PSOC 64® EXAMPLES

to FreeRTOS or NOT to FreeRTOS

Abstract

This document provides specific instructions to import PSoC 64 examples onto a PSoC Standard Secure AWS Wi-Fi BT Pioneer Kit CY8CKIT-064S0S2-4343W.
These instructions provide a foundation for importing examples.
Other examples can be imported in place of the two specific examples provided here.

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May 12th, 2021

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1. INTRODUCTION

A guide to getting an example going on PSoC 64 is presented in the Secure Boot SDK User Guide: https://www.cypress.com/documentation/software-and-drivers/psoc-64-secure-mcu-secure-boot-sdk-user-guide

Section 3 of the User Guide, the ModusToolbox Provisioning Flow section, describes the process to perform an example on a PSoC 64 kit. Some steps in the User Guide are not crystal clear. I recommend following the steps here while referencing the User Guide. The user guide provides reasons for steps of the process.

2. SET UP

Instructions in the User Guide use the B0 kit BSP which will work for the S0 and B0 kits just fine.

To use the project initialization and provisioning instructions from the User Guide for the CY8CKIT-064S0S2-4343W; change the instances of "cyb06xxa" to "cys06xxa". For example:

"`cysecuretools -t cyb06xxa init`" should be "`cysecuretools -t cys06xxa init`"

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1) Download Secure Boot SDK User Guide from https://www.cypress.com/documentation/software-and-drivers/psoc-64-secure-mcu-secure-boot-sdk-user-guide
2) Install ModusToolbox 2.3
3) Open a Modus Shell
      Note: Reference P64… PreWork Guide for details on how to execute steps that were introduced in the PreWork such as starting Modus Shell and setting up Python.
4) Provide a means for Python to execute from a Windows environment.
      a. Setup a system path in Windows to point to Python in ModusToolbox
         - or -
      b. Install version 3.7.4 of Python into a Windows accessible location on your PC
5) Verify the correct version of CySecure Tools is installed as seen from both ModusShell and Windows Cmd prompt
      a. If you installed a separate version of Python, ensure both versions have the correct version of cysecuretools and pyOpenSSL
         Note: CySecure Tools version 2.1.0 is compatible with the free CY8CKIT-064S0S2-4343W kits distributed for Arrow's PSoC 64 / AWS Hands-On Workshop. The next version of the kit will be compatible with CySecure Tools version 3.x. The method of differentiating those kits has not been identified as of the time of this writing.

3. THIS FIRST PROCESS USES A FREERTOS EXAMPLE

6) Create a New Application per Section 3, Sub-section A in the Secure Boot SDK User Guide

a. Start ModusToolbox IDE
b. Select a Workspace near a top-level directory and without spaces for ModusToolbox IDE to store files. For Example:

C:/ Scratch/Test_P64_16

c. Within the ModusToolbox IDE, click on

New Application in the Quick Panel

d. In the Project Creator window that opens, expand PSoC 6 BSPs then select a similar kit. Note: Example code designed for PSoC 64 kits utilize the ARM Cortex M4 to run the user application code, leaving the M0 to exclusively perform Secure Processing Environment tasks. Since I'm using a CY8CKIT-064S0S2-4343W, selecting examples for CY8CKIT-064B0S2-4343W is a safe bet that the same resources will be available.

CY8CKIT-064B0S2-4343W

e. Click [Next >].
f. Check the box to the left of an example project you'd like to run on your kit. Note: I like to start simple to establish a foundation of working functionality. Blinking LED, PWM Square Wave, Hello World and radio sniffer programs are good places to start.

Secure Blinky LED FreeRTOS

g. Click [Create]. This may take a while (3-5 minutes for some applications) as it pulls all required sources from respective repositories.
NOTE: After the Application window disappears, there will still be a pop-up window over the Eclipse IDE ModusToolbox or green bar in the lower right corner of the Eclipse IDE ModusToolbox window, indicating the process hasn't completed.

7) Change the directory location Modus Shell is pointing at, to the Example project selected in Step 6.f. under the Workspace created in step 6.b. above:
cd /cygdrive/c/Scratch/Test_P64_16/Secure_Blinky_LED_FreeRTOS

NOTE: THE FOLLOWING COMMANDS ARE SLIGHTLY MODIFIED FROM THE INSTRUCTIONS IN THE GUIDE.

USE "CYS06XXA" FOR YOUR CY8CKIT-064S0S2-4343W.

TIP: SOME COMMON MODUS SHELL COMMANDS:
PWD – TO SEE THE CURRENT DIRECTORY LOCATION
CD – TO CHANGE DIRECTORY. **CD ..** MOVES UP. **CD <SUB-DIRECTORY>** MOVES DOWN.
HELP – TO SEE A LIST OF COMMANDS. **HELP <COMMAND>** GIVES MORE DETAIL

8) Initialize the directory for security by typing into Modus Shell
cysecuretools -t cys06xxa init

*** NOTE: The following command will fail if there is a Slash \ in place of a BackSlash /***
$ cysecuretools -t cyb06xxa -p policy\policy_single_CM0_CM4.json create-keys
Usage: cysecuretools [OPTIONS] COMMAND1 [ARGS]... [COMMAND2 [ARGS]...]...
Try 'cysecuretools --help' for help.

Error: Invalid value for '-p' / '--policy': Could not open file: policypolicy_single_CM0_CM4.json: No such file or directory

9) Generate new keys

cysecuretools -t cys06xxa -p policy/policy_single_CM0_CM4.json create-keys

10) Plug a USB cable from the CY8CKIT-064S0S2-4343W kit to your computer.
11) Verify KitProg Status (LED 2) is blinking at 2 Hz rate
12) If and only If the kit is out of the box fresh and hasn't been provisioned, run the entrance-exam.

cysecuretools -t cys06xxa entrance-exam

13) If and only if the kit has previously been provisioned, perform a re-provision
cysecuretools -t cys06xxa -p policy/policy_single_CM0_CM4.json re-provision-device

*** Note: if the below error occurs, clear memory on your kit by running one of the Recovery Script options below

2021-04-07 19:23:47,066 : C : ERROR : SWD/JTAG Transfer Fault @ 0xe000edf0-0xe000edf3. Check the log for details
Error: Failed processing!

Script option to clear memory ← Looks for a cm0..hex file. ???
Use openocd built in capabilities by running this script – simply change the file paths here to point to your ModusToolbox tools_2.2 directory.

Recovery Script Option 1:

a) Press SW3 Mode Select until the **KitProg Status LED is on SOLID**
b) Replace the four instances of <username> in the below script with your username, ensuring each path correctly points into the ModusToolbox directory on your PC

```
/cygdrive/c/Users/<username>/ModusToolbox/tools_2.2/openocd/bin/openocd.exe -s
C:/Users/<username>/ModusToolbox/tools_2.2/openocd/scripts -f
C:/Users/<username>/ModusToolbox/tools_2.2/openocd/scripts/interface/kitprog3.cfg -c "set
TARGET_AP cm0_ap" -c "set ENABLE_ACQUIRE 0" -f
C:/Users/<username>/ModusToolbox/tools_2.2/openocd/scripts/target/psoc6_2m_secure.cfg -c
"init; reset init; flash write_image erase cm0.hex" -c "reset; exit"
```

c) Press SW3 Mode Select until the **KitProg Status LED in blinking at 2Hz rate**
d) Re-run entrance exam or re-provisioning depending on history of provisioning the kit

Recovery Script Option 2: using reprov_helper.py

    a) Copy the file "reprov_helper.py" from the security directory of amazon_freertos into your project directory

        Note: reprov_helper.py will be located @ …\amazon-freertos\vendors\cypress\MTB\psoc6\psoc64tfm\security

    b) Run the following script in Modus Shell (Note: This will run for a while then fail. That's ok. It clears out memory)

python reprov_helper.py -f C:/Users/<mark><user_name></mark>/ModusToolbox/tools_2.2/fw-loader -y -p policy/policy_multi_CM0_CM4_smif.json

        o Enter **Y** for the first two prompts
        o Enter a short sequence of numbers (12345678) for a unique serial number
        o Enter **Y** or **N** for the last prompt
    c) Re-run re-provisioning

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14) Within Eclipse IDE ModusToolbox, Build the project

        Select the project in the Project Explorer Window of Eclipse then click on the "**Build <project name> Application**" line in the Quick Panel.

NOTE: IF THE BUILD FAILS, CHECK THE LOG FILE IN THE WORKING DIRECTORY = PROJECT-CREATOR.LOG

15) Set kit to CMSIS-DAP mode (Solid KitProg Status LED)
16) Open a serial terminal program: TeraTerm, Putty or similar. Set it to watch the KitProg

NOTE: SERIAL TERMINAL MAY NOT BE ABLE TO COMMUNICATE WITH THE KIT WHEN THE KIT IS IN DAPLINK MODE 2HZ BLINK RATE.

NOTE: IF ATTEMPTING TO PROGRAM WHEN THE KIT IS IN DAPLINK MODE (2HZ BLINKING KITPROG STATUS LED), THE ERROR WILL LOOK LIKE:

```
Error: unable to find CMSIS-DAP device
```

```
Error: No Valid JTAG Interface Configured.
```

17) Program the project onto the kit
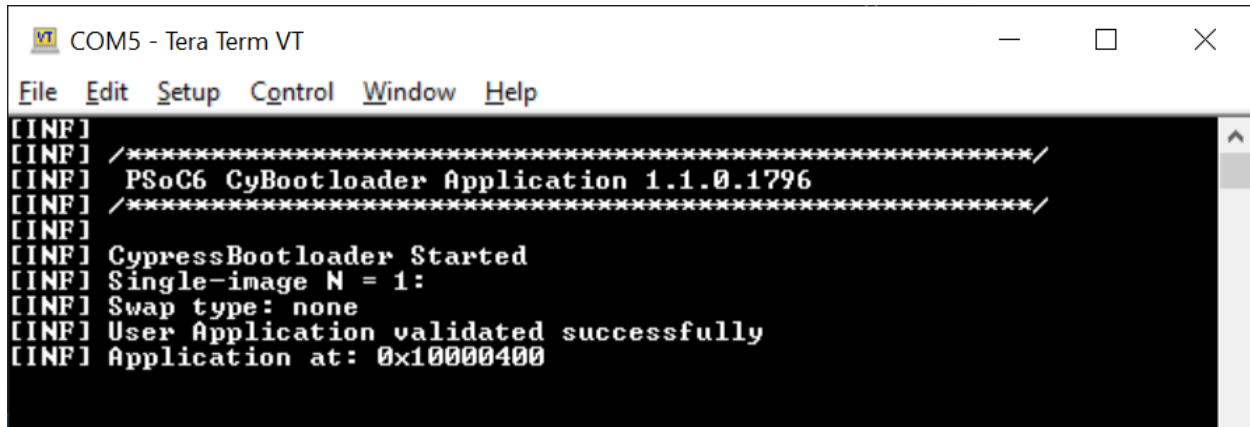   Click on the "**<project name> Program (KitProg3_MiniProg4)**" line in the Launches section of Quick Panel.
        - or -
        Right-Click on the project name in the Project Explorer window of Eclipse, then select "**Run As**" then "**Run Configurations**".

In the window that opens, select "**GDB OpenOCD Debugging > <project name> Program (KitProg3)**" then select [**Run**]
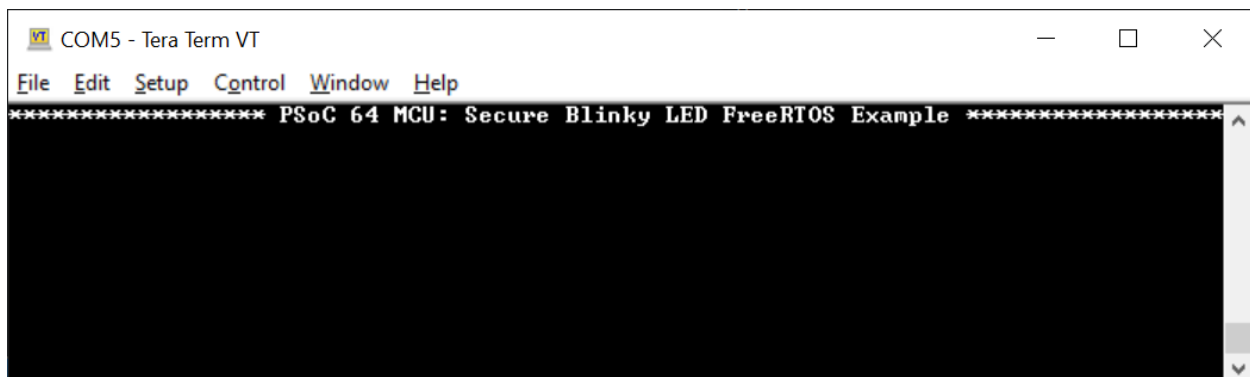
18) Observe something in the terminal window (depending on the example selected) – press Reset, Black SW1 button on kit to re-send information to the serial terminal.

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Then screen clears, followed by

_____

The red LED8 in the upper right corner of the kit should be blinking at a 1Hz rate

4. THIS SECOND PROCESS USES A HELLO WORLD EXAMPLE

1) Create a New Application per Section 3, Sub-section A in the Secure Boot SDK User Guide
   a. Start ModusToolbox IDE
   b. Select a Workspace near a top-level directory and without spaces for ModusToolbox IDE to store files. For Example:

   C:/ Scratch/Test_P64_07

c. Within the ModusToolbox IDE, click on

New Application in the Quick Panel

d. In the Project Creator window that opens, expand PSoC 6 BSPs then select

CY8CKIT-064B0S2-4343W

e. Click [Next >].
f. Check the box to the left of

Hello World

g. Click [Create]. This may take a while (3-4 minutes for some applications) as it pulls all required sources from respective repositories.
Note: After the Application window disappears, there will still be a pop-up window over the Eclipse IDE ModusToolbox or green bar in the lower right corner of the Eclipse IDE ModusToolbox window, indicating the process hasn't completed.

2) Change the location Modus Shell is located to the Workspace created in step 6.b. above:
cd /cygdrive/c/Scratch/Test_P64_07/Hello_World

NOTE: THE FOLLOWING COMMANDS ARE SLIGHTLY MODIFIED FROM THE INSTRUCTIONS IN THE GUIDE.

USE "CYS06XXA" FOR YOUR CY8CKIT-064S0S2-4343W.

TIP: USE "PWD" IN MODUS SHELL TO SEE THE CURRENT LOCATION.

3) Initialize the directory for security
cysecuretools -t cys06xxa init
4) Generate new keys

cysecuretools -t cys06xxa -p policy/policy_single_CM0_CM4.json create-keys

5) Plug a USB cable from the CY8CKIT-064S0S2-4343W kit to your computer.
6) Verify KitProg Status (LED 2) is blinking at 2 Hz rate
7) If and only If the kit is out of the box fresh and hasn't been provisioned, run the entrance-exam.

cysecuretools -t cys06xxa entrance-exam

8) If and only if the kit has previously been provisioned, perform a re-provision
cysecuretools -t cys06xxa -p policy/policy_single_CM0_CM4.json re-provision-device

NOTE: If the lines in Modus Shell stop with a message "", press SW3 Mode Select on the kit to put the kit into DapLink mode where the KitProg Status LED is blinking at 2Hz rate. Progress should resume.

NOTE: See Appendix for expected results of Modus Shell for this example.
cyp

9) Within Eclipse IDE ModusToolbox, Build the project

> Click on the "**Build <project name> Application**" line in the Quick Panel.

> (Build may take 1-2 minutes to complete)

10) Set kit to CMSIS-DAP mode (Solid KitProg Status LED)
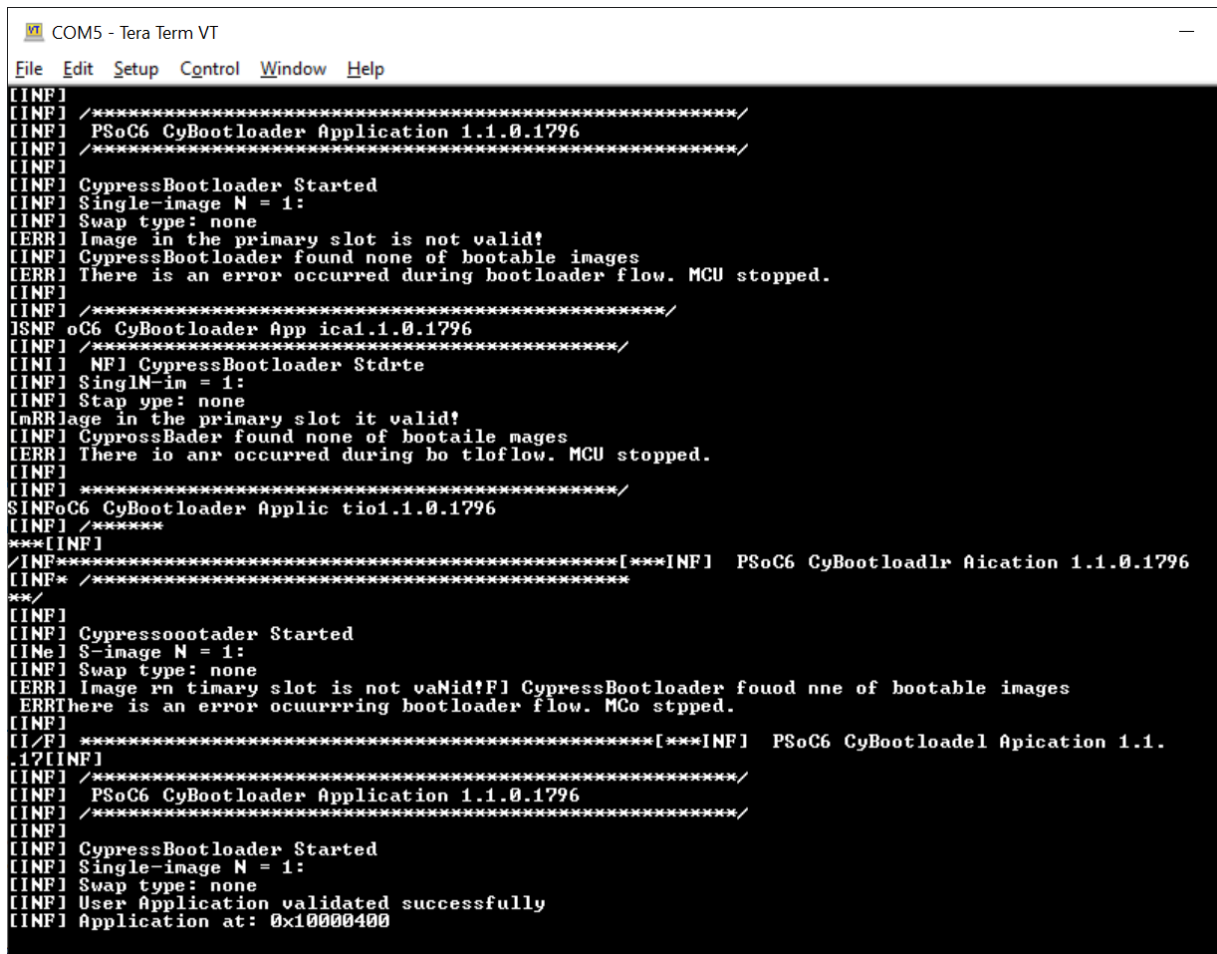11) Open a serial terminal program: TeraTerm, Putty or similar. Set it to watch the KitProg

> *(NOTE: Serial Terminal may NOT be able to communicate with the kit when the kit is in Daplink mode 2Hz blink rate)*

12) Program the project onto the kit
> Click on the "**<project name> Program (KitProg3_MiniProg4)**" line in the Launches section of Quick Panel.

Some initial messages will scroll by on the serial terminal…

Then the terminal will clear and display the following message:

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Press the 'Enter' key to pause or resume the red LED on the kit. There should be a corresponding update to the serial terminal display.

APPENDIX:

Following are some example outputs for comparison and to show what to expect.

This Appendix section is also for additional Tips and Trick.

For specific questions, please send an e-mail to PSoC64@arrow.com

MODUS SHELL FOR ONE ENTIRE EXAMPLE:

```
a73744@980BHR2 ~
$ cd /cygdrive/c/Scratch/Test_P64_07/Hello_World

a73744@980BHR2 /cygdrive/c/Scratch/Test_P64_07/Hello_World
```

```
$ cysecuretools -t cys06xxa init
2021-04-13 21:40:05,414 : C : INFO  : Copy 'C:\Scratch\Test_P64_07\Hello_World\packets\control_dap_cert.json'
2021-04-13 21:40:05,436 : C : INFO  : Copy 'C:\Scratch\Test_P64_07\Hello_World\packets\cy_auth_2m_s0_sample.jwt'
2021-04-13 21:40:05,452 : C : INFO  : Copy 'C:\Scratch\Test_P64_07\Hello_World\keys\hsm_state.json'
2021-04-13 21:40:05,468 : C : INFO  : Copy 'C:\Scratch\Test_P64_07\Hello_World\keys\oem_state.json'
2021-04-13 21:40:05,483 : C : INFO  : Copy 'C:\Scratch\Test_P64_07\Hello_World\policy\policy_multi_CM0_CM4.json'
2021-04-13 21:40:05,499 : C : INFO  : Copy 'C:\Scratch\Test_P64_07\Hello_World\policy\policy_multi_CM0_CM4_smif.json'
2021-04-13 21:40:05,514 : C : INFO  : Copy 'C:\Scratch\Test_P64_07\Hello_World\policy\policy_single_CM0_CM4.json'
2021-04-13 21:40:05,530 : C : INFO  : Copy 'C:\Scratch\Test_P64_07\Hello_World\policy\policy_single_CM0_CM4_smif.json'
2021-04-13 21:40:05,538 : C : INFO  : Copy
'C:\Scratch\Test_P64_07\Hello_World\prebuilt\CyBootloader_Release\CypressBootloader_CM0p.hex'
2021-04-13 21:40:05,556 : C : INFO  : Copy
'C:\Scratch\Test_P64_07\Hello_World\prebuilt\CyBootloader_Release\CypressBootloader_CM0p.jwt'
2021-04-13 21:40:05,572 : C : INFO  : Copy
'C:\Scratch\Test_P64_07\Hello_World\prebuilt\CyBootloader_WithLogs\CypressBootloader_CM0p.hex'
2021-04-13 21:40:05,587 : C : INFO  : Copy
'C:\Scratch\Test_P64_07\Hello_World\prebuilt\CyBootloader_WithLogs\CypressBootloader_CM0p.jwt'

a73744@980BHR2 /cygdrive/c/Scratch/Test_P64_07/Hello_World
$ cysecuretools -t cys06xxa -p policy/policy_single_CM0_CM4.json create-keys
2021-04-13 21:40:14,468 : C : INFO  : Created key in C:\Scratch\Test_P64_07\Hello_World\keys\USERAPP_CM4_KEY.json

a73744@980BHR2 /cygdrive/c/Scratch/Test_P64_07/Hello_World
$ cysecuretools -t cys06xxa -p policy/policy_single_CM0_CM4.json re-provision-device
2021-04-13 21:40:41,496 : C : INFO  : ###############################################################
2021-04-13 21:40:41,496 : C : INFO  : Provisioning packet is created
2021-04-13 21:40:41,496 : C : INFO  : ###############################################################
2021-04-13 21:40:42,185 : C : INFO  : Target: cys06xxa
Waiting for a debug probe to be connected...
2021-04-13 21:41:00,627 : P : INFO  : Target type is cy8c64_sysap
2021-04-13 21:41:00,658 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:00,658 : P : INFO  : AHB-AP#0 IDR = 0x84770001 (AHB-AP var0 rev8)
2021-04-13 21:41:00,674 : P : INFO  : AHB-AP#0 Class 0x1 ROM table #0 @ 0xf1000000 (designer=034 part=102)
2021-04-13 21:41:00,674 : C : INFO  : Use system AP
2021-04-13 21:41:00,674 : C : INFO  : Probe ID: 19111301a419071100a4190700000000000000002e127069
2021-04-13 21:41:01,059 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:01,059 : C : INFO  : Checking cm0 AP permissions
2021-04-13 21:41:03,131 : C : INFO  : cm0 AP open
2021-04-13 21:41:03,131 : C : INFO  : Target: cys06xxa
2021-04-13 21:41:03,310 : P : INFO  : Target type is cy8c64xa_cm0_full_flash
2021-04-13 21:41:03,341 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:03,341 : P : INFO  : AHB-AP#0 IDR = 0x84770001 (AHB-AP var0 rev8)
2021-04-13 21:41:03,353 : P : INFO  : AHB-AP#1 IDR = 0x84770001 (AHB-AP var0 rev8)
2021-04-13 21:41:03,353 : P : INFO  : AHB-AP#0 Class 0x1 ROM table #0 @ 0xf1000000 (designer=034 part=102)
2021-04-13 21:41:03,353 : P : INFO  : AHB-AP#1 Class 0x1 ROM table #0 @ 0xf0000000 (designer=034 part=102)
2021-04-13 21:41:03,353 : P : INFO  : [0]<e00ff000:ROM class=1 designer=43b part=4c0>
2021-04-13 21:41:03,353 : P : INFO  :   AHB-AP#1 Class 0x1 ROM table #1 @ 0xe00ff000 (designer=43b part=4c0)
2021-04-13 21:41:03,369 : P : INFO  :    [0]<e000e000:SCS-M0+ class=14 designer=43b part=008>
2021-04-13 21:41:03,369 : P : INFO  :    [1]<e0001000:DWT-M0+ class=14 designer=43b part=00a>
2021-04-13 21:41:03,369 : P : INFO  :    [2]<e0002000:BPU class=14 designer=43b part=00b>
2021-04-13 21:41:03,369 : P : INFO  : [1]<f0002000:CTI class=9 designer=43b part=9a6 devtype=14 archid=1a14 devid=1040800:0:0>
2021-04-13 21:41:03,369 : P : INFO  : [2]<f0003000:MTB-M0+ class=9 designer=43b part=932 devtype=31 archid=0a31 devid=0:0:0>
2021-04-13 21:41:03,369 : P : INFO  : CPU core #1 is Cortex-M0+ r0p1
2021-04-13 21:41:03,369 : P : INFO  : 2 hardware watchpoints
2021-04-13 21:41:03,369 : P : INFO  : 4 hardware breakpoints, 0 literal comparators
2021-04-13 21:41:03,384 : C : INFO  : Use system AP
2021-04-13 21:41:03,384 : P : INFO  : Clearing TEST_MODE bit...
2021-04-13 21:41:03,384 : C : INFO  : Probe ID: 19111301a419071100a4190700000000000000002e127069
2021-04-13 21:41:03,769 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:03,769 : C : INFO  : Read FlashBoot firmware status:
2021-04-13 21:41:03,769 : C : INFO  : FlashBoot firmware status = 0xa1000101
2021-04-13 21:41:03,769 : C : INFO  : Received FB_FW_STATUS = 0xa0000000
2021-04-13 21:41:03,769 : C : INFO  : Expected FB_FW_STATUS = 0xa0000000
2021-04-13 21:41:03,769 : C : INFO  : BOOT slot will remain the same and can affect rollback counter
2021-04-13 21:41:06,789 : C : INFO  : Use cm0 AP
2021-04-13 21:41:06,791 : P : INFO  : Clearing TEST_MODE bit...
2021-04-13 21:41:06,791 : C : INFO  : Programming bootloader 'C:\Users\a73744\ModusToolbox\tools_2.2\python\lib\site-
packages\cysecuretools\targets\cys06xxa\prebuilt\CyBootloader_WithLogs\CypressBootloader_CM0p.hex':
2021-04-13 21:41:06,881 : P : INFO  : Acquiring target...
2021-04-13 21:41:07,162 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:07,172 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:07,174 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:07,182 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
[====================] 100%
2021-04-13 21:41:08,290 : P : INFO  : Acquiring target...
2021-04-13 21:41:08,572 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:08,582 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:08,584 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:08,594 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:08,594 : P : INFO  : Erased 0 bytes (0 sectors), programmed 0 bytes (0 pages), skipped 60928 bytes (119 pages)
at 34.56 kB/s
```

```
2021-04-13 21:41:08,594 : C : INFO  : Programming bootloader complete
2021-04-13 21:41:08,594 : C : INFO  : Use system AP
2021-04-13 21:41:08,604 : P : INFO  : Clearing TEST_MODE bit...
2021-04-13 21:41:08,604 : P : INFO  : Clearing TEST_MODE bit...
2021-04-13 21:41:08,615 : P : INFO  : Target: cys06xxa
2021-04-13 21:41:08,787 : P : INFO  : Target type is cy8c64_sysap
2021-04-13 21:41:08,830 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:08,830 : P : INFO  : AHB-AP#0 IDR = 0x84770001 (AHB-AP var0 rev8)
2021-04-13 21:41:08,845 : P : INFO  : AHB-AP#0 Class 0x1 ROM table #0 @ 0xf1000000 (designer=034 part=102)
2021-04-13 21:41:08,845 : C : INFO  : Use system AP
2021-04-13 21:41:08,845 : C : INFO  : Probe ID: 19111301a419071100a41907000000000000002e127069
2021-04-13 21:41:09,246 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:12,248 : C : INFO  : Run provisioning syscall:
2021-04-13 21:41:12,248 : C : INFO  : JWT packet size = 5094
2021-04-13 21:41:15,004 : C : INFO  : Device response =
```
```
'ewoJImFsZyI6CSJFUzI1NiIKfQ.ewoJInR5cGUiOgkiREVWX1JTUCIsCgkiZGV2X2lkIjoJInNpbGljb25faWQ9RTRBMC4xMiwgZmFtaWx5X2lkPTEwMiIsCgkiZGllX
2lkIjoJewoJCSJsb3QiOgk5OTI0MDQxLAoJCSJ3YWZlciI6CTEwLAoJCSJ4cG9zIjoJNDgsCgkJInlwb3MiOgkxNywKCQkiZGF5IjoJMTksCgkJIm1vbnRoRoIjoJMCwKCQ
kieWVhciI6CTEyMAoJfSwKCSJkZXZfcHViX2tleSI6CXsKCQkiY3J2IjoJIlAtMjU2IiwKCQkia3R5IjoJIkVDIiwKCQkidXNlIjoJInNpZyIsCgkJImtpZCI6CSIyIiw
KCQkieCI6CSJ4YjR5Sm1ZM1NUS3hvMF9aQkxhUkZaMTZxMEJJbDFQMWVHemlQY1lDU1NBIiwKCQkieSI6CSJWcGdVaVBKNDBIYjhveUJPV2pfMXdZSEtjdkUyNXBwOXpE
blpDY3Q4NFBNIgoJfSwKCSJvZW1fcHViX2tleSI6CXsKCQkiY3J2IjoJIlAtMjU2IiwKCQkia3R5IjoJIkVDIiwKCQkidXNlIjoJInNpZyIsCgkJImtpZCI6CSI1IiwKC
QkieCI6CSJ2ZmI3X2pld1R4cEZWSU5jWGRyWlFKQkFyQzVpZ33JOMEJMYzc4M0ZpZ3JNIiwKCQkieSI6CSI5ckJCVUtYenBqMUE1SzdmeFB0RWFKZHNmbzdKal93c0Y3TF
RaTGMtc1BNIgoJfSwKCSJwcm9kX2lkIjoJIm15X3RoaW5nIiwKCSJjb21wbGV0ZSI6CXRydWUkfQ.rSNKMOttByxlRRE06KxtaClcx_ZKXvPqHpvzNtpmp6mcqgi-
C7l1TzKHpNlrZcUyD7SErynPMm9RvdyRsmpWOw'
```
```
2021-04-13 21:41:15,004 : C : INFO  : Saved device response to 'C:\Scratch\Test_P64_07\Hello_World\packets\device_response.jwt'
2021-04-13 21:41:15,404 : P : INFO  : DP IDR = 0x6ba02477 (v2 rev6)
2021-04-13 21:41:18,415 : C : INFO  : FlashBoot firmware status = 0xa1000101
2021-04-13 21:41:18,415 : C : INFO  : ****************************************
2021-04-13 21:41:18,415 : C : INFO  :       RE-PROVISIONING PASSED
2021-04-13 21:41:18,431 : C : INFO  : ****************************************


a73744@980BHR2 /cygdrive/c/Scratch/Test_P64_07/Hello_World
$
```

FOLLOWING ARE THE CONTENTS OF PROJECT-CREATOR.LOG AFTER AN INITIAL BUILD OF SECURE_BLINKY_LED_FREERTOS

```
Checking if remote manifest is accessible...
Getting manifests from remote server...


Found C:/Users/a73744/.modustoolbox/manifest.loc
Found user super-manifest(s):
https://github.com/iotexpert/mtb2-iotexpert-manifests/raw/master/iotexpert-super-manifest.xml
Processing super-manifest https://github.com/iotexpert/mtb2-iotexpert-
manifests/raw/master/iotexpert-super-manifest.xml...
Processing super-manifest https://github.com/cypresssemiconductorco/mtb-super-
manifest/raw/v2.X/mtb-super-manifest-fv2.xml...
Successfully acquired the information.

Summary:

BSP: CY8CKIT-064B0S2-4343W
Template Application(s): Secure Blinky LED FreeRTOS
Application(s) Root Path: C:/Scratch/Test_P64_10

Press "Create" to create the selected application(s).


Project creation command to be executed:
C:/Users/a73744/ModusToolbox/tools_2.2/project-creator/project-creator-cli.exe --board-id
CY8CKIT-064B0S2-4343W --board-uri https://github.com/cypresssemiconductorco/TARGET_CY8CKIT-
064B0S2-4343W --board-commit latest-v2.X --app-id mtb-example-psoc6-secure-blinkyled-freertos --
app-uri https://github.com/cypresssemiconductorco/mtb-example-psoc6-secure-blinkyled-freertos --
app-commit latest-v1.X --user-app-name Secure_Blinky_LED_FreeRTOS --target-dir
C:/Scratch/Test_P64_10 --output-for-machine --use-modus-shell
```

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Getting manifest...

==

= Cloning 'mtb-example-psoc6-secure-blinkyled-freertos' =

==

Cloning https://github.com/cypresssemiconductorco/mtb-example-psoc6-secure-blinkyled-freertos
into C:/Scratch/Test_P64_10 directory...

env git clone --progress --origin cypress https://github.com/cypresssemiconductorco/mtb-example-
psoc6-secure-blinkyled-freertos Secure_Blinky_LED_FreeRTOS

Cloning into 'Secure_Blinky_LED_FreeRTOS'...

remote: Enumerating objects: 17, done.

remote: Counting objects: 100% (17/17), done.

remote: Compressing objects: 100% (14/14), done.

remote: Total 17 (delta 0), reused 14 (delta 0), pack-reused 0

Checking out latest-v1.X...

env git checkout --progress latest-v1.X

Note: checking out 'latest-v1.X'.

You are in 'detached HEAD' state. You can look around, make experimental

changes and commit them, and you can discard any commits you make in this

state without impacting any branches by performing another checkout.

If you want to create a new branch to retain commits you create, you may

do so (now or later) by using -b with the checkout command again. Example:

  git checkout -b <new-branch-name>

```
HEAD is now at 81dc9a2 Upload mtb-example-psoc6-secure-blinkyled-freertos 1.0.0.234




===============================================================================

= Creating 'TARGET_CY8CKIT-064B0S2-4343W.lib' file(s) =

===============================================================================




===============================================================================

= Updating Makefile for 'Secure_Blinky_LED_FreeRTOS' =

===============================================================================




===============================================================================

= Getting Dependencies for 'Secure_Blinky_LED_FreeRTOS' =

===============================================================================

make getlibs CY_TOOLS_PATHS=C:/Users/a73744/ModusToolbox/tools_2.2


Tools Directory: C:/Users/a73744/ModusToolbox/tools_2.2

INFO: The path 'libs/psoc6make' set for CY_BASELIB_PATH does not exist. Attempting to use BSP
provided path instead


===============================================================================
= Importing libraries =

===============================================================================

Git is git version 2.17.0, found at /usr/bin/git


Searching application directory (.lib)...

Found 3 .lib file(s)

    Processing file "C:/Scratch/Test_P64_10/Secure_Blinky_LED_FreeRTOS/deps/TARGET_CY8CKIT-
064B0S2-4343W.lib"

    Processing file "C:/Scratch/Test_P64_10/Secure_Blinky_LED_FreeRTOS/deps/freertos.lib"

    Processing file "C:/Scratch/Test_P64_10/Secure_Blinky_LED_FreeRTOS/deps/retarget-io.lib"

Application directory search complete.

Searching "libs" directory (.lib)...
```

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```
Found 6 .lib file(s)

    Processing file "C:/Scratch/Test_P64_10/Secure_Blinky_LED_FreeRTOS/libs/TARGET_CY8CKIT-
064B0S2-4343W/libs/capsense.lib"

    Processing file "C:/Scratch/Test_P64_10/Secure_Blinky_LED_FreeRTOS/libs/TARGET_CY8CKIT-
064B0S2-4343W/libs/core-lib.lib"

    Processing file "C:/Scratch/Test_P64_10/Secure_Blinky_LED_FreeRTOS/libs/TARGET_CY8CKIT-
064B0S2-4343W/libs/psoc6cm0p.lib"

    Processing file "C:/Scratch/Test_P64_10/Secure_Blinky_LED_FreeRTOS/libs/TARGET_CY8CKIT-
064B0S2-4343W/libs/psoc6hal.lib"

    Processing file "C:/Scratch/Test_P64_10/Secure_Blinky_LED_FreeRTOS/libs/TARGET_CY8CKIT-
064B0S2-4343W/libs/psoc6make.lib"

    Processing file "C:/Scratch/Test_P64_10/Secure_Blinky_LED_FreeRTOS/libs/TARGET_CY8CKIT-
064B0S2-4343W/libs/psoc6pdl.lib"

Libraries were processed. Re-evaluating "libs" directory...

Found 6 .lib file(s)

"libs" directory search complete.




===============================================================================
= Import complete =
===============================================================================




Successfully created "Secure_Blinky_LED_FreeRTOS" application.
```

DOCUMENT REVISIONS

Revision	Date	Editor	Description
1.0	4/14/21	G Carson	Initial Draft
2.0	4/16/21	V Pea	Formatted document
2.1	4/19/21	G Carson	Minor updates
2.2			
2.3	5/12/21	G.Carson	Added explanations to support other examples
2.4	7/1/21	G.Carson	Add compatibility with Rev *A kit that uses cysecuretools 3.x