© 2015 ZIH Corp.

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 Zebra. 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. Zebra 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 Zebra. 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 Zebra. The user agrees to maintain Zebra’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.

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

Zebra 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 Zebra intellectual property rights. An implied license only exists for equipment, circuits, and subsystems contained in Zebra products.
### Revision History

Changes to the original manual are listed below:

<table>
<thead>
<tr>
<th>Change</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01 Rev. A</td>
<td>09/02/09</td>
<td>Initial release.</td>
</tr>
<tr>
<td>-02 Rev. A</td>
<td>05/15/10</td>
<td>Add support for new memory configurations and Windows Mobile 6.5.3.</td>
</tr>
<tr>
<td>-03 Rev. A</td>
<td>06/28/10</td>
<td>Add support for MC959B-K configuration.</td>
</tr>
<tr>
<td>-03 Rev. B</td>
<td>07/30/11</td>
<td>Add original microSD card installation and removal procedures.</td>
</tr>
<tr>
<td>-04 Rev A</td>
<td>09/30/14</td>
<td>Add 5250 Emulator and VT Emulator keypads. Add 7200 mAh battery support.</td>
</tr>
<tr>
<td>-05 Rev A</td>
<td>04/2015</td>
<td>Zebra Rebranding</td>
</tr>
</tbody>
</table>
Table of Contents

Revision History ........................................................................................................................................ iii

About This Guide
Introduction ........................................................................................................................................... xiii
  Documentation Set ........................................................................................................................... xiii
Configurations ....................................................................................................................................... xiv
  Keypads ............................................................................................................................................ xiv
  Software Versions ............................................................................................................................ xiv
Chapter Descriptions ............................................................................................................................ xvi
Notational Conventions ......................................................................................................................... xvii
Related Documents ............................................................................................................................... xviii
Service Information ............................................................................................................................... xviii

Chapter 1: Getting Started
Introduction ........................................................................................................................................... 1-1
Unpacking ............................................................................................................................................. 1-1
Part of the MC9500-K ......................................................................................................................... 1-2
Getting Started ................................................................................................................................... 1-3
  Installing a microSD Card ............................................................................................................... 1-3
  Version 1 ....................................................................................................................................... 1-3
  Version 2 ....................................................................................................................................... 1-4
  Installing the SIM Card ................................................................................................................. 1-5
  Installing the Battery ...................................................................................................................... 1-7
  Charging the Battery ...................................................................................................................... 1-7
  Charging Temperature ................................................................................................................... 1-9
  Powering On the MC9500-K ......................................................................................................... 1-9
  Calibrating the Screen ................................................................................................................... 1-9
Replacing the Battery ............................................................................................................................ 1-9
Removing the microSD Card ................................................................................................................. 1-10
Removing the SIM Card ...................................................................................................................... 1-11
Chapter 2: Battery Management

Introduction .................................................................................................................. 2-1
Battery Functionality .................................................................................................... 2-1
  Battery Health ........................................................................................................... 2-2
Battery Status ............................................................................................................... 2-3
  Installed in an MC9500-K ......................................................................................... 2-3
  In a Charger ............................................................................................................... 2-5
  Stand-alone ............................................................................................................... 2-8
Charging the MC9500-K ............................................................................................... 2-9
Charging a Spare Battery ............................................................................................. 2-11
  Charging Temperature ............................................................................................. 2-12
Power Saving Techniques ............................................................................................... 2-13
  Changing the Power Settings .................................................................................. 2-13
  Changing the Backlight Settings ............................................................................. 2-13
  Changing the Keypad Backlight Settings ............................................................... 2-13
Turning Off the Radios .................................................................................................. 2-13

Chapter 3: Using the MC9500-K

Introduction .................................................................................................................. 3-1
LED Indicators .............................................................................................................. 3-1
Resetting the MC9500-K ............................................................................................... 3-3
  Performing a Warm Boot ......................................................................................... 3-3
  Performing a Cold Boot ......................................................................................... 3-3
Waking the MC9500-K ................................................................................................. 3-3
Locking the MC9500-K ................................................................................................. 3-4
  Keypad Locking ....................................................................................................... 3-5
  Password Locking ................................................................................................... 3-5
Keypads ......................................................................................................................... 3-7
Function Buttons ......................................................................................................... 3-7
Stylus ........................................................................................................................... 3-7
Entering Data ................................................................................................................ 3-8
Interactive Sensor Technology ..................................................................................... 3-9
  Power Management ................................................................................................. 3-9
  Display Orientation ................................................................................................. 3-9
  Free Fall Detection ................................................................................................. 3-10
Today Screen ............................................................................................................... 3-11
Status Icons ................................................................................................................ 3-12
Programs ...................................................................................................................... 3-14
Settings ........................................................................................................................ 3-17
Adjusting Volume ...................................................................................................... 3-20
Battery Status Indications ............................................................................................. 3-21
  Battery Reserve Options ......................................................................................... 3-21
  Main Battery Temperature Notifications ............................................................ 3-22
Using Voice-Over-IP .................................................................................................... 3-23
Infrared Connection ..................................................................................................... 3-24
  Exchanging Files using IR Connection ................................................................. 3-24
Printing ......................................................................................................................... 3-25
Chapter 4: Data Capture

Introduction ........................................................................................................................................... 4-1
Laser Scanning ................................................................................................................................... 4-1
  Scanning Considerations .................................................................................................................. 4-1
  Laser Scanning .................................................................................................................................. 4-2
Decode Zones ....................................................................................................................................... 4-3
Imaging .................................................................................................................................................. 4-5
  Operational Modes ............................................................................................................................. 4-6
  Imager Scanning ............................................................................................................................... 4-6
  Imager Decode Ranges ....................................................................................................................... 4-8
Color Digital Camera .......................................................................................................................... 4-9
  Digital Camera Scanning ................................................................................................................... 4-9
Taking Photos ....................................................................................................................................... 4-10
Recording Video .................................................................................................................................. 4-10
Viewing Photos and Videos .................................................................................................................. 4-11

Chapter 5: Using the Phone

Introduction ......................................................................................................................................... 5-1
Accessing the Phone Keypad ............................................................................................................. 5-1
Turning the Phone On and Off ........................................................................................................... 5-2
Audio Modes ....................................................................................................................................... 5-3
  Using a Wired Headset ...................................................................................................................... 5-3
  Using a Bluetooth Headset ............................................................................................................... 5-4
  Adjusting Audio Volume .................................................................................................................... 5-5
Hearing Aid Compatibility Setting ..................................................................................................... 5-5
Making a Call ...................................................................................................................................... 5-6
  Using the Phone ................................................................................................................................. 5-6
  Using Contacts ................................................................................................................................. 5-6
    Creating an Outlook Contact ......................................................................................................... 5-7
    Editing an Outlook Contact .......................................................................................................... 5-7
    Deleting a Contact ......................................................................................................................... 5-8
    Creating a SIM Contact .................................................................................................................. 5-8
  Using Call History ........................................................................................................................... 5-8
  Making a Speed Dial Call .................................................................................................................. 5-9
Making an Emergency Call .................................................................................................................. 5-10
Answering a Call ............................................................................................................................... 5-10
  Incoming Call Features .................................................................................................................... 5-10
Smart Dialing ...................................................................................................................................... 5-11
Muting a Call ...................................................................................................................................... 5-12
Taking Notes ....................................................................................................................................... 5-12
Using Speed Dial ............................................................................................................................... 5-13
  Adding a Speed Dial Entry ............................................................................................................... 5-13
  Editing a Speed Dial Entry .............................................................................................................. 5-15
  Deleting a Speed Dial Entry ........................................................................................................... 5-16
Using Call History ............................................................................................................................. 5-16
  Managing Call History ..................................................................................................................... 5-16
    Changing the Call History View .................................................................................................... 5-17
    Resetting the Recent Calls Counter .............................................................................................. 5-17
    Deleting Call History Items by Call Date ...................................................................................... 5-18
Chapter 9: Maintenance & Troubleshooting

Introduction ............................................................................................................. 9-1
Maintaining the MC9500-K ...................................................................................... 9-1
Removing the Screen Protector ................................................................................ 9-2
Battery Safety Guidelines .......................................................................................... 9-2
Cleaning ..................................................................................................................... 9-3
  Materials Required .................................................................................................. 9-3
  Cleaning the MC9500-K ......................................................................................... 9-4
    Housing .................................................................................................................. 9-4
    Display ................................................................................................................... 9-4
    Scanner Exit Window ............................................................................................ 9-4
    Interface Connector ............................................................................................... 9-4
    Battery Contacts ................................................................................................... 9-4
  Cleaning Cradle Connectors ................................................................................... 9-5
  Cleaning Frequency ................................................................................................. 9-5
Troubleshooting ....................................................................................................... 9-6
  MC9500-K ............................................................................................................... 9-6
  Bluetooth Connection ............................................................................................. 9-8
    Single Bay USB Cradle ......................................................................................... 9-9
    Single Slot Battery Charger ................................................................................ 9-10
    Four Bay Ethernet Cradle .................................................................................... 9-10
    Four Bay Charge Only Cradle ............................................................................. 9-11
    Vehicle Cradle ..................................................................................................... 9-12
    Four Slot Battery Charger .................................................................................. 9-13
  Cables ..................................................................................................................... 9-13
  Magnetic Stripe Reader ......................................................................................... 9-14

Appendix A: Technical Specifications

MC9500-K Technical Specifications ........................................................................ A-1
MC9500-K Accessory Specifications ........................................................................ A-7
About This Guide

Introduction

This guide provides information about using the MC9500-K mobile computers and accessories.

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

For configurations with OEM version 02.27.000X and Windows Mobile 6.5 operating system, refer to Appendix D, Windows Mobile 6.5 for information about new features.

Documentation Set

The documentation set for the MC9500-K provides information for specific user needs, and includes:

- **MC9500-K Quick Start Guide** - describes how to get the MC9500-K mobile computer up and running.
- **MC9500-K Mobile Computer Integrator Guide** - describes how to set up the MC9500-K mobile computer and accessories.
- **Microsoft® Applications for Windows Mobile® 6 User Guide** - describes how to use Microsoft developed applications.
- **Application Guide** - describes how to use Enterprise Mobility developed sample applications.
- **Enterprise Mobility Developer Kit (EMDK) Help File** - provides API information for writing applications.
Configurations

This guide covers the following configurations:

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Radios</th>
<th>Display</th>
<th>Memory</th>
<th>Data Capture Options</th>
<th>Operating System</th>
<th>Keypads</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC9590</td>
<td>WLAN: 802.11 a/b/g WPAN: Bluetooth v2.1 with EDR GPS: SiRF III</td>
<td>3.7” VGA Color</td>
<td>128 MB RAM/512 MB Flash or 256 MB RAM/1 GB Flash</td>
<td>1D laser scanner, 2D imager, 1D laser scanner and camera or 2D imager and camera</td>
<td>Windows Mobile® 6.X Classic</td>
<td>See Keypads below.</td>
</tr>
<tr>
<td>MC9596</td>
<td>WLAN: 802.11a/b/g WPAN: Bluetooth v2.1 with EDR WWAN: HSDPA GPS: SiRF III</td>
<td>3.7” VGA Color</td>
<td>128 MB RAM/512 MB Flash or 256 MB RAM/1 GB Flash</td>
<td>1D laser scanner, 2D imager, 1D laser scanner and camera or 2D imager and camera</td>
<td>Windows Mobile® 6.X Professional</td>
<td>See Keypads below.</td>
</tr>
<tr>
<td>MC9598</td>
<td>WLAN: 802.11a/b/g WPAN: Bluetooth v2.1 with EDR WWAN: EvDO Rev. A GPS: SiRF III</td>
<td>3.7” VGA Color</td>
<td>128 MB RAM/512 MB Flash or 256 MB RAM/1 GB Flash</td>
<td>1D laser scanner, 2D imager, 1D laser scanner and camera or 2D imager and camera</td>
<td>Windows Mobile® 6.X Professional</td>
<td>See Keypads below.</td>
</tr>
<tr>
<td>MC959B</td>
<td>WLAN: 802.11a/b/g WPAN: Bluetooth v2.1 with EDR WWAN: CDMA or GSM Data GPS: SiRF III</td>
<td>3.7” VGA Color</td>
<td>256 MB RAM/1 GB Flash</td>
<td>1D laser scanner, 2D imager, 1D laser scanner and camera or 2D imager and camera</td>
<td>Windows Mobile® 6.1 Professional</td>
<td>See Keypads below.</td>
</tr>
</tbody>
</table>

Keypads

The following keypads are available:

- Alpha Primary
- Telephony Numeric
- Calculator Numeric
- Alpha Numeric
- 5350 Emulator
- VT Emulator.

See Appendix C, Keypads for specific keypad information.
Software Versions

This guide covers various software configurations and references are made to operating system or software versions for:

- Adaptation Kit Update (AKU) version
- OEM version
- BTExplorer version
- Fusion version
- Phone version.

AKU Version

To determine the Adaptation Kit Update (AKU) version:

Tap Start > Settings > System tab > About icon > Version tab.

The second line lists the operating system version and the build number. The last part of the build number represents the AKU number. For example, Build 20963.1.5.2 indicates that the device is running AKU version 1.5.2.

OEM Version

To determine the OEM software version:

Tap Start > Settings > System tab > System Info icon > System tab.
To determine the BTExplorer software version:

Tap BTExplorer icon > Show BTExplorer > File > About.

To determine the Fusion software version:

Tap Fusion Signal Strength icon > Wireless Status > Versions.
Phone Software

To determine the Phone software version:


Chapter Descriptions

Topics covered in this guide are as follows:

- **Chapter 1, Getting Started** provides information on getting the MC9500-K up and running for the first time.
- **Chapter 2, Battery Management** provides information on the types of batteries and how to charge them.
- **Chapter 3, Using the MC9500-K** provides information on using the MC9500-K.
- **Chapter 4, Data Capture** provides instructions for using the MC9500-K to capture data using the laser scanner, imager and camera.
- **Chapter 5, Using the Phone** provides basic instructions for using the MC9500-K phone.
- **Chapter 6, Using GPS Navigation** provides information about GPS navigation with the MC9500-K.
- **Chapter 7, Using Bluetooth** explains Bluetooth functionality on the MC9500-K.
- **Chapter 8, Accessories** describes the available accessories and how to use them with the MC9500-K.
• Chapter 9, Maintenance & Troubleshooting includes instructions on cleaning and storing the MC9500-K, and provides troubleshooting solutions for potential problems during MC9500-K operation.

• Appendix A, Technical Specifications provides the technical specifications for the MC9500-K.

• Appendix B, Voice Quality Manager provides information on Voice Quality Manager software.

• Appendix C, Keypads provides keypad layouts and operation.

• Appendix D, Windows Mobile 6.5 explains the new features in Windows Mobile 6.5.3.

Notational Conventions

The following conventions are used in this document:

• "Mobile computer" refers to the Zebra MC9500-K hand-held computer.

• Italics are used to highlight the following:
  • Chapters and sections in this and related documents
  • Icons on a screen.

• Bold text is used to highlight the following:
  • Dialog box, window, and screen names
  • Drop-down list and list box names
  • Check box and radio button names
  • 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


• Enterprise Mobility Developer Kits (EMDKs), available at: http://www.zebra.com/support.

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

---

**Service Information**

If you have a problem with your equipment, contact Zebra for your region. Contact information is available at: http://www.zebra.com/support.

When contacting support, please have the following information available:

- Serial number of the unit (found on manufacturing label)
- Model number or product name (found on manufacturing label)
- Software type and version number.

Zebra responds to calls by email or telephone within the time limits set forth in support agreements.

If your problem cannot be solved by Zebra, you may need to return your equipment for servicing and will be given specific directions. Zebra 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.

If you purchased your business product from a Zebra business partner, contact that business partner for support.
Chapter 1 Getting Started

Introduction

This chapter explains how to set up the MC9500-K for the first time.

Unpacking

Carefully remove all protective material from the MC9500-K and save the shipping container for later storage and shipping.

Verify that you received the following:

- MC9500-K mobile computer
- 4800 mAh Lithium-ion battery
- Regulatory Guide
- Quick Start Guide.

Inspect the equipment for damage. If any equipment is missing or damaged, contact the Zebra center immediately. See page xix for contact information.

Prior to using the MC9500-K for the first time, remove the protective shipping film that covers the keypad and battery display.
Part of the MC9500-K

Figure 1-1  MC9500-K
Getting Started

To start using the MC9500-K for the first time:

- Install a microSD card (optional)
- Install the SIM card (MC9596 only)
- Install the battery.
- Charge the MC9500-K.

Installing a microSD Card

The microSD card slot provides secondary non-volatile storage. The slot is located under the battery pack. Refer to the documentation provided with the card for more information, and follow the manufacturer’s recommendations for use.

⚠️ **CAUTION** Follow proper ESD precautions to avoid damaging the microSD card. Proper ESD precautions include, but are not limited to, working on an ESD mat and ensuring that the operator is properly grounded.

✓ **NOTE** The MC9500-K was manufactured with two types of microSD card holders.
   - In Version 1, the microSD card is placed in the holder door and the door closed and locked into place.
   - In Version 2, the microSD card is placed face down on the holder contacts and the door closed and locked into place.

**Version 1**

To install the microSD card:

1. Remove the SD card cover using flathead screwdriver.

![SD Card Cover Removal](image)

2. Slide the microSD card holder door to the left to open.
3. Lift microSD card holder door.
4. Insert the microSD card into card holder door ensuring that the card slides into the holding tabs on each side of the door.

5. Close the card holder door and slide to the right to lock into place.

6. Align the SD card cover over the access hole and press down until it snaps into place.

**Version 2**

To install the microSD card:

1. Remove the SD card cover using the end of the stylus.

2. Slide the microSD card holder door to the left to unlock.

3. Lift the microSD card holder door.
Getting Started

4. Place the microSD card onto the contacts.

5. Close the card holder door and slide to the right to lock into place.

6. Align the SD card cover over the access hole and press down until it snaps into place.

Installing the SIM Card

NOTE MC9596 and MC959B configuration only.

GSM phone service requires a Subscriber Identification Module (SIM) card, or smart card. Obtain the card from your service provider. The card fits into the MC9596 and can contain the following information:

- Mobile phone service provider account details.
- Information regarding service access and preferences.
- Contact information, which can be moved to Contacts on the MC9596.
- Any additional services to which you have subscribed.

NOTE For more information about SIM cards, refer to the service provider's documentation.

To install the SIM card:

1. Remove SIM card cover using the end of the stylus.
2. Slide the SIM card holder door to the left to unlock.
3. Lift the SIM card holder door.

4. Insert the SIM card, as shown in *Figure 1-10* into the holder door with the contacts facing down and the card notch facing up.

5. Close SIM card holder door and slide to the right to lock into place.
6. Align the SIM card cover over the access hole and press down until it snaps into place.
7. Install the battery.

8. After completing initial MC9596 setup or after replacing a SIM card:
   a. Press the red Power button.
   b. On the Today screen, tap Wireless Manager.
   c. Ensure Phone is on.
   d. Press the red Power button to suspend the MC9596.
   e. Perform a warm boot. See Resetting the MC9500-K on page 3-3.
   f. Make a call to verify cellular connection.

   ✓ **NOTE** For detailed information about WWAN activation and settings, refer to the MC9500-K Series Mobile Computer Integrator Guide.

### Installing the Battery

To install the battery:

1. Insert the battery, top first, into the battery compartment.

2. Press the battery down into the battery compartment until the battery release latches snap into place.

![Figure 1-11 Inserting the Battery](image)

3. The MC9500-K powers up automatically after inserting the battery, if the battery has been charged previously.

### Charging the Battery

**CAUTION** Ensure that you follow the guidelines for battery safety described in Battery Safety Guidelines on page 9-2.

Before using the MC9500-K for the first time, charge the battery using either a charging cable or a cradle:

✓ **NOTE** For cable and cradle setup and charging procedures refer to the MC9500-K Series Mobile Computer Integrator Guide.

- USB Charging Cable
- Charge Only Cable
- Single Bay USB Cradle
• Four Bay Charge Only Cradle
• Four Bay Ethernet Cradle.

Align and hook the MC9500-K interface pocket onto the cradle’s or cable’s cleat. The battery automatically begins charging. See Table 1-1 for charging indications. The 4800 mAh battery fully charges in less than six hours.

Battery Status LED

<table>
<thead>
<tr>
<th>Battery Status LED</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>Indicates that the:</td>
</tr>
<tr>
<td></td>
<td>• battery is not charging</td>
</tr>
<tr>
<td></td>
<td>• MC9500-K is not connected correctly to the cradle or not connected to a power source.</td>
</tr>
<tr>
<td></td>
<td>• cradle is not powered.</td>
</tr>
<tr>
<td>Slow Blinking Amber (1 blink every 2 seconds)</td>
<td>Indicates that a healthy battery is charging.</td>
</tr>
<tr>
<td>Slow Blinking Red (1 blink every 2 seconds)</td>
<td>Indicates that an unhealthy battery is charging.</td>
</tr>
<tr>
<td>Solid Green</td>
<td>Indicates that a healthy battery is fully charged.</td>
</tr>
<tr>
<td>Solid Red</td>
<td>Indicates that an unhealthy battery is fully charged.</td>
</tr>
<tr>
<td>Fast Blinking Amber (2 blinks/second)</td>
<td>Indicates a charging error, e.g.:</td>
</tr>
<tr>
<td></td>
<td>• temperature is too low or too high.</td>
</tr>
<tr>
<td></td>
<td>• charging has gone on too long without completion (typically eight hours).</td>
</tr>
<tr>
<td>Single Blink Amber (when Power button pressed)</td>
<td>Battery depleted.</td>
</tr>
</tbody>
</table>

The MC9500-K is equipped with a memory backup battery which automatically charges from the fully-charged main battery. When using the MC9500-K for the first time, the backup battery requires approximately 36 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 RAM data in memory for at least 15 minutes (at room temperature) when the MC9500-K's main battery is removed. When the MC9500-K reaches a very low battery state, the combination of main battery and backup battery retains RAM data in memory for at least 48 hours.
**Charging Temperature**

Charge batteries in temperatures from 0°C to 40°C (32°F to 104°F). Note that charging is intelligently controlled by the MC9500-K.

To accomplish this, for small periods of time, the MC9500-K alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC9500-K indicates when charging is disabled due to abnormal temperatures via its LED. See Table 1-1.

**Powering On the MC9500-K**

After the MC9500-K is connected to power the splash screen displays for about a minute as the MC9500-K initializes its flash file system, then the calibration window appears.

**Calibrating the Screen**

- **NOTE** The Calibration screen can be accessed by pressing CTRL key - BKSP key or tapping Start > Settings > Screen > Align Screen button.

To calibrate the screen so the cursor on the touch screen aligns with the tip of the stylus:
1. Remove the stylus from its holder on the side of the MC9500-K.
2. Carefully press and briefly hold the tip of stylus on the center of each target that appears on the screen.
3. Repeat as the target moves around the screen, then tap the screen to continue.

**Replacing the Battery**

To replace the battery:

- **CAUTION** Suspend the MC9500-K prior to removing the battery. Failure to properly remove the battery may cause the MC9500-K to cold boot and potential loss of data.

- **NOTE** On devices with OEM version 01.19.11 and higher, a dialog box appears when pressing the Power button. See Removing the Battery on page D-18 for more information.

1. If the MC9500-K is in suspend mode, press the red **Power** button to wake the device.
2. Press the red **Power** button to suspend the MC9500-K.
3. Wait for red Decode LED to turn on and then turn off.
4. Unhook the handstrap.
5. Press the two battery release latches to release the battery. The battery ejects slightly.
Figure 1-12 Removing the Battery

6. Lift the battery from the MC9500-K.
7. Insert the replacement battery, top first, into the battery compartment in the back of the MC9500-K.
8. Press the battery down until the battery release latches snap into place.
   The MC9500-K powers up after inserting the battery.

Removing the microSD Card

To remove an microSD card:

**CAUTION** Suspend the MC9500-K prior to removing the battery. Failure to properly remove the battery may cause the MC9500-K to cold boot and potential loss of data.

**NOTE** On devices with OEM version 01.19.11 and higher, a dialog box appears when pressing the Power button. See Removing the Battery on page D-18 for more information.

1. If the MC9500-K is in suspend mode, press the red **Power** button to wake the device.
2. Press the red **Power** button to suspend the MC9500-K.
3. Wait for red Decode LED to turn on and then turn off.
4. Unhook the handstrap.
5. Remove the battery.
6. Remove the SD card cover.
7. Slide the SD card holder door to the left to unlock.
8. Lift the microSD card holder door.
9. Remove microSD card from holder.
10. Close the microSD card holder door.
11. Slide the microSD card holder door to the right to lock into place.
12. Align the SD card cover over the access hole and press down until it snaps into place.
13. Replace the battery.
Removing the SIM Card

To remove an SIM card:

**CAUTION** Suspend the MC9500-K prior to removing the battery. Failure to properly remove the battery may cause the MC9500-K to cold boot and potential loss of data.

**NOTE** On devices with OEM version 01.19.11 and higher, a dialog box appears when pressing the Power button. See *Removing the Battery on page D-18* for more information.

1. If the MC9500-K is in suspend mode, press the red **Power** button to wake the device.
2. Press the red **Power** button to suspend the MC9500-K.
3. Wait for red Decode LED to turn on and then turn off.
4. Unhook the handstrap.
5. Remove the battery.
6. Remove the SIM card cover using the end of the stylus.
7. Slide the SIM card holder door to the left to unlock.
8. Lift the SIM card holder door.
9. Remove SIM card from holder.
10. Close the SIM card holder door.
11. Slide the SIM card holder door to the right to lock into place.
12. Align the SIM card cover over the access hole and press down until it snaps into place.
13. Replace the battery.
Chapter 2 Battery Management

Introduction

This chapter provides information on battery functionality, battery status indications, charging the MC9500-K, charging spare batteries and power saving techniques.

Battery Functionality

The battery provides power to the MC9500-K and contains charging and status indications on the front of the battery. The indicators function differently depending upon the battery mode and allow the user to determine the health of the battery.

![Battery Diagram]

- Charging Status LED
- Charge Level Indicator
- Status Button

Figure 2-1  Battery

Charging Status LED indicates the charging status and health of the battery. The Charge Level Indicator indicates an unhealthy battery and the charge level of the battery.
Battery Health

A battery becomes unhealthy when the **Battery Usage Indication** reach a predefined threshold (end of usable life).

![Battery Warning Dialog Box](image)

**Figure 2-2  Battery Warning Dialog Box**

The **Battery Usage Threshold** value can be changed. See the *MC9500-K Mobile Computer Integrator Guide* for more information.

When the battery becomes unhealthy, a dialog box displays on the MC9500-K. When this appears, tap **Dismiss**. Replace the battery as soon as possible. The battery Charge Level indicator display an “X” when the battery becomes unhealthy (see **Figure 2-3**). When charging an unhealthy battery in the MC9500-K, the Battery Status LED blinks red.

![Unhealthy Battery Indication](image)

**Figure 2-3  Unhealthy Battery Indication**

**NOTE**  The point at which a battery becomes unhealthy may vary depending upon the environment and charging conditions.
Battery Status

The MC9500-K battery provides status information on the front of the battery that allows the user to make determination on what battery to use. The battery status indications vary depending upon the mode of the battery:

- Installed in an MC9500-K
- In a charger
- stand-alone.

Installed in an MC9500-K

NOTE The Charge Level indicator does not display the charge level while the MC9500-K is charging.

When the battery is installed in the MC9500-K, the user can view the charge level (with Status button press) and health of the battery (see Figure 2-4). The Battery Status LED is disabled when the battery is installed in the MC9500-K. If the battery is unhealthy, the Charge Level indicator displays an "X" (see Figure 2-3).

Figure 2-4 Battery in MC9500-K

Press the Status button to display the current battery charge level. It will display for five seconds and then turn off. Table 2-1 list the Charge Level indications when the Status button is pressed.
### Table 2-1  Charge Level Indicator

<table>
<thead>
<tr>
<th>Charge Level Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Battery icon" /></td>
<td>Indicates that the remaining charge is approximately between 0% and 20%.</td>
</tr>
<tr>
<td><img src="image" alt="Battery icon" /></td>
<td>Indicates that the remaining charge is approximately between 21% and 40%.</td>
</tr>
<tr>
<td><img src="image" alt="Battery icon" /></td>
<td>Indicates that the remaining charge is approximately between 41% and 60%.</td>
</tr>
<tr>
<td><img src="image" alt="Battery icon" /></td>
<td>Indicates that the remaining charge is approximately between 61% and 80%.</td>
</tr>
<tr>
<td><img src="image" alt="Battery icon" /></td>
<td>Indicates that the remaining charge is approximately between 81% and 100%.</td>
</tr>
</tbody>
</table>

**NOTE** The battery front panel is not visible when the MC9500-K is charging in a cradle. The battery front panel is visible when charging with a charging cable. The Charge Level indicator displays a “charging in mobile computer” indication (see Table 2-2).

### Table 2-2  Battery in MC9500-K

<table>
<thead>
<tr>
<th>Action</th>
<th>State</th>
<th>Healthy Battery</th>
<th>Unhealthy Battery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Battery Status LED</td>
<td>Charge Level Indicator</td>
</tr>
<tr>
<td>None</td>
<td>Not Charging</td>
<td>Off</td>
<td><img src="image" alt="Battery icon" /></td>
</tr>
<tr>
<td>Button Press</td>
<td>Not Charging</td>
<td>Off</td>
<td><img src="image" alt="Battery icon" /></td>
</tr>
</tbody>
</table>
The health of the battery can also be viewed on the MC9500-K Power applet. Tap Start > Settings > Power icon > BatteryMgmt tab.

![Settings - Power - BatteryMgmt Window](image)

**Figure 2-5** Power - BatteryMgmt Window

### Table 2-3  BatteryMgmt Window

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of Health</td>
<td>Indicates the current state of the battery (Healthy or Unhealthy).</td>
</tr>
<tr>
<td>Battery Usage Indicator</td>
<td>Indicates the usage of the battery.</td>
</tr>
<tr>
<td>Battery Usage Threshold</td>
<td>Indicates the usage indicator threshold.</td>
</tr>
<tr>
<td>Battery Serial #</td>
<td>Displays the serial number of the battery.</td>
</tr>
</tbody>
</table>

For information on changing the Battery Usage Threshold, refer to the MC9500-K Mobile Computer Integrator Guide.

### In a Charger

When the battery is in a Single Slot Battery Charger, Four Slot Battery Charger or Vehicle Battery Charger, the battery charging status and health is indicated on the front of the battery. If the charger is not powered, the battery acts as if it is in stand-alone mode. See Stand-alone on page 2-8 for more information.
Figure 2-6  Battery in Single Slot Battery Charger

The Battery Status LED displays the current state of charging as described in Table 2-4. The Charge Level indicator displays the charge level of a healthy battery as described in Table 2-1.

With an unhealthy battery, an "X" appears on the display. To view the charge level, press the Status button. The display indicates the level of charge. After five seconds the display reverts to the “X” indication.
<table>
<thead>
<tr>
<th>State</th>
<th>Healthy Battery</th>
<th>Unhealthy Battery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Battery Status</td>
<td>Battery Status</td>
</tr>
<tr>
<td></td>
<td>LED</td>
<td>LED</td>
</tr>
<tr>
<td></td>
<td>Charge Level</td>
<td>Charge Level</td>
</tr>
<tr>
<td></td>
<td>Indicator</td>
<td>Indicator</td>
</tr>
<tr>
<td>None (charger not powered)</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>Charging</td>
<td>Slow Blinking</td>
<td>Slow Blinking</td>
</tr>
<tr>
<td></td>
<td>Amber</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>(1 blink every 2</td>
<td>(1 blink every 2</td>
</tr>
<tr>
<td></td>
<td>seconds)</td>
<td>seconds)</td>
</tr>
<tr>
<td>Fully Charged</td>
<td>Solid Green</td>
<td>Solid Red</td>
</tr>
<tr>
<td>Charging Error</td>
<td>Fast Blinking</td>
<td>Fast Blinking</td>
</tr>
<tr>
<td></td>
<td>Amber</td>
<td>Amber</td>
</tr>
<tr>
<td></td>
<td>(2 blinks/second)</td>
<td>(2 blinks/second)</td>
</tr>
<tr>
<td>• temperature is too low or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>too high.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• charging has gone on too</td>
<td></td>
<td></td>
</tr>
<tr>
<td>long without completion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(typically eight hours).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Stand-alone

When the battery is not installed in an MC9500-K or a charger, the charge status and health of the battery displays on the battery front panel. If the battery is unhealthy, an “X” appears in the Charge Level indicator. Press the Status button to view the health and charge level of the battery. The Battery Status LED lights and the Charge Level indicator display the charge level. After five seconds the LED turns off and the Charge Level indicator reverts to the previous display. See Table 2-5 for Battery Status LED and Charge Level indicator descriptions.

Table 2-5 Battery Status - Stand-alone

<table>
<thead>
<tr>
<th>Action</th>
<th>Healthy Battery</th>
<th>Unhealthy Battery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Battery Status</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LED</td>
<td>Charge Level Indicator</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>Button Press</td>
<td>Solid Green</td>
<td>Solid Red</td>
</tr>
</tbody>
</table>

See Table 2-1 on page 2-4 for detail information.
Charging the MC9500-K

CAUTION Ensure that you follow the guidelines for battery safety described in Battery Safety Guidelines on page 9-2.

The MC9500-K is equipped with a memory backup battery which automatically charges from the fully-charged main battery. When using the MC9500-K for the first time, the backup battery requires approximately 36 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 RAM data in memory for at least 15 minutes (at room temperature) when the MC9500-K’s main battery is removed. When the MC9500-K reaches a very low battery state, the combination of main battery and backup battery retains RAM data in memory for at least 36 hours.

To charge the battery, use either a cradle or charging cable. For cable and cradle setup and charging procedures refer to the MC9500-K Mobile Computer Integrator Guide.

To charge the battery:

1. Connect the charging accessory to the appropriate power source. See MC9500-K Series Mobile Computer Integrator Guide for setup information.

2. Align and hook the MC9500-K interface pocket onto the cradle’s or cable’s cleat. The MC9500-K begins charging. The Charging/Battery Status LED blinks while charging, then turns solid when fully charged (LED color depends upon health of the battery). See Table 2-6 for charging indications. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery charges in less than nine hours.

Table 2-6 Charging/Battery Status LED Indications

<table>
<thead>
<tr>
<th>State</th>
<th>Healthy Battery</th>
<th>Unhealthy Battery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MC9500-K LED Status</td>
<td>MC9500-K LED Status</td>
</tr>
<tr>
<td>None</td>
<td>Off</td>
<td>Off</td>
</tr>
</tbody>
</table>
| • battery is not charging
• MC9500-K is not connected correctly to the cradle/cable or not connected to a power source.
• cradle/cable is not powered. |                      |                     |
| Charging          | Slow Blinking Amber (1 blink every 2 seconds) | Slow Blinking Red (1 blink every 2 seconds) |
### Table 2-6  Charging/Battery Status LED Indications (Continued)

<table>
<thead>
<tr>
<th>State</th>
<th>Healthy Battery</th>
<th>Unhealthy Battery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MC9500-K LED Status</td>
<td>MC9500-K LED Status</td>
</tr>
<tr>
<td>Fully Charged</td>
<td>Solid Green</td>
<td>Solid Red</td>
</tr>
<tr>
<td>Charging Error</td>
<td>Fast Blinking Amber (2 blinks/second)</td>
<td>Fast Blinking Amber (2 blinks/second)</td>
</tr>
<tr>
<td></td>
<td>temperature is too low or too high.</td>
<td>charging has gone on too long without completion (typically eight hours for the 4800 mAh battery).</td>
</tr>
</tbody>
</table>
### Charging a Spare Battery

Charge a spare battery using one of the following accessories:

- Single Slot Battery Charger
- Four Slot Battery Charger
- Vehicle Battery Charger.

To charge a spare battery:

1. Ensure the charger is connected to an appropriate power source.
2. Insert the spare battery into the charger. The spare battery begins charging.

![Figure 2-7  Spare Battery in Single Slot Battery Charger](image)

The battery charging and health status is indicated on the front of the battery. *Table 2-7* lists the charging indications.
Charging Temperature

Charge batteries in temperatures from 0°C to 40°C (32°F to 104°F). Note that charging is intelligently controlled by the MC9500-K.

To accomplish this, for small periods of time, the MC9500-K alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC9500-K indicates when charging is disabled due to abnormal temperatures via its LED.

<table>
<thead>
<tr>
<th>State</th>
<th>Healthy Battery</th>
<th>Unhealthy Battery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Battery Status LED</td>
<td>Charge Level Indicator</td>
</tr>
<tr>
<td>None (charger not powered)</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>Charging</td>
<td>Slow Blinking Amber (1 blink every 2 seconds)</td>
<td>Slow Blinking Red (1 blink every 2 seconds)</td>
</tr>
<tr>
<td>Fully Charged</td>
<td>Solid Green</td>
<td></td>
</tr>
<tr>
<td>Charging Error</td>
<td>Fast Blinking Amber (2 blinks/second)</td>
<td>Fast Blinking Amber (2 blinks/second)</td>
</tr>
</tbody>
</table>

Table 2-7 Battery Charging Status Indications
Power Saving Techniques

Observe the following battery saving tips:

• Leave the MC9500-K connected to AC power at all times when not in use.
• Set the MC9500-K to turn off after a short period of non-use.
• Set the backlight to turn off after a short period of non-use.
• Turn off all wireless activities when not in use.

Changing the Power Settings

To set the MC9500-K to turn off after a short period of non-use:

1. Tap Start > Settings > System tab > Power icon > Advanced tab.
2. Select the On battery power: Turn off device if not used for check box and select a value from the drop-down list.
3. Select ok.

Changing the Backlight Settings

To change the backlight settings in order to conserve more battery power:

1. Tap Start > Settings > System tab > Backlight icon > Battery Power tab.
2. Select the Disable backlight if device is not used for check box and select a value from the drop-down list.
3. Select the Brightness tab.
4. Tap the Disable backlight check box to turn off the display backlight, or use the slider to set a low value for the backlight.
5. Select ok.

Changing the Keypad Backlight Settings

To change the keypad backlight settings in order to conserve more battery power:

1. Tap Start > Settings > System tab > Keylight icon > Battery Power tab.
2. Select the On battery power: Disable keylight if device if not used for check box and select a value from the drop-down list.
3. Select the Advanced tab.
4. Tap the Disable keylight check box to turn off the keypad backlight.
5. Select ok.

Turning Off the Radios

Windows Mobile 6 devices include Wireless Manager, which provides a simple method of enabling, disabling, and configuring all the device’s wireless capabilities in one place.
To open **Wireless Manager**, tap the **Connectivity** icon or tap **Wireless Manager** on the **Today** screen.

![Connectivity icon](image)

**Figure 2-8  Opening Wireless Manager**

Select **Wireless Manager**.

![Wireless Manager Window](image)

**Figure 2-9  Wireless Manager Window**

**NOTE** Wireless connection options vary depending upon configurations.

To enable or disable a wireless connection, tap the specific button.

To enable or disable all wireless connections, tap and hold the **All** button.

To configure settings for a connection, tap **Menu**.
Figure 2-10  Wireless Manager Menu
Introduction

This chapter explains the indicators, buttons, status icons, and controls on the MC9500-K, and provides basic instructions for using the device.

LED Indicators

The MC9500-K has three LED indicators. The Decode LED indicates scanning status. The Battery Status LED indicates battery charging and health status. The WAN Radio Status LED indicates WAN radio status. Table 3-1 describes the LED indications.

Table 3-1  LED Indications

<table>
<thead>
<tr>
<th>LED State</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decode LED</td>
<td></td>
</tr>
<tr>
<td>Solid Green</td>
<td>Successful decode/capture.</td>
</tr>
<tr>
<td>Solid Red</td>
<td>Scanning/imaging in process.</td>
</tr>
<tr>
<td>Blinks Red</td>
<td>After the Power button is pressed, turns on and then off to indicate that the battery can be removed.</td>
</tr>
</tbody>
</table>
### Table 3-1  LED Indications (Continued)

<table>
<thead>
<tr>
<th>LED State</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>Not enabled.</td>
</tr>
</tbody>
</table>

#### Battery Status LED

<table>
<thead>
<tr>
<th>LED State</th>
<th>Indication</th>
</tr>
</thead>
</table>
| Off       | Indicates that the:  
|           | • battery is not charging  
|           | • MC9500-K is not connected correctly to the cradle or not connected to a power source.  
|           | • cradle is not powered. |
| Slow Blinking Amber (1 blink every 2 seconds) | Indicates that a healthy battery is charging. |
| Slow Blinking Red (1 blink every 2 seconds) | Indicates that an unhealthy battery is charging. |
| Solid Green | Indicates that a healthy battery is fully charged. |
| Solid Red | Indicates that an unhealthy battery is fully charged. |
| Fast Blinking Amber (2 blinks/second) | Indicates a charging error, e.g.:  
| | • temperature is too low or too high.  
| | • charging has gone on too long without completion (typically eight hours). |
| Single Blink Amber (when Power button pressed) | Battery depleted. |
| Blinking Amber (when Power button pressed) | Battery over-temperature condition. |

#### WAN Radio Status LED (MC9596 or MC9598 only)

<table>
<thead>
<tr>
<th>LED State</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slow Blinking Green</td>
<td>WAN activity.</td>
</tr>
<tr>
<td>Off</td>
<td>No WAN activity.</td>
</tr>
</tbody>
</table>

**NOTE** For information about scanning/decoding, see Chapter 4, Data Capture. For information about WAN radio status and settings, see Chapter 5, Using the Phone, or refer to the MC9500-K Mobile Computer Integrator Guide.
Resetting the MC9500-K

There are two reset functions, warm boot and cold boot. A warm boot restarts the MC9500-K by closing all running programs. A cold boot also restarts the MC9500-K, and also initializes some drivers. Data saved in flash memory or a memory card is not lost.

If the MC9500-K is not functioning properly, perform a warm boot first. If the MC9500-K still does not respond, perform a cold boot.

Performing a Warm Boot

Hold down the red Power button for approximately five seconds. As soon as the MC9500-K starts to boot release the Power button.

Performing a Cold Boot

To perform a cold boot, simultaneously press the red Power button and the 1 and 9 keys.

Waking the MC9500-K

The wake-up conditions define what actions wake up the mobile computer after it has gone into suspend mode. The mobile computer can go into suspend mode by either pressing the Power button or automatically by Control Panel time-out settings. These settings are configurable and the factory default settings are shown in Table 3-2 are subject to change/update. Tap Start > Setting > System > Power icon > Wakeup tab to configure these settings.

Table 3-2  Wake-up Default Settings

<table>
<thead>
<tr>
<th>Condition for Wake-up</th>
<th>Power Button</th>
<th>Automatic Time-out</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC power is applied.</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Mobile computer is inserted into a cradle.</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Mobile computer is removed from a cradle.</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Mobile computer is connected to a USB device.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>A key is pressed.</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>The scan triggered is pressed.</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>The screen is touched.</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Bluetooth communication</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>On motion</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Incoming phone call (MC9596 and MC9598 only)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Locking the MC9500-K

You can lock the MC9500-K by disabling key presses and screen tap or by requiring a password.

**Keypad Locking**

Locking the MC9500-K turns off keyboard and touch screen functionality. This is helpful when the MC9500-K is turned on and you want to prevent accidental key presses.

To lock the device, tap the **Device unlocked** icon. The icon changes to **locked**.

To unlock the device and free it for use, tap **Unlock**.
Using the MC9500-K 3 - 5

Password Locking

Use the Password window to set a password to disable unauthorized access to the MC9500-K.

NOTE If the device is configured to connect to a network, use a strong (difficult to figure out) password to help protect network security. Password cracking tools continue to improve and the computers used to crack passwords are more powerful than ever.

1. Tap Start > Settings > Personal tab > Lock icon > Password tab.

2. Select Prompt if device unused for check box to enable password protection.

3. From the drop-down list, select a time value for the protection to take affect after non-use.

4. From the Password type: drop-down list, select either Simple PIN or Strong alphanumeric.

5. For a simple password, enter a four-digit password in the Password field.
   For a stronger password:
a. Enter a seven character password in the Password: field. A strong password must contain at least seven characters and contain at least three of the following: uppercase and lowercase letters, numerals, and punctuation.

b. Re-enter the password in the Confirm: field.

6. Tap ok.

7. To set a hint to remember the password, tap the Hint tab.

8. In the text box, enter a hint for a password reminder.

9. Tap ok.

When the MC9500-K is not used for a period of time and the user tries to access the device, the Password window appears.

Enter the password to un-lock the device.

Tap Unlock.
Keypads

The MC9500-K offers four types modular keypad configurations. See Appendix C, Keypads for keypad functionality.

Function Buttons

The MC9500-K’s buttons perform certain functions.

- **Power**: Press the red **Power** button to place the MC9500-K into suspend mode or wake from suspend mode. Also use the **Power** button to reset the MC9500-K by performing a warm or cold boot. See *Resetting the MC9500-K on page 3-3*.
- **Scan/Action**: Press to scan bar codes or capture images. See *Chapter 4, Data Capture*. Or, press to open an application or perform a function. See the *Microsoft® Applications for Mobile 6 User Guide* to set an application to open.
- **Volume Up/Down**: Press to increase or decrease the MC9500-K’s volume.
- **Action**: Press to open an application or perform a function. See the *Microsoft® Applications for Windows Mobile 6 User Guide* to set an application to open.
- **Green Key**: Press to open the Phone Dialer window or answer an incoming call or place a call on hold.
- **Red Key**: Press to end a call.
- **Function Keys**: Programmable functions for performing specific applications.
  - F1 - Left soft key
  - F2 - Right soft key
  - F3 - Talk (MC9596/8 only)
  - F4 - End Call (MC9596/8 only)
  - F5 - Refreshes the screen in Internet Explorer and File Explorer.
  - F6 - Volume Up.

Stylus

Use the MC9500-K stylus to select items and enter information. The stylus functions as a mouse.

- **Tap**: Touch the screen once with the stylus to press option buttons and open menu items.
- **Tap and Hold**: Tap and hold the stylus on an item to see a list of actions available for that item. On the pop-up menu that appears, tap the action to perform.
- **Drag**: Hold the stylus on the screen and drag across the screen to select text and images. Drag in a list to select multiple items.

⚠️ **CAUTION**  To prevent damage to the screen, do not use any device other than the Zebra-provided stylus.
Entering Data

When entering data on the keypad, use either the single-hand method or the two-hand method as shown in Figure 3-8.

Figure 3-8  Entering Data on the Keypad
Interactive Sensor Technology

This section describes the functionality of the Interactive Sensor Technology (IST) feature on the MC9500-K. The IST supports the following features.

- Power Management – manage power by configuring IST to control switching on/off the backlight, control suspend mode of the MC9500-K by monitoring motion and orientation.
- Display Orientation – switch the screen orientation to either landscape or portrait depending on the MC9500-K orientation.
- Free Fall Detection – monitors free fall duration and records the time and type of the drop event.

Power Management

The MC9500-K orientation and motion sensitive data can be used as an indicator of MC9500-K usage and can be used to manage the battery power of the mobile computer. For example, IST can be configured to control the backlight on and off functionality or go into suspend according to a user gesture by placing screen facing down. It can also be used to keep the MC9500-K active while it is in movement to prevent it from quickly going into suspend mode while in use.

Display Orientation

The screen can be rotated between portrait and landscape modes automatically, depending on the physical orientation of the MC9500-K. For example, if the MC9500-K is rotated 90° counterclockwise, IST rotates the display counterclockwise 90° so that the screen display appears correct.

This functionality is achieved by monitoring screen angle and rotating the display to counter any changes. IST only rotates the screen in multiples of 90°.

Figure 3-9  Display Orientation
Free Fall Detection

IST continuously monitors gravitational force on the MC9500-K according to its current position. When the MC9500-K free falls, IST detects the absence of gravitational force and records the event data if it detects a free fall more than 450 ms, which may indicates nearly a one meter drop. This data can be used as an indicator of potential abuse or misuse.

IST features a log for recording the free fall events. This log records the date, time and the time period of the free fall.

Figure 3-10  Free Fall Detection
**Today Screen**

**NOTE** On devices with Windows Mobile 6.5.3, the Today screen has changed. See *Home Screen on page D-1* for more information.

The Today screen displays important information, such as upcoming appointments and status indicators. Tap a section on the screen to open the associated program. Alternatively, tap **Start > Today** to display the **Today** screen.

![Today Screen Diagram](image)

**Figure 3-11  Today Screen**

To customize the **Today** screen, tap **Start > Settings > Today** icon. Use the **Appearance** tab to customize the background and the **Items** tab to change the list and order of items that appear on the screen.
### Status Icons

**NOTE** On devices with Windows Mobile 6.5.3, the functionality of the Status bar has changed. See [Status Bar on page D-5](#) for more information.

The Navigation bar at the top of the screen can contain the status icons listed in Table 3-3.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Notification Icon" /></td>
<td>Notification</td>
<td>Backup Battery Low.</td>
</tr>
<tr>
<td><img src="image" alt="Notification Icon" /></td>
<td>Notification</td>
<td>Notification that one or more instant messages were received.</td>
</tr>
<tr>
<td><img src="image" alt="Notification Icon" /></td>
<td>Notification</td>
<td>Notification that one or more e-mail/text messages were received.</td>
</tr>
<tr>
<td><img src="image" alt="Notification Icon" /></td>
<td>Notification</td>
<td>Notification that one or more voice messages were received.</td>
</tr>
<tr>
<td><img src="image" alt="Notification Icon" /></td>
<td>Notification</td>
<td>There are more notification icons than can be displayed. Tap to display remaining icons.</td>
</tr>
<tr>
<td><img src="image" alt="Notification Icon" /></td>
<td>Connectivity</td>
<td>Indicates a reminder of an upcoming calendar event.</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>Connection is active.</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>Connection is not active.</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>Synchronization is occurring.</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>Wi-Fi available.</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>Wi-Fi in use.</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>HSDPA available. (MC9596 only)</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>HSDPA connecting. (MC9596 only)</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>3G available. (MC9596 only)</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>3G connecting. (MC9596 only)</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>GPRS available. (MC9596 only)</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>GPRS connecting. (MC9596 only)</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>EGPRS available. (MC9596 only)</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>EGPRS connecting. (MC9596 only)</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>EVDO connecting. (MC9598 only)</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>1xRTT available. (MC9598 only)</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>EVDO Rev. 0 available. (MC9598 only)</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>EVDO Rev. A available. (MC9598 only)</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity Icon" /></td>
<td>Connectivity</td>
<td>Dormant State - no data transmission during a 1x or EVDO connection. (MC9598 only)</td>
</tr>
<tr>
<td>Icon</td>
<td>Function</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>📞!</td>
<td>WAN</td>
<td>Call missed.</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>Dialing while no SIM card is installed.</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>Voice call in progress.</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>Calls are forwarded.</td>
</tr>
<tr>
<td>🔄</td>
<td></td>
<td>Call on hold.</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>Speakerphone is on.</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>Antenna/signal icon: wireless on/good signal.</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>Antenna/signal icon: wireless off.</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>Antenna/signal icon: no service or searching.</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>HSDPA in use. (MC9596 only)</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>3G in use. (MC9596 only)</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>GPRS in use. (MC9596 only)</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>EGPRS in use. (MC9596 only)</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>EVDO in use. (MC9598 only)</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>Roaming.</td>
</tr>
<tr>
<td>📞</td>
<td></td>
<td>SIM Card not installed. (MC9596 only)</td>
</tr>
<tr>
<td>🎧</td>
<td>Speaker</td>
<td>All sounds are on.</td>
</tr>
<tr>
<td>🎧</td>
<td></td>
<td>All sounds are off.</td>
</tr>
<tr>
<td>🎧</td>
<td></td>
<td>Vibrate is on.</td>
</tr>
<tr>
<td>🍃</td>
<td>Battery</td>
<td>Main battery is charging.</td>
</tr>
<tr>
<td>🍃</td>
<td></td>
<td>Battery power completely depleted.</td>
</tr>
<tr>
<td>🍃</td>
<td></td>
<td>Main battery is low.</td>
</tr>
<tr>
<td>🍃</td>
<td></td>
<td>Main battery level.</td>
</tr>
<tr>
<td>🕒</td>
<td>Time and Next Appointment</td>
<td>Displays current time in analog or digital format.</td>
</tr>
</tbody>
</table>
The Command Bar at the bottom of the screen can contain the application icons listed in Table 3-4.

### Table 3-4 Command Bar Icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Wireless connection status" /></td>
<td>Indicates WLAN signal strength.</td>
</tr>
<tr>
<td><img src="image" alt="Out-of-network range (not associated)" /></td>
<td>Indicates no wireless LAN network connection. Notify the network administrator.</td>
</tr>
<tr>
<td><img src="image" alt="No wireless LAN network card detected" /></td>
<td>Indicates Wireless LAN disabled or radio disabled. Notify the network administrator.</td>
</tr>
<tr>
<td><img src="image" alt="Bluetooth Enabled" /></td>
<td>Indicates the Bluetooth radio is on. (Displays only if the StoneStreet One Bluetooth stack is enabled)</td>
</tr>
<tr>
<td><img src="image" alt="Bluetooth Disabled" /></td>
<td>Indicates the Bluetooth radio is off. (Displays only if the StoneStreet One Bluetooth stack is enabled)</td>
</tr>
<tr>
<td><img src="image" alt="Bluetooth Connection" /></td>
<td>Indicates the Bluetooth radio is connected to another Bluetooth device. (Displays only if the StoneStreet One Bluetooth stack is enabled)</td>
</tr>
<tr>
<td><img src="image" alt="ActiveSync" /></td>
<td>Indicates an active serial connection between the MC9500-K and the host computer.</td>
</tr>
<tr>
<td><img src="image" alt="IST icon" /></td>
<td>Opens the IST settings menu.</td>
</tr>
</tbody>
</table>

### Programs

**NOTE** On devices with Windows Mobile 6.5.3, the functionality of the Start Menu has changed. See Home Screen on page D-1 for more information.

Table 3-5 lists the default programs on the Start menu.

### Table 3-5 Programs in the Start Menu

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Office Mobile" /></td>
<td>Office Mobile</td>
<td>Use the complete suite of Microsoft® Office applications for your mobile device. Excel Mobile - Create new workbooks or view and edit Microsoft® Excel® workbooks. OneNote Mobile - Create new notes or view existing notes. PowerPoint Mobile - View Microsoft® PowerPoint® slides and presentations. Word Mobile - Create, view, and edit Microsoft® Word documents. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td><img src="image" alt="Calendar" /></td>
<td>Calendar</td>
<td>Keep track of appointments and create meeting requests. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
</tbody>
</table>
Table 3-6 lists programs that are listed in the Programs window.

Table 3-6  Programs in Program Window

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="https://example.com/ActiveSync.png" alt="ActiveSync.png" /></td>
<td>ActiveSync</td>
<td>Synchronize information between the MC9500-K and a host computer or the Exchange Server. Refer to the MC9500-K Series Mobile Computer Integrator Guide for more information.</td>
</tr>
<tr>
<td>![AirBEAM Client.png](<a href="https://example.com/AirBEAM">https://example.com/AirBEAM</a> Client.png)</td>
<td>AirBEAM Client</td>
<td>Allows specially designed software packages to be transferred between a host server and the MC9500-K. Refer to the MC9500-K Series Mobile Computer Integrator Guide for more information.</td>
</tr>
<tr>
<td>![BT Information.png](<a href="https://example.com/BT">https://example.com/BT</a> Information.png)</td>
<td>BT Information</td>
<td>Displays information about the Bluetooth radio. See Chapter 7, Using Bluetooth.</td>
</tr>
<tr>
<td><img src="https://example.com/BTExplorer.png" alt="BTExplorer.png" /></td>
<td>BTExplorer</td>
<td>Manages StoneStreet One Bluetooth connections. Refer to the MC9500-K Series Mobile Computer Integrator Guide for more information. Appears only if the StoneStreet One Bluetooth stack is enabled.</td>
</tr>
<tr>
<td><img src="https://example.com/CALCULATOR.png" alt="Calculator.png" /></td>
<td>Calculator</td>
<td>Perform basic arithmetic and calculations, such as addition, subtraction, multiplication, and division. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>![File Explorer.png](<a href="https://example.com/File">https://example.com/File</a> Explorer.png)</td>
<td>File Explorer</td>
<td>Organize and manage files on your device. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>![Getting Started.png](<a href="https://example.com/Getting">https://example.com/Getting</a> Started.png)</td>
<td>Getting Started</td>
<td>Provides quick links for setting the devices clock, setting up e-mail, setting a device password, setting a background image and transferring music. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>Icon</td>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><img src="image" alt="Internet Sharing" /></td>
<td>Internet Sharing</td>
<td>Connect a notebook computer to the Internet using the MC9500-K's data connection.</td>
</tr>
<tr>
<td><img src="image" alt="Messenger" /></td>
<td>Messenger</td>
<td>Use this mobile version of Windows Live Messenger. Refer to the <em>Microsoft Applications for Windows Mobile 6 User Guide</em> for more information.</td>
</tr>
<tr>
<td><img src="image" alt="DEMO" /></td>
<td>DEMO</td>
<td>Provides a web link to Zebra’s featured demos for the MC9500-K.</td>
</tr>
<tr>
<td><img src="image" alt="Modem Link" /></td>
<td>Modem Link</td>
<td>Enables the MC9500-K to be used as a modem.</td>
</tr>
<tr>
<td><img src="image" alt="MSP Agent" /></td>
<td>MSP Agent</td>
<td>Interacts with MSP agents to collect monitoring and asset information to enable the configuration, provisioning, monitoring and troubleshooting of the MC9500-K. Refer to the <em>Mobility Services Platform User Guide</em> for more information.</td>
</tr>
<tr>
<td><img src="image" alt="Notes" /></td>
<td>Notes</td>
<td>Create handwritten or typed notes, drawings, and voice recordings. Refer to the <em>Microsoft Applications for Windows Mobile 6 User Guide</em> for more information.</td>
</tr>
<tr>
<td><img src="image" alt="Pictures &amp; Videos" /></td>
<td>Pictures &amp; Videos</td>
<td>View and manage pictures, animated GIFs, and video files. Refer to the <em>Microsoft Applications for Windows Mobile 6 User Guide</em> for more information.</td>
</tr>
<tr>
<td><img src="image" alt="Rapid Deployment Client" /></td>
<td>Rapid Deployment Client</td>
<td>Facilitates software downloads from a Mobility Services Platform Console FTP server to the MC9500-K. Refer to the <em>MC9500-K Mobile Computer Integrator Guide</em> for more information.</td>
</tr>
<tr>
<td><img src="image" alt="Remote Desktop Mobile" /></td>
<td>Remote Desktop Mobile</td>
<td>Log onto Windows NT server type computers and use all of the programs that are available on that computer from the MC9500-K.</td>
</tr>
<tr>
<td><img src="image" alt="Search" /></td>
<td>Search</td>
<td>Search contacts, data, and other information on your MC9500-K. Refer to the <em>Microsoft Applications for Windows Mobile 6 User Guide</em> for more information.</td>
</tr>
<tr>
<td><img src="image" alt="SIM Toolkit" /></td>
<td>SIM Toolkit</td>
<td>Manage the contacts that are stored on your SIM card. Copy SIM contents to Contacts on the MC9500-K. See <em>Chapter 5, Using the Phone</em> for more information. MC9596 and MC9598 only.</td>
</tr>
<tr>
<td><img src="image" alt="SMS Staging" /></td>
<td>SMS Staging</td>
<td>SMS Staging - Receives and processes SMS messages from an MSP Server and allows the user to stage an MC9500-K based on them. Requires the purchase of an MSP client license per device.</td>
</tr>
<tr>
<td><img src="image" alt="Task Manager" /></td>
<td>Task Manager</td>
<td>Enables viewing of memory and CPU allocations and stops running processes. Refer to the <em>Microsoft Applications for Windows Mobile 6 User Guide</em> for more information.</td>
</tr>
</tbody>
</table>
Using the MC9500-K  3 - 17

Table 3-6  Programs in Program Window (Continued)

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tasks</td>
<td>Keep track of your tasks. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td></td>
<td>Windows Live</td>
<td>Use this mobile version of Windows Live™ to find information on the web. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td></td>
<td>Windows Media</td>
<td>Play back audio and video files. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
</tbody>
</table>

Settings

Table 3-7 lists control applications pre installed on the MC9500-K. Tap Start > Settings to open the Settings window.

Table 3-7  Settings in the Setting Window

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Buttons</td>
<td>Assign a program to a button. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td></td>
<td>Input</td>
<td>Set options for each of the input methods. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td></td>
<td>Lock</td>
<td>Set a password for the MC9500-K.</td>
</tr>
<tr>
<td></td>
<td>Owner Information</td>
<td>Enter personal information on the MC9500-K. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td></td>
<td>Phone</td>
<td>Make and receive calls, switch between calls, and set up conference calling. See Chapter 5, Using the Phone for more information. See Chapter 5, Using the Phone for more information. MC9596 and MC9598 only.</td>
</tr>
<tr>
<td></td>
<td>Sounds &amp; Notifications</td>
<td>Enable sounds for events, notifications, and more, and set the type of notification for different events. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>Icon</td>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Today</td>
<td>Customize the appearance and the information to be displayed on the Today screen. Refer to the <em>Microsoft Applications for Windows Mobile 6 User Guide</em> for more information.</td>
</tr>
<tr>
<td></td>
<td>System Tab</td>
<td></td>
</tr>
<tr>
<td></td>
<td>About</td>
<td>View basic information such as the Windows Mobile® version and type of processor used on the MC9500-K. Refer to the <em>Microsoft Applications for Windows Mobile 6 User Guide</em> for more information.</td>
</tr>
<tr>
<td></td>
<td>Backlight</td>
<td>Set the display backlight time-out and adjust brightness. Refer to the <em>Microsoft Applications for Windows Mobile 6 User Guide</em> for more information.</td>
</tr>
<tr>
<td></td>
<td>Broadband Setting</td>
<td>View radio information and select carrier. MC959B only. Refer to the <em>MC9500-K Mobile Computer Integrator Guide</em> for more information.</td>
</tr>
<tr>
<td></td>
<td>Certificates</td>
<td>See information about certificates installed on the MC9500-K. Refer to the <em>Microsoft Applications for Windows Mobile 6 User Guide</em> for more information.</td>
</tr>
<tr>
<td></td>
<td>Clock &amp; Alarms</td>
<td>Set the device clock to the date and time of your locale or to a visiting time zone when you’re traveling. Alarms can also be set at specified days and times of a week. Refer to the <em>Microsoft Applications for Windows Mobile 6 User Guide</em> for more information.</td>
</tr>
<tr>
<td></td>
<td>Encryption</td>
<td>Allow files on a storage card to be encrypted. Encrypted files are readable only on your device.</td>
</tr>
<tr>
<td></td>
<td>Error Reporting</td>
<td>Enable or disable the device’s error reporting function. When this function is enabled and a program error occurs, technical data about the state of the program and your computer is logged in a text file and delivered to Microsoft's technical support if you choose to send it. Refer to the <em>Microsoft Applications for Windows Mobile 6 User Guide</em> for more information.</td>
</tr>
<tr>
<td></td>
<td>External GPS</td>
<td>Set the appropriate GPS communication ports, if required. You may need to do this when there are programs on your device that access GPS data or you have connected a GPS receiver to the MC9500-K.</td>
</tr>
<tr>
<td></td>
<td>GPS Setup</td>
<td>View GPS &amp; A-GPS SUPL information.</td>
</tr>
<tr>
<td></td>
<td>HAC Settings</td>
<td>Enable or disable the Hearing Aid Compatibility (HAC) feature. See <em>Chapter 5, Using the Phone</em> for more information. MC9596 and MC9598 only.</td>
</tr>
</tbody>
</table>
Using the MC9500-K  3 - 19

Table 3-7  Settings in the Setting Window (Continued)

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🌞</td>
<td>IST Settings</td>
<td>Set the appropriate setting for configuring the device’s Interactive Sensor Technology. See Interactive Sensor Technology on page 3-9 for more information.</td>
</tr>
<tr>
<td>🕰</td>
<td>Keylight</td>
<td>Set the keypad backlight time-out. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>📝</td>
<td>Managed Programs</td>
<td>Lists applications that have been installed remotely by your system administrator. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>🧠</td>
<td>Memory</td>
<td>Check the device memory allocation status and memory card information. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>📞</td>
<td>Phone Info</td>
<td>Displays the phone version information. MC9596 and MC9598 only.</td>
</tr>
<tr>
<td>💪</td>
<td>Power</td>
<td>Check battery power and set the time-out for turning off the display to conserve battery power. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>🌍</td>
<td>Regional Settings</td>
<td>Set the regional configuration to use, including the format for displaying numbers, currency, date, and time on the MC9500-K. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>🗑️</td>
<td>Remove Programs</td>
<td>Remove programs that you installed on the MC9500-K. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>📵</td>
<td>Screen</td>
<td>Change the screen orientation, re-calibrate the screen, and change the screen text size. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>📱</td>
<td>System Info</td>
<td>Displays the MC9500-K’s software and hardware information. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>🏆</td>
<td>Task Manager</td>
<td>Enables viewing of memory and CPU allocations and stops running processes. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>📖</td>
<td>Windows Update</td>
<td>Link to Microsoft’s web site and update Windows Mobile® on your device with the latest security patches or fixes. Do not use. Obtain updates from Zebra. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
</tbody>
</table>

Connections Tab

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🎯</td>
<td>Beam</td>
<td>Set the device to receive incoming IrDA beams.</td>
</tr>
</tbody>
</table>
Adjusting Volume

To adjust the system volume using the Speaker icon in the navigation bar:

1. Tap the Speaker icon. The Volume dialog box appears.

![Volume Dialog Box](Figure 3-12)

2. Tap and move the slide bar to adjust the volume.

3. Select the On or Off radio button to turn the volume on or off.

You can also adjust the system volume using the Sounds & Notifications window, or use the Up/Down button on the side of the MC9500-K.
Battery Status Indications

Battery icons appear on the navigation bar indicating the battery power level. When the main battery power falls below a predetermined level the icon indicates the status and a battery dialog box appears indicating the status of the battery.

Figure 3-13  Battery Status Dialog Box

The Battery icon always appears in the navigation bar when the Today screen is visible. The icon indicates the battery power level. The message displays until the Dismiss button is pressed.

Figure 3-14  Battery Icon on the Title Bar

Also view the battery status using the Power window. Either:

- Tap the Battery icon
- Tap Start > Settings > System tab > Power icon.

Figure 3-15  Settings Power Window

Battery Reserve Options

If the charge of the battery reaches a critical threshold, the MC9500-K shuts down. This threshold can be changed but affects the amount of time that data can be retained.
1. Tap **Start > Settings > System tab > Power icon > RunTime tab**. A warning message appears.

![Figure 3-16 Warning Message](image)

2. Read the warning message and tap **ok**.

![Figure 3-17 RunTime Tab](image)

3. Select one of the **Battery Reserve Options**.
   - **Option 1: Minimum** - After a low battery shutdown, data will be retained for minimum amount of time. Battery should be replaced immediately to avoid data loss.
   - **Option 2: Less** - After a low battery shutdown, data will be retained for less than normal amount of time.
   - **Option 3: Normal** - After a low battery shutdown, data will be retained for maximum amount of time.

4. Tap **ok**.

**Main Battery Temperature Notifications**

The temperature notification system implements three levels of notification when the temperature within the battery exceeds specific temperature thresholds:

- **Level 1: Temperature Watch**: this level is similar to main battery low warning. It indicates that the battery temperature has reached the first threshold level. The user should move to an environment within proper operating temperature.
- **Level 2: Temperature Warning**: this level is similar to main battery very low warning. It indicates the battery temperature has reached the second threshold level. The user should stop using the MC9500-K.
• **Level 3: Temperature Error**: this level indicates the battery has reached an unusable temperature threshold and immediately suspends the MC9500-K. This level does not have any graphical notification associated with it.

![Main Battery Temperature Watch Dialog Box](image)

**Figure 3-18** Main Battery Temperature Watch Dialog Box

![Main Battery Temperature Warning Dialog Box](image)

**Figure 3-19** Main Battery Temperature Warning Dialog Box

**NOTE** The Temperature Warning dialog box remains visible until you tap **Hide**.

---

**Using Voice-Over-IP**

The MC9500-K supports Voice over IP over WLAN (VoWLAN) using Zebra or third party voice clients. The MC9500-K can communicate using VoIP either using the MC9500-K supports several audio outputs, including back speaker phone, front receiver or handset, and Bluetooth headset.

It is recommended that the wireless network use the 802.11a (5 GHz) band for voice applications. Using the 5 GHz band avoids some noise sources that may occur on the 802.11b/g (2.4 GHz) band due to wireless interference.

When using a Bluetooth headset with the MC9500-K and VoWLAN, it is required to use the Bluetooth Headset profile instead of Hands-free profile. Use the buttons on the MC9500-K to answer and end calls. See **Chapter 7, Using Bluetooth** for information on setting up a Bluetooth Headset Profile.
Infrared Connection

Using infrared, you can enable short-range file exchange between your MC9500-K and another IrDA device.

Exchanging Files using IR Connection

Ensure that the IrDA function on both the MC9500-K and the other device are enabled.

To send files via IrDA connection:

1. Switch to the program where you created the item you want to send and locate the item in the list.

   \[\textbf{NOTE}\]  Do not cover or block the IrDA window.

2. Align the IrDA port of the MC9500-K with that of the IrDA device so that they are unobstructed and within a close range.

3. Tap and hold the item, then tap Beam [type of item] on the pop-up menu.

4. Tap the device that you want to send the file to.
To receive files via IrDA connection:

1. Align the IrDA port of the MC9500-K with that of the other IrDA device so that they are unobstructed and within a close range.

2. On the other device, send the file to the MC9500-K.

3. When the Receiving Data dialog displays, tap Yes.

**Printing**

The MC9500-K supports printing to specific devices. The Zebra Print Manager, available from the Support Central web site, provides support for printing to Bluetooth enabled printers.
Chapter 4 Data Capture

Introduction

The MC9500-K offers three types of data capture options:

- Laser scanning
- Imaging
- Color digital camera.

![NOTE](image-url) To read a bar code, a scanning enabled application must be installed on the MC9500-K. A sample scanning application can be downloaded from the Zebra Support Central site at [http://www.zebra.com/support](http://www.zebra.com/support).

Laser Scanning

An MC9500-K with an integrated linear laser scanner has the following features:

- Reading of a variety of bar code symbologies, including the most popular 1-D code types.
- Intuitive aiming for easy point-and-shoot operation.

Scanning Considerations

Typically, scanning is a simple matter of aim, scan, and decode and a few quick trial efforts master it. However, consider the following to optimize scanning performance:

- 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 dependable decodes; scanning too close or too far away prevents decodes. Move the scanner closer or further away to find the right working range for the bar codes being scanned.
• Angle
  Scanning angle is important for promoting quick decodes.
  The MC9500-K scans at a 15° angle which improves scanning ergonomics.
• Hold the MC9500-K farther away for larger symbols.
• Move the MC9500-K closer for symbols with bars that are close together.

✓ **NOTE** Scanning procedures depend on the application and MC9500-K configuration. An application may use different scanning procedures from the one listed above.

**Laser Scanning**

1. Ensure that a scan enabled application is loaded on the MC9500-K.

![15° Angle](image)

**Figure 4-1  Linear Scanning**

2. Press and hold the scan button. The laser beam exits from the end of the MC9500-K. Ensure the red scan beam covers the entire bar code. The Decode LED lights red to indicate that scanning is in process, then lights green and a beep sounds, by default, to indicate the bar code was decoded successfully.

![Correct Incorrect](image)

**Figure 4-2  Linear Scanner Aiming Pattern**

3. Release the scan button.
Decode Zones

The decode zones for the laser scanners are shown in *Figure 4-3* and *Figure 4-4*. The figures shown are typical values. *Table 4-2* lists the typical distances for 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.

Note: Typical performance at 73°F (23°C) on high quality symbols in normal room light.

* Minimum distance determined by symbol length and scan angle.

*Figure 4-3  MC9500-K Laser Scanner 35° Decode Zone*
Note: Typical performance at 73°F (23°C) on high quality symbols in normal room light.

* Minimum distance determined by symbol length and scan angle.

Figure 4-4  MC9500-K Laser Scanner 47° Decode Zone
Imaging

MC9500-K with an integrated imager have the following features:

- Omnidirectional (360°) reading of a variety of bar code symbologies, including the most popular linear, postal, PDF417, and 2D 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.

The imager uses digital camera technology to take a digital picture of a bar code, stores the resulting image in its memory, and executes state-of-the-art software decoding algorithms to extract the data from the image.

Table 4-1  Laser Scanner Decode Distances

<table>
<thead>
<tr>
<th>Symbol Density/Bar Code Type/W-N Ratio</th>
<th>Bar Code Content/Contrast Note 1</th>
<th>35° Typical Working Ranges</th>
<th>47° Typical Working Ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Near</td>
<td>Far</td>
</tr>
<tr>
<td>4.0 mil Code 39; 2.5:1</td>
<td>ABCDEFGH 80% MRD</td>
<td>1.00 in</td>
<td>5.00 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.81 cm</td>
<td>13.97 cm</td>
</tr>
<tr>
<td>5.0 mil Code 39; 2.5:1</td>
<td>ABCDEFGH 80% MRD</td>
<td>1.30 in</td>
<td>7.50 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.57 cm</td>
<td>20.32 cm</td>
</tr>
<tr>
<td>7.5 mil Code 39; 2.5:1</td>
<td>ABCDEF 80% MRD</td>
<td>1.70 in</td>
<td>12.50 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.59 cm</td>
<td>33.02 cm</td>
</tr>
<tr>
<td>10 mil Code 39; 2.5:1</td>
<td>ABCDE 90% MRD</td>
<td>1.70 in</td>
<td>17.50 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.59 cm</td>
<td>45.72 cm</td>
</tr>
<tr>
<td>13 mil 100% UPC Code 39; 2.5:1</td>
<td>12345678905 90% MRD</td>
<td>1.70 in</td>
<td>23.50 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.59 cm</td>
<td>60.96 cm</td>
</tr>
<tr>
<td>15 mil Code 39; 2.5:1</td>
<td>ABCD 80% MRD</td>
<td>1.70 in</td>
<td>27.50 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.59 cm</td>
<td>71.12 cm</td>
</tr>
<tr>
<td>20 mil Code 39; 2.2:1</td>
<td>123 80% MRD</td>
<td>2.00 in</td>
<td>28.50 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.35 cm</td>
<td>73.66 cm</td>
</tr>
<tr>
<td>40 mil Code 39; 2.2:1</td>
<td>AB 80% MRD</td>
<td>Note 4</td>
<td>32.50 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>83.82 cm</td>
</tr>
<tr>
<td>55 mil Code 39; 2.2:1</td>
<td>CD 80% MRD</td>
<td>Note 4</td>
<td>41.50 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>106.68 cm</td>
</tr>
</tbody>
</table>

Notes:
1. CONTRAST measured as Mean Reflective Difference (MRD) at 650 nm.
2. Near ranges on lower densities (not specified) are largely dependent upon the width of the bar code and the scan angle.
3. Working range specifications at ambient temperature (23°C), Photographic quality symbols, pitch=10°, roll=0°, skew=0°, ambient light < 150 ft.-candles.
4. Dependent on width of bar code.
5. Distances measured from front edge of device.
Operational Modes

MC9500-K with an integrated imager support three modes of operation, listed below. Activate each mode pressing the Scan button.

- **Decode Mode**: In this mode, the MC9500-K attempts to locate and decode enabled bar codes within its field of view. The imager remains in this mode as long as you hold the scan button, or until it decodes a bar code.

  ![Diagram of MC9500-K imager](image)

  *Figure 4-5 Image Capture Field of View*

  **NOTE** To enable Pick List Mode, download the Control Panel applet from the Support Central web site at [http://www.zebra.com/support](http://www.zebra.com/support). Pick List can also be set in an application using a API command.

- **Pick List Mode**: This mode allows you to selectively decode a bar code when more than one bar code is in the MC9500-K’s field of view. To accomplish this, move the aiming crosshair center dot over the required bar code to decode only that bar code. This feature is ideal for pick lists containing multiple bar codes and manufacturing or transport labels containing more than one bar code type (either 1D or 2D).

- **Image Capture Mode**: Use this mode to capture an image within the MC9500-K’s field of view. This is useful for capturing signatures or images of items like damaged boxes.

Imager Scanning

1. Ensure that a scan-enabled application is loaded on the MC9500-K.

2. Press and hold the scan button.

   The red laser aiming pattern turns on to assist in aiming. Ensure the cross-hair is on top of the bar code.

   The Decode LED lights red to indicate that scanning is in process, then lights green and a beep sounds, by default, to indicate the bar code was decoded successfully. Note that when the MC9500-K is in Pick List Mode, the imager does not decode the bar code until the crosshair center dot touches the bar code.
3. Release the scan button.

**NOTE** Imager decoding usually occurs instantaneously. The MC9500-K repeats the steps required to take a digital picture (image) of a poor or difficult bar code as long as the scan button remains pressed.
Imager Decode Ranges

The decode ranges provide the decode distances for bar codes of specified densities. Figure 4-8 shows the imager decode ranges and Table 4-2 on page 4-9 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.

Note: Typical performance at 73°F (23°C) on high quality symbols in normal room light.

* Minimum distance determined by symbol length and scan angle.

Figure 4-8  MC9500-K Imager Decode Ranges
Color Digital Camera

MC9500-K with an integrated color digital camera have the following features:

- Photo capture
- Video capture
- Omnidirectional reading of a variety of bar code symbologies, including the most popular linear, postal, PDF417, and 2D matrix code types.
- Advanced intuitive aiming for easy point-and-shoot operation.

Digital Camera Scanning

The camera uses digital camera technology to take a digital picture of a bar code, stores the result image in its memory, and executes state-of-the-art software decoding algorithms to extract the data from the image.

1. Ensure that a scan-enabled application is loaded on the MC9500-K.

Table 4-2  MC9500-K Imager Decode Distances

<table>
<thead>
<tr>
<th>Symbol Density/ Bar Code Type</th>
<th>Bar Code Content/ Contrast(^\text{Note 2})</th>
<th>Typical Working Ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Near</td>
</tr>
<tr>
<td>5.0 mil Code 39</td>
<td>ABCDEFGH 80% MRD</td>
<td>1.6 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.06 cm</td>
</tr>
<tr>
<td>6.67 mil PDF417</td>
<td>4 Col, 20 Rows 80% MRD</td>
<td>2.9 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.37 cm</td>
</tr>
<tr>
<td>7.5 mil Code 39</td>
<td>ABCDEF 80% MRD</td>
<td>Note 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 mil PDF417</td>
<td>3 Col, 17 Rows 80% MRD</td>
<td>Note 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 mil UPC-A</td>
<td>012345678905 80% MRD</td>
<td>1.1 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.79 cm</td>
</tr>
<tr>
<td>15 mil PDF417</td>
<td>80% MRD</td>
<td>Note 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 mil Data Matrix</td>
<td>18 x 18 Modules 80% MRD</td>
<td>2.3 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.84 cm</td>
</tr>
<tr>
<td>20 mil Code 39</td>
<td>123 80% MRD</td>
<td>Note 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Near distances are field-of-view (FOV) limited.
2. Contrast is measured as Mean Reflective Difference (MRD) at 670 nm.
3. Working range specifications at temperature = 23°C, pitch=18°, roll=0°, skew=0°, photographic quality, ambient light ~30 ft.-c, humidity 45-70% RH.
2. Aim the camera lens on the back of the MC9500-K at a bar code.

3. Press and hold the scan button. A preview window appears on the display window with a red aiming reticle in the center. The Decode LED lights red to indicate that scanning is in process.

4. Move the MC9500-K until the red aiming reticle is over the bar code to scan.

5. The Decode LED lights green and a beep sounds, by default, to indicate the bar code was decoded successfully.

   ![Sample Scan Application with Preview Window](image)

   **Figure 4-9  Sample Scan Application with Preview Window**

   The camera decode feature is set by default to automatically decode the bar code when read. This feature can be programmed to display a green aiming reticle upon good decode indicating that the bar code has been successfully decoded and to that the scan button may be released.

   **NOTE** Ensure that the scanning/imaging application is disabled prior to enabling the camera.

**Taking Photos**

   ![Sample Scan Application with Preview Window](image)

   **Figure 4-9  Sample Scan Application with Preview Window**

   The camera decode feature is set by default to automatically decode the bar code when read. This feature can be programmed to display a green aiming reticle upon good decode indicating that the bar code has been successfully decoded and to that the scan button may be released.

   **NOTE** Ensure that the scanning/imaging application is disabled prior to enabling the camera.

   To take a photo:
   1. Tap **Start > Programs > Pictures & Videos** icon.
   2. Tap **Camera** on the command bar.
   3. Check the image on the view finder, adjust if necessary.
   4. Press the **Enter** key to take the picture. Hold the MC9500-K still until the shutter sound is heard.

**Recording Video**

   ![Sample Scan Application with Preview Window](image)

   **Figure 4-9  Sample Scan Application with Preview Window**

   The camera decode feature is set by default to automatically decode the bar code when read. This feature can be programmed to display a green aiming reticle upon good decode indicating that the bar code has been successfully decoded and to that the scan button may be released.

   **NOTE** Ensure that the scanning/imaging application is disabled prior to enabling the camera.

   To record a video clip:
   1. Tap **Start > Programs > Pictures & Videos** icon.
   2. Tap **Camera** on the command bar.
   3. Tap **Menu > Video** to set shooting mode to video.
   
   The available recording time displays on the screen.
4. Press the Enter key to begin recording.
   Recording stops when you press the Enter button again.

**Viewing Photos and Videos**

To view photos and video clips:

1. Tap Start > Programs > Pictures & Videos icon.
2. Tap the picture or video clip to view.

**NOTE** By default, the time limit for recording videos is set to 30 seconds.
Chapter 5 Using the Phone

Introduction

The MC959B supports only data communication. Phone features are disabled.

Use the MC9596 and MC9598 to make phone calls, set up speed dials, keep track of calls, and send text messages. Your wireless service provider may also provide other services such as voice mail, call forwarding, and caller ID.

Also use the integrated phone to connect to an ISP or work network in order to browse the Web and read e-mail. Connect to the Internet or work network over High-Speed Downlink Packet Access (HSDPA) (MC9596 or MC959B) or Evolution Data-Optimized (EvDO) (MC9598 or MC959B) using Cellular Line, or using the modem specified by the mobile operator. For more information, or to customize the MC9500-K phone by changing phone settings, see the MC9500-K Mobile Computer Integrator Guide.

Accessing the Phone Keypad

Keypads vary depending on services and the state of the phone.

On the MC959B, the phone dialer (keypad) is disabled.

Access the keypad regardless of the program in use. Applications on the MC9500-K can be in use during a call.
To access the phone keypad tap Start > Phone, press the F1 key or press the green key.

To receive calls when the MC9500-K is suspended, leave the phone radio turned on and ensure the MC9500-K is set to wake with any key.

### Turning the Phone On and Off

Windows Mobile 6.1 devices include **Wireless Manager**, which provides a simple method of enabling and disabling the phone.

To open **Wireless Manager**, tap the **Connectivity** icon.

Select **Wireless Manager**. The **Wireless Manager** window appears.

To toggle on or off the phone, tap **Phone** bar on the MC9596 or MC9598 or tap **Broadband** on the MC959B.

To configure settings for a connection, tap **Menu > Phone Settings**.

**NOTE** To receive calls when your device is suspended, leave the phone turned on.
Audio Modes

The MC9500-K offers three audio modes for use during phone calls:

- **Handset Mode**: Switches audio to the speaker at the top front of the MC9500-K, so you can use the MC9500-K as a handset. This is the default mode.
- **Speaker Mode**: Use the MC9500-K as if on speaker phone. Tap the **Speaker On** button to activate this mode. Tap the **Speaker Off** button to switch back to handset mode.
- **Headset Mode**: Connect a Bluetooth headset or a wired headset to automatically switch audio to the headset.

The MC9500-K defaults to handset mode. When a wired headset is plugged into the MC9500-K headset connector or a Bluetooth headset is configured for use with the MC9500-K, the earpiece and speakerphone are muted and audio is heard through the headset.

**NOTE**  While using a Bluetooth headset during a call, the mobile computer will not go into suspend mode.

**Figure 5-3  Audio Modes**

Using a Wired Headset

**NOTE**  Remove the headset jack plug before connecting the Headset Adapter to the MC9500-K.

You can use a stereo headset for audio communication when using an audio-enabled application. To use a headset, plug the headset jack of the Headset Adapter Cable into the headset connector on the side of the MC9500-K. Plug the Headset connector into the connector on the Headset Adapter Cable. Set the MC9500-K’s volume appropriately before putting the headset on. Plugging a headset into the jack mutes the speaker.
Using a Bluetooth Headset

You can use a Bluetooth headset for audio communication when using an audio-enabled application. See Chapter 7, Using Bluetooth for information on connecting a Bluetooth headset to the MC9500-K. Set the MC9500-K’s volume appropriately before putting the headset on. When a Bluetooth headset is connected the speakerphone is muted.

It is recommended for phone conversations to use the Bluetooth Hands-free profile instead of the Headset profile. See Chapter 7, Using Bluetooth for more information.

\[ NOTE \quad \text{When using a Bluetooth headset, during a call, the MC9500-K power button is disabled and the MC9500-K will not go into suspend mode. Once the call is completed, the power button functionality is enabled.} \]

The following dialog box displays when a Bluetooth headset connection is established and the power button is pressed.
Adjusting Audio Volume

Use the Volume Control Slider or the keypad keys to adjust the volume of the ringer when not in a call and the audio volume when in a call.

To adjust the volume tap the Speaker icon in the Title bar. Move the slider up or down to adjust the volume.

✓ **NOTE** Adjust the conversation phone volume during a call. Adjusting the volume while not in a call affects the ring and notification sound levels.

Hearing Aid Compatibility Setting

✓ **NOTE** Supported on MC9596-K and MC9598-K configurations only.

To set the Hearing Aid Compatibility (HAC) setting:

Tap Start > Settings > System > HAC Settings icon. The HAC Settings window appears.
To enable the HAC feature, tap the Enable HAC radio button. To disable the HAC feature, tap the Disable HAC radio button.

Making a Call

NOTE You can make emergency calls even when the MC9500-K is locked or when a SIM card is not installed. See Making an Emergency Call on page 5-10 for more information.

With the MC9500-K, you can make a call from the phone, contacts, speed dial and call history.

Using the Phone

To make a call using the phone keypad:

1. Tap Start > Phone or press the green key.
2. From the Phone keypad, tap the number to call.
3. Tap Talk.
4. Tap End to stop dialing or end the call.

NOTE Alternatively, use the green and red keys on the MC9500-K function key to dial (green) and end (red) calls. If you tap a wrong number, tap Delete key to erase each subsequent digit of a number. To erase the entire number, tap and hold the Delete key.

Using Contacts

Use Contacts to make a call without looking up or entering the phone number.

To make a call from Contacts:

1. Tap Start > Contacts.
2. From the contact list, tap and hold the contact name.
3. Tap Call Work, Call Home or Call Mobile.

✓ **NOTE** To make a call from an open contact, tap the number to call. See On-Device Help for more information about Contacts.

Creating an Outlook Contact

✓ **NOTE** When entering a contact phone number that contains a star (*) character followed by a plus (+) character, save the contact as an Outlook Contact. Do not save the contact to a SIM card.

To create an Outlook contact:

1. Tap Start > Contacts.
2. Tap New.
3. If the Phone is on the Select Contact Type window displays. Select Outlook Contact.

4. Using the input panel, tap in each field and enter contact information as needed. Scroll down to see all fields.
5. Tap the arrow next to the Name: or Home addr: field to open a window for adding more details.
6. To assign the contact to a category, tap Categories.
7. To select one or more categories for the contact, select their check boxes. This allows displaying contacts by category in the contact list.
8. Tap New to add a category.
9. Enter the name for the category in the text box, and tap ok.
10. Tap ok.
11. To add notes, tap the Notes tab and enter text, draw, or create a recording.
12. When finished, tap ok to return to the contact list.

Editing an Outlook Contact

To make changes to a contact:

1. Tap Start > Contacts.
2. Tap the contact in the contact list to open it.
3. Tap Menu > Edit and make the changes.
4. Tap ok.

**Deleting a Contact**

To delete a contact:

1. Tap Start > Contacts.
2. Tap and hold the contact in the contact list and select Delete Contact from the pop-up menu, or select the contact and tap Menu > Delete Contact.

**Creating a SIM Contact**

To create a SIM contact:

1. Tap Start > Contacts.
2. Tap New.
3. Select SIM Contact.

![Figure 5-9 Creating a SIM Contact](image)

4. Using the input panel, tap in each field and enter contact information.
5. When finished, tap ok to return to the contact list.

**Using Call History**

To make a call using Call History:

1. Tap Start > Phone or press the green key.
2. From the Phone keypad, tap Call History.
3. Tap the phone icon next to the number to begin dialing and return to the phone keypad.

4. Tap **End** or press the red key to stop dialing or end the call.

### Making a Speed Dial Call

Use Speed Dial to call someone saved in the speed dial directory.

To make a speed dial call:

1. Tap **Start > Phone** or press the green key.

2. From the Phone keypad, tap and hold the speed dial location number assigned to a contact. (To dial a one-digit speed dial location number, tap and hold the speed dial number. To dial a two-digit speed dial location number, tap the first digit and then tap and hold the second digit.)

   or

   From the Phone keypad, tap **Speed Dial** and tap the speed dial location number of the desired contact in the list.

3. To stop dialing or end the call, tap **End** or press the red key.
Making an Emergency Call

NOTE Supported on MC9596-K and MC9598-K configurations only.

Your service provider programs one or more emergency phone numbers, such as 911 or 999, that you can call under any circumstances, even when your phone is locked or the SIM card is not inserted. Your service provider can program additional emergency numbers into your SIM card. However, your SIM card must be inserted in your phone in order to use the numbers stored on it. See your service provider for additional information.

When the alpha primary keypad is locked, press the Orange key twice to set the keypad to numeric mode and then enter the emergency number.

NOTE Emergency numbers vary by country. Your phone’s pre-programmed emergency number(s) may not work in all locations, and sometimes an emergency call cannot be placed due to network, environmental, or interference issues.

Answering a Call

A dialog box appears on the MC9500-K when it receives an incoming call. If the phone is set to ring, a ring tone sounds. Answer or ignore the incoming call.

To answer an incoming call tap Answer on the Phone > Incoming... dialog or press the green key.

To ignore the incoming call tap Ignore. This may send the caller to voice mail, depending on the service provider. Otherwise, this presents Busy to the calling party.

To end the call tap End or press the red key.

Incoming Call Features

- If you receive a call while in a call, tap Wait to place the call in call waiting.
- You can use other programs on the MC9500-K during a call. To switch back to Phone, tap Talk or tap Start > Phone. Tap End to end the call.
• If a caller isn't in your contact list, create a contact during the call or from Call History by tapping **Menu > Save to Contacts**.

• To terminate a call when a second call comes in and answer the waiting call, tap **End** on the Phone keypad to disconnect the active call, then tap **Answer** or press the **Send** key to answer the waiting call.

• To hold the current call and answer a waiting call, tap **Answer** or press the **Send** key to place the current call on hold and answer the incoming call.

• To put a call on hold to call another number or answer an incoming call, tap **Hold**. To move from one call to another, tap **Swap**.

---

**Smart Dialing**

Smart Dialing makes it easy to dial a phone number. When you start entering numbers or characters, Smart Dialing automatically searches and sorts the contact entries on the SIM card, in Contacts, and the phone numbers in Call History (including incoming, outgoing, and missed calls). You can then select the desired number or contact from the filtered list to dial.

Open the Phone screen, then tap the keys on the Phone keypad that correspond to the phone number or contact to call. The contact panel lists contacts that match the sequence that you entered.

Smart Dialing starts looking for numbers or contacts that match the sequence entered.

**To find a phone number:**

• Enter the first one or two digits to find a phone number in Call History.

• Enter the first three digits or more to find a phone number from the saved Contacts and SIM card.

**To find a contact name:**

• Enter the first letter of a contact’s first name or last name. Smart Dialing searches for the letter starting from the first character of a contact name as well as from the character that appears after a space, dash, or underscore in a contact name. For example, if you tap number “2” which is associated with [a, b, c] on the Phone keypad, contact names such as the following will be considered matches: “Smith, Bernard”, “Adams, John”, “Carlson, Eileen”, “Dillon, Albert”, “Childs, Larry”, “Cooper, Robert” and “Parks, Celine”.

• If the matching list is long narrow down the search further by entering another letter. Using the same example above, tap “3” which is associated with (d, e, f), the matching list is narrowed down to the following names: “Smith, Bernard”, “Adams, John”, and “Parks, Celine”.

---

**Figure 5-13  Finding a Contact**
To make a call or send a text message using Smart Dialing:

1. Begin entering the first few numbers or characters.
2. In the Smart Dialing panel, use the up and down arrows on the keypad to navigate to the desired contact or phone number.
3. When the correct contact is selected, press **TALK** to make a voice call.
4. To send a text message to the selected contact, tap **Menu > Send Text Message**.
5. To call a different phone number associated with the selected contact, tap the contact name and select the phone number to call.

### Muting a Call

During a call, you can mute the microphone so you can hear the person on the line but he or she cannot hear conversation from the microphone. This is useful when there is conversation or background noise on your end.

To mute or unmute a call:

1. Tap **Start > Phone** or press the green key.
2. Make a call.
3. Tap **Mute** on the display to mute the audio. The **Mute** icon appears.

![Mute Button and Icon](image)

### Taking Notes

To create a note during a call, tap **Note** on the display, then enter the note. For more information about creating notes see the Windows On-Device Help.

To access a note created during a call:

1. Tap **Start > Phone** or press the green key.
2. From the Phone keypad, tap **Call History**.
3. Tap and hold the number or the **Note** icon for the phone call entry containing the note.
4. Tap **View Note**.

5. Tap **ok** to exit.

_**NOTE**_ Also access notes directly from the Notes application by tapping **Start > Programs > Notes**.

---

### Using Speed Dial

Create speed dial numbers to dial frequently called numbers with a single tap. Before creating a speed dial entry, ensure the phone number exists in Contacts.

#### Adding a Speed Dial Entry

To add a speed dial entry from the phone keypad:

1. Ensure the contact and phone number are in the Contacts list.

2. Tap **Start > Phone** or press the green key.

3. Tap **Speed Dial > Menu > New**.

4. Tap the desired contact name and number in the list.
5. In the **Location** field, tap the up/down arrows to select an available location to assign as the new speed dial entry. The first speed dial location is reserved for voice mail.

6. Tap **ok** to add the contact to the speed dial list.

7. Tap **ok** to exit the **Speed Dial Contact List**.

To add a speed dial entry from the **Contacts** window:

1. Tap **Start** > **Contacts**.

2. Tap a contact name.

3. Tap **Menu** > **Add to Speed Dial**.
4. Tap the up/down arrows to select an available location to assign as the new speed dial entry. The first speed
dial location is reserved for voice mail.

5. Tap ok.

### Editing a Speed Dial Entry

1. Tap Start > Phone or press the green key.

2. Tap Speed Dial.

3. Tap and hold the contact name.

4. Tap Edit...

5. Change the name, phone number, or location information.

6. Tap ok.

✓ **NOTE** Editing names and phone numbers in Speed Dial does not alter contact information in Contacts (Start >
Contacts).
Deleting a Speed Dial Entry

1. Tap Start > Phone or press the green key.
2. Tap Speed Dial.
3. Tap and hold the contact name.
4. Tap Delete.
5. Tap Yes to confirm permanently deleting the speed dial entry.

**NOTE** Deleting names and phone numbers in Speed Dial does not delete the contact information in Contacts (Start > Contacts).

Using Call History

Use Call History to call someone who was recently called, or recently called in. Call History provides the time and duration of all incoming, outgoing, and missed calls. It also provides a summary of total calls and easy access to notes taken during a call. Table 5-1 lists the call history icons that appear in the Call History window.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Outgoing Icon" /></td>
<td>This icon appears next to the contact information for all outgoing calls.</td>
</tr>
<tr>
<td><img src="image" alt="Incoming Icon" /></td>
<td>This icon appears next to the contact information for all incoming calls.</td>
</tr>
<tr>
<td><img src="image" alt="Missed Icon" /></td>
<td>This icon appears next to the contact information for all missed calls.</td>
</tr>
</tbody>
</table>

Managing Call History

Change views, reset the call timer, and delete calls to manage the calls stored in Call History.
Changing the Call History View

1. Tap **Start** > **Phone** or press the green key to display the Phone keypad.
2. From the Phone keypad, tap **Call History**.
3. Tap **Menu** > **Filter** to show the menu.

4. Select a view type from the menu to display only missed calls, outgoing calls, incoming calls, or calls listed alphabetically by caller name.
5. Tap **ok** to exit the **Call History** window.

Resetting the Recent Calls Counter

1. Tap **Start** > **Phone** or press the green key to display the Phone keypad.
2. From the Phone keypad, tap **Call History**.
3. Tap **Menu**.

4. Select **Call Timers...**.
5. Tap **Reset**. (The **All Calls** counter cannot be reset.)
6. Tap **ok** to exit the **Call Timers** window.
Deleting Call History Items by Call Date

1. Tap **Start > Phone** or press the green key to display the Phone keypad.
2. From the Phone keypad, tap **Call History**.
3. Tap **Menu > Call Timers...**
4. In the **Delete call history items older than**: drop-down list select a time period on which to base deletion of stored items.
5. Tap **ok** to exit the **Call Timers** window.

Deleting All Call History Items

1. Tap **Start > Phone** or press the green key to display the Phone keypad.
2. From the Phone keypad, tap **Call History**.
3. Tap **Menu**.
4. Select **Delete all calls**.
5. Tap **Yes**.
6. Tap **ok** to exit the **Call History** window.

Viewing Call Status

1. Tap **Start > Phone** or press the green key to display the Phone keypad.
2. From the Phone keypad, tap **Call History**.
3. Tap an entry. The **Call Status** window appears.
4. Tap ok and then ok to exit.

Using the Call History Menu

Use the Call History menu to dial voice mail, access the Activation Wizard, save to contacts, view a note, delete a listing, send an SMS, and make a call.

1. Tap Start > Phone or press the green key to display the Phone keypad.
2. From the Phone keypad, tap Call History.
3. Tap and hold an item in the list.

4. Select an applicable item from the menu, as needed.

5. Depending on the item selected, the appropriate window displays. For example, select Send Text message to display the Text Messages window.

6. Tap ok to exit the Call History window.

\[ \text{NOTE}\]  When more than one call is on the phone line, only the duration of the first call is recorded.
Swapping Calls on an MC9596

To move between two or more phone calls:

1. Tap **Start > Phone** or press the green key to display the Phone keypad.
2. Enter the first phone number and press **Talk**. When the call connects, **Hold** appears on the keypad.

![Figure 5-28 Call Swapping - Hold](image)

3. Tap **Hold** on to place the first number on hold.
4. Enter the second number and tap **Talk**.

![Figure 5-29 Call Conferencing - Conferencing](image)

5. Tap **Swap** to move from one call to the other.
6. Tap **End** or press the red key to end each call.

Swapping Calls on an MC9598

To swap between two incoming phone calls:

1. Tap **Answer** to connect to the first call.
2. When a second call arrives, tap **Answer**. The first call is placed on hold.

3. Tap **Talk** to swap from one call to the other.

4. Tap **End** or press the red key to end active call. The remaining call re-connects, tap **Answer** to connect to the call.

5. Tap **End** or press the red key to end the last call.

---

**Conference Calling on an MC9596**

---

**NOTE** Conference Calling and the number of conference calls allowed may not be available on all services. Please check with your service provider for Conference Calling availability.

To create a conference phone session with multiple people:

1. Tap **Start > Phone** or press the green key to display the Phone keypad.

2. Enter the first phone number and press **Talk**. When the call connects, **Hold** appears on the keypad.
3. Tap **Hold** to place the first call on hold.

4. Enter the second phone number and tap **Talk**.

5. After the call is answered, tap **Menu > Conference** to place the calls in conference mode.

6. Tap **Hold** to place the conference on hold.

7. Enter another phone number and tap **Talk**.

8. After the call is answered, tap **Menu > Conference** to place all the calls in conference mode.

9. Repeat steps 6 through 8 for up to six phone numbers.

10. Tap **End** or press the red key to end the conference call.

   **NOTE** To speak privately with one party during a conference call, tap **Menu > Private**. To include all parties again, tap **Menu > Conference**.
To create a three-way phone session with two people and you as the initiator:

1. Tap **Start > Phone** or press the green key to display the Phone keypad.
2. Enter the first phone number and press **Talk**.
3. To call a second person, tap **Keypad**. Enter the second number and tap **Talk**.
4. When the second person answers the call, tap **Talk** to create a three-way calling session.
5. Tap **Talk** to drop the last call.
6. Tap **End** to drop the first call.
**Text Messaging**

Use the **Text Messages** window to send and receive text messages to and from mobile phones. The text can contain words, numbers, or an alphanumeric combination no longer than 160 characters.

Short text messages delivered over mobile networks transmit from the sending MC9500-K, are stored in a central short message center, then forwarded to the destination mobile device. If the recipient is not available, the message is stored and can be sent later.

**Viewing Text Messages**

To view a text message:

You can view a text message whether the phone is on or off. When the phone is on, you can view a text message from its notification callout. Tap the **text message notification** icon on the navigation bar to display the message.

![Text Message Notification Icon](image)

**Figure 5-36**  *New Text Message Notification*

The Caller Identification feature matches incoming text message numbers with those stored in **Contacts** so you know who is sending you a message. Furthermore, the **New Text Message** dialog box gives you the option to call the sender or save, dismiss, or delete the message.

![New Text Message Options](image)

**Figure 5-37**  *New Text Message Options*

When the phone function is off, you can still view received text message in Messaging:
1. Tap **Start > Messaging > Text Messages**, or on the Today screen, tap **Text Messages**.

   ![Text Messages](image1.png)

   **Figure 5-38**  **Text Messaging on Today Screen**

   The **Text Messages** window appears.

2. In the message list, tap a text message. The window displays previous text conversations.

   ![Messaging Window](image2.png)

   **Figure 5-39**  **Messaging Window**

   Tap to reply the message.

   ![Text Message - Conversation](image3.png)

   **Figure 5-40**  **Text Message - Conversation**
To reply, enter text in the reply field and tap **Send**.

**NOTE** If the phone is turned off and you tried to call the sender, send a reply, or forward the message, you are prompted to turn the phone function on.

### Sending a Text Message

To create a text message:

1. On the **Phone** screen, select a contact name that you want to send a message to.

2. Tap **Menu > Send Text Message**.

3. Compose your message.

- The auto-correct feature automatically fixes common spelling errors as you type so your messages are more accurate.
- The character counter lets you see and control the size of the message as you compose.
- If you want to know if your text message was received, tap **Menu > Message Options**, then select the **Request message delivery notification** check box.
4. Tap **Send** when you’ve finished the message.

   If the phone is turned on, your text message is sent. If it’s off, you are prompted to turn on the phone. If you do so, the message is sent; otherwise when you tap **ok**, the message is saved in the **Drafts** folder and sent when the phone is turned on.

   If you are out of coverage area, the message is saved in the **Drafts** folder and sent when you return to a coverage area.

   **NOTE**  On the MC959X-K, the message remains in the **Drafts** folder and has to be manually re-sent when you return to a coverage area.
Establishing a GSM Data Connection (MC9596-K and MC959B-K)

5. Ensure a SIM card is installed in the MC9500-K.


7. Tap the connectivity icon \( \text{H}, \text{G}, \text{or} \text{E} \) at the top of the screen.

8. Tap Settings.

9. Tap Connections icon.

10. Tap Managing existing connections.

11. Tap and hold on the data connection until a menu appears.
12. Select **Connect**.

13. If the SIM card is protected with a Personal Identification Number (PIN), a dialog box pops up requesting the appropriate PIN to unlock the SIM card. In this case, enter the PIN and tap **ok**.

   ✓ **NOTE** Place emergency calls at any time, without entering a PIN or a SIM card.

14. When a connection is established, launch **Internet Explorer** to browse the Internet or launch an applicable application.

**Ending a Data Connection**

To cancel a data connection in progress, tap **Cancel** in the **Connecting...** dialog window.

To end an established data connection:

1. Tap **H**, **G** or **E** to display the **Connectivity** dialog box.

   ✓ **NOTE** On devices with Windows Mobile 6.5.3, tap the Status Bar and then tap the **Connectivity** icon to display the **Connectivity** dialog box.
To verify active data service:

1. Tap Start > Internet Explorer.
2. In the address bar, enter a URL for a web site.
3. Tap to display the Connectivity dialog. The dialog box displays the data connection information.

   On devices with Windows Mobile 6.5.3, tap the Status Bar and then tap the Connectivity icon to display the Connectivity dialog box.
Ending a Data Connection

To cancel a data connection in progress, tap **Cancel** in the **Connecting...** dialog window.

To end an established data connection:

1. Tap ![Connectivity icon](image) to display the **Connectivity** dialog box.

   **NOTE** On devices with Windows Mobile 6.5.3, tap the Status Bar and then tap the **Connectivity** icon to display the **Connectivity** dialog box.

2. Tap **Disconnect**.

   **NOTE** Tapping **Disconnect** during an active data transfer (e.g., downloading a web page) automatically reconnects the connection. You cannot disconnect the connection until the data transfer is complete.

Switching Carrier Networks

To switch from one carrier network to another:

1. Tap **Start > Setting > System > Broadband Settings > Carrier Selection.**
2. Select a carrier/network from the Select New Carrier drop-down list.

3. Tap Switch.

4. The message “Carrier switch starting…” appears as the new carrier firmware is downloaded to the radio. When the download is completed, the message “Upload Done” appears briefly.

5. Tap ok.
Chapter 6 Using GPS Navigation

Introduction

The MC9500-K includes Global Positioning System (GPS) technology using the SiRFstar III chipset. GPS technology is based on a worldwide system of GPS satellites orbiting the earth that continuously transmit digital radio signals. These radio signals contain data on the satellites’ locations and their exact clock time and are used to determine your location on the earth.

WARNING! When using the MC9500-K in a vehicle, it is the user’s responsibility to place, secure and use in a manner that will not cause accidents, personal injury or property damage or obstruct their view. It is the responsibility of the driver to operate the vehicle in a safe manner, maintain observation of all driving conditions at all times, and not become distracted by the device to the exclusion of safe driving practices. It is unsafe to operate the controls of the device while driving.

Software Installation

Third-party GPS navigation software is required. Evaluation software is available from various suppliers. For example; VisualGPS, visit: http://www.visualgps.net/VisualGPSce/

If interested in purchasing GPS navigation software check with the GPS software vendor (before purchasing, downloading, or installing any software) to determine that the application is compatible with the MC9500-K. Refer to the application’s user guide for application installation and setup information.

MC9500-K GPS Setup

The GPS-enabled MC9500-K uses Microsoft Windows Mobile 6, so the operating system automatically manages access to the GPS receiver to allow multiple programs to simultaneously access GPS data.

By default, the MC9500-K has the following settings:

1. Tap Start > Settings > System > External GPS icon.
2. In the Programs tab, the GPS program port is set to None.
3. In the Hardware tab, the GPS hardware port is set to COM8.
To access the GPS receiver from multiple programs simultaneously, the user can either use the Microsoft GPS API or change the GPS program port settings and access the GPS program port using multiplexing.

---

**Operation**

Acquiring satellite signals may take several seconds to a few minutes. It is best to be outside and have a clear, unobstructed view of the sky. Without a clear view, acquisition takes much longer and could result in the MC9500-K being unable to compute the initial position quickly. When operating the device indoors access to the GPS signals may be limited or unavailable.

![NOTE] When using a GPS navigation application, ensure that the MC9500-K does not go into suspend mode. If the MC9500-K suspends then the power to the GPS radio is removed. Upon resume the GPS receiver must reacquire a valid GPS signal, resulting in a delay of positional information.

**GPS Maps on microSD Cards**

GPS navigation software vendors may sell maps on microSD cards. If using a microSD card with the GPS navigation software install the microSD memory card using procedure in [Installing a microSD Card on page 1-3](#).

**Answering a Phone Call While Using GPS**

If you receive a phone call while using your GPS navigation software:

1. Answer the phone call by pressing the **Answer** button.
2. Once you end the phone call, press the **End Call** button to resume the audio on the GPS software.

![NOTE] Anytime you are using GPS on the MC9500-K and you receive a phone call, the audio on the GPS navigation software is muted until you finish the call.

**Losing the GPS Signal While in a Vehicle**

GPS performance on the MC9500-K may be affected if the vehicle has thermal glass windows and windshields, which can block the MC9500-K from receiving a GPS signal from satellites. To improve GPS signal strength, place the MC9500-K where there is a clear view of the sky. A direct line of sight is required between the MC9500-K and the GPS satellites to access information from the satellites.

The Global Positioning System (GPS) is a system that allows the user to track their position anywhere on the earth.

---

**Assisted GPS**

![NOTE] Devices with Windows Mobile 6.5.3 contain an application that allows for connection to SUPL servers. See [Assisted GPS on page D-19](#) for more information.

GPS can be used in stand-alone or Assisted GPS (A-GPS) modes. A Stand-alone GPS receiver downloads data from GPS satellites. In certain environments, it can take several minutes to get a fix. By using GPS Location servers, A-GPS dramatically reduces the TTFF (Time To First Fix) and improves the sensitivity of GPS receivers by providing them with data that they would ordinarily have to download from the GPS satellites. With the A-GPS data, GPS receivers can operate faster and more reliably.
A-GPS follows the Secure User Plane Location (SUPL) protocol which allows a mobile device to communicate with a SUPL server. Refer to the EMDK Help file for information on setting up SUPL on the MC9500-K.
Chapter 7 Using Bluetooth

Introduction

Bluetooth-equipped devices can communicate without wires, using frequency-hopping spread spectrum (FHSS) radio frequency (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) communication and low power consumption.

MC9500-Ks 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. To use the MC9500-K as a modem, create a dial-up modem connection between a computer and MC9500-K.

The MC9500-K with Bluetooth technology uses either the StoneStreet Bluetooth stack or the Microsoft Bluetooth stack. To write an application that uses the StoneStreet One Bluetooth stack APIs, refer to the Enterprise Mobility Developer Kit (EMDK) Help.

Adaptive Frequency Hopping

Adaptive Frequency Hopping (AFH) is a method of avoiding fixed frequency interferers, and 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 consists of 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 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 Zebra mobile computers to operate in any infrastructure.
The Bluetooth radio in this MC9500-K operates as a Class 2 device power class. The maximum output power is 2.5mW and the expected range is 32.8 feet (10 meters). A 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 occurs 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.

Recommendations are:

- 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.

The Microsoft stack supports Smart-pairing. For detailed information, refer to the Microsoft MSDN.
Bluetooth Configuration

By default, the MC9500-K is configured to use the Microsoft Bluetooth stack. Refer to the *MC9500-K Mobile Computer Integrator Guide*, Appendix B, for information on switching to the StoneStreet One Bluetooth stack.

If the MC9500-K is configured to use the StoneStreet One Bluetooth stack, the Bluetooth icon appears at the bottom right corner of the Today screen. If the Microsoft Bluetooth stack is configured, the Bluetooth icon does not appear.

NOTE On devices with Windows Mobile 6.5.3, the Bluetooth icon only appears when configured with the Classic Home screen. See *Classic Today Screen on page D-3* for more information.

### Figure 7-1 Bluetooth Icon

#### Table 7-1 Bluetooth Services

<table>
<thead>
<tr>
<th>Microsoft Bluetooth Stack</th>
<th>StoneStreet One Bluetooth Stack</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBEX Object Push Services</td>
<td>File Transfer Services</td>
</tr>
<tr>
<td>Hands-Free Audio Gateway Services&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Dial-Up Networking Services&lt;sup&gt;1,2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Serial Port Services</td>
<td>OBEX Object Push Services</td>
</tr>
<tr>
<td>Personal Area Networking Services</td>
<td>Headset Audio Gateway Services&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>PBAP Services&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Hands-Free Audio Gateway Services&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Dial-Up Networking Services&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>Serial Port Services</td>
</tr>
<tr>
<td>HID Client Services</td>
<td>Personal Area Networking Services</td>
</tr>
<tr>
<td>A2DP/AVRCP Services&lt;sup&gt;1&lt;/sup&gt;</td>
<td>IrMC Services&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>HID Client Services</td>
</tr>
<tr>
<td></td>
<td>A2DP/AVRCP Services&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

**Note 1:** Only available on MC9596-K, MC9598-K and MC959B-K configurations.

**Note 2:** Only available on MC9596-K and MC9598-K configurations.
Table 7-2 list the COM ports available for the StoneStreet One Bluetooth stack and the Microsoft Bluetooth stack.

<table>
<thead>
<tr>
<th>COM Ports</th>
<th>Microsoft Bluetooth Stack</th>
<th>StoneStreet One Bluetooth Stack</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM5</td>
<td>COM5</td>
<td></td>
</tr>
<tr>
<td>COM9</td>
<td>COM9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COM11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COM21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COM22</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COM23</td>
<td></td>
</tr>
</tbody>
</table>

**Bluetooth Power States**

**Cold Boot**

*With StoneStreet One Bluetooth Stack*

Performing a cold boot on the MC9500-K turns off Bluetooth after initialization (which takes a few moments). It is normal to see the **Bluetooth** icon appear and disappear, as well as a wait cursor, when initialization proceeds in all modes.

*With Microsoft Bluetooth Stack*

Performing a cold boot retain the state of the Bluetooth radio prior to the cold boot.

**Warm Boot**

*With StoneStreet One Bluetooth Stack*

Performing a warm boot on the MC9500-K turns off Bluetooth.

*With Microsoft Bluetooth Stack*

Performing a warm boot retain the state of the Bluetooth radio prior to the warm boot.

**Suspend**

When there is an active Bluetooth connection, the Bluetooth radio goes into low power mode maintaining the active connection. When there is no active connection, the Bluetooth radio turns off.

*With StoneStreet One Bluetooth Stack*

- **NOTE** If there is an active Bluetooth connection between the MC9500-K and another Bluetooth device, the MC9500-K will not timeout. However, if the user presses the Power button on the MC9500-K, the MC9500-K will suspend (except when on a call) and upon receiving data from a remote Bluetooth device, the MC9500-K will wake from suspend mode. For example, headset redial or Bluetooth scanner sending data to the MC9500-K.
With Microsoft Bluetooth Stack

**NOTE** If there is an active Bluetooth connection between the MC9500-K and another Bluetooth device and there is no data activity, the MC9500-K will timeout. However, if the user presses the Power button on the MC9500-K, the MC9500-K will suspend (except when on a call) and upon receiving data from a remote Bluetooth device, the MC9500-K will wake from suspend mode. For example, headset redial or Bluetooth scanner sending data to the MC9500-K.

Resume

When the MC9500-K resumes, Bluetooth turns on if it was on prior to suspend.

Using Microsoft Bluetooth Stack

The following sections provide information on using the Microsoft Bluetooth stack.

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, other Bluetooth devices cannot see or connect to the MC9500-K. 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 turn off radios not in use.

Enabling Bluetooth

To enable Bluetooth:

1. Tap **Wireless Manager** and then tap the **Bluetooth** bar or
2. Tap **Start > Setting > Connections > Bluetooth** icon > **Mode** tab.

   ![Bluetooth Mode Tab](image)

   **Figure 7-2 Bluetooth Mode Tab**

3. Check the **Turn On Bluetooth** checkbox.
4. Tap ok.
Disabling Bluetooth

To disable Bluetooth:

1. Tap Wireless Manager and then tap the Bluetooth bar or
   Tap Start > Setting > Connections > Bluetooth icon > Mode tab.
2. Un-check the Turn On Bluetooth checkbox.
3. Tap ok.

Discovering Bluetooth Device(s)

The MC9500-K can receive information from discovered devices without bonding. However, once bonded, the MC9500-K and a bonded device exchange information automatically when you turn the Bluetooth radio on. See Bonding with Discovered Device(s) on page 7-34 for more information.

To find Bluetooth devices in the area:

1. Ensure that Bluetooth is enabled on both devices.
2. Ensure that the Bluetooth device to discover is in discoverable and connectable modes.
3. Ensure that the two devices are within 30 feet (10 meters) of one another.
4. Tap Start > Settings > Connections tab > Bluetooth icon > Devices tab.

5. Tap Add new device. The MC9500-K begins searching for discoverable Bluetooth devices in the area.
6. Select a device from the list.

7. Tap Next. The **Enter Passcode** window appears.

   **NOTE** If Smart-pairing is configured and the device is requesting one of the pre-defined PINs, the **Enter Passcode** window does not appear.

8. Enter the Passcode on the other device. The device is added to the Bluetooth list.
Figure 7-7  Bluetooth Connection Confirmation

You are prompted to enter a passcode. If the device has a specific passcode, enter it in the Passcode field and tap Next. If the device does not have a specific passcode, enter a passcode in the Passcode field and tap Next. The Bluetooth radio tries to connect with the device.

9. If you created a passcode, you will be prompted by the other device to enter the same passcode. Enter the created passcode to establish a paired connection. (If you entered a passcode from the device, you shouldn’t have to do anything on the other device.)

10. When the connection is complete, a list of matching and supported services on the device appears.

11. Select the services you want to use and tap Finish. The services on the new devices have to be selected or else the pairing won’t include those services, even though the devices are paired. If services are not selected, you will be continually reprompted for the passcode from the device.

12. The device appears in the list on the main window.

After the passcodes have been accepted on both sides, you have a trusted (“paired”) connection.

Available Services

NOTE  Some devices might not require a PIN. This depends upon the device’s authentication.

The MC9500-K with Microsoft Bluetooth stack offers the following services:

- OBEX Object Push Services via Beam
- Hands-Free Audio Gateway Services
- Serial Port Services
- Personal Area Networking Services
- PBAP Services
- Dial-up Networking
- HID Client
- A2DP/AVRCP.

See the following sections for information on these services.
Object Push Services via Beam

You can only send files to a remote device using the Beam function.

Use the OBEX Push Service to send files and contacts to another Bluetooth device. To transfer files between the MC9500-K and another Bluetooth enabled device:

1. Ensure that Bluetooth is enabled and discoverable on both devices.
2. Ensure that the two devices are within 30 feet (10 meters) of one another.
3. Tap Start > Programs > File Explorer.
4. Navigate to the file to transfer.
5. Tap and hold on the filename until the pop-up menu appears.
7. Tap Tap to send next to the Bluetooth device to send the file to. The MC9500-K communicates with the device and send the file. When completed, Tap to send changes to Done.

To transfer a contact between the MC9500-K and another Bluetooth enabled device:

1. Ensure that Bluetooth is enabled and discoverable on both devices.
2. Ensure that the two devices are within 30 feet (10 meters) of one another.

3. Tap Start > Contacts

4. Navigate to the contact to transfer.

5. Tap and hold on the contact until the pop-up menu appears.

6. Select Send Contact > Beam. The MC9500-K searches for Bluetooth devices in the area.

7. Tap Tap to send next to the Bluetooth device to send the file to. The MC9500-K communicates with the device and send the contact. When completed, Tap to send changes to Done.

Internet Sharing

Internet Sharing allows the user to connect a computer or laptop to the MC9500-K and use the MC9500-K as a modem to connect to an office network or ISP.

To use MC9500-K as a modem using Bluetooth:

1. Ensure that the device is not connected to the computer or laptop.

2. On the MC9500-K, ensure that the Phone is on and a data connection is configured.

3. Tap > Start > Programs > Internet Sharing.

4. In the PC Connection list, select Bluetooth PAN.

5. In the Network Connection list, select the connection type.

   Select the network connection that the device should use to connect to the Internet.

6. Tap Connect.

7. On the computer or laptop, setup a Bluetooth PAN with your device.

   a. Select Start > Control Panel > Network Connections.


   c. Right-click on Bluetooth Network Connection and select View Bluetooth network devices.

   d. In the Bluetooth Personal Area Network Devices window select your device.
e. Click Connect. The computer connects to the device via Bluetooth.

✓ **NOTE** If your computer is Bluetooth-enabled and you select Bluetooth as the PC connection, you must initiate and complete the Bluetooth PAN partnership before Internet Sharing will work. For more information, refer to Windows Help and Support.

8. To verify, on the PC or laptop, launch Internet Explorer and open a web site.

9. To end dial-up networking, on the MC9500-K tap Disconnect.

**Hands-free Services**

To connect to a Bluetooth headset:

✓ **NOTE** Newer Bluetooth headsets are device dependant and remember the last device they connected to. If problems occur while connecting to the headset, place the headset in discovery mode. Refer to the headset user manual for more information.

Only WAN audio is routed to the headset. System audio is still emitted through the MC9500-K speaker.

You can accept calls and re-dial using the Hands-free profile.

Hands-free profile does not support 3-way calling.

1. Ensure that Bluetooth is enabled and discoverable on both devices.

2. Ensure that the two devices are within 30 feet (10 meters) of one another.

3. Tap Start > Settings > Connections > Bluetooth icon.

4. Tap New device. The MC9500-K searches for Bluetooth devices in the area.

5. Select the headset name and tap Next. The Passcode window appears.

6. Enter the headset’s passcode.

7. Tap Next. The MC9500-K connects to the headset. Refer to the headset user manual for instructions on communicating with a Bluetooth device.

✓ **NOTE** During an active connection, the MC9500-K cannot go into suspend mode when the Power Button is pressed. A message appears notifying the user.

Once the WAN call is disconnected (with Hands-free profile) the Power button is enabled.
Serial Port Services

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

To establish a serial port connection:

1. Ensure that Bluetooth is enabled and discoverable on both devices.
2. Ensure that the two devices are within 30 feet (10 meters) of one another.
3. Tap Start > Settings > Connections tab > Bluetooth icon > Devices tab.
5. Select a device from the list.
6. Tap Next. The Enter Passcode window appears.

   \[NOTE\] If Smart-pairing is configured and the device is requesting one of the pre-defined PINs, the Enter Passcode window does not appear.

7. Enter the Passcode and the tap Next. The device is added to the Bluetooth list.
8. In the device list, tap the serial device. The Partnership Settings window displays.
9. Select the Serial Port checkbox.
10. Tap Save.
11. Tap COM Ports tab.
12. Tap New Outgoing Port. The add device window appears.
13. Select the serial device in the list and then tap Next.
14. Select a COM port from the drop-down list.
15. Tap Finish.

   \[NOTE\] No connection is made at this point. An application must open the selected COM port to trigger Microsoft Bluetooth stack to open the connection.
ActiveSync Using Serial Port Services

Use the wireless Bluetooth serial port connection for ActiveSync 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 set up a Bluetooth ActiveSync connection:

Before setting up a Bluetooth ActiveSync connection, configure the Bluetooth function of your device.

1. Ensure that Bluetooth is enabled and discoverable on both devices.
2. Ensure that the two devices are within 30 feet (10 meters) of one another.
3. On the computer, click **Start > Settings > Control Panel**.
4. Double-click **Bluetooth Devices**.
5. On the **Options** tab, select the **Turn discovery on** and **Allow Bluetooth devices to connect to this computer** checkboxes.
6. On the **COM Ports** tab, click **Add**.
7. Select the **Incoming (device initiates the connection)** option, then click **OK**. Note the number of the COM port that was added.
8. Click **OK**.
9. Click **Start > All Programs > Microsoft ActiveSync**.
10. Click **File > Connection Settings**.
11. On the Allow connections to one of the following drop-down list, select the COM port with the number you noted earlier.

12. On the MC9500-K, tap Start > Programs > ActiveSync.

13. Tap Menu > Connect via Bluetooth.

   Synchronization is automatically initiated. The ActiveSync icon appears on the lower right corner of the Today screen.

   If an Authentication is required, the Enter Passcode screen appears, type an alphanumeric passkey (PIN code), then tap Next; enter the same passkey on the other device.

   The passkey is recommended for enhanced security. Your passkey must be between 1 to 16 alphanumeric characters.

   If you do not want to use a passkey, tap Next.

14. To disconnect the ActiveSync connection, tap the ActiveSync icon on the Today screen.

15. Tap Disconnect.

Phone Book Access Profile Services

Phone Book Access profile (PBAP) is used to synchronize contacts between a remote device and the MC9500-K. To establish an PBAP synchronization:

1. Ensure that Bluetooth is enabled and discoverable on both devices.

2. Ensure that the two devices are within 30 feet (10 meters) of one another.

3. Tap Start > Settings > Connection tab > Bluetooth icon > Devices tab.

4. Tap Add New Device. The MC9500-K searches for a Bluetooth device, such as a Car Kit.

5. Select a device from the list.

6. Tap Next. The Enter Passcode window appears.

   ![NOTE] If Smart-pairing is configured and the device is requesting one of the pre-defined PINs, the Enter Passcode window does not appear.

7. Enter the Passcode and the tap Next. The device is added to the Bluetooth list.
8. A dialog box appears requesting if you want to transfer contacts to the car kit.
9. Select Yes or No.
10. If Yes is selected, contacts from the MC9500-K are transferred to the car kit.

Dial-Up Networking Services

Dial-up networking allows the user to connect a PC or laptop to the MC9500-K and use the MC9500-K as a modem to connect to an office network or ISP.

Before setting up dial-up networking, obtain dial-up information and other necessary settings (username, password and domain name, if required) for the office network or ISP. To create a new Bluetooth connection:

1. Ensure the MC9500-K is discoverable and connectable.
2. On the PC or laptop, set up Bluetooth according to the manufacturer’s instructions.
3. On the PC or laptop Bluetooth software, search for the MC9500-K and select the Dial-up Networking service.
4. Using dial-up software on the PC or laptop, connect to the MC9500-K.
5. The MC9500-K phone function dials the ISP number and connects to the ISP.
6. To verify, on the PC or laptop, launch Internet Explorer and open a web site.

Connect to a HID Device

The MC9500-K can connect to an Human Interface Device (HID) device such as a Bluetooth keyboard or mouse:

1. Ensure that Bluetooth is enabled on both devices.
2. Ensure that the Bluetooth device to discover is in discoverable and connectable modes.
3. Ensure that the two devices are within 30 feet (10 meters) of one another.
4. Tap Start > Settings > Connections tab > Bluetooth icon > Devices tab.
5. Tap Add new device. The MC9500-K begins searching for discoverable Bluetooth devices in the area.
6. Select a HID device from the list.
7. Tap Next. The Enter Passcode window appears. Refer to the device’s User Manuals for more information.
8. Tap Connect. The MC9500-K connects to the HID device.

A2DP/AVRCP Services

A2DP/AVRCP is used to connect to a high-quality stereo headset:

1. Ensure that Bluetooth is enabled on both devices.
2. Ensure that the Bluetooth device to discover is in discoverable and connectable modes.
3. Ensure that the two devices are within 30 feet (10 meters) of one another.
4. Tap Start > Settings > Connections tab > Bluetooth icon > Devices tab.
5. Tap **Add new device**. The MC9500-K begins searching for discoverable Bluetooth devices in the area.

6. Select a stereo headset from the list.

7. Tap **Next**. The **Enter Passcode** window appears. Refer to the device’s User Manuals for more information.

   ✓ **NOTE** If Smart-pairing is configured and the device is requesting one of the pre-defined PINs, the **Enter Passcode** window does not appear.

8. Tap **Connect**. The MC9500-K connects to the stereo headset.

   For stereo headsets that can use hands-free services, connect to the hands-free service after connecting to the A2DP service:

   1. Tap **Start** > **Settings** > **Connections** tab > **Bluetooth** icon > **Devices** tab.
   2. Tap **Add new device**. The MC9500-K begins searching for discoverable Bluetooth devices in the area.
   3. Select a stereo headset from the list.
   4. Tap **Next**. The **Enter Passcode** window appears. Refer to the device’s User Manuals for more information.

   ✓ **NOTE** If Smart-pairing is configured and the device is requesting one of the pre-defined PINs, the **Enter Passcode** window does not appear.

5. Tap **Connect**. The MC9500-K connects to the stereo headset.
Using StoneStreet One Bluetooth Stack

The following sections provide information on using the StoneStreet One Bluetooth stack.

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, other Bluetooth devices cannot see or connect to the MC9500-K. 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 turn off radios not in use.

Disabling Bluetooth

To disable Bluetooth, tap **Bluetooth** icon > **Disable Bluetooth**. The **Bluetooth** icon changes to indicate that Bluetooth is disabled.

Enabling Bluetooth

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

Modes

The BTExplorer application has two modes 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. To switch between modes, select **View > Wizard Mode** or **View > Explorer Mode**.
Wizard Mode

Wizard Mode provides a simple process for discovering and connecting to Bluetooth devices.

![NOTE] Switching between Wizard Mode and Explorer Mode closes all active connections.

Wizard Mode shows the devices and services in a simple Favorites view created by following the step-by-step wizard.

Explorer Mode

The Explorer Mode window is easy to navigate and provides greater control to users familiar with Bluetooth. The menu bar provides quick access to the options and tools used to connect to devices. To access Explorer Mode, tap View > Explorer Mode.

![Figure 7-16  Explorer Mode Window]

You can also use the “tap and hold” technique to view available options. Scroll bars and view options are similar to those on the Windows desktop. The tree structure lists the following sub-items:

- Local Device - This device
- 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 Favorite for quick access.

![NOTE] Switching between Wizard Mode and Explorer Mode closes all active connections.

Discovering Bluetooth Device(s)

The MC9500-K can receive information from discovered devices without bonding. However, once bonded, the MC9500-K and a bonded device exchange information automatically when you turn the Bluetooth radio on. See Bonding with Discovered Device(s) on page 7-34 for more information.

To find Bluetooth devices in the area:

1. Ensure that Bluetooth is enabled on both devices.
2. Ensure that the Bluetooth device to discover is in discoverable and connectable modes.
3. Ensure that the require profile is enabled on the MC9500-K. See Profiles Tab on page 7-47 for more information.

4. Ensure that the two devices are within 30 feet (10 meters) of one another.

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

   **NOTE** If favorite connections have already been created, the Favorites screen displays. If no favorite connections have been created, the New Connection Wizard screen displays.


   ![Figure 7-17 BTExplorer Window](image)

7. Select Explore Services on Remote Device or another from the drop-down list and tap Next.

   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
   - Active Sync via Bluetooth
   - Browse Files on Remote Device
   - Connect to Headset
   - Connect to Internet using Access Point
   - Connect to Personal Area Network
   - Connect to Printer
   - Send or Exchange Objects
   - Associate Serial Port
   - Connect to High-Quality Audio.

   **NOTE** If a device discovery action has not been previously performed, a device discovery is automatically initiated. If a device discovery has previously been performed, the device discovery process is skipped, and the previously found list of devices displays. To start a new device discovery, tap and hold in the window and select Discover Devices from the pop-up menu.

8. BTExplorer searches for Bluetooth devices in the area.
The discovered devices display in the **Select Remote Device** window.

9. Select a device from the list and tap **Next**. The MC9500-K searches for services on the selected Bluetooth device.

![Discover Devices Dialog Box](image)

**Figure 7-18 Discover Devices Dialog Box**

![Select Remote Device Window](image)

**Figure 7-19 Select Remote Device Window**

![Device Services](image)

**Figure 7-20 Device Services**

**NOTE** If the MC9500-K discovers a service but the service is not supported, the service icon is grayed-out.
10. Select a service from the list and press Next. The **Connection Favorite Options** window appears.

![Connection Favorite Options Window](image)

**Figure 7-21** **Connection Favorite Options Window**

11. In the **Favorite Name** text box, enter a name for this service that will appear in the **Favorite** window.

12. Tap Next. The **Connection Summary** window appears.

13. Tap Connect to add the service to the **Favorite** window and connect to the service.

![Favorites Window](image)

**Figure 7-22** **Favorites Window**

**Available Services**

![NOTE](image)

Some devices might not require a PIN. This depends upon the device’s authentication.

The MC9500-K offers the following services:

- File Transfer Services
- Dial-Up Networking Services
- OBEX Object Push Services
- Headset Audio Gateway Services
- Hands-Free Audio Gateway Services
- Serial Port Services
• Personal Area Networking Services
• IrMC Services
• A2DP/AVRCP.

See the following sections for information on these services.

File Transfer Services

✓ **NOTE** Shared folders are a security risk.

To transfer files between the MC9500-K and another Bluetooth enabled device:

1. Ensure that OBEX File Transfer profile is enabled on the MC9500-K. See Profiles Tab on page 7-47 for more information.

✓ **NOTE** If favorite connections have already been created, the Favorites screen displays. If no favorite connections have been created, the New Connection Wizard screen displays.

2. Use the Connection Wizard to search for a Bluetooth device.

3. Select the device and tap Next. The Select Remote Service window appears.

4. Tap Next. The Connection Favorite Options window appears.

5. Tap Next. The Connection Summary window appears.

6. Tap Connect. The remote device’s accessible folders appear.

![File Transfer Window](Image)

**Figure 7-23** File Transfer Window

7. Double-tap the file to copy. The Save Remote File window appears.
8. Tap and hold on the file. A pop-up menu appears.

9. Select the action to perform:
   - **New** - create a new file or folder on the remote device
   - **Delete** - delete the selected file on the remote device.
   - **Get File** - copy the file from the remote device to the MC9500-K.
   - **Put File** - copy a file from the MC9500-K to the remote device.

**Creating a New File or Folder**

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

1. Tap and hold on the screen 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.

3. Tap **OK** to create the new folder or file on the remote device.

**Deleting a File**

To delete a file from the remote device:

1. Tap and hold on the file to delete and select **Delete**.

2. In the **Delete Remote Device File** dialog box tap **Yes**.

**Getting a File**

To copy a file from a remote device:

1. Double-tap or 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 MC9500-K.

**Copying a File**

To copy a file to a remote device:
1. Tap **Action > 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 copies from the MC9500-K to the remote device.

### Connecting to the Internet Using an Access Point

This section explains how to access a Bluetooth-enabled LAN access point (AP) for a network connection. Use Internet Explorer to connect to a server.

1. Ensure the MC9500-K is discoverable and connectable. See [Device Info Tab on page 7-36](#).

2. Ensure that the **Personal Area Networking** profile is enabled on the MC9500-K. See [Profiles Tab on page 7-47](#) for more information.

3. Use the **Connection Wizard** to search for a Bluetooth AP.

   ✔️ **NOTE** If favorite connections have already been created, the **Favorites** screen displays. If no favorite connections have been created, the **New Connection Wizard** screen displays.

4. Select the **Personal Area Network** or **Network Access** service and select **Connect** from the pop-up menu. The MC9500-K connects with the access point.

5. Tap **Start > Internet Explorer**. The **Internet Explorer** window appears.

6. In the address field, enter an internet address and tap the **Enter** button. The web page loads.

   ✔️ **NOTE** Network Access profile is not supported.

### Dial-Up Networking Services

Dial-up networking allows the user to connect a PC or laptop to the MC9500-K and use the MC9500-K as a modem to connect to an office network or ISP.

Before setting up dial-up networking, obtain dial-up information and other necessary settings (username, password and domain name, if required) for the office network or ISP. To create a new Bluetooth connection:

1. Ensure the MC9500-K is discoverable and connectable. See [Device Info Tab on page 7-36](#).

2. Ensure that the **Dial-Up Networking** profile is enabled on the MC9500-K. See [Profiles Tab on page 7-47](#) for more information.
3. Tap **Menu > Settings > Services** tab.

4. Tap **Add** button.

5. Select **Dial-up networking Service**.

6. Tap **OK**. The **Edit Local Services** window appears.

![Edit Local Service Window](image)

**Figure 7-25** *Edit Local Service Window*

7. In the **Local COM Port** drop-down list, select **DUN1** for GSM configurations or **WMP9** for CDMA configurations.

8. Tap **OK** twice.

9. On the PC or laptop, set up Bluetooth according to the manufacturer’s instructions.

10. On the PC or laptop Bluetooth software, search for the MC9500-K and select the Dial-up Networking service.

11. Using dial-up software on the PC or laptop, connect to the MC9500-K.

12. The MC9500-K phone function dials the ISP number and connects to the ISP.

13. To verify, on the PC or laptop, launch Internet Explorer and open a web site.

**Object Exchange Push Services**

Object Exchange (OBEX) is a set of protocols that allows sharing objects such as Contacts or pictures using Bluetooth.

To exchange contact information with another Bluetooth enabled device:

1. Ensure the MC9500-K is discoverable and connectable. See **Device Info Tab on page 7-36**.

2. Ensure that the **OBEX Object Push** profile is enabled on the MC9500-K. See **Profiles Tab on page 7-47** for more information.

   **NOTE** If favorite connections have already been created, the **Favorites** screen displays. If no favorite connections have been created, the **New Connection Wizard** screen displays.

3. Use the **Connection Wizard** to search for a Bluetooth device.

4. Select the device and tap **Next**.

5. Select the **OBEX Object Push** service and select **Connect**. The **OBEX Object Push** window appears.
6. In the Action drop-down list, select one of the following options: Send Contact Information, Swap Contact Information, Fetch Contact Information, or Send a Picture.

Sending a Contact

To send a contact to another device:

✓ **NOTE** Prior to sending and receiving contacts, a default contact must be set up before attempting to send a contact.

1. Tap and hold on OBEX Object Push and select Connect. The OBEX Object Push window appears.

![Figure 7-26 OBEX Object Push Window](image)

2. In the Action: drop-down list, select Send Contact Information.

3. Tap . The Select Contact Entry window appears.

![Figure 7-27 Select Contact Entry Window](image)

4. Select a contact to send to the other device.

5. Tap OK.

6. Tap OK to send the contact to the other device and display a confirmation dialog box on the other device to accept the contact. A Send Contact dialog appears.

7. Tap Ok.
Swapping Contacts

To swap contacts with another device:

NOTE Prior to swapping contacts, a default contact must be set up before attempting to send a contact.
Ensure that the MC9500-K is connectable.

1. Tap and hold on **OBEX Object Push** and select **Connect**. The **OBEX Object Push** window appears.

   ![OBEX Object Push Window](image)

   **Figure 7-28**  **OBEX Object Push Window**

2. In the **Action** drop-down list, select **Swap Contact Information**.

3. Tap . The **Select Contact Entry** window appears.

   ![Select Contact Entry Window](image)

   **Figure 7-29**  **Select Contact Entry Window**

4. Select a contact to send to the other device.

5. Tap **OK**.

6. Tap **OK** to swap contacts with the other device and display a confirmation dialog box on the other device to accept the contact.

7. Tap **Ok**.
Fetching a Contact

To fetch a contact from another device:

1. Tap and hold on **OBEX Object Push** and select **Connect**. The **OBEX Object Push** window appears.
2. In the **Action**: drop-down list, select **Fetch Contact information**.
3. Tap **OK**. The contact on the other device is copied.

**NOTE** Prior to sending and receiving contacts, a default contact must be set up before attempting to send a contact. Ensure that the MC9500-K is connectable.

Sending a Picture

To send a picture to another device:

1. Tap and hold on **OBEX Object Push** and select **Connect**. The **OBEX Object Push** window appears.
2. In the **Action**: drop-down list, select **Send A Picture**.
3. Tap **...**. The **Send Local Picture** window appears.
Figure 7-32  Send Local Picture Window

4. Navigate to the picture to send to the other device.

5. Tap Open.

6. Tap OK to send the picture to the other device and display a confirmation dialog box on the other device to accept the picture. A Send Picture dialog appears.

7. Tap Ok.

Headset Services

To connect to a Bluetooth headset:

✓  **NOTE**  Newer Bluetooth headsets are device dependant and remember the last device they connected to. If problems occur while connecting to the headset, place the headset in discovery mode. Refer to the headset user manual for more information.

✓  **NOTE**  The headset tries to initiates the connection. If a connection is not established, then the Headset service is not enabled.

1. Ensure the MC9500-K is connectable (required when automatic re-connect is initiated). See Device Info Tab on page 7-36.

2. Ensure that the Headset Audio Gateway service is enabled on the MC9500-K (required when automatic re-connect is initiated). See Services Tab on page 7-37 for more information.

3. Use the Connection Wizard to search for a Bluetooth headset.

4. Select the device and tap Next.

5. Select the Headset service name and select Connect. The MC9500-K connects to the headset. Refer to the headset user manual for instructions on communicating with a Bluetooth device.

✓  **NOTE**  When using a Bluetooth headset with Headset Services, you cannot accept or end a call from the headset. You must accept or end a call on the MC9500-K.

6. Press the communication button on the headset. This routes both system and WAN call audio to the headset.

7. When a call is received on the MC9500-K, tap the Accept button to answer the call.

8. Press the communication button on the headset to route the audio back to the MC9500-K.
Hands-free Services

To connect to a Bluetooth headset:

1. Ensure the MC9500-K is connectable (required when automatic re-connect is initiated). See Device Info Tab on page 7-36.

2. Ensure that the Hands Free profile is enabled on the MC9500-K. See Profiles Tab on page 7-47 for more information.

3. Use the Connection Wizard to search for a Bluetooth hands-free headset.

4. Select the hand-free device and tap Next.

5. Select the Hands-free service name and select Connect. The MC9500-K connects to the headset. Refer to the headset user manual for instructions on communicating with a Bluetooth device.

6. During an active connection, the MC9500-K cannot go into suspend mode when the Power Button is pressed. A message appears notifying the user.

   Once the WAN call is disconnected (with Hands-free profile) the Power button is enabled.

   Headset icon

   Figure 7-33 WWAN Bluetooth Audio Notification Dialog Box

Serial Port Services

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

To establish a serial port connection:

1. Use the Connection Wizard to search for a Bluetooth serial device.

2. Select the device and tap Next. The Connection Favorite Options window appears.
3. In the **Local COM Port**: drop-down list select a COM port.

4. Tap **Finish**.

**ActiveSync Using Serial Port Services**

*NOTE* By default, COM ports COM5, COM9, COM11, COM21, COM22 and COM23 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 for ActiveSync just as you would a physical serial cable connection. You must configure the application that will use the connection to the correct serial port.

![ActiveSync Connection Settings Window on PC](image1)

**Figure 7-34**  *ActiveSync Connection Settings Window on PC*

To establish an ActiveSync connection:

1. Ensure that the **Sync** profile is enabled on the MC9500-K. See *Profiles Tab on page 7-47* for more information.

2. Use the **Connection Wizard** to search for a Bluetooth device, such as a PC. In the drop-down list select **ActiveSync via Bluetooth**.

3. Select the device and tap **Next**. The **Connection Favorite Options** window appears.

4. Tap **Connect**. The **Remote Service Connection** window appears.

![Remote Service Connection Window](image2)

**Figure 7-35**  *Remote Service Connection Window*

5. In the **Service Type** drop-down list, select **Active Sync**.
6. Tap **OK**. The MC9500-K connects the PC and an ActiveSync session begins.

7. Tap **Finish**. The Connection Favorite Options window appears.

8. To end the session, tap the ActiveSync icon in the **Favorite** window and select **Disconnect** from the pop-up window.

**Personal Area Network Services**

- **NOTE** This profile supports Ad-hoc and PAN User. Network Access Profile is not supported.

Connect two or more Bluetooth devices to share files, collaborate, or play multi-player games. To establish a Personal Area Network connection:

1. Ensure that the **Personal Area Networking** profile is enabled on the MC9500-K. See *Profiles Tab on page 7-47* for more information.

2. Use the **Connection Wizard** to search for a Bluetooth device.

3. Select the device and tap **Next**. The **Connection Favorite Options** window appears.

4. Tap **Next**. The **Connection Summary** window appears.

5. Tap **Connect**. The MC9500-K connects to the Bluetooth device.

**IrMC Synchronization Services**

IrMC Synchronization is used to synchronize PIM contacts between a remote device and the MC9500-K. To establish an IrMC synchronization:

1. Ensure the MC9500-K is connectable (required when automatic re-connect is initiated). See *Device Info Tab on page 7-36*.

2. Ensure that the **Sync** profile is enabled on the MC9500-K. See *Profiles Tab on page 7-47* for more information.

3. Tap **Menu** > **Settings** > **Services** tab.

4. Tap **Add** button.

5. Select **IrMC Synchronization**.

6. Tap **OK**. The **Edit Local Services** window appears.

7. Tap **OK** twice.

8. Use the **Connection Wizard** to search for a Bluetooth device, such as a Car Kit.

9. Select the device and tap **Next**. The **Connection Favorite Options** window appears.

10. Tap and hold **IrMA Synchronization** and select **Connect** in the pop-up menu.

- **NOTE** To automatically transfer contact with a Car Kit, ensure that the IrMC Synchronization service is enabled on the MC9500-K.

**A2DP/AVRCP Services**

A2DP/AVRCP is used to connect to a high-quality stereo headset:
1. Ensure the MC9500-K is connectable (required when automatic re-connect is initiated). See Device Info Tab on page 7-36.

2. Ensure that the remote Bluetooth device is in discoverable mode. See the device's user manual for instructions.

3. Ensure that the A2DP/AVRCP profile is enabled on the MC9500-K. See Profiles Tab on page 7-47 for more information.

4. Tap Menu > Settings > Services tab.

5. Tap Add button.


7. Tap OK. The Edit Local Services window appears.

8. Tap OK twice.


10. Select Connect to High-Quality Audio from the drop-down list.

11. Tap Next.

12. Select the device and tap Next.

13. Enter the PIN Code for the remote device and then tap OK. The Connection Favorite Options window appears.

14. Tap Next.

15. Tap Connect. The MC9500-K connects to the high-quality audio headset.

For stereo headsets that can use hands-free services, connect to the hands-free service after connecting to the A2DP service:

1. Tap Menu > New Connection.

2. Select Connect to Headset from the drop-down list.

3. Tap Next.

4. Select the stereo headset and tap Next.

5. Select the Hands-Free unit service and then tap Next.

6. Tap Next.

7. Tap Connect.

Connect to a HID Device

The MC9500-K can connect to an Human Interface Device (HID) device such as a Bluetooth keyboard:

1. Ensure the MC9500-K is connectable (required when automatic re-connect is initiated). See Device Info Tab on page 7-36.

2. Ensure that the remote Bluetooth device is in discoverable mode. See the device's user manual for instructions.

3. Ensure that the HID Client profile is enabled on the MC9500-K. See Profiles Tab on page 7-47 for more information.
4. Tap **Menu > New Connection**.
5. Select **Explore Services on Remote Device** from the drop-down list.
6. Tap **Next**.
7. Select the device and tap **Next**.
8. Select the service and tap **Next**.
9. The **Connection Favorite Options** window appears.
10. Tap **Next**.
11. Tap **Connect**. The MC9500-K connects to the HID device.

### Bonding with Discovered Device(s)

A bond is a relationship created between the MC9500-K 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. After creating a bond and turning on the Bluetooth radios, the devices recognize the bond and can exchange information without re-entering a PIN.

To bond with a discovered Bluetooth device:

> **NOTE** If favorite connections have already been created, the **Favorites** screen displays. If no favorite connections have been created, the **New Connection Wizard** screen displays.

1. Tap the **Bluetooth** icon and select **Show BTExplorer**. The **BTExplorer** window appears.
2. Tap **Menu > New Connection**. The **New Connection Wizard** window appears.
3. In the drop-down list, select **Pair with Remote Device**.
4. Tap **Next**. The **Select Remote Device** window appears.

> **NOTE** Devices discovered previously are listed to save time. To start a new device discovery, tap and hold on the list area and select **Discover Devices** from the pop-up menu.

5. Select a device from the list and tap **Next**. The **PIN Code Request** window appears.
6. In the **PIN Code** field, enter the PIN code.

7. Tap **OK**. The **Pairing Status** window displays.

8. Tap **Finish**. The devices are successfully paired. The device name moves to the **Trusted Devices** window.

### Deleting a Bonded Device

To delete a device no longer needed:

1. Tap the **Bluetooth** icon and select **Show BTEplorer**. The **BTEplorer** window appears.

2. Tap **Menu > Trusted Devices**. The **Trusted Devices** window appears.

3. Tap and hold on the device select **Delete Link Key** in the pop-up menu.

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

### Accepting a Bond

When a remote device wants to bond with the MC9500-K, enter a PIN when requested to grant permission.

1. Ensure that the MC9500-K is set to discoverable and connectable. See *Bluetooth Settings on page 7-36*. When prompted to bond with the remote device the **PIN Code Request** window appears.
2. In the **PIN Code**: text box, enter the same PIN entered on the device requesting the bond. The PIN must be between 1 and 16 characters.

3. In the **Device Name**: text box, edit the name of the device requesting the bond, if desired.

4. Tap **OK** to create the bond. The MC9500-K can now exchange information with the other device.

**Bluetooth Settings**

Use the **BTExplorer Settings** window to configure the operation of the **BTExplorer** application. Tap **Menu > Settings**. The **BTExplorer Settings** window appears.

**Device Info Tab**

Use the **Device Info** tab to configure the MC9500-K’s Bluetooth connection modes.

<table>
<thead>
<tr>
<th><strong>Table 7-3</strong></th>
<th><strong>Device Info Tab Data</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>Device Name</td>
<td>Displays the name of the MC9500-K.</td>
</tr>
<tr>
<td>Discoverable Mode</td>
<td>Select whether or not the MC9500-K is discoverable by other Bluetooth devices.</td>
</tr>
<tr>
<td>Connectable Mode</td>
<td>Select whether or not the MC9500-K is connectable by other Bluetooth devices.</td>
</tr>
</tbody>
</table>
Services Tab

NOTE  Ensure that the MC9500-K is discoverable and connectable when remote devices use MC9500-K services.

Use the Services tab to add or delete Bluetooth services.

To add a service:

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

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 sections for information on the available services.

Dial-Up Networking Service

Dial-up Networking allows other Bluetooth devices to access a dial-up modem.
File Transfer Service

File transfer allows other Bluetooth devices to browse files.

### Table 7-4  Dial-up Networking Information Data

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Name</td>
<td>Displays the name of the service.</td>
</tr>
<tr>
<td>Service Security</td>
<td>Select the type of security from the drop-down list. Options are <strong>None</strong>, <strong>Authenticate</strong>, or <strong>Authenticate/Encrypt</strong>.</td>
</tr>
<tr>
<td>Local COM Port</td>
<td>Select the COM port.</td>
</tr>
<tr>
<td>Local Baud Rate</td>
<td>Select the communication baud rate.</td>
</tr>
<tr>
<td>Local Port Options</td>
<td>Select the port option.</td>
</tr>
</tbody>
</table>
Hands-Free Audio Gateway Service

Hands-Free Service Audio Gateway allows connection to hands-free devices.

Table 7-6  Hands-Free Audio Gateway Data

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Name</td>
<td>Lists the name of the audio service.</td>
</tr>
</tbody>
</table>
Headset Audio Gateway Service

Headset Service Audio Gateway allows connection to headset devices.

Table 7-7  Headset Audio Gateway Data

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Name</td>
<td>Lists the name of the audio service.</td>
</tr>
</tbody>
</table>

IrMC Synchronization Service

The IrMC Synchronization service used to synchronize PIM contacts between a remote device and the MC9500-K.
Table 7-8  IrMC Synchronization Data

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Name</td>
<td>Displays the name of the service.</td>
</tr>
<tr>
<td>Service Security</td>
<td>Select the type of security from the drop-down list. Options are None, Authenticate, or Authenticate/Encrypt.</td>
</tr>
<tr>
<td>Phonebook</td>
<td>Select the <strong>Phonebook</strong> checkbox to allow synchronization with the MC9500-K’s contacts.</td>
</tr>
<tr>
<td></td>
<td>Select <strong>Read, Write, Create</strong> and/or <strong>Delete</strong> to allow phonebook permissions.</td>
</tr>
</tbody>
</table>

**OBEX Object Push Service**

OBEX Object Push allows other Bluetooth devices to push contacts, business cards, pictures, appointments, and tasks to the MC9500-K.

![BTExplorer Settings - OBEX Exchange Information](image)

**Figure 7-48  BTExplorer Settings - OBEX Exchange Information**

Table 7-9  OBEX Exchange Information Data

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Name</td>
<td>Displays the name of the service.</td>
</tr>
<tr>
<td>Service Security</td>
<td>Select the type of security from the drop-down list. Options are None, Authenticate, or Authenticate/Encrypt.</td>
</tr>
<tr>
<td>Do not allow clients to push objects</td>
<td>Disables clients from pushing objects to the MC9500-K.</td>
</tr>
<tr>
<td>Inbox Directory</td>
<td>Select a directory where another Bluetooth device can store files.</td>
</tr>
</tbody>
</table>

**Personal Area Networking Service**

Personal Area Networking hosts a Personal Area Network which allows communication with other Bluetooth devices.
Table 7-10  Personal Area Networking Data

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Name</td>
<td>Displays the name of the service.</td>
</tr>
<tr>
<td>Service Security</td>
<td>Select the type of security from the drop-down list. Options are None, Authenticate, or Authenticate/Encrypt.</td>
</tr>
</tbody>
</table>

**Serial Port Service**

Serial port allows other Bluetooth devices to access COM ports.
Advanced Audio Distribution Service

Advanced Audio Distribution hosts connects from Bluetooth devices supporting high-quality stereo audio.

Table 7-11  Serial Port Services Data

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Name</td>
<td>Displays the name of the service.</td>
</tr>
<tr>
<td>Service Security</td>
<td>Select the type of security from the drop-down list. Options are None, Authenticate, or Authenticate/Encrypt.</td>
</tr>
<tr>
<td>Local COM Port</td>
<td>Select the COM port.</td>
</tr>
<tr>
<td>Local Baud Rate</td>
<td>Select the communication baud rate.</td>
</tr>
<tr>
<td>Local Port Options</td>
<td>Select the port option.</td>
</tr>
</tbody>
</table>

Table 7-12  Advanced Audio Distribution Data

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Name</td>
<td>Lists the name of the audio service.</td>
</tr>
</tbody>
</table>
Audio Video Remote Control Service

Audio Video Remote Control hosts connections from Bluetooth devices supporting audio remote-control functionality.

![Figure 7-52 BTExplorer Settings - Audio Video Remote Control](image)

Table 7-13 Audio Video Remote Control Data

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Name</td>
<td>Lists the name of the audio service.</td>
</tr>
</tbody>
</table>

Security Tab

Security settings allows you to set global security policies for Bluetooth. Note that these settings are only active on local Services that are set to Authenticate or Authenticate/Encryption. You can set authentication on local Services under the Services tab.

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

![Figure 7-53 BTExplorer Settings - Security Tab](image)

**NOTE** To use PIN Code, select Authenticate or Authenticate/Encrypt from the Service Security drop-down list on each local service.
Using Bluetooth

Table 7-14  Security Tab Data

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use PIN Code (Incoming Connection)</td>
<td>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 7-2 for more information.</td>
</tr>
<tr>
<td>PIN Code</td>
<td>Enter the PIN code.</td>
</tr>
<tr>
<td>Encrypt Link On All Outgoing Connections</td>
<td>Select to enable or disable encryption on all outgoing connections to other Bluetooth devices.</td>
</tr>
</tbody>
</table>

**Discovery Tab**

Use the Discovery tab to set and modify discovered devices.

**Table 7-15  Discovery Tab Data**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inquiry Length</td>
<td>Sets the amount of time the MC9500-K takes to discover Bluetooth devices in the area.</td>
</tr>
<tr>
<td>Name Discovery Mode</td>
<td>Select either Automatic or Manual to automatically attempt to discover a Bluetooth device's name after finding the device.</td>
</tr>
<tr>
<td>Discovered Devices - Delete Devices</td>
<td>Deletes all discovered devices and link keys from memory.</td>
</tr>
<tr>
<td>Discovered Devices - Delete Linked Keys</td>
<td>Removes all pairing from remote Bluetooth devices, and makes them all un-trusted.</td>
</tr>
</tbody>
</table>

**Virtual COM Port Tab**

Virtual COM Port defines which COM ports BTExplorer attempts to use for virtual COM ports. Check the appropriate checkbox to use the port as a virtual COM port. When finished, choose Apply to enforce changes, or Revert to restore the original settings.
Use the **HID** tab to select The Human Interface Device Profile programming interface defines the protocols and procedures to be used to implement HID capabilities.

Provides support for devices such as mice, joysticks, keyboards.
Profiles Tab

Use the Profile tab to load or remove Bluetooth services profiles. If a profile is not used, it can be removed to save memory.

1. Tap a check box next to the profile to load (activate).
   The Serial Port profile is always active and cannot be removed.
2. Tap Select All to select all profiles or tap Deselect All to deselect all profiles.
3. Tap Apply to activate the profiles and then Close to exit the application.

Table 7-17  HID Tab Data

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable Key Repeat</td>
<td>Enables key repeat functionality.</td>
</tr>
<tr>
<td>Delay</td>
<td>To increase key repeat delay, drag the Delay slider to the right. To decrease key repeat delay, drag the Delay slider to the left.</td>
</tr>
<tr>
<td>Rate</td>
<td>To increase key repeat speed, drag the Rate slider to the left. To decrease key repeat speed, drag the Rate slider to the right.</td>
</tr>
</tbody>
</table>
System Parameters Tab

![Figure 7-58 BTExplorer Settings - System Parameters Tab]

Table 7-18 System Parameters Tab Data

<table>
<thead>
<tr>
<th>item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page Timeout</td>
<td>Sets the amount of time the MC9500-K searches for a device before moving on the next device.</td>
</tr>
<tr>
<td>Link Supervision Timeout</td>
<td>Sets the amount of time that the MC9500-K will wait for a device to come back into range after it has gone out of range. If the device does not come back into range by the set time, the MC9500-K drops the connection.</td>
</tr>
</tbody>
</table>

Miscellaneous Tab

![Figure 7-59 BTExplorer Settings - Miscellaneous Tab]
Table 7-19  *Miscellaneous tab Data*

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highlight Connections</td>
<td>Select the connection type to highlight when connected. In the Wizard Mode, the only options are <em>Favorites</em> or <em>None</em>. In the Explorer Mode the options are <em>None</em>, <em>Tree View Only</em>, <em>List View Only</em>, or <em>Tree and List View</em>.</td>
</tr>
<tr>
<td>Apply Text Style</td>
<td>Select the text style to apply to the connection text.</td>
</tr>
<tr>
<td>Apply Text Color</td>
<td>Select the text color to apply to the connection text.</td>
</tr>
</tbody>
</table>
# Chapter 8 Accessories

## Introduction

Table 8-1 lists the accessories available for the MC9500-K Series mobile computer.

### Table 8-1  MC9500-K Series Accessories

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cradles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Bay USB Cradle</td>
<td>CRD9500-1000UR</td>
<td>Charges the MC9500-K main battery. Synchronizes the MC9500-K with a host computer through a USB connection.</td>
</tr>
<tr>
<td>Four Bay Charge Only Cradle</td>
<td>CRD9500-4000CR</td>
<td>Charges up to four MC9500-K devices.</td>
</tr>
<tr>
<td>Four Bay Ethernet Cradle</td>
<td>CRD9500-4000ER</td>
<td>Charges up to four MC9500-K devices and connects the MC9500-K with an Ethernet network.</td>
</tr>
<tr>
<td>Vehicle Cradle</td>
<td>VCD9500-1000R</td>
<td>Installs in a vehicle and charges the MC9500-K main battery.</td>
</tr>
<tr>
<td><strong>Chargers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Slot Battery Charger</td>
<td>SAC9500-1000CR</td>
<td>Charges one MC9500-K battery.</td>
</tr>
<tr>
<td>Four Slot Battery Charger</td>
<td>SAC9500-4000CR</td>
<td>Charges up to four MC9500-K batteries.</td>
</tr>
<tr>
<td>Vehicle Battery Charger</td>
<td>VBC9500-1000R</td>
<td>Charges one MC9500-K battery in a vehicle.</td>
</tr>
<tr>
<td><strong>Miscellaneous</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modem Dongle</td>
<td>MDM9000-100R</td>
<td>Provides modern connectivity for the MC9500-K.</td>
</tr>
<tr>
<td>Magnetic Stripe Reader</td>
<td>MSR9500-100R</td>
<td>Snaps onto the MC9500-K and adds magstripe read capabilities.</td>
</tr>
<tr>
<td>Spare 4800 mAh lithium-ion battery</td>
<td>BTRY-MC95IABA0 BTRY-MC95IABA0-10</td>
<td>Replacement 4800 mAh battery. Replacement 4800 mAh battery (10-pack).</td>
</tr>
</tbody>
</table>
### Table 8-1  MC9500-K Series Accessories (Continued)

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spare 7200 mAh lithium-ion battery</td>
<td>BTRY-MC95IABA0</td>
<td>Replacement 7200 mAh battery.</td>
</tr>
<tr>
<td></td>
<td>BTRY-MC95IABA0-10</td>
<td>Replacement 7200 mAh battery (10-pack).</td>
</tr>
<tr>
<td>Belt Mounted Rigid Holster</td>
<td>SG-MC9511110-01R</td>
<td>Clips onto belt to hold the MC9500-K when not in use.</td>
</tr>
<tr>
<td>Fabric Holster</td>
<td>SG-MC9521110-01R</td>
<td>Soft holder for added protection.</td>
</tr>
<tr>
<td>Handstrap</td>
<td>SG-MC9523043-01R</td>
<td>Replacement handstrap (5-pack).</td>
</tr>
<tr>
<td>Cradle Guides</td>
<td>KT-122014-01R</td>
<td>Provides assistance for placing an MC9500-K onto a four bay cradle (4-pack).</td>
</tr>
<tr>
<td>Screen Protector</td>
<td>KT-122010-01R</td>
<td>Package of 3 screen protectors.</td>
</tr>
<tr>
<td>Spare Stylus, 3 Pack</td>
<td>KT-122016-03R</td>
<td>Replacement stylus (3-pack).</td>
</tr>
<tr>
<td>Spare Stylus, 50 Pack</td>
<td>KT-122018-50R</td>
<td>Replacement stylus (50-pack).</td>
</tr>
<tr>
<td>Power Supply</td>
<td>KT-14000-148R</td>
<td>Supports the Single Bay USB Cradle, Single Slot Battery Charger and Four Slot Battery Charger.</td>
</tr>
<tr>
<td>Power Supply</td>
<td>50-14000-241R</td>
<td>Supports one Four Bay cradle or up to four (4) Four Slot Battery Chargers.</td>
</tr>
</tbody>
</table>

**Cables**

<table>
<thead>
<tr>
<th></th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB/Charge Cable</td>
<td>25-116365-01R</td>
<td>Provides power to the MC9500-K and USB communication with a host computer.</td>
</tr>
<tr>
<td>Auto Charge Cable</td>
<td>VCA9500-01R</td>
<td>Charges the MC9500-K using a vehicle’s cigarette lighter.</td>
</tr>
<tr>
<td>DEX Cable</td>
<td>25-116366-01R</td>
<td>Connects the MC9500-K to a vendor machine.</td>
</tr>
<tr>
<td>4-way DC cable</td>
<td>25-85992-01R</td>
<td>Used to power up to four Four Slot Battery Chargers with one power supply (50-14000-241R).</td>
</tr>
<tr>
<td>USB Sync Cable</td>
<td>25-124330-01R</td>
<td>micro USB Client Communication Cable connects Single Bay USB Cradle to the host system (micro USB B to USB A).</td>
</tr>
<tr>
<td>Single Bay USB Cradle/Charger Y-Cable</td>
<td>25-122026-01R</td>
<td>Connect the Single Bay USB cradle and a Single Slot Battery Charger to a single power supply.</td>
</tr>
<tr>
<td>Modem Adapter Cable</td>
<td>25-116367-01R</td>
<td>Connect the MC9500-K to the Modem Dongle.</td>
</tr>
<tr>
<td>Headset Adapter Cable</td>
<td>21-116368-01R</td>
<td>Connects a VX1 headset to the MC9500-K.</td>
</tr>
<tr>
<td>AC Line Cord</td>
<td>23844-00-00R</td>
<td>Connects a power supply to an outlet (US only).</td>
</tr>
<tr>
<td>DC Cable</td>
<td>50-16002-029R</td>
<td>Connects from the four bay cradle to a power supply.</td>
</tr>
<tr>
<td>Vehicle Battery Charger Cable</td>
<td>25-122028-01R</td>
<td>This 'jumper' cable connects the vehicle battery charger to the vehicle cradle.</td>
</tr>
</tbody>
</table>

**Brackets**

<table>
<thead>
<tr>
<th></th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desk Mounting Bracket</td>
<td>KT-116363-01R</td>
<td>Use for mounting a four bay cradle or two four slot battery chargers on a desk.</td>
</tr>
</tbody>
</table>
Universal Accessory System

The Zebra Universal Accessory System is a portfolio of accessories that can be easily configured and re-configured when the need arises. The system consists of cradles, chargers, power supplies, cables and mounting brackets.

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal Wall Mounting Bracket</td>
<td>KT-116362-01R</td>
<td>Use for mounting a four bay cradle or two four slot battery chargers on a wall.</td>
</tr>
<tr>
<td>Vehicle Mounting Bracket</td>
<td>KT-122012-01R</td>
<td>Used for mounting the vehicle cradle and vehicle battery charger in a vehicle.</td>
</tr>
<tr>
<td>Four Slot Battery Charger Desk Mount Bracket</td>
<td>KT-116364-01R</td>
<td>Used for mounting the Four Slot battery Charger on a desktop.</td>
</tr>
</tbody>
</table>
Single Bay USB Cradle

This section describes how to use a Single Bay USB cradle with the MC9500-K. For power and USB communication setup procedures refer to the *MC9500-K Series Mobile Computer Integrator Guide*.

The Single Bay USB Cradle:

- Provides 5.4 VDC power for operating the MC9500-K.
- Synchronizes information between the MC9500-K and a host computer. Refer to the *MC9500-K Mobile Computer Integrator Guide* for information on setting up a partnership between the MC9500-K and a host computer.
- Charges the MC9500-K’s battery.

**Communication and Charging the MC9500-K Battery**

To charge the MC9500-K battery and to communicate with a host computer:

1. Ensure that the cradle is connected to power and to a host computer.
2. Align and hook the MC9500-K interface pocket onto the cradle’s cleat.

![Figure 8-1 Hooking the MC9500-K onto the Single Bay USB Cradle](image-url)
Figure 8-2 MC9500-K Battery Charging

The MC9500-K’s Battery Status LED indicates the status of the battery charging in the MC9500-K. See Table 2-6 on page 2-9 for charging status indications. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours.
Single Slot Battery Charger

This section describes how to use a Single Slot Battery Charger.

Charging the Battery

To charge a spare battery:

1. Ensure that the charger is connected to power.
2. Insert the spare battery into the slot to begin charging.

![Figure 8-3  Single Slot Spare Battery Charging](image)

The charging status is indicated on the front of the battery. See Table 2-7 on page 2-12 for charging status indications. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours.
Four Bay Charge Only Cradle

This section describes how to use a Four Bay Charge Only cradle with the MC9500-K.

The Four Bay Charge Only cradle:

- Provides 5.4 VDC power for operating the MC9500-K.
- Simultaneously charges up to four MC9500-K devices.
- Mounts on a wall or desktop using the appropriate mounting bracket.

Charging

To charge the MC9500-K:

1. Ensure that the cradle is connected to power.

2. Align and hook the MC9500-K interface pocket onto the cradle’s cleat. Optional guide cups can be used to assist in placement of the MC9500-K onto the cradle.

Figure 8-4  Hooking the MC9500-K onto a Four Slot Cradle
The MC9500-K's Battery Status LED shows the status of the battery charging in the MC9500-K. See Table 1-1 on page 1-8 for charging status indications. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours.
Four Bay Ethernet Cradle

This section describes how to use a Four Bay Ethernet cradle with the MC9500-K. For setup and cradle communication setup procedures refer to the MC9500-K Mobile Computer Integrator Guide.

The Four Bay Ethernet cradle:

- Provides 5.4 VDC power for operating the MC9500-K.
- Connects up to four MC9500-K devices to an Ethernet network.
- Simultaneously charges up to four MC9500-K devices.
- Mounts on a wall or desktop using the appropriate mounting bracket.

Communication and Charging

To charge the MC9500-K battery and communicate with a host computer:

1. Ensure that the cradle is connected to power and an Ethernet hub.

2. Align and hook the MC9500-K interface pocket onto the cradle’s cleat. If available, use the guide to assist in placement of the MC9500-K onto the cradle. See Figure 8-4 on page 8-7.

Figure 8-6  Four Bay Ethernet Cradle with Optional Guide Cups

The MC9500-K’s Battery Status LED shows the status of the battery charging in the MC9500-K. See Table 1-1 on page 1-8 for charging status indications. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours.
LED Indicators

Speed LED
The cradle’s green Speed LED lights to indicate that the transfer rate is 100 Mbps. When it is not lit it indicates that the transfer rate is 10Mbps.

Link LED
The cradle’s yellow Link LED blinks to indicate activity, or stays lit to indicate that a link is established. When it is not lit it indicates there is no link.

Figure 8-7  Four Slot Ethernet Cradle LED Indications
Four Slot Battery Charger

This section describes how to use the Four Slot Battery Charger.

The Four Slot Battery Charger:

- Simultaneously charges up to four MC9500-K batteries.
- Mounts on a wall or desk using the appropriate mounting bracket.

Battery Charging

To charge a battery:

1. Ensure that the charger is connected to power.
2. Insert a battery into a battery charging slot and gently press the battery into the slot to ensure proper contact.

Figure 8-8  Four Slot Battery Charger

The charging status is indicated on the front of the battery. See Table 2-7 on page 2-12 for charging status indications. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours.
Vehicle Cradle

This section describes how to use a vehicle cradle with the MC9500-K. For cradle installation and communication setup procedures refer to the VCD9500 Vehicle Cradle Quick Reference Guide.

Once installed in a vehicle, the cradle:

- holds the MC9500-K securely in place
- provides power for operating the MC9500-K
- re-charges the battery in the MC9500-K.

Charging the MC9500-K Battery

Insert the MC9500-K into the vehicle cradle with the display facing out.

Push back the level forward to lock the MC9500-K into place. The MC9500-K automatically begins charging.

**NOTE** The MC9500-K will not begin charging unless the side level is locked into place.

![Vehicle Cradle](Figure 8-9)

**CAUTION** Ensure the MC9500-K is fully inserted in the cradle. Lack of proper insertion may result in property damage or personal injury. Zebra is not responsible for any loss resulting from the use of the products while driving.

To remove the MC9500-K, push the side levers toward the back of the Vehicle cradle. Lift the MC9500-K out of the cradle.

The MC9500-K’s Battery Status LED indicates the status of the battery charging in the MC9500-K. See *Table 1-1 on page 1-8* for charging status indications. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours.
Vehicle Battery Charger

This section describes how to use the Vehicle Battery Charger.

Charging the Battery

To charge a spare battery:

1. Ensure that the charger is connected to power.
2. Insert the spare battery into the slot to begin charging.

The charging status is indicated on the front of the battery. See Table 2-7 on page 2-12 for charging status indications. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours.

To remove the battery, press the release button. The battery ejects from the charger.
Magnetic Stripe Reader

This section describes how to set up and use the snap-on (Magnetic Stripe Reader (MSR) with the MC9500-K. The MSR snaps on to the back of the MC9500-K and removes easily when not in use.

When attached to the MC9500-K, the MSR allows the MC9500-K to capture data from magnetic stripe cards. To download sample MSR data capture software, visit the Support Central web site.

To charge to MC9500-K with the MSR attached,

\[\text{NOTE}\] While the MC9500-K with MSR is attached to a Single Bay USB Cradle, a Four Bay Ethernet Cradle or a USB/Charging Cable, Operation of the MSR is disabled.

If attaching the MC9500-K with the MSR onto a Four Bay Cradle, remove the optional guide cup before attaching the MC9500-K.

Attaching and Removing the MSR

To attach, slide the cleat of the MSR into the interface pocket of the MC9500-K and snap into place.

To remove the MSR, press the release button and lift off the MC9500-K.

Using the MSR

Install an MSR enabled application onto the MC9500-K.

To use the MSR:

1. Attach the MSR to the MC9500-K.
2. Power on the MC9500-K.
3. Launch the MSR application.
4. Swipe the magnetic stripe card through the MSR, with the magnetic stripe on the card facing away from the MC9500-K. Swipe the card in either direction, up and down or down and up. For best results, gently press the card against the back of the MSR while swiping to ensure contact with the reader.

Figure 8-12  *Swipe Card through MSR*

5. The application indicates if the data has been read correctly.
Cables

This section describes how to set up and use the cables. The cables are available with a variety of connection capabilities.

The following communication/charge cables are available:

- **USB/Charge cable**
  - Provide the MC9500-K with operating and charging power when used with the Zebra approved power supply.
  - Synchronize information between the MC9500-K and a host computer. With customized or third party software, it can also synchronize the MC9500-K with corporate databases.

![USB/Charge Cable](image)

**Figure 8-13  USB/Charge Cable**

- **Charge Only cable**
  - Provide the MC9500-K with operating and charging power when used with the Zebra approved power supply.

- **Single Bay Cradle/Charger Y Cable**
  - Provide the power to a Single Bay USB Cradle and Single Slot Battery Charger or two Single Slot Battery Chargers off one power supply when used with the Zebra approved power supply.

![Single Slot Cradle/Charger Y-Cable](image)

**Figure 8-14  Single Slot Cradle/Charger Y-Cable**

- **Auto Charge cable**.
  - Provides the MC9500-K or Vehicle Battery Charger with operating and charging power through a cigarette lighter.
Battery Charging and Operating Power

The communication/charge cables can charge the MC9500-K battery and supply operating power.

To charge the MC9500-K battery:

1. Connect the cable power input connector to the Zebra approved power source.
2. Align the cleat on the cable with the interface pocket on the back of the MC9500-K.
   
   The MC9500-K amber Battery Status LED indicates the MC9500-K battery charging status. The 4800 mAh battery charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours. See Table 1-1 on page 1-8 for charging status indications.

3. When charging is complete, press the release button up and remove the cable from the MC9500-K.
Chapter 9 Maintenance & Troubleshooting

Introduction

This chapter includes instructions on cleaning and storing the MC9500-K, and provides troubleshooting solutions for potential problems during MC9500-K operation.

Maintaining the MC9500-K

For trouble-free service, observe the following tips when using the MC9500-K:

- Do not scratch the screen of the MC9500-K. When working with the MC9500-K, use the supplied stylus or plastic-tipped pens intended for use with a touch-sensitive screen. Never use an actual pen or pencil or other sharp object on the surface of the MC9500-K screen.

  Zebra recommends using a screen protector, p/n KT-122010-01R.

- The touch-sensitive screen of the MC9500-K is polycarbonate. Do not to drop the MC9500-K or subject it to strong impact.

- Protect the MC9500-K from temperature extremes. Do not leave it on the dashboard of a car on a hot day, and keep it away from heat sources.

- Do not store the MC9500-K in any location that is dusty, damp or wet.

- Use a soft lens cloth to clean the MC9500-K. If the surface of the MC9500-K screen becomes soiled, clean it with a soft cloth moistened with a diluted window-cleaning solution.

- Periodically replace the rechargeable battery to ensure maximum battery life and product performance. Battery life depends on individual usage patterns. The battery provides health status to assist in determining useful battery life. See Chapter 2, Battery Management for more information.

- Do not scratch the exit window. Clean the window periodically. Dust, contamination, and scratches on the exit window can cause visible blemishes in the images captured with the Imager.
• A screen protector is applied to the MC9500-K. Zebra recommends using this to minimize wear and tear. Screen protectors enhance the usability and durability of touch screen displays. Benefits include:
  • Protection from scratches and gouges
  • Durable writing and touch surface with tactile feel
  • Abrasion and chemical resistance
  • Glare reduction
  • Keeping the device’s screen looking new
  • Quick and easy installation.

Removing the Screen Protector

A screen protector is applied to the MC9500-K. Zebra recommends using this to minimize wear and tear. Screen protectors enhance the usability and durability of touch screen displays.

To remove the screen protector, lift the corner using a thin plastic card, such as a credit card, then carefully lift it off the display.

![Figure 9-1 Removing the Screen Protector](image)

⚠️ **CAUTION** Do not use a sharp object to remove the protector. Doing so can damage the display.

**NOTE** Not using a screen protector can affect warranty coverage. To purchase replacement protectors, contact your local account manager or Zebra. These include screen protector installation instructions. Part number: KT-122010-01R Screen Protector 3/pk.

Battery Safety Guidelines

• The area in which the units are charged should be clear of debris and combustible materials or chemicals. Particular care should be taken where the device is charged in a non commercial environment.

• Follow battery usage, storage, and charging guidelines found in the user’s guide.

• Improper battery use may result in a fire, explosion, or other hazard.
• To charge the mobile device battery, the battery and charger temperatures must be between +32 ºF and +104 ºF (0 ºC and +40 ºC).

• Do not use incompatible batteries and chargers. Use of an incompatible battery or charger may present a risk of fire, explosion, leakage, or other hazard. If you have any questions about the compatibility of a battery or a charger, contact Zebra support.

• For devices that utilize a USB port as a charging source, the device shall only be connected to products that bear the USB-IF logo or have completed the USB-IF compliance program.

• To enable authentication of an approved battery, as required by IEEE1725 clause 10.2.1, all batteries will carry a Zebra hologram. Do not fit any battery without checking it has the Zebra authentication hologram.

• Do not disassemble or open, crush, bend or deform, puncture, or shred.

• Severe impact from dropping any battery-operated device on a hard surface could cause the battery to overheat.

• Do not short circuit a battery or allow metallic or conductive objects to contact the battery terminals.

• Do not modify or remanufacture, attempt to insert foreign objects into the battery, immerse or expose to water or other liquids, or expose to fire, explosion, or other hazard.

• Do not leave or store the equipment in or near areas that might get very hot, such as in a parked vehicle or near a radiator or other heat source. Do not place battery into a microwave oven or dryer.

• Battery usage by children should be supervised.

• Please follow local regulations to properly dispose of used re-chargeable batteries.

• Do not dispose of batteries in fire.

• In the event of a battery leak, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with large amounts of water and seek medical advice.

• If you suspect damage to your equipment or battery, contact Zebra support to arrange for inspection.

---

### Cleaning

**CAUTION** Always wear eye protection.

Read warning label on compressed air and alcohol product before using.

If you have to use any other solution for medical reasons please contact Zebra for more information.

**WARNING!** Avoid exposing this product to contact with hot oil or other flammable liquids. If such exposure occurs, unplug the device and clean the product immediately in accordance with these guidelines.

#### Materials Required

- Alcohol wipes
- Lens tissue
- Cotton tipped applicators
- Isopropyl alcohol
• Can of compressed air with a tube.

Cleaning the MC9500-K

Housing
Using the alcohol wipes, wipe the housing including keys and in-between keys.

Display
The display can be wiped down with the alcohol wipes, but care should be taken not to allow any pooling of liquid around the edges of the display. Immediately dry the display with a soft, non-abrasive cloth to prevent streaking.

Scanner Exit Window
Wipe the scanner exit window periodically with a lens tissue or other material suitable for cleaning optical material such as eyeglasses.

Interface Connector
1. Remove the battery from MC9500-K. See Replacing the Battery on page 1-9.
2. Dip the cotton portion of the cotton tipped applicator in isopropyl alcohol.
3. Rub the cotton portion of the cotton tipped applicator back-and-forth across the interface connector on the back of the MC9500-K. Do not leave any cotton residue on the connector.
4. Repeat at least three times.
5. Use the cotton tipped applicator dipped in alcohol to remove any grease and dirt near the connector area.
6. Use a dry cotton tipped applicator and repeat steps 3 through 5.
7. Spray compressed air on the connector area by pointing the tube/nozzle about ½ inch away from the surface. CAUTION: Do not point nozzle at yourself and others, ensure the nozzle or tube is away from your face.
8. Inspect the area for any grease or dirt, repeat if required.
9. Replace the battery.

Battery Contacts
1. Remove the battery from MC9500-K. See Replacing the Battery on page 1-9.
2. Dip the cotton portion of the cotton tipped applicator in isopropyl alcohol.
3. Rub the cotton portion of the cotton tipped applicator back-and-forth across the battery contacts on the back of the battery. Do not leave any cotton residue on the contacts.
4. Repeat at least three times.
5. Use the cotton tipped applicator dipped in alcohol to remove any grease and dirt near the contact area.
6. Use a dry cotton tipped applicator and repeat steps 3 through 5.
7. Spray compressed air on the contact area by pointing the tube/nozzle about ½ inch away from the surface. CAUTION: Do not point nozzle at yourself and others, ensure the nozzle or tube is away from your face.
8. Inspect the area for any grease or dirt, repeat if required.
9. Replace the battery in the MC9500-K.

**Cleaning Cradle Connectors**

To clean the connectors on a cradle:

1. Remove the DC power cable from the cradle.
2. Dip the cotton portion of the cotton tipped applicator in isopropyl alcohol.
3. Rub the cotton portion of the cotton tipped applicator along the pins of the connector(s). Slowly move the applicator back-and-forth from one side of the connector to the other. Do not let any cotton residue on the connector.
4. All sides of the connector should also be rubbed with the cotton tipped applicator.
5. Spray compressed air in the connector area by pointing the tube/nozzle about ½ inch away from the surface. CAUTION: do not point nozzle at yourself and others, ensure the nozzle or tube is pointed away from your face.
6. Ensure that there is no lint left by the cotton tipped applicator, remove lint if found.
7. If grease and other dirt can be found on other areas of the cradle, use lint free cloth and alcohol to remove.
8. Allow at least 10 to 30 minutes (depending on ambient temperature and humidity) for the alcohol to air dry before applying power to cradle.
   
   If the temperature is low and humidity is high, longer drying time is required. Warm temperature and dry humidity requires less drying time.

**Cleaning Frequency**

The cleaning frequency is up to the customer’s discretion due to the varied environments in which the mobile devices are used. They may be cleaned as frequently as required. However when used in dirty environments it may be advisable to periodically clean the scanner exit window to ensure optimum scanning performance.
## Troubleshooting

### MC9500-K

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC9500-K does not turn on.</td>
<td>Battery not charged.</td>
<td>Charge or replace the battery in the MC9500-K.</td>
</tr>
<tr>
<td></td>
<td>Battery not installed properly.</td>
<td>Install the battery properly. See <em>Installing the Battery on page 1-7</em>.</td>
</tr>
<tr>
<td></td>
<td>System crash.</td>
<td>Perform a warm boot. If the MC9500-K still does not turn on, perform a cold boot. See <em>Resetting the MC9500-K on page 3-3</em>.</td>
</tr>
<tr>
<td>Battery did not charge.</td>
<td>Battery failed.</td>
<td>Replace battery. If the MC9500-K still does not operate, perform a warm boot, then a cold boot. See <em>Resetting the MC9500-K on page 3-3</em>.</td>
</tr>
<tr>
<td></td>
<td>No power to cradle or cable.</td>
<td>Ensure that power is applied to the cradle or cable. The Battery Status LED flashes amber to indicate that the MC9500-K is charging.</td>
</tr>
<tr>
<td></td>
<td>MC9500-K removed from cradle while battery was charging.</td>
<td>Hook the MC9500-K onto the cradle. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours.</td>
</tr>
<tr>
<td></td>
<td>Extreme battery temperature.</td>
<td>Battery does not charge if ambient temperature is below 0°C (32°F) or above 40°C (104°F).</td>
</tr>
<tr>
<td></td>
<td>MC9500-K not functioning.</td>
<td>Perform a warm boot. If the MC9500-K still does not turn on, perform a cold boot. See <em>Resetting the MC9500-K on page 3-3</em>.</td>
</tr>
<tr>
<td>Cannot see characters on display.</td>
<td>MC9500-K not powered on.</td>
<td>Press the Power button.</td>
</tr>
<tr>
<td>During data communication, no data transmitted, or transmitted data was incomplete.</td>
<td>MC9500-K removed from cradle or disconnected from host computer during communication.</td>
<td>Replace the MC9500-K onto the cradle, or reattach the communication cable and re-transmit.</td>
</tr>
<tr>
<td></td>
<td>Incorrect cable configuration.</td>
<td>See the system administrator.</td>
</tr>
<tr>
<td></td>
<td>Communication software was incorrectly installed or configured.</td>
<td>Perform setup. Refer to the <em>MC9500-K Mobile Computer Integrator Guide</em> for details.</td>
</tr>
<tr>
<td>No sound.</td>
<td>Volume setting is low or turned off.</td>
<td>Adjust the volume. See <em>Adjusting Volume on page 3-20</em>.</td>
</tr>
</tbody>
</table>
Table 9-1  Troubleshooting the MC9500-K (Continued)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC9500-K shuts off.</td>
<td>MC9500-K is inactive.</td>
<td>The MC9500-K turns off after a period of inactivity. If the MC9500-K is running on battery power, set this period from 1 to 5 minutes, in one-minute intervals. If the MC9500-K is running on external power, set this period to 1, 2, 5, 10, 15, or 30 minutes. Check the <strong>Power</strong> window by selecting <strong>Start &gt; Settings &gt; System</strong> tab and tapping the <strong>Power</strong> icon. Select the <strong>Advanced</strong> tab and change the setting for a longer delay before the automatic shutoff feature activates.</td>
</tr>
<tr>
<td>Battery is depleted.</td>
<td></td>
<td>Replace the battery.</td>
</tr>
<tr>
<td>Battery is not inserted properly.</td>
<td></td>
<td>Insert the battery properly. See <em>Installing the Battery on page 1-7</em>.</td>
</tr>
<tr>
<td>Tapping the window buttons or icons does not activate the corresponding feature.</td>
<td>Screen is not calibrated correctly.</td>
<td>Re-calibrate the screen. Tap <strong>Start &gt; Settings &gt; System</strong> tab &gt; <strong>Screen</strong> icon &gt; <strong>Align Screen</strong> button.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The MC9500-K is not responding.</td>
<td></td>
<td>Warm boot the MC9500-K. See <em>Resetting the MC9500-K on page 3-3</em>.</td>
</tr>
<tr>
<td>A message appears stating that the MC9500-K memory is full.</td>
<td>Too many files stored on the MC9500-K.</td>
<td>Delete unused memos and records. If necessary, save these records on the host computer (or use an microSD card for additional memory).</td>
</tr>
<tr>
<td></td>
<td>Too many applications installed on the MC9500-K.</td>
<td>Remove user-installed applications on the MC9500-K to recover memory. Select <strong>Start &gt; Settings &gt; System</strong> tab and tap the <strong>Remove Programs</strong> icon. Select the unused program and tap <strong>Remove</strong>.</td>
</tr>
<tr>
<td>The Battery Status LED flashes with the Power button is pressed and the MC9500-K does not turn on.</td>
<td>The MC9500-K’s battery is low.</td>
<td>Recharge the battery.</td>
</tr>
<tr>
<td>Camera application does not launch.</td>
<td>DataWedge application running.</td>
<td>Stop DataWedge application. Tap <strong>Start &gt; Settings &gt; System &gt; Task Manager</strong>. Select DataWedge application and tap <strong>End Task</strong>.</td>
</tr>
</tbody>
</table>
Table 9-1  Troubleshooting the MC9500-K (Continued)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The MC9500-K does not decode with reading bar code.</td>
<td>Scanning application is not loaded.</td>
<td>Load a scanning application on the MC9500-K. See your system administrator.</td>
</tr>
<tr>
<td></td>
<td>Unreadable bar code.</td>
<td>Ensure the symbol is not defaced.</td>
</tr>
<tr>
<td></td>
<td>Distance between exit window and bar code is incorrect.</td>
<td>Place the MC9500-K within proper scanning range.</td>
</tr>
<tr>
<td></td>
<td>MC9500-K is not programmed for the bar code.</td>
<td>Program the MC9500-K to accept the type of bar code being scanned. Refer to the EMDK or Control Panel application.</td>
</tr>
<tr>
<td></td>
<td>MC9500-K is not programmed to generate a beep.</td>
<td>If the MC9500-K does not beep on a good decode, set the application to generate a beep on good decode.</td>
</tr>
<tr>
<td></td>
<td>Battery is low.</td>
<td>If the scanner stops emitting a laser beam upon a trigger press, check the battery level. When the battery is low, the scanner shuts off before the MC9500-K low battery condition notification. Note: If the scanner is still not reading symbols, contact the distributor or Zebra.</td>
</tr>
</tbody>
</table>

**Bluetooth Connection**

Table 9-2  Troubleshooting Bluetooth Connection

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC9500-K cannot find any Bluetooth devices nearby.</td>
<td>Too far from other Bluetooth devices.</td>
<td>Move closer to the other Bluetooth device(s), within a range of 10 meters.</td>
</tr>
<tr>
<td></td>
<td>The Bluetooth device(s) nearby are not turned on.</td>
<td>Turn on the Bluetooth device(s) to find.</td>
</tr>
<tr>
<td></td>
<td>The Bluetooth device(s) are not in discoverable mode.</td>
<td>Set the Bluetooth device(s) to discoverable mode. If needed, refer to the device’s user documentation for help.</td>
</tr>
<tr>
<td>When trying to connect a Bluetooth phone and MC9500-K, the phone thinks a previously paired MC9500-K is used.</td>
<td>The phone remembers the name and address of the MC9500-K it last paired with via the Bluetooth radio.</td>
<td>Manually delete the pairing device and name from the phone. Refer to the phone’s user documentation for instructions.</td>
</tr>
</tbody>
</table>
## Single Bay USB Cradle

### Table 9-3   Troubleshooting the Single Bay USB Cradle

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC9500-K battery is not charging.</td>
<td>MC9500-K was removed from cradle or cradle was unplugged from AC power too soon.</td>
<td>Ensure cradle is receiving power. Ensure MC9500-K is seated correctly. Confirm main battery is charging under Start &gt; Settings &gt; System &gt; Power. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours.</td>
</tr>
<tr>
<td>Battery is faulty.</td>
<td></td>
<td>Verify that other batteries charge properly. If so, replace the faulty battery.</td>
</tr>
<tr>
<td>No power to cradle.</td>
<td></td>
<td>Ensure that power is applied to the cradle. The Battery Status LED flashes amber to indicate that the MC9500-K is charging.</td>
</tr>
<tr>
<td>The MC9500-K is not fully seated in the cradle.</td>
<td></td>
<td>Remove and re-insert the MC9500-K onto the cradle properly.</td>
</tr>
<tr>
<td>Extreme battery temperature.</td>
<td>Battery does not charge if ambient temperature is below 0°C (32°F) or above 40°C (104°F).</td>
<td></td>
</tr>
<tr>
<td>Single Bay USB Cradle is not functioning properly.</td>
<td></td>
<td>Replace the Single Bay USB Cradle.</td>
</tr>
<tr>
<td>During data communication, no data transmits, or transmitted data was incomplete.</td>
<td>MC9500-K removed from cradle during communications.</td>
<td>Replace MC9500-K in cradle and retransmit.</td>
</tr>
<tr>
<td>Communication software is not installed or configured properly.</td>
<td></td>
<td>Perform setup as described in the MC9500-K Mobile Computer Integrator Guide.</td>
</tr>
</tbody>
</table>
Single Slot Battery Charger

Table 9-4  Single Slot Battery Charger

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spare battery is not charging.</td>
<td>Battery not fully seated in charging slot.</td>
<td>Remove and re-insert the spare battery in the cradle, ensuring it is properly seated.</td>
</tr>
<tr>
<td></td>
<td>Battery inserted incorrectly.</td>
<td>Re-insert the battery so the charging contacts on the battery align with the contacts on the cradle.</td>
</tr>
<tr>
<td></td>
<td>Battery is faulty.</td>
<td>Verify that other batteries charge properly. If so, replace the faulty battery.</td>
</tr>
<tr>
<td></td>
<td>No power to charger.</td>
<td>Ensure that power is applied to the charger. The Battery Status LED flashes amber to indicate that the battery is charging.</td>
</tr>
<tr>
<td></td>
<td>Single Slot Battery Charger is not functioning properly.</td>
<td>Replace the Single Slot Battery Charger.</td>
</tr>
</tbody>
</table>

Four Bay Ethernet Cradle

Table 9-5  Troubleshooting the Four Bay Ethernet Cradle

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>During communication, no data transmits, or transmitted data was incomplete.</td>
<td>MC9500-K removed from cradle during communications.</td>
<td>Replace MC9500-K in cradle and retransmit.</td>
</tr>
<tr>
<td></td>
<td>MC9500-K has no active connection.</td>
<td>The Link LED flashes yellow if there is an active connection. See Four Bay Ethernet Cradle on page 8-9.</td>
</tr>
</tbody>
</table>
### Table 9-5  Troubleshooting the Four Bay Ethernet Cradle (Continued)

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery is not charging.</td>
<td>MC9500-K removed from the cradle too soon.</td>
<td>Replace the MC9500-K in the cradle. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours. Tap Start &gt; Settings &gt; System &gt; Power to view battery status.</td>
</tr>
<tr>
<td>Battery is faulty.</td>
<td></td>
<td>Verify that other batteries charge properly. If so, replace the faulty battery.</td>
</tr>
<tr>
<td>No power to cradle.</td>
<td></td>
<td>Ensure that power is applied to the cradle. The Battery Status LED flashes amber to indicate that the MC9500-K is charging.</td>
</tr>
<tr>
<td>MC9500-K is not inserted correctly in the cradle.</td>
<td></td>
<td>Remove the MC9500-K and reinsert it correctly. Verify charging is active. Tap Start &gt; Settings &gt; System &gt; Power to view battery status.</td>
</tr>
<tr>
<td>Ambient temperature of the cradle is too warm.</td>
<td></td>
<td>Move the cradle to an area where the ambient temperature is between 0°C (32°F) and 35°C (95°F).</td>
</tr>
<tr>
<td>Single Four Bay Ethernet Cradle is not functioning properly.</td>
<td></td>
<td>Replace the Four Bay Ethernet Cradle.</td>
</tr>
</tbody>
</table>

### Four Bay Charge Only Cradle

### Table 9-6  Troubleshooting the Four Bay Ethernet Cradle

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery is not charging.</td>
<td>MC9500-K removed from the cradle too soon.</td>
<td>Replace the MC9500-K in the cradle. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours. Tap Start &gt; Settings &gt; System &gt; Power to view battery status.</td>
</tr>
<tr>
<td>Battery is faulty.</td>
<td></td>
<td>Verify that other batteries charge properly. If so, replace the faulty battery.</td>
</tr>
<tr>
<td>No power to cradle.</td>
<td></td>
<td>Ensure that power is applied to the cradle. The Battery Status LED flashes amber to indicate that the MC9500-K is charging.</td>
</tr>
<tr>
<td>MC9500-K is not inserted correctly in the cradle.</td>
<td></td>
<td>Remove the MC9500-K and reinsert it correctly. Verify charging is active. Tap Start &gt; Settings &gt; System &gt; Power to view battery status.</td>
</tr>
<tr>
<td>Ambient temperature of the cradle is too warm.</td>
<td></td>
<td>Move the cradle to an area where the ambient temperature is between 0°C (32°F) and 35°C (95°F).</td>
</tr>
<tr>
<td>Four Bay Charge Only Cradle is not functioning properly.</td>
<td></td>
<td>Replace the Four Bay Charge Only Cradle.</td>
</tr>
</tbody>
</table>
## Vehicle Cradle

### Table 9-7  Troubleshooting the Vehicle Cradle

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC9500-K battery charging LED does not light up.</td>
<td>Cradle is not receiving power.</td>
<td>Ensure the power input cable is securely connected to the cradle’s power port.</td>
</tr>
<tr>
<td>MC9500-K battery is not recharging.</td>
<td>MC9500-K was removed from the cradle too soon.</td>
<td>Replace the MC9500-K in the cradle. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours.</td>
</tr>
<tr>
<td></td>
<td>Battery is faulty.</td>
<td>Replace the battery.</td>
</tr>
<tr>
<td></td>
<td>No power to charger.</td>
<td>Ensure that power is applied to the charger. The Battery Status LED flashes amber to indicate that the battery is charging.</td>
</tr>
<tr>
<td></td>
<td>MC9500-K is not placed correctly in the cradle.</td>
<td>Remove the MC9500-K from the cradle, and re-insert correctly. If the battery still does not charge, contact customer support. The MC9500-K battery charging LED slowly blinks amber when the MC9500-K is correctly inserted and charging.</td>
</tr>
<tr>
<td></td>
<td>Ambient temperature of the cradle is too warm.</td>
<td>Move to an area where the ambient temperature is between 0°C and 35°C.</td>
</tr>
<tr>
<td></td>
<td>Vehicle Cradle is not functioning properly.</td>
<td>Replace the Vehicle Cradle.</td>
</tr>
</tbody>
</table>


Four Slot Battery Charger

Table 9-8  Troubleshooting The Four Slot Battery Charger

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery not charging.</td>
<td>Battery was removed from the charger or charger was unplugged from AC power too soon.</td>
<td>Re-insert the battery in the charger or re-connect the charger’s power supply. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours.</td>
</tr>
<tr>
<td>Battery is faulty.</td>
<td>Verify that other batteries charge properly. If so, replace the faulty battery.</td>
<td></td>
</tr>
<tr>
<td>No power to charger.</td>
<td>Ensure that power is applied to the charger. The Battery Status LED flashes amber to indicate that the battery is charging.</td>
<td></td>
</tr>
<tr>
<td>Battery contacts not connected to charger.</td>
<td>Verify that the battery is seated in the battery well correctly with the contacts facing down.</td>
<td></td>
</tr>
<tr>
<td>Four Slot Battery Charger is not functioning properly.</td>
<td>Replace the Four Slot Battery Charger.</td>
<td></td>
</tr>
</tbody>
</table>

Cables

Table 9-9  Troubleshooting the Cables

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC9500-K battery is not charging.</td>
<td>MC9500-K was disconnected from AC power too soon.</td>
<td>Connect the power cable correctly. Confirm main battery is charging under Start &gt; Settings &gt; System &gt; Power. The 4800 mAh battery fully charges in less than six hours and the 7200 mAh battery fully charges in less than nine hours.</td>
</tr>
<tr>
<td>battery is not fully attached to power.</td>
<td>Detach and re-attach the power cable to the MC9500-K, ensuring it is firmly connected.</td>
<td></td>
</tr>
<tr>
<td>Battery is faulty.</td>
<td>Verify that other batteries charge properly. If so, replace the faulty battery.</td>
<td></td>
</tr>
<tr>
<td>No power to cable.</td>
<td>Ensure that power is applied to the cable. The Battery Status LED flashes amber to indicate that the battery is charging.</td>
<td></td>
</tr>
<tr>
<td>Cable is not functioning properly.</td>
<td>Replace the cable.</td>
<td></td>
</tr>
</tbody>
</table>
Table 9-9  Troubleshooting the Cables (Continued)

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>During data communication, no data transmits, or transmitted data was incomplete.</td>
<td>Cable was disconnected from MC9500-K during communications.</td>
<td>Re-attach the cable and retransmit.</td>
</tr>
<tr>
<td></td>
<td>Incorrect cable configuration.</td>
<td>See the system administrator.</td>
</tr>
<tr>
<td></td>
<td>Communication software is not installed or configured properly.</td>
<td>Perform setup as described in the MC9500-K Mobile Computer Integrator Guide.</td>
</tr>
</tbody>
</table>

Magnetic Stripe Reader

Table 9-10  Troubleshooting the Magnetic Stripe Reader

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSR cannot read card.</td>
<td>MSR removed from MC9500-K during card swipe.</td>
<td>Reattach MSR to MC9500-K and reswipe the card.</td>
</tr>
<tr>
<td></td>
<td>Faulty magnetic stripe on card.</td>
<td>See the system administrator.</td>
</tr>
<tr>
<td></td>
<td>MSR application is not installed or configured properly.</td>
<td>Ensure the MSR application is installed on the MC9500-K.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ensure the MSR application is configured correctly.</td>
</tr>
<tr>
<td>MC9500-K battery is not charging.</td>
<td>MC9500-K was removed from MSR or MSR was unplugged from AC power too soon.</td>
<td>Ensure MSR is attached correctly.</td>
</tr>
<tr>
<td></td>
<td>Battery is faulty.</td>
<td>Verify that other batteries charge properly. If so, replace the faulty battery.</td>
</tr>
<tr>
<td></td>
<td>The MC9500-K is not fully attached to the MSR.</td>
<td>Detach and re-attach the MSR to the MC9500-K, ensuring it is firmly connected.</td>
</tr>
<tr>
<td></td>
<td>MSR is faulty.</td>
<td>Replace MSR.</td>
</tr>
<tr>
<td>During data communication, no data transmits, or transmitted data was incomplete.</td>
<td>MC9500-K detached from MSR during communications.</td>
<td>Reattach MC9500-K to MSR and retransmit.</td>
</tr>
<tr>
<td></td>
<td>Communication software is not installed or configured properly.</td>
<td>Perform setup as described in the MC9500-K Mobile Computer Integrator Guide.</td>
</tr>
</tbody>
</table>
The following tables summarize the mobile computer's intended operating environment and technical hardware specifications.

## MC9500-K

### Table A-1  MC9500-K Technical Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical Characteristics</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Dimensions            | Height: 23.36 cm (9.2 in.)  
                          | Depth: 5.08 cm (2.0 in.)  
                          | Width: 8.89 cm (3.5 in.) |
| Weight                | 623.7 g (22 oz.)                                                           |
| Display               | Transflective color 3.7” VGA with backlight, TFT-LCD, 65K colors,  
                          | 480 pixels W x 640 pixels L                                               |
| Touch Panel           | Polycarbonate analog resistive touch                                        |
| Backlight             | LED backlight                                                               |
| Battery               | Rechargeable Lithium Ion 3.7V, 4800 mAh Smart battery                      |
|                       | Rechargeable Lithium Ion 3.7V, 7200 mAh Smart battery                      |
| Expansion Slot        | User accessible microSD slot. Supports up to 16 GB cards.                  |
| Network Connections   | High-speed USB client, full-speed USB host                                  |
| Notification          | Programmable LED, audio notifications and vibrator alerts.                 |
Keypad Options

- Alpha Primary
- Alpha Numeric
- Calculator Numeric
- Telephony Numeric

Audio

VoWWAN; VoWLAN; TEAM Express compliant, rugged audio connector; high-quality speakerphone; headset (wired or Bluetooth) and handset and speaker phone modes (Applies to all models except MC959B, which is data only).

### Performance Characteristics

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>Marvell PXA320 processor at 806 MHz</td>
</tr>
<tr>
<td>Operating System</td>
<td><strong>MC9590:</strong> Microsoft® Windows Mobile™ 6.1 or 6.5.3 Classic&lt;br&gt;<strong>MC9596 and MC9598:</strong> Microsoft® Windows Mobile™ 6.1 or 6.5.3 Professional&lt;br&gt;<strong>MC959B:</strong> Windows Mobile 6.1 Professional</td>
</tr>
<tr>
<td>Memory</td>
<td>128 MB RAM/512MB Flash or 256 MB RAM/1 GB Flash</td>
</tr>
<tr>
<td>Interface</td>
<td>USB 2.0 Client/USB 1.1 Host</td>
</tr>
<tr>
<td>Output Power</td>
<td>USB: 5 VDC @ 500 mA max.</td>
</tr>
</tbody>
</table>

### User Environment

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-20°C to 50°C (-4°F to 122°F)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to 70°C (-40°F to 158°F)</td>
</tr>
<tr>
<td>Charging Temperature</td>
<td>32°F to 104°F / 0° C to 40° C</td>
</tr>
<tr>
<td>Humidity</td>
<td>5 - 95% non-condensing</td>
</tr>
<tr>
<td>Drop Specification</td>
<td>1.8 m (6 ft.) drop to concrete across the operating temperature range; meets and exceeds applicable MIL-STD-810G drop specifications.</td>
</tr>
<tr>
<td>Tumble</td>
<td>2000 1 m (3.2 ft.) tumbles (4,000 hits) at room temperature; meets and exceeds applicable IEC tumble specifications.</td>
</tr>
<tr>
<td>Electrostatic Discharge (ESD)</td>
<td>+/-15kVdc air discharge, +/-8kVdc direct discharge, +/-8kVdc indirect discharge</td>
</tr>
<tr>
<td>Sealing</td>
<td>IP67 sealing; meets and exceeds applicable IEC sealing specifications.</td>
</tr>
</tbody>
</table>

### Wireless WAN Data and Voice Communications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireless Wide Area Network (WWAN) radios</td>
<td><strong>MC9596:</strong> GSM: GPRS/HSDPA (850, 900, 1800, 1900 and 2100 MHz) &lt;br&gt;<strong>MC9598:</strong> CDMA: EvDO Rev. A (850 and 1900MHz) &lt;br&gt;<strong>MC959B:</strong> GSM: GPRS/HSDPA (850, 900, 1800, 1900 and 2100 MHz) &lt;br&gt;CDMA: EvDO Rev. A (800 and 1900MHz)</td>
</tr>
</tbody>
</table>
### Technical Specifications

#### Wireless LAN Data and Voice Communications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireless Local Area Network (WLAN) radio</td>
<td>Tri-mode IEEE® 802.11a/b/g</td>
</tr>
<tr>
<td>Data Rates Supported</td>
<td>1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps</td>
</tr>
<tr>
<td>Operating Channels</td>
<td>Chan 1-13 (2412-2472 MHz), Chan 8-165 (5040-5825 MHz), Chan 14 (2484 MHz) Japan only; actual operating channels/frequencies depend on regulatory rules and certification agency</td>
</tr>
<tr>
<td>WLAN Security</td>
<td>TKIP, AES, WPA (Personal or Enterprise), WPA2 (Personal or Enterprise), 802.1x, EAP-TLS, TTLS (CHAP, MS-CHAP, MS-CHAPV2, PAP or MD5), PEAP (TLS, MSCHAPv2, EAP-GTC), LEAP, EAP-FAST (TLS, MS-CHAPv2, EAP-GTC), CCXv4 certified, support for IPv6, FIPS140-2 certified</td>
</tr>
<tr>
<td>Spreading Technique</td>
<td>Direct Sequence Spread Spectrum (DSSS) and Orthogonal Frequency Division Multiplexing (OFDM)</td>
</tr>
<tr>
<td>Antenna</td>
<td>Internal with diversity</td>
</tr>
<tr>
<td>Voice Communication</td>
<td>Voice-over-IP ready (with P2P, PBX, PTT clients), Wi-Fi™-certified, IEEE 802.11 a/b/g direct sequence wireless LAN, Wi-Fi Multimedia (WMM), Zebra Voice Quality manager (VQM)</td>
</tr>
</tbody>
</table>

#### Wireless PAN Data and Voice Communications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluetooth</td>
<td>Class II, v 2.1 with EDR; internal antenna.</td>
</tr>
<tr>
<td>IrDA</td>
<td>Infra-red port for connection to printers and other devices.</td>
</tr>
</tbody>
</table>

#### Data Capture Specifications

<table>
<thead>
<tr>
<th>Options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1D laser scanner</td>
</tr>
<tr>
<td></td>
<td>2D imager</td>
</tr>
<tr>
<td></td>
<td>1D laser scanner and color camera</td>
</tr>
<tr>
<td></td>
<td>2D imager and color camera</td>
</tr>
</tbody>
</table>

#### Linear 1D Scanner (SE950) Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical Resolution</td>
<td>4mil minimum element width</td>
</tr>
<tr>
<td>Roll</td>
<td>+/- 35° from vertical</td>
</tr>
<tr>
<td>Pitch Angle</td>
<td>+/- 65° from normal</td>
</tr>
<tr>
<td>Skew Tolerance</td>
<td>+/- 50° from normal</td>
</tr>
<tr>
<td>Ambient Light</td>
<td>10,000 ft. candles (107,640 Lux)</td>
</tr>
<tr>
<td>Shock</td>
<td>2,000 +/- 5% G</td>
</tr>
<tr>
<td>Scan Rate</td>
<td>104 (+/- 12) scans/sec (bidirectional)</td>
</tr>
<tr>
<td>Scan Angle</td>
<td>47° +/- 5° (typical); 35° +/- 3° reduced</td>
</tr>
</tbody>
</table>
Table A-1  MC9500-K Technical Specifications (Continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2D Imager Engine (SE4500-SR) Specifications</td>
<td></td>
</tr>
<tr>
<td>Field of View</td>
<td>Horizontal - 40°</td>
</tr>
<tr>
<td></td>
<td>Vertical - 25°</td>
</tr>
<tr>
<td>Optical Resolution</td>
<td>752 H x 480 V pixels (gray scale)</td>
</tr>
<tr>
<td>Roll</td>
<td>360°</td>
</tr>
<tr>
<td>Pitch Angle</td>
<td>+/- 60° from normal</td>
</tr>
<tr>
<td>Skew Tolerance</td>
<td>+/- 60° from normal</td>
</tr>
<tr>
<td>Ambient Light</td>
<td>9,000 ft. candles (96,900 Lux)</td>
</tr>
<tr>
<td>Shock</td>
<td>2,000 +/- 5% G</td>
</tr>
<tr>
<td>Focal Distance from center of exit window</td>
<td>19 cm (7.5 in.)</td>
</tr>
<tr>
<td>Aiming Element (VLD)</td>
<td>655 nm +/- 10 nm</td>
</tr>
<tr>
<td>Illumination Element (LED)</td>
<td>625 nm +/- 5 nm LEDs (2x)</td>
</tr>
<tr>
<td>Camera Specifications</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>2 Mega pixel with flash and auto focus.</td>
</tr>
</tbody>
</table>
### Table A-2  Data Capture Options

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Laser Decode Capability</strong></td>
<td></td>
</tr>
<tr>
<td>Code 39</td>
<td>Code 128</td>
</tr>
<tr>
<td>Codabar</td>
<td>Code 11</td>
</tr>
<tr>
<td>Interleaved 2 of 5</td>
<td>EAN-8</td>
</tr>
<tr>
<td>MSI</td>
<td>UPCA</td>
</tr>
<tr>
<td>UPC/EAN supplementals</td>
<td>Coupon Code</td>
</tr>
<tr>
<td>Webcode</td>
<td>Chinese 2 of 5</td>
</tr>
<tr>
<td>GS1 DataBar Truncated</td>
<td>GS1 DataBar Limited</td>
</tr>
<tr>
<td>GS1 DataBar Expanded</td>
<td>GS1 DataBar Expanded Stacked</td>
</tr>
<tr>
<td>GS1 DataBar Stacked Omni</td>
<td></td>
</tr>
<tr>
<td><strong>Imaging Decode Capability</strong></td>
<td></td>
</tr>
<tr>
<td>Code 39</td>
<td>Code 128</td>
</tr>
<tr>
<td>Codabar</td>
<td>Code 11</td>
</tr>
<tr>
<td>Discrete 2 of 5</td>
<td>MSI</td>
</tr>
<tr>
<td>EAN-13</td>
<td>UPCA</td>
</tr>
<tr>
<td>UPC/EAN supplementals</td>
<td>Coupon Code</td>
</tr>
<tr>
<td>Webcode</td>
<td>TLC39</td>
</tr>
<tr>
<td>Composite C</td>
<td>Micro PDF-417</td>
</tr>
<tr>
<td>Macro PDF-417</td>
<td>(Macro) Micro PDF-417</td>
</tr>
<tr>
<td>Data Matrix</td>
<td>Maxi Code</td>
</tr>
<tr>
<td>US Planet</td>
<td>US 4-state</td>
</tr>
<tr>
<td>Canadian 4-state</td>
<td>Japanese 4-state</td>
</tr>
<tr>
<td>Chinese 2 of 5</td>
<td>USPS 4-state (US4CB)</td>
</tr>
<tr>
<td>microQR</td>
<td>GS1 DataBar</td>
</tr>
<tr>
<td>GS1 DataBar Truncated</td>
<td>GS1 DataBar Limited</td>
</tr>
<tr>
<td>GS1 DataBar Expanded</td>
<td>GS1 DataBar Expanded Stacked</td>
</tr>
<tr>
<td>GS1 DataBar Stacked Omni</td>
<td></td>
</tr>
<tr>
<td><strong>Camera Decode Capability</strong></td>
<td></td>
</tr>
<tr>
<td>Code 39</td>
<td>Code 128</td>
</tr>
<tr>
<td>Codabar</td>
<td>Code 11</td>
</tr>
<tr>
<td>Discrete 2 of 5</td>
<td>MSI</td>
</tr>
<tr>
<td>EAN-13</td>
<td>UPCA</td>
</tr>
<tr>
<td>UPC/EAN supplementals</td>
<td>Coupon Code</td>
</tr>
<tr>
<td>Webcode</td>
<td>TLC39</td>
</tr>
<tr>
<td>Composite C</td>
<td>Micro PDF-417</td>
</tr>
<tr>
<td>Macro PDF-417</td>
<td>(Macro) Micro PDF-417</td>
</tr>
<tr>
<td>Data Matrix</td>
<td>Maxi Code</td>
</tr>
<tr>
<td>US Planet</td>
<td>UK 4-state</td>
</tr>
<tr>
<td>Canadian 4-state</td>
<td>Japanese 4-state</td>
</tr>
<tr>
<td>GS1 DataBar</td>
<td></td>
</tr>
<tr>
<td>GS1 DataBar Truncated</td>
<td>GS1 DataBar Limited</td>
</tr>
<tr>
<td>GS1 DataBar Expanded</td>
<td>GS1 DataBar Expanded Stacked</td>
</tr>
<tr>
<td>GS1 DataBar Stacked Omni</td>
<td></td>
</tr>
</tbody>
</table>
MC9500-K Accessory Specifications

Single Bay USB Cradle

Table A-3  Single Bay USB Cradle Technical Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Height: 15.45 cm (6.08 in.)&lt;br&gt;Width: 12.00 cm (4.72 in.)&lt;br&gt;Depth: 18.90 cm (7.44 in.)</td>
</tr>
<tr>
<td>Weight</td>
<td>430 g (15.2 oz)</td>
</tr>
<tr>
<td>Input Power</td>
<td>12 VDC</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>22 watts</td>
</tr>
<tr>
<td>Interface</td>
<td>USB</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to 50°C (32°F to 122°F)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to 70°C (-40°F to 158°F)</td>
</tr>
<tr>
<td>Charging Temperature</td>
<td>0°C to 40°C (32°F to 104°F)</td>
</tr>
<tr>
<td>Humidity</td>
<td>5% to 95% non-condensing</td>
</tr>
<tr>
<td>Drop</td>
<td>76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature</td>
</tr>
<tr>
<td>Electrostatic Discharge (ESD)</td>
<td>+/- 15 kV air&lt;br&gt; +/- 8 kV contact</td>
</tr>
</tbody>
</table>

Single Slot Battery Charger

Table A-4  Single Slot Battery Charger Technical Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Height: 11.15 cm (4.39 in.)&lt;br&gt;Width: 7.70 cm (3.03 in.)&lt;br&gt;Depth: 9.95 cm (3.92 in.)</td>
</tr>
<tr>
<td>Weight</td>
<td>105 g (3.7 oz)</td>
</tr>
<tr>
<td>Input Power</td>
<td>12 VDC</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>4.7 watts</td>
</tr>
<tr>
<td>Interface</td>
<td>USB</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to 40°C (32°F to 122°F)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to 70°C (-40°F to 158°F)</td>
</tr>
</tbody>
</table>
### Four Bay Ethernet Cradle

#### Table A-5  Four Bay Ethernet Cradle Technical Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
</table>
| Dimensions                       | Height: 11.3 cm (4.45 in.)  
                                    | Width: 45.7 cm (18.00 in.)  
                                    | Depth: 5.6 cm (2.20 in.)      |
| Weight                           | 735 g (1.47 lb)                                                             |
| Input Power                      | 12 VDC                                                                      |
| Power Consumption                | 88 watts                                                                    |
| Interface                        | Ethernet                                                                    |
| Operating Temperature            | 0°C to 50°C (32°F to 122°F)                                                 |
| Storage Temperature              | -40°C to 70°C (-40°F to 158°F)                                              |
| Charging Temperature             | 0°C to 40°C (32°F to 104°F)                                                 |
| Humidity                         | 5% to 95% non-condensing                                                    |
| Drop                             | 76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature         |
| Electrostatic Discharge (ESD)    | +/- 15 kV air                                                               |
|                                  | +/- 8 kV contact                                                            |
### Four Bay Charge Only Cradle

**Table A-6  Four Bay Charge Only Cradle Technical Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Height: 11.3 cm (4.45 in.)</td>
</tr>
<tr>
<td></td>
<td>Width: 45.7 cm (18.00 in.)</td>
</tr>
<tr>
<td></td>
<td>Depth: 5.6 cm (2.20 in.)</td>
</tr>
<tr>
<td>Weight</td>
<td>705 g (1.41 lb)</td>
</tr>
<tr>
<td>Input Power</td>
<td>12 VDC</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>88 watts</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to 50°C (32°F to 122°F)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to 70°C (-40°F to 158°F)</td>
</tr>
<tr>
<td>Charging Temperature</td>
<td>0°C to 40°C (32°F to 104°F)</td>
</tr>
<tr>
<td>Humidity</td>
<td>5% to 95% non-condensing</td>
</tr>
<tr>
<td>Drop</td>
<td>76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature</td>
</tr>
<tr>
<td>Electrostatic Discharge (ESD)</td>
<td>+/- 15 kV air</td>
</tr>
<tr>
<td></td>
<td>+/- 8 kV contact</td>
</tr>
</tbody>
</table>

### Four Slot Battery Charger

**Table A-7  Four Slot Battery Charger Technical Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Height: 3.47 cm (1.37 in.)</td>
</tr>
<tr>
<td></td>
<td>Width: 15.50 cm (6.10 in.)</td>
</tr>
<tr>
<td></td>
<td>Depth: 21.00 cm (8.27 in.)</td>
</tr>
<tr>
<td>Weight</td>
<td>386 g (13.6 oz)</td>
</tr>
<tr>
<td>Input Power</td>
<td>12 VDC</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>19 watts</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to 40°C (32°F to 122°F)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to 70°C (-40°F to 158°F)</td>
</tr>
<tr>
<td>Charging Temperature</td>
<td>0°C to 40°C (32°F to 104°F)</td>
</tr>
</tbody>
</table>
### Magnetic Stripe Reader

**Table A-7**  *Four Slot Battery Charger Technical Specifications (Continued)*

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humidity</td>
<td>5% to 95% non-condensing</td>
</tr>
<tr>
<td>Drop</td>
<td>76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature</td>
</tr>
<tr>
<td>Electrostatic Discharge (ESD)</td>
<td>+/- 15 kV air</td>
</tr>
<tr>
<td></td>
<td>+/- 8 kV contact</td>
</tr>
</tbody>
</table>

**Table A-8**  *Magnetic Stripe Reader (MSR) Technical Specifications*

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Height: 3.56 cm (1.4 in.)</td>
</tr>
<tr>
<td></td>
<td>Width: 8.38 cm (3.3 in.)</td>
</tr>
<tr>
<td></td>
<td>Depth: 7.87 cm (3.1 in.)</td>
</tr>
<tr>
<td>Weight</td>
<td>48 g (1.7 oz)</td>
</tr>
<tr>
<td>Interface</td>
<td>Serial with baud rate up to 19,200</td>
</tr>
<tr>
<td>Format</td>
<td>ANSI, ISO, AAMVA, CA DMV, user-configurable generic format</td>
</tr>
<tr>
<td>Swipe Speed</td>
<td>5 to 50 in. (127 to 1270 mm) /sec, bi-directional</td>
</tr>
<tr>
<td>Decoders</td>
<td>Generic, Raw Data</td>
</tr>
<tr>
<td>Mode</td>
<td>Buffered, unbuffered</td>
</tr>
<tr>
<td>Track Reading Capabilities</td>
<td>Tracks 1 and 3: 210 bpi</td>
</tr>
<tr>
<td></td>
<td>Track 2: 75 and 210 bpi, autodetect</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to 50°C (32°F to 122°F)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to 70°C (-40°F to 158°F)</td>
</tr>
<tr>
<td>Humidity</td>
<td>5% to 95% non-condensing</td>
</tr>
<tr>
<td>Drop</td>
<td>1.22 m (4 ft.) drops to concrete</td>
</tr>
<tr>
<td>Electrostatic Discharge (ESD)</td>
<td>+/- 15 kV air</td>
</tr>
<tr>
<td></td>
<td>+/- 8 kV contact</td>
</tr>
</tbody>
</table>
### Vehicle Cradle

**Table A-9  Vehicle Cradle Technical Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Height: 22.25 cm (8.76 in.)</td>
</tr>
<tr>
<td></td>
<td>Width: 15.40 cm (6.06 in.)</td>
</tr>
<tr>
<td></td>
<td>Depth: 9.75 cm (3.84 in.)</td>
</tr>
<tr>
<td>Weight</td>
<td>805 g (28.4 oz)</td>
</tr>
<tr>
<td>Input Power</td>
<td>12/24 VDC</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>22 watts</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to 50°C (32°F to 122°F)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to 70°C (-40°F to 158°F)</td>
</tr>
<tr>
<td>Charging Temperature</td>
<td>0°C to 40°C (32°F to 104°F)</td>
</tr>
<tr>
<td>Humidity</td>
<td>10% to 95% non-condensing</td>
</tr>
<tr>
<td>Drop</td>
<td>76.2 cm (30.0 in.) drops to vinyl tiled concrete</td>
</tr>
<tr>
<td>Electrostatic Discharge (ESD)</td>
<td>+/- 15 kV air</td>
</tr>
<tr>
<td></td>
<td>+/- 8 kV contact</td>
</tr>
</tbody>
</table>

### Vehicle Battery Charger

**Table A-10  Vehicle Battery Charger Technical Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Height: 14.70 cm (5.79 in.)</td>
</tr>
<tr>
<td></td>
<td>Width: 6.75 cm (2.66 in.)</td>
</tr>
<tr>
<td></td>
<td>Depth: 4.75 cm (1.87 in.)</td>
</tr>
<tr>
<td>Weight</td>
<td>130 g (4.6 oz)</td>
</tr>
<tr>
<td>Input Power</td>
<td>5.4 VDC</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>4.7 watts</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to 40°C (32°F to 122°F)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to 70°C (-40°F to 158°F)</td>
</tr>
<tr>
<td>Charging Temperature</td>
<td>0°C to 40°C (32°F to 104°F)</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------</td>
</tr>
<tr>
<td>Humidity</td>
<td>10% to 95% non-condensing</td>
</tr>
<tr>
<td>Drop</td>
<td>76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature</td>
</tr>
<tr>
<td>Electrostatic Discharge (ESD)</td>
<td>+/- 15 kV air</td>
</tr>
<tr>
<td></td>
<td>+/- 8 kV contact</td>
</tr>
</tbody>
</table>
Introduction

The Voice Quality Manager (VQM) is a software package that resides on the MC9500-K. VQM enables a set of features for Voice over WiFi (VoWiFi) calls, and a sub-set of those features for cellular line calls. The VQM user interface is designed to be intuitive and easy to use, so complex tasks such as enabling the Acoustic Echo Canceller (AEC) while a call is in progress are done with very little or no user intervention.

Features

The VQM software:

- Improves the voice transmission quality without using additional battery power.
- Turns on the AEC for VoWiFi calls automatically, without user intervention.
- Prioritizes the outgoing audio IP packets.
- Provides user-selectable audio modes (speakerphone and handset) with a single tap of the VQM icon. A VQM icon in the title bar of the device indicates the audio mode currently in use.
- NDIS 5.1 compliant.

Enabling VQM

To enable VQM:

1. Tap **Start** > **Programs** > **File Explorer**.
2. Navigate to the **Windows** folder.
3. Locate the file **VQMAudioNotify**.
4. Tap the filename to enable VQM.
Audio Modes

The MC9500-K can be in any one of the seven different audio modes. The mode is visually indicated by the VQM icon on the title bar.

Figure B-1  VQM Icon in Title Bar

The VQM icon indicates that the device is in speakerphone mode without Acoustic Echo Cancellation (indicated by the gray VQM icon). The audio modes and their corresponding VQM title bar icons are:

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Speakerphone with Acoustic Echo Cancellation." /></td>
<td>Speakerphone with Acoustic Echo Cancellation.</td>
</tr>
<tr>
<td><img src="image" alt="Speakerphone without Acoustic Echo Cancellation." /></td>
<td>Speakerphone without Acoustic Echo Cancellation.</td>
</tr>
<tr>
<td><img src="image" alt="Handset with Acoustic Echo Cancellation (device is in handset mode only while on a call)." /></td>
<td>Handset with Acoustic Echo Cancellation (device is in handset mode only while on a call).</td>
</tr>
<tr>
<td><img src="image" alt="Headset while on a call (Acoustic Echo Cancellation is not enabled for Bluetooth headsets)." /></td>
<td>Headset while on a call (Acoustic Echo Cancellation is not enabled for Bluetooth headsets).</td>
</tr>
<tr>
<td><img src="image" alt="Headset while not on a call." /></td>
<td>Headset while not on a call.</td>
</tr>
<tr>
<td><img src="image" alt="Bluetooth headset while on a call (Acoustic Echo Cancellation is not enabled for Bluetooth headsets). White icon." /></td>
<td>Bluetooth headset while on a call (Acoustic Echo Cancellation is not enabled for Bluetooth headsets). White icon.</td>
</tr>
<tr>
<td><img src="image" alt="Bluetooth headset while not on a call. Gray icon." /></td>
<td>Bluetooth headset while not on a call. Gray icon.</td>
</tr>
</tbody>
</table>

Changing Audio Modes

Depending upon the audio mode being used, the mode can be changed by tapping the VQM icon in the title bar. The audio mode can only be changed only while the user is on a call.
The table below lists the current audio mode and the subsequent audio mode after tapping the VQM icon.

Table B-2  Changing Audio Modes

<table>
<thead>
<tr>
<th>Audio Mode before Tapping VQM Icon</th>
<th>Audio Mode after Tapping VQM Icon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speakerphone</td>
<td>Handset</td>
</tr>
<tr>
<td>Handset</td>
<td>Speakerphone</td>
</tr>
<tr>
<td>Bluetooth headset</td>
<td>Speakerphone</td>
</tr>
</tbody>
</table>

If the audio mode is set to speakerphone and the user taps the VQM icon, the audio mode changes to handset.

If the user is using a Bluetooth headset, tapping the VQM icon un-pairs the Bluetooth headset from the device causing the audio to be routed to the default mode. In VQM 2.5, there is no way to go back to the Bluetooth headset using the VQM icon if it is un-paired. The only way to reconnect the Bluetooth headset to the device is by using the BTEExplorer application.

If the user taps the VQM icon when a wired headset is connected to the mobile device, the audio mode does not change. The audio continues to get routed to the wired headset.

If the user taps the VQM icon while not on a call there is not change to the audio mode.

Tap and hold the VQM icon in the title bar to display a notification dialog box that contains:

- AEC: The Acoustic Echo Canceller status
- DSCP Marked Packets: The number of outbound voice packets that have been recognized and marked as high priority by VQM.
- VQM Version: The VQM version number.

![VQM Audio Control Dialog Box](image)

**Voice Packet Prioritization**

IP soft phones transmit voice packets in the same manner as any other application that sends data over the network. On a network with different types of traffic, voice packets are given the same priority as any other traffic, and therefore may be subject to delays.

WiFi Multi-media (WMM) is a solution to this problem. WMM is a specification that supports prioritizing traffic, and “higher-priority” packets can be given preferential treatment.
To make use of WMM, the devices that generate traffic must mark their packets as high or normal priority in a field in the IP packet called Differentiated Services Code-Point (DSCP). The wireless infrastructure, which must be configured to support WMM, gives a higher priority to packets that have been marked as high priority through DSCP marking by the devices that generate traffic.

VQM detects if there is an ongoing Voice over WiFi (VoWiFi) call, and if so, marks outgoing voice packets (Only outgoing voice packets can be marked. The incoming voice packets have already been through the network, so it makes no sense to mark them.) as high-priority using DSCP. This enables WMM-compatible wireless infrastructure to treat the voice packets preferentially. This results in fewer delays for voice packets, which in turn improves the call quality.

**Limitations**

- There is no VPN support in VQM.
- Only the Avaya softphone is currently supported.

**Acoustic Echo Cancellation**

Acoustic Echo occurs during a voice call when the audio from the earpiece enters the microphone of the same device. This results in the person at the other end hearing back a delayed version of his/her own voice (“Echo”). Needless to say, “Echo” is not desirable, and needs to be suppressed. This is the functionality performed by the Acoustic Echo Canceller (AEC). There are two approaches to suppressing the Echo:

- Turn the Acoustic Echo Canceller (AEC) on permanently. This approach is not very efficient because the device consumes more power when the AEC is on.
- Turn the Acoustic Echo Canceller (AEC) on only when there is an ongoing call.

VQM follows the second of the two approaches mentioned above.

VQM automatically turns on the Acoustic Echo Canceller (AEC) when the mobile device is in a VoWiFi call. When the call is terminated, VQM turns the AEC off. Note that the AEC is turned on for speakerphone and handset modes and does not get turned on for wired headset and Bluetooth headset modes. The AEC is not required for wired headset because the audio volume is quite low (because of the proximity of the earpiece to the ear), and therefore it is very unlikely for the audio from the earpiece to go in to the mouthpiece. Bluetooth headsets typically have an Echo Canceller built in. Turning the AEC on only while on a call saves battery power, compared to leaving the AEC turned on permanently.

The AEC is not turned on for Cellular calls because the WWAN phone application has a built-in echo canceller.

**Disabling VQM**

To disable VQM perform a warm boot.
Appendix C  Keypads

Introduction

The MC9500-K offers six types modular keypad configurations:

- Alpha Primary
- Alpha Numeric
- Calculator Numeric
- Telephony Numeric
- 5250 Emulator
- VT Emulator.
Alpha Primary Keypad

The Alpha Primary keypad produces the 26-character alphabet (A-Z, both lowercase and uppercase), numbers (0-9), and assorted characters. The keypad is color-coded to indicate which modifier key to press to produce a particular character or action. The keypad default is lowercase alpha characters. See Table C-1 for key and button descriptions and Table C-11 on page C-24 for the keypad's special functions.

Figure C-1  Alpha Primary Keypad Configuration
<table>
<thead>
<tr>
<th>Key</th>
<th>Action</th>
</tr>
</thead>
</table>
| Orange Key| Accesses the secondary layer of characters and actions (shown on the keypad in orange). Press the Orange key once to activate this mode temporarily, followed by another key. This illuminates the LED and displays the following icon at the bottom of the screen, until a second key is pressed: ![Orange Icon]  
Press the Orange key twice to lock this mode. This illuminates the LED and displays the following icon at the bottom of the screen: ![Orange Icon]  
Press the Orange key a third time to unlock. |
| Scan      | Activates the scanner/imager in a scan enabled application.                                                                                                                                              |
| Navigation| Moves up one item.  
Moves left one item when pressed with the Orange key.  
Moves down one item.  
Moves right one item when pressed with the Orange key.                                                                                       |
| Shift     | Changes the state of the alpha characters from lowercase to uppercase.  
- Press the Shift key to activate this mode temporarily, followed by another key. This displays the following icon at the bottom of the screen, until a second key is pressed: ![Shift Icon]  
- Press the Shift key twice to lock this mode. This displays the following icon at the bottom of the screen: ![Shift Icon]  
Press the Shift key a third time to unlock. |
| Backspace | Produces a backspace.                                                                                                                                                                                 |
| Enter     | Executes a selected item or function.                                                                                                                                                                 |
| CTRL      | Press and release the CTRL key to activate the keypad alternate CTRL functions. The icon appears at the bottom of the screen. Press the Orange key followed by the CTRL key to activate the keypad alternate ALT functions. The icon appears at the bottom of the screen. |
### Table C-1  Alpha Primary Keypad Descriptions (Continued)

<table>
<thead>
<tr>
<th>Key</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPACE</td>
<td>Produces a space character.</td>
</tr>
<tr>
<td>ESC</td>
<td>Exits the current operation.</td>
</tr>
<tr>
<td>TAB</td>
<td>Move from one field to another.</td>
</tr>
</tbody>
</table>

### Table C-2  Alpha Primary Keypad Input Modes

<table>
<thead>
<tr>
<th>Key</th>
<th>Normal</th>
<th>Shift + Key</th>
<th>Orange + Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>a</td>
<td>A</td>
<td>a</td>
</tr>
<tr>
<td>B</td>
<td>b</td>
<td>B</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>c</td>
<td>C</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>d</td>
<td>D</td>
<td>3</td>
</tr>
<tr>
<td>E</td>
<td>e</td>
<td>E</td>
<td>e</td>
</tr>
<tr>
<td>F</td>
<td>f</td>
<td>F</td>
<td>4</td>
</tr>
<tr>
<td>G</td>
<td>g</td>
<td>G</td>
<td>5</td>
</tr>
<tr>
<td>H</td>
<td>h</td>
<td>H</td>
<td>6</td>
</tr>
<tr>
<td>I</td>
<td>i</td>
<td>I</td>
<td>i</td>
</tr>
<tr>
<td>J</td>
<td>j</td>
<td>J</td>
<td>7</td>
</tr>
<tr>
<td>K</td>
<td>k</td>
<td>K</td>
<td>8</td>
</tr>
<tr>
<td>L</td>
<td>l</td>
<td>L</td>
<td>9</td>
</tr>
<tr>
<td>M</td>
<td>m</td>
<td>M</td>
<td>m</td>
</tr>
<tr>
<td>N</td>
<td>n</td>
<td>N</td>
<td>*</td>
</tr>
<tr>
<td>O</td>
<td>o</td>
<td>O</td>
<td>0</td>
</tr>
<tr>
<td>P</td>
<td>p</td>
<td>P</td>
<td>#</td>
</tr>
<tr>
<td>Q</td>
<td>q</td>
<td>Q</td>
<td>q</td>
</tr>
<tr>
<td>R</td>
<td>r</td>
<td>R</td>
<td>au</td>
</tr>
</tbody>
</table>

Note: An application can change the key functions. The keypad may not function exactly as described.
<table>
<thead>
<tr>
<th>Key</th>
<th>Normal</th>
<th>Shift + Key</th>
<th>Orange + Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>s</td>
<td>S</td>
<td>@</td>
</tr>
<tr>
<td>T</td>
<td>t</td>
<td>T</td>
<td>/</td>
</tr>
<tr>
<td>U</td>
<td>u</td>
<td>U</td>
<td>?</td>
</tr>
<tr>
<td>V</td>
<td>v</td>
<td>V</td>
<td>v</td>
</tr>
<tr>
<td>W</td>
<td>w</td>
<td>W</td>
<td>w</td>
</tr>
<tr>
<td>X</td>
<td>x</td>
<td>X</td>
<td>x</td>
</tr>
<tr>
<td>Y</td>
<td>y</td>
<td>Y</td>
<td>y</td>
</tr>
<tr>
<td>Z</td>
<td>z</td>
<td>Z</td>
<td>z</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>_</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>'</td>
<td>&lt;</td>
<td>'</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>&gt;</td>
<td>.</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enter</td>
<td>Enter</td>
<td>Enter</td>
</tr>
<tr>
<td>TAB</td>
<td>Tab</td>
<td>Tab</td>
<td>Tab</td>
</tr>
<tr>
<td>SPACE</td>
<td>Space</td>
<td>Space</td>
<td>Space</td>
</tr>
<tr>
<td>BKSP</td>
<td>Backspace</td>
<td>Backspace</td>
<td>Backspace</td>
</tr>
</tbody>
</table>

Note: An application can change the key functions. The keypad may not function exactly as described.
Alpha Numeric Keypad

The Alpha Numeric keypad produces the 26-character alphabet (A-Z, both lowercase and uppercase), numbers (0-9), and assorted characters. The keypad is color-coded to indicate which modifier key to press to produce a particular character or action. The keypad default is lowercase alpha characters and numerics. See Table C-3 for key and button descriptions and Table C-11 on page C-24 for the keypad’s special functions.

Figure C-2  Alpha Numeric Keypad Configuration
### Table C-3  Alpha Numeric Keypad Descriptions

<table>
<thead>
<tr>
<th>Key</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange Key</td>
<td>Accesses the secondary layer of characters and actions (shown on the keypad in orange).&lt;br&gt;Press the Orange key once to activate this mode temporarily, followed by another key. This illuminates the LED and displays the following icon at the bottom of the screen, until a second key is pressed: Ø.&lt;br&gt;Press the Orange key twice to lock this mode. This illuminates the LED and displays the following icon at the bottom of the screen: Ø.&lt;br&gt;Press the Orange key a third time to unlock.</td>
</tr>
<tr>
<td>Scan</td>
<td>Activates the scanner/imager in a scan enabled application.</td>
</tr>
<tr>
<td>Navigation</td>
<td>Moves up, down, left or right one item.</td>
</tr>
<tr>
<td>Shift</td>
<td>Changes the state of the alpha characters from lowercase to uppercase.&lt;br&gt;Press the Shift key to activate this mode temporarily, followed by another key. This displays the following icon at the bottom of the screen, until a second key is pressed: ↑.&lt;br&gt;Press the Shift key twice to lock this mode. This displays the following icon at the bottom of the screen: ↑.&lt;br&gt;Press the Shift key a third time to unlock.</td>
</tr>
<tr>
<td>Backspace</td>
<td>Produces a backspace.</td>
</tr>
<tr>
<td>Enter</td>
<td>Executes a selected item or function.</td>
</tr>
<tr>
<td>CTRL</td>
<td>Press and release the CTRL key to activate the keypad alternate CTRL functions. The icon appears at the bottom of the screen. Press the Orange key followed by the CTRL key to activate the keypad alternate ALT functions. The icon appears at the bottom of the screen.</td>
</tr>
</tbody>
</table>
### Table C-3  Alpha Numeric Keypad Descriptions (Continued)

<table>
<thead>
<tr>
<th>Key</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPACE</td>
<td>Produces a space character.</td>
</tr>
<tr>
<td>ESC</td>
<td>Exits the current operation.</td>
</tr>
<tr>
<td>TAB</td>
<td>Move from one field to another.</td>
</tr>
</tbody>
</table>

### Table C-4  Alpha Numeric Keypad Input Modes

<table>
<thead>
<tr>
<th>Key</th>
<th>Normal</th>
<th>Shift + Key</th>
<th>Orange + Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>!</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>@</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>#</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>$</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>%</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>^</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>&amp;</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>*</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>(</td>
<td>9</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>)</td>
<td>0</td>
</tr>
<tr>
<td>.</td>
<td></td>
<td>&lt;</td>
<td></td>
</tr>
<tr>
<td>.</td>
<td></td>
<td>&gt;</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>a</td>
<td>A</td>
<td>?</td>
</tr>
<tr>
<td>B</td>
<td>b</td>
<td>B</td>
<td>+</td>
</tr>
<tr>
<td>C</td>
<td>c</td>
<td>C</td>
<td>–</td>
</tr>
<tr>
<td>D</td>
<td>d</td>
<td>D</td>
<td>*</td>
</tr>
<tr>
<td>E</td>
<td>e</td>
<td>E</td>
<td>/</td>
</tr>
<tr>
<td>F</td>
<td>f</td>
<td>F</td>
<td>=</td>
</tr>
<tr>
<td>G</td>
<td>g</td>
<td>G</td>
<td>!</td>
</tr>
</tbody>
</table>

Note: An application can change the key functions. The keypad may not function exactly as described.
### Table C-4  Alpha Numeric Keypad Input Modes (Continued)

<table>
<thead>
<tr>
<th>Key</th>
<th>Normal</th>
<th>Shift + Key</th>
<th>Orange + Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>h</td>
<td>H</td>
<td>@</td>
</tr>
<tr>
<td>I</td>
<td>i</td>
<td>I</td>
<td>#</td>
</tr>
<tr>
<td>J</td>
<td>j</td>
<td>J</td>
<td>$</td>
</tr>
<tr>
<td>K</td>
<td>k</td>
<td>K</td>
<td>%</td>
</tr>
<tr>
<td>L</td>
<td>l</td>
<td>L</td>
<td>&amp;</td>
</tr>
<tr>
<td>M</td>
<td>m</td>
<td>M</td>
<td>:</td>
</tr>
<tr>
<td>N</td>
<td>n</td>
<td>N</td>
<td>(</td>
</tr>
<tr>
<td>O</td>
<td>o</td>
<td>O</td>
<td>)</td>
</tr>
<tr>
<td>P</td>
<td>p</td>
<td>P</td>
<td>'</td>
</tr>
<tr>
<td>Q</td>
<td>q</td>
<td>Q</td>
<td>“</td>
</tr>
<tr>
<td>R</td>
<td>r</td>
<td>R</td>
<td>au</td>
</tr>
<tr>
<td>S</td>
<td>s</td>
<td>S</td>
<td>s</td>
</tr>
<tr>
<td>T</td>
<td>t</td>
<td>T</td>
<td>t</td>
</tr>
<tr>
<td>U</td>
<td>u</td>
<td>U</td>
<td>u</td>
</tr>
<tr>
<td>V</td>
<td>v</td>
<td>V</td>
<td>v</td>
</tr>
<tr>
<td>W</td>
<td>w</td>
<td>W</td>
<td>w</td>
</tr>
<tr>
<td>X</td>
<td>x</td>
<td>X</td>
<td>x</td>
</tr>
<tr>
<td>Y</td>
<td>y</td>
<td>Y</td>
<td>y</td>
</tr>
<tr>
<td>Z</td>
<td>z</td>
<td>Z</td>
<td>z</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enter Enter Enter Enter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAB</td>
<td>Tab</td>
<td>Tab</td>
<td>Tab</td>
</tr>
<tr>
<td>SPACE</td>
<td>Space Space Space Space</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BKSP</td>
<td>Backspace Backspace Backspace</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: An application can change the key functions. The keypad may not function exactly as described.
Calculator Numeric Keypad

The Calculator Numeric keypad produces the numbers (0-9), 26-character alphabet (A-Z, both lowercase and uppercase), and assorted characters. The keypad is color-coded to indicate which modifier key to press to produce a particular character or action. The keypad default is numeric. See Table C-5 for key and button descriptions and Table C-11 on page C-24 for the keypad’s special functions.

Figure C-3  Calculator Numeric Keypad Configuration
### Calculator Numeric Keypad Descriptions

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
</table>
| Orange Key   | Use this key to access the secondary layer of characters and actions (shown on the keypad in orange). Press the Orange key once to lock the keypad into Alpha state. A single press illuminates the LED and displays the following icon at the bottom of the screen:  
Press the Orange key a second time to return to the normal state. Press the Orange key, then the Shift key to add a temporary shift (that applies only to the next key pressed) to the orange lock state. This displays the following icon at the bottom of the screen: |
| Scan         | Activates the scanner/imager in a scan enabled application.                                                                                                                                                   |
| Navigation   | Moves up, down, left or right one item.                                                                                                                                                                       |
| Alphanumeric | In default state, produces the numeric value on the key. In Alpha state, produces the lower case alphabetic characters on the key. Each key press produces the next alphabetic character in the sequence. For example, press and release the Orange key and then press the ‘4’ key once to produce the letter ‘j’; press and release the Orange key and then press the ‘4’ key three times to produce the letter ‘l’. Press the SHIFT key in Alpha state to produce the upper case alphabetic characters on the key. For example, press and release the Orange key, press and release the SHIFT key, and then press the ‘4’ key once to produce the letter ‘J’; press and release the Orange key, press and release the SHIFT key and then press the ‘4’ key three times to produce the letter ‘L’. |
| Backspace    | Produces a backspace.                                                                                                                                                                                        |
| SHIFT        | Press and release the SHIFT key to activate the keypad alternate SHIFT functions. A single press displays the following icon at the bottom of the screen, until a second key is pressed:  
Press the Orange key, then the Shift key to add a temporary shift (that applies only to the next key pressed) to the orange lock state. This displays the following icon at the bottom of the screen: |
### Table C-5  
**Calculator Numeric Keypad Descriptions (Continued)**

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enter</strong></td>
<td>![ENT] Executes a selected item or function.</td>
</tr>
</tbody>
</table>
| **CTRL**     | Press and release the CTRL key to activate the keypad alternate CTRL functions. The ![CTRL] icon appears at the bottom of the screen.  
Press the Orange key followed by the CTRL key to activate the keypad alternate ALT functions. The ![ALT] icon appears at the bottom of the screen. |
| **SPACE**    | ![SPACE] Produces a space character.                                        |
| **ESC**      | ![ESC] Exits the current operation.                                         |
| **TAB**      | ![TAB] Move from one field to another.                                      |

### Table C-6  
**Calculator Numeric Keypad Input Modes**

<table>
<thead>
<tr>
<th>Key</th>
<th>Numeric Mode</th>
<th>Shift + Key</th>
<th>1st Press</th>
<th>2nd Press</th>
<th>3rd Press</th>
<th>4th Press</th>
<th>Orange Key (Alpha Lowercase Mode)</th>
<th>Orange + Shift Keys (Alpha Uppercase Mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 !</td>
<td>s</td>
<td>t</td>
<td>u</td>
<td></td>
<td></td>
<td>S</td>
<td>T</td>
</tr>
<tr>
<td>2</td>
<td>2 @</td>
<td>v</td>
<td>w</td>
<td>x</td>
<td></td>
<td></td>
<td>V</td>
<td>W</td>
</tr>
<tr>
<td>3</td>
<td>3 #</td>
<td>y</td>
<td>z</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
<td>Z</td>
</tr>
<tr>
<td>4</td>
<td>4 $</td>
<td>j</td>
<td>k</td>
<td>l</td>
<td></td>
<td></td>
<td>J</td>
<td>K</td>
</tr>
<tr>
<td>5</td>
<td>5 %</td>
<td>m</td>
<td>n</td>
<td>o</td>
<td></td>
<td></td>
<td>M</td>
<td>N</td>
</tr>
<tr>
<td>6</td>
<td>6 ^</td>
<td>p</td>
<td>q</td>
<td>r</td>
<td></td>
<td></td>
<td>P</td>
<td>Q</td>
</tr>
<tr>
<td>7</td>
<td>7 &amp;</td>
<td>a</td>
<td>b</td>
<td>c</td>
<td></td>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>8</td>
<td>8 *</td>
<td>d</td>
<td>e</td>
<td>f</td>
<td></td>
<td></td>
<td>D</td>
<td>E</td>
</tr>
<tr>
<td>9</td>
<td>9 (</td>
<td>g</td>
<td>h</td>
<td>i</td>
<td></td>
<td></td>
<td>G</td>
<td>H</td>
</tr>
</tbody>
</table>

Note: An application can change the key functions. The keypad may not function exactly as described.
<table>
<thead>
<tr>
<th>Key</th>
<th>Numeric Mode</th>
<th>Orange Key (Alpha Lowercase Mode)</th>
<th>Orange + Shift Keys (Alpha Uppercase Mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>)</td>
<td>au</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>_</td>
<td>@</td>
</tr>
<tr>
<td>,</td>
<td>,</td>
<td>&lt;</td>
<td>&lt;</td>
</tr>
<tr>
<td>.</td>
<td>.</td>
<td>&gt;</td>
<td>.</td>
</tr>
<tr>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

Note: An application can change the key functions. The keypad may not function exactly as described.
Telephony Numeric Keypad

The Telephony Numeric keypad produces the numbers (0-9), 26-character alphabet (A-Z, both lowercase and uppercase), and assorted characters. The keypad is color-coded to indicate which modifier key to press to produce a particular character or action. The keypad default is numeric. See Table C-7 for key and button descriptions and Table C-11 on page C-24 for the keypad’s special functions.

Figure C-4  Telephony Numeric Keypad Configuration
<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange Key</td>
<td>Use this key to access the secondary layer of characters and actions (shown on the keypad in orange). Press the Orange key once to lock the keypad into Alpha state. A single press illuminates the LED and displays the following icon at the bottom of the screen: Press the Orange key a second time to return to the normal state. Press the Orange key, then the Shift key to add a temporary shift (that applies only to the next key pressed) to the orange lock state. This displays the following icon at the bottom of the screen:</td>
</tr>
<tr>
<td>Scan</td>
<td>Activates the scanner/imager in a scan enabled application.</td>
</tr>
<tr>
<td>Navigation</td>
<td>Moves up, down, left or right one item.</td>
</tr>
<tr>
<td>Alphanumeric</td>
<td>In default state, produces the numeric value on the key. 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 Orange key and then press the ‘4’ key once to produce the letter ‘g’; press and release the Orange key and then press the ‘4’ key three times to produce the letter ‘i’. Press the SHIFT key in Alpha state to produce the upper case alphabetic characters on the key. For example, press and release the Orange key, press and release the SHIFT key, and then press the ‘4’ key once to produce the letter ‘G’; press and release the Orange key, press and release the SHIFT key and then press the ‘4’ key three times to produce the letter ‘I’.</td>
</tr>
<tr>
<td>Backspace</td>
<td>Produces a backspace.</td>
</tr>
<tr>
<td>SHIFT</td>
<td>Press and release the SHIFT key to activate the keypad alternate SHIFT functions.</td>
</tr>
<tr>
<td></td>
<td>A single press displays the following icon at the bottom of the screen, until a second key is pressed: Press the Orange key, then the Shift key to add a temporary shift (that applies only to the next key pressed) to the orange lock state. This displays the following icon at the bottom of the screen:</td>
</tr>
</tbody>
</table>
Enter executes a selected item or function.

CTRL Press and release the CTRL key to activate the keypad alternate CTRL functions. The icon appears at the bottom of the screen.
Press the Orange key followed by the CTRL key to activate the keypad alternate ALT functions. The icon appears at the bottom of the screen.

SPACE Produces a space character.

ESC Exits the current operation.

TAB Move from one field to another.

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter</td>
<td>Executes a selected item or function.</td>
</tr>
</tbody>
</table>

### Table C-7 Telephony Numeric Keypad Descriptions (Continued)

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTRL</td>
<td>Press and release the CTRL key to activate the keypad alternate CTRL functions. The icon appears at the bottom of the screen.</td>
</tr>
<tr>
<td></td>
<td>Press the Orange key followed by the CTRL key to activate the keypad alternate ALT functions. The icon appears at the bottom of the screen.</td>
</tr>
<tr>
<td>SPACE</td>
<td>Produces a space character.</td>
</tr>
<tr>
<td>ESC</td>
<td>Exits the current operation.</td>
</tr>
<tr>
<td>TAB</td>
<td>Move from one field to another.</td>
</tr>
</tbody>
</table>

### Table C-8 Telephony Numeric Keypad Input Modes

<table>
<thead>
<tr>
<th>Key</th>
<th>Numeric Mode</th>
<th>Orange Key (Alpha Lowercase Mode)</th>
<th>Orange + Shift Keys (Alpha Uppercase Mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>!</td>
<td>@</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>@</td>
<td>a</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>#</td>
<td>d</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>$</td>
<td>g</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>%</td>
<td>j</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>^</td>
<td>m</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>&amp;</td>
<td>p</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>*</td>
<td>t</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>(</td>
<td>w</td>
</tr>
</tbody>
</table>

Note: An application can change the key functions. The keypad may not function exactly as described.
### Table C-8  Telephony Numeric Keypad Input Modes (Continued)

<table>
<thead>
<tr>
<th>Key</th>
<th>Numeric Mode</th>
<th>Orange Key (Alpha Lowercase Mode)</th>
<th>Orange + Shift Keys (Alpha Uppercase Mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>)</td>
<td>au</td>
</tr>
<tr>
<td>.</td>
<td>,</td>
<td>&lt;</td>
<td>,</td>
</tr>
<tr>
<td>.</td>
<td>,</td>
<td>&gt;</td>
<td>,</td>
</tr>
<tr>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: An application can change the key functions. The keypad may not function exactly as described.
5250 Emulator Keypad

The 5250 emulator keypad contains a Power button, application keys, scroll keys and a function key. 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 MC9500’s keypad may not function exactly as described. See Table C-9 on page C-19 for key and button descriptions and Table C-11 on page C-24 for the keypad’s special functions.

![5250 Emulator Keypad Diagram]

Figure C-5  5250 Emulator Keypad

**NOTE**  The 5250 emulator configuration is only used when the MC9500 is running the 5250 emulation software. When the MC9500 is not running the 5250 emulation software, the 5250 keypad functions are the same as a Alpha Numeric keypad.
### Table C-9  5250 Emulator Descriptions

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scan (yellow)</td>
<td>Activates the scanner/imager in a scan enabled application.</td>
</tr>
<tr>
<td>Scroll Up and Down</td>
<td>Moves up and down from one item to another.</td>
</tr>
<tr>
<td>Scroll Left and Right</td>
<td>Moves left and right from one item to another.</td>
</tr>
</tbody>
</table>
| Orange Key              | Accesses the secondary layer of characters and actions (shown on the keypad in orange). Press the Orange key once to activate this mode temporarily, followed by another key. This illuminates the LED and displays the following icon at the bottom of the screen, until a second key is pressed:<br>
Press the Orange key twice to lock this mode. This illuminates the LED and displays the following icon at the bottom of the screen:<br>
Press the Orange key a third time to unlock. |
| TAB                     | Move from one field to another.                                            |
| Backspace               | Produces a backspace.                                                      |
| SPACE                   | Produces a space character.                                                |
| CTRL                    | Press and release the CTRL key to activate the keypad alternate CTRL functions. The icon appears at the bottom of the screen.<br>
Press the Orange key followed by the CTRL key to activate the keypad alternate ALT functions. The icon appears at the bottom of the screen. |
Shift

Press and release the SHIFT key to activate the keypad alternate SHIFT functions. The icon appears on the bottom of the screen. After pressing another key, the keypad returns to the non-shift state. Refer to the MC9500 Integrator Guide for instructions to set the Shift key to enable the Shift Lock state.

ESC

Exits the current operation.

Enter

Executes a selected item or function.
VT Emulator Keypad

The VT emulator keypad contains a Power button, application keys, scroll keys and a function key. 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 MC9500’s keypad may not function exactly as described. See Table C-10 on page C-22 for key and button descriptions and Table C-11 on page C-24 for the keypad's special functions.

NOTE

The VT emulator configuration is only used when the MC9500 is running the VT emulation software. When the MC9500 is not running the VT emulation software, the VT keypad functions are the same as a Alpha Numeric keypad.
<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scan (yellow)</td>
<td>Activates the scanner/imager in a scan enabled application.</td>
</tr>
<tr>
<td>![Scan Icon]</td>
<td></td>
</tr>
<tr>
<td>Navigation</td>
<td>Moves up, down, left or right one item.</td>
</tr>
<tr>
<td>![Navigation Icons]</td>
<td></td>
</tr>
<tr>
<td>Orange Key</td>
<td>Accesses the secondary layer of characters and actions (shown on the keypad in orange). Press the Orange key once to activate this mode temporarily, followed by another key. This illuminates the LED and displays the following icon at the bottom of the screen, until a second key is pressed: Press the Orange key twice to lock this mode. This illuminates the LED and displays the following icon at the bottom of the screen: Press the Orange key a third time to unlock.</td>
</tr>
<tr>
<td>![Orange Key Icon]</td>
<td></td>
</tr>
<tr>
<td>TAB</td>
<td>Move from one field to another.</td>
</tr>
<tr>
<td>![TAB Icon]</td>
<td></td>
</tr>
<tr>
<td>Backspace</td>
<td>Produces a backspace.</td>
</tr>
<tr>
<td>![Backspace Icon]</td>
<td></td>
</tr>
<tr>
<td>SPACE</td>
<td>Produces a space character.</td>
</tr>
<tr>
<td>![Space Icon]</td>
<td></td>
</tr>
<tr>
<td>CTRL</td>
<td>Press and release the CTRL key to activate the keypad alternate CTRL functions. The icon appears at the bottom of the screen. Press the Orange key followed by the CTRL key to activate the keypad alternate ALT functions. The icon appears at the bottom of the screen.</td>
</tr>
<tr>
<td>![CTRL Icon]</td>
<td></td>
</tr>
</tbody>
</table>
Table C-10  *VT Emulator Descriptions (Continued)*

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
</table>
| Shift | Changes the state of the alpha characters from lowercase to uppercase.  
  - Press the Shift key to activate this mode temporarily, followed by another key. This displays the following icon at the bottom of the screen, until a second key is pressed: ![Shift Icon](image)  
  - Press the Shift key twice to lock this mode. This displays the following icon at the bottom of the screen: ![Shift Icon](image)  
  Press the Shift key a third time to unlock. |
| ESC | Exits the current operation. |
| Enter | Executes a selected item or function. |
**Special Character Key**

*NOTE* Special characters are only available on the alpha-numeric keypad configurations.

To add special characters using the MC950-K àû key, type the related character first, then press the Orange twice followed by the àû key. Continue pressing the àû key until the special character displays. To modify an existing character, move the cursor to the right of the character then press the Orange key twice and then press the àû key until the special character replaces the original character. *Table C-11* lists the special characters you can generate.

<table>
<thead>
<tr>
<th>Key</th>
<th>Special Characters</th>
<th>Key</th>
<th>Special Characters</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>àáâãåäãăãœ</td>
<td>A</td>
<td>ÀÁÂÃÅÄÃĂĂŒ</td>
</tr>
<tr>
<td>c</td>
<td>çćčć©</td>
<td>C</td>
<td>ÇĆČĆ©</td>
</tr>
<tr>
<td>d</td>
<td>ā</td>
<td>D</td>
<td>Ď</td>
</tr>
<tr>
<td>e</td>
<td>ėéēĕēĘ</td>
<td>E</td>
<td>ĖĔĒĔĖĘ</td>
</tr>
<tr>
<td>i</td>
<td>ĭįįįįį</td>
<td>I</td>
<td>ĮĮĮĮĮĮ</td>
</tr>
<tr>
<td>l</td>
<td>ľ</td>
<td>L</td>
<td>Ľ</td>
</tr>
<tr>
<td>n</td>
<td>ň</td>
<td>N</td>
<td>ŉ</td>
</tr>
<tr>
<td>o</td>
<td>óóôồồộộơơơơœœ</td>
<td>O</td>
<td>ŐŐŐŐŐŐŐŐOEœœ</td>
</tr>
<tr>
<td>p</td>
<td>þþþþþ</td>
<td>P</td>
<td>þþþþþ</td>
</tr>
<tr>
<td>r</td>
<td>®</td>
<td>R</td>
<td>®</td>
</tr>
<tr>
<td>s</td>
<td>şšśśβ</td>
<td>S</td>
<td>ŞŞŞŞβ</td>
</tr>
<tr>
<td>t</td>
<td>ţ</td>
<td>T</td>
<td>ţ</td>
</tr>
<tr>
<td>u</td>
<td>ūūůůůůůůůůůůůů</td>
<td>U</td>
<td>ŪŪŮŮŮŮŮŮŮŮŮ</td>
</tr>
<tr>
<td>y</td>
<td>ý</td>
<td>Y</td>
<td>Ÿ</td>
</tr>
<tr>
<td>z</td>
<td>žż</td>
<td>Z</td>
<td>ŽŽ</td>
</tr>
<tr>
<td>$</td>
<td>€£¥</td>
<td>/</td>
<td>\</td>
</tr>
<tr>
<td>&quot;</td>
<td>'«'</td>
<td>(</td>
<td>[ { &lt; «</td>
</tr>
<tr>
<td>)</td>
<td>]}&gt;»</td>
<td>+</td>
<td>± &amp; - _</td>
</tr>
<tr>
<td>i</td>
<td>?¿</td>
<td>.</td>
<td>;</td>
</tr>
<tr>
<td>*</td>
<td>#</td>
<td>@</td>
<td>~ %</td>
</tr>
<tr>
<td>%</td>
<td>^</td>
<td>.</td>
<td>; ;</td>
</tr>
<tr>
<td>#</td>
<td>*</td>
<td>&amp;</td>
<td>- _ + ±</td>
</tr>
<tr>
<td>Key</td>
<td>Special Characters</td>
<td>Key</td>
<td>Special Characters</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------</td>
<td>-----</td>
<td>--------------------</td>
</tr>
<tr>
<td>_</td>
<td>+ ± &amp; -</td>
<td>'</td>
<td>« » &quot;</td>
</tr>
<tr>
<td>?</td>
<td>¡ ! i</td>
<td>:</td>
<td>, ; .</td>
</tr>
<tr>
<td>-</td>
<td>_ + ± &amp;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix D  Windows Mobile 6.5

Introduction

This chapter describes the new features in the latest version of the operating system OEM version with Windows Mobile 6.5. These include:

- Finger scrolling functionality
- New Home screen
- New Start menu
- New Lock screen
- RS507 support
- Battery Swapping
- USB Configuration.

Finger Scrolling

Windows Mobile 6.5 adds finger scrolling capabilities to the display. Finger scrolling can be used to scroll up and down web pages, documents, and lists such as the contacts list, file list, message list, calendar appointments list, and more.

When finger scrolling, swipe or flick your finger on the screen.

To scroll down, swipe your finger upward on the screen. To scroll up, swipe your finger downward on the screen.

To auto-scroll, flick your finger upward or downward on the screen. Touch the screen to stop scrolling.

Home Screen

The default home screen on the MC9500-K is the Windows Mobile Home screen. The Home screen contains a Status Bar at the top of the screen and a Tile Bar at the bottom of the screen.

The Home screen is scrollable and contains a list of application plug-ins and an Information Status bar. The Information Status bar highlights the application plug-in that is under it and provides additional information.
Figure D-1  Windows Mobile Home Screen

Touch and hold the screen with your finger and move the Home screen up and down. As the application names move under the Information Status bar, information relevant to that application appear in the bar.

Figure D-2  Moving Today Screen

You can also touch and hold the Information Status bar and move it up and down over an application name. Remove your finger and the Information Status bar and application name center in the screen.
To customize the Home screen, tap \texttt{Settings} > \texttt{Today}. On the horizontal scroll, use \texttt{Appearance} to customize the background and the \texttt{items} to change the display format.

**Classic Today Screen**

The user can change to the classic Today screen layout that is used in Windows Mobile 6.1.
To change to the classic view tap \( \text{Settings} \to \text{Home} \to \text{Items} \).

Deselect the \textbf{Windows Default} checkbox and select any of the other checkboxes.

Tap \( \text{OK} \).

The task bar at the bottom of the screen can contain the task tray icons listed in \textit{Table D-1}. 
The **Status Bar** at the top of the screen displays the status icons listed in *Table D-2*.

- **Notifications**
- **Connectivity**
- **Signal Strength**
- **Audio**
- **Battery**
- **Clock**

![Status Bar Icons](image)

*Figure D-7  Status Bar Icons*
<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Bell" /></td>
<td>Indicates a reminder of an upcoming calendar event.</td>
<td><img src="image" alt="Person" /></td>
<td>Notification that one or more instant messages were received.</td>
</tr>
<tr>
<td><img src="image" alt="Phone" /></td>
<td>Notification that one or more e-mail/text messages were received.</td>
<td><img src="image" alt="Envelope" /></td>
<td>Notification that one or more voice messages were received.</td>
</tr>
<tr>
<td><img src="image" alt="Speech Bubble" /></td>
<td>There are more notification icons than can be displayed.</td>
<td><img src="image" alt="Bell" /></td>
<td>Indicates a reminder of an upcoming calendar event.</td>
</tr>
</tbody>
</table>

**Notifications**

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Left Arrows" /></td>
<td>Connection is active.</td>
<td><img src="image" alt="Left Arrows" /></td>
<td>Connection is not active.</td>
</tr>
<tr>
<td><img src="image" alt="Up Arrows" /></td>
<td>Synchronization is occurring.</td>
<td><img src="image" alt="Wi-Fi" /></td>
<td>Wi-Fi available.</td>
</tr>
<tr>
<td><img src="image" alt="Internet Symbol" /></td>
<td>Wi-Fi in use.</td>
<td><img src="image" alt="HSDPA" /></td>
<td>HSDPA available. (GSM only)</td>
</tr>
<tr>
<td><img src="image" alt="3G" /></td>
<td>3G available. (GSM only)</td>
<td><img src="image" alt="GPRS" /></td>
<td>GPRS available. (GSM only)</td>
</tr>
<tr>
<td><img src="image" alt="EGPRS" /></td>
<td>EGPRS available. (GSM only)</td>
<td><img src="image" alt="1xRTT" /></td>
<td>1xRTT available. (CDMA only)</td>
</tr>
<tr>
<td><img src="image" alt="EVDO" /></td>
<td>EVDO Rev. 0 available. (CDMA only)</td>
<td><img src="image" alt="EVDO Rev. A" /></td>
<td>EVDO Rev. A available. (CDMA only)</td>
</tr>
<tr>
<td><img src="image" alt="Dormant State" /></td>
<td>Dormant State - no data transmission during a 1x or EVDO connection. (CDMA only)</td>
<td><img src="image" alt="Roaming" /></td>
<td>Roaming.</td>
</tr>
</tbody>
</table>

**Connectivity**

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Phone" /></td>
<td>Call missed.</td>
<td><img src="image" alt="Phone" /></td>
<td>Dialing while no SIM card is installed.</td>
</tr>
<tr>
<td><img src="image" alt="Phone" /></td>
<td>Voice call in progress.</td>
<td><img src="image" alt="Phone" /></td>
<td>Calls are forwarded.</td>
</tr>
<tr>
<td><img src="image" alt="Phone" /></td>
<td>Call on hold.</td>
<td><img src="image" alt="Phone" /></td>
<td>Speakerphone is on.</td>
</tr>
<tr>
<td><img src="image" alt="Wi-Fi" /></td>
<td>Wi-Fi on/good signal.</td>
<td><img src="image" alt="Wi-Fi Off" /></td>
<td>Wi-fi off.</td>
</tr>
<tr>
<td><img src="image" alt="Wi-Fi" /></td>
<td>No Wi-Fi service or searching.</td>
<td><img src="image" alt="HSDPA" /></td>
<td>HSDPA connecting. (GSM only)</td>
</tr>
<tr>
<td><img src="image" alt="HSDPA" /></td>
<td>HSDPA in use. (GSM only)</td>
<td><img src="image" alt="3G" /></td>
<td>3G connecting. (GSM only)</td>
</tr>
</tbody>
</table>
### Table D-2  Status Bar Icons (Continued)

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![3G icon]</td>
<td>3G in use. (GSM only)</td>
<td>![GPRS icon]</td>
<td>GPRS connecting. (GSM only)</td>
</tr>
<tr>
<td>![GPRS icon]</td>
<td>GPRS in use. (GSM only)</td>
<td>![EGPRS icon]</td>
<td>EGPRS connecting. (GSM only)</td>
</tr>
<tr>
<td>![EGPRS icon]</td>
<td>EGPRS in use. (GSM only)</td>
<td>![EVDO icon]</td>
<td>EVDO connecting. (CDMA only)</td>
</tr>
<tr>
<td>![EVDO icon]</td>
<td>EVDO in use. (CDMA only)</td>
<td>![SIM Card icon]</td>
<td>SIM Card not installed. (GSM only)</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td></td>
<td><strong>Battery</strong></td>
<td></td>
</tr>
<tr>
<td>![Sound up icon]</td>
<td>All sounds are on.</td>
<td>![Battery charging icon]</td>
<td>Battery is charging.</td>
</tr>
<tr>
<td>![Sound down icon]</td>
<td>All sounds are off.</td>
<td>![Battery full icon]</td>
<td>Battery has a full charge.</td>
</tr>
<tr>
<td>![Vibrate on icon]</td>
<td>Vibrate is on.</td>
<td>![Battery high icon]</td>
<td>Battery has a high charge.</td>
</tr>
<tr>
<td>![Battery medium icon]</td>
<td>Battery has a medium charge.</td>
<td>![Battery low icon]</td>
<td>Battery has a low charge.</td>
</tr>
<tr>
<td>![Battery very low icon]</td>
<td>Battery has a very low charge.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tap the Status Bar to display an icon bar. Tap an icon to get additional notification or status information.

### Figure D-8  Icon Bar
The **Tile Bar**, located at the bottom of the screen, contains the **Start** tile to open the **Start Menu**. It also displays tiles that vary depending upon the open application.

### Table D-3  Task Tray Icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Magnify icon" /></td>
<td>Magnify</td>
<td>Enlarges the screen.</td>
</tr>
<tr>
<td><img src="image" alt="Connectivity icon" /></td>
<td>Connectivity</td>
<td>Displays the <strong>Connectivity</strong> dialog box.</td>
</tr>
<tr>
<td><img src="image" alt="Phone icon" /></td>
<td>Phone</td>
<td>Displays the <strong>Phone</strong> dialog box.</td>
</tr>
<tr>
<td><img src="image" alt="Volume icon" /></td>
<td>Volume</td>
<td>Displays the <strong>Volume</strong> dialog box.</td>
</tr>
<tr>
<td><img src="image" alt="Power icon" /></td>
<td>Power</td>
<td>Displays the <strong>Power</strong> window.</td>
</tr>
<tr>
<td><img src="image" alt="Clock &amp; Alarms icon" /></td>
<td>Clock &amp; Alarms</td>
<td>Opens the <strong>Clocks &amp; Alarms</strong> window.</td>
</tr>
</tbody>
</table>

### Start Screen

To open the **Start** screen, tap 📱 at the bottom left corner of the screen, or press the START key on the keypad. Swipe upward to view more program and folder icons.

You can move often-used program and folder icons anywhere on the Start screen for easy access. Press and hold the icon that you want to move. Drag the icon to a new location and release.

*Table D-4* lists the default icons available on the Start screen.
<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Home Icon]</td>
<td>Home</td>
<td>Displays the Home screen.</td>
<td>![Text Icon]</td>
<td>Text</td>
<td>Send an SMS text message.</td>
</tr>
<tr>
<td>![Phone Icon]</td>
<td>Phone</td>
<td>Make calls.</td>
<td>![E-mail Icon]</td>
<td>E-mail</td>
<td>Send an Email.</td>
</tr>
<tr>
<td>![Contacts Icon]</td>
<td>Contacts</td>
<td>Keep track of friends and colleagues.</td>
<td>![Battery Swap Icon]</td>
<td>Battery Swap</td>
<td>Assists when suspending the MC9500-K or when removing the battery.</td>
</tr>
<tr>
<td>![Internet Explorer Icon]</td>
<td>Internet Explorer</td>
<td>Browse Web and WAP sites as well as download new programs and files from the Internet.</td>
<td>![Settings Icon]</td>
<td>Settings</td>
<td>Open the Settings folder. Table D-4 lists the default icons available on the Settings folder.</td>
</tr>
<tr>
<td>![Calendar Icon]</td>
<td>Calendar</td>
<td>Keep track of appointments and create meeting requests.</td>
<td>![Getting Started Icon]</td>
<td>Getting Started</td>
<td>Launch the Getting Started application.</td>
</tr>
<tr>
<td>![Pictures &amp; Videos Icon]</td>
<td>Pictures &amp; Videos</td>
<td>View and manage pictures, animated GIFs, and video files.</td>
<td>![Alarms Icon]</td>
<td>Alarms</td>
<td>Set the device clock to the date and time of your locale. Alarms can also be set at specified days and times of a week.</td>
</tr>
<tr>
<td>![Windows Media Icon]</td>
<td>Windows Media</td>
<td>Play back audio and video files.</td>
<td>![Messenger Icon]</td>
<td>Messenger</td>
<td>Use this mobile version of Windows Live Messenger.</td>
</tr>
<tr>
<td>![Marketplace Icon]</td>
<td>Marketplace</td>
<td>Purchase applications from the Marketplace.</td>
<td>![Microsoft My Phone Icon]</td>
<td>Microsoft My Phone</td>
<td>Synchronizes the MC9500-K’s contacts, calendar, tasks, text messages, music, photos videos and documents with a Microsoft My Phone account.</td>
</tr>
<tr>
<td>![Windows Live Icon]</td>
<td>Windows Live</td>
<td>Use this mobile version of Windows Live™ to find information on the web.</td>
<td>![MSN Weather Icon]</td>
<td>MSN Weather</td>
<td>Check the local weather.</td>
</tr>
<tr>
<td>![MSN Money Icon]</td>
<td>MSN Money</td>
<td>Keep track of your finances.</td>
<td>![Games Icon]</td>
<td>Games</td>
<td>Play games.</td>
</tr>
<tr>
<td>![Calculator Icon]</td>
<td>Calculator</td>
<td>Perform basic arithmetic and calculations, such as addition, subtraction, multiplication, and division.</td>
<td>![Notes Icon]</td>
<td>Notes</td>
<td>Create handwritten or typed notes, drawings, and voice recordings.</td>
</tr>
<tr>
<td>Icon</td>
<td>Name</td>
<td>Description</td>
<td>Icon</td>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------</td>
<td>-------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><img src="image" alt="Office Mobile Icon" /></td>
<td>Office Mobile</td>
<td>Use the complete suite of Microsoft® Office applications for your mobile device.</td>
<td><img src="image" alt="Tasks Icon" /></td>
<td>Tasks</td>
<td>Keep track of your tasks.</td>
</tr>
<tr>
<td><img src="image" alt="File Explorer Icon" /></td>
<td>File Explorer</td>
<td>Organize and manage files on your device.</td>
<td><img src="image" alt="Internet Sharing Icon" /></td>
<td>Internet Sharing</td>
<td>Connect a notebook computer to the Internet using the MC9500-K's data connection.</td>
</tr>
<tr>
<td><img src="image" alt="ActiveSync Icon" /></td>
<td>ActiveSync</td>
<td>Synchronize information between the MC9500-K and a host computer or the Exchange Server.</td>
<td><img src="image" alt="Task Manager Icon" /></td>
<td>Task Manager</td>
<td>Enables viewing of memory and CPU allocations and stops running processes. Refer to the <em>Microsoft Applications for Windows Mobile 6 User Guide</em> for more information.</td>
</tr>
<tr>
<td><img src="image" alt="Help Icon" /></td>
<td>Help</td>
<td>Access on-line Help topics.</td>
<td><img src="image" alt="Search Phone Icon" /></td>
<td>Search Phone</td>
<td>Search contacts, data, and other information on the MC9500-K. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td><img src="image" alt="Wireless Companion Folder Icon" /></td>
<td>Wireless Companion Folder</td>
<td>Open the Wireless Companion folder.</td>
<td><img src="image" alt="BT Information Icon" /></td>
<td>BT Information</td>
<td>Display information about the Bluetooth radio and generate a Bluetooth address bar code.</td>
</tr>
<tr>
<td><img src="image" alt="AirBEAM Client Icon" /></td>
<td>AirBEAM Client</td>
<td>Allows specially designed software packages to be transferred between a host server and the MC9500-K. Refer to the <em>MC9500-K Integrator Guide</em> for more information.</td>
<td><img src="image" alt="BTScanner CtlPanel Icon" /></td>
<td>BTScanner CtlPanel</td>
<td>Set com port to use with a Bluetooth scanner.</td>
</tr>
<tr>
<td><img src="image" alt="Modern Link Icon" /></td>
<td>Modern Link</td>
<td>Enables the MC9500-K to be used as a modem.</td>
<td><img src="image" alt="DEMO Icon" /></td>
<td>DEMO</td>
<td>Install Zebra MAX demos onto the MC9500-K.</td>
</tr>
</tbody>
</table>
### Table D-4  Programs on the Start Screen

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="MSP Agent" /></td>
<td>MSP Agent</td>
<td>Interacts with MSP agents to collect monitoring and asset information to enable the configuration, provisioning, monitoring and troubleshooting of the MC9500-K. Refer to the <em>MC9500-K Integrator Guide</em> for more information.</td>
<td><img src="image" alt="Remote Desktop Mobile" /></td>
<td>Remote Desktop Mobile</td>
<td>Log onto Windows NT server type computers and use all of the programs that are available on that computer from the MC9500-K.</td>
</tr>
<tr>
<td><img src="image" alt="Rapid Deployment Client" /></td>
<td>Rapid Deployment Client</td>
<td>Facilitates software downloads from a Mobility Services Platform Console FTP server to the MC9500-K. Refer to the <em>MC9500-K Integrator Guide</em> for more information.</td>
<td><img src="image" alt="SIM Toolkit" /></td>
<td>SIM Toolkit</td>
<td>Manage the contacts that are stored on your SIM card. Copy SIM contents to Contacts on the MC9500-K.</td>
</tr>
<tr>
<td><img src="image" alt="SMS Staging" /></td>
<td>SMS Staging</td>
<td>Intercepts SMS Staging messages and reassembles them into the original Staging Profile.</td>
<td><img src="image" alt="BTExplorer" /></td>
<td>BTExplorer</td>
<td>Manages StoneStreet One Bluetooth connections. Refer to the <em>MC9500-K Series Mobile Computer Integrator Guide</em> for more information. Appears only if the StoneStreet One Bluetooth stack is enabled.</td>
</tr>
</tbody>
</table>

### Table D-5  Setting Applications

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Clock &amp; Alarms" /></td>
<td>Clock &amp; Alarms</td>
<td>Set the device clock to the date and time of your locale. Alarms can also be set at specified days and times of a week.</td>
<td><img src="image" alt="Lock" /></td>
<td>Lock</td>
<td>Set a password for the MC9500-K.</td>
</tr>
<tr>
<td><img src="image" alt="Home" /></td>
<td>Home</td>
<td>Customize the appearance of the Home screen and the information to display on it.</td>
<td><img src="image" alt="Sounds &amp; Notifications" /></td>
<td>Sounds &amp; Notifications</td>
<td>Enable sounds for events, notifications, and more, and set the type of notification for different events.</td>
</tr>
<tr>
<td><img src="image" alt="Personal Folder" /></td>
<td>Personal Folder</td>
<td>Contains personal setting applications.</td>
<td><img src="image" alt="Connections Folder" /></td>
<td>Connections Folder</td>
<td>Contains connection setting applications.</td>
</tr>
</tbody>
</table>
### Table D-5 Setting Applications (Continued)

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![System Folder Icon]</td>
<td>System Folder</td>
<td>Contains system setting applications.</td>
<td>![Microsoft My Phone Icon]</td>
<td>Microsoft My Phone</td>
<td>Synchronizes the phone’s contacts, calendar, tasks, text messages, music, photos, videos and other documents with your My Phone account at <a href="http://www.microsoft.com">www.microsoft.com</a>.</td>
</tr>
<tr>
<td>![Beam Icon]</td>
<td>Beam</td>
<td>Set the MC9500-K to receive incoming IrDA beams.</td>
<td>![Connections Icon]</td>
<td>Connections</td>
<td>Set up one or more types of modem connections for your device, such as phone dial-up, GPRS, Bluetooth, and more, so that your device can connect to the Internet or a private local network.</td>
</tr>
<tr>
<td>![Bluetooth Icon]</td>
<td>Bluetooth</td>
<td>Open the Bluetooth application, set the MC9500-K to visible mode and scan for other Bluetooth devices in the area.</td>
<td>![Domain Enroll Icon]</td>
<td>Domain Enroll</td>
<td>Make your device an AD domain member for device management and security. Refer to the Microsoft Applications for Windows Mobile 6 User Guide for more information.</td>
</tr>
<tr>
<td>![Wi-Fi Icon]</td>
<td>Wi-Fi</td>
<td>Setup wireless network connection and customize settings.</td>
<td>![USB to PC Icon]</td>
<td>USB to PC</td>
<td>Enables or disables the enhanced network connectivity.</td>
</tr>
<tr>
<td>![Wireless Manager Icon]</td>
<td>Wireless Manager</td>
<td>Enables or disables the MC9500-K’s wireless radios and customizes Wi-Fi, Bluetooth and Phone settings.</td>
<td>![Personal Folder Icon]</td>
<td>Personal Folder</td>
<td>Assign a program to a button.</td>
</tr>
<tr>
<td>![Owner Information Icon]</td>
<td>Owner Information</td>
<td>Enter personal information on the MC9500-K.</td>
<td>![System Folder Icon]</td>
<td>System Folder</td>
<td>View basic information such as the Windows Mobile® version and type of processor used on the MC9500-K.</td>
</tr>
<tr>
<td>![About Icon]</td>
<td>About</td>
<td>View basic information such as the Windows Mobile® version and type of processor used on the MC9500-K.</td>
<td>![Certificates Icon]</td>
<td>Certificates</td>
<td>See information about certificates installed on the MC9500-K.</td>
</tr>
</tbody>
</table>
Table D-5  Setting Applications (Continued)

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Backlight &amp; Keylight" /></td>
<td>Backlight &amp; Keylight</td>
<td>Set backlight and keylight settings.</td>
<td><img src="image" alt="Customer Feedback" /></td>
<td>Customer Feedback</td>
<td>Submit feedback on the Windows Mobile 6 software.</td>
</tr>
<tr>
<td><img src="image" alt="Error Reporting" /></td>
<td>Error Reporting</td>
<td>Enable or disable the Microsoft's error reporting function.</td>
<td><img src="image" alt="Encryption" /></td>
<td>Encryption</td>
<td>Allow files on a storage card to be encrypted. Encrypted files are readable only on your device.</td>
</tr>
<tr>
<td><img src="image" alt="External GPS" /></td>
<td>External GPS</td>
<td>Set the appropriate GPS communication ports, if required. Referto <strong>MC9500-K GPS Setup on page 6-1</strong>.</td>
<td><img src="image" alt="HAC Settings" /></td>
<td>HAC Settings</td>
<td>Control the phone’s HAC feature.</td>
</tr>
<tr>
<td><img src="image" alt="GPS Setup" /></td>
<td>GPS Setup</td>
<td>View GPS SUPL information.</td>
<td><img src="image" alt="IST Settings" /></td>
<td>IST Settings</td>
<td>Set the appropriate setting for configuring the device’s interactive Sensor Technology.</td>
</tr>
<tr>
<td><img src="image" alt="Managed Programs" /></td>
<td>Managed Programs</td>
<td>Displays the programs that were installed on the MC9500-K using Mobile Device Manager.</td>
<td><img src="image" alt="Keylight" /></td>
<td>Keylight</td>
<td>Set the keypad backlight time-out.</td>
</tr>
<tr>
<td><img src="image" alt="Memory" /></td>
<td>Memory</td>
<td>Check the device memory allocation status and memory card information and stop currently running programs.</td>
<td><img src="image" alt="Power" /></td>
<td>Power</td>
<td>Check battery power and set the time-out for turning off the display to conserve battery power.</td>
</tr>
<tr>
<td><img src="image" alt="Phone Info" /></td>
<td>Phone Info</td>
<td>View phone information.</td>
<td><img src="image" alt="Regional Settings" /></td>
<td>Regional Settings</td>
<td>Set the regional configuration to use, including the format for displaying numbers, currency, date, and time on the MC9500-K.</td>
</tr>
<tr>
<td><img src="image" alt="Screen" /></td>
<td>Screen</td>
<td>Change the screen orientation, re-calibrate the screen, and change the screen text size.</td>
<td><img src="image" alt="Remove Programs" /></td>
<td>Remove Programs</td>
<td>Remove programs that you installed on the MC9500-K.</td>
</tr>
<tr>
<td><img src="image" alt="System Info" /></td>
<td>System Info</td>
<td>Displays the MC9500-K’s software and hardware information.</td>
<td><img src="image" alt="USBConfig" /></td>
<td>USBConfig</td>
<td>Configure the MC9500-K USB port.</td>
</tr>
<tr>
<td><img src="image" alt="Task Manager" /></td>
<td>Task Manager</td>
<td>Stop running programs.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Speaker Icon

You can adjust the system volume using the Speaker icon.

1. Tap the Status Bar and then tap the Speaker icon. The Volume dialog box appears.

![Figure D-10 Volume Dialog Box](image)

2. Tap and move the slide bar to adjust the volume.

3. Select the On or Off radio button to turn the volume on or off.

**NOTE** Use can also adjust the system volume using the Sounds & Notifications window or by using the keypad.

Battery Icons

The Main Battery icon appears in the Title Bar when the Today screen is visible. The icon indicates the battery power level.

![Figure D-11 Battery Icon on the Title Bar](image)

Connectivity Icon

The Connectivity icon indicates the communication status of the terminal when it's connecting to the internet or host computer.
Locking the MC9500-K

You can lock the MC9500-K by disabling key presses and screen tap or by requiring a password or finger swipe. There are two types of locking features available; the standard Microsoft lock and the Zebra lock.

✅ **NOTE** You can make emergency calls even when the MC9500-K is locked.

**Microsoft Locking**

Locking the MC9500-K turns off keyboard and touch screen functionality. This is helpful when the MC9500-K is turned on and you want to prevent accidental key presses.

To lock the device, tap > .

The lock screen appears.

 Drag  to either the right or left side of the screen.

If a password is set up, enter the password and then tap  to unlock and display the Home screen, tap  to unlock and display the Contacts window, tap  to unlock and display the Messaging window.
Password Locking

Use the Password window to set a password to disable unauthorized access to the MC9500-K.

1. Tap > Settings > Lock > Password.

2. Select Prompt if device unused for check box to enable password protection.

3. From the drop-down list, select a time value for the protection to take affect after non-use.

4. From the Password type: drop-down list, select either Simple PIN or Strong alphanumeric.

5. For a simple password, enter a four-digit password in the Password field.
   For a stronger password:
   a. Enter a seven character password in the Password: field. A strong password must contain at least seven characters and contain at least three of the following: uppercase and lowercase letters, numerals, and punctuation.

   NOTE: If the device is configured to connect to a network, use a strong (difficult to figure out) password to help protect network security. Password cracking tools continue to improve and the computers used to crack passwords are more powerful than ever.
b. Re-enter the password in the **Confirm** field.

6. Tap **OK**.

7. In the horizontal scroll, select **Hint**. Enter a hint to remember the password if you forget it.

8. Tap **OK**.

9. In the text box, enter a hint for a password reminder.

10. Tap **OK**.

When the MC9500-K is not used for a period of time and the user tries to access the device, the Lock window appears.

![Lock Window](image)

**Figure D-16**  *Lock Window*

1. Slide the Lock button to the left or right.

2. Enter the password to un-lock the device.

![Enter Password Window](image)

**Figure D-17**  *Enter Password Window*

3. Tap the **Unlock** icon.
Using the RS507 Hands-free Imager

An RS507 Hands-free Imager can be used with the MC9500-K to capture bar code data.

To set up the RS507:

1. Tap Start > Programs > BTScannerCtlPanel icon.
2. If required, select the BT Scanner checkbox and then select the appropriate Com port from the drop-down list.
3. Tap Save and Exit.
4. Tap Start > Programs > BD Address icon. A bar code displays.
5. Point the RS507 to the bar code. The RS507 reads the bar code and begins pairing with the MC55.

Refer to the RS507 Hands-free Imager Product Reference Guide for more information.

Removing the Battery

The OEM version 01.19.11 and higher provides an application that assists when suspending the MC9500-K or when removing the battery.

Battery Removal

To remove the battery:

1. If the MC9500-K is in suspend mode, press the red Power button to wake the device.
2. Press the red Power button to suspend the MC9500-K. The Power Key Action screen appears.

![PowerKey Action Window](image)

3. Tap Safe Battery Swap icon.
4. Wait for the red decode LEDs to turn on and then turn off.
5. Remove the battery.
Suspend Mode

To place the MC9500-K in suspend mode:

1. Press the red Power button to suspend the MC9500-K. The Power Key Action screen appears.

![PowerKey Action Window](image)

**Figure D-19**  PowerKey Action Window

2. Tap Suspend icon.

3. The MC9500-K goes into suspend mode.

---

Assisted GPS

GPS can be used in stand-alone or Assisted GPS (A-GPS) modes. A Stand-alone GPS receiver downloads data from GPS satellites. It can take several minutes to get a fix. By using GPS Location servers, A-GPS dramatically improves the performance of the Time To First Fix (TTFF) of GPS receivers by providing them with data that they would ordinarily have to download from the GPS satellites and other aiding data that helps the acquisition. With the A-GPS data, GPS receivers can operate faster and more reliably.

A-GPS follows the Secure User Plane Location (SUPL) protocol which allows the MC9500-K to communicate with a location server.

To configure SUPL on the MC9500-K:

1. Tap Start > Settings > System > GPS Setup icon.
2. Select **Enable SET Initiated SUPL on Opening** to enable the MC9500-K to initiate SUPL upon opening the GPS port.

3. Select **Enable Network Initiated SUPL** to enable the network to initiate SUPL.

4. Select **Generate Server IP from IMSI** to automatically generate the server IP address from the IMSI (on GSM WAN devices only) or select **Using Motorola Server** to use the Motorola SUPL server.

5. Enter the SUPL Server IP address in the **Server IP** field. The server IP address is not required when generating the server IP address from the IMSI or when using the Motorola server.

6. Enter the SUPL Server port number in the **Port** field. The port number is not required when using the Motorola server.

7. Select **Secure Connection** to enable the TLS connection between the MC9500-K and the server. This option is not available when using the Motorola server.

8. **User ID type** is to choose which ID type to use during the SUPL session. This option is not available when using the Motorola server.

Use the **MISC** tab to enable Smart Re-aiding and Timing Control on Opening. These options are only available when **Enable SET Initiated SUPL on Opening** is enabled on the **SUPL Setup** tab.

Figure D-20  **SUPL Setup Tab**

Figure D-21  **MISC Tab**
**Smart Re-Aiding** causes the MC9500-K to reconnect to the SUPL server and download new A-GPS data if there are satellites in view and the number of satellites in use fall below the **SVLimit** value and the length of time passed since the last SUPL session is more than the value set in the **Interval** field.

**Timing Control on Opening** determines whether a SUPL session is established when the GPS port is opened. If the length of time passed since the last successful SUPL session is less than the set interval, a SUPL session is not established when the GPS port is opened.

Tap the **Factory Reset** button to perform a factory reset on the GPS chip.
A

API. An interface by means of which one software component communicates with or controls another. Usually used to refer to services provided by one software component to another, usually via software interrupts or function calls.

Aperture. The opening in an optical system defined by a lens or baffle that establishes the field of view.

Application Programming Interface. See API.

ANSI Terminal. A display terminal that follows commands in the ANSI standard terminal language. For example, it uses escape sequences to control the cursor, clear the screen and set colors. Communications programs support the ANSI terminal mode and often default to this terminal emulation for dial-up connections to online services.

ASCII. American Standard Code for Information Interchange. A 7 bit-plus-parity code representing 128 letters, numerals, punctuation marks and control characters. It is a standard data transmission code in the U.S.

Autodiscrimination. The ability of an interface controller to determine the code type of a scanned bar code. After this determination is made, the information content is decoded.

B

Bar. The dark element in a printed bar code symbol.

Bar Code. A pattern of variable-width bars and spaces which represents numeric or alphanumeric data in machine-readable form. The general format of a bar code symbol consists of a leading margin, start character, data or message character, check character (if any), stop character, and trailing margin. Within this framework, each recognizable symbology uses its own unique format. See Symbology.

Bar Code Density. The number of characters represented per unit of measurement (e.g., characters per inch).

Bar Height. The dimension of a bar measured perpendicular to the bar width.
Bar Width. Thickness of a bar measured from the edge closest to the symbol start character to the trailing edge of the same bar.

BIOS. Basic Input Output System. A collection of ROM-based code with a standard API used to interface with standard PC hardware.

Bit. Binary digit. One bit is the basic unit of binary information. Generally, eight consecutive bits compose one byte of data. The pattern of 0 and 1 values within the byte determines its meaning.

Bits per Second (bps). Bits transmitted or received.

BOOTP. A protocol for remote booting of diskless devices. Assigns an IP address to a machine and may specify a boot file. The client sends a bootp request as a broadcast to the bootp server port (67) and the bootp server responds using the bootp client port (68). The bootp server must have a table of all devices, associated MAC addresses and IP addresses.

boot or boot-up. The process a computer goes through when it starts. During boot-up, the computer can run self-diagnostic tests and configure hardware and software.

bps. See Bits Per Second.

Byte. On an addressable boundary, eight adjacent binary digits (0 and 1) combined in a pattern to represent a specific character or numeric value. Bits are numbered from the right, 0 through 7, with bit 0 the low-order bit. One byte in memory is used to store one ASCII character.

CDRH. Center for Devices and Radiological Health. A federal agency responsible for regulating laser product safety. This agency specifies various laser operation classes based on power output during operation.

CDRH Class 1. This is the lowest power CDRH laser classification. This class is considered intrinsically safe, even if all laser output were directed into the eye's pupil. There are no special operating procedures for this class.

CDRH Class 2. No additional software mechanisms are needed to conform to this limit. Laser operation in this class poses no danger for unintentional direct human exposure.

Character. A pattern of bars and spaces which either directly represents data or indicates a control function, such as a number, letter, punctuation mark, or communications control contained in a message.

Character Set. Those characters available for encoding in a particular bar code symbology.

Check Digit. A digit used to verify a correct symbol decode. The scanner inserts the decoded data into an arithmetic formula and checks that the resulting number matches the encoded check digit. Check digits are required for UPC but are optional for other symbologies. Using check digits decreases the chance of substitution errors when a symbol is decoded.

Codabar. A discrete self-checking code with a character set consisting of digits 0 to 9 and six additional characters: (“-“,”$”, “:”, “/”, “,”, “+”).

Code 128. A high density symbology which allows the controller to encode all 128 ASCII characters without adding extra symbol elements.
Code 3 of 9 (Code 39). A versatile and widely used alphanumeric bar code symbology with a set of 43 character types, including all uppercase letters, numerals from 0 to 9 and 7 special characters ("-", ".", "/", "+", "%", "$" and space). The code name is derived from the fact that 3 of 9 elements representing a character are wide, while the remaining 6 are narrow.

Code 93. An industrial symbology compatible with Code 39 but offering a full character ASCII set and a higher coding density than Code 39.

Code Length. Number of data characters in a bar code between the start and stop characters, not including those characters.

Cold Boot. A cold boot restarts the mobile computer and erases all user stored records and entries.

COM port. Communication port; ports are identified by number, e.g., COM1, COM2.

Continuous Code. A bar code or symbol in which all spaces within the symbol are parts of characters. There are no intercharacter gaps in a continuous code. The absence of gaps allows for greater information density.

Cradle. A cradle is used for charging the terminal battery and for communicating with a host computer, and provides a storage place for the terminal when not in use.

Data Communications Equipment (DCE). A device (such as a modem) which is designed to attach directly to a DTE (Data Terminal Equipment) device.

DCE. See Data Communications Equipment.

DCP. See Device Configuration Package.

Dead Zone. An area within a scanner's field of view, in which specular reflection may prevent a successful decode.

Decode. To recognize a bar code symbology (e.g., UPC/EAN) and then analyze the content of the specific bar code scanned.

Decode Algorithm. A decoding scheme that converts pulse widths into data representation of the letters or numbers encoded within a bar code symbol.

Decryption. Decryption is the decoding and unscrambling of received encrypted data. Also see, Encryption and Key.

Depth of Field. The range between minimum and maximum distances at which a scanner can read a symbol with a certain minimum element width.

Device Configuration Package. The Device Configuration Package provides the Product Reference Guide (PRG), flash partitions, Terminal Configuration Manager (TCM) and the associated TCM scripts. With this package hex images that represent flash partitions can be created and downloaded to the mobile computer.

Discrete Code. A bar code or symbol in which the spaces between characters (intercharacter gaps) are not part of the code.
Discrete 2 of 5. A binary bar code symbology representing each character by a group of five bars, two of which are wide. The location of wide bars in the group determines which character is encoded; spaces are insignificant. Only numeric characters (0 to 9) and START/STOP characters may be encoded.

DRAM. Dynamic random access memory.

DTE. See Data Terminal Equipment.

---

E

EAN. European Article Number. This European/International version of the UPC provides its own coding format and symbology standards. Element dimensions are specified metrically. EAN is used primarily in retail.

Element. Generic term for a bar or space.

Encoded Area. Total linear dimension occupied by all characters of a code pattern, including start/stop characters and data.

ENQ (RS-232). ENQ software handshaking is also supported for the data sent to the host.

ESD. Electro-Static Discharge

---

F

File Transfer Protocol (FTP). A TCP/IP application protocol governing file transfer via network or telephone lines. See TCP/IP.

Flash Disk. Additional non-volatile memory for storing application and configuration files.

Flash Memory. Flash memory is nonvolatile, semi-permanent storage that can be electronically erased in the circuit and reprogrammed. Series 9000 mobile computers use Flash memory to store the operating system (ROM-DOS), the terminal emulators, and the Citrix ICA Client for DOS.

FTP. See File Transfer Protocol.

---

H

Hard Reset. See Cold Boot.

Hz. Hertz; A unit of frequency equal to one cycle per second.

Host Computer. A computer that serves other terminals in a network, providing such services as computation, database access, supervisory programs and network control.
IDE. Intelligent drive electronics. Refers to the solid-state hard drive type.

IEC. International Electrotechnical Commission. This international agency regulates laser safety by specifying various laser operation classes based on power output during operation.

IEC (825) Class 1. This is the lowest power IEC laser classification. Conformity is ensured through a software restriction of 120 seconds of laser operation within any 1000 second window and an automatic laser shutdown if the scanner's oscillating mirror fails.

IEEE Address. See MAC Address.

Input/Output Ports. I/O ports are primarily dedicated to passing information into or out of the mobile computer's memory. Series 9500 mobile computers include a USB port.

Interleaved 2 of 5. A binary bar code symbology representing character pairs in groups of five bars and five interleaved spaces. Interleaving provides for greater information density. The location of wide elements (bar/spaces) within each group determines which characters are encoded. This continuous code type uses no intercharacter spaces. Only numeric (0 to 9) and START/STOP characters may be encoded.

Intercharacter Gap. The space between two adjacent bar code characters in a discrete code.

Interleaved Bar Code. A bar code in which characters are paired together, using bars to represent the first character and the intervening spaces to represent the second.

Internet Protocol Address. See IP.

IOCTL. Input/Output Control.

I/O Ports. interface The connection between two devices, defined by common physical characteristics, signal characteristics, and signal meanings. Types of interfaces include RS-232 and PCMCIA.

IP. Internet Protocol. The IP part of the TCP/IP communications protocol. IP implements the network layer (layer 3) of the protocol, which contains a network address and is used to route a message to a different network or subnetwork. IP accepts “packets” from the layer 4 transport protocol (TCP or UDP), adds its own header to it and delivers a “datagram” to the layer 2 data link protocol. It may also break the packet into fragments to support the maximum transmission unit (MTU) of the network.

IP Address. (Internet Protocol address) The address of a computer attached to an IP network. Every client and server station must have a unique IP address. A 32-bit address used by a computer on an IP network. Client workstations have either a permanent address or one that is dynamically assigned to them each session. IP addresses are written as four sets of numbers separated by periods; for example, 204.171.64.2.

IPX/SPX. Internet Package Exchange/Sequential Packet Exchange. A communications protocol for Novell. IPX is Novell’s Layer 3 protocol, similar to XNS and IP, and used in NetWare networks. SPX is Novell’s version of the Xerox SPP protocol.

IS-95. Interim Standard 95. The EIA/TIA standard that governs the operation of CDMA cellular service. Versions include IS-95A and IS-95B. See CDMA.
K

Key. A key is the specific code used by the algorithm to encrypt or decrypt the data. Also see, Encryption and Decrypting.

L

LASER. Light Amplification by Stimulated Emission of Radiation. The laser is an intense light source. Light from a laser is all the same frequency, unlike the output of an incandescent bulb. Laser light is typically coherent and has a high energy density.

Laser Diode. A semiconductor type of laser connected to a power source to generate a laser beam. This laser type is a compact source of coherent light.

laser scanner. A type of bar code reader that uses a beam of laser light.

LCD. See Liquid Crystal Display.

LED Indicator. A semiconductor diode (LED - Light Emitting Diode) used as an indicator, often in digital displays. The semiconductor uses applied voltage to produce light of a certain frequency determined by the semiconductor's particular chemical composition.

Light Emitting Diode. See LED.

Liquid Crystal Display (LCD). A display that uses liquid crystal sealed between two glass plates. The crystals are excited by precise electrical charges, causing them to reflect light outside according to their bias. They use little electricity and react relatively quickly. They require external light to reflect their information to the user.

M

MC. Mobile Computer.

MDN. Mobile Directory Number. The directory listing telephone number that is dialed (generally using POTS) to reach a mobile unit. The MDN is usually associated with a MIN in a cellular telephone -- in the US and Canada, the MDN and MIN are the same value for voice cellular users. International roaming considerations often result in the MDN being different from the MIN.

MIL. 1 mil = 1 thousandth of an inch.

MIN. Mobile Identification Number. The unique account number associated with a cellular device. It is broadcast by the cellular device when accessing the cellular system.

Misread (Misdecode). A condition which occurs when the data output of a reader or interface controller does not agree with the data encoded within a bar code symbol.

Mobile Computer. In this text, mobile computer refers to the Zebra Series 9000 wireless portable computer. It can be set up to run as a stand-alone device, or it can be set up to communicate with a network, using wireless radio technology.
N

Nominal. The exact (or ideal) intended value for a specified parameter. Tolerances are specified as positive and negative deviations from this value.

Nominal Size. Standard size for a bar code symbol. Most UPC/EAN codes are used over a range of magnifications (e.g., from 0.80 to 2.00 of nominal).

NVM. Non-Volatile Memory.

O

ODI. See Open Data-Link Interface.

Open Data-Link Interface (ODI). Novell’s driver specification for an interface between network hardware and higher-level protocols. It supports multiple protocols on a single NIC (Network Interface Controller). It is capable of understanding and translating any network information or request sent by any other ODI-compatible protocol into something a NetWare client can understand and process.

Open System Authentication. Open System authentication is a null authentication algorithm.

P

PAN. Personal area network. Using Bluetooth wireless technology, PANs enable devices to communicate wirelessly. Generally, a wireless PAN consists of a dynamic group of less than 255 devices that communicate within about a 33-foot range. Only devices within this limited area typically participate in the network.

Parameter. A variable that can have different values assigned to it.

PC Card. A plug-in expansion card for laptop computers and other devices, also called a PCMCIA card. PC Cards are 85.6mm long x 54 mm wide, and have a 68 pin connector. There are several different kinds:

Type I; 3.3 mm high; use - RAM or Flash RAM

Type II; 5 mm high; use - modems, LAN adaptors

Type III; 10.5 high; use - Hard Disks


Percent Decode. The average probability that a single scan of a bar code would result in a successful decode. In a well-designed bar code scanning system, that probability should approach near 100%.

PING. (Packet Internet Groper) An Internet utility used to determine whether a particular IP address is online. It is used to test and debug a network by sending out a packet and waiting for a response.
Print Contrast Signal (PCS). Measurement of the contrast (brightness difference) between the bars and spaces of a symbol. A minimum PCS value is needed for a bar code symbol to be scannable. PCS = (RL - RD) / RL, where RL is the reflectance factor of the background and RD the reflectance factor of the dark bars.

Programming Mode. The state in which a scanner is configured for parameter values. See Scanning Mode.

Q

Quiet Zone. A clear space, containing no dark marks, which precedes the start character of a bar code symbol and follows the stop character.

QWERTY. A standard keyboard commonly used on North American and some European PC keyboards. “QWERTY” refers to the arrangement of keys on the left side of the third row of keys.

R

RAM. Random Access Memory. Data in RAM can be accessed in random order, and quickly written and read.

Reflectance. Amount of light returned from an illuminated surface.

Resolution. The narrowest element dimension which is distinguished by a particular reading device or printed with a particular device or method.

RF. Radio Frequency.

ROM. Read-Only Memory. Data stored in ROM cannot be changed or removed.

Router. A device that connects networks and supports the required protocols for packet filtering. Routers are typically used to extend the range of cabling and to organize the topology of a network into subnets. See Subnet.

RS-232. An Electronic Industries Association (EIA) standard that defines the connector, connector pins, and signals used to transfer data serially from one device to another.

S

Scan Area. Area intended to contain a symbol.

Scanner. An electronic device used to scan bar code symbols and produce a digitized pattern that corresponds to the bars and spaces of the symbol. Its three main components are: 1) Light source (laser or photoelectric cell) - illuminates a bar code.; 2) Photodetector - registers the difference in reflected light (more light reflected from spaces); 3) Signal conditioning circuit - transforms optical detector output into a digitized bar pattern.

Scanning Mode. The scanner is energized, programmed and ready to read a bar code.

Scanning Sequence. A method of programming or configuring parameters for a bar code reading system by scanning bar code menus.
SDK. Software Development Kit

Self-Checking Code. A symbology that uses a checking algorithm to detect encoding errors within the characters of a bar code symbol.

Shared Key. Shared Key authentication is an algorithm where both the AP and the MU share an authentication key.

SHIP. Symbol Host Interface Program.

SID. System Identification code. An identifier issued by the FCC for each market. It is also broadcast by the cellular carriers to allow cellular devices to distinguish between the home and roaming service.

SMDK. Symbol Mobility Developer's Kit.

Soft Reset. See Warm Boot.

Space. The lighter element of a bar code formed by the background between bars.

Specular Reflection. The mirror-like direct reflection of light from a surface, which can cause difficulty decoding a bar code.

Start/Stop Character. A pattern of bars and spaces that provides the scanner with start and stop reading instructions and scanning direction. The start and stop characters are normally to the left and right margins of a horizontal code.

STEP. Symbol Terminal Enabler Program.

Subnet. A subset of nodes on a network that are serviced by the same router. See Router.

Subnet Mask. A 32-bit number used to separate the network and host sections of an IP address. A custom subnet mask subdivides an IP network into smaller subsections. The mask is a binary pattern that is matched up with the IP address to turn part of the host ID address field into a field for subnets. Default is often 255.255.255.0.

Substrate. A foundation material on which a substance or image is placed.

SVTP. Symbol Virtual Terminal Program.

Symbol. A scannable unit that encodes data within the conventions of a certain symbology, usually including start/stop characters, quiet zones, data characters and check characters.

Symbol Aspect Ratio. The ratio of symbol height to symbol width.

Symbol Height. The distance between the outside edges of the quiet zones of the first row and the last row.

Symbol Length. Length of symbol measured from the beginning of the quiet zone (margin) adjacent to the start character to the end of the quiet zone (margin) adjacent to a stop character.

Symbology. The structural rules and conventions for representing data within a particular bar code type (e.g. UPC/EAN, Code 39, PDF417, etc.).
**T**

**TCP/IP.** (Transmission Control Protocol/Internet Protocol) A communications protocol used to internetwork dissimilar systems. This standard is the protocol of the Internet and has become the global standard for communications. TCP provides transport functions, which ensures that the total amount of bytes sent is received correctly at the other end. UDP is an alternate transport that does not guarantee delivery. It is widely used for real-time voice and video transmissions where erroneous packets are not retransmitted. IP provides the routing mechanism. TCP/IP is a routable protocol, which means that all messages contain not only the address of the destination station, but the address of a destination network. This allows TCP/IP messages to be sent to multiple networks within an organization or around the world, hence its use in the worldwide Internet. Every client and server in a TCP/IP network requires an IP address, which is either permanently assigned or dynamically assigned at startup.

**Telnet.** A terminal emulation protocol commonly used on the Internet and TCP/IP-based networks. It allows a user at a terminal or computer to log onto a remote device and run a program.

**Terminal.** See **Mobile Computer**.

**Terminal Emulation.** A “terminal emulation” emulates a character-based mainframe session on a remote non-mainframe terminal, including all display features, commands and function keys. The VC5000 Series supports Terminal Emulations in 3270, 5250 and VT220.

**Terminate and Stay Resident (TSR).** A program under DOS that ends its foreground execution to remain resident in memory to service hardware/software interrupts, providing background operation. It remains in memory and may provide services on behalf of other DOS programs.

**TFTP.** (Trivial File Transfer Protocol) A version of the TCP/IP FTP (File Transfer Protocol) protocol that has no directory or password capability. It is the protocol used for upgrading firmware, downloading software and remote booting of diskless devices.

**Tolerance.** Allowable deviation from the nominal bar or space width.

**Transmission Control Protocol/Internet Protocol.** See **TCP/IP**.

**Trivial File Transfer Protocol.** See **TFTP**.

**TSR.** See **Terminate and Stay Resident**.

**U**

**UDP.** User Datagram Protocol. A protocol within the IP protocol suite that is used in place of TCP when a reliable delivery is not required. For example, UDP is used for real-time audio and video traffic where lost packets are simply ignored, because there is no time to retransmit. If UDP is used and a reliable delivery is required, packet sequence checking and error notification must be written into the applications.

**UPC.** Universal Product Code. A relatively complex numeric symbology. Each character consists of two bars and two spaces, each of which is any of four widths. The standard symbology for retail food packages in the United States.
V

Visible Laser Diode (VLD). A solid state device which produces visible laser light.

W

Warm Boot. A warm boot restarts the mobile computer by closing all running programs. All data that is not saved to flash memory is lost.
Index

Numerics
1-D bar codes ........................................... 4-1
2-D bar codes ........................................... 4-5

A
accessories
  auto charge cable ............................... 8-2
  cables .............................................. 8-16
  communication/charge cables
    battery charging .............................. 8-17
    DEX cable ...................................... 8-2
    four bay charge only cradle ............ 8-1, 8-7
    four bay Ethernet cradle ............... 8-1, 8-9
    four slot spare battery charger .......... 8-1, 8-11
    holster ......................................... 8-2
    magnetic stripe reader .................... 8-14
    microSD ........................................... 1-3
    MSR .............................................. 8-14
    installation ..................................... 8-14
    magnetic stripe reading .................. 8-14
    SIM card ........................................... 1-5
    single bay USB cradle ..................... 8-1, 8-4
    spare battery .................................... 8-1
    specifications ................................... A-7
    universal wall mounting bracket, cradle .... 8-2
    vehicle cradle ................................... 8-12
Acoustic Echo Cancellation ....................... B-2
action button ....................................... 3-7
ActiveSync .......................................... D-10
  icon .............................................. 3-14, D-5
adaptive frequency hopping ................... 7-1
adjusting volume .................................. 3-20
AFH .................................................. 7-1
AirBEAM .............................................. D-10
alpha numeric keypad ............................ C-6
input modes .......................................... C-8
key descriptions .................................. C-7
alpha primary keypad ............................ C-2
input modes .......................................... C-4
key descriptions .................................. C-3
answering a call .................................. 5-10
assisted GPS .......................................... D-19
auto charge cable .................................. 8-2, 8-16

B
bar codes
  one dimensional ................................ 4-1
  two dimensional ................................ 4-5
battery
  charging .......................................... 1-7, 8-4, 8-6, 8-7, 8-9, 8-11, 8-12
  installing ........................................ 1-7
  removing .......................................... 1-9
battery chargers
  communication/charge cables .............. 8-17
  four slot ........................................ 8-11
battery charging ................................... 1-7
  communication/charge cables .............. 8-17
  using four bay charge only cradle ........ 8-7
  using four bay Ethernet cradle ........... 8-9
  using four slot spare battery charger ....... 8-11
  using single bay USB cradle ............... 8-4, 8-6
  using vehicle cradle ......................... 8-12
battery functionality ............................. 2-1
battery icon .......................................... 3-13, 3-21, D-7
battery status LED .................................. 1-8, 3-1
Bluetooth ............................................. 7-1
  adaptive frequency hopping .................. 7-1
  bonding ............................................ 7-34
deleting bonded device .......................... 7-35
security .............................................. 7-2
turning off .......................................... 7-6, 7-17
Index - 2 MC9500-K Mobile Computer User Guide

turning on ................................. 7-5, 7-17
bluetooth
  communicating icon ....................... D-5
disabled icon ............................... D-5
discovering devices ....................... 7-6, 7-18
enabled icon .................................. 3-14
turning on and off .......................... 7-5, 7-17
bonding
  Bluetooth .................................. 7-34
boot
cold ........................................... 3-3, 7-4
warm ........................................... 3-3, 7-4
bullets ........................................... xviii
buttons
  action ...................................... 3-7
  function ................................... 3-7
  power ....................................... 3-3, 3-7
  scan ........................................ 3-7
  up and down ................................ 3-7

C

cables .......................................... 8-16
  auto charge cable ......................... 8-2
  connecting ................................ 8-17
  DEX cable .................................. 8-2
calculator ..................................... D-9
calculator numeric keypad .................. C-10
  input modes ................................ C-12
  key descriptions ........................... C-11
calendar ....................................... D-9
calibrating the screen .................... 1-9
call history ................................... 5-12, 5-16
CDMA
data connection ............................ 5-30
charge only cradle ......................... 8-1
charging
  spare batteries ........................... 2-11, 8-11
  using four bay charge only cradle ..... 8-7
  using four bay Ethernet cradle ........ 8-9
  using four slot spare battery charger 8-11
  using single bay USB cradle .......... 8-4, 8-6
  using vehicle cradle .................... 8-12
charging error ................................ 1-8
charging indicators ...................... 3-1
charging temperature ..................... 1-9, 2-12, 8-6, 8-13
charging the battery
  vehicle battery charger .................. 8-13
cleaning ..................................... 9-1
clock & alarms ................................ D-11
cold boot ..................................... 3-3, 7-4
command bar .................................. 3-14
icons .......................................... 3-14, D-5, D-8
communication ................................ 8-16
  communication/charge cables .......... 8-16
  battery charging .......................... 8-17
  conference call ............................ 5-21, 5-23
  configuration .............................. xiv
  connectivity icon ......................... 3-12
  Contacts .................................. D-9
  contacts ................................. D-9
    creating a contact ...................... 5-7, 5-8
    deleting a contact ...................... 5-8
    editing a contact ....................... 5-7
    contacts application ................... 5-6
  conventions ................................
    notational ................................ xvii
  cradles
    four bay charge only ................... 8-1, 8-7
    four bay Ethernet ....................... 8-1, 8-9
    four slot spare battery charger ...... 8-11
    single bay USB .......................... 8-4
    vehicle .................................. 8-12
data capture ................................ xiv
  imager operational modes
    decode mode ................................ 4-6
    image capture mode ..................... 4-6
    pick list mode ........................... 4-6
  imaging .................................... 4-5
  laser scanning ............................ 4-1
  one dimensional bar codes .............. 4-1
  scan angle ................................ 4-2
  scan button ................................ 3-7
  scan range ................................ 4-1
  scanning ................................... 4-2, 4-6, 4-9
  two dimensional bar codes ............. 4-5
data connection ............................ 5-30
  decode distances
    imager ..................................... 4-9
    laser scanner ............................ 4-5
  decode LED ................................ 3-1
  decode ranges ............................. 4-8
  decode zone
    laser scanner 35° ........................ 4-3
    laser scanner 47° ........................ 4-4
  deleting Bluetooth bond ................ 7-35
  DEX cable .................................. 8-2
  disconnecting ............................. 5-29, 5-31
  display ................................... xiv

E
emergency calls .............................. 5-10
ESD ........................................... 1-3
Ethernet cradle 8-1, 8-9
Evolution Data-Optimized 5-1

F
file explorer D-10
four bay charge only cradle 8-7
charging 8-7
four bay Ethernet cradle 8-9
charging 8-9
link indicator 8-10
speed indicator 8-10
four slot spare battery charger .8-1, 8-11
charging 8-11
setup 8-11
function buttons 3-7

G
GPRS 5-28
data connection 5-28, 5-31
data disconnect 5-29, 5-31
GSM
GPRS data connection 5-28

H
HAC 5-5
handset B-2
hard reset 3-3, 7-4
headset 5-3, 5-4
hearing aid compatibility 5-5
High-Speed Downlink Packet Access 5-1
holster 8-2

I
icons
ActiveSync 3-14, D-5
battery 3-13, 3-21, D-7
bluetooth 3-14
bluetooth communicating D-5
bluetooth disabled D-5
bluetooth enabled D-5
connectivity 3-12
phone 3-13
speaker 3-13, 3-20
status 3-12, D-6
task tray 3-14, D-5, D-8
time and appointment 3-13
wireless applications D-5
wireless status 3-14, D-5
imager decode distances 4-9
imager. See data capture, imaging
imaging 4-5
information, service xviii
installing battery 1-7
installing microSD card 1-3
internet
disconnecting GPRS 5-29, 5-31
via GPRS 5-28
wireless connection 5-30
Internet Explorer Mobile D-9
internet sharing D-10
IrDA . D-12

K
key descriptions
alpha numeric keypad C-7
alpha primary keypad C-3
calculator numeric keypad C-11
telephony numeric keypad C-15

keypads xiv
alpha numeric C-6
alpha primary C-2
calculator numeric C-10
input modes C-4, C-8, C-12, C-16
key descriptions C-3, C-7, C-11, C-15
phone 5-1
special character key C-18
telephony numeric C-14
types 3-7, C-1

L
LEDs 3-1
battery status 3-2
charging 3-2
radio status 3-2
scan and decode 3-1, 4-2, 4-6, 4-10
lithium-ion battery 1-1
locking the MC9500-K keypad 3-4

M
magnetic stripe reader 8-14
installation 8-14
magnetic stripe reading 8-14
main battery charging 1-3
installing 1-3
maintenance 9-1
Media Player D-9
memory xiv
messaging D-9
microSD 1-3
microSD card 1-3, 1-10
installation ........................................ 1-3
removal ........................................... 1-10
MSP Agent ........................................ D-11
MSR .................................................. 8-14
installation ........................................ 8-14
magnetic stripe reading ...................... 8-14
muting a call ..................................... 5-12

N
navigation bar
icons ................................................ 3-12, D-6
notational conventions ......................... xvii
notes .................................................. D-9
notes application ................................ 5-12
notification icons .............................. 3-12

O
operating environment .......................... A-1
operating system ................................ xiv

P
passwords ......................................... 3-5, D-16
hint .................................................... 3-6
phone
answering a call .................................. 5-10
call history ........................................ 5-16
call swapping ..................................... 5-20
conference call ................................. 5-21, 5-23
contacts ............................................ 5-6
keypad .............................................. 5-1
muting a call ...................................... 5-12
speed dial
adding entry ...................................... 5-13
calling ............................................. 5-9
deleting entry .................................... 5-16
editing entry ..................................... 5-15
taking notes ...................................... 5-12
text messaging .................................... 5-24
three-way call ................................. 5-21, 5-23
using keypad ..................................... 5-6
phone icon ........................................ 3-13
pictures ........................................... D-9
power button .................................... 3-3, 3-7

R
radios ................................................ xiv
rapid deployment .............................. D-11
removing main battery ....................... 1-9
reset .................................................. 3-3
hard ................................................... 3-3, 7-4
soft .................................................... 3-3, 7-4
resume ............................................. 7-5
rigid holster ...................................... 8-2
S
scan button ...................................... 3-7
scanning
button ............................................ 3-7
imaging ............................................ 4-5
scanning with digital camera .............. 4-9
screen
calibration ...................................... 1-9
security
Bluetooth ......................................... 7-2
service information ........................... xviii
settings
about .............................................. D-12
beam ................................................ D-12
buttons ............................................ D-12
certificates ....................................... D-12
connections ...................................... D-12
customer feedback ........................... D-13
encryption ....................................... D-13
error reporting ................................ D-13
external GPS ...................................... D-13
keylight .......................................... D-13
lock .................................................. D-11
memory ........................................... D-13
owner information ............................ D-12
power .............................................. D-13
regional settings ............................... D-13
remove programs .............................. D-13
screen ............................................. D-13
sounds & notifications ....................... D-11
system info ...................................... D-13
USB to PC .......................................... D-12
Wi-Fi .............................................. D-12
wireless manager .............................. D-12
SIM card .......................................... 1-11
SIM Toolkit ....................................... D-11
single bay USB cradle ....................... 8-1, 8-4
charging ....................................... 8-4, 8-6
soft reset ........................................ 3-3, 7-4
spare battery ..................................... 8-1
charging ....................................... 2-11, 8-11
spare battery charger
charging ....................................... 8-11
setup .............................................. 8-11
speaker icon .................................... 3-13, 3-20
special character key ....................... C-18

Index - 4 MC9500-K Mobile Computer User Guide
speed dial ........................................ 5-9, 5-13
starting the MC9500-K ........................ 1-9
status icon ........................................ 3-12, D-6
  battery ........................................... 3-13, 3-21, D-7
  connectivity .................................... 3-12
  phone ............................................. 3-13
  speaker .......................................... 3-13, 3-20
  time and appointment ........................... 3-13
strap ................................................ 1-1
stylus .............................................. 1-1, 3-7
subscriber identification module ................. 1-5
suspend ............................................ 1-9, 7-4
synchronize with PC
  using Bluetooth ................................ 7-13

task tray icons .................................... 3-14, D-4
tasks ............................................... D-10
technical specifications ........................ A-1
  accessories ...................................... A-7
telephony numeric keypad ........................ C-14
  input modes .................................... C-16
  key descriptions ................................ C-15
temperature ....................................... A-2
  charging ......................................... 1-9, 2-12, 8-6, 8-13
three-way call .................................... 5-21, 5-23
time and appointment icon ........................ 3-13
Time To First Fix ................................ D-19
Today screen ...................................... 3-11
troubleshooting ................................... 9-6
turn off radios .................................... 2-13

universal wall mounting bracket, cradle .......... 8-2
unpacking .......................................... 1-1
up and down button ................................ 3-7
USB charging cable ................................ 8-16
USB client charge cable ........................... 8-16
using stylus ........................................ 3-7
using wired headset ............................... 5-3, 5-4

vehicle battery charger .......................... 8-13
vehicle cradle .................................... 8-12
videos ............................................. D-9
Voice Quality Manager ............................ B-1
VQM ................................................ B-1
disabling .......................................... B-4
  enabling ......................................... B-1

W
  wakeup conditions ................................ 3-3
  waking MC9500-K ................................ 3-3
  warm boot ....................................... 3-3, 7-4
  Windows Live ................................... D-9
  Windows Live Messenger ........................ D-9
  wireless headset ................................ 5-3, 5-4
  Wireless ......................................... 2-13, 5-2
  wireless internet ................................ 5-30
  Wireless Manager .............................. 2-13, 5-2
  wireless manager ................................ D-12
  wireless status ................................ 3-14, D-5
  WLAN 802.11a/b/g ............................... xiv
  WPAN Bluetooth ................................ xiv