

WinCE User Guide for Embest S3CEB2410 Evaluation Board

V2.0



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1. Tools Used

The following tools and hardware are needed to build and download Windows CE image to the Embest S3CEB2410 evaluation board:

- Embest S3CEB2410 evaluation board
- Dnw.exe
- Ethernet Network
- Serial Cable
- USB Cable
- Windows 2000 SP3 or Windows XP
- Windows CE 4.2 Platform Builder with ARM4I support installed

The PC should have the following specification:

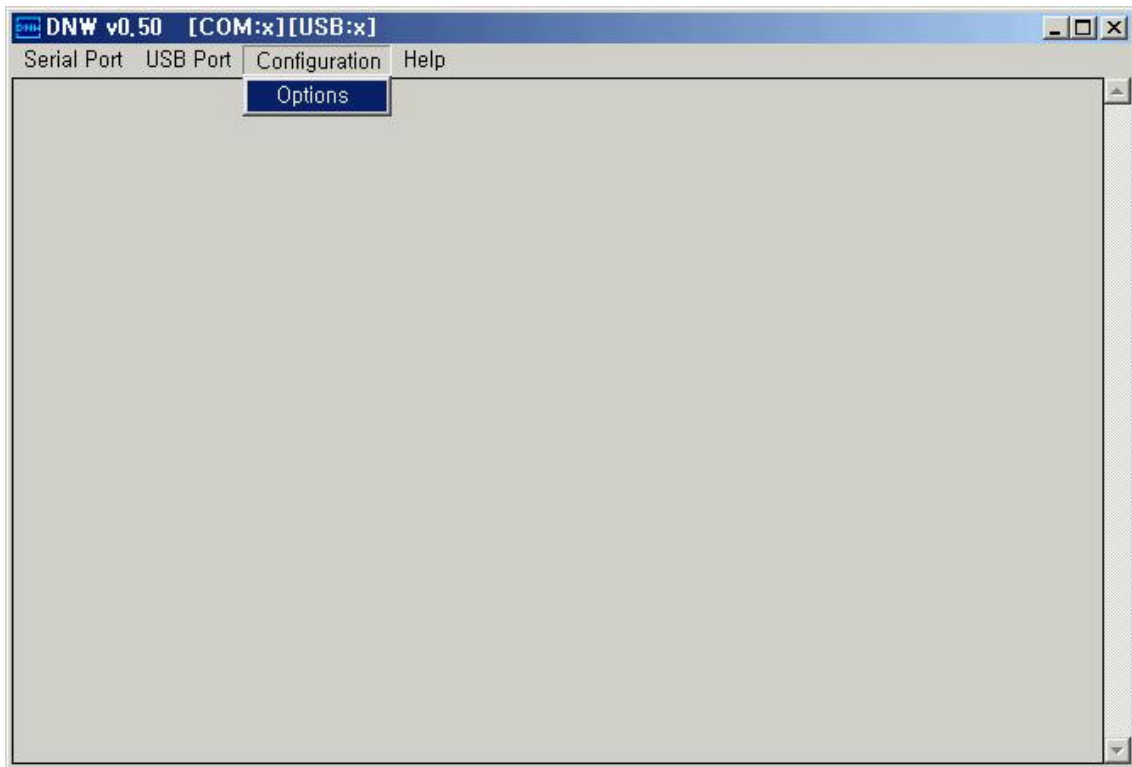
- 800Mhz Processor
- 10 Gig of Free Hard Drive Space before Platform builder is installed
- 192 Meg of RAM
- Windows 2000 SP2 or Windows XP
- Ethernet card
- Serial port

Note: if you need to flash the wince images to the nand and run it successfully, you should burn the **nboot.bin** (booting file for wince) to the nand flash first. Following are steps:

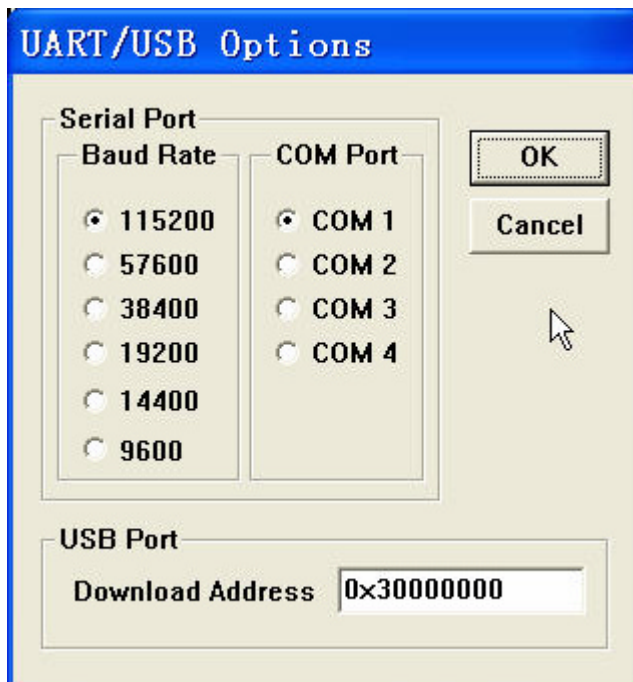
Before you download the **nboot.bin** through usb, you must to have "EB2410MON.bin" image on your AMD or Intel nor flash memory.

You must install the USB driver and dnw program on your host PC. You can find these files in the CD_ROM.

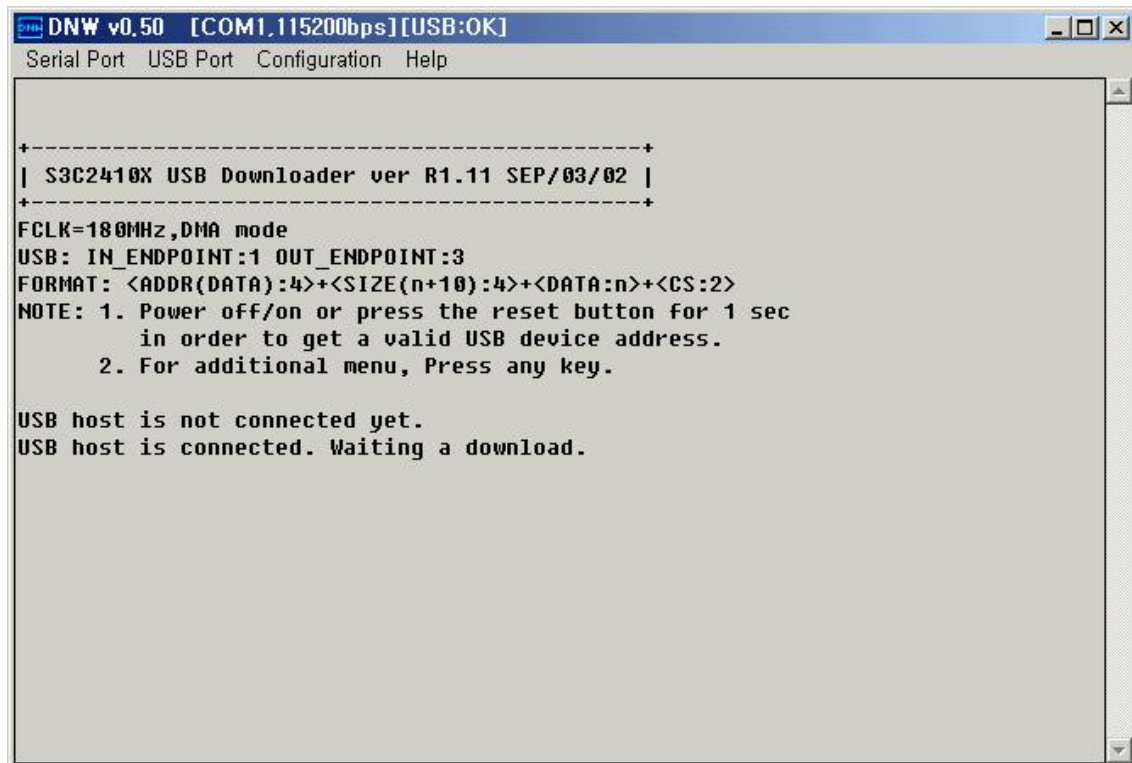
Run dnw.exe and select configuration/option menu and set UART/USB Options



You must set the "Download Address" to "0x30000000".



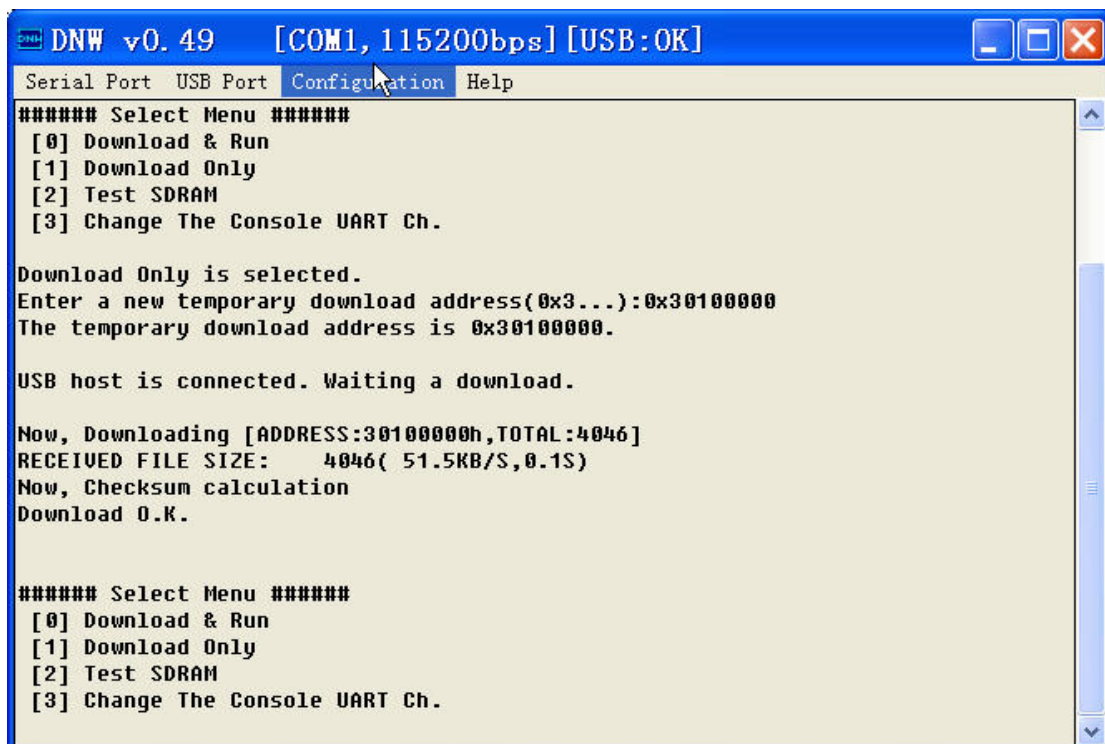
You must confirm the menu bar, *[COM1, 115200bps][USB:OK]*



```
DNW v0.50 [COM1,115200bps][USB:OK]
Serial Port USB Port Configuration Help
-----+-----+
| S3C2410X USB Downloader ver R1.11 SEP/03/02 |
-----+-----+
FCLK=180MHz,DMA mode
USB: IN_ENDPOINT:1 OUT_ENDPOINT:3
FORMAT: <ADDR(DATA):4>+<SIZE(n+10):4>+<DATA:n>+<CS:2>
NOTE: 1. Power off/on or press the reset button for 1 sec
      in order to get a valid USB device address.
      2. For additional menu, Press any key.

USB host is not connected yet.
USB host is connected. Waiting a download.
```

Please press any key, it will appear a "select Menu". Select "1" Download Only and write 0x30100000 address as our downloading address, then enter "Enter" key and choose the "USB ->Transmit" to download the nboot.bin. See following picture to reference.



```
DNW v0.49 [COM1,115200bps][USB:OK]
Serial Port USB Port Configuration Help
##### Select Menu #####
[0] Download & Run
[1] Download Only
[2] Test SDRAM
[3] Change The Console UART Ch.

Download Only is selected.
Enter a new temporary download address(0x3...):0x30100000
The temporary download address is 0x30100000.

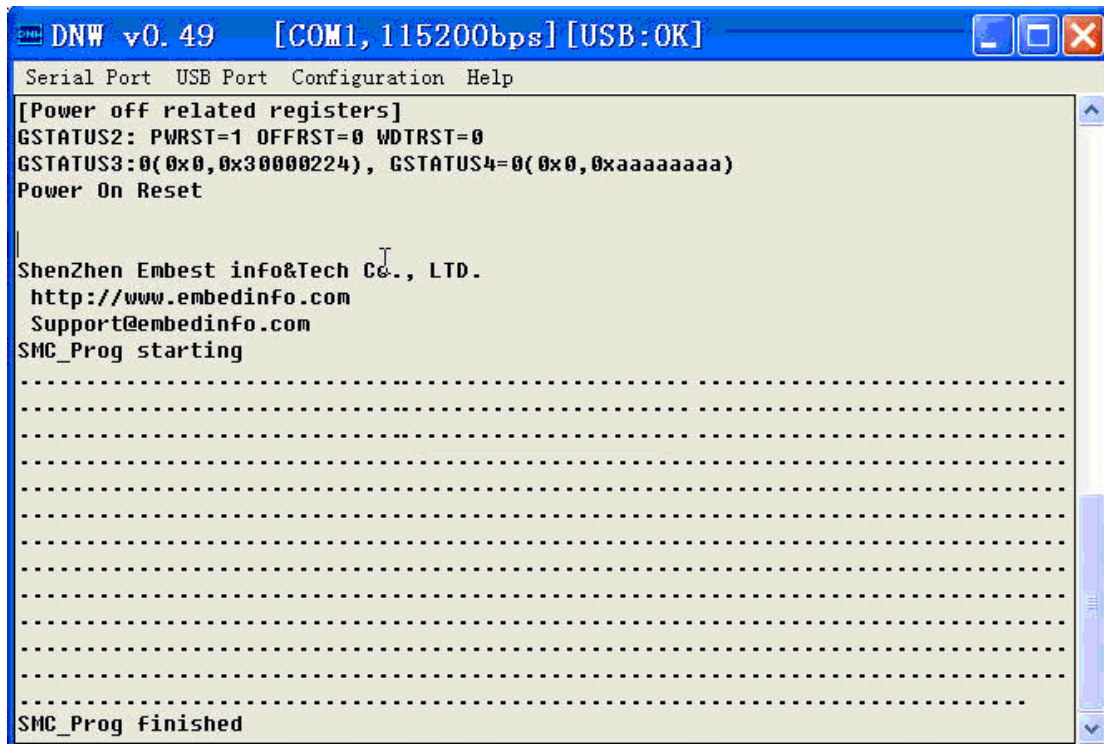
USB host is connected. Waiting a download.

Now, Downloading [ADDRESS:30100000h,TOTAL:4046]
RECEIVED FILE SIZE: 4046( 51.5KB/S,0.1S)
Now, Checksum calculation
Download O.K.

##### Select Menu #####
[0] Download & Run
[1] Download Only
[2] Test SDRAM
[3] Change The Console UART Ch.
```

After finish downloading the nboot.bin file, you will see the "select Menu" again. Choose the "0" Download & Run. Click the "USB ->Transmit" to load

and run the **Nand_Prog.dnw** file (located in CD IMG_Wince folder). When you see the "SMC_Prog finished" string in the DNW, it suggest you successfully burn the **nboot.bin** file to nand flash.



The screenshot shows a window titled "DNW v0.49 [COM1, 115200bps] [USB:OK]". The window contains a text area with the following text:

```
Serial Port  USB Port  Configuration  Help
[Power off related registers]
GSTATUS2: PWRST=1 OFFRST=0 WDTRST=0
GSTATUS3:0(0x0,0x30000224), GSTATUS4=0(0x0,0xaaaaaaaa)
Power On Reset

ShenZhen Embest info&Tech Co., LTD.
http://www.embedinfo.com
Support@embedinfo.com
SMC_Prog starting
.....
SMC_Prog finished
```

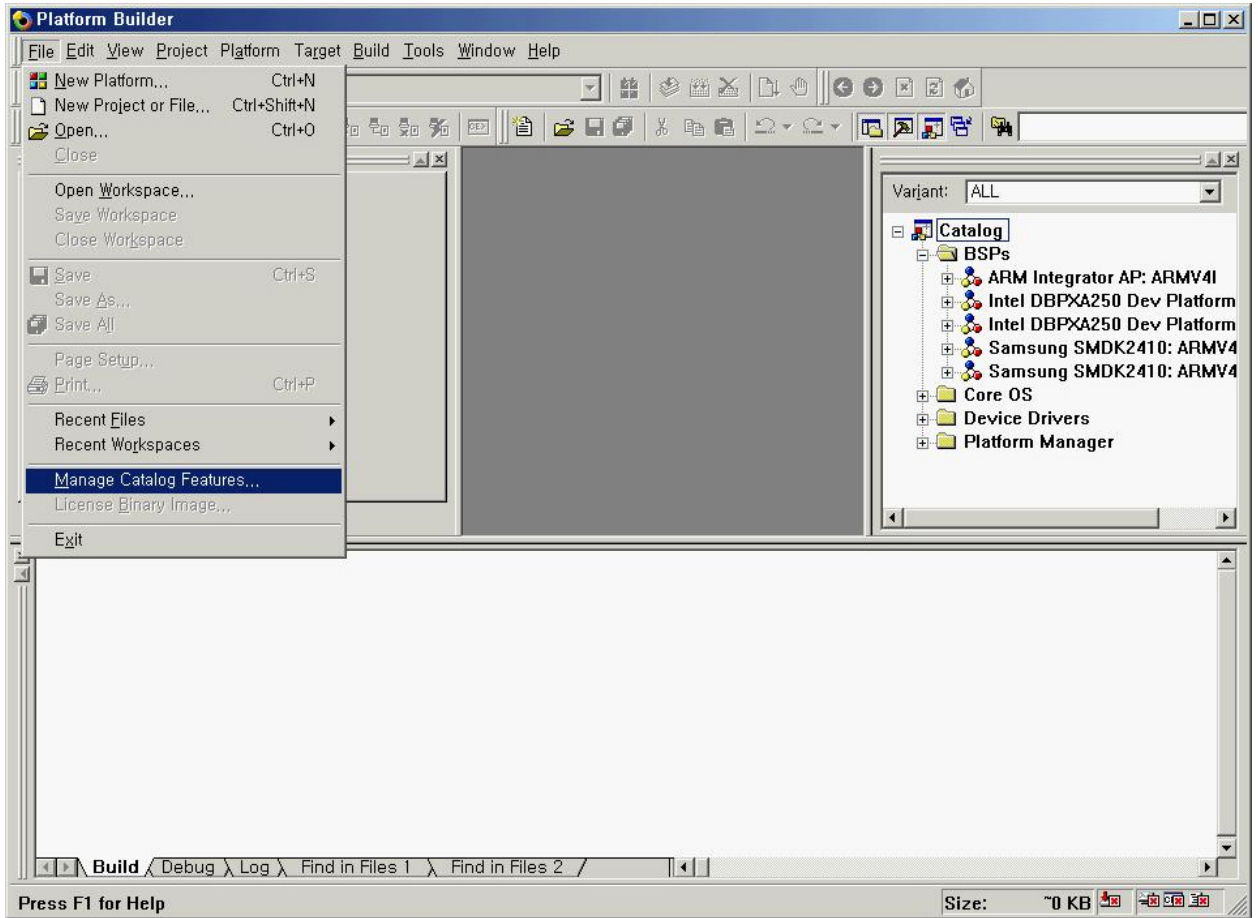
2. Steps to Install SMDK2410 BSP

Here are the steps to install the SMDK2410 BSP.

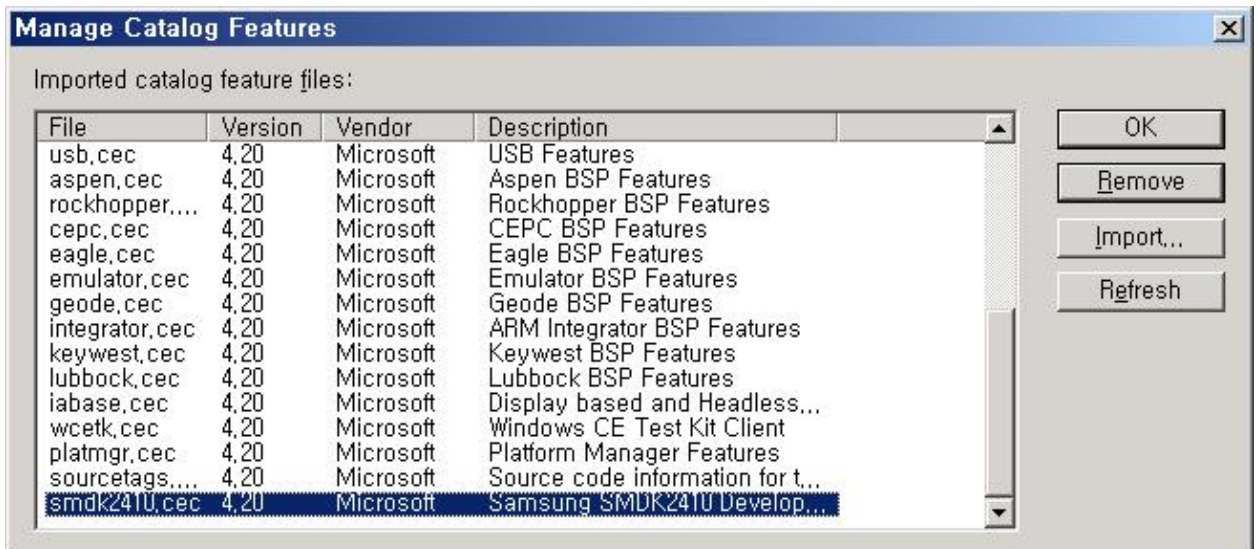
1. Create SMDK2410 directory under WINCE420\PLATFORM. Make sure the BSP directory name is "SMDK2410". If you have the BSP with same name, then you must back up the old bsp.
2. Copy all the files in directory CD_ROM\04-SRCs\SRC_Wince\WinCE4.2BSP\ to directory WINCE420\PLATFORM\SMDK2410\
3. The SMDK2410.cec file was located in SMDK2410 directory.
4. Remove the SMDK2410 folder's files read-only attributes, including the sub folder.
5. Start Platform builder 4.2:

Start>Programs>Microsoft Windows CE. NET 4.2>Platform builder 4.2

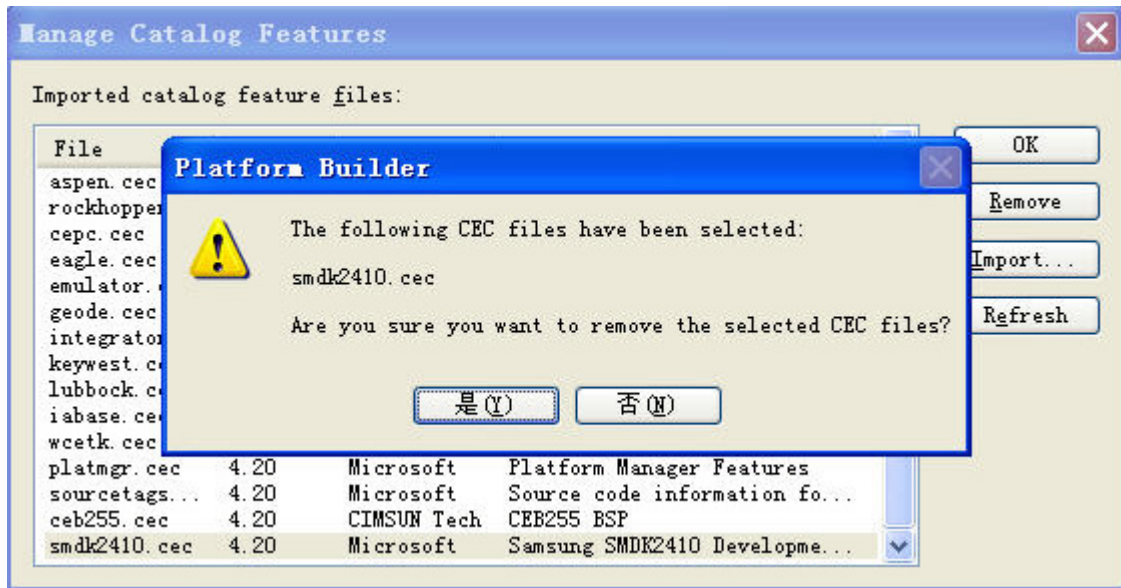
6. Go to File->Manage Catalog Features.



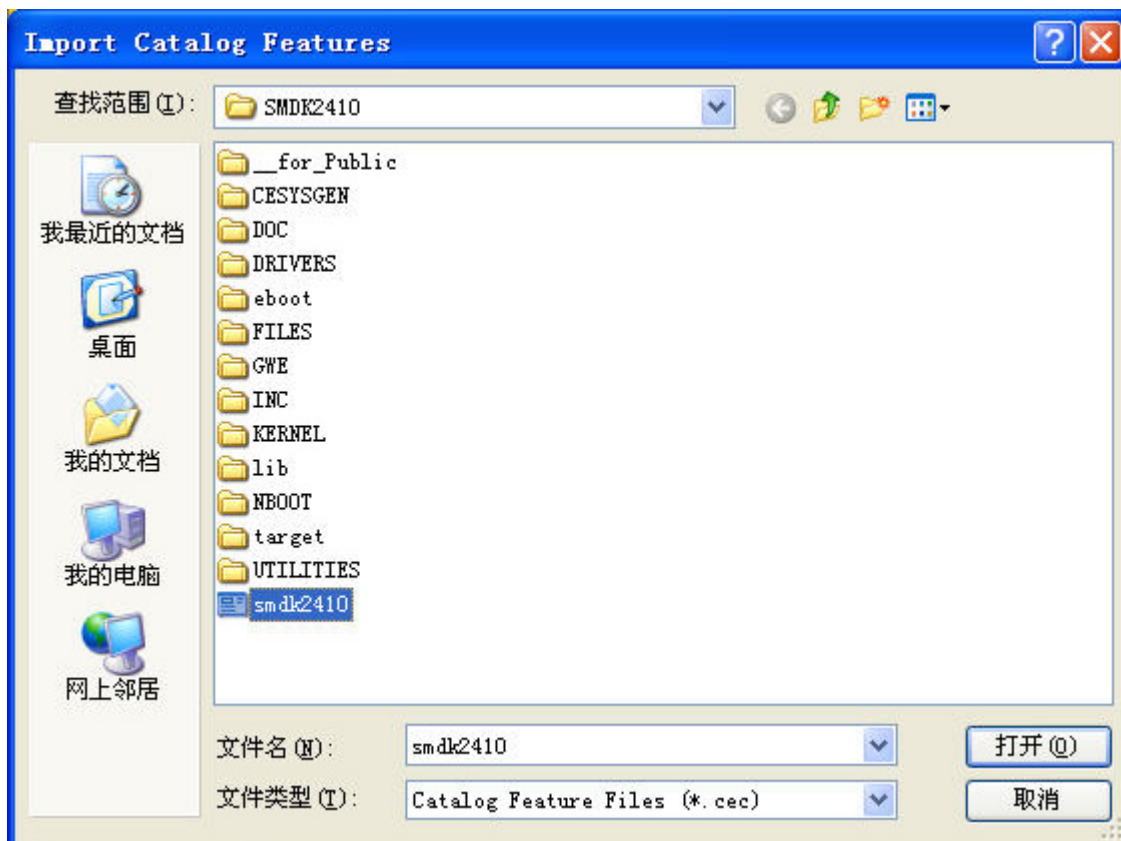
7. You can see a "SMDK2410.CEC" file included in Platform Builder 4.2. You should "Remove" a preinstalled "SMDK2410.CEC" file.



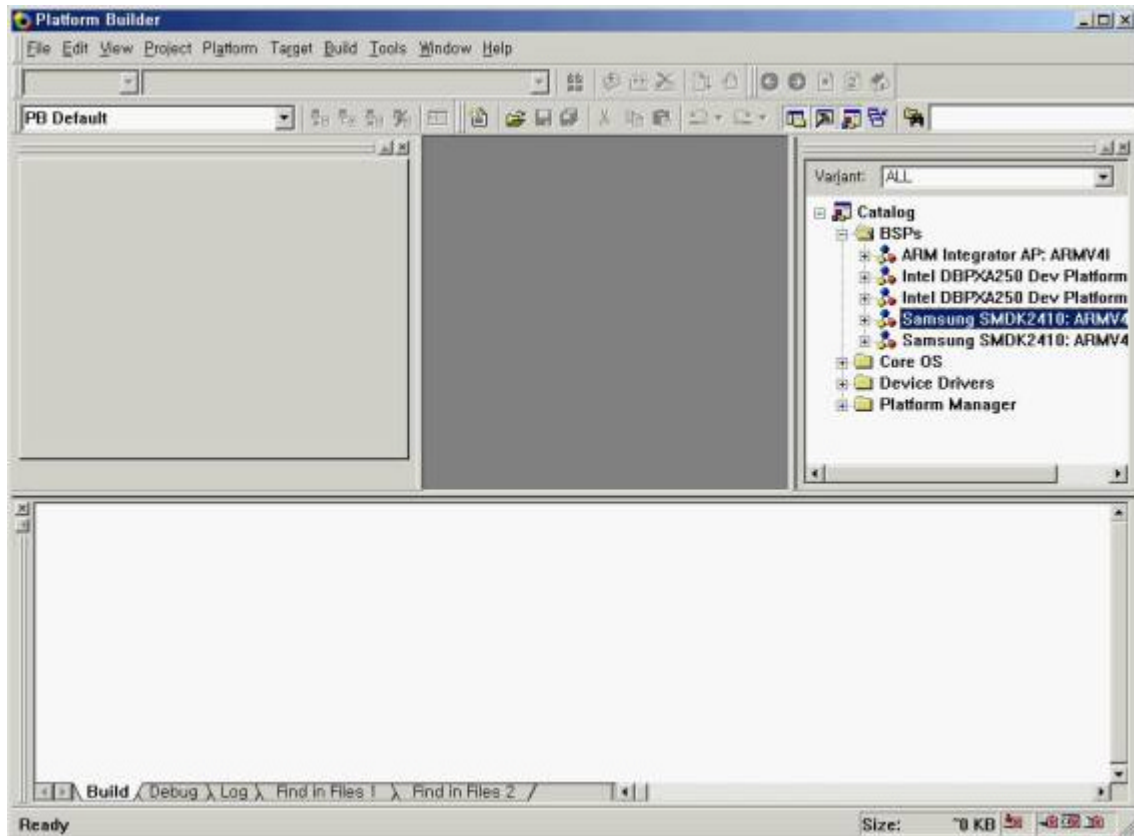
8. After you select "smdk2410.cec" file, press "Remove" button. Press "Yes"



- Then, you should "Import" a new "SMDK2410.CEC" file. Choose the "SMDK2410.CEC" file in the "SMDK2410" BSP directory



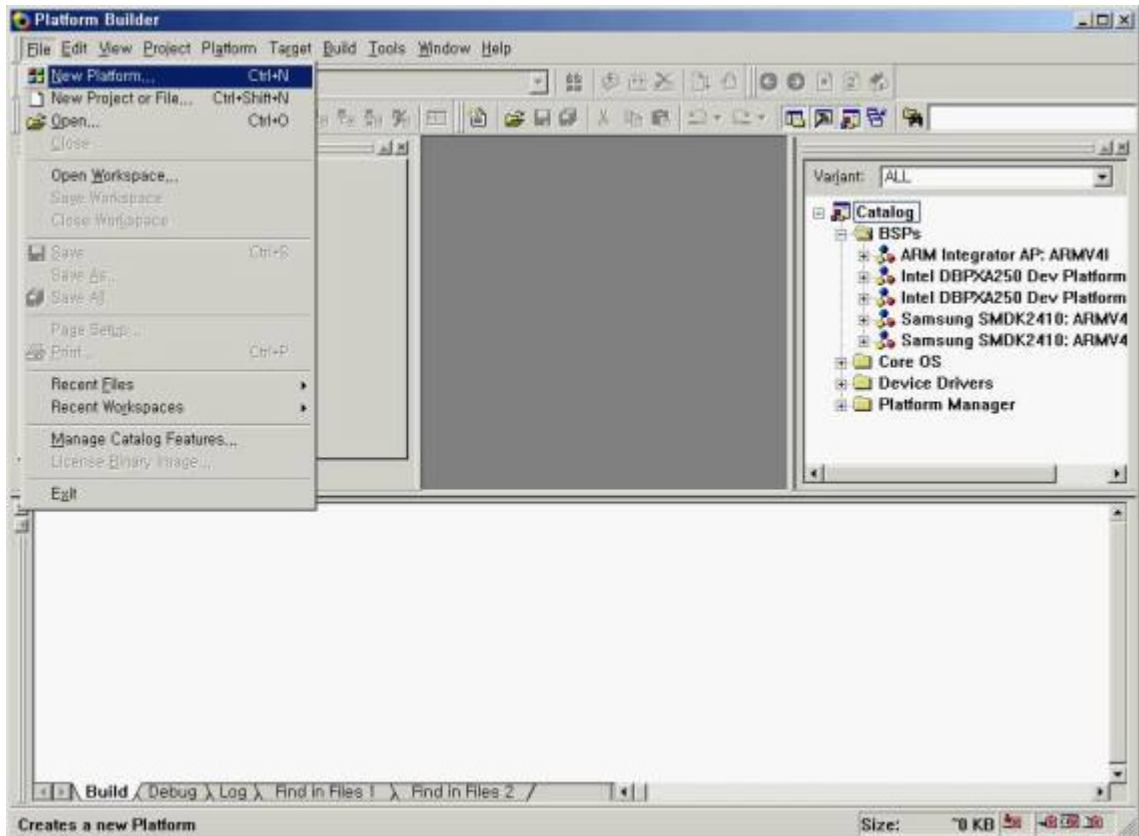
- Import the BSP smdk2410.cec.
- You can see the "Samsung SMDK2410: ARMV4", "Samsung SMDK2410: ARMV4I" field on catalog viewer.



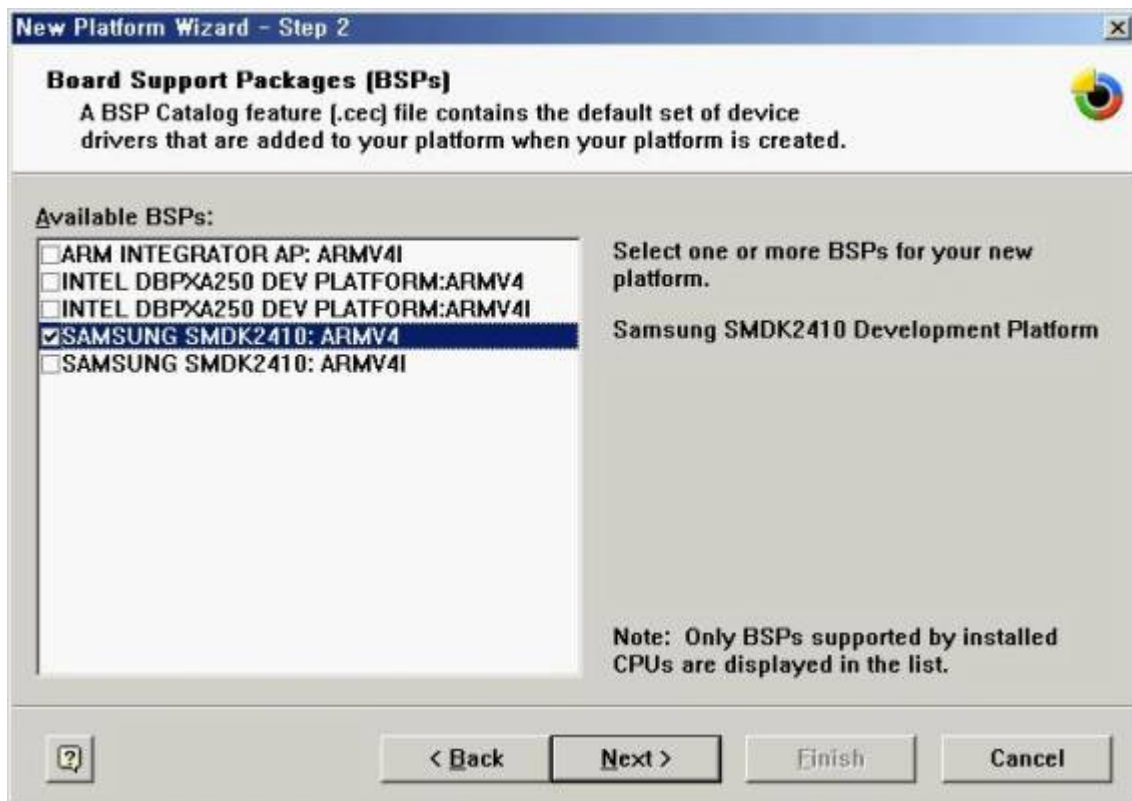
12. Click on Refresh. Finish installing BSP.

3. Create Sample Project

1. Select File->New Platform.



2. Then you can see "New Platform Wizard- Step 1". Press "Next" button.



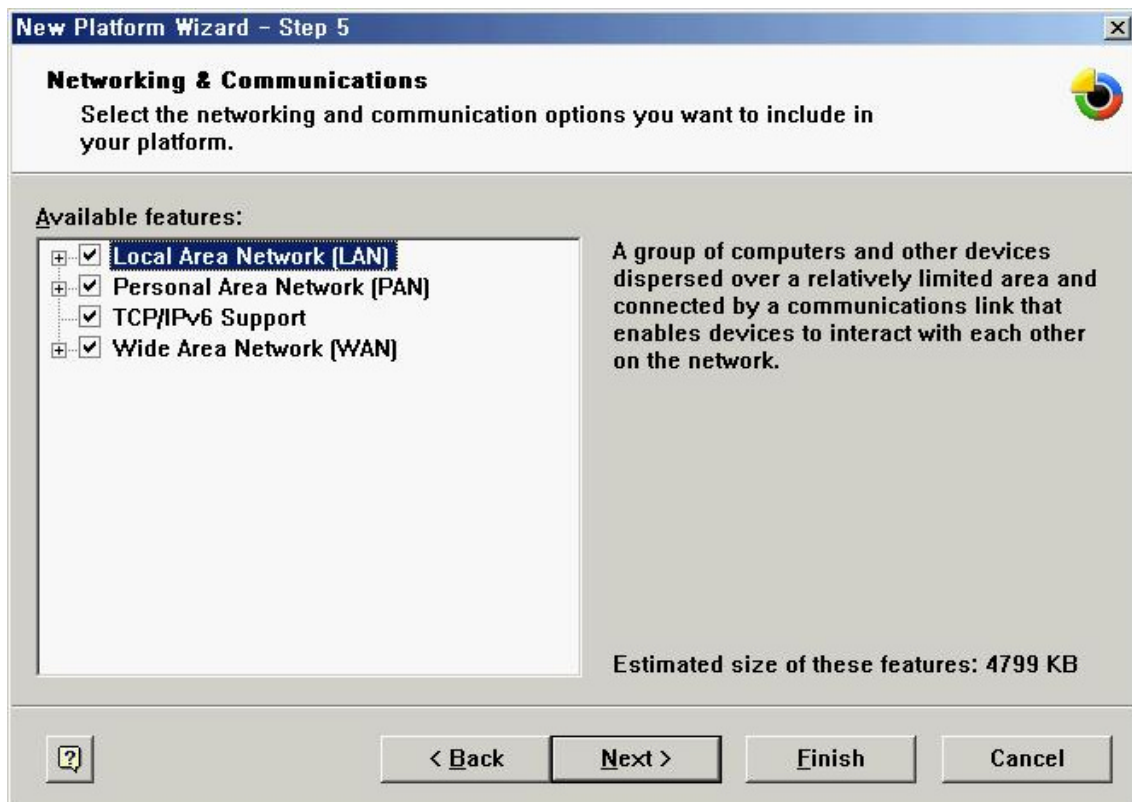
3. Please choose configuration what you want in the "Available configurations" list.



4. Select the "Application & Media" what you want, on "New Platform Wizard - Step 4."



5. Select the "Networking & Communications" what you want, on "New Platform Wizard - Step 5".



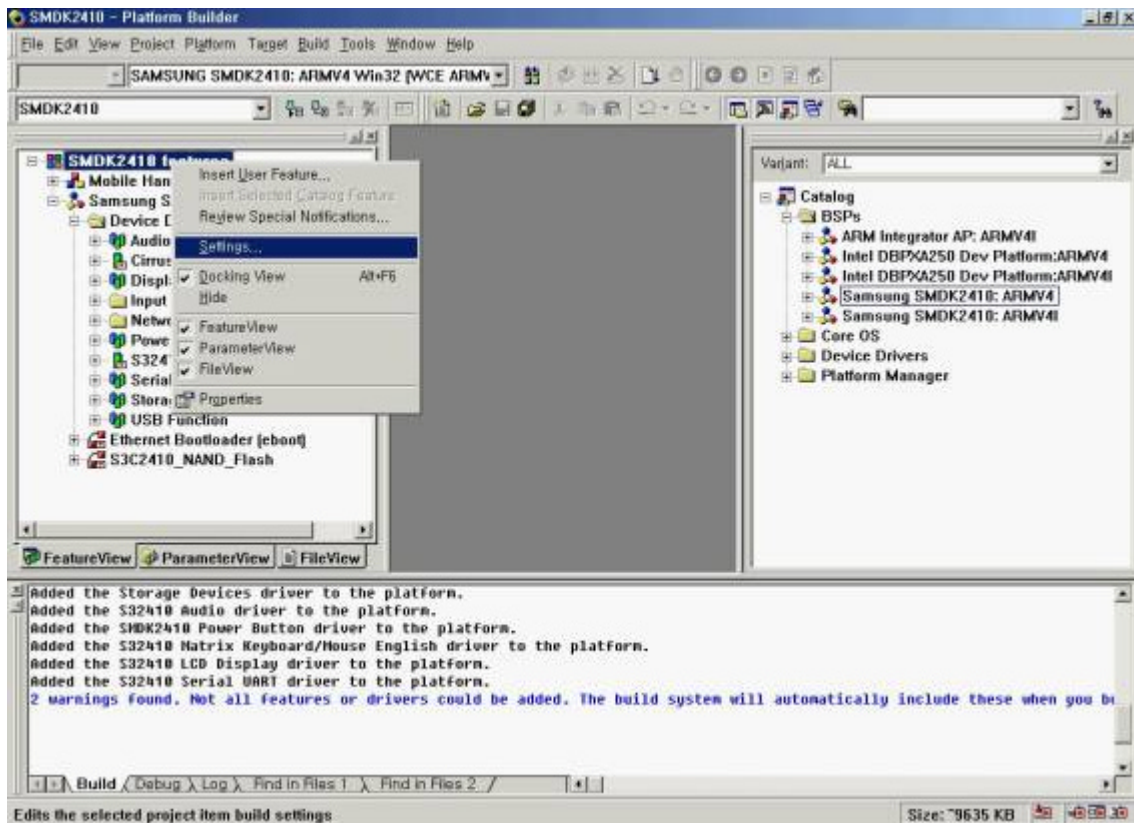
6. Press "Next" button.



7. You can see the "Congratulations!" dialog box.
All of the sequence to create new platform is done.
Press the "Done" button.



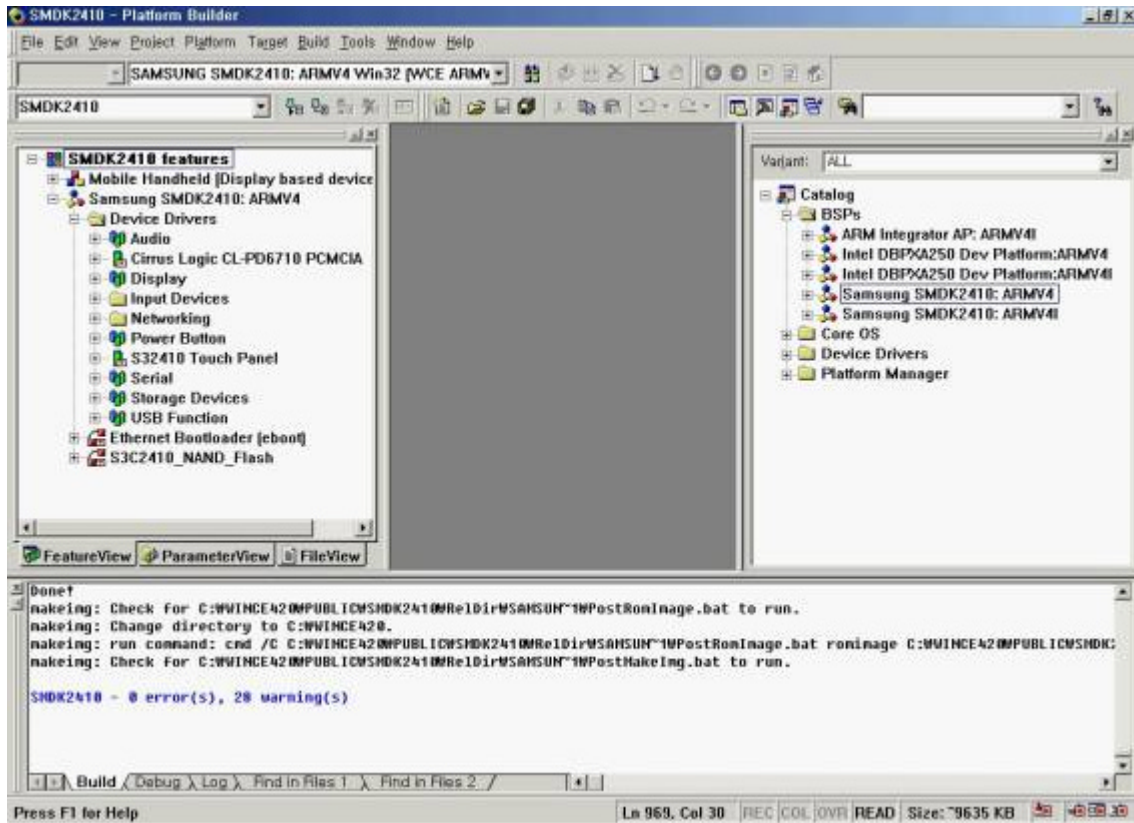
8. Select the settings of platform.



- Change the settings of "Build Options" in "Platform Settings".
 - [Enable CE Target Control Support] -> Unchecked
 - [Enable KITL] -> Unchecked



- Compile the platform.



11. Now, you have "nk.bin" and "nk.nb0" binary image for SMDK2410.

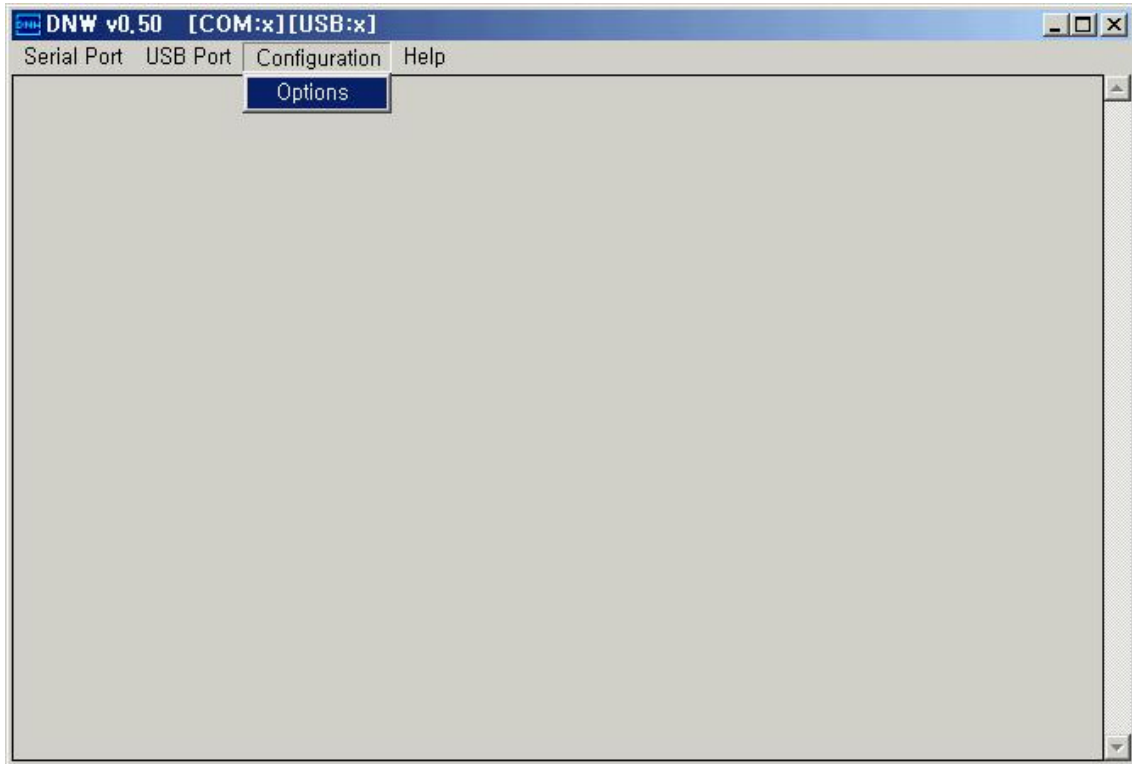
4. How to Burn and run the image

4.1 Ethernet Download

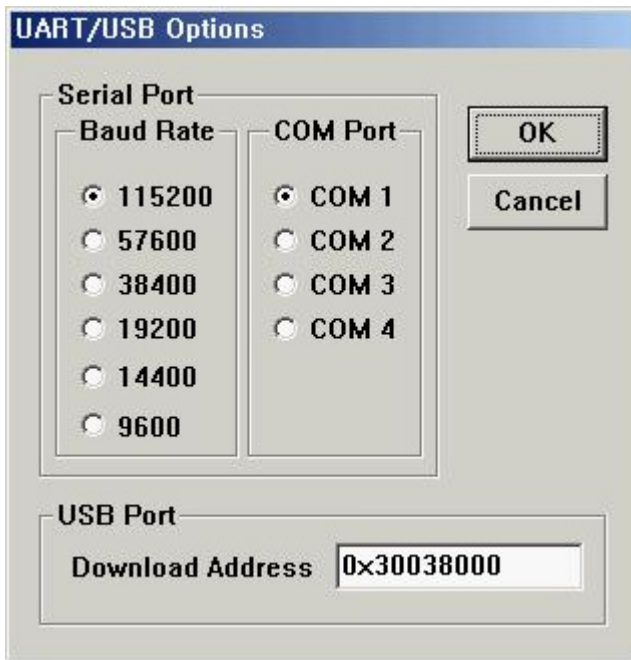
Before you download the wince image through Ethernet, you must to have "EB2410MON.bin" image on your AMD or Intel nor flash memory.

You must install the USB driver and dnw program on your host PC. You can find these files in the CD_ROM.

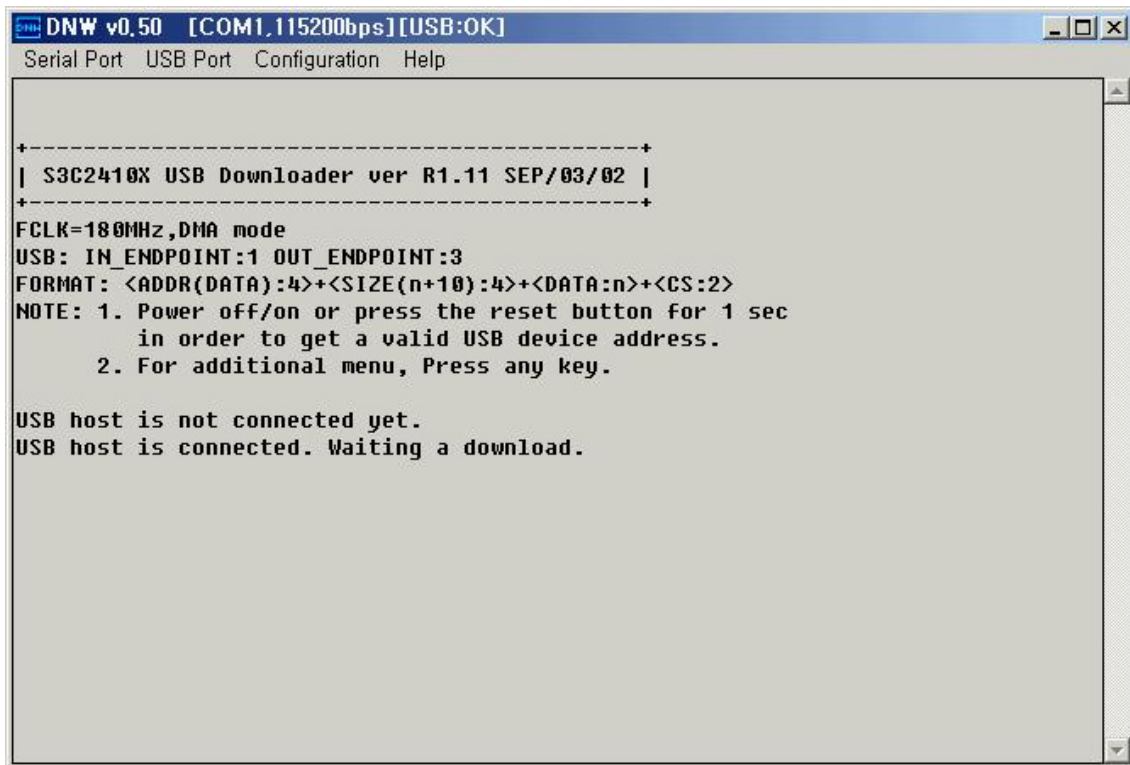
Run dnw.exe and select configuration/option menu and set UART/USB Options



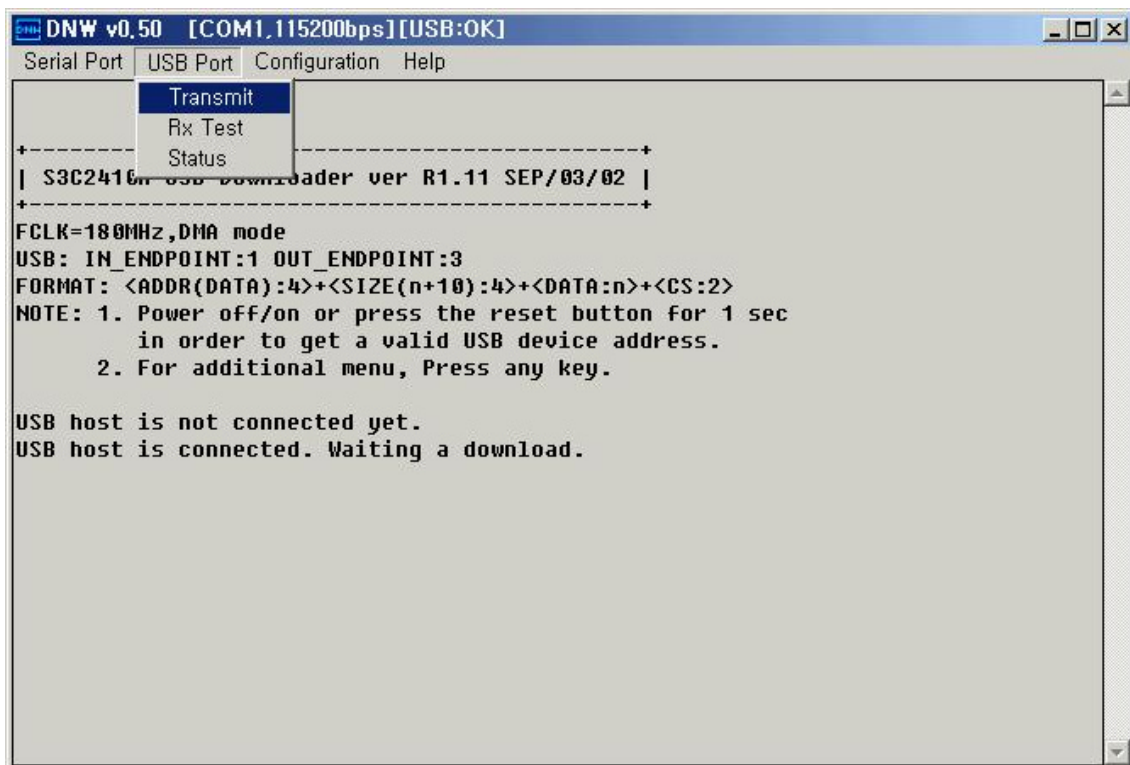
You must set the "Download Address" to "0x30038000".



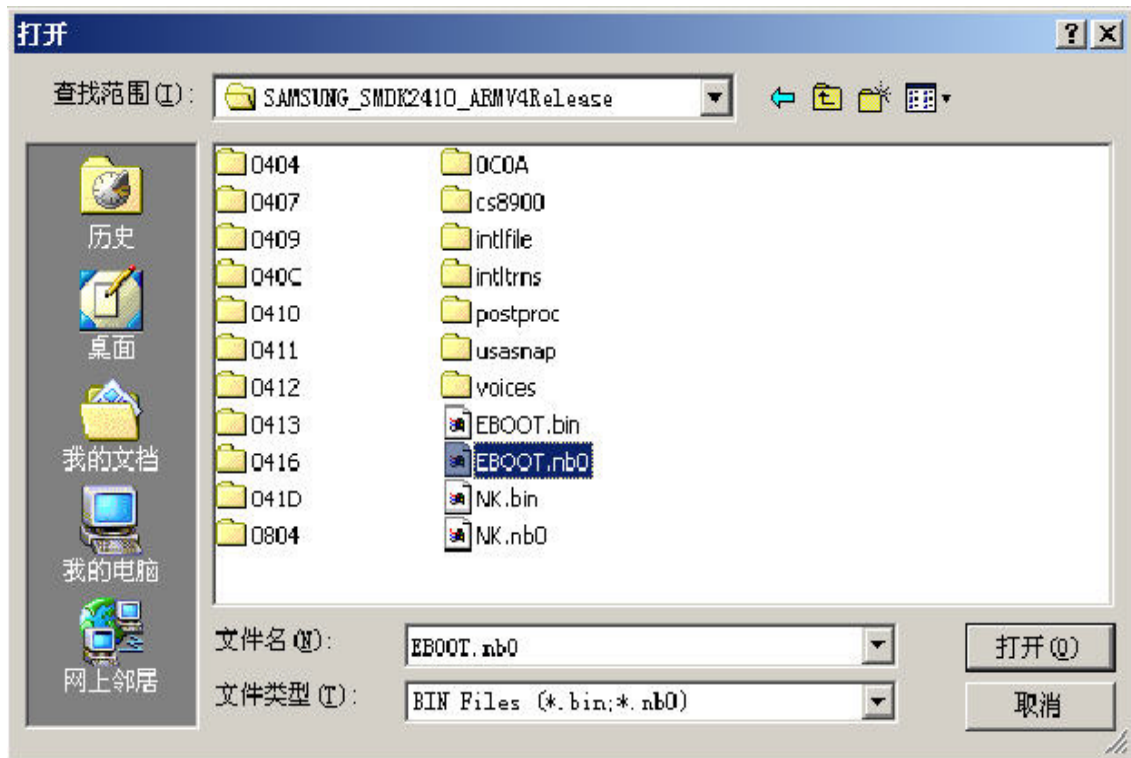
You must confirm the menu bar, *[COM1, 115200bps][USB:OK]*



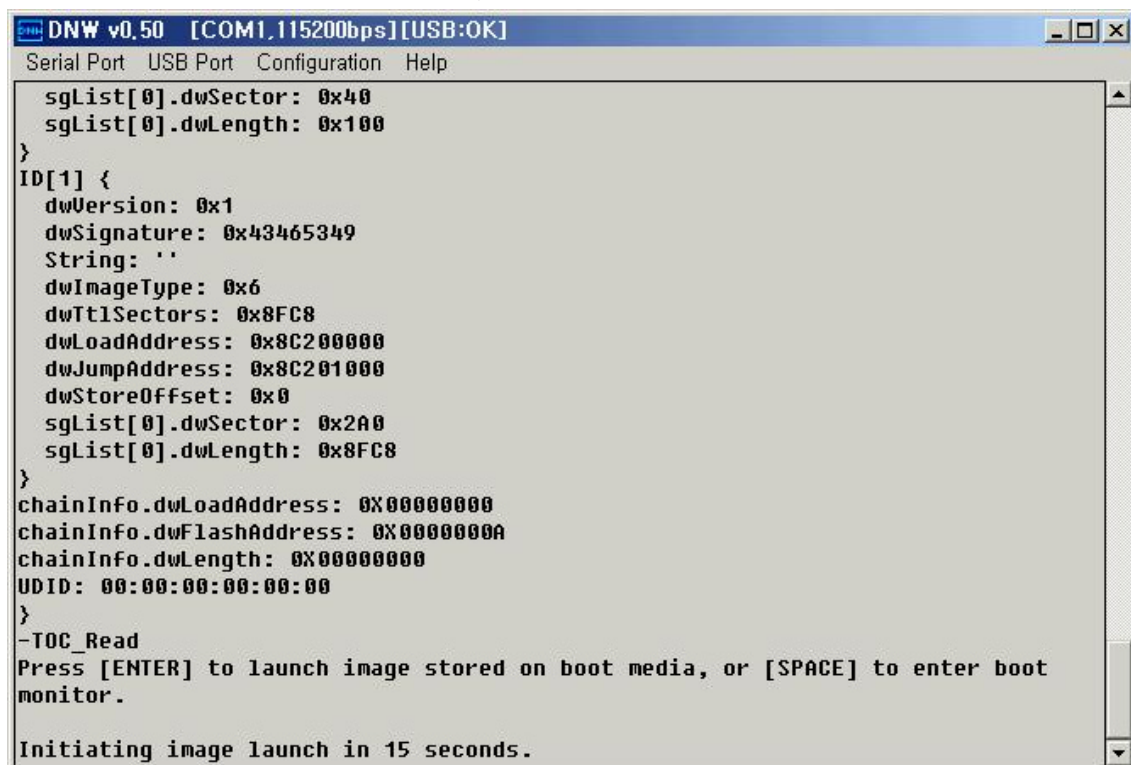
Please select the "Transmit" on "USB port" menu.



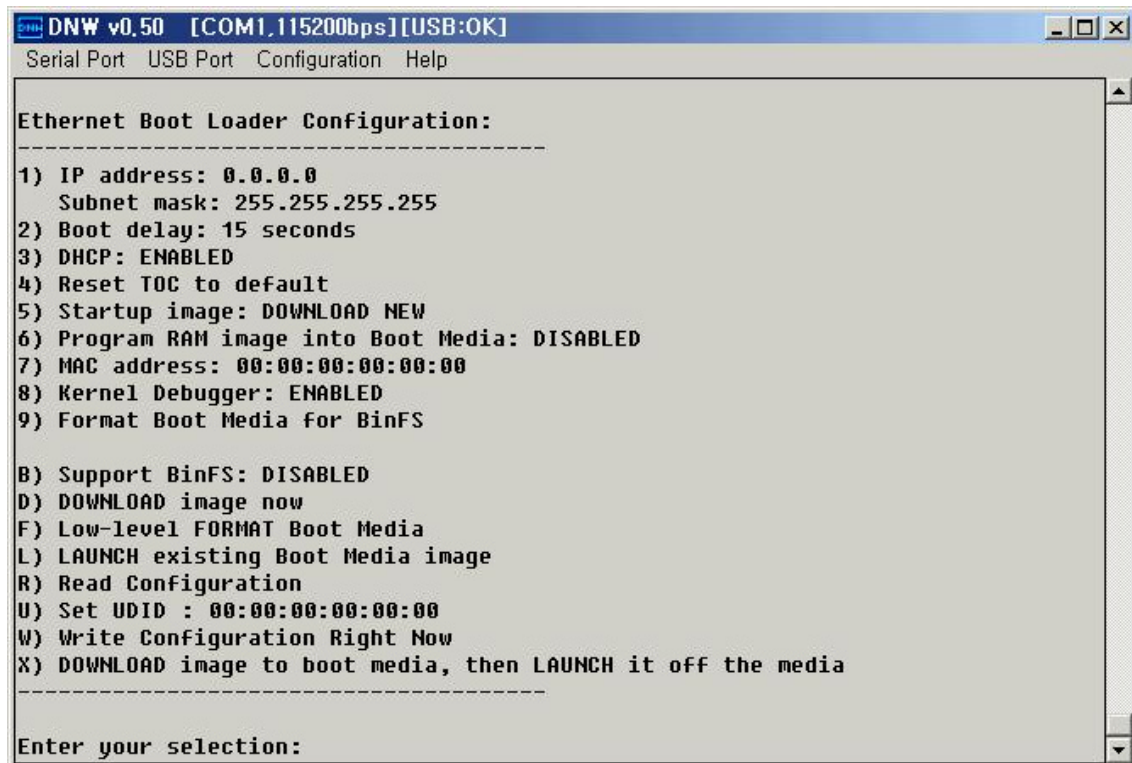
And choose the "eboot.nb0" file in
"WINCE420\PUBLIC\[Platform
Name]\RelDir\SAMSUNG_SMDK2410_ARMV4Release" directory.



You can see the next message.

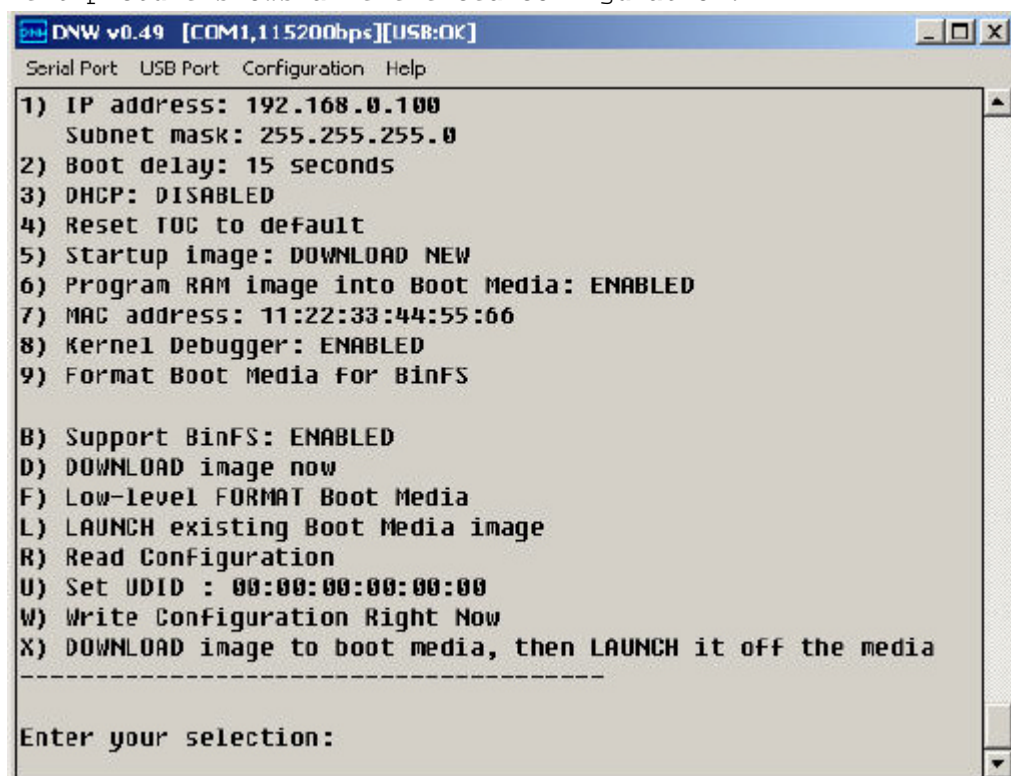


Press "SPACE" key to enter boot menu.

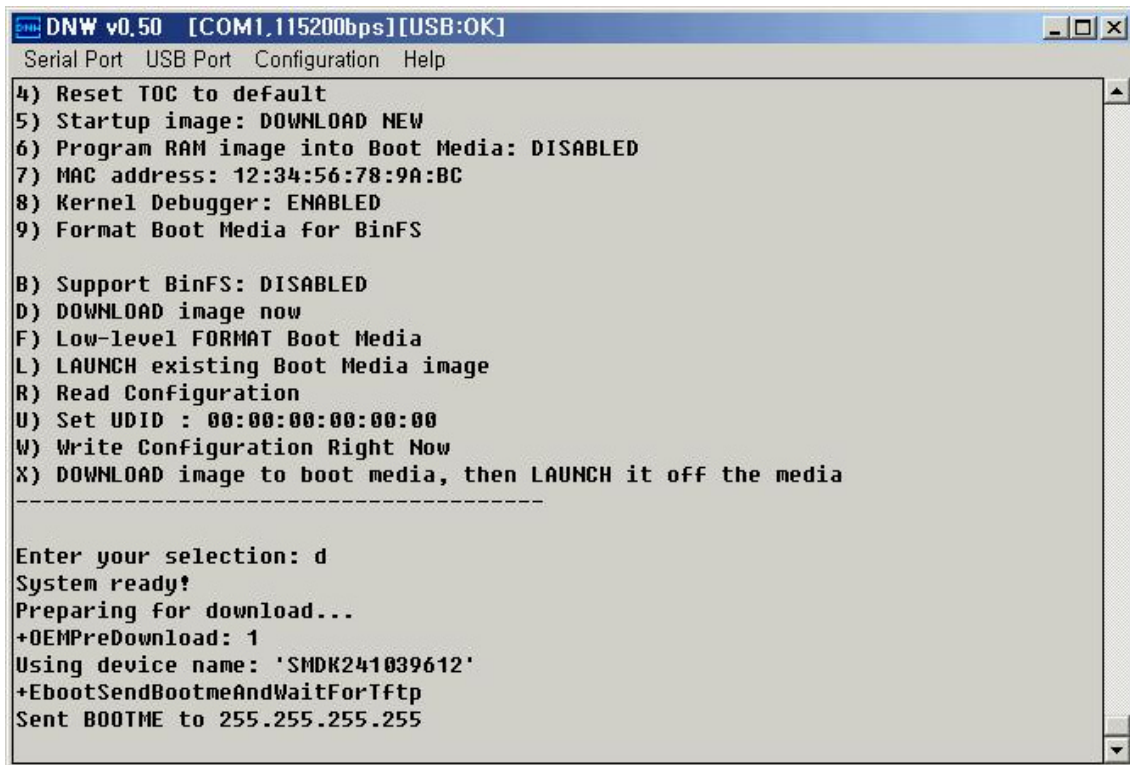


You must setup a configuration with your environment on menu. Mainly 1,6,7,9,f option.

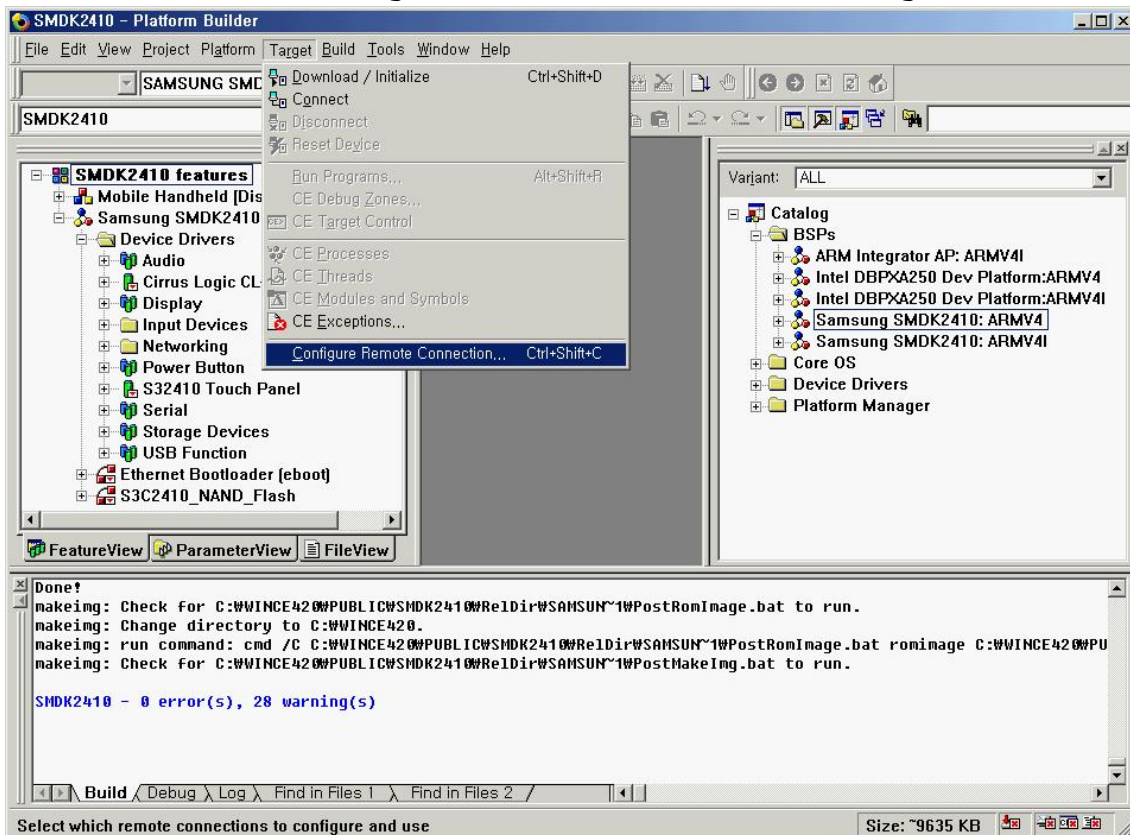
Next picture shows a referenced configuration.



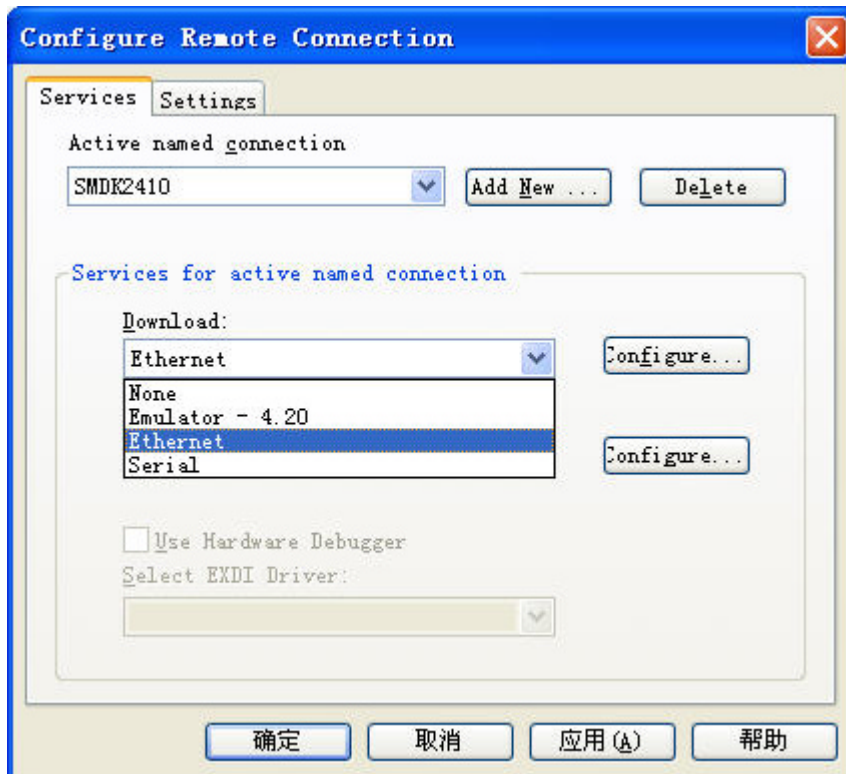
Press "D" to download image.



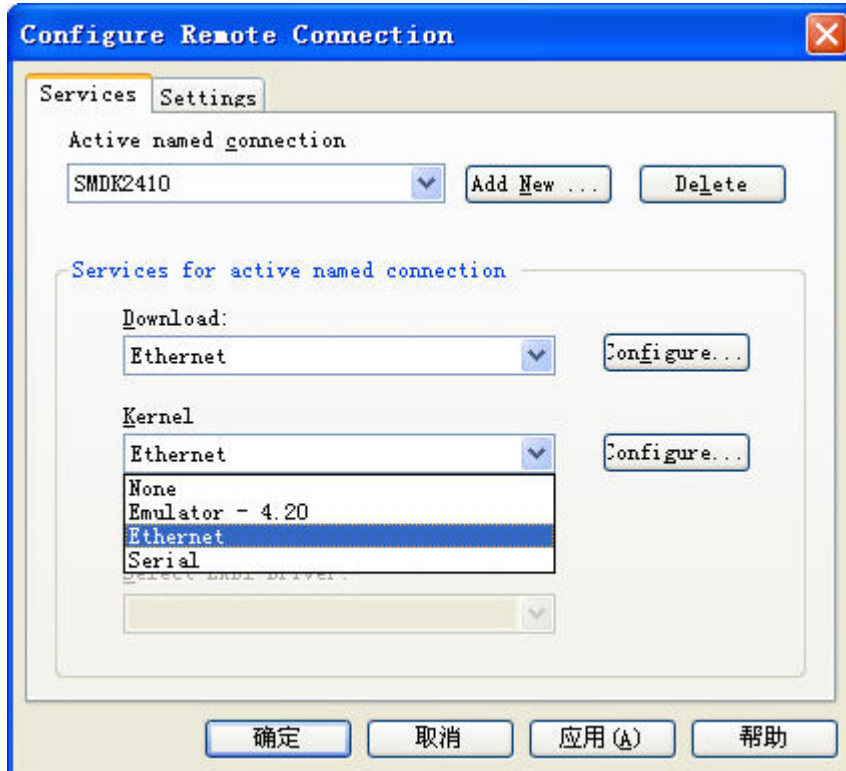
Now setup a remote connection on Platform Builder 4.2.
Please select the "Configure Remote Connection..." on "Target" menu.



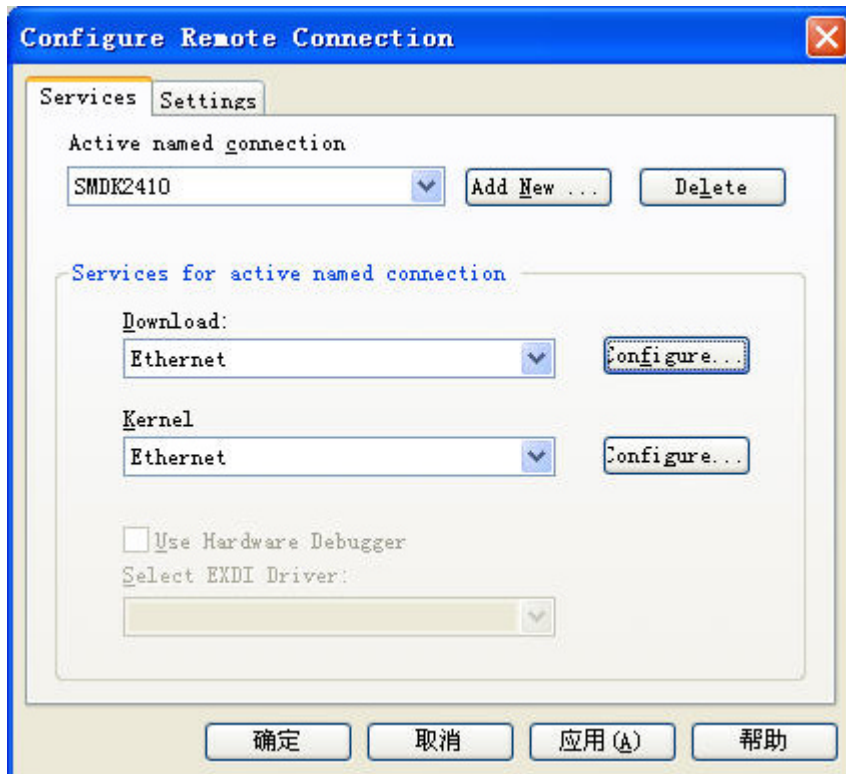
Select the "Ethernet" in "Download:" selection combo box.



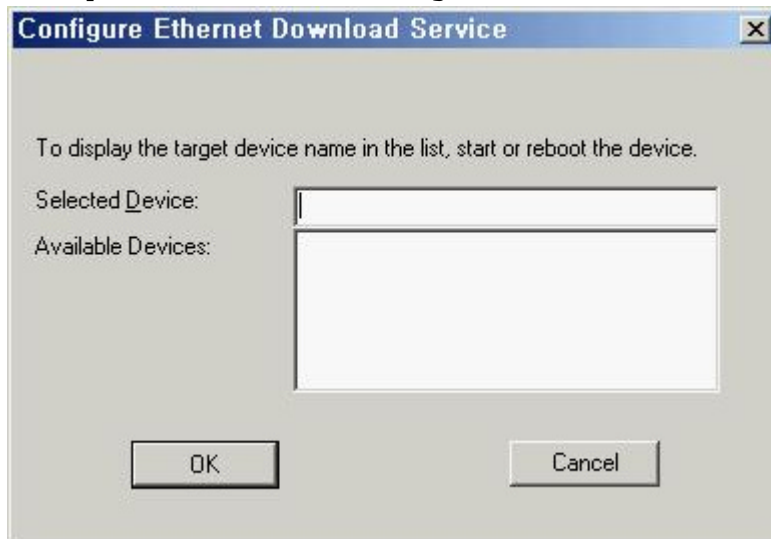
Select the "Ethernet" in "Kernel" selection combo box.



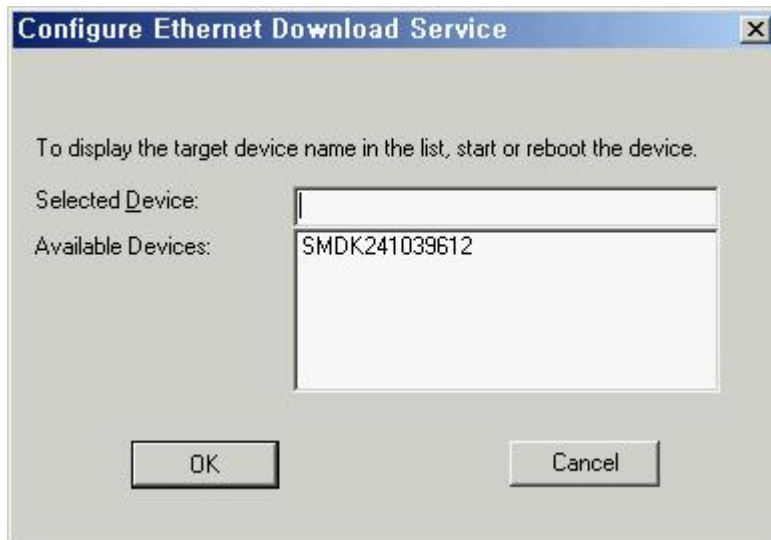
And press the "Configure..." box.



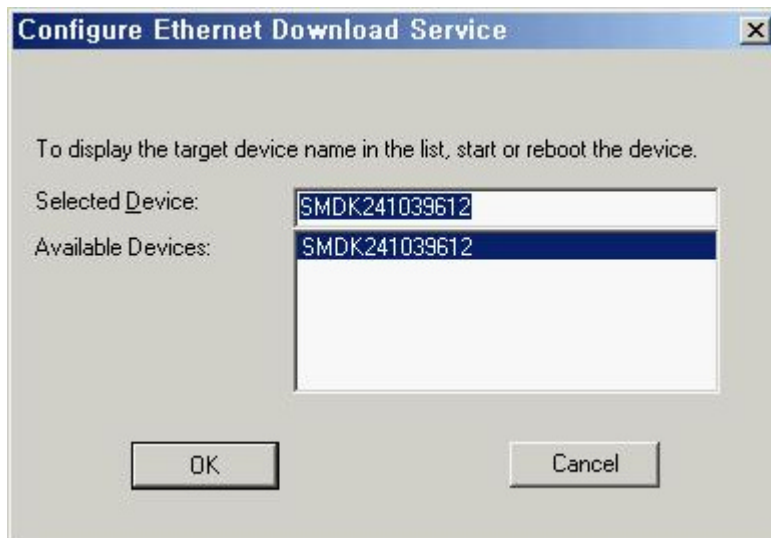
Then you can see the "Configure Ethernet Download Service" dialog box.



There comes up the "SMDK2410?????" on the list.



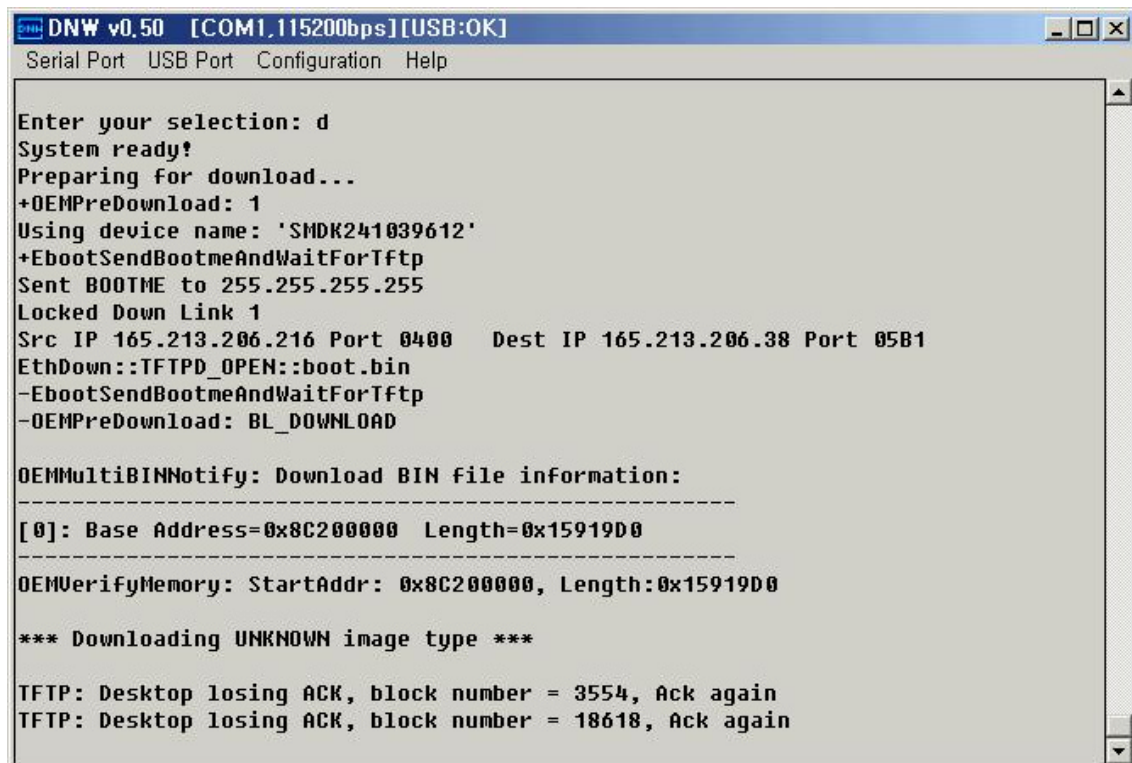
Select the "SMDK2410?????" on the "Available Devices:" list. And press the "OK" button.



Select the "Download / Initialize" on the "Target" menu and turning on the board, you can download the "nk.bin" image to the target board through Ethernet.



Then you can see below message on the "hyper terminal" through UART1 on the target board.



After download completed, the Windows CE 4.2 is booted up on target board. Then you can see below message on the UART port of the target board.

```
DNW v0.50 [COM1.115200bps][USB:OK]
Serial Port USB Port Configuration Help
SDMMC config set rGPGCON: ffa5fdb8
SDMMC config Init Done.
OEMInit Done...
Sp=ffffc7cc
OEMSetRealTime: Year: 2003, Month: 1, Day: 1, Hour: 12, Minute: 0, second: 0
rcnr=1h
OEMSetRealTime(register): Year: 3, Month: 1, Day: 1, Hour: 12, Minute: 0,
second: 0 rcnr=1h
FMD::FMD_Init
::: SYSINTR_PCMCIA_LEVEL    OEMInterruptEnable
::: SYSINTR_PCMCIA_STATE    OEMInterruptEnable
Prescaler:2
384 clock
SL_Open 0x315A0 (0 opens)
::: PBT_InitializeAddresses - Success
charlie::SDIO::SDHOST::SDCSDCardDllEntry::DLL_PROCESS_ATTACH
::: SYSINTR_SDMMC    OEMInterruptDisable
::: SYSINTR_DMA0     OEMInterruptDisable
::: SYSINTR_SDMMC_CARD_DETECT    OEMInterruptEnable
::: SYSINTR_SDMMC_SDIO_INTERRUPT    OEMInterruptEnable
--S3C2410DISP::InitializeHardware
SL_Open 0x315A0 (0 opens)
+SL_GetStatus 0x315A0
RasEntry ``USB Socket Default' Created
```

Now, the wince image have been burned in Nand flash. Power down the board and set the jumper to boot up from Nand flash then power up the board, you can enter the wince GUI.