Lab 2 – Create PUF data for Private PEM

Import the PUF AN Project

1.1. Use the Quickstart Panel to **Import projects from file system…**

1.1.1. Navigate to \Desktop\LPC55Sxx E2E Hand s-on \PART2\
lpcxpresso55s69_puf_aes_an12324sw_PEM

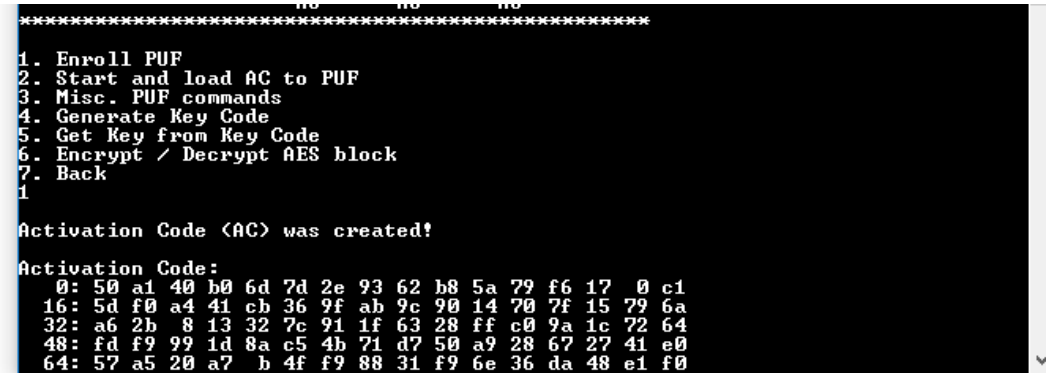
1.1.2. Select **Next**, then **Finish** to import the SDK example project

Download and debug

With the board connected press the download and debug button (Blue Bug)

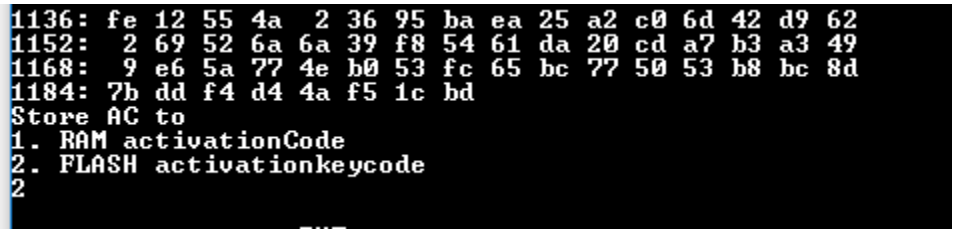
Enroll PUF

From the Terminal Type 1 and press Enter



Store Activation Code in Flash

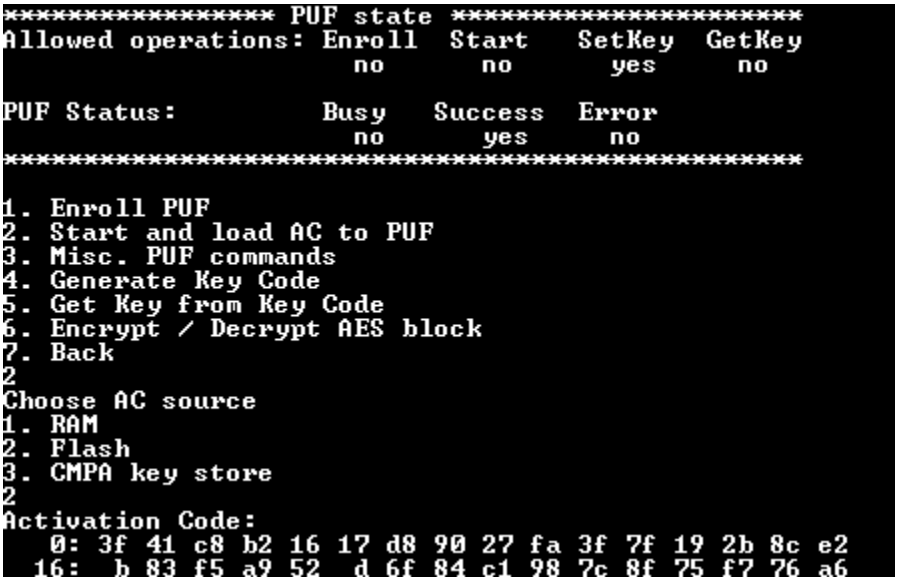
Type 2 and press enter



START PUF

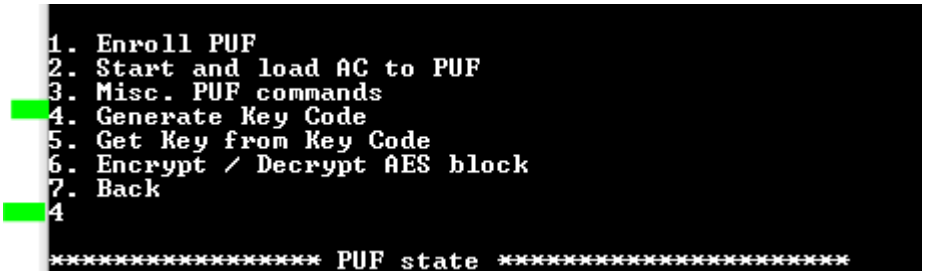
Type 2 and press enter

Choose Flash by **Typing 2** an pressing enter again



GENERAT PUF KEY CODES

Type 4 and enter to Generate Key Codes



Type 1 for user Generate User key code

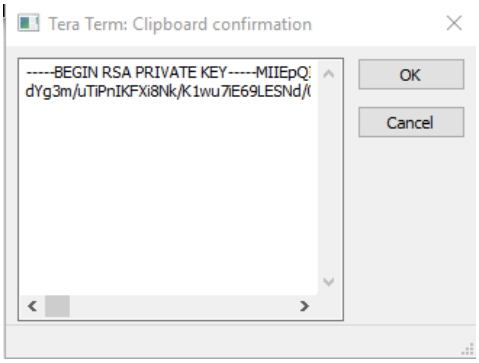
Type 3 for Index 3

Type 64 for maximum size (512 bytes)

```
1. Generate user key code
2. Generate intrinsic key code
3. Back
1
Enter key index 0..15
In order to send key to AES or PRINCE use key index 0
3

Enter key size 1..64 (64..4096)-bits.
AES allowed key size: 128/196/256-bit
PRINCE allowed key size 128-bit
64
Enter your user password 512B long
shorter will be padded by SPACEs
longer truncated
MIIEowIBAAKCAQEA2f1S4L5McijnrStwVjdN9YfXP4B9svrzDYJV2B+xLEH+tGJZBP731T7BRserY8/v
oPUUKIIX1adyPj2YNFOMK1sJ/x9ojFYokGQBUL3x75fCg+EngUerNkHGeeSjJAfco94COEF7sd8FU3ag
F+/gtYlTBIPDr24tw33zxasiRHwISOwx2Bu5PW6P9Y5GAizJ2Wxap5MBhgbF/tKgi5azMP9OA7LNvJy6
tGlaTDmX2FzODvlpqRE1NY03tFuSwtjD03Yem2X4mCoKtvmp/JW7tb7tOPM/Si3T69eYZ14mU0OQAqpq
```

Open Private PEM file in Notepad, choose edit, select all and copy

Return to the terminal window and right mouse click and press OK



Press Enter, then store the Key Code information to flash. The size of the PEM file requires 4 key codes. These must be entered in order

3 – Enter

4 – Enter

5 – Enter

6 - Enter

When done you will see the below Menu Screen

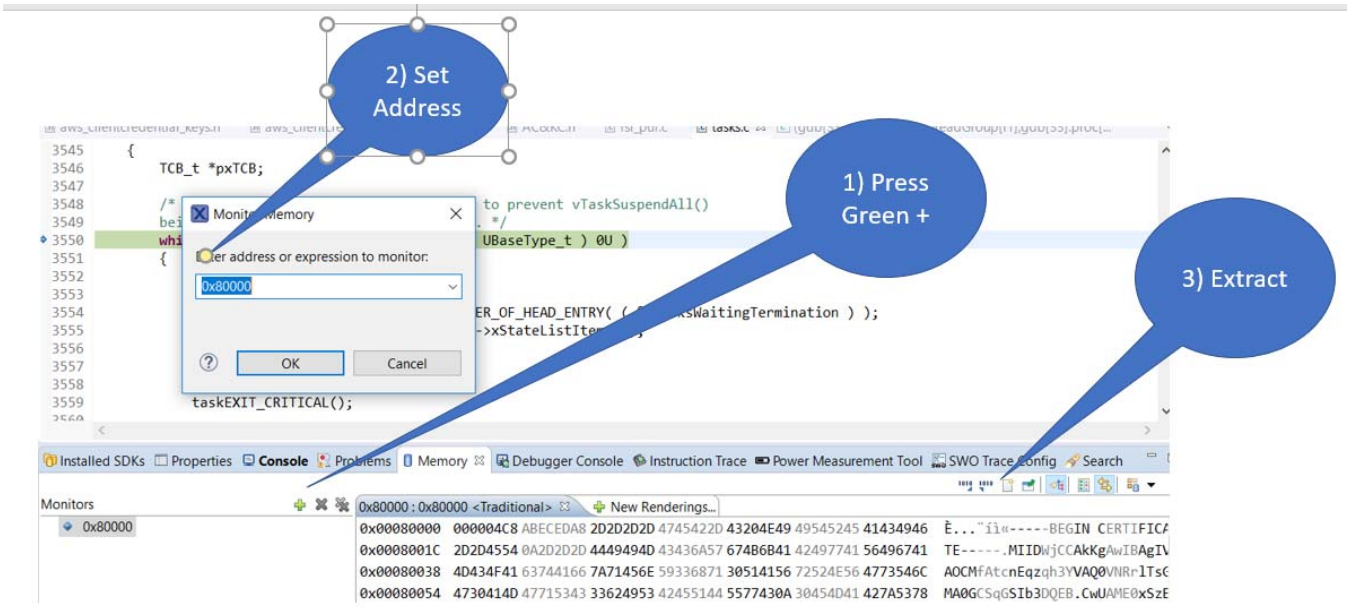
```
****************** PUF state **********************
Allowed operations: Enroll  Start   SetKey  GetKey
                      no      no      yes     yes

PUF Status:         Busy   Success  Error
                      no      yes     no
***************************************************

1. Generate user key code
2. Generate intrinsic key code
3. Back
```

HALT DEBUGGER and extract PUF Data

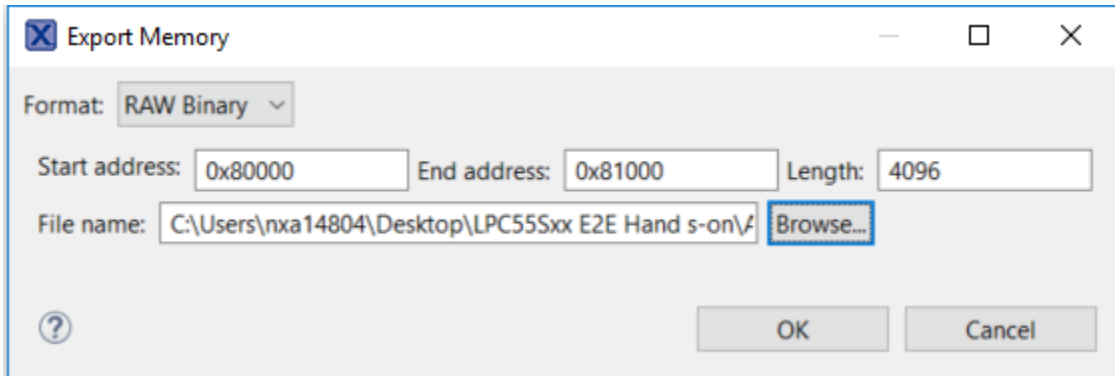
Press Pause button to Halt debugger

Extract data using Memory window – At the bottom of the debug window – First select the memory tab (Step 0)

Then follow the below guide.



Set the format to RAW Binary, set size and file name



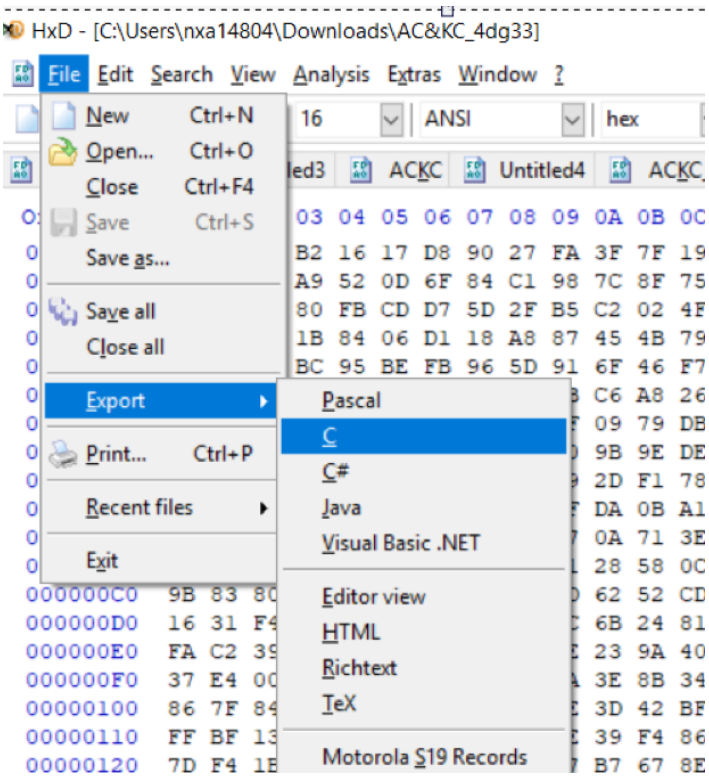
OPEN PUF Data in Hex Editor and Create C code

Open Hex Editor (see windows tool bar)

Drag the raw binary file into the Hex Editor

Select File to export C formatted data

Name the file and save it to your working folder



Press Stop to end the debug session.

Now You are ready for LAB 3