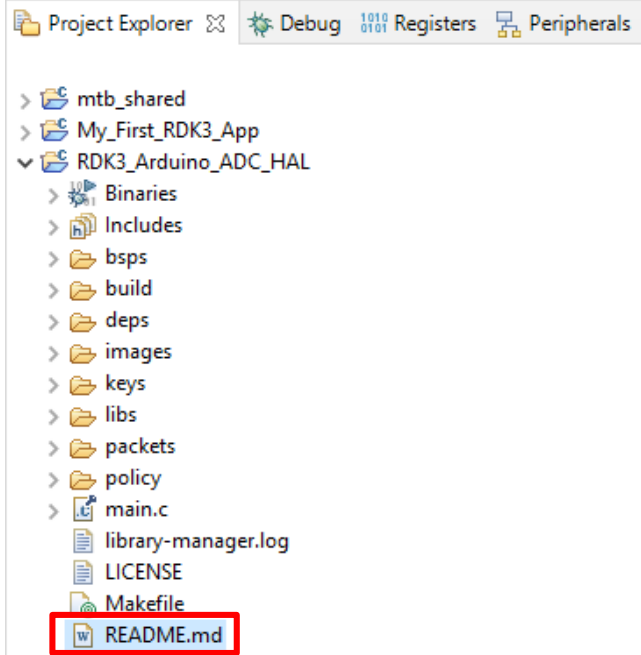


## 6.) Debug: Click on “KitProg3” debug option in “Quick Panel”.



# “RDK3” README.md

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.





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