1

Introduction

Congratulations on the purchase of your Dolphin mobile computer! You have made a wise choice in selecting the Dolphin, a device known worldwide for its ergonomic form factor, light-weight, rugged design and single-handed data collection capabilities.

The Dolphin 9500 Series consists of the following terminals:

Dolphin 9500   For details, see Dolphin 9500 on page 3-4.

Dolphin 9550   For details, see Dolphin 9550 on page 3-6.

Dolphin 9501   For details, see Dolphin 9501 Side Panel on page 11-3.

Dolphin 9551   For details, see Dolphin 9551 Hardware on page 11-6.

Ergonomics

The patented shape of Dolphin terminals fits into either hand comfortably with major function keys that are easy to access. The adjustable hand strap on the back panel ensures a secure grip enabling true, one-handed operation. The integrated pistol-grip handle on the Dolphin 9550 provides intuitive point-and-shoot scanning over extended periods of use.

Rugged Design

Dolphin terminals are the most durable mobile computers on the market. Their rugged design can withstand repeated five-foot drops onto a concrete floor, extreme temperatures, and high humidity, moisture, and dust conditions. The terminals are independently tested to meet IP64 specifications.

Mobile Computing Features

• Low-power, high-resolution digital image engine for omni-directional and auto-discrimination decoding of most bar code symbologies; see Bar Code Symbologies Supported on page 2-6.

• Integrated 802.11b, GSM/GPRS, and Bluetooth™ wireless radios for real-time data collection applications

• Intel® X-Scale 400MHz RISC microprocessor for fast processing

• Microsoft Windows Mobile 2003 Second Edition Software for Pocket PC platform - easily programmable with standard programming tools

• 64 MB RAM and 32 MB Flash memory configuration for ample and secure data storage

• Secure Digital (SD) memory interface enables additional memory installation

Additional Features

• Long-lasting Lithium Ion (Li-ion) batteries

• Large, easy-to-read 1/4 VGA (240 x 320) color touch screen that can display text or graphics

• Three keyboard options: 43-key alpha/numeric, 35-key numeric/alpha, and 56-key full alpha/numeric

• Industrial-grade connector that supports serial and USB communications, as well as power in and out

• Full suite of compatible peripheral devices

• Decoding of stacked linear and matrix codes with Optical Character Recognition (OCR) functionality

• Digital picture capability

• Audio jack for headset use

• IrDA port for fast infrared communications

• Speaker and microphone for advanced audio functionality

Application Development Tools

• Dolphin SDK Add-on for Pocket PC 2003 - supports Embedded Visual C++ 4.0

• Dolphin .NET SDK for Pocket PC 2002 and 2003 - supports Visual Studio.NET 2003 (VB.NET and C#.NET)

• Dolphin GSM/GPRS SDK Add-on for Pocket PC 2003 - supports Embedded Visual C++ 4.0 and Visual Studio.NET 2003

This User's Guide

The Dolphin 9500 Series User's Guide provides you with the information you need to make the most of your Dolphin terminal.

Required Safety Labels

Dolphin terminals meet or exceed the requirements of all applicable standards organizations for safe operation. However, as with any electrical equipment, the best way to ensure safe operation is to operate them according to the agency guidelines that follow. Please read these guidelines carefully before using your Dolphin mobile computer.
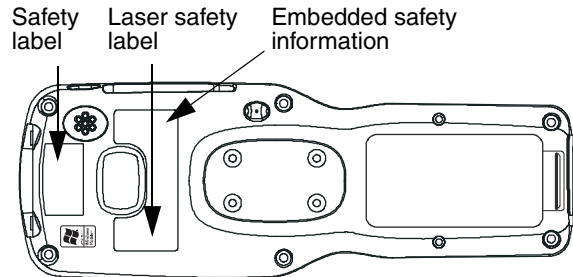
Locations

Safety and radio labels appear on the back panel.
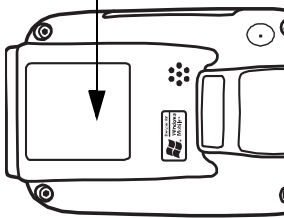
Dolphin 9500

Safety and radio label   Laser safety label

Dolphin 9550

Safety label   Laser safety label   Embedded safety information
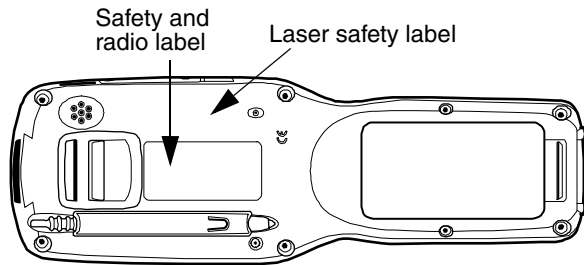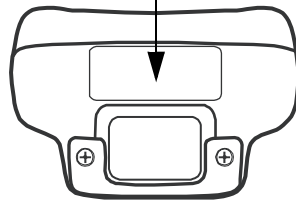

Dolphin 9501/9551

Laser safety and radio label   Embedded safety information

Embedded Safety Information Text

Dolphin 9501/9550/9551 terminals have the following safety information embedded in the plastic in different locations on the terminal:

FOR HOME OR OFFICE USE
Tested to Comply With FCC Standards
This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numerique de la Classe B est conforme a la norme NMB-003 du Canada.
No user serviceable parts. Opening voids warranty
US and foreign patents pending.
Made in USA of US & imported parts.

Laser Safety Label Text

Terminals with laser engines or laser aimers contain the following laser safety labels:

Dolphin 9500/9550 with 5300SF/SR laser aimer

LASER LIGHT. DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT
1.0 mW MAX OUTPUT: 650nM
IEC60825-1:1993+A1+A2
Complies with 21 CFR 1040.10 and 1040.1 1
except for deviations pursuant to Laser
Notice No.50, dated July 26, 2001.

Dolphin 9501/9551 with laser engine

LASER LIGHT. DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT
1.0mW MAX OUTPUT: 650nM
EN60825-1: 1994 + A11 + A2
Complies with 21CFR1040.10and 1040.11
except for deviations pursuant to Laser
Notice No.50, dated July 26, 2001.

Dolphin 9500 Series Batch Terminal

The following are the required safety labels for batch terminals that appear on the back panel of the following terminals:

Dolphin 9500

```
FC  FOR HOME OR OFFICE USE
    Tested to Comply With FCC Standards
    This Class B Digital apparatus complies with
Canadian ICES-003. Cet appariel numérique de la
Classe B est conforme à la norme NMB-003 du Canada.

Opening Voids Warranty.        ©N10410
No user serviceable parts.
Made in USA of US & imported parts.
  Hand Held Products, Inc.              CE
  Skaneateles Falls, NY  www.handheld.com
```

Dolphin 9550

```
                    powered by
    (A) Adaptus™         ©N10410  CE
      imaging technology
  Hand Held Products, Inc.    www.handheld.com
```

Dolphin 9501

```
LASER LIGHT.  DO NOT STARE INTO BEAM
      CLASS 2 LASER PRODUCT
      1.0 mW MAX OUTPUT: 650nM
      EN60825- 1 : 1994 + A11 + A2
Complies with 21 CFR 1040.10 and 1040.11 except for deviations
pursuant to Laser Notice No. 50, dated July 26, 2001.

   Hand Held Products, Inc
      www.handheld.com

  ©N10410       CE
```

Dolphin 9551

```
LASER LIGHT.  DO NOT STARE INTO BEAM
      CLASS 2 LASER PRODUCT
      1.0 mW MAX OUTPUT: 650nM
      EN60825- 1 : 1994 + A11 + A2
Complies with 21 CFR 1040.10 and 1040.11 except for deviations
pursuant to Laser Notice No. 50, dated July 26, 2001.

   Hand Held Products, Inc
      www.handheld.com

  ©N10410       CE
```

Regulatory and Safety Approvals for all Dolphin 9500 Series Terminals

Parameter	Specification
U.S.A Canada European Community	FCC Part 15, Class B ICES-003 EN 55022 (CISPR 22) Class B EN60950:2000 EN60825-1:1994 + A11 + A2 EN55024:1998

CE The CE Mark on the product indicates that the system has been tested to and conforms with the provisions noted within the 89/336/EEC Electromagnetic Compatibility Directive and the 73/23/EEC and 93/68/EEC Low Voltage Directive.

For further information, please contact:

Hand Held Products, Inc.
Nijverheidsweg 9
5627 BT Eindhoven
The Netherlands

Hand Held Products shall not be liable for use of our product with equipment (i.e., power supplies, personal computers, etc.) that is not CE marked and does not comply with the Low Voltage Directive.

Dolphin 9500 Series WLAN (802.11b) or WPAN (Bluetooth)Radio

Dolphin RF terminals are designed to comply with the most current applicable standards on safe levels of RF energy developed by the Institute of Electrical and Electronics Engineers (IEEE) and the American National Standards Institute (ANSI) and has been recommended for adoption by the Federal Communications Commission (FCC).

Required Safety Labels

The required safety labels that appears on the back of Dolphin RF terminals equipped with the following radios are as follows:

802.11b

Dolphin 9500

FOR HOME OR OFFICE USE
Tested to Comply With FCC Standards
This Class B Digital apparatus complies with
Canadian ICES-003. *Cet appariel numérique de la
Classe B est conforme à la norme NMB-003 du Canada.*
No user serviceable parts.
CE 0681 ⚠ Opening Voids Warranty.
Made in USA of US &
FCC ID: HD5950003 imported parts.
Canada: 1693B9503 ☿N10410
Hand Held Products, Inc. www.handheld.com

Dolphin 9550

powered by
Ⓐ Adaptus™
imaging technology
CE 0681 ⚠
FCC ID: HD5950003   Canada: 1693B9503
☿N10410   Hand Held Products, Inc.
www.handheld.com

Dolphin 9501

LASER LIGHT. DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT
1.0 mW MAX OUTPUT: 650nM
EN60825- 1 : 1994 + A11 + A2
Complies with 21 CFR 1040.10 and 1040.11 except for deviations
pursuant to Laser Notice No. 50, dated July 26, 2001.
CE 0681 ⚠
FCC ID: HD5950003
Canada: 1693B9503
☿N10410
Hand Held Products, Inc.
www.handheld.com

Dolphin 9551

LASER LIGHT. DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT
1.0 mW MAX OUTPUT: 650nM
EN60825- 1 : 1994 + A11 + A2
Complies with 21 CFR 1040.10 and 1040.11 except for deviations
pursuant to Laser Notice No. 50, dated July 26, 2001.
CE 0681 ⚠
FCC ID: HD5950003
Canada: 1693B9503
☿N10410
Hand Held Products, Inc.
www.handheld.com

Bluetooth

Dolphin 9500

```
FCC  FOR HOME OR OFFICE USE
     Tested to Comply With FCC Standards
     This Class B Digital apparatus complies with Canadian
ICES-003. Cet appareil numérique de la Classe B est conforme à la
norme NMB-003 du Canada.
Contains Socket Radio FCC ID: LUBBTM-1
Canada: 1693B9504      Made in USA of US & imported parts.
No user serviceable parts.  Opening Voids Warranty.

     ®   C€0681 ⓘ
         ⓒN10410   Hand Held Products, Inc.
                    www.handheld.com
```

Dolphin 9550

```
           powered by
       Ⓐ Adaptus™        ⓑ ®
         imaging technology

       C€0681 ⓘ
FCC ID: LUBBTM-1
     Socket Radio
Hand Held Products, Inc.
www.handheld.com   ⓒN10410
```

Dolphin 9501

```
LASER LIGHT.  DO NOT STARE INTO BEAM
     CLASS 2 LASER PRODUCT
     1.0 mW MAX OUTPUT: 650nM
     EN60825- 1 : 1994 + A11 + A2
Complies with 21 CFR 1040.10 and 1040.11 except for deviations
pursuant to Laser Notice No. 50, dated July 26, 2001.

       C€0681 ⓘ
          ⓒN10410
Socket Radio FCC ID: LUBBTM-1
       Canada: 1693B9504

  ⓑ ®    Hand Held Products, Inc.
          Skaneateles Falls, NY
            www.handheld.com
```

Dolphin 9551

```
LASER LIGHT.  DO NOT STARE INTO BEAM
     CLASS 2 LASER PRODUCT
     1.0 mW MAX OUTPUT: 650nM
     EN60825- 1 : 1994 + A11 + A2
Complies with 21 CFR 1040.10 and 1040.11 except for deviations
pursuant to Laser Notice No. 50, dated July 26, 2001.

       C€0681 ⓘ
          ⓒN10410
Socket Radio FCC ID: LUBBTM-1
       Canada: 1693B9504

  ⓑ ®    Hand Held Products, Inc.
          Skaneateles Falls, NY
            www.handheld.com
```

802.11b and Bluetooth

Dolphin 9500

```
FCC  FOR HOME OR OFFICE USE          Made in USA
     Tested to Comply With FCC Standards   of US &
     This Class B Digital apparatus complies with   imported parts.
Canadian ICES-003. Cet appareil numérique de la   Opening Voids
Classe B est conforme à la norme NMB-003 du Canada.  Warranty.
ⓒN10410                              No user
         www.handheld.com            serviceable
         Hand Held Products, Inc.    parts.

  ⓑ ®    C€0681 ⓘ
         FCC ID: HD5950006
         Canada: 1693B9506
```

Dolphin 9550

```
           powered by
       Ⓐ Adaptus™        ⓑ ®
         imaging technology

       C€0681 ⓘ
FCC ID: HD5950006      Canada: 1693B9506
ⓒN10410    Hand Held Products, Inc.
              www.handheld.com
```

Dolphin 9501

```
LASER LIGHT.  DO NOT STARE INTO BEAM
     CLASS 2 LASER PRODUCT
     1.0 mW MAX OUTPUT: 650nM
     EN60825- 1 : 1994 + A11 + A2
Complies with 21 CFR 1040.10 and 1040.11 except for deviations
pursuant to Laser Notice No. 50, dated July 26, 2001.

       C€0681 ⓘ
          ⓒN10410
     FCC ID: HD5950006
     Canada: 1693B9506

  ⓑ ®    Hand Held Products, Inc.
          Skaneateles Falls, NY
            www.handheld.com
```

Dolphin 9551

```
LASER LIGHT.  DO NOT STARE INTO BEAM
     CLASS 2 LASER PRODUCT
     1.0 mW MAX OUTPUT: 650nM
     EN60825- 1 : 1994 + A11 + A2
Complies with 21 CFR 1040.10 and 1040.11 except for deviations
pursuant to Laser Notice No. 50, dated July 26, 2001.

       C€0681 ⓘ
          ⓒN10410
     FCC ID: HD5950006
     Canada: 1693B9506

  ⓑ ®    Hand Held Products, Inc.
          Skaneateles Falls, NY
            www.handheld.com
```

Dolphin 9500 WWAN (GSM)Radio

Dolphin RF terminals are designed to comply with the most current applicable standards on safe levels of RF energy developed by the Institute of Electrical and Electronics Engineers (IEEE) and the American National Standards Institute (ANSI) and has been recommended for adoption by the Federal Communications Commission (FCC).

Note: The Dolphin 9500 model is the only terminal in the Dolphin 9500 Series that can be equipped with a GSM/GPRS radio for WWAN functionality.

Required Safety Labels

The following is the required safety label that appears on the back panel of a Dolphin 9500 terminal equipped with a GSM radio:

GSM

MC-45

MC-75

GSM and 802.11b

MC-45

MC-75

GSM and Bluetooth

MC-45

MC-75

GSM, 802.11b, and Bluetooth

MC-45

MC-75

FCC Compliance

Dolphin terminals meet or exceed all applicable standards and have been manufactured to the highest level of quality.

Dolphin 9500 Series Batch Terminal

Dolphin 9500 Series Batch terminals comply with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Dolphin 9500 Series RF Terminal with 802.11b, Bluetooth, and/or GSM (MC-45 and MC-75) Radios

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. 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. 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 to correct the interference by one or more of the following measures:

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

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet helpful: "Something About Interference." This is available at FCC local regional offices. Our company is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by our company. The correction is the responsibility of the user. Use only shielded data cables with this system.

In accordance with FCC 15.21, changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: Dolphin 9550, Dolphin 9501, and Dolphin 9551 terminals do not support GSM radios.

⚠️ **This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter. To maintain compliance with FCC RF exposure guidelines for body-worn operation, do not use accessories that contain metallic components.**

Canadian Compliance

This Class B digital apparatus complies with Canadian ICES-003. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) installed outdoors is subject to licensing.

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

RF, Regulatory, and Safety Agency Approvals for 802.11b and Bluetooth

Parameter	Specification
RF Approvals U.S.A Canada	FCC Part 15.247 RSS 210

RF, Regulatory, and Safety Agency Approvals for GSM (MC-45 and MC-75)

Parameter	Specification
RF Approvals U.S.A Canada	FCC Part 24 RSS 133

Dolphin 9500 Series 802.11b and/or Bluetooth R&TTE Compliance Statement

Dolphin RF terminals are in conformity with all essential requirements of the R&TTE Directive (1999/5/EC). This equipment has been assessed to the following standards as applicable:

Parameter	Specification
R&TTE	EN 300 328-2:2000 EN 301 489-1 (2002-08) EN 301 489-17 (2002-08) EN 60950:2000 EN 50361:2001

This product is marked with CE 0681 ☺ or CE 0682 ☺ in accordance with the Class II product requirements specified in the R&TTE Directive, 1999/5/EC.

The equipment is intended for use throughout the European Community. Its authorization for use in France is restricted as follows:

PAN European Frequency Range: 2.402 - 2.480 GHz

Restrictions in France are as follows:

• Indoor use - Maximum power (EIRP*) of 100 mW for the entire 2400-2483.5 MHz
• Outdoor use - Maximum power (EIRP*) of 100 mW for the 2400-2454 MHz band and maximum power (EIRP*) of 10 mW for the 2454-2483 MHz band.

Dolphin 9500 Terminal GSM (MC-45 and MC-75) R&TTE Compliance Statement

Note: Dolphin 9550, Dolphin 9501, and Dolphin 9551 terminals do not support GSM radios.

The Hand Held Products Dolphin 9500RF terminals are in conformity with all essential requirements of the R&TTE Directive (1999/5/EC). This equipment has been assessed to the following standards as applicable:

Parameter	Specification
R&TTE	EN 301 511: 2000
	EN 301 489-1 (2002-08)
	EN 301 489-7 (2002-08)
	EN 60950:2000
	EN 50361:2001

Pacemakers, Hearing Aids and Other Electrically Powered Devices

Most manufacturers of medical devices adhere to the IEC 601-1-2 standard. This standard requires devices to operate properly in an EM Field with a strength of 3V/m over a frequency range of 26 to 1000MHz. The maximum allowable field strength emitted by the Dolphin is 0.3V/m according to Subpart B of Part 1 of the FCC rules. Therefore, the Dolphin RF has no effect on medical devices that meet the IEC specification.

Microwaves

The radio in the Dolphin RF terminal operates on the same frequency band as a microwave oven. Therefore, if you use a microwave within range of the Dolphin RF terminal you may notice performance degradation in your wireless network. However, both your microwave and your wireless network will continue to function. The Dolphin Batch terminal does not contain a radio, and therefore, is not affected by microwave ovens.

For European Community Users

Hand Held Products complies with Directive 2002/69/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on waste electrical and electronic equipment (WEEE).

Waste Electrical and Electronic Equipment Information

This product has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment, if not properly disposed.

In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems for product disposal. Those systems will reuse or recycle most of the materials of the product you are disposing in a sound way.

The crossed out wheeled bin symbol informs you that the product should not be disposed of along with municipal waste and invites you to use the appropriate separate take-back systems for product disposal.

If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You may also contact your supplier for more information on the environmental performances of this product.

2

Getting Started

Overview

Dolphin terminals are Windows Mobile-based with a unique, ergonomic shape designed for single-handed use and 64 MB RAM and 32 MB non-volatile Flash memory. To install additional memory, you can use the Secure Digital (SD) memory interface.

The industrial, mechanical connector supports serial RS-232 up to 115 Kbps and USB communications up to 12 Mbps. The IrDA port enables you to exchange data with IrDA compliant devices, such as portable printers. For additional functionality, an integrated digital imager is available for imaging and decoding.

Operating System

The Dolphin 9500 terminal is designed for easy, single-handed mobile data collection. Each mobile computer is equipped with an Intel PXA255 400MHz RISC processor for fast processing built for Windows Mobile-based Pocket PCs.The Dolphin terminal is available with different types of 2D imagers and wireless radios to meet most any enterprise mobile data collection requirement.

Data Input Options

There are three keyboard options and a 240 x 320 pixel, backlit 1/4 VGA color display.

Image Options

The Dolphin terminal contains an integrated imager that can take digital images of damaged packages and recipient signatures, for example, in addition to decoding standard linear and 2D symbologies.

Adapting the Dolphin to Your Environment

Dolphin terminals comprise one element of an enterprise data collection system that includes various models, peripherals, and accessories you can combine to suit your exact needs.

Dolphin 9500 Series Terminals

There are four terminals in the Dolphin 9500 Series:

Dolphin 9500	The Dolphin 9500 terminal offers an ergonomic form factor and is the only terminal of the series that can be configured with a GSM radio. For details, see Dolphin 9500 on page 3-4.
Dolphin 9550	The Dolphin 9550 terminal provides an integrated pistol grip handle for high-volume scanning applications. For details, see Dolphin 9550 on page 3-6.
Dolphin 9501	The Dolphin 9501 terminal offers the same flashlight form factor as the Dolphin 9500 with the added functionality of a laser scanner. For details, see Dolphin 9501 Side Panel on page 11-3.
Dolphin 9551	The Dolphin 9551 terminal offers the same convenience of the integrated pistol-grip handle with the added functionality of a laser scanner. For details, see Dolphin 9551 Hardware on page 11-6.

All models can be configured with the available options, except for GSM. Only the Dolphin 9500 terminal can be equipped with a GSM radio.

Dolphin 9500 Series Models and Options

Dolphin 9500 Series Batch

These terminals are optimal for fast, effective batch processing.

Dolphin 9500 Series WLAN (802.11b)

These terminals integrate the functionality of the Batch terminals with an integrated, IEEE 802.11b direct sequence radio that enables communication with a host computer through a wireless local area network (WLAN).

Dolphin 9500 Series WPAN (Bluetooth)

These terminals allow Bluetooth communications to Bluetooth enabled devices such as printers, mobile phones, access points, Bluetooth-enabled PCs, etc.

Dolphin 9500 WWAN (GSM/GPRS)

These terminals feature all the benefits of the Dolphin 9500 Series with the additional capabilities of GSM/GPRS technology.

*Note: The Dolphin 9500 terminal is the **only** one of the Dolphin 9500 Series that supports GSM/GPRS.*

Dolphin 9500 Series WLAN and WPAN (802.11b and Bluetooth)

These terminals feature co-located 802.11b and Bluetooth radios, which means that your terminal contains the capabilities of both radios. You can operate the radios simultaneously or switch between them.

Dolphin 9500 WWAN and WLAN (GSM/GPRS and 802.11b)

These terminals feature the functionality of both GSM/GPRS and 802.11b radio and network technologies.

Dolphin 9500 WWAN and WPAN (GSM/GPRS and Bluetooth)

These terminals features the functionality of both GSM/GPRS and Bluetooth radio and network technologies.

Dolphin 9500 WWAN, WLAN, and WPAN (GSM/GPRS, 802.11b, and Bluetooth)

These terminals feature the functionality of GSM/GPRS, 802.11b, and Bluetooth radio and network technologies.

Dolphin 9500 Series Peripherals

Each of the following items is sold separately to enhance the capabilities of your Dolphin terminal.

Dolphin HomeBase™

The Dolphin HomeBase charging and communication cradle supports both RS-232 and USB communications, which enable it to interface with the majority of PC-based enterprise systems. When a terminal is seated in the HomeBase, its main battery pack charges in less than four hours. In addition, the HomeBase contains an auxiliary battery well that charges a spare Li-ion battery.

For more information, see Dolphin HomeBase on page 12-1.

Dolphin Mobile Base™

The Dolphin Mobile Base charging and communication cradle is designed specifically for in-premise and in-transit data collection applications. It features a flexible mounting bracket, a cigarette lighter adapter or power cable to adapt it to your environment.

When a terminal is seated in the Mobile Base, its main battery pack charges in less than four hours. The serial connector supports RS-232 communication and power out to peripheral devices, such as hand held scanners.

For more information, see Dolphin Mobile Base on page 13-1.

Dolphin ChargeBase

The Dolphin ChargeBase is a four-slot charging cradle that holds, powers, and charges a terminal in each slot.

For more information, see Dolphin 9500 Series ChargeBase on page 14-1.

Dolphin Net Base

The Dolphin Net Base is a four-slot charging/communication cradle that holds, powers, charges, and communicates with the terminal in each slot. Ethernet communication occurs via statically and dynamically-assigned IP addresses.

For more information about the Dolphin Net Base, please consult the Dolphin 9500 Series Net Base Quick Start Guide.

Dolphin QuadCharger™

The Dolphin QuadCharger is a four-slot charging station for Dolphin Li-ion battery packs. It can charge each battery in less than four hours. The fourth slot features a battery analyzer that completely resets and re-calibrates a battery and displays its resulting capacity.

For more information, see Dolphin 9500 Series QuadCharger on page 15-1.

Dolphin 9500 Series Accessories

Each of the following items is sold separately to enhance your Dolphin 9500 Series terminal's capabilities.

Dolphin Mobile Charger

The Dolphin Mobile Charger is a charging cable that connects the terminal directly to a 12 Volt DC power source, such as a cigarette lighter port inside a vehicle, eliminating the need for a cradle. The cable powers the terminal and charges its main battery in less than four hours. Intelligent battery technology on-board the terminal ensures proper charging. The Dolphin Mobile Charger is an ideal low-cost charging solution for in-transit mobile applications.

Dolphin Mobile Mount

The Dolphin Mobile Mount, which holds a Dolphin 9500 terminal securely in place inside a vehicle, is an ideal, low-cost alternative to the Dolphin Mobile Base when communications are not required. When used in conjunction with the Dolphin Mobile Charger, the Dolphin Mobile Mount creates a complete mounting and charging solution for in-transit applications. The entire kit includes the Dolphin Mobile Mount and adjustable vehicle mounting bracket.

Charging/Communication Cables

Dolphin charging/communication cable kits are an all-in-one solution for mobile applications. Each cable kit powers the terminal, charges its main battery, and communicates with host or peripheral devices without the need for a cradle. Cable kits can support RS-232 or USB communications and are available with U.K. or European power cords.

Protective Holster

Holsters provide convenient storage for terminals and protect them from damage in mobile environments. Both holsters feature a front pocket that holds an extra battery, a side pocket to hold an extra stylus, and a belt loop to secure the holster to a belt.

Protective Enclosure

Protective enclosures help seal and protect terminals from damage while providing full access to all terminal parts and features. Dolphin 9500 Series enclosures feature a swivel clip on the back that enables you to secure the enclosure to a belt. Enclosures also come with an adjustable shoulder strap for added convenience.

Stylus Kits

There are two Dolphin 9500 stylus kits: one contains three styli and the other includes additional coiled tethers to secure the stylus to the terminal, which helps prevent loss. The Dolphin 9550 kit contains loops you can attach to the end of each stylus for easy access to the stylus stored in the pistol grip of the Dolphin 9550.

Li-ion Battery Pack

The 7.4v, 14.8 watt hour Li-ion rechargeable battery pack provides the main power supply for Dolphin 9500 Series terminals.

Image Engine Options and Specifications

Dolphin 9500/9550 Terminals

Dolphin 9500/9550 terminals can be equipped with one of the following image engines:

5100 Standard Range (5100SR)
5300 Standard Range (5300SR)

Code	8 mil Linear	10 mil PDF417	13 mil UPC	15 mil QR	15 mil Data Matrix	35 mil MaxiCode
Working Range	(.020 cm)	(.025 cm)	(.033 cm)	(.038 cm)	(.038 cm)	(.089 cm)
Near	3.4 in. (8.6 cm)	3 in. (7.6 cm)	2 in. (5.1cm)	3 in. (7.6 cm)	2.2 in. (5.6 cm)	1.9 in. (4.8 cm)
Far	7.5 in. (19 cm)	8.9 in. (22.6 cm)	13.1 in. (33.3 cm)	8.7 in. (22 cm)	10.1 in. (25.6 cm)	12.9 in. (32.7 cm)

5100 Smart Focus (5100SF)

Code	6.6 mil PDF417	7.5 mil Linear	10 mil Linear	10 mil PDF417	13 mil UPC	15 mil Data Matrix
Working Range	(.017 cm)	(.019 cm)	(.025 cm)	(.025 cm)	(.033 cm)	(.038 cm)
Near	2.7 in. (6.8 cm)	2.4 in. (6.1 cm)	2.1 in. (5.3 cm)	2.1 in. (5.3 cm)	1.9 in. (4.8 cm)	1.7 in. (4.3 cm)
Far	5.9 in. (14.9 cm)	6.4 in. (16.2 cm)	7.5 in. (19 cm)	7.5 in. (19 cm)	8.8 in. (22.3 cm)	7.4 in. (18.8 cm)

Note: The 5300SR image engine contains a high-visibility aimer that projects aiming brackets around the bar code or image preview for maximum viewability and aiming. For details, see 5300 Red High-Vis Aiming Pattern on page 4-5 and page 4-6.

For more information, see Using the Image Engine on page 4-4.

Dolphin 9501/9551 Terminals

Dolphin 9501/9551 terminals can be equipped with one of three laser engines. For details, see Laser Engine Specifications on page 11-1.

Bar Code Symbologies Supported

Symbology type	Symbologies Supported
1D Symbologies	Codabar Code 3 of 9 Code 11 Code 32 Pharmaceutical (PARAF) Code 93 Code 128 EAN with Add-On and EAN with Extended Coupon Code EAN-13 Interleaved 2 or 5 Matrix 2 of 5 Plessey PosiCode RSS Straight 2 of 5 IATA Straight 2 of 5 Industrial Telepen Trioptic Code UCC/EAN-128 UPC and UPC-A
2D Symbologies	Aztec Code 16K Composite Data Matrix MaxiCode OCR PDF417 QR Code RSS
Composite Codes	Aztec Mesa Codablock F EAN·UCC RSS-14
OCR Codes	OCR-A and OCR-B
Postal Codes	Postnet and most international 4 state codes Australian Post British Post Canadian Post China Post Japanese Post KIX (Netherlands) Post Korea Post Planet Code

Using the Dolphin Terminal for the First Time

1.   Unpack the Carton and Verify its Contents

2.   Install the Main Battery Pack

3.   Charge the Main and Backup Batteries

4.   Initialize the Mobile Computer

5.   Let Autoinstall Run

6.   Set the Time and Date

7.   Verify Imaging and Decoding with Demos

Step 1. Unpack the Carton and Verify its Contents

Verify that the carton contains the following items:

- Dolphin 9500 Series mobile computer (the terminal)
- Main battery pack (7.4v Li-ion)
- Microsoft Companion CD
- Dolphin 9500 Quick Start Guide

Note: If you ordered accessories for your terminals, verify that they are also included with the order.

Be sure to keep the original packaging in the event that the Dolphin terminal should need to be returned for service. For details, see Product Service and Repair on page 16-1.

Hand Strap

The Dolphin 9500 ships with the hand strap installed and fastened to the bottom panel with a clip; see Bottom Panel Features on page 3-9. To install the battery pack, you must detach the hand strap.

To detach the hand strap, push the hand strap clip down and away from the terminal. Move the strap up and away from the bottom panel.

To re-attach the hand strap, slide the clip back into place on the bottom panel.

The Dolphin 9501 has a special hand strap; see Dolphin 9501 Hand Strap and Stylus on page 11-5.
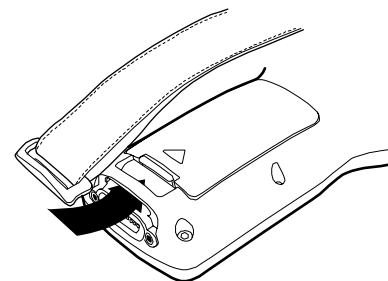
Step 2. Install the Main Battery Pack

⚠ *Use only the Li-ion battery packs provided by Hand Held Products. The use of any battery pack not sold/manufactured by Hand Held Products in Dolphin 9500 Series terminals will void your warranty and may result in damage to the Dolphin terminal or battery.*

1.   Unpack the Li-ion battery pack. Hold the terminal with the front panel (keyboard) facing down.

2.   Take the battery and insert the end without the locking tab into the top of the battery well and push down with a hinging motion until the locking tab snaps.

To Remove the Main Battery Pack

Put the terminal in suspend mode (see page 2-11). Press the locking tab on the battery pack away from the bottom panel, and pull the battery pack up with a hinging motion.
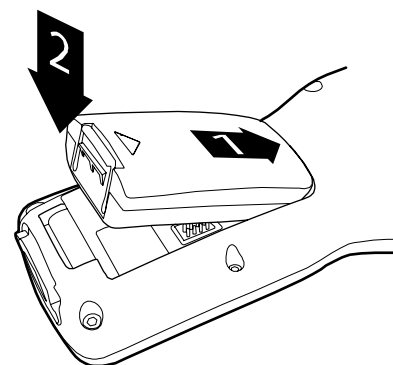
Step 3. Charge the Main and Backup Batteries

The power supply for the Dolphin mobile computer consists of two types of battery power: the main battery pack installed on the back panel and the backup battery that resides inside the terminal.

The main battery powers the terminal. The internal backup battery charges off the main battery and maintains the application data stored in RAM and system clock for up to 30 minutes when the terminal's main battery pack is completely discharged or removed.

Before Initial Use	The terminals are shipped with both batteries discharged of all power. Charge the main battery pack for a minimum of four hours before initial use.
Time to Charge	Four hours for the main battery pack, eight hours for the internal backup battery the first time.

⚠ *Use only Dolphin 9500 Series peripherals, power cables, and power adapters. Use of peripherals, cables, or power adapters not sold/manufactured by Hand Held Products will void the warranty and may damage the terminal.*

Charging with Dolphin Peripherals

When the battery is installed in the terminal, you can insert the terminal into any one of the following peripherals to charge the main battery pack:

- Dolphin HomeBase (see page 12-1)
- Dolphin Mobile Base (see page 13-1)
- Dolphin ChargeBase (see page 14-1)
- Dolphin Net Base
- Dolphin Charging/Communication Cable

To fully charge the Li-ion battery **before** installing it in the terminal, use the

- Dolphin QuadCharger (see page 15-1)
- Auxiliary Battery Well of the Dolphin HomeBase (see page 12-5)

Step 4. Initialize the Mobile Computer

1. Wake the terminal by pressing the POWER or SCAN key. The decode LED lights and the scan LED blinks for approximately three seconds. Do NOT press any keys while the terminal is initializing.

2. The terminal initializes and the splash screen displays for a few seconds. The Build numbers indicate the software version.

Bootloader   Kernel   Keyboard
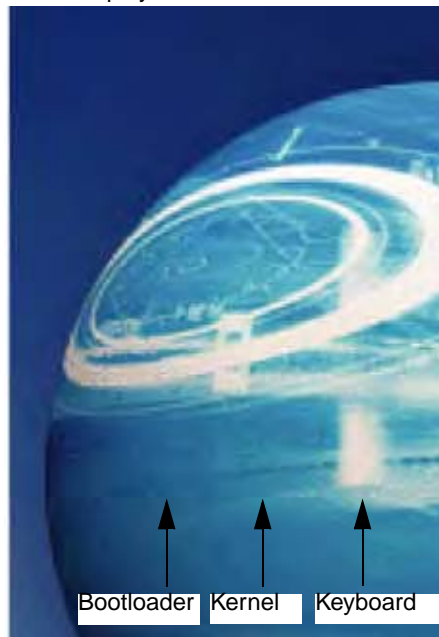
3. The system performs a hard reset. When the display activates again, follow the instructions that appear.

Step 5. Align the Screen

You are prompted to align the screen by tapping the target five times. Use the stylus provided by Hand Held Products.

align screen

Tap the target firmly and accurately at each location on the screen. The target will continue to move until the screen is aligned.
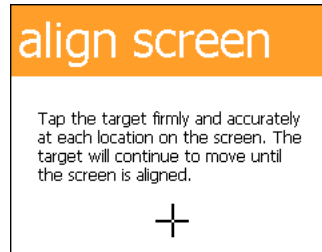
- Alignment should always be performed with a stylus designed for touch screen applications. The small point is required for accurate calibration.
- Press the stylus firmly into the center of the cross-hair target once and release. Do not "double-tap" the target.
- You can re-align the screen at any time by going to **Start** > **Settings** > **System** tab > **Screen**.

Step 6. Let Autoinstall Run

For each program that loads, a status bar indicates that the program is loading. Autoinstall occurs after each hard reset. Do NOT touch the keyboard or the screen while programs are loading. All configurations of the Dolphin terminal install Demos and Power Tools. If the terminal is configured with a wireless radio, the appropriate radio drivers and utilities for each radio install.

After Autoinstall is complete, the terminal performs a soft reset automatically. When it finishes booting up after the soft reset, the Today screen appears; see Today Screen on page 4-2.

Step 7. Set the Time and Date

You need to re-set the time and date after every hard reset of the terminal. It is a good idea to set the time and date now before you begin using the device.

On the Today screen, tap the line that displays the time and date,
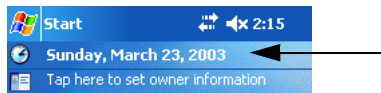
The Clock Settings screen appears.
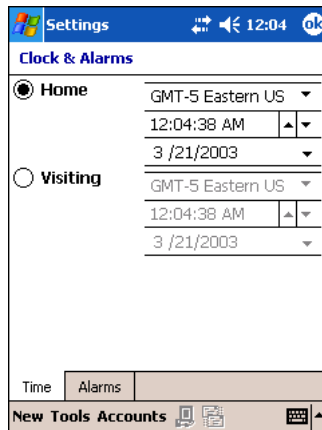
The time zone defaults to **GMT-5 Eastern US**; tap the arrow to the right of GMT-5 Eastern US to select another time zone. Set the correct time and date in the remaining fields and tap **OK** to save.

Step 8. Verify Imaging and Decoding with Demos

Dolphin terminals come loaded with Demos you can use to verify imaging and decoding.

Verify Imaging

The Image Demo enables you to use the imager to capture an image on the Dolphin 9500 and Dolphin 9550.

1. Tap **Start** > **Demos** > **Image Demo**. The image demo opens.

2. Point the terminal at an object and press the SCAN key. A preview of the object appears on the terminal screen.

3. Release the SCAN key. The image is captured. By default, the image saves to the My Device folder as "imagedemo.jpg." To save to a different location, tap **File** > **Save As** and select a new location.

4. Press the ESC key to close the demo.

For more information about taking an image, see Using the Image Engine on page 4-4.

Verify Decoding

The Scan Demo enables you to decode a sample bar code.

1. Tap **Start** > **Demos** > **Scan Demo**.

2. Aim the terminal at a bar code and press the SCAN key. The scan LED lights red, and a green aimer beam projects out from the scanner.

3. When a good scan is obtained, the decode LED lights solid green and the terminal beeps. The bar code readout appears on the screen.

4. Press the ESC key to close the demo.

Sample Bar Codes

You can use the following bar codes to verify decoding:

Sample 128

Code 128

Sample PDF417

PDF417 Test Message

Note: The Dolphin 9551 supports only 1D symbologies; use Code 128 to verify scanning.

For more information, see Decoding on page 4-4.

Resetting the Terminal

There are two ways to reset the terminal: a soft and a hard reset.

Soft Reset (Warm Boot)

A soft reset re-boots the device without losing RAM data. You would perform a soft reset when
- the terminal fails to respond.
- after installing some software applications.
- after making changes to certain system settings, such as network cards.

1. Press and hold the Control (CTRL) and the Shift (SFT) keys for approximately five seconds.

2. The decode and scan LEDs flash for approximately three seconds as the terminal resets.

3. When the reset is complete, the Today screen displays.

Hard Reset (Cold Boot)

A hard reset resets the operating system, restores the terminal back to factory defaults, and resets the terminal after a bootloader, keyboard, and kernel upgrade.

⚠️ *A hard reset erases all of the data stored in RAM memory and all RAM installed applications!*

1. Press and hold the Control (CTRL) and the Escape (ESC) keys for approximately five seconds.

2. The decode and scan LEDs light for approximately three seconds.

3. The terminal re-initializes; see Initialize the Mobile Computer on page 2-8.

Suspend Mode

The terminal goes into suspend mode automatically when the terminal is inactive for a programmed period of time; see Power on page 5-10.

To put the Dolphin terminal into suspend mode manually, press and hold the Power key until the screen goes blank.

To wake the Dolphin terminal from suspend mode, press the Power or SCAN key.

3

Hardware Overview

System Features

Processor

Dolphin terminals are equipped with an Intel X-Scale 400MHz RISC microprocessor that runs on a 100 MHz RAM BUS, making it one of the most powerful Windows Mobile platforms on the market.

Operating System

The Windows Mobile platform provides a compact, efficient, scalable operating system. The open architecture facilitates the development of applications for energy-efficient data collection devices like the Dolphin terminal.

Memory

There are two kinds of memory:

Main Board/IPSM The standard memory configuration is 64MB RAM and 32MB non-volatile Flash.

Secure Digital (SD) Card Each terminal has an SD memory interface for additional application and data storage. You can order memory upgrades of 64MB, 128MB, and 256MB. Each terminal contains an access door on the side panel that makes the SD memory interface user-accessible; see Access Door to SD Memory on page 3-8.

For more information about each kind of memory, see Memory on page 5-8.

Wireless Radio Options

See Radio Options on page 4-15.

Front Panel Features

This section describes features on the front panel on Dolphin 9500 Series terminals.

Decode LED

Magnesium top cover

Navigation keys

Keyboard

Scan LED

Display

SCAN key
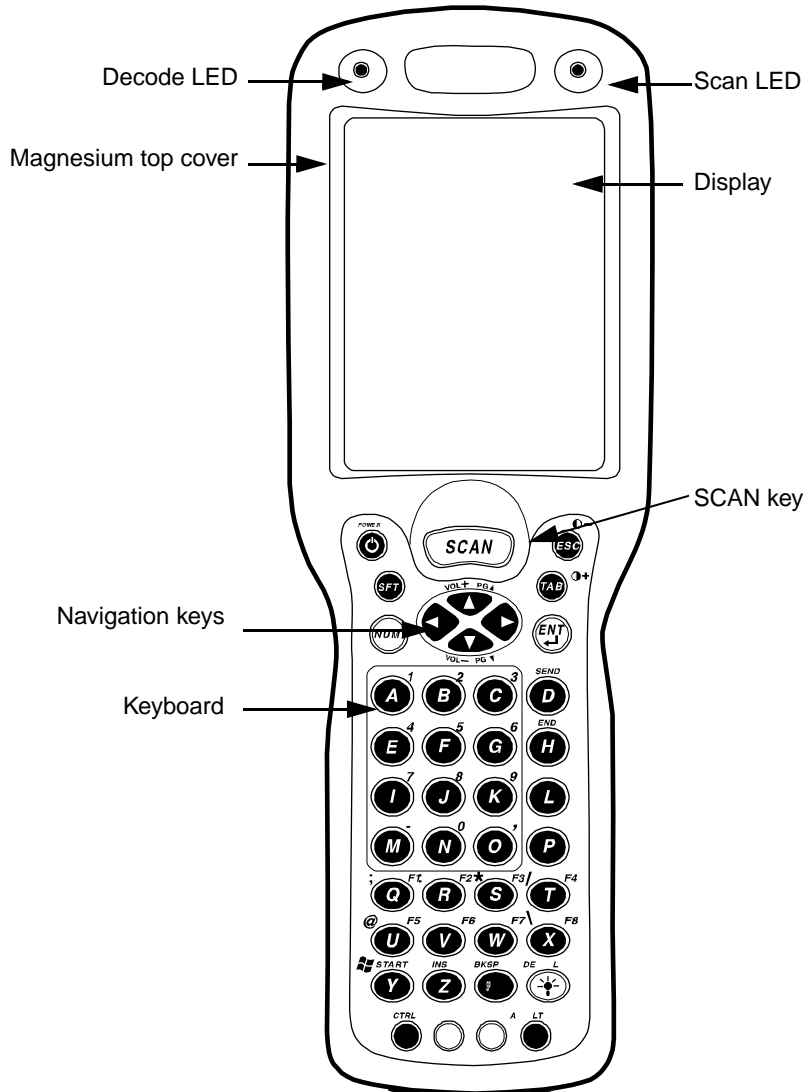
LEDs

The two light emitting diodes (LEDs) located at the top of the LCD display flash and illuminate during resets and scanning/imaging. Both can be programmed by various software applications.

Scan LED - Located in the upper right corner, this LED lights red when you press the SCAN key.

Decode LED - Located in the upper left corner, this LED lights green when a scanned bar code is successfully decoded.

Display

Dolphin terminals feature a color 3.5" liquid crystal display (LCD) touch screen covered with an industrial, protective lens for greater durability. The video graphic array (VGA) resolution is 1/4 (240 X 320 pixel). The touch screen can be activated by the stylus (included with the terminal) or a finger.

The color LCD is 16 bits/pixel and uses thin film transistor (TFT) technology. The backlight for the touch screen lights when the screen is touched, but not when the Backlight key is pressed. For more information about the Backlight, see Adjusting the Backlight on page 4-13.

SCAN Key

The SCAN key is centrally located for easy access with the right or left hand. When pressed, the SCAN key activates the scanner/imager. The SCAN key also functions as an on or system wakeup control for the terminal.

Navigation Keys

The centrally-located navigation keys enable you to move and position the cursor through software programs. The up and down arrows are programmed to perform specific functions when pressed in combination with the Blue and Red modifier keys.

Keyboard

The Dolphin terminal features three keyboard options: 35-key numeric/alpha keyboard, 43-key numeric/alpha keyboard, and 56-key full alpha/numeric keyboard. For a complete overview of each keyboard, see Using the Keyboards on page 4-7.

Each keyboard is backlit for easy viewing in various lighting conditions and contains centrally located keys for both right- and left-hand operation. The silver background of both the keys and the overlay enhances the readability of each. The overlay of all three keyboards are color-coded to indicate the functions performed or characters typed when the color-coded key is pressed immediately after the Red or Blue Modifier key at the bottom of the keyboard.

Back Panel Features

Because the back panel of the Dolphin 9500 and the Dolphin 9550 are different, each is featured in its own section.

Dolphin 9500

The following graphic describes features on the back panel of the Dolphin 9500 terminal.

Image Engine Window

Stylus (in slot)

Fastener for the Stylus Tether

Battery Well (underneath the battery)

Battery

Speaker

Hand Strap Attachment

Microphone
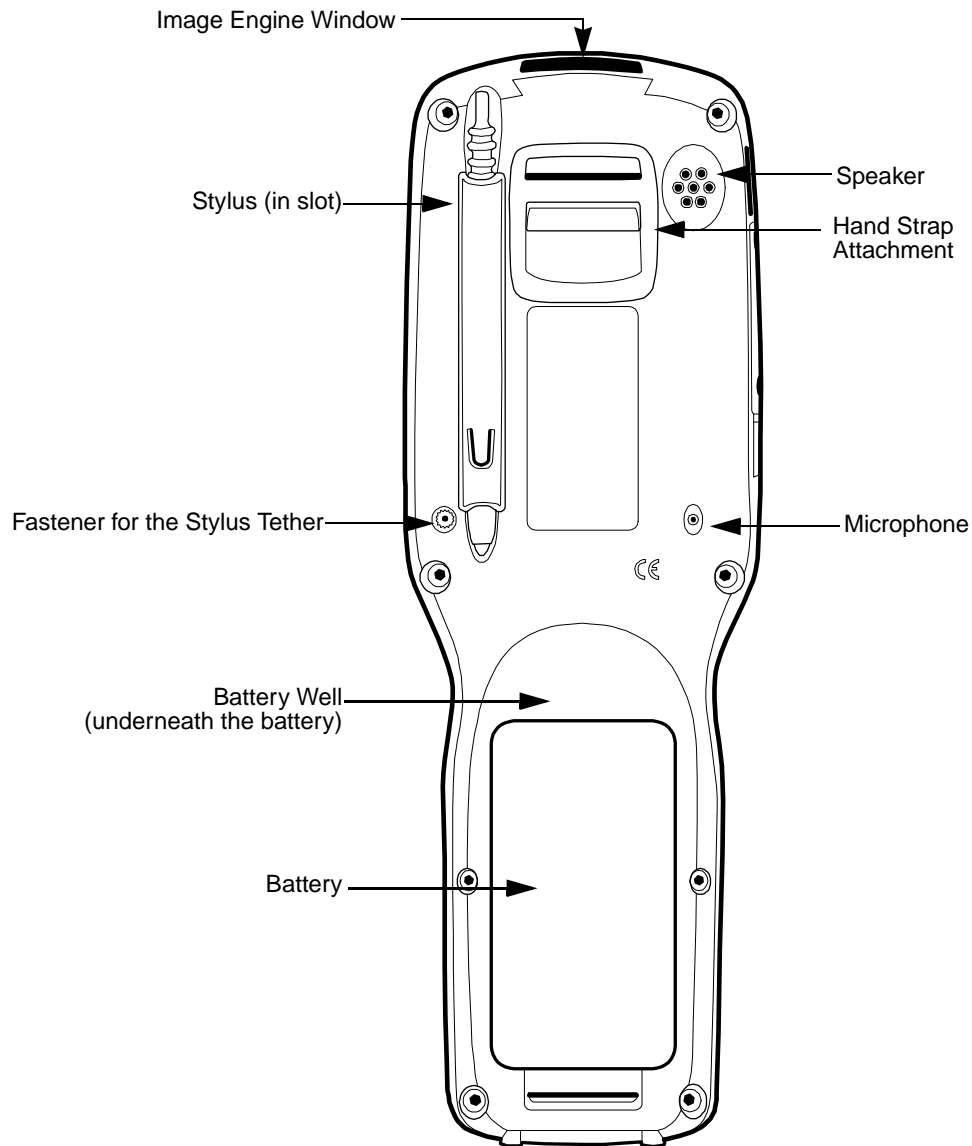
Image Engine Window

Dolphin terminals have an optional image engine that reads and decodes linear, stacked linear (PDF417), and 2D matrix bar code symbologies. With the latest CMOS-based technology, the engine works like a digital camera and enables digital image capture, signature capture, and reading of OCR characters.

Digital images taken with Dolphin terminals have a maximum image size of 640 x 480 pixels and may have up to a 256 grayscale image definition. Files formats supported for image storage include Bitmap (.bmp), JPEG (.jpg) and Portable Network Graphics (.png).

For a view of the image engine window, see Image Engine Window on page 3-6.

Speaker

Dolphin terminals have an integrated speaker that sounds audio signals as you scan bar code labels and enter data. The operating frequency range is 500Hz at 71 dB up to 80 dB. The speaker can also be used for playing sounds (e.g., WAV or MP3 files) as well as voice communication in handset mode in a terminal equipped with a GSM/GPRS radio. For more information about handset use, see Audio Modes on page 9-3.

Hand Strap Attachment

The Dolphin 9500 and Dolphin 9551 have an adjustable, elastic hand strap to provide a comfortable, secure grip on the terminal. It is attached to the terminal with a clip on the bottom panel; see Hand Strap Clip on page 3-9. If desired, the strap may be adjusted or removed.

Microphone

Dolphin terminals feature an integrated microphone that provides audio input to the terminal when a headset is not plugged into the Audio Jack, page 3-8. When a headset is plugged in, the terminal defaults to the microphone on the headset. For more information, see Headset Control on page 5-4.

Battery/Battery Well

The Battery Well is a recessed area on the back of the Dolphin that holds the Li-Ion battery pack. For more information, see Batteries on page 3-10.

Stylus and Fastener

The stylus is used to operate the touch screen. The back panel features this storage slot to hold the stylus when not in use. There is also a fastener on the back panel for stylus tethers.

Stylus tethers can be purchased separately to help you keep the stylus attached to the terminal when not in the slot to prevent loss. A stylus tether is a coiled elastic cord with one end to attach to the stylus and another to attach fasten to the back panel.

Dolphin 9550

This section describes the back panel of the Dolphin 9550. It contains the same features as the Dolphin 9500 described in the previous section with the additions of

- a pistol-grip handle to hold and maneuver the terminal with greater ease,
- a scanner/imager trigger on the handle that activates the scan, and
- rubber bumpers that enable the terminal to rest safely and securely when not in use.

The following is a graphic of the 9550 back panel.
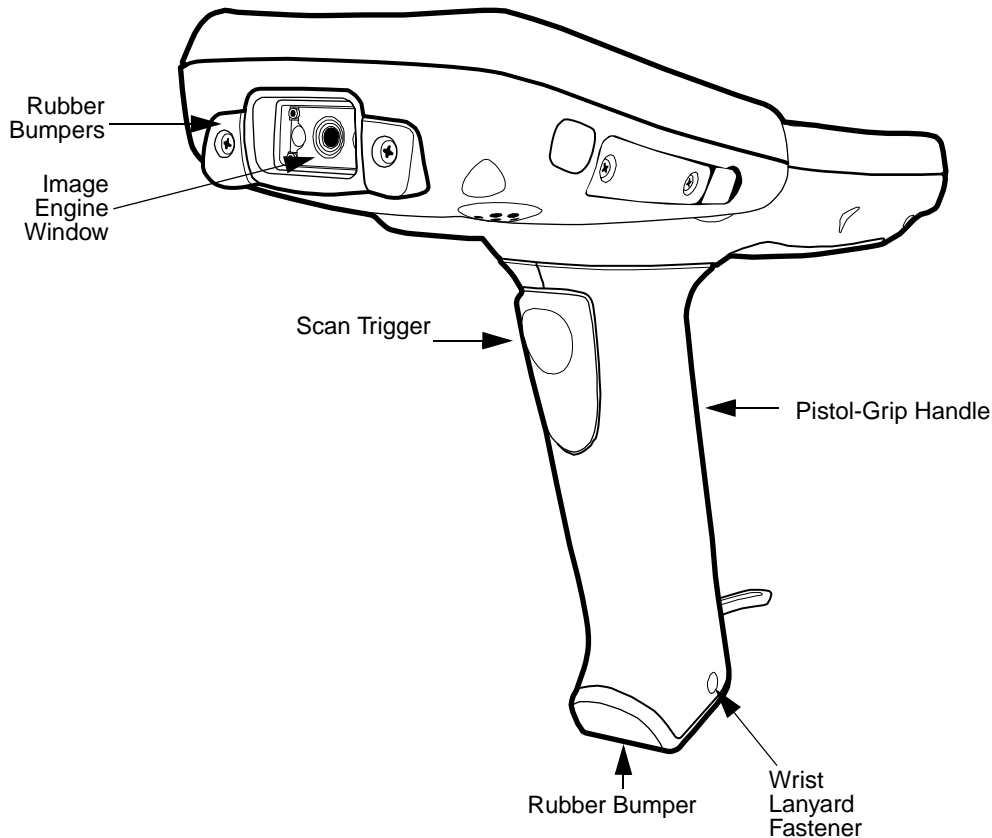
Image Engine Window

This is the front view of the window. For more information, see Image Engine Window on page 3-5.

Scan Trigger

The scan trigger provides ergonomic scan activation for scan-intensive applications.

Pistol Grip Handle

The comfortable, ergonomic handle is integrated into the back panel to enhance the terminals durability in rugged, real-world settings. The handle cannot be removed from the terminal and features rubber surface details to improve handle grip, comfort, and shock absorption.

Wrist Lanyard Fastener

This fastener is for the wrist lanyards available for Dolphin 9550/9551 terminals.

Rubber Bumpers

The following graphic shows the Dolphin 9550 in a nose-down position, resting on its rubber bumpers.

Rubber Bumpers   Stylus - inside the handle
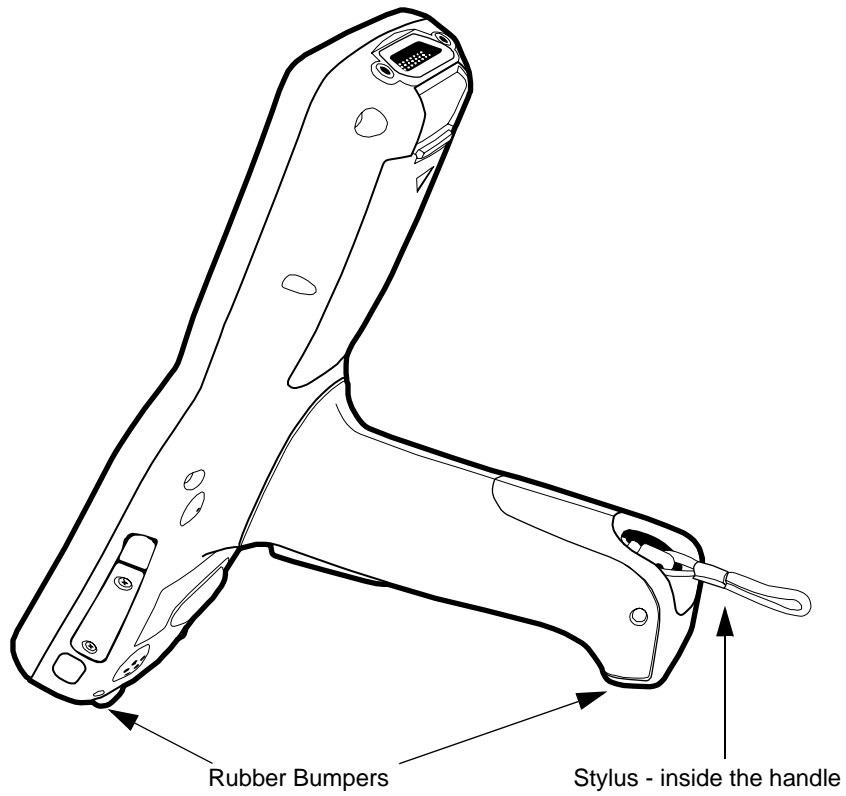
Stylus

The stylus is used to operate the touch screen display. The Dolphin 9550 stores the stylus inside the pistol-grip handle.

Side Panel Features

The following graphic shows the left, side panel:

IrDA   Access Door to   Audio Jack
Port   SD Memory   (2.5mm)
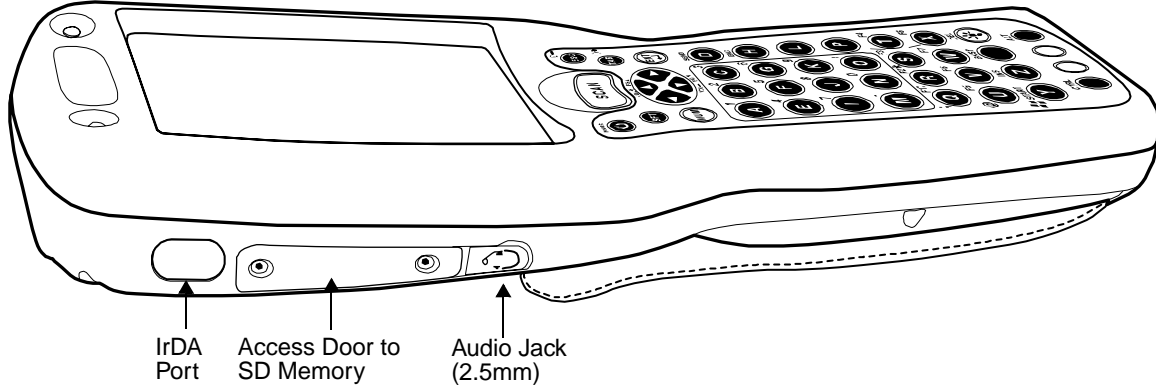
IrDA Port

>   The IrDA port communicates with IrDA-enabled devices such as PCs, printers, modems, or other Dolphin terminals. The maximum data transfer speed is 115kbps.

SD Memory

>   The access door provides user access to the industry-standard SD memory interface. You can open the access door manually to gain access to the SD to custom-configure the terminal with SD memory upgrades of 64MB, 128MB, or 256MB.
>
>   When the access door is fastened securely and properly, the memory interface is sealed against moisture and particle intrusion, read/write data is stored securely, and the terminal's environmental rating is preserved
>
>   The SD memory interface does not support SDIO.

Audio Jack

>   The 2.5mm audio jack supports both speaker (stereo) and microphone (mono) headsets.

Bottom Panel Features

Hand Strap Clip
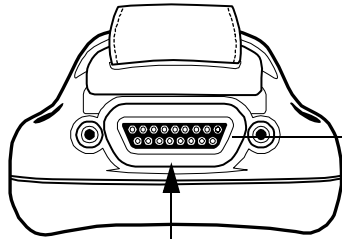
Mechanical Connector
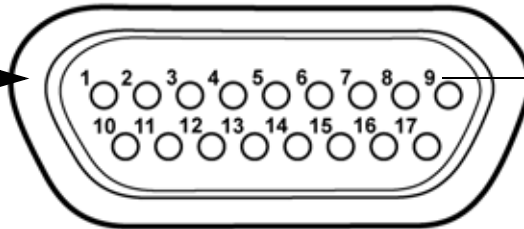
Note: Signals referenced are for a DTE device.

Pin #	Description
1	+USB
2	PWR
3	N/C
4	N/C
5	N/C
6	N/C
7	GND
8	5V OUT
9	DTR
10	-USB
11	USB DET
12	RI
13	DSR
14	RXD
15	RTS
16	TXD
17	CTS

Mechanical Connector

The bottom panel features a custom, industrial-grade connector with 17 pins. When seated in a Dolphin 9500 Series peripheral, the terminal is powered, the main battery charged, and communication occurs via this connector. All Dolphin 9500 Series peripherals are designed to work exclusively with this connector.

The 17-pin connector can communicate with Dolphin 9500 Series peripherals via RS-232 or USB. For RS-232, the maximum communication speed is 115 Kbps with seven baud rate settings. For USB, the communication speed is up to 12 Mbps. If the peripheral unit is connected to a PC, this connector also transmits data.

Powering Out

The mechanical connector also provides power out (to peripheral devices) 5V at 500mA. This means that, with the proper Hand Held Products' cable, the terminal can power another device. By default, power out is disabled. To enable power out, alter the registry as follows:

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\Serial4]

      Conn5Venable=1

Dolphin 9501 and Dolphin 9551

Batteries

Dolphin terminals feature intelligent battery technology. There are two types of battery power: the main battery pack installed in the back panel and the backup battery located inside the terminal. They are designed to work together to prevent data loss when the terminal is in use over long periods. Both batteries must be completely charged before using a Dolphin terminal for the first time.

Main Battery Pack

⚠ *Use only the Li-ion battery packs provided by Hand Held Products. The use of any battery pack not sold/manufactured by Hand Held Products in Dolphin 9500 Series terminals will void your warranty and may result in damage to the Dolphin terminal or battery.*

The 7.4V, 14.8 watt hour Li-Ion battery pack is the primary power source for the Dolphin. The Li-Ion battery is designed to operate in a temperature range of -10 to 50° C (14 to 122° F). For the location of the Li-Ion battery on the terminal, see Battery/Battery Well on page 3-5.

Charging Options

When the Li-ion battery is installed in the terminal, use one of the following peripherals:

- Dolphin HomeBase (see page 12-1)
- Dolphin Mobile Base (see page 13-1)
- Dolphin ChargeBase (see page 14-1) or the Dolphin Net Base
- Dolphin Mobile Charger - connect the charger to the terminal and vehicle power port

Note: Make sure the mechanical connector on the terminal is properly connected to the peripheral and that the peripheral is connected to the appropriate power supply.

When the Li-ion battery is not installed in the terminal:

- Place the battery pack in the Dolphin QuadCharger - see Charging Batteries in the QuadCharger on page 15-4.
- Place the battery pack in the Auxiliary Battery Well of the Dolphin HomeBase (see page 12-5)

Charging Time

The Li-ion battery pack requires four hours to charge completely.

Internal Backup Battery

Located inside the terminal, the backup battery is a 3.6 Volt nickel metal hydride (NiMH) battery.

The internal backup battery prevents the terminal from being reset if you need to remove and replace the main battery pack. It retains RAM data and allows the real-time clock to remain operational for up to 30 minutes when the main battery pack is removed. If the terminal is left without the main battery pack for more than 30 minutes, the internal backup battery needs to be recharged to function according to its specifications.

Note: Data and programs stored in Flash memory are not lost even if the internal backup battery fails. However, you must reset the real-time clock; see Set the Time and Date on page 2-9.

Charging

The internal backup battery is powered by the main battery pack. Therefore, charging the internal backup battery requires that the main battery pack be installed in the terminal and the terminal be connected to a charging device.

The internal backup battery must be fully charged before using the terminal for the first time. The initial charge cycle takes approximately eight hours. After that, if the internal backup battery becomes fully discharged of power, it requires a minimum of 10 hours of charging time to function normally.

Guidelines for Use

Follow these guidelines to maximize the life of the Dolphin's internal backup battery:

- Keep a charged Li-Ion battery pack in the Dolphin terminal. The internal battery prematurely discharges if there is not at least a partially charged battery in the terminal.
- Keep the Dolphin terminal connected to power when the terminal is not in use.

Managing Battery Power

Data and files saved on Dolphin terminals may be stored in RAM memory, which does not persist through a hard reset. Therefore, to help prevent data loss, maintain a continuous power supply to the terminal.

Letting the backup battery become fully discharged causes the terminal to lose all data in RAM. Therefore, you should keep a charged battery pack in the Dolphin at all times. The internal battery discharges prematurely if there is not at least a partially charged battery in the terminal. When you remove a battery pack, insert another charged battery pack in the Dolphin.

Status Notifications

When the main battery pack becomes low, the Low Battery Charge icon appears in the Navigation bar. When the battery is critically low, the Critical icon appears. There is also a Low Battery icon that appears when the backup battery is low. If there is no indicator, the battery is adequately charged. For details about these icons, see Status Icons on page 4-20.

If the main battery is low and the terminal is in suspend mode, pressing the SCAN or Power button does not wake the Dolphin terminal; you must replace the discharged battery with a fully charged battery.

Default Critical and Low Battery Points

Dolphin terminals are programmed to display warnings when the battery reaches critical and low battery points. There are two DWORD value registry entries **[HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Power]** that allow these warning points to be customized:

"CriticalBatt"=a (10%)   This sets the Critical Battery point to 10 percent (a hex= 0 decimal). The critical battery setting is the point at which the customer is warned that the battery charge is very low. This warning is posted every 3 minutes until the situation is corrected.

"LowBatt"=19 (25%)   This sets the Low Battery point to 25 percent (19 hex=25 decimal). The low battery setting is the point at which the user is notified that the battery is low. The user is notified only once for a low battery.

Setting Critical and Low Battery Points

Developers can reset these parameters in the registry from 0 (no warning) to 99 (would nearly always warn). Warnings do not appear when the terminal is on external power.

You can review and set these battery points in the RegEdit Power Tool.

1. Tap **Start** > **Power Tools** > **RegEdit**.

2. Drill-down to **HKEY_LOCAL_MACHINE** > **System** > **CurrentControlSet** > **Control** > **Power**.
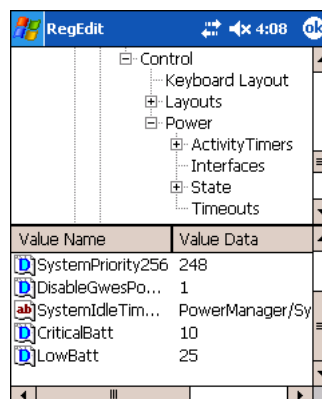
3. Tap the **Value Name** to change the Value Data. You can reset the Value Data from 0 (no warning) to 99 (would nearly always warn).

4. Tap **OK** to save changes.

For more information about the RegEdit Power Tool, refer to the Dolphin Power Tools User's Guide available for download at www.handheld.com.

Checking Battery Power

Tap **Start** > **Settings** > **System** tab **> Power**. The Battery tab opens displaying the charge status of both the installed Li-ion battery pack and the NiMH backup battery inside the terminal.
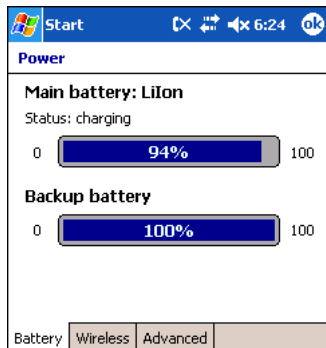
Power system settings contains three tabs: Battery, Wireless, and Advanced. For more information, see Power on page 5-10.

Storing Batteries

To maintain optimal battery performance, follow these storage guidelines:

• Avoid storing batteries outside the specified range of -4 to 104° F (-20 to 40°C) or in extremely high humidity.
• For prolonged storage, do not keep batteries stored in a charger that is connected to a power source.

Guidelines for Battery Use and Disposal

The following are general guidelines for the safe use and disposal of batteries:

• Use only the battery supplied, recommended, or approved by Hand Held Products.
• Replace defective batteries immediately; using a defective battery could damage the Dolphin terminal.
• Never throw a used battery in the trash. It contains heavy metals and should be recycled according to local guidelines.
• Don't short-circuit a battery or throw it into a fire. It can explode and cause severe personal injury.
• Excessive discharge damages a battery. Recharge the battery when your terminal indicates low battery power.
• Although your battery can be recharged many times, it will eventually be depleted. Replace it after the battery is unable to hold an adequate charge.
• If you are not sure the battery or charger is working properly, please send it to Hand Held Products or an authorized Hand Held Products service center for inspection.

Maintenance

When needed, clean the image engine window and the LCD display with a clean, non-abrasive, lint-free cloth. The terminal can be cleaned with a damp cloth.

Dolphin 9500 Series Technical Specifications

System Architecture	
Processor:	Intel X-Scale PXA255 400MHz
Development Environment:	Dolphin SDK Add-on for Pocket PC 2003 - supports Embedded Visual C++ 4.0 Dolphin .NET SDK for Pocket PC 2002 and 2003 - supports Visual Studio.NET 2003 (VB.NET and C#.NET) Dolphin GSM/GPRS SDK Add-on for Pocket PC 2003 - supports Embedded Visual C++ 4.0 and Visual Studio.NET 2003
Operating Platform:	Windows Mobile 2003 Second Edition Software for Pocket PCs - Professional Edition
Third-Party Software:	Support for Connect Terminal Emulation software (TNVT, 3270, 5250) and Java Virtual Machine (JVM) runtime
Memory:	64MB RAM x 32MB non-volatile Flash
Data Inputs	
Imager/Scanner:	See Image Engine Options and Specifications on page 2-5.
1D Symbologies:	See 1D Symbologies on page 2-6.
2D Symbologies:	See 2D Symbologies on page 2-6.
Composite Codes	See Composite Codes on page 2-6.
OCR Fonts:	See OCR Codes on page 2-6.
Keyboard Options:	See Using the Keyboards on page 4-7.
Data Outputs	
Display:	See Display on page 3-3.
I/O Ports:	Custom, industrial-grade, mechanical connector supports • USB communications at 12Mbps • Serial RS-232 communication up to 115Kbps • Charging via peripheral cradles or AC adapter cables • Integrated IrDA port, speaker, and microphone
Mass Storage:	User-accessible Secure Digital (SD) memory interface
Wireless Radio Options	
WLAN:	IEEE 802.11b DSSS Authentication Methodologies: LEAP, MD5, TLS, TTLS, PEAP, and WEP
WWAN: (9500 only)	GSM/GPRS Tri-band (900, 1800, 1900 MHz) radio with accessible SIM card interface
WPAN:	Bluetooth radio
Physical	
Dimensions:	**9500/9550 –** 9.6"L x 3.45"W x 1.66"D at display (24.53 x 8.76 x 4.23 cm), 2.7"W x 1.5"D at grip (6.9 x 3.8 cm) **9501/9551 –** 9.7"L x 3.45"W x 2.27"D at display (24.66 x 8.77 x 5.76 cm), 2.7"W x 1.5"D at grip (6.9 x 3.8 cm)

Dolphin 9500 Series Technical Specifications

Weight:	**9500 Terminal –** Batch: 19.7 oz. (558 gm), WLAN: 20.2 oz. (573 gm), WPAN: 20 oz. (567 gm), WLAN/WPAN: 20.3 oz. (576 gm) **9501 Terminal –** 22.65 oz. (642 gm), all versions **9550 Terminal –** Batch: 23.4 oz. (663 gm), WLAN: 23.9 oz. (677.5 gm) **9551 Terminal –** 25.8 oz. (732 gm), all versions
Operating Temperature:	14 to 122°F (-10°C to 55°C) The terminal can operate in temperatures lower than -20°C with potential degradation in performance depending on the application
Storage Temperature:	-22 to 176°F (-30°C to 80°C)
Humidity:	95% humidity, non-condensing
Electrical Static Discharge:	15 KVA on all surfaces
Impact Resistance:	Withstands multiple 5ft. (1.5m) drops onto concrete
Environmental Resistance:	Independently certified to meet IP64 standards for moisture and particle resistance
Power:	Lithium-Ion battery technology – 7.4V, 14.8 watt-hour main battery with hot-swappable design for fast replacement in the field
Other:	Integrated stylus with optional tether and adjustable, removable hand strap
Peripherals & Accessories	See Dolphin 9500 Series Peripherals on page 2-3. See Dolphin 9500 Series Accessories on page 2-4.
Regulatory Approvals	See Required Safety Labels on page 1-2.

4

Using Dolphin Mobile Computers

Entering Data

To enter data, you can:
- Use the imager to capture images or scan bar code data into data fields
- Use the 35-key, 43-key, or 56-key keyboards
- Use the Soft Input Panel (SIP)
- Use Microsoft® ActiveSync® to synchronize or copy information from your desktop computer. For more information, see Using ActiveSync on page 6-1.

Touch Screen

Hand Held Products recommends using screen protectors to protect the touch screen; especially when used with applications that require high-volume interfacing with the touch screen. Screen protectors help prevent damage to the touch screen display and are easily installed. Screen protectors can be purchased at any major computer retail store or directly from Hand Held Products.

⚠ *For touch screen input, use the included stylus or your finger. The method you choose depends on which one is appropriate for your application. While there is a great deal of variation in different applications, for buttons or icons that are close together, you generally achieve greater accuracy with the stylus. Use of other objects, such as paper clips, pencils, or ink pens can damage the input panel and will void the warranty.*

Today Screen

After the Dolphin terminal initializes the first time, you see the Today screen. You can also display it by tapping **Start** and then **Today**. On the Today screen, you can see important information for the day at-a-glance.

Tap to adjust the volume

Tap to change the date and time

Tap to open to change owner information

Your email messages

Your active tasks
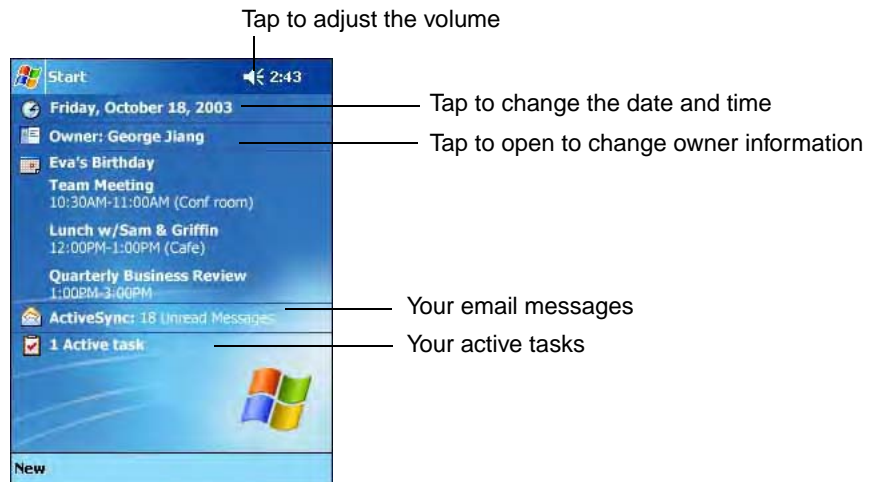
Navigation Bar and Start Menu

The Navigation bar is located at the top of the screen that displays the active program and current time. It also provides access to the Start menu, which allows you to open programs and access system setting.

Start menu

Navigation bar

Tap to open a program

Tap to open a program you have recently used

Tap to see additional programs

Tap to see to customize your terminal
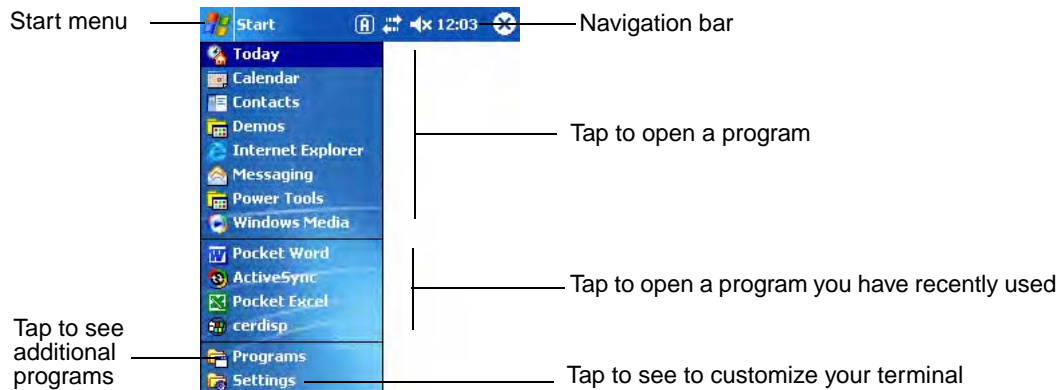
Command Bar

Use the command bar at the bottom of the screen to perform tasks in programs. The command bar includes menu names, buttons, and the Input Panel button. To create a new item in the current program, tap **New**. To see the name of a button, tap and hold the stylus on the button. Drag the stylus off the button so that the command is not carried out.

New button.

Input panel button.

Menu names.

Buttons.
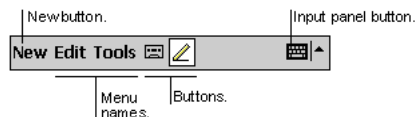
Pop-Up Menus

With pop-up menus, you can quickly choose an action for an item. For example, you can use the pop-up menu in the contact list to quickly delete a contact, make a copy of a contact, or send an e-mail message to a contact. The actions in the pop-up menus vary from program to program.
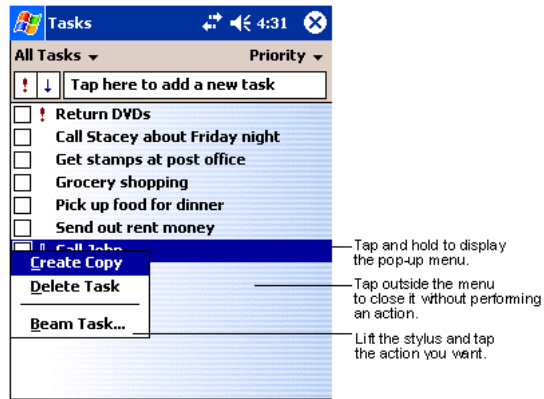
To access a pop-up menu, tap and hold the stylus on the item name of the action you want to perform the action. When the menu appears, lift the stylus, and tap the action you want to perform. Or tap anywhere outside the menu to close the menu without performing an action.

Selecting Programs

To see additional programs loaded on your terminal, tap **Start > Programs**. The Programs screen displays the programs that are not listed on the Start menu. To open a program, tap once on the icon.

Note: Some programs have abbreviated labels underneath the icon. To see the full spelling of an abbreviated label, tap and hold the stylus on the label. Drag the stylus off the label so that the command is not carried out.

Using the Image Engine

The Dolphin terminal houses a compact image engine that instantly reads popular 1D and 2D bar codes and supports omni-directional aiming and decoding for greater flexibility in real-world settings. The image engine can also capture digital images, such as signatures and pictures of damaged inventory.

The following table contains the available imaging/decoding options for each Dolphin 9500 Series terminal:

Terminal	1D	2D	Image Capture	Aiming	Omni-Directional Aiming	Engine Options
Dolphin 9500	Y	Y	Y	Green aiming beam or Red High-Vis aiming pattern	Y	5100SR 5300SR 5100SF
Dolphin 9550	Y	Y	Y		Y	
Dolphin 9501	Y	N	N	Long-range laser aimer	N	SE1200HP SE1200LR SE1200ALR
Dolphin 9551	Y	N	N		N	

For more information about the Dolphin 9500 and Dolphin 9550, see Image Engine Options and Specifications on page 2-5.
For more information about the Dolphin 9501 and Dolphin 9551, see Laser Engine Specifications on page 11-1.

Decoding

The terminal supports two types of image decoding for use in various bar code reading and imaging applications: full-area imaging and Advanced Linear Decoding (ALD).

Full-Area Imaging Full-area imaging provides omni-directional reading of linear and non-linear 1D and 2D bar codes, OCR, signature capture, and picture taking. When reading all bar code types using full-area imaging, a positive read can be obtained from many positions; see Dolphin 9500/9550 Scanning Position Options on page 4-5. To achieve the best read, the aiming beam should be centered horizontally across the bar code.

ALD ALD provides fast reading of linear and stacked linear bar codes. To achieve a positive read when reading linear 1D and PDF417 bar codes, the green aiming beam should be centered horizontally across the bar code. When ALD is enabled, the reader does not read matrix or postal codes.

To Decode a Bar Code

1. Point the Dolphin terminal directly at the bar code. The imager faces straight out the top panel.
   The aiming beam should be oriented in line with the bar code to achieve optimal decoding. A range of 4-10 inches (10-25 cm) from the bar code is recommended.

2. Project the aiming beam or pattern by pressing and holding the SCAN key.
   On the Dolphin 9550 and the Dolphin 9551, you can also press the Scan Trigger, page 3-6.

3. The scan LED lights red.

Decode LED   Scan LED
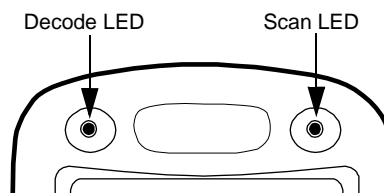
4. Center the aiming beam over the bar code; see Dolphin 9500/9550 Scanning Position Options on page 4-5.

5. When the bar code is successfully decoded, the decode LED lights green and the terminal beeps.

6. The bar code information is entered into the application in use.

Dolphin 9500/9550 Scanning Position Options

The aiming beams are smaller when the terminal is held closer to the code and larger when it is farther from the code. Symbologies with smaller bars or elements (mil size) should be read closer to the unit whereas symbologies with larger bars or elements (mil size) should be read farther from the unit.

5100 Green Aiming Beam

Linear Bar Code

2D Matrix Symbol

5300 Red High-Vis Aiming Pattern

If your Dolphin terminal is configured with a 5300 imager, high-vis aimers frame the bar code for more intuitive aiming.
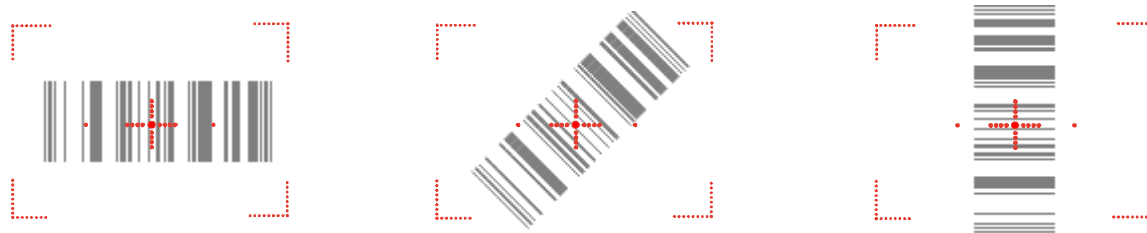
Dolphin 9501/9551 Scanning Position Options

For more information, see Laser Engine Specifications on page 11-1.

Capturing Images

The image-capture process is an intuitive, split-second operation for experienced users. By following the basic guidelines, new users can easily develop their own technique and, with practice, quickly learn to adapt it to different application environments.

Note: The Dolphin 9501 and Dolphin 9551 do not support image capture.

Image Preview   When the imaging process is initiated, Dolphin touch screens display a preview of the object. This is a live video image of what the imager is currently viewing. The live video image has a slightly degraded appearance compared to the captured image. This is normal.

Scan Key   The SCAN key captures images on both the Dolphin 9500 and Dolphin 9550 terminals. The SCAN key is the only way to capture an image on the Dolphin 9500; however, on the Dolphin 9550, you can also use the Scan Trigger on the pistol-grip handle.

Image Files   The terminal is capable of saving images in a number of industry-standard file formats such as *.bmp, *.jpg and *.png. The default file format for images is a grayscale *.jpg.

The image quality and related file size are determined by the data compression method used by the software application used to take images. The average size of the image file is approximately 4-8K. However, the size of the image depends on the content of the image - the more complex the content, the larger the file size.

For the highest quality image, take grayscale images.

Taking an Image

The following steps are basic guidelines for taking images:

1. Point the Dolphin terminal directly at the object. The imager points straight out the top panel.

2. To preview the image, press and hold the SCAN key.
   On the Dolphin 9550, you can also press and hold the Scan Trigger, page 3-6.

3. The touch screen displays a preview of the object, and the decode and scan LEDs light red.

4. Adjust the terminal's position until the object appears on the screen the way you want it to appear in the image.

5. Hold the terminal still and release the SCAN key or Scan Trigger. The scan and decode LEDs flash red, the screen flashes, and the captured image appears on the screen.

6. Unless otherwise specified by the application in use, the image is saved to the My Device folder (**Start** > **Programs** > **File Explorer** > **My Device**).

5300 High-Vis Aiming Pattern

If your Dolphin terminal is configured with the 5300 imager, you can enable the aiming pattern for imaging in the Imaging Demo.

1. Tap **Start** > **Demos** > **Imaging Demo** > **Options** menu > **Aimer**.

2. The aiming pattern is now enabled for imaging.

Uploading Images

Image files can be uploaded to a host PC via Microsoft ActiveSync and a Dolphin communication peripheral or your wireless radio connection.

Using the Keyboards

There are three keyboard options:

- 35-key numeric/alpha
- 43-key alpha/numeric
- 56-key full alpha/numeric

Each keyboard is backlit for easy viewing in various lighting conditions with centrally-located keys for both right- and left-hand operation. The silver background of both the keys and the overlay enhances readability.

The overlay of each keyboard is color-coded to indicate the functions performed or characters typed when the color-coded key is pressed immediately after the Red or Blue Modifier key. Each keyboard also contains function, navigation and modifier keys.

35-key numeric/alpha keyboard   43-key alpha/numeric keyboard   56-key full alpha/numeric keyboard

Using the Function Keys

Name	Key	Function
Backlight		By default, the Backlight key turns the keyboard backlight on and off. See Adjusting the Backlight on page 4-13.
Backspace (BKSP)		This key appears on both the 35- and 56-key keyboards. The BKSP key moves the cursor back one space each time the key is pressed. If you are typing text, it deletes the previous character each time it is pressed. On the 43-key keyboard, the backspace is a shifted function; press Red + SP to backspace. To delete a single character, press Red + SP. To delete multiple characters, press Red + SP and hold the SP key.
Delete (DEL)		This key appears on both the 35- and 56-keyboard. The Delete key deletes the next character forward each time the key is pressed. On the 43-key keyboard, delete is a shifted function; press Red + the Backlight key to delete.
Enter (ENT)		The Enter key confirms data entry.
Escape (ESC)		The Escape key performs a cancel action.
Power Key		The Power key puts the terminal in and wakes the terminal from suspend mode; see Suspend Mode on page 2-11.
SCAN Key	SCAN	The SCAN key activates the scan and "wakes" the terminals from sleep mode. Its position allows convenient one-handed image-taking and/or bar code decoding.
Space (SP)		The Space key moves the cursor one space.
Tab		The Tab key moves the cursor to the next tab stop or the next control (on a form).

Using the Navigation Keys

Located in the center of each keyboard for easy access with either hand, the navigation keys enable you to navigate the cursor through an application screen. The up and down arrows can be used for page up and page down commands when pressed in combination with the red modifier key. Other functionality varies according to the application in use.

Press	To …
▲	Move the cursor up one row or line.
▼	Move the cursor down one row or line.
▶	Move the cursor one character to the right.
◀	Move the cursor one character to the left.

Using the Modifier Keys

All three keyboards feature the standard PC keyboard modifier keys, Shift (SFT), Alt, and Control (CTRL) as well as Blue and Red modifier keys.

Name & Key	Function
Shift **SFT**	The SFT key modifies only the next key pressed; it must be pressed before each key you wish to modify. SFT toggles the keyboard between uppercase alphabet mode and lowercase alphabet mode. Use SFT toggle Caps Lock on and off by double-tapping it or by pressing SFT + the Red modifier key. When Caps Lock is toggled on, characters are uppercase; when toggled off, characters are lowercase.
CTRL and **ALT**	Functions of the ALT and CTRL keys depend on the software application in use and the keys pressed in combination with each.
Blue and **Red**	The blue and red keys are used in combination with other keys to type special characters and perform system functions. Each key modifies only the next key pressed. The overlay of each keyboard is color-coded to indicate the character typed or function performed when specific keys are pressed immediately after the blue or red modifier key.

35-Key Numeric/Alpha Keyboard

The following graphic displays the 35-key numeric/alpha keyboard.

CTRL, Blue, Red, ALT Modifier keys
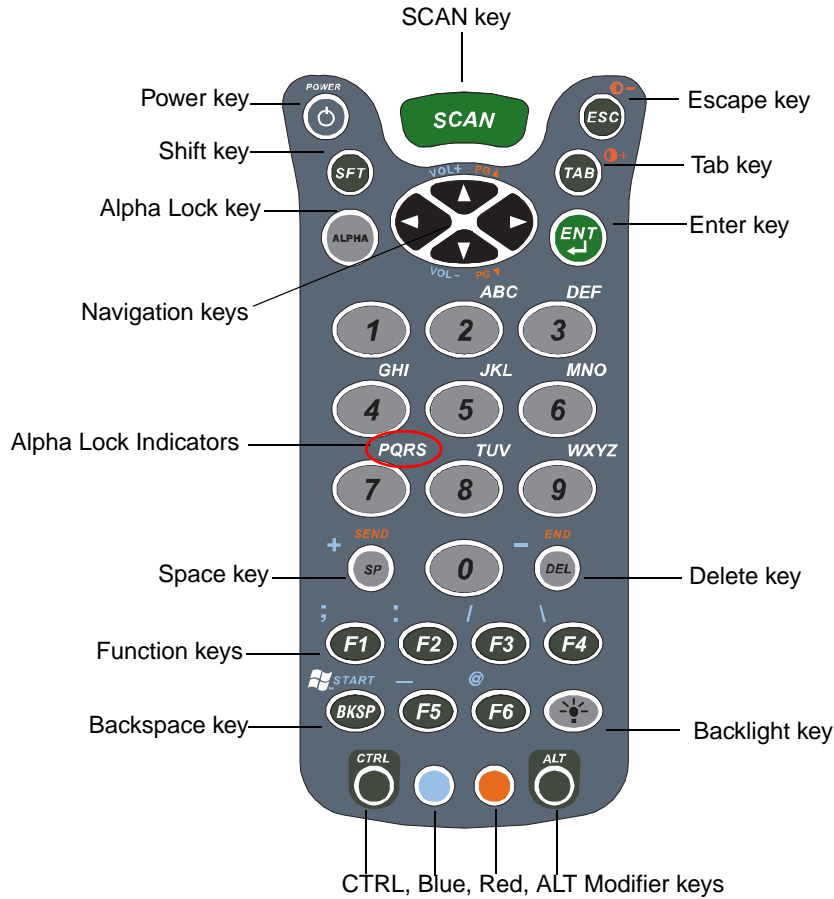
Alpha Lock Key (ALPHA)

The Alpha Lock key appears only on the 35-key keyboard. The Alpha Lock key enables you to toggle between the numeric and alpha modes. Numeric mode is when you type numbers with the number keys. Alpha mode is when you type letters with the number keys. The 35-key keyboard defaults to numeric mode.

On the overlay, there are **Alpha Lock Indicators** above number keys 2-9 that specify the letter that will be typed when you press that number key in alpha mode.

Please note that when pressing number keys in alpha mode, you must use the same multi-press method you would use when typing letters on a phone keypad. Each key press will type the next letter in the sequence displayed in the **Alpha Lock Indicator**.

43-Key Alpha/Numeric Keyboard

The following graphic displays the 43-key alpha/numeric keyboard.
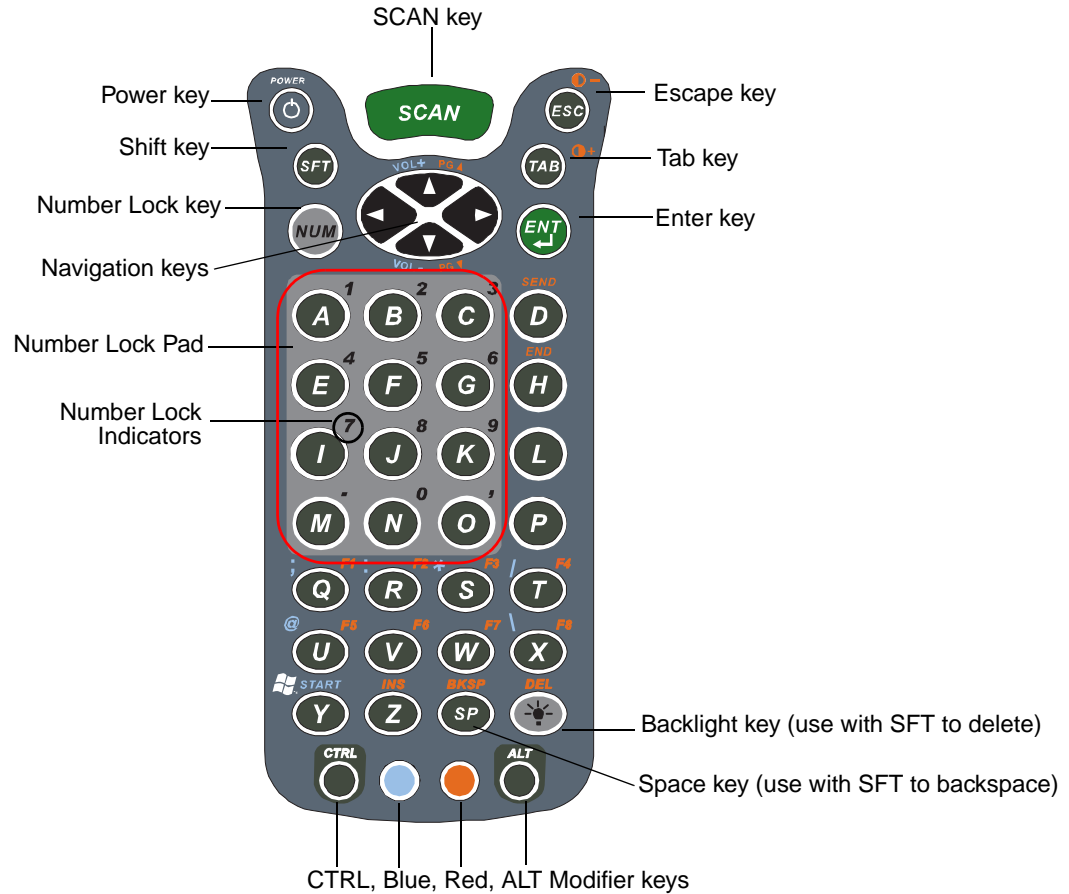
Number Lock (NUM)

The **Number Lock** key and **Number Lock Pad** and **Indicators** appear only on the 43-key keyboard. The Number Lock key enables you to toggle between the alpha and numeric modes. Alpha mode is when you type letters with the letter keys. Numeric mode is when you type numbers with the letter keys. On the 43-key keyboard, alpha mode is the default.

The **Number Lock Indicators** above the letter keys in the **Number Lock Pad** specify the number or character that will be typed when you press that letter key in numeric mode.

56-Key Full Alpha/Numeric Keyboard

The following graphic displays the 56-key alpha/numeric keyboard.

SCAN key

Power key — Backlight key — Shift key — Insert key — Space key — Backspace key — Delete key

Escape key — Tab key — Enter key — Navigation keys

CTRL, Blue, Red, ALT Modifier keys
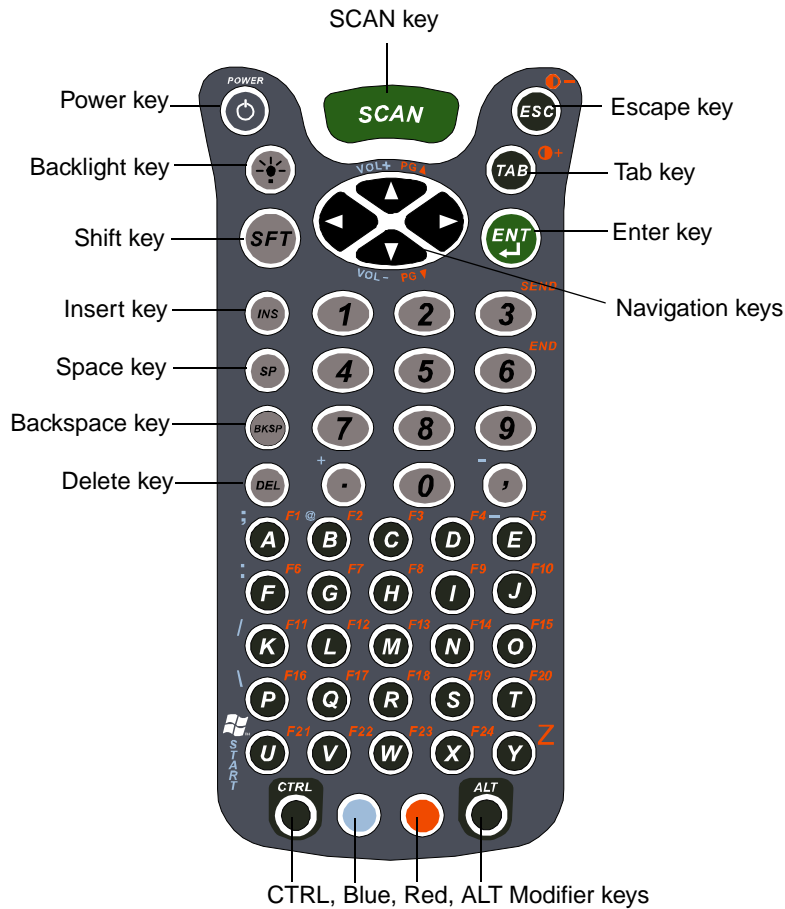
Note: To type a "Z" on this keyboard, press Red + Y.

Key Combinations

There are keyboard combinations for specific functions and special characters on each keyboard. For charts of the key combinations associated with each keyboard layout, see Keyboard Combinations on page A-1.

Adjusting the Backlight

Both the keyboard and the display are backlit to enable better viewing in low-light conditions.

Keyboard

All keyboards contains a Backlight key that toggles the keyboard backlight on and off ⌖ ; see Backlight on page 4-8.

Display

The backlight for the color display is user-defined. Tap **Start** > **Settings** > **System** tab > **Backlight**.
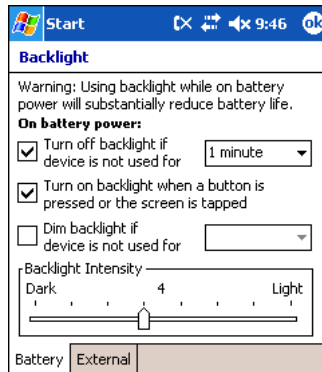
There are two tabs: **Battery** and **External**; the options on each tab are the same. The Battery tab determines display backlight settings when the terminal is running on battery power. The External tab determines display backlight settings when the terminal is powered by an external source, such as a Hand Held Products cable.

Field	Description
Turn off backlight	Select how many minutes you want to elapse before the backlight automatically turns off.
Turn on backlight	Select this option if you want the backlight to turn on when the a button is pressed or the touch screen is tapped.
Dim backlight if	Select how many minutes you want to elapse before the backlight dims.
Backlight Intensity	Move the slider to set the intensity of the backlight.
OK	Tap OK to save settings. The display backlight functions according to the settings saved on each tab.

Communication Options

Mechanical Connector

The 17-pin, industrial-grade, mechanical connector on the bottom panel is designed to work only with communication and charging peripherals sold/manufactured by Hand Held Products. Via these peripherals, the connector supports USB and RS-232 communications, enabling the user to connect the Dolphin terminal to external devices such as scanners and printers.

For more information about the connector, see Mechanical Connector on page 3-9.

IrDA Port

The IrDA port enables the Dolphin terminals to transmit data via pulses of light to and from other IrDA-compliant devices, such as printers and PCs or to other Dolphin terminals.

For more information, see Using Infrared on page 6-5.

Wireless Radios

See Radio Options on page 4-15.

Software Communication Programs

Microsoft ActiveSync v3.7 or Higher

Microsoft ActiveSync is a tool that enables Windows Mobile devices to exchange and synchronize application data with a desktop computer.

For more information, see Using ActiveSync on page 6-1.

RAS (Remote Access Services)

RAS is a feature built into Windows NT that enables users to log into an NT-based LAN using a modem, X.25 connection or WAN link. RAS is fully supported and allows the use of PPP or SLIP connections for network connectivity.

Radio Options

Dolphin terminals can be configured with one or a combination of 802.11b, Bluetooth, or GSM/GPRS (Dolphin 9500 only) radios.

For more information about 802.11b radios, see Wireless LAN (WLAN) Communications with 802.11b on page 7-1.
For more information about Bluetooth radios, see Wireless PAN (WPAN) Communications with Bluetooth on page 8-1.
For more information about GSM/GPRS radios, see Wireless WAN (WWAN) Communications with GSM/GPRS on page 9-1.

Note: Dolphin 9550 terminal supports all radio options and configurations EXCEPT FOR GSM/GPRS!

Radio Combinations

Co-located	Co-located radio combinations are those where you can use only one radio at a time. Both radios can be installed but not operate simultaneously. 802.11b and GSM/GPRS
Co-operational	Co-operational radio combinations are those that you can enable and operate simultaneously. Bluetooth and 802.11b Bluetooth and GSM/GPRS

Radio Driver Installation

Radio drivers install during the autoinstall portion of any hard reset. Only the appropriate drivers for your terminal's radio configuration install. For more information, see Let Autoinstall Run on page 2-9.

When one radio driver installs, its radio is enabled automatically after each hard reset. When more than one radio driver installs, the terminal generally enables the 802.11b radio. However, if a GSM radio is installed, the terminal enables the GSM radio.

Using the Radio Manager

The Radio Manager enables and disables radios and radio combinations.

Single Radio	If your terminal contains a single radio module and its associated driver is installed, the radio is enabled and operates after each hard reset.
Multiple Radio	If multiple radio modules are installed in your terminal, you must enable simultaneous operation of the radios in the Radio Manager. (Configuration of simultaneous radio operation is done during the manufacturing process according to FCC regulations.)
Multiple Radio	GSM and 802.11b are mutually exclusive. While both radios may be installed on the terminal, they cannot operate simultaneously. Therefore, even if you have modules and drivers for both radios installed on your terminal, you will not see GSM and 802.11b together as a radio combination to be enabled in the Radio Manager.

Enabling Radios and Radio Combinations

Requirements	To successfully enable a radio, its hardware module and software driver must both be installed. If the module is present, the radio appears in the Radio Manager. However if the driver is not installed, you cannot successfully enable the radio.
Driver Sequence	When working with radio combinations, the Radio Manager enables and disables the radio drivers as necessary and in the proper sequence.

1. Open the Radio Manager by tapping **Start** > **Settings** > **Connections** tab > **Radio Manager**.
   The Radio Manager appears identifying the radios and radio combinations that can be enabled on your terminal in the Radio Modes list. (To appear on this window, a radio's hardware module must be installed.)
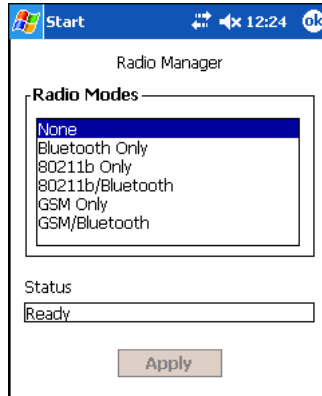
2. Select the radio or radio combination and tap **Apply**. The Radio Manager begins enabling your radio or radio combination.

3. When enabled, the **Status** field reads "Success."

Radio Manager Window

Radio Modes	The Radio Modes section displays the radio hardware modules currently installed on the terminal.
Status field	The Status field provides feedback on the state of the radio:

Ready	Selected radio is enabled and the Radio Manager is ready to receive a command.
Success	Selected radio was enabled successfully.
Error Message	Selected radio could not be enabled.

To Disable Radios

Radio drivers are automatically powered down if the radio combination that is currently enabled requires it.

To disable all radios, select **None** in the Radio Modes box and tap **Apply**.

Using the Soft Input Panel (SIP)

Use the SIP to enter information in any program on the Dolphin terminal. You can either type on the soft keyboard or write on the touch screen using Letter Recognizer or Block Recognizer. In either case, the characters appear as typed text on the screen.

To show or hide the SIP, tap the **Input Panel** button. Tap the arrow next to the Input Panel button to see your choices.
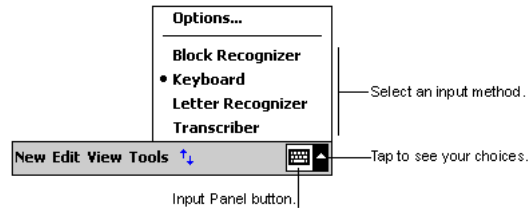
When you use the SIP, your terminal anticipates the word you are typing or writing and displays it above the input panel. When you tap the displayed word, it is inserted into your text at the insertion point. The more you use your Dolphin terminal, the more words it learns to anticipate.

To change word suggestion options, such as the number of words suggested at one time, tap **Start** > **Settings** > **Personal** tab > **Input** > **Word Completion** tab.

Using the SIP Keyboard

1. Tap the arrow next to the Input Panel button and select **Keyboard**.

2. On the soft keyboard that is displayed, tap the keys with your stylus.

Using the Letter Recognizer

With Letter Recognizer you can write letters using the stylus just as you would on paper.

1. Tap the arrow next to the Input Panel button and then **Letter Recognizer**.

2. Write a letter in the box.
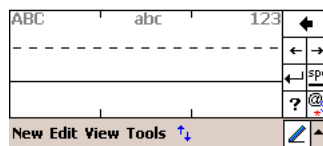
When you write a letter, it is converted to typed text that appears on the screen. For specific instructions on using Letter Recognizer, with Letter Recognizer open, tap the question mark next to the writing area.

Using the Block Recognizer

With Block Recognizer you can input character strokes using the stylus.

1. Tap the arrow next to the Input Panel button and then **Block Recognizer**.

2. Write a letter in the box.
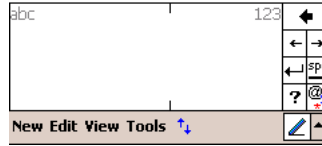
When you write a letter, it is converted to typed text that appears on the screen. For specific instructions on using Block Recognizer, with Block Recognizer open, tap the question mark next to the writing area.

Selecting Text

To edit or format typed text, select it by dragging the stylus across the text. Then, use the commands on the pop-up menu to cut, copy, and paste the selected text.

Input Panel Options

You can set input options by going to **Start** > **Settings** > **Personal** tab > **Input**.The following graphics are the tab windows where you can customize the input panel to your preferences:
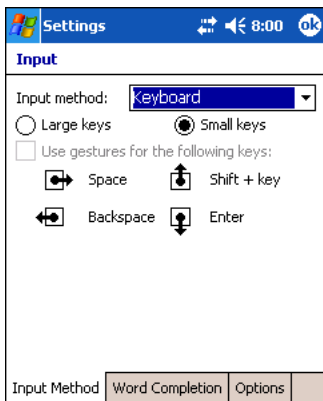
Input Method tab   **Word Completion tab**   **Options tab**
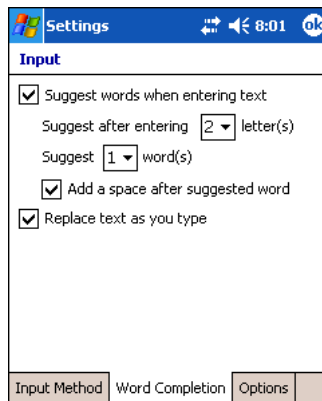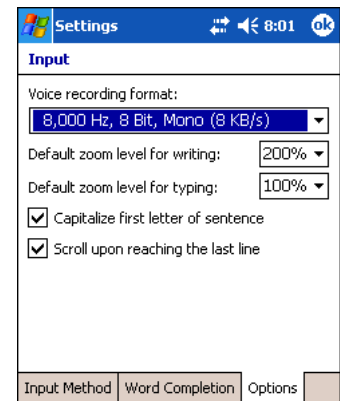
Writing on the Screen

In any program that accepts writing, such as the Notes program, and in the **Notes** tab in Calendar, Contacts, and Tasks, you can use your stylus to write directly on the screen as you would on paper. To write on the screen, tap the **Pen** button to switch to writing mode. This action displays lines on the screen to help you write.

Tap the Pen button and use your stylus like a pen.
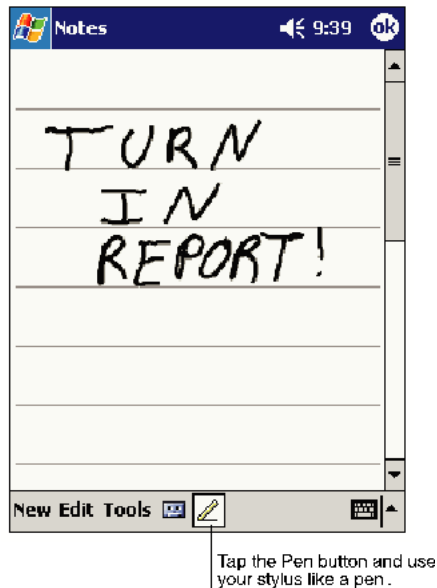
Note: Some programs that accept writing may not have the Pen button. See the documentation for that program to find out how to switch to writing mode.

To Select Writing

If you want to edit or format writing, you must select it first.

1.   Tap and hold the stylus next to the text you want to select until the insertion point appears.

2.   Without lifting, drag the stylus across the text you want to select.

If you accidentally write on the screen, tap **Tools,** then **Undo** and try again. You can also select text by tapping the **Pen** button to deselect it and then dragging the stylus across the screen.

You can cut, copy, and paste written text in the same way you work with typed text: tap and hold the selected words and then tap an editing command on the pop-up menu, or tap the command on the **Edit** menu.

Drawing on the Screen

Drawing on the screen is similar to writing on the screen. The difference between writing and drawing on the screen is how you select items and how they can be edited. To create a drawing, cross three ruled lines on your first stroke. A drawing box appears. Subsequent strokes in or touching the drawing box become part of the drawing. Drawings that do not cross three ruled lines will be treated as writing.

For example, selected drawings can be resized, while writing cannot.
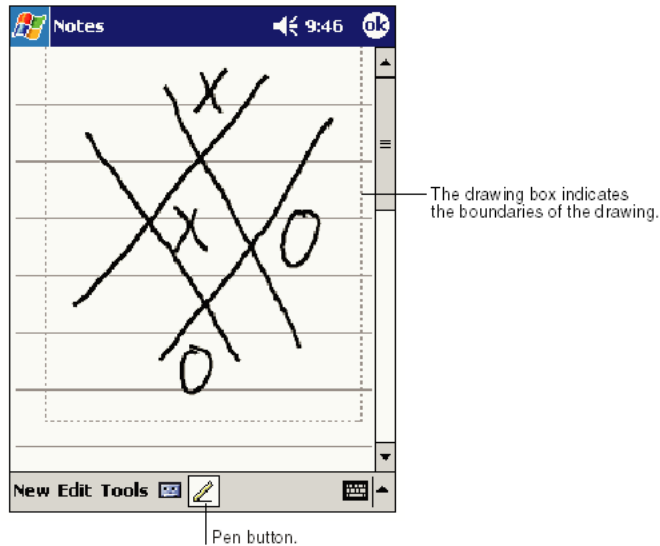
*Note: You may want to change the zoom level so that you can more easily work on or view your drawing. Tap **Tools** and then a zoom level.*

Selecting a Drawing

To edit or format a drawing, tap and hold the stylus on the drawing until the selection handle appears. To select multiple drawings, deselect the Pen button and then drag to select the drawings you want.

You can cut, copy, and paste selected drawings by tapping and holding the selected drawing and then tapping an editing command on the pop-up menu, or by tapping the command on the **Edit** menu. To resize a drawing, make sure the Pen button is not selected, and drag a selection handle.

Status Icons

Status icons appear in the Navigation bar to indicate the status of various system functions; see Navigation Bar and Start Menu on page 4-2.

Status Icon	Meaning
	Turns the sound on and off
	Backup battery is low
	Main batteries are charging
	Main batteries are low
	Main batteries are very low
	Main batteries are full

⊕	Synchronization is beginning or ending
✉	Notification that one or more e-mail messages were received

Note: The Notification icon ⬬ displays if more notification icons need to be displayed than there is room to display them. Tap the icon to view all notification icons.

Notifications

Notifications remind you when you have something to do. For example, if you've set up an appointment in Calendar, a task with a due date in Tasks, or an alarm in Clock, you'll be notified in any of the following ways:

• A message box appears on the screen.
• A sound, which you can specify, is played.

To choose reminder types and sounds, tap **Start** > **Settings** > **Personal** tab > **Sounds & Notifications** (see Personal Tab on page 5-2). The options you choose here apply throughout the terminal.

Finding and Organizing Information

The Find feature on your Dolphin terminal helps you quickly locate information. Tap **Start** > **Programs** > **Find**.
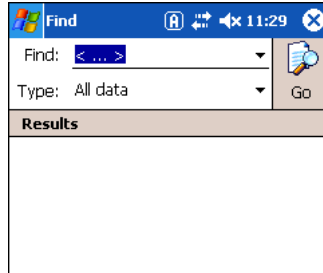
Enter the text you want to find, select a data type, and then tap **Go** to start the search. To quickly find information that is taking up storage space, select **Larger than 64 KB** in **Type**.

You can also use the File Explorer to find files and organize these files into folders. Tap **Start** > **Programs** > **File Explorer**.

You can move files in File Explorer by tapping and holding the item you want to move, and then tapping **Cut** or **Copy** and **Paste** on the pop-up menu.

5

Settings

Overview

Customized settings are available on the Start menu.

Tap **Start** > **Settings** and settings screen opens. Settings consists of three tabs:

Personal Tab	**System Tab**	**Connections Tab**

Personal   Customize buttons, set SIP options, and adjust headset settings; see Personal Tab on page 5-2.

System   Adjust system settings; see System Tab on page 5-7.

Connections   Establish network connections settings; see Connections Tab on page 5-16.

Personal Tab

To access the Personal tab, tap **Start** > **Settings**. The screen opens to the Personal tab.

Button Name	Description	See
Buttons	Customize keyboard buttons to perform functions.	Buttons on page 5-3
Headset	Adjust audio settings for headset use.	Headset Control on page 5-4
Input	Customize the SIP.	Input Panel Options on page 4-18
Menus	Customize the Start and New menus.	Menus–Modifying the Start Menu on page 5-5
Owner Information	Enter your contact information.	
Password	Password protect the terminal to limit access to your device.	
Sounds & Notifications	Set the sound volume, enable and disable sounds for specific actions, and set sound parameters for system notifications.	
Today	Customize the look and information that is displayed on the Today screen.	

⚠ *Personal settings are stored in RAM memory. They are replaced by system defaults after each hard reset. For more information about resets, see Resetting the Terminal on page 2-11.*

Buttons

Buttons programs keyboard buttons to launch applications or execute commands. The default button assignments that appear on the Buttons window are inactive until you enable the HotKeys Power Tool.

To Enable HotKeys

1. Tap **Start** > **Power Tools**.

2. Tap the HotKeys icon **once** HotKeys. HotKeys activates the button assignments in Buttons.

3. Verify the assignment by tapping the button on the keyboard.

For more information about the HotKeys Power Tool, refer to the Dolphin Power Tools User's Guide, which is available for download from the web at www.handheld.com.

Button Assignments

1. After HotKeys is enabled, tap **Start** > **Settings** > **Personal** tab > **Buttons**.
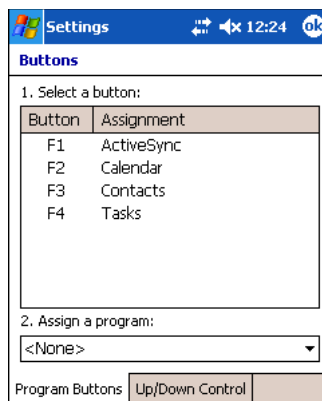
Note: The buttons that appear on this window are the only buttons that can be programmed via the Buttons setting. You cannot add buttons to this window.

2. To change button assignment, tap on the name of the application in the **Assignment** column and select a program or command in the **Assign a program** drop down list.

3. Tap **OK** to save.

Available Applications

The **Assign a program** list contains the applications installed on the terminal. If there is a program installed that you would like to see in this list, paste a Shortcut to the program in the `\\Windows\Start Menu\Programs` folder. For instructions about creating shortcuts, see Using File Explorer on page 5-5..

Additional Functions

The **Assign a program** list also contains the following commands:

Command	Description
<Input Panel>	Opens the soft input panel.
<None>	Nothing happens when the button is pressed.

Command	Description
<OK/Close>	Performs the same function as tapping **OK** on the screen.
<Scroll Down>	Scrolls down in the open application.
<Scroll Left>	Scrolls left in the open application.
<Scroll Right>	Scrolls right in the open application.
<Scroll Up>	Scrolls up in the open application.
<Start Menu>	Opens the Start menu.
<Today>	Opens the Today screen.

Headset Control

The Headset Control setting enables you to adjust audio settings while using a headset.
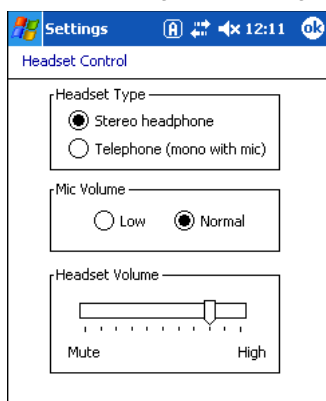
Stereo headphone

Select this option if you are using a headset for audio output only. If so, you need to use the microphone on the terminal (Microphone, page 3-5) for audio input; i.e., listen via the headset and speak into the microphone. These types of headsets usually contain two earpieces for stereo sound. Tap **OK** to save your selection.

Telephone (mono with mic)

Select this option if you are using a headset that also contains a microphone. When this option is selected, you speak into the microphone on the headset and not the microphone on the terminal. These types of headsets usually have one earpiece for mono audio. Tap **OK** to save your selection.

Mic Volume

These options enable you to adjust the audio level of the microphone; Normal is the default setting.
These settings apply to the selected Headset Type:

Stereo headphone   Adjusts the volume on the terminal's microphone (Microphone, page 3-5).
Telephone (mono with mic)   Adjusts the volume on the headset's microphone.

Tap **OK** to save your selection. This setting does **not** work if you are using a GSM radio for two-way voice communication; see Audio Modes on page 9-3.

Headset Volume

The slider enables you to adjust the speaker volume (audio output) of the headset. Move the slider from Mute to High depending on your preference. The volume adjusts automatically as you move the slider. These headset volume settings apply to both Headset Types.

Menus–Modifying the Start Menu

You can add existing programs you use often, such as File Explorer, to the Start menu. You are not installing or moving the program itself, you are simply creating a shortcut to the program from the Start menu.

To modify the Start menu, you can use the Menus Personal Setting, File Explorer, or Microsoft ActiveSync.

Using System Settings

1. Tap **Start** > **Settings > Personal** tab **> Menus** > **Start Menu** tab.

2. Select the program you want to add and tap **OK** to save.

3. Tap the **Start** menu.

4. Verify that the shortcut to the program appears on the Start menu.

*Note: You can also remove shortcuts from the Start menu by de-selecting them here and tapping **OK***.

Using File Explorer

You can use File Explorer to place a shortcut to a program on the Start menu.

We recommend that you Copy and Paste **Shortcut** so that you do not alter your program configurations by accident. If you Cut and Paste the program itself, you will be removing the program from its proper location, which means that the program might not run properly. Using Copy and Paste Shortcut ensures that the program files remain where they need to be to function properly.

1. Tap **Start** > **Programs** > **File Explorer.** To see a list of all folders, tap the folder name and then **My Device**.
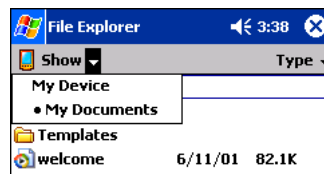
2. Navigate to the program.

3. Tap and hold on the program, then tap **Copy** on the pop-up menu.

4. Navigate to the Windows folder and open the Start Menu (**My Device** > **Windows** > **Start Menu**), tap and hold a blank area of the window, and tap **Paste Shortcut** on the pop-up menu.

5. Tap the **Start** menu.

6. Verify that the shortcut to the program now appears on the Start menu.

Using ActiveSync on the Desktop

You can use the Explore feature of ActiveSync on your desktop computer to navigate through the files on your Dolphin terminal. The process is essentially the same, except that you are using Windows Explorer on the PC to create and paste the shortcut.

1. Tap **ActiveSync > Explore**.

2. Navigate to the program.

3. Right-click on the program and select **Create Shortcut**.

4. Select the shortcut, right-click, and select **Cut**.

5. Navigate to the **Start Menu** folder (Windows > Start Menu).

6. Right-click on an empty area and select **Paste**.

7. On the terminal, tap the **Start** menu.

8. Verify that program appears on the Start menu.

See ActiveSync Help for more information about using ActiveSync.

System Tab

The System tab enables you to verify and sometimes alter system parameters. To access the System tab, tap **Start** > **Settings** > **System** tab. Tap the appropriate icon to open that system setting.

About

The About system setting displays specific information about what is loaded on the terminal. It contains three tabs: Version, Device ID, and Copyrights.

Version Tab	Displays the information about the software, operating system, and processor of the terminal.
Device ID Tab	Displays the information the terminal uses to identify itself to other devices. It can be important to know this information if the Dolphin terminal is going to be part of a networked system of devices.

	Device name:	Displays the system's default name. This is the name used by ActiveSync.
	Description:	Displays the description of the device ID.

Copyrights Tab	Displays important copyright information.

Backlight

The Backlight system setting enables you to customize backlight functionality for the display. For more information, see Adjusting the Backlight on page 4-13.

ClearType Tuner

Dolphin terminals display support ClearType font rendering. ClearType is a Microsoft technology that increases the readability of text on LCD displays.

After you enable ClearType font rendering in the Screen setting (Screen, page 5-14), you can adjust the render level. Use the slider to adjust the appearance of the sample type on the screen and tap **OK**. For more information about ClearType font rendering, visit: www.microsoft.com/typography/cleartype/what.htm?fname=%20&fsize=

Clock

This setting sets the system clock. Appointments, scheduled events, and any function on a schedule runs off this setting. You need to set the time zone and time after each hard reset; see Set the Time and Date on page 2-9.

CPU Speed

This system setting enables you to see and change the current speed of the Central Processing Unit (CPU).
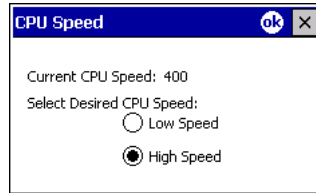
The default is **High Speed** at 400MHz. **Low Speed** is 200MHz.

To change the default, select Low Speed and tap **OK**. A message appear confirming the changed and now current CPU speed.
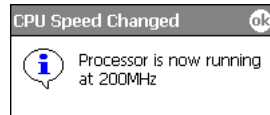
Tap **OK** to save the change.

Memory

The Memory system setting enables you to review and manage both RAM (volatile) and IPSM/Storage Card (non-volatile) memory. Dolphin terminals contain 64MB of on-board, volatile RAM memory. Open the Memory setting whenever you receive system messages about memory.

There are three tabs: Main, Storage Card, and Running Programs.

Main Tab

This tab displays the available, in use, and remaining RAM memory used for running and storing programs as well as storing program data.
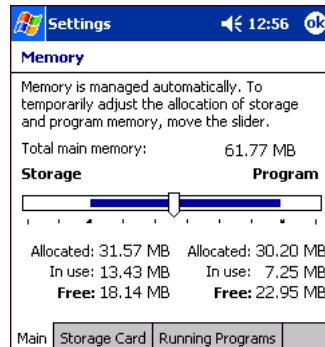
Field	Description
Total main memory	Total RAM memory.
Storage	RAM memory being used for storing programs and program data.
Program	RAM memory being used to run programs.

Fields Under Storage and Program

Allocated	RAM memory allocated for Storage vs. Program use.
In use	RAM memory being used by Storage vs. Program memory functions.
Free	RAM memory available for Storage and Programs use.

To Increase/Decrease RAM Memory

To increase Program or Storage memory, tap, hold, and drag the slider towards the kind of memory you want to increase. The three fields adjust automatically; Program memory decrease when you increase Storage memory and vice versa.

Storage Card Tab

This tab displays the current capacity and usage statistics of the selected memory type - IPSM or Storage Card. Select the memory type from the drop-down list; IPSM is selected by default.
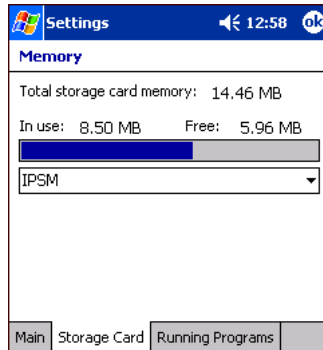
Total storage card memory	The total memory of the memory type selected in the drop-down list.
In use	The amount of memory being used by the selected memory type.
Free	The free memory available of the selected memory type.

IPSM
Short for Intel Persistent Storage Manager, IPSM is the 14MB of on-board Flash memory that is non-volatile. Because this memory is non-volatile, data or programs stored in IPSM are not affected when power is removed. Autoinstall programs, for example, are stored in IPSM so that they are always installed during startup. When **IPSM** is selected in the drop-down list, the Storage Card tab displays the IPSM memory capacity and usage statistics.

Storage Card
You can install additional memory in Dolphin terminals - see SD Memory on page 3-8. If a storage card is installed in the terminal, Storage Card appears in the drop-down list.
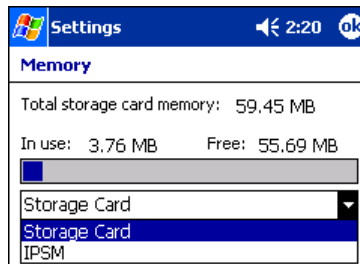
Select **Storage Card** and the Storage Card tab displays the current capacity and usage statistics of the installed storage card.

Running Programs Tab

Displays the software programs currently using Storage memory.
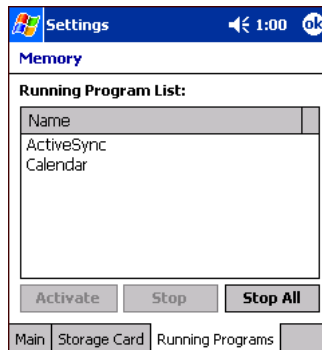
Check this tab when you are receiving out of memory errors or when the mobile computer is running slowly. Select a program in the list and tap **Stop** to stop it from running. Tap **Stop All** to automatically stop all running programs.

⚠️ *Anytime you stop a running program, it frees up RAM memory. Be advised that, when you stop a program here, any unsaved data in that program is lost. To free up memory without risking data loss, return to the running program, save your data, and close the application.*

Links at the Bottom of the Memory Tabs

At the bottom of all three Memory tabs are two links:

Remove programs	Opens Remove Programs (see page 5-13).
Find	Search for large files using storage memory. The Find screen opens with **Larger than 64KB** already selected in the **Type** field.
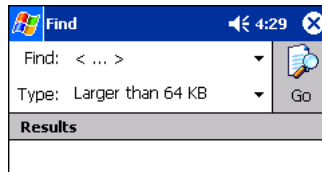
Power

Power system settings contains three tabs: Battery, Wireless, and Advanced.
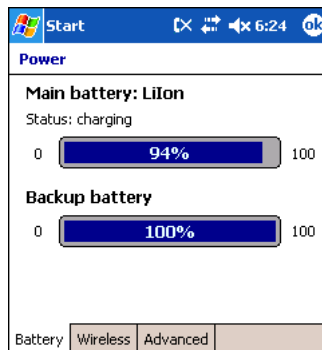
Battery Tab

Displays the remaining charge of both the main and backup batteries. For more information about the terminal's batteries, see Batteries on page 3-10.

Wireless Tab

Determines the power settings for your wireless connection.
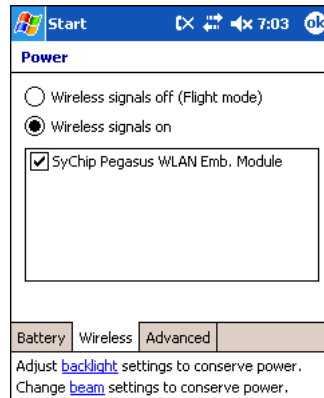
Select **Wireless signals off** when you don't want to use system power to power up the radio(s).

Select **Wireless signals on** when you want the radio to use system power to transmit. This is the default setting. The list contains the radio firmware installed in the terminal. The selected items are the items using system power.

Advanced Tab

Determines power time-outs.
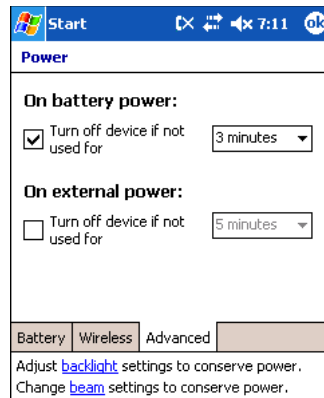
For **On battery power**, select the number of minutes of inactivity you want to pass before the terminal powers off when running on battery power.

For **On external power**, select the number of minutes of inactivity you want to pass before the terminal powers off when running on external power.

Options below the tabs

Adjust backlight opens the Backlight settings so that you can make adjustments to conserve power usage; see Backlight on page 5-7.

Change beam opens beam settings so that you can make adjustments to conserve power usage; see Using Infrared on page 6-5. (You would turn off receiving capabilities to conserve power.)

You can also set automatic turn-off times for the terminal to conserve power.
When the device is "turned off," that means that it goes into Suspend Mode (see page 2-11).

Regional Settings

Regional Settings enables you to customize the appearance and formatting to your geographic region. Specifically, you can customize numbers (number of decimal places allowed, for example), currency (using the $ or €symbol, for example), time, and date. These specifications apply to all screens, including the Today screen.

The Region tab displays an overview of the region selected in the drop-down list at the top.

The terminal is loaded with a number of pre-programmed regional settings. Select one from the list.
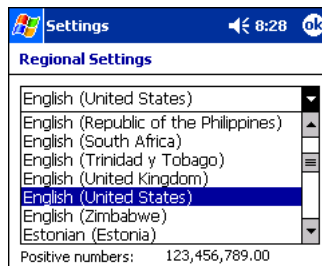
The results appear on the screen.
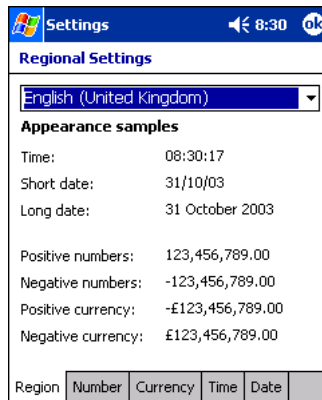
To see specific settings or change a specific setting, tap on one of the tabs, make the change and tap **OK** to save it.

Remove Programs

The Remove Programs settings enables you to remove programs installed on the terminal. Use this setting to troubleshoot when you receive messages that the device is out of memory. The programs removed are removed from RAM memory. Any program (usually *.cab or *.dll files) stored in the Autoinstall folder (My Device > IPSM > Autoinstall) will re-install after the next hard reset.

For information about the Autoinstall process, see Let Autoinstall Run on page 2-9.
For information about the hard reset process, see Hard Reset (Cold Boot) on page 2-11.

1. Tap the **Remove Programs** icon.
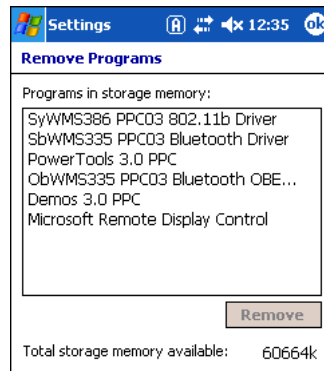
2. In the list, select a program and tap **Remove**. The following message appears:
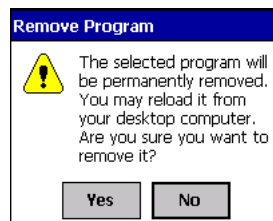
3. Tap **Yes**. Wait while the program is removed.

4. Verify that the program no longer appears in the list.

Memory

For more detailed memory information, tap **memory** of "Adjust <u>memory</u> allocation." The Memory system setting opens. For information about memory settings, see Memory on page 5-8.

Screen

Note: By default, dynamic screen rotation (i.e., the ability to switch between landscape and portrait orientation) is disabled on Dolphin terminals. Please consult the Dolphin SDK Add-on to find out how to enable dynamic screen rotation.

There are three tabs: Alignment, Clear Type, and Text Size. Screen opens to the Alignment tab.

Alignment Tab

On this tab, you can re-align the screen. You first align the screen at bootup. Re-align the screen again if tapping buttons or icons with the stylus no longer seems to work appropriately. For more information, see Align the Screen on page 2-9.
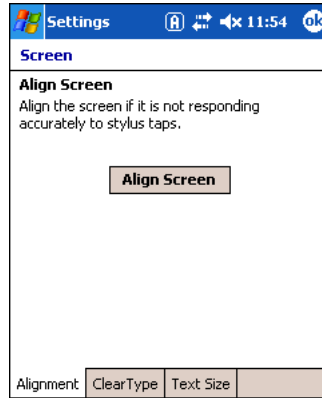
ClearType Tab

The displays of Dolphin terminals support ClearType font rendering. ClearType is a Microsoft technology that increases the readability of text on LCD displays.
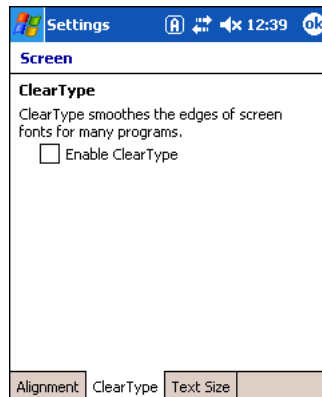
To enable ClearType font rendering, select **Enable ClearType** and tap **OK**.
To adjust the level of ClearType font rendering, use the ClearType Tuner; see ClearType Tuner on page 5-7.

For more information about ClearType font rendering, visit: www.microsoft.com/typography/cleartype/what.htm?fname=%20&fsize=

Text Size Tab

The Text Size tab enables you to perform font scaling within certain views of the Today screen, Contacts, Calendar, Messaging, and Tasks. This means that you can increase or decrease the point size of the font on application windows.
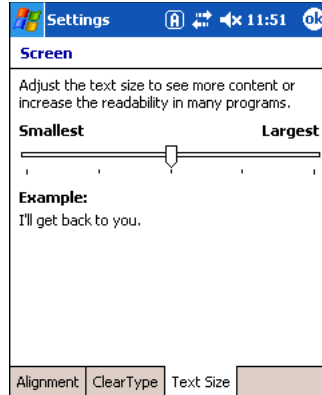
This is the default font size setting. To change the font size, move the slider toward Smallest or Largest. The Example text changes to reflect the font change. Tap **OK** to save the new font size setting.

Default Font Size   **Largest Font Size**

uPhone Settings

If you have a GSM/GPRS radio installed on your terminal the uPhone Settings icon appears on the System tab. For details, see Wireless WAN (WWAN) Communications with GSM/GPRS on page 9-1.

Connections Tab

The Connections tab enables you to manage your network connections.

Icon	Description	See
802.11b Settings	Configures the 802.11b radio. This icon appears **only** if an 802.11b radio is installed on the terminal.	Wireless LAN (WLAN) Communications with 802.11b, page 7-1
Beam	Verifies and adjusts infrared settings of the IrDA port.	Using Infrared, page 6-5
Connections	Configures network connections; this is the Connections Manager.	Connections Tab, page 5-16
IrDA	Enables and disables the IrDA port so that the port can be used by the Bluetooth radio. This icon appears **only** if a Bluetooth radio is installed on the terminal.	Verify That the IrDA Port is Enabled, page 6-5
Radio Manager	Enables and disables the radios installed on the terminal.	Using the Radio Manager, page 4-15
Network Cards	Displays network cards installed in the terminal.	Configuring Network Cards, page 5-26
uPhone GPRS	Configures GPRS settings for the GSM radio. This icon appears **only** if a GSM/GPRS radio is installed on the terminal.	Wireless WAN (WWAN) Communications with GSM/GPRS, page 9-1

Server-Assigned IP Addresses

Server-assigned IP addresses use Dynamic Host Configuration Protocol (DHCP).

Zero-Config Wi-Fi

The zero-config Wi-Fi feature of Windows Mobile is **disabled** on Dolphin 9500 series mobile computers.

Creating a Wireless Network Connection

On Dolphin terminals, wireless networks need to be configured according to the radio installed in the terminal.

For more information about 802.11b radios, see Wireless LAN (WLAN) Communications with 802.11b on page 7-1.
For more information about Bluetooth radios, see Wireless PAN (WPAN) Communications with Bluetooth on page 8-1.
For more information about GSM/GPRS radios, see Wireless WAN (WWAN) Communications with GSM/GPRS on page 9-1.

Opening the Connections Manager

To open the connections manager, tap the **Connections** icon. The Connections Manager opens displaying the Tasks tab.
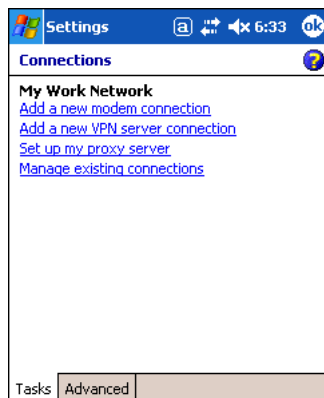
The Connections Manager consists of two tabs: Tasks and Advanced

Task Tab   The Task tab configures and manages your My Work Network settings. Click on the link to setup or manage existing network accounts.

Advanced Tab   The Advanced tab configures and manages network parameters and network cards.
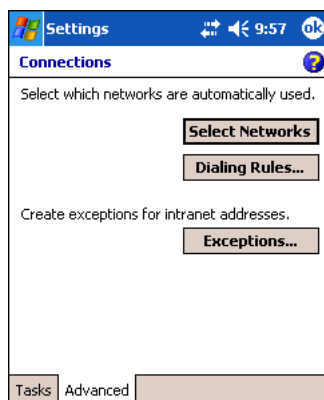
Creating an External Modem Connection to an ISP

1. Obtain the following information from your ISP:

    • ISP dial-up access telephone number,
    • user name,
    • password, and
    • TCP/IP settings.

2. Use a NULL modem cable to connect to an external modem.

3. Tap **Start** > **Settings** > **Connections** tab > **Connections > Task** tab.

4. Tap **Add a new modem connection**. The Make New Connection screen appears.
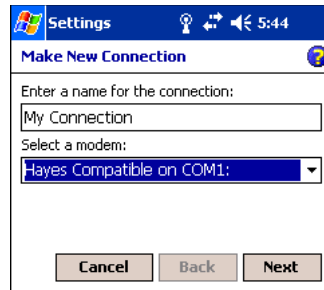
5. **Enter a name for the connection**, such as "My Connection."

6. In the **Select a modem** list, select the external modem by selecting **Hayes Compatible on COM1**.

7. Tap **Next**. The My Connection screen appears.
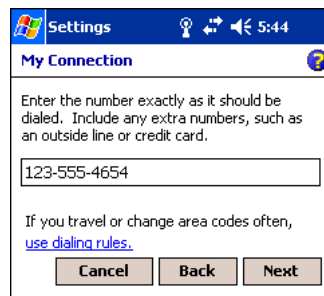
8. Enter the number that should be dialed when connecting to your ISP. Include any special digits such as "*" or "#";see Establishing Dialing Rules on page 5-24. Tap **Next**.
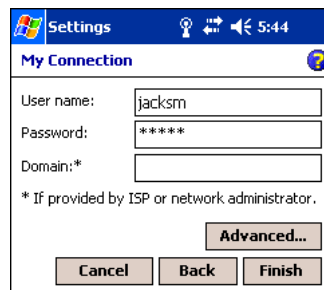
9. Enter any authentication information your ISP requests.

10. You should not need to change any settings in **Advanced** because most ISPs now use a dynamically-assigned addresses. See Advanced Settings on page 5-19.

11. Tap **Finish** to complete this wizard.

Advanced Settings

General Tab

Use the General tab to change the connection speed of your connection. Wait for dial tone before dialing, then wait for credit card, add dial-string modem commands, or cancel call after a set number of seconds.

Port Settings Tab

The Port Settings tab has options that should be left alone unless indicated otherwise by your ISP.

TCP/IP Tab

If your ISP does not use a dynamically-assigned address, enter that information into the TCP/IP tab.

Servers Tab   Finally, if your ISP requires special DNS or WINS information, enter it into the Servers tab.
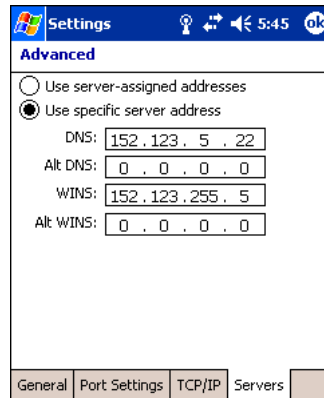
Connecting to Your ISP

1. Tap **Start** > **Settings** > **Connections** tab > **Connections** to open the connections manager.

2. Tap **Manage existing connections**.
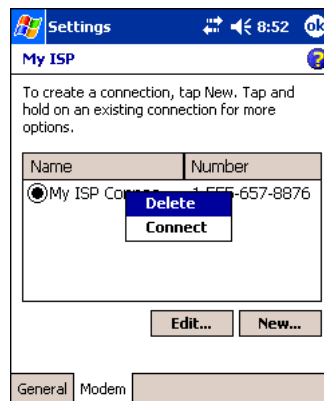
3. Tap and hold on the applicable dial-up settings and select **Connect**.
   (You can delete the connection by selecting Delete.)

4. Your modem will dial-out and attempt to create the connection.

Creating an External Modem Connection to Your Work

Follow the instructions for Connecting to Your ISP (page 5-20), but select **Add a new modem connection** under **My Work Network**.

Establishing Exceptions for Work URLs

Some companies use periods in their intranet URLs (for example, intranet.companyname.com). If you attempt to connect to one of these URLs, Pocket Internet Explorer will search for the website on the Internet rather than the company's intranet.

To connect to such intranet URLs, they need to be entered as Work URL exceptions in the connections manager.

1. Tap **Start** > **Settings** > **Connections** tab > **Connections** > **Advanced** tab (see page 5-17).

2. Tap **Select Networks**.

3. Tap **Exceptions**. The Work URL Exceptions screen opens.

4. Tap **Add new URL** to add a new exception.
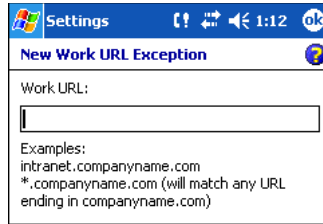
5. Enter the **Work URL** and tap **OK**.

Setting up a Proxy Server Connection for Work Connections

If you are connected to your ISP or private network during synchronization, the terminal should download proper proxy settings during synchronization from your PC. If these settings are not on your PC or need to be changed, ask your ISP or network administrator for the proxy sever name, server type, port, type of Socks protocol used, and your user name and password.

1. Tap **Start** > **Settings** > **Connections** tab > **Connections**.

2. Under the My Work Network heading, tap **Set up my proxy server**.
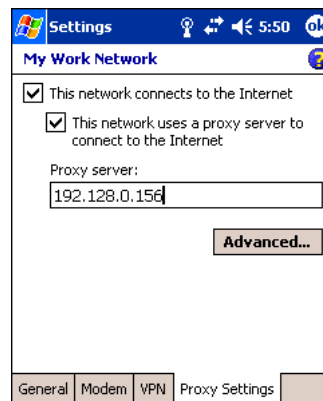
3. Select **This network connects to the Internet** and **This network uses a proxy server…**

4. In the **Proxy server** field, enter the proxy server name.
   Tap **Advanced** for advanced settings. This information can be provided only by your network administrator.
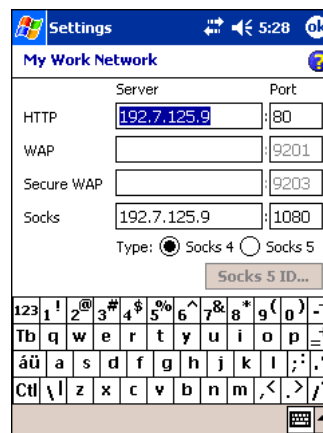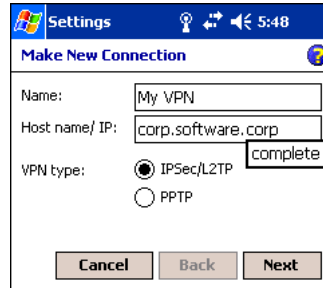
5. To change existing settings, under My Work Network, tap **Manage existing connections** and tap the **Proxy** tab.

Setting Up a VPN Connection for Work Connections

A VPN connection helps you securely connect to servers, such as a corporate network, via the Internet. Ask your network administrator for your user name, password, domain name, TCP/IP settings, and host name or IP address of the VPN server.

1. Tap **Start** > **Settings** > **Connections** tab > **Connections**.

2. Under the My Work Network heading, tap **Add a new VPN server connection**.

3. Enter the requested information including VPN type and tap **Next**.
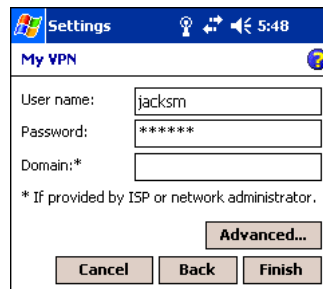
4. Indicate whether a pre-installed certificate should be used or rather a pre-shared key and tap **Next**.

5. Enter your login details. If finished, tap **Finish** to complete VPN setup.

6. Otherwise, tap **Advanced** to access more options.

- Enter **TCP/IP** settings in the first tab; server-assigned IP addresses use DHCP.
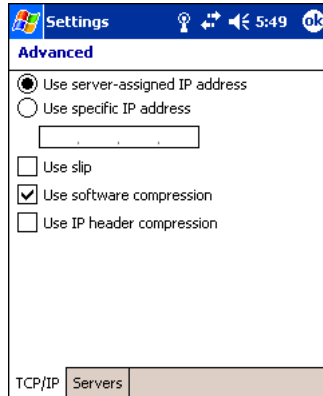
- Enter Server DNS/WINS information in the **Servers** tab.
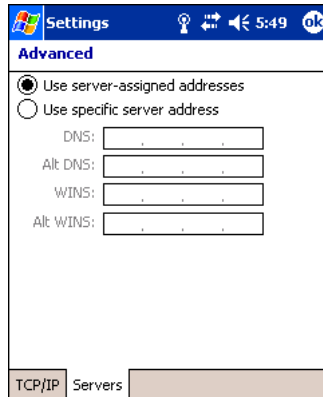
Connecting to a VPN Server

1. Tap **Start** > **Settings** > **Connections** tab > **Connections**.
2. Select **Edit my VPN servers**.

3. Tap and hold on the server, then select **Connect** on the popup menu.
    (Note that through this screen you can delete your VPN server connection.)
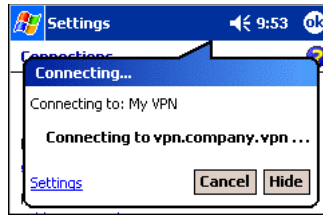
1. Your VPN Server is accessed. When connected, tapping on the ⁀ icon displays the following bubble:
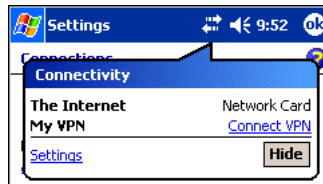
Establishing Dialing Rules

1. Tap **Start** > **System** > **Connections** tab > **Connections** > **Advanced** tab (see page 5-17).

2. Tap **Select Location**.
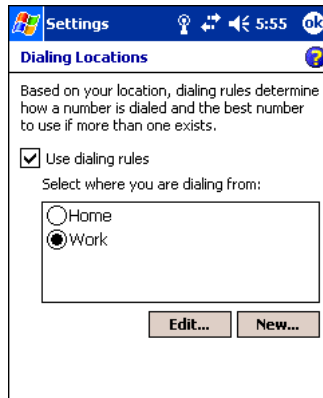
3. Select **Use dialing rules**. By default two dialing rules profiles exist: Home and Work.

4. Tap **Edit** to configure either profile.
    (You can define your own dialing profile by tapping **New**. A warning appears that your existing modem connections must include the correct country and region area code settings.

5. Tap **OK** to confirm. Enter the appropriate information on the next screen.

6. Tap **Dialing Patterns** to change how dialing occurs.

7. Following the format of "e" represents country code, "f" represents area code, and "g" represents the number, enter how local, long distance, and international calls should be dialed. Tap **OK** to save your changes.

Configuring Network Cards

To see the network cards installed on your terminal, tap **Start** > **Settings** > **Connections** tab > **Connections** > **Advanced** tab (see page 5-17) > **Network Cards**.
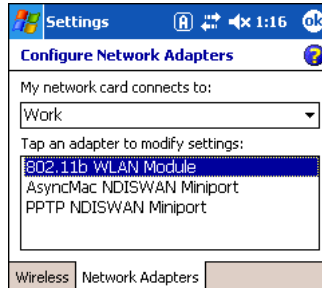
Tap on an adapter to review its settings.
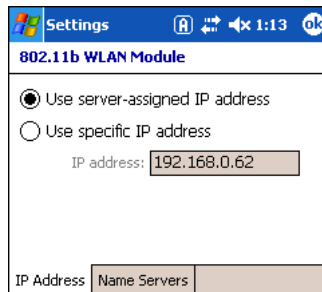
Use server-assigned IP address is selected by default; server-assigned IP addresses use DHCP. If you make any changes on these tabs, you must tap **OK** to save the changes, then perform a soft reset to update the registry.

After you tap **OK**, the following message appears:
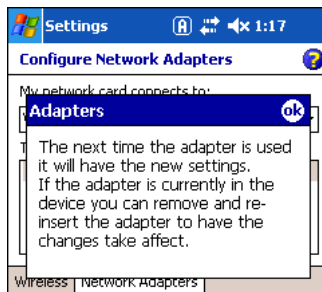
Tap **OK** again to save any changes.

For details about performing a soft reset, see Soft Reset (Warm Boot) on page 2-11. During the soft reset, the new registry entries created by the changes can be read by the applications that need them.

⚠️ *Do NOT perform a hard reset (see Hard Reset (Cold Boot) on page 2-11) after modifying an adapter here. Hard resets return the terminal to factory defaults.*

6

Communications

Overview

You can exchange information between your Dolphin terminal and other mobile devices, a desktop computer, a network, or the Internet. You have the following connection options:

• Connect to your desktop computer and synchronize via Microsoft ActiveSync v3.7 or higher.
• Use the infrared (IrDA) port to send and receive files between two devices.
• Connect to your ISP.

Connecting

More information on the procedures described here, as well as information on additional procedures, can be found in the following locations:

• ActiveSync Help on the desktop computer. In ActiveSync, click **Help** > **Microsoft ActiveSync Help**.
• See Inbox on page 10-6.
• Online Help. Tap **Start** > **Help** > **View** menu > **All Installed Help > Inbox** or **Connections**.

For more information, go to the Windows Mobile software website at: www.microsoft.com/windowsmobile/products/pocketpc/

Installing Additional Software

In addition to the default programs installed on your terminal when it is first booted up, you can install any program (created for a Windows Mobile device), as long as the terminal has enough memory to store the program and the program has an *.exe, *.cab, or *.dll extension.

The most popular place to find software on the Windows Mobile website: www.microsoft.com/windowsmobile/products/pocketpc/

> ⚠️ *When selecting programs, verify that the program and version of the program are designed for the Windows Mobile and your processor. You can verify your processor by tapping Start > Settings > System tab > About > Version tab. Make a note of the information in the Processor field.*

You can install additional software via:

• ActiveSync - see page 6-3.
• Infrared - see page 6-5.
• Network connection (via wireless radio) - see page 6-8.

Using ActiveSync

Using Microsoft ActiveSync, you can synchronize information in Microsoft Outlook or Microsoft® Exchange Server on your desktop computer with your Dolphin terminal. You can also synchronize this information directly with a Microsoft Exchange server.

Synchronization compares the data on the desktop computer and the terminal and updates both with the most recent data so that the information on both is identical. You can:

• Update the information in Microsoft Pocket Outlook® by synchronizing with Microsoft Outlook on your desktop computer.
• Synchronize Microsoft Word and Microsoft Excel files between your device and desktop computer. Your files are automatically converted to the correct format.

The most current version of ActiveSync can be downloaded from www.microsoft.com.

Additional Capabilities

With ActiveSync, you can also:

• Back up and restore your device data.
• Copy (rather than synchronize) files between your device and desktop computer.
• Control when synchronization occurs by selecting a synchronization mode. For example, you can synchronize continually while connected to your desktop computer or only when you choose the synchronize command.
• Select which information types are synchronized and control how much data is synchronized. For example, you can choose how many weeks of past appointments you want synchronized.

Requirements

To synchronize, ActiveSync version 3.7 or higher *must* be installed on both your desktop computer and Dolphin terminal. Dolphin terminals ship with ActiveSync 3.7 already installed. Therefore, you must install ActiveSync 3.7 on your desktop computer from the Microsoft Companion CD that came with your terminal.

To install ActiveSync on your desktop computer, insert the Microsoft Companion CD into the CD-ROM drive of your desktop computer. Click the **yellow arrow**, then **Start Here**, and follow the directions on your screen.

> ⚠ *When communicating via ActiveSync, your terminal must be connected to the host PC with a peripheral device sold/manufactured by Hand Held Products, such as the Dolphin HomeBase, Dolphin Mobile Base, Dolphin Net Base, Dolphin Mobile Charger or other Dolphin 9500 Series charging/communication cable. Use of any peripheral not sold/manufactured by Hand Held Products may damage your terminal and will void the warranty.*

For more information about communication peripherals, see Dolphin HomeBase on page 12-1 and Dolphin Mobile Base on page 13-1.

Setting Up Your Desktop Computer

When installation of ActiveSync is complete on your desktop computer, the ActiveSync Setup Wizard helps you

- connect your terminal to your desktop computer,
- set up a partnership so you can synchronize information, and
- customize your synchronization settings.

Synchronizing from Your Desktop Computer

Because ActiveSync is already installed on the Dolphin terminal, your first synchronization process begins automatically when you finish setting up your desktop computer in the wizard and your terminal is connected to the host PC.

After your first synchronization, look at Calendar, Contacts, and Tasks on the terminal. Notice that the same information from Microsoft Outlook on your desktop computer is now on the terminal. Simply remove the Dolphin from the communication peripheral and you're ready to use it.

By default, ActiveSync does **not** automatically synchronize all types of information. Use **ActiveSync Options** to specify the types of information you want to synchronize. The synchronization process makes the data (in the information types you select) identical on both your desktop computer and your device.

For more information about using ActiveSync on your desktop computer, open **ActiveSync**, then open **ActiveSync Help**.

Synchronizing from the Terminal

ActiveSync **must** be setup on your desktop computer and the first synchronization process completed *before* you initiate synchronization from the terminal for the first time.

To initiate synchronization the first time, tap **Start** > **ActiveSync**. The synchronization process begins.


*Note: If you have a wireless LAN card, you can synchronize remotely.*

After the first synchronization, when using Dolphin peripherals such as the HomeBase or Mobile Base, synchronization begins automatically whenever a terminal is properly seated in the terminal well. For more information, see Dolphin HomeBase on page 12-1 or Dolphin Mobile Base on page 13-1.

Exploring Your Terminal from the Desktop Computer

When the terminal and desktop computer are connected, open the main ActiveSync window (on the desktop), and click **Explore**.
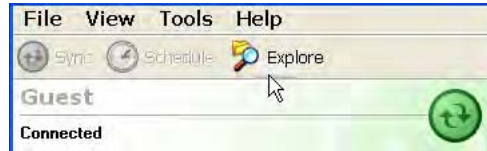
The Mobile Device folder opens in Windows Explorer.
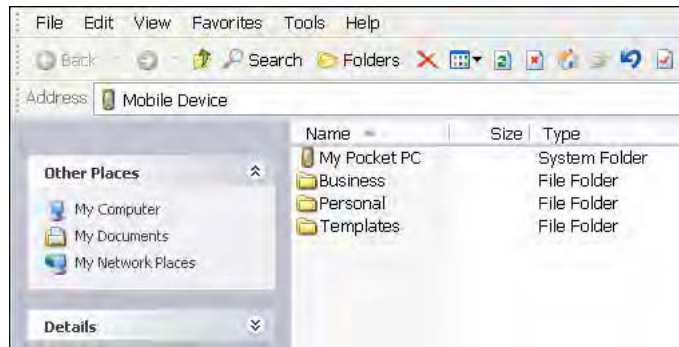
The terminal is now treated as a mass storage device, and transferring files is as simple as dragging and dropping or copying and pasting as you would for moving files between folders on your hard drive.

Adding Programs to the Terminal Using ActiveSync

⚠ *When selecting programs, verify that the program and version of the program are designed for the Windows Mobile and your processor. You can verify your processor by tapping Start > Settings > System tab > About > Version tab. Make a note of the information in the Processor field.*

Depending on the application, the software must be stored or installed on the host PC.

1. Download the program to your desktop computer from either the Internet or the CD or disk that contains the program. You may see a single *.exe or setup.exe file, a *.cab file, or *.dll. There may also be several versions of files for different device types and processors.

2. Read any installation instructions, Read Me files, or documentation that comes with the program. Many programs provide special installation instructions.

3. Connect the terminal to the desktop computer via a Hand Held Products communication peripheral.

If the File is an Installer:

An installer program is one that installs on the PC and the terminal simultaneously; one process installs to both devices.

1. On the PC, double-click the *.exe or *.setup.exe file. The installation wizard begins.

2. Follow the directions on the PC screen. The installation process includes transferring the software to the terminal.

If the File is Not an Installer:

Some programs cannot be installed on PCs because they are designed for terminals. In these cases, the appropriate files must be stored on the host PC, transferred via ActiveSync, and installed on the terminal. You will know the program cannot be installed on the PC if an error message appears when you try to install it stating that the program is valid but designed for a different type of computer.

1. If you cannot find any installation instructions for the program in the Read Me file or documentation, open **ActiveSync** and click **Explore**.*

2. Navigate to the **My Pocket PC** folder and copy the program file or files to the **Program Files** folder on the terminal.

    *   If you want the program to be part of the Autoinstall that occurs after every hard reset, place the program file in the **Autoinstall** folder (My Pocket PC > IPSM > Autoinstall).

3. Depending on the program, you may need to open **File Explorer** on the terminal, navigate to the folder where the program is located, and tap on the program file to install it.

    *   If you copied the file to the **Autoinstall** folder, you can either tap on the program inside the Autoinstall folder or perform a hard reset and the program will install as part of the regular Autoinstall; see Let Autoinstall Run on page 2-9. Remember, a hard reset erases RAM data! For more information, see Hard Reset (Cold Boot) on page 2-11.

After installation on the terminal is complete, tap **Start** > **Programs** and the program and its icon appears on the Programs screen. Tap it to open the program.

Using Infrared

Dolphin terminals contain infrared or IrDA ports on the left side panel (see IrDA Port on page 3-8). Using these ports, you can send and receive data between the terminal and other devices equipped with infrared. This can include, but is not limited to, Windows Mobile information such as Contacts and Tasks, as well as software upgrades.

Verify That the IrDA Port is Enabled

The IrDA port must be enabled to transmit data. By default, the IrDA port is assigned to Com port 6 and is enabled. When a Bluetooth radio is installed, the IrDA port can be disabled to free up a Com port for Bluetooth devices.

To verify that the IrDA port is enabled, tap **Start** > **Settings** > **Connections** tab > **IrDA** .
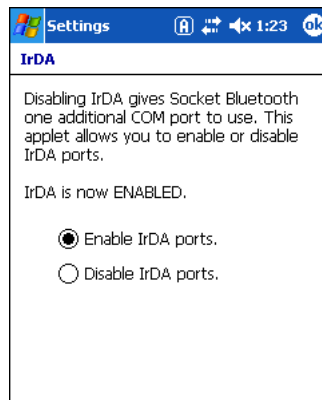
If **Enable IrDA ports** is selected, then the IrDA port is active.

Note: The IrDA icon appears on the Connections tab **only** *if there is a Bluetooth radio installed on the terminal.*

IrDA Port Location on the Terminal
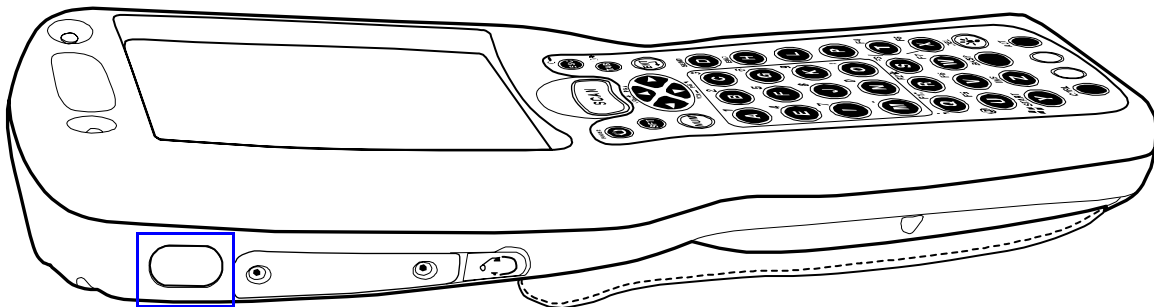
The above graphics shows the left side panel of the Dolphin 9500 terminal. The location of the IrDA port is the same on all terminals in the Dolphin 9500 Series. For more information, see IrDA Port on page 3-8.

Verify That Beam Settings Are Set to Receive

The Beam Settings must be set to receive for the terminal to receive data from other infrared devices. To verify, tap **Start** > **Settings** > **Connections** tab > **Beam**. The Beam Settings window should appear as follows:
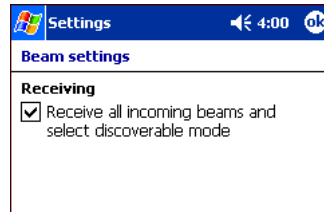
Sending Information

To send or receive, the IrDA ports of both devices - whether it's two terminals, or a terminal and a host device - must be aligned with each other and within a close range. The maximum data-transfer speed is 115 Kbps.

1. Align the IrDA ports.

2. Open the program where you created the item you want to send and locate the item in the list.
   You can also beam files, but not folders, from File Explorer.

3. Tap and hold the item. A pop-up menu appears.

Pop-up menu ⎯⎯

Selected item ⎯⎯
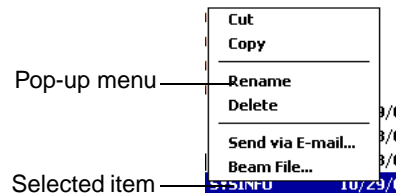
4. Select **Beam File**. The information begins transmitting to the other device.

Receiving Information

1. Align the IrDA ports.

2. Have the owner of the other device send the information to you.

3. Your terminal automatically begins receiving it.

Troubleshooting

If the Beam Settings are not set to receive or you've aligned two IrDA ports and the terminal is still not receiving, tap **Start** > **Programs** > **Infrared Receive**. The terminal searches for the sending device.

If the terminal cannot find the sending device, the following message appears:
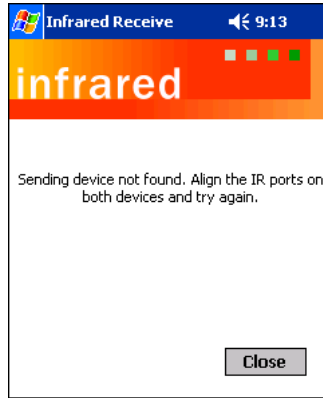
Using an ISP

The communication software for creating an ISP connection is already installed on your device. Your service provider should provide the software needed to install other services, such as paging and fax services.

After you are connected, you can send and receive e-mail messages by using Inbox and view web pages using Pocket Internet Explorer. For more information, see Inbox on page 10-6. You can also download software applications from the web.

Adding Programs Directly from the Internet

⚠ *When selecting programs, verify that the program and version of the program are designed for the Windows Mobile and your processor. You can verify your processor by tapping Start > Settings > System tab > About > Version tab. Make a note of the information in the Processor field.*

1. Determine your device and processor type so that you know which version of the software to install. Tap **Start** > **Settings** > **System** tab > **About**. On the **Version** tab, make a note of the information in the **Processor** field.

2. Download the program to your device straight from the Internet using Pocket Internet Explorer. You may see a single *.exe or setup.exe file, or several versions of files for different device types and processors.

3. Read any installation instructions, Read Me files, or documentation that comes with the program. Many programs provide special installation instructions.

4. Tap the file, such as an *.exe file. The installation wizard begins. Follow the directions on the screen.

For more information about working with Pocket Internet Explorer, see Pocket Internet Explorer on page 10-9.

7

Wireless LAN (WLAN) Communications with 802.11b

Overview

Dolphin terminals are available with an on-board 2.4 GHz 802.11b WLAN (Wireless Local Area Network) radio that uses Direct Sequence Spread Spectrum (DSSS) technology to spread the signal continuously over a wide frequency band at a data rate of up to 11 Mbps. In addition, the open software architecture makes the Dolphin terminal a complete solution for a variety of wireless mobile data collection applications.

Dolphin terminals are interoperable with other 802.11b Wi-Fi-compliant products including Access Points (APs), printers, PCs via PC card adapters and other wireless portable terminals.

Enabling the 802.11b Radio Driver

When the Dolphin terminal initializes, the radio driver for 802.11b is installed. The terminal defaults to the 802.11b radio during initialization unless a GSM radio is installed, in which case, the terminal defaults to the GSM radio. The 802.11b radio must be enabled before you can configure the radio on a network. Verify the radio's status before configuring.

Note: Radios are enabled manually in the Radio Manager; tap Start > Settings > Connections tab > Radio Manager.

Configuration Utilities

There are two configuration utilities for the 802.11b radio:

802.11b Settings   Use this configuration utility to configure the radio without Wired Equivalent Privacy (WEP) or with standard WEP (64/128 bit) and no authentication. For more details, see 802.11b Settings later in this chapter.

802.11b Wireless Security Supplement

Use this configuration utility to configure the radio using WEP (beyond the standard), Wi-Fi Protected Access (WPA), and authentication. For details, see 802.11b Wireless Security Supplement later in this chapter.

802.11b Settings

You can access the configuration utility two ways:

1.   Tap **Start** > **Settings** > **Connections** tab > **802.11b Settings**. The icon appears on the Connections tab only if there is an 802.11b radio installed on the terminal.

2.   Tap the **Status** icon in the command bar; see Using the Status Icon.

The 802.11b Settings utility consists of four tabs: Status, Config, Advanced, and About. You configure the radio on the Status, Config and Advanced tabs.

Status Icons

The status icon in the command bar indicates the status of the network.

Icon	Description
	Excellent signal strength. Excellent connection.
	Poor signal strength. Poor connection.
	Radio disabled. No radio connection.
	(Access Point) AP Mode.
	Peer Station, Peer-to-Peer Mode.
	WEP enabled. Network needs a WEP Key to connect.
	WEP disabled. Network does not need a WEP Key to connect.
	Mismatched WEP Key configuration with your network.
	Online help button.

Status Tab
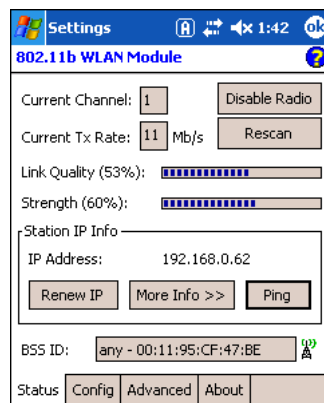
| Field	Description
Current Channel	Shows the RF channel currently used by the radio.
Current TX Rate	Shows the current transmit rate. This can be 1 Mbps, 2 Mbps, 5.5 Mbps, or 11 Mbps.

Field	Description
Disable/Enable Radio	Tap this button to disable/enable the radio.
Rescan	Tap this button to start a rescan process to search for an AP with a stronger signal in the network.
Link Quality	Displays the signal to noise ratio.
Strength	Displays the signal strength at the receiver.
IP Address	Displays the IP address of the radio. Verify configuration information with your network administrator.
Renew IP	Tap this button to reapply the IP address from the DHCP server when automatic DHCP is enabled.
State	Displays the Network Name and the MAC address of the: • AP the radio is associated with in AP mode, or • Creator of IBSS into which the radio is joined in peer-to-peer (Ad-Hoc) mode. After an SSID is chosen, this field name changes to "BSS ID."
More Info	Tap this button to display detailed TCP/IP information as shown in the following screen.
Ping	Tap this button to open the Ping Utility window where you can ping IP addresses.
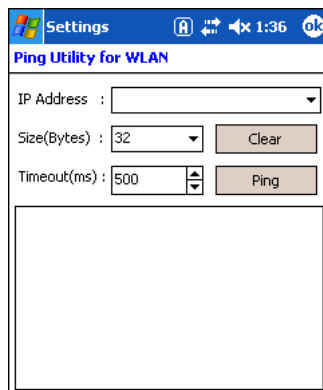
Field	Description
IP Address	Displays the current IP address. Enter another IP address to ping.
Size (Bytes)	Displays the current data packet size in bytes; 32 is the default. You can select up to 8192 from the drop-down list.
Timeout (ms)	Displays the current timeout; 500 is the default. Increase or decrease it by tapping the up and down arrow buttons.
Clear	Tap this button to clear IP Address input and the ping statistics field.
Ping	Tap this button to ping the IP address entered in the input field.
Ping Statistics	This section lists the pinging IP address and the pinging results.

Config Tab

The Config tab provides a list of all APs and peer stations in range. Use the list to create and edit SSID profiles for APs that you want the terminal to associate with.
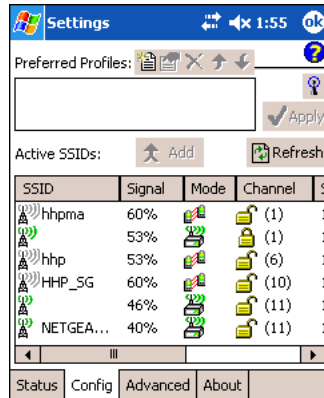
Preferred Profiles   The Preferred Profiles section displays a list of your preferred profiles, the profiles you create or add from the list of Active SSIDs below. When applied, the 802.11b radio searches for the APs in the exact order shown in the list of profiles. This section is blank after the initial installation and each hard reset. This section remains blank if no automatic association preference is selected.

This section contains several icons that enable you to add and configure APs.

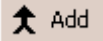| Icon	Name	Description
	New	Always active, tap this button to create a new profile.
The following buttons activate only when an Active SSID in the Preferred Profile list is selected.		
	Edit	Opens the configuration screens for a selected SSID in the Preferred Profiles list.
	Delete	Deletes the selected SSID from the Preferred Profile list.
	Up	Moves the selected SSID up one place in the Preferred Profile list so that the terminal hits it prior to the next SSID.
	Down	Move the selected SSID down one place in the Preferred Profile list so that the terminal hits it after the prior SSID.
Note: Remember that the terminal accesses the SSIDs in this list in the exact order that they appear; moving an SSID up or down in the list determines the order of contact.		

Active SSIDs   This table shows all APs or peer stations (creator of IBSS) in the vicinity of the terminal that accept broadcast associations.

Each record displays information in the following six columns (Scroll right to see all the columns.):

Column	This column displays…
SSID	The Network Name of the AP or peer station and shows the signal strength icon .
Signal	Strength in percentage for the selected SSID.
Mode	The mode of operation =AP =Peer station

Column	This column displays…
Channel	The channel and applied WEP method, if any. 🔒=WEP Key-On 🔓=WEP Key-Off
SupRate	Supported data rate of the AP or the peer station.
BSSID (MAC Addr)	BSSID or MAC Address of the AP or the peer station.

Add   ✚ Add   Tap this button to add an Active SSID to the Preferred Profiles list. Select and active SSID in the list, tap **Add**, and the profile moves to the Preferred Profiles list.

Apply   Tap **Apply** to associate your station with a selected SSID. The SSID selected can be in the Preferred Profile or Active SSIDs lists. When applied, the Status tab opens displaying the status of the wireless connection. If the association fails, a search for another AP in the Preferred Profile list automatically takes place, and the radio attempts to associate with the station, in order of preference.

Refresh   Tap **Refresh** to start a new search for all available APs or peer stations in the vicinity.

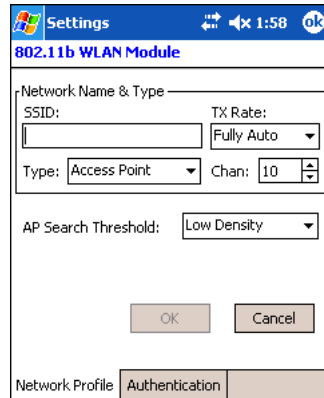### To Add an Active SSID to the Preferred Profile Table

An SSID needs to be in the Preferred Profile list to be edited.

1. Select an SSID in the Active SSID list and tap **Add**. The SSID moves to the Preferred Profile list.
   If the SSID has the WEP Key turned on, the Settings window displays and prompts you to enter the WEP Method, Encryption Key, and Key ID.

2. In the Preferred Profile list, select the SSID and tap **Edit** 🖼️.

3. Follow the same process for creating a profile.

4. When configuration is complete, tap **OK**.

5. The SSID and its profile are added into the Preferred Profiles list.
   If you're adding an SSID with the WEP Key turned off, the Settings window does not display and the SSID is added directly to the Preferred Profile table.

To Create a New Profile

In the Preferred Profiles section, tap the **New** button 📄. Complete the Network Profile and Authentication tab windows.

Network Profile Tab

Field	Description
Network Name &Type	
SSID	Enter an SSID, which is the Network Name. Check with your network administrator for Network Name (SSID).
TX Rate	Choose the transmit rate from the drop-down list - 1MB, 2 MB, Auto 1/2 MB, 5.5 MB, 11 MB, or Fully Auto. The transmit rate is set to Fully Auto by default.
Type	From the drop-down list, select **Peer-to-Peer** – This mode used for communication between two (or more) radio stations (cards) without an AP. **Access Point** (AP) – This mode is also called "Infrastructure" mode.
Chan	Scroll to select a channel for communication.
AP Search Threshold	Select **Low Density** (default), **Medium Density**, or **High Density** from the drop-down list and tap **OK**. AP search thresholds are used for wireless client roaming between APs. In general, the higher the density selected here, the easier your WLAN card roams between APs with the same SSID in the same network. Roaming also depends on the relative signal strength of the AP.
OK	Tap this button to save the profile or changes to the profile.
Cancel	Tap this button to close the window without saving or modifying the profile.
Note: The SSID, Type, TX Rate, and Channel fields are unchangeable in AP mode, whereas TX Rate and Channel fields can be changed in Peer-to-Peer mode.	

Authentication Tab

On the Authentication tab, you configure the WEP encryption key for secure wireless communication.
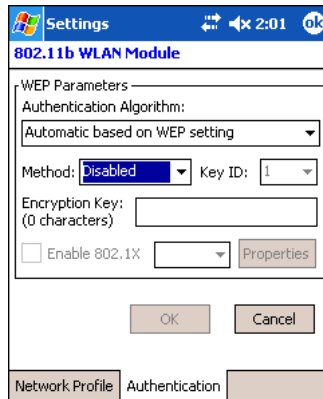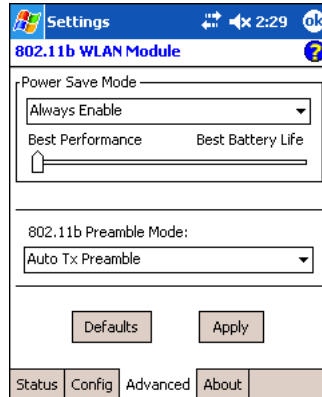

To use WEP, the encryption key **must** be configured as part of the profile before connecting. For more information about configuring a profile, see To Create a New Profile on page 7-5.

Field	Description
*Authentication Algorithm	This drop-down list is active and configurable **only** when the WEP Key is enabled for the selected SSID profile. If this drop-down list is active, select one of the following options: **Automatic based on WEP setting** – The algorithm automatically matches the AP's setting. This is the default selection. **WECA Compliant (always use Open)** – The algorithm should match the AP's setting for "Open." **Must use Shared with WEP** – The algorithm should match the AP's setting for "Shared."
Method	The options in this drop-down list determine what characters can be used to create the WEP encryption key in the Encryption Key field. Select one of the following five: • **Disabled** – WEP Key is off • **64 bit (HEX)** uses 10 characters in Hexadecimal • **64 bit (ASCII)** uses 5 characters in ASCII • **128 bit (HEX)** uses 26 characters in Hexadecimal • **128 bit (ASCII)** uses 13 characters in ASCII HEX – Hexadecimal is a set of 16 characters from 0-9 and from A(a)-F(f). ASCII – Any printable ASCII character can be typed.
Key ID	Choose from the available Key IDs: **1** (Default), **2**, **3**, or **4**. Check with your network administrator for the WEP Key and Key ID you need to use for your network.
Encryption Key	Type in the encryption key for your wireless connection. The format allowed in this field depends on the character set and format selected in the Method field.
*Enable 802.1X	This option and drop-down list is active **only** when the WEP Key is enabled. Select this option if access to the network needs group authentication, then select the 802.1X security standard–**PEAP** or **TLS**–from the drop-down list.
*Properties	Tap the Properties button to choose the certificate that applies. Accessing 802.1x networks require personal certificates for authentication.
*Please note that 802.11b Settings does not support authentication; therefore, these fields are not active. If you are using authentication in your wireless 802.11b connection, you must configure that connection in the 802.11b Wireless Security Supplement. For more information, see 802.11b Wireless Security Supplement **on page 7-10.**	
OK	Tap this button to save the profile or changes to the profile.
Cancel	Tap this button to close the window without saving or modifying the profile.

To Delete a Profile

Profiles may be deleted either from the Preferred List or from the Preferred List and Registry. To delete a profile, select (highlight) a profile and tap the **Delete** button. On the pop-up window select the option of your choice and tap **Yes** to confirm or **No** to cancel.

Advanced Tab

Field	Description
Power Save Mode	This drop-down list determines the settings for Power Save Mode. **Disable** – Disables the Power Save mode. **Always Enable** – Enables Power Save mode. This is the default setting. **Auto Enable** – Automatically enables the Power Save mode when the terminal is running on battery power and automatically disables Power Save mode when the terminal is running on external power.
Slider	The slider is active only if Power Save Mode is enabled. Move the slider between Best Performance and Best Battery Life. The setting here modulates Power Save Mode to achieve maximum performance and maximum battery life.
Preamble Mode	A preamble consists of a Synchronization (Sync) field and a 16-bit Start Frame Delimiter (SFD) field. **Long TX Preamble** – Where Sync field consists of 128 bits. **Short TX Preamble** – Where Sync field consists of 56 bits. **Auto TX Preamble** – Automatically changes between long and short preamble mode transmission based on AP configurations. This is the default Preamble Mode.
Defaults	Resets all the settings to default values, which are: • Always Enable for Power Save Mode, • Automatic based on WEP setting for Authentication Algorithm, and • Auto TX Preamble (for Preamble Mode).
Apply	Applies changes. This button is active only when a change has been made on the tab.

About Tab

The About tab displays Version Number and time of build for Network Driver, Configuration Utility, and NIC Firmware.

Using the Status Icon

You access the 801.11b Settings by tapping the **Status** icon once on the Today screen [icon] . The following menu pops up:

```
• Wireless Radio On
  Wireless Radio Off
  ─────────────────────
  Remove Status Icon...
  ─────────────────────
  Wireless Network Status...
  Configuration...
  Advanced Configuration...
  Version Information...
```

Menu Option	Description
Wireless Radio On	Turns on the radio. LED is on and the Link Icon displays with signal strength.
Wireless Radio Off	Turns off the radio. A pop-up window will ask for your confirmation. If confirmed, the LED will be off and the Status icon will change color from green to red on the top without signal strength displayed. The WLAN card/module will stop functioning.
Remove Status Icon	Removes the Status Icon from the bottom tray. A pop-up window asks you to confirm. Click **Yes** to confirm, or **No** to cancel. If confirmed, the Status icon does not display in the task tray, and you will need to go to **Start** > **Settings** > **Connections** tab > **802.11b Settings** in the future.
Wireless Network Status	Opens the Status tab.
Configuration	Opens the Config tab.
Advanced Configuration	Opens the Advanced tab.
Version Information	Opens the About tab.

Note: The Status Icon changes to a crossed lock [icon] as a warning that you may have entered a wrong key (WEP Key mismatch) for the WEP-On AP or a station.

802.11b Wireless Security Supplement

AEGIS Client® offers the most comprehensive IEEE 802.1X supplicant for securing wired and wireless networks. The Client is a standards-based implementation of IEEE 802.1X and can be configured to work with almost any network equipment–wired or wireless–that supports the 802.1X authentication standard. The Client is interoperable with 802.1X-capable wireless APs and authentication servers including Microsoft's IAS and Cisco's ACS.

The Client solves the problem of key distribution in wireless LANs by using public key authentication and encryption between Wireless APs (WAP) and roaming stations to exchange dynamic Wired Equivalent Privacy (WEP) keys. In addition, network managers can control 802.1X user profiles from a centralized RADIUS server or, in the case of TTLS, from a RADIUS Diameter or other AAA servers. The Client supports both wireless (802.11a/b/g) and Ethernet interfaces.

802.1X Supplicant Protocol Support

Authentication

The Client supports the following authentication methods according to the 802.1X protocols:

- MD5
- EAP TLS
- EAP TTLS
- Cisco LEAP and PEAP
- Microsoft PEAP

Encryption

The Client supports the following encryptions methods:

- WEP
- TKIP

AP Search Threshold

⚠ If you are using one of these authentication methodologies, you need to configure your 802.11b connection here, NOT through 802.11b Settings. However, if you want to set the AP Search Threshold above the default setting of Low Density, you do need to change that setting in 802.11b Settings; for details, see Network Profile Tab on page 7-6.

Required Network Configuration Information

Because the Client accesses a network that is protected by the IEEE 802.1X protocol, you must configure EAP data communication to match your network server parameters. If the EAP configuration doesn't match your network configuration, you can't access the network. Therefore, make sure you have the correct network server parameters on hand when you configure the client.

Opening the Client

To access the client the first time, tap **Start** > **Programs** > **Meetinghouse AEGIS Client**.

After the Client has been activated, you can tap the icon in the lower left corner of the command bar.

Color Indicators

The color of the icon indicates the status of the controlled ports.

Icon	Color	This color icon indicates that …
	Green	Authentication succeeded.
	Yellow	Authentication is in process.
	Red	Authentication failed.
If there is no yellow, red or green in the icon then either the ports are not being controlled by 802.1X, or there is no authentication activity on the controlled ports. The absence of yellow, red or green may also indicate that the network access server is not an 802.1X aware device.		
	Gray	The port is not in use or is disabled. Either the Client isn't running, or the port is not bound to the 802.1X protocol.
	Orange	The port is associated, but there is no response to 802.11b packets. If using WEP without 802.1x authentication, this will be the final state when the connection is complete. If using 802.1x authentication, it is either a transient condition or can indicate that attempts to authenticate have timed out as there was no response to 802.1X packets.
	Blue	There is no 802.11b activity. The port may not be connected to an 802.1X-aware entity.

Main Screen

On the terminal, open the Client. The main screen opens displaying a list of ports on the system's network interface cards, You manage ports on this screen.
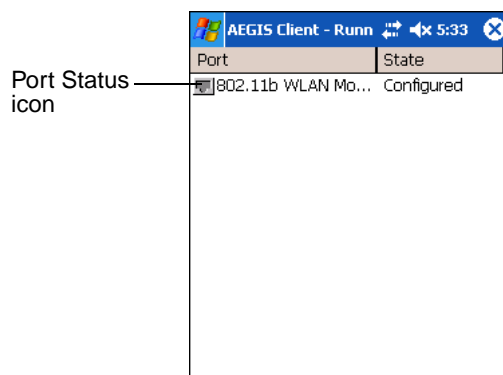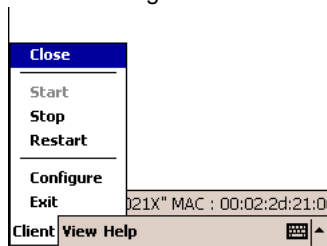

Port Status icon

Port Status Icon

The main screen contains a port status icon to the left of each port listed. The color of this icon indicates the status of the port. The color of the icon changes as the port starts authentication, negotiates with the AP and/or authentication server, and then joins the network. As the network interface starts or stops, the color of the port icon and the status field in the Interface List updates to reflect the current state of the interface. For details about what each color means, see Color Indicators on page 7-11.

Client Menu

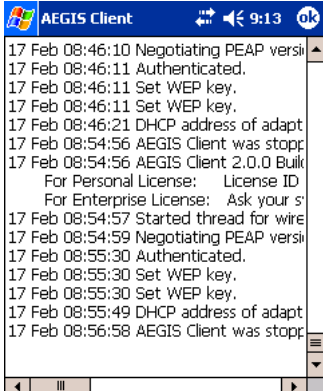To open the client menu, tap **Client** in the command bar along the bottom of the window.

Menu Item	Description
Close	Closes the Client's interface, while leaving the client running.
Start/Stop	Starts or stops 802.1X authentication. After you finish the initial configuration, tap the network interface and tap **Start.** If the port is already active, tap **Stop** first, then **Start** to force the program to read the new configuration file.
Restart	Same as a Stop followed by Start. Tap this when you receive a notice such as the following:
Configure	Opens the Configuration screen displaying the User tab.
Install Protocol	Selecting this option binds the 802.1X protocol to the WLAN adapter currently installed on the device. The WLAN adapter then appears in the port list. For more information about network adapters, see Network Cards on page 7-24.
Exit	Terminates the client, which stops the 802.1X protocol.

View Menu
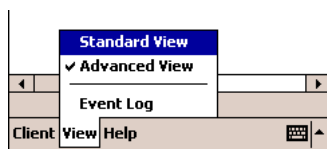
The Standard and Advanced Views control the number of columns displayed in the main menu.

Menu Item	Description
Standard View	Displays the **Port** (adapter name) and **State** columns. This is the default view.
Advanced View	**Displays the Port** (adapter name), **State**, **Primary Wireless Network**, **Wireless Network**, and **MAC Address of AP** columns. Scroll right to see all columns.
Event Log	The Event Log is a text file that contains status information from the logging function.

Menu Item	Description
	Each entry is listed sequentially with a time stamp and a text message.
	Tap **Refresh** to query the log again.
	Tap **Close** to return to the main screen.

Help Menu

Tapping Help opens the help menu. Select **Online Help** to access online help. Select **About** to review software version information.

Status Bar

The status bar at the bottom of the main screen indicates the connection status between the network card and the AP.
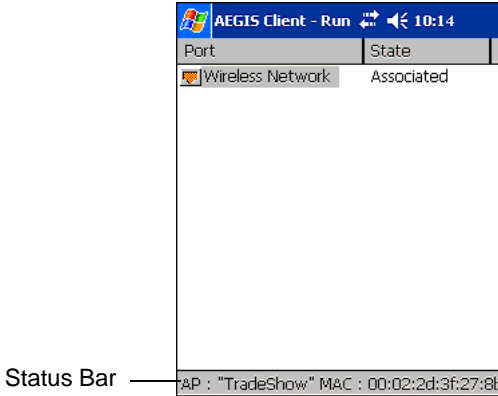
Status Bar

The status bar displays one of the following depending on the status of connectivity:

• "Not Associated"
• "AP : [Name of the SSID] MAC : [MAC address]."

Port Menu

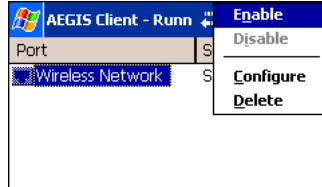On the main screen, tapping on a port opens a popup menu that allows the port to be enabled or disabled, configured, or deleted.

Port Menu Options

The port menu enables you to use 802.1X authentication, change the port configuration, or remove it from the port list. If there are no entries in the Port list, follow the advice in the troubleshooting section to resolve the problem.

Menu Item	Description
Enable and Disable	These commands enable or disable 802.1X authentication on the port. The port should be enabled before the protocol is started. Enabling a port is not the same as starting it (see Client Menu on page 7-12); however, both actions are required for the Client to work.
Configure	Opens the port configuration screen; see Accessing the Client Configuration Area on page 9-15.
Delete	Removes an adapter from the port list. An unused port may be deleted from the port list. The radio card must not be in the device or the radio must be turned off. Ports appear in the list only when the 802.1X protocol binds to the adapter. The protocol binds to the adapter when the adapter is in the device and the Client software is installed, or Install Protocol is selected from the Client menu (see Client Menu on page 7-12).

Configuring the Client

Each user account needs to define the protocol and the credentials the Client will use to authenticate a user. The Client will need to be reconfigured if the device is used on multiple networks, or if different users share the computer.

Note: Fields are be grayed out if not relevant to the selected protocol.

On the main screen, tap **Client** > **Configure**. The Client Configuration screen opens displaying the User tab.
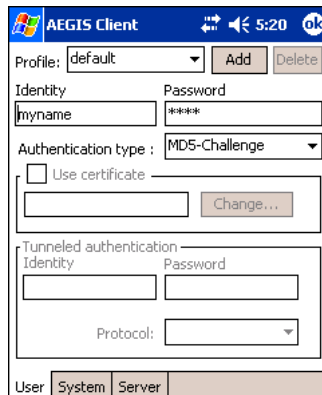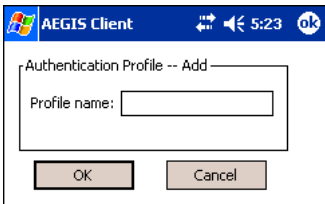
On this tab,	You…
User Settings Tab	Configure authentication credentials and profiles.
System Settings Tab	Set the level of detail that the Client will provide in the system log and zero-config options.
Server Identity Tab	Control how the Client authenticates the server that handles the 802.1X protocol on the network side. This applies only to the TLS, TTLS, and PEAP authentication methods and is used to tell the Client what server credentials to accept from the authentication server to verify the server.

User Tab

The User settings tab defines the protocol and the credentials used to authenticate a user.

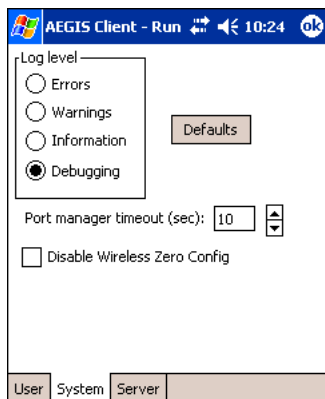| Field	Description
Profile	Multiple user credential profiles can be created for use when the user roams from one network to another. The drop-down list contains existing authentication credential profiles. Select a profile from the list to edit it in the fields that follow. Tapping **Add** permits new profiles to be added to the list. A screen appears where you can enter a name for the new profile. Enter a **Profile name** and tap **OK**. The name entered appears in the Profile drop-down list. Tapping **Delete** deletes authentication profiles. To be deleted, a profile **cannot** be assigned to a configured network.
Identity	This is the 802.1X identity supplied to the authenticator. The identity value can be up to 63 ASCII characters and is case-sensitive. For tunneled authentication protocols such as TTLS and PEAP, this identity (called the Phase 1 identity) is sent outside the protection of the encrypted tunnel. Therefore, it is recommended that this field not contain a true identity, but instead the identity "anonymous" and any desired realm (e.g. anonymous@myrealm.com). For TTLS and PEAP, true user credentials (Phase 2 identity) are entered in the Tunneled authentication section. When used with PEAP and the .NET Enterprise Server Version 5.2, this field must contain the identity used in both Phase I and Phase II. The Phase II identity field is ignored.
Password	This is the password used for MD5-Challenge or LEAP authentication. It may contain up to 63 ASCII characters and is case-sensitive. Asterisks appear instead of characters for enhanced security.
Authentication type	This is the authentication method to be used - MD5-Challenge, LEAP, PEAP, TLS, or TTLS. Your network administrator should let you know the protocols supported by the RADIUS server. The RADIUS server sits on the network and acts as a central credential repository for Access Servers that receive the radio signals and ultimately block or allow users to attach to the network.

Field	Description
Use certificate	This is the certificate to be used during authentication. A certificate is required for TLS, optional for TTLS and PEAP, and unused by MD5 and LEAP. Therefore, this option becomes active only when TLS, TTLS, or PEAP is selected as the Authentication type. If **Use certificate** is enabled, the client certificate displayed in the field is the one that is passed to the server for verification. To select a client certificate, tap **Change** and select the certificate from the list that appears. To appear in this list, certificates must be installed in the system. The **Issued to** column should match the **Identity** field and the user ID on the authentication server used by the authenticator. Your certificate must be valid with respect to the authentication server. This generally means that the authentication server must accept the issuer of your certificate as a Certificate Authority. When obtaining a client certificate, do not enable strong private key protection. If you enable strong private key protection for a certificate, you will need to enter an access password for the certificate each time this certificate is used.

Tunneled authentication area
Tunneled authentication parameters are used by only by TLS, TTLS and PEAP protocols, in Phase 2 of authentication, and after the secure tunnel has been established. The fields in this section are active only if the TLS, TTLS, or PEAP is selected as the Authentication type.

Identity	The user identity used in Phase 2 authentication. The identity specified may contain up to 63 ASCII characters, is case-sensitive and takes the form of a Network Access Identifier, consisting of <name of the user>@<user's home realm>. The user's home realm is optional and indicates the domain to which the tunneled transaction is to be routed. Because Microsoft .NET Enterprise Server Version 5.2 does not use this parameter for PEAP, This field will have no effect for PEAP at this time. Phase 1 identity is used instead.
Password	The password used for the tunneled authentication protocol specified. It may contain up to 63 ASCII characters and is case-sensitive. Asterisks appear instead of characters for enhanced security.
Protocol	This parameter specifies the authentication protocol operating within the secure tunnel. The following protocols are currently supported for TTLS: EAP-MD5, CHAP, PAP, MS-CHAP and MS-CHAP-V2. The following protocols are currently supported for PEAP: EAP-MS-CHAP-V2, TLS/SmartCard, and Generic Token Card (EAP-GTC).

System Tab

The System Settings tab controls logging and the port manger timeout period.

Field	Description
Log Level	These settings control the detail of the log messages generated by the Client. Each level is cumulative. By default, all errors, warnings, and information events are logged. Each entry records a severity code (of one [debug message] to four [error] asterisks), a time stamp, and a message. • **Errors** - only the most severe conditions are logged. • **Warnings** - less severe conditions are logged. • **Information** - all errors, warnings, and information events are logged. This is the default setting. • **Debugging** - creates a log message each time the Client detects or reacts to an event. Be advised that log entries fill memory quickly if the Debugging level is chosen. Do not use the Debugging option for a significant length of time because most internal operations generate messages.
Defaults	Tap this button to return log settings to the default settings.
Disable Wireless Zero Config	Use this option only as directed by technical support. Selecting this option disables other wireless utilities whether the Client is running or not. If not selected, other wireless utilities cannot apply their settings to the wireless card while the Client is running (although their status displays are usually unaffected). You will need to perform a soft reset whenever this setting is changed.
Port Manager Timeout	The interval at which the client polls the ports. This is used under different circumstances, for instance after physical changes such as card removal or insertion have been detected. This value should not be changed from the 10-second default unless so advised by technical support.

Server Tab

The Server identity tab defines the credentials the client uses to authenticate the server during TLS/TTLS/PEAP authentication message exchange. The Client uses this information to verify that the Client is communicating with a trusted server.
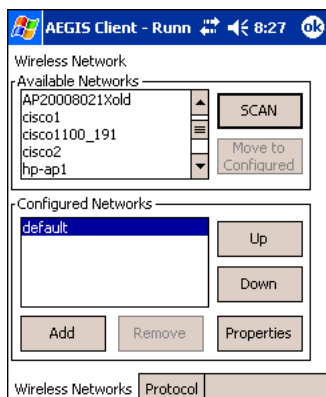

Field	Description
Do not validate server certificate chain	If this option is selected, the server certificate received during the TLS/TTLS/PEAP message exchange is not validated.
Certificate issuer must be	This is the certificate authority used during TLS/TTLS/PEAP message exchange. **Any Trusted CA** is the default selection and means that any certificate authority can be used during authentication. Both trusted intermediate certificate authorities and root authorities whose certificates exist in the system store are available for selection in the drop-down list.
Allow intermediate certificates	This option is selected by default and enables unspecified certificates to be in the server certificate chain between the server certificate and the certificate authority selected in the **Certificate issuer must be** field. When selected, this option allows the server certificate received during negotiation to be issued directly by the certificate authority or by one of its intermediate certificate authorities. If disabled, then the selected Certificate issuer must have directly issued the server certificate.
Server name must be	This is either the server name or the domain the server belongs to, depending on which option is selected below the text field. During authentication, this name will be compared to the server certificate's **Subject: CN** field.
Must match exactly	When selected, the server name entered must match the server name found on the certificate exactly.
Must contain domain name	When selected, the server name field identifies a domain and the certificate must have a server name belonging to this domain or to one of its sub-domains (e.g., zeelans.com, where the server is blueberry.zeelans.com).

Configuring the Port

On the main screen, tap and hold on a port, and select **Configure** on the popup menu. The Port Settings Configuration screen opens displaying the Wireless Networks tab.
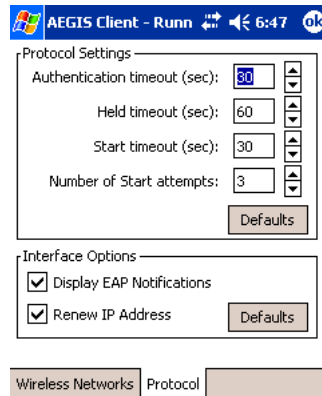
Wireless Networks Tab

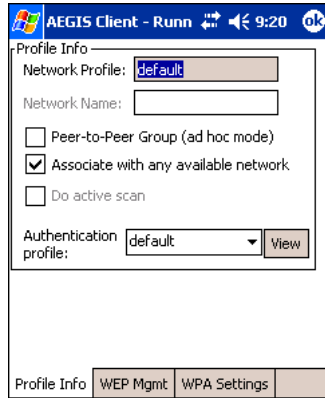| Field	Description
Available Networks	Displays the networks the terminal recognizes as available to connect to. When the Client is first installed, there are no entries in the Available Networks list.
Scan	Displays a list of networks broadcasting their availability. You can also attach to networks who are not broadcasting.
Move to Configured	Activates after **Scan** has been tapped and the available networks have been retrieved. In the list of networks retrieved, select the network you wish to connect to, and tap **Move to Configured**. This selects the network.
Configured Networks	Displays the networks your terminal is connected to. This section adds and removes networks as well as reviews and edits the properties of existing configured networks.
Default	When the Client is first installed, there is a Configured Network named "default" in the list. This profile has **Associate with any network** selected in its Properties selection screen. If you are going to be in a location with only one AP (or more than one AP that attaches to the same network), the default profile may be sufficient for you needs, without necessitating the selection of a specific network or networks. If **default** is last in the list, it can act as a wildcard should you be out of the range of your primary networks (which are listed first). Do not place **default** at the top or middle of the list because, if it is, connection to the other list entries will never be attempted.
Up	Moves a selected network up one place in the list.
Down	Moves a selected network down one place in the list.
Note:	*The order of the networks in this list is the exact order that connections will be attempted. The network listed first will be attempted first and so on. Place your primary networks first.*
Add	Manually adds a network to the Configured Networks list if the AP does not broadcast its SSID or you are pre-configuring the client for an AP that is not currently in range.
Remove	Removes a selected network in the list.
Properties	Displays the properties of the network selected in the list. This button opens the same network configuration screen as the **Add** button does; use it to edit network configuration properties.

Protocol Tab

The Protocol tab configures parameters that apply to all the networks the selected port connects to.

Field	Description
Protocol Settings	These are the timer intervals and retry settings defined in the 802.1X standard. They determine how long the supplicant state machine will wait in a given state. These parameters shouldn't be modified without an understanding of the supplicant state machine. For more information about the supplicant state machine, obtain its 802.1X protocol specification. The parameters are: • **Authentication Timeout -** The period of time the Client remains in the authenticating or acquired state without receiving a response from the AP or switch. • **Held Timeout** - The period of time the Client remains in the held state after failing authentication. • **Start Timeout** - The period of time the Client remains in the connecting state before restarting when there is no response. • **Number of Start Attempts** - The number of times the Client restarts before giving up. At that point, the Client then defaults to the authenticated state, but there will be no network connectivity because the protocol exchange was never completed.
Display EAP notifications	Specifies that the EAPOL notification message will be displayed to the user. An authenticator may use such notification to inform you, for example, about a near password expiration. However, some authenticators send chatty and annoying notifications that may, for the convenience of the user, be suppressed. Note that all notifications are written to the event log even if they are not displayed.
Renew IP address	Initiates a DHCP request to obtain a dynamic IP address after a successful authentication, but only if the client detects that the connected network (the SSID) has changed. The result is that renewal should not occur upon re-authentication, but does occur at boot or when connecting to a different network. If you have a slow authenticator, you may wish to enable this option when configuring the service because a slow authenticator may prevent you from getting a DHCP-assigned IP address upon boot-up. This option is ignored if the given adapter has a static IP address.

Configuring a Network Profile

To configure a network profile, on the main screen, tap and hold on the port, tap **Configure**, then tap **Add**. The Network Profile screen opens displaying the Profile Info tab.


Note: The settings on these tab windows are interrelated. This means that selecting one may disable access to others.
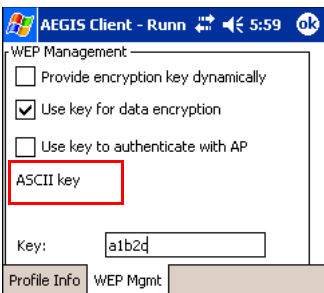
Profile Info Tab

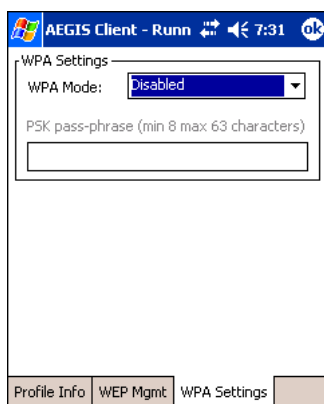| Field	Description
Network Profile	Enter the name of this record. This is the name that appears in the Configured Networks list and, by default, is the same as the broadcast SSID. Note that there is nothing special about the name "default". You could configure any other record similarly and it would behave the same way.
Network Name	This is the SSID of the AP. If the AP broadcasts its SSID, then this value may be derived from the Available Networks list. If the SSID does not broadcast, then you must manually enter the value here.
Peer-to-Peer Group	Select this option to have two or more client workstations communicate with each other without the benefit of an AP. You should also select **Do Active Scan** and, in the WEP Management page, enable **Use key for data encryption** while entering a common key for both sides. WPA is not supported in this mode.
Do active scan	Select this option whenever the AP (or client, for ad hoc mode) is not broadcasting its SSID.
Authentication Profile	Select the Client Configuration (user) profile associated with this network. The drop-down list contains the profile names created onn the User tab of the Client configuration area. To open the selected profile, select it in the drop-down list and tap **View**. The User tab opens displaying the profile details. If you tap **OK** (to save changes) or **Cancel**, you are returned to the Profile Info tab.

WEP Mgmt Tab
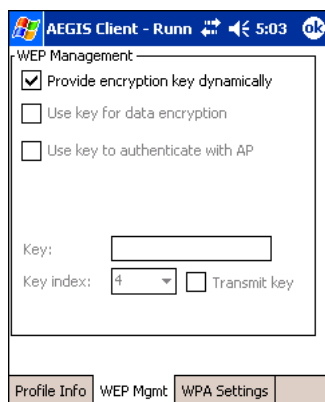
Field	Description
Provide encryption key dynamically	This option is selected by default. If this option is selected, the other WEP settings on this page are disabled. To enter a custom WEP, de-select this option. The other fields become active.
Use key for data encryption	Select this option to manually enter a WEP key to encrypt your data to the AP. You enter that key in the Key field below.
Use key to authenticate with AP	Select this option if your network does not support 802.1x authentication and you need to connect to the AP without username and password authentication. The key entered below is used to authenticate instead.

Field	Description
Key	In this field, enter the WEP key. **ASCII**: 5 or 13 characters **Hexadecimal**: 10 or 26 characters. When the key entered is in the correct format, the screen changes to display the type - ASCII or Hexadecimal.
Key Index/Transmit Key	The Key Index drop-down list contains the available keys. You may enter up to four keys for reception; the Client will try all four to find one that works with the AP. From the drop-down list, select the key to be used for transmission as well. If the key selected is the transmit key, the **Transmit key** box is checked. To change the transmit key, select another key and check the **Transmit key** box. The check box of the original transmit key will be automatically de-selected.

WPA Settings Tab

| Field	Description
WPA Mode	This drop-down list contains the following options: • **Disabled** - Do not enable WPA mode. This is the default selection. • **WPA 802.1x** - Enable WPA and obtain key information through the 802.1x protocol. • **WPA PSK** - Enable WPA with Pre-Shared Key (PSK) information entered in the field below. This mode is used if the 802.1x protocol is not being used for authentication.
PSK pass-phrase	This field activates if you select WPA PSK in the WPA Mode drop-down list. Enter a Hexadecimal value that is 64 characters long. Asterisks appear as you type for increased security.

Logging

The event log is an ASCII text file named "LOG8021X.TXT" located in the directory defined by the WINDIR environment variable (usually the Windows directory). The information the log records is determined by the log settings on the System tab.

The format of the entries is

Time Stamp   Message Text

The **Refresh** button at the bottom of the screen is used to update the log file while you are reading it. If the file gets too large, old entries are automatically deleted.

If you wish to start with a blank file, exit from the Client (so the icon no longer appears at the lower right of the screen) and delete the log file (log8021x) in File Explorer; see .
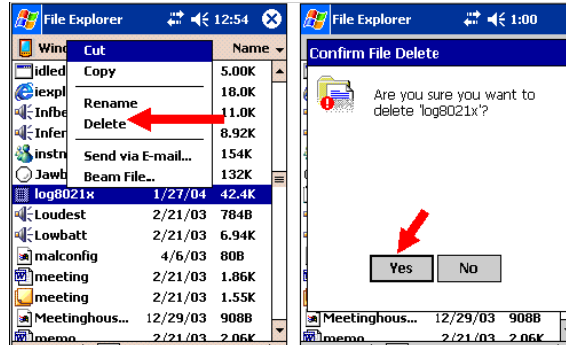
When you restart the Client, a new log file is created.

Installing Certificates with CertAdd

Certificate Requirements

During configuration, you may have specified one or two certificates to use during the authentication process. The specified identity should match the **Issued to** field in the certificate and should be registered on the authentication server (i.e., RADIUS server) that is used by the authenticator. In addition, your certificate must be valid on the authentication server. This requirement depends on the authentication server and generally means that the authentication server must know the issuer of your certificate as a trusted Certificate Authority (CA).

If the selected certificate does require a password or pass phrase to decode the private key, enter this value in the "Certificate Pass Phrase" field. This value will be encrypted when the configuration is saved. However, on some systems, there may not be a certificate. If that is the case, you can use the section below as a primer on OS X certificate management.

About CertAdd

CertAdd is a standalone utility that allows certificates to be selected and installed on a Windows Mobile device.

Installing Certificates

Client or CA certificates can be imported from *.cer (same as *.der), *.p7b, or *.pfx files.

1. Download the certificate file to the My Documents folder. The location isn't critical, although you may want to create a standard folder for consistency.

2. Go to **Start** > **Programs** > **Meetinghouse Certificate Installer**. All valid certificate file types located in the My Documents folder appear in the list.
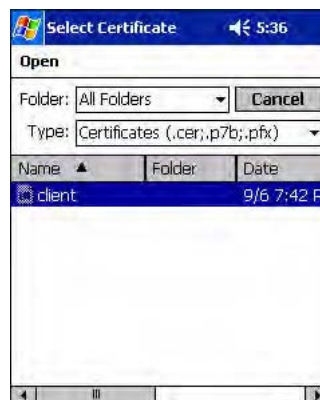
3. Tap and hold on a certificate in the list. A pop-up appears asking if you want to install the certificate.

4.   Tap **OK**. The certificate is loaded into the correct certificate store.

Advice and Workarounds

Issue	Possible Causes and Solutions
The Client will not start on the device with an error message about missing files.	Perform a soft reset.
The wireless network interface (port) does not appear in the main AEGIS screen.	• The license is not valid (If you have entered a time-limited license, is your clock on the device correct?). • Restart the client - on the main screen tap **Client** > **Restart**. • Perform a soft reset. • If the radio is turned off or the radio card is not present, this will sometimes cause the port name to not appear. • If the radio driver is very old and does not support NDIS 5.1 commands, the Client may not be able to detect it.
The wireless network interface appears, but when I select it and tap **Configure**, the Scan button is disabled.	Enable the radio; **Start** > **Settings** > **Connections** tab > **Radio Manager**.
The client is not attaching to the correct AP.	The **default** network profile instructs the client to attach to the first available AP. On the Wireless Networks window, select a network, move it to Configured Networks, and then move it above **default** in the list.

The Client is failing authentication even though all my information was entered correctly.	1. Verify that the network profile for the AP corresponds to the authentication profile you created for it.
	
	    • Select the network profile in the Configured Networks list.
	    • Tap **Properties**. The Profile Info tab opens - see page 7-22.
	    • In the Authentication profiles drop-down list, select the profile you want to review.
	    • Tap **View**. The User tab appears displaying the profile's information.
	2. Verify that you have configured the identity and password into the correct fields on the User tab in the authentication profile. If you are using PEAP or TTLS, the username and password are entered in the Tunneled authentication section.

My AP does not broadcast its SSID. Even though I have manually configured an AP with that name, the Client won't associate with it.	• Make sure that the desired SSID is listed as the **Network Name**, not the Network Profile (which is a screen label). • Verify that **Do Active Scan** is selected on the Profile Info tab. If not selected, the Client will not attempt to find the AP.
I am authenticated, but I don't get an IP address through DHCP.	On the main screen, tap and hold on your AP, tap Configure on the popup menu, and select the Protocol tab. Verify that **Renew IP Address** is selected.
I cannot attach to my old network that does not support 802.1x authentication, but is using WEP encryption.	• Verify that you can see your SSID in the Available Networks list on the Wireless Networks tab. Move the SSID to the top of the Configured Networks list so that it is accessed first. If the SSID is not there, you can add it manually and enter the SSID as the network name. • Select the SSID and tap **Properties**. • On the Profile Info tab, select **Do active scan** if your AP does not broadcast its SSID. • On the WEP Mgmt tab, select **Use key for data encryption** and **Use key to authenticate with AP**. • Enter the WEP Key. • On the Protocol tab, select **Renew IP Address** (unless you have entered one manually separate from the Client) • Note that the port status indicator in the main screen reads "Associated," not "Authenticated" when the connection is complete; although the log file will indicate "Entered AUTHENTICATED state."
I made changes, but they do not appear to have taken effect.	Always tap **OK** before exiting a screen you have changed. Then restart the Client from the Client menu on the main screen.

Advice and Workarounds

Issue	Possible Causes and Solutions
How do I enable peer-to-peer (ad-hoc) mode to have two clients communicate without an AP?	• On the Wireless Networks tab, add a new profile to the Configured Network list. • On the Profile Info tab, give each side the same network name (SSID). • Select **Peer-to-Peer Group (ad hoc mode)** and **Do active scan**. • On the WEP management section, select Use key for data encryption and enter an identical key for both clients. • Verify that this network profile is the first (or only) one in the Configured Network list and try to restart both clients at roughly the same time.