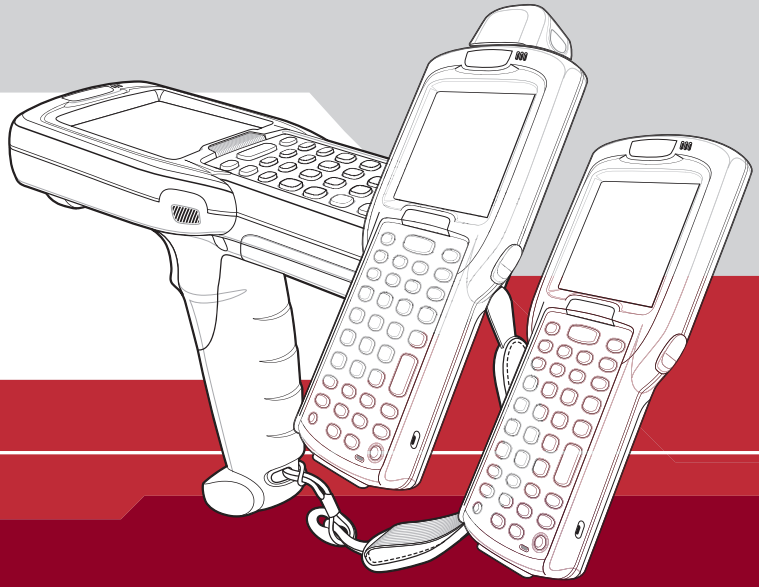
MC3000

User Guide



symbol®

The Enterprise Mobility Company™

MC3000 User Guide

72-68899-02

Rev A

October 2005

symbol®

The Enterprise Mobility Company ™

© 2005 by Symbol Technologies, Inc. All rights reserved.

No part of this publication may be reproduced or used in any form, or by any electrical or mechanical means, without permission in writing from Symbol. This includes electronic or mechanical means, such as photocopying, recording, or information storage and retrieval systems. The material in this manual is subject to change without notice.

The software is provided strictly on an "as is" basis. All software, including firmware, furnished to the user is on a licensed basis. Symbol grants to the user a non-transferable and non-exclusive license to use each software or firmware program delivered hereunder (licensed program). Except as noted below, such license may not be assigned, sublicensed, or otherwise transferred by the user without prior written consent of Symbol. No right to copy a licensed program in whole or in part is granted, except as permitted under copyright law. The user shall not modify, merge, or incorporate any form or portion of a licensed program with other program material, create a derivative work from a licensed program, or use a licensed program in a network without written permission from Symbol. The user agrees to maintain Symbol's copyright notice on the licensed programs delivered hereunder, and to include the same on any authorized copies it makes, in whole or in part. The user agrees not to decompile, disassemble, decode, or reverse engineer any licensed program delivered to the user or any portion thereof.

Symbol reserves the right to make changes to any software or product to improve reliability, function, or design.

Symbol does not assume any product liability arising out of, or in connection with, the application or use of any product, circuit, or application described herein.

No license is granted, either expressly or by implication, estoppel, or otherwise under any Symbol Technologies, Inc., intellectual property rights. An implied license only exists for equipment, circuits, and subsystems contained in Symbol products.

Symbol, Spectrum One, and Spectrum24 are registered trademarks of Symbol Technologies, Inc. Bluetooth is a registered trademark of Bluetooth SIG. Microsoft, Windows and ActiveSync are either registered trademarks or trademarks of Microsoft Corporation. Other product names mentioned in this manual may be trademarks or registered trademarks of their respective companies and are hereby acknowledged.

Symbol Technologies, Inc.
One Symbol Plaza
Holtsville, New York 11742-1300
http://www.symbol.com

Revision History

Changes to the original manual are listed below:

Change	Date	Description
-01 Rev A	Dec. 2004	Initial Release
-01 Rev B	June 2005	Added Four Slot Ethernet cradle. Added Fabric Holster. Appendix A, added Accessory Specifications. Add Appendix C, Regulatory.
-02 Rev A	Sept. 2005	Global changes: Changed Windows CE.NET 4.2 to Windows CE.NET 5.0 Removed WZC references, replaced with wireless application references. Added 802.11a support. Add MC3090-G support Add Bluetooth support Update Technical Specifications.

Contents

Revision History iii

About This Guide

Introduction xiii
Documentation Set xiii
Configurations xiv
Chapter Descriptions xiv
Notational Conventions xv
Related Documents and Software xv
Service Information xvi
Symbol Support Center xvi

Chapter 1. *Getting Started*

Introduction 1-2
Unpacking the Mobile Computer 1-2
Accessories 1-3
Parts 1-4
Rotating Scan Turret 1-5
Mobile Computer Startup. 1-6
Install Main Battery 1-6
Battery Charging. 1-9
Spare Battery Charging 1-10
Stylus 1-10
Starting the Mobile Computer 1-11
Calibration Screen 1-11

Demo Window 1-11
Waking the Mobile Computer 1-12
Main Battery Removal 1-12
Strap/Door Assembly Removal and Replacement (MC3000-K/R) 1-14
Strap/Door Assembly Removal and Replacement (MC3000-G). 1-15

Chapter 2. Operating the MC3000

Introduction. 2-3
Power Button 2-3
Keypads. 2-3
Keypad Special Functions. 2-3
28-Key Keypad 2-4
38-Key Keypad 2-6
48-Key Keypad 2-8
Demo Window 2-10
Desktop Window 2-10
Taskbar 2-11
Battery Unknown Icon 2-12
Start Button 2-12
Programs Menu 2-13
Keyboard Input Panel Button 2-13
Desktop Display Button 2-13
Task Manager and Properties. 2-14
Task Manager. 2-14
Properties 2-14
Entering Information. 2-15
Entering Information Using Keypad 2-15
Entering Information Using the Keyboard Input Panel. 2-16
Entering Data via the Bar Code Scanner 2-16
Data Capture. 2-16
Laser Scanning 2-16
Scan LED Indicators 2-17
Scanning Considerations 2-17
Laser Decode Ranges 2-17
Imaging 2-19
Imager. 2-19
Operational Modes. 2-19
Decode Mode 2-19
Image Capture 2-19
Aiming the Mobile Computer. 2-19
Imager Decode Ranges. 2-20
Resetting the Mobile Computer 2-23
Performing a Warm Boot 2-23
Performing a Cold Boot. 2-23
Waking the Mobile Computer 2-24
File System Directory Structure 2-24
Connecting to the Internet on a Wireless LAN Network 2-25

Chapter 3. *Using Bluetooth*

Introduction. 3- 3
Adaptive Frequency Hopping 3-3
Security. 3-3
Turning the Bluetooth Radio Mode On and Off 3-4
Disabling Bluetooth 3-4
Enabling Bluetooth 3-5
Bluetooth Power States 3-5
Cold Boot 3-5
Warm Boot 3-5
Suspend 3-5
Resume. 3-5
Modes. 3-5
Wizard Mode 3-5
Explorer Mode 3-8
Discovering Bluetooth Device(s). 3-8
Bonding with Discovered Device(s) 3-10
Renaming a Bonded Device 3-11
Deleting a Bonded Device 3-12
Accepting a Bond 3-12
Discovering Services 3-13
File Transfer Services. 3-14
Create New File or Folder 3-15
Delete File 3-15
Get File 3-15
Put File 3-15
Connect to Internet Using Access Point. 3-16
Dial-Up Networking Services. 3-16
Add a Dial-up Entry 3-18
OBEX Object Push Services 3-18
Send a Picture 3-19
Headset Services 3-20
Serial Port Services 3-20
Personal Area Network Services 3-21
Bluetooth Settings 3-22
Device Info Tab. 3-22
Services Tab 3-22
Dial-Up Networking Service. 3-23
File Transfer Service. 3-24
OBEX Object Push Service 3-24
Personal Area Networking Service 3-25
Serial Port Service 3-25
Headset Service 3-26
Security Tab 3-27
Discovery Tab 3-28
Virtual COM Port Tab 3-29
Miscellaneous Tab 3-30

Chapter 4. Accessories

Introduction 4-3
Cradles 4-3
Spare Battery Chargers 4-3
Cables 4-3
SD Card 4-3
Plastic Holster 4-3
Fabric Holster 4-3
Single Slot Serial/USB Cradle 4-4
Battery Charging 4-4
Four Slot Cradles 4-6
Battery Charging 4-6
LED Charge Indications 4-7
Power LED 4-7
Speed LED 4-7
Link LED 4-7
Four Slot Spare Battery Charger 4-8
Spare Battery Charging 4-8
LED Charge Indications 4-8
Cables 4-9
Battery Charging and Operating Power 4-10
LED Charge Indications 4-10
Universal Battery Charger (UBC) Adapter 4-11
Spare Battery Charging 4-11
UBC Adapter LED Charge Indications 4-12
Secure Device Card 4-13
Plastic Holster 4-14
Fabric Holster 4-16
Belt Clip 4-16
Shoulder Strap 4-17

Chapter 5. *Maintenance & Troubleshooting*

Introduction 5- 3
Maintaining the Mobile Computer 5-3
Troubleshooting 5-4
Mobile Computer 5-4
Single Slot Serial/USB Cradle 5-6
Four Slot Charge Only Cradle 5-7
Four Slot Ethernet Cradle 5-7
Four Slot Spare Battery Charger 5-8
UBC Adapter 5-8
Cables 5-9

Appendix A. Technical Specifications

Mobile Computer And Accessory Technical Specifications A-3

Appendix B. Keypad Functions/Special Characters

Introduction. B-3
Keypads B-3

Appendix C. Regulatory

Introduction. B-3
Accessory Power Supply Regulatory Compliance B-3

Glossary

Index

Tell Us What You Think...

About This Guide

Contents

Introduction xi
Documentation Set xi
Configurations xii
Chapter Descriptions xii
Notational Conventions xiii
Related Documents and Software xiii
Service Information xiv
Symbol Support Center xiv

Introduction

This guide provides information about using the MC3000 mobile computers and accessories.

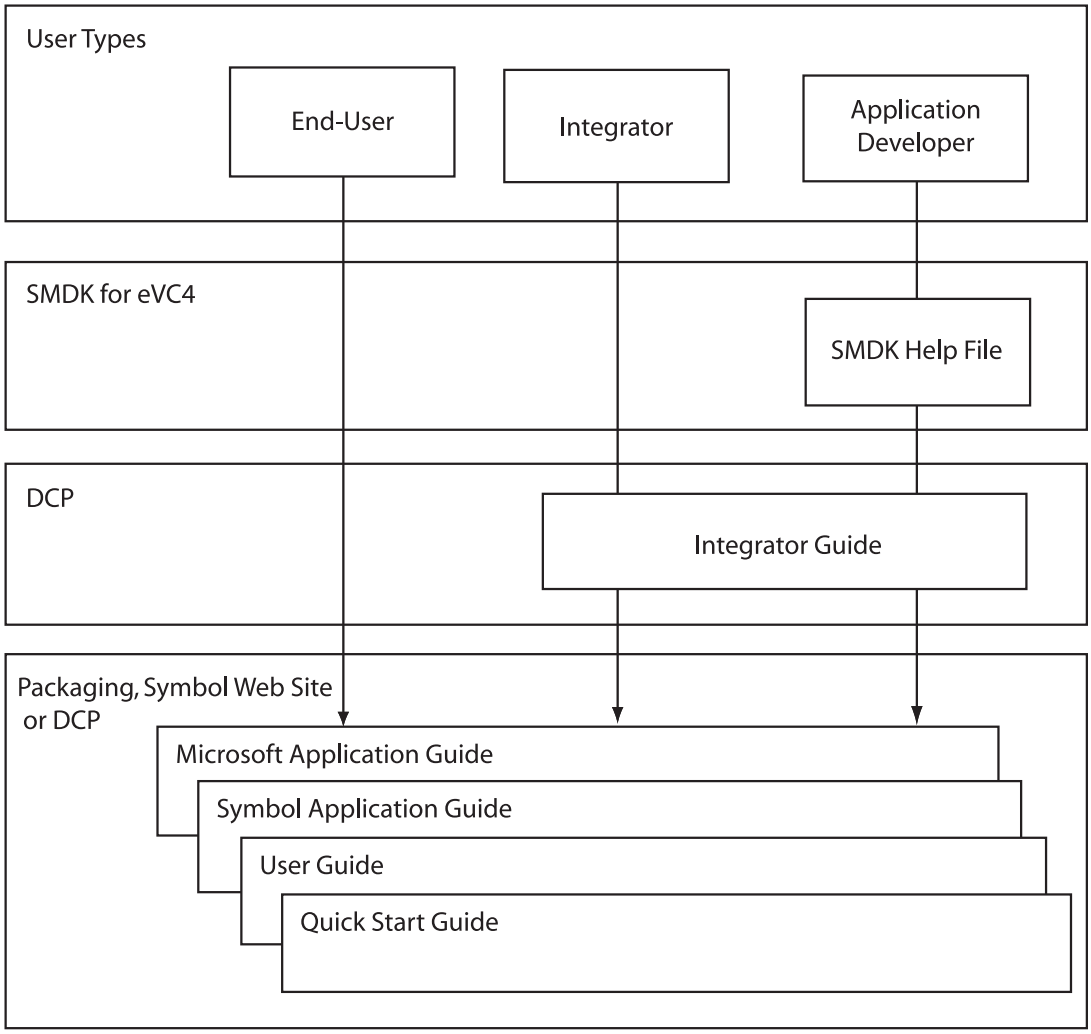
Note

Screens and windows pictured in this guide are samples and may differ from actual screens.

Documentation Set

The documentation set for the MC3000 is divided into guides that provide information for specific user needs.

- **Microsoft Application Guide** - describes how to use Microsoft developed applications.
- **Symbol Application Guide** - describes how to use Symbol developed applications.
- **MC3000 User Guide** - describes how to use the MC3000 mobile computer.
- **MC3000 Integrator Guide** - describes how to set up the MC3000 mobile computer and the accessories.
- **SMDK Help File** - provides API information for writing applications.



Configurations

This guide covers the following configurations:

MC3000-R - color or monochrome display, 32MB/64MB or 64MB/64MB memory, laser scanner in rotating turret, Windows CE .NET 5.0 Core or Windows CE .NET 5.0 Professional Operating System.

MC3090-G - 802.11b/g/a radio, color or monochrome display, 32MB/64MB or 64MB/64MB memory, laser scanner or imager, Windows CE .NET 5.0 Core or Windows CE .NET 5.0 Professional Operating system, optional Bluetooth radio.

MC3090-K - 802.11b/g/a radio, color display, 64MB/64MB memory, imager, Windows CE .NET 5.0 Professional Operating System, audio and optional Bluetooth radio.

MC3090-R - 802.11b/g/a radio, optional Bluetooth radio, color or monochrome display, 32MB/64MB or 64MB/64MB memory, laser scanner in rotating turret, Windows CE .NET 5.0 Core or Windows CE .NET 5.0 Professional Operating System, audio and optional Bluetooth radio.

Chapter Descriptions

Topics covered in this guide are as follows:

- *Chapter 1, Getting Started*, describes the mobile computer's physical characteristics, how to install and charge the batteries, remove and replace the Strap/Door assembly and how to start the mobile computer for the first time.
- *Chapter 2, Operating the MC3000*, provides basic instructions for using the mobile computer and navigating the mobile computer software.
- *Chapter 3, Using Bluetooth*, explains how to perform Bluetooth functionality on the mobile computer.
- *Chapter 4, Accessories*, describes the accessories available for the mobile computer and how to use the accessories to charge the mobile computer.
- *Chapter 5, Maintenance & Troubleshooting*, includes instructions on cleaning and storing the mobile computer, and provides troubleshooting solutions for potential problems during mobile computer operation.
- *Chapter A, Technical Specifications*, includes a table listing the technical specifications for the mobile computer.
- *Chapter B, Keypad Functions/Special Characters*, contains special character generation tables.

Notational Conventions

The following conventions are used in this document:

- The term "mobile computer" refers to the Symbol MC3000.
- *Italics* are used to highlight the following:
  - Chapters and sections in this and related documents
  - Dialog box, window and screen names
  - Drop-down list and list box names
  - Check box and radio button names
  - Icons on a screen.
- **Bold** text is used to highlight the following:
  - Key names on a keypad
  - Button names on a screen.
- Bullets (•) indicate:
  - Action items
  - Lists of alternatives
  - Lists of required steps that are not necessarily sequential.
- Sequential lists (e.g., those that describe step-by-step procedures) appear as numbered lists.

Related Documents and Software

The following items provide more information about the MC3000 mobile computers.

- *MC3000-K/R Quick Start Guide*, p/n 72-68902-xx
- *MC3090-G Quick Start Guide*, p/n 72-71347-xx
- *MC3000 Licensing, Patent and Regulatory Information*, p/n 72-68903-xx
- *MC3000 Integrator Guide*, p/n 72E-68900-xx
- *Symbol Application Guide for Symbol Devices*, p/n 72E-68901-xx
- *Microsoft® Applications User Guide for Symbol Devices*, p/n 72E-68197-xx
- *Symbol Mobility Developer Kit (SMDK) Help File*, p/n 72E-38880-02
- *Windows CE Platform SDK for MC3000c42a/b,* available at: http://devzone.symbol.com
- *Symbol Mobility Developer Kit for eMbedded Visual C++ v4.0 (SMDK for eVC4),* available at: http://devzone.symbol.com
- Device Configuration Package for MC3000 (DCP for MC3000), available at: http://devzone.symbol.com
- ActiveSync software, available at: http://www.microsoft.com.

For the latest version of this guide and all guides, go to: http://www.symbol.com/manuals.

Service Information

If an equipment problem occurs, contact the appropriate regional *Symbol Support Center*, see page xvi for contact information. Before calling, have the model number, serial number and several bar code symbols at hand.

Call the Support Center from a phone near the scanning equipment so that the service person can try to talk through the problem. If the equipment is found to be working properly and the problem is symbol readability, the Support Center will request samples of bar codes for analysis at our plant.

If the problem cannot be solved over the phone, the equipment may need to be returned for servicing. If that is necessary, specific directions will be provided.

Note

Symbol Technologies is not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty.

Symbol Support Center

For service information, warranty information or technical assistance contact or call the Symbol Support Center in:

United States
Symbol Technologies, Inc.
One Symbol Plaza
Holtsville, New York 11742-1300
1-800-653-5350

United Kingdom
Symbol Technologies
Symbol Place
Winnersh Triangle, Berkshire RG41 5TP
United Kingdom
0800 328 2424 (Inside UK)
+44 118 945 7529 (Outside UK)

Australia
Symbol Technologies Pty. Ltd.
432 St. Kilda Road
Melbourne, Victoria 3004
1-800-672-906 (Inside Australia)
+61-3-9866-6044 (Outside Australia)

Denmark/Danmark
Symbol Technologies AS
Dr. Neergaardsvej 3
2970 Hørsholm
7020-1718 (Inside Denmark)
+45-7020-1718 (Outside Denmark)

Canada
Symbol Technologies Canada, Inc.
5180 Orbitor Drive
Mississauga, Ontario L4W 5L9
905-629-7226

Asia/Pacific
Symbol Technologies Asia, Inc.
230 Victoria Street #04-05
Bugis Junction Office Tower
Singapore 188024
337-6588 (Inside Singapore)
+65-337-6588 (Outside Singapore)

Austria/Österreich
Symbol Technologies Austria GmbH
Prinz-Eugen Strasse 70 / 2.Haus
1040 Vienna, Austria
01-5055794-0 (Inside Austria)
+43-1-5055794-0 (Outside Austria)

Europe/Mid-East Distributor Operations
Contact your local distributor or call
+44 118 945 7360

Finland/Suomi
Oy Symbol Technologies
Kaupintie 8 A 6
FIN-00440 Helsinki, Finland
9 5407 580 (Inside Finland)
+358 9 5407 580 (Outside Finland)

Germany/Deutschland
Symbol Technologies GmbH
Waldstrasse 66
D-63128 Dietzenbach, Germany
6074-49020 (Inside Germany)
+49-6074-49020 (Outside Germany)

Latin America Sales Support
Latin America & The Caribbean
2730 University Drive
Coral Springs, Florida 33065
United States
+1.954.255.2610 (Outside US)
1-800-347-0178 (Inside US)
Fax: +1.954.340.9454

Netherlands/Nederland
Symbol Technologies
Kerkplein 2, 7051 CX
Postbus 24 7050 AA
Varsseveld, Netherlands
315-271700 (Inside Netherlands)
+31-315-271700 (Outside Netherlands)

South Africa
Symbol Technologies Africa Inc.
Block B2
Rutherford Estate
1 Scott Street
Waverly 2090 Johannesburg
Republic of South Africa
11-809 5311 (Inside South Africa)
+27-11-809 5311 (Outside South Africa)

France
Symbol Technologies France
Centre d'Affaire d'Antony
3 Rue de la Renaissance
92184 Antony Cedex, France
01-40-96-52-21 (Inside France)
+33-1-40-96-52-50 (Outside France)

Italy/Italia
Symbol Technologies Italia S.R.L.
Via Cristoforo Columbo, 49
20090 Trezzano S/N Navigilo
Milano, Italy
2-484441 (Inside Italy)
+39-02-484441 (Outside Italy)

Mexico/México
Symbol Technologies Mexico Ltd.
Boulevard Manuel Ávila Camacho # 24- 9 Piso
Col. Lomas de Chapultepec
México DF: CP 11000
Mexico City, DF, Mexico
5-520-1835 (Inside Mexico)
+52-5-520-1835 (Outside Mexico)

Norway/Norge
Symbol's registered and mailing address:
Symbol Technologies Norway
Helsfyr Panorama
Innspurten 9
Oslo N-0663
Symbol's repair depot and shipping address:
Symbol Technologies Norway
Enebakkveien 123
N-0680 OSLO, Norway
+47 2232 4375

Spain/España
Symbol Technologies S.L.
Avenida de Bruselas, 22
Edificio Sauce
Alcobendas, Madrid 28108
Spain
+913244000 (Inside Spain)
+34-9-1-320-39-09 (Outside Spain)

Sweden/Sverige
"Letter" address:
Symbol Technologies AB
Box 1354
S-171 26 SOLNA
Sweden
Visit/shipping address:
Symbol Technologies AB
Solna Strandväg 78
S-171 54 SOLNA
Sweden
Switchboard: 08 445 29 00 (domestic)
Call Center: +46 8 445 29 29 (international)
Support E-Mail: Sweden.Support@se.symbol.com

If the Symbol product was purchased from a Symbol Business Partner, contact that Business Partner for service.

1

Getting Started

Chapter Contents

Introduction 1-3
Unpacking the Mobile Computer 1-3
Accessories 1-4
Parts 1-5
    Rotating Scan Turret 1-6
Mobile Computer Startup. 1-7
    Install Main Battery 1-7
Battery Charging. 1-10
Spare Battery Charging 1-11
Stylus 1-11
Starting the Mobile Computer 1-12
    Calibration Screen 1-12
    Demo Window 1-12
Waking the Mobile Computer 1-13
Main Battery Removal 1-13
Strap/Door Assembly Removal and Replacement (MC3000-K/R). 1-15
Strap/Door Assembly Removal and Replacement (MC3000-G) 1-16

Introduction

This chapter describes the mobile computer physical characteristics, how to install and charge the batteries, how to remove and replace the Strap/Door Assembly and how to start the mobile computer for the first time.

Unpacking the Mobile Computer

Carefully remove all protective material from around the mobile computer and save the shipping container for later storage and shipping. Verify that the equipment listed below is included:

- MC3000 mobile computer
- Strap/Door Assembly, attached to the mobile computer
- Stylus
- Regulatory Guide
- Quick Start Guide.

Depending on the configuration ordered, the mobile computer shipping container or additional shipping container may include:

- Standard battery (lithium-polymer)
- Extended life battery (lithium-ion)
- Cable(s)
- Power supply
- Cradles.

Inspect the equipment for damage. If any equipment is missing or damaged, contact the Symbol Technologies Support Center immediately. See page xvi for contact information.

Accessories

Table 1-1 lists the MC3000 accessories.

Table 1-1. MC3000 Accessories

Accessory	Description
Single Slot Serial/USB Cradle	Charges the mobile computer main battery and a spare battery, and synchronizes the mobile computer with a host computer through either a serial or USB connection.
Four Slot Charge Only Cradle	Charges up to four mobile computers.
Four Slot Ethernet Cradle	Charges up to four mobile computers and provides Ethernet communications.
Four Slot Spare Battery Charger	Charges up to four mobile computer spare batteries.
Power Supply	Country specific and accessory specific, power supply.
USB Client Charge Cable	Provides USB client communication capabilities and charges the mobile computer.
RS232 Charge Cable	Provides RS232 communication capabilities and charges the mobile computer.
O'Neil Printer Cable	Provides printer specific communication capabilities (provided by O'Neil).
Zebra Printer Cable	Provides printer specific communication capabilities (provided by Zebra).
Monarch Printer Cable	Provides printer specific communication capabilities (provided by Monarch).
Single Slot Cradle RS232 Cable	Provides serial host communication capabilities and charges the mobile computer.
Single Slot Cradle USB Cable	Provides USB communication capabilities and charges the mobile computer.
MC3000 Universal Battery Charger Adapter (UBC)	Adapts the UBC for use with MC3000 batteries.
Stylus	Performs pen and mouse functions.
Plastic Holster	Provides a clip on holder for the mobile computer.
Fabric Holster	Provides a soft, clip on holder and a shoulder strap for the mobile computer.
Symbol Mobility Developer Kit for eMbedded Visual C++ v4.0 (SMDK for eVC4)	A development tool used to create native C and C++ applications for all Symbol mobile computers running the Microsoft Windows CE operating system. Available at: http://devzone.symbol.com.
Device Configuration Package (DCP) for MC3000	A development tool used to create and download hex images that represent flash partitions to the mobile computer. Available at: http://devzone.symbol.com.

Parts

There are three versions of the MC3000 mobile computers, the MC3000 1D/2D Imager (MC3000-K or MC3090-K), the MC3000 Laser with Rotating Scan Turret (MC3000-R or MC3090-R) and the MC3090 Gun (MC3090-G). For more information on the Rotating Scan Turret, see *Figure 1-3 on page 1-5*.

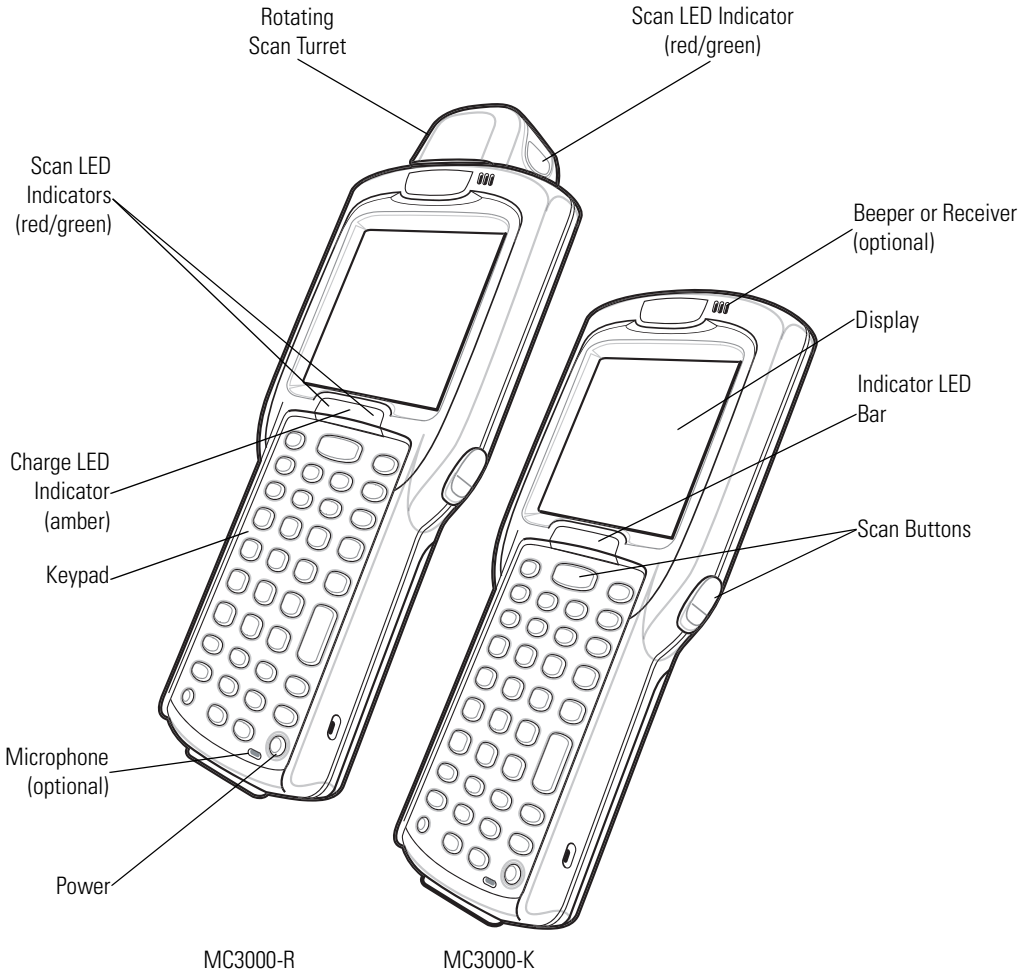


Figure 1-1. MC3000 Imager and MC3000 Laser Mobile Computers (Front View)

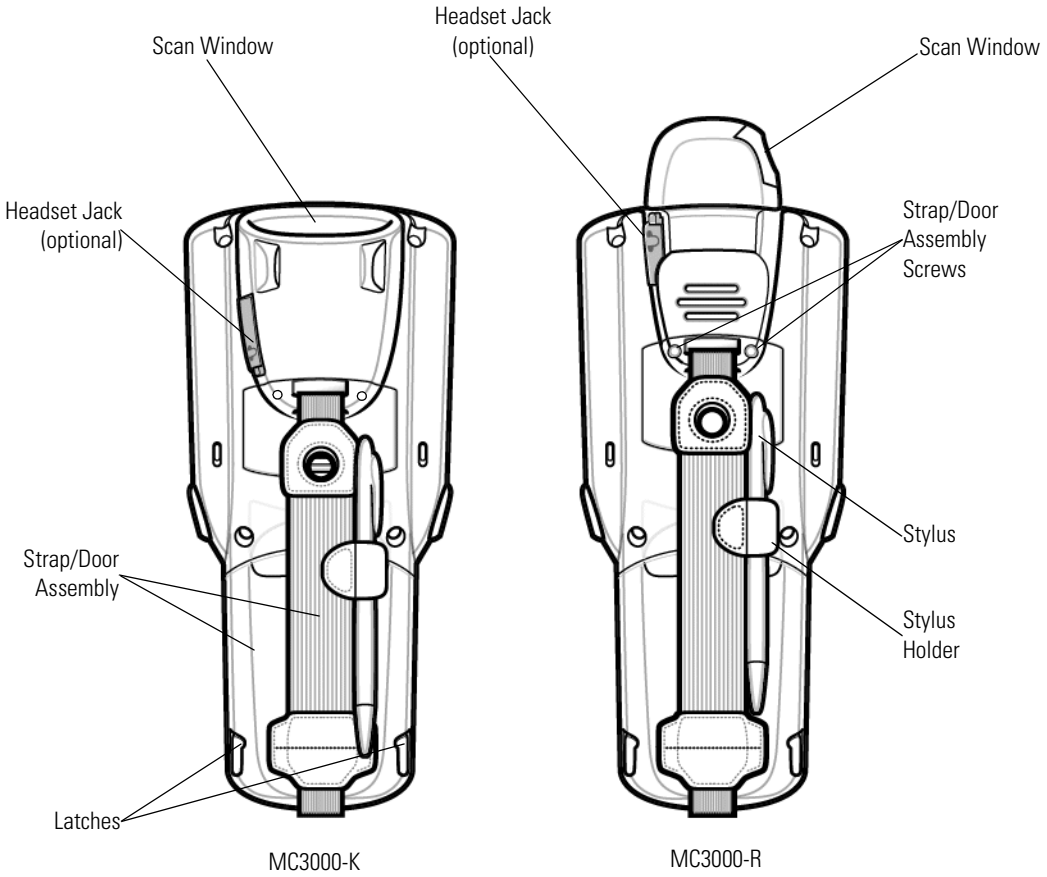


Figure 1-2. MC3000 Imager and MC3000 Laser Mobile Computers (Back View)

Rotating Scan Turret

The MC3000-R mobile computer features a Rotating Scan Turret with three position stops. This feature offers greater scanning flexiblilty.

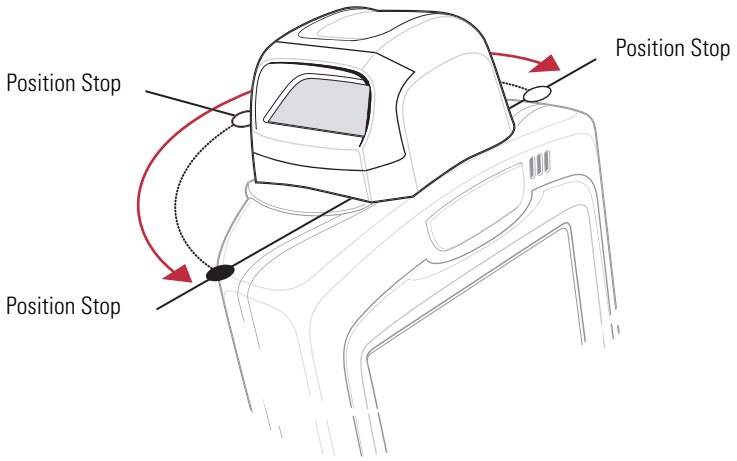


Figure 1-3. Rotating Scan Turret

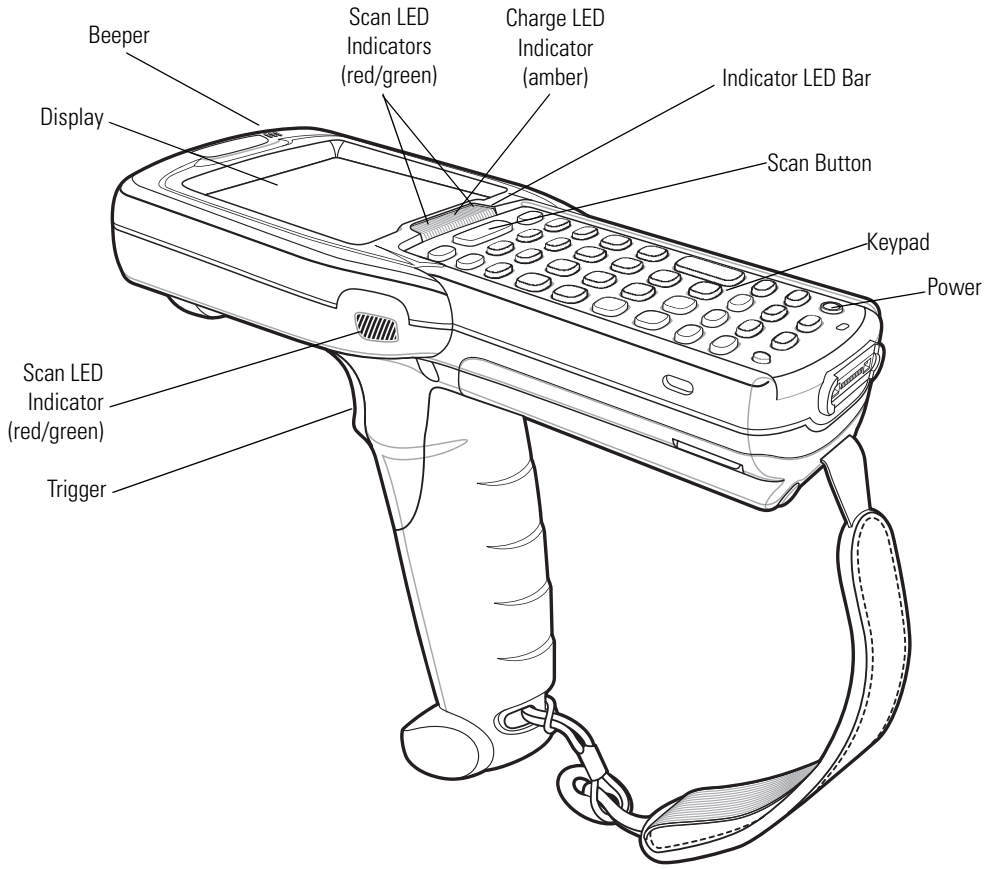


Figure 1-4. MC3000-G Mobile Computer

Mobile Computer Startup

To start using the mobile computer:

- Install the main battery.
- Charge the main battery and the backup battery.
- Start the mobile computer.

Install Main Battery

If the main battery is charged, the mobile computer can be used immediately. If the main battery is not charged, see *Battery Charging on page 1-9*. To remove the main battery, see *Main Battery Removal on page 1-12*.

To install the main battery:

1. Rotate the latches to the open position.

   CAUTION *Do not lift up on the latches when removing the Strap/Door Assembly. Lift up on the Hand Strap only.*

2. Pull on the strap to lift the Strap/Door Assembly off, bottom first.

3. Insert the battery into the slot, bottom first and press the battery gently into the slot. The battery clip locks the battery into place.
4. With the latches in the open position, replace the Strap/Door Assembly, top first and press to close.
5. Rotate the latches (to the lock position) to lock the Strap/Door Assembly in place.

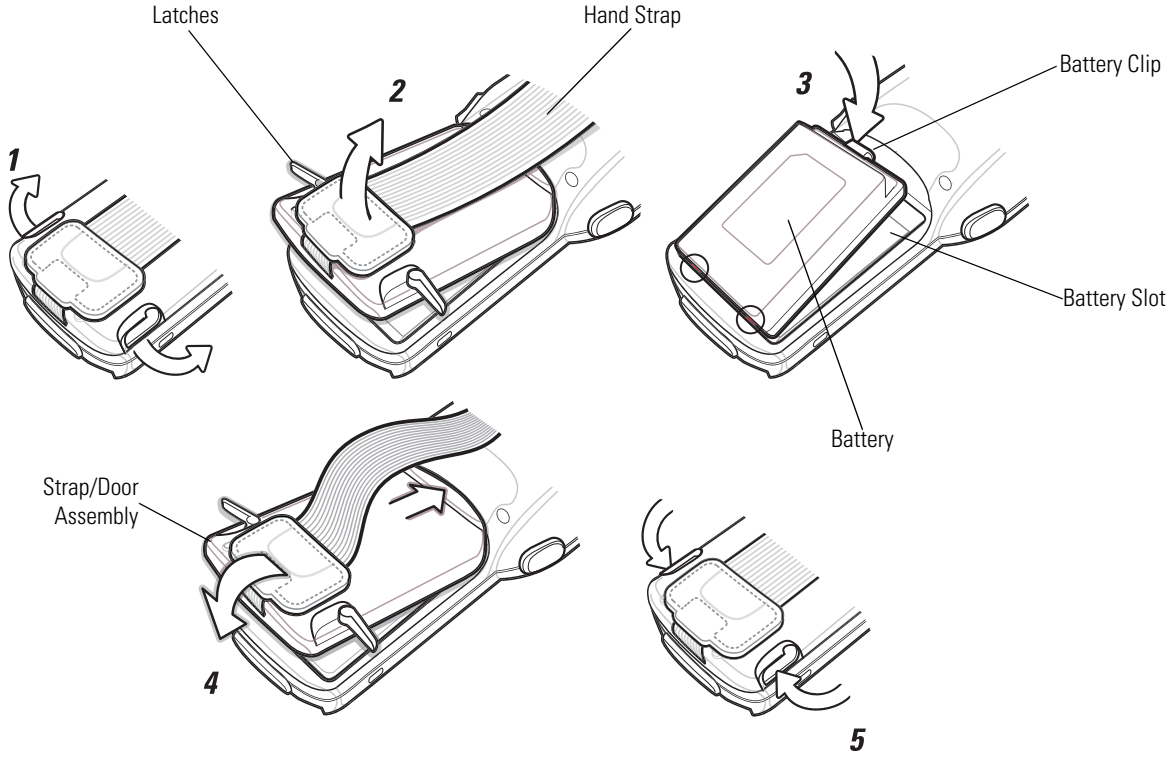


Figure 1-5. Main Battery Installation (MC3000-K/R)

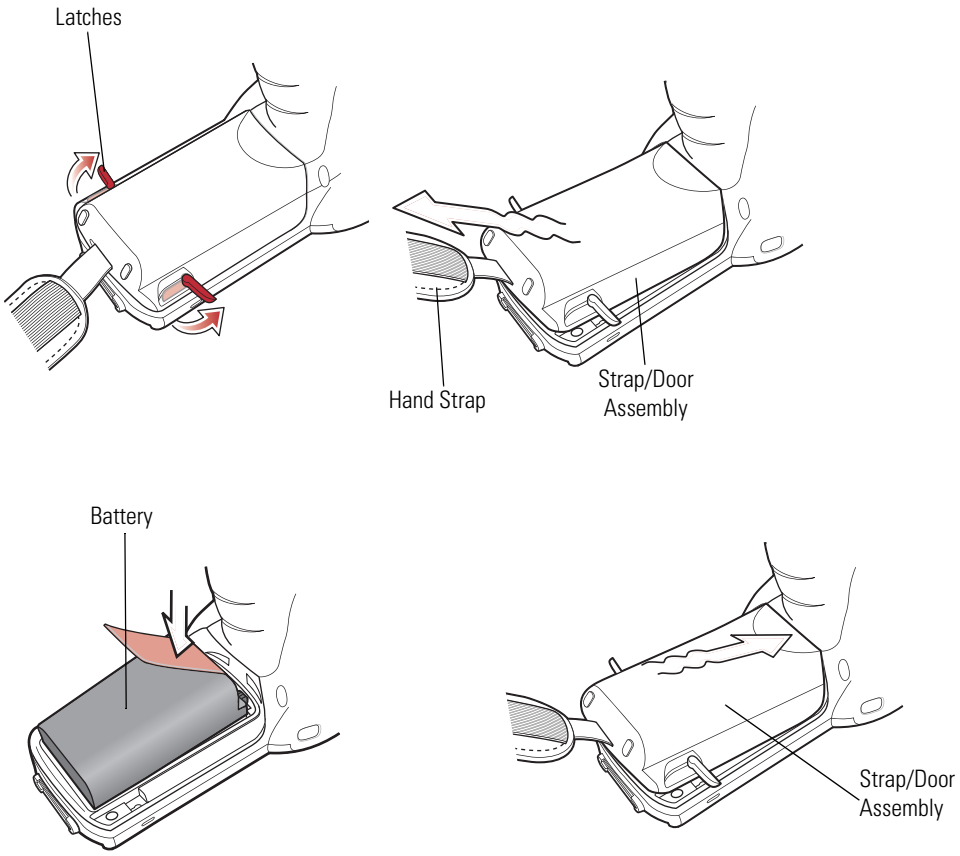


Figure 1-6. Main Battery Installation (MC3000-G)

Battery Charging

Use the mobile computer cradles, cables and spare battery chargers to charge the mobile computer main battery.

The main battery can be charged before insertion into the mobile computer or after it is installed. There are two main batteries for the MC3000, the Standard Battery and the Extended Life Battery. Either battery can be used, but the Extended Life Battery requires a different Strap/Door Assembly. Use one of the spare battery chargers to charge the main battery (out of the mobile computer) or one of the cradles to charge the main battery while it is installed in the mobile computer.

Before using the mobile computer for the first time, fully charge the main battery. When the main battery is fully charged, the amber Charge LED Indicator remains lit. For more information see *Table 1-2 on page 1-10*. Charge time for the Standard Battery is usually less than four hours and charge time for the Extended Life Battery is usually less than six hours.

The mobile computer is equipped with a memory backup battery which automatically charges from the fully-charged main battery. When the mobile computer is used for the first time, the backup battery requires approximately 15 hours to fully charge. This is also true any time the backup battery is discharged which occurs when the main battery is removed for several hours. The backup battery retains data in memory for at least 30 minutes after the mobile computer main battery is removed. When the mobile computer reaches very low battery state, the combination of main battery and backup battery retains data in memory for at least 72 hours.

Note

Do not remove the main battery within the first 15 hours of use. If the main battery is removed before the backup battery is fully charged, data may be lost.

Batteries must be charged within the 32° to 104° F (0° to +40° C) ambient temperature range.

The following accessories can be used to charge batteries:

- Cradles (and a power supply):
  - Single Slot Serial/USB Cradle
  - Four Slot Cradles.
- Cables (and a power supply):
  - USB Client Charge Cable
  - Serial (RS232) Charge Cable.
- Spare Battery Chargers (and a power supply):
  - Single Slot Serial/USB Cradle
  - Four Slot Spare Battery Charger
  - Universal Battery Charger (UBC) Adapter.

To charge the mobile computer using the cradles:

1. Insert the mobile computer into a cradle. See *Chapter 4, Accessories* for accessory setup.
2. The mobile computer starts to charge automatically. The amber Charge LED Indicator indicates the charge status. See *Table 1-2 on page 1-10* for charging indications.

To charge the mobile computer using the cables:

1. Connect the MC3000 Communication/Charge Cable to the appropriate power source and connect to the mobile computer. See *Chapter 4, Accessories* for accessory setup.
2. The mobile computer starts to charge automatically. The amber Charge LED Indicator indicates the charge status. See Table 1-2 for charging indications.

Table 1-2. Mobile Computer LED Charge Indicators

LED	Indication
Off	Mobile computer not placed correctly in the cradle; charge cable not connected correctly; charger is not powered.
Fast Blinking Amber	Error in charging; check placement of the mobile computer.
Slow Blinking Amber	Mobile computer is charging.
Solid Amber	Charging complete. Note: When the battery is initially inserted in the mobile computer, the amber LED flashes once if the battery power is low or the battery is not fully inserted.

Spare Battery Charging

There are three accessories that can be used to charge a spare battery:

- Single Slot Serial/USB Cradle
- Four Slot Spare Battery Charger
- UBC Adapter.

To charge a spare battery:

1. Connect the charging accessory to the appropriate power source. See *Chapter 4, Accessories* for setup instructions.
2. Insert the spare battery into the spare battery charging slot and gently press down on the battery to ensure proper contact.

The battery starts to charge automatically. The amber charge LED Indicator lights to indicate the charge status. See *Chapter 4, Accessories* for charging indications. The Standard Battery usually fully charges in less than four hours and the Extended Life Battery usually fully charges in less than six hours.

Stylus

Use the stylus for selecting items and entering information on the screen. The stylus functions as a pen and a mouse. Tap the touch screen once with the stylus to select options and open menu items.

To remove the stylus, slide the stylus out of the stylus holder. To store the stylus, push the stylus back into the stylus holder.

Starting the Mobile Computer

When the mobile computer is powered on for the first time, it initializes. The *Symbol Splash* screen appears for a short period of time, followed by the *Calibration* screen.

Figure 1-7. Symbol Splash Screen

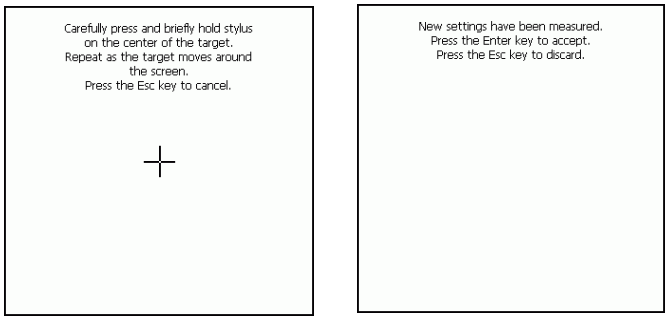
After the calibration procedure is performed the factory settings launch the *Demo window*. Application specific shells may provide application specific windows instead of the *Demo window*. These screens also appear when a cold boot is performed.

If the mobile computer does not power on, see *Resetting the Mobile Computer on page 2-23*.

Calibration Screen

Use the *Calibration* screen to align the touch screen:

1. Remove the stylus from the stylus holder.
2. Carefully press and briefly hold the stylus tip on the center of the *Calibration* screen target. Repeat the procedure as the target moves and stops at different locations on the screen. This enters the new calibration settings.



Calibration Screen

Confirm Calibration Resave Screen

Figure 1-8. Calibration Screen

3. Once all of the new calibration settings are input, tap the screen or press the ENTER button to save the new calibration settings. Press ESC to discard the new calibration settings.

Demo Window

The *Demo window* is the factory default menu. On initial power up (or on a warm or cold boot) the *Demo window* appears. These sample/demo applications are intended to be used by application developers as application development examples. These

applications were not developed to support end users. Refer to the *Symbol Application Guide* for information about the *Demo window* applications.

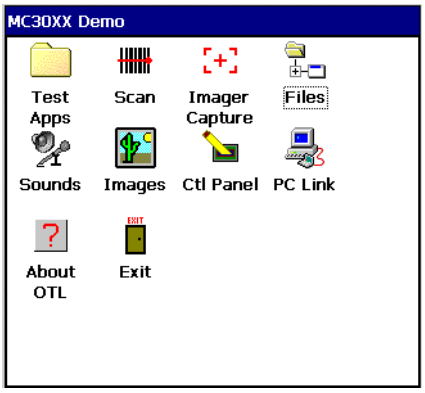


Figure 1-9. Demo Window

Waking the Mobile Computer

The wakeup condition settings are used to define what actions wake up the mobile computer. The settings are configurable so they are subject to change/update. For more information see, *Waking the Mobile Computer on page 2-24*.

Main Battery Removal

Before removing the main battery, press the red **Power** button to turn off the screen. This sets the mobile computer to suspend mode.

To remove the main battery:

1. Rotate the latches to the open position.

   Do not lift up on the latches when removing the Strap/Door Assembly. Lift up on the Hand Strap only.

   CAUTION

2. Lift the Hand Strap to lift the Strap/Door Assembly off, bottom first.
3. Release battery:
   a. On the MC3000-K/R, release the battery clip (at the top of the battery) and lift the battery out top first.

b. On the MC3090-G, pull the battery pull tab to unclip the battery and lift the battery out top first. If the battery does not have a pull tab, use the stylus to unclip the battery and then lift the battery.

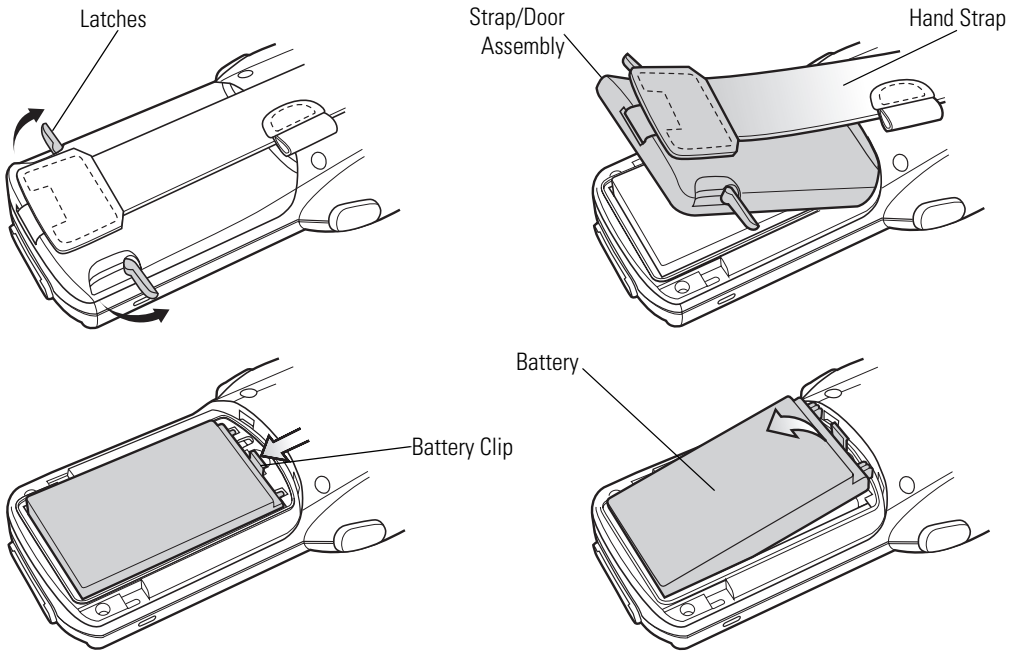


Figure 1-10. Main Battery Removal (MC3000-K/R)

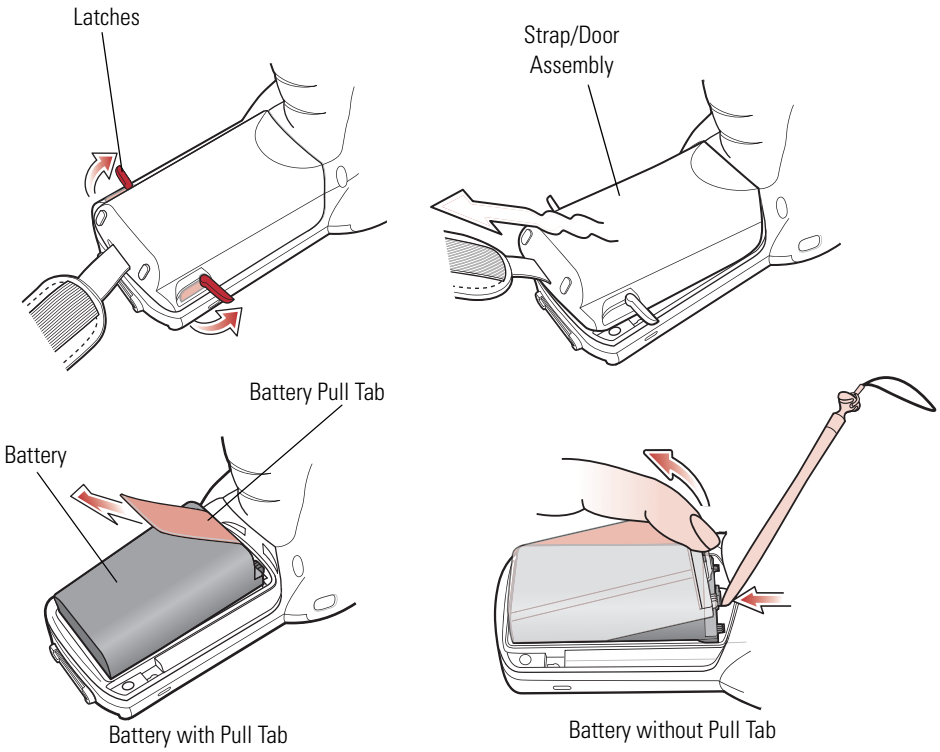


Figure 1-11. Main Battery Removal (MC3090-G)

Note

The SD card holder is located under the battery. To install the SD card, see *Secure Device Card on page 4-13*.

Strap/Door Assembly Removal and Replacement (MC3000-K/R)

The Strap/Door Assembly consists of a hand strap and the battery door. There are two versions of this assembly, one for the Standard Battery and one for the Extended Life Battery. Before removing the Strap/Door Assembly, press the red **Power** button to turn off the screen and set the mobile computer to suspend mode.

To remove the Strap/Door Assembly:

1. Rotate the latches to the open position.

CAUTION

Do not lift up on the latches when removing the Strap/Door Assembly. Lift up on the Hand Strap only.

2. Lift the Hand Strap to lift the Strap/Door Assembly off, bottom first.
3. Use a #00 Phillips screwdriver to remove the screws.
4. Lift the mounting clip.
5. Slide the mounting clip out of the strap loop.

Reverse the procedure to replace the Strap/Door Assembly.

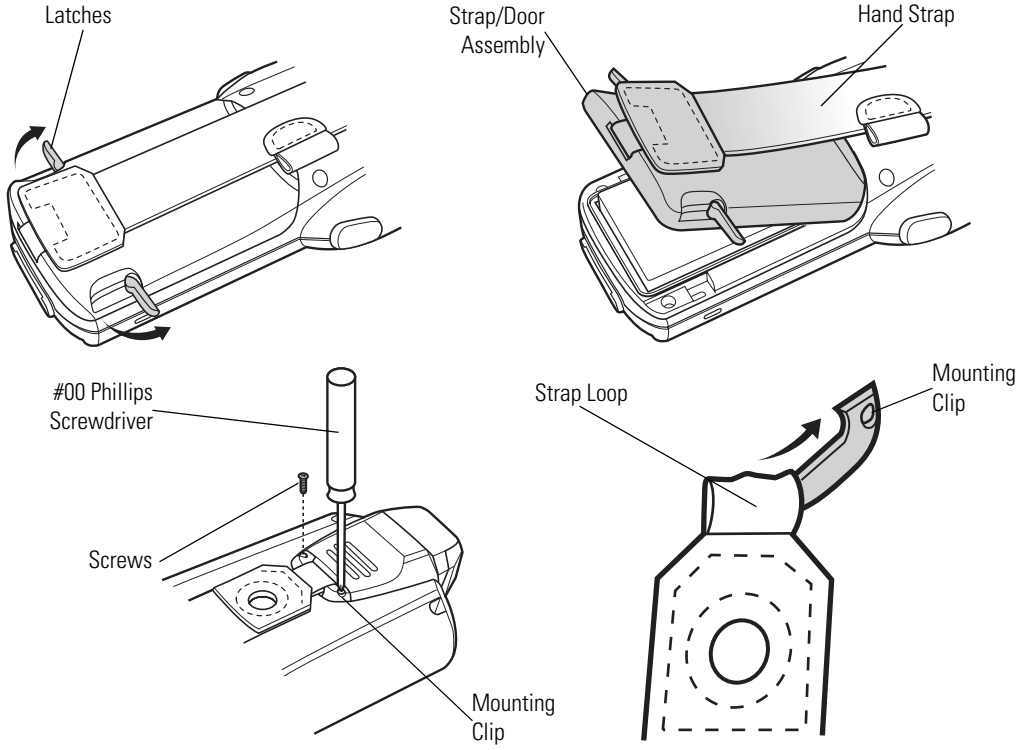


Figure 1-12. Strap/Door Removal and Replacement (MC3000-K/R)

Strap/Door Assembly Removal and Replacement (MC3090-G)

The Strap/Door Assembly consists of a hand strap and the battery door. Before removing the Strap/Door Assembly, press the red **Power** button to turn off the screen and set the mobile computer to suspend mode.

To remove the Strap/Door Assembly:

1. Slip the button through the loop.
2. Remove loop section from handle.
3. Rotate the latches to the open position.

CAUTION

Do not lift up on the latches when removing the Strap/Door Assembly. Lift up on the Hand Strap only.

4. Lift the Hand Strap to lift the Strap/Door Assembly off, bottom first.

Reverse the procedure to replace the Strap/Door Assembly.

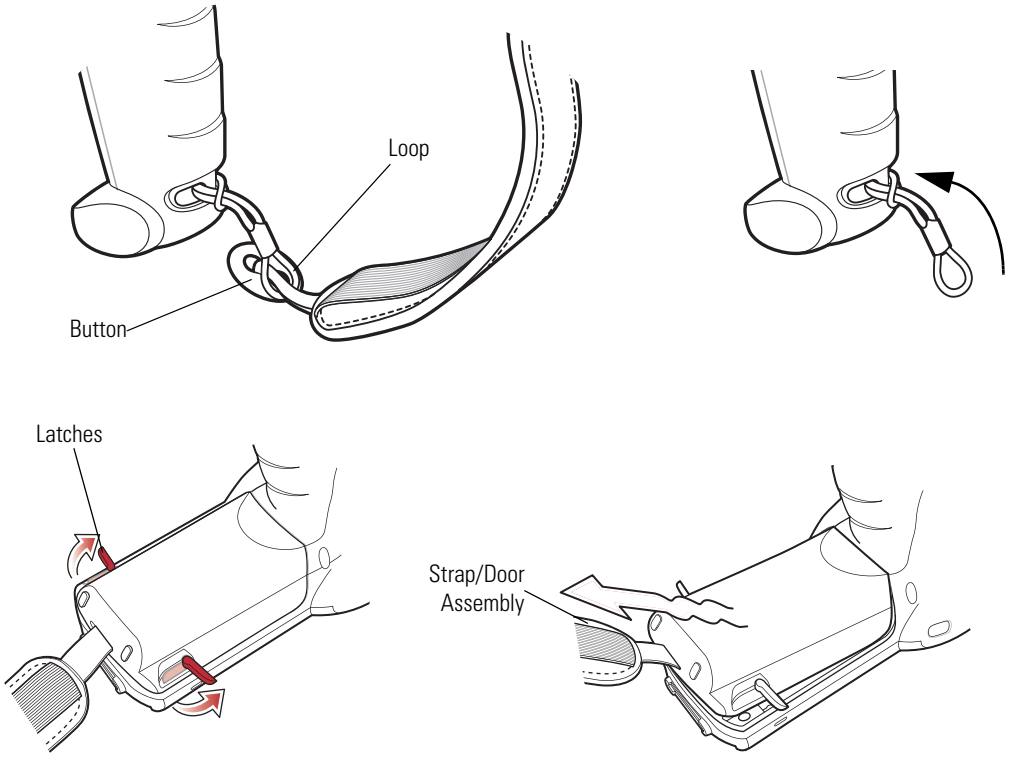


Figure 1-13. Strap/Door Removal and Replacement (MC3090-G)

2

Operating the MC3000

Chapter Contents

Introduction 2-3
Power Button 2-3
Keypads 2-3
Keypad Special Functions 2-3
28-Key Keypad 2-4
38-Key Keypad 2-6
48-Key Keypad 2-8
Demo Window 2-10
Desktop Window 2-10
Taskbar 2-11
Battery Unknown Icon 2-12
Start Button 2-12
Programs Menu 2-13
Keyboard Input Panel Button 2-13
Desktop Display Button 2-13
Task Manager and Properties 2-14
Task Manager 2-14
Properties 2-14
Entering Information 2-15
Entering Information Using Keypad 2-15
Entering Information Using the Keyboard Input Panel 2-16
Entering Data via the Bar Code Scanner 2-16
Data Capture 2-16
Laser Scanning 2-16

Scan LED Indicators 2-17
Scanning Considerations 2-17
Laser Decode Ranges 2-17
Imaging 2-19
Imager 2-19
Operational Modes 2-19
Decode Mode 2-19
Image Capture 2-19
Aiming the Mobile Computer 2-19
Imager Decode Ranges 2-20
Resetting the Mobile Computer 2-23
Performing a Warm Boot 2-23
Performing a Cold Boot 2-23
Waking the Mobile Computer 2-24
File System Directory Structure 2-24
Connecting to the Internet on a Wireless LAN Network 2-25

Introduction

This chapter provides basic instructions for using the mobile computer and navigating the mobile computer software.

Power Button

Press the red **Power** button to toggle the mobile computer between suspend and resume. When the screen is off the mobile computer is in suspend mode and when the screen is on the mobile computer is on.

Keypads

The mobile computer is available with the following keypad configurations:

- 28-key keypad
- 38-key keypad
- 48-key keypad.

Note

For information about using the soft keyboard input panel. For more information, see *Entering Information Using the Keyboard Input Panel on page 2-16*.

Keypad Special Functions

The keypad special functions are color coded on the keypads. For example, on the 38-key keypad, the display contrast icon is blue indicating that the blue function key must be selected first along with the F6 key, to increase the display contrast.

Table 2-1. Keypad Special Functions

Icon	28-Key Keystrokes	38-Key Keystrokes	48-Key Keystrokes	Special Function
◑+	Blue function key and **period**.	Blue function key and **F6**	Blue function key and **N**	Increases display contrast setting, darkens the display (on monochrome units only).
◑-	Blue function key and **BKSP**.	Blue function key and **F9**	Blue function key and **S**	Decreases display contrast setting, lightens the display (on monochrome units only).
+🔊	Blue function key and the up arrow.	Blue function key and **F7**	Blue function key and **R**	Increases scan decode beeper volume.
-🔊	Blue function key and down arrow.	Blue function key and **F10**	Blue function key and **W**	Decreases scan decode beeper volume.

Note

Mobile computers with color screens do not have contrast settings.

28-Key Keypad

The 28-key keypad contains a **Power** button, application keys, scroll keys and function keys. The keypad is color-coded to indicate the alternate function key (blue) values and the alternate **ALPHA** key (orange) values. Note that keypad functions can be changed by an application so the mobile computer keypad may not function as described. See *Table 2-2 on page 2-4* for key and button descriptions and *Table 2-1 on page 2-3* for the keypad special functions.

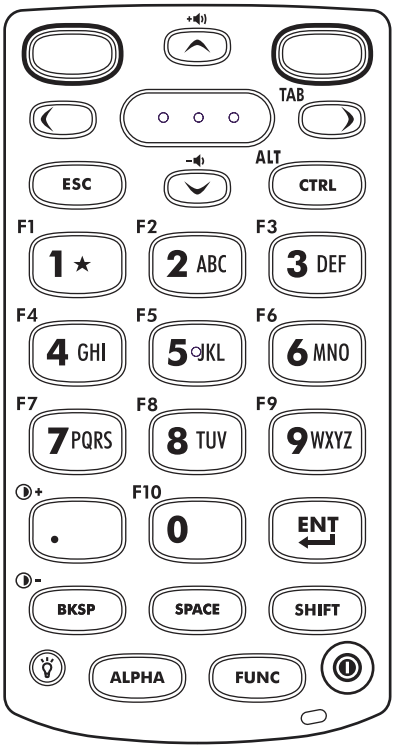


Figure 2-1. 28-Key Keypad

Table 2-2. 28-Key Descriptions

Key	Description
Power (red)	Powers the mobile computer screen on and off (resume and suspend).
Green Circle	Programmable application function key by default.
Red Circle	Programmable application function key by default.
Scan (yellow)	Used in scanning applications, press to scan a bar code. This key has the same function as activating the side mounted scan buttons.
Scroll Up and Down	Moves up and down from one item to another. Increases/decreases specified values.

Table 2-2. 28-Key Descriptions (Continued)

Key	Description
Scroll Left and Right	Moves left and right from one item to another. Increases/decreases specified values. Produces a **TAB** when the blue **FUNC** key is activated and the right arrow key is pressed.
ESC	Produces the **ESC** function by default.
CTRL	Press and release the CTRL key to activate the keypad alternate CTRL functions. The icon appears on the taskbar. Press and release the CTRL key again to return to the default keypad functions.
Numeric/Alpha/Special Function	Numeric, alpha or special function keys. Numeric by default. Produces a special function when the blue **FUNC** key is activated. Produces alpha values when the orange **ALPHA** key is activated. In Alpha state, produces the lower case alphabetic characters on the key. Each key press produces the next alphabetic character in sequence. For example, press and release the **ALPHA** key and then press the **4** key once to produce the letter 'g'; press and release the **ALPHA** key and then press the **4** key three times to produce the letter 'i'. When the **SHIFT** key is pressed in Alpha state, the upper case alphabetic characters on the key are produced. For example, press and release the **ALPHA** key, press and hold the **SHIFT** key and then press the **4** key once to produce the letter 'G'; press and release the **ALPHA** key, press and hold the **SHIFT** key and then press the **4** key three times to produce the letter 'I'.
Period/Decimal Point	Produces a period for alpha entries and a decimal point for numeric entries by default. Produces the **F10** function when the blue **FUNC** key is activated.
Enter	Executes a selected item or function.
BKSP	**BKSP**, backspace function by default.
SPACE	**SPACE**, space function by default.
Shift	Press and release the **SHIFT** key to activate the keypad alternate SHIFT functions. The icon appears on the taskbar. Press and release the **SHIFT** key again to return to the default keypad functions.
ALPHA (orange)	Press the orange **ALPHA** key to access the alternate **ALPHA** characters (shown on the keypad in orange). The ALP icon appears on the taskbar. Press and release the orange **ALPHA** key again to return to the default keypad functions.
FUNC (blue)	Press and release the blue **FUNC** key to activate the keypad alternate functions (shown on the keypad in blue). The F icon appears on the taskbar. Press and release the blue **FUNC** key again to return to the default keypad functions.
Display backlight	Toggles the display backlight on and off.

38-Key Keypad

The 38-key keypad contains a **Power** button, application keys, scroll keys and function keys. The keypad is color-coded to indicate the alternate function key (blue) values. Note that keypad functions can be changed by an application so the mobile computer keypad may not function as described. See *Table 2-3 on page 2-6* for key and button descriptions and *Table 2-1 on page 2-3* for the keypad special functions.

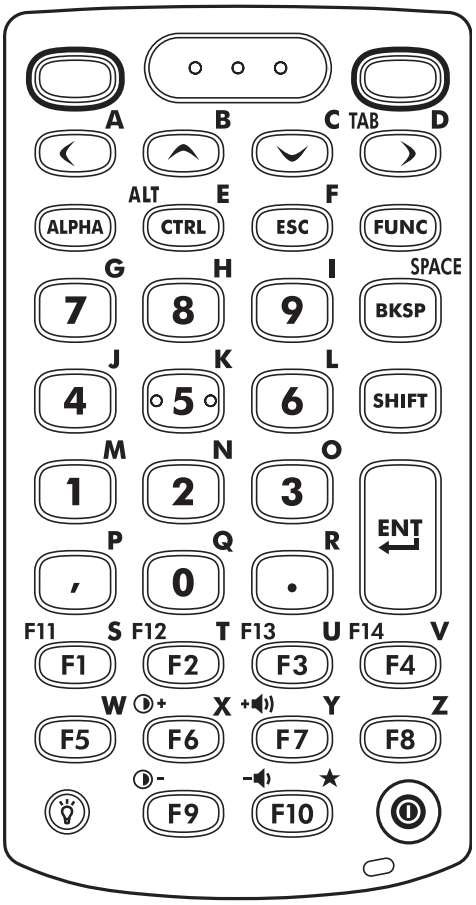


Figure 2-2. 38-Key Keypad

Table 2-3. 38-Key Descriptions

Key	Description
Power (red)	Powers the mobile computer screen on and off (resume and suspend).
Green Circle	Programmable application function key by default.
Red Circle	Programmable application function key.

Table 2-3. 38-Key Descriptions (Continued)

Key	Description
Scan (yellow)	Used in scanning applications, press to scan a bar code.
Scroll Left and Right	Moves left and right from one item to another by default. Produces a **TAB** when the blue **FUNC** key is activated and the right arrow key is pressed.
Scroll Up and Down	Moves up and down from one item to another by default.
ALPHA (orange)	Press the orange **ALPHA** key to access the alternate **ALPHA** characters (shown on the keypad in orange). The ALP icon appears on the taskbar. Press and release the orange **ALPHA** key again to return to the default keypad functions.
CTRL	Press and release the **CTRL** key to activate the keypad alternate **CTRL** functions. The icon appears on the taskbar. Press and release the **CTRL** key again to return to the default keypad functions.
CLEAR	Clears inputs.
FUNC (blue)	Press and release the blue **FUNC** key to activate the keypad alternate functions (shown on the keypad in blue). The F icon appears on the taskbar. Press and release the blue **FUNC** key again to return to the default keypad functions.
Numeric/Alpha/Special Function	Press for the default numeric value. Produces alpha values when the orange **ALPHA** key is activated.
BKSP/SPACE	**BKSP**, backspace function by default. Produces the **SPACE** function when the orange **ALPHA** key is activated.
SHIFT	Press and release the **SHIFT** key to activate the keypad alternate **SHIFT** functions. The icon appears on the taskbar. Press and release the **SHIFT** key again to return to the default keypad functions.
Enter	Executes a selected item or function.
Period/Decimal Point	Produces a period for alpha entries and a decimal point for numeric entries. Produces alpha values when the orange **ALPHA** key is activated.
Comma	Produces a comma by default. Produces alpha values when the orange **ALPHA** key is activated.
Special Function/Alpha	Special function by default or when the blue **FUNC** key is activated. Produces alpha values when the orange **ALPHA** key is activated.
Display backlight	Toggles the display backlight on and off.

48-Key Keypad

The 48-key keypad contains a **Power** button, application keys, scroll keys and function keys. The keypad is color-coded to indicate the alternate function key (blue) values. Note, that keypad functions can be changed by an application so the mobile computer keypad may not function as described. See *Table 2-3 on page 2-6* for key and button descriptions and *Table 2-1 on page 2-3* for the keypad special functions.

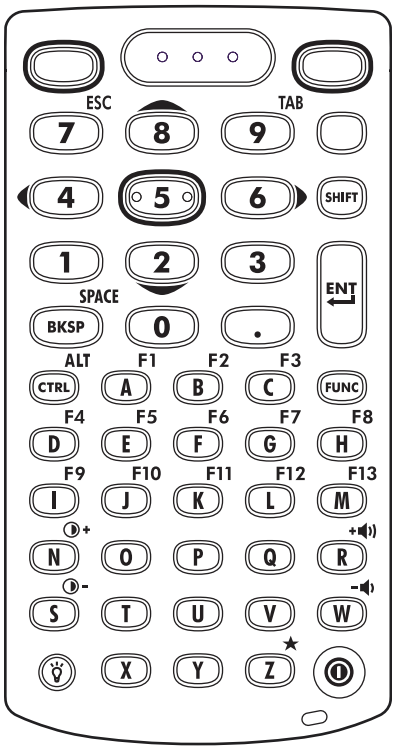


Figure 2-3. 48-Key Keypad

Table 2-4. 48-Key Descriptions

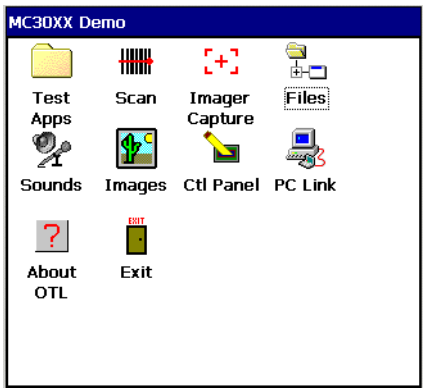
Key	Description
Power (red)	Powers the mobile computer screen on and off (resume and suspend).
Green Circle	Unassigned application function key by default.
Red Circle	Unassigned application function key.
Scan (yellow)	Scan key, used for scanning applications.
Orange	Press the orange key to access the alternate navigation and selection functions. The ALP icon appears on the taskbar. Press and release the orange key again to return to the default keypad functions.

Table 2-4. 48-Key Descriptions (Continued)

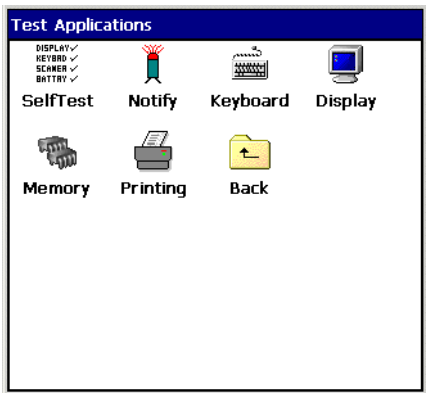
Key	Description
Numeric/Scroll/Select 1 2 . . .	Numeric, scroll, select keys. Numeric by default. With the orange key activated, the **2**, **4**, **6**, and **8** keys produce scroll functions and the **5** key produces a select function. With the **FUNC** key activated, **7** produces the **ESC** function and **9** produces the **TAB** function.
Shift SHIFT	Press and release the **SHIFT** key to activate the keypad alternate **SHIFT** functions. The ↑ icon appears on the taskbar. Press and release the **SHIFT** key again to return to the default keypad functions.
Enter ENT	Executes a selected item or function.
BKSP/SPACE BKSP	**BKSP**, backspace function by default. Produces the **SPACE** function when the blue **FUNC** key is activated.
Period/Decimal Point .	Produces a period for alpha entries and a decimal point for numeric entries.
Control CTRL	Press and release the **CTRL** key to activate the keypad alternate **CTRL** functions. The ^ icon appears on the taskbar. Press and release the **CTRL** key again to return to the default keypad functions. Press and release the blue **FUNC** key and then the **CTRL** key to activate the **ALT** functions. The ALT icon appears on the taskbar. Press and release the **CTRL** key two times to return to the default keypad functions.
Alpha/Special Function A B C . . .	Alpha by default. Special function by default when the blue **FUNC** key is activated.
FUNC (blue) FUNC	Press and release the blue **FUNC** function key to activate the keypad alternate functions (shown on the keypad in blue). The **F** icon appears on the taskbar. Press and release the blue **FUNC** function key again to return to the default keypad functions.
Display Backlight 💡	Toggles the display backlight on and off.

Demo Window

On initial power up (or on a warm or cold boot) the *Demo window* appears. This window links to the *Test Applications* window and the two windows provide the sample/demo applications. The sample/demo applications are intended to be used by application developers as application development examples. These applications were not developed to support end users. Refer to the *Symbol Application Guide* for the *Demo window* applications.



Demo Window



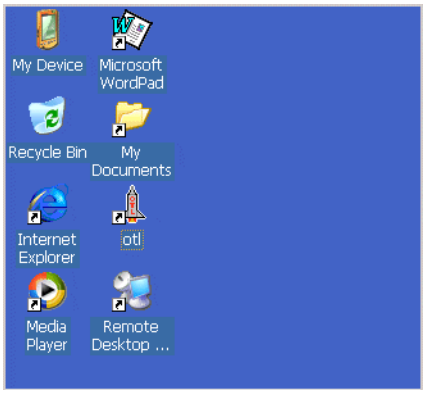
Test Applications Window

Figure 2-4. Demo Window

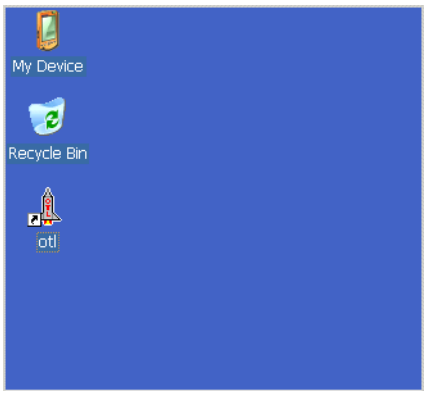
The *Demo window* is the factory default launcher menu. Application specific shells may vary.

Desktop Window

To access the desktop tap the *Exit* icon on the *Demo window* or tap the *Desktop Display* button. See *Figure 2-6 on page 2-11* for the *Desktop Display* button location. The desktop displays the applications available with the Windows CE .NET 5.0 Professional and with the Windows CE .NET 5.0 Core configurations. For information on using the Microsoft® Applications refer to the *Microsoft® Applications User Guide for Symbol Devices*, p/n 72E-68197-xx.



Windows CE .NET 5.0 Professional Desktop



Windows CE .NET 5.0 Core Desktop

Figure 2-5. Desktop Window

Taskbar

The taskbar (at the bottom of the screen) displays the **Start** button, active programs, battery status and communication status. The taskbar icons are described in Table 2-5. The taskbar icons display the function status, indicate what programs are active and indicate the battery charge status. The Taskbar buttons are used to access menus, select/deselect functions or to change display windows.

- Status Icons: The status icons indicate the function key status. If the **FUNC**, **SHIFT**, **CTRL, ALT** or **ALPHA** functions are active the appropriate status icon is displayed.
- Active Programs Icons: The active applications icons are displayed on the taskbar. If more than one program is active, icons can be used to toggle between the open programs (applications). Tap on a taskbar application to maximize the application.
- AC Power/Battery Status Icons: The AC Power/Battery Status icons are shown in the taskbar to indicate the present power supply status of the mobile computer. The main battery status icons provide the battery status in 10% increments from 10% to 100%. The backup battery low icon indicates that the backup battery charge is low. See *Battery Charging on page 1-9* for backup battery charging instructions.

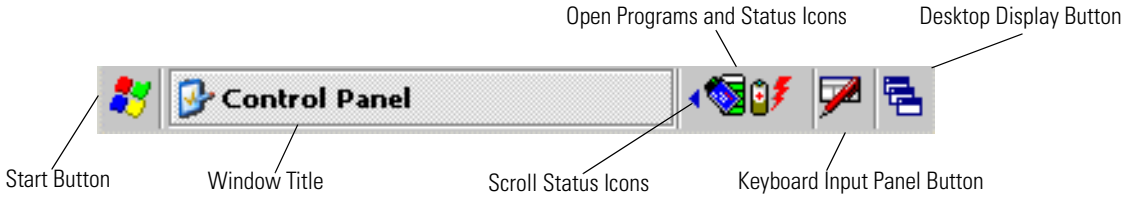


Figure 2-6. Taskbar

Table 2-5. Taskbar Icons

Icon	Description
	Indicates that the battery is charging.
	Indicates that the battery is fully charged (100% charged). The battery status icons provide the battery status in 10% increments from 10% to 100%.
	Indicates that communication with the smart battery has not been established. After a mobile computer reset, this icon may be displayed for up to 30 seconds. See, *Battery Unknown Icon on page 2-12* for additional information.
	Indicates that the backup battery is low.
	Indicates that the battery is fully charged and the mobile computer is running on external power.
	Indicates IP status. Only displays when the mobile computer is in emulation mode.
	Indicates that the ActiveSync application is running.
	Indicates that the wireless application radio is connected to a wireless LAN network with excellent signal strength. See *Table 2-10 on page 2-25* for all of the signal strength icons.
	Indicates that the wireless application radio is not connected to a wireless LAN network.
	The *Bluetooth Enabled* icon appears in the task tray and indicates that the Bluetooth radio is on.
	The *Bluetooth Disabled* icon appears in the task tray and indicates that the Bluetooth radio is off.

Table 2-5. Taskbar Icons (Continued)

Icon	Description
	The *Bluetooth Communication* icon appears in the task tray and indicates that the mobile computer is communicating with another Bluetooth device.
↑	Indicates that the **SHIFT** button function is selected.
F	Indicates that the **FUNC** button function is selected.
^	Indicates that the **CTRL** button function is selected.
ALT	Indicates that the **ALT** character selection is selected.
ALP	Indicates that the mobile computer is in **ALPHA** button mode is selected.

Battery Unknown Icon

The Battery Unknown icon displays when communication with the smart battery has not been established. As part of normal operation this icon may be displayed for 30 seconds following a mobile computer reset.

If the icon displays beyond this 30 second period:

1. Remove and re-seat the battery.
2. If after re-seating the battery, the icon remains, warm boot the mobile computer.
3. If after warm booting the mobile computer, the icon remains, then cold boot the mobile computer.
4. If after cold booting the mobile computer, the icon remains, install a new (tested and working) battery.
5. If the icon remains, return the mobile computer for servicing.

Start Button

Tap the **Start** button to launch the *Start* menu.

- *Programs*: Use to access available programs.
- *Favorites*: Displays files in *Favorites* directory.
- *Documents*: Displays files in *Documents* directory.
- *Settings*: Accesses the Control Panel, the Network and Dial-up Connections and the Taskbar and *Start* menu.
- *Help*: Accesses the Windows CE Help. Not available on mobile computers running Windows CE .NET 5.0 Core.
- *Run . . .* : Runs a program or application.

- *Suspend*: Places the mobile computer in the suspend state.

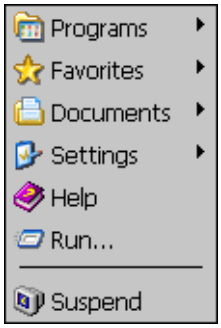
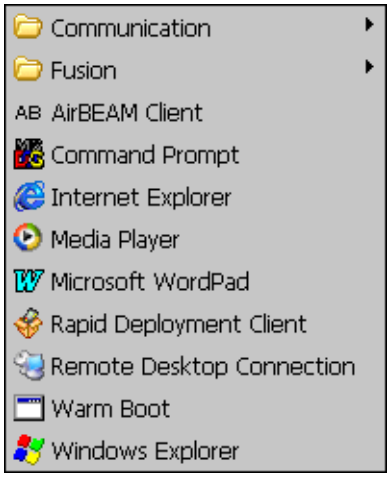


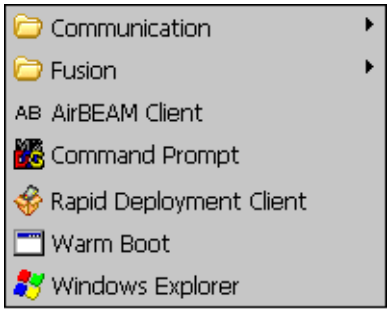
Figure 2-7. Start Menu

Programs Menu

From the *Start* menu, tap *Programs* to launch the *Programs* menu. The programs provided with Windows CE .NET 5.0 Professional and Windows CE .NET 5.0 Core are displayed in the *Programs* menu. Refer to the *Symbol Application Guide*, p/n 72-68901-xx and the *Microsoft® Applications User Guide for Symbol Devices*, p/n 72E-68197-xx for application information.



Windows CE .NET 5.0 Professional



Windows CE .NET 5.0 Core

Figure 2-8. Programs Menu

Keyboard Input Panel Button

Use the Keyboard Input Panel as an alternate input device. For more information, see *Entering Information Using the Keyboard Input Panel on page 2-16*.

Desktop Display Button

Use the *Desktop Display* button to minimize all open programs and display the desktop.

Windows CE .NET 5.0 Core desktop functions include:

- *My Computer:* Double-tap the icon to open My Computer.

- *Recycle Bin:* Deleted files remain in the recycle bin until the recycle bin is emptied. Once emptied the files cannot be retrieved.

Windows CE .NET 5.0 Professional desktop functions include:

- *My Computer:* Double-tap the icon to open My Computer.
- *Recycle Bin:* Deleted files remain in the recycle bin until the recycle bin is emptied. Once emptied the files cannot be retrieved.
- *Remote Desktop Connection:* Tap the *Remote Desktop Connection* icon to access the *Remote Desktop Connection* window.

Task Manager and Properties

Use the Task Manager to control an application's use and use the *Properties* functions to set display and clock options.

Task Manager

1. Select **FUNC** - **CTRL**, (to activate the **ALT** state) and tap on the taskbar to display the *Task Manager, Properties Selection* menu.

Figure 2-9. Task Manager, Properties Selection Menu

2. Tap *Task Manager* to display the Task Manager window.

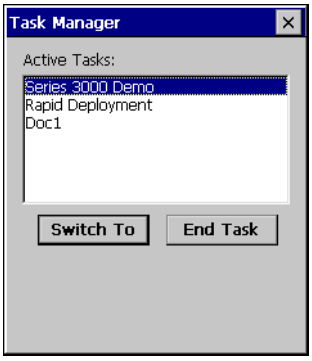


Figure 2-10. Task Manager Window

3. Tap a task in the *Active Tasks* list and tap **Switch To** to make that task the primary task, or tap **End Task** to end the selected task.
4. Tap **X** to exit the *Task Manager* window.

Properties

1. Select **FUNC** - ***CTRL***, (to activate the ALT state) and tap on the taskbar to display the *Task Manager, Properties* window, see *Figure 2-9 on page 2-14*.
2. Tap *Properties* to display the *Taskbar and Start Menu*, *General* tab.
3. This menu provides taskbar options:
   - Check the *Always on Top* checkbox to keep the taskbar on top of all other windows.
   - Check the *AutoHide* checkbox to make the taskbar disappear, touch the bottom of the display to make the taskbar return.
   - Check the *Show Clock* checkbox to display the clock on the taskbar.

4. Tap **OK** to save the settings and exit the window.

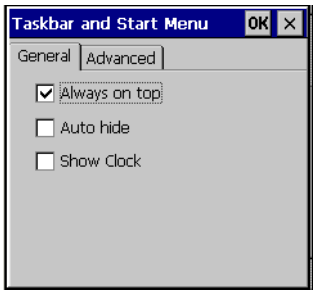


Figure 2-11. Taskbar and Start Menu, General Tab

Advanced Tab

1. Tap the *Advanced* tab to enter the *Taskbar and Start Menu*, *Advanced* tab.
2. Tap the **Clear** button to delete all of the documents listed in the *Start - Documents* entry, see *Start Button on page 2-12*. Typically this list is empty, but if there were documents in the list the **Clear** button would delete them.
3. Tap the *Expand Control Panel* checkbox to display the entire contents of the MS control panel in list form, rather than icons.

Figure 2-12. Taskbar and Start Menu, Advanced Tab

4. Tap **OK** to save the settings and exit the window.

Entering Information

To enter information:

- Use the keypad.
- Use the keyboard input panel (soft keyboard) to enter text.
- Scan bar code data into data fields.
- Use Microsoft® ActiveSync® to synchronize or copy information from the host computer to the mobile computer. For more information on ActiveSync, refer to the *MC3000 Integrator Guide*.

Entering Information Using Keypad

The alphanumeric keypads produce the 26-character alphabet (A-Z), numbers (0-9), function keys and assorted characters. The keypads default characters/functions are printed black or white, the **ALPHA** character/functions are printed orange and the **FUNC** character/functions are printed blue. See *Keypads on page 2-3* for keypad configurations, see *Table 2-1 on page 2-3* for keypad special functions and see *Table B-1 on page B-4* for the special character generation.

Entering Information Using the Keyboard Input Panel

Use the keyboard input panel (soft keyboard) to enter information in any program. To launch the keyboard input panel, tap the button on the taskbar. Tap a key to enter the value. Tap the keyboard input panel button to display or to hide the keyboard input panel.

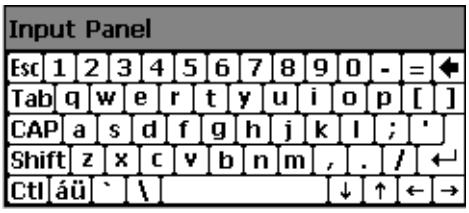


Figure 2-13. Keyboard Input Panel

Entering Data via the Bar Code Scanner

The sample bar code scanner application scans data into data fields in the same way data is entered via the keypad.

Data Capture

The mobile computer has an integrated scanner or imager that collects data by scanning bar codes.

Laser Scanning

To scan bar codes with the mobile computer:

1. Ensure that the mobile computer is loaded with a scanning application.
2. If the mobile computer is equipped with a rotating head, adjust the head prior to scanning.
3. Aim the scan window at the bar code.
4. Press the scan button or trigger. Ensure the red scan beam covers the entire bar code. The Scan LED Indicators illuminate red to indicate that the laser is on. The Scan LED Indicators illuminate green and a beep sounds to indicate a successful decode.

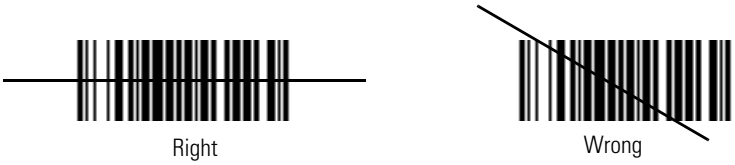


Figure 2-14. Laser Aiming

Optimal scanning distance varies with bar code density and scanner optics.

- Hold the scanner farther away for larger symbols.
- Move the scanner closer for symbols with bars that are close together.

Note

Scanning procedures depend on the application and mobile computer configuration. An application may use different scanning procedures from the one listed above.

Scan LED Indicators

The red/green Scan LED Indicators (located in the Indicator LED Bar and in the rotating turret) indicates the scan status. For the location of the Scan LED Indicators see, *Figure 1-1 on page 1-4*.

Table 2-6. Scan LED Indicators

LED Status	Indication
Off	Not scanning.
Solid Red	Laser enabled, scanning in process.
Solid Green	Successful decode.

Scanning Considerations

Scanning consists of; aim, scan and decode. Scanning performance can be optimized by considering the range and the scanning angle:

- Range
  Any scanning device decodes well over a particular working range (minimum and maximum distances from the bar code). This range varies according to bar code density and scanning device optics.

  Scanning within range brings quick and constant decodes; scanning too close or too far away prevents decodes. Move the scanner closer and further away to find the right working range for the bar codes being scanned. However, the situation is complicated by the availability of various integrated scanning modules. The best way to specify the appropriate working range per bar code density is through a chart called a decode zone for each scan module. A decode zone simply plots working range as a function of minimum element widths of bar code symbols.
- Angle
  The scan angle is important for optimizing decode performance. When laser beams reflect directly back into the scanner from the bar code, this specular reflection can “blind” the scanner.

  To avoid this, scan the bar code so that the beam does not bounce directly back. But do not scan at too sharp an angle; the scanner needs to collect scattered reflections from the scan to make a successful decode. Practice quickly shows what tolerances to work within.

Note

Contact the Symbol Support Center if chronic scanning difficulties develop. Decoding of properly printed bar codes should be quick and effortless.

Laser Decode Ranges

The decode ranges provide the decode ranges for barcodes of specified densities. Figure 2-15 shows the laser decode ranges and *Table 2-7 on page 2-18* lists the scan ranges for the selected bar code densities. The minimum element width (or “symbol density”)

is the width in mils of the narrowest element (bar or space) in the symbol. The maximum usable length of a symbol at any given range is shown below.

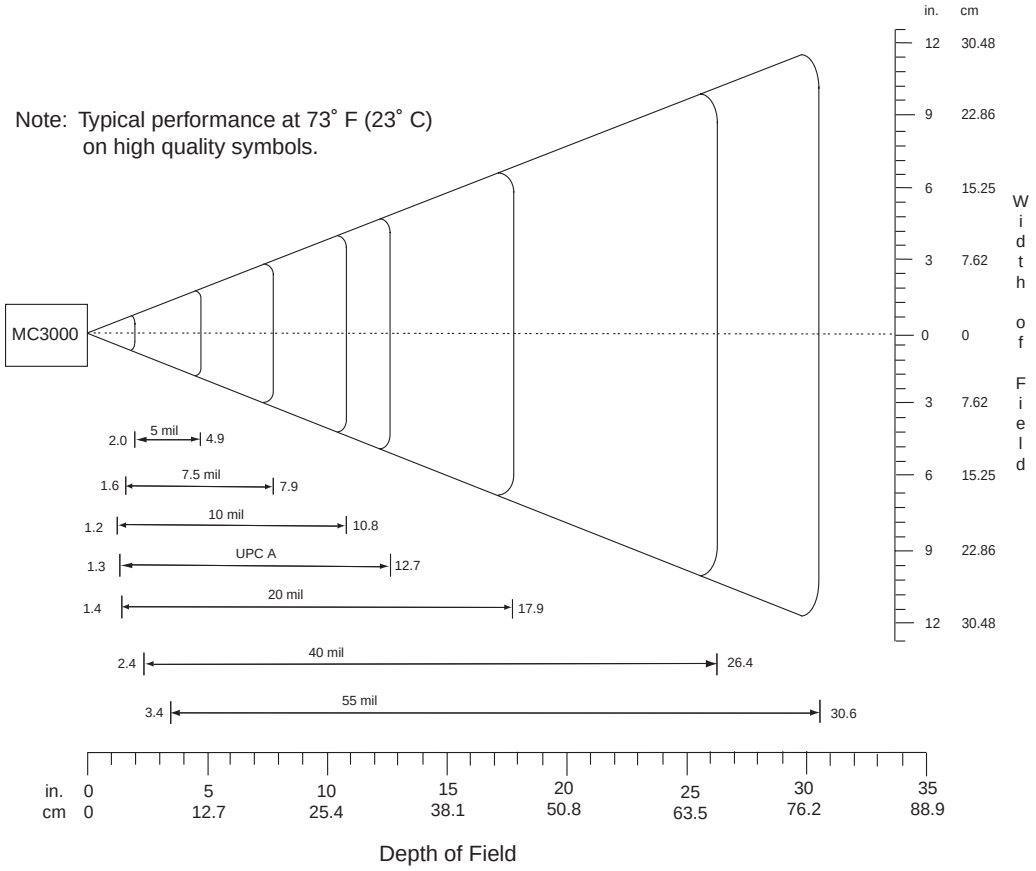


Figure 2-15. MC3000 Laser Decode Ranges

Table 2-7. MC3000 Laser Decode Ranges

Bar Code Density	Ranges	
	Near	**Far**
5.0 mil	**2.0 in** 5.08 cm	**4.9 in** 12.45 cm
7.5 mil	**1.6 in** 4.06 cm	**7.9 in** 20.07 cm
10 mil	**1.2 in** 3.05 cm	**10.8 in** 67.95cm
UPC A	**1.3 in** 3.30 cm	**12.7 in** 32.26 cm
20 mil	**1.4 in** 3.56 cm	**17.9 in** 45.47 cm
40 mil	**2.4 in** 6.10 cm	**26.4 in** 67.06 cm
55 mil	**3.4 in** 8.64 cm	**30.6 in** 77.72 cm

Imaging

The imager version of the mobile computer has the following features:

- Omnidirectional reading of a variety of bar code symbologies, including the most popular linear, postal, PDF417 and 2-D matrix code types.
- The ability to capture and download images to a host for a variety of imaging applications.
- Advanced intuitive laser aiming for easy point-and-shoot operation.

Imager

The imager uses digital camera technology to take a digital picture of a bar code, the image is stored in memory and software decoding algorithms are executed to extract the data from the image. A typical bar code decoding process is as follows:

1. Aim the mobile computer at a bar code and press the scan button or trigger.
2. The red laser aiming pattern turns on to assist in aiming the mobile computer.
3. The mobile computer turns on the secondary white LEDs to illuminate the target bar code.
4. The mobile computer takes a digital picture (image) of the bar code and stores it in memory for decoding. A beep sounds to indicate that the bar code was properly decoded.
5. Release the scan button.

This process usually occurs instantaneously. Steps 2 - 4 are repeated on poor or difficult bar codes as long as the scan button remains active.

Operational Modes

The imager version of the mobile computer has two modes of operation: Decode Mode and Image Capture Mode. Refer to the *Symbol Application Guide* for the *Series 3000 Demo* imager application.

Decode Mode

Activate the scan button, the mobile computer attempts to locate and decode enabled bar codes within its field of view. The mobile computer remains in this mode as long as the scan button remains activated, or until the bar code is decoded.

Image Capture

The imager version of the mobile computer allows image capture. In this mode, the imager displays an image until the image is snapped. The snapped image can then be saved.

Aiming the Mobile Computer

The imager version of the mobile computer projects a laser aiming pattern (shown below) similar to those used on cameras. The aiming pattern is used to position the bar code or object within the field of view.

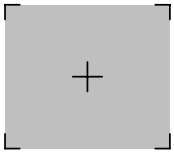


Figure 2-16. Laser Aiming Pattern

To scan a symbol using the imager:

1. Center the symbol in any orientation within the aiming pattern. Ensure the entire symbol is within the rectangular area formed by the brackets in the aiming pattern.

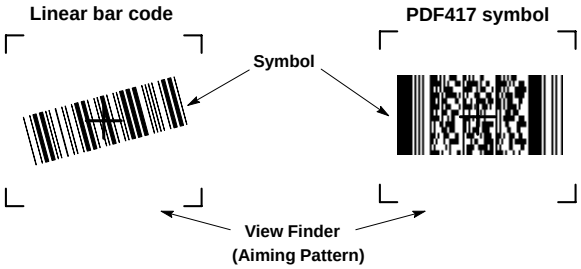


Figure 2-17. Centering Symbol in Aiming Pattern

The imager can also read a bar code presented within the aiming pattern but not centered, such as the figure below on the left. The figure on the right, however, can not be decoded.

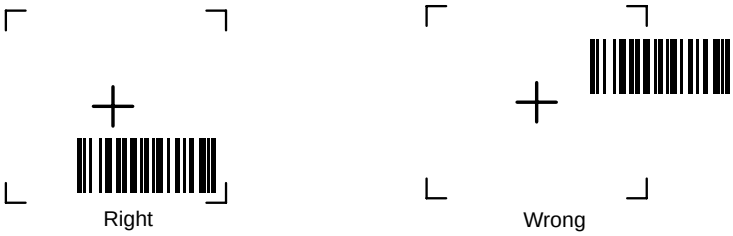


Figure 2-18. Imager Aiming

2. The aiming pattern is smaller when the Imager is closer to the symbol and larger when it is farther from the symbol. Scan symbols with smaller bars or elements (mil size) closer to the unit and those with larger bars or elements (mil size) farther from the unit.
3. Hold the mobile computer between two and nine inches (depending on symbol density) from the symbol, centering the aiming pattern cross hairs on the symbol.
4. Press the scan button. The Scan LED Indicators illuminate red to indicate that the laser is on. The Scan LED Indicators illuminate green and a beep sounds to indicate a successful decode.

Imager Decode Ranges

The decode ranges provide the decode distances for barcodes of specified densities. Figure 2-19 shows the imager decode ranges and *Table 2-8 on page 2-22* lists the scan ranges for the selected bar code densities. The minimum element width (or “symbol density”)

is the width in mils of the narrowest element (bar or space) in the symbol. The maximum usable length of a symbol at any given range is shown below.

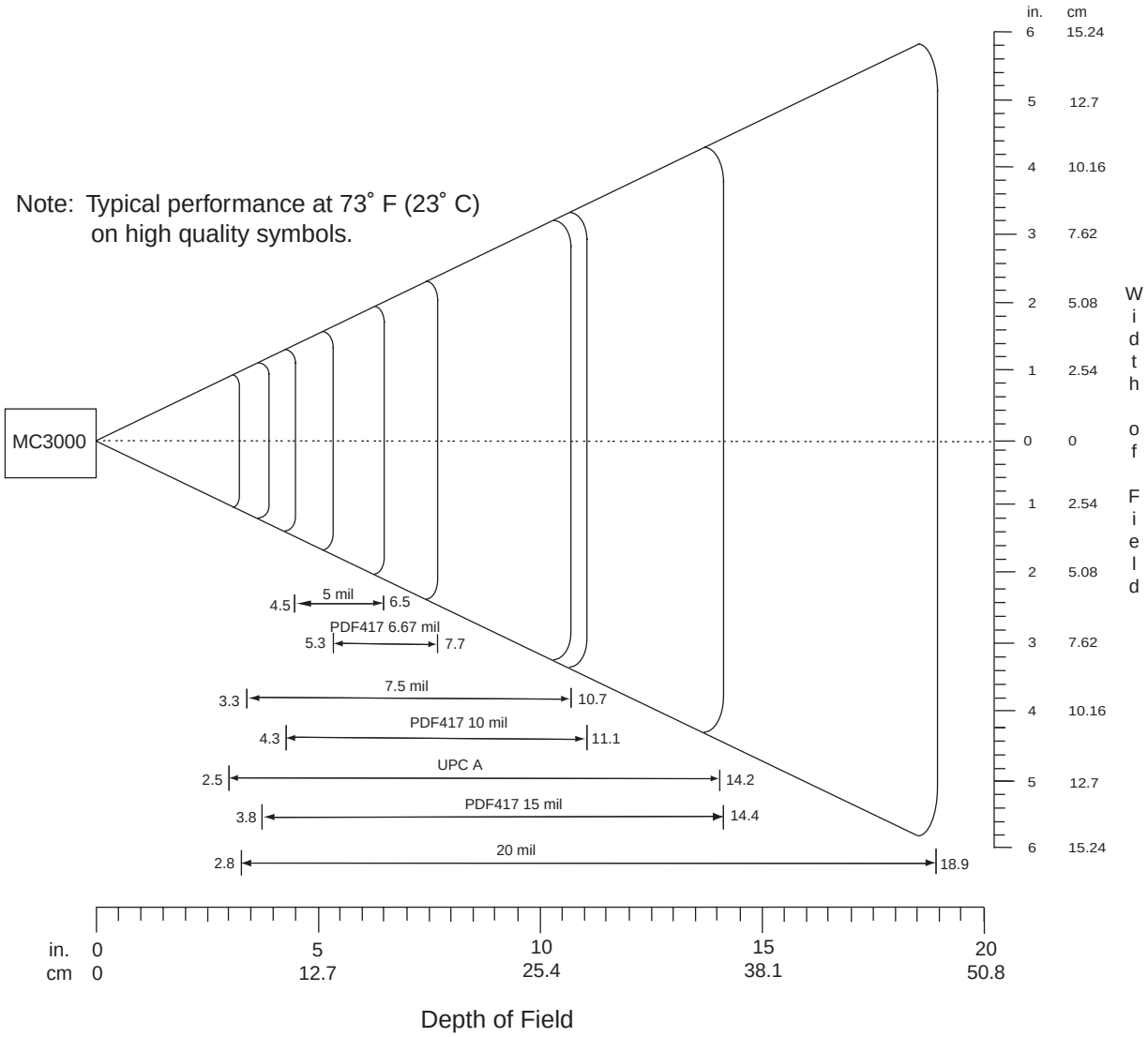


Figure 2-19. MC3000 Imager Decode Ranges

Table 2-8. MC3000 Imager Decode Ranges

Bar Code Density	Ranges	
	Near	Far
5.0 mil	**4.5 in** 11.43 cm	**6.5 in** 16.51cm
7.5 mil	**3.3 in** 8.38 cm	**10.7 in** 27.18 cm
UPC A	**2.5 in** 6.35 cm	**14.2 in** 36.07cm
20 mil	**2.8 in** 7.11 cm	**18.9 in** 48.01 cm
PDF417 6.67 mil	**5.3 in** 13.46 cm	**7.7 in** 19.56 cm
PDF417 10 mil	**4.3 in** 10.92 cm	**11.1 in** 28.19 cm
PDF417 15 mil	**3.8 in** 9.65 cm	**14.4 in** 36.58 cm

Resetting the Mobile Computer

If the mobile computer stops responding to input, reset it. There are two reset functions, warm boot and cold boot. A warm boot restarts the mobile computer by closing all running programs. All data that is not saved is lost.

A cold boot also restarts the mobile computer, but erases all stored records and entries from RAM. In addition it returns formats, preferences and other settings to the factory default settings.

Perform a warm boot first. If the mobile computer still does not respond, perform a cold boot.

Performing a Warm Boot

To perform a warm boot:

1. Press and simultaneously hold **7**, **9** and **Power**. Do not hold down any other keys or buttons.
2. As the mobile computer initializes MC3000 demo window appears.

CAUTION

Files that remain open during a warm boot may not be retained.

Performing a Cold Boot

A cold boot restarts the mobile computer and erases all user stored records and entries from RAM. *Never perform a cold boot unless a warm boot does not solve the problem.*

CAUTION

Cold boot resets the mobile computer, to the default settings. All added applications and all stored data are removed. Do not cold boot without support desk approval.

To perform a cold boot:

1. Press and simultaneously hold the **1**, **9** and **Power** keys. Do not hold down any other keys or buttons. As the mobile computer initializes, the Symbol splash window, *Figure 1-7 on page 1-11*, appears for about a minute.
2. Calibrate the touch screen. See *Calibration Screen on page 1-11* to calibrate the mobile computer screen.

Waking the Mobile Computer

The default wakeup conditions define what actions wakeup the mobile computer. These settings are configurable and the factory default settings shown in Table 2-9 are subject to change/update.

Table 2-9. Default Wakeup Conditions

Status	Description	Conditions for Wakeup
Power Off	When the mobile computer is set to the suspend mode by pressing **Power**, these actions wake the mobile computer.	1. **Power** button is pressed. 2. AC power added or removed. 3. Cradle/cable connect or disconnect.
		Any key or the **Scan button**, is pressed.
		Real Time Clock set to wake up.
Auto Off	When the mobile computer goes into suspend mode by an automatic power-off function, these actions wake the mobile computer.	1. **Power** button is pressed. 2. AC power added or removed. 3. Cradle/cable connect or disconnect.
		Any key or the **Scan button**, is pressed.
		Real Time Clock set to wake up.

File System Directory Structure

The mobile computer directory structure displays all of the file folders. The pre-installed folders are in flash file system memory and optional removable storage devices (SD storage cards).

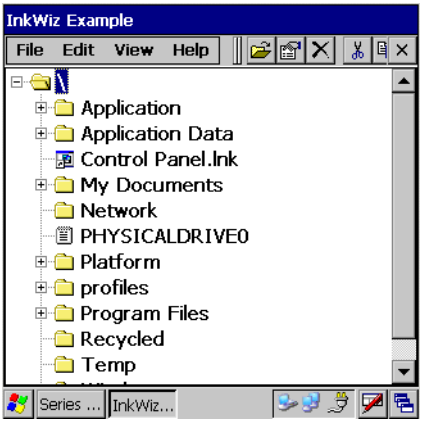


Figure 2-20. Mobile Computer Directory Structure

- *Application* and *Platform* folders are located in flash file system memory.
- The *Windows*, *Program Files*, *profiles*, and *My Documents* folders are composites, RAM based folders generated from ROM (many of these files are marked read only).
- The *Network* folder is a link to file systems mapped using the network redirector. The files do not physically reside on the mobile computer.
- The *Temp* and *Recycled* folders typically contain RAM based files.

Note

All files copied to the RAM based folders are lost after a cold boot.

Connecting to the Internet on a Wireless LAN Network

The mobile computer can connect to the Internet across a wireless LAN network. The *Wireless Applications* utility starts automatically when the mobile computer is turned on and the wireless application icon appears in the taskbar to indicate the connection and the signal strength status. Before attempting a wireless internet connection, confirm that the wireless application radio is connected to a wireless LAN network. If the WLAN radio is not connected or if the signal strength is not "Good" or better, contact the network administrator.

Table 2-10. Wireless Applications Icons, Signal Strength Descriptions

Icon	Status	Action
	Excellent signal strength	Wireless LAN network is ready to use.
	Very good signal strength	Wireless LAN network is ready to use.
	Good signal strength	Wireless LAN network is ready to use.
	Fair signal strength	Wireless LAN network is ready to use. Notify the network administrator that the signal strength is only "Fair".
	Poor signal strength	Wireless LAN network is ready to use. Performance may not be optimum. Notify the network administrator that the signal strength is "Poor".
	Out-of-network range (not associated)	No wireless LAN network connection. Notify the network administrator.
	No wireless LAN network card detected.	No wireless LAN network card detected. Notify the network administrator.

To connect using Internet Explorer (IE) tap *Start - Programs - Internet Explorer* to start Internet Explorer.

Note

IE is provided only on mobile computers provided with Microsoft® Windows CE .NET 5.0 Professional. IE is not provided on mobile computers with Microsoft® Windows CE .NET 5.0 Core.

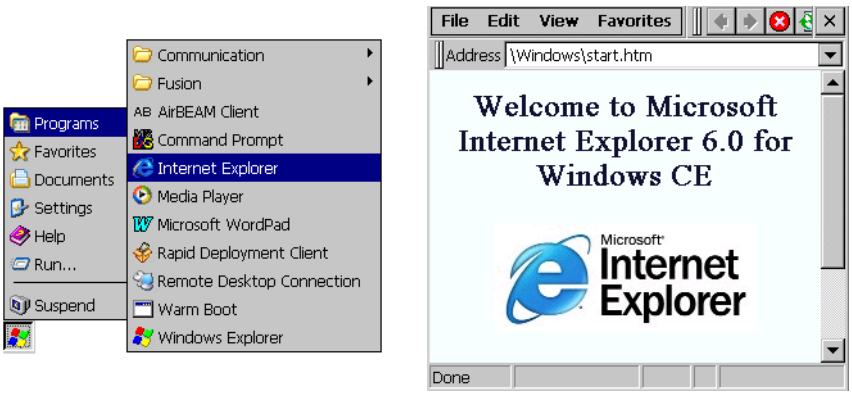


Figure 2-21. Typical Internet Explorer (IE) Connection

3

Using Bluetooth

Chapter Contents

Introduction 3- 3
Adaptive Frequency Hopping 3-3
Security. 3-3
Turning the Bluetooth Radio Mode On and Off 3-4
Disabling Bluetooth 3-4
Enabling Bluetooth 3-5
Bluetooth Power States 3-5
Cold Boot 3-5
Warm Boot 3-5
Suspend 3-5
Resume. 3-5
Modes. 3-5
Wizard Mode 3-5
Explorer Mode 3-8
Discovering Bluetooth Device(s) 3-8
Bonding with Discovered Device(s) 3-10
Renaming a Bonded Device 3-11
Deleting a Bonded Device 3-12
Accepting a Bond 3-12
Discovering Services 3-13
File Transfer Services. 3-14
Create New File or Folder 3-15
Delete File 3-15
Get File 3-15

Put File 3-15
Connect to Internet Using Access Point 3-16
Dial-Up Networking Services 3-16
Add a Dial-up Entry 3-18
OBEX Object Push Services 3-19
Send a Picture 3-19
Headset Services 3-20
Serial Port Services 3-20
Personal Area Network Services 3-21
Bluetooth Settings 3-22
Device Info Tab 3-22
Services Tab 3-22
Dial-Up Networking Service 3-23
File Transfer Service 3-24
OBEX Object Push Service 3-24
Personal Area Networking Service 3-25
Serial Port Service 3-25
Headset Service 3-26
Security Tab 3-27
Discovery Tab 3-28
Virtual COM Port Tab 3-29
Miscellaneous Tab 3-30

Introduction

Bluetooth-equipped devices can communicate without wires, using frequency-hopping spread spectrum (FHSS) RF to transmit and receive data in the 2.4 GHz Industry Scientific and Medical (ISM) band (802.15.1). Bluetooth wireless technology is specifically designed for short-range (30 feet/10 meters) communications and low power consumption.

Mobile computers with Bluetooth capabilities can exchange information (e.g., files, appointments and tasks) with other Bluetooth enabled devices such as phones, printers, access points and other mobile computers. In addition, a dial-up modem connection can be created between the Bluetooth mobile computer and a Bluetooth enabled phone. The Bluetooth phone can then be used as a modem.

Symbol mobile computers with Bluetooth technology use the StoneStreet One Bluetooth stack. To program Bluetooth within the mobile computer refer to the StoneStreet One SDK.

Adaptive Frequency Hopping

Adaptive Frequency Hopping (AFH) is a method of avoiding fixed frequency interferers. AFH can be used with Bluetooth voice. All devices in the piconet (Bluetooth network) must be AFH-capable in order for AFH to work. There is no AFH when connecting and discovering devices. Avoid making Bluetooth connections and discoveries during critical 802.11b communications. AFH for Bluetooth can be broken-down into four main sections:

- Channel Classification - A method of detecting an interference on a channel-by-channel basis, or pre-defined channel mask.
- Link Management - Coordinates and distributes the AFH information to the rest of the Bluetooth network.
- Hop Sequence Modification - Avoids the interference by selectively reducing the number of hopping channels.
- Channel Maintenance - A method for periodically re-evaluating the channels.

When AFH is enabled, the Bluetooth radio “hops-around” (instead of through) the 802.11b high-rate channels. AFH coexistence allows Symbol mobile computers to operate in any infrastructure. AFH is always enabled in the MC3000.

The Bluetooth radio in this mobile computer operates as a Class 2 device power class. The maximum output power is 2.5mW and the expected range is up to 32.8 feet (10 meters). A definitive definition of ranges based on power class is difficult to obtain due to power and device differences, and whether one measures open space or closed office space.

Note

It is not recommended to perform Bluetooth wireless technology inquiry when high rate 802.11b operation is required.

Security

The current Bluetooth specification defines security at the link level. Application-level security is not specified. This allows application developers to define security mechanisms tailored to their specific need. Link-level security is really between devices not users, while application-level security can be implemented on a per-user basis. The Bluetooth specification defines security algorithms and procedures needed to authenticate devices, and if needed, encrypt the data flowing on the link between the devices. Device authentication is a mandatory feature of Bluetooth while link encryption is optional.

Pairing of Bluetooth devices is accomplished by creating an initialization key that is used to authenticate the devices and create a link key for them. Entering a common PIN number in the devices being paired generates the initialization key. The PIN number is never sent over the air. By default, the Bluetooth stack responds with no key when a key is requested (it is up to user to respond to the key request event). Authentication of Bluetooth devices is based-upon a challenge-response transaction. Bluetooth allows for a PIN number or passkey that is used to create other 128-bit keys used for security and encryption. The encryption key is derived from the link key used to authenticate the pairing devices. Also worthy of note is the limited range and fast frequency hopping of the Bluetooth radios that makes long-distance eavesdropping difficult.

It is recommended:

- Perform pairing in a secure environment
- Keep PIN codes private and don't store the PIN codes in the mobile computer
- Implement application-level security.

Turning the Bluetooth Radio Mode On and Off

Turn off the Bluetooth radio to save power or if entering an area with radio restrictions (e.g., an airplane). When the radio is off, the mobile computer can not be seen or connected to by other Bluetooth devices. Turn on the Bluetooth radio to exchange information with other Bluetooth devices (within range). Communicate only with Bluetooth radios in close proximity.

Note

To achieve the best battery life in mobile computers with multiple radios, turn off the radios that are not being used.

Disabling Bluetooth

To disable Bluetooth, tap *Bluetooth* icon - *Disable Bluetooth*. The *Bluetooth* icon changes to indicate that Bluetooth is disabled. An exclamation point appears with the icon.

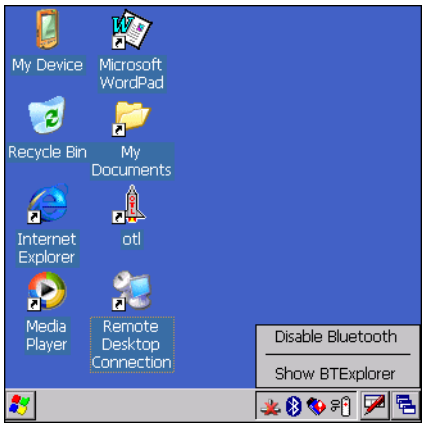


Figure 3-1. Disable Bluetooth

Enabling Bluetooth

To enable Bluetooth, tap *Bluetooth* icon - *Enable Bluetooth*. The *Bluetooth* icon changes to indicate that Bluetooth is enabled.

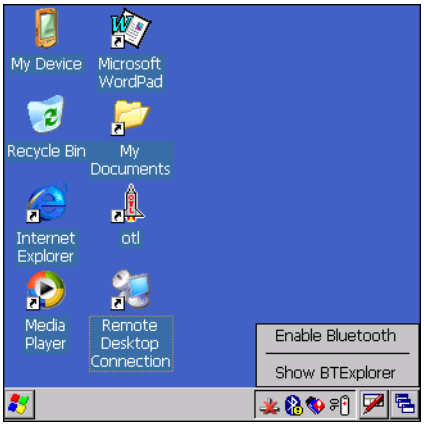


Figure 3-2. Enable Bluetooth

Bluetooth Power States

Cold Boot

When a cold boot is performed on the mobile computer, Bluetooth turns off. It is normal to see the *Bluetooth* icon appear and disappear, as well as a wait cursor, when initialization proceeds in all modes.

Warm Boot

When a warm boot is performed on the mobile computer, Bluetooth returns to the disabled state (off).

Suspend

When the mobile computer suspends, Bluetooth turns off.

Note

When the mobile computer is placed in suspend mode, the Bluetooth radio mode powers off and the piconet (Bluetooth connection) is dropped. When the mobile computer resumes, it could take up to 10 seconds for the Bluetooth radio driver to re-initialize the radio.

Resume

When the mobile computer resumes, Bluetooth turns on if it was on prior to suspend. Note that any Bluetooth connection that was dropped during a suspend needs to be reconnected after a resume.

Modes

The BTExplorer application has two mode for managing Bluetooth connections: Wizard Mode and Explorer Mode. The Wizard Mode is for novice Bluetooth users and the Explorer Mode is for experienced Bluetooth users.

Wizard Mode

Wizard Mode provides a simple step by step process for discovering and connecting to Bluetooth devices. The wizard takes you through the entire process.

Note

When switching between Wizard Mode and Explorer Mode, all active connections are closed.

The following steps provide an example for using the Wizard to services for remote devices.

1. Tap the *Bluetooth* icon and select *Show BTExplorer*. The *BTExplorer* window appears.
2. Tap *File - New Connection*. The *New Connection Wizard* window appears.

Figure 3-3. New Connection Wizard Window

3. Select an action from the drop-down list. In this example, *Explore Services on Remote Device* is selected.
4. Tap **Next**. The *BTExplorer* searches for Bluetooth devices in the area and displays the devices in the *Select Remote Device* window.

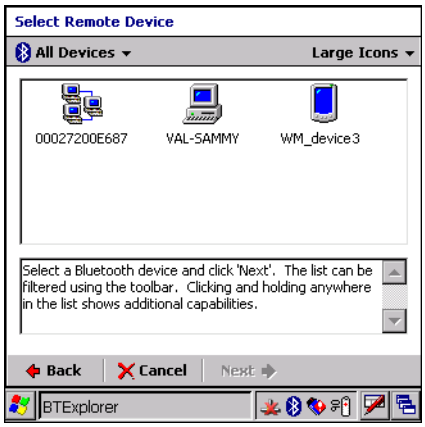


Figure 3-4. Select Remote Device Window

Note

Devices discovered previously are listed to save time. To start a new device discovery, tap and hold and select *Discover Devices* from the menu.

5. Select a device from the list and then tap **Next**. The *Connection Favorite Options* window appears.

Figure 3-5. Connection Favorite Options Window

6. Select *Save As Favorite* check box to save this service in the *Favorite* view.
7. In the *Favorite Name* text box, enter a name for this service that will appear in the *Favorite* list.
8. Tap **Next**. The *Connection Summary* window appears.

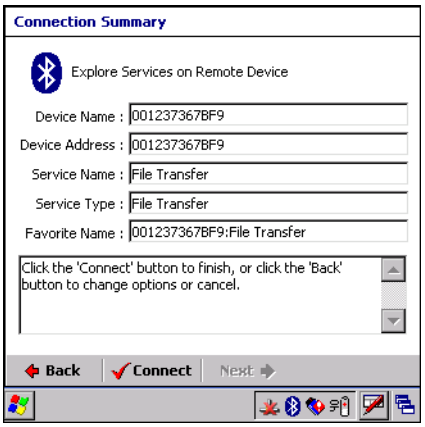


Figure 3-6. Connection Summary Window

9. Tap **Connect** to connect to the service.

The following actions are available in the drop-down list (actions may vary depending upon configurations):

- Explore Services on Remote Device
- Pair with a Remote Device
- ActiveSync via Bluetooth
- Browse Files on Remote Device
- Connect to Internet Using Access Point
- Connect to Internet Using Phone/Modem
- Connect to a Personal Area Network
- Send or Exchange Objects
- Associate Serial Port.

Explorer Mode

The *BTExplorer* window is streamlined and easy to navigate and provides greater control to users familiar with Bluetooth functionality. The menu bar provides quick access to the options and tools used to connect to devices.

Figure 3-7. Explorer Mode Window

You can also use the "tap and hold" technique to view available options. Scroll bars and view options are like those you're familiar with on your Windows desktop. The tree structure lists the following sub-items:

- Local Device - This MC3000 mobile computer
- Remote Device - Other Bluetooth devices
  - Trusted Devices - Bonded (paired) Bluetooth devices
  - Untrusted Devices - Discovered devices that are not bonded
- Favorites - Selected services that are set as being *Favorite* for quick access.

Note

When switching between Wizard Mode and Explorer Mode, all active connections are closed.

Discovering Bluetooth Device(s)

Follow the steps below to discover Bluetooth devices. The mobile computer can receive information from discovered devices, without bonding. However, once bonded, an exchange of information between the mobile computer and a bonded device occurs automatically when the Bluetooth radio is turned on.

To find Bluetooth devices in the area:

1. Ensure that the Bluetooth device being looked for is in discoverable mode.
2. Ensure that the two devices are within 30 feet (10 meters) of one another.

3. Tap the *Bluetooth* icon and select *Show BTExplorer*. The *BTExplorer* window appears.

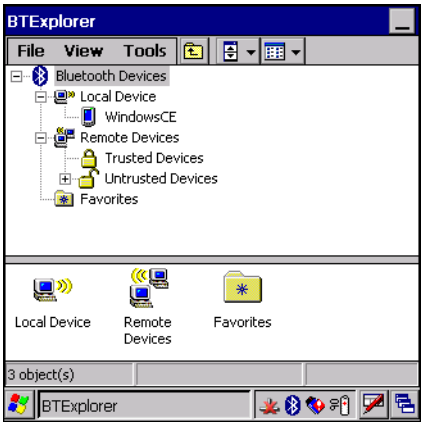


Figure 3-8. BTExplorer Window

4. Tap and hold *Remote Devices* and select *Discover Devices* from the pop-up menu. The mobile computer searches for Bluetooth devices in the area.

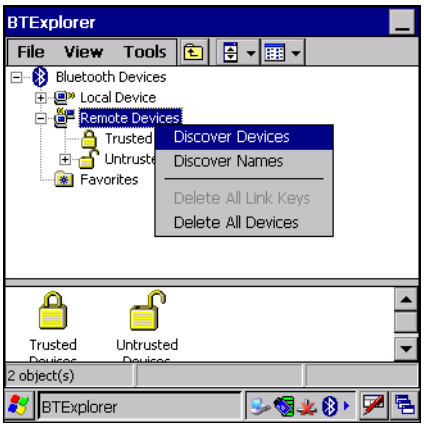


Figure 3-9. Discover Devices

5. The discovered devices display in the *Untrusted Devices* folder.

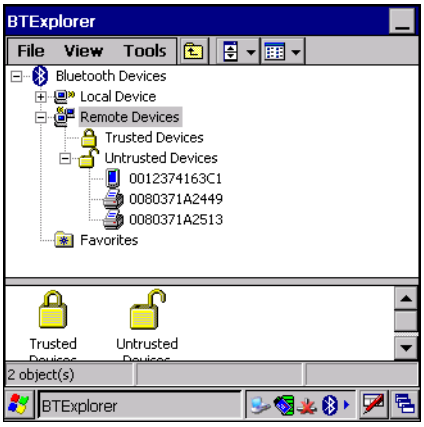


Figure 3-10. Discovered Devices Listed in Untrusted Folder

Bonding with Discovered Device(s)

A bond is a relationship created between the mobile computer and another Bluetooth device in order to exchange information in a secure manner. Creating a bond involves entering the same PIN on the two devices to bond. Once a bond is created, and the Bluetooth radios are turned on, the devices recognize the bond and are able to exchange information without re-entering a PIN.

To bond with a discovered Bluetooth device:

1. Discover remote devices. See *Discovering Bluetooth Device(s) on page 3-8*.
2. In the *Untrusted Devices* folder, tap and hold on a device to pair with.

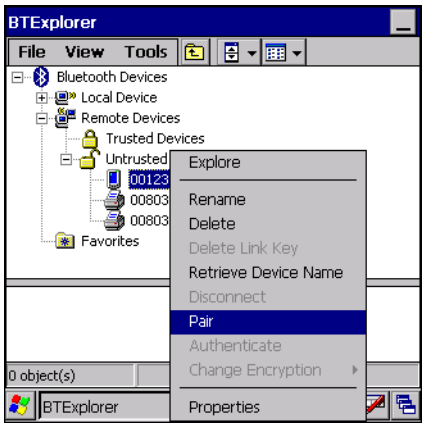


Figure 3-11. Pair a Remote Device

3. Select *Pair* from the pop-up menu.
4. On the mobile computer, the *PIN Code Request* window appears.

Figure 3-12. PIN Code Request Window

5. In the *PIN Code:* text box, enter the PIN number (between 1 and 16 characters) and then tap **OK**.
6. On the remote device, enter the same PIN number.

7. The devices are successfully paired. The device name moves to the *Trusted Devices* folder.

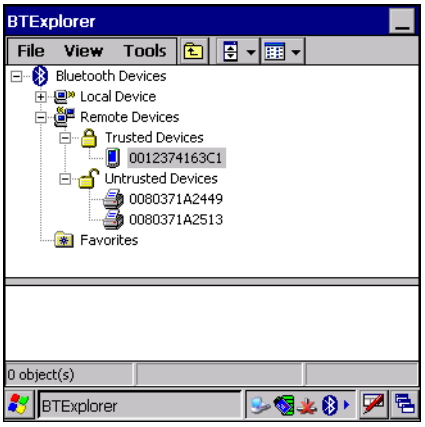


Figure 3-13. Bonded (Paired) Discovered Device

Renaming a Bonded Device

If it is necessary to rename a bonded device, it can be done from the *BTExplorer* window.

1. Launch *BTExplorer*.
2. Tap and hold the device to rename and select *Rename* in the pop-up menu.

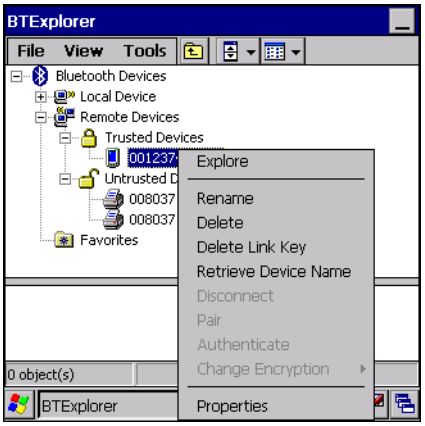


Figure 3-14. Rename Device Selection Dialog Box

3. The *Change Device Name* window appears.

Figure 3-15. Change Device Name Window

4. Enter a new name for the bonded device in the text box. Tap **OK**.

Deleting a Bonded Device

If it is no longer necessary to connect with a device, delete it from the *Bluetooth Bonded Devices* window.

1. Launch *BTExplorer*.
2. Tap and hold the device to delete and.select *Delete* in the pop-up menu.

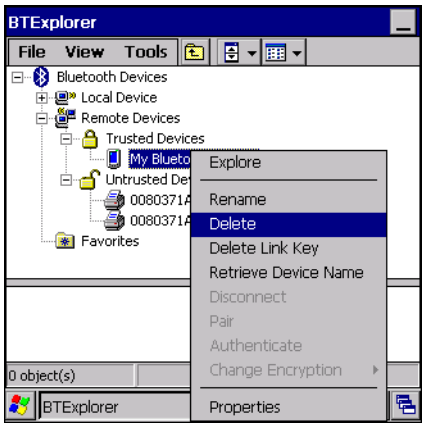


Figure 3-16. Delete a Bonded Device

3. A confirmation dialog appears. Tap **Yes**.

Accepting a Bond

When a remote device wants to bond with a mobile computer you give permission by entering a PIN when requested.

1. Ensure that the mobile computer is set to discoverable and connectable. See *Bluetooth Settings on page 3-22*.

2. When prompted to bond with the remote device the *PIN Code Request* window appears.

Figure 3-17. PIN Code Request Window

Note

Connections to untrusted devices are a security risk.

3. In the *PIN Code:* text box, enter the same PIN that was entered on the device requesting the bond. The PIN must be between 1 and 16 characters.
4. In the *Device Name*: text box, edit the name of the device requesting the bond, if desired.
5. Tap **OK**.
6. The bond is created and the mobile computer can now exchange information with the other device.

Discovering Services

Before services can be used, you must first discover remote devices and then bond to those devices.

To determine what services are available on a bonded remote device:

1. Tap the *Bluetooth* icon and select *Show BTExplorer*.
2. In *BTExplorer* window, tap and hold on the remote device and select *Explore* from the pop-up menu.

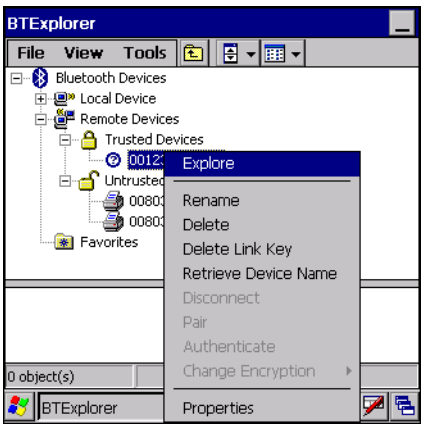


Figure 3-18. Discovering Services

3. The mobile computer communicates with the remote device and then lists the services under the device name.

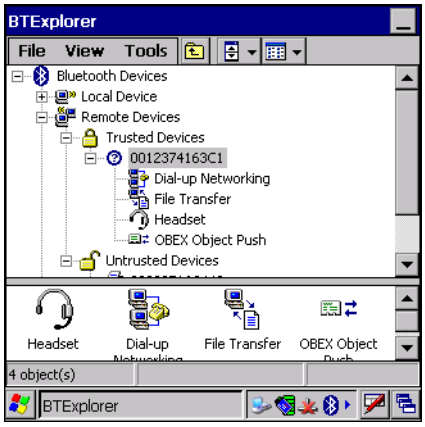


Figure 3-19. List of Discovered Services

Some examples of available services are:

- File Transfer Services
- Dial-Up Networking Services
- Headset or Hands-Free Services
- OBEX Object Push Services
- Serial Port Services

These services are discussed in the following paragraphs.

File Transfer Services

Note

Shared folders are a security risk.

To transfer files between the mobile computer and another Bluetooth enabled device:

1. Ensure the mobile computer is discoverable and connectable. See *Bluetooth Settings on page 3-22*.
2. Discover and bond (pair) with the remote access point.See *Bonding with Discovered Device(s) on page 3-10*.
3. In *BTExplorer,* select the *Remote Devices* folder.
4. Select the *Trusted Devices* folder.
5. Tap the remote device folder.
6. Tap and hold on the remote device and select *Explore* from the pop-up menu.
7. Tap and hold on *File Transfer* and select *Connect*. The remote device's accessible folders appear.

8. Select a folder. The contents of the folder appear in the sub-window.

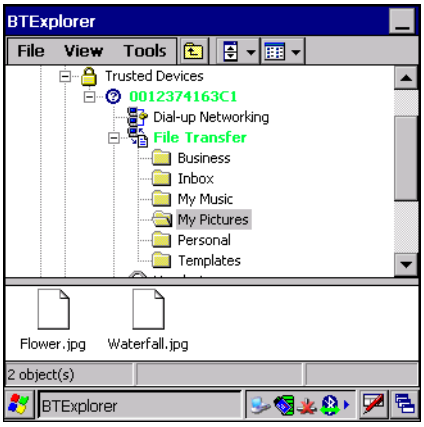


Figure 3-20. Remote Device Folders

9. Tap and hold on the file. A pop-up menu appears.
10. Select the action to perform:
    a. *New* - create a new file or folder. on the remote device
    b. *Delete* - delete the selected file on the remote device.
    c. *Get File* - copy the file from the remote device to the mobile computer.
    d. *Put File* - copies a file from the mobile computer to the remote device.

Create New File or Folder

To create a new folder or file on the remote device:

1. Tap and hold on the file and select *New - Folder* or *New - File*. The *Create New Folder* or *Create New File* window appears.
2. Enter the name for the new folder or file. Tap **OK**.
3. A new folder or file is created on the remote device.

Delete File

To delete a file from the remote device:

1. Tap and hold on the file and select *Delete*.
2. In the *Delete Remote Device File* dialog box tap **OK**.

Get File

To copy a file from a remote device:

1. Tap and hold on the file and select *Get*. The *Save Remote File* window appears.
2. Navigate to the directory to save the file.
3. Tap **Save**. The file is transferred from the remote device to the mobile computer.

Put File

To copy a file to a remote device:

1. Tap and hold on the file and select Put. The Send Local File window appears.
2. Navigate to the directory to save the file and select a file.

3. Tap Open. The file is transferred from the mobile computer to the remote device.

Connect to Internet Using Access Point

This section explains how to access a Bluetooth-enabled LAN access point (AP) for a network connection. With this method of communication the Internet Explorer can be used to connect to a server.

1. Ensure the mobile computer is discoverable and connectable. See *Bluetooth Settings on page 3-22*.
2. Discover and bond (pair) with the remote access point.See *Bonding with Discovered Device(s) on page 3-10*.
3. In *BTExplorer,* select the *Remote Devices* folder.
4. Select the *Trusted Devices* folder.
5. Tap the remote device folder.
6. Tap and hold on the remote device and select *Explore* from the pop-up menu.
7. Tap and hold *LAN Access using PPP* service and select *Connect* from the pop-up menu.
8. The mobile computer connects with the Access Point.
9. Tap *Start - Internet Explorer*. The *Internet Explorer window* appears.
10. In the address field, enter an internet address and tap the **Enter** button. The web page loads.

Dial-Up Networking Services

To use a phone that has Bluetooth capabilities as a modem for the mobile computer, create a Bluetooth modem connection on the mobile computer and send information to the phone using Bluetooth. The phone relays the information over the phone line and sends back to the mobile computer any information that was requested over the connection. Once a modem connection is created to the Bluetooth phone, it can be reused.

Prior to creating a connection, ensure the following:

- Bluetooth phone is turned on.
- Bluetooth phone is discoverable. (Some phones may also need to be pairable in order to accept a bonding request. For more information, refer to the phone documentation.)
- Mobile computer's and phone's Bluetooth radios are turned on.
- Mobile computer and phone are within range of each other (30 feet/10 meters).

Complete the following steps to create a new Bluetooth connection. Before setting up dial-up networking, obtain dial-up information and other necessary settings for the office network or ISP.

1. Ensure the mobile computer is discoverable and connectable. See *Bluetooth Settings on page 3-22*.
2. Discover and bond (pair) with the remote device.See *Bonding with Discovered Device(s) on page 3-10*.
3. In *BTExplorer,* select the *Remote Devices* folder.
4. Select the *Trusted Devices* folder.
5. Tap the remote device folder.

6. Tap and hold on *Dial-up Networking* and select *Connect* from the pop-up menu. The *Select Dial-up Networking Entry* window appears.

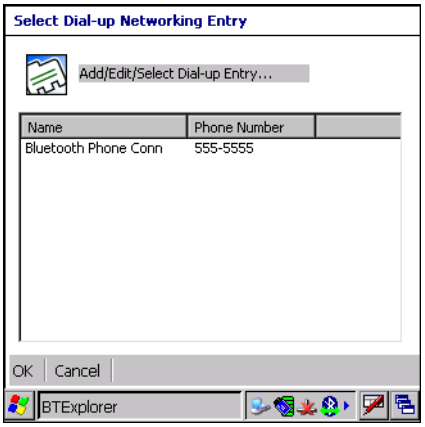


Figure 3-21. Select Dial-up Networking Entry Window

Note

If a dial-up entry is not listed, see *Add a Dial-up Entry on page 3-18*.

7. Select a dial-up entry.
8. Tap **OK**. The mobile computer begins to communicate with the phone. If required, the phone requests permission to communicate with the mobile computer.
9. Confirm the connection on the phone. The *Network Log On* window appears.

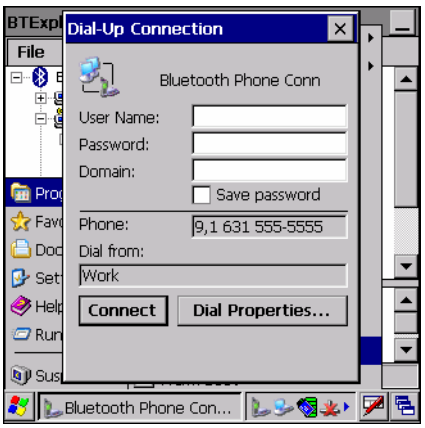


Figure 3-22. Network Log On Window

10. In the *User name:* text box, enter the user name for this connection.
11. In the *Password:* text box, enter the password for this connection.
12. In the Domain: text box, enter the domain for this connection, if required.
13. Tap **OK**.
14. The phone begins dialing.
15. The phone connects to the network.

16. To end a session, tap the *Connection* icon and then tap **Disconnect** in the dialog box.

Add a Dial-up Entry

To add a dial-up entry:

1. *In the Select Dial-up Networking Entry* window, tap and hold and then select *Add Entry* from the pop-up menu.

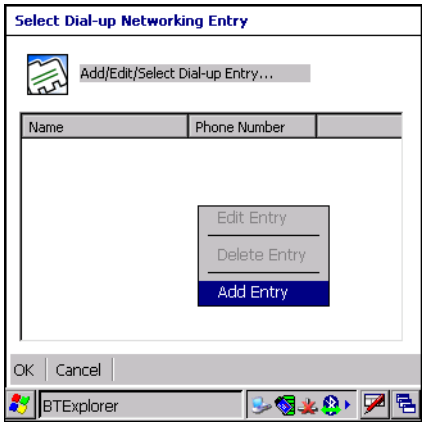


Figure 3-23. Add Dial-Up Entry

2. The *Add Phone Book Entry* window appears.

3. In the *Name for the connection* text box, enter a name for this connection.
4. In the *Country Code* text box, enter the country code for the country that you are calling.
5. In the *Area Code* text box, enter the area code.
6. In the *Phone Number* text box, enter the phone number.
7. Tap **OK**.

OBEX Object Push Services

Object Exchange (OBEX) is a set of protocols allowing objects such as pictures to be shared using Bluetooth.

To exchange information with another Bluetooth enabled device:

1. Ensure the mobile computer is discoverable and connectable. See *Bluetooth Settings on page 3-22*.
2. Discover and bond (pair) with the remote device.See *Bonding with Discovered Device(s) on page 3-10*.
3. In *BTExplorer,* select the *Remote Devices* folder.

4. Select the *Trusted Devices* folder.
5. Tap the remote device folder.
6. Tap and hold on *OBEX Object Push* and select *Connect*. The OBEX Object Push window appears.
7. In the *Action* drop-down list, select one of the options: *Send Contact Information*, *Swap Contact Information*, *Fetch Contact Information* or *Send a Picture*.

Send a Picture

To send a picture to another device:

1. Ensure the mobile computer is discoverable and connectable. See *Bluetooth Settings on page 3-22*.
2. Discover and bond (pair) with the remote device.See *Bonding with Discovered Device(s) on page 3-10*.
3. In *BTExplorer,* select the *Remote Devices* folder.
4. Select the *Trusted Devices* folder.
5. Tap the remote device folder.
6. Tap and hold on *OBEX Object Push* and select *Connect*. The *OBEX Object Push* window appears.

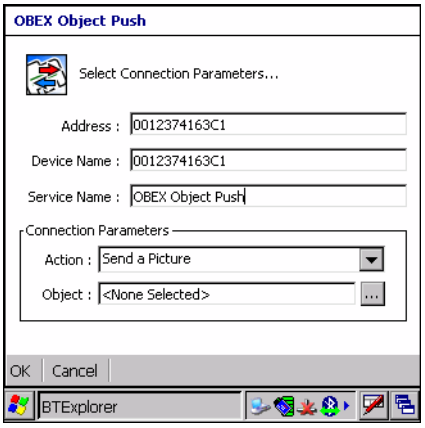


Figure 3-24. OBEX Object Push Window

7. In the *Action* drop-down list, select *Send A Picture*.
8. Tap ... . The *Send Local Picture* window appears.

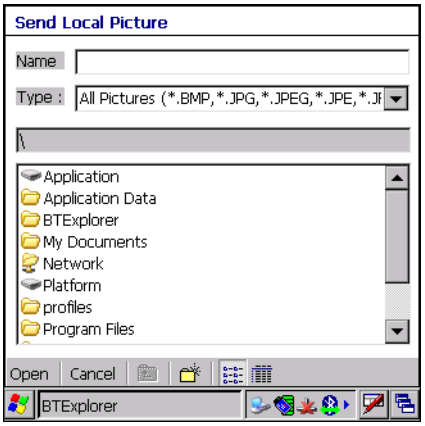


Figure 3-25. Send Local Picture Window

9. Navigate to the picture that you want to send to the other device.
10. Tap **Open**.
11. Tap **OK**. The picture is sent to the other device and a confirmation dialog box appears on the other device to accept the picture. A *Send Picture* dialog appears.
12. Tap **Ok**.

Headset Services

To connect to a Bluetooth headset:

1. Ensure the mobile computer is discoverable and connectable. See *Bluetooth Settings on page 3-22*.
2. Discover and bond (pair) with the headset.See *Bonding with Discovered Device(s) on page 3-10*.
3. In *BTExplorer,* select the *Remote Devices* folder.
4. Select the *Trusted Devices* folder.
5. Tap the remote device folder.
6. Tap and hold on the remote device and select *Explore*. A headset service item appears.
7. Tap and hold on the headset service name and select *Connect*.
8. The mobile computer connects to the headset. Refer to your headset user manual for instruction on communicating with a Bluetooth device.

To adjust the microphone gain:

1. Tap and hold on the headset service item and select *Adjust Microphone* from the pop-up menu. The *Microphone Properties* window appears.
2. Select the slider and adjust the gain.
3. Tap **OK**.

Serial Port Services

Note

By default, COM ports COM4, COM5 and COM9 are Bluetooth virtual ports. If an application opens one of these ports, the Bluetooth driver activates and guides you through a Bluetooth connection.

Use the wireless Bluetooth serial port connection just as you would a physical serial cable connection. You must configure the application that will use the connection to the correct serial port.

To establish a serial port connection:

1. Ensure the mobile computer is discoverable and connectable. See *Bluetooth Settings on page 3-22*.
2. Discover and bond (pair) with the remote device.See *Bonding with Discovered Device(s) on page 3-10*.
3. In *BTExplorer,* select the *Remote Devices* folder.
4. Select the *Trusted Devices* folder.
5. Tap the remote device folder.

6. Tap and hold *Serial Port* and select *Connect* in the pop-up menu. The *Remote Service Connection* window appears.

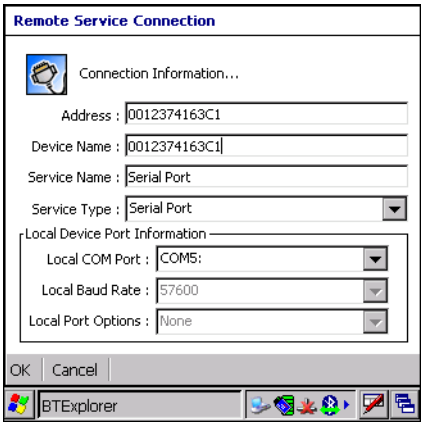


Figure 3-26. Remote Service Connection Window

7. In the *Local COM Port* drop-down list select a COM port.
8. Tap **OK**.

Personal Area Network Services

Connect two or more Bluetooth devices to share files, collaborate or play multi player games.

To establish a Personal Area Network connection:

1. Ensure the mobile computer is discoverable and connectable. See *Bluetooth Settings on page 3-22*.
2. Discover and bond (pair) with the remote device.See *Bonding with Discovered Device(s) on page 3-10*.
3. In *BTExplorer,* select the *Remote Devices* folder.
4. Select the *Trusted Devices* folder.
5. Tap the remote device folder.
6. Tap and hold *Personal Area Network* and select *Connect* in the pop-up menu.

Bluetooth Settings

Use the *BTExplorer Settings* window to configure the operation of the *BTExplorer* application. Tap *Tools - Settings*. The *BTExplorer Settings* window appears.

Device Info Tab

Use the *Device Info* tab to configure the mobile computer's Bluetooth connection modes.

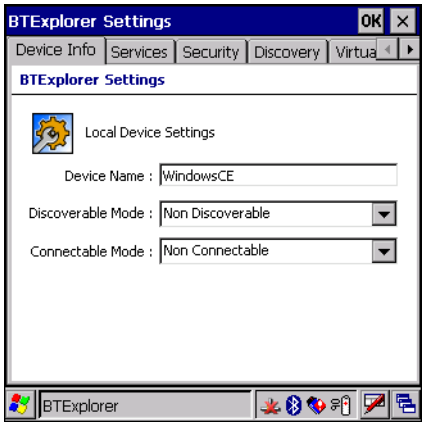


Figure 3-27. BTExplorer Settings - Device Info Tab

Device Name	Displays the name of the mobile computer.
Discoverable Mode	Allows you to set the mobile computer to be discoverable by other Bluetooth devices or not be discoverable. **Note:** For security reasons, the default is set to *Non Discoverable*.
Connectable Mode	Allows you to set the mobile computer to be connectable by other Bluetooth devices or not be connectable. **Note:** For security reasons, the default is set to *Non Connectable*.

Services Tab

Note

For security reason, by default services are not enabled.

Use the *Services* tab to add or delete Bluetooth services.

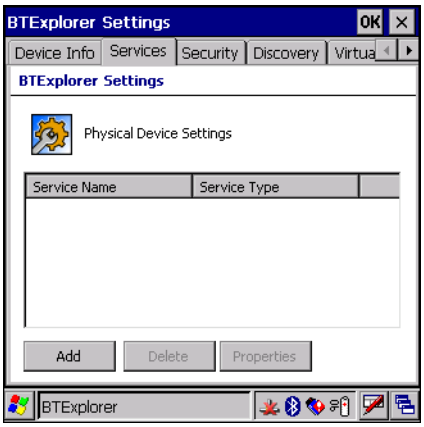


Figure 3-28. BTExplorer Settings - Services Tab

To add a service:

1. Tap **Add**. The *Add Local Service* window displays.

Figure 3-29. Add Local Service Window

2. In the list, select a service to add.
3. Tap **OK**. The *Edit Local Service* window displays for the selected service.
4. Select the appropriate information and then tap **OK**. See the following paragraphs for detailed information on the available services.

Dial-Up Networking Service

Dial-up Networking allows a dial-up modem to be accessed by other Bluetooth devices.

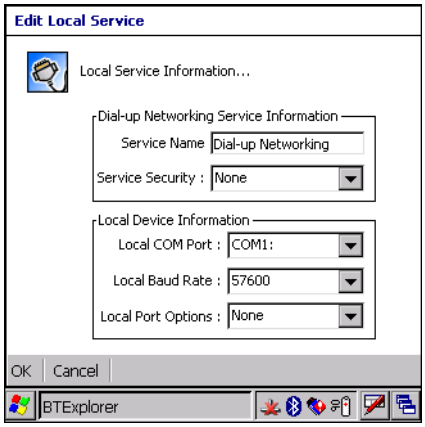


Figure 3-30. Add Local Service Window

Service Name	Displays the name of the service.
Service Security	Select the type of security from the drop-down list; None, Authenticate or Authenticate/ Encrypt.
Local COM Port	Select the COM port. Select COM1 to use a modem or other device that is connected to the connector on the bottom of the mobile computer.
Local Baud Rate	Select the communication baud rate.
Local Port Options	Select the port option.

File Transfer Service

File transfer allows files to be browsed by other Bluetooth devices.

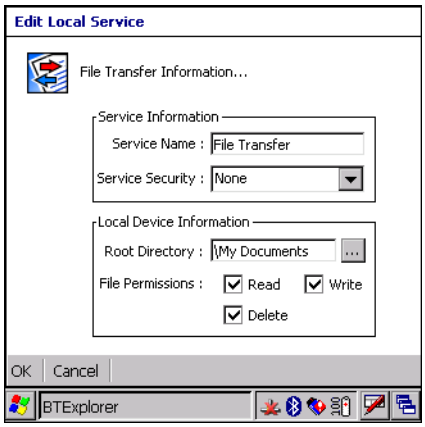


Figure 3-31. File Transfer Information Window

Service Name	Displays the name of the service.
Service Security	Select the type of security from the drop-down list; None, Authenticate or Authenticate/ Encrypt.

Root Directory	Select the directory that other Bluetooth devices can access.
File Permissions	Select the file permissions for the selected directory. Check the appropriate box to grant Read access, write access and delete access.

OBEX Object Push Service

OBEX Object Push allows contacts, business cards, pictures, appointments, and tasks to be pushed to the device by other Bluetooth devices.

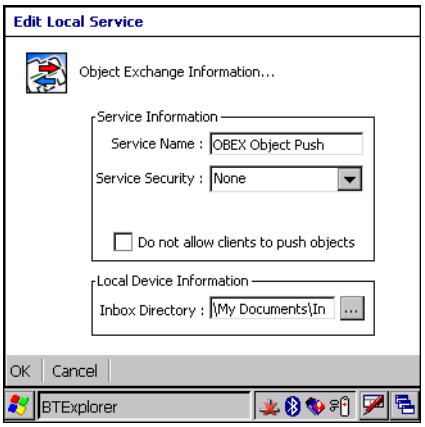


Figure 3-32. OBEX Exchange Information Window

Service Name	Displays the name of the service.
Service Security	Select the type of security from the drop-down list; *None*, *Authenticate* or *Authenticate/Encrypt*.
Do not allow clients to push objects	Disables clients from pushing objects to the mobile computer.
Inbox Directory	Select a directory where another Bluetooth device can store files.

Personal Area Networking Service

Personal Area Networking hosts a Personal Area Network which allows communication with other Bluetooth devices.

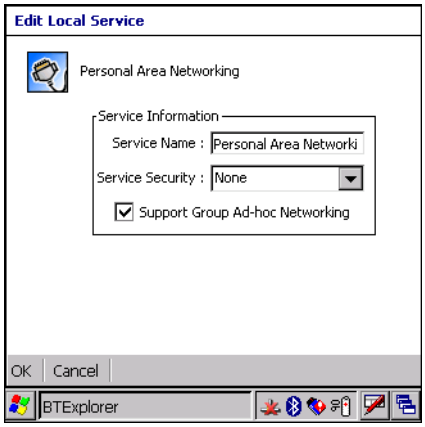


Figure 3-33. Personal Area Networking Window

Service Name	Displays the name of the service.
Service Security	Select the type of security from the drop-down list; None, Authenticate or Authenticate/ Encrypt.
Support Group Ad-Hoc Networking	Select to enable Ad-Hoc networking.

Serial Port Service

Serial port allows COM ports to be accessed by other Bluetooth devices.

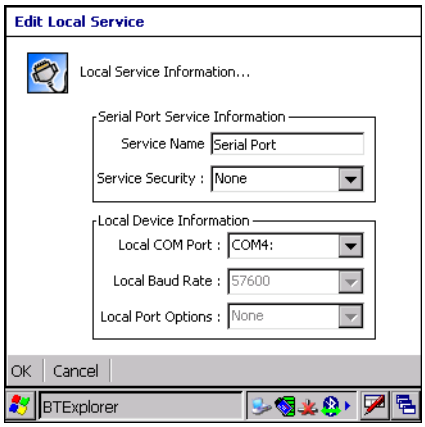


Figure 3-34. Serial Port Service Window

Service Name	Displays the name of the service.
Service Security	Select the type of security from the drop-down list; None, Authenticate or Authenticate/ Encrypt.
Local COM Port	Select the COM port. Select COM1 to use a modem or other device that is connected to the connector on the bottom of the mobile computer.

Local Baud Rate	Select the communication baud rate.
Local Port Options	Select the port option.

Headset Service

Serial port allows COM ports to be accessed by other Bluetooth devices.

Figure 3-35. Headset Service Window

Service Name	Displays the name of the service.

Security Tab

To adjust the security settings for an individual service, select the *Services* tab first, then select the individual service, then *Properties*.

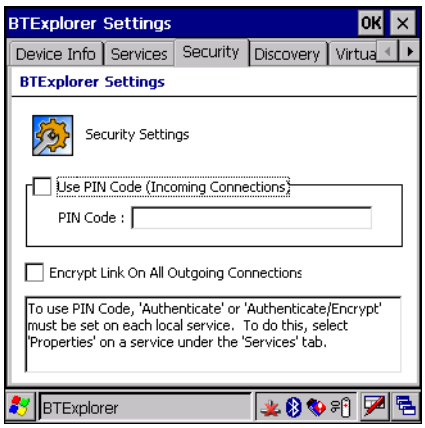


Figure 3-36. BTExplorer Settings - Security Tab

Use PIN Code (Incoming Connecting)	Select for automatic use of the PIN code entered in the *PIN Code* text box. It is recommended not to use this automatic PIN code feature. See *Security on page 3-3* for more information.
PIN Code	Enter the PIN code.
Encrypt Link On All Outgoing Connections	Select to enable or disable encryption. Use encryption whenever possible.

Discovery Tab

Use the *Discovery* tab to set and modify discovered devices.

Figure 3-37. BTExplorer Settings - Discovery Tab

Inquiry Length	Sets the amount of time that the mobile computer takes to discover Bluetooth devices in the area.
Name Discovery Mode	Select either Automatic or manual.
Discovered Devices	Deletes all discovered devices and link keys.

Virtual COM Port Tab

Use the *Virtual COM Port* tab to select the COM ports for Bluetooth communication.

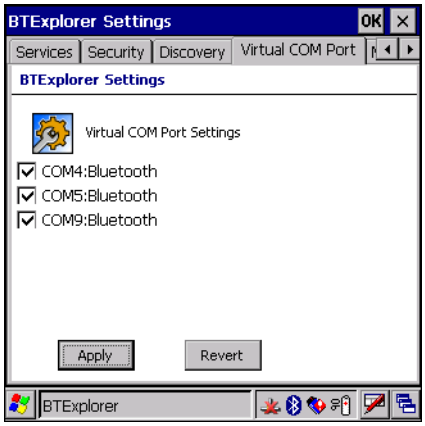


Figure 3-38. BTExplorer Settings - Virtual COM Port Tab

COM4:Bluetooth	Enable or disable COM Port 4.
COM5:Bluetooth	Enable or disable COM Port 5
COM9:Bluetooth	Enable or disable COM Port 9

If an application uses one of the COM ports assigned to Bluetooth, opening this port causes the Bluetooth stack to activate and guide you through the connection process.

Figure 3-39. COM Port Connection

Miscellaneous Tab

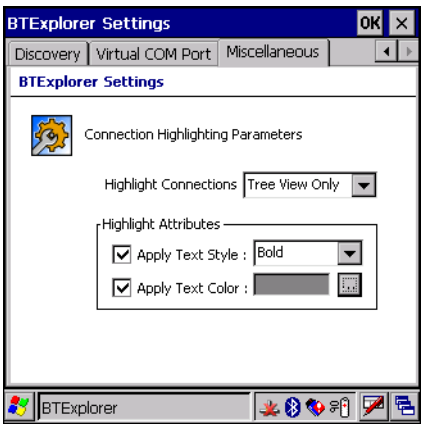


Figure 3-40. BTExplorer Settings - Miscellaneous Tab

Highlight Connections	Select the connection type to highlight when connected. In the Wizard Mode, the only option is Favorites or None. In the Explorer Mode the options are None, Tree View Only, List View Only or Tree and List View.
Apply Text Style	Select the text style to be applied to the connection text.
Apply Text Color	Select the text color to be applied to the connection text.