Download Method for

MV 7420 Android 5.1

MICROVISION Co., Ltd

Document Information

Version	1.0
File Name	Download Method for MV7420 Android 5.1.doc
Date	2015. 09. 21
Satus	Working

Revision History

Date	Version	Update Descriptions	Editor
2015. 09. 21.	V1.0	First Edition	Microvision

1. Set-up SDK

1.1 Install SDK

Firstly, Install Android SDK in order to use fastboot mode.

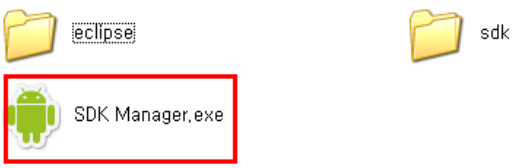
the fastboot mode can enter into download the images of MV5260-LCD

Refer to the following link to the sdk download package

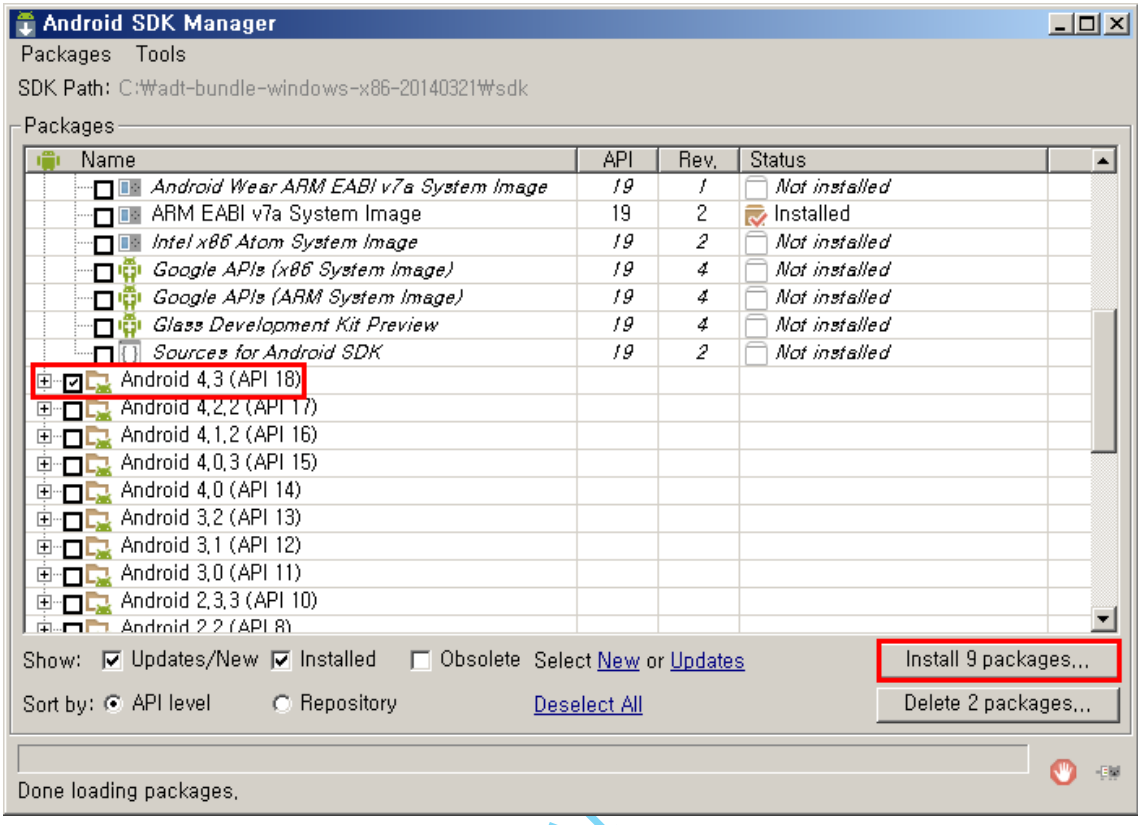
(Refer to http://developer.android.com/sdk/index.html

- Execute SDK Manager.exe

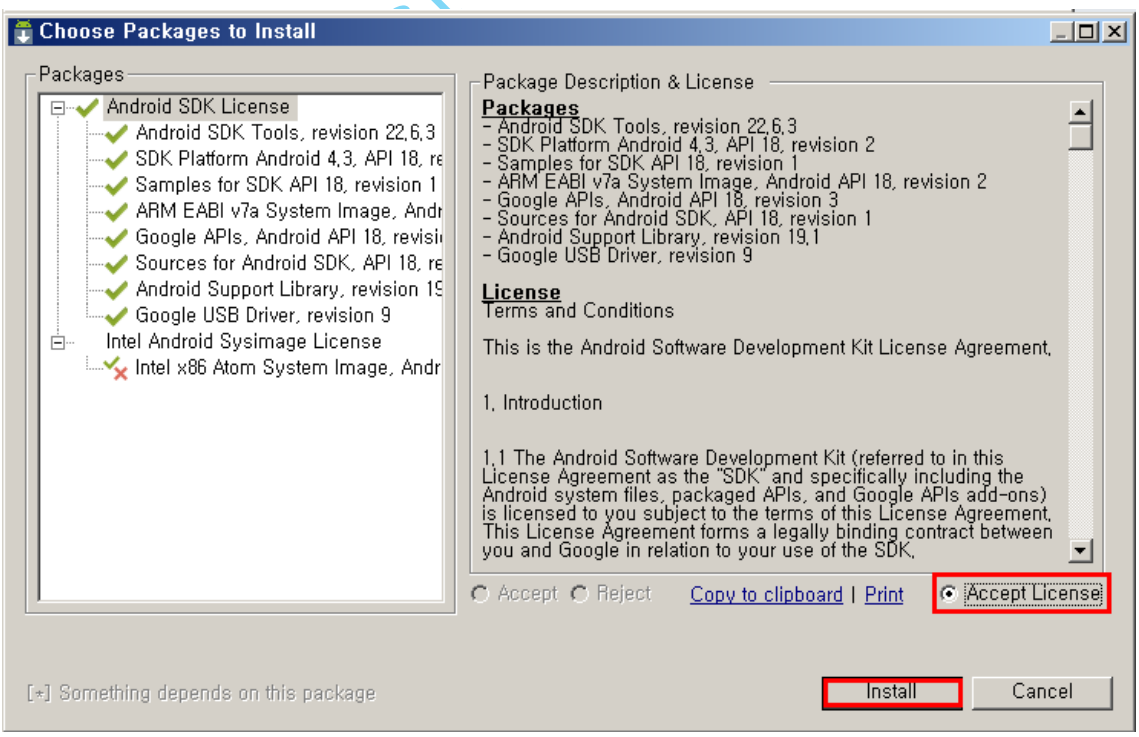
(Notice: The following process can be differ from the latest sdk version)



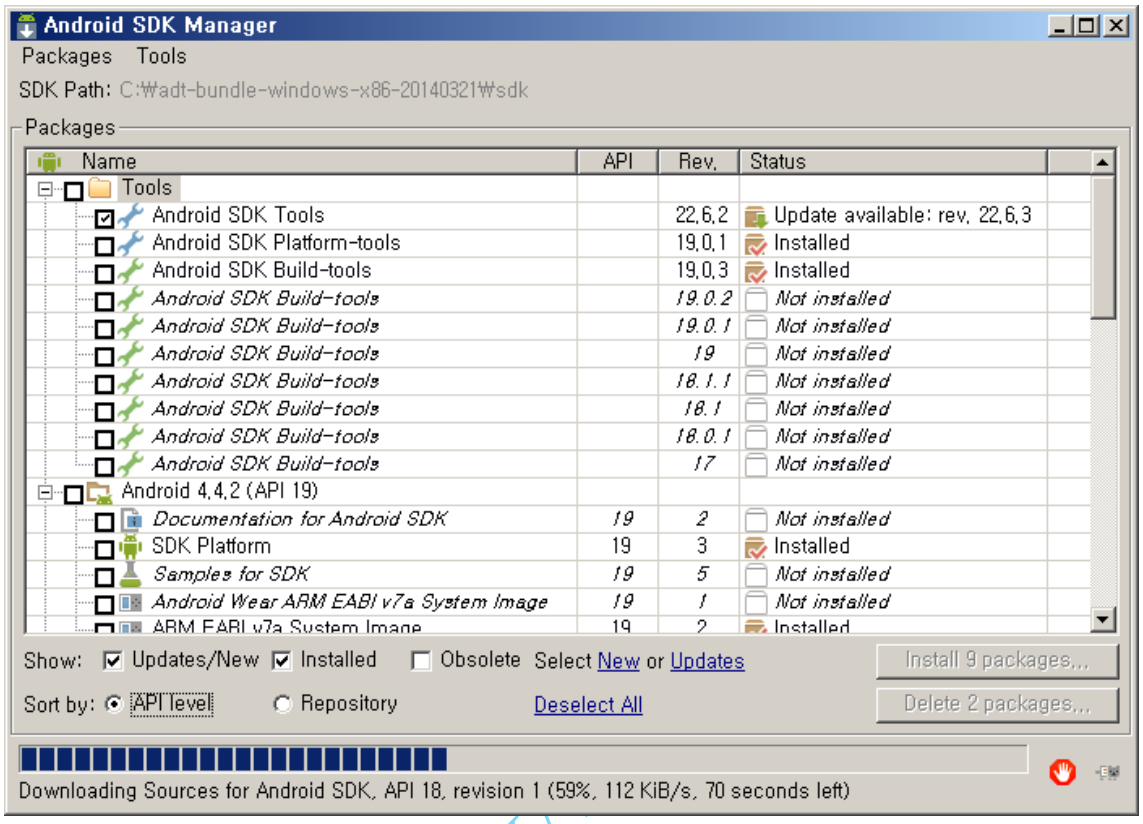
- Select “Android 4.3 (API 18)” & “Install packages”



- Select “Accept License” → “Install”

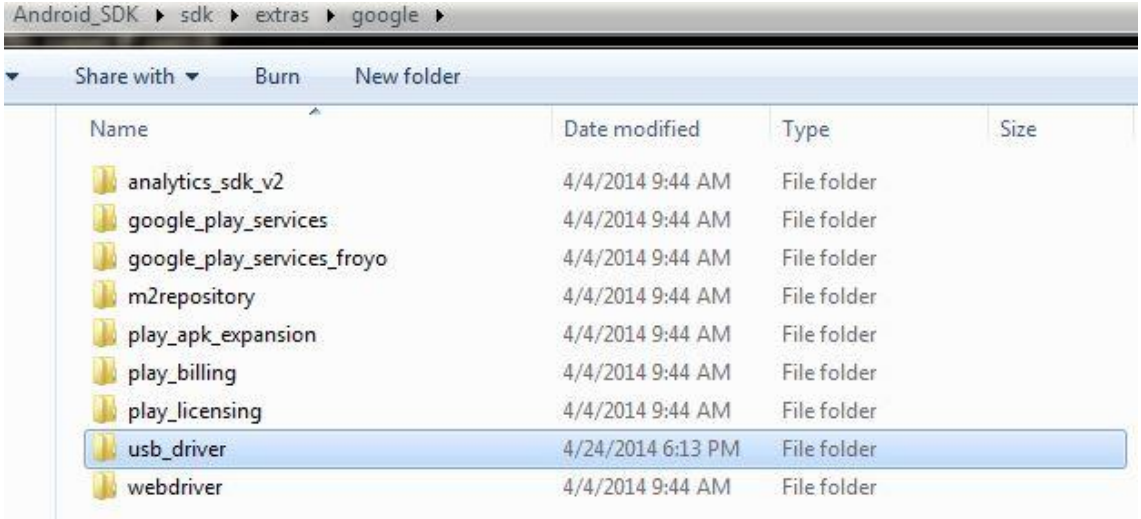


- Status of Processing



1.2 Set up USB Configuration

If install done, you can see usb_driver, xxx/sdk/extras/google/**, directory.**



Modify usb-driver, **'android_winusb.inf'** as shown following picture and update driver on the windows OS.

- Check ADB USB Hardware IDs at Device Manager

Device Manager→ right mouse into select **Properties** → right mouse ***Android xxx***… to select properties and go to **Details** → select **"Hardware Ids"** at Property

You can see **Values**

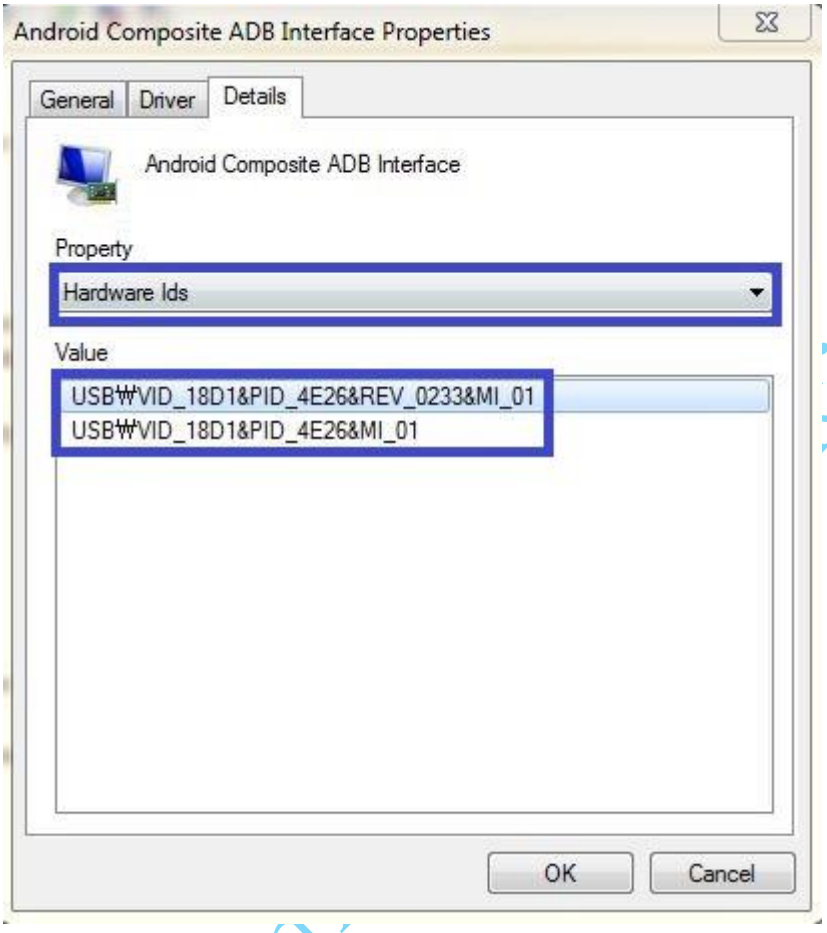
USB\VID_18D1&PID_xxxx&REV_xxxx&MI_xx

USB\VID_18D1&PID_xxxx&MI_xx

(Notice: Exactly Values depend on your PC)

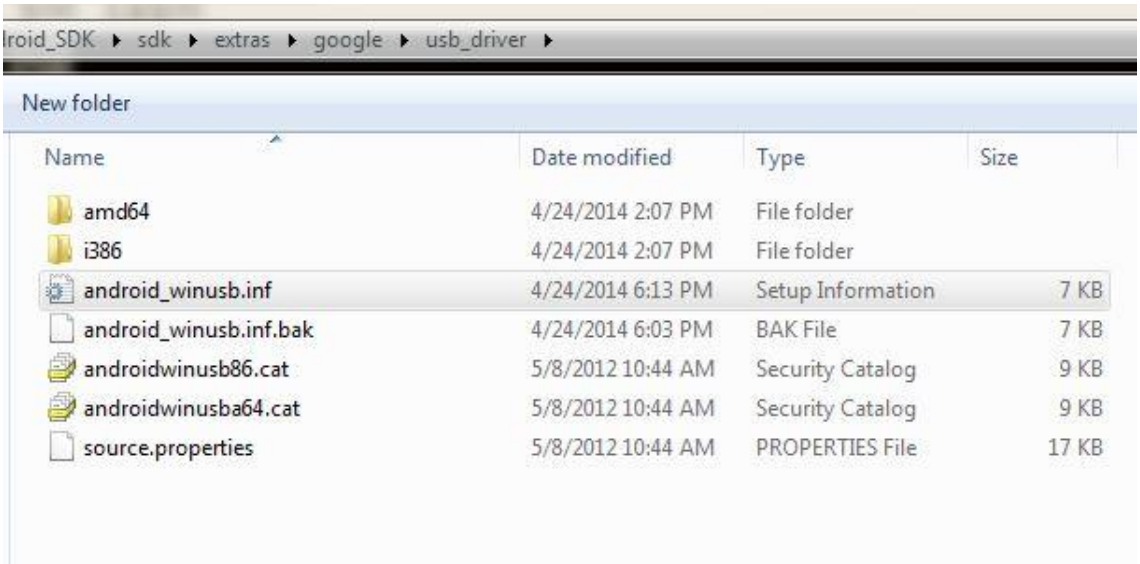
Ex) USB\VID_18D1&PID_4E26&REV_0226&MI_01

USB\VID_18D1&PID_4E26&MI_01



- Add the value of Hardware Ids into **android_winusb.inf file according to the Value of Hardware Ids**

-. **android_winusb.inf exist at** ₩sdk₩extras₩google₩usb_driver₩



[Google.NTx86]

; HTC Dream

%SingleAdbInterface% = USB_Install, USB\VID_0BB4&PID_0C01

%CompositeAdbInterface% = USB_Install, USB\VID_0BB4&PID_0C02&MI_01

%SingleBootLoaderInterface% = USB_Install, USB\VID_0BB4&PID_0FFF

; HTC Magic

%CompositeAdbInterface% = USB_Install, USB\VID_0BB4&PID_0C03&MI_01

;

;Google NexusOne

%SingleAdbInterface% = USB_Install, USB\VID_18D1&PID_0D02

%CompositeAdbInterface% = USB_Install, USB\VID_18D1&PID_0D02&MI_01

%SingleAdbInterface% = USB_Install, USB\VID_18D1&PID_4E11

%CompositeAdbInterface% = USB_Install, USB\VID_18D1&PID_4E12&MI_01

%CompositeAdbInterface% = USB_Install, USB\VID_18D1&PID_4E22&MI_01

; Samsung SMDK

%SingleBootLoaderInterface% = USB_Install, USB\VID_xxxx&PID_xxxx

Ex)%SingleBootLoaderInterface% = USB_Install, USB\VID_18D1&PID_4E26& MI_01

%CompositeAdbInterface% = USB_Install, USB\VID_xxxx&PID_xxxx&xxxx

Ex)%CompositeAdbInterface% = USB_Install, USB\VID_18D1&PID_4E26&REV_0233&MI_01

[Google.NTamd64]

; HTC Dream

%SingleAdbInterface% = USB_Install, USB\VID_0BB4&PID_0C01

%CompositeAdbInterface% = USB_Install, USB\VID_0BB4&PID_0C02&MI_01

%SingleBootLoaderInterface% = USB_Install, USB\VID_0BB4&PID_0FFF

; HTC Magic

%CompositeAdbInterface% = USB_Install, USB\VID_0BB4&PID_0C03&MI_01

;

;Moto Sholes

%SingleAdbInterface% = USB_Install, USB\VID_22B8&PID_41DB

%CompositeAdbInterface% = USB_Install, USB\VID_22B8&PID_41DB&MI_01

;

;Google NexusOne

%SingleAdbInterface% = USB_Install, USB\VID_18D1&PID_0D02

%CompositeAdbInterface% = USB_Install, USB\VID_18D1&PID_0D02&MI_01

%SingleAdbInterface% = USB_Install, USB\VID_18D1&PID_4E11

%CompositeAdbInterface% = USB_Install, USB\VID_18D1&PID_4E12&MI_01

%CompositeAdbInterface% = USB_Install, USB\VID_18D1&PID_4E22&MI_01

; Samsung SMDK

%SingleBootLoaderInterface% = USB_Install, USB\VID_xxxx&PID_xxxx

Ex)%SingleBootLoaderInterface% = USB_Install, USB\VID_18D1&PID_4E26& MI_01

%CompositeAdbInterface% = USB_Install, USB\VID_xxxx&PID_xxxx&xxxx

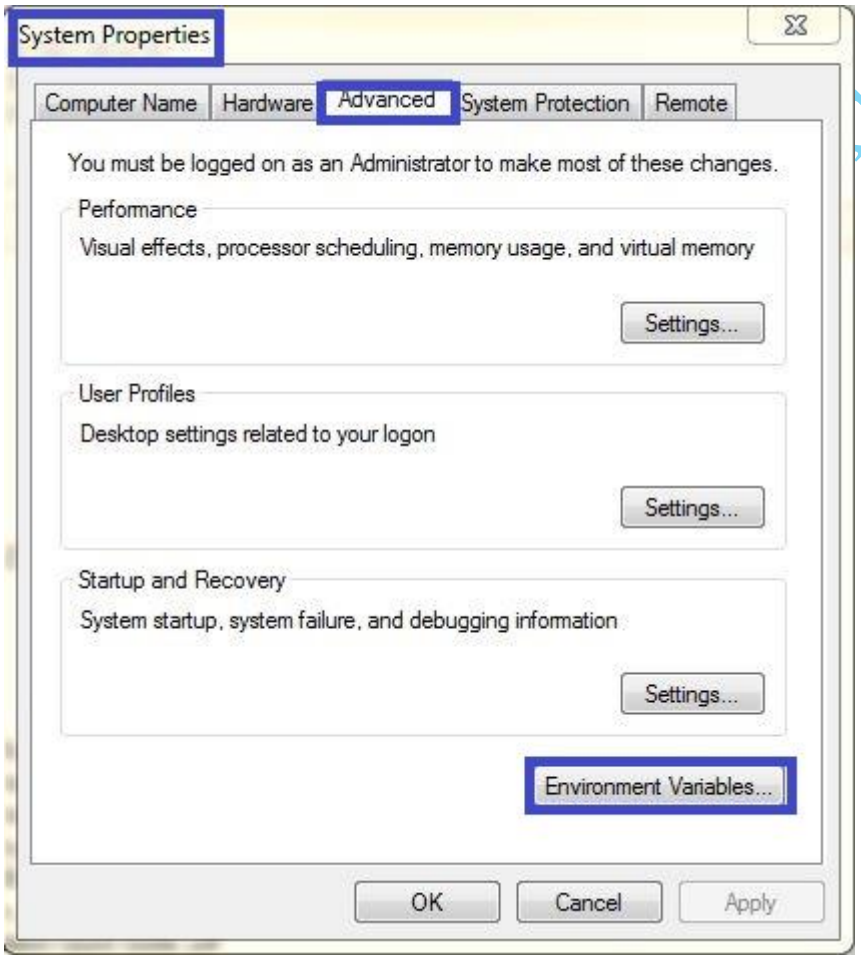
Ex)%CompositeAdbInterface% = USB_Install, USB\VID_18D1&PID_4E26&REV_0226&MI_01

1.3 add Android Tools Path

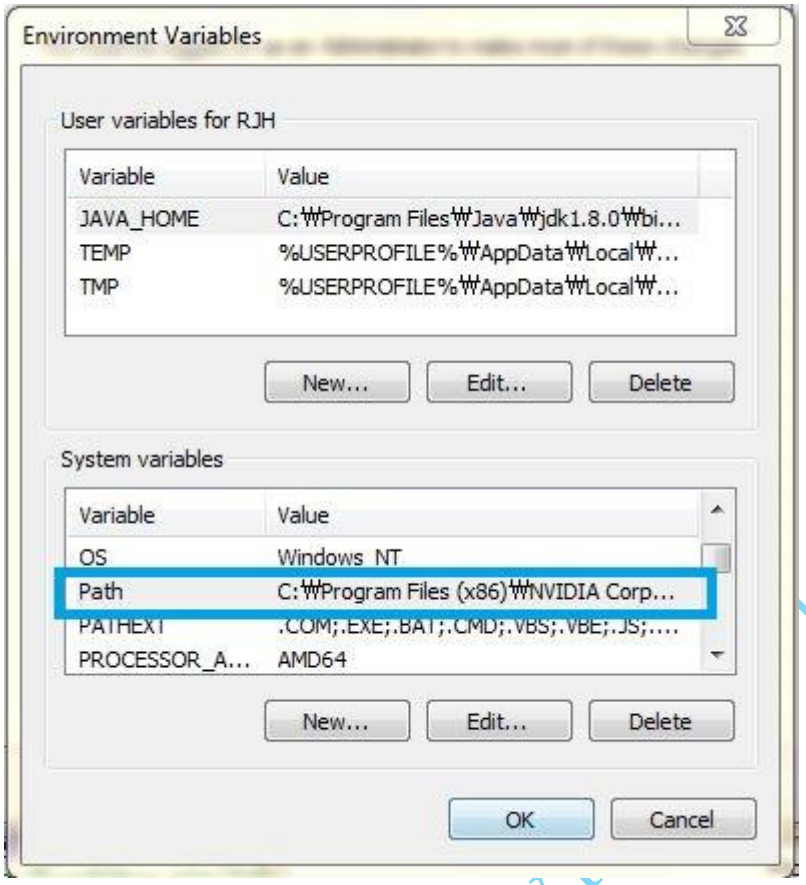
- Add Fastboot path at Environment Variables

  Go to Control Panel → System Properties → Advanced and then Select

  "Environment Variables"



- Double Click **"Path"** to modify android tools path



- Add the platform-tools path

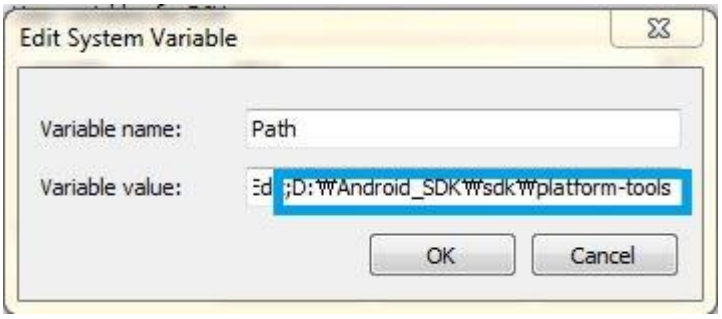
  Example:

  If downloaded android sdk and installed successfully

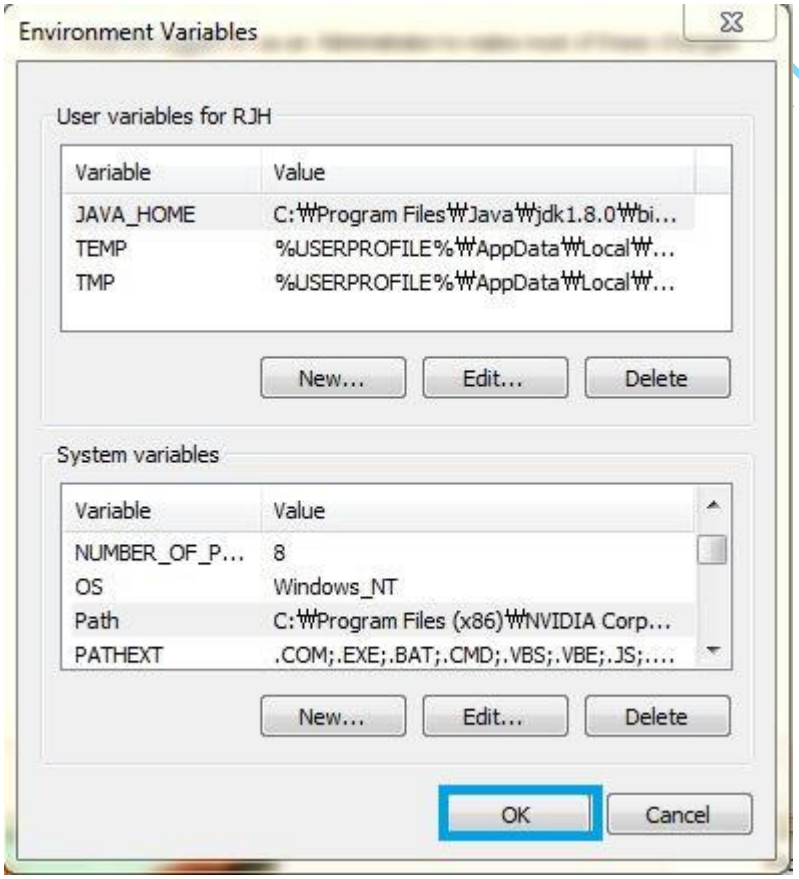
  at D:\Android_SDK\sdk\platform-tools

  add platform-tools like this ;D:\Android_SDK\sdk\platform-tools

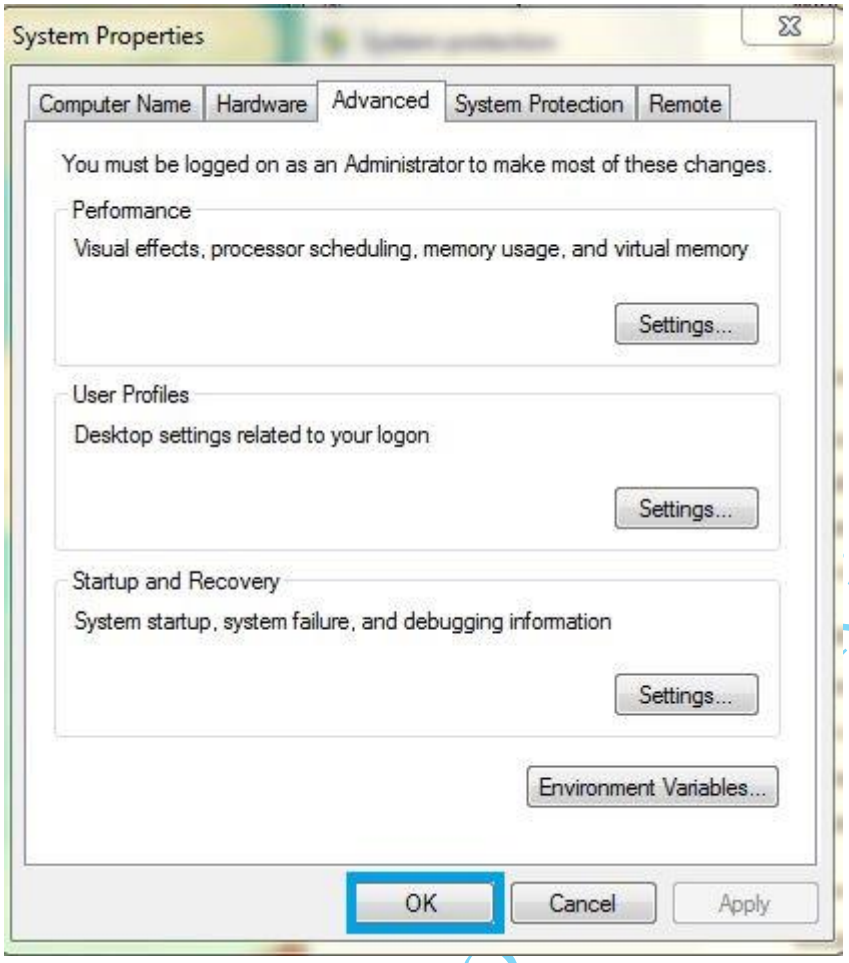
  Refer to following picture



- Select "OK" in Environment Variables



- Select "OK" in Advanced



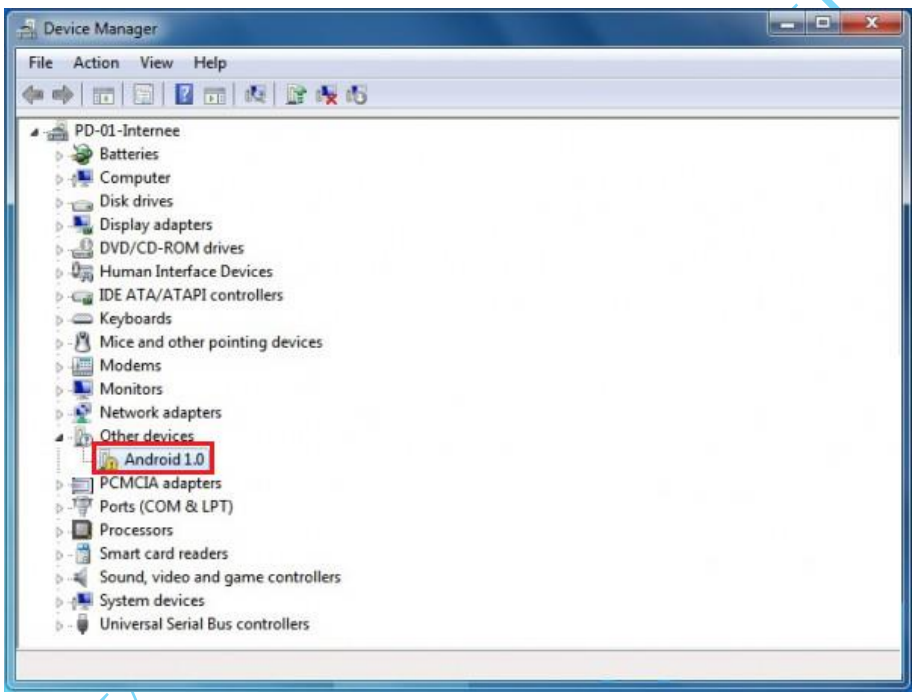
1.4 Update USB Driver

- Connect USB Cable with MV7420 Target Board

Refer to Figure 2.1 USB Cable & Power Button

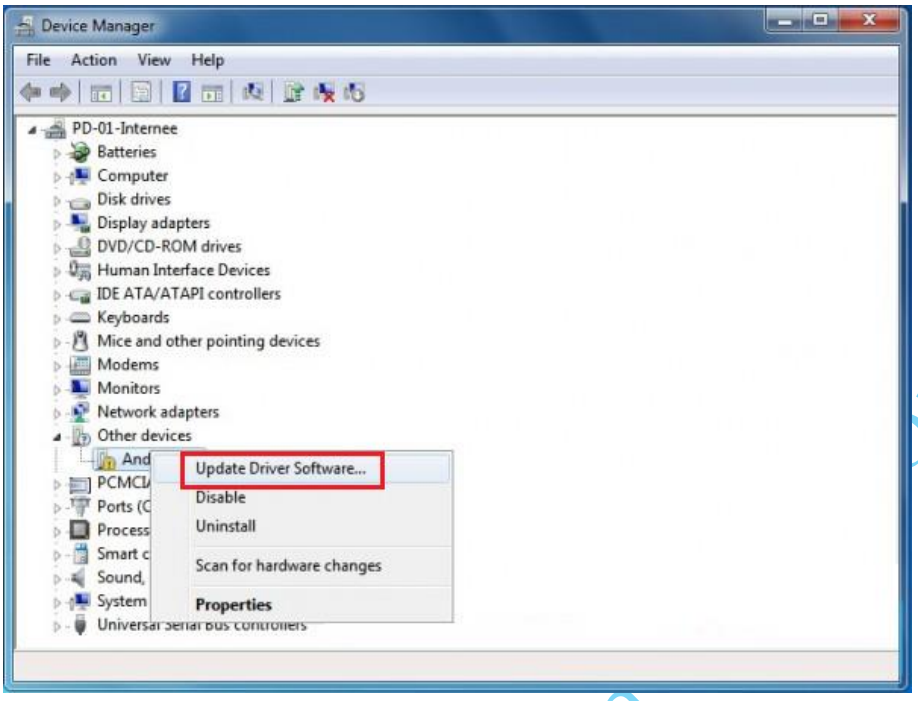
- Go to **Device Manager** in your PC

You can see **Android 1.0** in Other devices



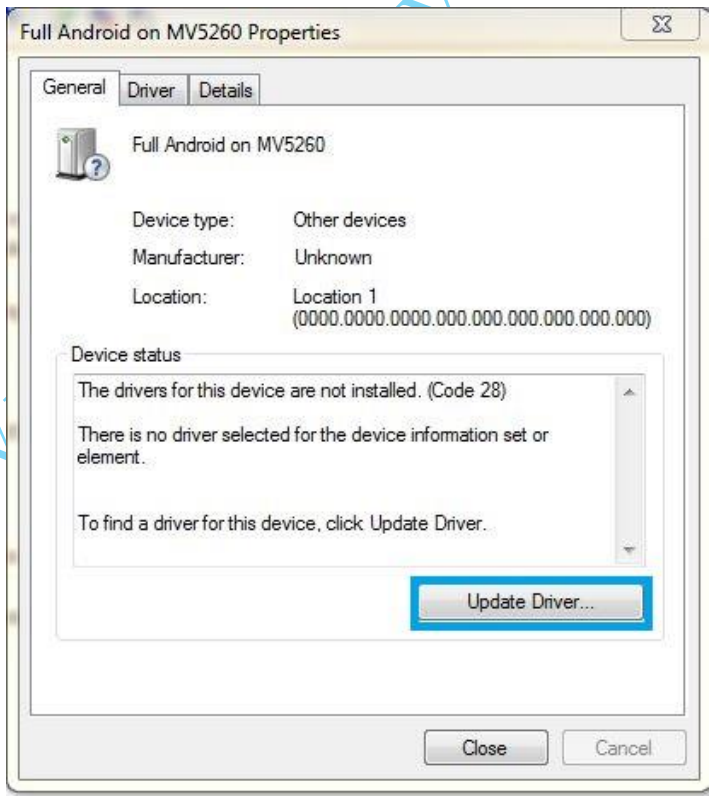
- Right mouse on Fully Android on Android 1.0 and select Properties

Refer to following picture

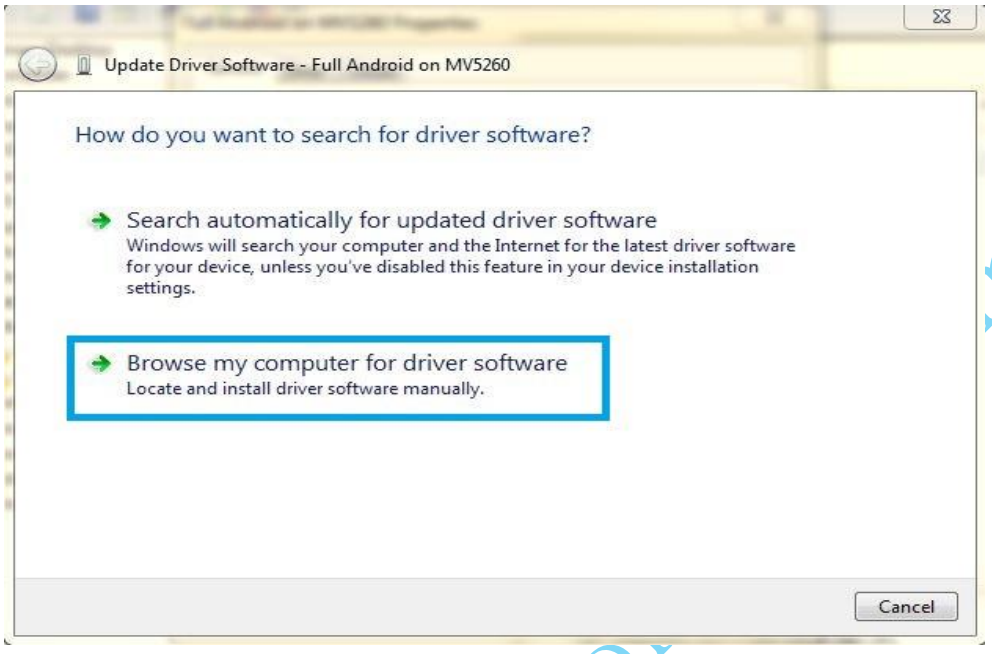


- Select **Update Driver**

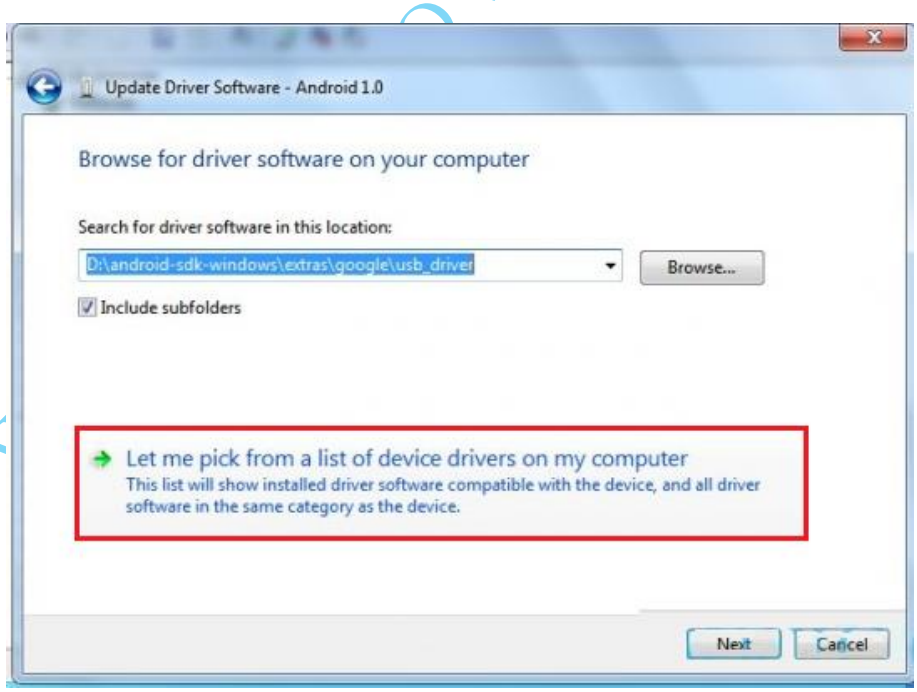
Refer to following picture



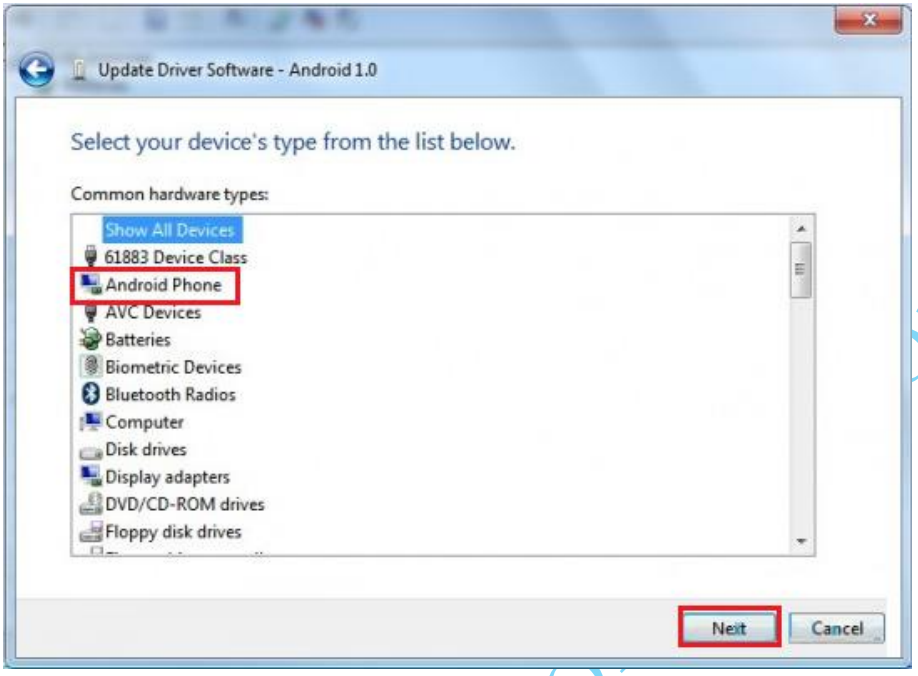
- Select **"Browse my computer for drier software"**



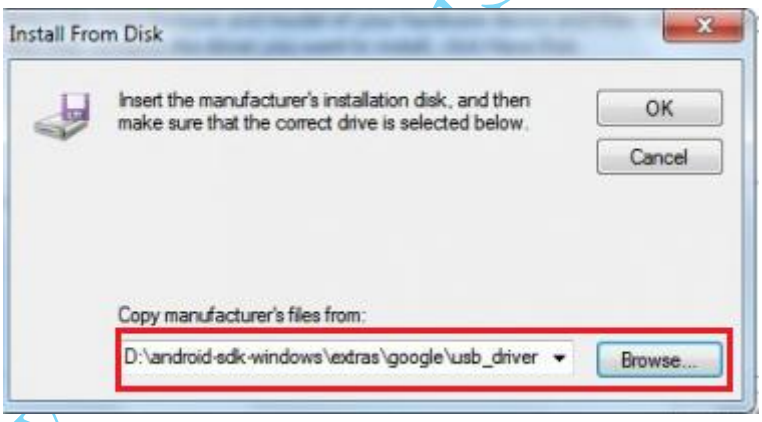
Select **"Let me pick from a list of device drivers on my computer"**



- Select " Android Phone"

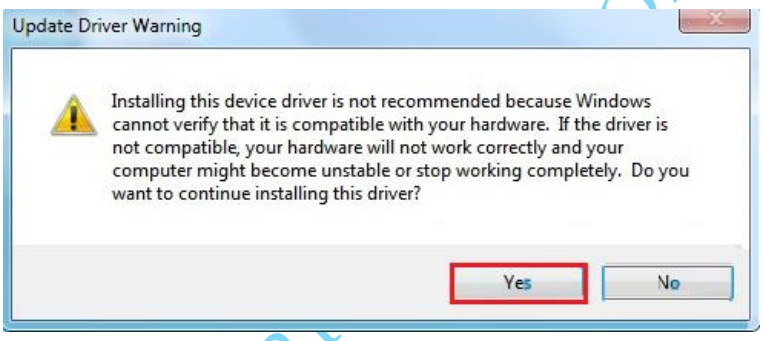


- Set the path to the inf file, which has been adding hardware ID



- Select " Android Bootloader Interface"

- Select " Yes"



- If Successfully Updated USB Driver, you can see following picture

  And MV7420 Board may recognize "Android Bootloader Interface" or "Android ADB Interface" in Android Device

2. Download Method

2.1 Pre-Condition for Download Process

- **Copy SD Fusing all Images from CD into SD Card**

  -. SD Fusing Images in sdcard: **\SRC\SD_fusing**

- USB Cable Connection State & Power Button

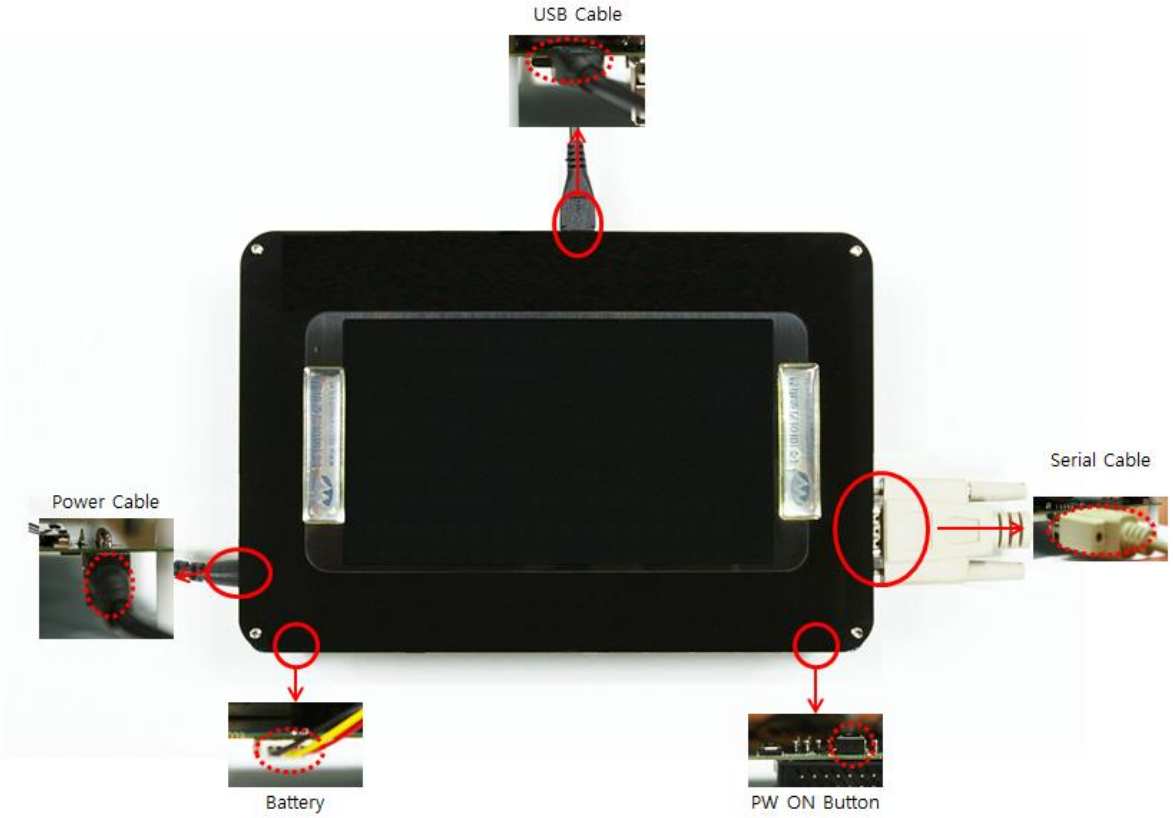


Figure 2.1 USB Cable & Power Button

2.2 OM Configuration

OM: Operation Mode

2.2.1 SD Booting Mode

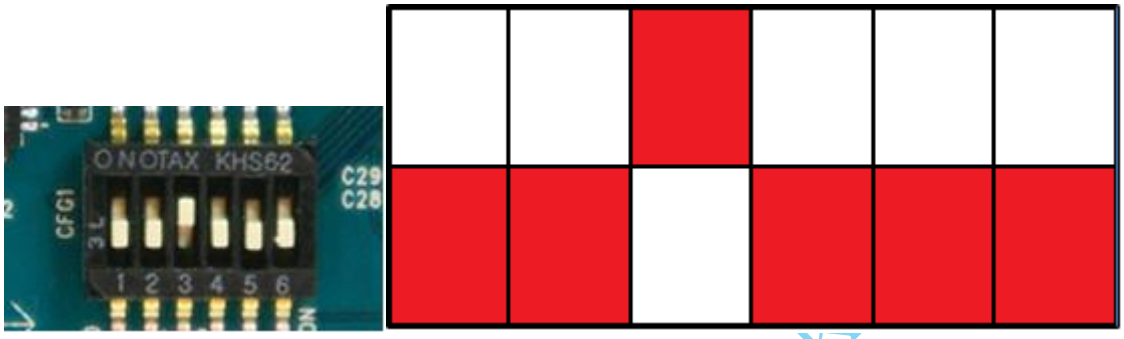


Figure 2.2.1 SD Booting Mode

2.2.2 eMMC Booting Mode

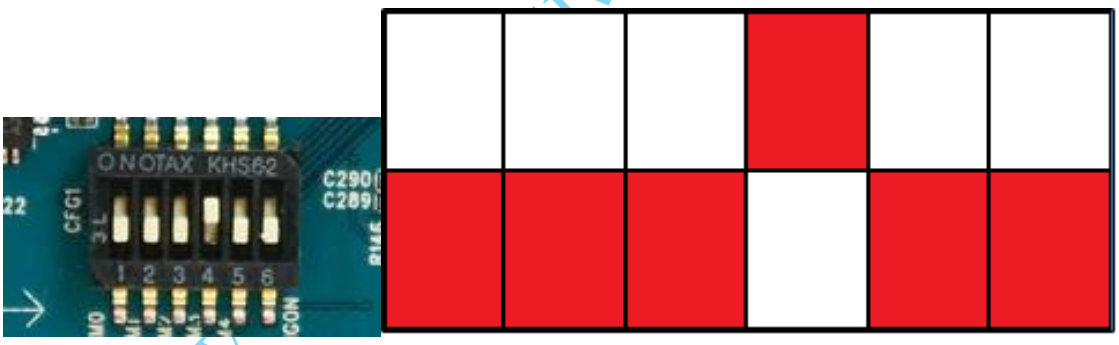


Figure 2.2.2 eMMC Booting Mode

2.3 Download Process

- **Connect Serial Port to get debug message**

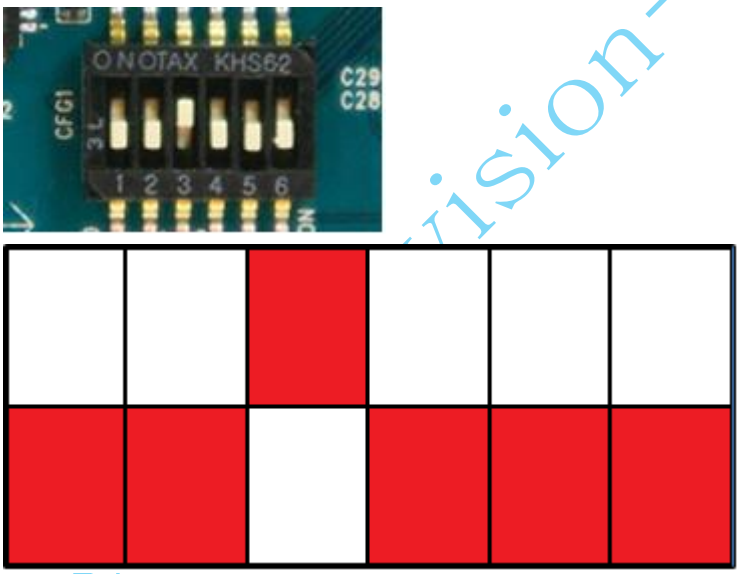
  The condition of serial communication:

  Port: COM# *(the number depends on Device Manager, Ports(COM & LPT))*

  Serial Baud Rate: 115200, Data: 8bit, Parity: None

  Stop: 1bit, Flow Control: None

- **Power Cable Extract → Insert SD Card → Set SD Booting Mode**



SD Booting Mode

- **When booting up the MV7420 target board, you can check the messages on the serial terminal window.**

- **Power Cable Plug-In → Press Power Button for a while**

- **Enter the command shell environment by hitting any key in 3 seconds. When the message, "Hit any key to stop autoboot" is printed on the serial terminal window**

Please refer to under picture

- As shown under picture, you can see SDMMC Booting

In Checking Boot Mode: SDMMC

```
U-Boot 2012.07-00050-g462cda0 (Jan 20 2014 - 15:20:21) for XYREF5260

CPU: Exynos5260 Rev1.0 [Samsung SOC on SMP Platform Base on ARM CortexA7]

Board: XYREF5260
DRAM:  2 GiB
WARNING: Caches not enabled

TrustZone Enabled BSP
BL1 version: 20140109

Chip ID : 03764c5a1413

PMIC: S2MPA01(REV1)
MIF: 1000mV     EGL: 1000mV     INT: 1000mV     G3D: 1000mV     KFC: 1000mV
RTC_BUF: 0x13, WRSTBI: 0xfc
BUCK9: 0xd4
S2MPA01_INT1: 0x2
S2MPA01_INT2: 0x11
S2MPA01_INT3: 0x0
S2MPA01_STATUS1: 0x7
S2MPA01_STATUS2: 0x0
PWRONSRC: 0x1
OFFSRC: 0x80
S2MPA01_RTC: 0x23
WTSR not detected
SMPL not detected

Checking Boot Mode ... SDMMC
MMC Device 0: 1.9 GiB
MMC Device 1: 3.6 GiB
MMC Device 2: MMC Device 2 not found
there are pending interrupts 0x00000001
*** Warning - bad CRC, using default environment

In:    serial
Out:   serial
Err:   serial
rst_stat : 0x10000
Net:   smc911x: Invalid chip endian 0x00000000

Hit any key to stop autoboot:  0
, Count 16384
MMC read: dev # 0, block # 1263, count 16384 ... 16384 blocks read: OK
completed
reading RFS..device 0 Start 17647, Count 2048
MMC read: dev # 0, block # 17647, count 2048 ... 2048 blocks read: OK
completed
Bad Linux ARM zImage magic!
XYREF5260 #
```

U-boot command shell for SDMMC

- Erase all images and data in the boot and user partitions

emmc open;emmc partion 0 10 10

```
.....122142719 blocks erase: OK
AVL7420_EVT1_AARCH64 # emmc partition 0 10 10
eMMC boot partition Size is 10 MB.!!
eMMC RPMB partition Size is 10 MB.!!
AVL7420_EVT1_AARCH64 #
```

fdisk –c 0

```
size FILEHEADER:14, INFOHEADER:40
type:0x0,size:0:offset:0
bitcount:0
logo width:0, height:0
LCD_WIDTH:1080, LCD_HEIGHT:1920
bfType:0x0, biBitCount:0
Please run "fastboot flash charger sd_fuse/battery_low.bmp"
Enter check_boot_mode
[BootMode]Power key is not pressed,reg=000000a3
Hit any key to stop autoboot:  0
AVL7420_EVT1_AARCH64 # fdisk -c 0
create mmc 0 partition
device LBA = 122142720 (bisize 512), 800 2000 800
Part : start=204800, offset=1638400 1
Part : start=1843200, offset=4096000 1
Part : start=5939200, offset=1638400 1
fdisk is completed

partion #    size(MB)     block start #    block count    partition_Id (block size=512)
   1            0          122142560          64            0xEE
   2         2600            204800        5324800         0xEE
   3        56129           7188480      114954080         0xEE
   4          800           5529600        1638400         0xEE
AVL7420_EVT1_AARCH64 #
```

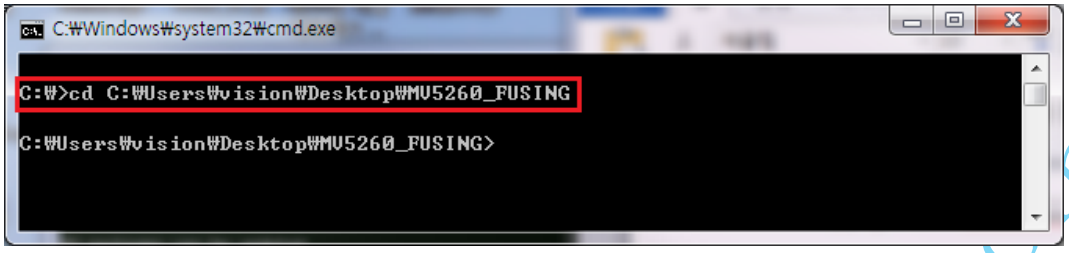
fastboot

```
   4          800          55296000        1638400          0xEE
AVL7420_EVT1_AARCH64 # fastboot
power off AUD module
[Partition table on MoviNAND]
ptn 0 name='fwbl1' start=0x0 len=N/A (use hard-coded info. (cmd: movi))
ptn 1 name='bl2' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 2 name='bootloader' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 3 name='el3_mon' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 4 name='tzsw' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 5 name='set' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 6 name='environment' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 7 name='partition_table' start=0x6000 len=0x6000(~24KB)
ptn 8 name='fat' start=0x8F7EC000 len=0x8000(~32KB)
ptn 9 name='system' start=0x6400000 len=0xA2800000(~2662400KB)
ptn 10 name='userdata' start=0xDB600000 len=0x841EC000(~57477040KB)
ptn 11 name='cache' start=0xA8C00000 len=0x32000000(~819200KB)
ptn 12 name='efs' start=0xDAC00000 len=0xA00000(~10240KB)
ptn 13 name='kernel' start=0x200000 len=0x1400000(~20480KB)
ptn 14 name='ramdisk' start=0x1600000 len=0x1A00000(~26624KB)
ptn 15 name='recovery' start=0x3000000 len=0x1A00000(~26624KB)
ptn 16 name='dtb' start=0x4A00000 len=0x100000(~1024KB)
ptn 17 name='ldfw' start=0x4B00000 len=0x200000(~2048KB)
ptn 18 name='bootlogo' start=0x4D00000 len=0xA00000(~10240KB)
ptn 19 name='font' start=0x5700000 len=0x100000(~1024KB)
ptn 20 name='engmode' start=0x5800000 len=0x200000(~2048KB)
exynos_usb_handle_connect_done_int, g_dnw_version:-1
exynos_usb_handle_connect_done_int, g_dnw_version:-1
```

- "cmd" to use DOS Prompt Shell

- Go to directory which have images for download

  Example: C:\>cd C:\Users\vision\Desktop\MV7420_FUSING



- Flash bl1 image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash fwbl1 bl1

- Flash bl2 image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash bl2 bl2

- Flash el3_mon image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash el3_mon el3

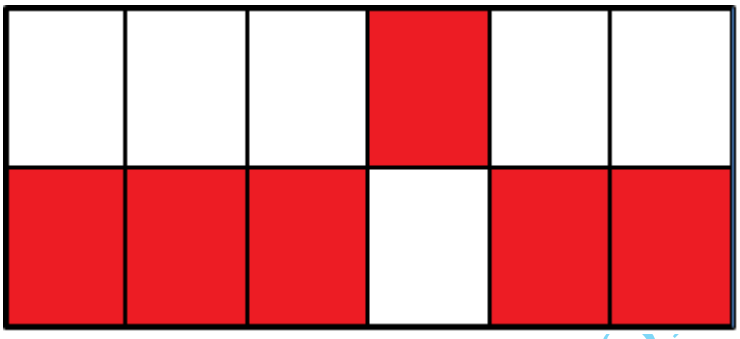
- Flash bootloader image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash bootloader bootloader

- Flash tzsw image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash tzsw tzsw

- Power Cable Extract → Extract SD Card → Change Booting Mode into EMMC Booting Mode



eMMC Booting Mode

- Power Cable Plug-In → Press Power Button for a while
- Type the below commands on bootloader for partition format

fdisk –c 0 2500 54829 800

```
Hit any key to stop autoboot:  0
AVL7420_EVT1_AARCH64 # fdisk -c 0 2500 26000 800
create mmc 0 partition 2500, 26000, 800
device LBA = 122142720 (blsize 512), 2500 26000 800
Part : start=204800, offset=5120000 1
Part : start=5324800, offset=53248000 1
Part : start=58572800, offset=1638400 1
fdisk is completed

partion #    size(MB)     block start #    block count    partition_Id (block size=512)
   1            0          122142560          64            0xEE
   2         2600            204800        5324800         0xEE
   3        56129           7188480      114954080          0xEE
   4          800           5529600        1638400         0xEE
AVL7420_EVT1_AARCH64 #
```

ext3format mmc 0:2

```
AVL7420_EVT1_AARCH64 # ext3format mmc 0:2
Start format MMC0 partition2 ....
** Partition2 is not ext2 file-system 0 **
Partition2: Start Address(0x32000), Size(0x4e2000)
Start ext2format...
Wirte 0/20block-group
Reserved blocks for jounaling : 16402
Start write addr : 0x32000
Erase inode table(0) - 0x32500..........
d_indirect_point:0x35540
Wirte 1/20block-group
Reserved blocks for jounaling : 16402
Start write addr : 0x72000
Erase inode table(1) - 0x72500..........
Wirte 2/20block-group
Reserved blocks for jounaling : 16402
Start write addr : 0xb2000
Erase inode table(2) - 0xb2010..........
Wirte 3/20block-group
Reserved blocks for jounaling : 16402
Start write addr : 0xf2000
Erase inode table(3) - 0xf2500..........
Wirte 4/20block-group
Reserved blocks for jounaling : 16402
Start write addr : 0x132000
Erase inode table(4) - 0x132010..........
Wirte 5/20block-group
Reserved blocks for jounaling : 16402
Start write addr : 0x172000
Erase inode table(5) - 0x172500..........
Wirte 6/20block-group
Reserved blocks for jounaling : 16402
Start write addr : 0x1b2000
Erase inode table(6) - 0x1b2010..........
Wirte 7/20block-group
Reserved blocks for jounaling : 16402
Start write addr : 0x1f2000
Erase inode table(7) - 0x1f2500..........
Wirte 8/20block-group
Reserved blocks for jounaling : 16402
Start write addr : 0x232000
Erase inode table(8) - 0x232010..........
Wirte 9/20block-group
Reserved blocks for jounaling : 16402
Start write addr : 0x272000
```

ext3format mmc 0:3

```
AVL7420_EVT1_AARCH64 # ext3format mmc 0:3
Start format MMC0 partition3 ....
** Partition3 is not ext2 file-system 0 **
Partition3: Start Address(0x514000), Size(0x6b167d8)
Start ext2format...
Wirte 0/429block-group
Reserved blocks for jounaling : 32802
Start write addr : 0x514000
Erase inode table(0) - 0x51ab30..........
d_indirect_point:0x51dbc8
Wirte 1/429block-group
Reserved blocks for jounaling : 32802
Start write addr : 0x554000
Erase inode table(1) - 0x55ab30..........
Wirte 2/429block-group
Reserved blocks for jounaling : 32802
Start write addr : 0x594000
Erase inode table(2) - 0x594010..........
Wirte 3/429block-group
Reserved blocks for jounaling : 32802
Start write addr : 0x5d4000
Erase inode table(3) - 0x5dab30..........
Wirte 4/429block-group
Reserved blocks for jounaling : 32802
Start write addr : 0x614000
Erase inode table(4) - 0x614010..........
Wirte 5/429block-group
Reserved blocks for jounaling : 32802
Start write addr : 0x654000
Erase inode table(5) - 0x65ab30..........
Wirte 6/429block-group
Reserved blocks for jounaling : 32802
Start write addr : 0x694000
```

ext3format mmc 0:4

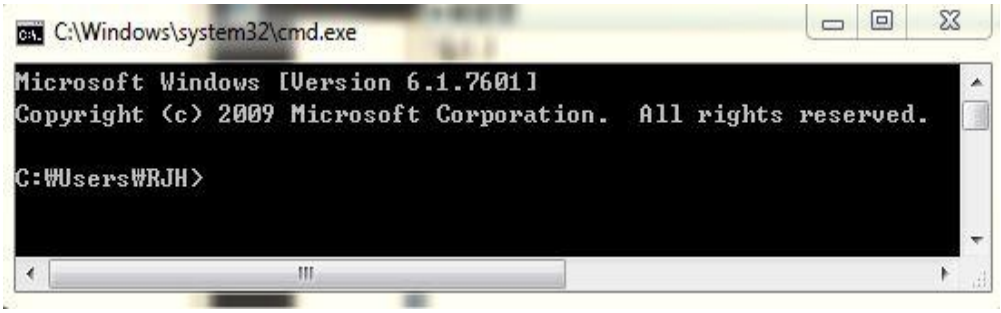
```
AVL7420_EVT1_AARCH64 # ext3format mmc 0:4
Start format MMC0 partition4 ....
** Partition4 is not ext2 file-system 0 **
Partition4: Start Address(0x702a800), Size(0x190000)
Start ext2format...
Wirte 0/7block-group
Reserved blocks for jounaling : 4102
Start write addr : 0x702a800
Erase inode table(0) - 0x702a9b0..............
d_indirect_point:0x702e6e0
Wirte 1/7block-group
Reserved blocks for jounaling : 4102
Start write addr : 0x706a800
Erase inode table(1) - 0x706a9b0..............
Wirte 2/7block-group
Reserved blocks for jounaling : 4102
Start write addr : 0x70aa800
Erase inode table(2) - 0x70aa810..............
Wirte 3/7block-group
Reserved blocks for jounaling : 4102
Start write addr : 0x70ea800
Erase inode table(3) - 0x70ea9b0..............
Wirte 4/7block-group
Reserved blocks for jounaling : 4102
Start write addr : 0x712a800
Erase inode table(4) - 0x712a810..............
Wirte 5/7block-group
Reserved blocks for jounaling : 4102
Start write addr : 0x716a800
Erase inode table(5) - 0x716a9b0..............
Wirte 6/7block-group
Reserved blocks for jounaling : 4102
Start write addr : 0x71aa800
Erase inode table(6) - 0x71aa810..............
AVL7420_EVT1_AARCH64 #
```

- Type "fastboot" command to download images and enter into fastboot mode

fastboot

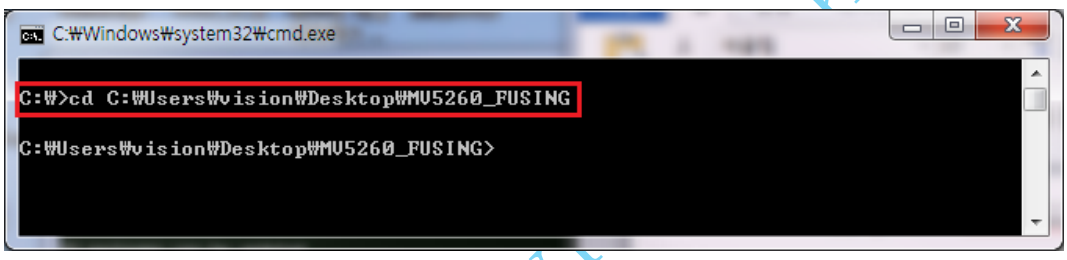
```
AVL7420_EVT1_AARCH64 # fastboot
power off AUD module
[Partition table on MoviNAND]
ptn 0 name='fwbl1' start=0x0 len=N/A (use hard-coded info. (cmd: movi))
ptn 1 name='bl2' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 2 name='bootloader' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 3 name='el3_mon' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 4 name='tzsw' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 5 name='set' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 6 name='environment' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 7 name='partition_table' start=0x6000 len=0x6000(~24KB)
ptn 8 name='xxa1' start=0x37500000 len=0x51F00000(~1342464KB)
ptn 9 name='xxa2' start=0x6400000 len=0x9C400000(~2560000KB)
ptn 10 name='xxa3' start=0xA2800000 len=0x62CFB000(~56144876KB)
ptn 11 name='xxa4' start=0x5500000 len=0x32000000(~819200KB)
exynos_usb_handle_connect_done_int, g_dnw_version:-1
exynos_usb_handle_connect_done_int, g_dnw_version:-1
```

- "cmd" to use DOS Prompt Shell



- Go to directory which have images for download

Example: C:\>cd C:\Users\vision\Desktop\MV7420_FUSING



- Flash bl1 image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash fwbl1 bl1

- Flash bl2 image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash bl2 bl2

- Flash el3_mon image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash el3_mon el3

- Flash bootloader image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash bootloader bootloader

- Flash tzsw image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash tzsw tzsw

- Flash partition_table image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash partition_table partition_64g

- Flash ldfw image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash ldfw ldfw

- Flash dtb image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash dtb exynos7420-mv7420-codegen.dtb

- Flash kernel image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash kernel Image

- Flash ramdisk image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash ramdisk ramdisk-uboot.img

- Flash system image

C:\Users\vision\Desktop\MV7420_FUSING>fastboot flash system system.img

- Fastboot -w

C:\Users\vision\Desktop\MV7420_FUSING>fastboot -w