Issues with Nordic WiFi Fundamentals Exercises l2_e3 and l4_e1

Hi everyone,

I'm currently following the "WiFi Fundamentals" course provided by Nordic, and I'm encountering issues with two specific exercises: `l2_e3` and `l4_e1`. Other exercises are working fine, but these two are giving me trouble.

To ensure I wasn't making any mistakes I used the solutions provided directly by Nordic (`l2_e3_sol` and `l4_e1_sol`.)

(For some reason, I can't use the insert code option. Sorry for the bad writing format for the code in my message.)

Additional Context

- Board: nrf7002dk_nrf5340
- IDE: Visual Studio Code with nRF Connect extension
- SDK and toolchains : 3.0 but also try 2.91; 2.9; 2.8

What I've Tried

- Reinstalled SDKs and toolchains.
- Re-cloned the exercises from GitHub.
- Reset the board (nrf7002dk_nrf5340).
- Followed the exercise steps precisely.

Issue 1: `l4_e1` - RAM Overflow

When trying to build `l4_e1`, I consistently get the error: `region 'RAM' overflowed` . Here are the details:

Error Message

```
 Executing task: nRF Connect: Build: l4_e1_sol/build (active)

Building l4_e1_sol

C:\windows\system32\cmd.exe /d /s /c "west build --build-dir
c:/Users/Stage/Documents/wifi-fund/l4/l4_e1_sol/build
c:/Users/Stage/Documents/wifi-fund/l4/l4_e1_sol"

[0/21] Performing build step for 'tfm'

ninja: no work to do.

[4/9] Linking C executable zephyr\zephyr_pre0.elf

FAILED: zephyr/zephyr_pre0.elf zephyr/zephyr_pre0.map
C:/Users/Stage/Documents/wifi-fund/l4/l4_e1_sol/build/l4_e1_sol/zephyr/
zephyr_pre0.map
```

```
cmd.exe /C "cd . && C:\ncs\toolchains\0b393f9e1b\opt\zephyr-sdk\arm-zephyr-
eabi\bin\arm-zephyr-eabi-gcc.exe  -gdwarf-4 @CMakeFiles\zephyr_pre0.rsp -o
zephyr\zephyr_pre0.elf -L"c:/ncs/toolchains/0b393f9e1b/opt/zephyr-sdk/arm-
zephyr-eabi/bin/../lib/gcc/arm-zephyr-eabi/12.2.0/thumb/v8-m.main/nofp" -lm -lc
-lgcc -lc && cmd.exe /C "cd /D C:\Users\Stage\Documents\wifi-
fund\l4\l4_e1_sol\build\l4_e1_sol\zephyr && C:
\ncs\toolchains\0b393f9e1b\opt\bin\cmake.exe -E true""
```

```
c:/ncs/toolchains/0b393f9e1b/opt/zephyr-sdk/arm-zephyr-eabi/bin/../lib/gcc/arm-
zephyr-eabi/12.2.0/../../../../arm-zephyr-eabi/bin/ld.bfd.exe:
zephyr\zephyr_pre0.elf section `noinit' will not fit in region `RAM'
```

```
c:/ncs/toolchains/0b393f9e1b/opt/zephyr-sdk/arm-zephyr-eabi/bin/../lib/gcc/arm-
zephyr-eabi/12.2.0/../../../../arm-zephyr-eabi/bin/ld.bfd.exe: region `RAM'
overflowed by 2920 bytes
```

```
collect2.exe: error: ld returned 1 exit status
```

```
ninja: build stopped: subcommand failed.
```

```
FAILED:
_sysbuild/sysbuild/images/l4_e1_sol-prefix/src/l4_e1_sol-stamp/l4_e1_sol-build
C:/Users/Stage/Documents/wifi-fund/l4/l4_e1_sol/build/_sysbuild/sysbuild/
images/l4_e1_sol-prefix/src/l4_e1_sol-stamp/l4_e1_sol-build
```

```
cmd.exe /C "cd /D C:\Users\Stage\Documents\wifi-
fund\l4\l4_e1_sol\build\l4_e1_sol && C:
\ncs\toolchains\0b393f9e1b\opt\bin\cmake.exe --build ."
```

```
ninja: build stopped: subcommand failed.
```

```
FATAL ERROR: command exited with status 1: 'C:
\ncs\toolchains\0b393f9e1b\opt\bin\cmake.EXE' --build
C:/Users/Stage/Documents/wifi-fund/l4/l4_e1_sol/buil
```

Issue 2: `l2_e3` - Missing Header File and Flashing Issue

Initially, I encountered a missing header file error: `fatal error: zephyr/net/wifi_credentials.h: No such file or directory`. This issue seems to have resolved itself (which is not very reassuring, as I am afraid the problem might come back again.),

Error Message During Build

```
C:/Users/Stage/Documents/wifi-fund/l2/l2_e3_sol/src/main.c:21:10: fatal error:
zephyr/net/wifi_credentials.h: No such file or directory

   21 | #include <zephyr/net/wifi_credentials.h>

      |          ^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

compilation terminated.
```

```
[181/580] Building C object
zephyr/CMakeFiles/zephyr.dir/C_/ncs/v2.9.1/modules/lib/hostap/src/drivers/
drivers.c.obj
```

```
[182/580] Building C object
zephyr/CMakeFiles/zephyr.dir/C_/ncs/v2.9.1/modules/lib/hostap/src/common/
cli.c.obj
```

```
[183/580] Building C object
zephyr/CMakeFiles/zephyr.dir/C_/ncs/v2.9.1/modules/lib/hostap/src/common/
hw_features_common.c.obj

[184/580] Building C object
zephyr/arch/common/CMakeFiles/isr_tables.dir/isr_tables.c.obj

[185/580] Building C object
zephyr/arch/arch/arm/core/CMakeFiles/arch__arm__core.dir/nmi.c.obj

[186/580] Building C object
zephyr/CMakeFiles/zephyr.dir/C_/ncs/v2.9.1/modules/lib/hostap/src/utils/
crc32.c.obj

[187/580] Building C object
zephyr/arch/common/CMakeFiles/arch__common.dir/sw_isr_common.c.obj

[188/580] Building C object
zephyr/CMakeFiles/zephyr.dir/C_/ncs/v2.9.1/modules/lib/hostap/src/drivers/
driver_common.c.obj

[189/580] Building C object
zephyr/arch/arch/arm/core/CMakeFiles/arch__arm__core.dir/fatal.c.obj

[190/580] Building C object
zephyr/CMakeFiles/zephyr.dir/C_/ncs/v2.9.1/modules/lib/hostap/src/common/
ieee802_11_common.c.obj

[191/580] Building C object
zephyr/arch/arch/arm/core/cortex_m/CMakeFiles/arch__arm__core__cortex_m.dir/
exc_exit.c.obj

[192/580] Building C object
zephyr/CMakeFiles/zephyr.dir/C_/ncs/v2.9.1/modules/lib/hostap/src/common/
wpa_common.c.obj

[193/580] Building C object
zephyr/arch/arch/arm/core/cortex_m/CMakeFiles/arch__arm__core__cortex_m.dir/
fault.c.obj

ninja: build stopped: subcommand failed.

[10/20] No configure step for 'ipc_radio'

FAILED:
_sysbuild/sysbuild/images/l2_e3_sol-prefix/src/l2_e3_sol-stamp/l2_e3_sol-build
C:/Users/Stage/Documents/wifi-fund/l2/l2_e3_sol/build/_sysbuild/sysbuild/
images/l2_e3_sol-prefix/src/l2_e3_sol-stamp/l2_e3_sol-build

cmd.exe /C "cd /D C:\Users\Stage\Documents\wifi-
fund\l2\l2_e3_sol\build\l2_e3_sol && C:
\ncs\toolchains\b620d30767\opt\bin\cmake.exe --build ."

ninja: build stopped: subcommand failed.

FATAL ERROR: command exited with status 1: 'C:
\ncs\toolchains\b620d30767\opt\bin\cmake.EXE' --build
C:/Users/Stage/Documents/wifi-fund/l2/l2_e3_sol/build
```

But now I'm facing a flashing issue. The message in the terminal is strange, as even though it indicates that the flash occurred, my 7002dk is reacting as if I hadn't flashed anything.

Error Message During Flashing

Executing task: nRF Connect: Flash: l2_e3_sol/build (active)

Flashing build to 1050769643

C:\windows\system32\cmd.exe /d /s /c "west flash -d c:
\Users\Stage\Documents\wifi-fund\l2\l2_e3_sol\build --dev-id 1050769643"

-- west flash: rebuilding

[0/10] Performing build step for 'l2_e3_sol'

[0/16] Performing build step for 'tfm'

ninja: no work to do.

[1/10] Performing build step for 'ipc_radio'

ninja: no work to do.

[3/10] Completed 'l2_e3_sol'

[5/10] cmd.exe /C "cd /D C:\Users\Stage\Documents\wifi-
fund\l2\l2_e3_sol\build_sysbuild && C:
\ncs\toolchains\0b393f9e1b\opt\bin\cmake.exe -E true"

[6/9] No install step for 'ipc_radio'

[7/9] Completed 'ipc_radio'

[8/9] cmd.exe /C "cd /D C:\Users\Stage\Documents\wifi-
fund\l2\l2_e3_sol\build_sysbuild && C:
\ncs\toolchains\0b393f9e1b\opt\bin\cmake.exe -E true"

WARNING: Specifying runner options for multiple domains is experimental.

If problems are experienced, please specify a single domain using '--domain
<domain>'

-- west flash: using runner nrfutil

-- runners.nrfutil: reset after flashing requested

-- runners.nrfutil: Flashing file: C:\Users\Stage\Documents\wifi-
fund\l2\l2_e3_sol\build\merged_CPUNET.hex

Error: nrfutil command `device` not found. See `nrfutil list` for full list of
installed commands, `nrfutil search` for installable commands, and `nrfutil
install` for installation of new commands.

Caused by:

    Subcommand nrfutil-device.exe not found

Error: nrfutil command `device` not found. See `nrfutil list` for full list of
installed commands, `nrfutil search` for installable commands, and `nrfutil
install` for installation of new commands.

Caused by:

    Subcommand nrfutil-device.exe not found

Error: nrfutil command `device` not found. See `nrfutil list` for full list of
installed commands, `nrfutil search` for installable commands, and `nrfutil
install` for installation of new commands.

Caused by:

```
    Subcommand nrfutil-device.exe not found
```

-- runners.nrfutil: Board with serial number 1050769643 flashed successfully.

-- west flash: using runner nrfutil

-- runners.nrfutil: reset after flashing requested

-- runners.nrfutil: Flashing file: C:\Users\Stage\Documents\wifi-fund\l2\l2_e3_sol\build\merged.hex

Error: nrfutil command `device` not found. See `nrfutil list` for full list of installed commands, `nrfutil search` for installable commands, and `nrfutil install` for installation of new commands.

Caused by:

```
    Subcommand nrfutil-device.exe not found
```

Error: nrfutil command `device` not found. See `nrfutil list` for full list of installed commands, `nrfutil search` for installable commands, and `nrfutil install` for installation of new commands.

Caused by:

```
    Subcommand nrfutil-device.exe not found
```

Error: nrfutil command `device` not found. See `nrfutil list` for full list of installed commands, `nrfutil search` for installable commands, and `nrfutil install` for installation of new commands.

Caused by:

```
    Subcommand nrfutil-device.exe not found
```

-- runners.nrfutil: Board with serial number 1050769643 flashed successfully.

Workaround

I managed to flash the board manually using the JLink runner:

```
west flash --runner jlink
```

Request for Help

If anyone has encountered similar issues or has any insights on how to resolve my issue, please share your advice. Any help would be greatly appreciated!

Thank you!