MC67
MOBILE COMPUTER
INTEGRATOR GUIDE

MC67 MOBILE COMPUTER INTEGRATOR GUIDE

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Revision History

Changes to the original guide are listed below:

Change	Date	Description
-01 Rev A	11/30/12	Initial release.
-02 Rev A	8/30/13	Add MC67ND configuration.
-03 Rev A	7/15/14	Add support for Ortus display. Changes due to OEM version 03.46.36 (keylight registry settings, red LED during scanning disabled).
-04 Rev A	3/2015	Zebra Rebranding

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ABOUT THIS GUIDE

Introduction

This *Integrator Guide* provides information about setting up and configuring the MC67 and it's accessories.

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

Documentation Set

The documentation for the MC67 is divided into guides that provide information for specific user needs.

- *MC67 Quick Start Guide* - describes how to get the MC67 up and running.
- *MC67 User Guide* - describes how to use the MC67.
- *MC67 Integrator Guide* - describes how to set up the MC67 and it's accessories.
- *Enterprise Mobility Developer Kit (EMDK) Help File* - provides API information for writing applications.

Configurations

This guide covers the following configurations:

Configuration	Radios	Display	Memory	Data Capture Options	Operating System	Keypads
MC67NA	WLAN: 802.11 a/b/g/n WPAN: Bluetooth v2.1 EDR WWAN: GSM/UMTS GPS: Stand-alone GPS or A-GPS	3.5" VGA Color	512 MB RAM/2 GB Flash	2D imager or 2D imager and camera	Windows Embedded Handheld 6.5 Professional	Numeric, QWERTY, QWERTZ, AZERTY, PIM or DSD
MC67ND	WLAN: 802.11 a/b/g/n WPAN: Bluetooth v2.1 EDR WWAN: GSM/UMTS or 1XRTT/ CDMA GPS: Stand-alone GPS or A-GPS	3.5" VGA Color	512 MB RAM/2 GB Flash	2D imager or 2D imager and camera	Windows Embedded Handheld 6.5 Professional	Numeric, QWERTY, QWERTZ, AZERTY or DSD

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
- Fusion version
- Phone version.

AKU Version

To determine the Adaptation Kit Update (AKU) version:

Tap 🏁 > **Settings** > **System** > **About** > **Version**.

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 29102.5.3.12.13* indicates that the device is running AKU version *5.3.12.13*.

OEM Version

To determine the OEM software version:

Tap 🏁 > **Settings** > **System** > **System Info** > **System**.

Fusion Software

To determine the Fusion software version:

Tap **Status Bar** > **Wireless Companion** > **Wireless Status** > **Versions**.

Phone Software

To determine the Phone software version:

Press 📞 > ☰ > **Phone information**.

Chapter Descriptions

Topics covered in this guide are as follows:

- *Chapter 1, Getting Started* provides information on MC67 configurations and accessories, charging the battery, and resetting the device.

- *Chapter 2, Accessories* describes the accessories available for the MC67 and how to set up power connections and battery charging capabilities, where applicable.

- *Chapter 3, Synchronization* provides instructions on installing ActiveSync and setting up a partnership between the MC67 and a host computer.

- *Chapter 4, WAN GSM Configuration* explains how to configure the phone settings.

- *Chapter 6, Application Deployment* provides information for provisioning and deploying applications to the MC67.

- *Chapter 7, Maintenance & Troubleshooting* includes instructions on cleaning and storing the MC67, and provides troubleshooting solutions for potential problems during MC67 operation.

- *Appendix A, Technical Specifications* includes tables listing the technical specifications for the MC67 and its accessories.

- *Appendix B, Software* provides registry settings for configuring Bluetooth software and battery threshold settings.

Notational Conventions

The following conventions are used in this document:

- "mobile computer" refers to Zebra MC67 family of hand-held computers.

- *Italics* are used to highlight the following:
  - chapters and sections in this and related documents
  - dialog box, window, and screen names
  - drop-down list and list box names
  - check box and radio button names
  - icons on a screen.

- **Bold** text is used to highlight the following:
  - key names on a keypad
  - button names on a screen.

- Bullets (•) indicate:
    - action items
    - lists of alternatives
    - lists of required steps that are not necessarily sequential.
- Sequential lists (e.g., those that describe step-by-step procedures) appear as numbered lists.

Related Documents

- *MC67 Quick Start Guide*, p/n 72-116172-xx.
- *MC67 Regulatory Guide*, p/n 72-116171-xx.
- *MC67 User Guide*, p/n 72E-161697-xx.
- *Mobility Services Platform 3.2 User Guide*, p/n 72E-100158-xx.
- *Wireless Fusion Enterprise Mobility Suite User Guide for Version X2.00*, p/n 72E-164268-xx.
- *Enterprise Mobility Developer Kits (EMDKs),* available at: http://www.zebra.com/support.
- Latest ActiveSync and Windows Mobile Device Center software, available at: http://www.microsoft.com.

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 Global Customer Support for your region. Contact information is available at: http://www.zebra.com/support.

When contacting Global Customer 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.
- IMEI number.

Manufacturing label
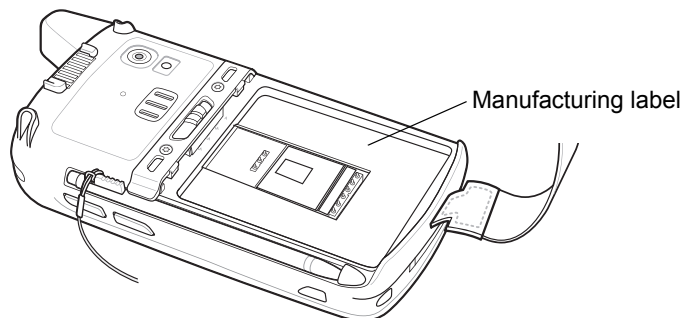
Zebra responds to calls by e-mail or telephone within the time limits set forth in support agreements.

If your problem cannot be solved by Zebra Global Customer Support, 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 lists the parts and accessories for the MC67 and explains how to set up the MC67 for the first time.

Unpacking

Carefully remove all protective material from the MC67 and save the shipping container for later storage and shipping.

Verify that you received the following:

*   MC67

*   3600 mAh Lithium-ion battery

*   stylus with tether (installed)

*   screen protector, installed on display window

*   Regulatory Guide

*   Quick Start Guide.

Inspect the equipment for damage. If any equipment is missing or damaged, contact the Zebra Global Customer Support center immediately. See *Service Information on page xiv* for contact information.

Prior to using the MC67 for the first time, remove the protective shipping film that covers the scan window, display and camera window.

Getting Started

To start using the MC67 for the first time:

1. Install a microSD card (optional)

2. Install the SIM card (GSM/UMTS only)

3. Install the battery.

4. Charge the MC67.

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 SD card. Proper ESD precautions include, but are not limited to, working on an ESD mat and ensuring that the operator is properly grounded.

To install the microSD card:

1. Remove the handstrap.

2. Lift rubber access door.

3. Slide the SIM card holder door up to unlock.

4. Lift SIM card holder door.
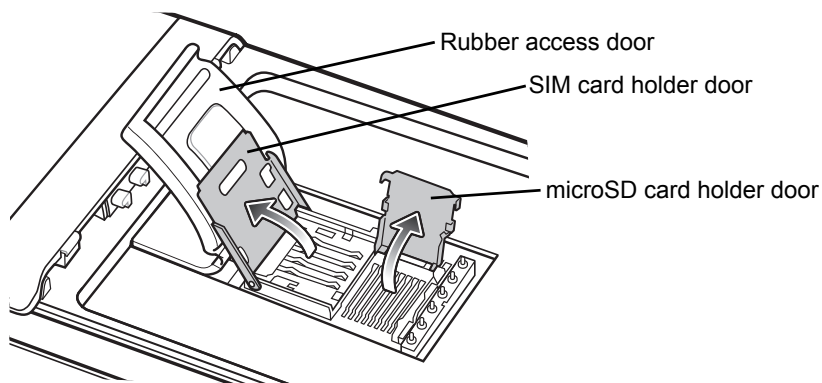
Figure 1-1 *Lift SIM Slot Holder Door*

5. Lift microSD card holder door.

6. Insert the microSD card into card holder door ensuring that the card slides into the holding tabs on each side of the door.
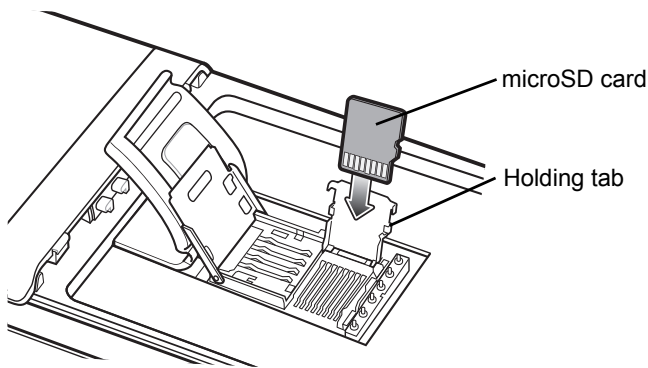
Figure 1-2 *Insert microSD Card in Holder*

7. Close the card holder door and push down until it is securely into place.

8. If installing a SIM card, proceed to *Installing the SIM Card*.

9. Close SIM card holder door and slide down until it locks into place.

10. Close rubber access door.

Installing the SIM Card

> **NOTE** The MC67 does not support copying multiple contacts to some SIM cards. If an error message appears, see *Chapter 7, Maintenance & Troubleshooting* for more information.
>
> GSM/UMTS networks only.

GSM phone service requires a Subscriber Identification Module (SIM) card. Obtain the card from the your service provider. The card fits into the MC67 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 MC67.

- 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. Lift rubber access door.

2. Slide the SIM card holder up to unlock.

3. Lift the SIM card holder door.
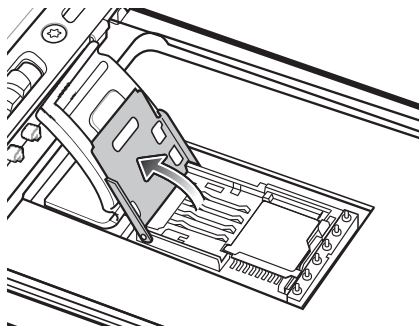
Figure 1-3 *Lifting the SIM Cover*

4. Insert the SIM card, as shown in *Figure 1-4* ensuring that the card slides into the holding tabs on each side of the door.
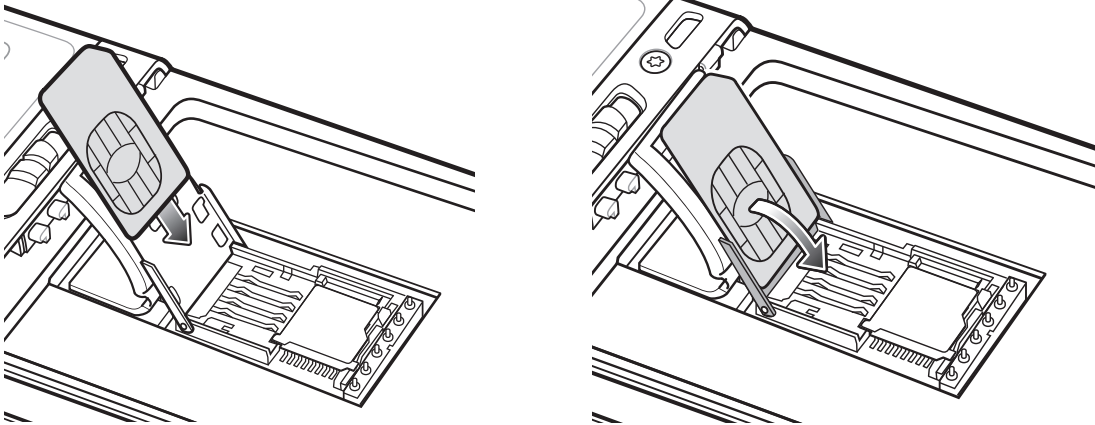
Figure 1-4 *Inserting the SIM Card*

5. Close SIM card holder door and slide down to lock into place.

6. Close the rubber access door.

7. Install the battery.

Installing the Battery

To install the battery.

1. Insert the battery, bottom first, into the battery compartment in the back of the MC67.

2. Press the battery down into the battery compartment until the battery release latch snaps (2-clicks) into place. The MC67 turns on if the battery is properly charged.

3. Replace the handstrap.
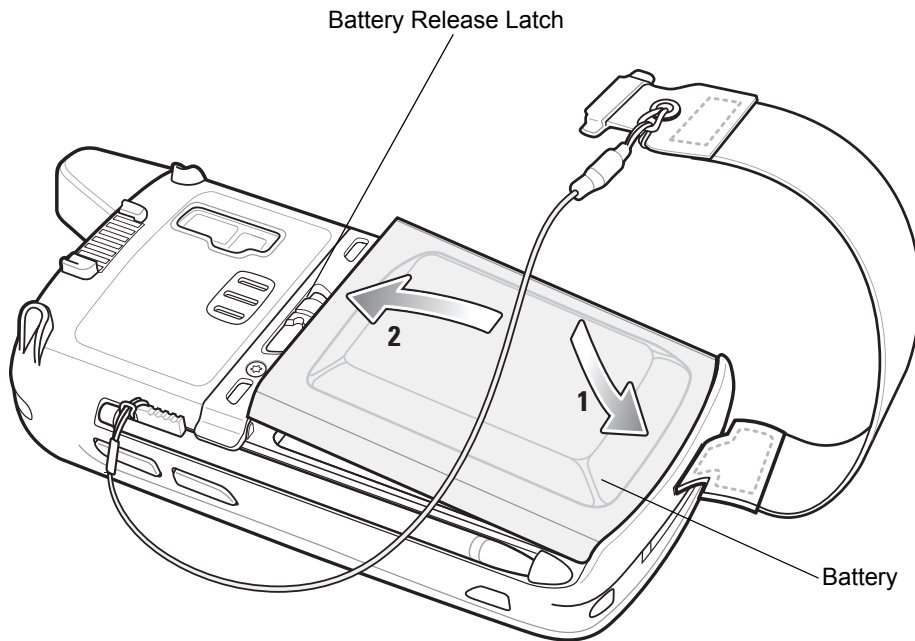
Figure 1-5 *Inserting the Battery*

Charging the Battery

⚠️ **CAUTION**   Follow the guidelines for battery safety described in *Battery Safety Guidelines on page 7-2*.

Charging the Main Battery

Before using the MC67 for the first time, charge the main battery until the amber Charging/Battery Status light emitting diode (LED) remains lit (see *Table 1-1 on page 1-6* for charge status indications). To charge the MC67, use a cable or a cradle with the appropriate power supply. For information about the accessories available for the MC67, see *Chapter 2, Accessories*.

The MC67 is equipped with a backup battery which automatically charges from the fully-charged main battery. When using the MC67 for the first time, the backup battery requires approximately 40 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 random access memory (RAM) data in memory for at least 15 minutes (at room temperature) when the MC67's main battery is removed. When the MC67 reaches a very low battery state, the combination of main battery and backup battery retains RAM data in memory for at least 36 hours.

For cable and cradle setup and charging procedures refer to the *MC67 Integrator Guide*.

- USB Charging Cable
- Charge Only Cable
- Single Slot USB Cradle
- Four Slot Charge Only Cradle
- Four Slot Ethernet Cradle.

To charge the main battery:

1. Connect the charging accessory to the appropriate power source.

2. Insert the MC67 into a cradle or attach to a cable. The MC67 begins charging. The Charging/Battery Status LED blinks amber while charging, then turns solid amber when fully charged. See *Table 1-1* for charging indications.

The 3600 mAh battery charges in less than six hours.

Table 1-1   *LED Charge Indicators*

Charging/Battery Status LED	Indication
Off	MC67 is not charging. MC67 is not inserted correctly in the cradle or connected to a power source. Charger/cradle is not powered.
Slow Blinking Amber (1 blink every 2 seconds)	MC67 is charging.
Solid Amber	Charging complete. Note: When the battery is initially inserted in the MC67, the amber LED flashes once if the battery power is low or the battery is not fully inserted.
Fast Blinking Amber (2 blinks/second)	Charging error, e.g.: • Temperature is too low or too high. • Charging has gone on too long without completion (typically eight hours).

Charging Spare Batteries

See *Chapter 2, Accessories* for information on using accessories to change spare batteries.

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 MC67.

To accomplish this, for small periods of time, the MC67 or accessory alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC67 or accessory indicates when charging is disabled due to abnormal temperatures via its LED. See *Table 1-1*.

Powering On the MC67

> *NOTE*   If during installation of the battery, the battery has significant charge the MC67 turns on.

Press the Power button to turn on the MC67. The splash screen displays for about a minute as the MC67 initializes its flash file system, then the calibration window appears.

Calibrating the Screen

> *NOTE*   The Calibration screen can be accessed by pressing **Blue** key then **Backspace** key.
>
> On the Personal Information Manager (PIM) keypad, tap 🟦 > **Settings** > **System** > **Screen** > **Align Screen**.

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 MC67.

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.

Network Activation

Network activation is dependent upon the network type. When an GSM/UTMS SIM card is installed in the MC67ND, upon startup the MC67ND is configured for the GSM/UTMS network.

Activating an MC67ND on a CDMA Network

To activate on a CDMA network:

1. Setup an account with the CDMA carrier. Provide the MEID number (located under the battery of the MC67ND) to the customer service representative.

2. Tap **Start** > **Settings** > **Connections** > **Network Setup & Activation**. The **Network Setup & Activation** window displays.
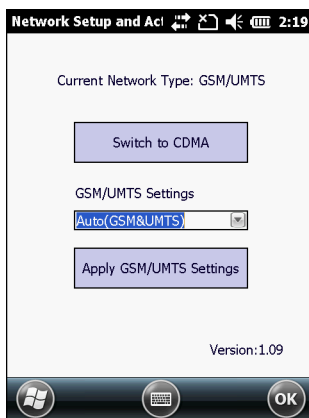
Figure 1-6 *Network Setup and Activation Setup Window*

3. Tap **Switch to CDMA**.

4. The window closes.

5. Tap **Network Setup & Activation**.

6. Tap **Activation**. The **CDMA Activation** window appears.

7. Tap **Start Activation and PRL Update**.

8. Follow the on-screen instructions.

For detailed information for configuring the phone and activating on a different network, refer to the *MC67 Integrator Guide*.

Switching from CDMA to GSM/UMTS

To switch from a CDMA network to a GSM/UTMAS network:

1. Tap **Start** > **Settings** > **Connections** > **Network Setup & Activation**. The **Network & Activation** window appears.
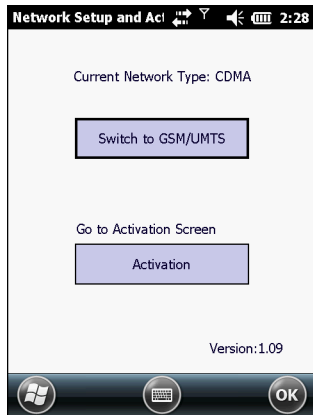
Figure 1-7   *Network Setup and Activation Setup Window*

2.   Tap **Switch to GSNM/UTMS**.

3.   The window closes.

4.   Tap **Network Setup & Activation**.

5.   In the **GSM/UMTS Settings** drop-down list, select connection type. **Options**:

    a.   **Auto (GSM&UTMS)**

    b.   **GSM Only**

    c.   **UMTS Only**.

6.   6. Tap **Apply GSM/UMTS Settings**.

7.   7. Tap **OK**.

Switching from GSM/UTMS to CDMA

1. Tap **Start** > **Settings** > **Connections** > **Network Setup & Activation**. The **Network & Activation** window appears.

2. Tap **Switch to CDMA**.

3. The window closes.

Replacing the Battery

To replace the battery:

⚠️   *CAUTION*   The MC67 backup battery retains data for up to 15 minutes. Replace the battery within 15 minutes to ensure that application states are maintained and that data is not lost.

1.   If the MC67 is in a cradle, remove it before performing a Safe Battery Swap.

2.   If the MC67 is in suspend mode, press the red **Power** button to wake the device.

3.   Press the red **Power** button. The PowerKey Action screen appears.

4.   Tap **Safe Battery Swap**. The Data Capture LED lights red.

5. When the LED turns off, remove the handstrap.

6. Slide the battery latch to the right. The battery ejects slightly.
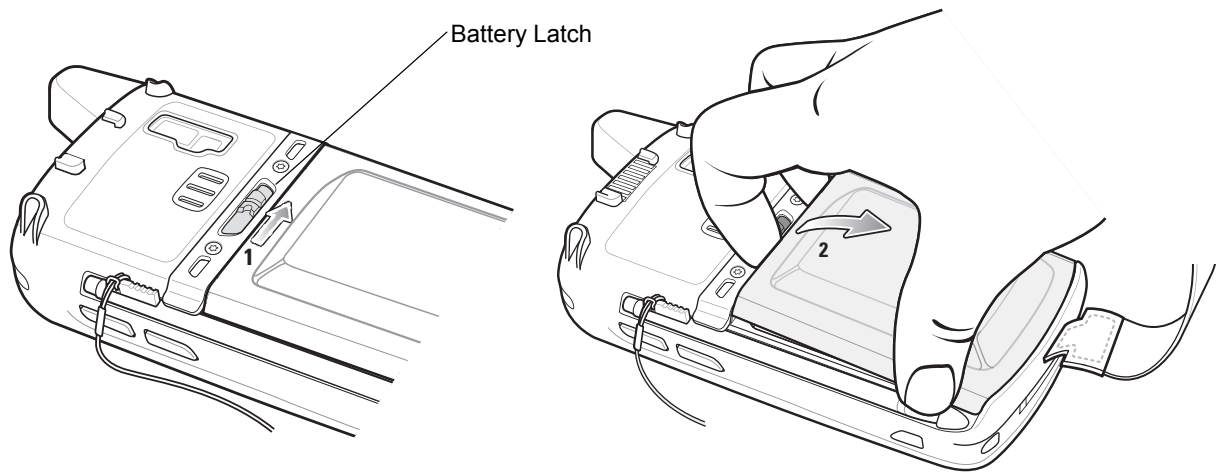
Figure 1-8   *Removing the Battery*

7. Lift the battery from the MC67.

8. Insert the replacement battery, bottom first, into the battery compartment in the back of the MC67.

9. Press the battery down until the battery release latch snaps (2-clicks) into place.

10. Replace the handstrap.

Resetting the MC67

There are three reset functions; warm boot cold boot and clean boot. A warm boot restarts the MC67 by closing all running programs. A cold boot also restarts the MC67, and also initializes some drivers. Data saved in flash memory or a memory card is not lost.

If the MC67 is not functioning properly, perform a warm boot first. If the MC67 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 MC67 starts to boot release the Power button.

Performing a Cold Boot

To perform a cold boot:

- On a numeric and DSD keypad, simultaneously press the red **Power** button and the ⬚1 and ⬚9 keys.

- On an alphanumeric keypad, simultaneously press the red **Power** button and the Ⓦ and Ⓒ9 keys.

- On an PIM keypad, simultaneously press the red **Power** button and the 📞 and ▶ keys.

Performing a Clean Boot

⚠️ **CAUTION**   A clean boot should only be performed by an authorized system administrator. You must connect the MC67 to AC power during a clean boot.

Removing AC power from the MC67 during a clean boot may render the MC67 inoperable.

A clean boot resets the MC67 to the factory default settings. All data in the **Application** folder is retained. You must download the Clean Boot Package file from the Support Central web site, http://www.zebra.com/support and install on the MC67.

To perform a clean boot:

1. Download the Clean Boot Package from the Support Central web site. Follow the instructions included in the package for installing the package onto the MC67.

2. Perform a warm boot.

3. Immediately, as soon as the device starts to boot and before the splash screen is visible, press and hold the left scan button.

4. Insert the MC67 into a powered cradle.

5. The MC67 updates and then resets.

6. Calibrate the screen.

Waking the MC67

The wake-up conditions define what actions wake up the MC67 after it has gone into suspend mode. The MC67 can go into suspend mode by either pressing the Power button or automatically by Control Panel time-out settings. To set the wake up conditions tap 🪟 > **Settings** > **System** > **Power** > **Wakeup**.

Table 1-2   Wake-up Default Settings

Condition for Wake-up	Power Button	Automatic Time-out
MC67 is connected to a USB cable.	Yes	Yes
MC67 is connected toto a USB Host Device	No	No
A key is pressed.	No	Yes
The screen is touched.	No	No
Right Trigger is pressed.	Yes	Yes
Left Trigger is pressed.	Yes	Yes

CHAPTER 2   ACCESSORIES

Introduction

This chapter provides set up information for the MC67 various accessories listed in *Table 2-1*.

Table 2-1   *MC67 Accessories*

Accessory	Part Number	Description
Cradles		
Single Slot USB Cradle	CRD5500-1000UR	Charges the MC67 main battery and a spare battery. Synchronizes the MC67 with a host computer through a USB connection.
Single Slot Ethernet/Modem/USB Cradle	CRD5500-1000XR	Charges the MC67 main battery and a spare battery. Synchronizes the MC67 with a host computer through an Ethernet, Modem or USB connection.
Four Slot Charge Only Cradle	CRD5500-4000CR CRD5501-4000CR	Charges up to four MC67 devices.
Four Slot Ethernet Cradle	CRD5500-4000ER CRD5501-4000ER	Charges up to four MC67 devices and connects the MC67 with an Ethernet network. CRD5500-4000ER provides up to a maximum of 100 Mbps. CRD5501-4000ER provides up to a maximum of 1 Gbps.
Vehicle Cradle	VCD5500-1001R	Installs in a vehicle and charges the MC67 main battery.
Vehicle Holder	VCH5500-1000R	Provides an alternative mounting solution for the MC67 in a vehicle. Requires the Auto Charge cable for charging the MC67 battery.
Chargers		
Four Slot Spare Battery Charger	SAC5500-4000CR	Charges up to four MC67 battery packs.
Power Supply	PWRS-14000-249R	Provides power to the MC67 using the USB Charging Cable or Charge Only Cable.
Power Supply	PWRS-14000-148R	Provides power to the Single Slot USB cradle and Four Slot Spare Battery Charger.

Table 2-1 *MC67 Accessories (Continued)*

Accessory	Part Number	Description
Power Supply	PWRS-14000-241R	Provides power to the Four Slot Charge Only cradle or Four Slot Ethernet cradles.
USB Charging Cable	25-108022-03R	Provides power to the MC67 and USB communication with a host computer.
Charge Only Cable	25-112560-02R	Connects to a power supply to provide power to the MC67.
Auto Charge Cable	VCA5500-01R	Charges the MC67 using a vehicle's cigarette lighter.
DC Cable	50-16002-029R	Provides power from the power supply to the Four Slot cradles.
Miscellaneous		
Spare 3600 mAh lithium-ion battery	BTRY-MC55EAB02 BTRY-MC55EAB02-10 BTRY-MC55EAB02-50	Replacement 3600 mAh battery. (10-pack) (50-pack)
DEX Cable	25-127558-01R	For use with electronic data exchange For example, vending machines.
USB Client Communication Cable	25-68596-01R	Provides USB communication between the Single Slot USB Cradle and a host computer.
Printer Cable	25-136283-01R	Provides connection to a Monarch/Paxar Serial printer.
Trigger Handle	TRG5500-101R	Adds a gun-style handle with a scanning trigger for comfortable and productive data capture.
Trigger Handle Hand Strap	21-138874-01R	Handstrap for the Trigger handle.
Magnetic Stripe Reader	MSR5500-100R	Captures data from magnetic stripe cards.
Belt Mounted Rigid Holster	SG-MC5511110-01R	Clips onto belt to hold the MC67 when not in use.
Fabric Holster	SG-MC5521110-01R	Soft holder for added protection.
Stylus	KT-119150-03R KT-119150-50R	Replacement stylus (3-pack). Replacement stylus (50-pack).
Spring Loaded Stylus	STYLUS-00001-03R STYLUS-00001-10R	Optional spring loaded stylus (3-pack). Optional spring loaded stylus (10-pack).
Stylus with Tether	Stylus-00003-03R Stylus-00003-50R	Spare stylus with tether (3-pack). (50-pack).
Spare Tether	KT-122621-03R KT-122621-50R	Replacement tether (3-pack). (50-pack).
Handstrap	SG-MC5523341-03R	Replacement handstrap with pin
Wall Mounting Kit	KT-136648-01R	Use for wall mounting the four slot cradles.
Screen Protector	KT-137521-03R	Package of 3 screen protectors.

Single Slot USB Cradle

This section describes how to set up and use a Single Slot USB cradle with the MC67. For USB communication setup procedures see *Chapter 3, Synchronization*.

The Single Slot USB cradle:

- Provides 5.4 VDC power for operating the MC67.
- Synchronizes information between the MC67 and a host computer. See *Chapter 3, Synchronization* for information on setting up a partnership between the MC67 and a host computer.
- Charges the MC67's battery.
- Charges a spare battery.

Setup
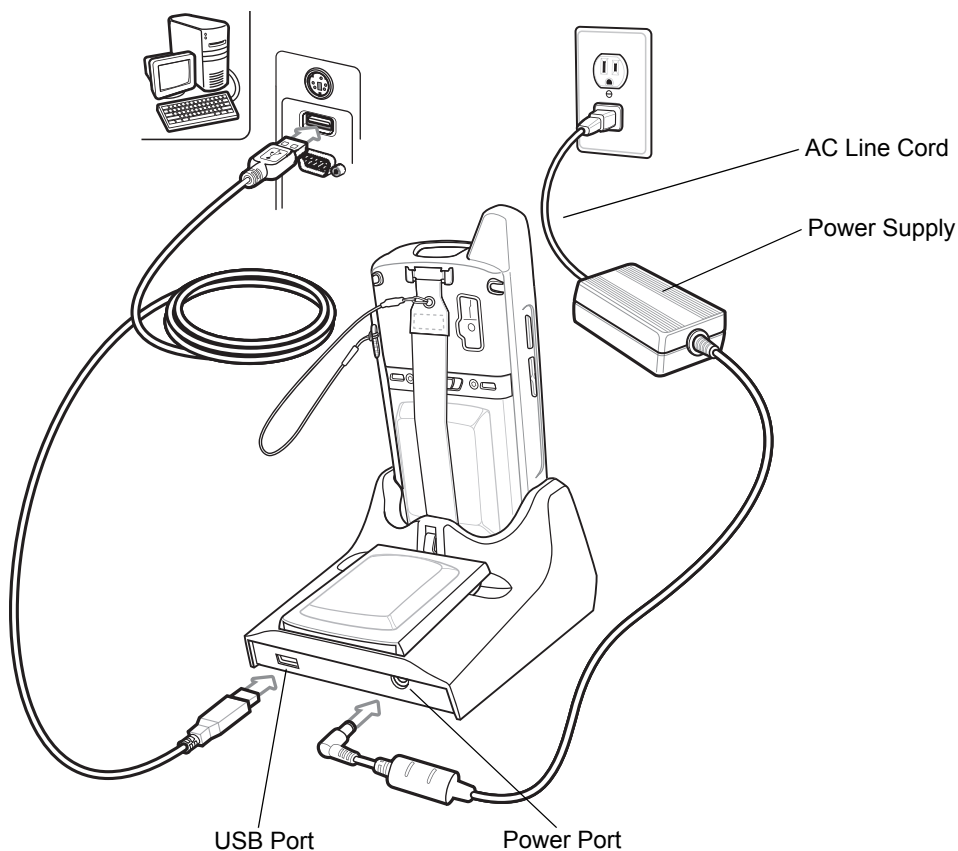
Figure 2-1   *Single Slot USB Cradle Power and USB Connections*

Charging the MC67 Battery

Connect the cradle to power. Insert the MC67 into the MC67 slot to begin charging.

Charge Status LED
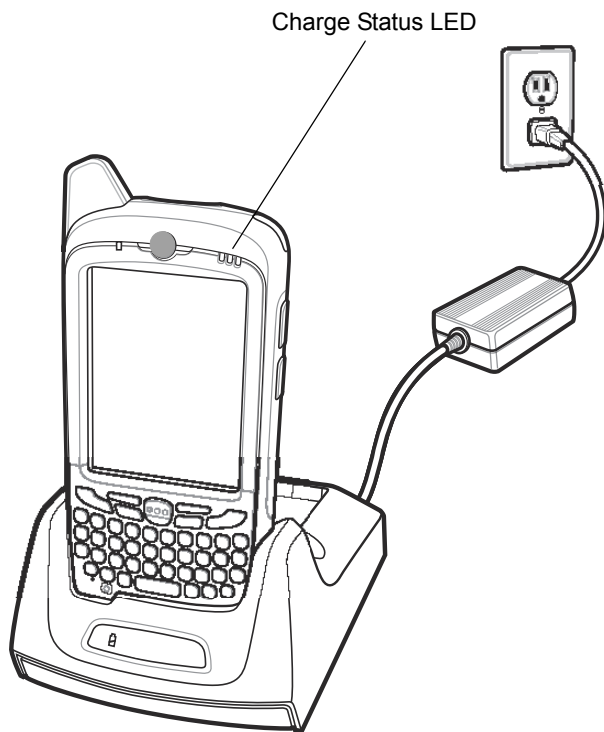
Figure 2-2   *MC67 Battery Charging*

Charging the Spare Battery

Spare Battery

Spare Battery
Charging LED
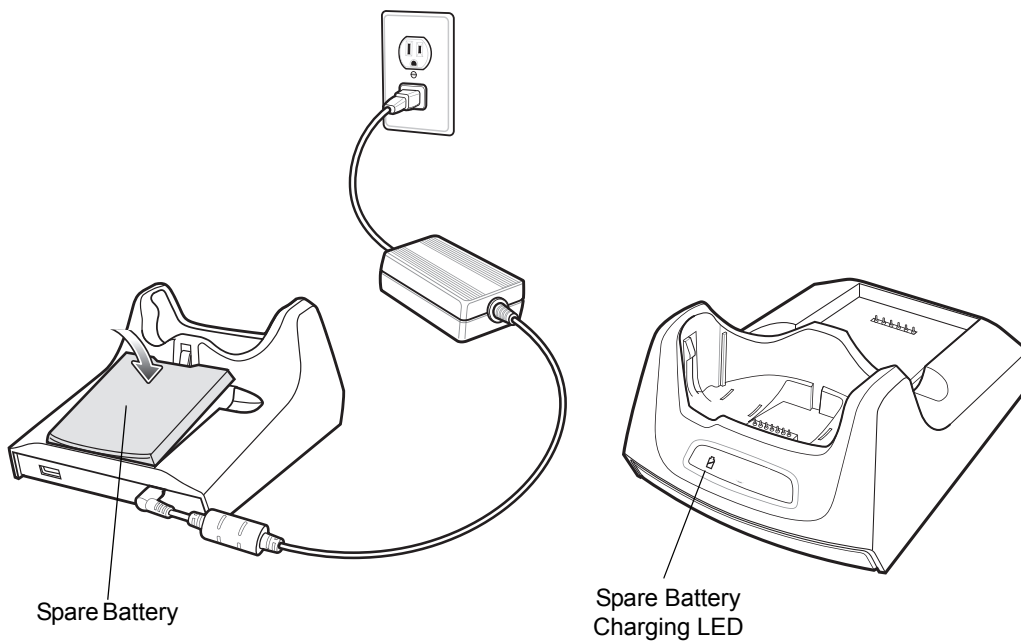
Figure 2-3   *Spare Battery Charging*

Battery Charging Indicators

The Single Slot USB cradle charges the MC67's main battery and a spare battery simultaneously.

The MC67's Charging/Battery Status LED indicates the status of the battery charging in the MC67. See *Table 1-1 on page 1-6* for charging status indications.

The spare battery charging LED on the cradle indicates the status of the spare battery charging in the cradle. See *Table 2-2* for charging status indications.

The 3600 mAh battery fully charges in approximately six hours.

Charging Temperature

Charge batteries in temperatures from 0°C to 40°C (32°F to 104°F). Charging is intelligently controlled by the MC67.

To accomplish this, for small periods of time, the MC67 or accessory alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC67 or accessory indicates when charging is disabled due to abnormal temperatures via its LED. See *Table 1-1 on page 1-6* and *Table 2-2*.

Table 2-2   *Spare Battery LED Charging Indicators*

Spare Battery LED (on cradle)	Indication
Slow Blinking Amber	Spare battery is charging.
Solid Amber	Spare battery is fully charged.
Fast Blinking Amber	Charging error.
Off	Not charging.

Single Slot Ethernet/Modem/USB Cradle

This section describes how to set up and use a Single Slot Ethernet/Modem/USB cradle with the MC67. For USB communication setup procedures see *Chapter 3, Synchronization*.

The Single Slot Ethernet/Modem/USB cradle:

- Provides 5.4 VDC power for operating the MC67.
- Connects the MC67 to a host computer using USB, a dial-up network using the modem or an Ethernet network.
- Charges the MC67's battery.
- Charges a spare battery.

Country Settings

The modem defaults to operation with US telephone networks. To operate the modem with other country telephone networks, it must be configured using an application on the MC67. Download the *Cradle Modem Country Configurator Application Software for MC55xx* package from the Zebra Support Central web site: http://www.zebra.com/support.

Following the instructions with the software package to install the application on the MC67. The application includes country selections for all supported countries and automatically programs the modem and adjust its operating parameters to comply with the telephone network in the selected country.

Setup
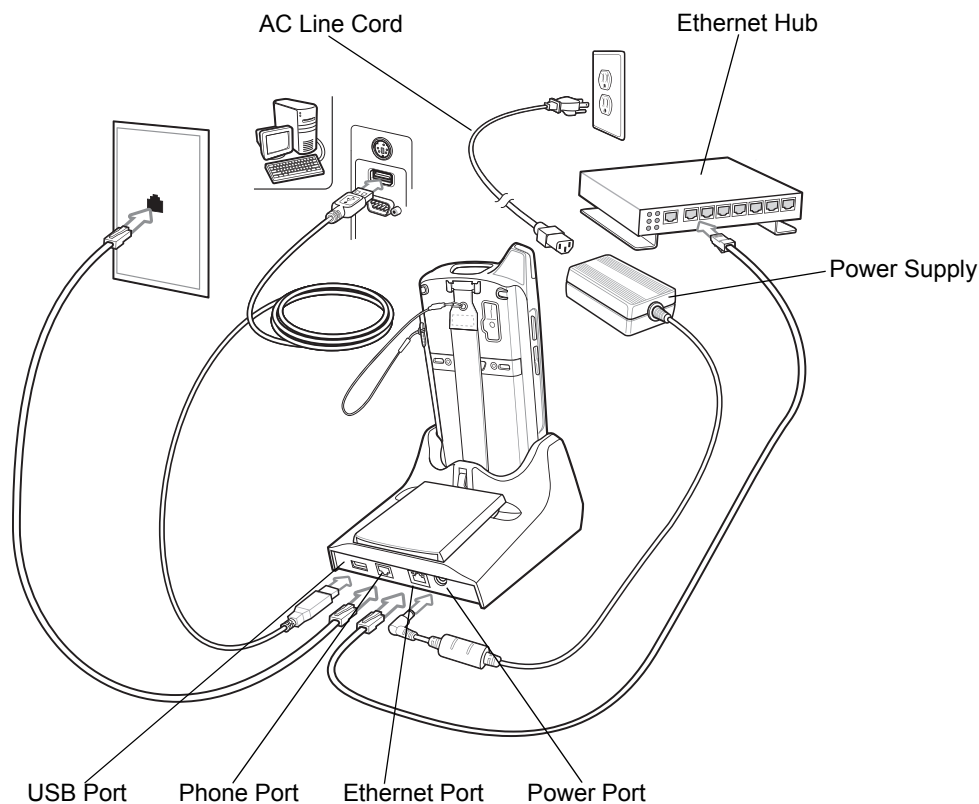
Figure 2-4   *Cradle Setup*
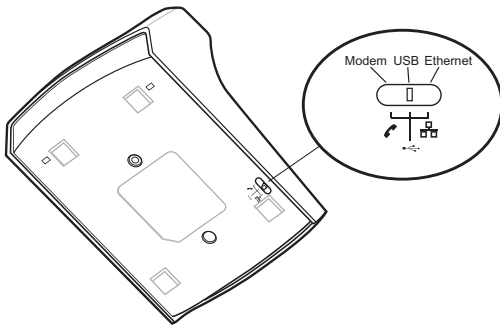
Figure 2-5 *Connection Switch*

Indicators

- **Spare Battery Charging LED** - Indicates the charging status of the spare battery.

- **Ethernet/Modem LED** - Blinks whenever Ethernet or modem connectivity is established.

- **Speed LED** - Lights green indicating that the transfer rate is 100 Mbps. When it is not lit, indicates that the transfer rate is 10Mbps.

- **Link LED** - Blinks yellow to indicate activity, or stays lit to indicate that a link is established. When it is not lit, indicates there is no link.

Spare Battery
Charging LED   Ethernet/Modem LED   Speed LED   Link LED
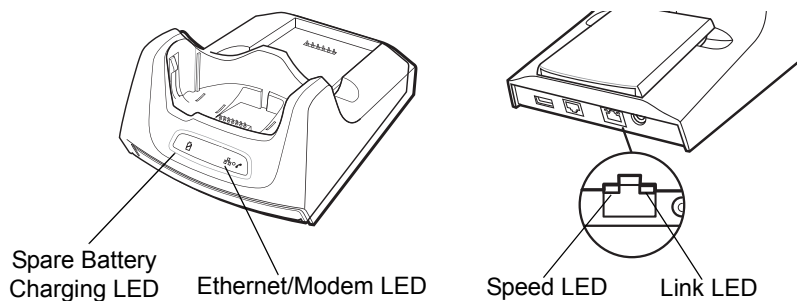
Figure 2-6 *Cradle Indicators*

MC67 Software Setup

Ethernet Setup

1. Tap 🪟 > **Settings** > **Connections** tab > **Wi-Fi** icon.

2. Select **Work** from the drop-down menu.

3. Select **USB/Ethernet Series Adapter** from the list box.

4. Tap **Ok**.

5. Tap 🪟 > **Settings** > **Connections** tab > **Connections** icon.

6. Tap **Advanced** tab.

7. Tap **Select Networks** button.

8. Select **My Work Network** from both drop-down menus.

9. Tap **Ok**.

10. Tap the **Tasks** tab.

11. Select **Edit my proxy server**.

12. Enable both checkboxes.

13. Tap **Advanced...** button.

14. Tap **HTTP** type.

15. In the **Server** text box, enter the proxy server name.

16. In the **Port** text box, enter the port number.

17. In the **User name** text box, enter the user name for the proxy server.

18. In the **Password** text box, enter the password for the proxy server.

19. Tap **ok** three times.

20. Perform a warm boot.

Modem Setup

1. Tap 🪟 > **Settings** > **Connections** tab > **Connections** icon.

2. Tap **Add a new modem connection**.

3. In the **Enter a name for the connection** text box, enter a name for the connection.

4. In the **Select a modem** drop-down list, select Modem Cradle on USB.

5. Tap **Next**.

6. In the text box, enter the phone number to dial.

7. Tap **Next**.

8. In the **User name** text box, enter the user name, if required.

9. In the **Password** text box, enter the password, if required.

10. Tap **Finish**.

11. To test the connection, tap 🪟 > **Programs** > **Internet Explorer**. Enter a web address.

Four Slot Ethernet Cradle

This section describes how to set up and use a Four Slot Ethernet cradle with the MC67.

The Four Slot Ethernet cradle:

- Provides 5.4 VDC power for operating the MC67.
- Connects the MC67 (up to four) to an Ethernet network.
- Simultaneously charges up to four MC67s.

The user cannot ActiveSync using the Four Slot Ethernet cradle. To ActiveSync with a host computer, use the Single Slot USB/Serial cradle, USB Charging cable or Serial Charging cable.

Yellow Link LED (CRD5500-4000ER)
Green 100 LED (CRD5501-4001ER)

Green Speed LED (CRD5500-4000ER)
Green 1000 LED (CRD5501-4001ER)
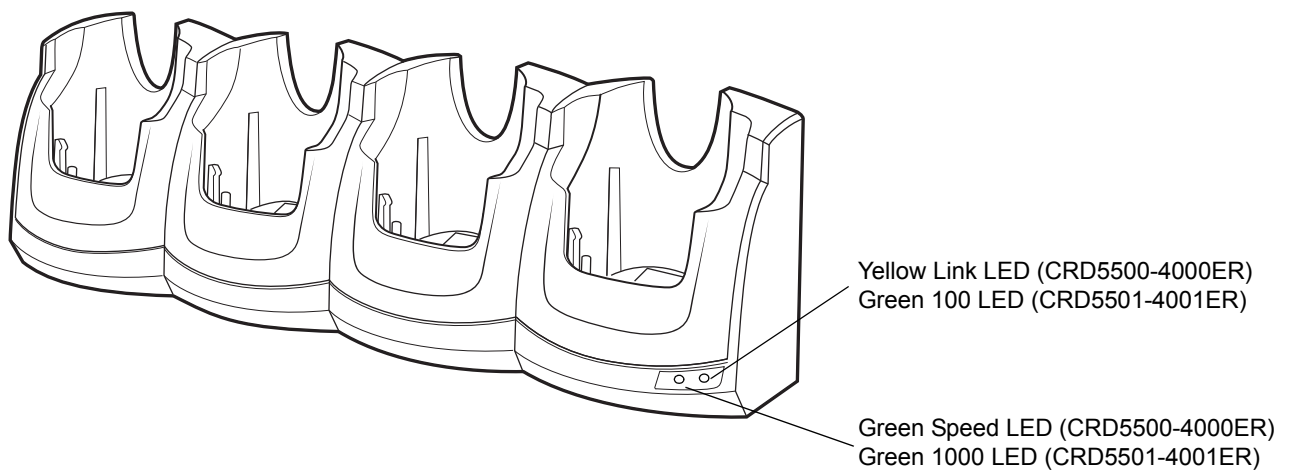
Figure 2-7   *Four Slot Ethernet Cradle*

CRD5500-4000ER Setup

Connect the Four Slot Ethernet cradle to a power source and to an Ethernet switch, router, or hub, or a port on the host device.
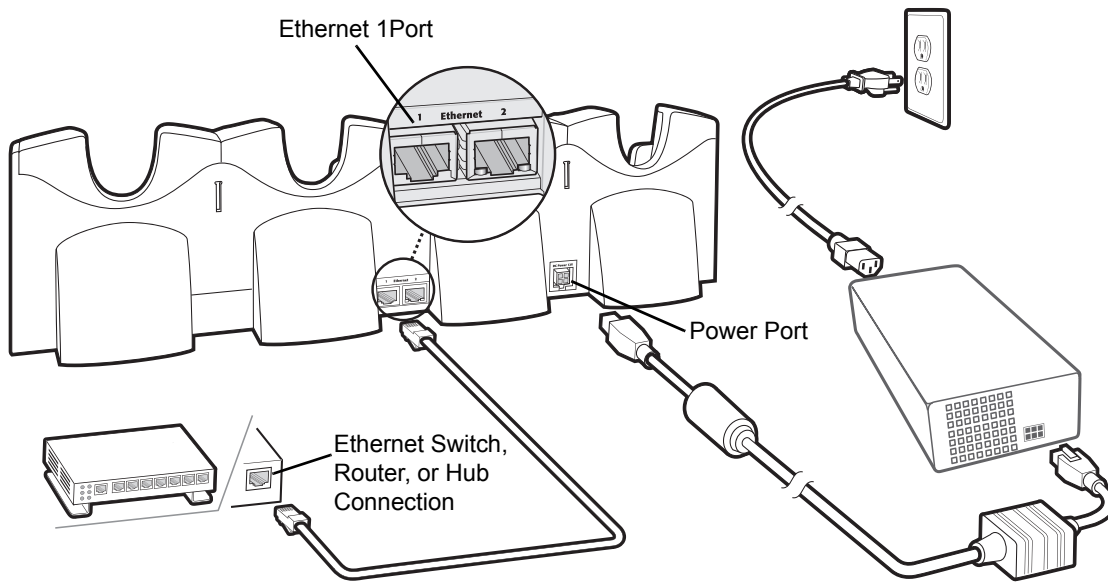
Figure 2-8   *CRD5500-400ER Four Slot Ethernet Cradle Connection*

Daisychaining Ethernet Cradles

Daisychain up to four Ethernet cradles to connect several cradles to an Ethernet network. Use either a straight or crossover cable. Daisy-chaining should not be attempted when the main Ethernet connection to the first cradle is 10 Mbps as throughput issues will almost certainly result.

To daisychain more than one Four Slot Ethernet cradle:

1. Connect power to each Four Slot Ethernet cradle.

2. Connect an Ethernet cable to the Ethernet 1 port of the first cradle and to the Ethernet switch. See *Figure 2-8*.

3. On the first Four Slot Ethernet cradle, connect a second Ethernet cable to the Ethernet 2 port. See *Figure 2-9*.

4. Connect the other end of the Ethernet cable to the Ethernet 1 port of the second Four Slot Ethernet cradle.

5. Connect additional cradles as described in step 3 and 4.
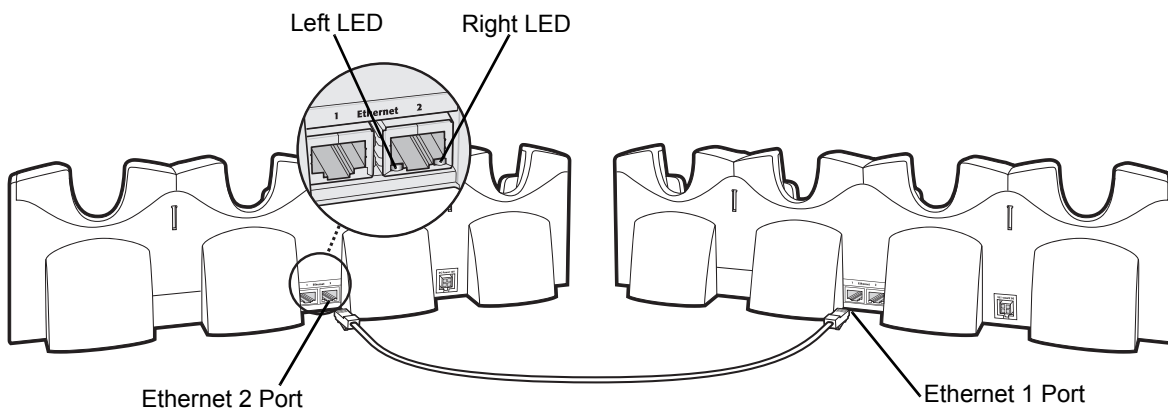
Figure 2-9   *Daisychaining Four Slot Ethernet Cradles*

LED Indicators (CRD5500-4000ER)

There are two LEDs on the front of the cradle and two on the Ethernet 2 port. The green Speed LED lights to indicate that the transfer rate is 100 Mbps. When the LED is not lit the transfer rate is 10 Mbps. The yellow Link LED blinks to indicate activity, or stays lit to indicate that a link is established. When it is not lit it indicates that there is no link.

Table 2-3   *CRD4000-4000ER LED Indicators*

Data Rate	Green Speed LED (Left)	Yellow Link LED (Right)
100 Mbps	On	On/Blink
10 Mbps	Off	On/Blink

CRD5501-4001ER Setup

Connect the Four Slot Ethernet cradle to a power source and to an Ethernet switch, router, or hub, or a port on the host device.
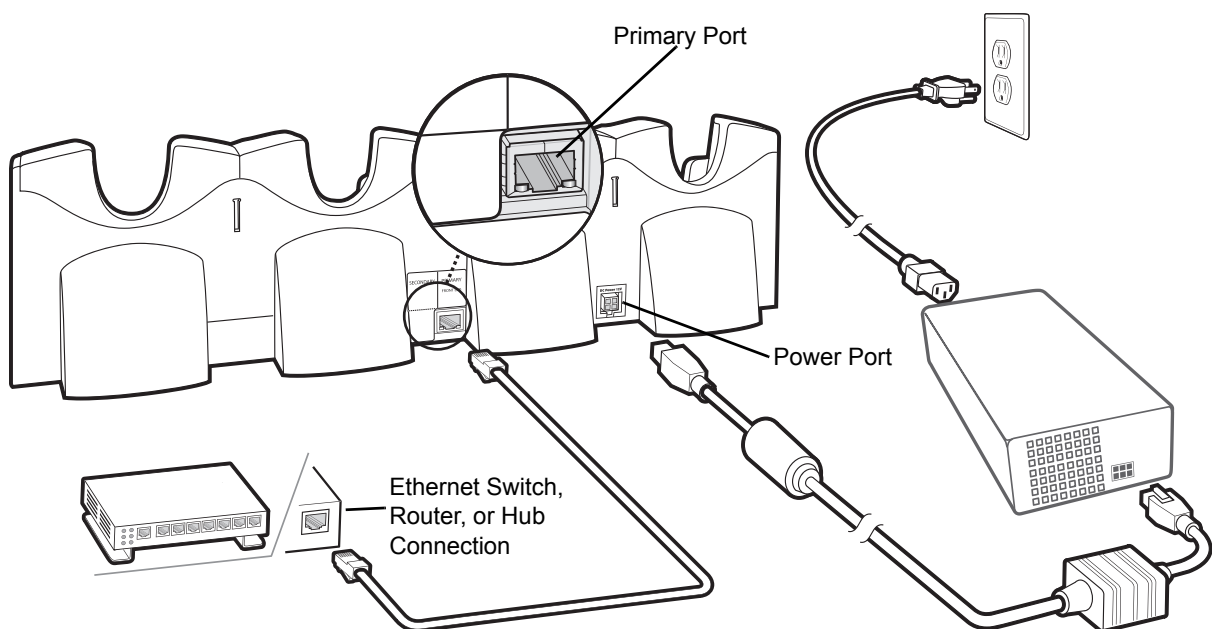
Figure 2-10   *CRD5501-4001ER Four Slot Ethernet Cradle Connection*

Daisychaining Ethernet Cradles

Daisychain up to four Four Slot Ethernet cradles to connect several cradles to an Ethernet network. Use either a straight or crossover cable. Daisy-chaining should not be attempted when the main Ethernet connection to the first cradle is 10 Mbps as throughput issues will almost certainly result.

To daisychain more than Four Slot Ethernet cradles:

1. Connect power to each Four Slot Ethernet cradle.

2. Connect an Ethernet cable to the Primary Port of the first cradle and to the Ethernet switch. See *Figure 2-10*.

3. On the first Four Slot Ethernet cradle, lift or remove the label flap and connect a second Ethernet cable to the Secondary Port. See *Figure 2-11*.

4. Connect the other end of the Ethernet cable to the Primary Port of the second Four Slot Ethernet cradle.

5. Connect additional cradles as described in step 3 and 4.
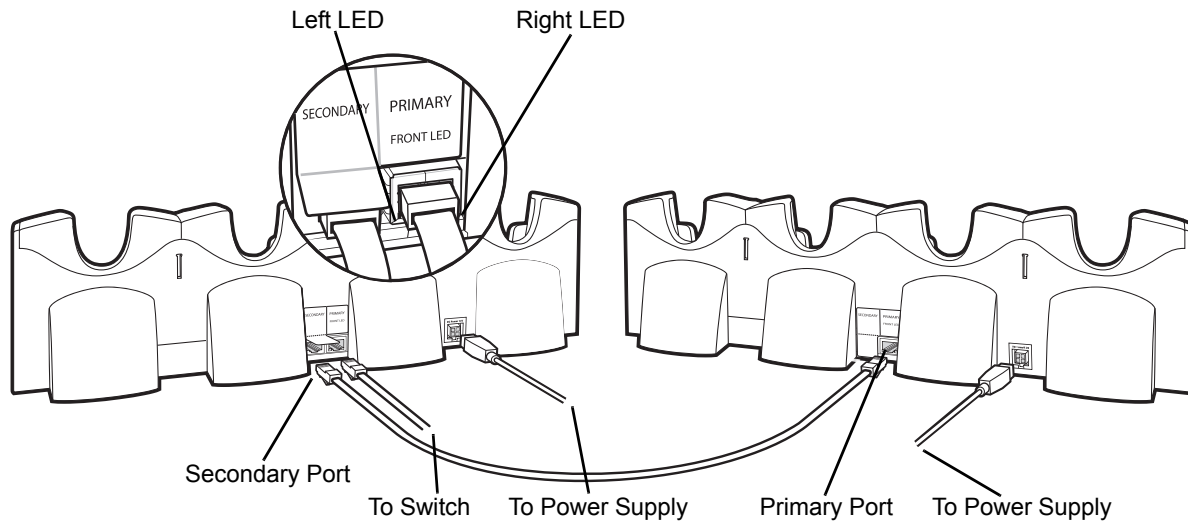
Figure 2-11   *Daisychaining Four Slot Ethernet Cradles*

LED Indicators (CRD5501-4001ER)

There are two green LEDs on the front of the cradle and two green LED on the Primary port on the back of the cradle. These green LEDs light and blink to indicate the data transfer rate. When the LEDs are not lit the transfer rate is 10 Mbps.

Table 2-4   *CRD5501-4001ER LED Indicators*

Data Rate	Left 1000 LED (Green)	Right 100 LED (Green)
1 Gbps	On/Blink	Off
100 Mbps	Off	On/Blink
10 Mbps	Off	Off

Ethernet Cradle Drivers

The MC67 includes Ethernet cradle drivers that initiate automatically when you place the MC67 in a properly connected Four Slot Ethernet cradle. After inserting the MC67, configure the Ethernet connection:

1. Tap > **Settings** > **Connections** tab >**WiFi** icon. The **Configure Network Adapters** window appears.
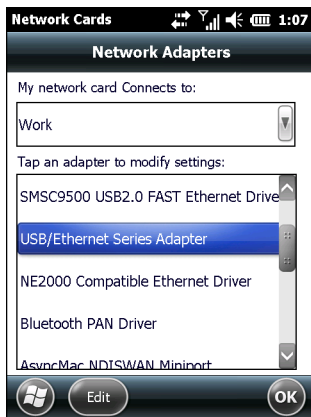
Figure 2-12   *Configure Network Adapters Window*

2.   In the **My network card connects to:** drop-down list, select the appropriate connection.

3.   In the **Tap an adapter to modify settings:** list, select **USB/Ethernet Series Adapter**.
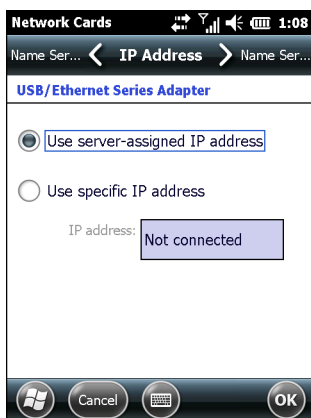
Figure 2-13   *IP Address Tab*

4.   In the **IP address** window, select the appropriate radio button:

 •   **Use server-assigned IP address**

      or

 •   **Use specific IP address**. Enter the IP address, Subnet mask, and Default gateway, as needed.

5.   Tap the **Name Servers** tab.
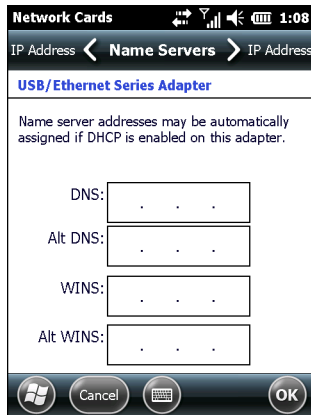
Figure 2-14   *Name Servers Tab*

6.   Enter the appropriate DNS, Alt DNS, WINS, and Alt WINS server addresses.

7.   Tap **ok**.
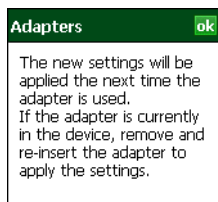
Figure 2-15   *Adapters Dialog Box*

8.   Tap **ok** to confirm the setup.

9.   Tap **ok** to exit.

Charging

Insert the MC67 into a slot to begin charging. The MC67's charge LED shows the status of the battery charging in the MC67. See *Table 1-1 on page 1-6* for charging status indications. The 3600 mAh battery fully charges in approximately six hours.

Charge batteries in temperatures from 0 °C to 40 °C (32 °F to 104 °F). Charging is intelligently controlled by the MC67.

To accomplish this, for small periods of time, the MC67 alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC67 indicates when charging is disabled due to abnormal temperatures via its LED. See *Table 1-1 on page 1-6*.

Four Slot Charge Only Cradle

This section describes how to set up and use a Four Slot Charge Only cradle with the MC67.

The Four Slot Charge Only cradle:

- Provides 5.4 VDC power for operating the MC67.

- Simultaneously charges up to four MC67s.

The user cannot ActiveSync using the Four Slot Charge Only cradle. To ActiveSync with a host computer, use the Single Slot USB cradle.

Setup

Connect the Four Slot Charge Only cradle to a power source.
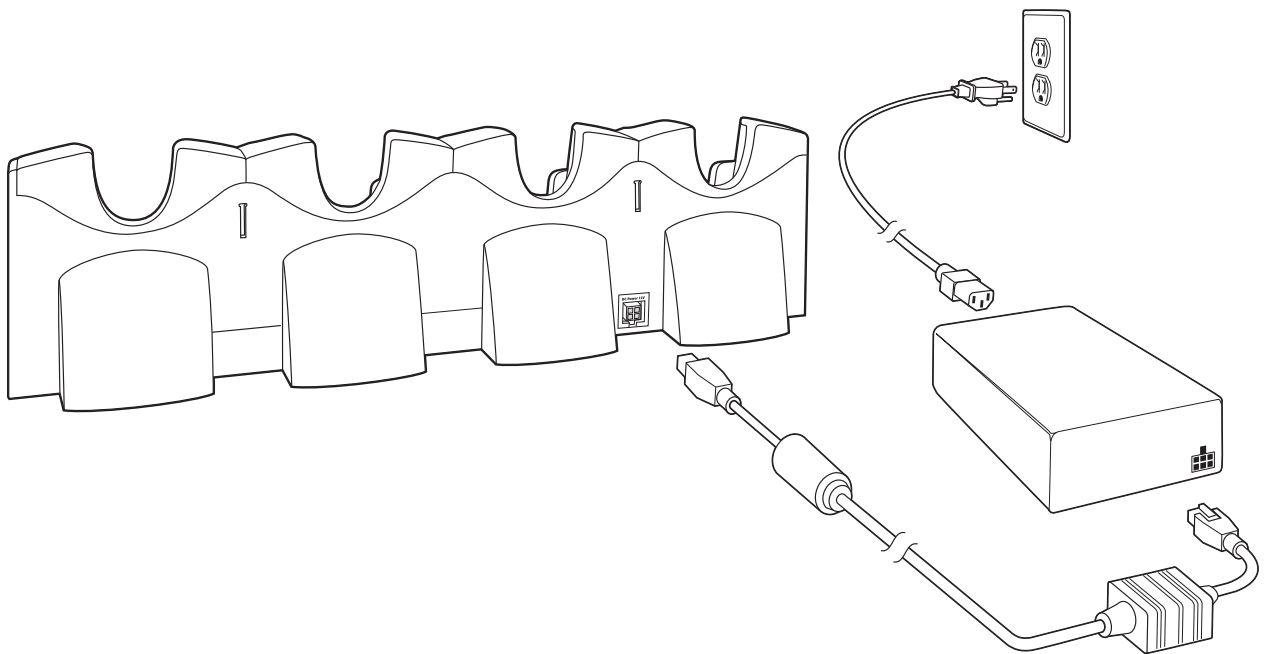
Figure 2-16   *Four Slot Charge Only Cradle Connection*

Charging Temperature

Charge batteries in temperatures from 0 °C to 40 °C (32 °F to 104 °F). Charging is intelligently controlled by the MC67.

To accomplish this, for small periods of time, the MC67 alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC67 indicates when charging is disabled due to abnormal temperatures via its LED. See *Table 1-1 on page 1-6*.

Wall Mount Bracket

Use the optional Wall Mount Bracket to mount a four slot cradle to a wall. To attach the Wall Mount Bracket:

1. Use the Wall Mount Bracket as a template and mark the locations of the four mounting screws.

> **NOTE** Use fasteners appropriate for the type of wall and the Wall Mount Bracket mounting slots. The Wall Mount Bracket mounting slots are designed for a fastener with a #8 pan head. Fasteners must be able to hold a minimum of 4.9 Kg (10.8 lbs).

2. Mount the fasteners to the wall. The screw heads should protrude about a half of an inch from the wall.

3. Slip the Wall Mount Bracket over the screw heads and slide the bracket down over the screw heads.

4. Tighten the screws to secure the bracket to the wall.

Mounting Tab (2)

Mounting Screw (4)
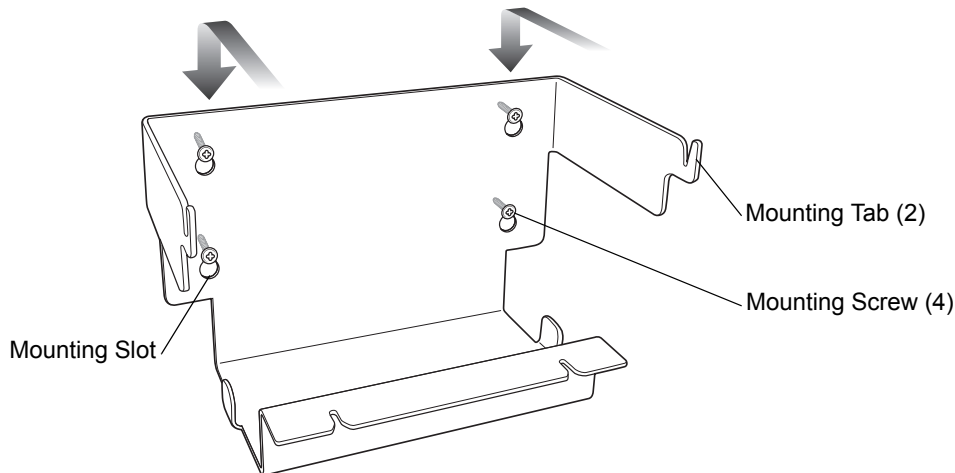
Mounting Slot

Figure 2-17   *Wall Mount Bracket*

To mount a four slot cradle:

1. Screw the supplied screws into the bottom of the four slot cradle. The screw heads should protrude about a quarter of an inch from the cradle.

Four Slot Cradle Bottom
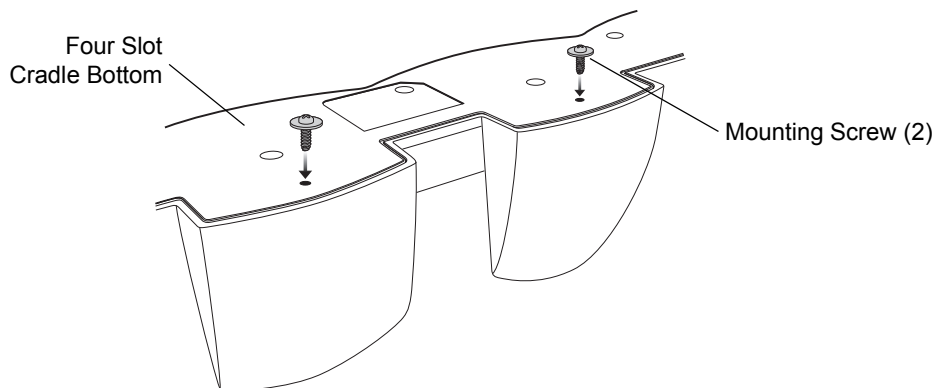
Mounting Screw (2)

Figure 2-18   *Cradle Mounting Screws*

2. Align the Wall Mount Bracket mounting tabs with the mounting slots in the back of the four slot cradle. Slip the two mounting tabs into mounting slots.

3. Swing the four slot cradle down onto the mounting bracket and align the mounting screws so that they fit into the screw slots.

Wall Mount
Bracket

Screw Slots
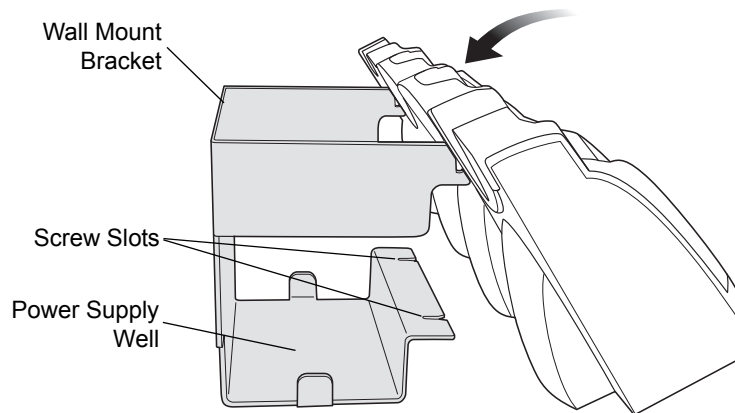
Power Supply
Well

Figure 2-19 *Wall Mount Bracket*

4. Tighten the mounting screws to secure the four slot cradle to the bracket.
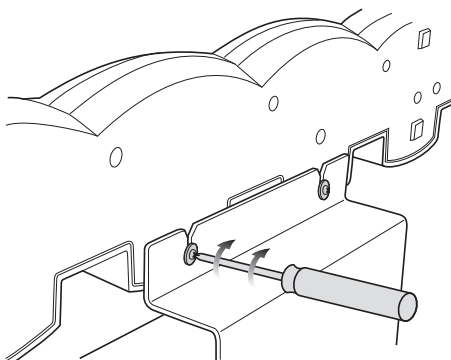
Figure 2-20 *Mounting Screws*

5. Connect power (see *Figure 2-16 on page 2-15*). The power supply should be located in the power supply well.

VCD5500 Vehicle Cradle

This section describes how to set up and use a VCD5500 vehicle cradle with the MC67.

Once installed in a vehicle, the cradle:

- holds the MC67 securely in place
- provides power for operating the MC67
- re-charges the battery in the MC67.

Requirements

For mounting:

- four #8-32 self-locking nuts
- four #8 washers
- a drill with a #6 drill bit (.204").

For power connection:

- power input cable (optional), p/n 25-61987-01R or 25-128974-01R
- UL Listed in-line fuse rated 250V, 5A (included), must be used if not connecting to vehicle's fuse panel
- in-line fuse holder (included), must be used if not connecting to vehicle's fuse panel.

Connector Pin-Outs

Table 2-5 *Power Input Cable*

Pin	Signal
1	Chassis ground (Black Wire)
2	Chassis ground (Bare Wire)
3	V+ (Red Wire)
4	V+ (Red Wire)
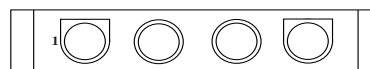
Connector on Power Cable

⚠ **CAUTION** ROAD SAFETY - Do not use the MC67 while driving. Park the vehicle first. Always ensure the MC67 is fully inserted into the cradle. Do not place it on the seat or where it can break loose in a collision or sudden stop. 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. Remember: Safety comes first.

Mounting the Cradle

⚠ **CAUTION** Only mount the Vehicle Cradle in a vertical position with the release level at the top or in a horizontal position with the MC67 display facing up. Never mount the vehicle cradle on the side or upside down or on a wall that can be subject to impact or collision of greater than 40Gs, in accordance with SAE J1455 Section 4.10.3.5

1. Select a mounting location for the cradle. It should be flat, and must provide adequate support for the cradle.

✓ **NOTE**   If using the GPS functionality of the MC67, ensure that the vehicle cradle is positioned so that the MC67 has a clear unobstructed view of the sky.

2. Prepare the mounting surface to accept four #8-32 studs, using the mounting template below. Drill four holes with a #6 drill bit.
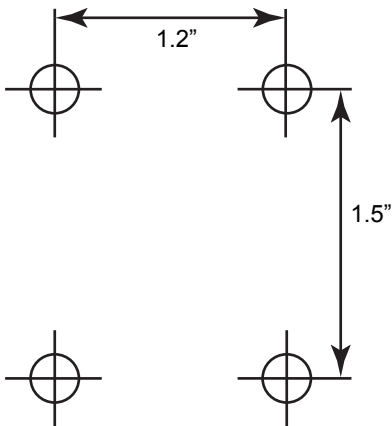
Figure 2-21   *Vehicle Cradle Mounting Template*

3. Position the cradle on the mounting surface.

4. Fasten it using four #8 washers and four #8-32 self-locking nuts.

⚠ **CAUTION**   Do not install a VCD5500 Vehicle Cradle on or near an air bag cover plate or within an aerobic zone. Also, do not install it in a location that affects vehicle safety or driveability.

Power Connection

Please read all of the following instructions before beginning.

⚠ **WARNING!**   **A properly trained technician must perform the power connection. Improper connection can damage your vehicle, cradle or MC67. Refer to the vehicle's Owner's Manual for instructions for removing power.**

To connect the cradle to power:

⚠ **CAUTION**   When setting up connection for this cradle, only use the power input cable, part number 25-61987-01R or 25-128974-01R.

1. Locate the vehicle power source.

✓ **NOTE**   The ideal location for connecting the vehicle cradle power input cable would be an accessory output in your vehicle's fuse panel. The vehicle cradle should be added to a circuit with a maximum load capacity for the cradle and the original circuit. Refer to the vehicle's *Owner's Manual* for identification of the circuit. If a fused output is not available, the vehicle cradle must be installed with the provided in-line fuse holder and UL Listed 5A fuse. The fuse protects the vehicle from an electrical short on the power line to the cradle.
To use the cradle to charge the MC67 and spare battery, when the vehicle's ignition is off, connect the cradle to unswitched power.

2. Route the power input cable from the cradle's power port to the connection point for the vehicle's power source.

⚠ **CAUTION**   The means of routing and securing the power input cable from the cradle through to the vehicle power source is extremely important. Hazards associated with improper wiring can be severe. To avoid unintentional contact between the wire and any sharp edges, provide the cable with proper bushings and clamping where it passes through openings. If the wire is subjected to sharp surfaces and excess engine vibration, the wiring harness insulation can wear away, causing a short between the bare wire and chassis. This can start a fire.
To avoid any mishaps, all wiring should be routed away from moving parts, high temperature areas and any contaminants.

3. When using the supplied in-line fuse holder (which must be used if not connecting to vehicle's fuse panel):

    a. Ensure the fuse holder contains a 5A UL Listed slow-blow fuse.

    b. Splice the fuse holder to the end of the red V+ wire, as shown above. Make the distance from the fuse to the power connection point as short as possible.
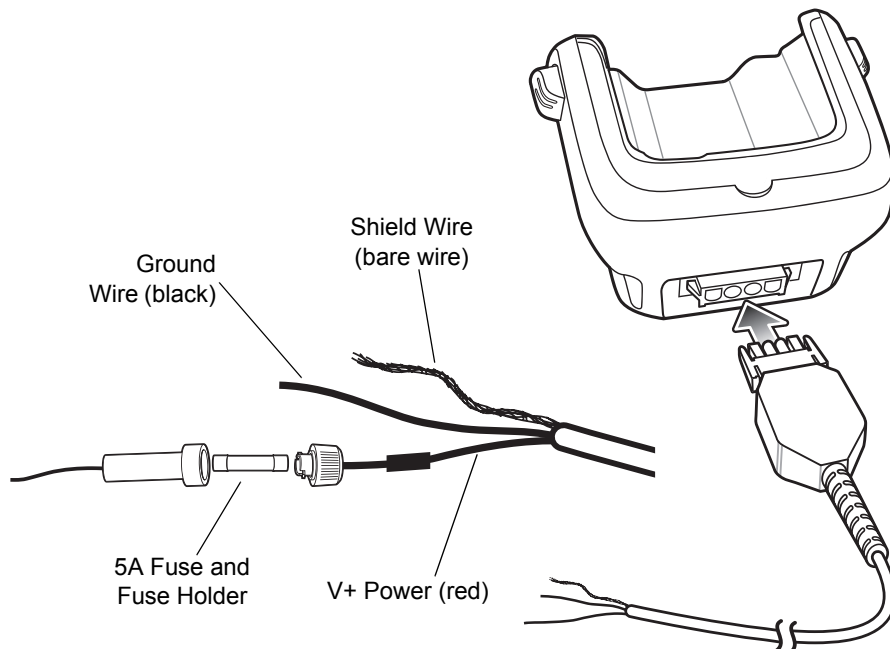
Figure 2-22   *Vehicle Cradle Power Connection*

4. Prepare the cable termination.

    a. Red wire: connect to a +12/24 V vehicle power source.

    b. Black wire and Shield wire: connect to vehicle ground wire or chassis ground.

✓ **NOTE**   How the cable terminates depends on the vehicle. If the vehicle has a power output connector, then you must attach a mating connector to the end of the power cable. You may be able to connect to a fuse panel with a simple blade terminal or commercially available connector. Consult the vehicle *Owner's Manual* for information on how to access the power supply in the vehicle.

5.   Connect the power input cable into the power port on the cradle.

To see if the cradle has power, insert the MC67. The Charging LED on the MC67 blinks slowly to indicate charging and turns solid amber when the battery is completely charged. See *Table 1-1 on page 1-6* for other indications.

Charging the MC67 Battery

Insert the MC67 into the vehicle cradle to begin charging. A click indicates that the MC67 button release locking mechanism is enabled and the MC67 is locked in place.

Release Lever
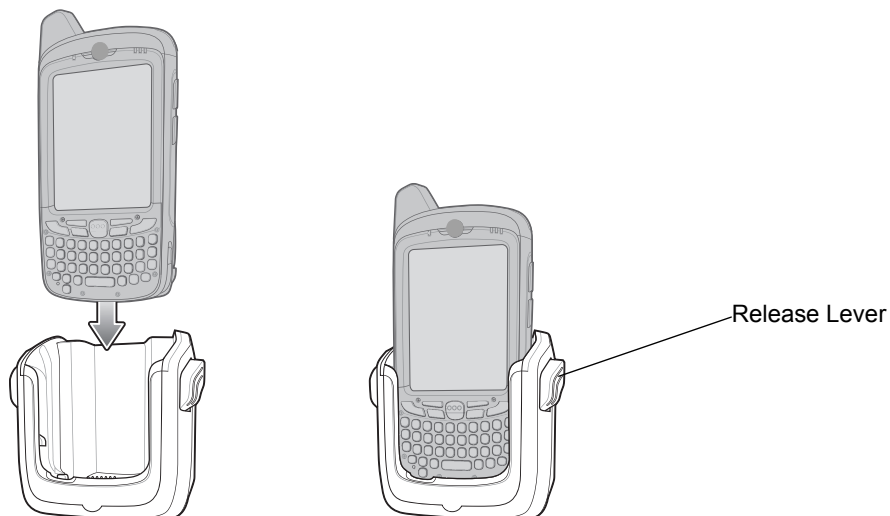
Figure 2-23   *MC67 Battery Charging*

⚠ **CAUTION**   Ensure the MC67 is fully inserted in the cradle. Lack of proper insertion may result in property damage or personal injury. Zebra, Inc. is not responsible for any loss resulting from the use of the products while driving.

Removing the MC67

To remove the MC67, press the release levers on the cradle and pull the MC67 up and out of the cradle.
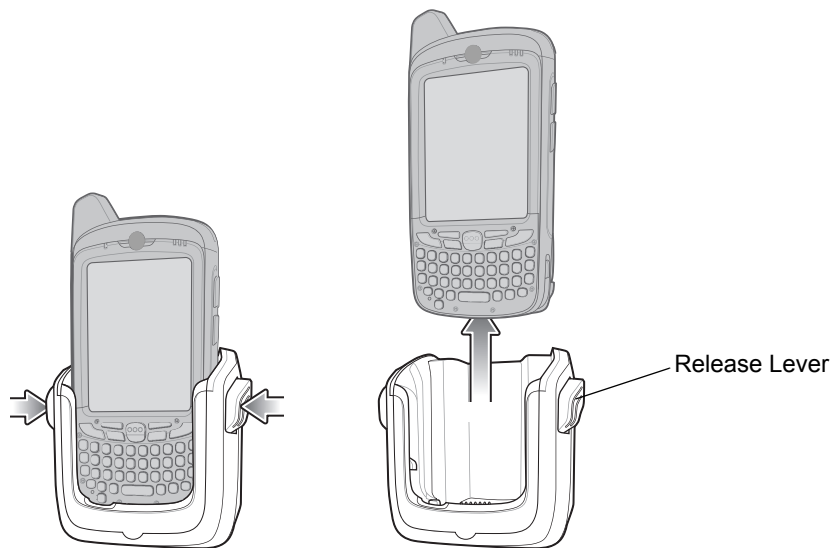
Figure 2-24   *Removing the MC67*

Battery Charging Indicators

The MC67's charge LED indicates the status of the battery charging in the MC67. See *Table 1-1 on page 1-6* for charging status indications.

The 3600 mAh battery charges in approximately six hours.

Charging Temperature

Charge batteries in temperatures from 0 °C to 40 °C (32 °F to 104 °F). Charging is intelligently controlled by the MC67.

To accomplish this, for small periods of time, the MC67 alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC67 indicates when charging is disabled due to abnormal temperatures via its LED. See *Table 1-1 on page 1-6*.

Four Slot Battery Charger

This section describes how to use the Four Slot Battery Charger to charge up to four MC67 spare batteries.

Spare Battery Charging

1. Connect the charger to a power source.

2. Insert the spare battery into a spare battery charging well and gently press down on the battery to ensure proper contact.

Figure 2-25   *Four Slot Spare Battery Charger*

Battery Charging Indicators

An amber LED is provided for each battery charging well. See *Table 2-6* for charging status indications. The 3600 mAh battery charges in approximately six hours.

Charging Temperature

Charge batteries in temperatures from 0 °C to 40 °C (32 °F to 104 °F). Charging is intelligently controlled by the charger in order to ensure safe operation and optimize long-term battery life.

To accomplish this, for small periods of time, the charger alternately enables and disables battery charging to keep the battery at acceptable temperatures. The charger indicates when charging is disabled due to abnormal temperatures via its LED. See *Table 2-6*.

Table 2-6   *Spare Battery LED Charging Indicators*

LED	Indication
Off	No spare battery in slot; spare battery not placed correctly; cradle is not powered.
Fast Blinking Amber	Error in charging; check placement of spare battery.
Slow Blinking Amber	Spare battery is charging.
Solid Amber	Charging complete.

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 Charging cable
- Charge Only cable
- Auto Charge cable
- DEX cable.

USB Charging Cable

The USB Charging cable provides the MC67 with operating and charging power when used with the Zebra approved power supply and AC line cord and synchronize information between the MC67 and a host computer.
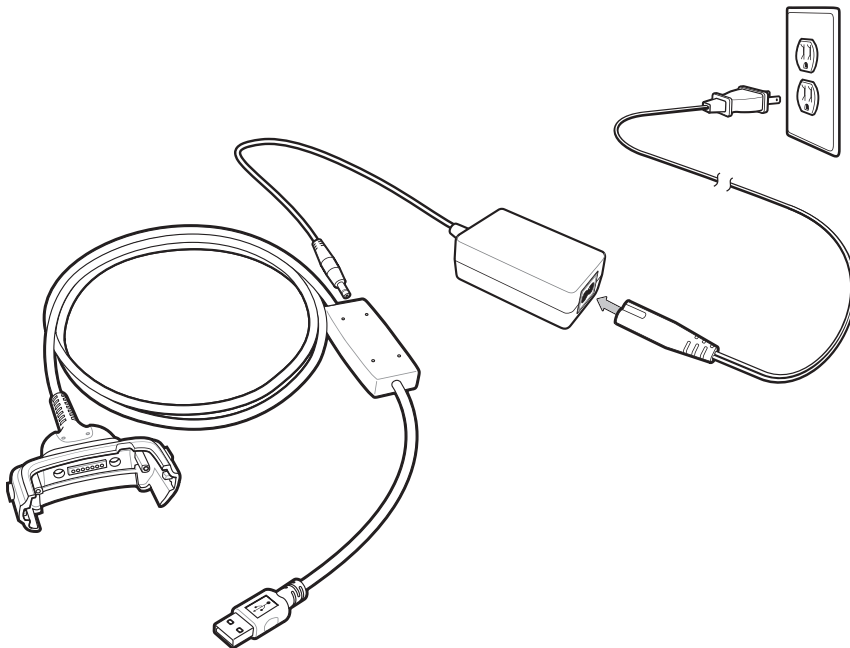
Figure 2-26   *USB Charging Cable*

Charge Only Cable

The Charge Only cable provide the MC67 with operating and charging power when used with the Zebra approved power supply.
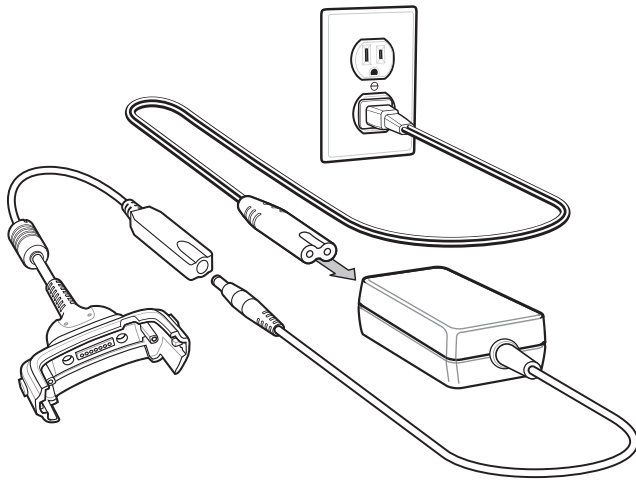
Figure 2-27   *Charge Only Cable*

Auto Charge Cable

The Auto Charge cable plugs into a vehicle cigarette lighter and provide the MC67 with operating and charging power.
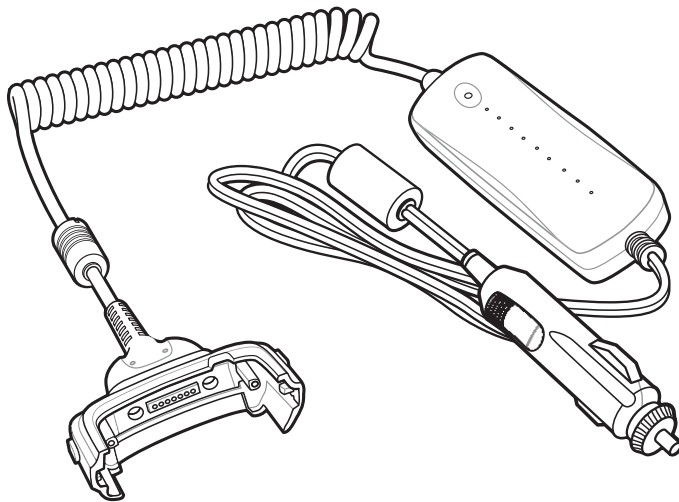
Figure 2-28   *Auto Charge Cable*

Connecting to the MC67

1. If required, connect the cable power input connector to the Zebra approved power source.

2. Slide the bottom of the MC67 into the connector cup end of the cable until the MC67 is firmly seated in the cup.

3. Slide the two locking tabs up until they both lock into position.
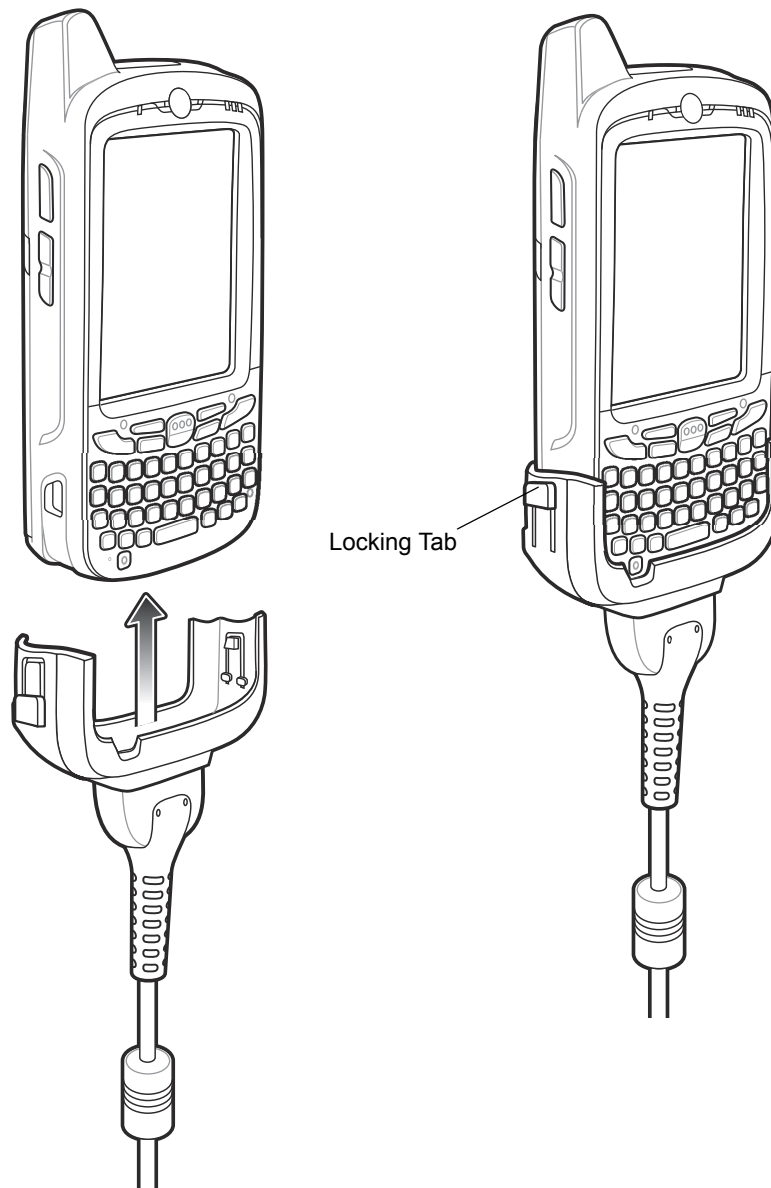
Figure 2-29 *Cable Cup Locking Tabs*

4. To remove, slide the two locking tab down and remove the cable from the MC67.

Battery Charging Indicators

The MC67 amber Charge LED indicates the MC67 battery charging status. The 3600 mAh battery charges in less than six hours. See *Table 1-1 on page 1-6* for charging status indications.

Charging Temperature

Charge batteries in temperatures from 0 °C to 40 °C (32 °F to 104 °F). Charging is intelligently controlled by the MC67.
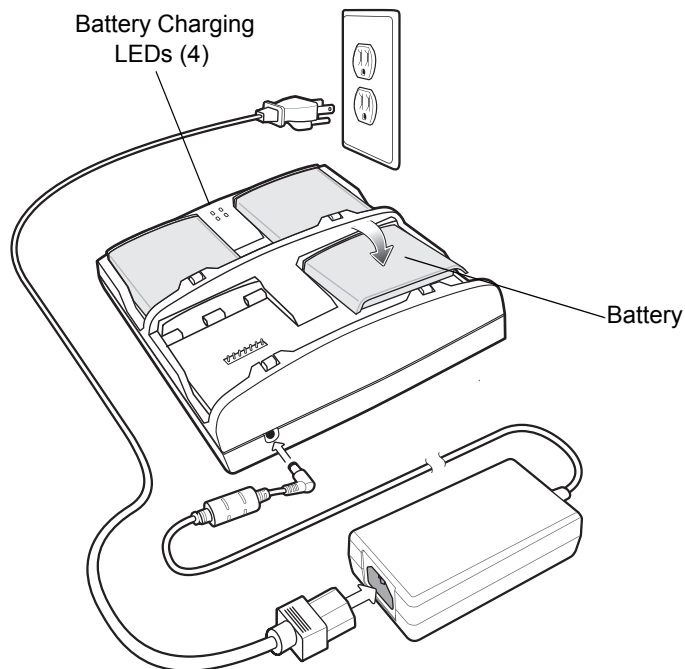
To accomplish this, for small periods of time, the MC67 alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC67 indicates when charging is disabled due to abnormal temperatures via its LED. See *Table 1-1 on page 1-6*.

Vehicle Holder

> ⚠️ **WARNING!** **Some countries prohibit the mounting of any electronic device in any location on the vehicle dashboard and windshield. Be sure to check your local laws acceptable mounting areas before installing the auto mounting kit.**

Installation Reminders
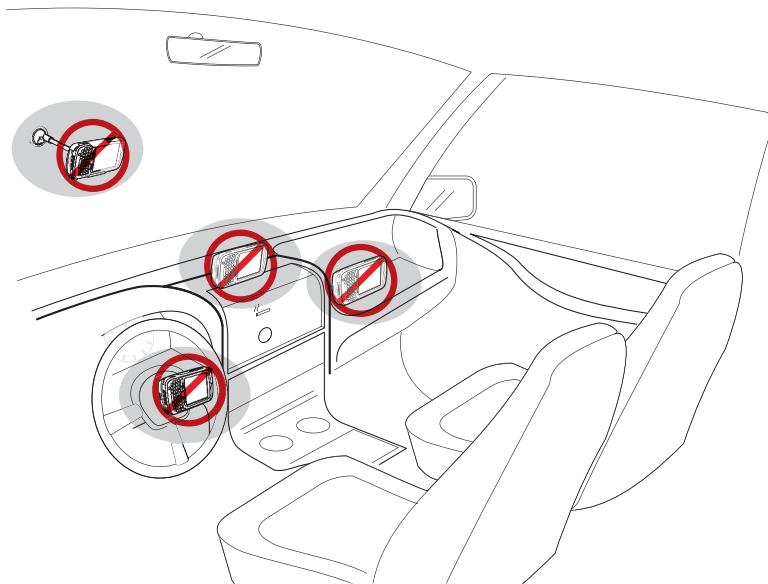
Figure 2-30 *Vehicle Holder Mounting*

- Do not mount the vehicle holder where it will obscure the driver's view of the road.
- Do not mount the vehicle holder near the driver seat air bag deployment area.
- Do not place the MC67 on top of the dashboard or anywhere without securing it in the vehicle holder.
- Do not mount the vehicle holder near the passenger seat air bag deployment area.
- Install the vehicle holder on the surface of your vehicle that is reasonably flat and free of dirt and oil.

Device Mounting Precautions

- Some countries prohibit the mounting of any electronic device in any location on the vehicle dashboard. Be sure to check your local laws acceptable mounting areas before installing the vehicle holder.
- The heating and cooling cycle of a vehicle's interior will in some cases loosen the adhesion of the suction cup. Check the vacuum seal of the vehicle mount kit for adequate adhesion each time you use the unit, and reinstall if necessary.
- If the vehicle holder has problems staying on, clean the plastic suction cup with alcohol, then reinstall.

Installation

Install the vehicle mount on the surface of your vehicle that is reasonably flat and free of dirt and oil. Clean the mounting surface with a glass cleaner and a clean cotton cloth. Install the vehicle mount on the windshield or other flat car surface using the supplied mounting disc.

Assembly

1. Insert the vehicle holder's cradle plate to the holes on the back of the cradle.

2. Push the cradle down until both parts are engaged.

Windshield Installation

1. Fix the suction cup mount to the selected area with the suction lever facing up.
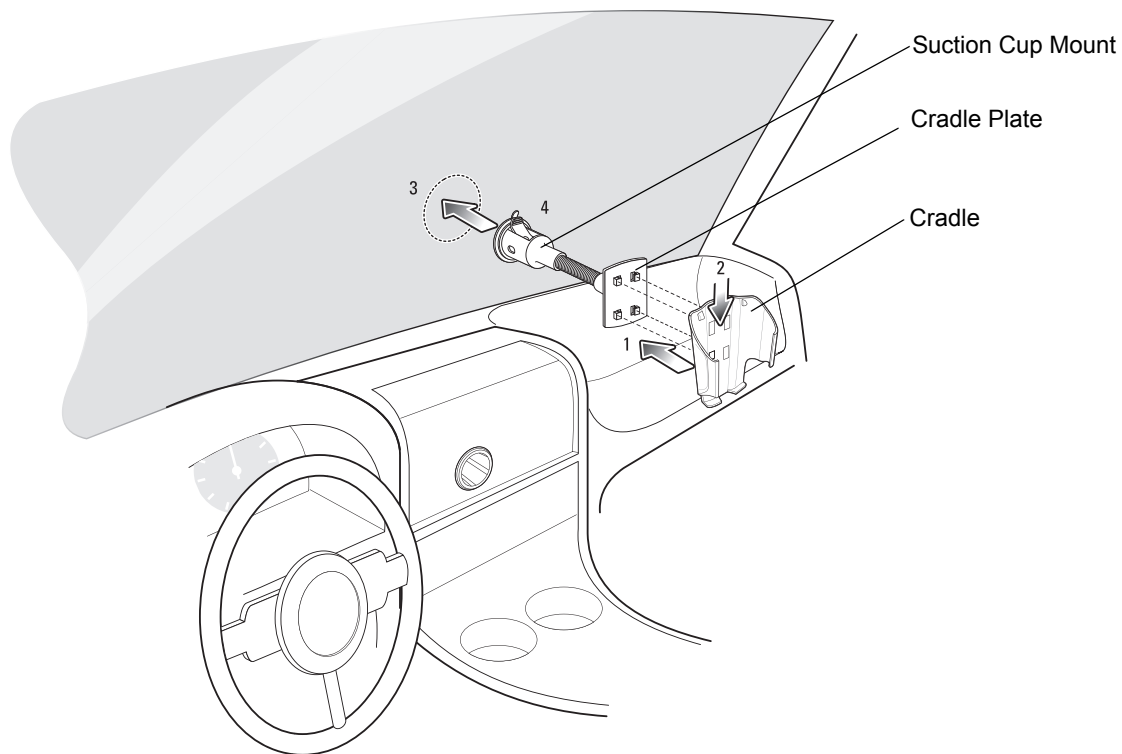
Figure 2-31 *Windshield Installation*

2. Flip the lever down to create a vacuum between the suction cup and the mounting surface.

3. Make sure that the suction bond is strong enough before proceeding to the next step.

4. Slide the MC67 into the cradle.
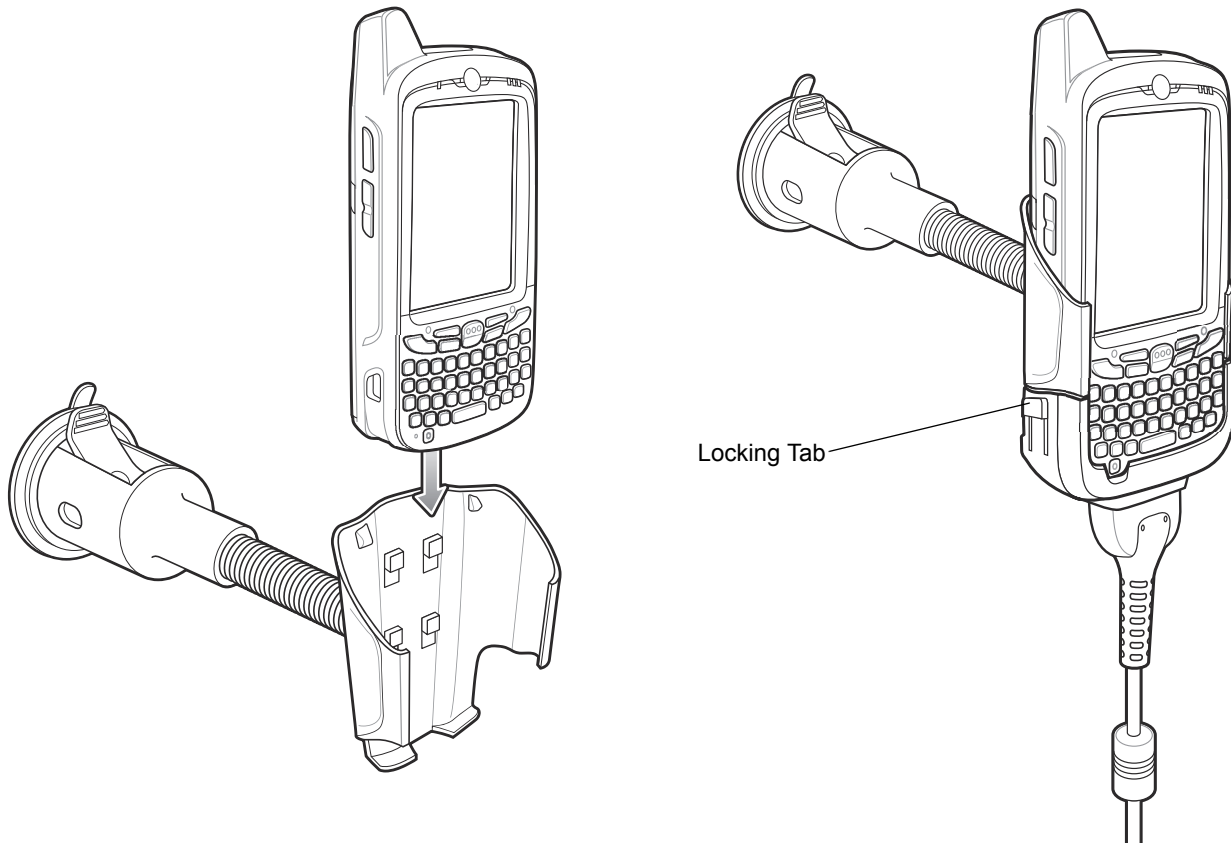
Figure 2-32   *Insert MC67 into Vehicle Holder*

5. Connect the auto charger cable to the MC67 and slide the two locking tabs up to secure the cable cup to the MC67.

6. Connect the other end to the cigarette lighter socket.

    The LED indicator on the right side of the touch screen lights up orange during charging.

✓ **NOTE**   Prior to removing the MC67 from the vehicle holder, disconnect the auto-charge cable from the MC67.

Flat Surface Installation

1. Remove the plastic sheet on the bottom of the mounting disc.

2. Place the disc, sticky side down, on a clean flat surface.
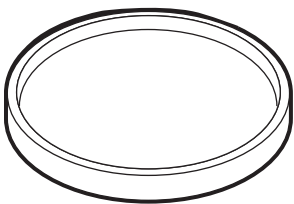
Figure 2-33   *Mounting Disc*

3. Fix the suction cup mount to the disc with the suction lever facing up.

4. Flip the lever down to create a vacuum between the suction cup and the disc.

5. Make sure that the suction bond is strong enough before proceeding to the next step.

6. Slide the MC67 into the cradle.
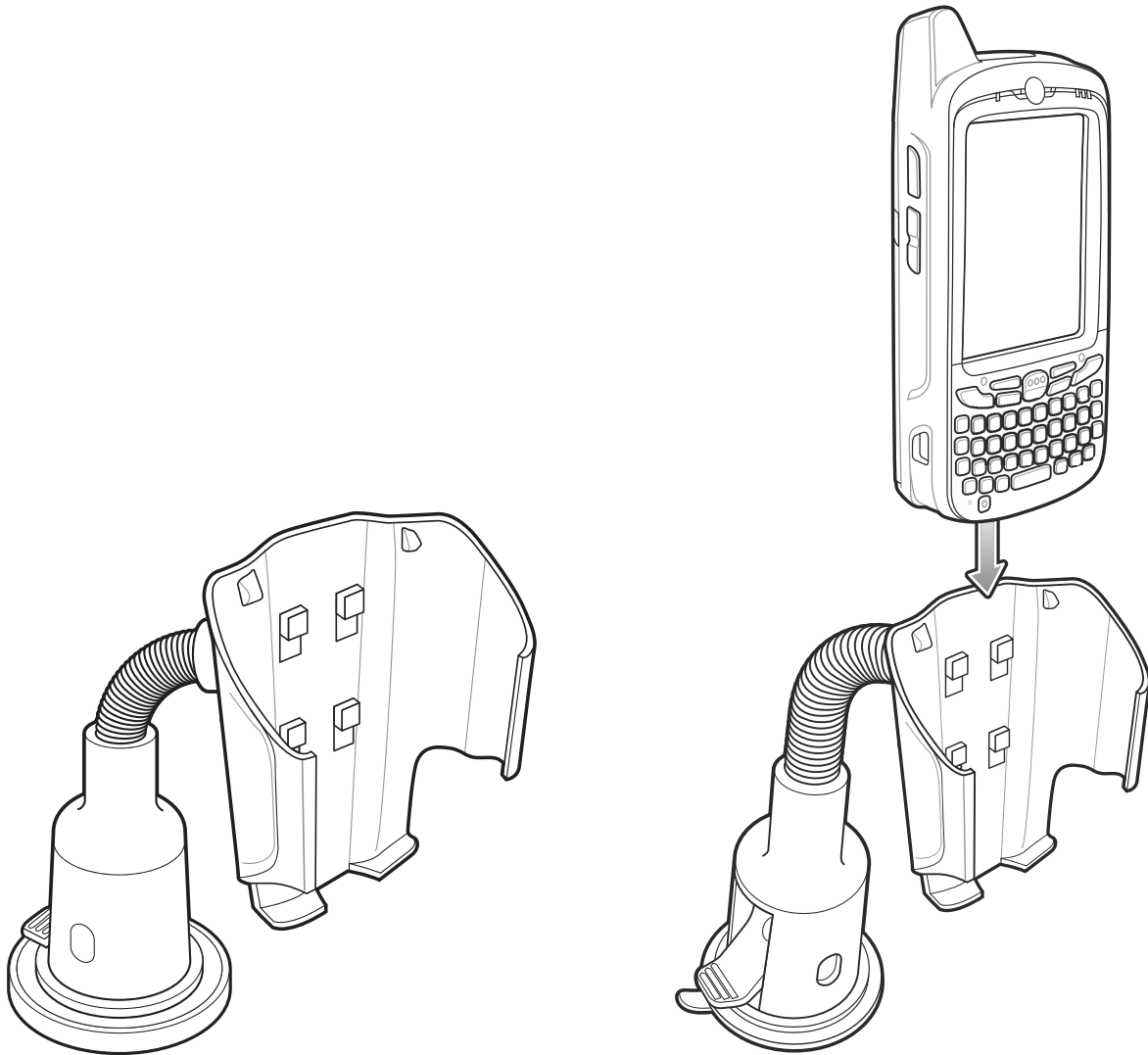
Figure 2-34   *Vehicle Holder Mounted on Flat Surface*

7. Connect the auto charger cable to the MC67 and slide the two locking tabs up to secure the cable cup to the MC67.

8. Connect the other end to the cigarette lighter socket.

   The LED indicator on the right side of the touch screen lights up orange during charging.

Handstrap Replacement

Removal

To remove a handstrap from the MC67:

⚠️ **CAUTION**   Close all running applications prior to replacing the handstrap. The backup battery maintains data for up to 15 minutes. If replacement takes longer than 15 minutes data may be lost.

1. If the MC67 is in suspend mode, press the red **Power** button to wake the MC67.

2. Press the red **Power** button. The **Power Action Key** window appears.

3. Tap **Safe Battery Swap**. The Data Capture LED lights red.

4. When the LED turns off, remove the handstrap.
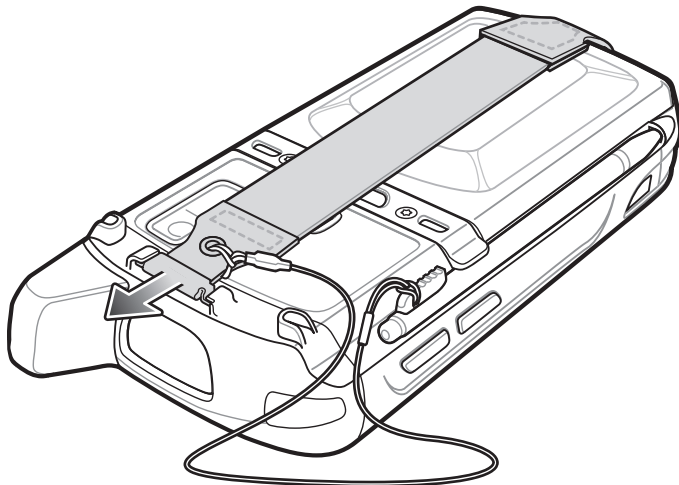
Figure 2-35   *Handstrap Clip Removal*

5. Remove the battery.

⚠️ **CAUTION**   When removing handstrap pin, be careful not to damage handstrap mounting area.

6. Using a small flat screwdriver, push the head of the screwdriver between the handstrap pin and the bottom of the housing as shown below.

7. Pry the handstrap and pin up and out of the handstrap mount area.
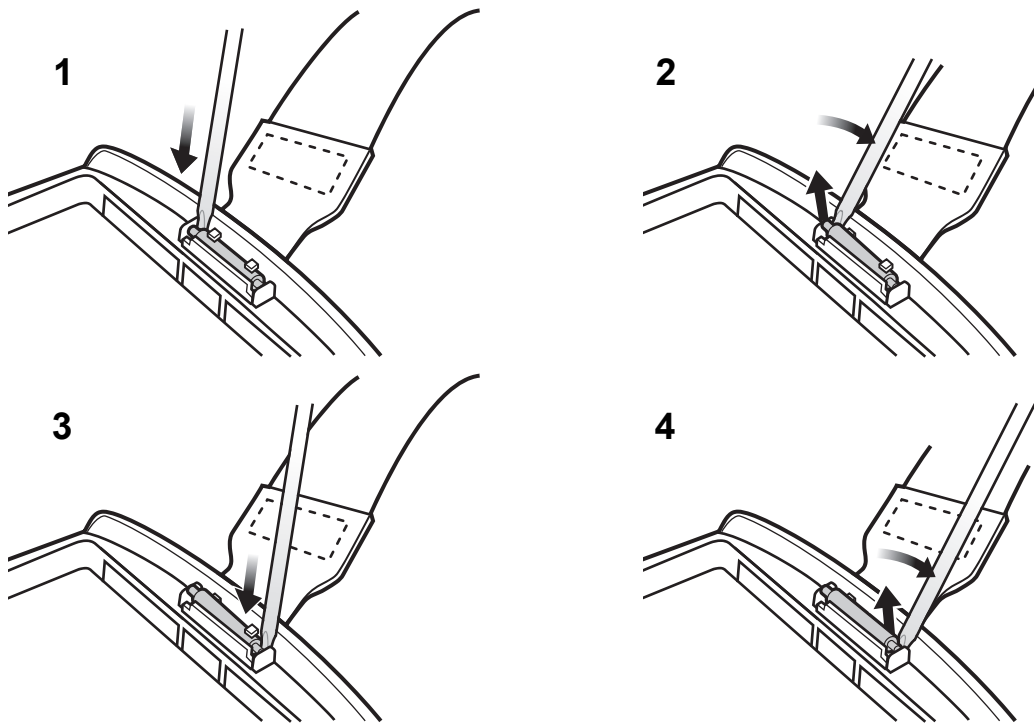
Figure 2-36   *Handstrap and Pin Removal*

8. Repeat for the other side of the handstrap.

9. Remove pin from the handstrap.
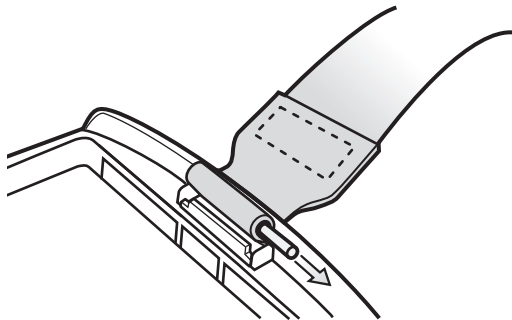
Figure 2-37   *Pin Removal*

10. Pull handstrap through handstrap slot.

Installation

To install a new handstrap:

1. Feed bottom end of handstrap into handstrap slot on the bottom of the MC67.
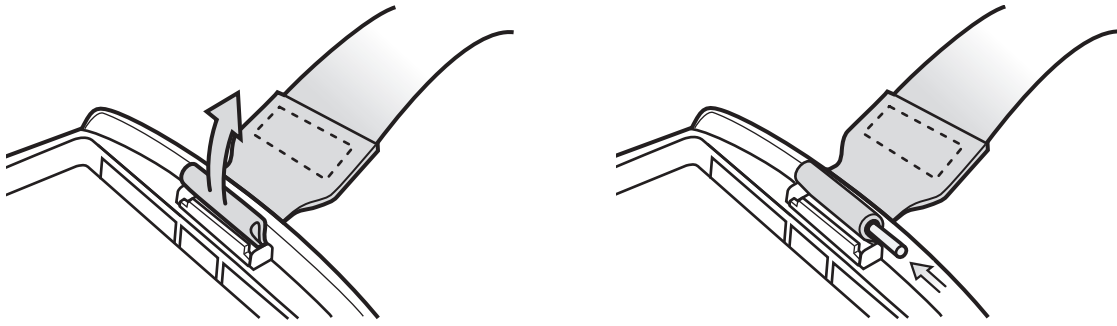
Figure 2-38   *Feed handstrap into Handstrap Slot*

2.   Slide pin into bottom of handstrap.

3.   Center the pin in the handstrap loop.

✓   *NOTE*   Handstrap and pin should fit securely into the handstrap mounting area. When pulling on handstrap use enough force to engage pin into place.

4.   Pull handstrap so that the pin and bottom of handstrap slide into position in the mounting area.
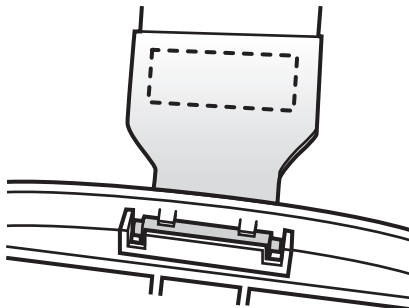
Figure 2-39   *Pin and Handstrap in Mounting Area*
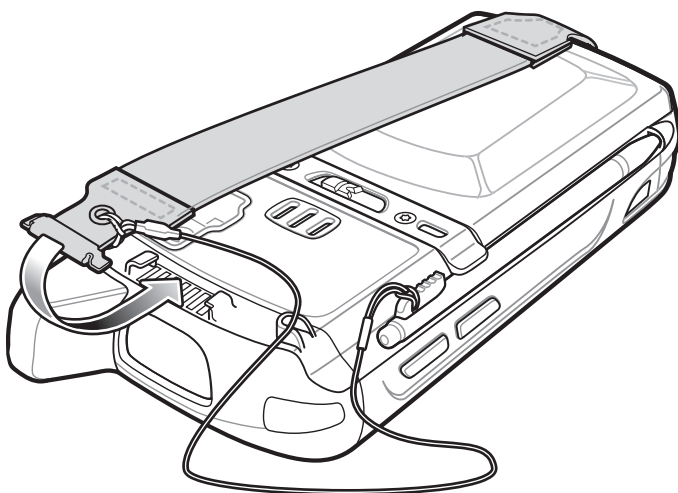
Figure 2-40   *Slide Handstrap and Tether Over Handstrap Mount*

5.   Slide tether loop over handstrap.

6.   Insert the handstrap clip into the slot on the device. Ensure that it is securely in place.

Chapter 3 Synchronization

Introduction

Synchronization lets the user manage information between an MC67 and a host computer so that changes made either on the MC67 or on the host computer appear in both places. Download and install sync software to the host computer (either Microsoft ActiveSync for Windows XP or Windows Mobile Device Center (WMDC) for Windows Vista and Windows 7) in order to use the sync feature. Visit www.microsoft.com on the host computer for details.

> ✓ **NOTE**   When the MC67 is connected to a host computer and a sync connection is made, the Wi-Fi radio is disabled. This is a Microsoft security feature to prevent connection to two networks at the same time.

The sync software:

- Allows working with MC67-compatible applications on the host computer. The sync software replicates data from the MC67 to view, enter, and modify data on the host computer.

- Synchronizes files between the MC67 and the host computer, converting the files to the correct format.

- Backs up the data stored on the MC67. Synchronization is a one-step procedure that ensures the data is always safe and up-to-date.

- Copies (rather than synchronizes) files between the MC67 and the host computer.

- Controls when synchronization occurs by selecting a synchronization mode. For example, synchronize continuously while the MC67 is connected to the host computer, or synchronize only on command.

- Selects the types of information to synchronize and control how much data is synchronized.

Installing the Sync Software

To download and install either Microsoft ActiveSync (for Windows XP) or WMDC (for Windows Vista and Windows 7), visit www.microsoft.com and follow the instructions for the host computer.

MC67 Setup

> ✓ **NOTE**   Microsoft recommends installing the sync software on the host computer before connecting the MC67.

The MC67 can be set up to communicate with a USB connection. The MC67 communication settings must be set to match the communication settings used with ActiveSync or WMDC.

1. On the MC67 tap 🟦 > **Programs** > **ActiveSync** icon. The **ActiveSync** window appears.

2. Tap **Menu** > **Connections**.

3. Select the connection type from the drop-down list.

4. Tap **OK** to exit the **Connections** window and tap **OK** to exit the **ActiveSync** window.

5. Proceed with installing ActiveSync or WMDC on the host computer and setting up a partnership.

Setting Up a Sync Connection

ActiveSync

1. Select **Start** > **Programs** > **Microsoft ActiveSync** on the host computer. The **ActiveSync Window** displays.
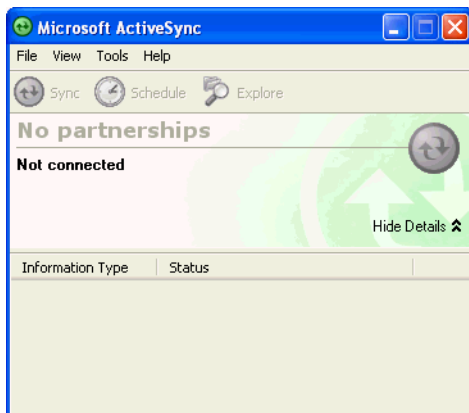
Figure 3-1   *ActiveSync Window*

>   **NOTE**   Assign each MC67 a unique device name. Do not try to synchronize more than one MC67 to the same name.

2. In the **ActiveSync** window, select **File** > **Connection Settings**. The **Connection Settings** window appears.

Figure 3-2   *Connection Settings Window*

    3.   Select **Allow USB connections** check box.

    4.   Select the **Show status icon in taskbar** check box.

    5.   Select **OK** to save any changes made.

Windows Mobile Device Center

    1.   Select **Start** > **All Programs** > **Windows Mobile Device Center** on the host computer.

Figure 3-3   *Windows Mobile Device Center Window*

    2.   In the WMDC window, under **Mobile Device Settings**, click **Connection** settings.
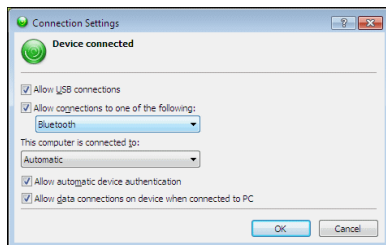
Figure 3-4   *Connection Settings Window*

    3.   Select **Allow USB connections and adjust any additional settings as needed**.

    4.   Click **OK** to save your settings.

Synchronization

    ✓   ***NOTE***   When the MC67 is connected to your computer and a sync connection is made, the Wi-Fi radio (if applicable) is disabled. This is a Microsoft security feature to prevent connection to two networks at the same time.

To synchronize with the MC67:

    1.   Connect the MC67 to your computer using the provided USB cable.

    2.   If the **Get Connected** window does not appear on your computer, select **Start** > **All Programs** > **Microsoft ActiveSync** or **Windows Mobile Device Center**.

    3.   Click **Next**.

    4.   Select the check box to synchronize with a server running Microsoft Exchange if applicable.

5.   Click **Next**.
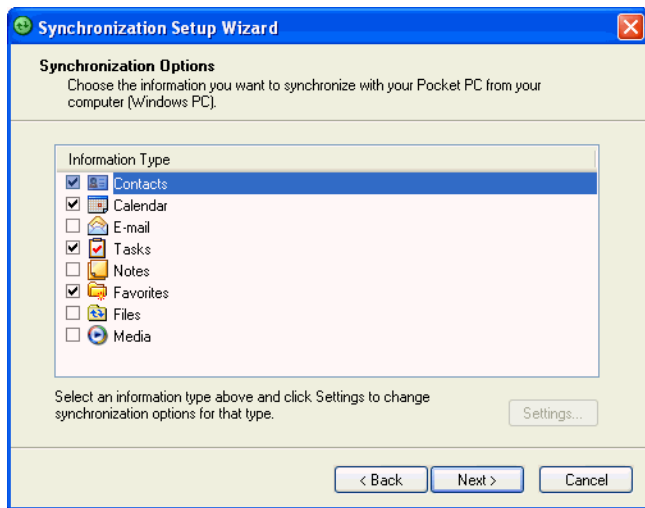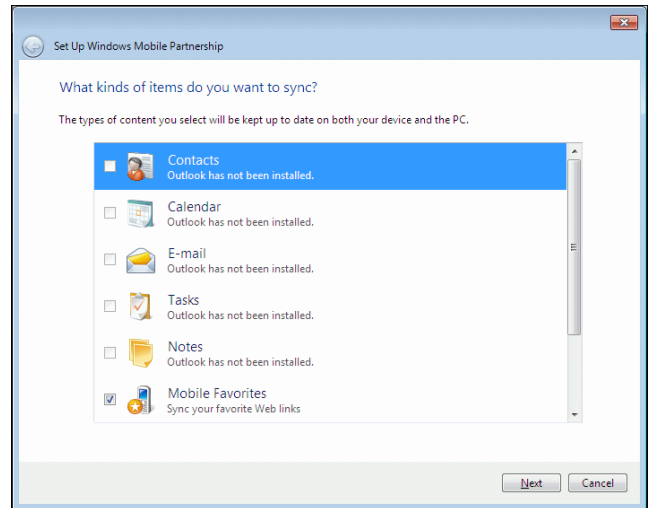
ActiveSync   WMDC

Figure 3-5   *Select Synchronization Settings*

6.   Select the appropriate settings and click **Next**.
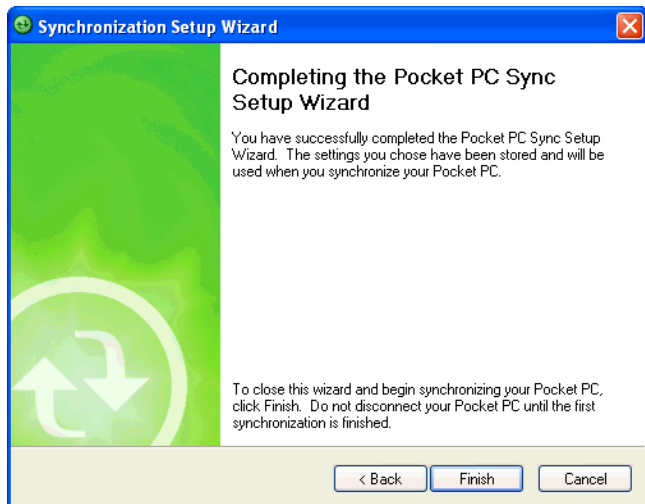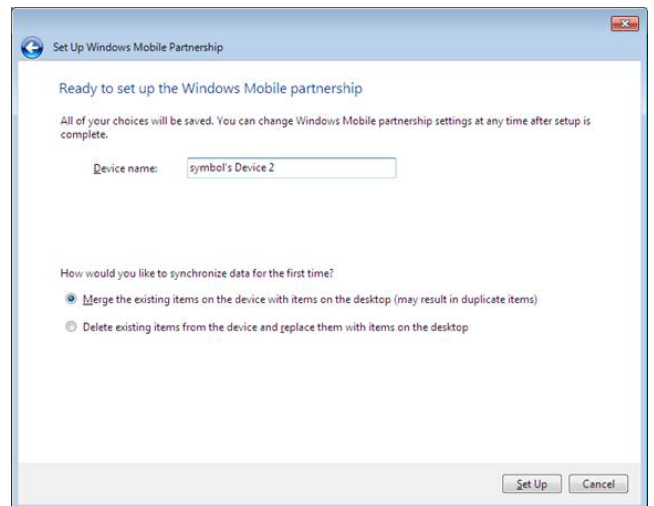
ActiveSync   WMDC

Figure 3-6   *Setup Complete Window*

7.   Click **Finish**.
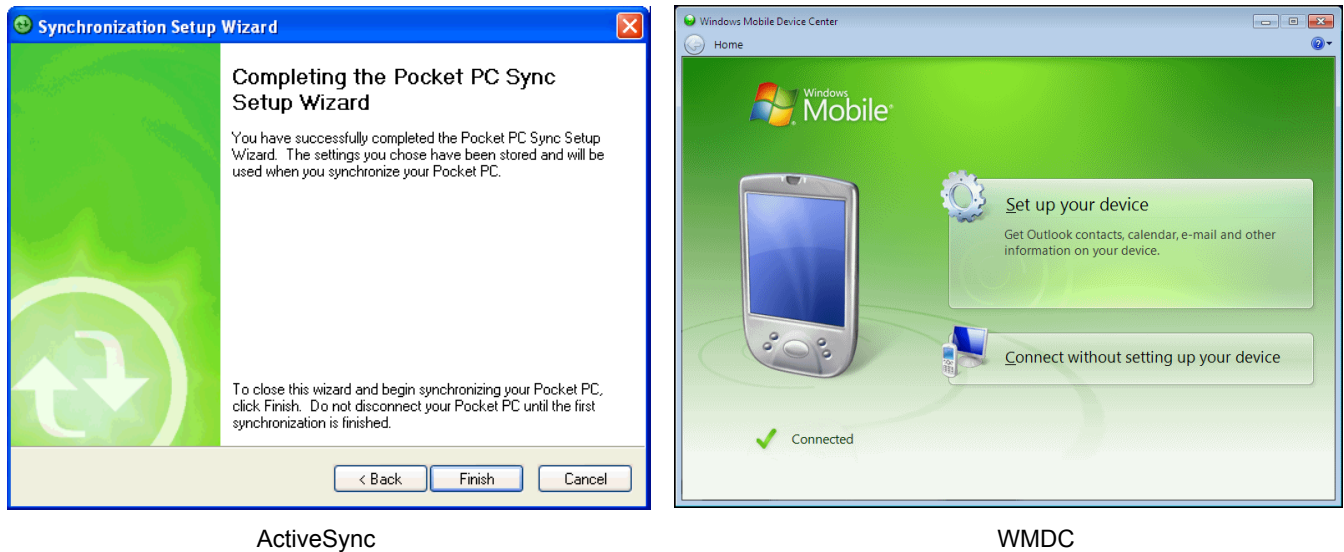
ActiveSync   WMDC

Figure 3-7   *Connected Window*

During the first synchronization, information stored on the MC67 is copied to the host computer. When the copy is complete and all data is synchronized, the MC67 can be disconnected from the host computer.

✓   *NOTE*   The first synchronization operation must be performed with a local direct connection. Windows Mobile retains partnerships information after a cold boot.

CHAPTER 4   WAN GSM CONFIGURATION

Introduction

This chapter explains how to verify MC67 service on an Global System for Mobile communications (GSM) wireless network and establish settings.

GSM networks deliver mobile voice and data services, such as Short Message Service (SMS)/Text Messaging, with full roaming capabilities across the world. High-speed Packet Access + (HSPA+) enabled networks offer Internet-based content and packet-based data services. This enables services such as internet browsing, e-mail on the move, powerful visual communications, multimedia messages, and location-based services.

When using the MC67 as a phone, services can include speed dialing, call tracking, voice mail, call forwarding, conference calling, and caller ID, depending on the type of service.

Also use the integrated phone as a modem to connect the MC67 to an ISP or work network. The GSM enabled MC67 can connect to the Internet or work network using Cellular Line, or using the modem specified by the mobile phone service provider.

✓ *NOTE* Before using an MC67 on a wireless network, first select a provider, establish a voice and data-enabled service plan, and configure the MC67 (where applicable). Refer to the *MC67 User Guide* for information on how to use the phone and services.

MC67 Service Verification

MC67 phone and data services require a live SIM card, obtained from a service provider, installed in the MC67. The SIM card has embedded circuitry on one side of its surface which, when inserted into an MC67, provides phone service. The SIM card provides a phone number, determines the features or services available to the subscriber and identifies the subscriber to the network.

With most SIM card, the MC67 automatically configures the data connection, otherwise it is required to manually configure the data connection before using.

Ensuring Network Coverage

To ensure network coverage:

1.   Ensure an activated SIM card, from the phone service provider, is installed in the MC67.

> **NOTE**   The SIM card must be enabled to connect to the network.

2.   Verify active phone and data services by tapping the Status bar and then ▱ to display the **Phone** dialog. The Carrier name appears in the dialog box.
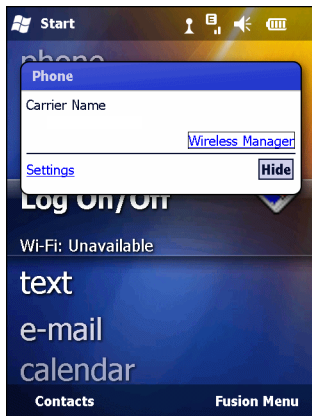
Figure 4-1   *Connectivity Dialog*

3.   Verify SIM card functionality:

    a.   Tap ▱ > **Settings** > **Personal** > **Phone** > **Network**.
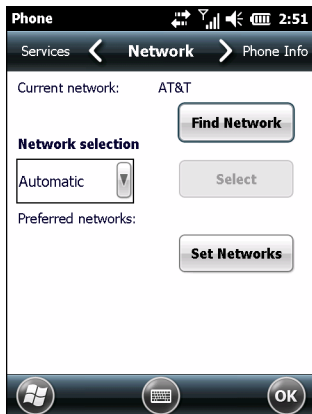
Figure 4-2   *Phone Settings - Network*

    b.   Ensure the service provider's network appears in the **Current network:** field.

    c.   If the network does not appear, tap **Find Network**. If the network still does not appear, verify that the SIM card was installed correctly. If it was, and no network appears, contact the service provider.

Manually Configuring a Data Connection

If a data connection is not automatically configured, manually configure the data connection:

1.   Acquire an Access Point Name (APN) from the service provider.

2.   Tap ▱ > **Settings** > **Connections** > **Connections** > **Tasks**.
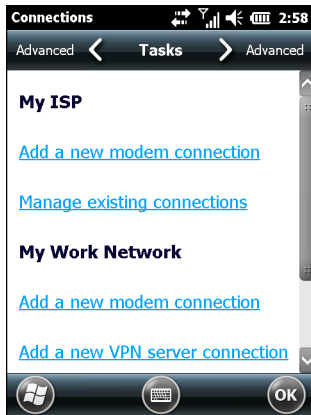
Figure 4-3   *Connections Window*

3.   Under **My ISP** select **Add a new modem connection**.
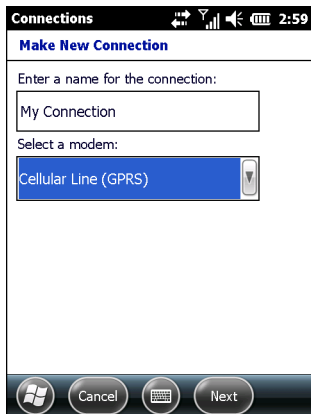
Figure 4-4   *Connections Window - Make New Connection*

4.   Enter a connection name in the **Enter a name for the connection:** text box.

5.   Select **Cellular Line (GPRS)** from the **Select a modem:** drop-down list.
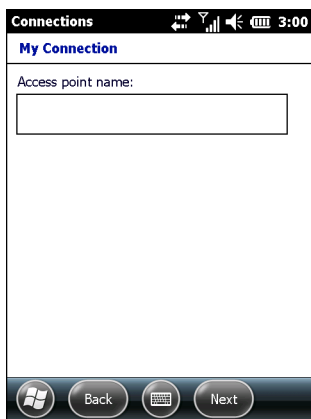
6.   Tap **Next**.

Figure 4-5   *Connections Window - Access Point Name*

7.   Enter the APN from the service provider in the **Access point name:** text box.

8.   Tap **Next**.
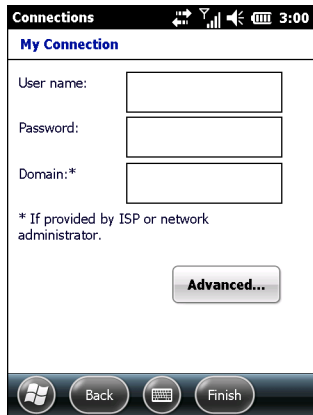
Figure 4-6 *Connections Window - User Name & Password*

9. Enter a username in the **User name** text box, if required by the service provider.

10. Enter a password in the **Password** text box, if required by the service provider.

11. Enter a domain name in the **Domain** text box, if required by the service provider.

12. Tap **Finish**.

13. Tap **OK** to exit **Connections**.

Establishing a Data Connection

To establish a data connection:

1. Ensure a SIM card is installed in the MC67.

2. Configure a data connection. See *Manually Configuring a Data Connection on page 4-2*.

3. Tap the Status bar and then .
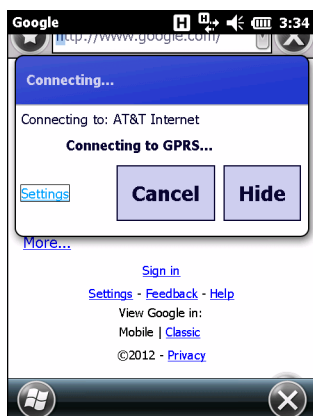
Figure 4-7 *Connectivity Dialog Box*

4. Tap **Settings**.

5. Tap **Managing existing connections**.

6. Tap and hold on the data connection until a menu appears.
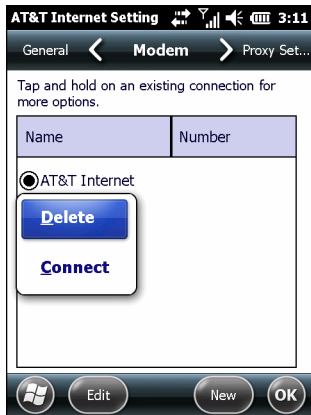
Figure 4-8   *Data Connection*

7.   Select **Connect**.
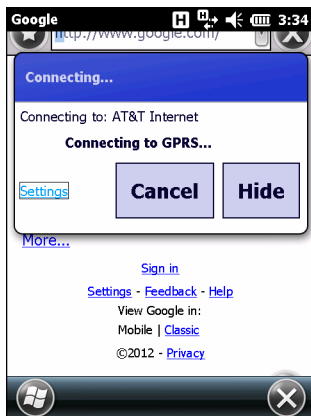
Figure 4-9   *Connecting Using GPRS*

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

Ending a Data Connection

To end a data connection:

1.   Tap the Status Bar and then to display the **Connectivity** dialog box.
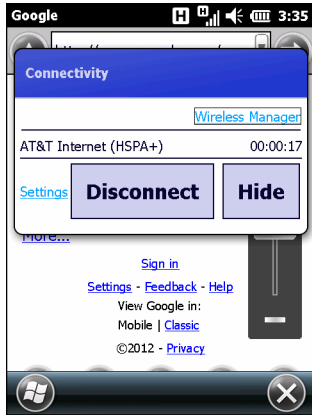
Figure 4-10   *Connectivity Dialog Box*

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.

MC67 Settings

Use the **Phone Settings** window to customize settings, such as the ring type and ring tone for incoming calls, security options, and other options depending on the type of service.

Sounds

Use the **Sounds** tab to customize ring type, ring tone, keypad tone, and security options.

Tap 🔲 > **Settings** > **Personal** > **Phone** or tap 🔲 > **Phone** > **Menu** > **Options**.
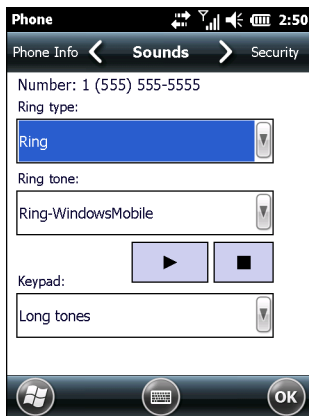
Figure 4-11   *Phone - Sounds*

- **Phone Number** automatically displays on the when a live SIM card is installed.

- Select a ring type from the **Ring type:** drop-down list. The ring type changes the way the MC67 rings when you receive an incoming call. Regardless of the ring type selected, a dialog box appears on the MC67's display for incoming calls.

- Select a ring tone for incoming calls from the **Ring tone:** drop-down list. To hear a sample of the selected ring tone, tap ▶ . Tap ■ to end the ring tone.

> **NOTE**   To use custom .wav, .mid, or .wma files as ring tones, use ActiveSync on the host computer to copy the file to the /Windows/Rings folder on the MC67. Then select the sound from the ring tone list.

- Select a keypad tone from the **Keypad:** drop-down list. This selection determines the tone that sounds when entering a phone number on the keypad.

  Select **Short tones** or **Long tones** to specify the duration of the sound when you press a number on the keypad. Select **Off** to disable tones.

> **NOTE**   Turning off sounds saves power and prolongs battery life.

Security

Enabling a PIN

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

To require a PIN when using the phone:

1. From the **Security** tab (*Figure 4-11*), select the **Require PIN when phone is used** check box.
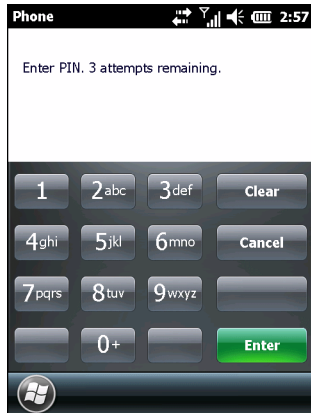
Figure 4-12   *Enter PIN*

2. Use the touch keypad to enter a four to eight digit PIN.

3. Tap **Enter** to enable the PIN and return to the **Phone** tab.

Changing a PIN

> ⚠️ **CAUTION**   If the user enters an incorrect PIN, the message "SIM PIN incorrect: Try again" appears. After three consecutive incorrect attempts, the SIM card is blocked. The MC67 does not allow the user to attempt to enter your PIN again and the user must obtain a PIN Unblock Key from the service provider.

1. From the **Security** tab (*Figure 4-11*), tap **Change PIN**.

2. Use the touch keypad to enter the current PIN.

3. Tap **Enter**.

4. Use the touch keypad to enter a new four to eight digit PIN.

5. Tap **Enter**.

6. Reenter the new PIN for confirmation and tap **Enter**.

7. Tap **OK** to confirm the change.

Disabling a PIN

1. From the **Security** tab (*Figure 4-11*), deselect the **Require PIN when phone is used** check box.

2. Use the touch keypad to enter the current PIN.

3. Tap **Enter**.

4. Tap **OK** to confirm the change.

5. Tap **OK** to exit settings.

Services

Use the **Services** tab to configure settings for subscribed phone services. For example, block certain types of incoming and/or outgoing calls, disclose the caller's identity when making outgoing calls, forward incoming calls to a different phone number, receive notification of incoming calls when a phone session is in use and set up voice mail and short message service.

1. Tap ⊞ > **Settings** > **Personal** > **Phone** > **Services** or tap ⊞ > **Phone** > **Menu** > **Options** > **Services**.
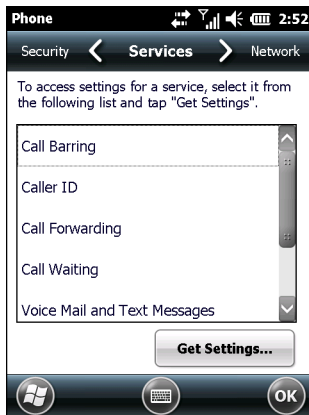
Figure 4-13 *Phone - Services*

2. Select a service from the list and tap **Get Settings...** .

3. Change services settings as follows.

Call Barring (Call Blocking)

Use call barring to block certain types of incoming and/or outgoing calls. Select the type of incoming and/or outgoing calls to block.
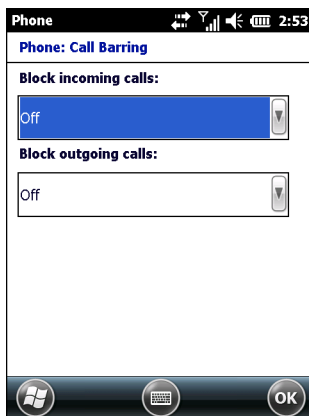
Figure 4-14 *Call Barring/Call Blocking*

Caller ID

Enable caller ID to reveal the identity of the person making an outgoing call. Select the **Everyone** radio button to always display the caller ID. Select the **No one** radio button to prevent the caller's identity from appearing to others.
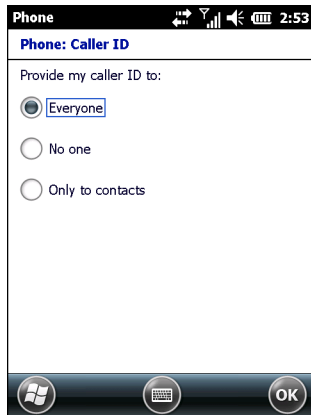
Figure 4-15   *Caller ID*

Call Forwarding

NOTE   Call Forwarding may not be available on all networks. Check with your service provider for availability.

Use call forwarding to forward incoming calls to a different phone number.

- To forward all calls to a different phone number:
  - select the **Forward all incoming phone calls** check box.
  - enter the phone number to receive forwarded calls in the **To:** text box.
- To forward incoming calls to a different phone number based on a specific situation, select one or more of the check boxes under **Forward phone calls only if:**.
  - **No answer:** enter the phone number to receive forwarded calls only when the phone cannot be answered. Then select a time period from the **Forward after:** drop-down list. Options are 5, 10, 15, 20, 25 and 30 seconds.
  - **Unavailable:** enter the phone number to receive forwarded calls only when the phone is turned off or the user is unreachable.
  - **Busy:** enter the phone number to receive forwarded calls only when the line is busy.
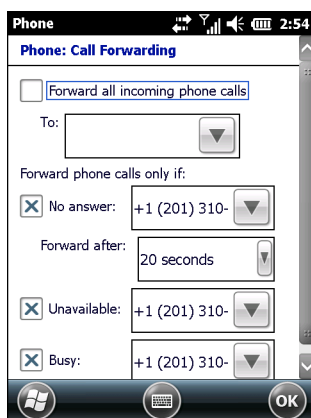
Figure 4-16   *Call Forwarding*

Call Waiting

✓ **NOTE**   Call Waiting may not be available on all networks. Check with your service provider for availability.

Call waiting notifies you of an incoming call when the phone is in a phone session. Select the **Notify me** radio button to enable call waiting. Select the **Do not notify me** radio button to disable call waiting.
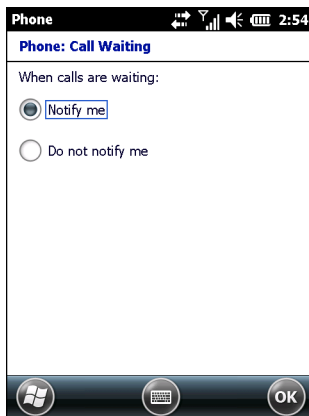
Figure 4-17   *Call Waiting*

Voice Mail and Text Messages

To use voice mail and send short messages, enter the voice mail and/or text message phone number in the appropriate text boxes.
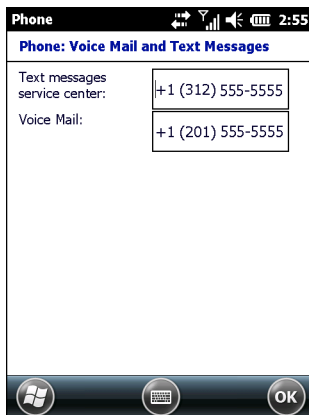
Figure 4-18   *Voice Mail and Text Messages*

Fixed Dialing

Use Fixed Dialing to restrict the phone to dial only the phone number(s) or area code(s) specified in a Fixed Dialing list.

1.   Select **Fixed Dialing** and tap **Get Settings**.
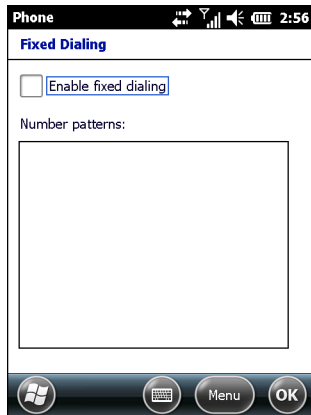
Figure 4-19   *Fixed Dialing Window*

2.   Select the **Enable fixed dialing** check box.

3.   To add a number to the list, tap **Menu** > **Add**.

4.   Enter the phone number or area code to restrict and tap **Done**.

5.   Repeat steps 3 and 4 to add more numbers, and tap **Done** twice when complete.

6.   Enter **PIN2** and tap **Done**.

Network

Use the **Network** tab to view available networks, determine the order in which the phone accesses another network if the current network is unavailable, and specify whether to change networks manually or automatically. The current network remains active until it's changed, the signal is lost, or the SIM card is changed.

The network the MC67 currently uses appears in the **Current network:** field at the top of the window.

Changing Networks Manually

1.   Tap > **Settings** > **Personal** > **Phone** > **Network** or tap > **Phone** > **Menu** > **Options** > **Network**.
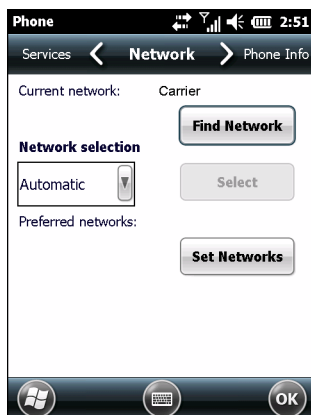
Figure 4-20   *Phone - Network*

2.   From the **Network selection** drop-down list, select **Manual**.
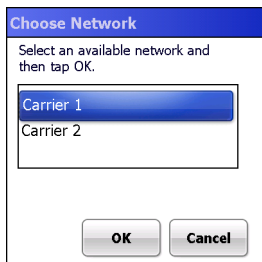
Figure 4-21   *Choose Network*

3.   From the **Choose Network** window, select the network to use.

4.   Tap **OK**.

Viewing Available Networks

To view all wireless networks available:

1.   Tap [icon] > **Settings** > **Personal** > **Phone** > **Network** or tap [icon] > **Phone** > **Options** > **Network**.
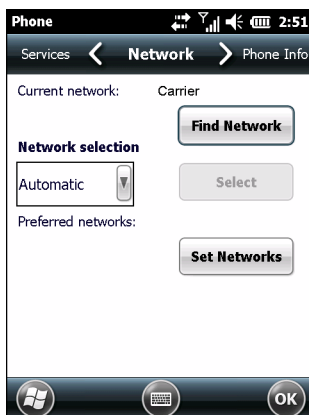
Figure 4-22   *Phone - Network*

2.   Tap **Find Network**.
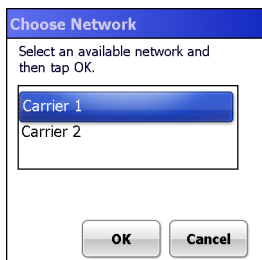
Figure 4-23   *Choose Network*

3.   From the **Choose Network** window, select the network to use.

4.   Tap **OK**.

Setting Preferred Networks

Set networks in a preferred order of access. Setting preferred networks allows the MC67 to access a second preferred network if the first is unavailable.

1. Tap **⊞** > **Settings** > **Personal** > **Phone** > **Network** or tap **⊞** > **Phone** > **Menu** > **Options** > **Network**.
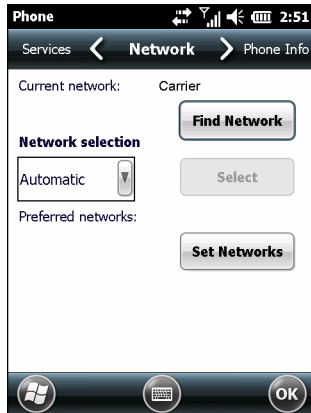
Figure 4-24   *Phone - Network*

2. Tap **Set Networks** to view all available networks.
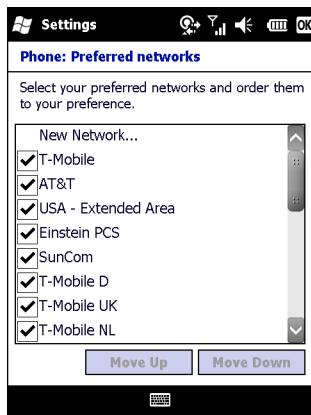
Figure 4-25   *Preferred Networks*

3. Select the preferred networks by tapping one or more check boxes.

4. Tap **Move Up** and **Move Down**, as necessary, to place the selected networks in the preferred order.

5. Tap **OK** to send the new settings to the network.

6. From the **Network** tab, select **Automatic** from the **Network selection** drop-down list.

7. Tap **OK** to exit settings.

Phone Info

Use the *Phone Info* tab to view hardware and software information about the phone.

1. Tap **⊞** > **Settings** > **Personal folder** > **Phone** icon > **Phone Info** tab

   or

   ⊞ > **Phone** > **Menu** > **Options** > **Phone Info** tab.
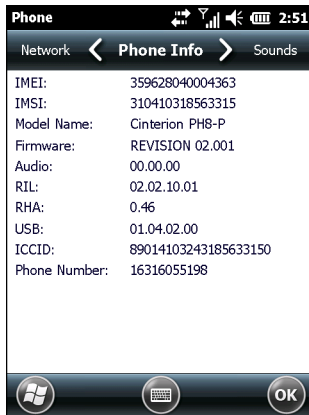
Figure 4-26 *Phone - Phone Info*

2. Tap **OK** to exit settings.

Network Time Synchronization

The MC67 can be configured to synchronize the clock with the time from the carrier network. A registry key on the MC67 has to be created to enable this feature.

Using a registry editor, navigate to the following:

[HKEY_LOCAL_MACHINE\SOFTWARE\Symbol\RIL\RHA\PH8]

Create the following key:

"SyncSystemTime"=dword:00000001

where:

dword:0 = disabled

dword:1 = enabled

After setting the registry key, warm boot the MC67.

Enhanced Operator Name String

The MC67 is enabled to download and display the name of the GSM network currently logged in to. Two registry keys on the MC67 have to be edited to disable this feature.

Using a registry editor, navigate to each of the following:

[HKEY_LOCAL_MACHINE\Software\Microsoft\RIL]

Edit the following key:

"EonsEnable"=dword:1

[HKEY_LOCAL_MACHINE\Comm\Cellular\Ril]

Edit the following key:

"EONSEnable"=dword:1

where:

dword:0 = disabled

dword:1 = enabled (default)

After setting the registry key, warm boot the MC67.

Service Provider Name Display

The reg key ("UseServiceProviderName") originally was used to fix the dual-line SIM card issue with value 2. But for the Italian Post, the value 1 should be used to show the virtual carrier name (Poste Mobile).

[HKEY_LOCAL_MACHINE\Software\Microsoft\RIL]

"UseServiceProviderName"=dword:1

where:

dword:0 = Display network provider name

dword:1 - Display service provider name (default)

dword:2 - Display both network provider and service provider name

CHAPTER 5 WAN CDMA CONFIGURATION

Introduction

This chapter explains how to configure an MC67ND on a Code Division Multiple Access (CDMA) wireless network.

CDMA is a form of wireless multiplexing in which data (e.g., Short Message Service) can be sent over multiple frequencies simultaneously, optimizing the use of available bandwidth. In an CDMA system data is broken into packets, each of which are given a unique identifier, so that they can be sent out over multiple frequencies and then re-built in the correct order by the receiver.

When using the MC67ND as a phone, services can include speed dialing, call tracking, voice mail, call forwarding, conference calling and caller ID, depending on the type of service.

The integrated phone in the MC67ND can also be used as a modem to connect the MC67ND to an ISP or work network. The MC67ND can connect to the Internet or work network using Cellular Line, or using the modem specified by the mobile phone service provider.

✓ **NOTE** Before the MC67ND can be used on a CDMA wireless network, a provider must be selected, a voice and data-enabled service plan must be established and the MC67ND must be properly configured (where applicable).

Refer to the *MC67ND User Guide* for information on how to use the phone and services.

CDMA Phone Activation

To activate the MC67ND on a CDMA network, see *Network Activation on page 1-7*.

Activation Test

To test the service.

1. Tap **Start** > **Phone**.
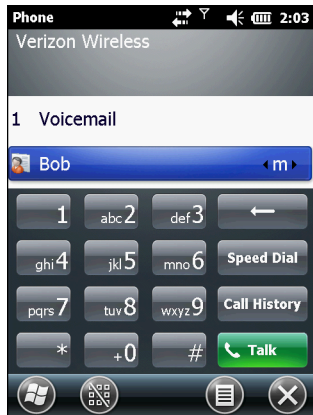
Figure 5-1   *Phone Window - Example*

2. Ensure the carrier name displays on the window.

3. Make a voice call to ensure activation was successful.

> ✓ *NOTE*   If activation was not successful, contact the service provider.

Establishing a Data Connection

> ✓ *NOTE*   Ensure that you have data service activated with your service provider.

A data connection allows Internet access across a wireless network. Data connection is pre-packaged with service accounts.

To verify active data service:

1. Tap **Start** > **Internet Explorer**.

2. In the address bar, enter a URL for a web site.

3. Tap Status bar and then tap [icon] to display the **Connectivity** dialog. The dialog box displays the data connection information.
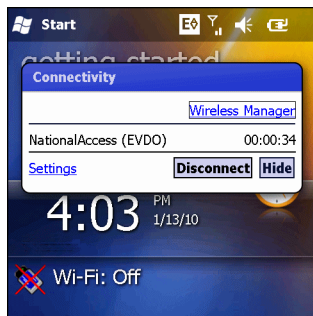
Figure 5-2   *Data Connection*

CDMA Settings

Use the **Phone Settings** window to customize CDMA phone settings, such as the ring type and ring tone for incoming calls and other options depending on the type of service.

Phone

Use the **Phone** tab to customize ring type, ring tone and keypad tone when entering phone numbers.

1. Tap **Start** > **Settings** > **Personal** > **Phone**.
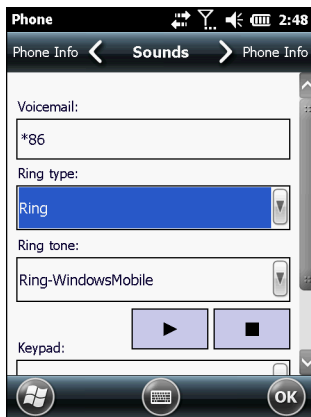
Figure 5-3   *Phone Window - Phone Tab*

2. Select a ring type from the **Ring type:** drop-down list. The ring type changes the way the MC67ND rings to notify the user of an incoming call. Regardless of the ring type selected, a dialog box appears on the display for incoming calls.

3. Select a ring tone for incoming calls from the **Ring tone:** drop-down list. To hear a sample of the selected ring tone, tap ▶ . Tap ■ to end the ring tone.

> **NOTE**   To use custom .wav, .mid or .wma files as ring tones, use ActiveSync on the host computer to copy the file to the /Windows/Rings folder on the MC67ND. Then, select the sound from the ring tone list.

4. Select a keypad tone from the **Keypad:** drop-down list. This selection determines the tone that sounds when entering a phone number on the keypad.

    a. Select **Short Tones** for a tone that sounds only for one or two seconds.

    b. Select **Long Tones** for a continuous sound for as long as the number on the keypad is pressed.

    c. Select **Off** to disable tones.

5. Select the **Notify me when voice privacy is unavailable** check box to receive a message when dialing.

6. Tap **OK** to exit settings.

> **NOTE**   Turning off sounds saves power and prolongs battery life.

Phone Information

Use the **Phone Info** tab to view phone number and version information.

1. Tap **Start** > **Settings** > **Personal** folder > **Phone** icon > **Phone Info** tab.
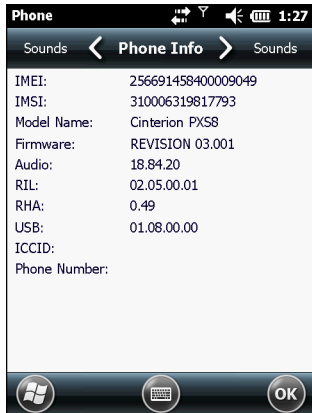
Figure 5-4   *Phone Window - Phone Info Tab*

2. Tap **OK** to exit settings.

Services

Depending on the type of subscribed phone services, the following services may be available: call barring, caller ID, call forwarding, call waiting, voice mail and Short Message Service (SMS).

Call Barring (Call Blocking)

Call barring blocks certain types of incoming and/or outgoing calls. This service is setup when an account is opened with the service provider.

Caller ID

Caller ID provides a way for people to know the identity of the person making an outgoing call. To disable caller ID and block the outgoing phone number:

1. Enter *67 on the phone keypad.

2. Enter the phone number to call.

> *NOTE*   *67, followed by the phone number, must be entered on a call-by-call basis to block the outgoing phone number.

Call Forwarding

> *NOTE*   Call Forwarding may not be available on all networks. Check with your service provider for availability.

Use call forwarding to forward incoming calls to a different phone number. To enable call forwarding and send calls to another phone number:

1. Enter *72 on the phone keypad.

2. Enter the area code and phone number of the phone to accept the forwarded calls.

3. Tap **Talk**.

4. A beep sounds indicating activation.

5. Tap **End**.

To disable call forwarding:

1. Enter *73 on the phone keypad.

2. Tap **Talk**.

3. A beep sounds indicating deactivation.

4. Tap **End**.

Call Waiting

✓ **NOTE**   Call Waiting may not be available on all networks. Check with your service provider for availability.

Call waiting notifies the user of an incoming call when the phone is in a phone session. This service is setup when an account is opened with the service provider.

Voice Mail and Short Message Service (SMS)

This service is setup when an account is opened with the service provider.

Network Time Synchronization

The MC67ND can be configured to synchronize the clock with the time from the carrier network. A registry key on the MC67ND has to be created to enable this feature.

Using a registry editor, navigate to the following:

[HKEY_LOCAL_MACHINE\SOFTWARE\Symbol\RIL\RHA\PH8]

Create the following key:

"SyncSystemTime"=dword:00000001

where:

dword:0 = disabled
dword:1 = enabled

After setting the registry key, warm boot the MC67ND.

CHAPTER 6   APPLICATION DEPLOYMENT

Introduction

This chapter describes features in Windows Mobile including new security features, how to package applications, and procedures for deploying applications onto the MC67.

Security

The MC67 implements a set of security policies that determine whether an application is allowed to run and, if allowed, with what level of trust. To develop an application, you must know the security configuration of the device, and how to sign an application with the appropriate certificate to allow the application to run (and to run with the needed level of trust).

Application Security

Application security controls the applications that can run on the MC67.

- Trusted - All applications must be digitally signed by a certificate on the MC67.

- Prompted - User is prompted to allow unsigned applications to run.

- Open - All applications run.

Developers can include their own certificates and provision the device to "trusted."

Digital Signatures

Digital signatures provide a way to authenticate the author of EXEs, DLLs, and packages. Digitally signed applications give users confidence that an application comes from where they think it comes from. For example, if an end-user downloads an update package from the internet that is digitally signed with Zebra's software certificate, they are assured that the package is authentic and that it was created by Zebra. By enforcing the use of digital signatures, users can also prevent malicious applications from executing on the MC67. For example, users can provision the MC67 to only execute "trusted" applications (digitally signed).

Zebra ships all Windows Mobile 6 based products in an "open" state, which means all signed and unsigned applications should work. However, customers can still reconfigure their MC67 to operate in the "trusted"

mode. This means that only applications signed with a certificate from the Privileged Execution Trust Certificate Store can run.

To support the broadest number of deployments, third-party software developers should perform the following when releasing software for a Windows Mobile 6 devices:

- Sign all their EXEs & DLLs with their private key

- Provide the corresponding public certificate to end-users so that it can be installed into Privileged Execution Trust Certificate Store.

If the software is installed via a .CAB file, developer should also:

- Sign the .CAB file with their private key

- Provide the corresponding public certificate to end-users so that it can be installed into SPC Certificate Store.

Locking Down a Mobile Computer

Like most configuration options in Windows Mobile, security settings are set via XML provisioning. For example, to enforce the "trusted" model and only allow applications signed with a privileged certificate to run, use the following provisioning document:

```
<wap-provisioningdoc>
<characteristic type="SecurityPolicy">
            <!-- Disallow unsigned apps -->
<parm name= "4102" value= "0"/>

<!-- No Prompt -->
<parm name= "4122" value= "1"/>
</characteristic>
</wap-provisioningdoc>
```

For more information on various security options, refer to the Security Policy Settings topic in the latest Windows Mobile documentation.

Installing Certificates

Use XML provisioning to query and delete certificates from certificate stores. To add a new certificate the Privileged Execution Trust Certificate Store, use the following sample provisioning document:

```
<wap-provisioningdoc>
<characteristic type= "CertificateStore">
<characteristic type= "Privileged Execution Trust Authorities">
<characteristic type= "657141E12FA45786F6A57CA6464032D4B3A55475">
<parm name= "EncodedCertificate" value= "
This is sample text. This is sample text. This is sample text. This is sample text.
This is sample text. This is sample text. This is sample text. This is sample text.
This is sample text. This is sample text. This is sample text. This is sample text. = "/>
</characteristic>
</characteristic>
</characteristic>
</wap-provisioningdoc>
```

To create your own provisioning document with real certificate information:

1. Obtain a certificate from a security provider such as VeriSign.

2. Double-click on the certificate file (.CER) to open it.

3. Click on the *Details* tab and locate the *Thumbprint* field.

4. Copy the contents of the *Thumbprint* field and replace the value in the XML example above.

5. Click the **Copy to File…** button.

6. Click **Next** to start the Certificate Export Wizard.

7. Select *Base-64 encoded X.509 (.CER)* and then click **Next**.

8. Set the File Name to CertOutput.xml and click **Next**.

9. Click **Finish** to export the certificate.

10. Open the exported file, CertOutput.xml, in a text editor (i.e., NotePad).

11. Copy the contents of the file (excluding the first line, last line, and CR/LF) and replace the value of the *"EncodedCertificate"* parameter in the xml example above.

Device Management Security

You can control access to certain device settings and security levels, such as installing applications and changing security settings. Refer to the *Windows Mobile Version 6 Help* file for information on device management security.

Remote API Security

The Remote API (RAPI) enables applications that run on a desktop to perform actions on a remote device. RAPI provides the ability to manipulate the file system on the remote device, including the creation and deletion of files and directories. By default, Zebra ships with RAPI in the restricted mode. Certain tools, such as

RAPIConfig, may not work properly. Refer to the *Windows Mobile Version 6 Help* file for finding information on Remote API security policies.

Packaging

✓ ***NOTE***   Applications compiled for Windows Mobile 6 are not backward-compatible with previous versions.

Packaging combines an application's executable files into a single file, called a package. This makes it easier to deploy and install an application to the MC67. Package new applications and updates, such as new DLL files, as CAB files, then deploy them to devices. Refer to the *Microsoft Windows Mobile 6 Help* file for information on CAB files.

Deployment

To install applications onto the MC67, developers package the application and all required files into a CAB file, then load the file onto the MC67 using one of the following options:

- ActiveSync
- Storage Card
- MSP
- Image Loader Image (for updating the operating system).

Refer to the *Microsoft Windows Mobile 6 Help* file for information on CAB files.

Installation Using ActiveSync

To install an application package:

1. Connect the MC67 to a host computer using ActiveSync. See *Chapter 3, Synchronization* for more information.
2. Locate the package file on the host computer.
3. In ActiveSync on the host computer, open *Explorer* for the MC67.
4. Copy the CAB file from the host computer to the \temp directory on the MC67.
5. On the MC67, navigate to the \temp directory.
6. Tap on the application CAB file. The application installs on the MC67.

Installation Using Storage Card

To install an application package:

1. Copy the package CAB file to a microSD storage card using an appropriate storage card reader.
2. Install the storage card into the MC67. See *Installing a microSD Card on page 1-2* for more information.
3. On the MC67, open **File Explorer**.
4. Open the *Storage Card* directory.

5. Tap the package CAB file. The application installs on the MC67.

MSP

The MSP Client Software is a set of software components that come pre-installed on the MC67. The MSP Client software consists of the following components:

The RD Client provides support for MSP Staging functionality, provides support for the MSP Legacy Staging process, and provides support for backward-compatible legacy MSP 2.x Legacy Staging functionality.

The MSP Agent provides MSP Provisioning functionality and Control functionality when used with MSP Control Edition.

Refer to the Mobility Services Platform User's Guide for instructions for using the Rapid Deployment and MSP3 Agent clients.

Update Loader Image

Windows Handheld contains an Image Update feature that updates all operating system components. All updates are distributed as update packages. Update packages can contain either partial or complete updates for the operating system. Zebra distributes the update packages on the Support Central Web Site, http://www.zebra.com/support

To update an operating system component, copy the update package to the MC67 using one of a variety of transports, including ActiveSync, a microSD card or MSP.

MC67NA Devices with Ortus Display

If you are intending to install an older operating system version, verify if the device contains an Ortus display.

⚠️ **CAUTION** If the display ID on the MC67NA is **COM35H3N81**, the device Operating System cannot be downgraded to an OEM version below 03.46.36. If you try to downgrade, a message appears on the display warning you that you should not continue. If you continue, the device will become inoperable.

DwnldApp Error   ok

Error during update: Image File: 67NAw65XenML011800.sig, Cause: Invalid verification data in image(s), Function: ParseImgsList, Line: 2309, Hr: 0x80004005, GetLastError: 0
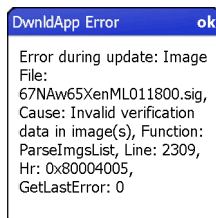
Figure 6-1   *Warning Message*

To view the display ID touch **Start** > **Settings** > **System** > **System Info** > **Display** tab or **ConfigInfo** tab.

Figure 6-2   *System Info - Display Tab*
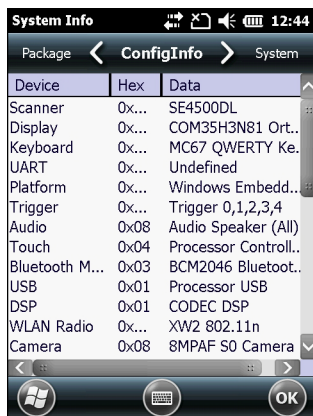
Figure 6-3   *System Info - ConfigInfo Tab*

To view the OEM version touch **Start** > **Settings** > **System** > **System Info** > **System** tab.

Figure 6-4   *System Tab*

Download Update Loader Package

1.   Go to the Zebra Support Central web site, http://www.zebra.com/support.

2.   Download the appropriate update loader package to a host computer.

3. Locate the update loader package file on the host computer and un-compress the file into a separate directory.

ActiveSync

To install an update loader package using ActiveSync:

1. Connect the MC67 to a host computer using ActiveSync. See *Chapter 3, Synchronization* for more information.

2. In ActiveSync on the host computer, open **Explorer** for the MC67.

3. Copy all the update loader package files from the host computer to the \temp directory on the MC67.

4. On the MC67, navigate to the \temp directory.

5. Tap on the update loader file, ***STARTUPDLDR.EXE***. The Update Loader application installs the update loader package on the MC67.

   A progress bar displays until the update completes.

6. The MC67 re-boots.

7. The calibration screen appears.

microSD Card

To install an update loader package using a microSD card:

1. Copy all the update loader package files to the root directory of a microSD card.

2. Install the microSD card into the MC67. See *Installing a microSD Card on page 1-2* for installation instructions.

3. Connect the MC67 to AC power. See *Chapter 2, Accessories*.

4. Perform a cold boot.

5. Immediately, as soon as the device starts to boot and before the splash screen is visible, press and hold the left scan button.

6. The Update Loader application looks for the update loader file in the root directory of the microSD card.

   When it finds the file, it loads the update loader package onto the MC67. A progress bar displays until the update completes.

7. The MC67 re-boots.

8. The calibration screen appears.

XML Provisioning

To configure the settings on an MC67, use XML provisioning. To install an XML provisioning file on the MC67, create a Cabinet Provisioning File (CPF). A CPF file is similar to a CAB file and contains just one file: _setup.xml. Like a CAB file, the CPF extension is associated with WCELoad.EXE. Opening a CPF extracts the XML code and uses it to provision and configure the MC67. The user receives an e-mail notification indicating success or failure.

XML provisioning provides the ability to configure various features of the MC67 (i.e., registry and file system). However, some settings require security privileges. To change registry settings via a CPF file, you must have

certain privileges (roles). Some registry keys require you to simply be an *Authenticated User*, while other registry keys require you to be a *Manager*. Refer to the *Microsoft Windows Mobile 6 Help* file, *Metabase Settings for Registry Configuration Service Provider* section, for the default role settings in Windows Mobile 6.

For those registry settings that require the *Manager* role, the CPF file must be signed with a privileged certificate installed on the device. Refer to the *Microsoft Windows Mobile 6 Help* file and the *Windows Mobile 6 SDK* for instructions and sample test certificates.

Creating an XML Provisioning File

To create a .cpf file:

1. Create a valid provisioning XML file named _setup.xml using an XML editor or the tools supplied with Visual Studio 2005. (For example, use the SampleReg.xml sample created in the *RegMerge on page 6-8* section and rename it _setup.xml.) Ensure the file contains the required parameters for the operation. Refer to the *Microsoft Windows Mobile 6 Help* file for information.

2. In the Windows Mobile 6 tools directory on the desktop computer (typically \Program Files\Windows CE Tools\wce500\Windows Mobile 6 Pocket PC SDK\Tools), run the Makecab.exe utility, using the following syntax to create a .cpf file from the _setup.xml file:

   MakeCab.exe /D COMPRESS=OFF _setup.xml myOutCpf

   ✓ *NOTE*   COMPRESS=OFF is required for backward compatibility with Pocket PC.

3. Optionally, use the Authenticode tools to sign the .cpf file.

4. Tap the filename to install.

5. Certain applications and settings require a reset to take affect. In these cases, reset the MC67. Refer to the *Windows Mobile Version 6 Help* file for more information.

XML Provisioning vs. RegMerge and Copy File

Prior to Windows Mobile 5.0, Zebra used two drivers (RegMerge and CopyFiles) to update the registry and to copy files during a reset. With Windows Mobile 6, Zebra recommends using XML provisioning instead. RegMerge and CopyFiles are supported for backward compatibility but Zebra may eliminate support in the future. The following sections provide examples of how RegMerge and CopyFiles were used, and how to perform the same function using XML provisioning.

RegMerge

RegMerge.dll is a built-in driver that allows updating the registry during a clean boot. RegMerge runs very early in the boot process and looks for registry files (.reg files) in certain Flash File System folders (i.e., \Application) during a clean boot. It then merges the registry changes into the system registry located in RAM.

The following example uses RegMerge to set a registry key:

SampleReg.reg

   [HKEY_LOCAL_MACHINE\Hardware\DeviceMap\Backlight]
   "BacklightIntensity"=dword:00000036

The following example uses XML provisioning to perform the same task:

SampleReg.xml

```
<wap-provisioningdoc>
    <characteristic type= "Registry">
        <characteristic type= "HKLM\Hardware\DeviceMap\Backlight">
            <parm name= "BacklightIntensity" value= "54" datatype= "integer" />
        </characteristic>
    </characteristic>
</wap-provisioningdoc>
```

CopyFiles

CopyFiles copies files from one folder to another on a clean boot. During a clean boot CopyFiles looks for files with a .CPY extension in the root of the Application FFS partition. These files are text files containing the source and destination for the desired files to copy, separated by ">".

The following example uses CopyFiles to copy a file from the \Application folder to the \Windows folder:

SampleCpy.cpy

```
\Application\example.txt > \Windows\example.txt
```

The following example uses XML provisioning to perform the same task:

SampleCpy.xml

```
<wap-provisioningdoc>
    <characteristic type= "FileOperation">
        <characteristic type= "\Windows" translation= "filesystem">
            <characteristic type= "MakeDir"/>
            <characteristic type= "example.txt" translation= "fileystem">
                <characteristic type= "Copy">
                    <parm name= "Source" value= "\Application\example.txt" translation= "filesystem"/>
                </characteristic>
            </characteristic>
        </characteristic>
    </characteristic>
</wap-provisioningdoc>
```

Storage

Mobile 6 contains three types of file storage:

- Random Access Memory (RAM)
- Persistent Storage
- Application folder.

Random Access Memory

Executing programs use RAM to store data. Data stored in RAM is lost upon a warm boot. RAM also included a volatile file storage area called *Cache Disk*.

Volatile File Storage (Cache Disk)

Windows Mobile 6 memory architecture uses persistent storage for all files, registry settings, and database objects to ensure data is retained even after a power failure. Persistent storage is implemented using Flash memory technology which is generally slower than volatile RAM memory. In certain situations the speed of the operation is more important than the integrity of the data. For these situations, Zebra has provided a small volatile File Storage volume, accessed as the *Cache Disk* folder. Disk operations to the *Cache Disk* folder are much faster than to any of the persistent storage volumes, but data is lost across warm boots and power interruptions. Note that a backup battery powers RAM memory, including the *Cache Disk*, when you remove the main battery for a short period of time.

The MC67 uses the *Cache Disk* for temporary data that can be restored from other sources, for example, for temporarily "caching" HTML web pages by a browser or generating formatted files to send to a printer. Both situations benefit from the increased speed of the cache disk, but you can restore the data if needed.

DO NOT use the *Cache Disk* as a method to improve application performance. Analyze applications that perform slower in persistent storage to optimize disk access. Common areas for optimization include minimizing the number of reads and writes to a file, removing unneeded debug logging, and minimizing file flushing or closing files.

Persistent Storage

Windows Mobile 6 protects all data and applications from power-related loss. Because Windows Mobile 6 mounts the entire file system and registry in persistent storage (rather than using RAM), MC67 devices provide a reliable storage platform even in the absence of battery power.

Persistent storage provides application developers with a reliable storage system available through the standard file system and registry APIs. Persistent storage is optimized for large reads and writes; therefore, applications reading and writing data in large chunks tend to outperform those applications reading and writing small blocks of data. Data in persistent storage is lost upon a reset.

Persistent storage contains all the directories under the root directory except for Application, Cache Disk, and Storage Card (if a storage card is installed). Persistent storage is approximately 1.1 GB (formatted).

Application Folder

The Application folder is a super-persistent storage that is persistent even after a reset. Accessing data in the Application folder is slower than accessing persistent storage. The Application folder is used for deployment and device-unique data. For example, network profiles can be stored in the Application folder so that connection to the network is available after a reset. The Application folder is approximately 510 MB (formatted).

Enterprise Mobility Developer Kits

The Enterprise Mobility Developer Kit (EMDK) family of products allows you to write applications that take advantage of the capture, move and manage capabilities of the MC67. Go to the Support Central (http://www.zebra.com/support) to download the appropriate developer kit.

CHAPTER 7 MAINTENANCE & TROUBLESHOOTING

Introduction

This chapter includes instructions on cleaning and storing the MC67, and provides troubleshooting solutions for potential problems during MC67 operation.

Maintaining the MC67

For trouble-free service, observe the following tips when using the MC67:

- Do not scratch the screen of the MC67. When working with the MC67, 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 MC67 screen.

  Zebra recommends using a screen protector, p/n KT-129195-03R.

- The touch-sensitive screen of the MC67 is glass. Do not to drop the MC67 or subject it to strong impact.

- Protect the MC67 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 or use the MC67 in any location that is dusty, damp, or wet.

- Use a soft lens cloth to clean the MC67. If the surface of the MC67 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.

- A screen protector is applied to the MC67. 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 MC67. 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.

Lift Screen
Protector
Corner

Figure 7-1   *Removing the Screen Protector*

⚠ **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-67525-01R 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.**

Approved Cleanser Active Ingredients

100% of the active ingredients in any cleaner must consist of one or some combination of the following: isopropyl alcohol, bleach/sodium hypochlorite, hydrogen peroxide or mild dish soap.

Harmful Ingredients

The following chemicals are known to damage the plastics on the MC67 and should not come in contact with the device: ammonia solutions, compounds of amines or ammonia; acetone; ketones; ethers; aromatic and chlorinated hydrocarbons; acqueous or alcoholic alkaline solutions; ethanolamine; toluene; trichloroethylene; benzene; carbolic acid and TB-lysoform.

Cleaning Instructions

Do not apply liquid directly to the MC67. Dampen a soft cloth or use pre-moistened wipes. Do not wrap the device in the cloth or wipe, but gently wipe the unit. Be careful not to let liquid pool around the display window or other places. Allow the unit to air dry before use.

Special Cleaning Notes

Many vinyl gloves contain phthalate additives, which are often not recommended for medical use and are known to be harmful to the housing of the MC67. The MC67 should not be handled while wearing vinyl gloves containing phthalates, or before hands are washed to remove contaminant residue after gloves are removed. If products containing any of the harmful ingredients listed above are used prior to handling the MC67, such as hand sanitizer that contain ethanolamine, hands must be completely dry before handling the MC67 to prevent damage to the plastics.

Materials Required

- Alcohol wipes
- Lens tissue
- Cotton tipped applicators
- Isopropyl alcohol
- Can of compressed air with a tube.

Cleaning the MC67

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.

Connector

1. Remove the main battery from mobile computer. See *Installing the Battery on page 1-4*.
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 connector on the bottom of the MC67. 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 4 through 6.

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.

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. 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 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

MC67

Table 7-1   *Troubleshooting the MC67*

Problem	Cause	Solution
When pressing the power button the MC67 does not turn on.	Battery not charged.	Charge or replace the battery in the MC67.
	Battery not installed properly.	Install the battery properly. See *Installing the Battery on page 1-4*.
	System crash.	Perform a reset. See *Resetting the MC67 on page 1-9*.
When pressing the power button the MC67 does not turn on but two LEDs blink.	Battery charge is at a level where data is maintained but battery should be re-charged.	Charge or replace the battery in the MC67.
Rechargeable battery did not charge.	Battery failed.	Replace battery. If the MC67 still does not operate, perform a reset. See *Resetting the MC67 on page 1-9*.
	MC67 removed from cradle while battery was charging.	Insert MC67 in cradle. The 3600 mAh battery fully charges in less than six hours.
	Extreme battery temperature.	Battery does not charge if ambient temperature is below 0 °C (32 °F) or above 40 °C (104 °F).
Cannot see characters on display.	MC67 not powered on.	Press the **Power** button.
During data communication, no data transmitted, or transmitted data was incomplete.	MC67 removed from cradle or disconnected from host computer during communication.	Replace the MC67 in the cradle, or reattach the communication cable and re-transmit.
	Incorrect cable configuration.	See the system administrator.
	Communication software was incorrectly installed or configured.	Perform setup. Refer to the *MC67 Integrator Guide* for details.
No sound.	Volume setting is low or turned off.	Adjust the volume.
MC67 shuts off.	MC67 is inactive.	The MC67 turns off after a period of inactivity. If the MC67 is running on battery power, set this period from 1 to 5 minutes, in one-minute intervals.
	Battery is depleted.	Replace the battery.
	Battery is not inserted properly.	Insert the battery properly. See *Installing the Battery on page 1-4*.
Tapping the window buttons or icons does not activate the corresponding feature.	Screen is not calibrated correctly.	Re-calibrate the screen. Press **Blue** key - **Backspace** key.
	The device is not responding.	Reset the device. See *Resetting the MC67 on page 1-9*.

Table 7-1   *Troubleshooting the MC67 (Continued)*

Problem	Cause	Solution
A message appears stating that the MC67 memory is full.	Too many files stored on the MC67.	Delete unused memos and records. If necessary, save these records on the host computer (or use an SD card for additional memory).
	Too many applications installed on the MC67.	Remove user-installed applications on the MC67 to recover memory. Select ⊞ > **Settings** > **System** and tap the **Remove Programs** icon. Select the unused program and tap **Remove.**
The Charging/Battery Status LED flashes with the Power button is pressed and the MC67 does not turn on.	The MC67's battery is low.	Recharge the battery.
Camera application does not launch.	DataWedge application running.	Stop DataWedge application. Tap ⊞ > **Settings** > **System** > **Task Manager**. Select DataWedge application and tap **End Task**.
The MC67 does not decode with reading bar code.	Scanning application is not loaded.	Load a scanning application on the MC67. See your system administrator.
	Unreadable bar code.	Ensure the symbol is not defaced.
	Distance between exit window and bar code is incorrect.	Place the MC67 within proper scanning range.
	MC67 is not programmed for the bar code.	Program the MC67 to accept the type of bar code being scanned. Refer to the EMDK or Control Panel application.
	MC67 is not programmed to generate a beep.	If the MC67 does not beep on a good decode, set the application to generate a beep on good decode.
	Battery is low.	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 MC67 low battery condition notification. Note: If the scanner is still not reading symbols, contact the distributor or Zebra.
MC67 cannot find any Bluetooth devices nearby.	Too far from other Bluetooth devices.	Move closer to the other Bluetooth device(s), within a range of 10 meters (32.8 feet).
	The Bluetooth device(s) nearby are not turned on.	Turn on the Bluetooth device(s) to find.
	The Bluetooth device(s) are not in discoverable mode.	Set the Bluetooth device(s) to discoverable mode. If needed, refer to the device's user documentation for help.

Single Slot USB Cradle

Table 7-2 *Troubleshooting the Single Slot USB Cradle*

Symptom	Possible Cause	Action
LEDs do not light when MC67 or spare battery is inserted.	Cradle is not receiving power.	Ensure the power cable is connected securely to both the cradle and to AC power.
	MC67 is not seated firmly in the cradle.	Remove and re-insert the MC67 into the cradle, ensuring it is firmly seated.
	Spare battery is not seated firmly in the cradle.	Remove and re-insert the spare battery into the charging slot, ensuring it is firmly seated.
MC67 battery is not charging.	MC67 was removed from cradle or cradle was unplugged from AC power too soon.	Ensure cradle is receiving power. Ensure MC67 is seated correctly. Confirm main battery is charging. The 3600 mAh battery fully charges in less than six hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The MC67 is not fully seated in the cradle.	Remove and re-insert the MC67 into the cradle, ensuring it is firmly seated.
	Extreme battery temperature.	Battery does not charge if ambient temperature is below 0 °C (32 °F) or above 40 °C (104 °F).
Spare battery is not charging.	Battery not fully seated in charging slot.	Remove and re-insert the spare battery in the cradle, ensuring it is firmly seated.
	Battery inserted incorrectly.	Re-insert the battery so the charging contacts on the battery align with the contacts on the cradle.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
During data communication, no data transmits, or transmitted data was incomplete.	MC67 removed from cradle during communications.	Replace MC67 in cradle and retransmit.
	Communication software is not installed or configured properly.	Perform setup as described in *Single Slot USB Cradle on page 2-3*.

Four Slot Ethernet Cradle

Table 7-3 *Troubleshooting the Four Slot Ethernet Cradle*

Symptom	Cause	Solution
During communication, no data transmits, or transmitted data was incomplete.	MC67 removed from cradle during communications.	Replace MC67 in cradle and retransmit.
	MC67 has no active connection.	An icon is visible in the status bar if a connection is currently active.

Table 7-3 *Troubleshooting the Four Slot Ethernet Cradle (Continued)*

Symptom	Cause	Solution
Battery is not charging.	MC67 removed from the cradle too soon.	Replace the MC67 in the cradle. The 3600 mAh battery fully charges in less than six hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	MC67 is not inserted correctly in the cradle.	Remove the MC67 and reinsert it correctly. Verify charging is active.
	Ambient temperature of the cradle is too warm.	Move the cradle to an area where the ambient temperature is between 0 °C (32 °F) and 35 °C (95 °F).

Vehicle Cradle

Table 7-4 *Troubleshooting the Vehicle Cradle*

Symptom	Possible Cause	Action
MC67 battery charging LED does not light up.	Cradle is not receiving power.	Ensure the power input cable is securely connected to the cradle's power port.
MC67 battery is not recharging.	MC67 was removed from the cradle too soon.	Replace the MC67 in the cradle. The 3600 mAh battery fully charges in less than six hours.
	Battery is faulty.	Replace the battery.
	MC67 is not placed correctly in the cradle.	Remove the MC67 from the cradle, and re-insert correctly. If the battery still does not charge, contact customer support. The MC67 battery charging LED slowly blinks amber when the MC67 is correctly inserted and charging.
	Ambient temperature of the cradle is too warm.	Move to an area where the ambient temperature is between 0 °C and 40 °C (32 °F and 104 °F).

Four Slot Battery Charger

Table 7-5 *Troubleshooting The Four Slot Battery Charger*

Symptom	Possible Cause	Action
Battery not charging.	Battery was removed from the charger or charger was unplugged from AC power too soon.	Re-insert the battery in the charger or re-connect the charger's power supply. The 3600 mAh battery fully charges in less than six hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	Battery contacts not connected to charger.	Verify that the battery is seated in the battery well correctly with the contacts facing down.

Cables

Table 7-6   *Troubleshooting the Cables*

Symptom	Possible Cause	Action
MC67 battery is not charging.	MC67 was disconnected from AC power too soon.	Connect the power cable correctly. Confirm main battery is charging. The 3600 mAh battery fully charges in less than six hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The MC67 is not fully attached to power.	Detach and re-attach the power cable to the MC67, ensuring it is firmly connected.
During data communication, no data transmits, or transmitted data was incomplete.	Cable was disconnected from MC67 during communications.	Re-attach the cable and retransmit.
	Incorrect cable configuration.	See the system administrator.
	Communication software is not installed or configured properly.	Perform setup as described in *Cables on page 2-25*.

Magnetic Stripe Reader

Table 7-7   *Troubleshooting the Magnetic Stripe Reader*

Symptom	Possible Cause	Action
MSR cannot read card.	MSR removed from MC67 during card swipe.	Reattach MSR to MC67 and reswipe the card.
	Faulty magnetic stripe on card.	See the system administrator.
	MSR application is not installed or configured properly.	Ensure the MSR application is installed on the MC67. Ensure the MSR application is configured correctly.
MC67 battery is not charging.	MC67 was removed from MSR or MSR was unplugged from AC power too soon.	Ensure MSR is receiving power. Ensure MC67 is attached correctly. Confirm main battery is charging under ⊞ > **Settings** > **System** > **Power**. The 3600 mAh battery fully charges in less than six hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The MC67 is not fully attached to the MSR.	Detach and re-attach the MSR to the MC67, ensuring it is firmly connected.
During data communication, no data transmits, or transmitted data was incomplete.	MC67 detached from MSR during communications.	Reattach MC67 to MSR and retransmit.
	Incorrect cable configuration.	See the system administrator.
	Communication software is not installed or configured properly.	Perform setup as described in the *MC67 Integrator Guide.*

APPENDIX A   TECHNICAL SPECIFICATIONS

MC67 Technical Specifications

The following tables summarize the EDA's intended operating environment and technical hardware specifications.

MC67

Table A-1   *MC67 Technical Specifications*

Item	Description
Physical Characteristics	
Dimensions	Height: 16.2 cm (6.38 in.) Width: 7.7 cm (3.03 in.) Depth: 3.4 cm (1.32 in.)
Weight	359 g (12.5 oz.)
Display	Color 3.5" video graphics adapter (VGA) with backlight, 65K colors, 480 W x 640 L, 650+ NITS
Touch Panel	Glass analog resistive touch
Backlight	Light Emitting Diode (LED) backlight
Battery	Rechargeable Lithium Ion 3.7V, 3600 mAh battery
Backup Battery	Nickel–metal hydride (Ni-MH) (rechargeable) 15 mAh 2.8 V (not user-accessible or replaceable)
Expansion Slot	micro Secure Digital (SD) slot (supports up to 32 GB).
Connection Interface	Universal Serial Bus (USB) 2.0 High Speed (host and client)
Notification	Audible tone plus multi-color LEDs

Table A-1 *MC67 Technical Specifications (Continued)*

Item	Description
Keypad Options	**MC67NA**: Numeric, QWERTY, AZERTY, QWERTZ, Direct Store Delivery (DSD) or Personal Information Manager (PIM) **MC67ND**: Numeric, QWERTY, AZERTY, QWERTZ or DSD.
Audio	Dual microphone support with noise cancellation; vibrate alert; speaker; Bluetooth headset
Performance Characteristics	
CPU	Dual-core 1 GHz OMAP 4
Operating System	Microsoft® Embedded Handheld 6.5.3 Professional
Memory	512 MB Random Access Memory (RAM)/2 GB Flash
Output Power	USB - 5 VDC @ 300 mA max.
User Environment	
Operating Temperature	-20 °C to 50 °C (-4 °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 Specification	Multiple 2.4 meter (8 ft.) drops per MIL-STD 810G; 1.8 m (6 ft.) drops across operating temperature per MIL-STD 810G.
Tumble	1,000 0.5 meter (1.6 ft.) tumbles (2,000 drops) at room temperature; per applicable IEC tumble specifications
Electrostatic Discharge (ESD)	+/-15kVdc air discharge, +/-8kVdc direct discharge, +/-8kVdc indirect discharge
Sealing	IP67 per IEC specification.
Vibration	4 g's PK Sine (5 Hz to 2 kHz); 0.04g2/Hz Random (20 Hz to 2 kHz); 60 minute duration per axis, 3 axis
Thermal Shock	-40° C to 70° C (-40° F to 158° F) rapid transition
Zebra Interactive Sensor Technology (IST)	
Motion Sensor	3-axis accelerometer that enables motion-sensing applications for dynamic screen orientation and power management.
Light Sensor	Ambient light sensor to auto adjust display and keypad backlight brightness.
Digital Compass	Navigational aid for users
Wireless WAN Data and Voice Communications	
Radio	4G HSPA+

Table A-1 *MC67 Technical Specifications (Continued)*

Item	Description
Frequency Band	**MC67NA**: UMTS/HSDPA and HSUPA: 850, 1900 and 2100 MHz GSM/EDGE: 850, 900, 1800 and 1900 MHz **MC67ND**: UMTS/HSDPA and HSUPA: 850, 900, 1900 and 2100 MHz GSM/EDGE: 850, 900, 1800 and 1900 MHz CDMA/EvDO Rev A: (800 and 1900 MHz)
Wireless LAN Data and Voice Communications	
Radio	IEEE® 802.11a/b/g/n
Data Rates Supported	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54, and 72 Mbps
Operating Channels	Chan 36-165 (5180 – 5825 MHz) Chan 1-13 (2412-2472 MHz) Chan 14 (2484 MHz) Japan only Actual operating channels/frequencies depend on regulatory rules and certification agency
Security	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)
Antenna	Internal antenna
Voice Communications	Voice-over-IP ready, Wi-Fi™-certified, IEEE 802.11a/b/g/n direct sequence wireless LAN, Wi-Fi Multimedia™ (WMM and WMM-PS) Zebra Voice Quality Manager (VQM)
Wireless PAN Data and Voice Communications	
Bluetooth	Class II, v2.1 with Enhanced Data Rate (EDR)
Global Positioning System	
GPS	Integrated stand-alone or Assisted-GPS (A-GPS).
Data Capture Specifications	
Options	2D imager, 2D imager and color camera
Camera Specifications	
Resolution	8 Mega pixel
Voice and Audio	
VoWWAN; VoWLAN; PTT, VoIP-ready; high-quality speakerphone; wireless (Bluetooth) headset support; PTT headset support; headset/speakerphone modes	
2D Imager Engine (SE4500-SR) Specifications	
Field of View	Horizontal - 39.6° Vertical - 25.7°

Table A-1 *MC67 Technical Specifications (Continued)*

Item	Description
Optical Resolution	WVGA 752 H x 480 V pixels (gray scale)
Roll	360°
Pitch Angle	+/- 60° from normal
Skew Tolerance	+/- 60° from normal
Ambient Light	Indoor: 450 ft. candles (4845 lux) Outdoor: 9000 ft. candles (96,900 lux) Sunlight: 8000 ft. candles Fluorescent: 450 ft. candles
Focal Distance	From center of exit window: 19 cm (7.5 in.)
Aiming Element (VLD)	655 nm +/- 10 nm
Illumination Element (LED)	625 nm +/- 5 nm
2D Imager Engine (SE4500-DL) Specifications	
Field of View	Horizontal - 39.2° Vertical - 25.4°
Optical Resolution	WVGA 752 H x 480 V pixels (gray scale)
Roll	360°
Pitch Angle	+/- 60° from normal
Skew Tolerance	+/- 60° from normal
Ambient Light	Indoor: 450 ft. candles (4845 lux) Outdoor: 9000 ft. candles (96,900 lux) Sunlight: 8000 ft. candles Fluorescent: 450 ft. candles
Focal Distance	From center of exit window: 18.5 cm (7.3 in.)
Aiming Element (VLD)	655 nm +/- 10 nm
Illumination Element (LED)	625 nm +/- 5 nm
2D Imager Engine (SE4500-DPM) Specifications	
Field of View	Horizontal - 39.2° Vertical - 25.4°
Optical Resolution	WVGA 752 H x 480 V pixels (gray scale)
Roll	360°
Pitch Angle	+/- 60° from normal
Skew Tolerance	+/- 60° from normal

Table A-1 *MC67 Technical Specifications (Continued)*

Item	Description
Ambient Light	Indoor: 450 ft. candles (4845 lux) Outdoor: 9000 ft. candles (96,900 lux) Sunlight: 8000 ft. candles Fluorescent: 450 ft. candles
Focal Distance	From center of exit window: 18.5 cm (7.3 in.)
Aiming Element (VLD)	655 nm +/- 10 nm
Illumination Element (LED)	625 nm +/- 5 nm

Table A-2 *Data Capture Supported Symbologies*

Item	Description		
1D Bar Codes	Chinese 2 of 5	Codabar	Code 11
	Code 128	Code 39	Code 93
	Coupon Code	Discrete 2 of 5	EAN-8
	EAN-13	GS1 DataBar	GS1 DataBar 14
	GS1 DataBar Expanded	GS1 DataBar Expanded Stacked	
	GS1 DataBar Limited	Interleaved 2 of 5	ISBT 128
	Korean 2 of 5	Matrix 2 of 5	MSI
	TLC39	Trioptic 39	UCC/EAN 128
	UPCA	UPCE	UPCE1
	UPC/EAN Supplementals	Webcode	
2D Bar Codes	Australian Postal	Aztec	Canadian Postal
	Composite AB	Composite C	Data Matrix
	Dutch Postal	Japanese Postal	Linked Aztec
	Maxi Code	Micro PDF-417	microQR
	PDF-417	QR Code	US Planet
	UK Postal	US Postnet	USPS 4-state (US4CB)

Decode Zones

SE4500-SR

Figure A-1 shows the decode zone for the SE4500-SR. Typical values appear. *Table A-3* 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.
Vcc = 3.3V
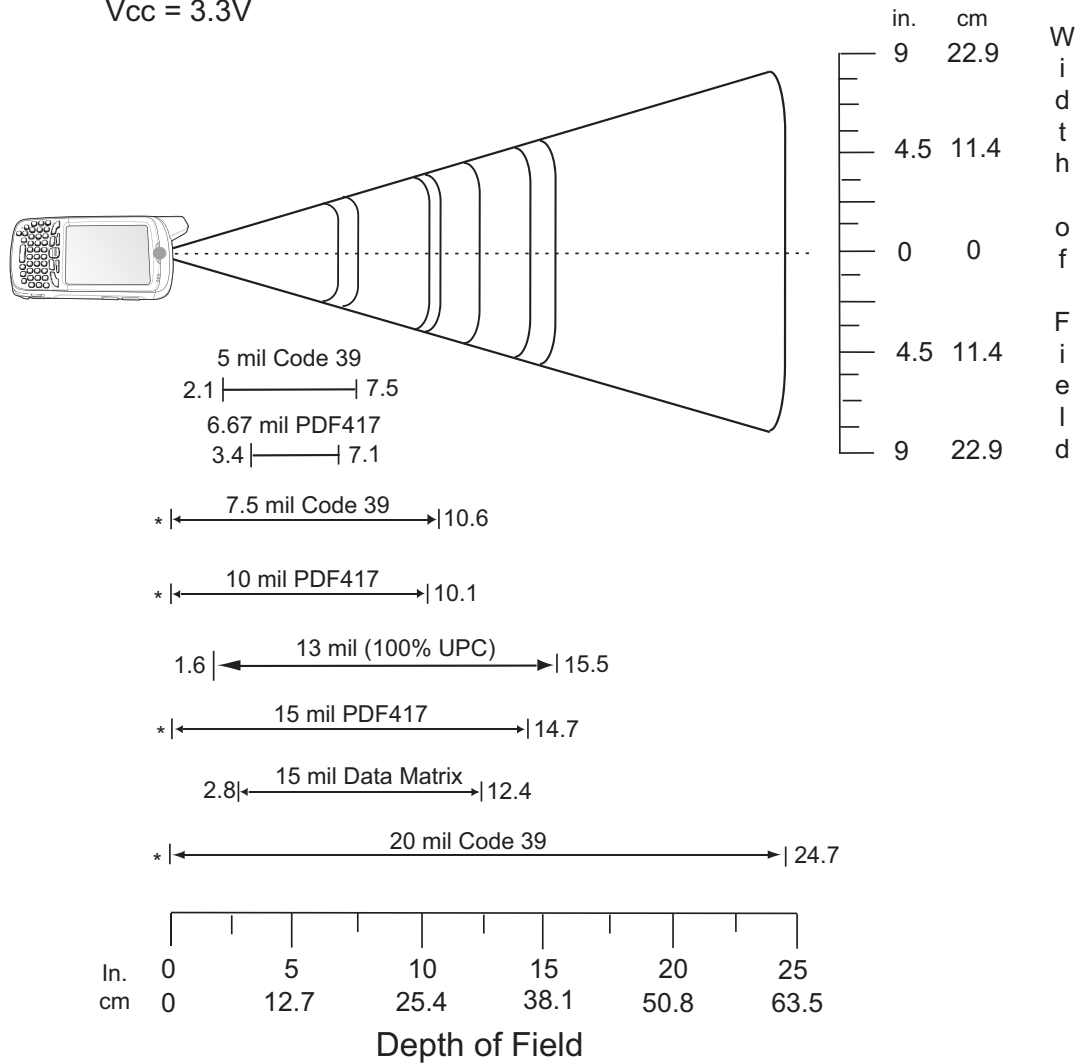
* Minimum distance determined by symbol length and scan angle.

Figure A-1   *SE4500-SR Decode Zone*
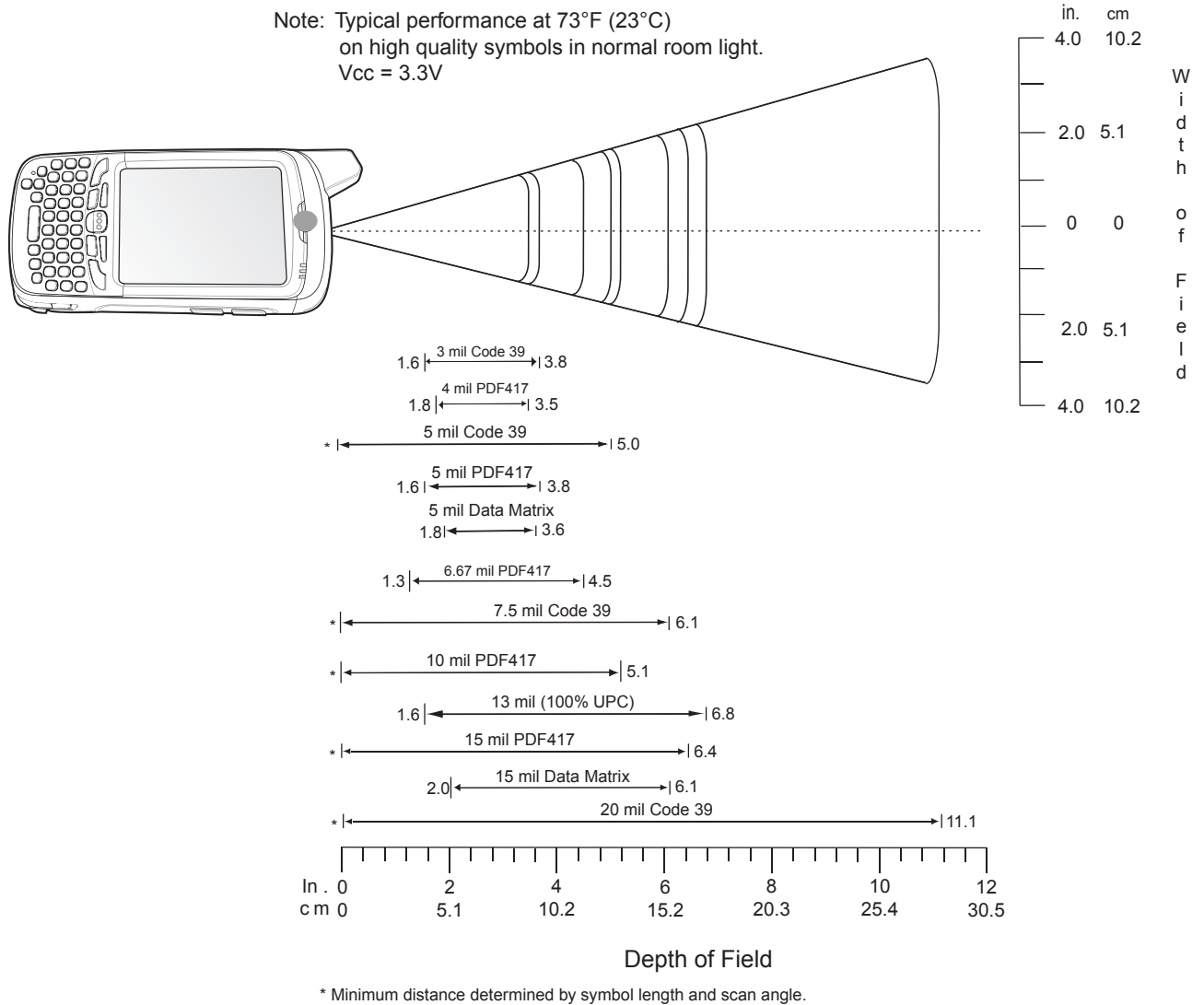
Table A-3   *SE4500-SR Decode Distances*

Symbol Density/ Bar Code Type	Bar Code Content/ Contrast[Note 2]	Typical Working Ranges	
		Near	Far
5.0 mil Code 39	ABCDEFGH 80% MRD	2.1 in 5.33 cm	7.5 in 19.05 cm
6.67 mil PDF417	4 Col, 20 Rows 80% MRD	3.4 in 8.64 cm	7.1 in 18.03 cm
7.5 mil Code 39	ABCDEF 80% MRD	Note 1	10.6 in 26.92 cm
10 mil PDF417	3 Col, 17 Rows 80% MRD	Note 1	10.1 in 25.65 cm
13 mil UPC-A	012345678905 80% MRD	1.6 in 5.08 cm	15.5 in 39.37 cm
15 mil PDF417	80% MRD	Note 1	14.7 in 37.34 cm
15 mil Data Matrix	18 x 18 Modules 80% MRD	2.8 in 7.11 cm	12.4 in 31.50 cm
20 mil Code 39	123 80% MRD	Note 1	24.7 in 62.74 cm

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.
4. Distances measured from front edge of scan engine chassis.

SE4500-DL

Figure A-2 shows the decode zone for the SE4500-DL. Typical values appear. *Table A-4* 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.
   Vcc = 3.3V
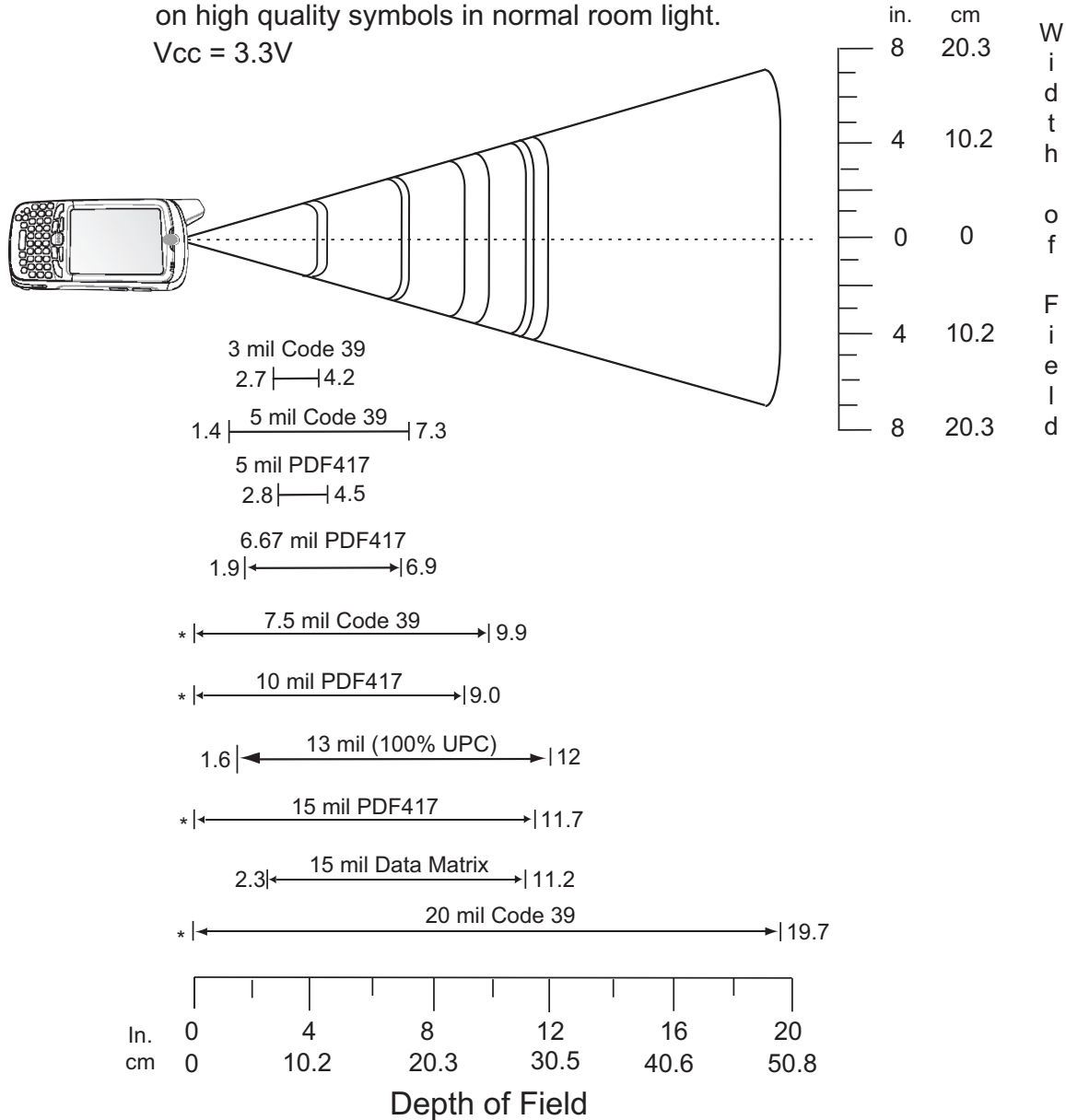
Figure A-2   *SE4500-DL Decode Zone*

Table A-4 *SE4500-DL Decode Distances*

Symbol Density/ Bar Code Type	Bar Code Content/ Contrast[Note 2]	Typical Working Ranges	
		Near	Far
3.0 mil Code 39	80% MRD	2.7 in 6.86 cm	4.2 in 10.67 cm
5.0 mil Code 39	ABCDEFGH 80% MRD	1.4 in 3.56 cm	7.3 in 18.54 cm
5.0 mil PDF417	80% MRD	2.8 in 7.11 cm	4.5 in 11.43 cm
6.67 mil PDF417	4 Col, 20 Rows 80% MRD	1.9 in 4.83 cm	6.9 in 17.53 cm
7.5 mil Code 39	ABCDEF 80% MRD	Note 1	9.9 in 25.15 cm
10 mil PDF417	3 Col, 17 Rows 80% MRD	Note 1	9.0 in 22.86 cm
13 mil UPC-A	012345678905 80% MRD	1.6 in 5.08 cm	12.0 in 30.48 cm
15 mil PDF417	80% MRD	Note 1	11.7 in 29.72 cm
15 mil Data Matrix	18 x 18 Modules 80% MRD	2.3 in 5.84 cm	11.2 in 28.45 cm
20 mil Code 39	123 80% MRD	Note 1	19.7 in 50.04 cm

Notes:
1. Near distances are 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.
4. Distances measured from front edge of scan engine chassis.

SE4500-DPM

Figure A-2 shows the decode zone for the SE4500-DPM. Typical values appear. *Table A-4* 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.

* Minimum distance determined by symbol length and scan angle.

Figure A-3   *SE4500-DPM Decode Zone*

Table A-5   *SE4500-DPM Decode Distances*

Symbol Density/ Bar Code Type	Bar Code Content/ Contrast[Note 2]	Typical Working Ranges	
		Near	Far
3.0 mil Code 39	80% MRD	1.6 in 4.06 cm	3.8 in 9.65 cm
4.0 mil PDF417	80% MRD	2.8 in 4.57 cm	3.5 in 8.89 cm
5.0 mil Code 39	ABCDEFGH	Note 1	5.0 in 12.70 cm
5.0 mil PDF417	80% MRD	1.6 in 4.06 cm	3.8 in 9.65 cm
5.0 mil Data Matrix	18 x 18 Modules 80% MRD	1.8 in 4.57 cm	3.6 in 9.15 cm
6.67 mil PDF417	4 Col, 20 Rows 80% MRD	1.3 in 3.30 cm	4.5 in 11.43 cm
7.5 mil Code 39	ABCDEF 80% MRD	Note 1	6.1 in 15.49 cm
10 mil PDF417	3 Col, 17 Rows 80% MRD	Note 1	5.1 in 12.95 cm
13 mil UPC-A	012345678905 80% MRD	1.6 in 4.06 cm	6.8 in 17.27 cm
15 mil PDF417	80% MRD	Note 1	11.7 in 29.72 cm
15 mil Data Matrix	18 x 18 Modules 80% MRD	2.0 in 5.08 cm	6.1 in 15.49 cm
20 mil Code 39	123 80% MRD	Note 1	11.1 in 28.19 cm

Notes:
1. Near distances are 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.
4. Distances measured from front edge of scan engine chassis.

MC67 External Connector Pin-Outs
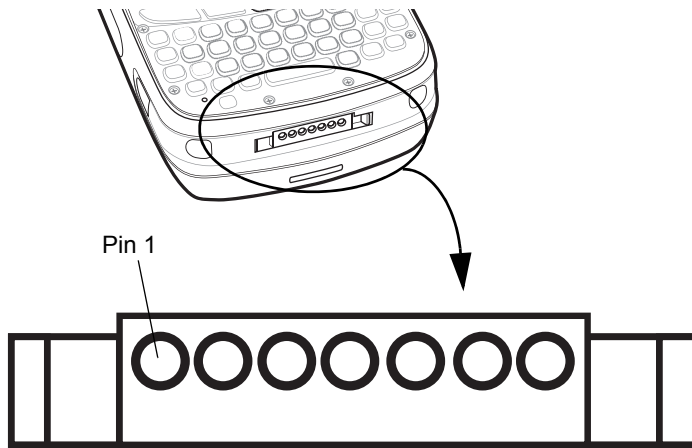
Figure A-4   *External Connector*

Table A-6   *External Connector Pin-Outs*

Pin	Description
1	External Trigger/Cradle Detect
2	USB_ID
3	5.4 VDC
4	USB_VCC
5	USB_D-
6	USB_D+
7	Ground

MC67 Accessory Specifications

Single Slot USB Cradle

Table A-7   *Single Slot USB Cradle Technical Specifications*

Feature	Description
Dimensions	Height: 7.1 cm (2.80 in.) Width: 11.0 cm (4.33 in.) Depth: 15.0 cm (5.91 in.)
Weight	210 g (7.41 oz)
Input Voltage	12 VDC
Power Consumption	30 watts
Interface	USB
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 Slot Battery Charger

Table A-8   *Four Slot Battery Charger Technical Specifications*

Feature	Description
Dimensions	Height: 4.7 cm (1.85 in.) Width: 15.5 cm (6.10 in.) Depth: 21.0 cm (8.27 in.)
Weight	384 g (13.55 oz)
Input Voltage	12 VDC
Power Consumption	30 watts
Operating Temperature	0 °C to 40 °C (32 °F to 104 °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)

Table A-8   *Four Slot Battery Charger Technical Specifications (Continued)*

Feature	Description
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 Slot Charge Only Cradle

Table A-9   *Four Slot Charge Only Cradle Technical Specifications*

Feature	Description
Dimensions	Height: 13.7 cm (5.39 in.) Width: 46.8 cm (18.43 in.) Depth: 9.9 cm (3.90 in.)
Weight	1115 g (39.33 oz)
Input Voltage	12 VDC
Power Consumption	100 watts
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 Slot Ethernet Cradle

Table A-10   *Four Slot Ethernet Cradle Technical Specifications*

Feature	Description
Dimensions	Height: 13.7 cm (5.39 in.) Width: 46.8 cm (18.43 in.) Depth: 9.9 cm (3.90 in.)
Weight	1115 g (39.33 oz)
Power	12 VDC
Operating Temperature	0 °C to 50 °C (32 °F to 122 °F)
Storage Temperature	-40 °C to 70 °C (-40 °F to 158 °F)

Table A-10   *Four Slot Ethernet Cradle Technical Specifications (Continued)*

Feature	Description
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

Magstripe Reader

Table A-11   *Magstripe Reader (MSR) Technical Specifications*

Feature	Description
Dimensions	8.4 cm x 9.4 cm (3.3 in. x 3.7 in.)
Weight	79.4 g (2.8 oz)
Interface	Serial with baud rate up to 19,200
Format	ANSI, ISO, AAMVA, CA DMV, user-configurable generic format
Swipe Speed	5 to 50 in. (127 to 1270 mm) /sec, bi-directional
Decoders	Generic, Raw Data
Mode	Buffered, unbuffered
Track Reading Capabilities	Tracks 1 and 3: 210 bpi Track 2: 75 and 210 bpi, autodetect
Operating Temperature	0 °C to 50 °C (32 °F to 122 °F)
Storage Temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Humidity	5% to 95% non-condensing
Drop	4 ft. (1.22 m) drops to concrete
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

Vehicle Cradle

Table A-12   *Vehicle Cradle Technical Specifications*

Feature	Description
Dimensions	Height: 10.4 cm (4.09 in.) Width: 11.1 cm (4.37 in.) Depth: 6.9 cm (2.72 in.)
Weight	240 g (8.47 oz)
Power	9- 32 VDC
Operating Temperature	-20 °C to 50 °C (-4 °F to 122 °F)
Storage Temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Charging Temperature	0 °C to 40 °C (32 °FC to 104 °F)
Humidity	10% 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

Cables

Table A-13   *USB Charging Cable Technical Specifications*

Feature	Description
Length	161.9 cm (63.74 in.)
Operating Temperature	-10 °C to 50 °C (14 °F to 122 °F)
Storage Temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Humidity	10% to 95% non-condensing
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

Table A-14   *Charge Only Cable Technical Specifications*

Feature	Description
Length	28.0 cm (11.00 in.)
Operating Temperature	-10 °C to 50 °C (14 °F to 122 °F)

Table A-14   *Charge Only Cable Technical Specifications (Continued)*

Feature	Description
Storage Temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Humidity	10% to 95% non-condensing
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

Table A-15   *Auto Charge Cable Technical Specifications*

Feature	Description
Length	169.0 cm (66.54 in.)
Input Voltage	12 - 24 VDC
Operating Temperature	-10 °C to 50 °C (14 °F to 122 °F)
Storage Temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Humidity	10% to 95% non-condensing
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

APPENDIX B   SOFTWARE

Battery Usage Threshold Setting

By default the Battery Usage Threshold value is set to a pre-defined value (400 by default). To change the threshold value, a registry key must be created to allow changing this value.

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

✓   **NOTE**   The point at which a battery becomes unhealthy may vary depending upon the environment and charging conditions
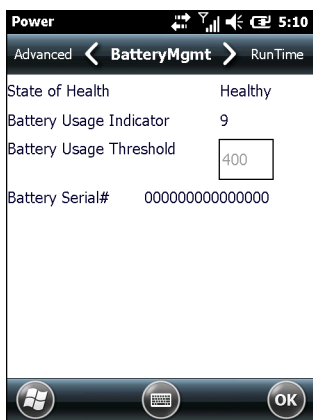
Figure B-1   *Power BatteryMgmt Tab*

Registry Setting

Create the following registry key:

[HKEY_LOCAL_MACHINE\ControlPanel\Power]

    "EnableCycleCntThresholdEdit"=DWORD:0

where:

dword:0 = Enable threshold change

Warm boot the MC67 to have the registry setting take effect.

1. Tap 🟦 > **Settings** > **Power** > **BatteryMgmt** tab.
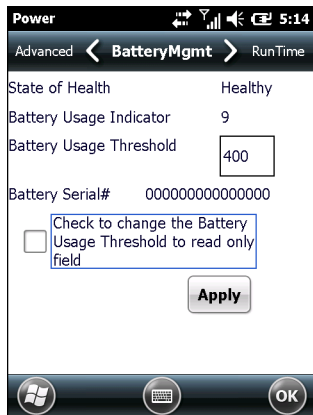
Figure B-2   *BatteryMgmt Tab with Threshold Change Checkbox*

2. In the **Battery Usage Threshold** text box, enter a new value.

3. Select the **Check to change the Battery Age Threshold to read only field** checkbox.

4. Tap **Apply**.

5. Tap **ok**. The new value is set and then the registry key is deleted.

Bluetooth Configuration Setting

The MC67 supports both the Microsoft Bluetooth stack and the StoneStreet One Bluetooth stack. Only one Bluetooth stack can be used at a time. By default, the Microsoft Bluetooth stack is enabled. A registry key on the MC67 can be modified to disable the Microsoft stack and enable the StoneStreet One stack.

Using a registry editor, navigate to the following:

[HKEY_LOCAL_MACHINE\Software\SymbolBluetooth

Edit the following key:

"SSStack"=dword:1

where:

0 = enable Microsoft stack and disable StoneStreet One stack (default)

1 = enable StoneStreet One stack and disable Microsoft stack

After setting the registry key, warm boot the MC67.

Green LED Configuration

In OEM version 03.46.36, the default good decode LED (green) is set to 100 ms. To change the default setting, refer to the EDMK if Scansamp or customer application using scanning API is used, or change setting in DataWedge application.

Keypad Backlight

In OEM version 03.46.36, the default setting for keypad backlight is set to off. To change the default setting in the Keylight application.

Tap **Start** > **Settings** > **System** > **Keylight** > **Advanced** tab.

Deselect the **Disable keylight** checkbox.

Deselect the **Persist 'Disable keylight' setting** checkbox.
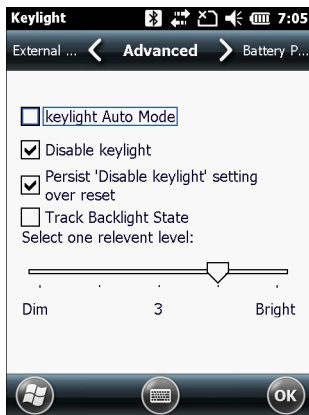
Figure B-3   *Keylight - Advanced Tab*

Turkish SMS Support

In order to comply with Turkey Country Regulations on Utilisation of Turkish Characters in Short Message Services, the Single Shift Mode and Locking Shift Mode cab files are available on Support Central at http://www.zebra.com/support.

1. Go to the MC67NA product page and select (**Patch - Turkish SMS Support**).

2. Download the specific cab file:

    • To use Single Shift Mode, download `Zebra_TurkishSMS_SS.CAB.`

    • To use Locking Shift Mode, download `Zebra_TurkishSMS_LS.CAB.`

3. Copy the cab file to the MC67 `\temp` folder using ActiveSync or another method.

4. On the MC67, use **Windows Explorer** and navigate to the `\temp` folder.

5. Touch the filename to install the cab file.

    NOTE   A clean boot removes the cab file from the device.

GLOSSARY

A

API. (Application Programming Interface) 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

AZERTY. A standard keyboard commonly used on French keyboards. "AZERTY" refers to the arrangement of keys on the top row of keys.

AKU. (Adaptation Kit Update) Updates to the Windows Mobile operating system.

AFH. Adaptive Frequency Hopping

ActiveSync. ActiveSync is a data synchronization program developed by Microsoft for use with Windows Mobile operating systems.

B

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**.

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.

Bluetooth. A wireless protocol utilizing short-range communications technology facilitating data transmission over short distances.

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.

C

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.

Codabar. A discrete self-checking code with a character set consisting of digits 0 to 9 and six additional characters: ("-", "$", ":", "/", "," and "+").

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.

COM port. Communication port; ports are identified by number, e.g., COM1, COM2.

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.

D

DCP. See **Device Configuration Package**.

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 Symbol 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 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.

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.

EMDK. Enterprise Mobility Developer's Kit.

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 Memory. Flash memory is nonvolatile, semi-permanent storage that can be electronically erased in the circuit and reprogrammed.

FHSS (Frequency Hopping Spread)**.** A method of transmitting radio signals by rapidly switching a carrier among many frequency channels, using a pseudorandom sequence known to both transmitter and receiver.

G

GPS (Global Positioning System). A satellite-based navigation system made up of a network of 24 satellites. GPS satellites circle the earth and transmit signal information to earth. GPS receivers take this information and use triangulation to calculate the user's exact location.

H

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.

I

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 terminal's memory. MC67 mobile computers include USB ports.

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.

Internet Protocol Address. See **IP**.

I/O Ports. The connection between two devices, defined by common physical characteristics, signal characteristics, and signal meanings. Types of interfaces include RS-232 and USB.

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 a 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.

ISM. Industry Scientific and Medical

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 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.

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.

Mobile Computer. In this text, *mobile computer* refers to the MC67. 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.

NVM. Non-Volatile Memory.

O

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.

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.

Q

QWERTY. A standard keyboard commonly used on European keyboards. "QWERTY" refers to the arrangement of keys on the top row of keys.

QWERTZ. A standard keyboard commonly used on German keyboards. "QWERTZ" refers to the arrangement of keys on the top row of keys.

R

RAM. Random Access Memory. Data in RAM can be accessed in random order, and quickly written and read.

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**.

S

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.

SDK. Software Development Kit

Shared Key. Shared Key authentication is an algorithm where both the AP and the MU share an authentication key.

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.

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.

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.

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.

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.**

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.

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