Hand Held Mobile Computer

eClipse

User's Guide for MDT-9600 EVDO

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Mobitron

User Guide for MDT-9600 EVDO

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IMPORTANT NOTE

This is a preliminary version of the document.
It applies to versions all MDT-9600 of eClipse.

Caution: Exposure to Radio Frequency Radiation.
To comply with FCC RF exposure compliance requirements, a separation distance of at least 5 cm must be maintained between the antenna of this device and all persons. This device must not be co-located or operating in conjunction with any other antenna or transmitter

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Cautions!

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All features and specifications are subject to change without notice.

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Trademark

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Windows CE is registered trademark of Microsoft Corporation.

FCC Information

This device complies with Part 15 of the FCC Results. Operation is subject to the following two conditions:

(1) This Device may not cause harmful interface, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for CLASS B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try correct the interference by one or more of the following measures:

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

WARNING

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Contents

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Introduction for MDT Series

MDT-9600 series are using Microsoft Windows CE.NET 4.2 Operating System and incorporating Intel XScale 400MHz CPU. And it also embedded CDMA(1xEV-DO), GSM/GPRS and Wireless LAN modules for fast data communication. To help development of custom software, software development kit is supported for MDT-9600 series. It helps more easy fast development of various custom applications and value-added programs (using standard Microsoft development tools such as embedded visual C++ and visual studio .Net.)

MDT-9600 series was designed for multi-purpose terminal with integrated printer, MSR(magnetic stripe reader), smart card reader and wireless LAN(Embedded or SD type). And it also designed for the purpose of supporting to various custom services such as POS (point-of-sale) system, ISP or network services with built-in protocols (Http, TCP/IP, PPP, Pop3, etc).

MDT-9600 series support internet-based service such as, e-mail, on-screen advertising, interactive electronic coupons, electronic receipt capture, user e-commerce functions and cash management reporting, as well as secure credit, debit payment functions.

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Chapter 1 - Using the Terminal

Unpacking the Terminal

MDT-9600 series package contains the following items. Open the package box and check components. If there are something to deferent with following list or if you find any inferior components, contact us where Mobitron Support Center.

- MDT Terminal : 1EA
- Charging Adapter : 1EA
- Chargeable Battery : 1EA
- ActiveSync USB Cable : 1EA
- Printer Roll Paper : 1EA
- Hand Strap : 1EA

Parts of the Terminal

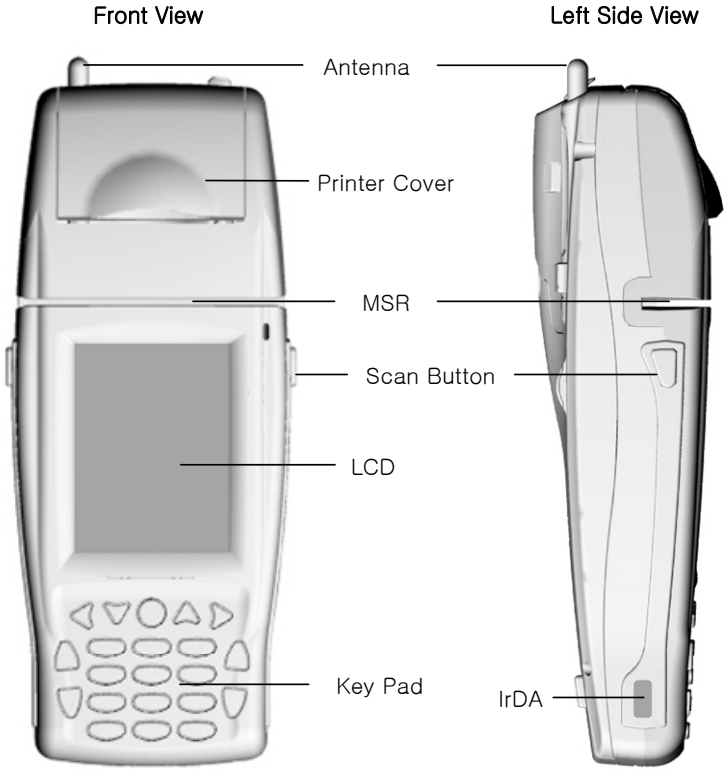

Figure 1. Front and Left side View

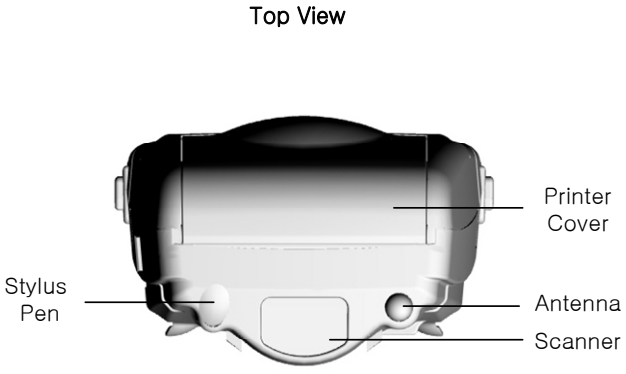

Figure 2. Top side View

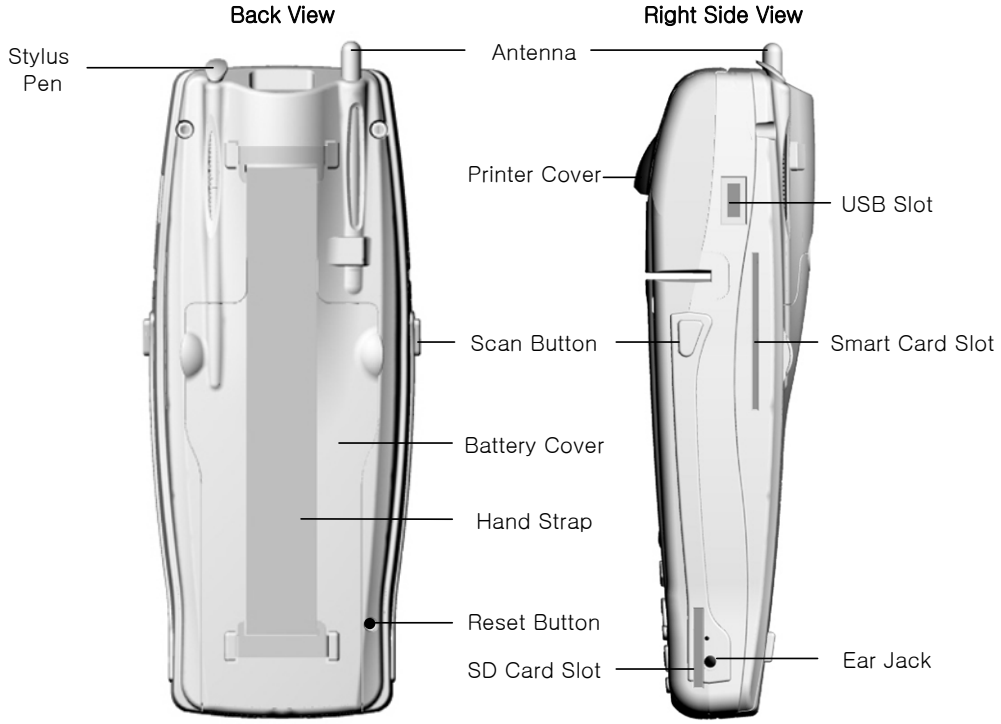

Figure 3. Back and Right Side View

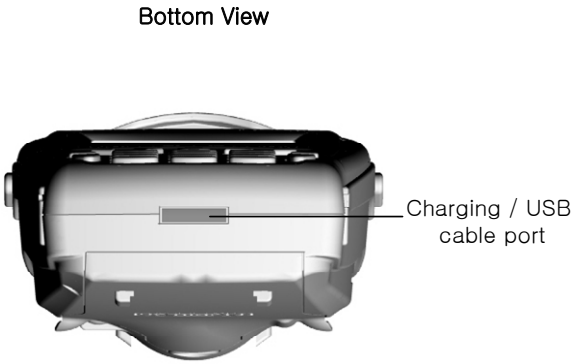

Figure 4. Bottom side View

Parts name	Function and description
LCD Screen	3.5" TFT color LCD with touch screen function.
Key Pad	Keypad made up to 4 arrow keys, 5 windows keys, a power key and a function key.
Printer	58mm thermal printer. 384 dot width and 200 DPI print density.
MSR	Bi-directional ISO 7811 track1, 2 or track 2, 3.
Smart Card Module	Certificated module to EMV level 2.
Antenna	Antenna for wireless communication such as CDMA, GSM/GPRS, Wireless LAN.
Ear-Mic Jack	Ear-Mic jack for voice communication such as CDMA, GSM
Stylus Pen	Plastic touch pen for LCD touch screen.
SD Card Slot	SD/MMC, SDIO

Table - Parts and description of MDT

Accessories of the Terminal

The following accessories are available for the Terminal.

- Printer Roll Paper
- Chargeable Battery
- MDT series Software Developer's kit (SDK)

Keypad

Keypad of MDT is as follows.

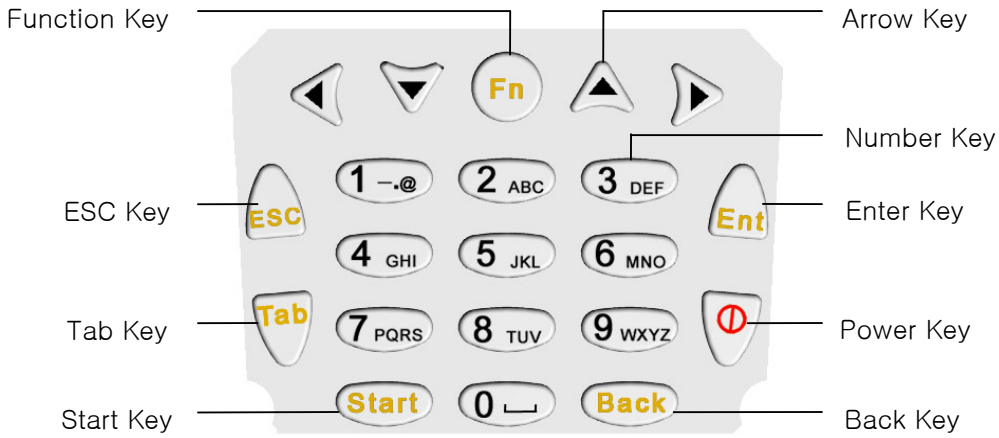

Figure 5. Key Pad

Part name	Function and description
Function	Run special function combined with other keys.
Arrow key	Moving cursor to 4-way
Enter	Enter key.
Power	System sleep & wake up key.
Backspace	Backspace key.
Numeric	' 0'~' 9' numeric characters.
Start	Popup start menu.
Tab	Tab key.
Esc	Esc key.

Table - Keypad part of MDT and description

Stylus Pen

The terminal has a touch screen LCD and so it is using touch style for input method. Also the terminal has a stylus pen for safe and correct touch. The stylus functions as a mouse.

- **Tap:** Touch the screen once with the stylus to select options, close applications or launch menus from the taskbar.
- **Double-tap:** Touch the screen twice with the stylus to launch applications
- **Drag:** Hold the stylus on the screen and drag across the screen to select text and images. Drag in a list to select multiple items.
- **Tap and Hold:** Tap and hold the stylus on an item to see a list of actions available for that item. On the pop-up menu that appears, tap the action to perform.

Adjusting the Stylus

Tap Start – Settings – Control Panel and Double-Tap Stylus icon to use the Stylus Properties applet to adjusting the Double-Tap sensitivity and Calibration.

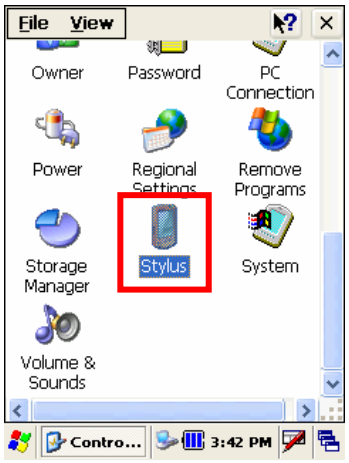

Figure 6. Stylus icon

Double-Tap

In Double-Tap, user can set and test the double-tap sensitivity.

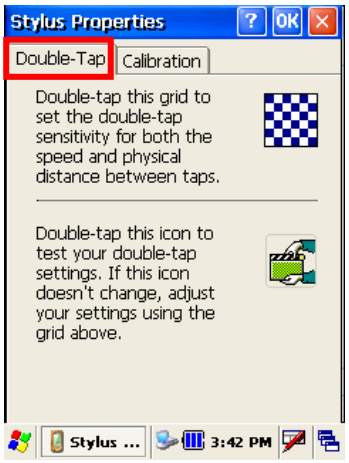

Figure 7. Double-Tap tab on Stylus Properties

Calibration

Tap <Recalibrate> button to start the recalibration and tap the cross point step by step.

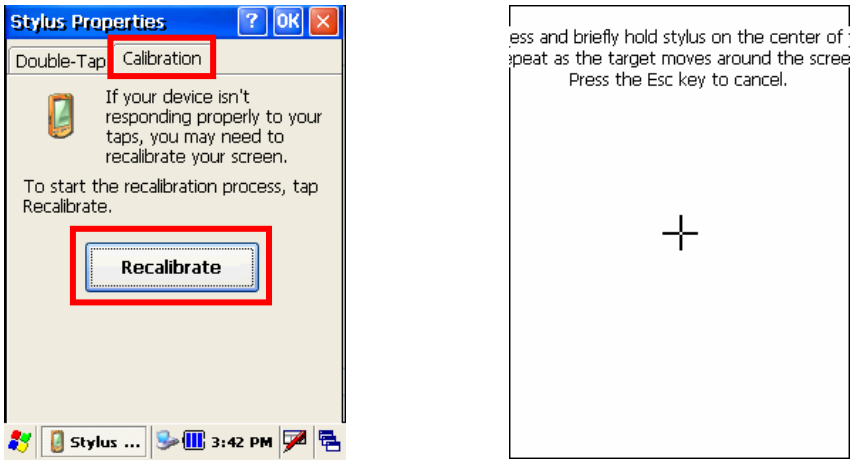

Figure 8. Calibration tab and Recalibrate screen

Checking Windows CE Build Versions

Tap Start – Settings – Control Panel and Double-Tap System icon to use System Properties applet to check Windows CE version and Systems.

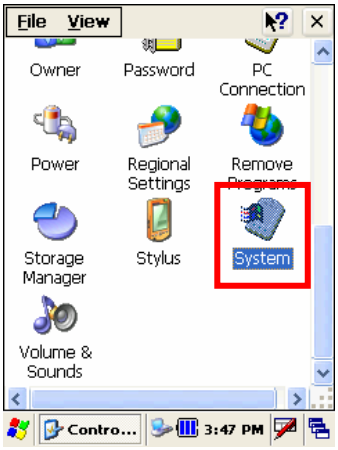

Figure 9. System icon

General tab

In General, user can confirm the general information of terminal

Figure 10. General tab of System properties window

Memory tab

User can confirm the present condition of the amount of memory used, and can adjust a distribution of memory according to the purpose of use.

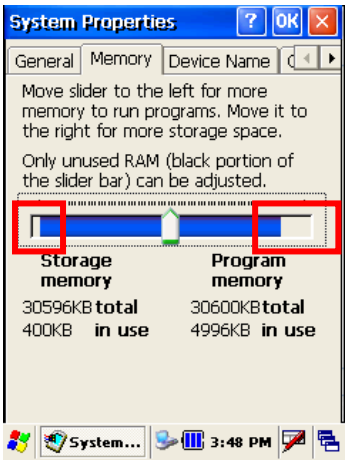

Figure 11. Memory tab

Device Name tab

User can confirm the device name, device version and OS image build up version. In Figure 12, MDT-9301 means device version and 1.05CE means OS image build up version.

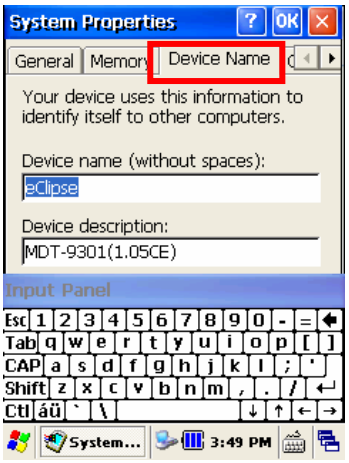

Figure 12. Device Name tab

Caution

- Device Name is related with after service. We strongly recommend do not alter this area.

Using the Battery

Main Battery	8.4 V / 2200mAh Rechargeable Lithium Polymer.
Backup Battery	4.2 V / 200mAh Rechargeable Lithium-ion

MDT-9600 use high technology lithium polymer battery. So the working time of the battery can be differed by the user's environment. For example, the terminal spent more power when user is using communication module such as CDMA, GSM and WLAN.

- The expected battery life is one year.
- Generally, full charging takes 240 minutes.

Installing the Battery

1. Loosen the screw on top of battery cover.

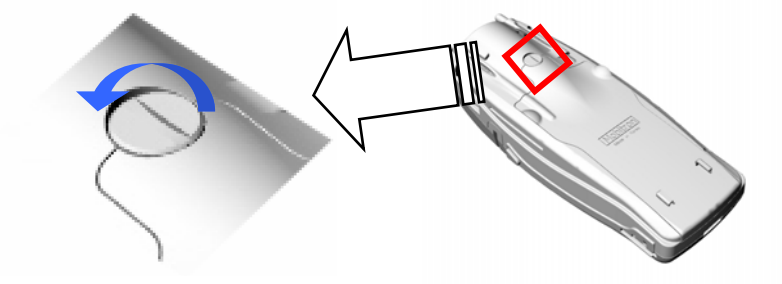

Figure 13. Loosen the screw

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2. Pull out the battery cover from the terminal.

Figure 14. Detach the battery cover

3. Insert the battery in the battery bay, and then press down until the battery is seated.

Figure 15. Insert the battery

4. Replace the battery cover. Put the bottom of the cover first and then press the top.

Figure 16. Replace the battery cover

5. Tighten the screw.

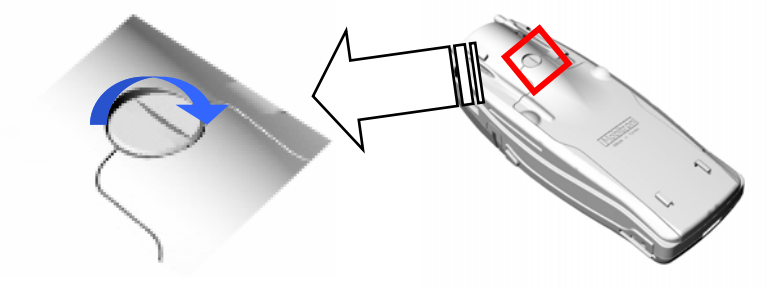

Figure 17. Tighten the screw

6. Finally, press power key to power up the terminal.

Charging the battery

Before using the terminal for the first time, charge the main battery in the terminal for approximately eight hours. To ensure the quickest charge time, sleep the terminal while charging.

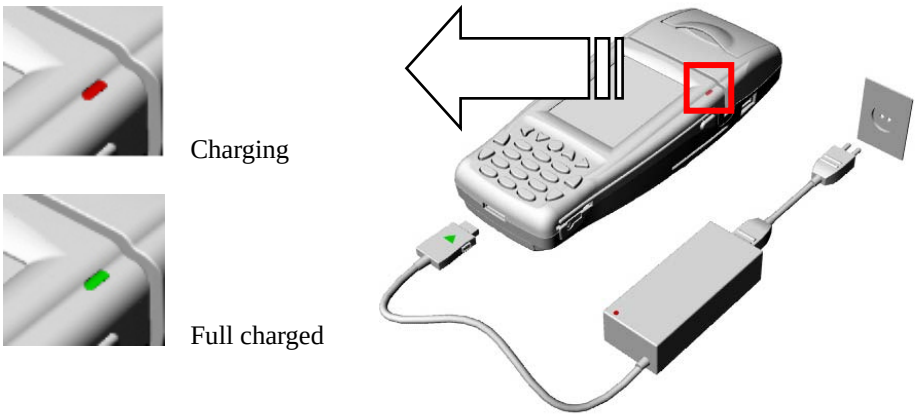

Figure 18. Connecting Battery

To charging the battery, connect the charging adapter to the power connector on bottom of terminal. The charging adapter represent charging status through the charge indicator. The charge indicator lights up to red color when the terminal currently charging. The charge indicator is changed to green color when charging complete. If the charge indicator does not work, please reinstall it.

Note. Ensure the rechargeable battery is fully charged before using terminal for the first time.

Backup battery

MDT-9600 terminal has a backup battery to protect memory data when the main battery is ran over or removed. The capacity of backup battery is 200mAh. Backup battery is automatically charged from main battery.

Terminal notifies a warning message when main battery is very low. If user doesn't charge nevertheless system alert the battery insufficiency and keep using, system will enter to the sleep state automatically, and main power is changed to backup battery from main battery. But backup battery only supplies the power into memory. So system dose not work in this situation. In this situation, user must charge the main battery as soon as possible because terminal will lost current memory data when the backup battery is ran over.

In the battery insufficiency state, if user uses a device that spent a high voltage current, such as printer, system may fall into the sleep state without any system alert.

User can turn off the backup battery manually. This function is very useful when user safekeeping the terminal for a long haul. To turn off the backup battery, take off the main battery and press the reset button while holding the power key down.

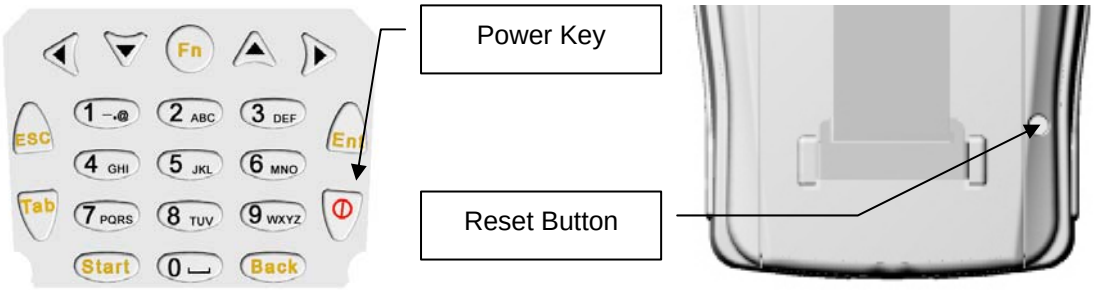

Figure 19. Turn off the Backup battery

Maximizing Battery Life

Below are things that user can do to maximize the life of your battery.

- When the 'Low Battery' status icon appears or 'Out of Battery' warning message appears charge the battery as soon as possible or reinstall another fully charged battery.

- When stop using the terminal, keep the terminal in sleep state.

Checking the Battery Power

Battery icon on the tray bar displays the current battery status. According to the battery status, battery icon is changed. To check the state of battery or to setting the waiting time of system sleep, double tap the battery icon. And power properties window popup.

Battery Icon	Description
	Battery is charged over 70% of its rated capacity.
	Battery is charged under 70% and over 30% of its rated capacity.
	Battery is charged under 30% and over 5% of its rated capacity.
	Battery is charged under 5% of its rated capacity.
	Charging the battery

Table - Battery icon on Tray bar

Figure 20. Battery icon on Tray bar

Checking the Battery and Schemes

Tap Start – Settings – Control Panel and Double-Tap Power icon also display Power properties window.

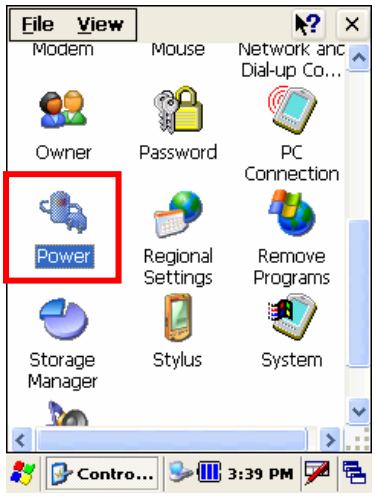

Figure 21. Power icon

Battery tab

User can see the battery state as progressive bar. And user can confirm the battery installation time and total used time.

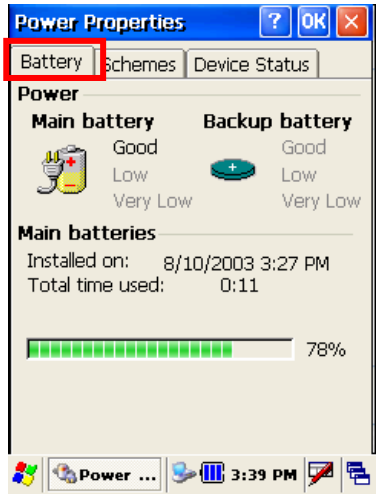

Figure 22. Power properties – battery tap

Device Status tab

User can confirm the power level of each device.

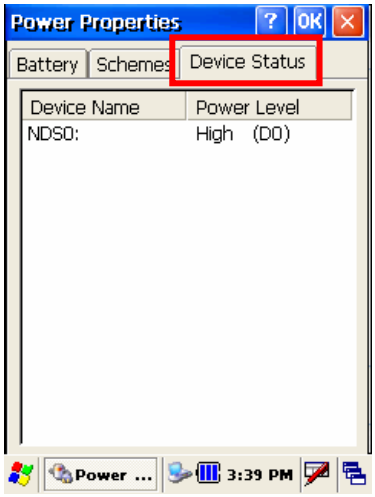

Figure 23. Device Status tab

Schemes tab

User can modify the power scheme of main battery power or external power.

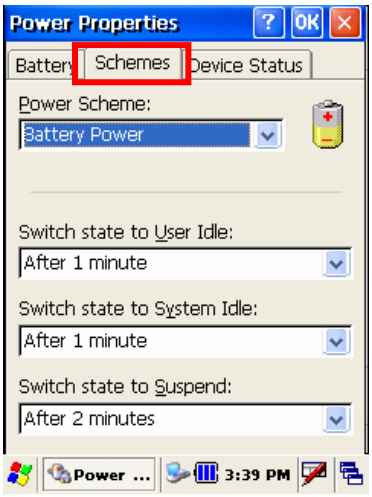

Figure 24. Schemes tab

User idle state or system idle state seems to be it does not change externally because it is processed internally by operating system. But Os must be passing through that process for going into the sleep state. If user selects 'never' in list control, OS never go into the sleep state automatically.

Note

- The capacity of the main battery is 2200mA and the backup battery is 200mA.
- Reinstall the battery when charge indicator does not work
- The expected life span of the Battery is one year.
- It takes 240 minutes to fully charge the main battery.
- The using time of battery is different according to using environment.
- In no service area, modem modules such as CDMA and GSM can be spent more high voltage.
- Frequently using of high voltage current device such as printer can be decrease using time of battery

Caution

- Do not place the terminal into a charging device without a main battery installed.
- This power unit is intended to be correctly orientated in a vertical or floor mount position.
- We highly recommend use authorized power adapter. Using of the imitation adapter will be invokes of damage or explosion the battery.

Using Peripheral Devices

MSR

MSR can read the magnetic card such as credit card and debit card. MSR of MDT-9600 series supports bi-directional operation. When reading the card, magnetic line must be turn toward the printer.

Figure 25. MSR

Barcode Scanner

Figure 26. Barcode Scanner

When scanner application is running, press barcode scan button and then scan beam should be raid out on the scanner header. Valid distance between scanner header and target barcode is under 30cm. MDT-9600 series scanner can read diversely barcode type. For more information see Specifications chapter.

Printer

Thermal Printer	Paper width	58mm
	Full graphics	w/384 dots/line
	DPI	200 DPI print density
	Speed	40mm/sec
	MTBF	70,000 receipts

- Setting up a Paper

1. Open the printer cover.

2. Insert a paper into the printer hole.
   A printed page and printer must be in contact with each other.

3. Close the printer cover.

Figure 27. Installing Roll-Paper

USB Host function

MDT-9600 series support USB 2.0 host function. User can use various USB devices such as USB storage and USB finger-printer etc.

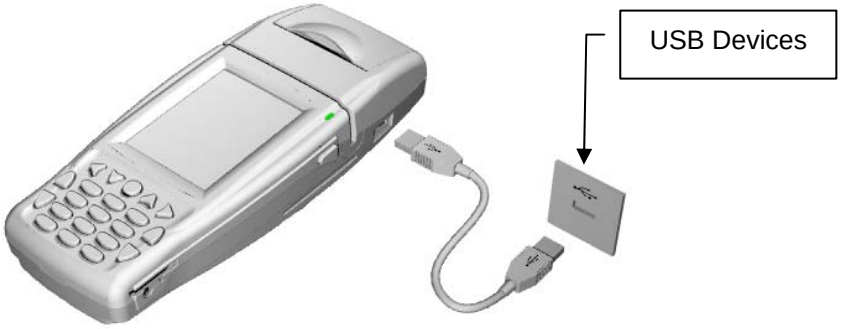

Figure 28. Connect to USB Host

Smart Card

MDT support a Smart card module certificated with EMV level 2.

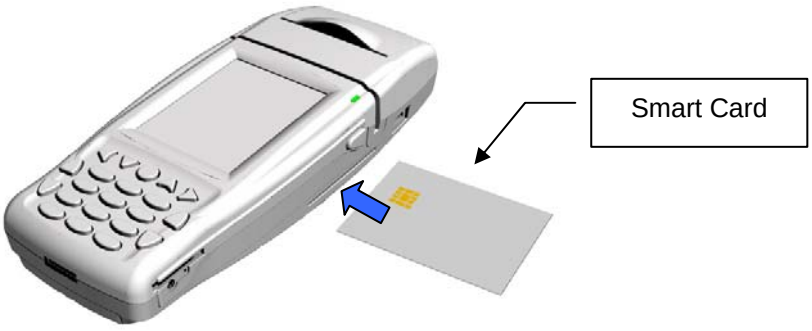

Figure 29. Insert Smart Card

SD Card

User can use SD type devices such as SD LAN card and SD storage card. Refer Windows CE chapter for more information about the usage of storage card. And refer Communication chapter for more information about the usage of SD LAN card.

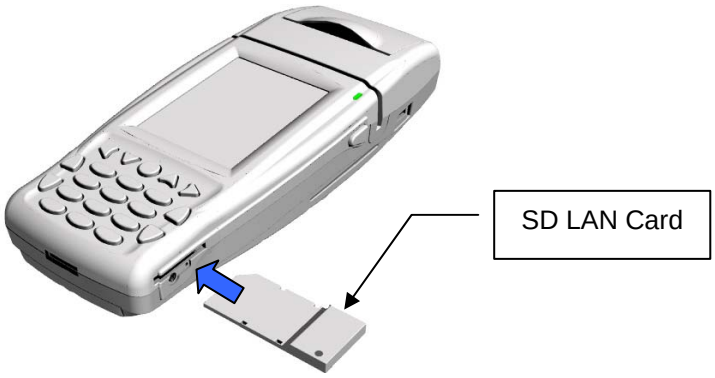

Figure 30. Insert SD Card

Note. Don't push by force. If you feel the insertion does not soft, check the card direction.

Resetting the Terminal

Reset Program

User can reset the terminal using Reset program. To run Reset program, tap Start – Run and write down "reset" like as follow. Then tap <OK> button and Reset window display.

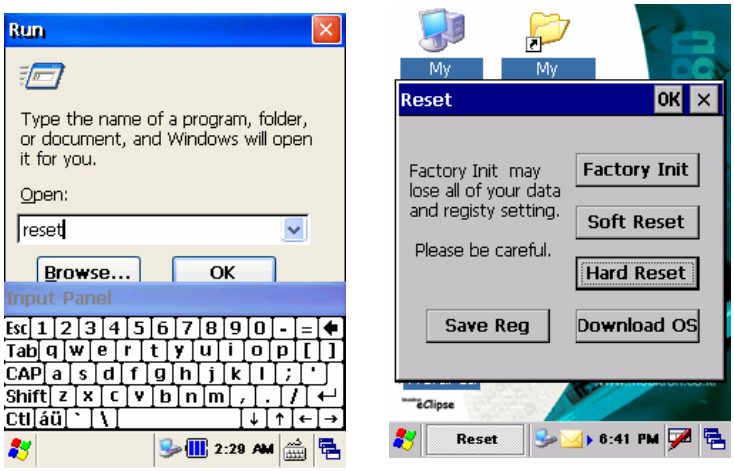

Figure 31. Reset program

- Factory Init : restore the system to state of factory initialization.
- Soft-Reset : Restart the terminal. Soft-reset protects data in the RAM only except window registry values. Soft-reset restore all window registry values to the last stored state.
- Hard-Reset : Restart the terminal. Hard-reset does not protect the data in the RAM. You can loose the data to do hard-reset only except the data in the IPSM folder. The data in the IPSM always protected.
- Save Reg : Store all registry values.

Note. To protect window registry values, you have to execute this procedure or using special function in custom build applications. For more information, please contact manufacturer.

Soft Reset

Restart the terminal. Soft-reset protects all data in the RAM only except window registry values. Soft-reset restore all window registry values to the last stored state.

Figure 32. Reset Button

Hard Reset

Restart the terminal. Hard-reset does not protect the data in the RAM. You can loose the data to do hard-reset only except the data in the IPSM folder. The data in the IPSM always protected. To do Hard Reset, press <Power> Key and the <Reset> button at the same time.

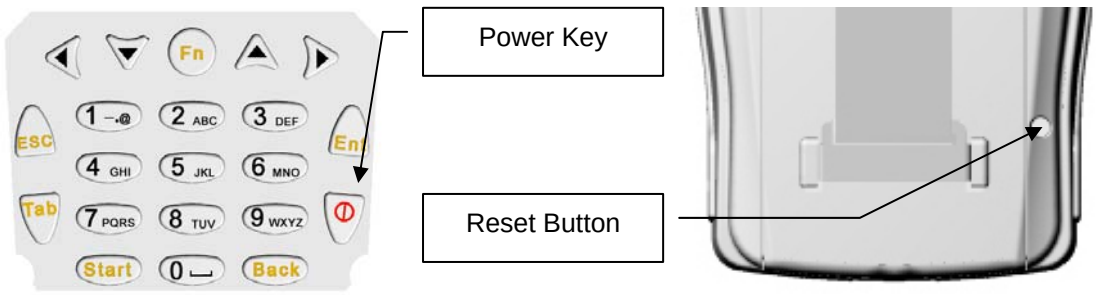

Figure 33. Hard Reset

Factory Initializing

Factory Initializing deletes all current register values and memory data, except the IPSM before reboot the system. Factory Initializing can use to restore all windows registry settings and custom windows setting. To do Factory Initializing, Reset the terminal and holding down the <Fn> key and Power key at

the same time while the system is in booting progress.

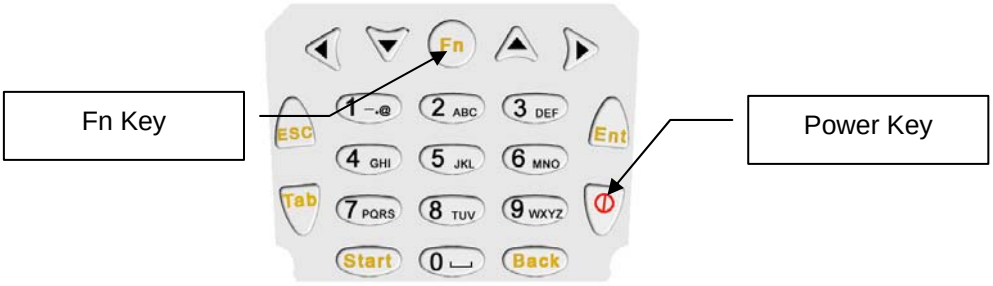

Figure 34. Factory Initializing

System Sleep

To reduce the battery wasting, user can change the system to sleep state. There are two ways to enter to the sleep state. The one is manual sleep and the other is automatic sleep.

- To do manual sleep, press down the Power key until LCD is turned off.
- To sleep the terminal automatically, adjust the Schemes tap on Power properties window. Schemes menu has set to specific time interval, system is entered automatically the sleep state after appointed time has passed. More information about Power properties window, refer to Checking the Battery and Schemes part.

To return to the normal state, press Power key.

Adjusting the Backlight

To reduce the battery wasting, user can turn off the backlight also. There are three ways to turn off the backlight.

- To adjust the Backlight, Tap Start – Settings – Control Panel and Double-Tap BackLight icon. In BackLight properties windows, user can adjust a backlight value by control slider bar or write down decimal value directly. User also can on/off the backlight by on/off button.

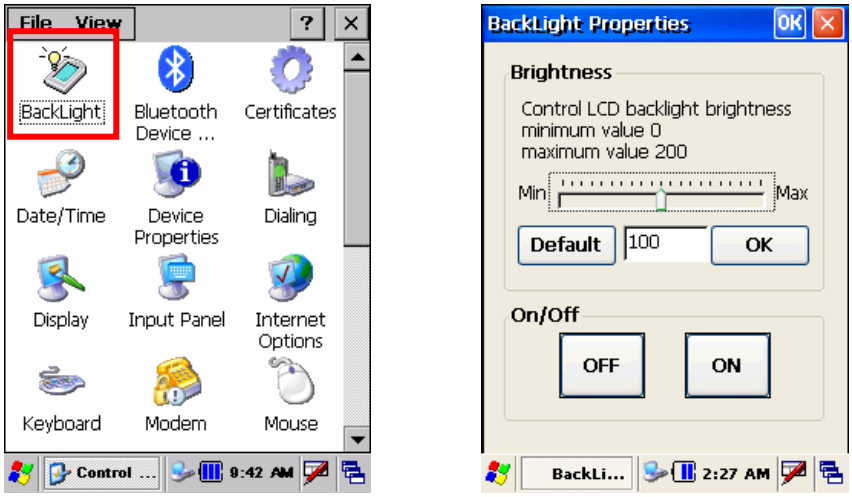

Figure 35. Adjusting the Backlight

- To turn off the backlight automatically, setup "Turn off backlight when using:" menu on Display properties in Control Panel. If this item had set into specific times, backlight will be automatically turned off after appointed time has passed. To turn on the backlight, just touches anywhere on the LCD screen

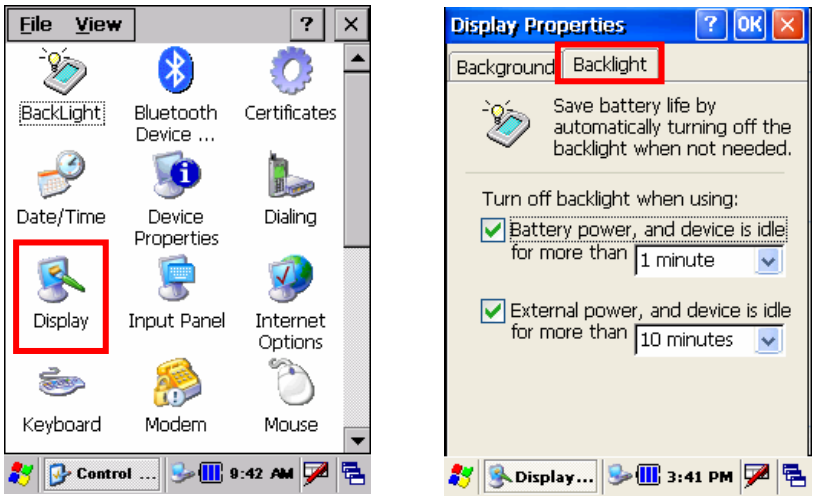

Figure 36. Backlight turn off setting by Display Properties windows

- To turn off the backlight, press power key shortly. To turn on the backlight just touches anywhere on the LCD screen.

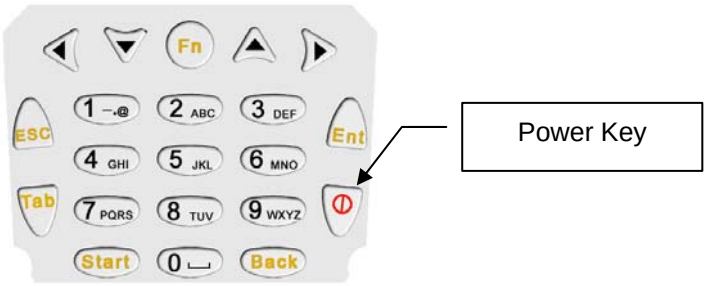

Figure 37. Power Key

For detail information about backlight see Display Properties chapter.

Chapter 2 - Windows CE

Main Screen

The MDT has a 3.5" diagonal, 240x320 pixel, 64K color displayed TFT-LCD.

Desktop and System Tray Bar

The Main screen has two distinct areas: the desktop and the tray bar. The desktop displays shortcuts to some of the applications installed on terminal. The Start button is located at the bottom of the screen above the task bar. It displays the active program, and allows you to switch to programs and close screens. The task bar, at the very bottom of the screen, Start button, the Wireless LAN icon, the Power icon, the time, the onscreen key panel icon, and the desktop icon.

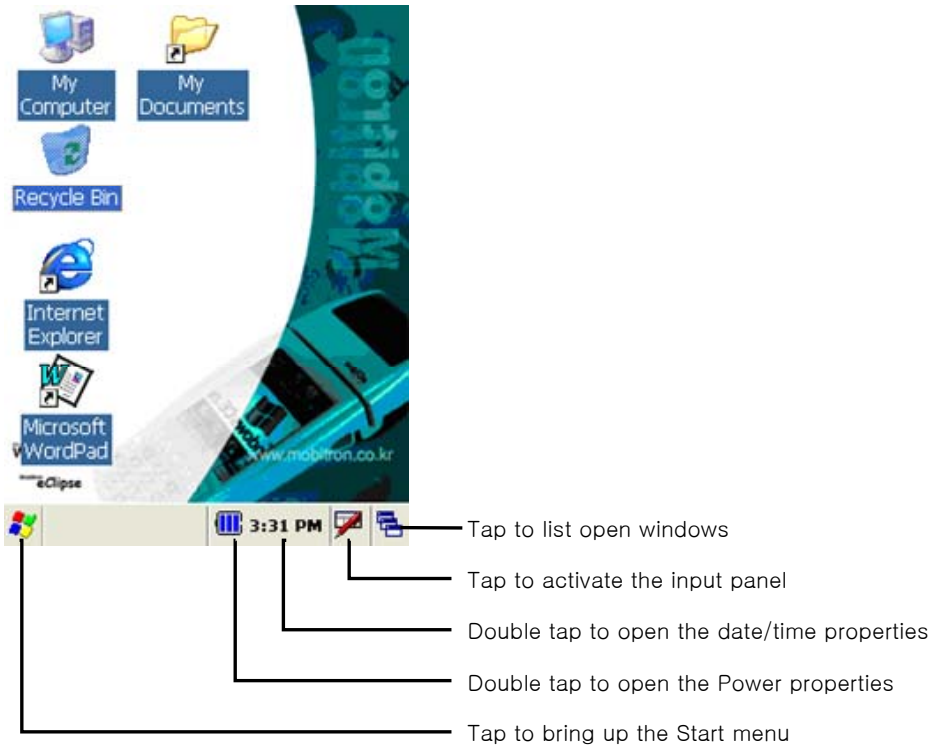

Figure 38. Main screen

Setting System Time and Date

When double tap time icon on tray bar, Date/Time properties window is popped up. You can change a date, time and a time zone in this window. User can also open this window through Date/Time icon in Control Panel.

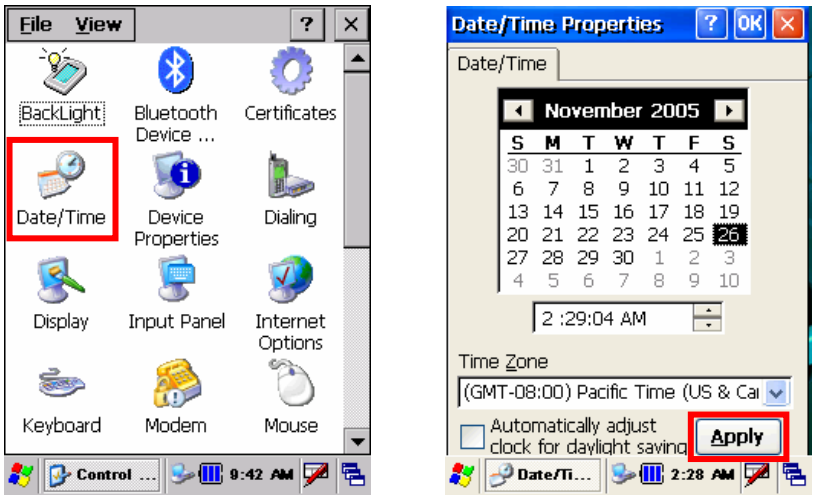

Figure 39. Data/Time Properties

After the setting, tap <Apply> button to save setting.

Changing the Background Image

Tap Start – Settings – Control Panel and Double-Tap Display icon to popup Display Properties window. In Display Properties window, can change background image. User can search the image with "Browse" button. More information about Backlight tap, refer to Adjusting the Backlight part.

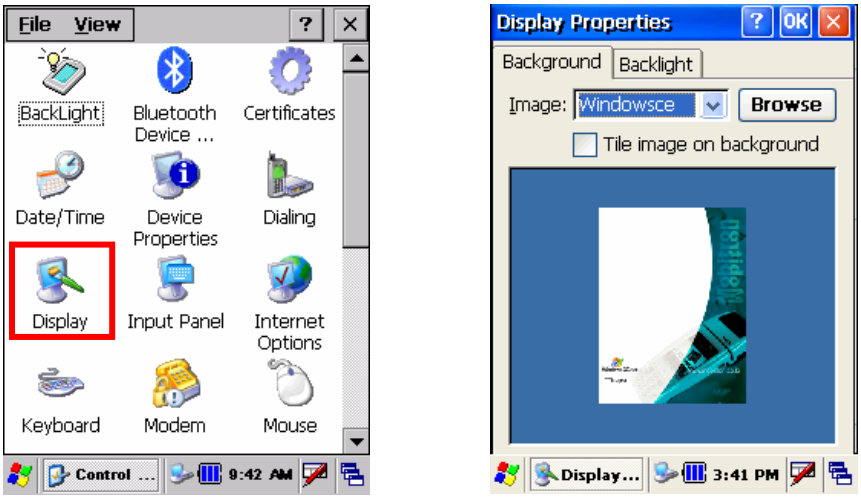

Figure 40. Display icon and Background tap

Using Soft Key Panel

Windows CE supports software key panel to input characters. To use the software key panel, tap keyboard icon on tray bar and then choose "keyboard" menu.

Software key panel is able to input numbers, big letters, small letters and some special characters. Software key panel is kind of windows, can move to other place.

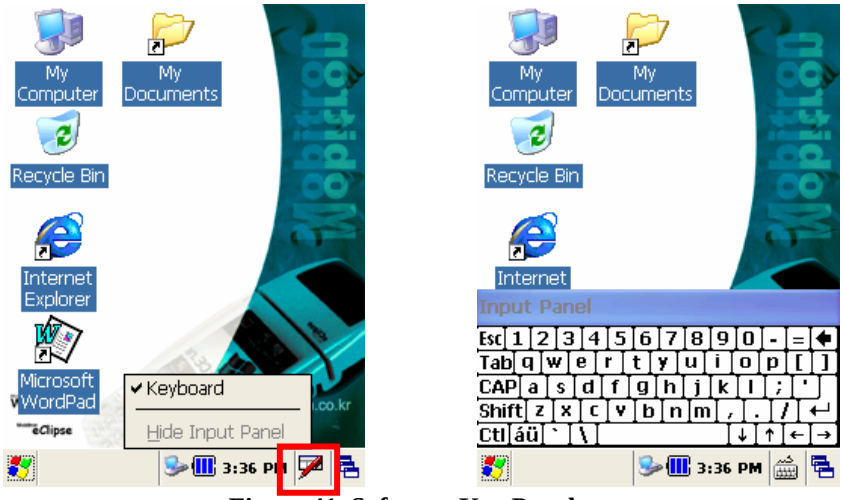

Figure 41. Software Key Panel

To hide the software key panel, tap keyboard icon again and then choose the "hide keyboard" menu.

Notification

System can notify the alert window for Battery capacity.

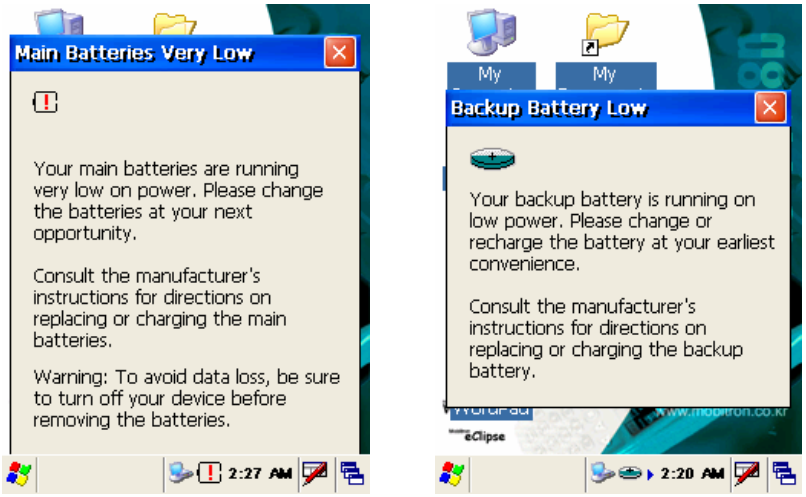

Figure 42. Main and Backup Battery Low Notification Window

Task Manager

To execute Task Manger, press Fn(function) key and Tab key at once until Task Manger pup up. Task Manger shows the list of current running programs. User can switch the specific program to activating program. And also user can shut down the specific program in the list

<End Task> button shot down the selected program. <Switch To> button activate the selected program.

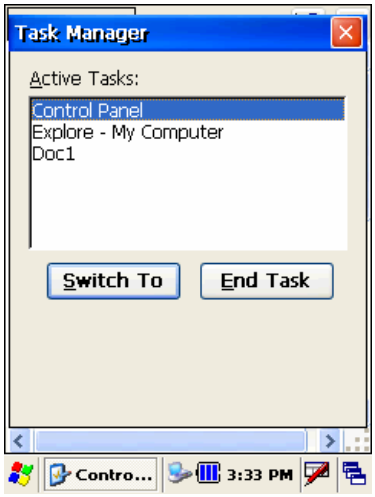

Figure 43. Task Manager

Data Storage

MDT supports several devices for extra data storage as followed.

IPSM (Intel Persistent Storage Manager)

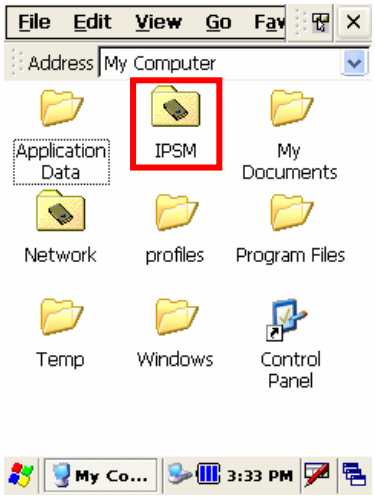

Figure 44. IPSM Folder

IPSM was designed and developed specifically as an enhancement to Windows CE operating systems. IPSM is an Intel Flash File manager and media manager that enable code execution, file storage, and Registry back-up in one or more Intel Flash components. To use IPSM, MDT equip IPSM folder. Using Windows Explorer can access IPSM folder. IPSM save your data from reset or change battery. We provide the IPSM space to 30MB. User can freely write, read and remove files into IPSM folder under 30MB.

SD Storage Card

MDT supply the SD card slot to user can use external storage card. When user inserts the SD card into the card slot, "storage card" folder is created automatically. User can read, write and remove any data onto "storage card" folder using Windows Explorer. Tap Start – Settings – Control Panel and Double-Tap Storage Manager icon to confirm the detail information about the current external card

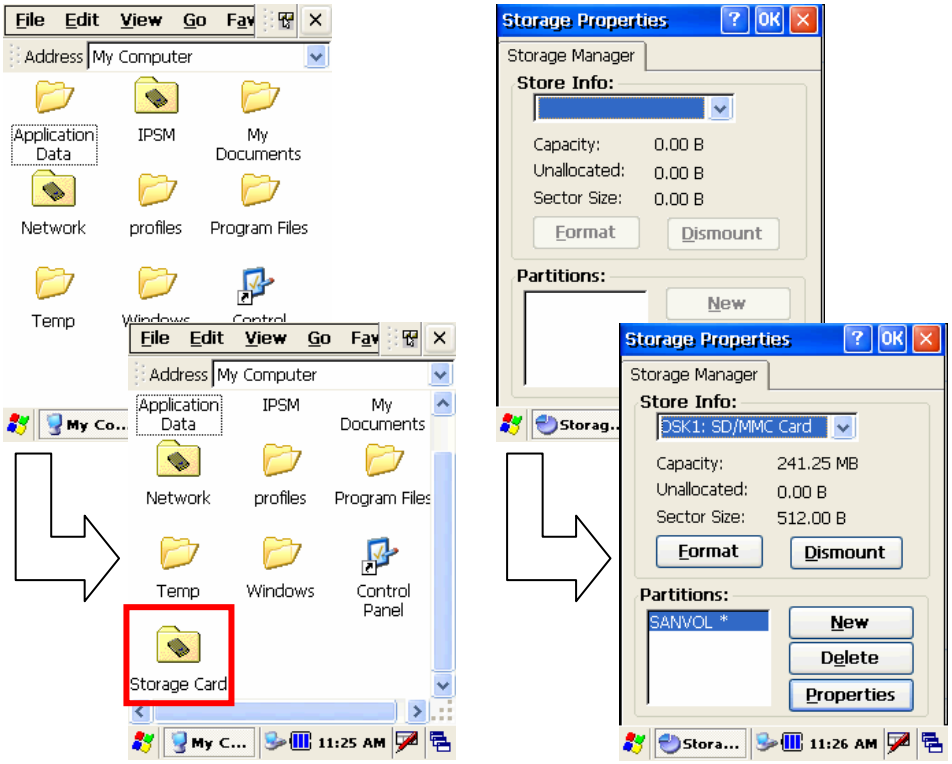

Figure 45. Compare before and after of using the SD card.

USB Storage Driver

MDT supply the USB Host to user can use external USB storage driver. When user inserts the USB storage driver into the USB host slot, "Hard Disk" folder is created automatically. User can read, write and remove any data onto "Hard Disk" folder using Windows Explorer. Tap Start – Settings – Control Panel and Double-Tap Storage Manager icon to confirm the detail information about the current USB storage driver.

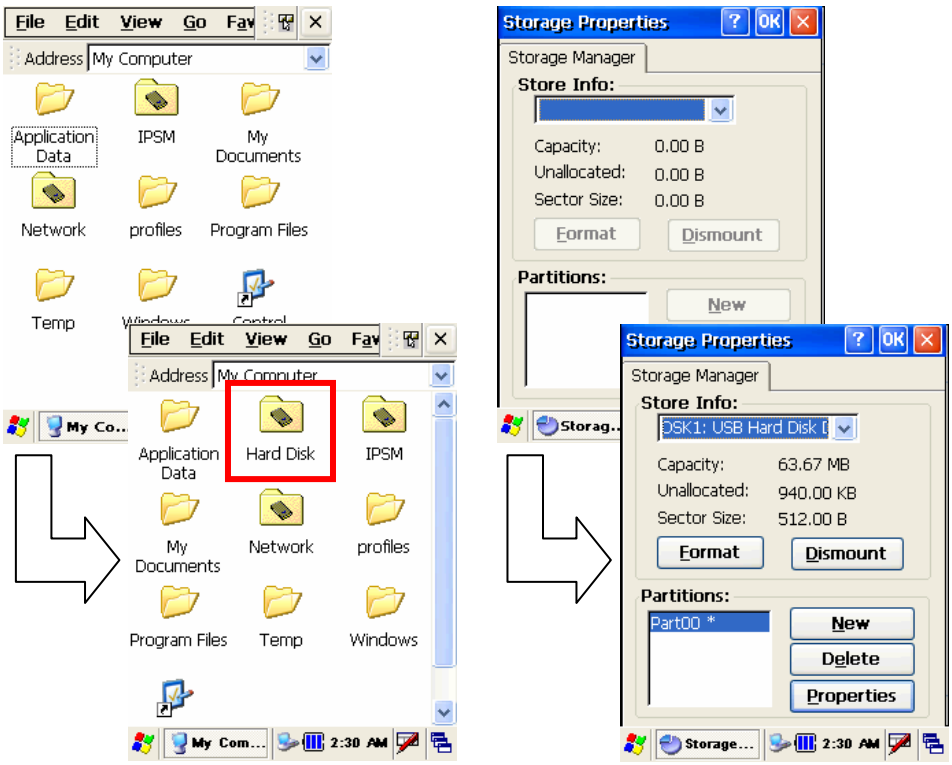

Figure 46. Compare before and after of using the USB storage driver.

Chapter 3 - Communications

Connect to the PC

MDT can be connected with PC using USB cable or IrDA.

Using USB Cable

Installing ActiveSync

Using ActiveSync, user can synchronize the information on your terminal with the information on host PC. Changes user make on terminal or host PC appear in both places after synchronize.

To install ActiveSync download the latest version of the software from http://www.microsoft.com. Refer to the installation and RAS instructions included with the ActiveSync software.

Connecting to PC with USB cable

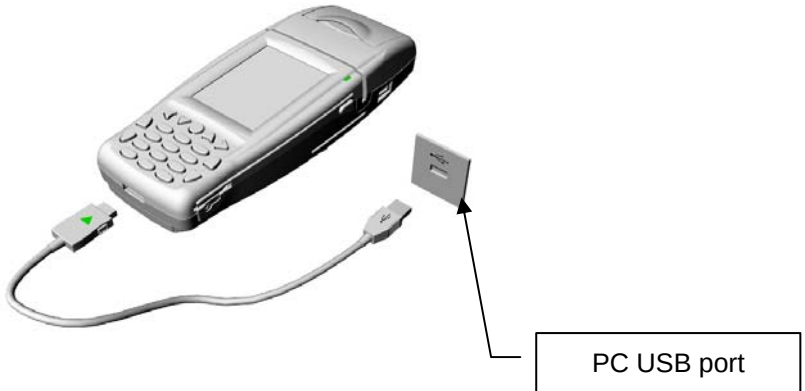

Figure 47. Connecting to PC with USB Cable

Connect the USB cable to the USB port both side of the PC and the terminal.

Using ActiveSync

1. First, you have to check Microsoft ActiveSync program on your PC. It must be installed. User can download latest version from Microsoft homepage.

2. On ActiveSync program on host PC side, click Connection Settings menu in the File menu. And check the option "Allow USB Connection with this desktop computer." And then click "OK" button.

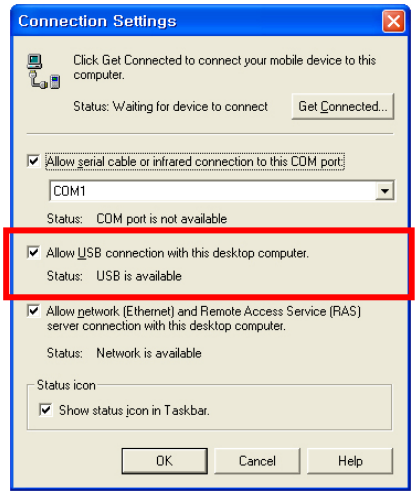

Figure 48. Connection Settings windows of Microsoft ActiveSync

3. After setting complete, connect the terminal to the PC.

4. When the terminal connects with the PC, both systems invoke systematic behaviors automatically. Behaviors are as follows.

   A. ActiveSync connection dialog should be popped up in your terminal.

   B. ActiveSync icon on the PC is changed to green color from gray color and then it start to rotate until the connection is complete.

   C. System on the PC pops up "Set up a Partnership" windows after the connection is complete.

D. Lastly, you can show the "connected" message in ActiveSync application both of terminal and the PC.

Using IrDA

MDT supports the IrDA communication. Close IrDA ports both side of the terminal and the notebook. And few second after, connect automatically.

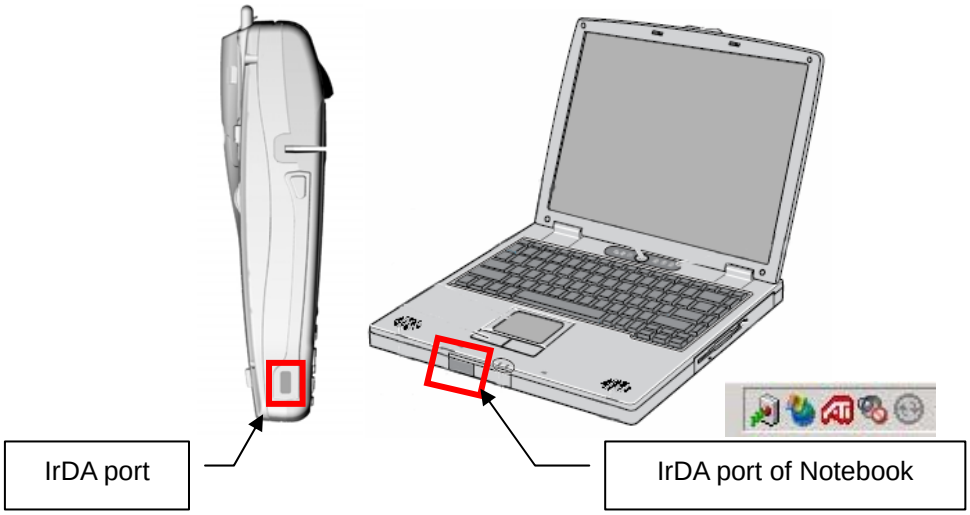

Figure 49. Example of IrDA connection

Connect to the Internet on a Wireless Network

MDT can be connected with Wireless network using Embedded / SDIO wireless LAN, CDMA or GSM / GPRS.

Using Embedded type Wireless LAN

MDT series with a built-in embedded type Wireless LAN card always display the WLAN icon on tray bar.

1. After system boot, MDT will display the zero configurations (prismnds1). To execute zero

configurations manually, double tap WLAN icon on tray bar.

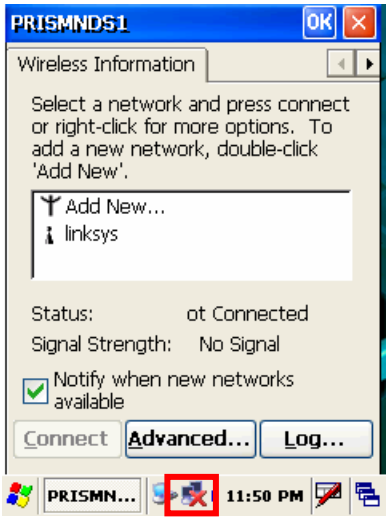

Figure 50. Zero configuration window and WLAN icon

2. You can select the accessible access point in the list. Select an access point and then tap <connect> button.

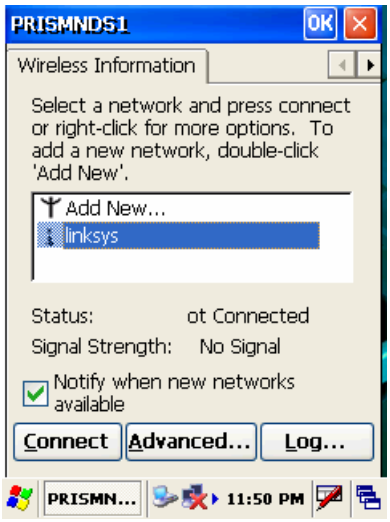

Figure 51. Select AP (access point)

3. If your wireless network supports DHCP, you don't need to set any information such as IP address,

gateway and DNS address. Tap <OK> button and then systems automatically try to connect network.

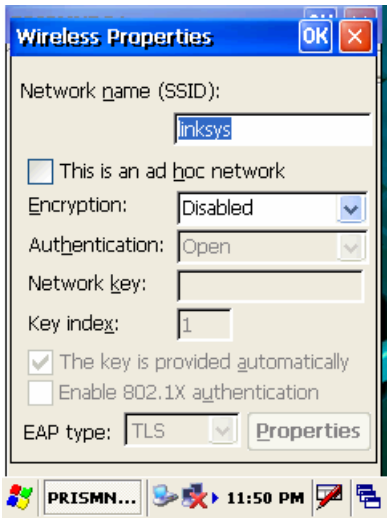

Figure 52. Wireless Properties window

4. If your network must have to use WEP key, you can use the WEP key and authentication.

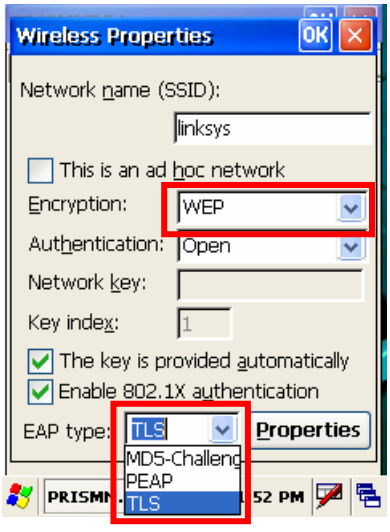

Figure 53. Set WEP key

5. After connect network, "Status" and "Signal Strength" message changed to "connected" and current

signal strength is displayed.

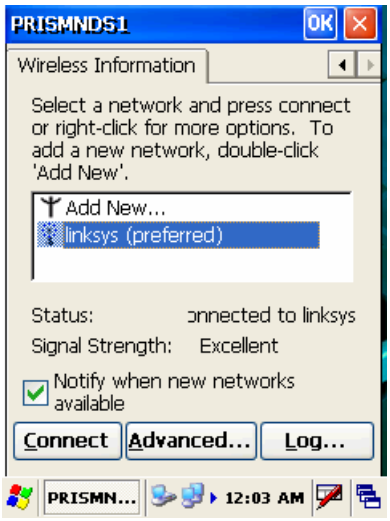

Figure 54. Connect success

6. In IP information, user can check network properties like "Address Type", "IP address", and etc.

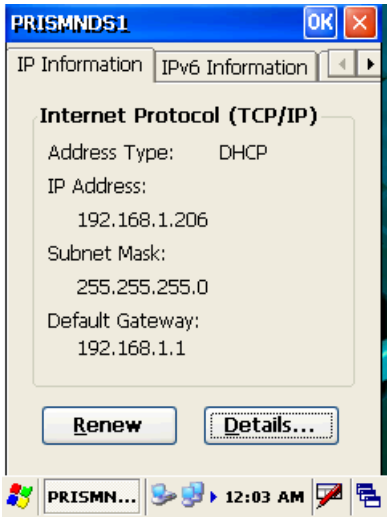

Figure 55. IP information tab

7. If you have to set the IP information, run following steps.

: Tap Start - Setting - Network and Dial-up Connections and double tap PRISMNDS1.
And then you can set IP address, Name servers and etc.

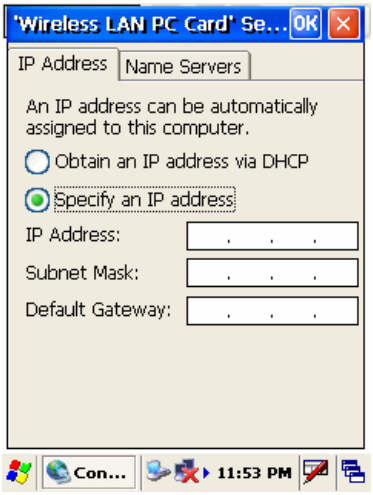

Figure 56. Set IP address

Use/Unuse of Wireless LAN

User can select whether use Wireless LAN. Open Control Panel and double tap Wireless LAN.

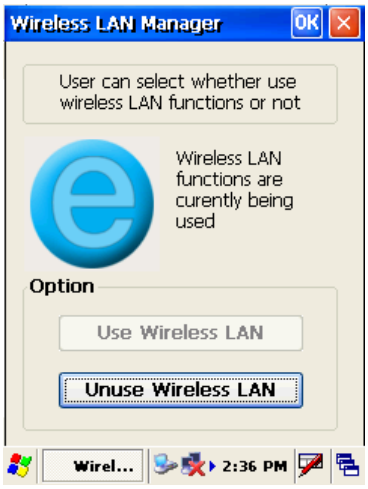

Figure 57. Wireless LAN Manager

Tap <Unuse Wireless LAN> button to unuse Wireless LAN. Then application asks for resetting system.

Tap <Yes> button and then system is reset. After resetting system, Wireless LAN is turned off. If you want to use Wireless LAN again, tap <Use Wireless LAN> button.

Figure 58. Ask for resetting system

Figure 59. Unuse of Wireless LAN

Using Mobitron SDIO Wireless LAN

You can also use the SDIO Wireless LAN card for connect to wireless network. MDT series supports SDIO Wireless LAN card only certified by Mobitron Co. ,Ltd..

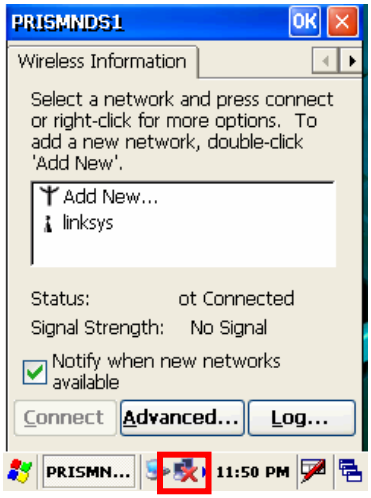

Figure 60. Zero configuration window

1. After insert SDIO LAN card to SD card slot, MDT display the zero configuration window (prismnds1). To execute WLAN dialog manually, double tap WLAN icon on tray bar, after insert SDIO LAN card.

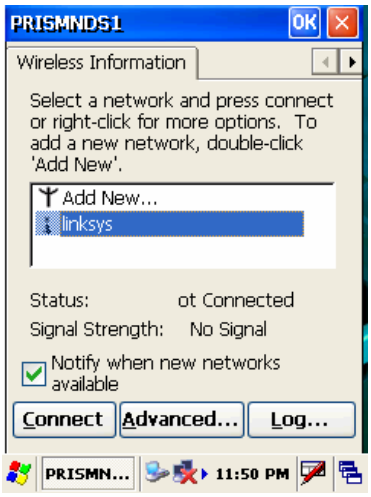

Figure 61. Select AP (access point)

2. You can select the accessible access point in the list. Select an access point and then tap <connect> button.

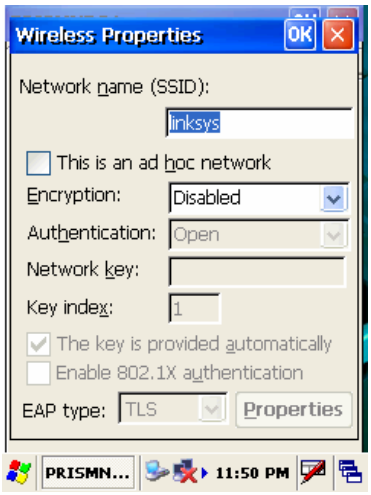

Figure 62. Wireless Properties window

3. If your wireless network supports DHCP, you don't need to set any information such as IP address, gateway and DNS address. Tap <OK> button and then systems automatically try to connect network.

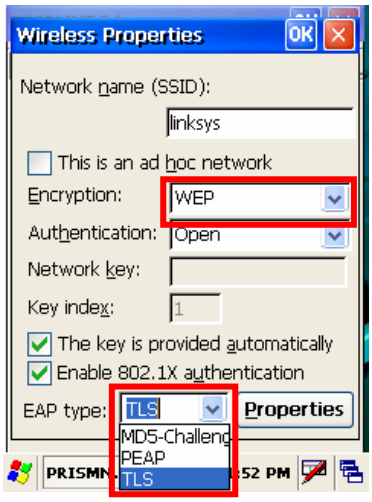

Figure 63. Set WEP key

4. If your network must have to use WEP key, you can use the WEP key and authentication.

Figure 64. Connect success

5. After connect network, "Status" and "Signal Strength" message changed to "connected" and current signal strength is displayed.

Figure 65. IP information tab

6. In IP information, user can check network properties like "Address Type", "IP address", and etc.

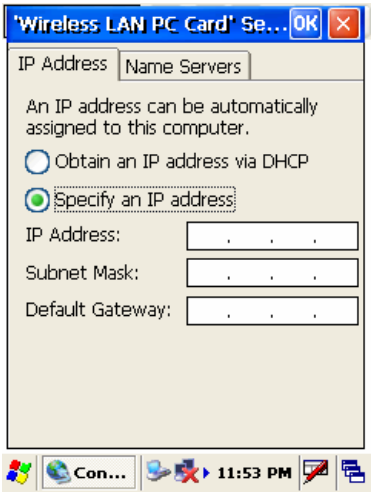

Figure 66. Set IP address

7. If you have to set the IP information, run following steps.
: Tap Start - Setting - Network and Dial-up Connections and double tap PRISMNDS1.
And then you can set IP address, Name servers and etc.

Using CDMA 1xEV-DO

Introduction

Feature

1. Support major air interfaces including CDMA20001X, CDMA2000 1xEV-DO.
2. Support IS-856 1xEV-DO, high-speed data rates of 2.4Mbps on forward link and 153Kbps on reverse link.
3. 2-Way Short Message Service (SMS) reception and transmission.

Getting Started

To use EVDO modem of your terminal you have to activate your modem. It you need more information regarding modem activation, refer a [Modem Activation] part.

Figure 67. Main Screen

After the terminal boot up, system displays modem states using icons on the tray bar. Icon types are described to following table.

SMS icon( ) is displayed only when new messages are arrived and disappeared when you read this message on SMS application.

Antenna icon represents antenna diversity of modem. There are two types of icon that represent 1xEV-DO

and 1x-RTT signal level. The icon in green color () represents 1xEV-DO level and the icon in blue color () represents 1xRTT level. They are changed each other during every 5 seconds.

Modem status icon represents the working mode of modem. Power off icon () displayed only when modem is powered off. DM icon () is very special one. It means the modem is working in DM mode. If the modem is entered to DM mode, you have to reset the terminal to use the modem functions after using DM functions.

- Icons Types

Icon Type	Icon	Description	Icon	Description
SMS icon		**New SMS arrived**		
Antenna icon		**No signals**		**Signal level 0**
		**EVDO Signal level 1**		**RTT Signal level 1**
		**EVDO Signal level 2**		**RTT Signal level 2**
		**EVDO Signal level 3**		**RTT Signal level 3**
		**EVDO Signal level 4**		**RTT Signal level 4**
Modem Status icon		**Modem is in DM mode**		**Modem off**

Modem Activation

You have to check MIN and MDN has programmed after power up. If it is not programmed, start activation procedure.

Requirements

- Electronic Serial Number (ESN, 8 digit) code of your modem. This value is unique hexadecimal code. To acquire this value please contact terminal maker.
- Activation code (Unlock code, 6 digit).
- MIN(MSID, 10 digit) & MDN(10 digit) number. (Sprint target should be programmed MIN and MDN. Typically those 2 numbers will be different.)

Before the Activation

After the terminal power up, system check the modem activation automatically. If modem is not activated yet, modem activation procedure is started automatically.

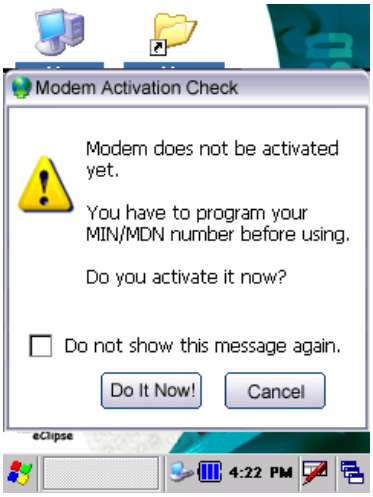

Figure 68. Activation Popup

If you want to start activation procedure manually, you can do it on modem control application in control panel.

Note. If you want to disable the system function for checking the status of modem activation, check "Do not show this message again" check box and tap <cancel> button. You can enable this function on modem control application.

Note. If you need more information regarding modem control application, refer a [Modem Properties Setting] chapter.

Activation Procedure

It is necessary to activate modem to prepare the ESN number, activation code and MIN/MDN number.

If you are ready, tap <Next> and enter the prepared activation code (unlock code) and tap <Next> button.

Note. If you are failed to unlock the modem, you must wait 10 second to re-enter the activation code.

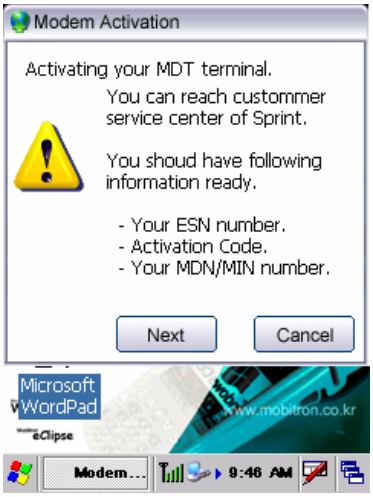

Figure 69. Activation Procedure: Start

If modem is successfully unlocked, enter your phone number (MDN, 10 digit) and MIN number(MSID, 10 digit).

And then tap <Next> button

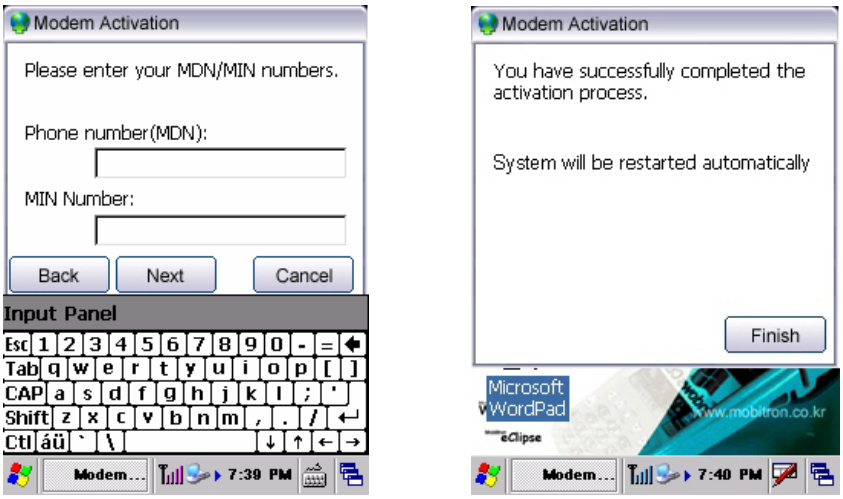

Figure 70. Activation Procedure: Configuring

You have now successfully completed the activation process. Tap <Finish> to finish the activation wizard. System will be restarted automatically.

Using the CDMA 1xEV-DO Network Service

Update Data Profile

After modem activation, when you make a first data connection, the system will start an automatic IOTA session to update data profile which is required for data connection. Typically it takes 3 minutes. Please wait until it is finished and try again.

Figure 71. Update Data Profile

Connecting Your Terminal to the Internet

To use internet services, follow by instructions.

Tap 'Start' button ▸ tap 'Setting' item ▸ select 'Network and Dialup Connections' ▸ double tab "EVDO"

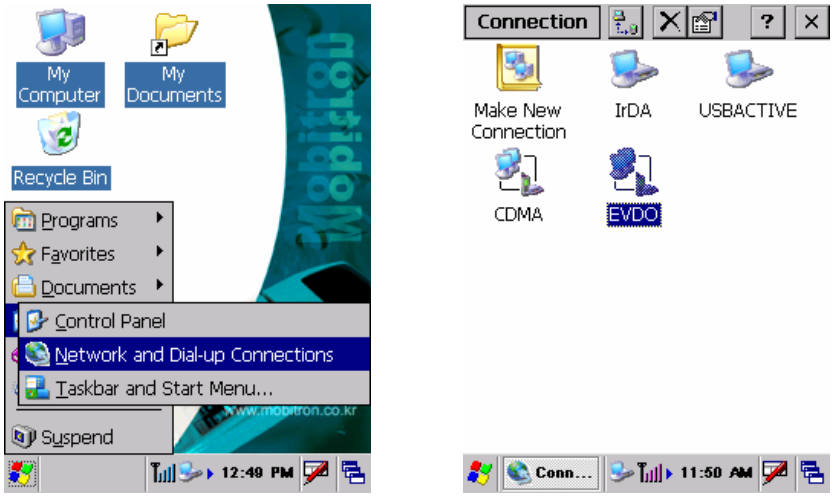

Figure 72. EVDO Connection icon

Then Dial-Up connection dialog will be executed. You don't need to fill out username and password. Tab <Connect> button. Then modem will try to connect to the network.

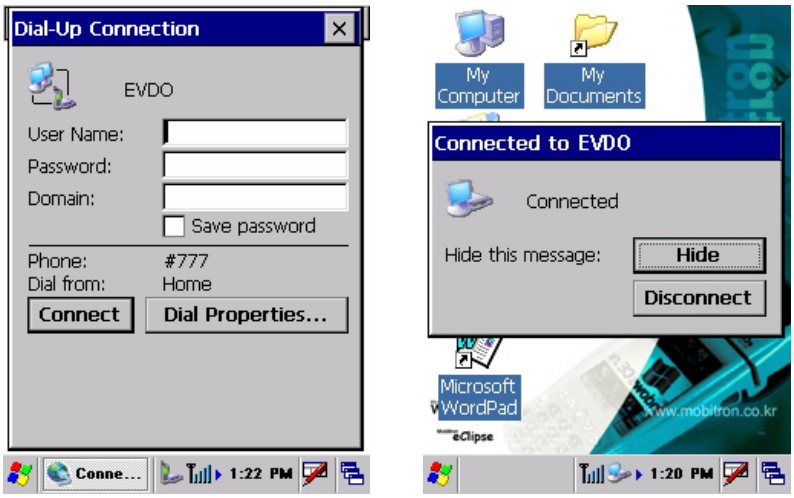

Figure 73. Dial-Up Connection dialog

After connecting, you can confirm the message "connected" as figure 72. Then tap <Hide> button.

Execute Microsoft Internet Explorer and enjoy the EVDO internet.

Connecting Your Terminal to the Internet

To disconnect from the EVDO network, double tap EVDO icon on tray bar. Then system wills popup the message box as figure 74. Tap <Disconnect> button.

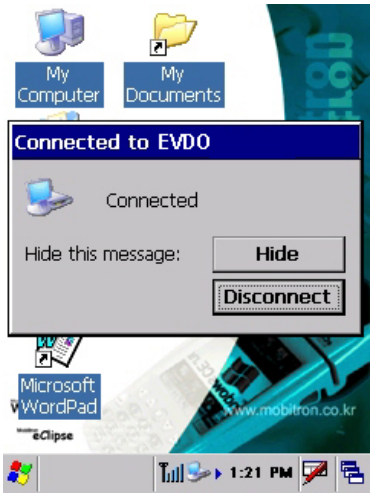

Figure 74. Connection message box

Using the CDMA Applications

Modem Control Application

In modem properties setting utility, User can check current modem status and set the modem mode.

To Modem properties setting, run following steps.
: Tap 'Start' button ▸ tap 'Setting' item ▸ select 'Control Panel' ▸ double tap 'Modem' icon

General Information

In General tab, User can confirm the general information of modem

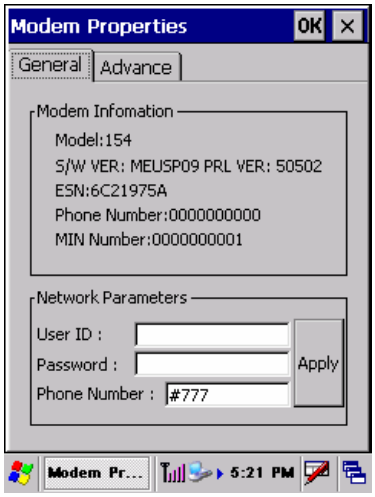

Figure 75. Modem Properties General tab

Network Parameters

User can configure the network parameters.

Note. In EVDO version, username and password are ignored. And sprint network is using call number #777. So you don't need change any parameters.

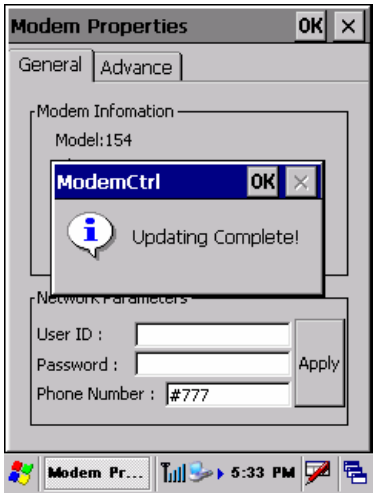

Figure 76. Apply Network Parameters

Power Control

User can control the modem power at advance tab. If you want to turn off the modem power, tap <Power off> button and wait about 10 seconds. Then you can hear beep sound of three times. And then you can see the <Power OFF> button is changed to <Power ON>.

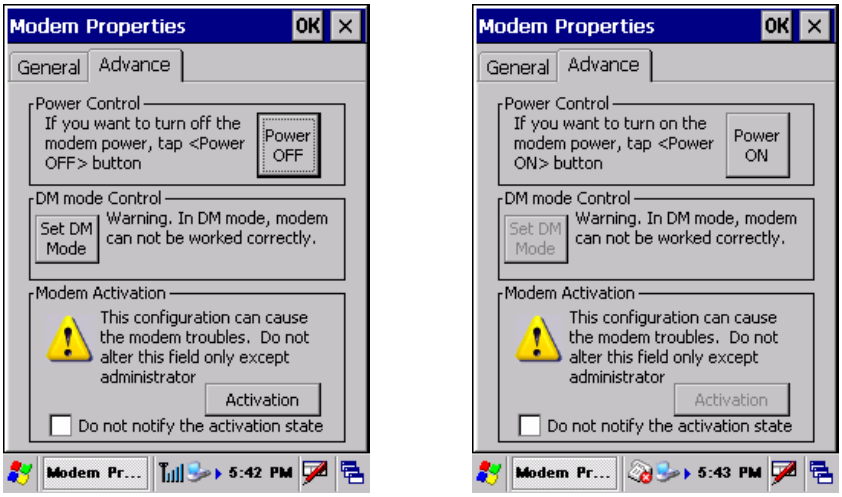

Figure 77. Change the modem properties after modem power off

If you want to turn on the modem power, tap <Power ON> button, then wait about 10 seconds. Then you can hear a beep sound. And then you can see the <Power ON> button is changed to <Power OFF>.

DM Mode Control

DM is a administrator only, if you want to change the modem operation mode into DM, tab <Set DM Mode> button and enter the password. To return to normal mode, reset the terminal.

Note. In DM mode, modem can not be work correctly. So you have to reset the terminal after using DM mode.

Note. Ask to Administrator for DM password.

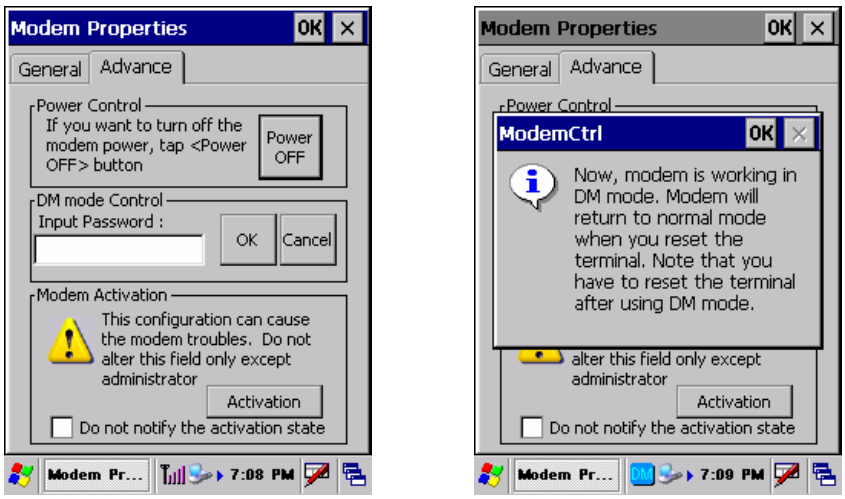

Figure 78. Change a modem to DM mode

Modem Activation

Tap <Activation> button in 'Modem Activation' part and process modem activation procedure. More information about modem activation, refer to "Modem Activation" part.

Set a bottom check box, and system do not popup 'Modem Activation Check' dialog when reset the terminal. If user wants to see a 'Modem Activation Check' dialog after reset the terminal, release a check box.

SMS Manager Application

SMS application supports reception and transmission of short message services. SMS application supports <Inbox> and <Outbox>. <Inbox> is storage that stores received messages, and <Outbox> is storage that stores sent messages. Each one of storages has limited to 100 messages.

Location: \My Computer\Windows\SMS.exe

Icon:

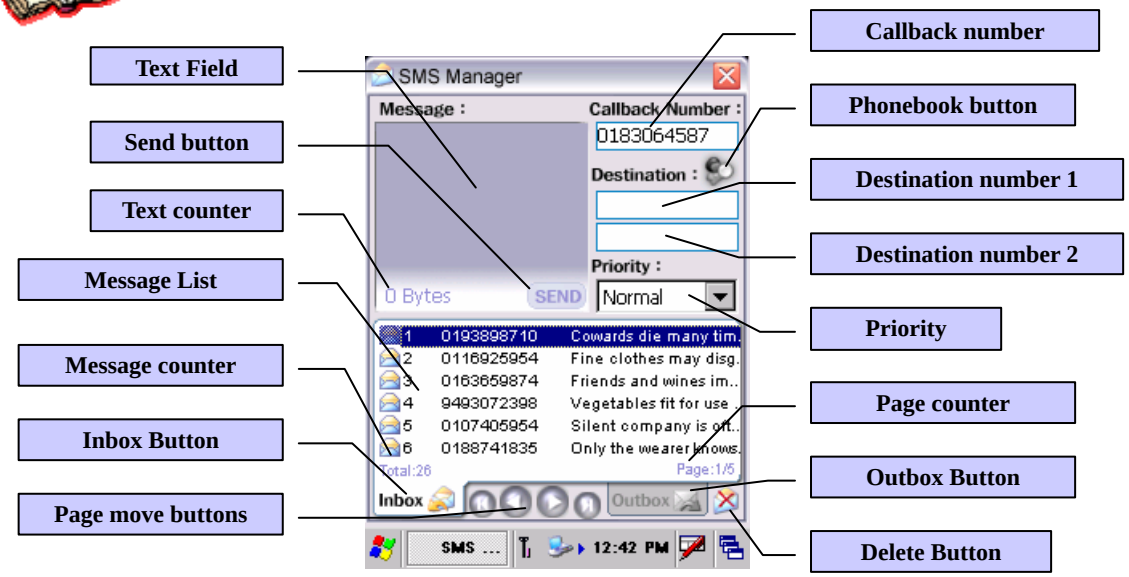

Figure 79. SMS program

Part Name	Description	
Text Field	Text field for message editing that is sent.	
Send Button	Send message on text field to destination number	
Text Counter	Total byte of texts in text field. Limited to 150 byte.	
Callback number	Callback number, default number will be phone number.	
Phonebook button	Run phonebook application.	
Destination number 1	Phone number of someone who receive message. Can't be blank.	
Destination number 2	Phone number of other people who receive message. Can be blank.	
Inbox Button	Display received messages at message window.	
Outbox Button	Display sent messages at message window.	
Message list	Message list. It can be "Inbox" or "Outbox".	
Page move buttons		Move to first page.
		Move to previous page.
		Move to next page.
		Move to last page.
Delete button	Delete selected message	
Page counter	Total page count of current selection.	
Message counter	Total message count of current selection.	
Priority	Priority of sending message. It can be "Normal" or "Urgent".	

Table. SMS application part descriptions

Send short message

To send short message, user must fill out <Destination>, <Callback Number> and <Message> field. <Destination> is the telephone number whom to receive short message. <Callback Number> is the sender's number. In default, application filled it to user's telephone number. Note that message does not exceed 150 bytes. If necessary, user can set the <Priority> field to 'Urgent'

User can use phonebook application and message dialog to fill out <Destination> field. More information about phonebook application, refer to phonebook section.
Now if all things are complete, tap <send> button to send message,

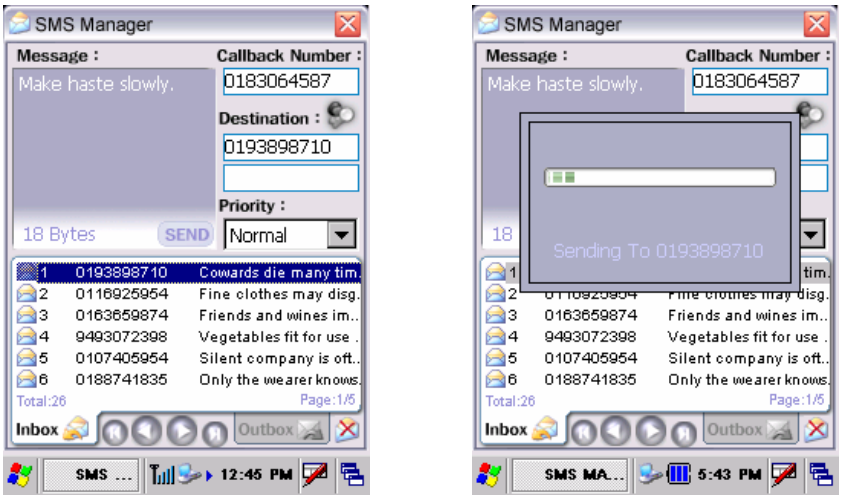

Figure 80. Make and send SMS

Inbox and Outbox

Inbox shows received messages and outbox shows sent messages.. Six messages are displayed on message list at one page. List only shows message header and sender's phone number of each message. If you want to read whole message of certain message, double tap the message on the list and then message window is executed

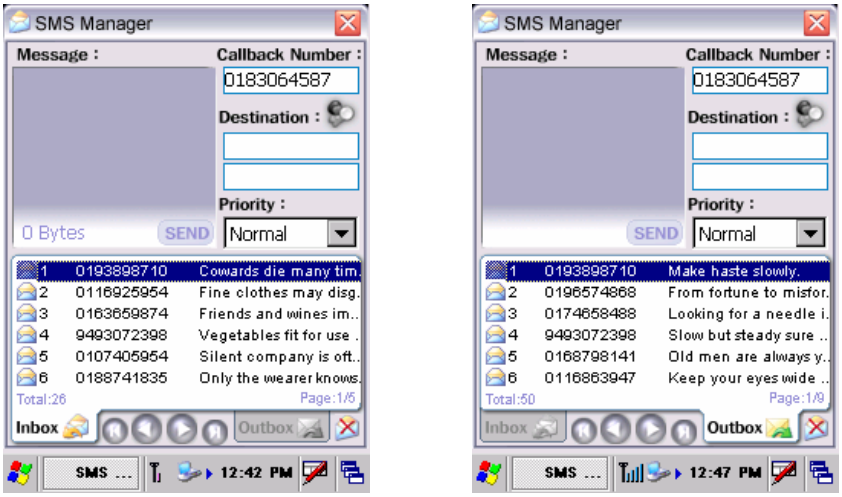

Figure 81. Inbox and Outbox

On the left-bottom of message list, the numbers of total messages are displayed. And the other side, the index of current page and the numbers of total pages are displayed. <Delete> button deletes selected message from message list. The list does not support multi-selection. So you can delete one message at once.

Note. If you need more information regarding message window, refer a [Message Window] section.

Message window

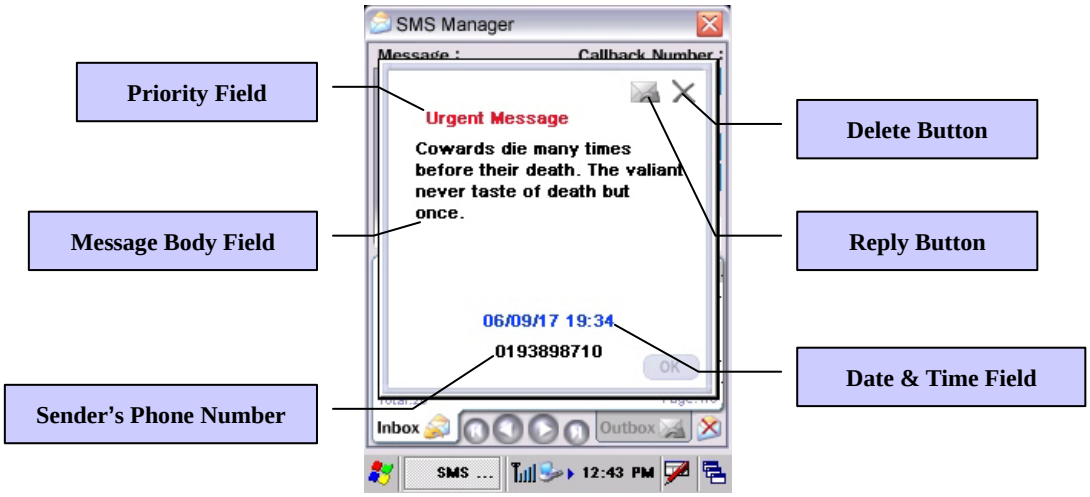

Figure 82. Message dialog

Message window is executed when you double tap a certain message on the message list. Message window displays message priority, body, date & time and phone number.

Message window displays the priority of the message at priority field. If the message priority is "Urgent", "Urgent Message" will be displayed. But the message priority is "Normal", this area will be set to blank.

Part Name	Description
Priority Field	**If priority of sent message is "Urgent", display "Urgent Message" text**
Message Body Field	**Text field of sent message.**
Sender's Phone Number	**Phone number of someone who sent this message.**
Reply Button	**Return to SMS main screen and fill out the 'Destination number 1' field with 'Sender's Phone Number' data.**
Delete button	**Delete this message**
Date & Time Field	**Date and time when sent this message.**

Table. Message window part descriptions

Telephone Application

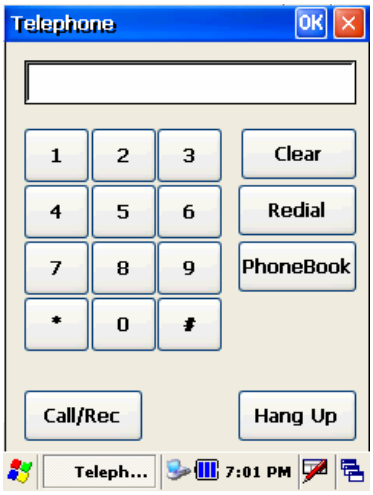

Figure 83. Telephone program

For using Voice Call service, run Telephone program. This program calls up or receives voice call. To run telephone program, double tap antenna icon on the tray icon bar or double tap telephone icon on the main screen.

Button & Field	Description
Clear	Clear phone number.

Redial	Call up with last call number.
Phonebook	Run Phonebook program.
Call/Rec	Call up or receive incoming call
Hang Up	Hang up incoming or outgoing call.
0 ~ 9 * #	Numeric key button.

Table. Telephone application part descriptions

Send outgoing call

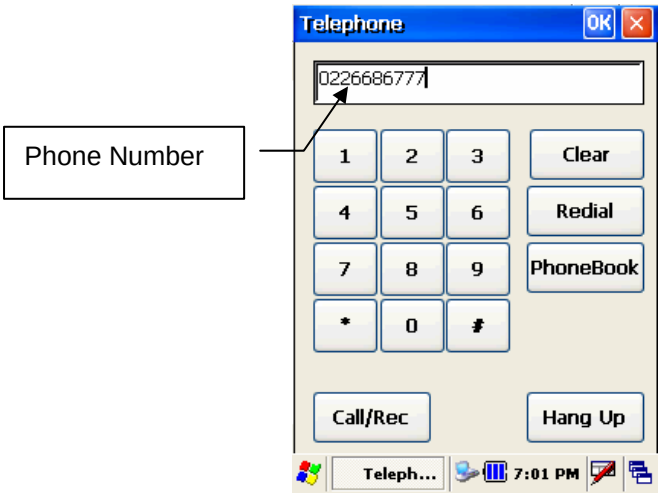

Figure 84. Test Calling

Fill the phone number field with destination phone number and tap "Call/Rec" button.

Answer the incoming call

For incoming call, system automatically detects and run telephone program with incoming bell. To answer the telephone, tap "Call/Rec" button.

Phonebook Application

For using Phonebook function, run Phonebook program. This program store specific user information such as name, phone number, address and so on. To run telephone program, double tap phone book icon on the main screen. User can also run on SMS or telephone program.

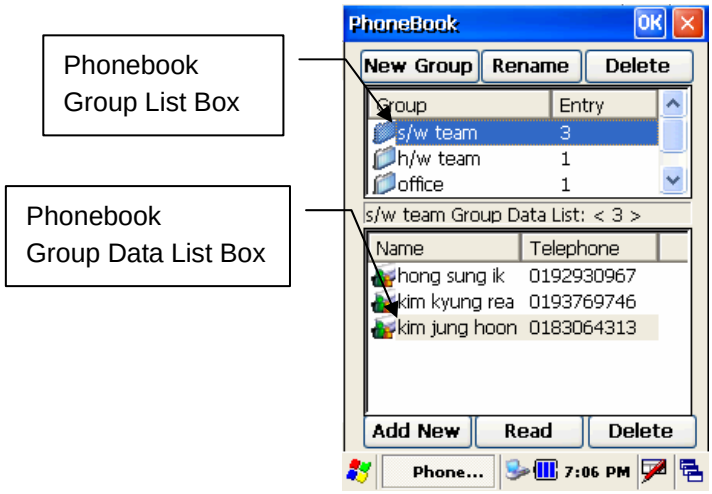

Figure 85. PhoneBook Main Screen

Figure 85 shows main screen of phonebook program. All user information is managed with group.

Add Phonebook Group

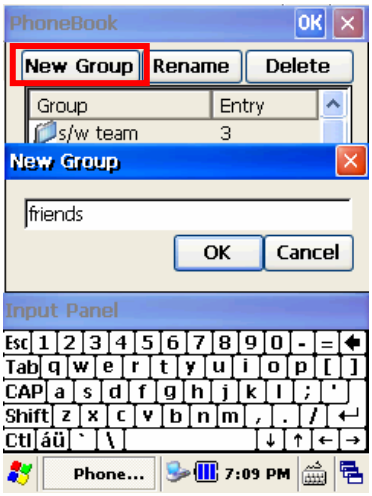

Figure 86. Create New Group

Tap <New Group> button for make new group. Popup input box for new group's name. Fill the name and tap <OK> than create new group. Newly making group's entry is empty.

Delete Phonebook Group

Figure 87. Delete Group

Select group and tap <Delete> button upper Group List box. That show Delete Group window with selected group's name and all data number of group. Tap <Yes> will delete group.

Read Phonebook Data

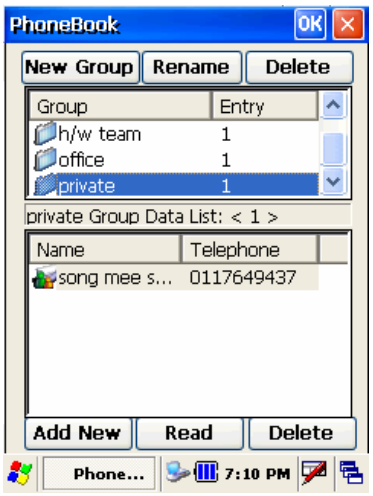

Figure 88. Select Group of PhoneBook

Double tap item of Group list, can show group data at Group Data List box.

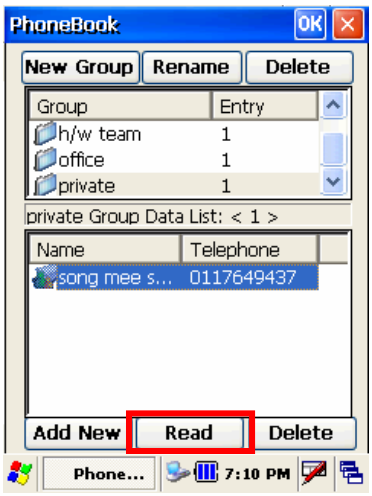

Figure 89. Read Phonebook data

Select Phonebook data and tap <Read> button for read data. Or double tap Phonebook data get same function

Figure 90. Phonebook Data Window

Figure 90 show Phonebook Data Window after tap <Read> button. Phonebook Data Window show Name, Group, Mobile Phone, Phone, e-Mail, Address, Description data of selected phonebook data.

<SMS> and <Telephone> button will run SMS and Telephone Program with this data.

Modify Phonebook Data

Figure 91. Phonebook Data Window

Tap <Modify> for modify data.

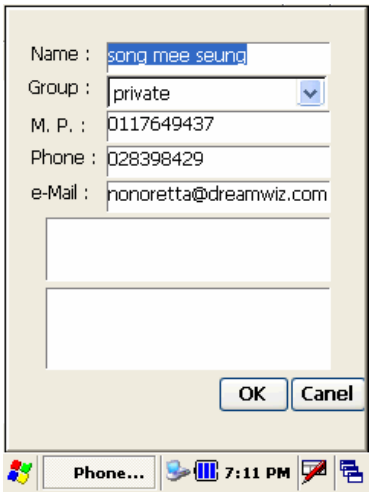

Figure 92. Modify Phonebook data

In this window can change every data and choose other group. Modify data and <OK> than data save.

Running Linked Program with Phonebook Data

Figure 93. Run with Phonebook data

At Phonebook Data window, run SMS or Telephone program with this saved phone data, tap suitable button. If saved two phone numbers – M.P. and Phone than select box will popup

Add Phonebook Data

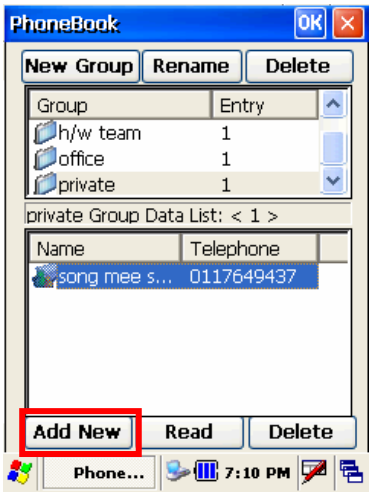

Figure 94. Check new group and add data

For add new data, Tap <Add New> button under Group Data List box.

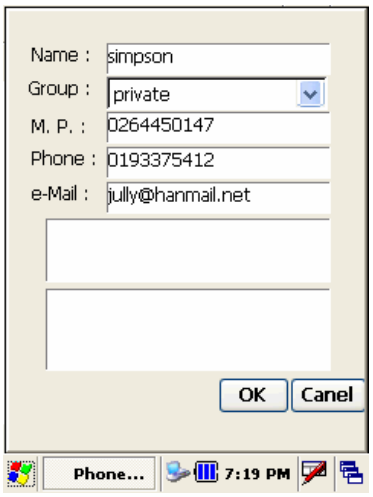

Figure 95. Make Phonebook Data Window

Fill each data and tap <OK> than make new data. "Group" field get selected group name by default value. Select other group can belong to selected group this data.

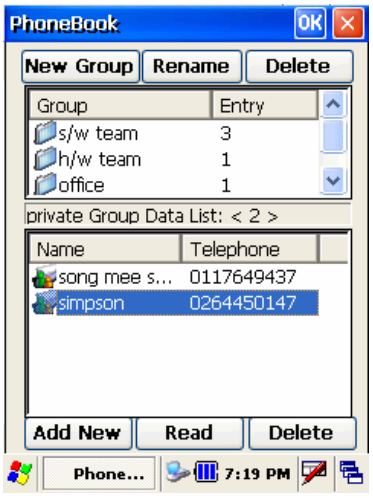

Figure 96. New Phonebook data

Figure 96 show that added new data.

Delete Phonebook Data

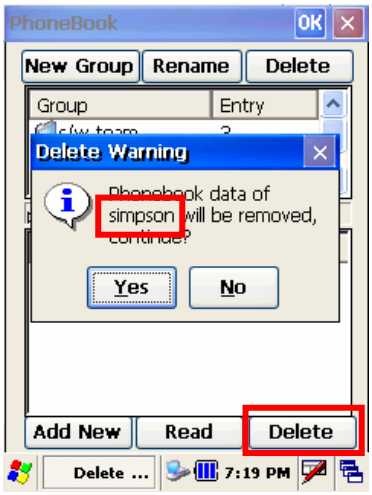

Figure 97. Delete Phonebook data

Select data and tap <Delete> button under Group Data List box, will show Delete data window with selected data's name. Tap <Yes> can delete data.

Using GSM / GPRS

Using the GPRS Network Service

GPRS Properties Setting

To set up GPRS properties:

1. Open Network and Dial-up connections.
   : Start ▶Settings ▶ Network and Dial-up connections

2. Select GPRS icon, and tap <Property> button like as follow figure.

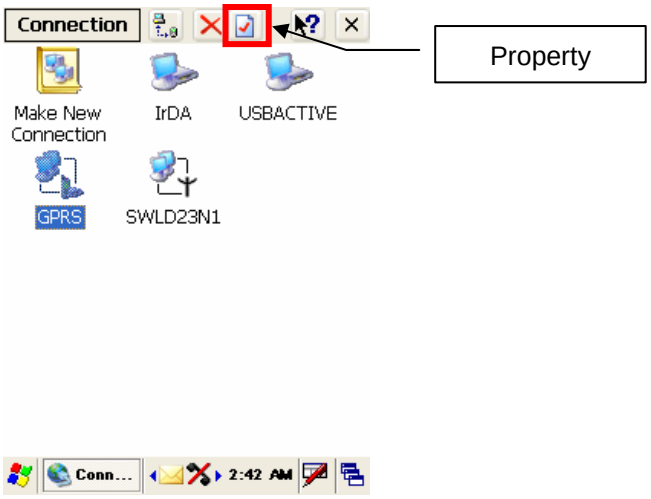

Figure 98. Network and Dial-Up connections

3. Tap <TCP/IP Settings…> buttons. You can change only the TCP/IP settings. We strongly recommend **do not alter** any other settings.

4. You can set the IP, DNS and WINS address. If service operator does not provide IP address, keep the text box empty.

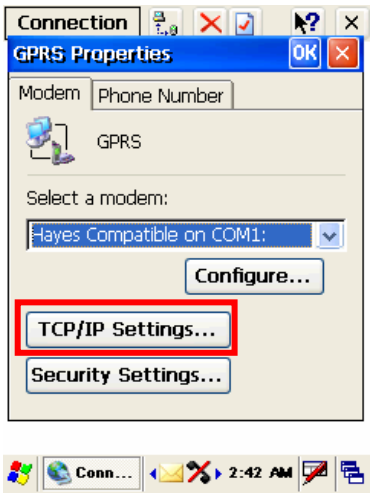

Figure 99. GPRS Properties

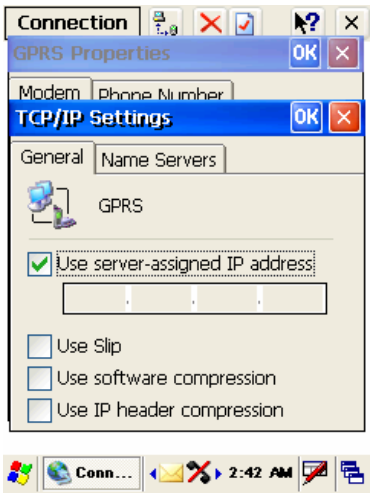

Figure 100. TCP/IP Settings

Using Packet Data Service

To log onto the GPRS network, there is two ways. The one is using a GPRS connection on "Network and Dial-up connections".

: Start ▶ Settings ▶ Network and Dial-up connections

And then double tap GPRS icon. If service operator provides 'User Name' and 'Password', you have to write that in each text box. Tap <Connect> button and then system starts to connect on GPRS network. For save these settings, close 'Dial-Up Connection' dialog, and do software reset.

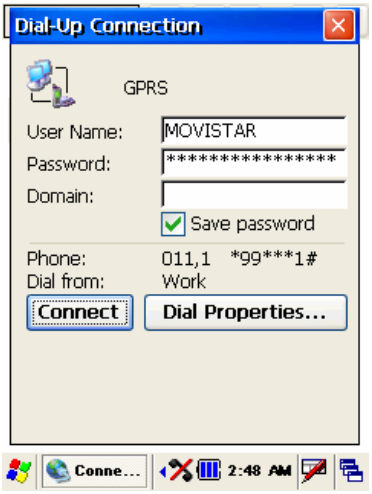

Figure 101. Dial-Up Connection

Other way is using Microsoft Internet explorer. Execute explorer, then GPRS connection dialog will popup like as upper (using 'Network and Dial-up connections') case. If explorer has not popup a dialog, you have to change the explorer setting as follow.

: Explorer ▶ view menu ▶ Internet Options menu ▶ Connection tab

In Connection tab, there is "autodial name" setting combo box. Choose a GPRS and close the explorer. Run explorer again, and then GPRS connection dialog will popup.

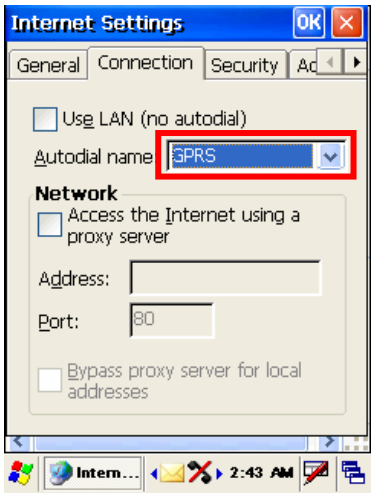

Figure 102. Connection setting in explorer

Figure 103. <Disconnect> button

If you want disconnect GPRS, double tap connection icon on system tray, then tap <Disconnect'> button.

Using the GSM

Basic Tray ICON

Figure 104. Main Screen

Figure 105. Popup menu

- GSM Icons

SMS Icon	Description	Antenna icon	Description
	All SMS messages read		No signals
	New SMS message arrived		Signal level 0
			Signal level 1
			Signal level 2
Power off Icon	**Description**		Signal level 3
	Modem Power off		Signal level 4

System supports two type icon(SMS icon, Antenna icon). SMS icon notifies the arrival of new message. To execute SMS application, double tap SMS icon on tray bar. Antenna icon represents the status of current antenna level. Tap the Antenna icon on tray bar, then menu item will be appeared. In this menu, user can execute applications regarding modem and also can turn on/off the modem power.

Power On / Off

It is possible to control the modem power as user's requirements. To control the modem power, tap the icon(<antenna icon> or <power off> icon) on tray bar. If you want turning off the modem power, select "Power off" menu, and then, a few seconds later, you could be here beep sound at three times. This sound means modem power is successfully turning off. When modem power is turned off, SMS icon will be disappeared and Antenna icon will be changed into <Power off> icon.

Figure 106. Power off

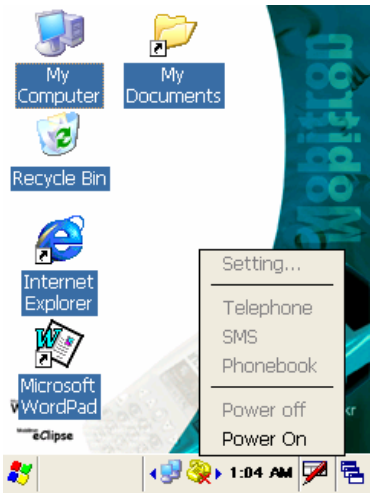

Figure 107. Power off icon popup menu

To restart the modem, re-tap the icon on tray bar and select "Power on" menu. In this time, buzzer will be

sounded just one time. Also, SMS icon will be restored and <Power off> icon will be changed into <Antenna> icon.

GSM Property Setting

Melody & Volume

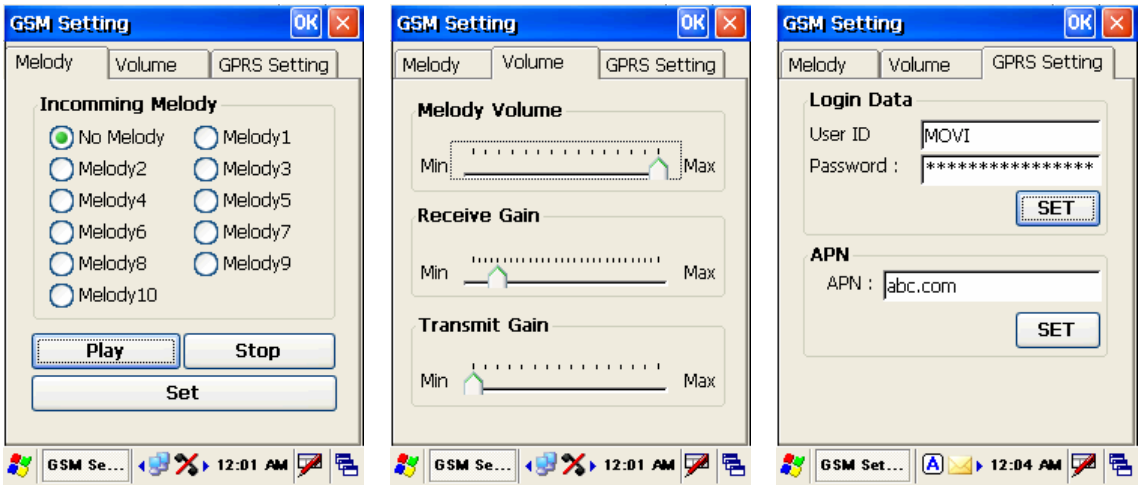

Figure 108. Setting Dialog

To set the incoming melody:

1. Select "melody" tap.
2. Choose the melody type and tap <SET> button.
3. Before setting, you can listen to a melody by tapping <play> button before setting.

To set the Melody volume:

1. Select "Volume" tap.
2. Melody Volume, Receive Gain and Transmit Gain is automatically set when user move the slider.

To set the Login Data:

1. Select "GPRS Setting" tap.
2. Write down the User ID / Password and tap <SET> button.
3. Popup the "Setting Completed" message window as follows. Tap <OK> button.

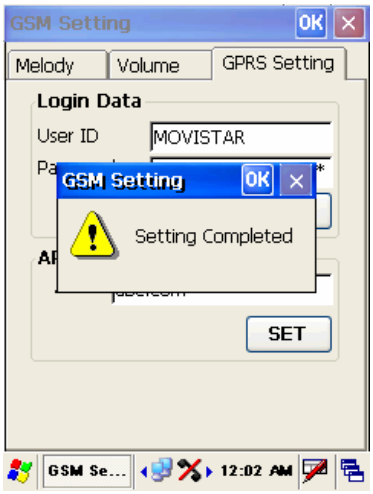

Figure 109. "Setting Completed" message window

To set the APN:

1. Select "GPRS Setting" tap.
2. Write down APN and tap <SET> button.
3. Message window will be appeared for confirming of the APN. Tap <Yes> button.
4. When APN setting is successfully completed, "APN Modification Success" message will be popup. Tap <OK> button.

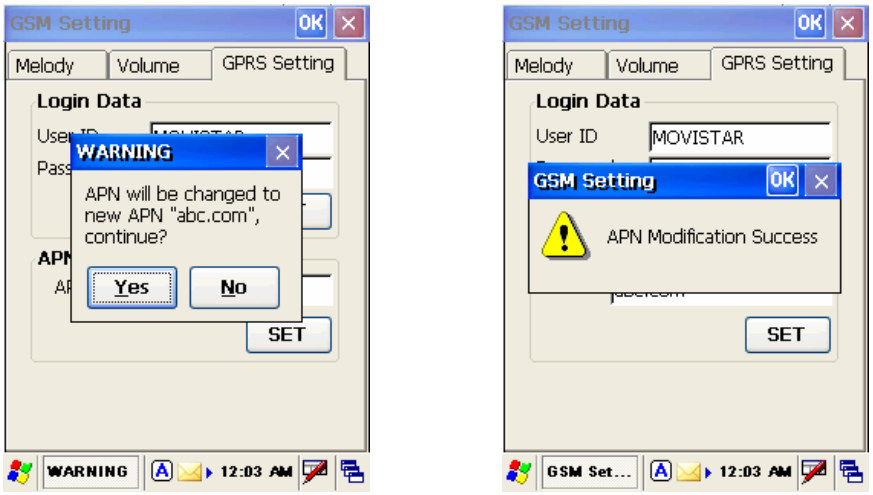

Figure 110. APN confirm and modification success message window

SMS Application

Main Screen

Figure 111. SIM card check

Figure 112. SMS Main Screen

Before starting system, check whether the SIM card is inserted in the terminal. If SIM card is not inserted, SMS application alerts "SIM card Check" message window as Figure 111.

Figure 112 shows main screen of SMS application. SMS application receives or sends a short message. Max transmission capacity of text is 80 Byte.

Sending Message

To send a message:

1. Enter the phone number. You can type the phone number or use phonebook.

2. Type SMS message.

3. To send the message, tab <SEND> button. If message transmission is successfully completed, SMS application will display the success message on Status area. But if message transmission is failed, SMS application will display the failure message.

Figure 113. Edit Message

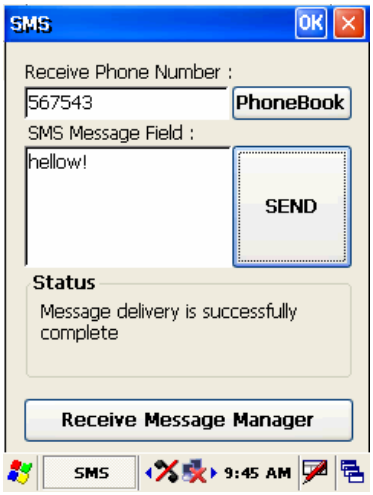

Figure 114. Success to Send Message

Reading & Manage Message

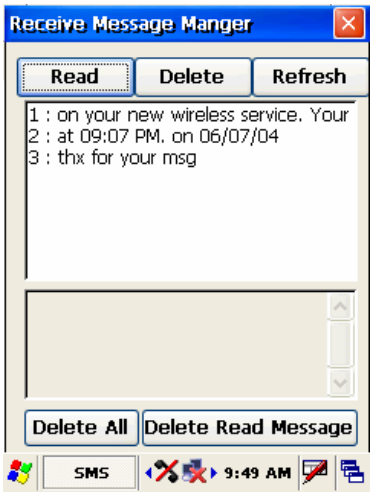

Figure 115. Receive Message Manager

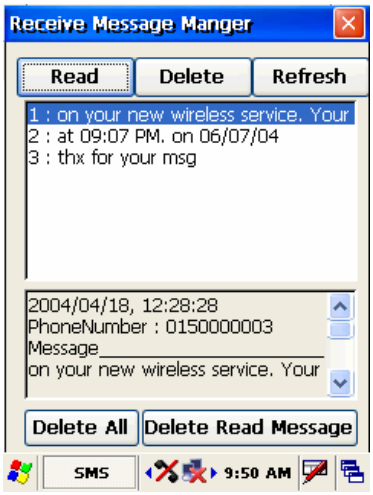

Figure 116. Reading Received Message

To read received message:

1. Tap <Receive Message Manager> button on main screen.
2. Select a message in the list, and tap <Read> button, and then content of the selected message is displayed

To manage the received messages:

1. <Delete> button deletes a selected message.
2. <Delete All> button deletes all messages in SIM card.
3. <Delete Read Message> button deletes message you have read.
4. <Refresh> button reloads all messages from SIM card.

Telephone Application

Main Screen

Figure 117. Telephone main screen

Telephone application can calls up or receives a call. To execute Telephone application, double tap telephone icon in desktop screen.

Button & Field	Description
Clear	Clear the Number field. Tap <Clear> button, if you typed wrong phone number.
Redial	Set up a outgoing call with lastly dialed number.
Phonebook	Run Phonebook application.
Call/Rec	Set up a outgoing call or receive a incoming call
Hang Up	Hang up the all calls.
0 ~ 9 * #	Numeric key button for input of phone number or ARS.
Setting	Configure the incoming melody type, sound volume and voice volume.

Table. Telephone application part descriptions

Voice Call

Figure 118. Telephone Main Screen

Figure 119. Receive a call

To phone call:

1. Type phone number.
2. Tab <Call/Rec> button.

To receive a call:

1. When the terminal receives a call, Telephone application is automatically lunched.
2. You can accept the call by tapping <Call/Rec> button.

PhoneBook Application

Main Screen

Phonebook application allows the user to manage the phonebook data in the SIM card.

Managing the phonebook data:

1. Select a phonebook data in the list.
2. Tap <TelePhone> button or <SMS> button, and then each application is executed with selected phonebook data. If SIM card is not inserted, PhoneBook application pop up "Simcard Check" message window.

Figure 120. PhoneBook Main Screen

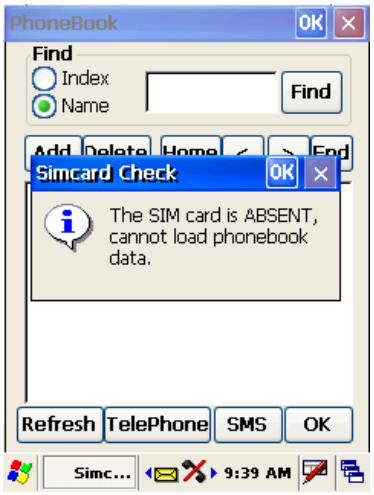

Figure 121. SIM card check

Searching Item

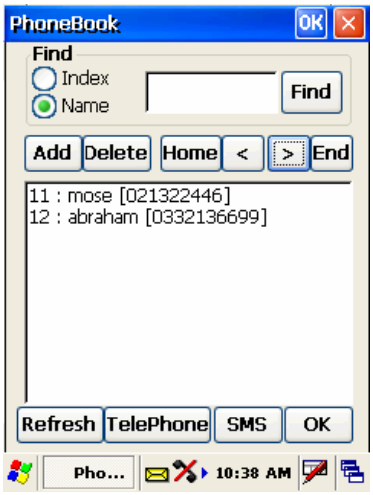

Figure 122. Next section of PhoneBook

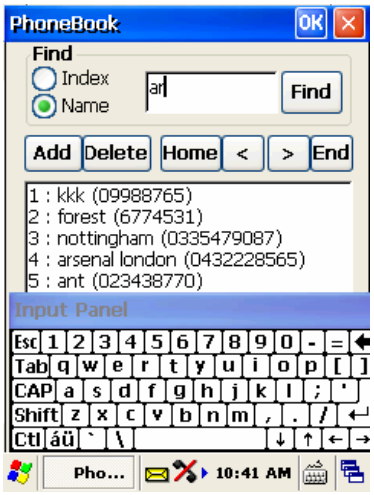

Figure 123. Find data by Name

Application will show 10 items at a page. <Home> button or <End> button show first or last page of Phonebook.

To find data match by name:

1. Select "Name" option and type name.
2. Tap <Find> button. Figure 124 shows a result of finding entry by name.

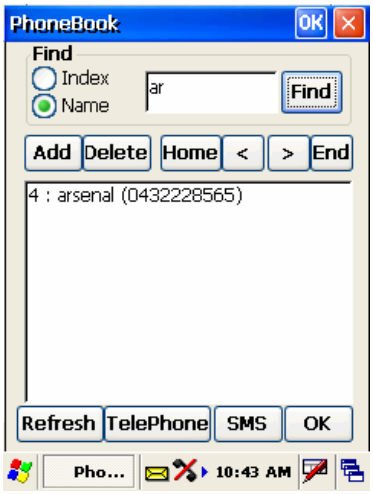

Figure 124. Matched Name field data

To find data by index:

1. Select "Index" option and type address.
2. Tap <Find> button.

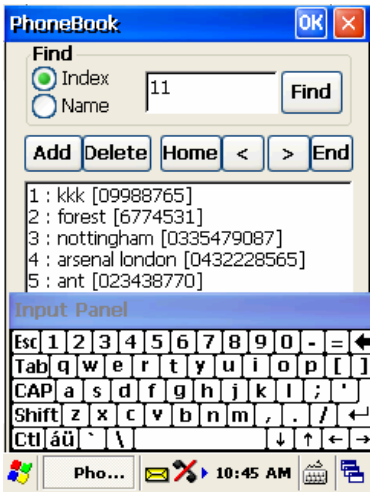

Figure 125. Find data by Address

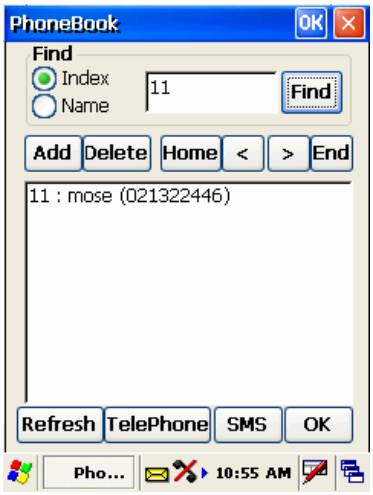

Figure 126. Matched Address field data

Figure 126 shows a result of finding entry by index.

Adding Item

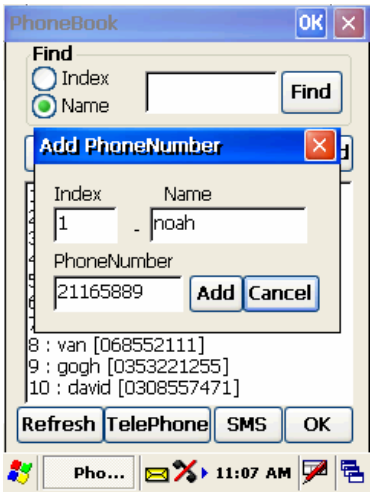

Figure 127. Add Phonebook data

Figure 128. Warning during Phonebook Add

To add item:

1. Tap <Add> button.
2. Type Index, name, phone number.
3. Tap <Add> button, and then phonebook data will update.

If the index is already used, application asks for overwriting of the index

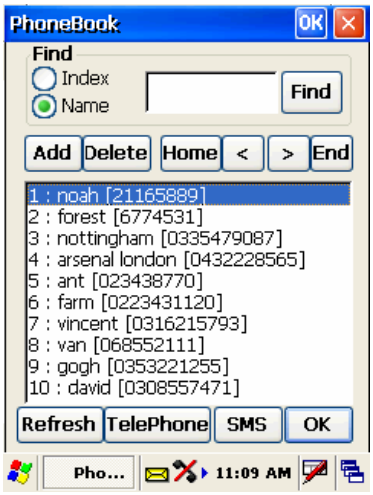

Figure 129. Check adding data

Figure 129 shows a result of phonebook adding.

Chapter 4 - Companion Programs

Microsoft® WordPad

To simple document work with terminal, user can use WordPad. Double tap WordPad icon on main screen or run Start button, program, WordPad order to execute WordPad program.

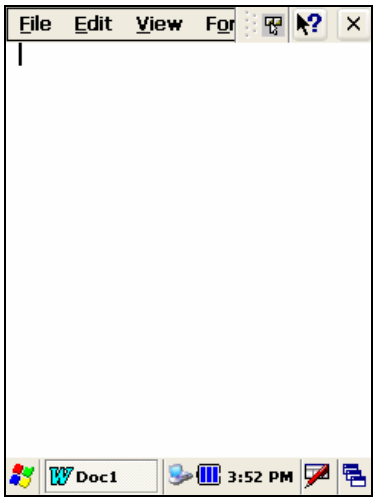

Figure 130. Microsoft WordPad

WordPad supply some document formats like as Word (.doc), Word Template(.dot), WordPad Template (.pwt), Plan Text(.txt), Rich Text(.rtf), and WordPad (.pwd).

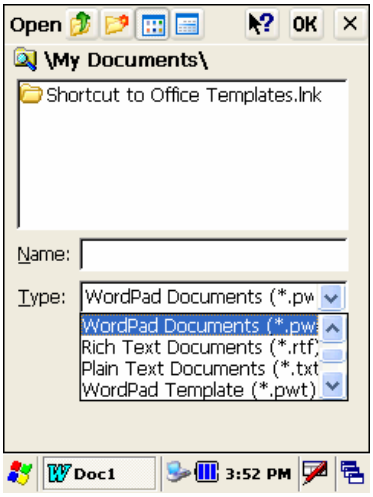

Figure 131. Save document window

To viewing the document of word formatted, select 'wrap to Window' option from view menu then you can view a whole document without right scroll.

To changing view ratio, tap zoom and select ratio you want from view menu. We recommend if work with input data, select high ratio or if work with view a document, select low ratio.

Using keypad can input numeric character. If use software key panel, can input other characters.

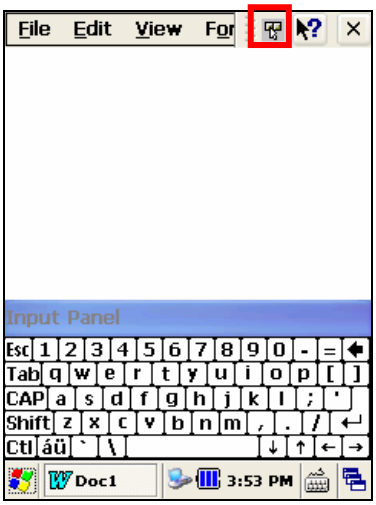

Figure 132. Menu change button

To changing font type or size, select the word to drag.
Tap menu change button then appear other menu like as font type and size.

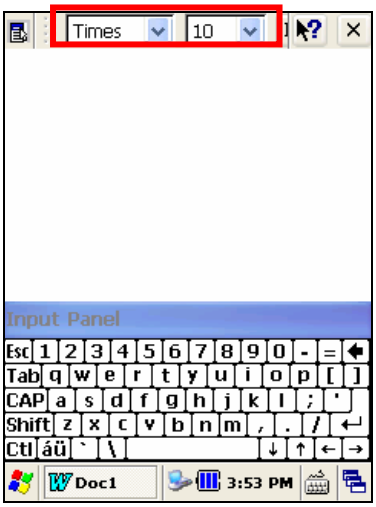

Figure 133. Font type and size menu

Microsoft® Internet Explorer

Figure 134. Microsoft Internet Explorer

To using the Internet, Windows CE support Internet Explorer by companion program. If want to visit other site, run software key panel then write the address in address box and tap enter button on software

key panel.

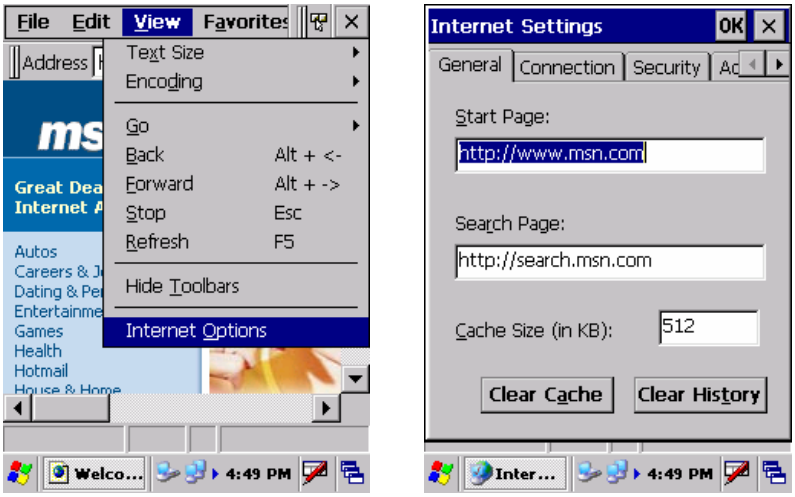

Figure 135. Internet Explorer option menu and option page

At the start, internet explorer show start page. User can change this start page through the internet option. To run the option page of internet explorer, select Internet options from view menu. In option page, user can set some settings such as start page, search page, cache size, and so on.

Chapter 5 - Maintenance

- When the 'Low Battery' status icon appears or 'Out of Battery' warning message appears charge the battery as soon as possible or reinstall another fully charged battery.
- When stop using the terminal, keep the terminal in sleep state.
- MDT designed rechargeable, we recommend battery fully charge before use it the first time
- Terminal needs repair or inquire, stop using and contact service center.
- At discretion Disassemble/ assemble bring damage of unit and don't get A/S
- Do not leave the terminal in a place subject to direct sunlight, or in a location near high percentage of humidity.
- Do not put any heavy object on top of terminal and don't liquid fall into the terminal.
- Avoid using chemicals to clean the terminal. Brush the surface using dry a lag.
- Never use an actual pen or pencil or other sharp object on the surface of the screen.

Appendix A. Using Sample Programs

Using MSR sample

1. Copy MsrApp.exe to terminal from "Demo Applications" folder in SDK CD. And double tap to run.

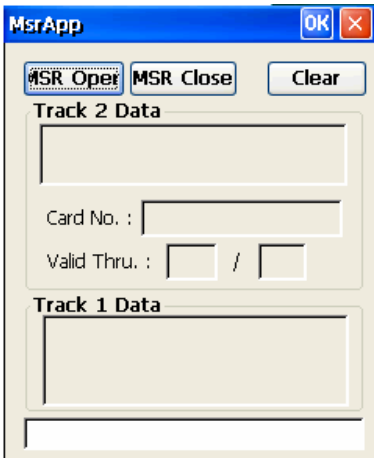

Figure 136. MSR sample program

2. Tap <Open> button, and then you can show "Success: MSR Open" message.

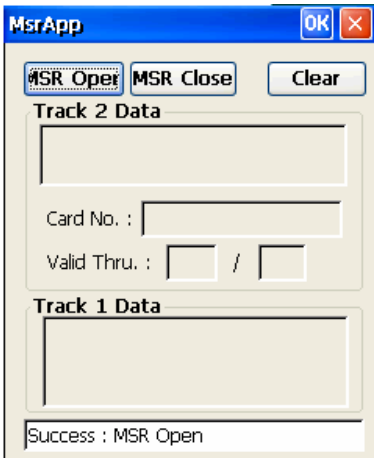

Figure 137. MSR open

3. Scan your credit card.

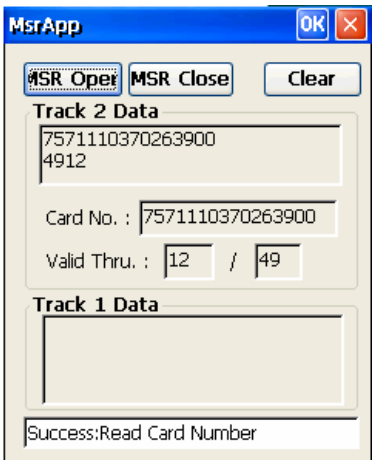

Figure 138. Reading magnetic card

4. Now, you can check your card number and validate date on the program.

Using Printer sample

1. Copy PrtApp.exe to terminal from "Demo Applications" folder in SDK CD. And double tap to run.

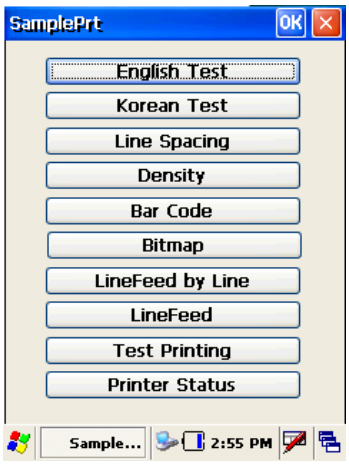

Figure 139. Printer sample program

2. This sample program supports full function of printer device. Tap the each button you want to check.

Using BeepTest sample

1. Copy BeepTest.exe to terminal from "Demo Applications" folder in SDK CD. And double tap to run.

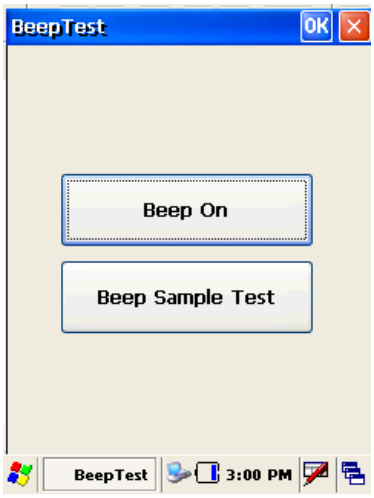

Figure 140. Beep sample program

2. This sample program plays the "beep". Tap the each button you want to check.

Appendix B. Technical Specifications

Display	LCD Touch Screen	240(w) x 320 (h) pixel graphics, 1/4 VGA with hardware acceleration
	Size	3.5" diagonal view Reflective
	Backlight	LED Backlight
	Color	TFT LCD 64K Colors
Magnetic Card Reader	Magnetic Stripe	Bi-directional ISO 7811 Track1,2 or Track 2,3
	Reliability	500,000 reads
Barcode Scanner	Barcode Scanner Interface	Scan rate:500 scan/sec (bi-directional) Supported format : UPC A/ E0/ E1, EAN 8/ 13/ 128, Codabar, Code 39/ 93/ 128, MSI Plessey, IATA 2/5, Discrete 2/5, Interleaved 2/5, Coupon Code, Bookland EAN, Trioptic Code 39
Smart Card Reader	EMVCO	EMV Level 2 certified
USB	USB 2.0	Host interface Full speed : 12Mbps
Key Entry	Keypad	21 button keypad with dedicated menu keys and software function keys waterproofed
Communications	CDMA 1xEV-DO	Operating Frequency Range: - Cellular 800 MHz - PCS 1,900 MHz - Dual Band (800 MHz & 1,900 MHz) Data rate: - up to 2.4Mbps Software Stack: - 3G CDMA EVDO - Built-in TCP/IP Proprietary - CDMA Protocol: IS-95A/B, - IS-637 SMS - IS-707-A.4: Async Data Service - IS-707-A.5: Packet Data Services - IS-96A: Voice Signal Coding - IS-99: Circuit-Switched Data

	GSM/GPRS	Multi Band GSM/GPRS Class 10 Dual Band 900/1,800 MHz900/1,900MHz Compliant with ETSI GSM Phase2 Standard. 3V SIM Interface with SIM Detection
	WLAN - Embedded Type	IEEE 802.11 b 2.4GHz Direct Sequence Spread Spectrum Wireless CF Card, Compact Flash V1.4 CF + Type II Compliant
	WLAN - SD Type	IEEE 802.11 b 2.4GHz Direct Sequence Speed Spectrum
	Extra Peripheral	RS-232, SD/MMC, IrDA
Printer	Thermal Printer	Paper width : 58mm Full graphics w/384 dots/line 200 DPI print density. 40mm/sec MTBF : 70,000 receipts
CPU		XScale PXA255 32Bit RISC processor 400MHz
Memory	RAM	64MB Standard
	Flash Memory	64MB Standard / 128MB Optional
OS Platform	Microsoft	MS Windows CE.NET 4.2
Application Software Development		Fully compatible with MS SDK, Mobitron Proprietary SDK Toolkit available to support Application customizing software
Footprint	Dimensions	LxWxH (211mm x 100mm x 460 mm)
Weight	Terminal	535g
	Main Battery	105g
Reliability	MTBF	100,000 (not including printer)
Power	AC	100-240 VAC, 50/60 Hz, 0.2A Max
	DC	8.4V (+0.05V/-0.02V) Battery Charging Current : 600mA
	Main Battery	Type : Rechargeable Lithium Polymer Voltage : 8.4 V / 2200mAh Standby Time : 80 Hours
	Backup Battery	Type : Rechargeable Lithium-ion Voltage : 4.2 V / 200mAh Standby Time : 8 Hours
Environment	Temperature	Operating temperature : -10 ~ 50 degrees C
	Humidity	Storage Temperature : -20 ~ 50 degrees C Relative Humidity : up to 85% non-condensing

Appendix C. Index