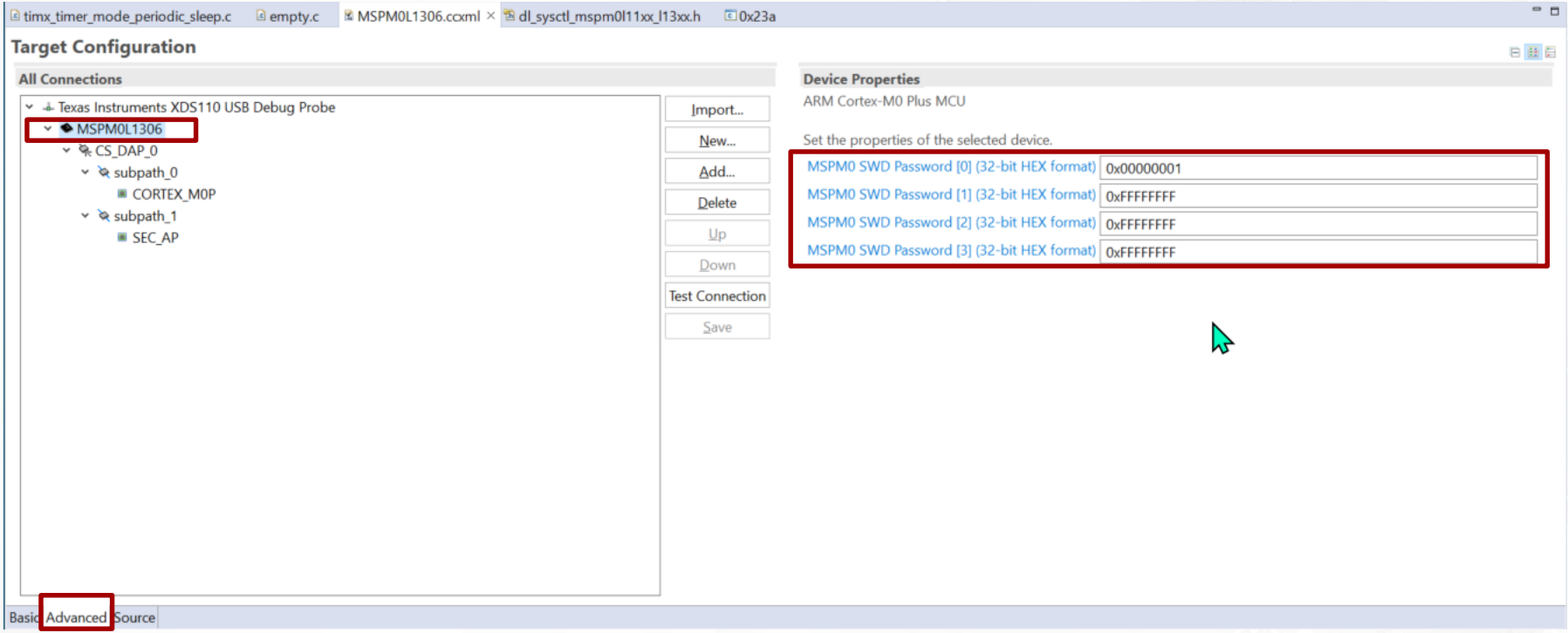
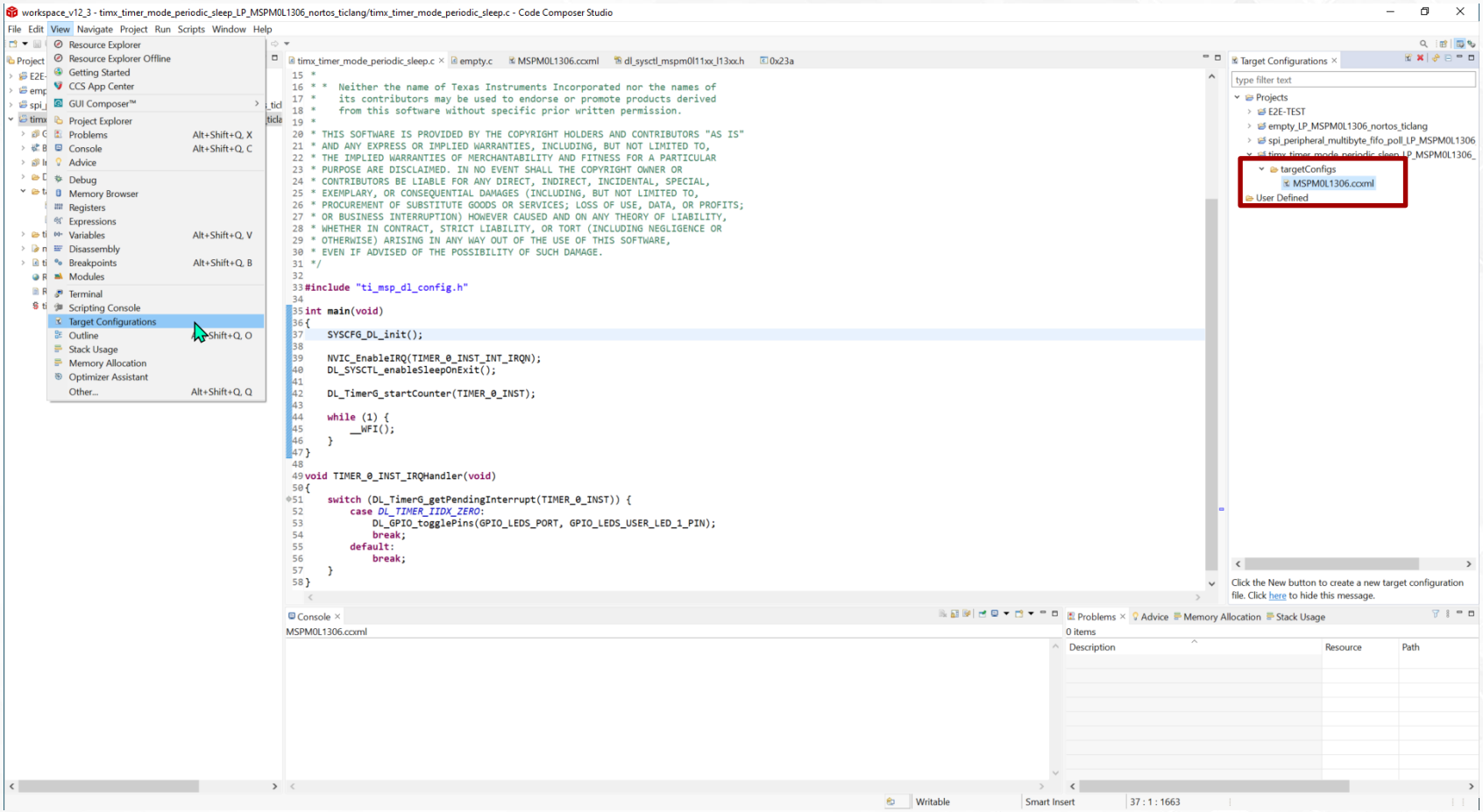
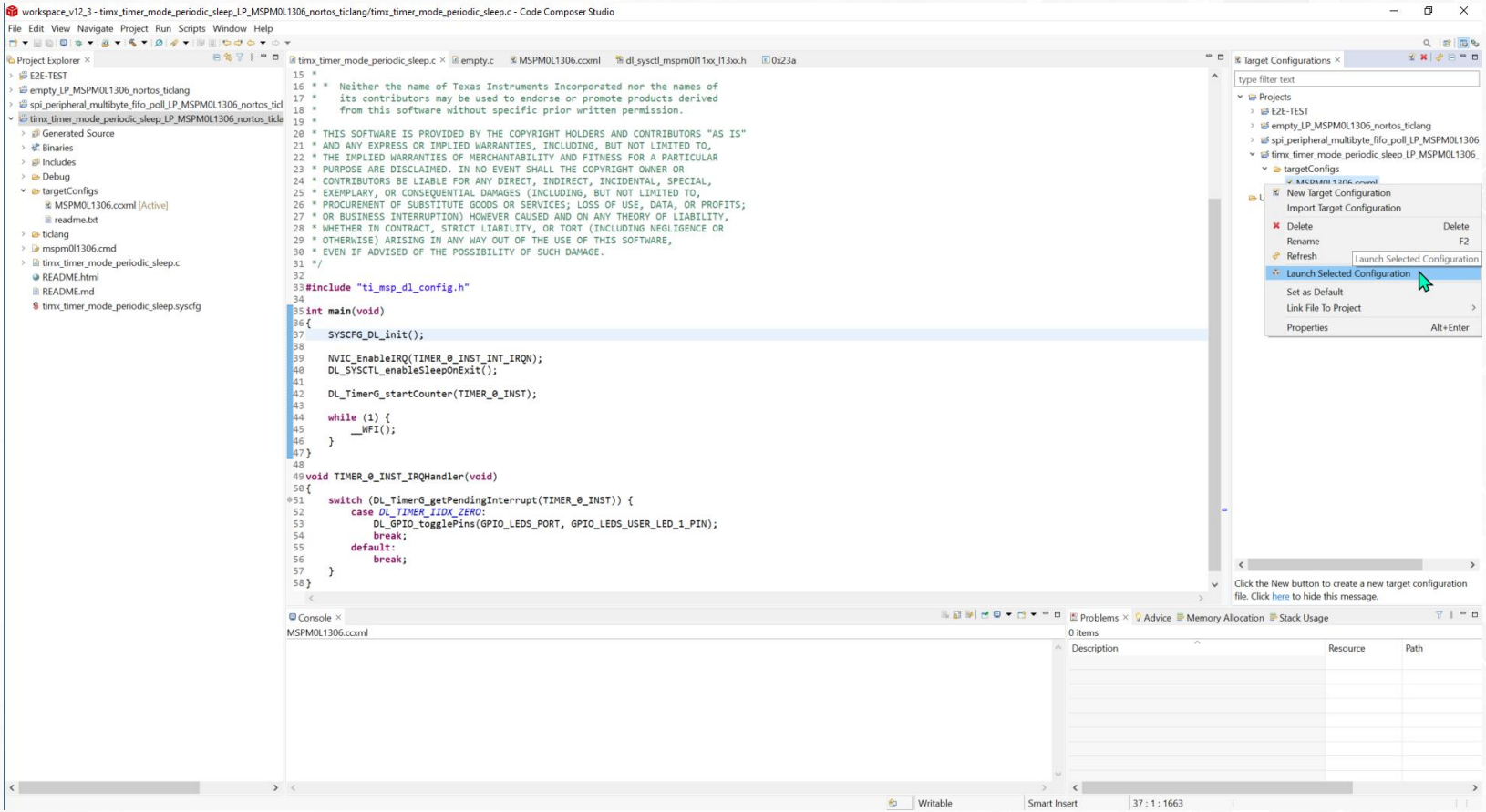
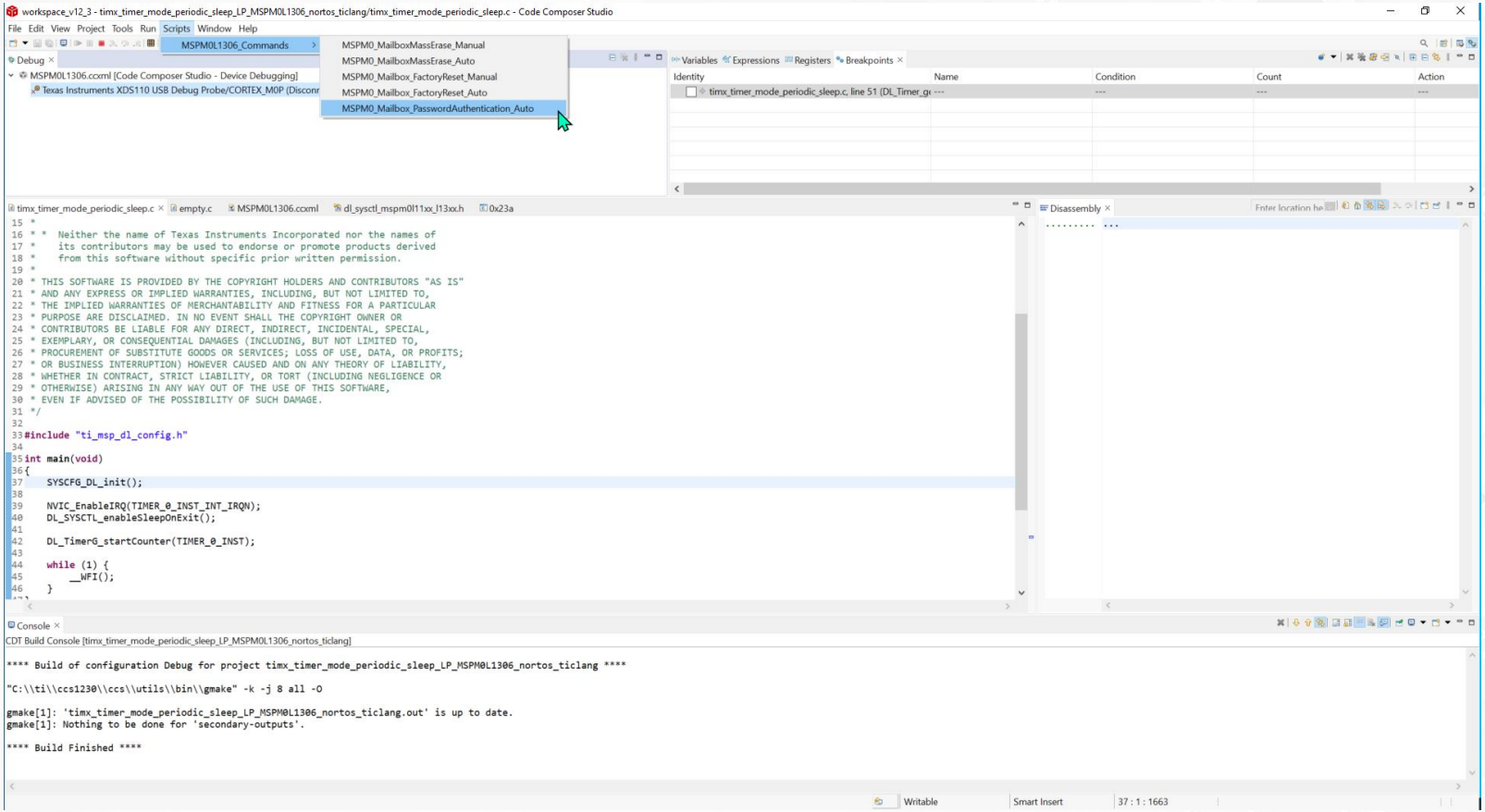
How to use SWD password in CCS

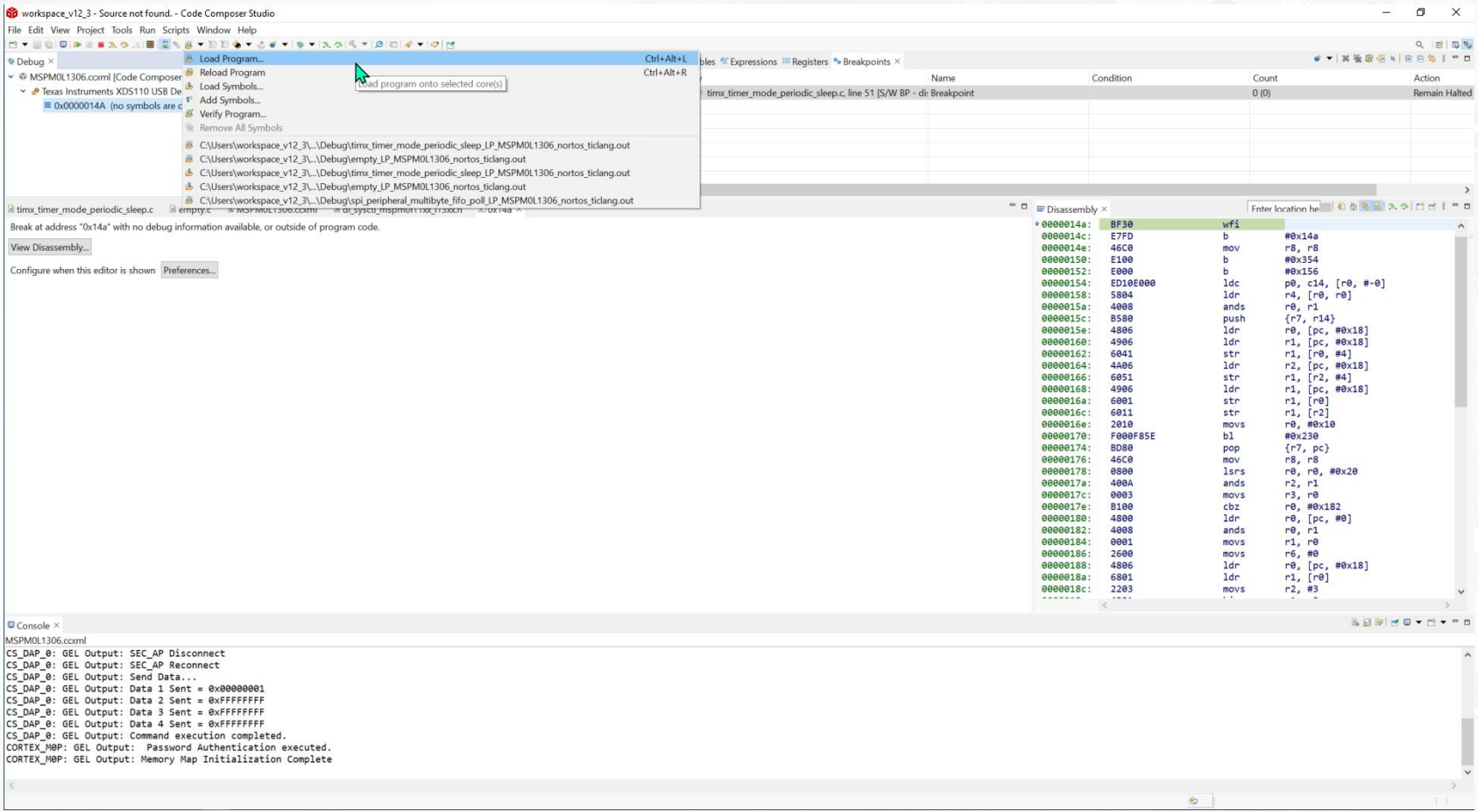
MSP Team

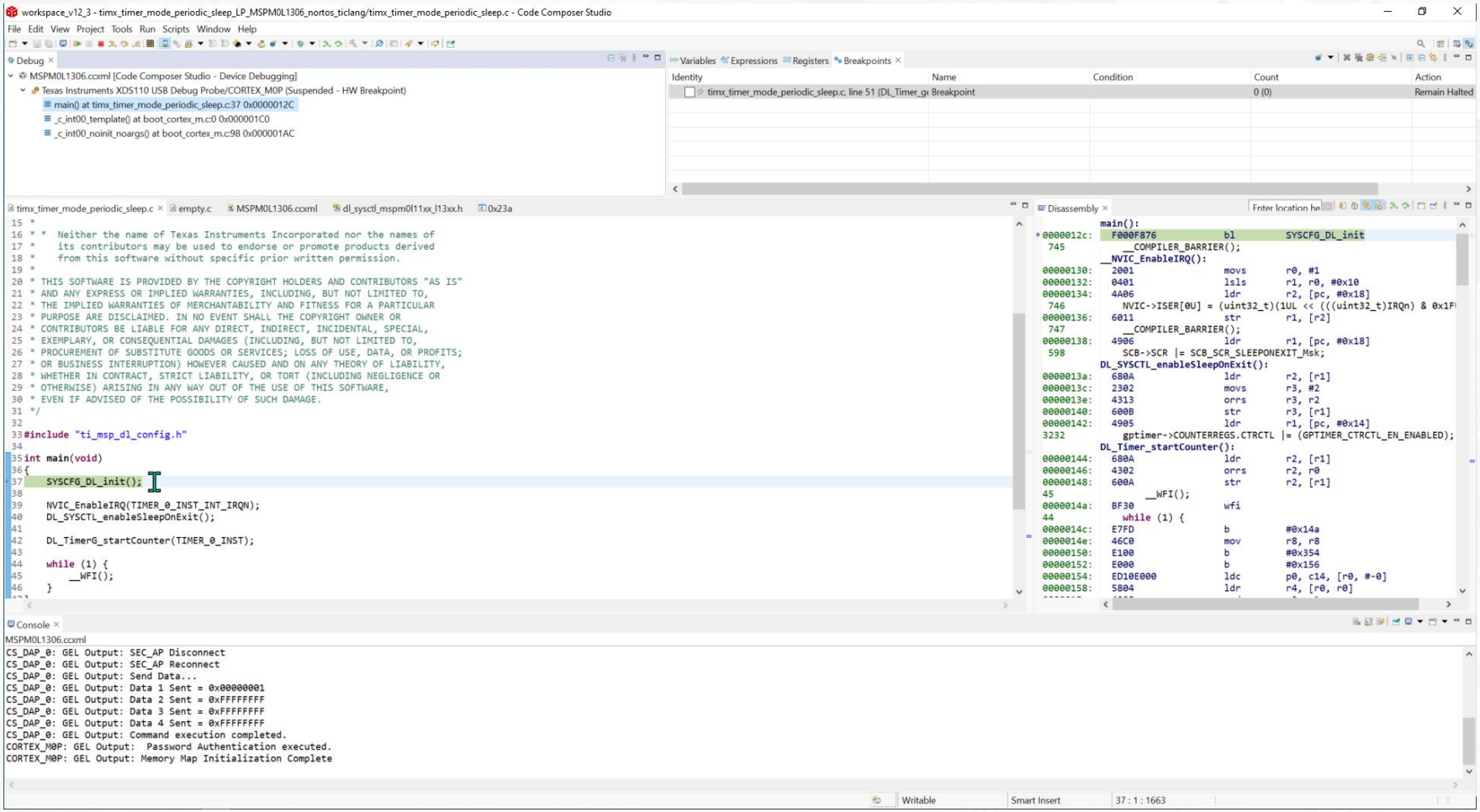











workspace_v12_3 - timx_timer_mode_periodic_sleep_LP_MSPM0L1306_nortos_ticlang/timx_timer_mode_periodic_sleep.c - Code Composer Studio
File Edit View Project Tools Run Scripts Window Help
Debug
MSPM0L1306.ccxml [Code Composer Studio - Device Debugging]
Texas Instruments XDS110 USB Debug Probe/CORTEX_M0P (Suspended - HW Breakpoint)
main() at timx_timer_mode_periodic_sleep.c:37 0x0000012C
_c_int00_template() at boot_cortex_m.c:0 0x000001C0
_c_int00_noinit_noargs() at boot_cortex_m.c:98 0x000001AC
Variables Expressions Registers Breakpoints
Identity Name Condition Count Action
timx_timer_mode_periodic_sleep.c, line 51 (DL_Timer_g Breakpoint 0 (0) Remain Halted
timx_timer_mode_periodic_sleep.c empty.c MSPM0L1306.ccxml dl_sysctl_mspm0l11xx_l13xx.h 0x23a
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28 * WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
29 * OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE,
30 * EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
31 */
32
33 #include "ti_msp_dl_config.h"
34
35 int main(void)
36 {
37 SYSCFG_DL_init();
38
39 NVIC_EnableIRQ(TIMER_0_INST_INT_IRQN);
40 DL_SYSCTL_enableSleepOnExit();
41
42 DL_TimerG_startCounter(TIMER_0_INST);
43
44 while (1) {
45 __WFI();
46 }
Disassembly
main():
0000012c: F000F876 bl SYSCFG_DL_init
745 __COMPILER_BARRIER();
__NVIC_EnableIRQ():
00000130: 2001 movs r0, #1
00000132: 0401 lsls r1, r0, #0x10
00000134: 4A06 ldr r2, [pc, #0x18]
746 NVIC->ISER[0U] = (uint32_t)(1UL << (((uint32_t)IRQn) & 0x1F
00000136: 6011 str r1, [r2]
747 __COMPILER_BARRIER();
00000138: 4906 ldr r1, [pc, #0x18]
598 SCB->SCR |= SCB_SCR_SLEEPONEXIT_Msk;
DL_SYSCTL_enableSleepOnExit():
0000013a: 680A ldr r2, [r1]
0000013c: 2302 movs r3, #2
0000013e: 4313 orrs r3, r2
00000140: 600B str r3, [r1]
00000142: 4905 ldr r1, [pc, #0x14]
3232 gptimer->COUNTERREGS.CTRCTL |= (GPTIMER_CTRCTL_EN_ENABLED);
DL_Timer_startCounter():
00000144: 680A ldr r2, [r1]
00000146: 4302 orrs r2, r0
00000148: 600A str r2, [r1]
45 __WFI();
0000014a: BF30 wfi
44 while (1) {
0000014c: E7FD b #0x14a
0000014e: 46C0 mov r8, r8
00000150: E100 b #0x354
00000152: E000 b #0x156
00000154: ED10E000 ldc p0, c14, [r0, #-0]
00000158: 5804 ldr r4, [r0, r0]
Console
MSPM0L1306.ccxml
CS_DAP_0: GEL Output: SEC_AP Disconnect
CS_DAP_0: GEL Output: SEC_AP Reconnect
CS_DAP_0: GEL Output: Send Data...
CS_DAP_0: GEL Output: Data 1 Sent = 0x00000001
CS_DAP_0: GEL Output: Data 2 Sent = 0xFFFFFFFF
CS_DAP_0: GEL Output: Data 3 Sent = 0xFFFFFFFF
CS_DAP_0: GEL Output: Data 4 Sent = 0xFFFFFFFF
CS_DAP_0: GEL Output: Command execution completed.
CORTEX_M0P: GEL Output: Password Authentication executed.
CORTEX_M0P: GEL Output: Memory Map Initialization Complete
Writable
Smart Insert
37 : 1 : 1663

Other tips

- When you successfully access device with SWD password, then if **you do not reset device or re-power on**, the device will keep connected and you can do any SWD operations (like CCS load/debug, UniFlash connection) without password.

- The reason is that **only in the boot code, does the M0 device need check SWD password**, after successfully password check, then there will be no more password demand.

Useful link: https://software-dl.ti.com/msp430/esd/MSPM0-SDK/1_00_00_04/docs/english/tools/ccs_ide_guide/doc_guide/doc_guide-srcs/ccs_ide_guide.html#dssm-swd-password-mechanism