

MC55X

Mobile Computer



Integrator Guide



ZEBRA

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Revision History

Changes to the original guide are listed below:

Change	Date	Description
-01 Rev A	11/2017	Initial release.
-02 Rev. A	3/2018	Remove reference to GPS in Accessories chapter.

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About This Guide

Introduction

This Integrator Guide provides information about setting up and configuring the MC55X (MC55E0 configurations) and its accessories.

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

Documentation Set

The documentation for the MC55X is divided into guides that provide information for specific user needs.

- MC55X Quick Start Guide - describes how to get the MC55X up and running.
- MC55X User Guide - describes how to use the MC55X.
- MC55X Integrator Guide - describes how to set up the MC55X and its accessories.
- Enterprise Mobility Developer Kit (EMDK) Help File - provides API information for writing applications.

Configurations

This guide covers the following configurations:

Table ii-1 Configurations

Configuration	Radios	Display	Memory	Data Capture Options	Operating System	Keypads
MC55E0	WLAN: 802.11 a/b/g/n WPAN: Bluetooth v2.0 EDR	3.5" VGA Color	512 MB RAM/ 2 GB Flash	2D imager or 2D imager and camera	Windows Embedded Handheld 6.5 Classic	Numeric or QWERTY
MC55E0-HC	WLAN: 802.11 a/b/g/n WPAN: Bluetooth v2.0 EDR	3.5" VGA Color	512 MB RAM/ 2 GB Flash	2D imager or 2D imager and camera	Windows Embedded Handheld 6.5 Classic	Numeric or QWERTY

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**.

Chapter Descriptions

Topics covered in this guide are as follows:

- [Getting Started](#) provides information on MC55X configurations and accessories, charging the battery, and resetting the device.
- [Accessories](#) describes the accessories available for the MC55X and how to set up power connections and battery charging capabilities, where applicable.
- [Synchronization](#) provides instructions on installing ActiveSync and setting up a partnership between the MC55X and a host computer.
- [Application Deployment](#) provides information for provisioning and deploying applications to the MC55X.
- [Maintenance & Troubleshooting](#) includes instructions on cleaning and storing the MC55X, and provides troubleshooting solutions for potential problems during MC55X operation.
- [Technical Specifications](#) includes tables listing the technical specifications for the MC55X and its accessories.
- [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 MC55X 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

- MC55X Quick Start Guide, p/n MN-003059-xx.
- MC55X Regulatory Guide, p/n MN-003061-xx.
- MC55X User Guide, p/n MN-003060-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>.

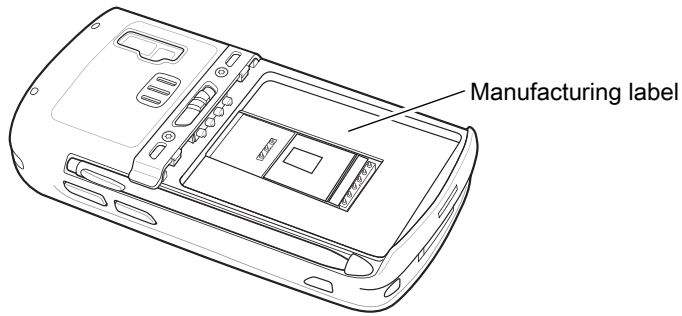
Service Information

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.

Figure 1 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.

Getting Started

Introduction

This chapter lists the parts and accessories for the MC55X and explains how to set up the MC55X for the first time.

Unpacking

Carefully remove all protective material from the MC55X and save the shipping container for later storage and shipping.

Verify that you received the following:

- MC55X
- 3600 mAh Lithium-ion battery
- stylus with tether (installed)
- screen protector, installed on display window
- Regulatory 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 9](#) for contact information.

Prior to using the MC55X for the first time, remove the protective shipping film that covers the scan window, display and camera window.

Getting Started

To start using the MC55X for the first time:

1. Install a microSD card (optional)
2. Install the battery.
3. Charge the MC55X.

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.

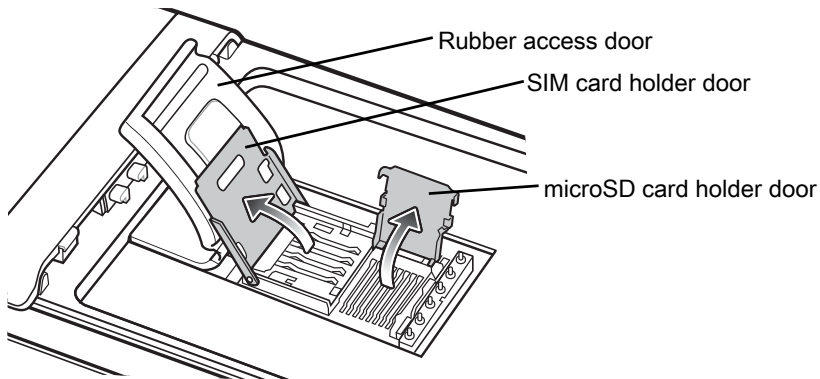
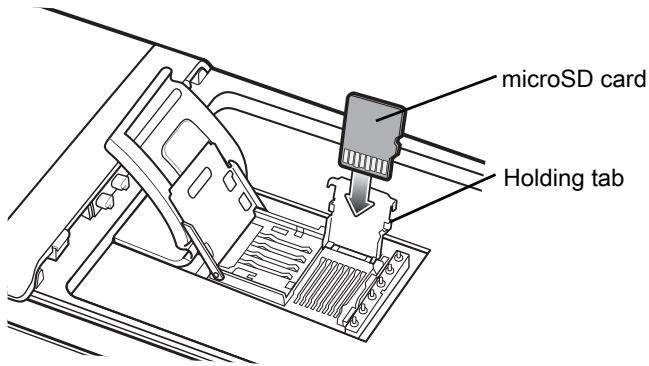


Figure 2 Lift SIM Slot Holder Door

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 3 Insert microSD Card in Holder



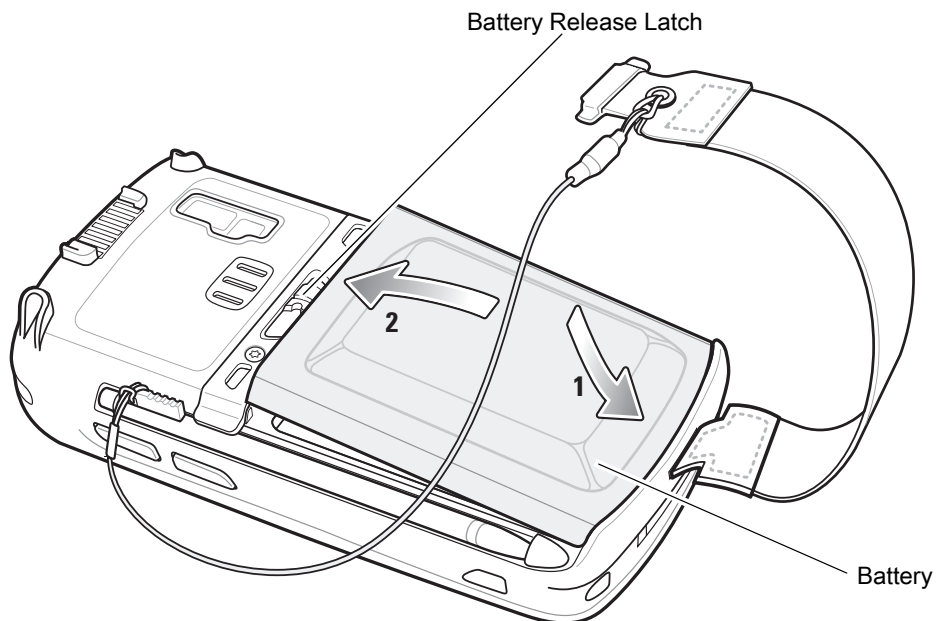
7. Close the card holder door and push down until it is securely into place.
8. Close SIM card holder door and slide down until it locks into place.
9. Close rubber access door.

Installing the Battery

To install the battery.

1. Insert the battery, bottom first, into the battery compartment in the back of the MC55X.
2. Press the battery down into the battery compartment until the battery release latch snaps (2-clicks) into place. The MC55X turns on if the battery is properly charged.
3. Replace the handstrap.

Figure 4 Inserting the Battery



Charging the Battery



CAUTION: Follow the guidelines for battery safety described in [Battery Safety Guidelines on page 65](#).

Charging the Main Battery

Before using the MC55X for the first time, charge the main battery until the amber Charging/Battery Status light emitting diode (LED) remains lit (see [Table 3 on page 14](#) for charge status indications). To charge the MC55X, use a cable or a cradle with the appropriate power supply. For information about the accessories available for the MC55X, see [Accessories](#).

The MC55X is equipped with a backup battery which automatically charges from the fully-charged main battery. When using the MC55X 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 MC55X's main battery is removed. When the MC55X 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 see [Accessories](#).

- 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 MC55X into a cradle or attach to a cable. The MC55X begins charging. The Charging/Battery Status LED blinks amber while charging, then turns solid amber when fully charged. See [Table 3](#) for charging indications.

The 3600 mAh battery charges in less than six hours.

Table 3 LED Charge Indicators

Charging/Battery Status LED	Indication
Off	MC55X is not charging. MC55X 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)	MC55X is charging.
Solid Amber	Charging complete. Note: When the battery is initially inserted in the MC55X, 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.: <ul style="list-style-type: none"> • Temperature is too low or too high. • Charging has gone on too long without completion (typically eight hours).

Charging Spare Batteries

See [Accessories](#) for information on using accessories to charge 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 MC55X.

To accomplish this, for small periods of time, the MC55X or accessory alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC55X or accessory indicates when charging is disabled due to abnormal temperatures via its LED. See [Table 3](#).

Powering On the MC55X



NOTE: If during installation of the battery, the battery has significant charge the MC55X turns on.

Press the Power button to turn on the MC55X. The splash screen displays for about a minute as the MC55X 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.

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 MC55X.
2. Carefully press and briefly hold the tip of stylus on the center of each target that appears on the screen.
3. Repeat as the target moves around the screen, then tap the screen to continue.

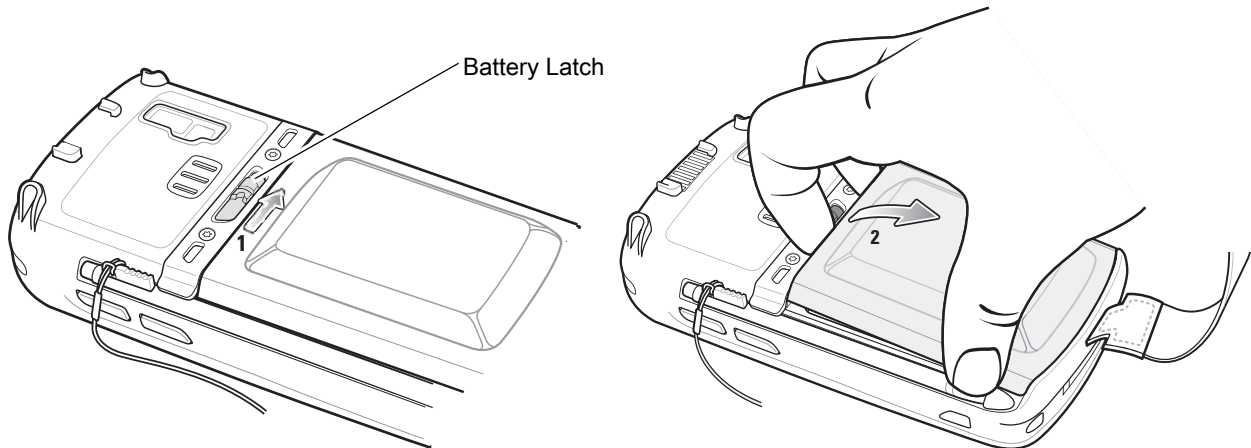
Replacing the Battery

To replace the battery:



CAUTION: The MC55X 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 MC55X is in a cradle, remove it before performing a Safe Battery Swap.
2. If the MC55X 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 5 Removing the Battery

7. Lift the battery from the MC55X.
8. Insert the replacement battery, bottom first, into the battery compartment in the back of the MC55X.
9. Press the battery down until the battery release latch snaps (2-clicks) into place.
10. Replace the handstrap.

Resetting the MC55X

There are three reset functions; warm boot, cold boot, and clean boot. A warm boot restarts the MC55X by closing all running programs. A cold boot also restarts the MC55X, and also initializes some drivers. Data saved in flash memory or a memory card is not lost.





If the MC55X is not functioning properly, perform a warm boot first. If the MC55X 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 MC55X starts to boot release the Power button.

Performing a Cold Boot

To perform a cold boot:

- On a numeric 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  **W** and  **C9** keys.

Performing a Clean Boot



CAUTION: A clean boot should only be performed by an authorized system administrator. You must connect the MC55X to AC power during a clean boot.

Removing AC power from the MC55X during a clean boot may render the MC55X inoperable.

A clean boot resets the MC55X 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 MC55X.

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 MC55X.
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 MC55X into a powered cradle.
5. The MC55X updates and then resets.
6. Calibrate the screen.

Waking the MC55X


The wake-up conditions define what actions wake up the MC55X after it has gone into suspend mode. The MC55X 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 4 Wake-up Default Settings

Condition for Wake-up	Power Button	Automatic Time-out
MC55X is connected to a USB cable.	Yes	Yes
MC55X is connected to 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

Accessories

Introduction

This chapter provides set up information for the MC55X various accessories listed in [Table 5](#).

Table 5 MC55X Accessories

Accessory	Part Number	Description
Cradles		
Single Slot USB Cradle	CRD5500-1000UR	Charges the MC55X main battery and a spare battery. Synchronizes the MC55X with a host computer through a USB connection.
Single Slot Ethernet/Modem/USB Cradle	CRD5500-1000XR	Charges the MC55X main battery and a spare battery. Synchronizes the MC55X with a host computer through an Ethernet, Modem or USB connection.
Four Slot Charge Only Cradle	CRD5501-4000CR	Charges up to four MC55X devices.
Four Slot Ethernet Cradle	CRD5501-4000ER	Charges up to four MC55X devices and connects the MC55X with an Ethernet network. CRD5501-4000ER provides up to a maximum of 1 Gbps.
Vehicle Cradle	VCD5500-1001R	Installs in a vehicle and charges the MC55X main battery.
Vehicle Holder	VCH5500-1000R	Provides an alternative mounting solution for the MC55X in a vehicle. Requires the Auto Charge cable for charging the MC55X battery.
Chargers		
Four Slot Spare Battery Charger	SAC5500-4000CR	Charges up to four MC55X battery packs.
Power Supply	PWR-BGA5V16W0WW	Provides power to the MC55X using the USB Charging Cable or Charge Only Cable.
Power Supply	PWR-BGA12V50W0WW	Provides power to the Single Slot USB cradle and Four Slot Spare Battery Charger.

Accessories

Table 5 MC55X Accessories (Continued)

Accessory	Part Number	Description
Power Supply	PWR-BGA12V108W0WW	Provides power to the Four Slot Charge Only cradle or Four Slot Ethernet cradles.
USB Charging Cable	25-108022-03R	Provides power to the MC55X and USB communication with a host computer.
Charge Only Cable	25-112560-02R	Connects to a power supply to provide power to the MC55X.
Auto Charge Cable	VCA5500-01R	Charges the MC55X using a vehicle's cigarette lighter.
DC Cable	CBL-DC-388A1-01	Provides power from the power supply to the single slot cradles.
DC Cable	CBL-DC-382A1-01	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.
Belt Mounted Rigid Holster	SG-MC5511110-01R	Clips onto belt to hold the MC55X 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.

- Magnetic Stripe Reader - Snaps on to the MC55X and adds magstripe read capabilities.

Single Slot USB Cradle

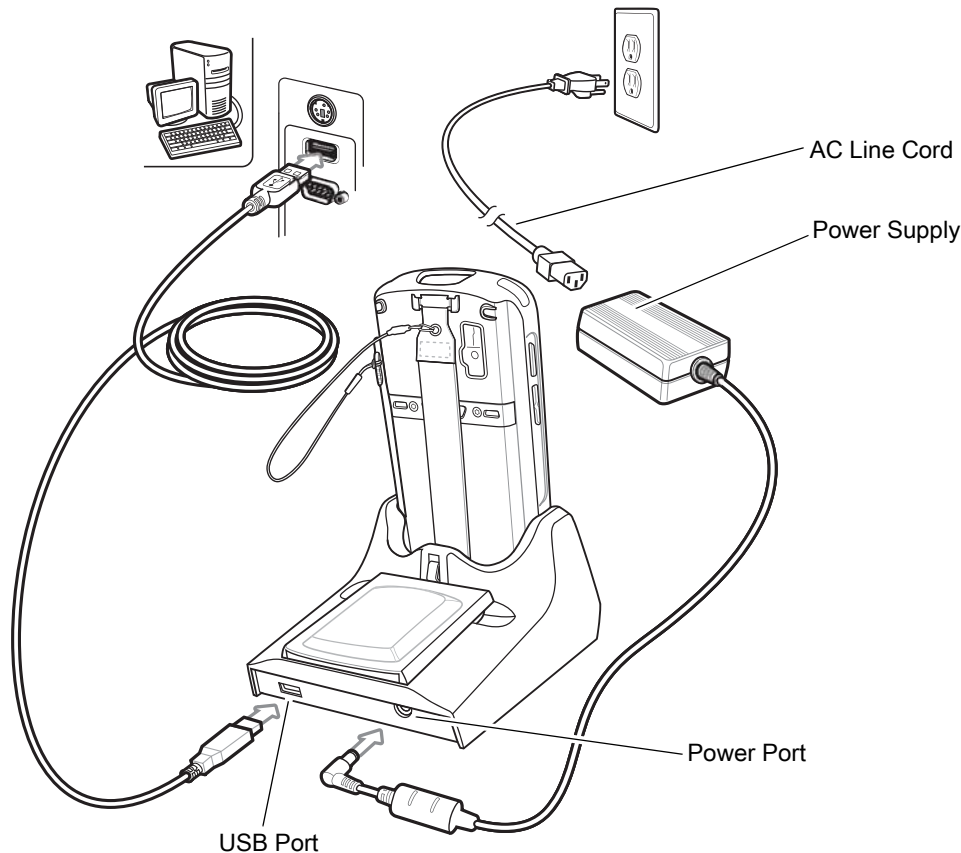
This section describes how to set up and use a Single Slot USB cradle with the MC55X. For USB communication setup procedures see [Synchronization](#).

The Single Slot USB cradle:

- Provides 5.4 VDC power for operating the MC55X.
- Synchronizes information between the MC55X and a host computer. See [Synchronization](#) for information on setting up a partnership between the MC55X and a host computer.
- Charges the MC55X's battery.
- Charges a spare battery.

Setup

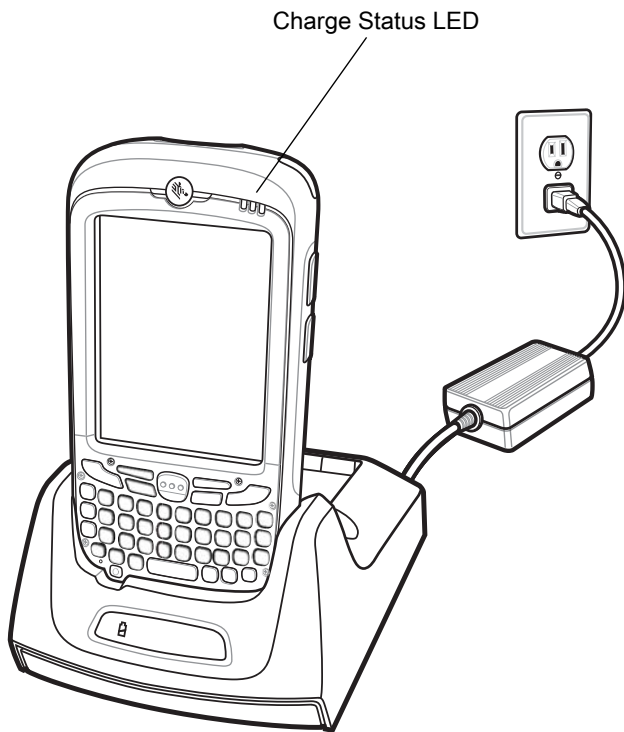
Figure 6 Single Slot USB Cradle Power and USB Connections



Charging the MC55X Battery

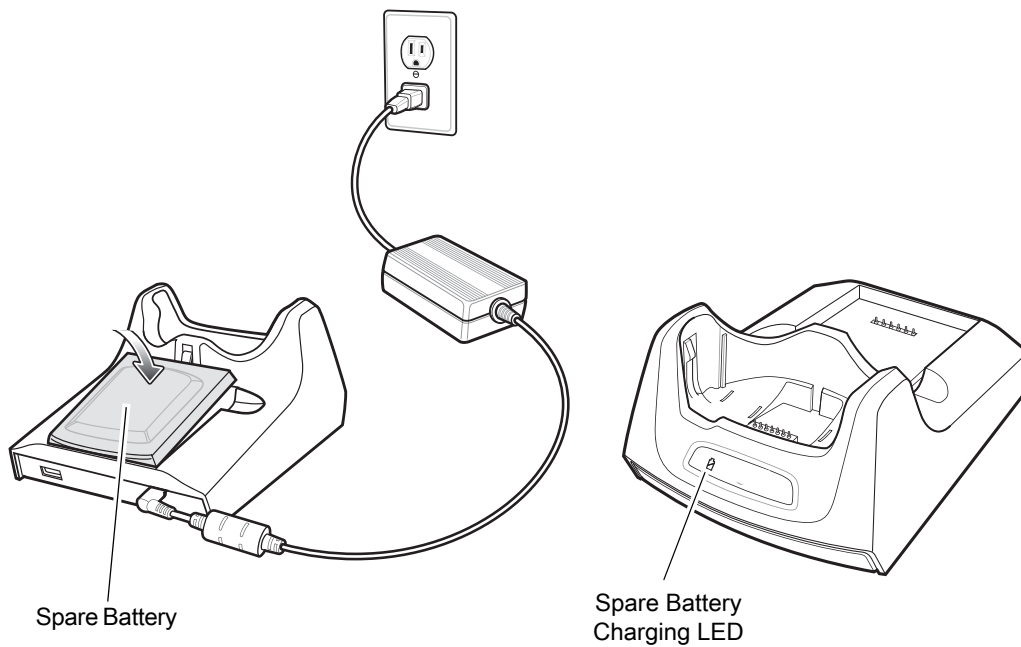
Connect the cradle to power. Insert the MC55X into the MC55X slot to begin charging.

Figure 7 MC55X Battery Charging



Charging the Spare Battery

Figure 8 Spare Battery Charging



Battery Charging Indicators

The Single Slot USB cradle charges the MC55X's main battery and a spare battery simultaneously.

The MC55X's Charging/Battery Status LED indicates the status of the battery charging in the MC55X. See [Table 3 on page 14](#) 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 6](#) 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 MC55X.

To accomplish this, for small periods of time, the MC55X or accessory alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC55X or accessory indicates when charging is disabled due to abnormal temperatures via its LED. See [Table 3 on page 14](#) and [Table 6](#).

Table 6 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 MC55X. For USB communication setup procedures see [Synchronization](#).

The Single Slot Ethernet/Modem/USB cradle:

- Provides 5.4 VDC power for operating the MC55X.
- Connects the MC55X to a host computer using USB, or an Ethernet network.
- Charges the MC55X's battery.
- Charges a spare battery.

Setup

Figure 9 Cradle Setup

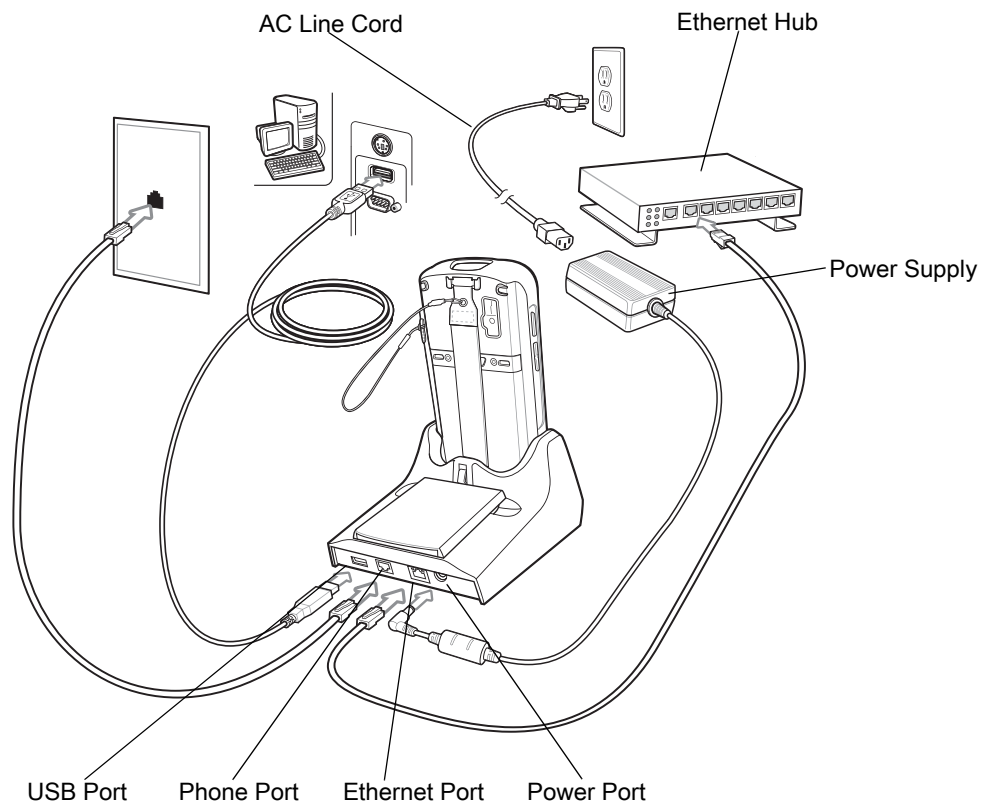
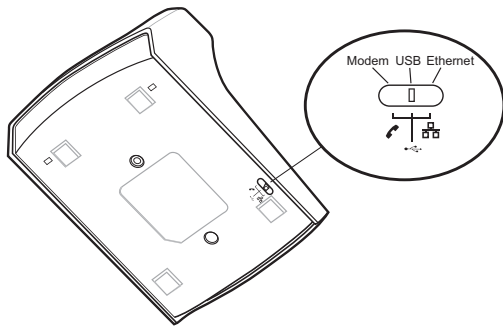


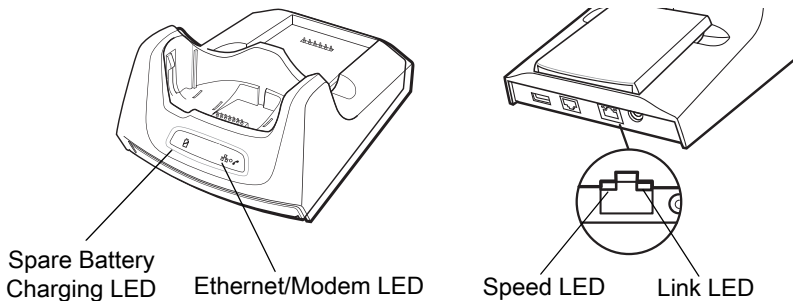
Figure 10 Connection Switch



Indicators



- **Spare Battery Charging LED** - Indicates the charging status of the spare battery.
- **Ethernet/Modem LED** - Blinks whenever Ethernet 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.

Figure 11 Cradle Indicators



MC55X 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.

Four Slot Ethernet Cradle

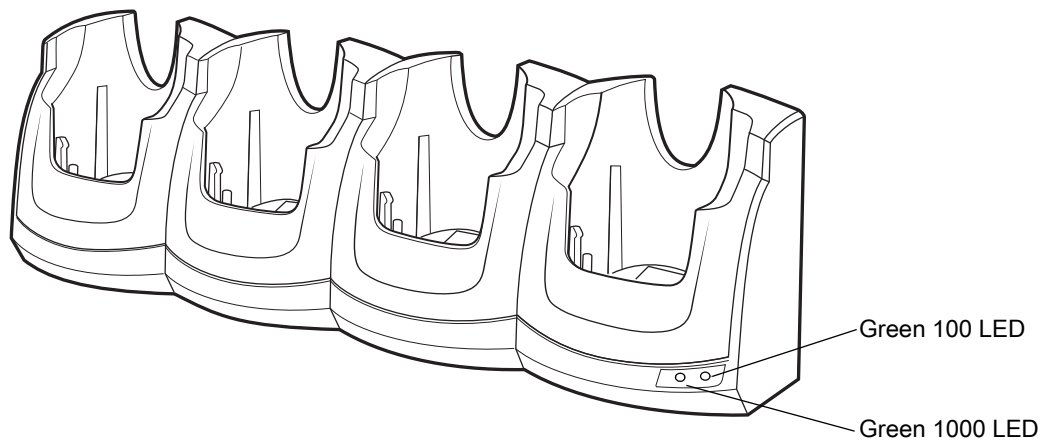
This section describes how to set up and use a Four Slot Ethernet cradle with the MC55X.

The Four Slot Ethernet cradle:

- Provides 5.4 VDC power for operating the MC55X.
- Connects the MC55X (up to four) to an Ethernet network.
- Simultaneously charges up to four MC55Xs.

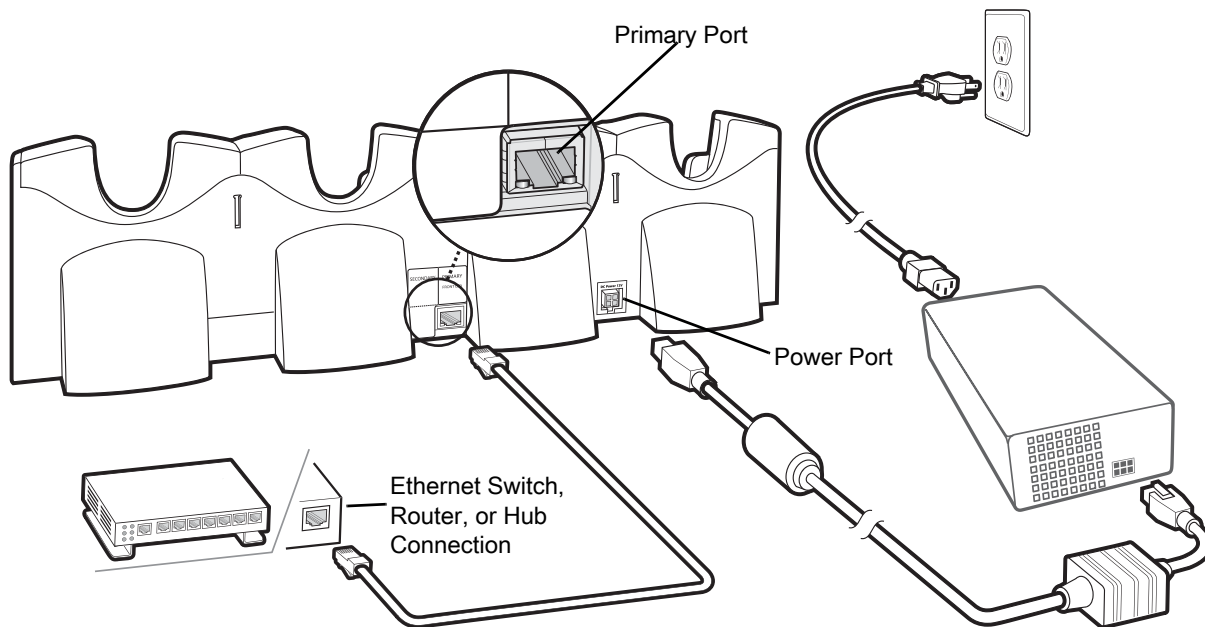
The user cannot ActiveSync using the Four Slot Ethernet cradle. To ActiveSync with a host computer, use the Single Slot USB/Serial cradle, USB Charging cable or Serial Charging cable.

Figure 12 Four Slot Ethernet Cradle



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 13 Four Slot Ethernet Cradle Connection

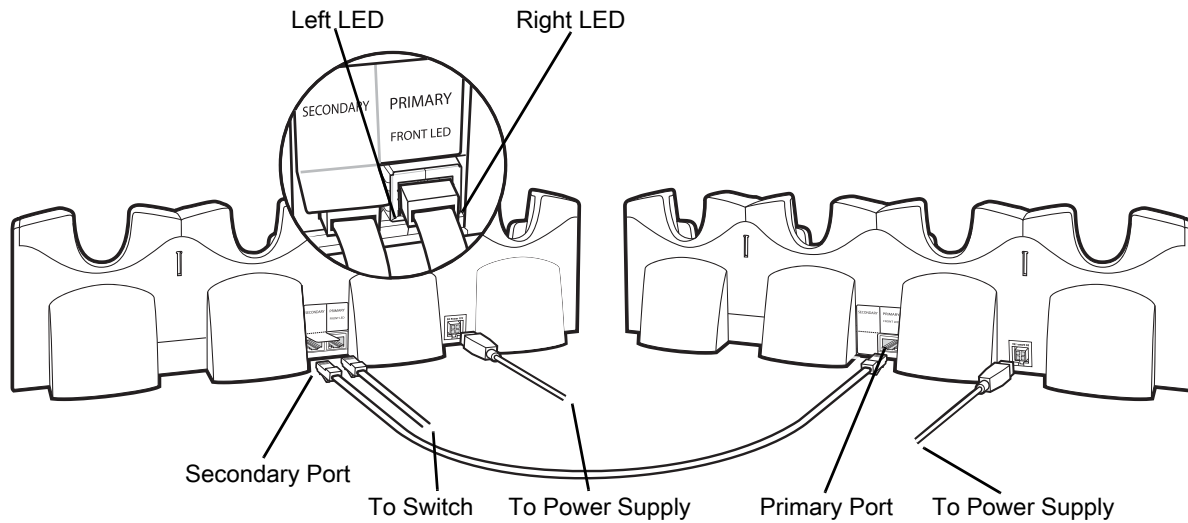
Daisychaining Ethernet Cradles

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 13](#).
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 14](#).
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 14 Daisychaining Four Slot Ethernet Cradles



LED Indicators

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 7 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 MC55X includes Ethernet cradle drivers that initiate automatically when you place the MC55X in a properly connected Four Slot Ethernet cradle. After inserting the MC55X, configure the Ethernet connection:


1. Tap  > **Settings** > **Connections** tab > **WiFi** icon. The **Configure Network Adapters** window appears.

Figure 15 Configure Network Adapters Window



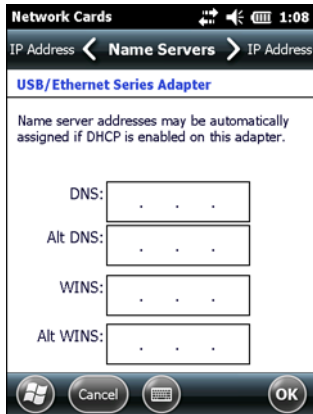
2. In the **My network card connects to:** drop-down list, select the appropriate connection.
3. In the **Tap an adapter to modify settings:** list, select **USB/Ethernet Series Adapter**.

Figure 16 IP Address Tab



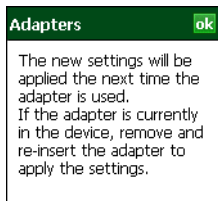
4. In the **IP address** window, select the appropriate radio button:
 - Use server-assigned IP address
 - or
 - **Use specific IP address.** Enter the IP address, Subnet mask, and Default gateway, as needed.
5. Tap the **Name Servers** tab.

Figure 17 Name Servers Tab



6. Enter the appropriate DNS, Alt DNS, WINS, and Alt WINS server addresses.
7. Tap **ok**.

Figure 18 Adapters Dialog Box



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

Charging

Insert the MC55X into a slot to begin charging. The MC55X's charge LED shows the status of the battery charging in the MC55X. See [Table 3 on page 14](#) 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 MC55X.

To accomplish this, for small periods of time, the MC55X alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC55X indicates when charging is disabled due to abnormal temperatures via its LED. See [Table 3 on page 14](#).

Four Slot Charge Only Cradle

This section describes how to set up and use a Four Slot Charge Only cradle with the MC55X.

The Four Slot Charge Only cradle:

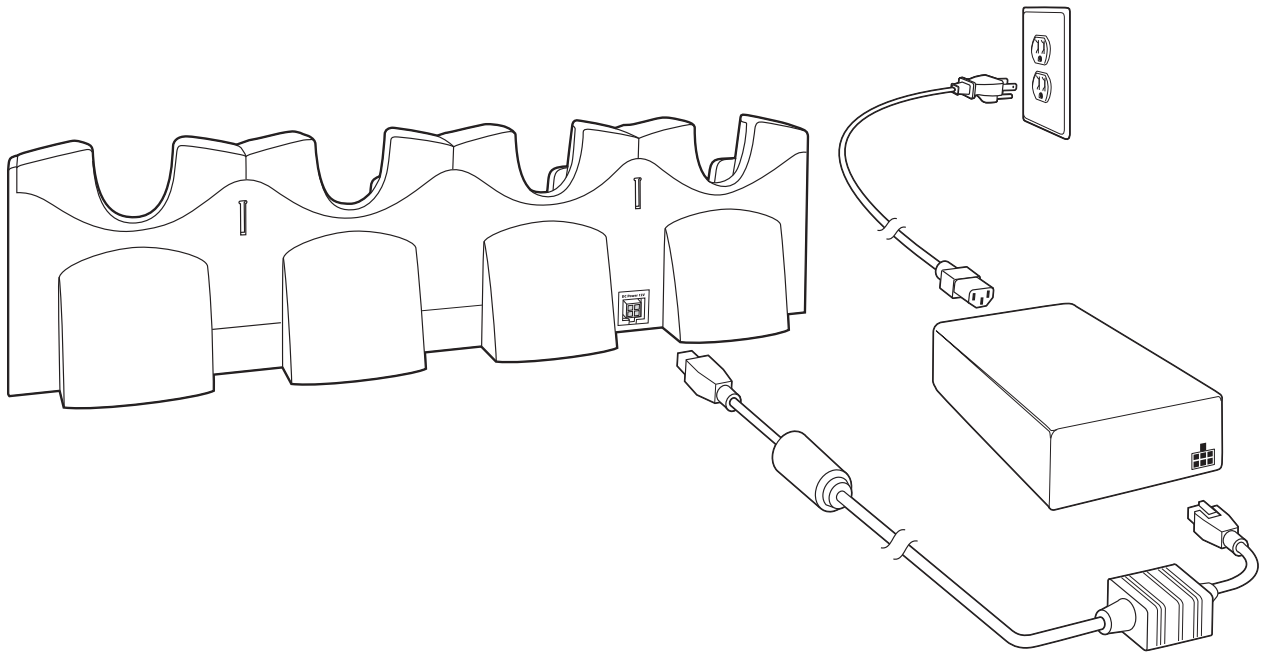
- Provides 5.4 VDC power for operating the MC55X.
- Simultaneously charges up to four MC55Xs.

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 19 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 MC55X.

To accomplish this, for small periods of time, the MC55X alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC55X indicates when charging is disabled due to abnormal temperatures via its LED. See [Table 3 on page 14](#).

Wall Mount Bracket

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

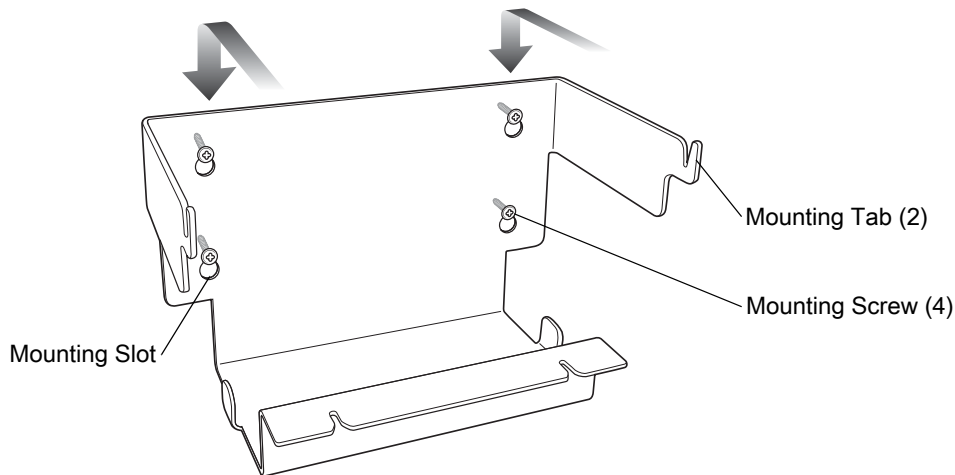
1. Use the Wall Mount Bracket as a template and mark the locations of the four mounting screws.



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.

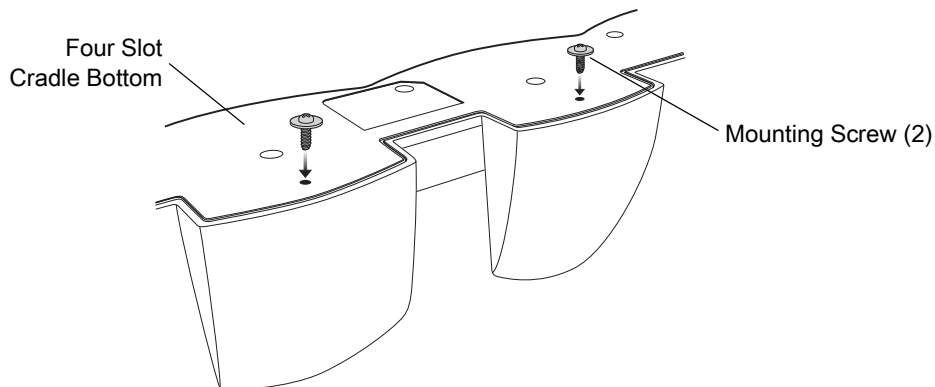
Figure 20 Wall Mount Bracket



To mount a four slot cradle:

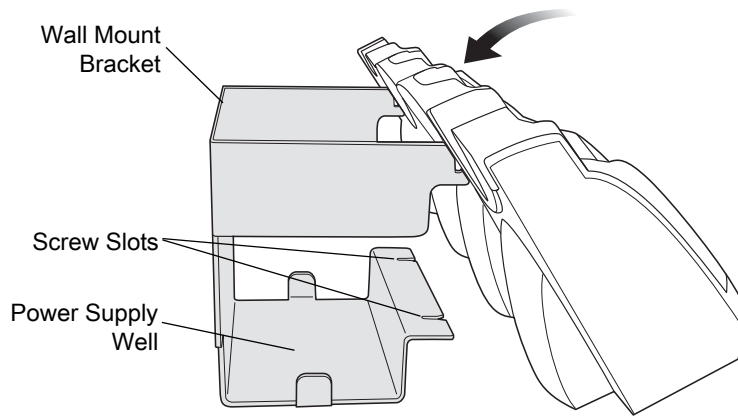
1. Screw the supplied screws into the bottom of the four slot cradle. The screw heads should protrude about a quarter of an inch from the cradle.

Figure 21 Cradle Mounting Screws



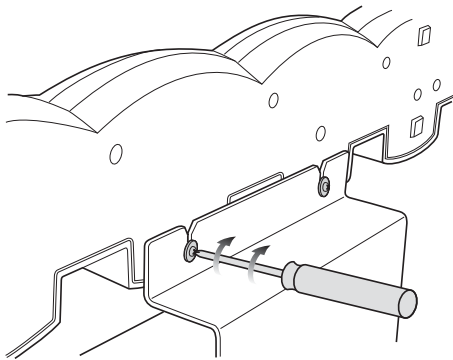
2. Align the Wall Mount Bracket mounting tabs with the mounting slots in the back of the four slot cradle. Slip the two mounting tabs into mounting slots.
3. Swing the four slot cradle down onto the mounting bracket and align the mounting screws so that they fit into the screw slots.

Figure 22 Wall Mount Bracket



4. Tighten the mounting screws to secure the four slot cradle to the bracket.

Figure 23 Mounting Screws



5. Connect power (see [Figure 19](#) on page 31). 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 MC55X.

Once installed in a vehicle, the cradle:

- holds the MC55X securely in place
- provides power for operating the MC55X
- re-charges the battery in the MC55X.

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 8 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



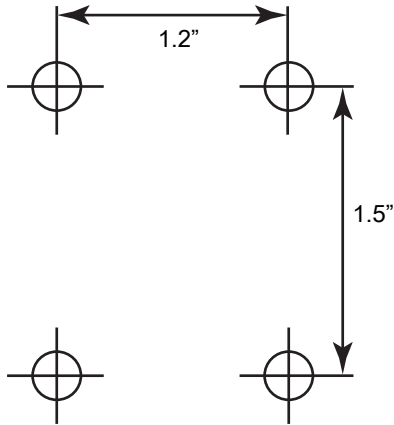
CAUTION: ROAD SAFETY - Do not use the MC55X while driving. Park the vehicle first. Always ensure the MC55X is fully inserted into the cradle. Do not place it on the seat or where it can break loose in a collision or sudden stop. Lack of proper insertion may result in property damage or personal injury. 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 MC55X 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.
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 24 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 MC55X. 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.



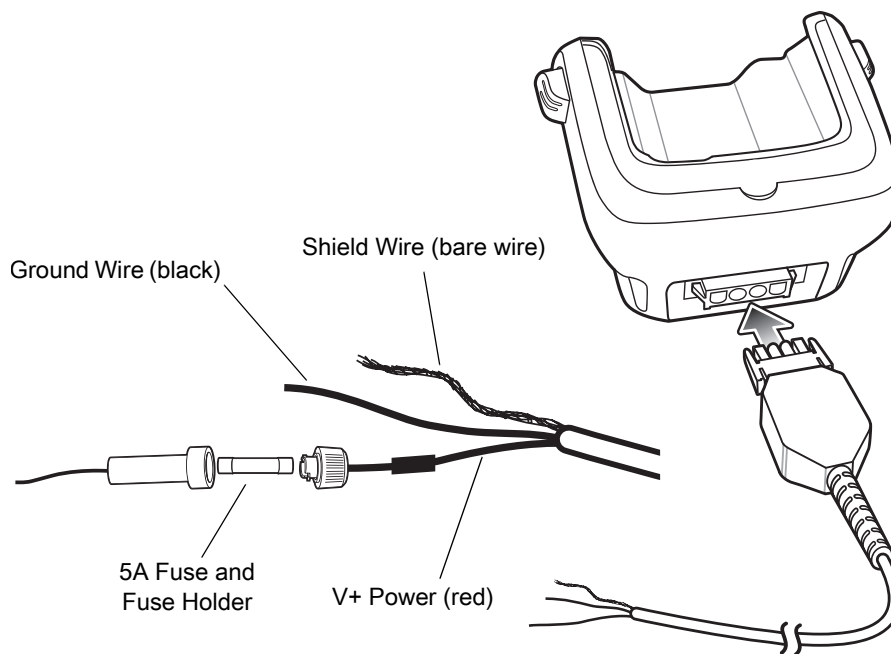
NOTE: The ideal location for connecting the vehicle cradle power input cable would be an accessory output in your vehicle's fuse panel. The vehicle cradle should be added to a circuit with a maximum load capacity for the cradle and the original circuit. Refer to the vehicle's *Owner's Manual* for identification 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 MC55X 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 25 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.

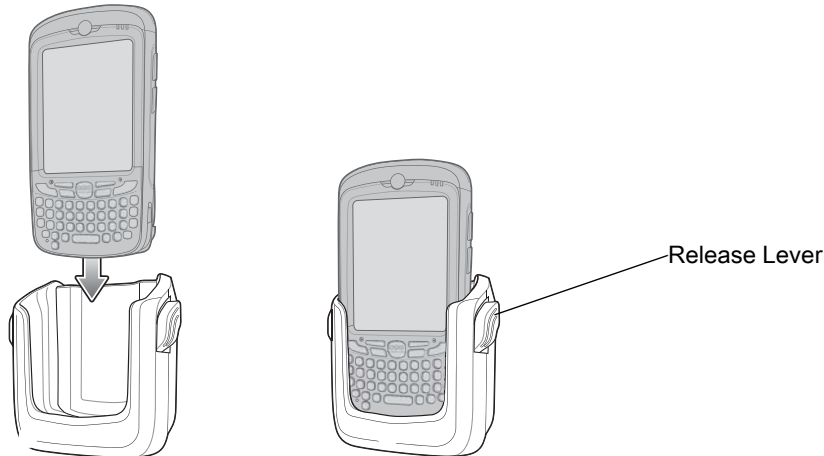
5. Connect the power input cable into the power port on the cradle.

To see if the cradle has power, insert the MC55X. The Charging LED on the MC55X blinks slowly to indicate charging and turns solid amber when the battery is completely charged. See [Table 3 on page 14](#) for other indications.

Charging the MC55X Battery

Insert the MC55X into the vehicle cradle to begin charging. A click indicates that the MC55X button release locking mechanism is enabled and the MC55X is locked in place.

Figure 26 MC55X Battery Charging

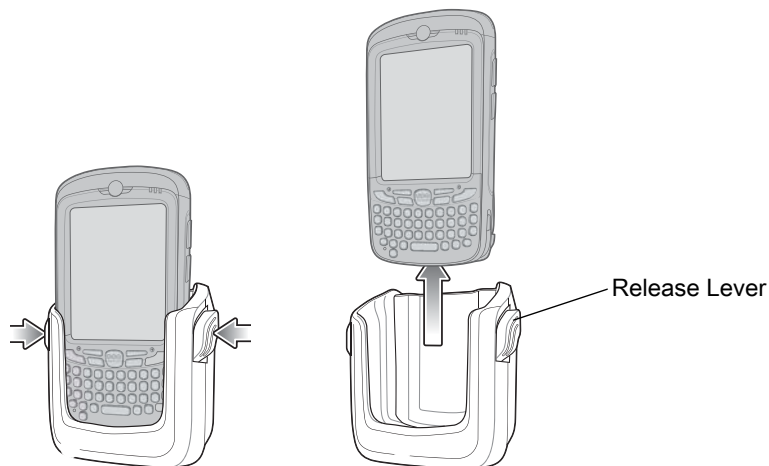


CAUTION: Ensure the MC55X is fully inserted in the cradle. Lack of proper insertion may result in property damage or personal injury. Zebra, Inc. is not responsible for any loss resulting from the use of the products while driving.

Removing the MC55X

To remove the MC55X, press the release levers on the cradle and pull the MC55X up and out of the cradle.

Figure 27 Removing the MC55X



Battery Charging Indicators

The MC55X's charge LED indicates the status of the battery charging in the MC55X. See [Table 3 on page 14](#) 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 MC55X.

To accomplish this, for small periods of time, the MC55X alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC55X indicates when charging is disabled due to abnormal temperatures via its LED. See [Table 3 on page 14](#).

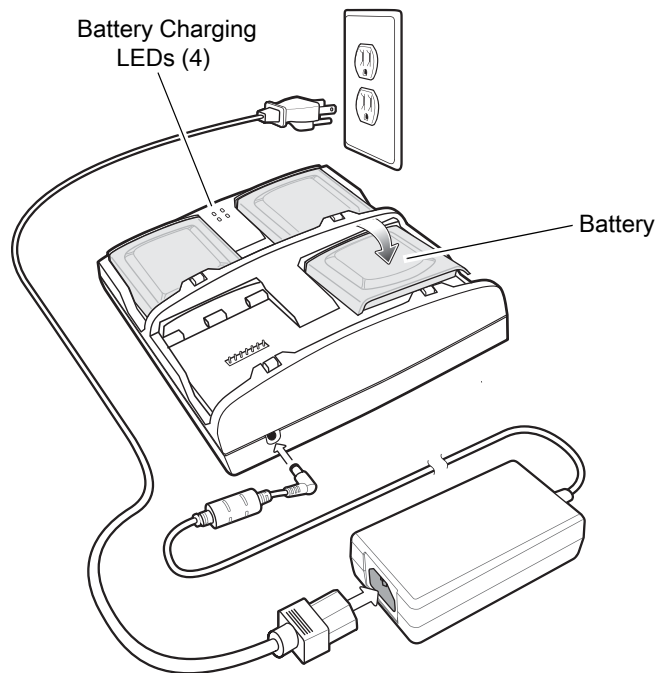
Four Slot Battery Charger

This section describes how to use the Four Slot Battery Charger to charge up to four MC55X 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 28 Four Slot Spare Battery Charger



Battery Charging Indicators

An amber LED is provided for each battery charging well. See [Table 9](#) 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 9](#).

Table 9 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.

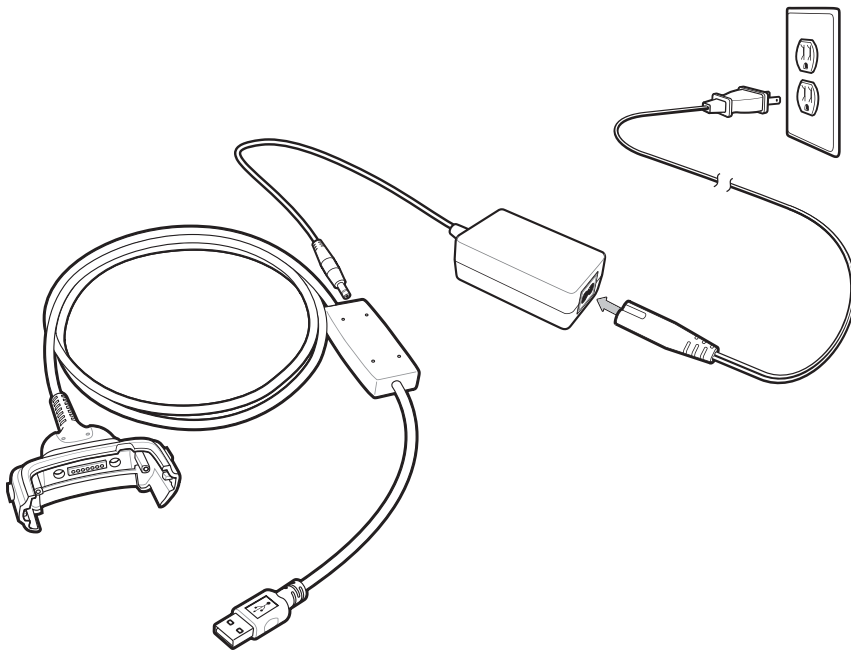
The following communication/charge cables are available:

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

USB Charging Cable

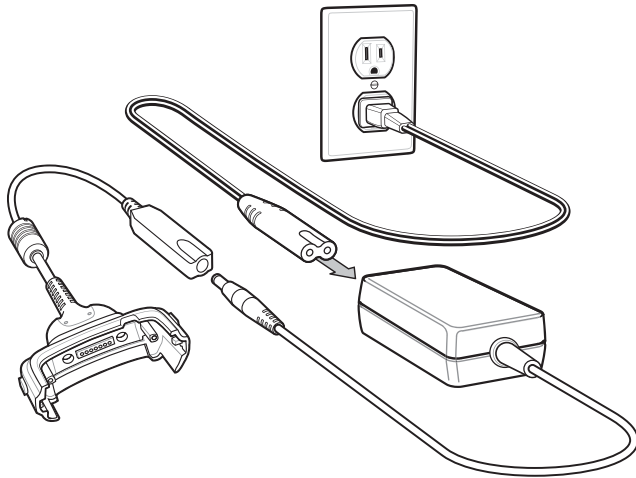
The USB Charging cable provides the MC55X with operating and charging power when used with the Zebra approved power supply and AC line cord and synchronize information between the MC55X and a host computer.

Figure 29 USB Charging Cable



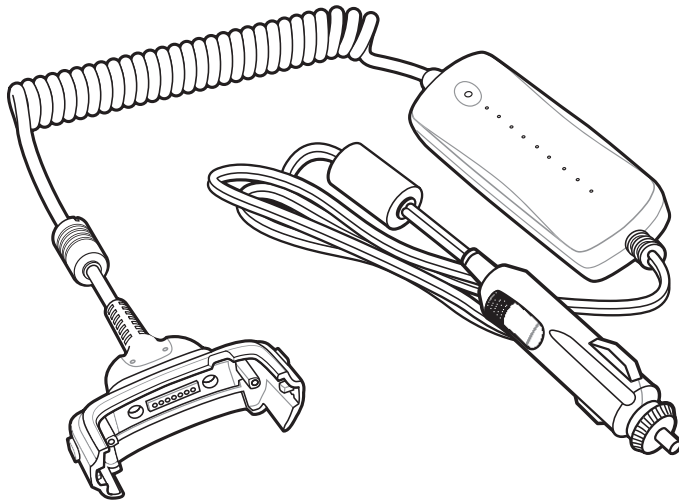
Charge Only Cable

The Charge Only cable provide the MC55X with operating and charging power when used with the Zebra approved power supply.

Figure 30 Charge Only Cable

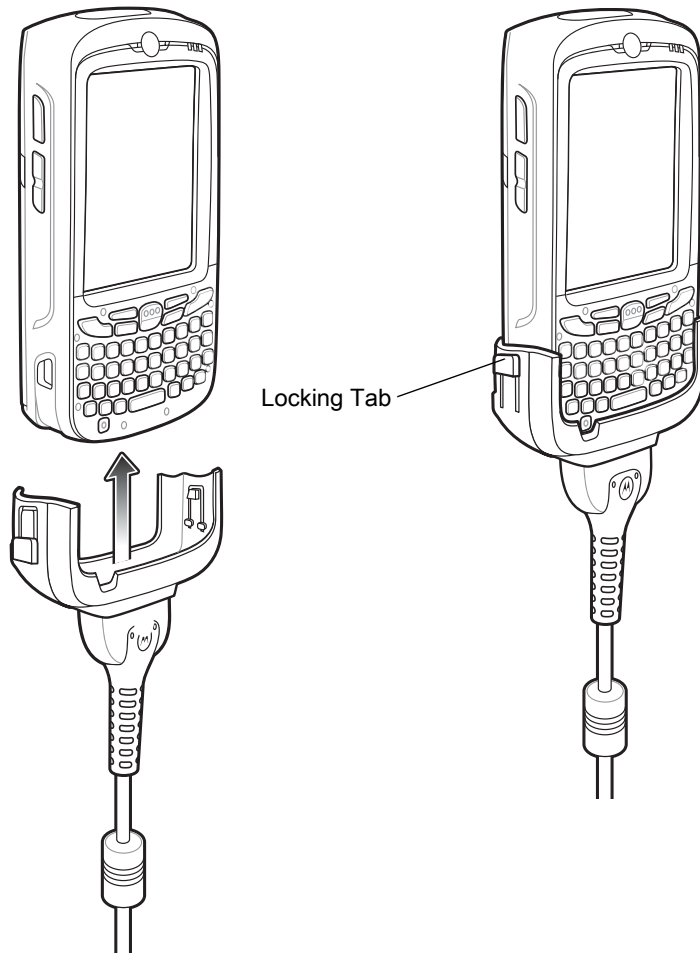
Auto Charge Cable

The Auto Charge cable plugs into a vehicle cigarette lighter and provide the MC55X with operating and charging power.

Figure 31 Auto Charge Cable

Connecting to the MC55X

1. If required, connect the cable power input connector to the Zebra approved power source.
2. Slide the bottom of the MC55X into the connector cup end of the cable until the MC55X is firmly seated in the cup.
3. Slide the two locking tabs up until they both lock into position.

Figure 32 Cable Cup Locking Tabs

4. To remove, slide the two locking tab down and remove the cable from the MC55X.

Battery Charging Indicators

The MC55X amber Charge LED indicates the MC55X battery charging status. The 3600 mAh battery charges in less than six hours. See [Table 3 on page 14](#) 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 MC55X.

To accomplish this, for small periods of time, the MC55X alternately enables and disables battery charging to keep the battery at acceptable temperatures. The MC55X indicates when charging is disabled due to abnormal temperatures via its LED. See [Table 3 on page 14](#).

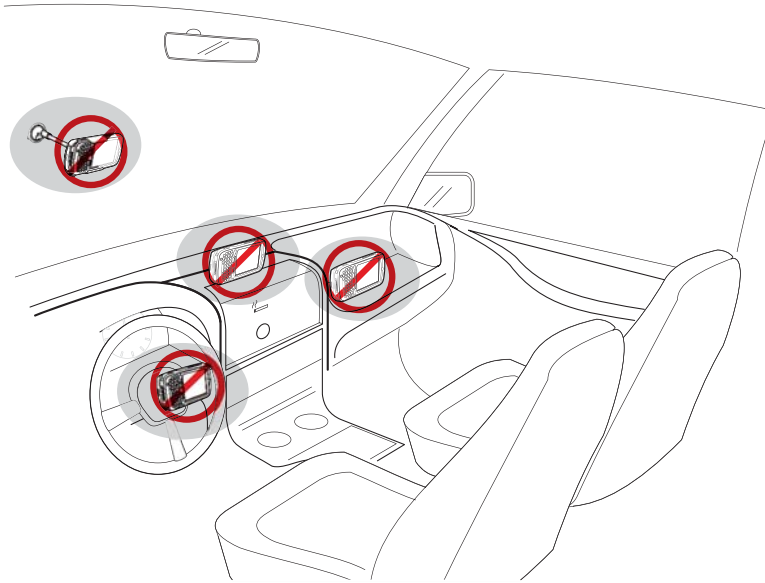
Vehicle Holder



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 33 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 MC55X 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.

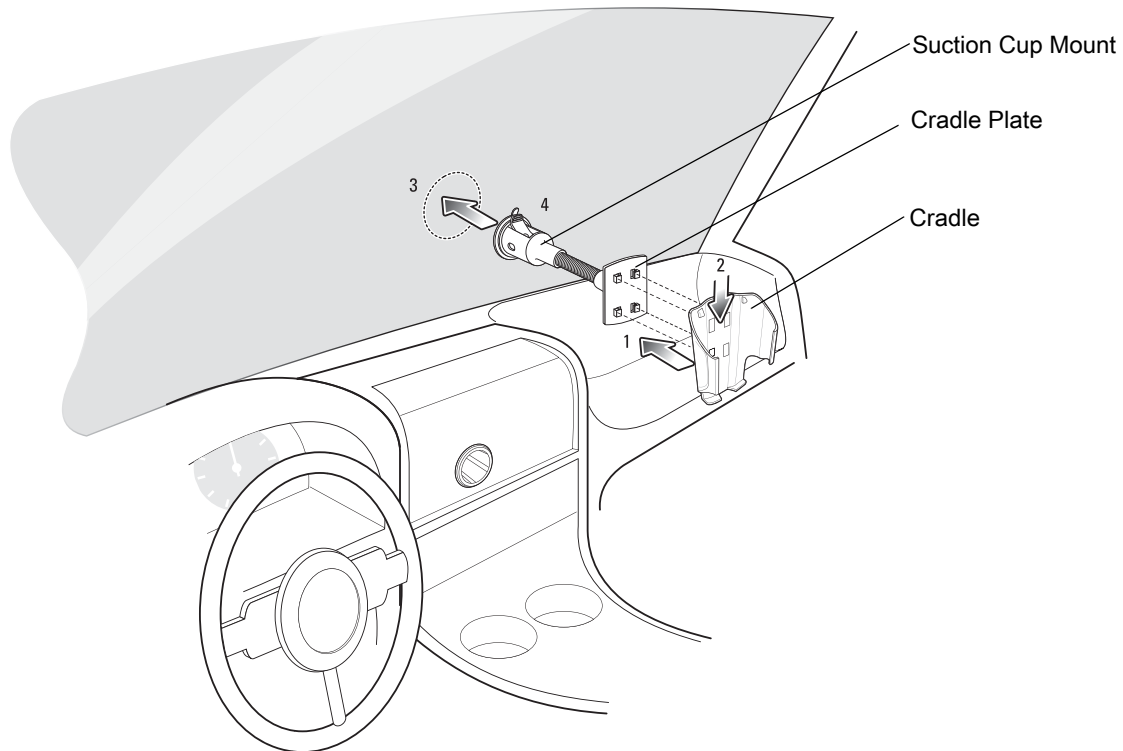
Assembly

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

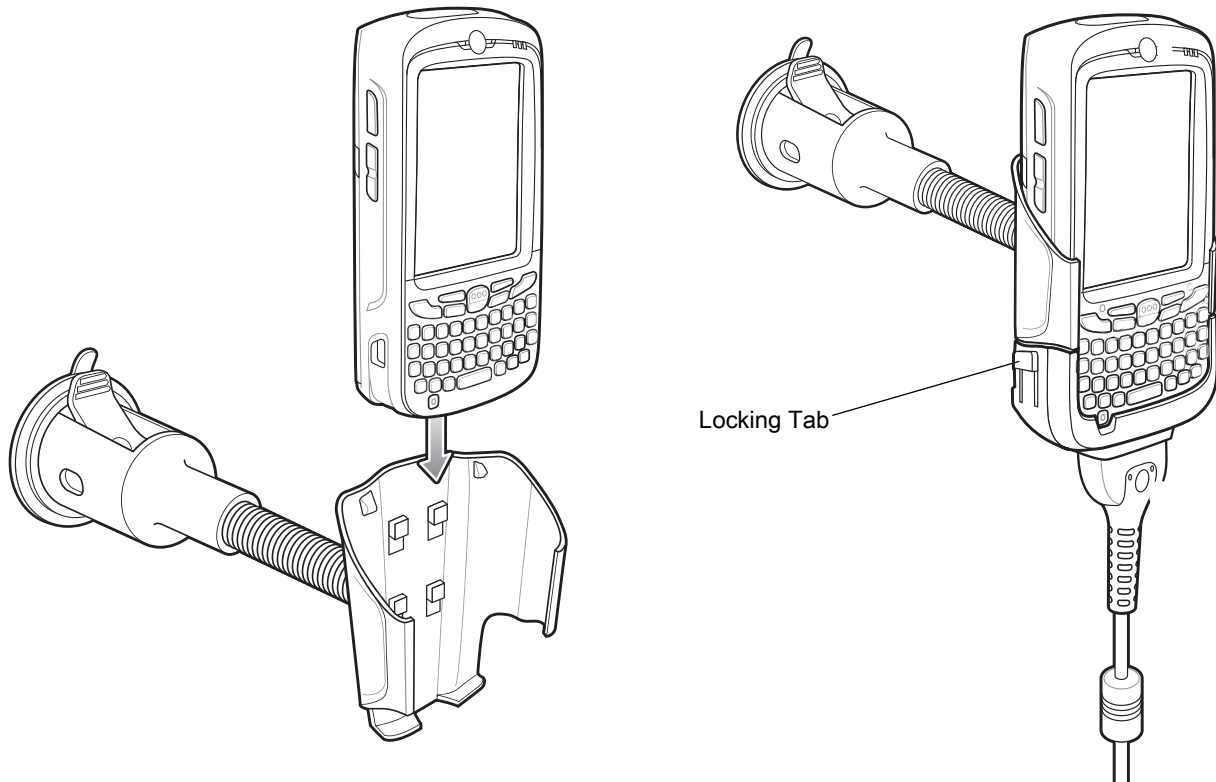
1. Fix the suction cup mount to the selected area with the suction lever facing up.

Figure 34 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 MC55X into the cradle.

Figure 35 Insert MC55X into Vehicle Holder



5. Connect the auto charger cable to the MC55X and slide the two locking tabs up to secure the cable cup to the MC55X.
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.

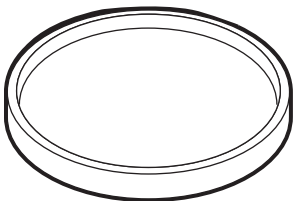


NOTE: Prior to removing the MC55X from the vehicle holder, disconnect the auto-charge cable from the MC55X.

Flat Surface Installation

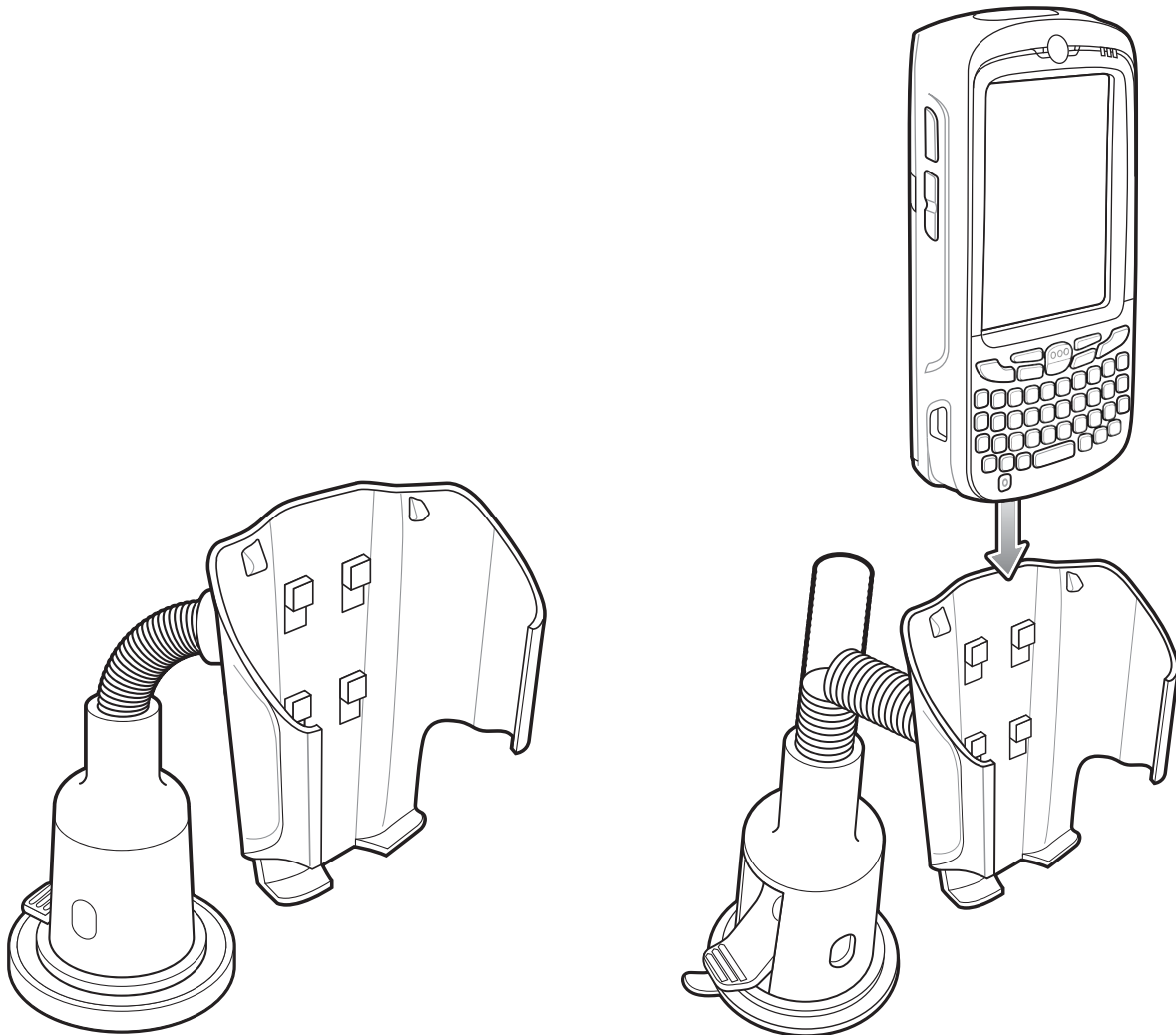
1. Remove the plastic sheet on the bottom of the mounting disc.
2. Place the disc, sticky side down, on a clean flat surface.

Figure 36 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 MC55X into the cradle.

Figure 37 Vehicle Holder Mounted on Flat Surface



7. Connect the auto charger cable to the MC55X and slide the two locking tabs up to secure the cable cup to the MC55X.
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

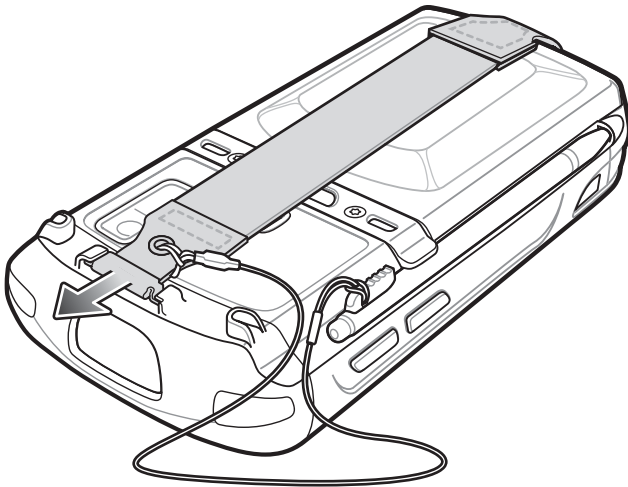
To remove a handstrap from the MC55X:



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 MC55X is in suspend mode, press the red **Power** button to wake the MC55X.
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 38 Handstrap Clip Removal



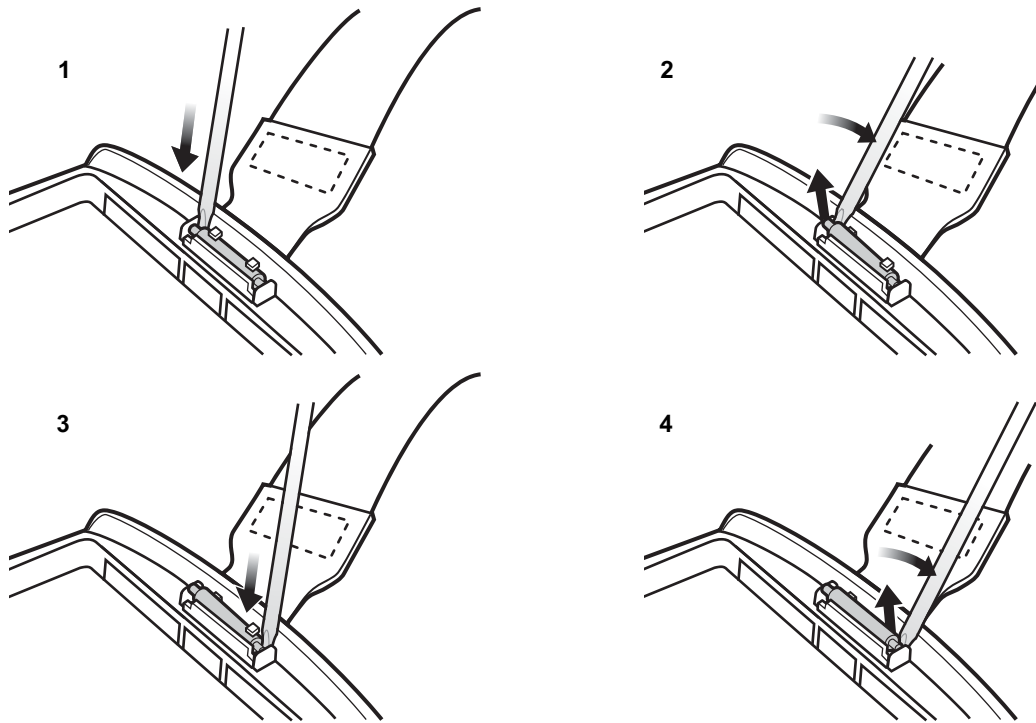
5. Remove the battery.



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

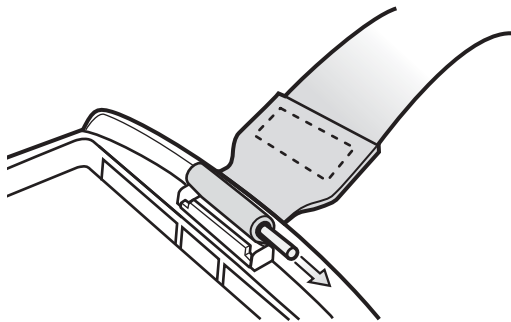
6. Using a small flat screwdriver, push the head of the screwdriver between the handstrap pin and the bottom of the housing as shown below.
7. Pry the handstrap and pin up and out of the handstrap mount area.

Figure 39 Handstrap and Pin Removal



8. Repeat for the other side of the handstrap.
9. Remove pin from the handstrap.

Figure 40 Pin Removal



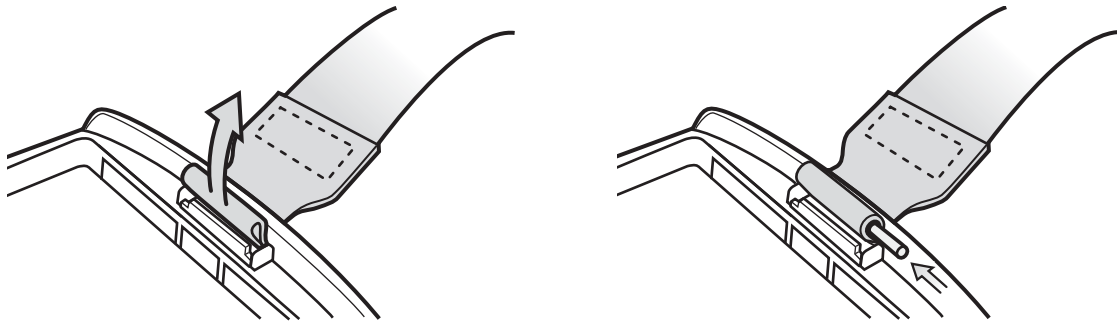
10. Pull handstrap through handstrap slot.

Installation

To install a new handstrap:

1. Feed bottom end of handstrap into handstrap slot on the bottom of the MC55X.

Figure 41 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 42 Pin and Handstrap in Mounting Area

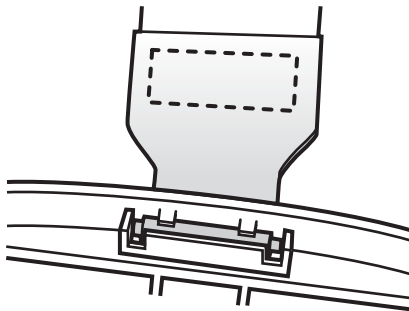
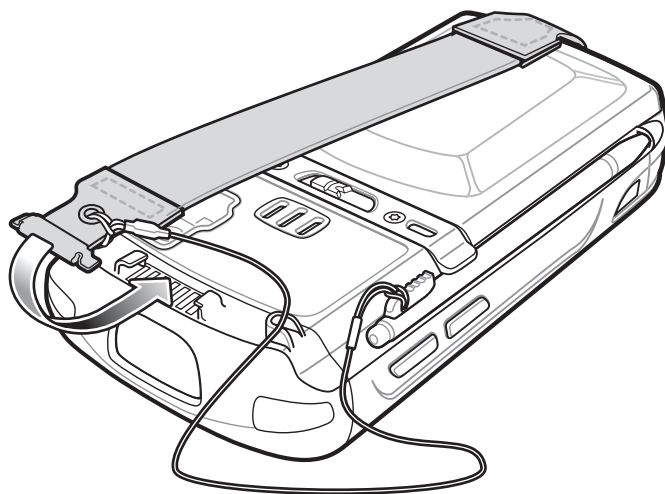


Figure 43 Slide Handstrap and Tether Over Handstrap Mount



5. Slide tether loop over handstrap.
6. Insert the handstrap clip into the slot on the device. Ensure that it is securely in place.

Synchronization

Introduction

Synchronization lets the user manage information between an MC55X and a host computer so that changes made either on the MC55X 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 MC55X 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 MC55X-compatible applications on the host computer. The sync software replicates data from the MC55X to view, enter, and modify data on the host computer.
- Synchronizes files between the MC55X and the host computer, converting the files to the correct format.
- Backs up the data stored on the MC55X. Synchronization is a one-step procedure that ensures the data is always safe and up-to-date.
- Copies (rather than synchronizes) files between the MC55X and the host computer.
- Controls when synchronization occurs by selecting a synchronization mode. For example, synchronize continuously while the MC55X 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.

MC55X Setup



NOTE: Microsoft recommends installing the sync software on the host computer before connecting the MC55X.

The MC55X can be set up to communicate with a USB connection. The MC55X communication settings must be set to match the communication settings used with ActiveSync or WMDC.

1. On the MC55X tap  > **Programs** > **ActiveSync** icon. The **ActiveSync** window appears.

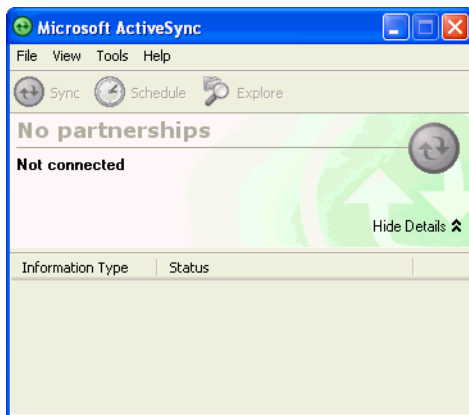
2. Tap **Menu > Connections**.
3. Select the connection type from the drop-down list.
4. Tap **OK** to exit the **Connections** window and tap **OK** to exit the **ActiveSync** window.
5. Proceed with installing ActiveSync or WMDC on the host computer and setting up a partnership.

Setting Up a Sync Connection

ActiveSync

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

Figure 44 ActiveSync Window



NOTE: Assign each MC55X a unique device name. Do not try to synchronize more than one MC55X to the same name.

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

Figure 45 Connection Settings Window

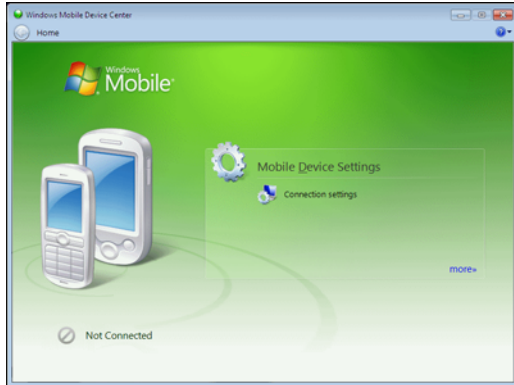


3. Select **Allow USB connections** check box.
4. Select the **Show status icon in taskbar** check box.
5. Select **OK** to save any changes made.

Windows Mobile Device Center

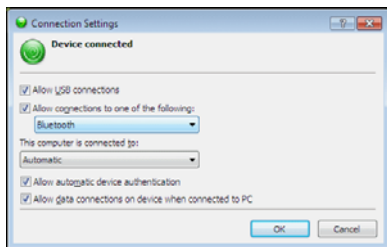
1. Select **Start > All Programs > Windows Mobile Device Center** on the host computer.

Figure 46 Windows Mobile Device Center Window



2. In the WMDC window, under **Mobile Device Settings**, click **Connection settings**.

Figure 47 Connection Settings Window



3. Select **Allow USB connections** and adjust any additional settings as needed.
4. Click **OK** to save your settings.

Synchronization

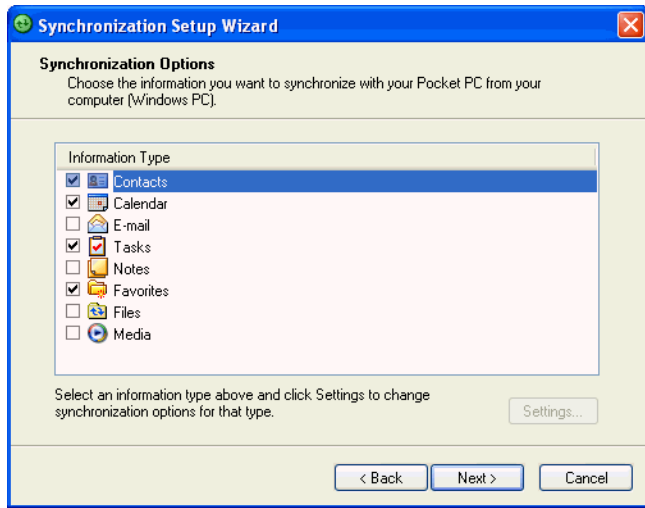


NOTE: When the MC55X is connected to your computer and a sync connection is made, the Wi-Fi radio (if applicable) is disabled. This is a Microsoft security feature to prevent connection to two networks at the same time.

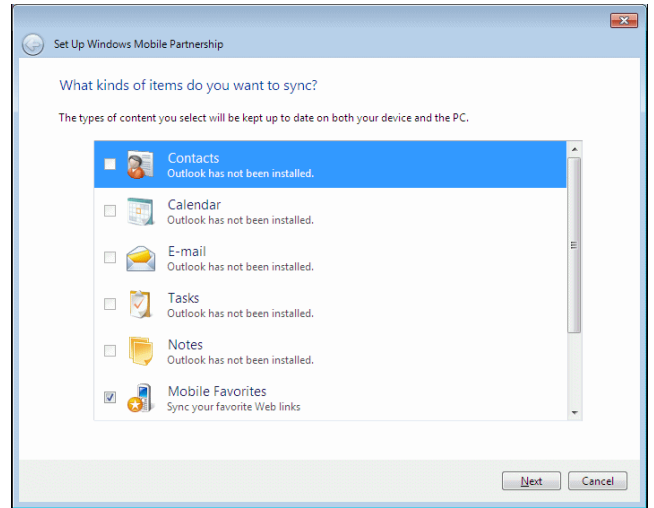
To synchronize with the MC55X:

1. Connect the MC55X 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**.

Figure 48 Select Synchronization Settings



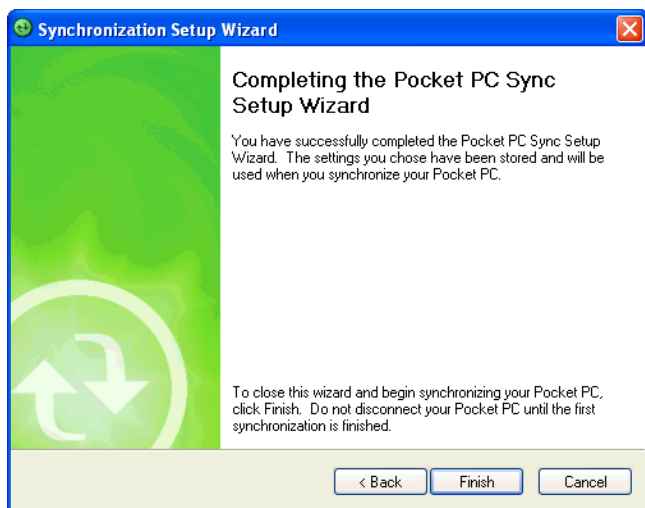
ActiveSync



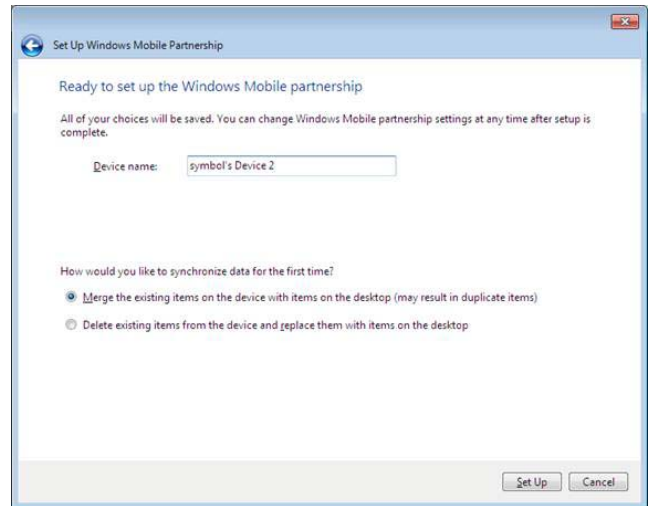
WMDC

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

Figure 49 Setup Complete Window



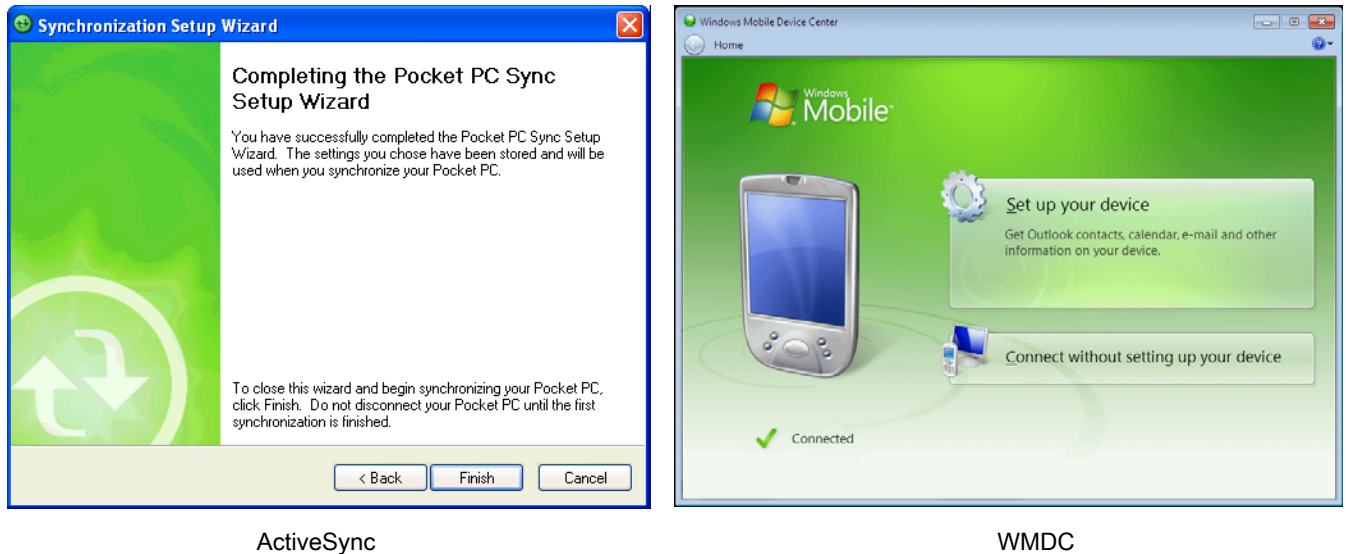
ActiveSync



WMDC

7. Click **Finish**.

Figure 50 Connected Window



During the first synchronization, information stored on the MC55X is copied to the host computer. When the copy is complete and all data is synchronized, the MC55X 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.

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 MC55X.

Security

The MC55X 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 MC55X.

- Trusted - All applications must be digitally signed by a certificate on the MC55X.
- 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 MC55X. For example, users can provision the MC55X 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 MC55X 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 MC55X. 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 MC55X, developers package the application and all required files into a CAB file, then load the file onto the MC55X 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 MC55X to a host computer using ActiveSync. See [Synchronization](#) for more information.
2. Locate the package file on the host computer.
3. In ActiveSync on the host computer, open *Explorer* for the MC55X.
4. Copy the CAB file from the host computer to the \temp directory on the MC55X.
5. On the MC55X, navigate to the \temp directory.
6. Tap on the application CAB file. The application installs on the MC55X.

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 MC55X. See [Installing a microSD Card on page 12](#) for more information.
3. On the MC55X, open **File Explorer**.
4. Open the *Storage Card* directory.
5. Tap the package CAB file. The application installs on the MC55X.

MSP

The MSP Client Software is a set of software components that come pre-installed on the MC55X. 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 MC55X using one of a variety of transports, including ActiveSync, a microSD card or MSP.

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 MC55X to a host computer using ActiveSync. See [Synchronization](#) for more information.
2. In ActiveSync on the host computer, open **Explorer** for the MC55X.
3. Copy all the update loader package files from the host computer to the \temp directory on the MC55X.
4. On the MC55X, 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 MC55X.
A progress bar displays until the update completes.
6. The MC55X 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 MC55X. See [Installing a microSD Card on page 12](#) for installation instructions.
3. Connect the MC55X to AC power. See [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 MC55X. A progress bar displays until the update completes.
7. The MC55X re-boots.
8. The calibration screen appears.

XML Provisioning

To configure the settings on an MC55X, use XML provisioning. To install an XML provisioning file on the MC55X, 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 MC55X. The user receives an e-mail notification indicating success or failure.

XML provisioning provides the ability to configure various features of the MC55X (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 61](#) 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 MC55X. 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= "filesystem">
        <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 MC55X 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), MC55X 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 MC55X. Go to the Support Central (<http://www.zebra.com/support>) to download the appropriate developer kit.

Maintenance & Troubleshooting

Introduction

This chapter includes instructions on cleaning and storing the MC55X, and provides troubleshooting solutions for potential problems during MC55X operation.

Maintaining the MC55X

For trouble-free service, observe the following tips when using the MC55X:

- Do not scratch the screen of the MC55X. When working with the MC55X, 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 MC55X screen.

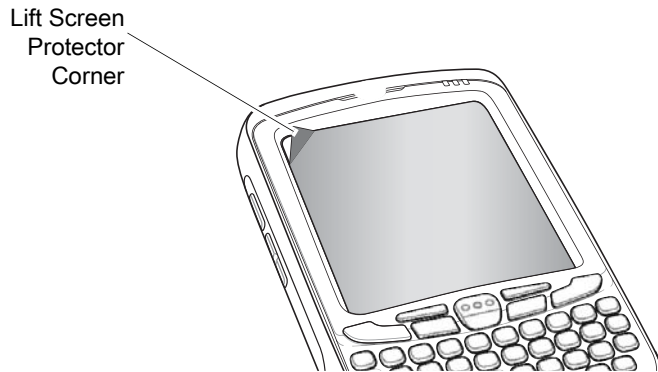
Zebra recommends using a screen protector, p/n KT-129195-03R.
- The touch-sensitive screen of the MC55X is glass. Do not drop the MC55X or subject it to strong impact.
- Protect the MC55X from temperature extremes. Do not leave it on the dashboard of a car on a hot day, and keep it away from heat sources.
- Do not store or use the MC55X in any location that is dusty, damp, or wet.
- Use a soft lens cloth to clean the MC55X. If the surface of the MC55X 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 MC55X. 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 MC55X. Zebra recommends using this to minimize wear and tear. Screen protectors enhance the usability and durability of touch screen displays.

To remove the screen protector, lift the corner using a thin plastic card, such as a credit card, then carefully lift it off the display.

Figure 51 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 °F and +104 °F (0 °C and +40 °C)
- 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, or mild dish soap.

Harmful Ingredients

The following chemicals are known to damage the plastics on the MC55X and should not come in contact with the device: ammonia solutions, compounds of amines or ammonia; acetone; ketones; ethers; aromatic and chlorinated hydrocarbons; aqueous or alcoholic alkaline solutions; ethanolamine; toluene; trichloroethylene; benzene; carbolic acid and TB-lysoform.

Cleaning Instructions

Do not apply liquid directly to the MC55X. 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 MC55X. The MC55X 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 MC55X, such as hand sanitizer that contain ethanolamine, hands must be completely dry before handling the MC55X 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 MC55X

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 13](#).
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 MC55X. 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

MC55X

Table 10 Troubleshooting the MC55X

Problem	Cause	Solution
When pressing the power button the MC55X does not turn on.	Battery not charged.	Charge or replace the battery in the MC55X.
	Battery not installed properly.	Install the battery properly. See Installing the Battery on page 13 .
	System crash.	Perform a reset. See Resetting the MC55X on page 16 .
When pressing the power button the MC55X 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 MC55X.
Rechargeable battery did not charge.	Battery failed.	Replace battery. If the MC55X still does not operate, perform a reset. See Resetting the MC55X on page 16 .
	MC55X removed from cradle while battery was charging.	Insert MC55X 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.	MC55X not powered on.	Press the Power button.

Table 10 Troubleshooting the MC55X (Continued)



Problem	Cause	Solution
During data communication, no data transmitted, or transmitted data was incomplete.	MC55X removed from cradle or disconnected from host computer during communication.	Replace the MC55X 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 <i>MC55X Integrator Guide</i> for details.
No sound.	Volume setting is low or turned off.	Adjust the volume.
MC55X shuts off.	MC55X is inactive.	The MC55X turns off after a period of inactivity. If the MC55X 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 13 .
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 MC55X on page 16 .
A message appears stating that the MC55X memory is full.	Too many files stored on the MC55X.	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 MC55X.	Remove user-installed applications on the MC55X 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 MC55X does not turn on.	The MC55X'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 .

Table 10 Troubleshooting the MC55X (Continued)

Problem	Cause	Solution
The MC55X does not decode with reading bar code.	Scanning application is not loaded.	Load a scanning application on the MC55X. See your system administrator.
	Unreadable bar code.	Ensure the symbol is not defaced.
	Distance between exit window and bar code is incorrect.	Place the MC55X within proper scanning range.
	MC55X is not programmed for the bar code.	Program the MC55X to accept the type of bar code being scanned. Refer to the EMDK or Control Panel application.
	MC55X is not programmed to generate a beep.	If the MC55X does not beep on a good decode, set the application to generate a beep on good decode.
MC55X cannot find any Bluetooth devices nearby.	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 MC55X low battery condition notification. Note: If the scanner is still not reading symbols, contact the distributor or Zebra.
	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 11 Troubleshooting the Single Slot USB Cradle

Symptom	Possible Cause	Action
LEDs do not light when MC55X 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.
	MC55X is not seated firmly in the cradle.	Remove and re-insert the MC55X 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.

Table 11 Troubleshooting the Single Slot USB Cradle (Continued)

Symptom	Possible Cause	Action
MC55X battery is not charging.	MC55X was removed from cradle or cradle was unplugged from AC power too soon.	Ensure cradle is receiving power. Ensure MC55X 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 MC55X is not fully seated in the cradle.	Remove and re-insert the MC55X 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.	MC55X removed from cradle during communications.	Replace MC55X in cradle and retransmit.
	Communication software is not installed or configured properly.	Perform setup as described in Single Slot USB Cradle on page 20 .

Four Slot Ethernet Cradle

Table 12 Troubleshooting the Four Slot Ethernet Cradle

Symptom	Cause	Solution
During communication, no data transmits, or transmitted data was incomplete.	MC55X removed from cradle during communications.	Replace MC55X in cradle and retransmit.
	MC55X has no active connection.	An icon is visible in the status bar if a connection is currently active.
Battery is not charging.	MC55X removed from the cradle too soon.	Replace the MC55X 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.
	MC55X is not inserted correctly in the cradle.	Remove the MC55X 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 13 Troubleshooting the Vehicle Cradle

Symptom	Possible Cause	Action
MC55X 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.
MC55X battery is not recharging.	MC55X was removed from the cradle too soon.	Replace the MC55X in the cradle. The 3600 mAh battery fully charges in less than six hours.
	Battery is faulty.	Replace the battery.
	MC55X is not placed correctly in the cradle.	Remove the MC55X from the cradle, and re-insert correctly. If the battery still does not charge, contact customer support. The MC55X battery charging LED slowly blinks amber when the MC55X 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 14 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 15 Troubleshooting the Cables

Symptom	Possible Cause	Action
MC55X battery is not charging.	MC55X 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 MC55X is not fully attached to power.	Detach and re-attach the power cable to the MC55X, ensuring it is firmly connected.

Table 15 Troubleshooting the Cables (Continued)

Symptom	Possible Cause	Action
During data communication, no data transmits, or transmitted data was incomplete.	Cable was disconnected from MC55X 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 <i>Cables on page 41</i> .

Technical Specifications

MC55X Technical Specifications

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

MC55X

Table 1 MC55X Technical Specifications

Item	Description
Physical Characteristics	
Dimensions	Height: 14.9 cm (5.86 in.) Width: 7.8 cm (3.07 in.) Depth: 3.7 cm (1.45 in.)
Weight	365 g (11.9 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 Pack	Rechargeable Lithium Ion 3.7V, 3600 mAh battery
Backup battery	Nickel-metal hydride (Ni-MH) battery (rechargeable) 15 mAh 2.8V (non-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
Keypad Options	Numeric and QWERTY
Audio	Dual microphone support with noise cancellation; vibrate alert; speaker; Bluetooth headset
Performance Characteristics	
CPU	Dual core 800 MHz OMAP 4 processor

Technical Specifications

Table 1 MC55X Technical Specifications (Continued)

Item	Description
Operating System	Microsoft® Windows Embedded Handheld 6.5.3 Classic
Memory	512 MB RAM/2 GB Flash
Output Power	USB - 5 VDC @ 300 mA max.
User Environment	
Operating Temperature	-10°C to 50°C (14°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	10 to 95% non-condensing
Drop Specification	Multiple 1.8 m (6 ft.) drops per MIL-STD 810G
Tumble	1,000 1.6 ft./0.5 meter tumbles at room temperature; per applicable IEC tumble specifications
Electrostatic Discharge (ESD)	±15kVdc air discharge, ±8kVdc direct discharge, ±8kVdc indirect discharge
Sealing	IP64 per IEC specification.
Vibration	2 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 provides motion-sensing for dynamic screen orientation and power management.
Digital Compass	Navigation aid for users.
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, and 54 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)
Voice Communications	Wi-Fi™ -certified, IEEE 802.11a/b/g/n direct sequence wireless LAN, Wi-Fi Multimedia™ (WMM and WMM-PS)

Technical Specifications

Table 1 MC55X Technical Specifications (Continued)

Item	Description
Wireless PAN Data and Voice Communications	
Bluetooth	Class II, v2.0 with Enhanced Data Rate (EDR)
Data Capture Specifications	
Options	2D SE4710 imager and 8 MP camera 2D SE4710 imager
Data Types	1D and 2D bar codes, DPM, photographs, video, signatures and documents.
Voice and Audio	
PTT; high-quality speakerphone; wireless (Bluetooth) headset support; handset/speakerphone modes	
2D Imager Engine (SE4710) 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
Camera Specifications	
Resolution	8 Mega pixel

Table 2 Data Capture Supported Symbologies

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

Decode Zones

The table below 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.

Table 1-1 SE4710 Decode Distances

Symbol Density/ Bar Code Type	Typical Working Ranges	
	Near	Far
4 mil Code 39	3.3 in. 8.4 cm	8.8 in. 22.4 cm
5.0 mil Code 128	2.8 in. 7.1 cm	8.2 in. 20.8 cm
5 mil Code 39	2.0 in. 5.08 cm	13.5 in. 34.3 cm
5 mil PDF417	3.1 in. 7.9 cm	8.4 in. 21.3 cm
10 mil Data Matrix	2.9 in. 7.4 cm	10.1 in. 25.7 cm
100% UPCA	1.8 in. 4.6 cm*	26.0 in. 66.0 cm
20 mil Code 39	2.0 in. 5.08 cm*	30.0 in. 76.2 cm
20 mil QR Code	3.2 in. 8.1 cm	15.8 in. 40.1 cm
*Limited by width of bar code in field of view. Notes: Photographic quality bar code at 15° tilt pitch angle under 30 fcd ambient illumination. Distances measured from front edge of scan engine chassis.		

MC55X External Connector Pin-Outs

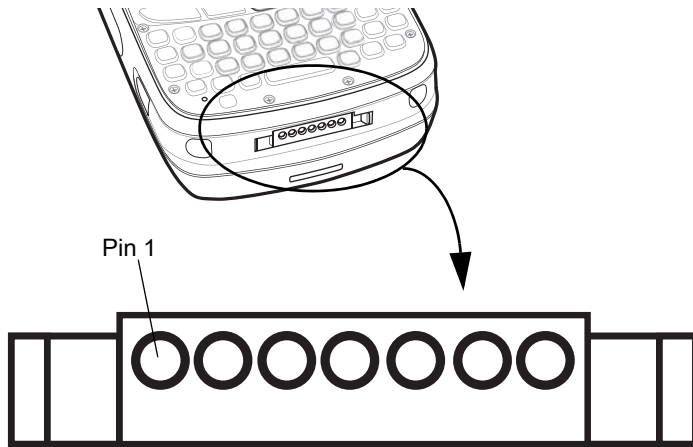


Figure 1 External Connector

Table 2 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

MC55X Accessory Specifications

Single Slot USB Cradle

Table 3 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 4 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)
Humidity	5% to 95% non-condensing

Table 4 Four Slot Battery Charger Technical Specifications (Continued)

Feature	Description
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 5 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 6 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)
Charging Temperature	0 °C to 40 °C (32 °F to 104 °F)

Table 6 Four Slot Ethernet Cradle 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

Vehicle Cradle

Table 7 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 °F 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 8 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 9 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)
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 10 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

Software

Battery Usage Threshold Setting

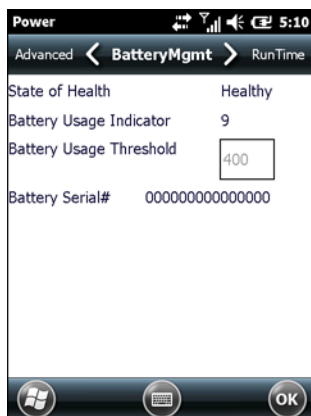
By default the Battery Usage Threshold value is set to a pre-defined value (400 by default). To change the threshold value, a registry key must be created to allow changing this value.

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 1 Power BatteryMgmt Tab



Registry Setting

Create the following registry key:

[HKEY_LOCAL_MACHINE\ControlPanel\Power]

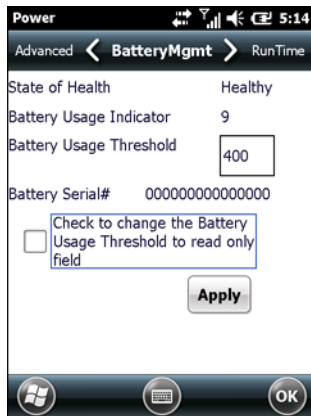
“EnableCycleCntThresholdEdit”=DWORD:0

where:

dword:0 = Enable threshold change

Warm boot the MC55X to have the registry setting take effect.

1. Tap  > **Settings** > **Power** > **BatteryMgmt** tab.

Figure 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 MC55X 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 MC55X 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 MC55X.

Keypad Backlight

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.

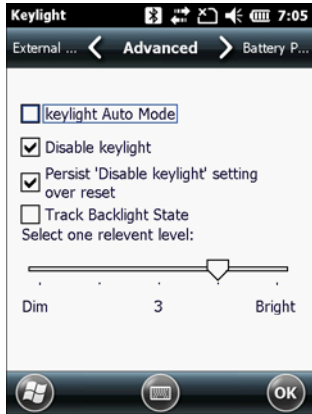


Figure 3 Keylight - Advanced Tab

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