Lab for FreeRTOS Environment Setup

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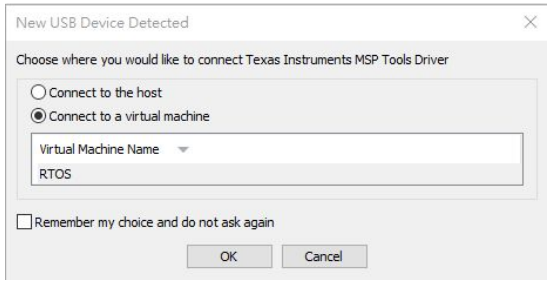
Virtual Machine

- Download VM
- Open ovf file using VMware
  - You can follow the steps here
- Password of VM: 123
- If there is a crash on your VM, you may adjust the memory size to **10GB** or larger

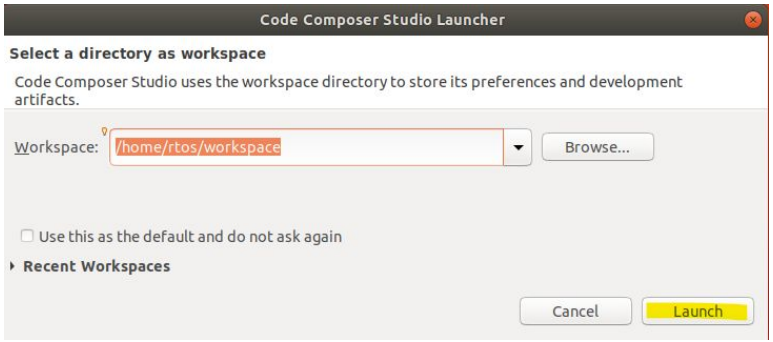
Test your VM and device (1/2)

- Connect the device to VM



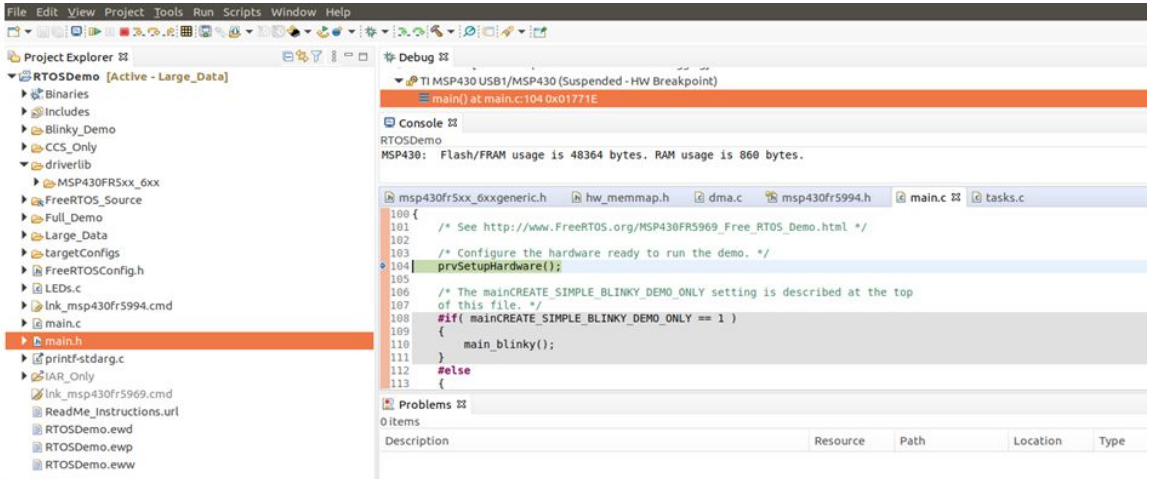
- Open CCS

- Launch the project



Test your VM and device (2/2)

- Click debug button 
- It will stop at line 104 of main.c if it is all correct.



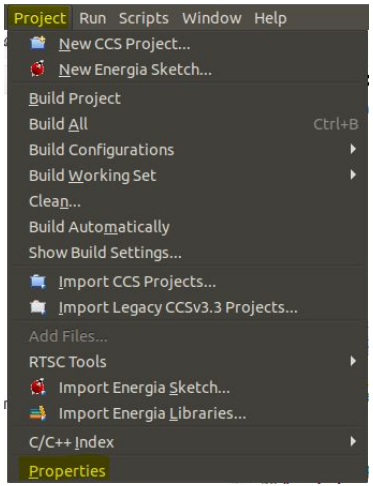
- Click  to continue running.

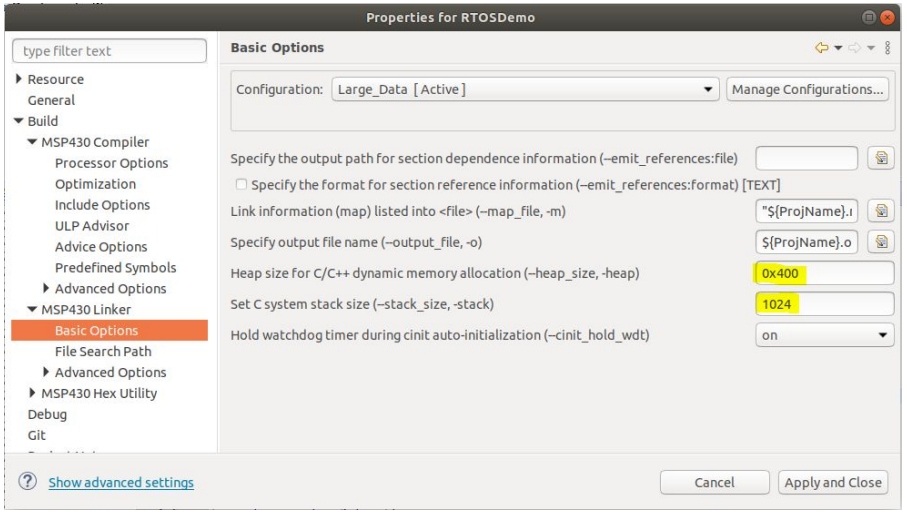
Setup for using printf (1/2)

- Modify printf-stdarg.c
  - Comment out `#define putchar(c) c`
  - Add `#include <stdio.h>`
  - Comment out `sprintf()`、`snprintf()`、`write()`

Setup for using printf (2/2)

- Set heap size and stack size at Project->Properties





- Add `#include <stdio.h>` at where `printf` is used

Config File Setting for Lab

- At FreeRTOSConfig.h
  - timer related
    - Set `configCHECK_FOR_STACK_OVERFLOW` to 0
    - Set `configUSE_TIMERS` to 0
    - Set `configGENERATE_RUN_TIME_STATS` to 0
  - stack overflow related
    - Set `INCLUDE_xTimerPendFunctionCall` to 0

Run your own code

- We suggest using **blink-only-mode** to run your lab
- At main.c
  - Set `mainCREATE_SIMPLE_BLINKY_DEMO_ONLY` to 1
  - Modify the declaration

```
75 #if( mainCREATE_SIMPLE_BLINKY_DEMO_ONLY == 1 )
76     extern void main_lab( void );
77 #else
78     extern void main_full( void );
79 #endif /* #if mainCREATE_SIMPLE_BLINKY_DEMO_ONLY == 1 */
```

  - Run your function in main

```
int main( void )
{
    /* See http://www.FreeRTOS.org/MSP430FR5969_Free_RTOS_Demo.html */

    /* Configure the hardware ready to run the demo. */
    prvSetupHardware();

    /* The mainCREATE_SIMPLE_BLINKY_DEMO_ONLY setting is described at the top
    of this file. */
    #if( mainCREATE_SIMPLE_BLINKY_DEMO_ONLY == 1 )
    {
        main_lab();
    }
    #else
    {
        main_full();
    }
    #endif

    return 0;
}
```

Suggestion (Important! DO NOT SKIP)

- Print
  - Warning that it is possible to print wrong values in ISR, though the value is actually correct. Thus, we suggest only using printf at main.c and setting breakpoint for debugging.
  - To show the needed message for demo, you can maintain a buffer to collect the information from task.c and print at main.c.
  - You can set a time limit to stop running and then print the information.
- Task creation
  - You may adjust the order of the creation of tasks to decide which task to run first since the system may automatically run the task which is lastly created.