

AM1808 Mango1808 Wince 6.0 이미지 Write 방법

<http://www.mangoboard.com/>

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Crazy Embedded Laboratory

Document History

Revision	Date	Change note

목차

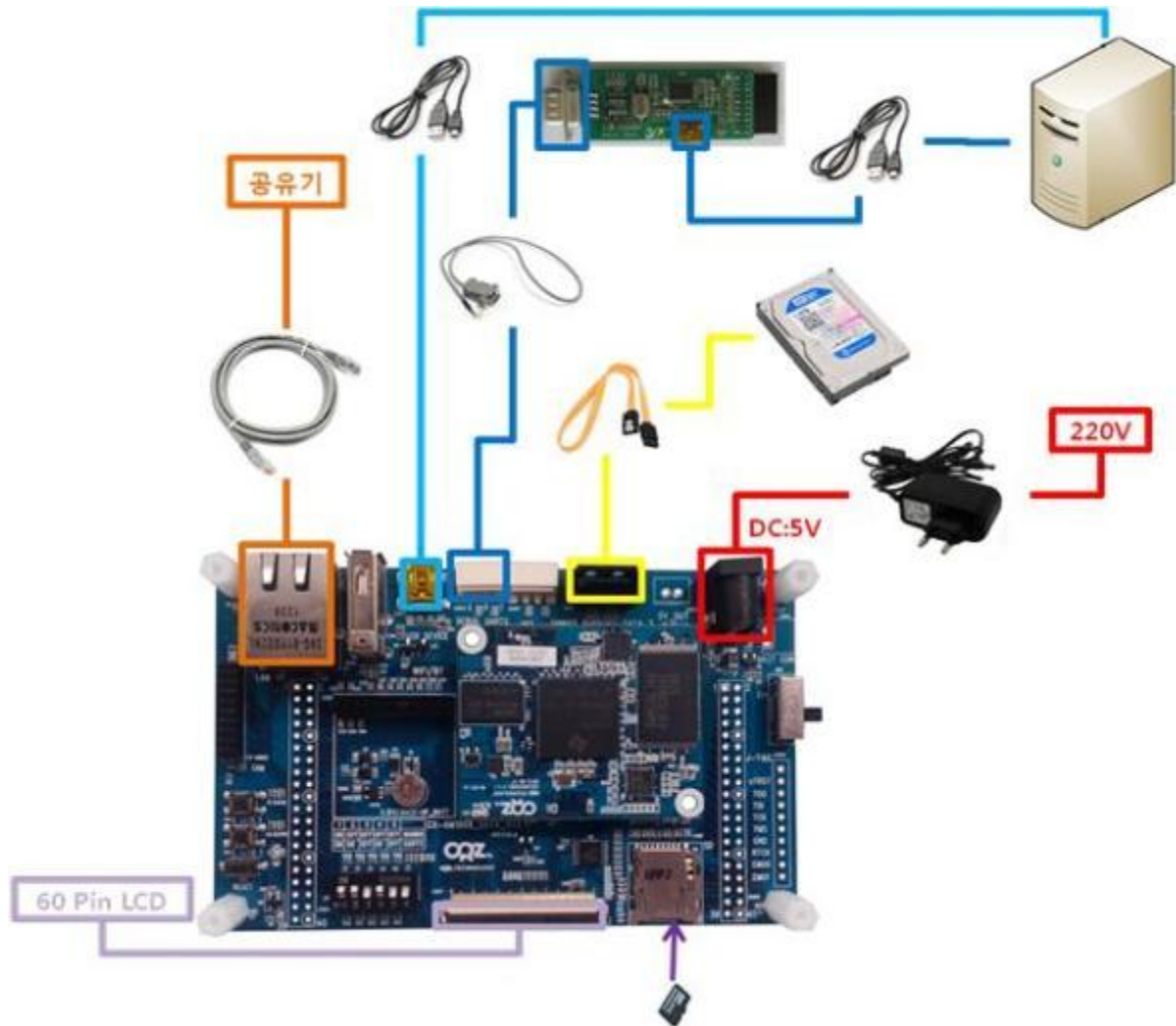
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1. AM1808 Mango1808 Wince 6.0 이미지 Write 방법

Soc :

1.1. Connections and ready for download

1.1.1. MANGO1808 전원 및 Cable 연결 방법

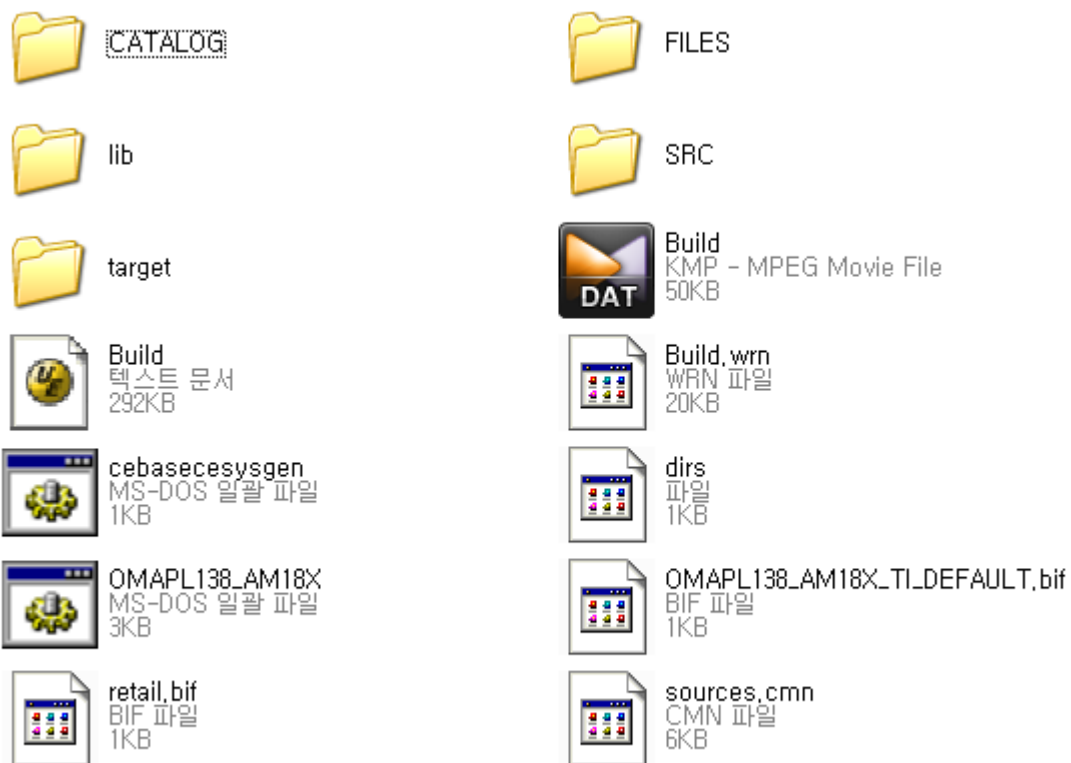


1.1.2. 다운로드 및 준비

소스를 다운



OMAPL138_AM18X.zip 압축 풀어줌



Command 창 실행

```
Cd <경로>\OMAPL138_AM18X\SRC\BOOT\TOOLS\new_bin
```

UART2 Boot SW [1],[2],[4]ON 나머지 OFF

1.2. How to erase and eboot writer

1.2.1. MANGO1808 How to NAND Erase

```
> sfh_OMAP-L138.exe -erase -targetType MANGO1808 -flashType NAND -p COM'X'  
D:\wimage\mango1808\20130423\OMAPL138_AM18X\SRC\BOOT\TOOLS\bin>sfh_OMAP-  
L138.exe -erase -targetType MANGO1808 -flashType NAND -p COM11
```

```
-----  
TI Serial Flasher Host Program for OMAP-L138  
(C) 2010, Texas Instruments, Inc.  
Ver. 1.67  
-----
```

[TYPE] Global erase
[TARGET] AM1808
[DEVICE] NAND

Attempting to connect to device COM11...
Press any key to end this program at any time.

(AIS Parse): Read magic word 0x41504954.
(AIS Parse): Waiting for BOOTME... (power on or reset target now)

Power on & reset

(AIS Parse): BOOTME received!
(AIS Parse): Performing Start-Word Sync...
(AIS Parse): Performing Ping Opcode Sync...
(AIS Parse): Processing command 0: 0x58535901.
(AIS Parse): Performing Opcode Sync...
(AIS Parse): Loading section...
(AIS Parse): Loaded 14376-Byte section to address 0x80000000.
(AIS Parse): Processing command 1: 0x58535901.
(AIS Parse): Performing Opcode Sync...
(AIS Parse): Loading section...
(AIS Parse): Loaded 1320-Byte section to address 0x80003828.
(AIS Parse): Processing command 2: 0x58535906.
(AIS Parse): Performing Opcode Sync...
(AIS Parse): Performing jump and close...
(AIS Parse): AIS complete. Jump to address 0x80000000.
(AIS Parse): Waiting for DONE...
(AIS Parse): Boot completed successfully.

Waiting for SFT on the OMAP-L138...

Erasing flash

100% [???]

Erase complete

Operation completed successfully.

1.2.2. Mango1808 How to Eboot NAND writer

```
> sfh_OMAP-L138.exe -flash -flashType NAND -targetType MANGO1808 -v -p COM'X' -  
appStartAddr 0xc7f60000 -appLoadAddr 0xc7f60000 ubl_MANGO1808_NAND.bin  
EBOOTNANDFLASH.nb0
```

```
D:\wimage\mango1808\20130423\WOMAPL138_AM18X\SRC\BOOT\TOOLS\new_bin>sfh_OMAP  
-L138.exe -flash -flashType NAND -targetType MANGO1808 -v -p COM11 -appStartAddr  
0xc7f60000 -appLoadAddr 0xc7f60000 ubl_MANGO1808_NAND.bin EBOOTNANDFLASH.nb0
```

```
-----  
TI Serial Flasher Host Program for OMAP-L138  
(C) 2012, Texas Instruments, Inc.  
Ver. 1.67  
-----
```

```
[TYPE] UBL and application image  
[UBL] ubl_MANGO1808_NAND.bin  
[APP IMAGE] EBOOTNANDFLASH.nb0  
[TARGET] MANGO1808  
[DEVICE] NAND  
[NAND Block] 1
```

```
Attempting to connect to device COM11...  
Press any key to end this program at any time.
```

```
(AIS Parse): Read magic word 0x41504954.
```

```
(AIS Parse): Waiting for BOOTME... (power on or reset target now)
```

Power on & reset

```
(AIS Parse): BOOTME received!
```

```
(AIS Parse): Performing Start-Word Sync...
```

```
(AIS Parse): Performing Ping Opcode Sync...
```

```
(AIS Parse): Processing command 0: 0x58535901.
```

```
(AIS Parse): Performing Opcode Sync...
```

```
(AIS Parse): Loading section...
```

```
(AIS Parse): Loaded 14376-Byte section to address 0x80000000.
```

```
(AIS Parse): Processing command 1: 0x58535901.
```

(AIS Parse): Performing Opcode Sync...
(AIS Parse): Loading section...
(AIS Parse): Loaded 1320-Byte section to address 0x80003828.
(AIS Parse): Processing command 2: 0x58535906.
(AIS Parse): Performing Opcode Sync...
(AIS Parse): Performing jump and close...
(AIS Parse): AIS complete. Jump to address 0x80000000.
(AIS Parse): Waiting for DONE...
(AIS Parse): Boot completed successfully.

Waiting for SFT on the OMAP-L138...

Target: BOOTUBL

Target: BEGIN

100% [???]

Image data transmitted over UART.

Target: DONE

100% [???]

UBL programming complete

Target: CurrBlockNum =0x00000001

Target: Writing image data to Block 0x00000001, Page 0x00000000

Target: Writing image data to Block 0x00000001, Page 0x00000001

Target: Writing image data to Block 0x00000001, Page 0x00000002

Target: Writing image data to Block 0x00000001, Page 0x00000003

Target: Writing image data to Block 0x00000001, Page 0x00000004

Target: Writing image data to Block 0x00000001, Page 0x00000005

Target: Writing image data to Block 0x00000001, Page 0x00000006

Target: Writing image data to Block 0x00000001, Page 0x00000007

Target: SENDING

Target: DONE

Flashing application EBOOTNANDFLASH.nb0 (262144 bytes)

Target: SENDING

Target: BEGIN

100% [???]

Image data transmitted over UART.

Target: DONE

100% [???]

Application programming complete

Target: Number of blocks needed for header and data: 0x0x00000003

Target: Attempting to start in block number 0x0x00000006.

Target: Magicnum: 0x0x55424CBB

Target: Entrypoint: 0x0xC7F60000

Target: Numpage: 0x0x00000080

Target: Writing header and image data to Block 0x00000006, Page 0x000000

00

Target: DONE

Target: DONE

Operation completed successfully.

1.3. How to NAND that NK Writer and boot setting

NAND Boot SW [1],[5]ON 나머진 OFF

Reset

Main Menu

- [1] Show Current Settings
- [2] Boot Settings
- [3] Network Settings
- [5] Video Settings
- [6] Save Settings
- [7] Peripheral Tests
- [R] Reset Settings To Default Values
- [0] Exit and Continue

Selection:

Selection: 1

Boot:

Boot delay 3

Boot device NK from SD

Debug device EMAC

Clean Boot No

Write RAM NK to flash: .. No

Device ID String (not specified)

Allow DSP to Boot: No

Network:

KITL state disabled

KITL mode interrupt

DHCP enabled

MAC address 04:32:f4:fd:e9:21

IP address 0.0.0.0

IP mask 0.0.0.0

IP router 0.0.0.0

VMINI disabled

모든 메뉴에서 1을 누르면 Show Current Settings

[3] Network Settings 선택

[3] KITL interrupt/poll mode 선택 후 > y

[8] Enable/disable VMINI 선택 후 > y

Network Settings

[1] Show Current Settings

[2] Enable/disable KITL

[3] KITL interrupt/poll mode

[4] Enable/disable DHCP

[5] Set IP address

[6] Set IP mask

[7] Set default router

[8] Enable/disable VMINI

[0] Exit and Continue

Selection:

Selection: 3

Set KITL to poll mode [y/-]: y

KITL set to pool mode

Selection: 8

Enable VMINI (actually disabled) [y/-]: y

VMINI enabled

Selection: 1

Network:

KITL state disabled

```
KITL mode ..... poll
DHCP ..... enabled
MAC address ..... 04:32:f4:fd:e9:21
IP address ..... 0.0.0.0
IP mask ..... 0.0.0.0
IP router ..... 0.0.0.0
VMINI ..... enabled
```

Main Menu로 돌아와

[2] Boot Settings 선택

[2] Select Boot Device 선택

[3] NK from NAND flash 선택

[6] Write Download RAM NK to Flash 선택 후 > y

```
-----
Boot Settings
-----
```

- [1] Show Current Settings
- [2] Select Boot Device
- [3] Select Boot Delay
- [4] Select Debug Device
- [5] Force Clean Boot
- [6] Write Download RAM NK to Flash
- [7] Set Device ID String
- [8] Allow DSP to Boot
- [0] Exit and Continue

Selection:

```
-----
Select Boot Device
-----
```

- [1] EMAC
- [2] NK from SD
- [3] NK from NAND flash
- [0] Exit and Continue

Selection (actual NK from SD):

```
[3] NK from NAND flash
```

```
-----
Boot Settings
-----
```

- [1] Show Current Settings
- [2] Select Boot Device
- [3] Select Boot Delay
- [4] Select Debug Device
- [5] Force Clean Boot
- [6] Write Download RAM NK to Flash
- [7] Set Device ID String
- [8] Allow DSP to Boot
- [0] Exit and Continue

Selection: 6

Enable Write Download RAM NK to Flash (actually disabled) [y/-]: y

Write Download RAM NK to Flash enabled

Boot:

Boot delay 3

Boot device NK from NAND flash

Debug device EMAC

Clean Boot No

Write RAM NK to flash: .. Yes

Device ID String (not specified)

Allow DSP to Boot: No

Main Menu로 돌아와

[6] Save Settings 선택 후 > y

Main Menu

- [1] Show Current Settings
- [2] Boot Settings
- [3] Network Settings
- [5] Video Settings
- [6] Save Settings
- [7] Peripheral Tests
- [R] Reset Settings To Default Values
- [0] Exit and Continue

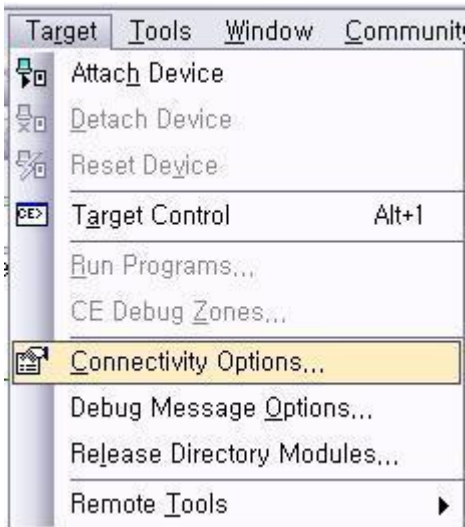
Selection:6

Do you want save current settings [-/y]? y

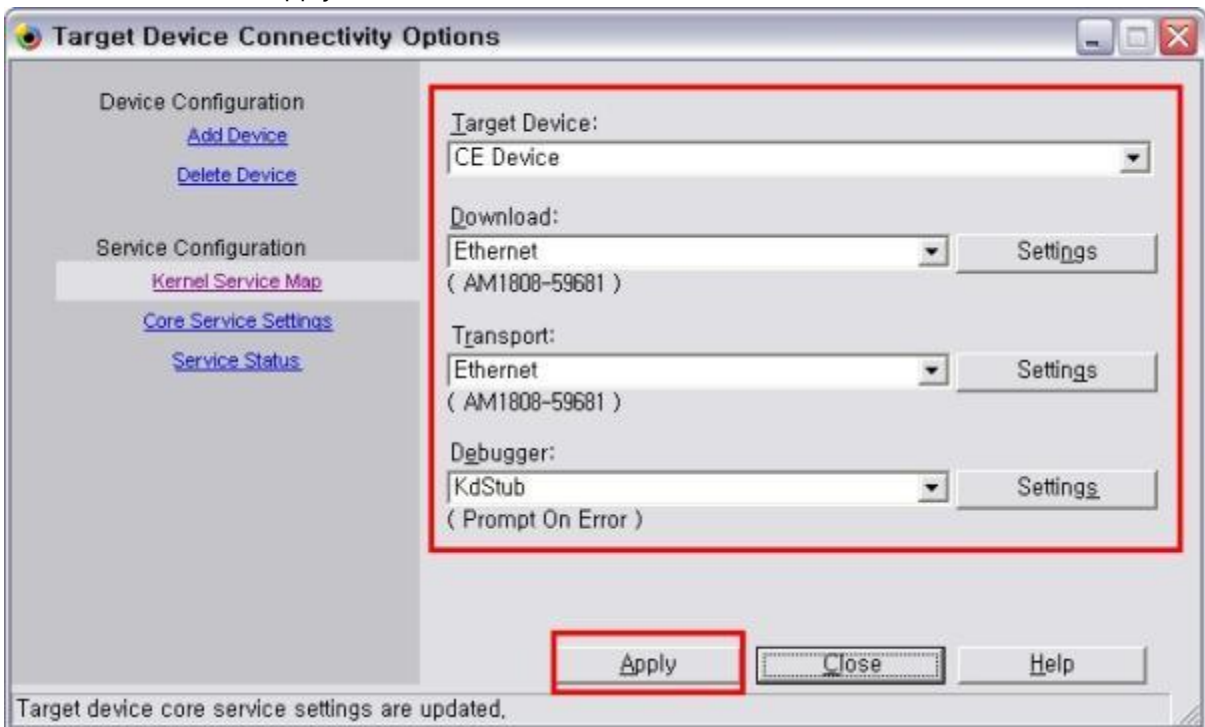
Current settings has been saved

Visual studio 2005 (**build가 완료되어 있어야 함**) 에서

Target > Connectivity Options... 선택



아래와 같이 설정 후 Apply



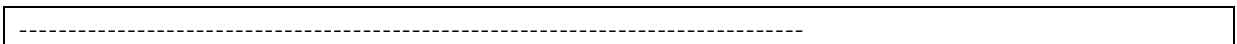
Eboot Menu 돌아와

[2] Boot Settings 선택

[2] Select Boot Device 선택

[1] EMAC 선택

[0] Exit and Continue 로 나가 부팅되도록 함



Boot Settings

- [1] Show Current Settings
- [2] Select Boot Device
- [3] Select Boot Delay
- [4] Select Debug Device
- [5] Force Clean Boot
- [6] Write Download RAM NK to Flash
- [7] Set Device ID String
- [8] Allow DSP to Boot
- [0] Exit and Continue

Selection:

Select Boot Device

- [1] EMAC
- [2] NK from SD
- [3] NK from NAND flash
- [0] Exit and Continue

Selection (actual NK from SD):

[1] EMAC

Boot:

Boot delay 3
Boot device EMAC
Debug device EMAC
Clean Boot No
Write RAM NK to flash: .. Yes
Device ID String (not specified)
Allow DSP to Boot: No

아래와 같은 로그 확인 가능

BBBBBBlight On

Device ID set to AM1808-59681

MAC addr is 4:32:f4:fd:e9:21.

OMAPEmacInit: f_pEmacRxDesc = 0x1e20000

OMAPEmacInit: f_pEmacTxDesc = 0x1e21000

OMAPEmacInit: waiting for active phy...

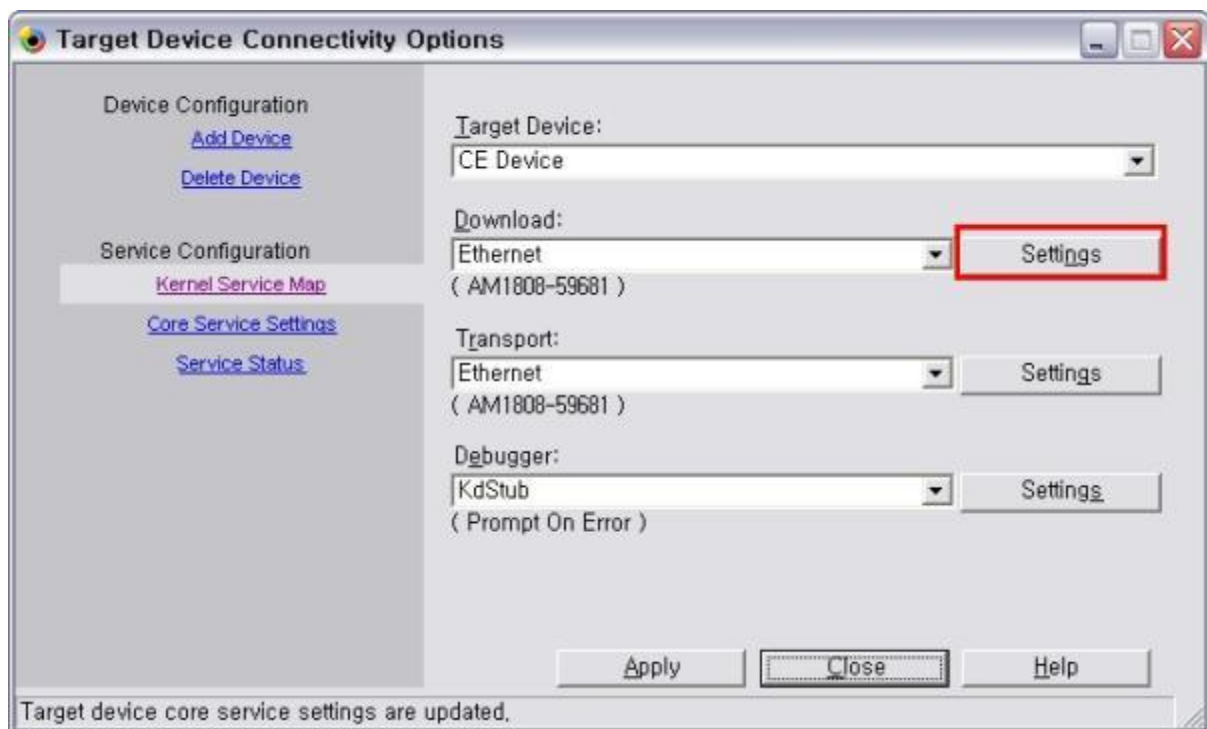
OMAPEmacInit: f_pMdioRegs->m_Alive = 0x3

INFO: Boot device uses MAC 04:32:f4:fd:e9:21

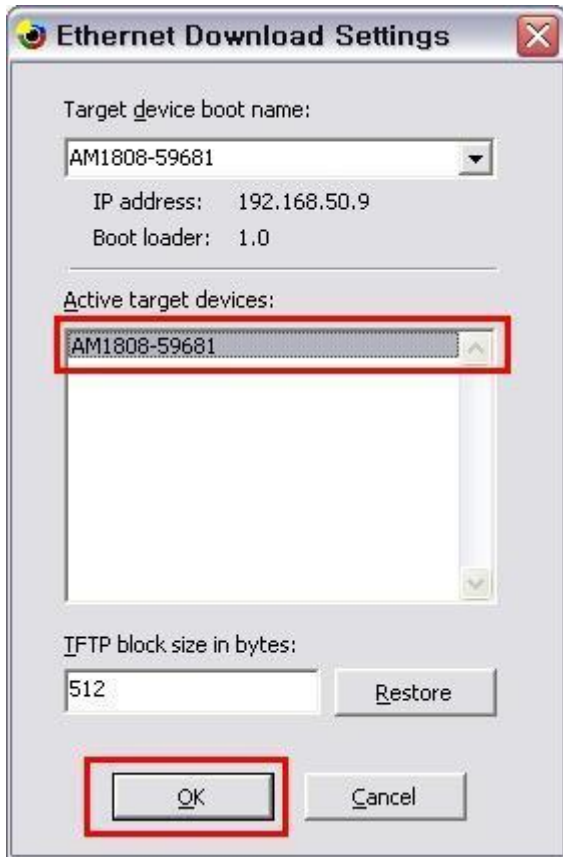
```
InitDHCP():: Calling ProcessDHCP()
ProcessDHCP()::DHCP_INIT
Got Response from DHCP server, IP address: 192.168.50.9

ProcessDHCP()::DHCP IP Address Resolved as 192.168.50.9, netmask: 255.255.255.0
Lease time: 864000 seconds
Got Response from DHCP server, IP address: 192.168.50.9
No ARP response in 2 seconds, assuming ownership of 192.168.50.9
+EbootSendBootmeAndWaitForTftp
Sent BOOTME to 255.255.255.255
```

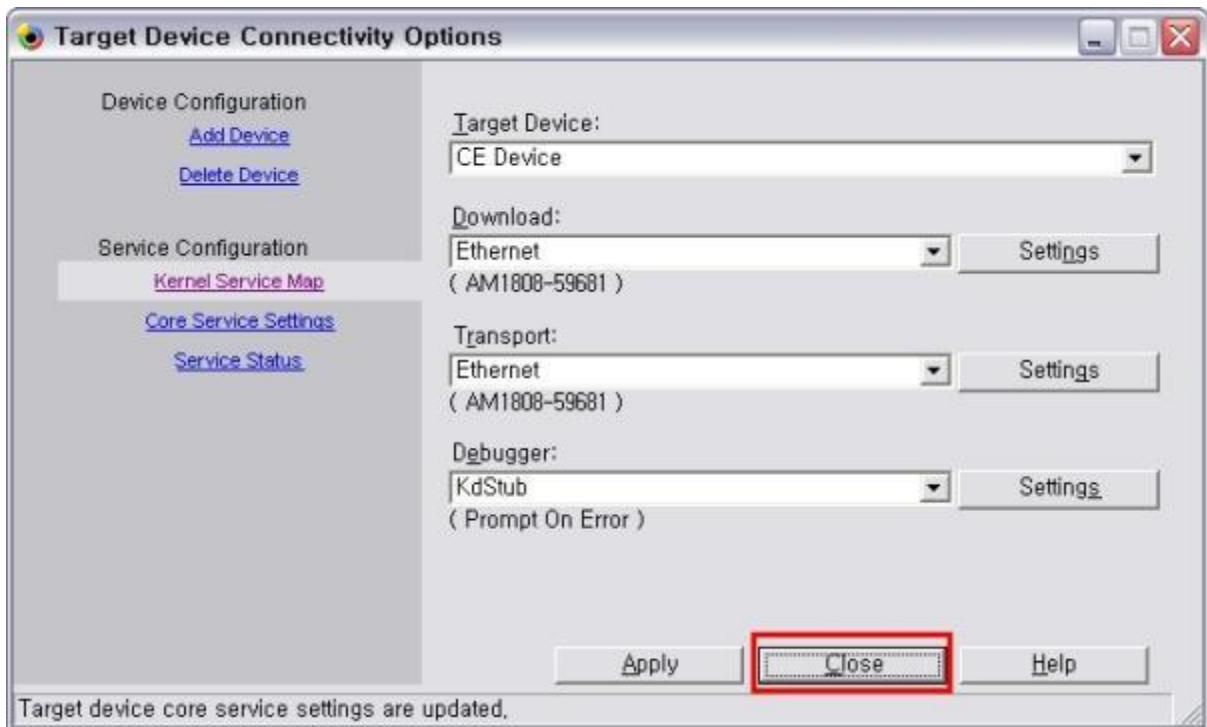
위와 같이 연결이 되면
Visual studio 돌아와 Target Device Connectivity Options 에서
Settings클릭



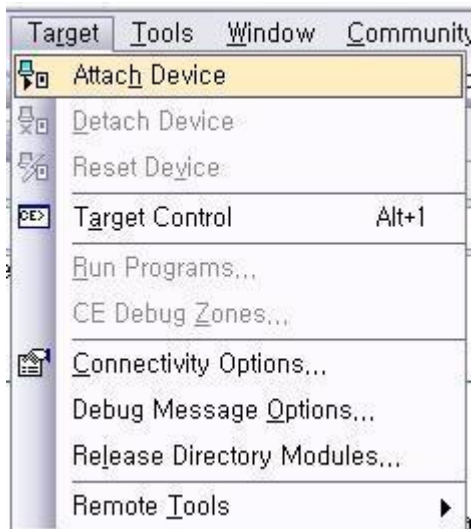
아래와 같은 창이 생성 Active target devices: 아래 AM1808-59681 생성되면 클릭 후 ok클릭



Close 클릭



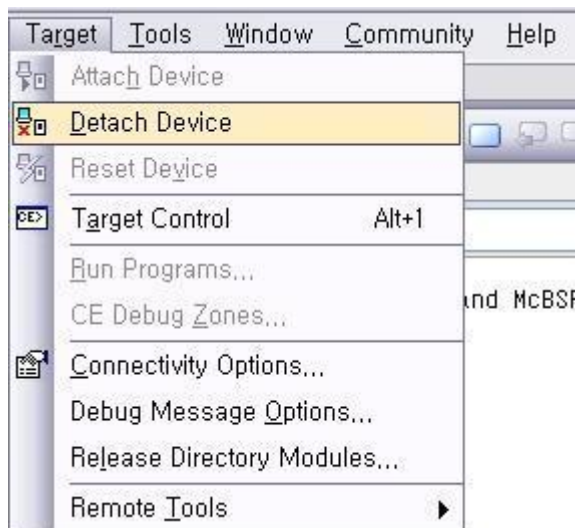
Target > Attach Device 선택



다운로드 완료 후 Close로 창을 닫음



Target > Detach Device 선택



Log 확인

Packet has the following data:

boot.bin[NULL]octet[NULL]

TFTP packet could have 1 name/value pairs

Locked Down Link 1

Src IP 192.168.50.9 Port 03D4 Dest IP 192.168.50.8 Port 085C

Default TFTP block size set to: 512 bytes

There were no options detected in the TFTP

EthDown::TFTPD_OPEN::boot.bin

-EbootSendBootmeAndWaitForTftp

EbootInitEtherTransport Done

BL_IMAGE_TYPE_BIN

OEMMultiBINNotify: Download BIN file information:

[0]: Address=0x80000000 Length=0x01a6592c Base=0xc0000000

DOWNLOAD_TYPE_FLASHRAM

TFTP: Desktop losing ACK, block number = 32968, Ack again

rom_offset=0x0.

ImageStart = 0x80000000, ImageLength = 0x1A6592C, LaunchAddr = 0x80001000

Completed file(s):

[0]: Address=0x80000000 Length=0x1A6592C Name="" Target=FLASH

OEMWriteFlash: Writing NK image to NAND flash
OEMWriteFlash: Flash has 262144 sectors, 2048 bytes/sector

ROMHDR (pTOC = 0xc1a6334c) -----

DLL First : 0x4001c001
DLL Last : 0x415ac0a0
Physical First : 0x80000000
Physical Last : 0x81a6592c
Num Modules : 205
RAM Start : 0x81a70000
RAM Free : 0x81a7f000
RAM End : 0x8373f800
Num Copy Entries : 2
Copy Entries Offset : 0x8060ad08
Prof Symbol Length : 0x00000000
Prof Symbol Offset : 0x00000000
Num Files : 109
Kernel Flags : 0x00000000
FileSys RAM Percent : 0x30303030
Driver Glob Start : 0x00000000
Driver Glob Length : 0x00000000
CPU : 0x01c2
MiscFlags : 0x0002
Extensions : 0x80001070
Tracking Mem Start : 0x00000000
Tracking Mem Length : 0x00000000

OEMWriteFlash: Written 0%
OEMWriteFlash: Written 0%
OEMWriteFlash: Written 0%
OEMWriteFlash: Written 0%
...
...
...
OEMWriteFlash: Written 99%
OEMWriteFlash: Written 99%
OEMWriteFlash: Written 99%
OEMWriteFlash: Written 99%

OEMWriteFlash: NK written
ROMHDR at Address 80000044h
Image Start: 0x80000000
Image Size: 0x01a6592c
Image Launch Addr .: 0x80001000
Image ROMHDR: 0xc1a6334c
Boot Device/Type ..: 2 / 6
Got EDBG_CMD_JUMPIMG
Got EDBG_CMD_CONFIG, flags:0x00000000
BLFlashDownload: LogicalLoc - 0x62000000

Load NK image from flash memory (NAND)
BLFlashDownload: cp1

ROMHDR (pTOC = 0xc1a6334c) -----

DLL First : 0x4001c001
DLL Last : 0x415ac0a0
Physical First : 0x80000000
Physical Last : 0x81a6592c
Num Modules : 205
RAM Start : 0x81a70000
RAM Free : 0x81a7f000
RAM End : 0x8373f800
Num Copy Entries : 2
Copy Entries Offset : 0x8060ad08
Prof Symbol Length : 0x00000000
Prof Symbol Offset : 0x00000000
Num Files : 109
Kernel Flags : 0x00000000
FileSys RAM Percent : 0x30303030
Driver Glob Start : 0x00000000
Driver Glob Length : 0x00000000
CPU : 0x01c2
MiscFlags : 0x0002
Extensions : 0x80001070
Tracking Mem Start : 0x00000000
Tracking Mem Length : 0x00000000

```
ADEO: Launch Windows Embedded CE by jumping to 0xc0000000...
Windows CE Kernel for ARM (Thumb Enabled) Built on Sep 25 2009 at 11:04:23
OEMInit: init.c built on Jun  7 2013 at 13:26:07.
BSP version 01.10.00, SOC version 01.10.00
INFO:OALLogSetZones: dpCurSettings.ulZoneMask: 0xf
WARN: Updating local copy of BSP_ARGS
Intr Init done...
Timer Init done...
+OALDumpClocks
Clock Configuration :
Reference Clock 0 .. 24000000 Hz
  PLL0 ..... 456000000 Hz
  PLL0:SYSCLK1 ..... 456000000 Hz (DSP Subsystem)
  PLL0:SYSCLK2 ..... 228000000 Hz
(UART,EDMA,SPI,MMC/SD,VPIF,LCDC,SATA,uPP,USB2.0,HPI,PRU)
  PLL0:SYSCLK3 ..... 24000000 Hz (EMIFA)
  PLL0:SYSCLK4 ..... 114000000 Hz (INTC, SYSCFG, GPIO, PSC, I2C1, USB1.1, EMAC/MDIO, GPIO)
  PLL0:SYSCLK5 ..... 152000000 Hz (reserved)
  PLL0:SYSCLK6 ..... 456000000 Hz (ARM Subsystem)
  PLL0:SYSCLK7 ..... 506666666 Hz (EMAC)
  PLL0:AUXCLK ..... 24000000 Hz (I2C0, Timers, McASP0 serial clock, RTC, USB2.0 PHY)
  PLL1 ..... 300000000 Hz
  PLL1:SYSCLK1 ..... 300000000 Hz (DDR2/mDDR PHY)
  PLL1:SYSCLK2 ..... 150000000 Hz (Optional for: McASP0,McBSP,ePWM,eCAP,SPI1)
  PLL1:SYSCLK3 ..... 100000000 Hz (PLL0 input)
-OALDumpClocks
-OEMInit
  PINMUX14=0x00000000
  PINMUX15=0x00000000
  PINMUX16=0x22222200
  PINMUX17=0x22222222
  PINMUX18=0x82000022
  PINMUX19=0x02000022
OEMGetExtensionDRAM: Added 0x83E00000 -> 0x88000000
OEM: Cleaning system hive
OEM: Cleaning user profiles
WARN: Updating local copy of BSP_ARGS
OEM: Not cleaning system hive
Adapter's MAC address is 04:32:F4:FD:E9:21
```

StartupApp: Launching process NAME='xamlperf.exe', CMD='\\windows\\bounce.xml'

StartupApp: Process created OK

StartupApp: Process timed out, TA code: 0x1

Writer 까지 완료 합니다. Reboot 를 하면 정상으로 작동 확인

1.4. How to SD that NK Writer and boot setting

NK.nb0를 비어있는 SD 카드에 복사 후 mango1808에 삽입

NAND Boot SW [1],[5]ON 나머진 OFF

Reset

MANGO1808 initialization passed!

Booting TI User Boot Loader

UBL Version: 1.65

UBL Flashtype: NAND

Starting NAND Copy...

Valid magicnum, 0x55424CBB, found in block 0x00000006.

DONE

?1ping to entry point at 0xC7F60000.

Microsoft Windows CE Bootloader Common Library Version 1.4 Built Mar 29 2013 19:06:40

INFO:OALLogSetZones: dpCurSettings.ulZoneMask: 0xb

Microsoft Windows CE EBOOT 1.0 for AM1808 OMAPL138/AM18X EVM. Built Apr 4 2013 at 16:58:07

BSP version 01.10.00, SOC version 01.10.00

CODE : 0xC7F60000 -> 0xC7FA0000

DATA : 0xC7FA0000 -> 0xC7FE0000

STACK : 0xC7FE0000 -> 0xC8000000

Enabled OAL Log Zones : ERROR, WARN, INFO,

Platform Init done

System ready!

Preparing for download...

Predownload...

FMD:ReadID Device not Supported Mfg=0xec, Dev=0xda

ERROR: EBOOT: FMD_Init call failed!

WARN: Invalid boot configuration found (using defaults)

INFO: MAC address: 04:32:f4:fd:e9:21

WARN: Invalid BSP_ARGS data found (using defaults)

WARN: Unable to get hardware entropy

Hit space to enter configuration menu 2

Main Menu

[1] Show Current Settings

[2] Boot Settings

[3] Network Settings

[5] Video Settings

[6] Save Settings

[7] Peripheral Tests

[8] Bitmap Tests

[R] Reset Settings To Default Values

[0] Exit and Continue

Selection:

Selection: 2

Boot Settings

[1] Show Current Settings

[2] Select Boot Device

[3] Select Boot Delay

[4] Select Debug Device

[5] Force Clean Boot

[6] Write Download RAM NK to Flash

[7] Set Device ID String

[8] Allow DSP to Boot

[0] Exit and Continue

Selection:

Selection: 2

Select Boot Device

[1] EMAC

[2] NK from SD

[3] NK from NAND flash

[0] Exit and Continue

Selection (actual NK from SD):

Reset

1.5. Error

1.5.1. dotNet Framework Initiaialization Error



위의 error발생시

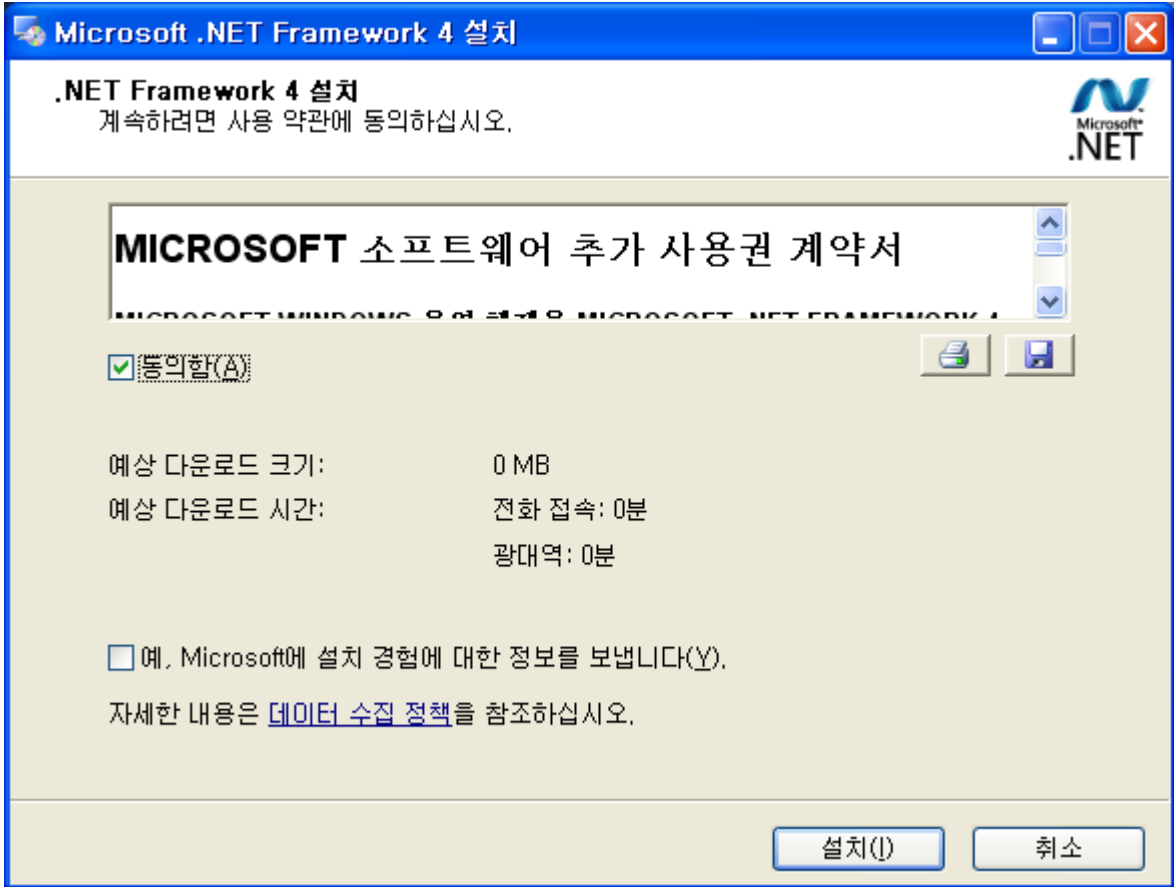
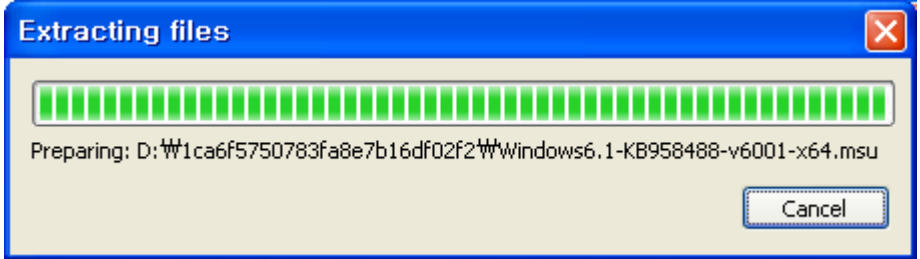
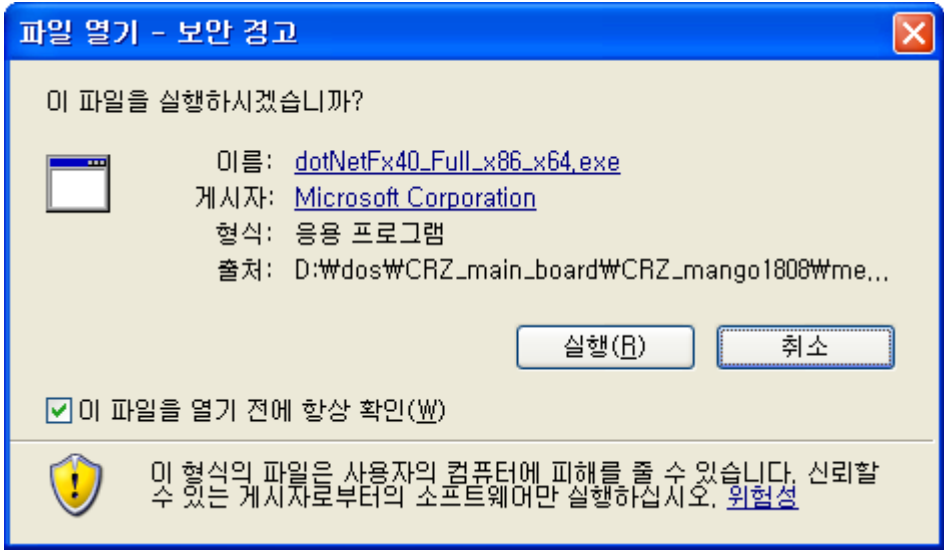
<http://www.microsoft.com/en-us/download/details.aspx?id=17718>

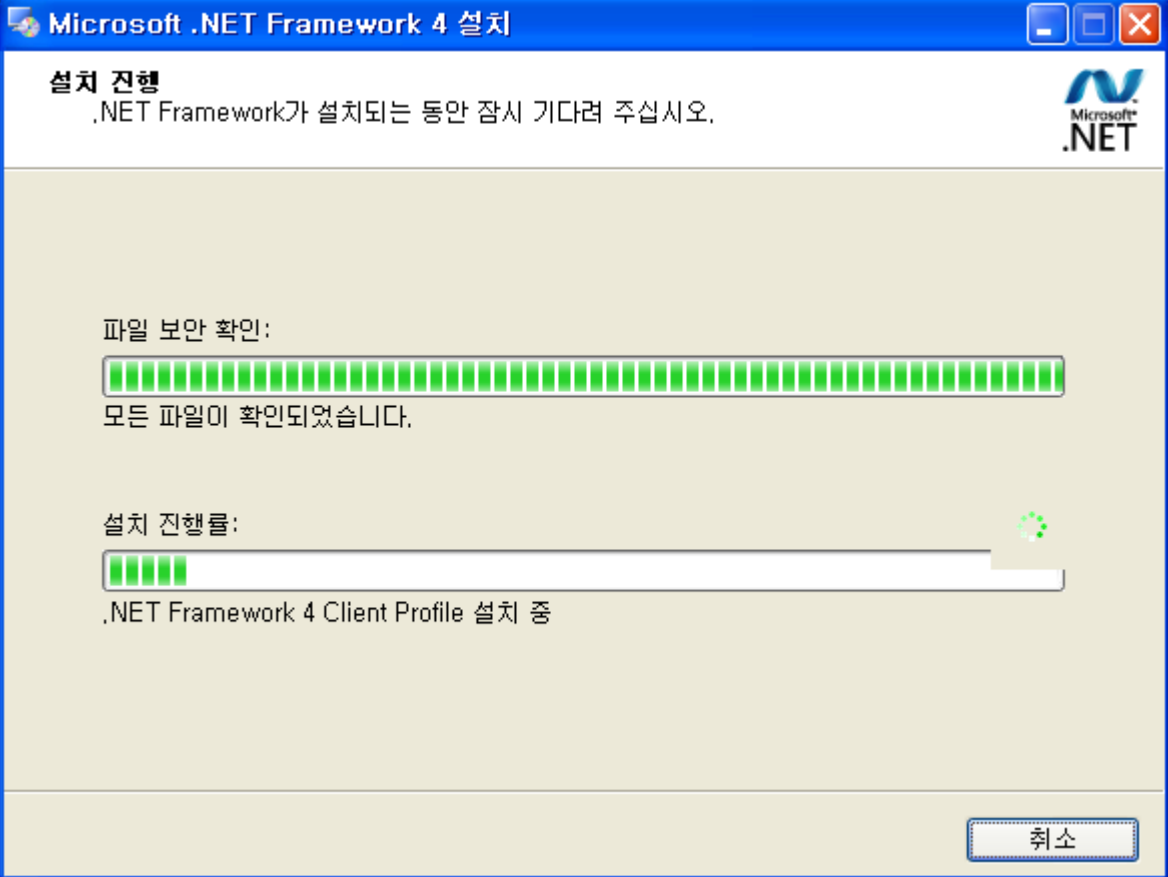
Quick details

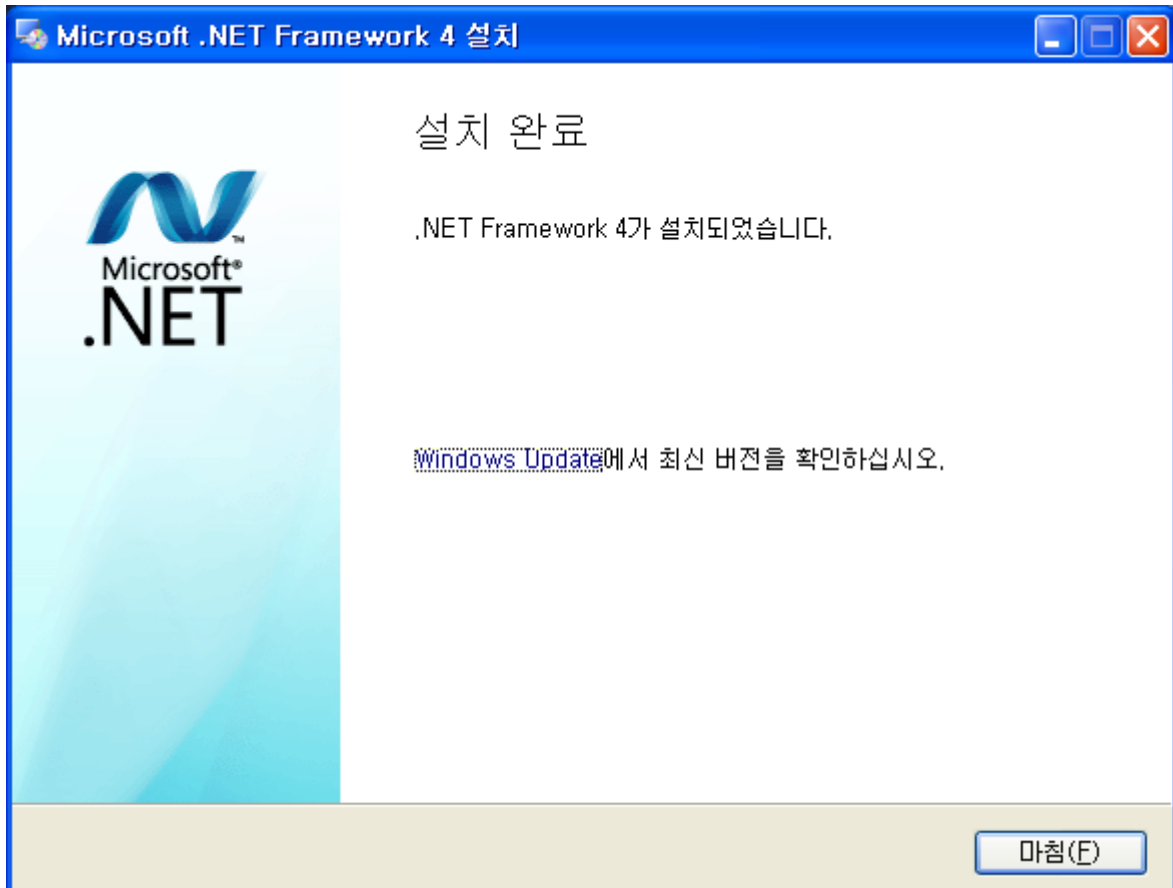
Version:	4	Date published:	2/21/2011
Change language:	English		

File name	Size	
dotNetFx40_Full_x86_x64.exe	48.1 MB	DOWNLOAD









1.5.2. Access to the port 'COM11' is denied

아래와 같이 메시지가 뜨면

```
D:\Wimage\Wmango1808\W20130423\WOMAPL138_AM18X\SRC\WBOOT\WTOOLS\new_bin>sfh_OMAP
-L138.
exe -erase -targetType MANGO1808 -flashType NAND -p COM11
-----
TI Serial Flasher Host Program for OMAP-L138
(C) 2012, Texas Instruments, Inc.
Ver. 1.67
-----

[TYPE] Global erase
[TARGET] MANGO1808
[DEVICE] NAND
[NAND Block] 1

Attempting to connect to device COM11...
```

Access to the port 'COM11' is denied.
This application failed to open the COM port.
Most likely it is in use by some other application.

실행중인 터미널 창이 있는지 확인하여 닫아주면 됩니다.