



EM 220

Mobile Printer

Unified Utility Manual

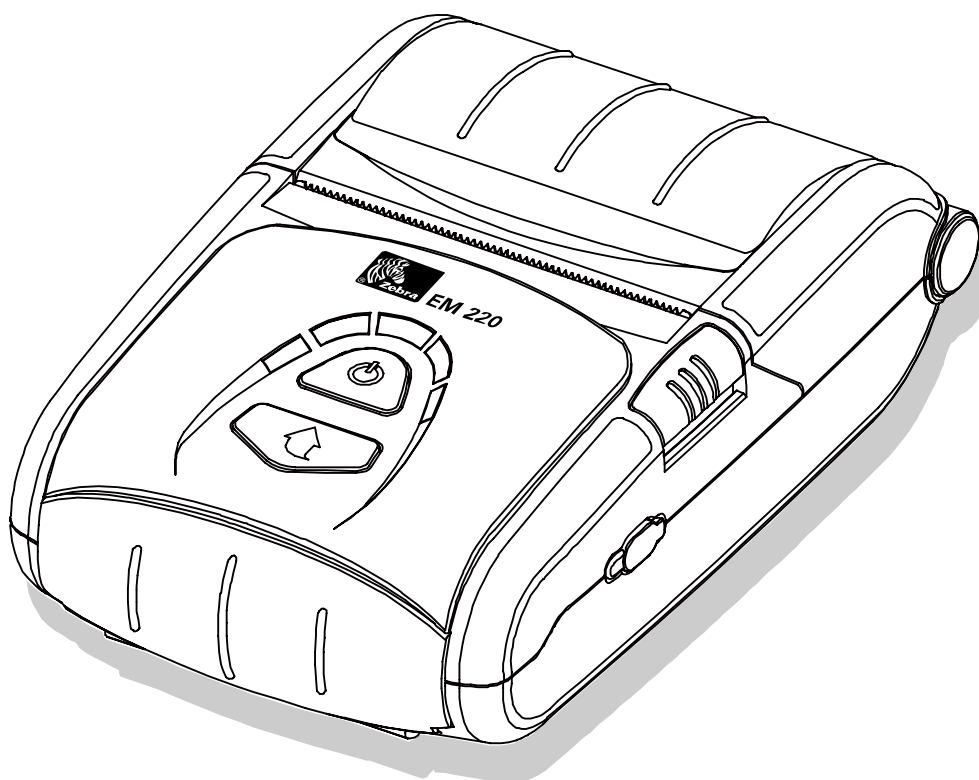


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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet or circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Exposure to Radio Frequency radiation. To conform to FCC RF exposure requirements this device shall be used in accordance with the operating conditions and instructions listed in this manual.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to insure compliance.

Changes or modifications to this unit not expressly approved by Zebra Technologies Corporation could void the user's authority to operate this equipment.

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Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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1. Notice

This Unified Utility Manual provides information on the utility program used to set printer operation conditions and add functions.

The utility program consists of three functions.

- 1) A function that sets printer operation conditions via non-hardware control, software-based virtual switches (**VMSM: Virtual Memory Switch Manager**)
- 2) A function that facilitates the downloading of image files, such as logos, intended for repetitive printing (**NV Image Download Manager**)
- 3) A function that is used to download and install the latest Firmware, which is subject to ongoing modification for the enhancement of product performance (**Firmware Download Manager**)

2. Operating System (OS) Environment

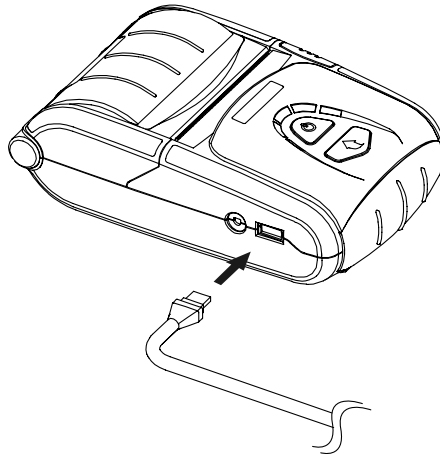
The following operating systems are supported for usage:

- Microsoft Windows 98
- Microsoft Windows NT 4.0
- Microsoft Windows 2000
- Microsoft Windows XP
- Microsoft Windows 2003
- Microsoft Windows Embedded
- Microsoft Windows Vista
- Microsoft Windows CE 4.2
- Microsoft Windows CE 5.0
- Microsoft Windows CE 6.0

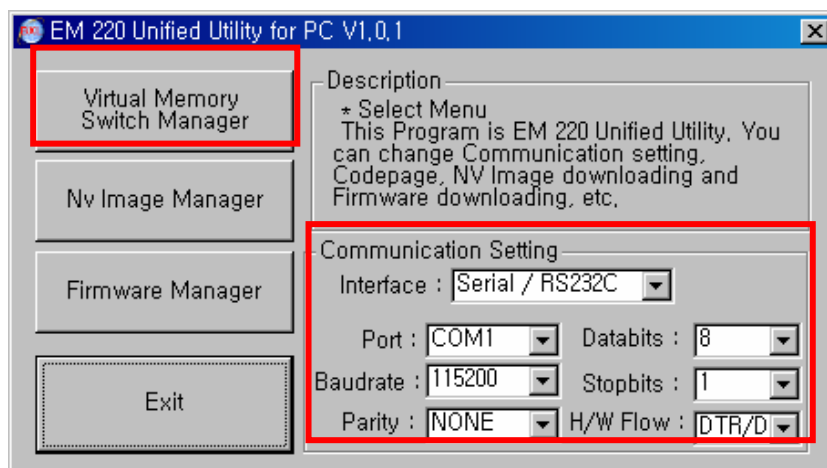
3. Virtual Memory Switch Manager Usage

3-1 When Using on a PC

- 1) Connect the printer and the PC via the interface cable (USB or Serial type).
If using Bluetooth, a cable connection is not necessary.



- 2) Turn on the printer power.
- 3) Prepare the Unified Utility executable file to be used on the PC.
The executable file can be found on the enclosed CD.
(EM 220 Unified Utility for PC ver 1.x.x.exe)
- 4) Run the Unified Utility executable file.
- 5) Select "Port" and click the "Virtual Memory Switch Manager" button.
Refer to the Bluetooth Connection Manual regarding the Port (may vary according to device).



6) The Virtual Memory Switch settings information of the printer appears on screen.

The screenshot shows the 'Virtual Memory Tool' window with the following settings:

- General configuration**
 - Printer Configuration**
 - Printing density : print density 80%
 - Printing speed : 80mm/s
 - Two Dimension Symbol**
 - PDF417
 - Datamatrix
 - Maxi Code
 - QR Code
 - Default Code Page : PC437 - USA, Standard Europe
 - Printer Service : Receipt Label
 - Default Font Type : 12x24 A Font 9x24 B Font
 - Beeps for roll paper end : False True
 - Beep mode for low battery status : On Off
 - Double byte character mode : Off On _PC437
 - Auto Power Off Time : 0 min (Not connected) (1~90 ex> 30)
 - Auto Power Saving Time : 0 sec (Bluetooth connected) (10~255 ex> 100)
- MSR Configuration**
 - MSR Trigger : Track 1/2/3 read mode AUTO trigger
- Serial Interface configuration**
 - Baudrate : 115200
 - Parity : None
 - Data Length : 8
 - Flow control : DTR/DSR
- Enable Bluetooth Setting**
 - Bluetooth Interface Configuration**
 - Authentication & Encryption : Disable Enable
 - Connection Mode : Mode 1 Mode 2 Mode 3
 - PIN Code : 0000
 - Printer Name : EM 220

Buttons at the bottom: Default, Save, Cancel.

7) After setting the desired function(s), click the “Save” button to store settings.

The functions per category are as follows:

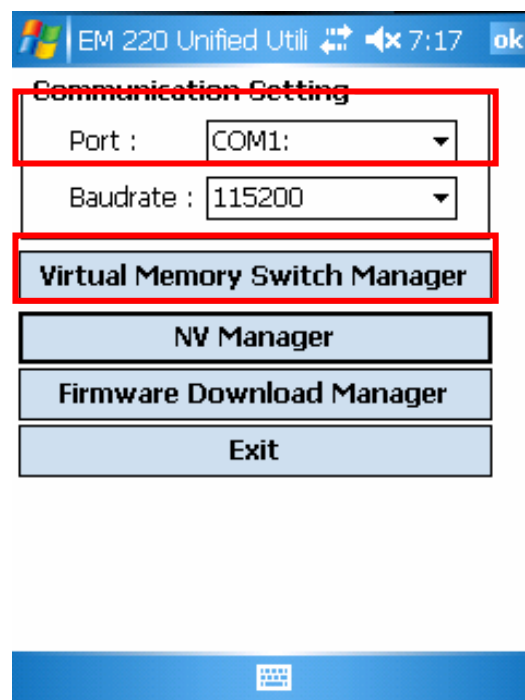
Function	Description
Printing Density	Sets printing density Value range is 80~15%
Printing Speed	Sets printing speed Value range is 50 or 80 mm/s
Printer Service	Printer Service change receipt mode or label mode
Default Code Page	Sets the default code page (Refer to the Code Page Manual for more detailed information on the Code Pages supported.)
Default Font Type	Sets default font type and size
Beeps for Low Battery	Sets beeping when reaching low battery capacity
Beeps for Paper Roll End	Sets no beeping or beeping when reaching paper roll end
Double Byte Character Mode	Sets double byte language usage mode
Auto Power Off Time	Sets time interval between absence of printer use and automatic turning off of printer power
Auto Power Saving Time	Sets time interval for automatic entering into power saving mode while the printer is in use
MSR Trigger	Sets MSR data scanning mode, 7 modes supported (Refer to “GS (E” in the Control Commands Manual.)
Serial Interface Configuration	Changes the serial Interface setting *Printer must be reset after change for changed setting to take effect
Authentication & Encryption	Sets or cancels Authentication & Encryption mode when connecting via Bluetooth * If Authentication & Encryption mode is disabled, connection to a device can be done without a PIN Code
Connection Mode	Sets Mode1, Mode2, or Mode3 when connecting via Bluetooth - Mode1: connection possible only with the first device with which connection succeeds - Mode2: connection with all Bluetooth enabled devices possible via use of a PIN Code - Mode3: connection possible only with the first device with which connection succeeds and searching or use of connected device possible
PIN Code	Changes the PIN Code required for Bluetooth connections (maximum 12 characters long)
Printer Name	Changes the device name produced when establishing a Bluetooth connection (maximum 12 characters long)
Two Dimension Symbol	Sets enable 2D barcode or disable Barcode type : PDF417, Data Matrix, Maxi Code, QR Code

* You can check authentication, Encryption mode as well as connection mode of the Bluetooth from self test page.

8) Reset the printers.

3-2 When Using on a PDA

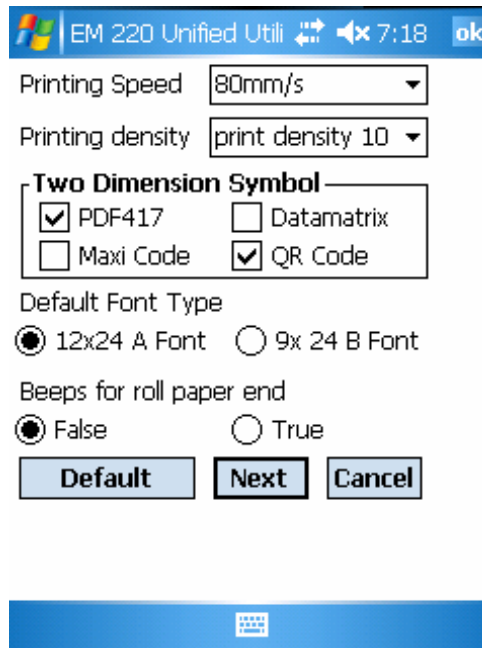
- 1) Turn on the printer power.
- 2) Prepare the Unified Utility executable file to be used on the PDA.
The executable file varies according to CPU and can be found on the enclosed CD.
 - **ARMV4: EM 220 Unified Utility for PPC armv4 ver 1.x.x.exe**
 - **ARMV4I: EM 220 Unified Utility for PPC armv4i ver 1.x.x.exe**
- 3) Run the Unified Utility executable file.
- 4) Select "Port" and click the "Virtual Memory Switch Manager" button.
Refer to the Bluetooth Connection Manual regarding the Port (may vary according to device).



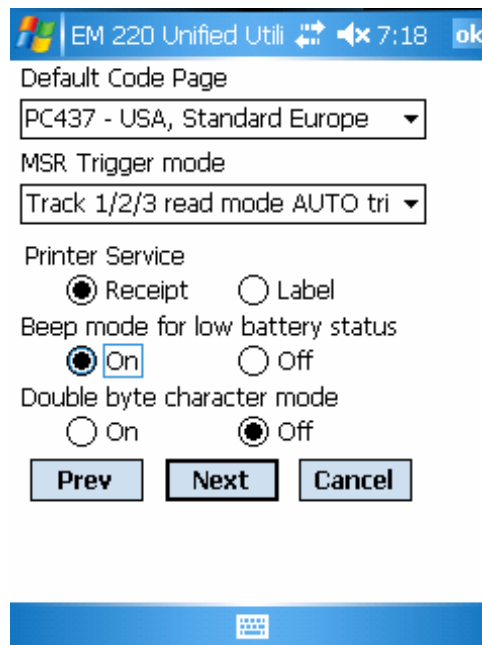
- 5) The Virtual Memory Switch settings information of the printer is received and shown on screen.

- 6) After setting the desired function, click the “Next” button.
(The functions per category are identical to those on the PC.)

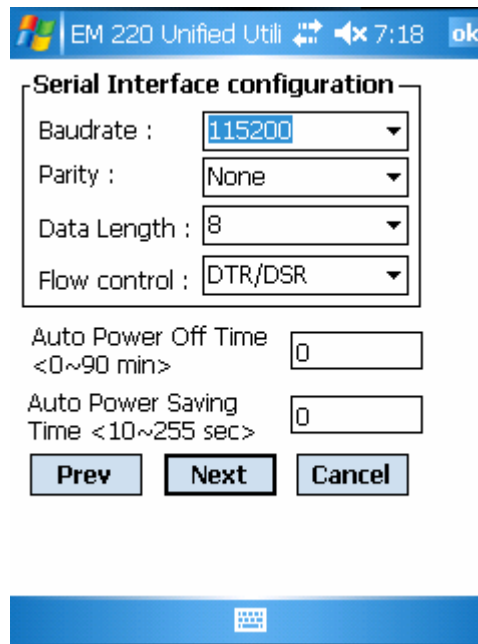
* Please click "Default" button to return the printer to default setting



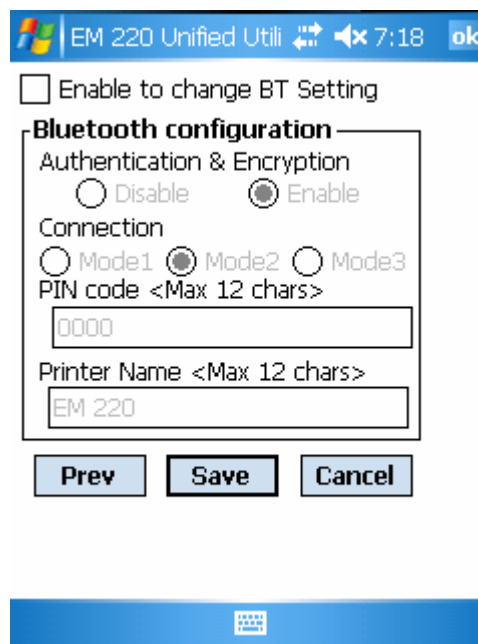
- 7) After setting the desired function, click the “Next” button.
(Clicking the “Prev” button returns to the previous screen.)



8) After setting the desired function, click the “Next” button.



9) After setting the desired function, click the “Save” button.

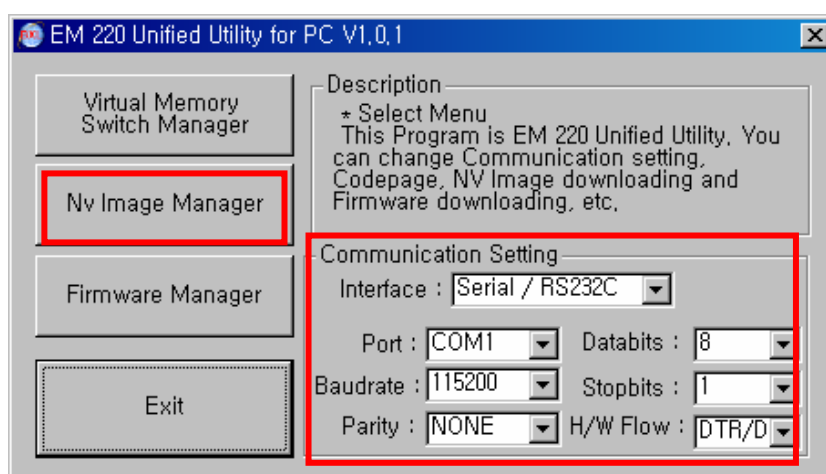


10) Reset the printer.

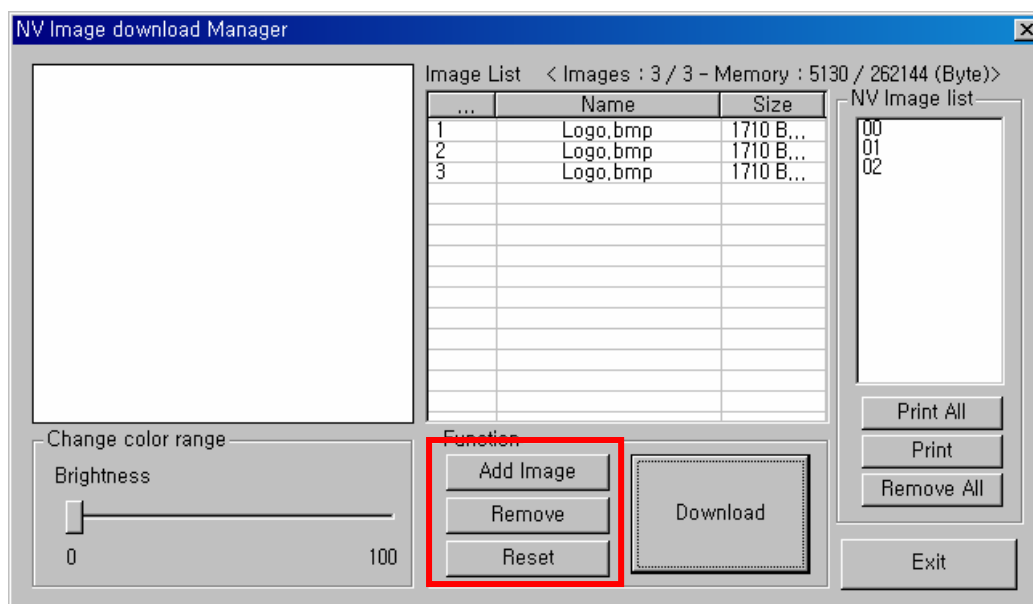
4. NV Image Download Manager Usage

4-1 When Using on a PC

- 1) The printer connection method and instructions for running the Unified Utility executable file are identical to those provided in “3. Virtual Memory Switch Manager”. Refer to the aforementioned section.
- 2) Prepare the image file on the PC (e.g. Main.bmp)
- 3) Select "Port" and click the " NV Image Manager " button.
Refer to the Bluetooth Connection Manual regarding the Port (may vary according to device) “



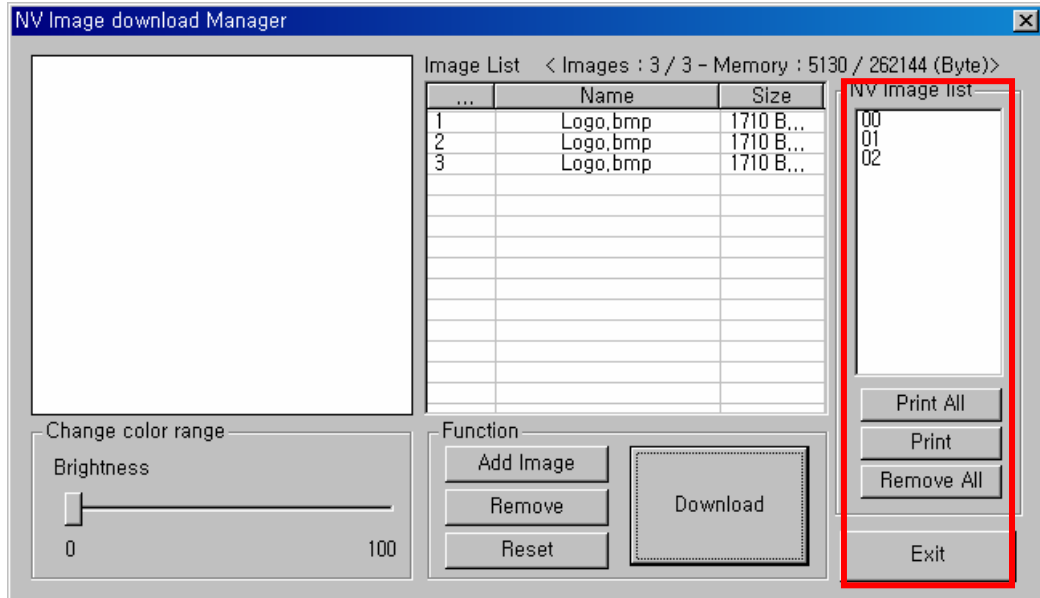
- 4) Click the “Add Image” button to add the desired image(s) to the image list.
Click the “Remove” button to delete selected image(s), and click the “Reset” button to delete the entire image list.



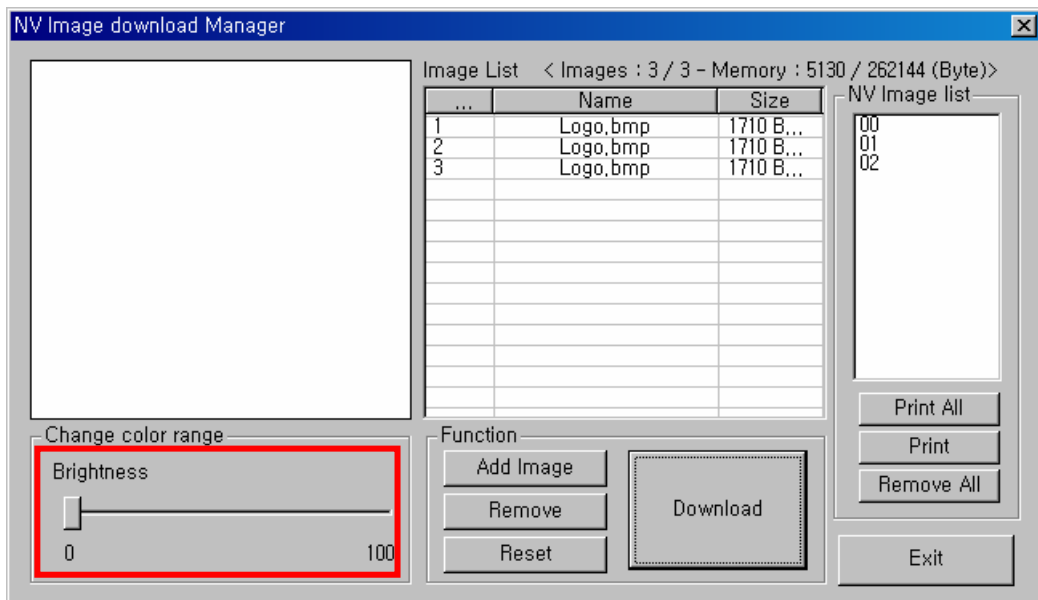
5) The “Used address list” contains the address numbers of saved images.

The following buttons can be used to handle saved images.

- “Print All” Button: Prints all images in the list
- “Print” Button: Prints selected image(s)
- “Reset NV” Button: Delete all images

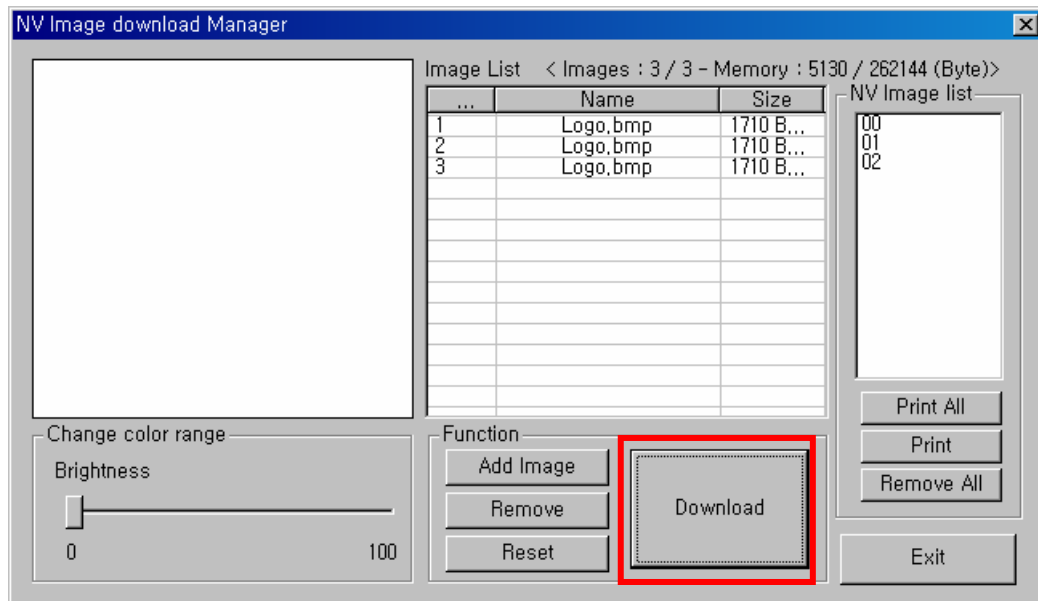


6) After selecting an image from the image list, adjust the brightness level to set the brightness of the image to be downloaded.



7) Click the “Download” button to download the image(s).

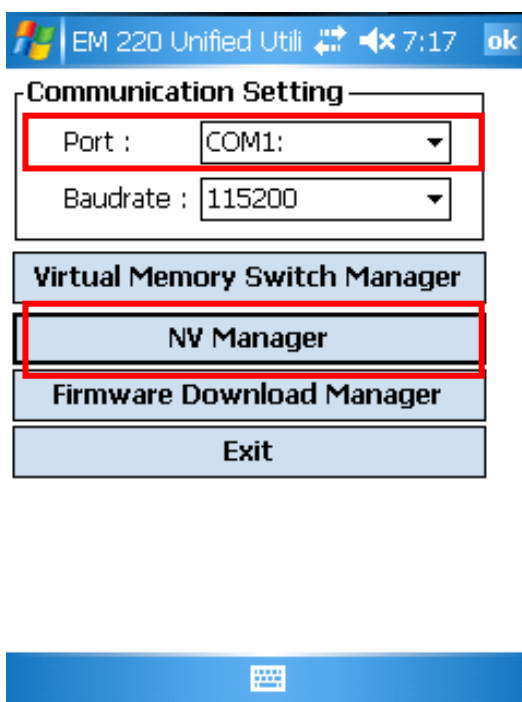
Checking the “Auto addressing” box automatically saves address numbers.
(Manual input is required if unchecked.)



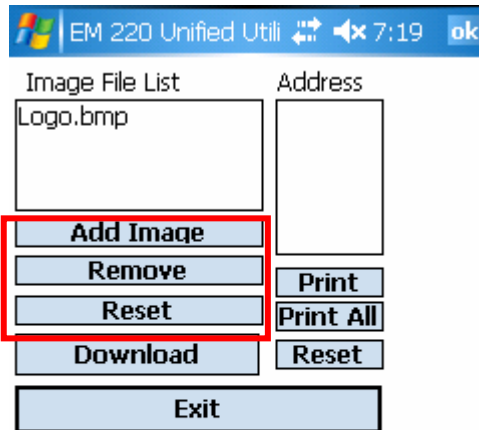
8) When downloading is complete, the saved address numbers appear in the “NV address list”.

4-2 When Using on a PDA

- 1) Turn on the printer power.
- 2) Prepare the Unified Utility executable file to be used on the PDA.
The executable file varies according to CPU and can be found on the enclosed CD.
 - **ARMV4: EM 220 Unified Utility for PPC armv4 ver 1.x.x.exe**
 - **ARMV4I: EM 220 Unified Utility for PPC armv4i ver 1.x.x.exe**
- 3) Prepare the image file on the PDA (e.g. Main.bmp)
- 4) Run the Unified Utility executable file.
- 5) Select "Port" and click the "NV Manager" button.
Refer to the Bluetooth Connection Manual regarding the Port (may vary according to device).



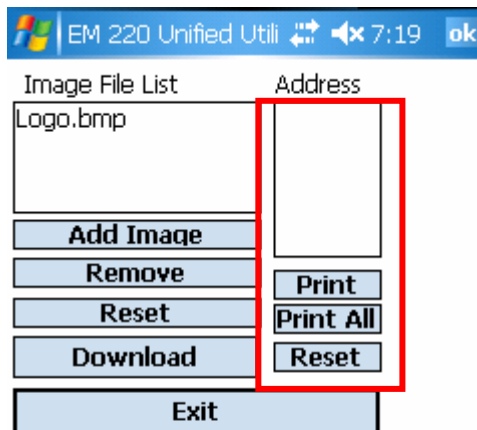
- 6) Click the “Add Image” button to add the desired image(s) to the image list.
Click the “Remove” button to delete selected image(s), and click the “Reset” button to make modifications.



- 7) The “Used address list” contains the address numbers of saved images.

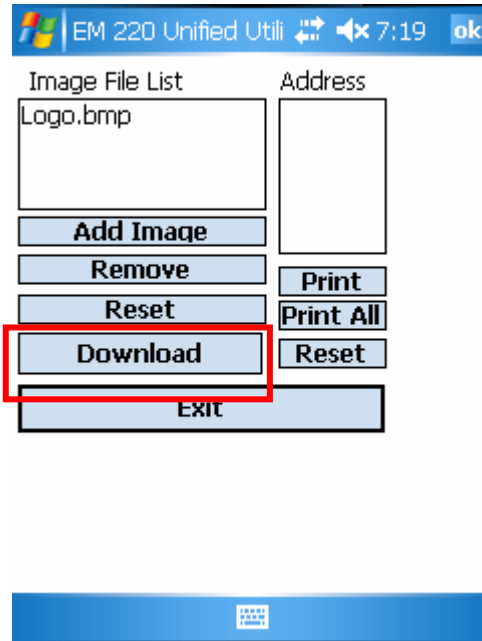
The following buttons can be used to handle saved images.

- “Print” Button: Prints selected image(s)
- “Print All” Button: Prints all images in the list
- “Reset” Button: Delete all images



8) Click the “Download” button to download the image(s).

Automatically saves address numbers. (Start Address is “00”)



9) When downloading is complete, the saved address numbers appear in the “address”.

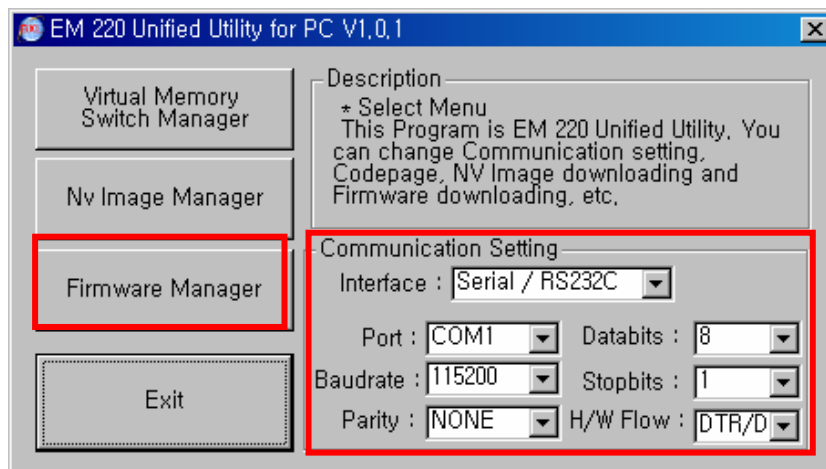
5. Firmware Download Manager Usage

5-1 When Using on a PC

The printer is already equipped with standard Firmware.

Follow the steps below to download and install firmware on the EM 220 printer.

- 1) The printer connection method and instructions for running the Unified Utility executable file are identical to those provided in “3. Virtual Memory Switch Manager”. Refer to the aforementioned section.
- 2) Prepare the Firmware file on the PC.
Firmware can be upgraded to improve printer performance.
- 3) Select "Port" and click the "Firmware Manager" button.
Refer to the Bluetooth Connection Manual regarding the Port (may vary according to device) “



- 4) Download firmware; refer to section 5-3 for specifics.

5-2 When Using on a PDA

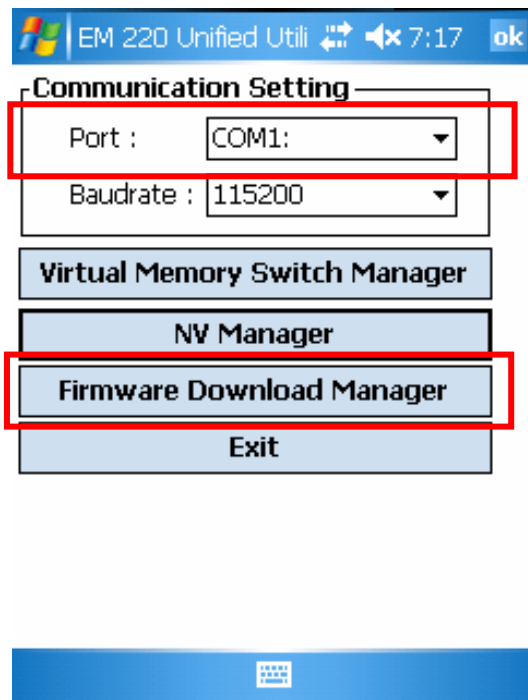
The printer is already equipped with standard Firmware.

Follow the steps below to download and install firmware on the EM 220 printer.

- 1) Turn on the printer power.
- 2) Prepare the Unified Utility executable file to be used on the PDA.
The executable file varies according to CPU and can be found on the enclosed CD.

- ARMV4: EM 220 Unified Utility for PPC armv4 ver 1.x.x.exe
- ARMV4I: EM 220 Unified Utility for PPC armv4i ver 1.x.x.exe

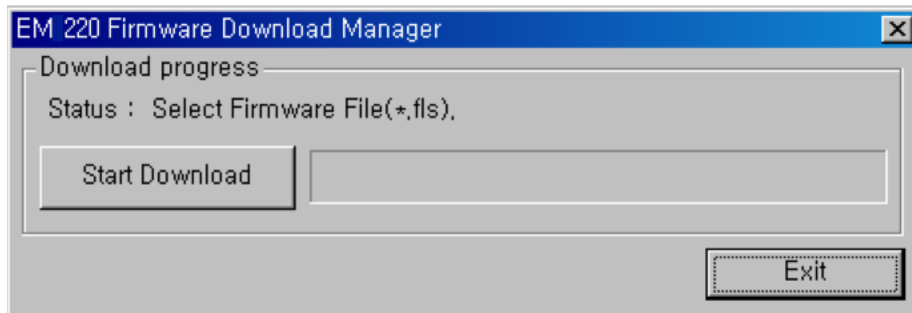
- 3) Prepare the Firmware file on the PDA.
Firmware can be upgraded to improve printer performance.
- 4) Run the Unified Utility executable file.
- 5) Select "Port" and click the "Firmware Download Manager" button.
Refer to the Bluetooth Connection Manual regarding the Port (may vary according to device) "



- 6) Download firmware; refer to section 5-3 for specifics.

5-3 Instructions of Firmware Download

- 1) Open [Unified Utility] and run [Firmware download Manager] to download a firmware (its extension is *.fls)



- 2) While downloading a firmware, the printer's status advances as follows:
 - ① Green LED lights;
 - ② Red LED lights;
 - ③ Blue LED lights;
 - ④ All three LED's turn on.
- 3) After step 2 is complete, reset the printer.
- 4) Open [Unified Utility], run [Firmware download Manager] and download a font file(its extension is *.fls) which matches your downloaded firmware.

The list below provides a mapping of font files to firmware.

- In case of STD: EM_220_f924big.fl, EM_220_f1224big.fl
- In case of KOR: EM_220_f924small.fl, EM_220_f1224small.fl, EM_220_gulim.fl
- In case of CHN, Big 5: EM_220_f1224small.fl, EM_220_f924small.fl, EM_220_big5.fl
- In case of CHN, GB2312: EM_220_f1224small.fl, EM_220_f924small.fl, EM_220_gb2312.fl
- In case of JPN: EM_220_f1224small.fl, EM_220_f924small.fl, EM_220_japfont.fl

Note: You do not need to reset the printer to use the fonts. You do not need to download the fonts in any specific order.

- 5) After downloading the firmware and fonts, you will need to set the memory switches according to user preferences and printer hardware settings.



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