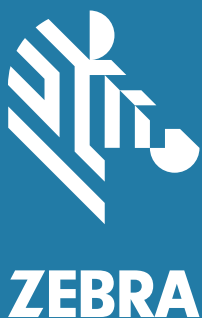


TC52

Touch Computer



Product Reference Guide for Android™ 10

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Revision History

Revision	Date	Description
-01EN Rev.A	7/2020	Initial release.
-02EN Rev. A	7/2021	Update hard reset button combination on page 183. Update GMS Restricted section on page 166.

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About This Guide

This guide provides information about setting up and using the TC52 touch computer. Some screens shown in this guide may differ from the actual screens shown on the device.

Configurations

This guide covers the following configurations:

Table 1 Configurations

Configuration	Radios	Display	Memory	Data Capture Options	Operating System
TC520K-1	WLAN: 802.11 a/b/g/n/ac/d/h/i/r/k/v3/w WPAN: Bluetooth v5.0 Low Energy	5.0" High Definition (1280 x 720) LCD	4 GB RAM / 32 GB Flash	2D imager (SE-4710) and integrated NFC	Android-based, Google™ Mobile Services (GMS) 10
TC520K-1	WLAN: 802.11 a/b/g/n/ac/d/h/i/r/k/v3/w WPAN: Bluetooth v5.0 Low Energy	5.0" High Definition (1280 x 720) LCD	4 GB RAM / 32 GB Flash	2D imager (SE-4710) and integrated NFC	Android-based, AOSP 10 (China only)

Notational Conventions

Notational conventions are used to highlight important information.

- **Bold** text is used to highlight the following:
 - Dialog box, window and screen names
 - Drop-down list and list box names
 - Check box and radio button names
 - Icons on a screen
 - 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 (for example, those that describe step-by-step procedures) appear as numbered lists.

Icon Conventions

The following icons are used throughout the document. The icons and their associated meanings are described below.



NOTE: The text here indicates information that is supplemental for the user to know and that is not required to complete a task.



IMPORTANT: The text here indicates information that is important for the user to know.



CAUTION: If the precaution is not heeded, the user could receive minor or moderate injury.



WARNING: If danger is not avoided, the user CAN be seriously injured or killed.



DANGER: If danger is not avoided, the user WILL be seriously injured or killed.

Service Information

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

When contacting support, please have the following information available:

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

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

If the problem cannot be solved by Customer Support, the user may need to return the equipment for servicing and will be given specific directions. We are 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 applicable, remove the microSD card from the device before shipping for service.

If the device was purchased from a business partner, contact that business partner for support.

Determining Software Versions

Before contacting Customer Support, determine the current software version on your device.

1. Swipe down from the Status bar with two fingers to open the Quick Access panel, and then touch .
2. Touch **About phone**.
3. Scroll to view the following information:
 - **Battery information**

- **Emergency information**
- **SW components**
- **Legal information**
- **Model & hardware**
- **Android version**
 - **Android security patch level**
 - **Android security patch version**
 - **Kernel version**
 - **Build number**

Determining the Serial Number

Before contacting Customer Support, determine the serial number of your device.

1. Swipe down from the Status bar with two fingers to open the Quick Access panel, and then touch .
2. Touch **About phone > Model & hardware > Serial number**.

Getting Started

Introduction

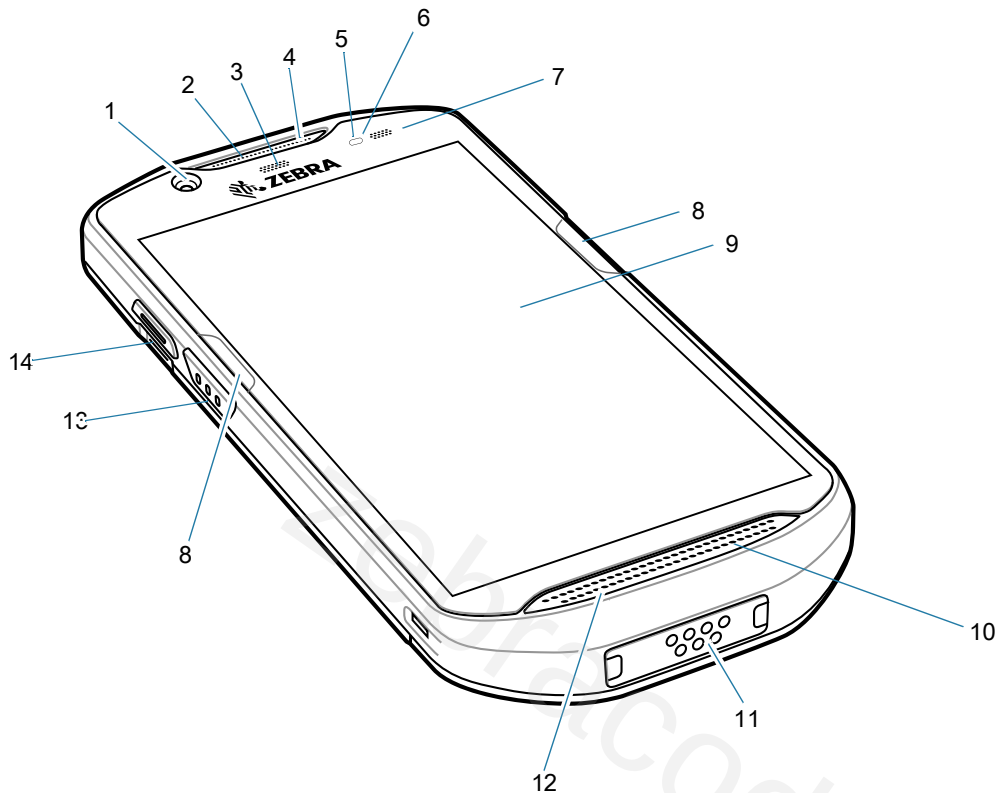
This section provides information for getting the device up and running for the first time.

Unpacking

1. Carefully remove all protective material from the device and save the shipping container for later storage and shipping.
2. Verify that the following were received:
 - Touch computer
 - ≥ 15.48 Watt hours (typical) / $\geq 4,150$ mAh PowerPrecision+ Lithium-ion battery
 - Regulatory Guide.
3. Inspect the equipment for damage. If any equipment is missing or damaged, contact the Customer Support center immediately.
4. Prior to using the device for the first time, remove the protective shipping film that covers the scan window, display and camera window.

Device Features

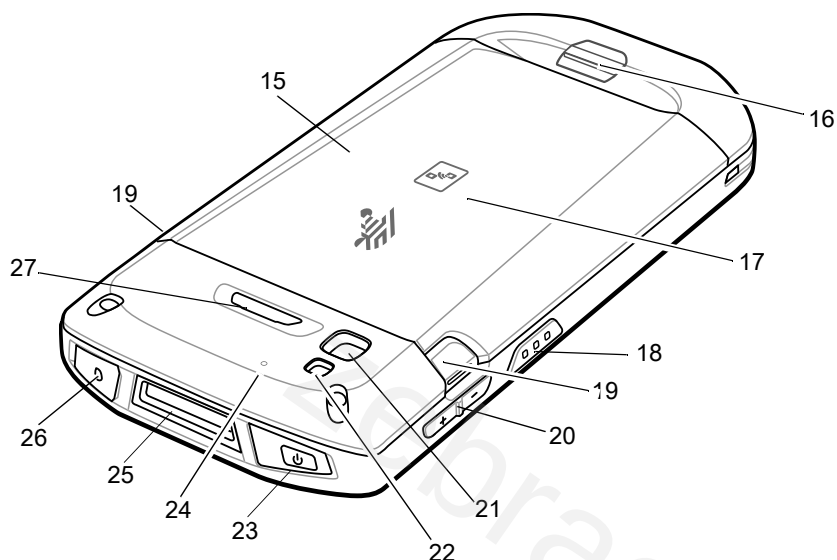
Figure 1 Front View



Number	Item	Function
1	Front Camera	Takes photos and videos.
2	Receiver	Use for audio playback in Handset mode.
3	Data Capture LED	Indicates data capture status.
4	Microphone	Use for communications in Speakerphone mode.
5	Proximity Sensor	Determines proximity for turning off display when in handset mode.
6	Light Sensor	Determines ambient light for controlling display backlight intensity.
7	Charging/Notification LED	Indicates battery charging status while charging and application generated notifications.
8	ActiveEdge Touch Zone	Programmable dynamic soft key positioned near the perimeter of the display for one-touch access to a frequently used application or function.
9	Touch Screen	Displays all information needed to operate the device.
10	Speaker	Provides audio output for video and music playback. Provides audio in speakerphone mode.
11	Interface Connector	Provides USB host and client communications, audio and device charging via cables and accessories. CAUTION: Do not remove the interface connector to ensure proper device sealing.

Number	Item	Function
12	Microphone	Use for communications in Handset mode.
13	Scan Button	Initiates data capture (programmable).
14	PTT Button	Initiates push-to-talk communications (programmable).

Figure 2 Rear View



Number	Item	Function
15	Battery	PowerPrecision+ Lithium-ion battery.
16	Basic Hand Strap Mount	Provides mounting point for Basic Hand Strap accessory.
17	NFC Antenna	Provides communication with other NFC-enabled devices.
18	Scan Button	Initiates data capture (programmable).
19	Battery Release Latches	Press to remove the battery.
20	Volume Up/Down Button	Increase and decrease audio volume (programmable).
21	Rear Camera	Takes photos and videos.
22	Camera Flash	Provides illumination for the camera.
23	Power Button	Turns the display on and off. Press and hold to reset the device, power off or swap battery.
24	Microphone	Use for noise cancellation.
25	Exit Window	Provides data capture using the imager.
26	Headset Jack	For audio output to headset.
27	Programmable Button	Programmable.

Setting Up the Device

To start using the device for the first time:

1. Install a micro secure digital (SD) card (optional).
2. Install hand strap (optional).
3. Install the battery.
4. Charge the device.
5. Power on the device.

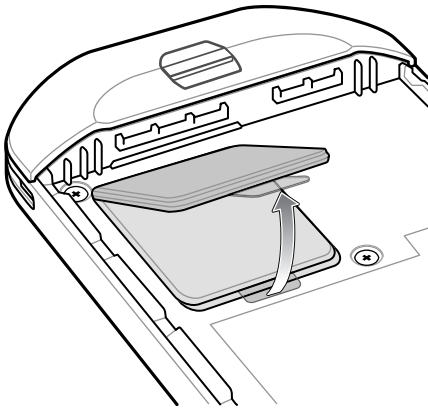
Installing a microSD Card

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.

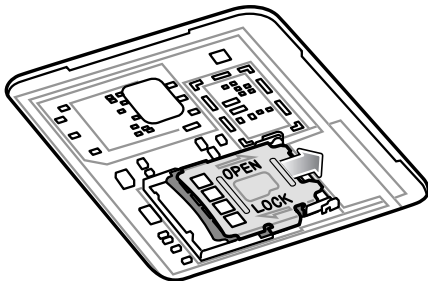


CAUTION: Follow proper electrostatic discharge (ESD) precautions to avoid damaging the microSD card. Proper ESD precautions include, but are not limited to, working on an ESD mat and ensuring that the operator is properly grounded.

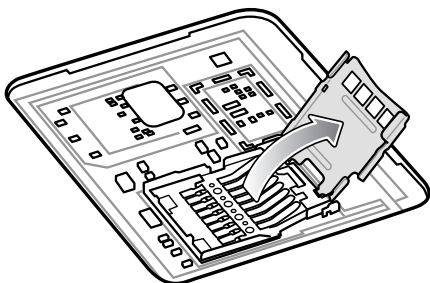
1. Lift the access door.



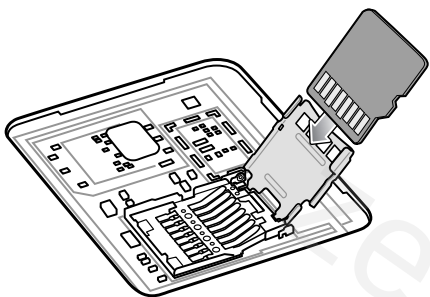
2. Slide the microSD card holder to the unlock position.



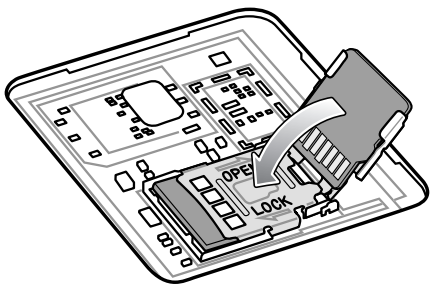
3. Lift the microSD card holder.



4. Insert the microSD card into the card holder door ensuring that the card slides into the holding tabs on each side of the door.

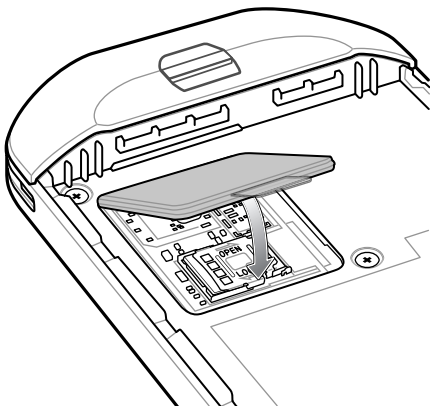


5. Close the microSD card holder and slide into the lock position.



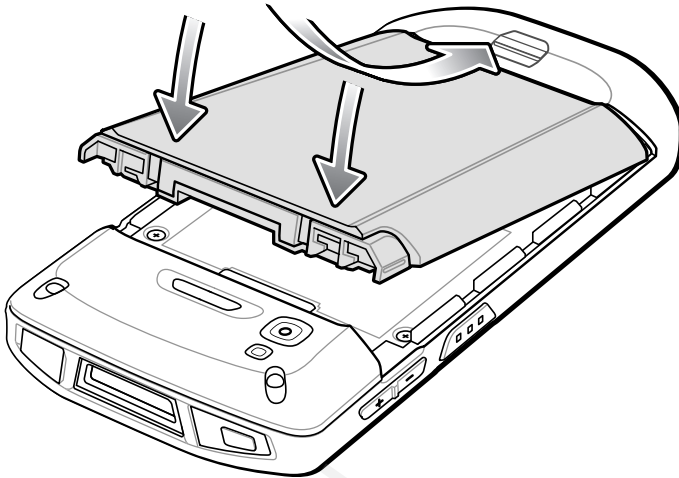
CAUTION: Access door must be replaced and securely seated to ensure proper device sealing.

6. Re-install the access door.



Installing the Battery

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



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

Charging the Battery

Before using the device for the first time, charge the main battery until the green Charging/Notification light emitting diode (LED) remains lit. To charge the device use a cable or a cradle with the appropriate power supply. For information about the accessories available for the device see [Accessories](#) for more information.

The battery charges from fully depleted to 90% in approximately 2.5 hours, and from fully depleted to 100% in approximately three hours.



NOTE: In many cases the 90% charge provides plenty of charge for daily use. A full 100% charge lasts for approximately 14 hours of use. To achieve the best fast charging results use only Zebra charging accessories and batteries. Charge batteries at room temperature with the device in sleep mode.

Charge batteries in temperatures from 5°C to 40°C (41°F to 104°F). The device or accessory always performs battery charging in a safe and intelligent manner. At higher temperatures (for example: approximately +37°C (+98°F)) the device or accessory may for small periods of time alternately enable and disable battery charging to keep the battery at acceptable temperatures. The device or accessory indicates when charging is disabled due to abnormal temperatures via its LED and a notification appears on the display.

To charge the main battery:

1. Connect the charging accessory to the appropriate power source.
2. Insert the device into a cradle or attach to a cable. The device turns on and begins charging. The Charging/Notification LED blinks amber while charging, then turns solid green when fully charged.

Charging Indicators

Table 2 Charging/Notification LED Charging Indicators

State	LED	Indication
Off		Device is not charging. Device is not inserted correctly in the cradle or connected to a power source. Charger/cradle is not powered.
Slow Blinking Amber (1 blink every 4 seconds)		Device is charging.
Slow Blinking Red (1 blink every 4 seconds)		Device is charging but the battery is at end of useful life.
Solid Green		Charging complete.
Solid Red		Charging complete but the battery is at end of useful life.
Fast Blinking Amber (2 blinks/second)		Charging error, for example: • Temperature is too low or too high. • Charging has gone on too long without completion (typically eight hours).
Fast Blinking Red (2 blinks/second)		Charging error but the battery is at end of useful life, for example: • Temperature is too low or too high. • Charging has gone on too long without completion (typically eight hours).

Zebra Visibility Services

The device captures and provides device analytics to a system administrator. The first time the device boots (or after a Factory reset), the **Zebra Services** agreement screen displays.

1. Touch the **Device Data** switch to disable the device from sending analytics data.
2. Touch **OK**.

Replacing the Battery



NOTE: User modification of the device, particularly in the battery well, such as labels, asset tags, engravings, stickers, etc., may compromise the intended performance of the device or accessories. Performance levels such as sealing (Ingress Protection (IP)), impact performance (drop and tumble), functionality, temperature resistance, etc. could be effected. DO NOT put any labels, asset tags, engravings, stickers, etc. in the battery well.



CAUTION: Do not add or remove microSD card during battery replacement.

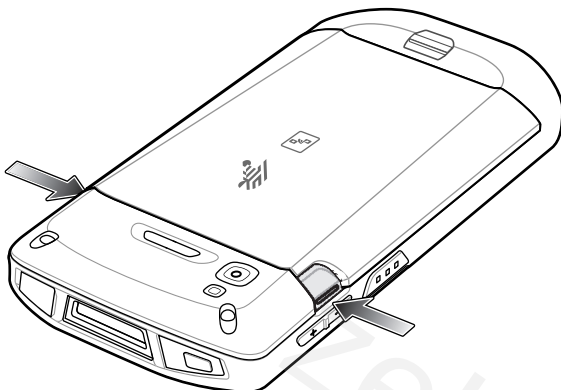
1. Press the Power button until the menu appears.
2. Touch **Battery Swap**.

3. Follow the on-screen instructions.

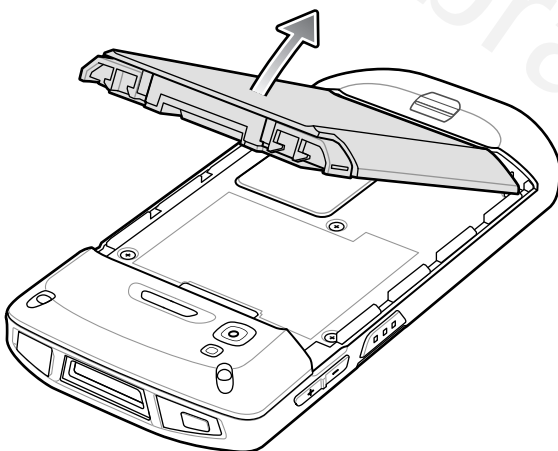


WARNING: Do not remove the battery until after the red LED completely turns off. Loss of data may result.

4. Wait for the red LED to completely turn off.
5. If hand strap is attached, remove hand strap.
6. Press the two battery latches in.



7. Lift the battery from the device.



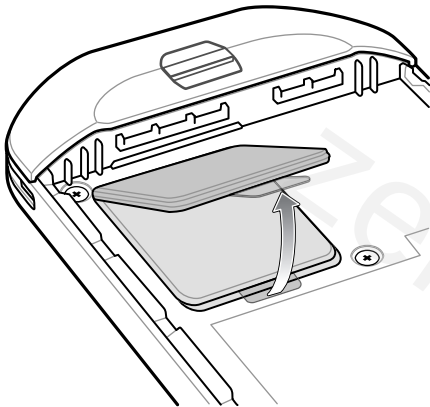
CAUTION: Replace the battery within 75 seconds. After 75 seconds the device reboots and data may be lost.

8. Insert the replacement battery, bottom first, into the battery compartment in the back of the device.
9. Press the battery down until the battery release latches snap into place.
10. Replace the hand strap, if required.
11. Press the Power button to turn on the device.

Replacing the microSD Card

To replace the microSD card:

1. Press the Power button until the menu appears.
2. Touch **Power off**.
3. Touch **OK**.
4. If hand strap is attached, slide the hand strap clip up toward the top of the device and then lift.
5. Press the two battery latches in.
6. Lift the battery from the device.
7. Lift the access door.

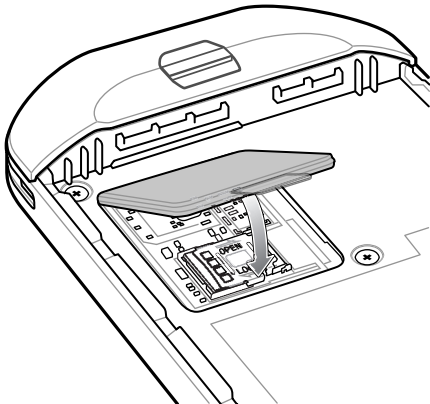


8. Remove microSD card from holder.
9. Insert the replacement microSD card.



CAUTION: Access door must be replaced and securely seated to ensure proper device sealing.

10. Replace the access door.



11. Insert the battery, bottom first, into the battery compartment in the back of the device.
12. Press the battery down until the battery release latches snap into place.
13. Replace the hand strap, if required.
14. Press and hold the Power button to turn on the device.

Using the Device

Home Screen

Turn on the device to display the Home screen. Depending on how your system administrator configured your device, your Home screen may appear differently than the graphics in this section.

After a suspend or screen time-out, the Home screen displays with the lock slider. Touch the screen and slide up to unlock.

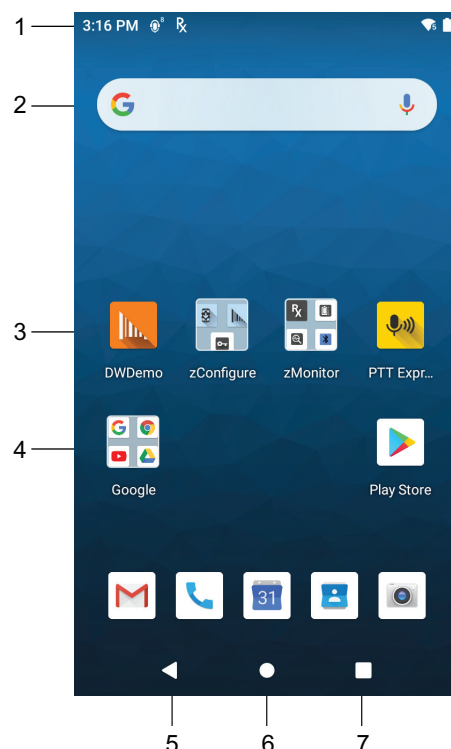
The Home screen provides four additional screens to place widgets and shortcuts. Swipe the screen left or right to view the additional screens.



NOTE: By default, AOSP devices do not have the same icons on the Home screen as GMS devices. Icons are shown below for example only.

Home screen icons can be configured by the user and may look different than shown.

Figure 3 Home Screen



1	Status Bar	Displays the time, status icons (right side), and notification icons (left side). For more information see Notification Icons on page 25 and Managing Notifications on page 27 .
2	Widgets	Launches stand-alone apps that run on the Home screen.
3	Shortcut Icons	Opens apps installed on the device.
4	Folder	Contains apps.
5	Back	Displays the previous screen.
6	Home	Displays the Home screen.
7	Recent	Displays recently used applications.

Setting Home Screen Rotation

By default, the Home screen rotation is disabled.

1. Touch and hold anywhere on the Home screen until the options appear.
2. Touch **Home settings**.
3. Touch the **Allow Home screen rotation** switch.
4. Touch the Home button.
5. Rotate the device.

Status Bar

The Status bar displays the time, notification icons (left side), and status icons (right side).

If there are more notifications than can fit in the Status bar, a dot displays indicating that more notifications exist. Swipe down from the Status bar to open the Notification panel and view all notifications and status.

Figure 4 Notification and Status Icons



1	Notification Icons. See Notification Icons on page 25 .
2	Status Icons. See Status Icons on page 26 .

Notification Icons

Notification icons indicate app events and messages.

Table 3 Notification Icons

Icon	Description
	Main battery is low.
	More notifications are available for viewing.
	Data is syncing.
	Indicates an upcoming event. AOSP devices only.
	Indicates an upcoming event. GMS devices only.
	Open Wi-Fi network is available.
	Audio is playing.
	Problem with sign-in or sync has occurred.
	Device is uploading data.
	Animated: the device is downloading data. Static: the download is complete.
	Device is connected to or disconnected from a virtual private network (VPN).
	Preparing internal storage by checking it for errors.
	USB debugging is enabled on the device.
	BT Headset is connected to the device.
	PTT Express Voice client status. See the PTT Express PTT Notification Icons for a complete list.
	Indicates the RxLogger app is running.
	Indicates the Bluetooth scanner is connected to the device.
	Indicates the ring scanner is connected to the device in HID mode.

Status Icons

Status icons display system information for the device.

Table 4 Status Icons

Icon	Description
	Alarm is active.
	Main battery is fully charged.
	Main battery is partially drained.

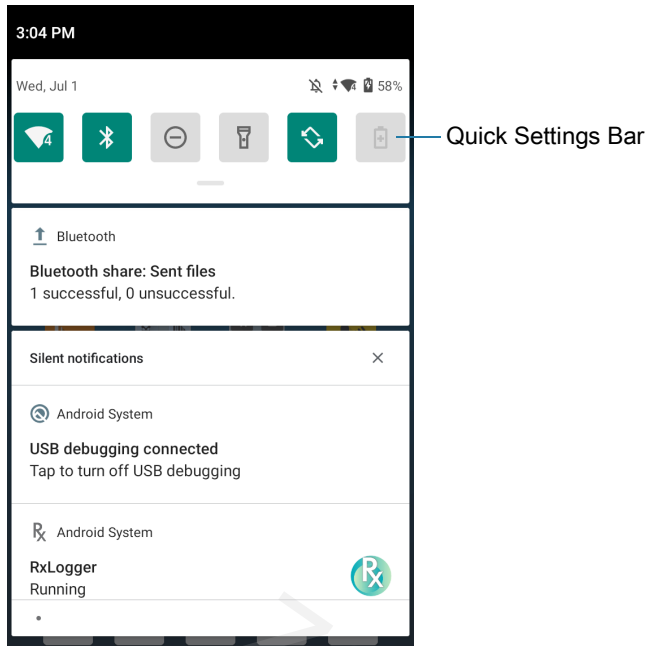
Table 4 Status Icons (Continued)

Icon	Description
	Main battery charge is low.
	Main battery charge is very low.
	Main battery is charging.
	All sounds, except media and alarms, are muted. Vibrate mode is active.
	Do Not Disturb mode active.
	Airplane Mode is active. All radios are turned off.
	Bluetooth is on.
	The device is connected to a Bluetooth device.
	Connected to a Wi-Fi network. Indicates the Wi-Fi version number.
	Not connected to a Wi-Fi network or no Wi-Fi signal.
	Connected to an Ethernet network.
	Speakerphone enabled.

Managing Notifications

Notification icons report the arrival of new messages, calendar events, alarms, and ongoing events. When a notification occurs, an icon appears in the Status bar with a brief description. See [Notification Icons](#) for a list of possible notification icons and their description.

1. To view a list of all notifications, open the Notification panel by dragging the Status bar down from the top of the screen.

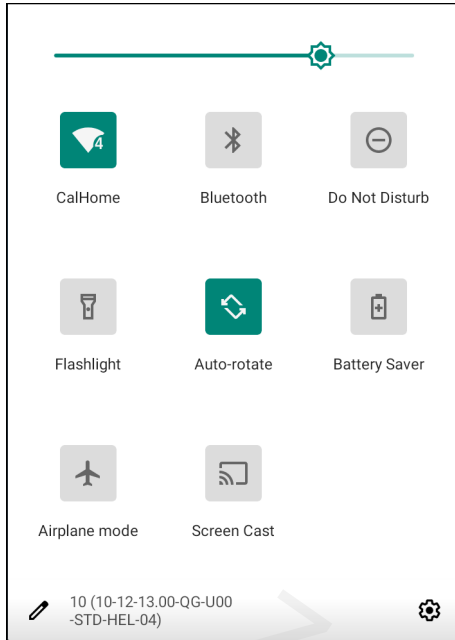


2. To respond to a notification, open the Notification panel and then touch a notification. The Notification panel closes and the corresponding app opens.
3. To manage recent or frequently used notifications, open the Notification panel and then touch **Manage notifications**. Touch the toggle switch next to an app to turn off all notifications, or touch an app for more notification options.
4. To clear all notifications, open the Notification panel and then touch **CLEAR ALL**. All event-based notifications are removed. Ongoing notifications remain in the list.
5. To close the Notification panel, swipe the Notification panel up.

Opening the Quick Access Panel

Use the Quick Access panel to access frequently used settings (for example, Airplane mode). To get to the Quick Access Panel:

- If the device is locked, swipe down once.
- If the device is unlocked, swipe down once with two fingers, or twice with one finger.
- If the Notification panel is open, swipe down from the Quick Settings bar.



NOTE: Not all icons are pictured. Icons may vary.

Quick Access Panel Icons

- Display brightness - Use the slider to decrease or increase the brightness of the screen.
- Wi-Fi network - Turn Wi-Fi on or off. To open Wi-Fi settings, touch the Wi-Fi network name.
- Bluetooth settings - Turn Bluetooth on or off. To open Bluetooth settings, touch **Bluetooth**.
- Battery saver - Turn Battery saver mode on or off. When Battery saver mode is on the performance of the device is reduced to preserve battery power.
- Invert colors - Invert the display colors.
- Do not disturb - Control how and when to receive notifications.
- Airplane mode - Turn Airplane mode on or off. When Airplane mode is on the device does not connect to Wi-Fi or Bluetooth.
- Auto-rotate - Lock the device's orientation in portrait or landscape mode or set to automatically rotate.
- Flashlight - Turn flashlight on or off. Turn camera flash on or off.
- Night Light - Tint the screen amber to make it easier to look at the screen in dim light. Set Night Light to turn on automatically from sunset to sunrise, or at other times.
- Screen Cast - Share phone content on Chromecast or a television with Google Cast built-in. Touch cast screen to display a list of devices, then touch a device to begin casting.
- Dark Theme - Toggles dark theme on and off. Dark themes reduce the luminance emitted by the screen, while meeting minimum color contrast ratios. It helps improve visual ergonomics by reducing eye strain, adjusting brightness to current lighting conditions, and facilitating screen use in dark environments, while conserving battery power.
- Grayscale - Turn grayscale on and off. Grayscale turns the screen black and white, reducing phone distractions and improving battery life.
- Focus mode - Turn on to pause distracting apps. To open Focus mode settings, touch and hold.

Editing Icons on the Quick Settings Bar

The first several setting tiles from the Quick Access panel become the Quick Settings bar.

- Open the Quick Access panel and touch  to edit, add, or remove settings tiles.

Battery Management

Observe the recommended battery optimization tips for your device.

- Set the screen to turn off after a short period of non-use.
- Reduce screen brightness.
- Turn off all wireless radios when not in use.
- Turn off automatic syncing for Email, Calendar, Contacts, and other apps.
- Minimize use of apps that keep the device from suspending, for example, music and video apps.



NOTE: Before checking the battery charge level, remove the device from any AC power source (cradle or cable).

Checking Battery Status

- Open **Settings** and touch **About phone > Battery Information**.

Or, swipe up from the bottom of the screen and touch  to open the **Battery Manager** app. See [Battery Manager on page 46](#).

- **Battery present status** indicates if the battery is present.
- **Battery level** lists the battery charge (as a percentage of fully charged).
- Swipe down with two fingers from the status bar to open the quick access panel.
 - Battery percentage is displayed next to the battery icon.

Monitoring Battery Usage

The **Battery** screen provides battery charge details and power management options to extend battery life.

1. Go to **Settings**.
2. Touch **Battery**.

Display battery information and power management options for a specific app.

1. Go to **Settings**.
2. Touch **Apps & notifications**.
3. Touch an app.
4. Touch **Advanced > Battery**.

Different apps display different information. Some apps include buttons that open screens with settings to adjust power use. Use the **DISABLE** or **FORCE CLOSE** buttons to turn off apps that consume too much power. Use the **DISABLE** or **FORCE STOP** buttons to turn off apps that consume too much power.

Low Battery Notification

When the battery charge level drops below 18%, the device displays a notice to connect the device to power. The user should charge the battery using one of the charging accessories.

When the battery charge drops below 10%, the device displays a notice to connect the device to power. The user must charge the battery using one of the charging accessories.

When the battery charge drops below 4%, the device turns off. The user must charge the battery using one of the charging accessories.

- Enable Battery Saver mode. Swipe down from the Status bar and then touch **Battery saver**.
- Disable DataWedge Launcher profile.

Interactive Sensor Technology

The device contains sensors that monitor movement, orientation and ambient light.

- Gyroscope - Measures angular rotational velocity to detect rotation of the device.
- Accelerometer - Measures the linear acceleration of movement to detect the orientation of the device.
- Digital Compass - The digital compass or magnetometer provides simple orientation in relation to the Earth's magnetic field. As a result, the device always knows which way is North so it can auto rotate digital maps depending on the physical orientation of the device.
- Light Sensor - Detects ambient light and adjusts the screen brightness.
- Proximity Sensor - Detects the presence of nearby objects without physical contact.

In order to take advantage of these sensors, applications use API commands. Refer to the Google Android Sensor APIs for more information. For information on the Zebra Android EMDK, go to: techdocs.zebra.com.

Waking the Device

The device goes into Suspend mode when you press the Power button or after a period of inactivity (set in the Display settings window).

1. To wake the device from Suspend mode, press the Power button.

The Lock screen displays.

2. Swipe the screen up to unlock.

- If the Pattern screen unlock feature is enabled, the Pattern screen appears instead of the Lock screen.
- If the PIN or Password screen unlock feature is enabled, enter the PIN or password after unlocking the screen.



NOTE: If you enter the PIN, password, or pattern incorrectly five times, you must wait 30 seconds before trying again.

If you forget the PIN, password, or pattern contact your system administrator.

USB Communication

Connect the device to a host computer to transfer files between the device and the host computer.

When connecting the device to a host computer, follow the host computer's instructions for connecting and disconnecting USB devices, to avoid damaging or corrupting files. For information on USB communication accessories available for this device, see Accessories.

Transferring Files

Use Transfer files to copy files between the device and the host computer.

1. Connect the device to a host computer using a USB accessory.
2. On the device, pull down the Notification panel and touch **Charging this device via USB**.

By default, **No data transfer** is selected.

3. Touch **File Transfer**.



NOTE: After changing the setting to **File Transfer**, and then disconnect the USB cable, the setting reverts back to **No data transfer**. If the USB cable is reconnected, select **File Transfer** again.

4. On the host computer, open a file explorer application.
5. Locate the **device** as a portable device.
6. Open the SD card or the Internal storage folder.
7. Copy files to and from the device or delete files as required.

Transferring Photos

Use **PTP** to copy photos from the device to the host computer.

1. Connect the device to a host computer using a USB accessory.
2. On the device, pull down the Notification panel and touch **Charging this device via USB**.
3. Touch **PTP**.
4. On the host computer, open a file explorer application.
5. Open the SD card or the Internal storage folder.
6. Copy or delete photos as required.

Disconnect from the Host Computer



CAUTION: Carefully follow the host computer's instructions to unmount the microSD card and disconnect USB devices correctly to avoid losing information.

To disconnect the device from the host computer:

1. On the host computer, unmount the device.
2. Remove the device from the USB accessory.

Settings

Accessing Settings

There are multiple ways to access settings on a device.

- Swipe down with two fingers from the top of the Home screen to open the Quick Access panel and touch .
- Double-swipe down from the top of the Home screen to open the Quick Access panel and touch .
- Swipe up from the bottom of the Home screen to open APPS and touch  **Settings**.

Display Settings

Use Display settings to change the screen brightness, enable night light, change the background image, enable screen rotation, set sleep time, and change font size.

Setting the Screen Brightness Manually

Manually set the screen brightness using the touchscreen.

1. Swipe down with two fingers from the Status bar to open the Quick Access panel.
2. Slide the icon to adjust the screen brightness level.

Setting the Screen Brightness Automatically

Automatically adjust the screen brightness using the built-in light sensor.

1. Go to **Settings**.
2. Touch **Display**.
3. If disabled, touch **Adaptive brightness** to automatically adjust the brightness.
By default, **Adaptive brightness** is enabled. Toggle the switch to disable.
4. Touch the Home button.

Setting Night Light

The Night Light setting tints the screen amber, making the screen easier to look at in low light.

1. Go to **Settings**.
2. Touch **Display**.
3. Touch **Night Light**.
4. Touch **Schedule**.
5. Select one of the schedule values:
 - None (default)
 - Turns on at custom time
 - Turns on from sunset to sunrise.
6. By default, **Night Light** is disabled. Touch **TURN ON NOW** to enable.
7. Adjust the tint using the **Intensity** slider.
8. Touch the Home button.

Setting Screen Rotation

By default, screen rotation is enabled.

1. Go to **Settings**.
2. Touch **Display > Advanced**.
3. Touch **Auto-rotate screen**.



NOTE: To change the Home screen rotation, see [Setting Home Screen Rotation on page 25](#).

4. Touch the Home button.

Setting Screen Timeout

Set the screen sleep time.

1. Go to **Settings**.
2. Touch **Display > Advanced > Screen timeout**.
3. Select one of the sleep values.
 - **15 seconds**
 - **30 seconds**
 - **1 minute** (default)
 - **2 minutes**
 - **5 minutes**
 - **10 minutes**
 - **30 minutes**

Setting Font Size

Set the size of the font in system apps.

1. Go to **Settings**.
2. Touch **Display > Advanced**.
3. Touch **Font size**.
4. Select one of the font size values.
 - Small
 - Default
 - Large
 - Largest.
5. Touch the Home button.

Notification LED Brightness Level

Set the brightness of the Notification LED.

1. Go to **Settings**.
2. Touch **Display > Advanced**.
3. Touch **Notification LED Brightness Level**.
4. Use the slider to set the brightness value (default: 15).
5. Touch the Home button.

Touch Panel Mode

The device display is able to detect touches using a finger, a conductive-tip stylus, or gloved finger.



NOTE: A glove can be made of medical latex, leather, cotton, or wool.
For optimal performance use a Zebra certified stylus.

1. Go to **Settings**.
2. Touch **Display > Advanced**.
3. Touch **Touch panel mode**.
4. Select:
 - a. **Glove and Finger (Screen Protector off)** to use a finger or a gloved finger on the screen without a screen protector.
 - b. **Stylus and Finger (Screen Protector off)** to use a finger or a stylus on the screen without a screen protector.
 - c. **Finger Only** to use a finger on the screen.
 - d. **Glove and Finger (Screen Protector on)** to use a finger or a gloved finger on the screen with a screen protector.

e. **Stylus and Finger (Screen Protector on)** to use a finger or a stylus on the screen with a screen protector.

5. Touch the Home button.

Setting the Date and Time

You are only required to set the time zone or set the date and time if the wireless LAN does not support Network Time Protocol (NTP).

1. Go to **Settings**.
2. Touch **System > Date & time**.
3. Touch **Date**.
4. In the calendar, set today's date.
5. Touch **OK**.
6. Touch **Time**.
7. Touch the green circle, drag to the current hour and then release.
8. Touch the green circle, drag to the current minute and then release.
9. Touch **AM** or **PM**.
10. Touch **OK**.
11. Touch **Use 24-hour format**.
12. Touch the Home button.

General Sound Setting

Use the **Sound** settings to configure media and alarm volumes.

1. Go to **Settings**.
2. Touch **Sound**.
3. Touch an option to set sounds.

Sound Options

- **Zebra volume controls**
 - **Ring volume** - Controls the ringtone volume.
 - **Media volume** - Controls the music, games, and media volume.
 - **Alarm volume** - Controls the alarm clock volume.
 - **Notifications volume** - Controls the notification volume.
 - **In call volume** - Controls the volume during a call.
 - **Scanner volume** - Controls the scanner volume.
 - **Volume presets**
 -  - Mutes the ring, notifications, and scanner so that the device does not make sounds or vibrate.
 -  - All sounds except media and alarms are silenced and vibrate mode is active.
 -  - Enables all sounds at the user defined levels.
- **Do Not Disturb** - Mutes some or all sounds and vibrations.
- **Shortcut to prevent ringing** - Select how the shortcut method prevents ringing.
- **Default notification sound** - Select a sound to play for all system notifications.
- **Default alarm sound** - Select a sound to play for alarms.
- **Other sounds and vibrations**
 - **Screen locking sounds** - Play a sound when locking and unlocking the screen (default – enabled).
 - **Charging sounds and vibration** - Plays a sound and vibrates when power is applied to the device (default - enabled).
 - **Touch sounds** - Play a sound when making screen selections (default – enabled).
 - **Touch vibration** - Vibrate the device when making screen selections (default – disabled).
- **Wireless Emergency alerts** - Touch to configure emergency broadcast settings and notifications.

Setting Wake-Up Sources

By default the device wakes from suspend mode when the user presses the **Power** button. The device can be configured to wake when the user presses the **PTT** or **Scan** buttons on the left side of the device.

1. Go to **Settings**.
2. Touch **Wake-Up Sources**.
 - **LEFT_TRIGGER_2** - PTT button.
 - **REAR_BUTTON** - Programmable button on back of device.
 - **RIGHT_TRIGGER_1** - Right scan button.
 - **SCAN** - Left scan button
3. Touch a checkbox. A check appears in the checkbox.
4. Touch the Home button.

Remapping a Button

Buttons on the device can be programmed to perform different functions or as shortcuts to installed apps. For a list of key names and descriptions, refer to: techdocs.zebra.com.



NOTE: It is not recommended to remap the scan button.

1. Go to **Settings**.
2. Touch **Key Programmer**. A list of programmable buttons displays.
3. Select the button to remap.
4. Touch the **BUTTON REMAPPING** tab or the **SHORTCUT** tab that lists the available functions and applications.
5. Touch a function or application shortcut to map to the button.

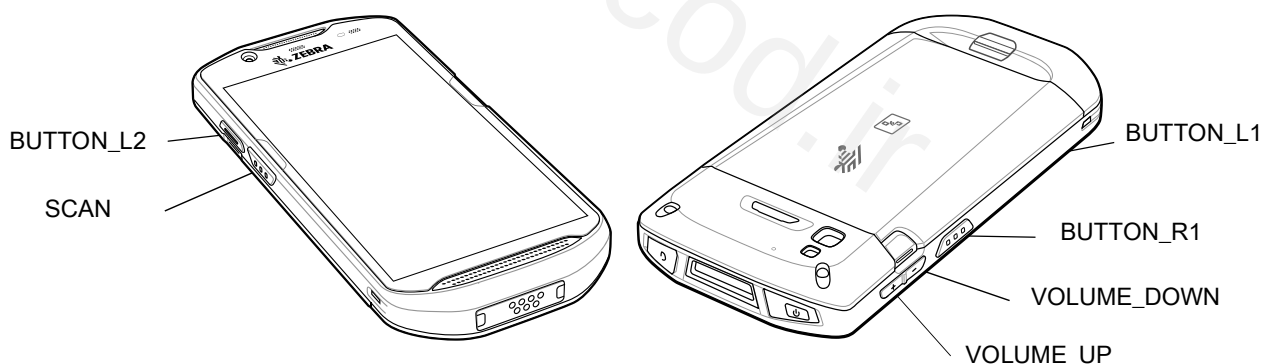


NOTE: If you select an application shortcut, the application icon appears next to the button on the Key Programmer screen.

6. Touch the Home button.

Remappable Keys

Figure 5 Key Positions



- **BUTTON_L2** - PTT button.
- **BUTTON_L1** - Programmable button on back of device.
- **BUTTON_R1** - Right scan button.
- **SCAN** - Left scan button.
- **VOLUME_DOWN** - Volume down button.
- **VOLUME_UP** - Volume up button.

Keyboards

The device provides multiple keyboard options.

- Android Keyboard - AOSP devices only
- Gboard - GMS devices only

- Enterprise Keyboard



NOTE: By default the Enterprise and Virtual Keyboards are disabled.

Keyboard Configuration

Enabling Keyboards

1. Go to **Settings**.
2. Touch **System > Languages & input > Virtual keyboard > Manage keyboards**.
3. Touch a keyboard to enable.

Switching Between Keyboards

1. To switch between keyboards, touch in a text box to display the current keyboard.
 - On the Gboard keyboard, touch and hold (GMS devices only).
 - On the Android keyboard, touch and hold (AOSP devices only).
 - On the Enterprise keyboard, touch .

Using the Android and Gboard Keyboards

Use the Android or Gboard keyboards to enter text in a text field.

To configure the keyboard settings, touch and hold (comma) and then select **Android keyboard settings**.

Edit Text

Edit entered text and use menu commands to cut, copy, and paste text within or across apps. Some apps do not support editing some or all of the text they display; others may offer their own way to select text.

Entering Numbers, Symbols, and Special Characters

1. Enter numbers and symbols.
 - Touch and hold one of the top-row keys until a menu appears then select a number or special character.
 - Touch the Shift key once for a single capital letter. Touch the Shift key twice to lock in uppercase. Touch the Shift key a third time to unlock Capslock.
 - Touch to switch to the numbers and symbols keyboard.
 - Touch the key on the numbers and symbols keyboard to view additional symbols.
2. Enter special characters.
 - Touch and hold a number or symbol key to open a menu of additional symbols. A larger version of the key displays briefly over the keyboard.

Using the Enterprise Keyboard

The Enterprise Keyboard contains multiple keyboard types.

- Numeric
- Alpha
- Special characters
- Data capture.

Numeric Tab

The numeric keyboard is labeled **123**. The keys displayed vary on the app being used. For example, an arrow displays in **Contacts**, however **Done** displays in **Email** account setup.

Alpha Tab

The alpha keyboard is labeled using the language code. For English, the alpha keyboard is labeled **EN**.

Additional Character Tab

The additional characters keyboard is labeled **#*/**.

Touch 😊 to enter emoji icons in a text message.

Touch **ABC** to return to the Symbols keyboard.

Scan Tab

The Scan tab provides an easy data capture feature for scanning barcodes.

Language Usage

Use the **Language & input** settings to change the device's language, including words added to the dictionary.

Changing the Language Setting

1. Go to **Settings**.
2. Touch **System > Languages & input**.
3. Touch **Languages**. A list of available languages displays.
4. If the desired language is not listed, touch **Add a language** and select a language from the list.
5. Touch and hold ≡ to the right of the desired language, then drag it to the top of the list.
6. The operating system text changes to the selected language.

Adding Words to the Dictionary

1. Go to **Settings**.
2. Touch **System > Languages & input > Advanced > Personal dictionary**.
3. If prompted, select the language where this word or phrase is stored.
4. Touch **+** to add a new word or phrase to the dictionary.

5. Enter the word or phrase.
6. In the **Shortcut** text box, enter a shortcut for the word or phrase.
7. Touch the Home button.

Notifications

Setting App Notifications

To set notification settings for a specific app:

1. Go to **Settings**.
2. Touch **Apps & notifications > SEE ALL XX APPS**. The **App info** screen displays.
3. Select an app.
4. Touch **Notifications**.
Options vary depending on the app selected.
5. Select an available option:
 - Show notifications** - Select to turn all notifications from this app on (default) or off.
Touch a notification category to display additional options.
 - **Alerting** - Allow notifications from this app to make sound or vibrate the device.
 - **Pop on screen** - Allow notifications from this app to pop notifications on the screen.
 - **Silent** - Do not allow notifications from this app to make sound or vibrate.
 - **Minimize** - In the Notification panel, collapse notifications to one line.
 - **Advanced** - Touch for additional options.
 - **Sound** - Select a sound to play for notifications from this app.
 - **Vibrate** - Allow notifications from this app to vibrate the device.
 - **Blink light** - Allow notifications from this app the light the Notification LED blue.
 - **Show notification dot** - Allow notifications from this app to add a notification dot to the app icon.
 - **Override Do Not Disturb** - Allow these notifications to interrupt when Do Not Disturb is enabled.

Advanced

- **Allow notification dot** - Do not allow this app to add a notification dot to the app icon.
- **Additional settings in the app** - Open the app settings.

Viewing Notification Settings for All Apps

To view the notification settings for all apps:

1. Go to **Settings**.
2. Touch **Apps & Notifications**.
3. Scroll down to **Notifications** to view how many apps have notifications turned off.
4. To set or view notifications settings for a specific app, see Setting App Notifications.

Controlling Lock Screen Notifications

To control whether notifications can be seen when the device is locked:

1. Go to **Settings**.
2. Touch **Apps & notifications > Notifications**.
3. Touch **Notifications on lockscreen** and select one of the following:
 - **Show alerting and silent notifications** (default)
 - **Show alerting notifications only**
 - **Don't show notifications**.

Blink Light

The Notification LED lights blue when an app, such as email and VoIP, generates a programmable notification or to indicate when the device is connected to a Bluetooth device. By default, LED notifications are enabled.

To change the notification setting:

1. Go to **Settings**.
2. Touch **Apps & notifications > Notifications > Advanced**.
3. Touch **Blink light** to toggle the notification on or off.

Applications

The **APPS** screen displays icons for all installed apps. See Application Deployment for information on installing and uninstalling apps. For information on standard Android apps, go to the Google Play [Apps store](#).

The following table describes the apps installed on the device.

Table 5 Apps

Icon	Description
	Battery Manager - Displays battery information, including charge level, status, health and wear level, and use to place device in Battery Swap mode when replacing the battery.
	Bluetooth Pairing Utility – Use to pair a Zebra Bluetooth scanner with the device by scanning a barcode.
	Calculator - Provides the basic and scientific arithmetic functions.
	Calendar - Use to manage events and appointments. GMS/GMS-Restricted only.
	Calendar - Use to manage events and appointments. AOSP only.
	Camera - Take photos or record videos. For more information, see Camera on page 49 .
	Chrome - Use to access the Internet or intranet. GMS/GMS-Restricted only.
	Chromium - Use to access the Internet or intranet. AOSP only.
	Clock - Use to schedule alarms for appointments or as a wake-up.

Table 5 Apps (Continued)

Icon	Description
	Contacts - Use to manage contact information.
	DataWedge - Enables data capture using the imager. For more information, see DataWedge Demonstration on page 55 .
	DisplayLink Presenter - Use to present the device screen onto a connected monitor.
	Drive - Upload photos, videos, documents, and other files to personal storage site. GMS/GMS-Restricted only.
	Duo - A one-to-one video calling app. GMS/GMS-Restricted only.
	DWDemo - Provides a way to demonstrate the data capture features using the imager. For more information, see DataWedge Demonstration on page 55 .
	Email - Use to send and receive email. AOSP only.
	Files - Organize and manage files on the device.
	Gallery - Use to view photos stored on the microSD card. AOSP only.
	Gmail - Use to send and receive email using a Google email account. GMS/GMS-Restricted only.
	Google - Launches Google™ search app. GMS/GMS-Restricted only.
	Keep Notes - Use to create, edit, and share notes. GMS/GMS-Restricted only.
	License Manager - Use to manage software licenses on the device.
	Maps - Use to see your location on a map (with public transit, traffic, or satellite overlays). Search for any business or place of interest. Provides turn-by-turn navigation with voice guidance, traffic-avoidance, and alternate routes, for drivers, cyclists, walkers, and users of public transportation. GMS/GMS-Restricted only.

Table 5 Apps (Continued)

Icon	Description
	Music - Play music stored on the microSD card or internal storage. AOSP only.
	Music - Play music stored on the microSD card or internal storage. AOSP only.
	Phone - Use to dial a phone number when used with some Voice over IP (VoIP) clients (VoIP telephony ready only).
	Photos - Use to sync photos with Google account. GMS/GMS-Restricted only.
	Play Movies & TV - View movies and video on your device. GMS/GMS-Restricted only.
	Play Store - Download music, movies, books, and Android apps and games from the Google Play Store. GMS/GMS-Restricted only.
	PTT Express - Use to launch PTT Express client for VoIP communication.
	RxLogger - Use to diagnose device and app issues. For more information, see RxLogger on page 60 .
	Search - Use to search the Web. Requires an Internet connection. AOSP only.
	Settings - Use to configure the device.
	Sound Recorder - Use to record audio. For more information, see Sound Recorder on page 62 .
	StageNow - Allows the device to stage a device for initial use by initiating the deployment of settings, firmware, and software.
	Videos - Use to view videos on the device. AOSP only.
	Voice Search - Use to perform searches by asking questions. GMS/GMS-Restricted only.

Table 5 Apps (Continued)

Icon	Description
	Worry Free Wifi Analyzer - A diagnostic intelligent app. Use to diagnose surrounding area and display network stats, such as coverage hole detection, or AP in vicinity. Refer to the Worry Free Wi-Fi Analyzer Administrator Guide for Android.
	YouTube - Use to view videos on the YouTube™ web site. GMS/GMS-Restricted only.
	YT Music - Use to listen to music. GMS/GMS-Restricted only.
	Zebra Bluetooth Settings - Use to configure Bluetooth logging.
	Zebra Data Services - Use to enable or disable Zebra Data Services. Some options are set by the system administrator.

Accessing Apps

All apps installed on the device are accessed using the **APPS** window.

1. On the Home screen, swipe up from the bottom of the screen.
2. Slide the **APPS** window up or down to view more app icons.
3. Touch an icon to open the app.

Switching Between Recent Apps

Use the Recent button to switch between recently used apps.

1. Touch Recent button.
A window appears on the screen with icons of recently used apps.
2. Slide the apps displayed up and down to view all recently used apps.
3. Swipe left or right to remove app from the list and force close the app.
4. Touch an icon to open an app or touch Back button to return to the current screen.

Battery Manager

The **Battery Manager** provides detailed information about the battery and battery swap procedures on supported devices.

Opening Battery Manager

To open the Battery Manager app, swipe up from the bottom of the Home screen, and then touch .

Battery Manager Information Tab

The Battery Manager displays detailed information about battery charging, health, and status.

Table 6 Battery Icon Description

Battery Icon	Description
	Battery charge level is between 85% and 100%.
	Battery charge level is between 19% and 84%.
	Battery charge level is between 0% and 18%.

- **Level** - The current battery charge level as a percentage. Displays -% when level is unknown.
- **Wear** - The health of the battery in graphical form. When the wear level exceeds 80%, the bar color changes to red.
- **Health** - The health of the battery. If a critical error occurs,  appears. Touch to view the error description.
 - **Decommission** - The battery is past its useful life and should be replaced. See system administrator.
 - **Good** - The battery is good.
 - **Charge error** - An error occurred while charging. See system administrator.
 - **Over Current** - An over-current condition occurred. See system administrator.
 - **Dead** - The battery has no charge. Replace the battery.
 - **Over Voltage** - An over-voltage condition occurred. See system administrator.
 - **Below Temperature** - The battery temperature is below the operating temperature. See system administrator.
 - **Failure Detected** - A failure has been detected in the battery. See system administrator.
 - **Unknown** - See system administrator.
- **Charge Status**
 - **Not charging** - The device is not connected to AC power.
 - **Charging-AC** - The device is connected to AC power and charging.
 - **Charging-USB** - The device is connected to a host computer with a USB cable and charging.
 - **Discharging** - The battery is discharging.
 - **Full** - That the battery is fully charged.
 - **Unknown** - The battery status is unknown.
- **Time until Full** - The amount of time until the battery is fully charged.
- **Time since charging** - The amount of time since the device began charging.

- **Time until empty** - The amount of time until the battery is empty.
- **Advanced info** - Touch to view additional battery information.
 - **Battery present status** - Indicates that the battery is present.
 - **Battery level** - The battery charge level as a percentage of scale.
 - **Battery scale** - The battery scale level used to determine battery level (100).
 - **Battery voltage** - The current battery voltage in millivolts.
 - **Battery temperature** - The current battery temperature in degrees Centigrade.
 - **Battery technology** - The type of battery.
 - **Battery current** - The average current into or out of the battery over the last second in mAh.
 - **Battery manufacture date** - The date of manufacture.
 - **Battery serial number** - The battery serial number. The number matches the serial number printed on the battery label.
 - **Battery part number** - The battery part number.
 - **Battery rated capacity** - Lists the rated capacity of the backup battery in mAh.
 - **Battery decommission status** - Indicates if the battery is past its life span.
 - **Battery Good** - The battery is in good health.
 - **Decommissioned Battery** - The battery is past its useful life and should be replaced.
 - **Base cumulative charge** - Cumulative charge using Zebra charging equipment only.
 - **Battery present capacity** - Maximum amount of charge that could be pulled from the battery under the present discharge conditions if the battery were fully charged.
 - **Battery health percentage** - With a range from **0** to **100**, this is the ratio of “present_capacity” to “design_capacity” at a discharge rate of “design_capacity”.
 - **% decommission threshold** - The default % decommission threshold for a gifted battery as 80%.
 - **Battery present charge** - Amount of usable charge remaining in the battery at present under the current discharge conditions.
 - **Battery total cumulative charge** - The total accumulated charge in all chargers.
 - **Battery time since first use** - The time passed since the battery was placed in a Zebra terminal for the first time.
 - **Battery error status** - The error status of the battery.
 - **Battery usage number** - The health of the battery as a result of charging and discharging. A high number indicates low battery health.
 - **Usage decommission threshold** - When the Battery usage number is greater than or equal to the Usage decommission threshold, the battery is past its useful life and should be replaced.
- **App version** - The application version number.

Battery Manager Swap Tab



The **Swap** tab also appears when the user presses the Power button and selects **Battery Swap**.

Use to place the device in Battery Swap mode when replacing the battery. Follow the instructions on the screen. Touch **Proceed with battery swap** button.

Camera

This section provides information for taking photos and recording videos using the integrated digital cameras.



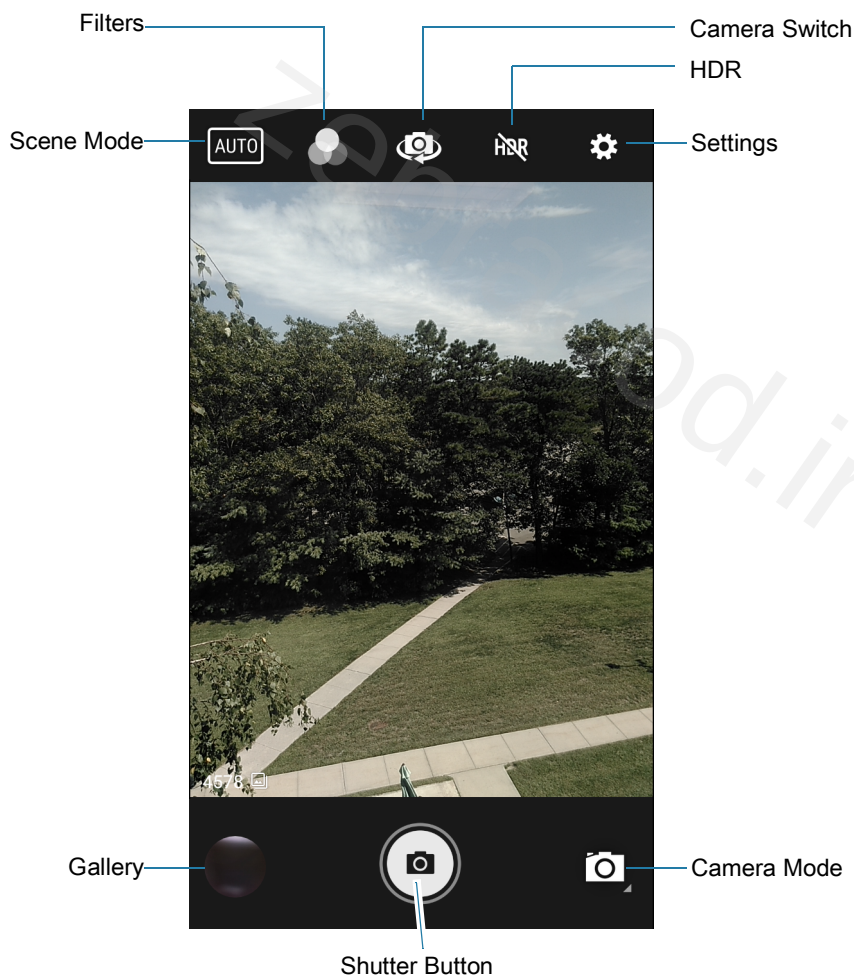
NOTE: The device saves photos and videos on the microSD card, if installed and the storage path is changed manually. By default, or if a microSD card is not installed, the device saves photos and videos on the internal storage.

Taking Photos



NOTE: See Photo Settings for camera setting descriptions.

1. Swipe up from the bottom of the Home screen and touch **Camera**.



2. If necessary, touch the Camera Mode icon and touch .
3. To switch between the rear camera and front camera, touch .
4. Frame the subject on the screen.
5. To zoom in or out, press two fingers on the display and pinch or expand fingers. The zoom controls appear on the screen.

6. Touch an area on the screen to focus. The focus circle appears. The two bars turn green when in focus.
 7. Touch .
- The camera takes a photo and a shutter sound plays.
- The photo momentarily displays as a thumbnail in the lower left corner.

Taking a Panoramic Photo

Panorama mode creates a single wide image by panning slowly across a scene.

1. Swipe up from the bottom of the Home screen and touch **Camera**.

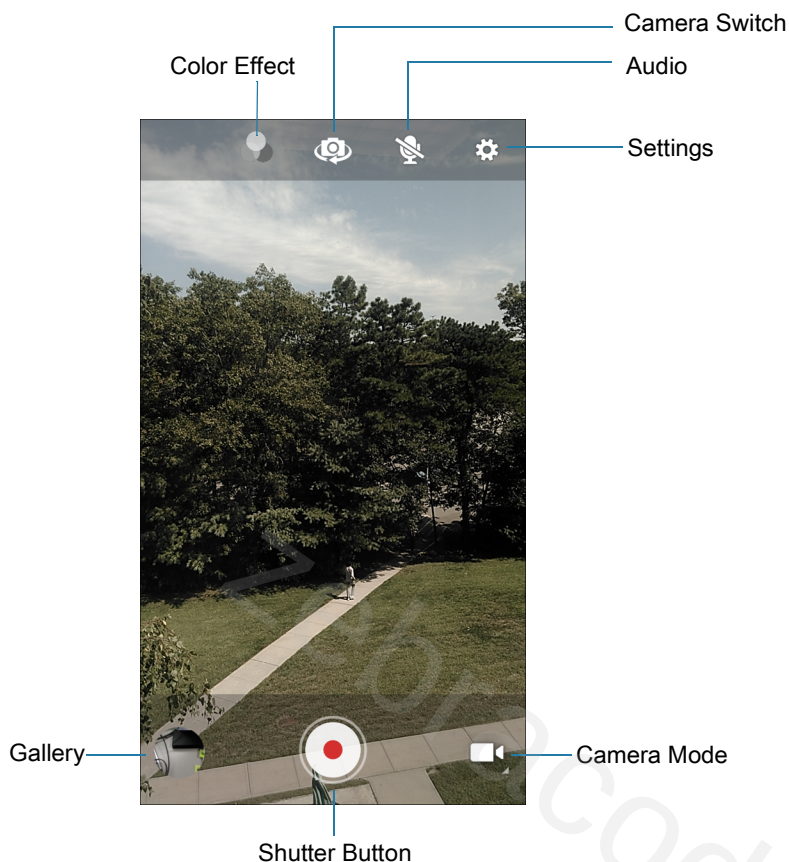


2. Touch the Camera Mode icon and touch .
 3. Frame one side of the scene to capture.
 4. Touch  and slowly pan across the area to capture. A small white square appears inside the button indicating the capture is in progress.
- If you are panning too quickly, the message **Too fast** appears.
5. Touch  to end the shot. The panorama appears immediately and a progress indicator displays while it saves the image.

Recording Videos

1. Swipe up from the bottom of the Home screen and touch **Camera**.

2. Touch the camera mode menu and touch .



3. To switch between the rear camera and front camera (if available), touch .
4. Point the camera and frame the scene.
5. To zoom in or out, press two fingers on the display and pinch or expand fingers. The zoom controls appear on the screen.
6. Touch  to start recording.
The video time remaining appears in the top left of the screen.
7. Touch  to the end recording.
The video momentarily displays as a thumbnail in the lower left corner.

Photo Settings

In Photo mode, photo settings appear on screen. Touch  to display the photo settings options.

Rear Camera Photo Settings

- **Flash** - Select whether the camera relies on its light meter to decide whether a flash is necessary, or to turn it on or off for all shots.
 -  **Off** - Disable flash.
 -  **Auto** - Adjust flash automatically depending upon light meter (default).

-  **On** - Enable flash upon taking a photo.
- **Picture size** - The size (in pixels) of the photo to: **13M pixels** (default), **8M pixels**, **5M pixels**, **3M pixels**, **HD 1080**, **2M pixels**, **HD720**, **1M pixels**, **WVGA**, **VGA**, or **QVGA**.
- **Picture quality** - Set the picture quality setting to: **Low**, **Standard** or **High** (default).
- **Countdown timer** - Select **Off** (default), **2 seconds**, **5 seconds** or **10 seconds**.
- **Storage** – Set the location to store the photo to: **Phone** or **SD Card**.
- **Continuous Shot** - Select to take a series of photos quickly while holding the capture button. **Off** (default) or **On**.
- **ISO** - Set camera sensitivity to light to: **Auto** (default), **ISO Auto (HJR)**, **ISO100**, **ISO200**, **ISO400**, **ISO800** or **ISO1600**.
- **Exposure** - Set the exposure settings to: **+2**, **+1**, **0**(default), **-1** or **-2**.
- **White balance** - Select how the camera adjusts colors in different kinds of light, to achieve the most natural-looking colors:
 -  **Incandescent** - Adjust the white balance for incandescent lighting.
 -  **Fluorescent** - Adjust the white balance for florescent lighting.
 -  **Auto** - Adjust the white balance automatically (default).
 -  **Daylight** - Adjust the white balance for daylight.
 -  **Cloudy** - Adjust the white balance for a cloudy environment.
- **Redeye reduction** - Helps eliminate redeye effect. Options: **Disabled** (default), or **Enable**.
- **ZSL** - Set the camera to immediately take a picture when the button is pressed (default – enabled).
- **Shutter Sound** - Select to play a shutter sound when taking a photo. Options: **Disable** (default) or **Enable**.
- **Anti Banding** - Allows the camera to avoid problems caused by artificial light sources that are not constant. These sources cycle (flicker) fast enough to go unnoticed to the human eye, appearing continuous. The camera's eye (its sensor) can still see this flicker. Options: **Auto** (default), **60 Hz**, **50 Hz**, or **Off**.

Front Camera Photo Settings

- **Selfie Flash** - Turns screen white to help produce a little extra light in dimmer settings. Options: **Off** (default), or **On**.
- **Picture size** - Set the size (in pixels) of the photo to: **5M pixels** (default), **3M pixels**, **HD1080**, **2M pixels**, **HD720**, **1M pixels**, **WVGA**, **VGA**, or **QVGA**.
- **Picture quality** - Set the picture quality setting to: **Low**, **Standard** or **High** (default).
- **Countdown timer** - Set to: **Off** (default), **2 seconds**, **5 seconds** or **10 seconds**.
- **Storage** – Set location to store the photo to: **Phone** or **SD Card**.
- **Continuous Shot** - Select to take a series of photos quickly while holding the capture button. **Off** (default) or **On**.
- **Face Detection** - Select to turn face detection **Off** (default) or **On**.
- **ISO** - Set how sensitive the camera is to light. Options: **Auto** (default), **ISO Auto (HJR)**, **ISO100**, **ISO200**, **ISO400**, **ISO800** or **ISO1600**.

- **Exposure** - Touch to adjust the exposure settings. Options: **+2**, **+1**, **0** (default), **-1** or **-2**.
- **White balance** - Select how the camera adjusts colors in different kinds of light, to achieve the most natural-looking colors:
 -  **Incandescent** - Adjust the white balance for incandescent lighting.
 -  **Fluorescent** - Adjust the white balance for florescent lighting.
 -  **Auto** - Adjust the white balance automatically (default).
 -  **Daylight** - Adjust the white balance for daylight.
 -  **Cloudy** - Adjust the white balance for a cloudy environment.
- **Redeye reduction** - Helps eliminate redeye effect. Options: **Disabled** (default), or **Enable**.
- **ZSL** - Set the camera to immediately take a picture when the button is pressed (default – enabled)
- **Selfie Mirror** - Select to save a mirror image of the photo. Options: **Disable** (default), or **Enable**.
- **Shutter Sound** - Select to play a shutter sound when taking a photo. Options: **Disable** (default) or **Enable**.
- **Anti Banding** - Allows the camera to avoid problems caused by artificial light sources that are not constant. These sources cycle (flicker) fast enough to go unnoticed to the human eye, appearing continuous. The camera's eye (its sensor) can still see this flicker. Options: **Auto** (default), **60 Hz**, **50 Hz**, or **Off**.

Video Settings

In Video mode, video settings appear on screen. Touch  to display the video settings options.

Rear Camera Video Settings

- **Flash** - Select whether Rear-facing Camera relies on its light meter to decide whether a flash is necessary, or to turn it on or off for all shots.
 -  **Off** - Disable flash (default).
 -  **On** - Enable flash.
- **Video quality** - Set video quality to: **4k DCI**, **4k UHD**, **HD 1080p** (default), **HD 720p**, **SD 480p**, **VGA**, **CIF**, or **QVGA**.
- **Video duration** - Set to: **30 seconds (MMS)**, or **30 minutes (default)**.
- **Storage** – Set the location to store the photo to: **Phone** (default) or **SD Card**.
- **White balance** - Select how the camera adjusts colors in different kinds of light, to achieve the most natural-looking colors.
 -  **Incandescent** - Adjust the white balance for incandescent lighting.
 -  **Fluorescent** - Adjust the white balance for florescent lighting.
 -  **Auto** - Adjust the white balance automatically (default).
 -  **Daylight** - Adjust the white balance for daylight.
 -  **Cloudy** - Adjust the white balance for a cloudy environment.

- **Image Stabilization** - Set to reduce blurry videos due to device movement. Options: **On** or **Off** (default).

Front Camera Video Settings

- **Video quality** - Set video quality to: **HD1080** (default), **HD 720p** (default), **HD720**, or **SD 480p**, **VGA**, **CIF**, or **QVGA**.
- **Video duration** - Set to: **30 seconds (MMS)** or **30 minutes** (default).
- **Storage** – Set the location to store the photo to: **Phone** (default) or **SD Card**.
- **White balance** - Select how the camera adjusts colors in different kinds of light, to achieve the most natural-looking colors.
 -  **Incandescent** - Adjust the white balance for incandescent lighting.
 -  **Fluorescent** - Adjust the white balance for florescent lighting.
 -  **Auto** - Adjust the white balance automatically (default).
 -  **Daylight** - Adjust the white balance for daylight.
 -  **Cloudy** - Adjust the white balance for a cloudy environment.
- **Image Stabilization** - Set to reduce blurry videos due to device movement. Options: **On** or **Off** (default).

DataWedge Demonstration

Use **DataWedge Demonstration** to demonstrate data capture functionality. To configure DataWedge, refer to techdocs.zebra.com/datawedge/.



NOTE: DataWedge is disabled on the Home screen. To enable this feature, go to the DataWedge settings and enable Barcode input option.

Table 7 DataWedge Demonstration Icons

	Icon	Description
Illumination		Imager illumination is on. Touch to turn illumination off.
		Imager illumination is off. Touch to turn illumination on.
Data Capture		The data capture function is through the internal imager.
		A Bluetooth scanner is connected.
		A Bluetooth scanner is not connected.
		The data capture function is through the rear camera. Only available on MC3300x-S/R devices configured with the camera option.
Scan Mode		Imager is in picklist mode. Touch to change to normal scan mode.
		Imager is in normal scan mode. Touch to change to picklist mode.
		Opens a menu to view the application information or to set the application DataWedge profile.

Scanner Selection

To select a scanner, touch  > **Settings** > **Scanner selection**.

See the Data Capture section for more information.

Press the programmable button or touch the yellow scan button to capture data. The data appears in the text field below the yellow button.

PTT Express Voice Client



NOTE: Requires a PTT Express License.

PTT Express Voice Client enables Push-To-Talk (PTT) communication between disparate enterprise devices. Leveraging existing Wireless Local Area Network (WLAN) infrastructure, PTT Express delivers simple PTT communication without requiring a voice communication server.

- **Group Call:** Press and hold the PTT (Talk) button to start communicating with other voice client users.
- **Private Response:** Double-press the PTT button to respond to the originator of the last broadcast or to make a Private Response.

PTT Express User Interface

Figure 6 PTT Express Default User Interface

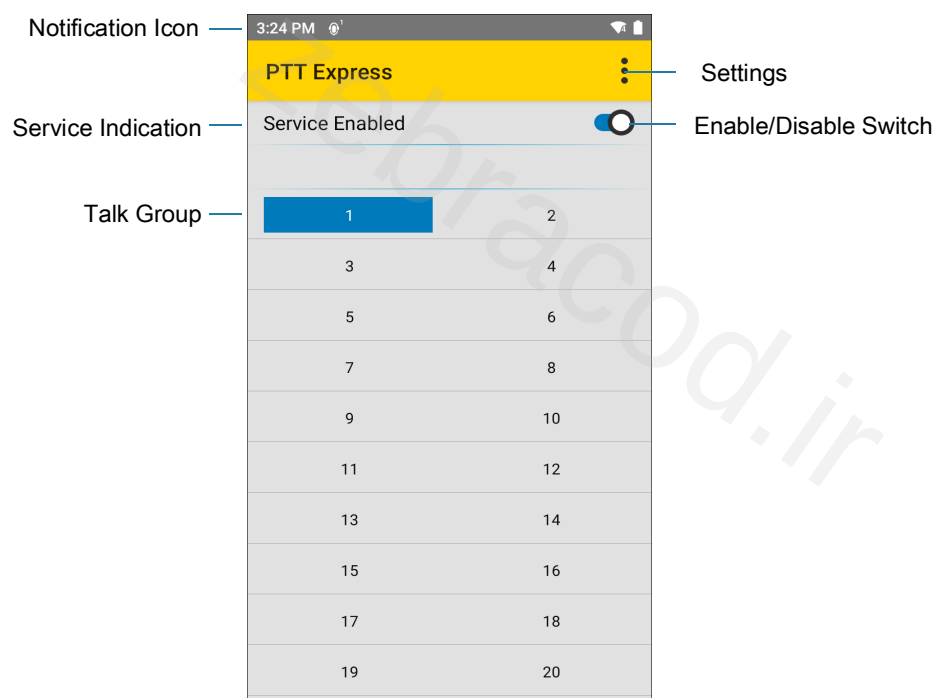


Table 8 PTT Express Default User Interface Descriptions

Item	Description
Notification Icon	Indicates the current state of the PTT Express client.
Service Indication	Indicates the status of the PTT Express client. Options: Service Enabled , Service Disabled or Service Unavailable .
Talk Groups	Lists all 32 Talk Groups available for PTT communication.
Settings	Opens the PTT Express Settings screen.
Enable/Disable Switch	Turns the PTT service on and off.

PTT Audible Indicators

The following tones provide helpful cues when using the voice client.

- **Talk Tone:** Double chirp. Plays when the Talk button is depressed. This is a prompt for you to start talking.
- **Access Tone:** Single beep. Plays when another user just finished a broadcast or response. You can now initiate a Group Broadcast or Private Response.
- **Busy Tone:** Continuous tone. Plays when the Talk button is depressed and another user is already communicating on the same talkgroup. Plays after the maximum allowed talk time is reached (60 seconds).
- **Network Tone:**
 - Three increasing pitch beeps. Plays when PTT Express acquires the WLAN connection and the service is enabled.
 - Three decreasing pitch beeps. Plays when PTT Express loses the WLAN connection or the service is disabled.

PTT Notification Icons

Notification icons indicate the current state of the PTT Express Voice client.

Table 9 PTT Express Icon Descriptions

Status Icon	Description
	The PTT Express Voice client is disabled.
	The PTT Express Voice client is enabled but not connected to a WLAN.
	The PTT Express Voice client is enabled, connected to a WLAN, and listening on the Talk Group indicated by the number next to the icon.
	The PTT Express Voice client is enabled, connected to a WLAN, and communicating on the Talk Group indicated by the number next to the icon.
	The PTT Express Voice client is enabled, connected to a WLAN, and in a private response.
	The PTT Express Voice client is enabled and muted.
	The PTT Express Voice client is enabled but it is not able to communicate due to a VoIP telephony call in progress.

Enabling PTT Communication

1. Swipe up from the bottom of the Home screen and touch .
2. Slide the **Enable/Disable Switch** to the **ON** position. The button changes to **ON**.

Selecting a Talk Group

One of 32 Talk Groups can be selected by PTT Express users. However, only one talk group may be enabled at a time on the device. Touch one of the 32 Talk Groups. The selected Talk Group is highlighted.

PTT Communication



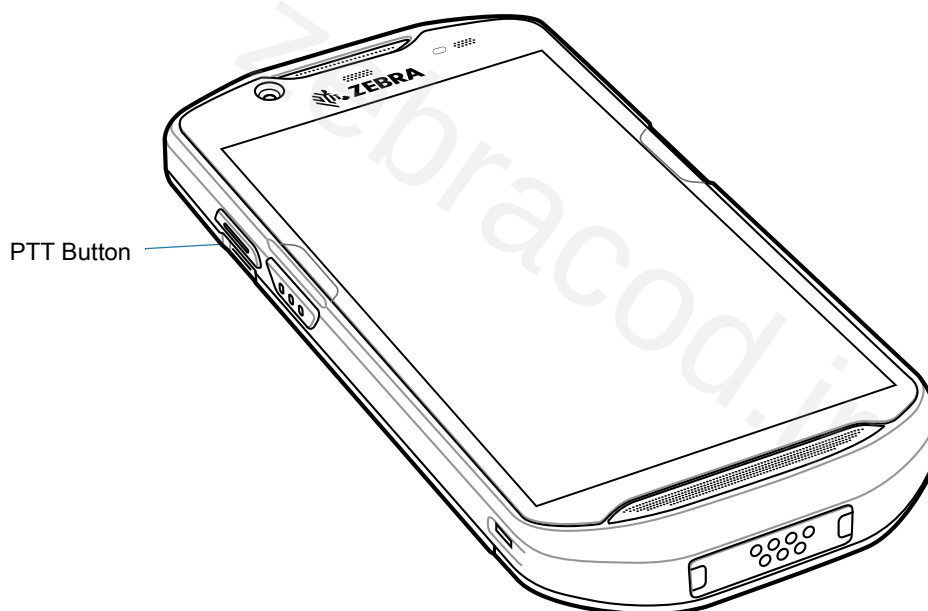
This section describes the default PTT Express client configuration. Refer to the PTT Express V1.2 User Guide for detailed information on using the client.

PTT communication may be established as a Group Call. When PTT Express is enabled, the PTT button on the left side of the device is assigned for PTT communication. When the Wired Headset is used, Group Calls can also be initiated using the headset Talk button.



When using a wired headset, use only Zebra wired headsets with a PTT button.

Figure 7 PTT Button



Creating a Group Call



When using a wired headset, use only Zebra wired headsets with a PTT button.

1. Press and hold the PTT button (or the Talk button on the headset) and listen for the talk tone.
If you hear a busy tone, release the button and wait a moment before making another attempt. Ensure that PTT Express and the WLAN are enabled.
2. Start talking after hearing the talk tone.



NOTE: Holding the button for more than 60 seconds (default) drops the call, allowing others to make Group calls. Release the button when finished talking to allow others to make calls.

Responding with a Private Response

The Private Response can only be initiated once a Group Call has been established. The initial Private Response is made to the originator of the Group Call.

1. Wait for an access tone.
2. Within 10 seconds, double-press the PTT button, and listen for the talk tone.
3. If you hear a busy tone, release the button and wait a moment before making another attempt. Ensure that PTT Express and the WLAN are enabled.
4. Start talking after the talk tone plays.
5. Release the button when finished talking.

Disabling PTT Communication

1. Swipe up from the bottom of the Home screen and touch .
2. Slide the **Enable/Disable Switch** to the **OFF** position. The button changes to **OFF**.
3. Touch the Home button.

RxLogger

RxLogger is a comprehensive diagnostic tool that provides application and system metrics, allows for the creation of custom plug-ins, and diagnoses device and application issues. RxLogger logs the following information: CPU load, memory load, memory snapshots, battery consumption, power states, wireless logging, cellular logging, TCP dumps, Bluetooth logging, GPS logging, logcat, FTP push/pull, ANR dumps, etc. All generated logs and files are saved onto flash storage on the device (internal or external).

RxLogger Configuration

RxLogger is built with an extensible plug-in architecture and comes packaged with a number of plug-ins already built-in. For information on configuring RxLogger, refer to techdocs.zebra.com/rxlogger/.

To open the configuration screen, from the RxLogger home screen touch **Settings**.

Configuration File

RxLogger configuration can be set using an XML file. The **config.xml** configuration file is located on the microSD card in the **RxLogger\config** folder. Copy the file from the device to a host computer using a USB connection. Edit the configuration file and then replace the XML file on the device. There is no need to stop and restart the RxLogger service since the file change is automatically detected.

Enabling Logging

To enable logging:

1. Swipe the screen up and select **Rx**.
2. Touch **Start**.
3. Touch the Home button.

Disabling Logging

To disable logging:

1. Swipe the screen up and select **Rx**.
2. Touch **Stop**.
3. Touch the Home button.

Extracting Log Files

1. Connect the device to a host computer using an USB connection.
2. Using a file explorer, navigate to the **RxLogger** folder.
3. Copy the file from the device to the host computer.
4. Disconnect the device from the host computer.

Backing Up

RxLogger Utility allows the user to make a zip file of the **RxLogger** folder in the device, which by default contains all the RxLogger logs stored in the device.

- To save the backup data, touch  > **BackupNow**.

RxLogger Utility

RxLogger Utility is a data monitoring application for viewing logs in the device while RxLogger is running. Logs and RxLogger Utility features are accessed using Main Chat Head.

Initiating the Main Chat Head

To initiate the Main Chat Head:

1. Open **RxLogger**.
2. Touch  > **Toggle Chat Head**. The Main Chat Head icon appears on the screen.
3. Touch and drag the Main Chat head icon to move it around the screen.

Removing the Main Chat Head

To remove the Main Chat Head icon:

1. Touch and drag the icon. A circle with an X appears.
2. Move the icon over the circle and then release.

Viewing Logs

To view logs:

1. Touch the Main Chat Head icon. The RxLogger Utility screen appears.
2. Touch a log to open it. The user can open many logs with each displaying a new sub Chat Head.
3. If necessary, scroll left or right to view additional Sub Chat Head icons.
4. Touch a Sub Chat Head to display the log contents.

Removing a Sub Chat Head Icon

To remove a sub chat Head icon, press and hold the icon until it disappears.

Backing Up In Overlay View

RxLogger Utility allows the user to make a zip file of the **RxLogger** folder in the device, which by default contains all the RxLogger logs stored in the device.

The Backup icon is always available in Overlay View.

1. Touch . The Backup dialog box appears.
2. Touch **Yes** to create the back up.

Sound Recorder

Use **Sound Recorder** to record audio messages.

Recordings are saved on the microSD card (if installed) or the internal storage and are available in the Music application (AOSP devices) or the Play Music application (GMS devices).

Touch  to open options menu.

- **File type** - Select the file type for the recording file.
 - **AMR**
 - **3GPP**
 - **AAC**
 - **WAV**
 - **AMR-WB**
 - **AMR-WB-3GPP**
- **Storage location** - Select the location for the recording file.
 - **Phone storage**
 - **SD card**

Data Capture

The device supports data capture using:

- Integrated imager
- Integrated camera
- RS507/RS507x Bluetooth Ring Scanner
- RS5100 Bluetooth Ring Scanner
- RS6000 Bluetooth Ring Scanner
- DS3678 Digital Scanner
- LI3678 Linear Scanner
- DS2278 Digital Scanner
- DS8178 Digital Scanner.

Imaging

The imager uses imaging technology to take a picture of a bar code, stores the resulting image in its memory, and executes state-of-the-art software decoding algorithms to extract the bar code data from the image. With a 2D imager, the device has the following features:

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

Digital Camera

The device with an integrated camera based barcode scanning solution has the following features:

- Omnidirectional reading of a variety of barcode symbologies, including the most popular linear, postal, QR, PDF417, and 2D matrix code types.
- Cross-hair reticle for easy point-and-shoot operation.
- Picklist mode to decode a particular barcode from many in the field of view.

The solution uses the advanced camera technology to take a digital picture of a barcode, and executes state-of-the-art software decoding algorithms to extract the data from the image.

Linear Imager

The device with an integrated linear imager has the following features:

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

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

Operational Modes

The device with an integrated imager supports two modes of operation, listed below. Activate each mode by pressing the Scan button.

- **Decode Mode:** In this mode, the device attempts to locate and decode enabled barcodes within its field of view. The imager remains in this mode as long as the user holds the scan button, or until it decodes a barcode.



NOTE: To enable Pick List Mode, configure in DataWedge or set in an application using a API command.

- **Pick List Mode:** This mode allows the user to selectively decode a barcode when more than one barcode is in the device's field of view. To accomplish this, move the aiming crosshair or dot over the required barcode to decode only this barcode. This feature is ideal for pick lists containing multiple barcodes and manufacturing or transport labels containing more than one barcode type (either 1D or 2D).



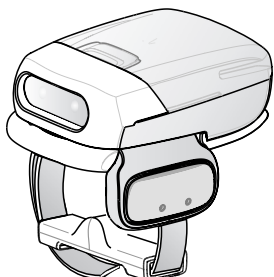
NOTE: To enable Basic MultiBarcode Mode, configure in DataWedge or set in an application using a API command.

- **Basic MultiBarcode Mode:** In this mode, the device attempts to locate and decode a specific number of unique barcodes within its field of view. The device remains in this mode as long as the user holds the scan button, or until it decodes all the barcodes.
 - The device attempts to scan the programmed number of unique barcodes (from 2 through 100).
 - If there are duplicate barcodes (same symbology type and data), only one of the duplicate barcodes is decoded and the remainder are ignored. If the label has two duplicate barcodes plus another two different barcodes, a maximum of three barcodes will be decoded from that label; one will be ignored as a duplicate.
 - Barcodes can be of multiple symbology types and still be acquired together. For example, if the specified quantity for a Basic MultiBarcode scan is four, two barcodes can be symbology type Code 128 and the other two can be symbology type Code 39.
 - If the specified number of unique barcodes is not initially in view of the device, the device will not decode any data until the device is moved to capture the additional barcode(s) or time out occurs. If the device field of view contains a number of barcodes greater than the specified quantity, the device randomly decodes barcode(s) until the specified number of unique barcodes is reached. For example, if the count is set to two and eight barcodes are in the field of view, the device decodes the first two unique barcodes it sees, returning the data in random order.
 - Basic MultiBarcode Mode does not support concatenated barcodes.

RS507/RS507X Hands-Free Imager

The RS507/RS507X Hands-free Imager is a wearable barcode scan solution for both 1D and 2D barcode symbologies.

Figure 8 RS507/RS507X Hands-Free Imager

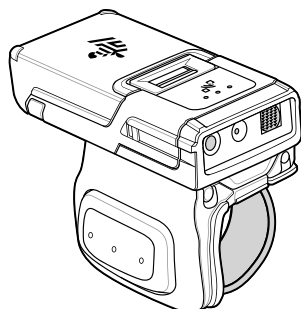


Refer to the RS507/RS507X Hands-free Imager Product Reference Guide for more information.

RS5100 Ring Scanner

The RS5100 Ring Scanner is a wearable barcode scan solution for both 1D and 2D bar code symbologies.

Figure 9 RS5100 Ring Scanner

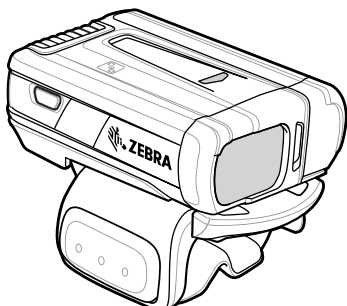


Refer to the RS5100 Ring Scanner Product Reference Guide for more information.

RS6000 Bluetooth Ring Scanner

The RS6000 Bluetooth Ring Scanner is a wearable bar code scan solution for both 1D and 2D bar code symbologies.

Figure 10 RS6000 Bluetooth Ring Scanner

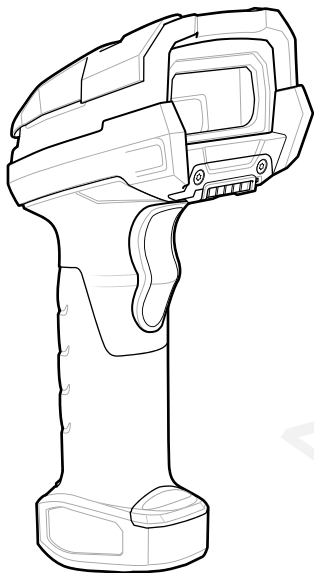


Refer to the RS6000 Bluetooth Ring Scanner Product Reference Guide for more information.

DS3678 Digital Scanner

The cordless DS3678 combines superior 1D and 2D omnidirectional bar code scanning performance and advanced ergonomics in a lightweight design.

Figure 11 DS3678 Digital Scanner

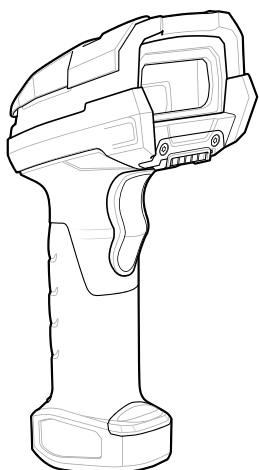


Refer to the DS36X8 Digital Scanner Product Reference Guide for more information.

LI3678 Linear Scanner

The cordless LI3678 combines excellent scanning performance and advanced ergonomics to provide the best value in a lightweight scanner, ensuring comfort and ease of use for extended periods of time.

Figure 12 LI3678 Linear Scanner



Refer to the LI36X8 Linear Scanner Product Reference Guide for more information.

DS2278 Digital Scanner

The DS2278 digital imager scanner scans both 1D and 2D bar codes and does not compromise performance or features.

Figure 13 DS2278 Digital Scanner



Refer to the DS2278 Digital Scanner Product Reference Guide for more information.

Scanning Considerations

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

- **Range:** Scanners decode best over a particular working range — minimum and maximum distances from the barcode. This range varies according to barcode density and scanning device optics. Scan within range for quick and constant decodes; scanning too close or too far away prevents decodes. Move the scanner closer and further away to find the right working range for the barcodes being scanned.
- **Angle:** Scanning angle is important for quick decodes. When the illumination/flash reflects directly back into the imager, the specular reflection can blind/saturate the imager. To avoid this, scan the barcode so that the beam does not bounce directly back. Do not scan at too sharp an angle; the scanner needs to collect scattered reflections from the scan to make a successful decode. Practice quickly shows what tolerances to work within.
- Hold the device farther away for larger symbols.
- Move the device closer for symbols with bars that are close together.



NOTE: Scanning procedures depend on the app and device configuration. An app may use different scanning procedures from the one listed above.

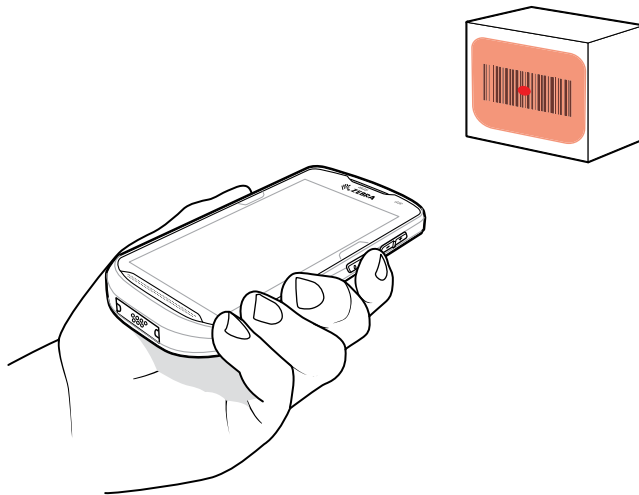
Scanning with Internal Imager

To read a barcode, a scan-enabled app is required. The device contains the DataWedge app that allows the user to enable the imager, decode the barcode data, and display the barcode content.

To scan with the internal imager:

1. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
2. Point the exit window on the top of the device at a barcode.

Figure 14 Imager Scanning



3. Press and hold the scan button.
The red laser aiming pattern turns on to assist in aiming.



NOTE: When the device is in Picklist mode, the imager does not decode the barcode until the crosshair or aiming dot touches the barcode.

4. Ensure the barcode is within the area formed by the crosshairs in the aiming pattern. The aiming dot increases visibility in bright lighting conditions.

Figure 15 Aiming Pattern

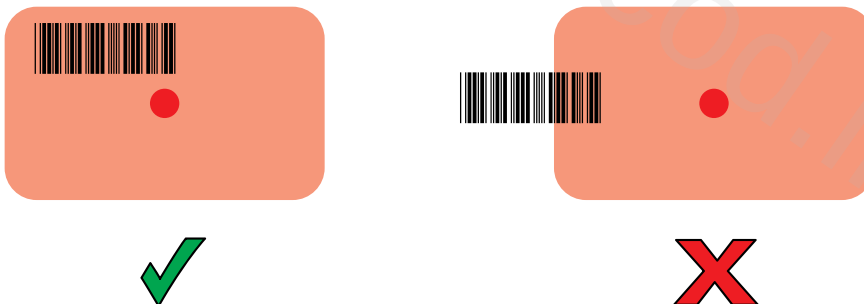
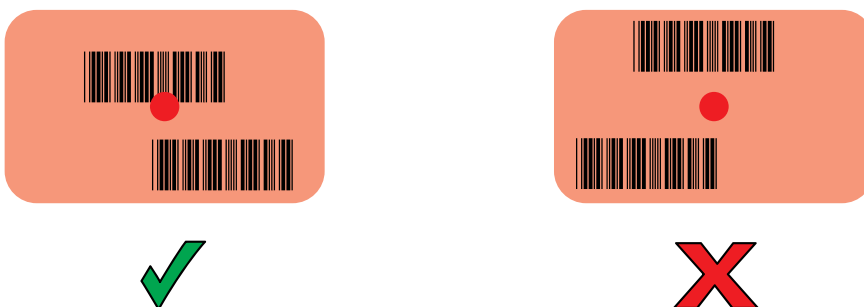


Figure 16 Pick List Mode with Multiple Barcodes



5. The Data Capture LED lights green and a beep sounds, by default, to indicate the barcode was decoded successfully.
6. Release the scan button.



NOTE: Imager decoding usually occurs instantaneously. The device repeats the steps required to take a digital picture (image) of a poor or difficult barcode as long as the scan button remains pressed.

7. The barcode content data displays in the text field.

Scanning with Internal Camera

To read a barcode, a scan-enabled app is required. The device contains the DataWedge app that allows the user to enable the imager, decode the barcode data, and display the barcode content.

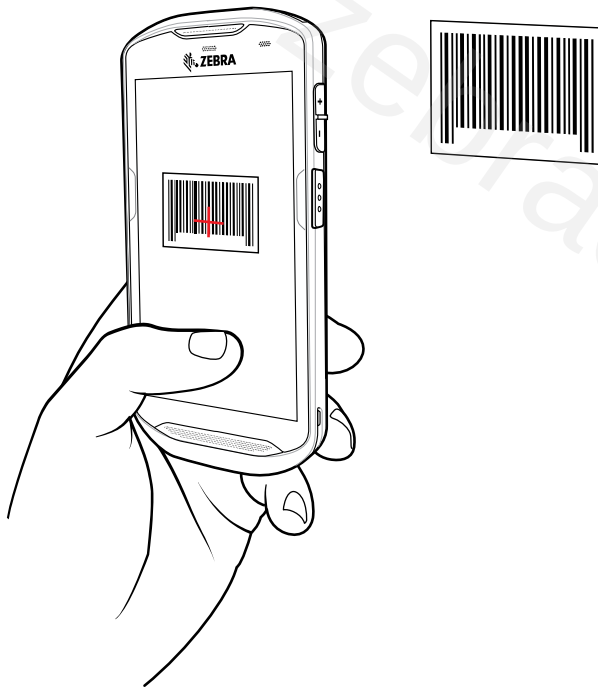
To scan with the internal camera:



NOTE: When capturing barcode data in poor lighting, turn on Illumination mode in the DataWedge application.

1. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
2. Point the camera view window on the back of the device at a barcode.

Figure 17 Camera Scanning



3. Press and hold the scan button. By default, a preview window appears on the screen.



NOTE: When Picklist mode is enabled, move the device until the bar code is centered under the red target on the screen.

4. Move the device until the barcode is visible on the screen.
5. The Decode LED lights green, a beep sounds and the device vibrates, by default, to indicate the bar code was decoded successfully.
6. The captured data appears in the text field.

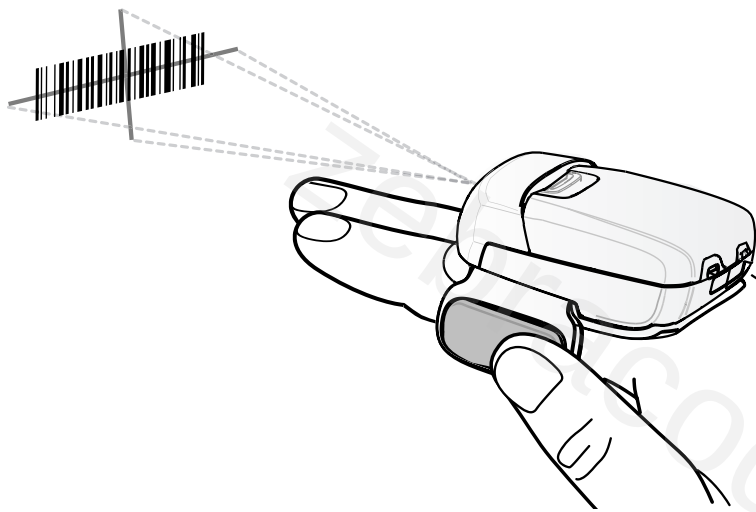
Scanning with RS507/RS507X Hands-Free Imager

To read a barcode, a scan-enabled app is required. The device contains the DataWedge app that allows you to enable the scanner to decode barcode data and display the barcode content.

To scan with the RS507/RS507X:

1. Pair the RS507/RS507X with the device. See [Pairing the Bluetooth Ring Scanner on page 76](#) for more information.
2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
3. Point the RS507/RS507X at a barcode.

Figure 18 Barcode Scanning with RS507/RS507X



4. Press and hold the trigger.

The red laser aiming pattern turns on to assist in aiming. Ensure the barcode is within the area formed by the cross-hairs in the aiming pattern. The aiming dot increases visibility in bright lighting conditions.

The RS507/RS507X LEDs light green and a beep sounds to indicate the barcode was decoded successfully. When the RS507/RS507X is in Pick List mode, the RS507/RS507X does not decode the barcode until the center of the crosshair touches the barcode.

Figure 19 RS507/RS507X Aiming Pattern



Figure 20 RS507/RS507X Pick List Mode with Multiple Barcodes in Aiming Pattern



5. The captured data appears in the text field.

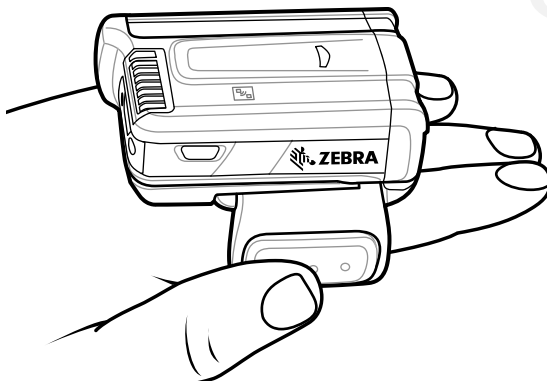
Scanning with RS6000 Bluetooth Ring Scanner

To read a barcode, a scan-enabled app is required. Devices that contain the Zebra DataWedge app allows you to enable the scanner to decode barcode data and display the barcode content.

To scan with the RS6000:

1. Pair the RS6000 with the device. See [Pairing the Bluetooth Ring Scanner on page 76](#) for more information.
2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
3. Point the RS6000 at a barcode.

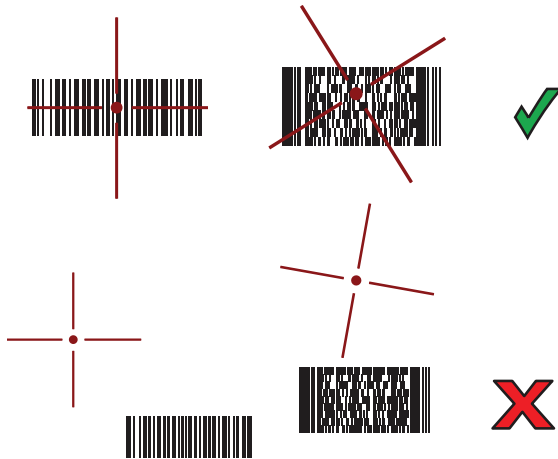
Figure 21 Barcode Scanning with RS6000



4. Press and hold the trigger.

The red laser aiming pattern turns on to assist in aiming. Ensure the barcode is within the area formed by the cross-hairs in the aiming pattern. The aiming dot increases visibility in bright lighting conditions.

The RS6000 LEDs light green and a beep sounds to indicate the barcode was decoded successfully. When the RS6000 is in Pick List mode, the RS6000 does not decode the barcode until the center of the crosshair touches the barcode.

Figure 22 RS6000 Aiming Pattern**Figure 23** RS6000 Pick List Mode with Multiple Barcodes in Aiming Pattern

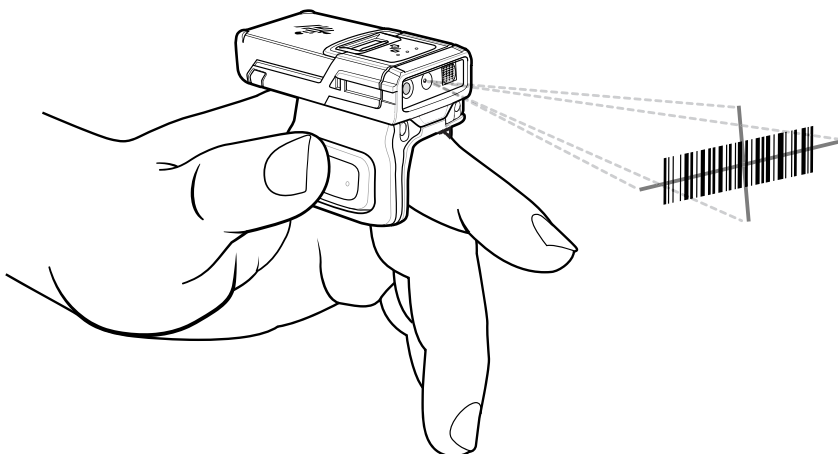
5. The captured data appears in the text field.

Scanning with RS5100 Ring Scanner

To read a barcode, a scan-enabled app is required. The device contains the DataWedge app that allows you to enable the scanner to decode barcode data and display the barcode content.

To scan with the RS5100:

1. Pair the RS5100 with the device. See [Pairing the Bluetooth Ring Scanner on page 76](#) for more information.
2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
3. Point the RS5100 at a barcode.

Figure 24 Barcode Scanning with RS5100

4. Press and hold the trigger.

The red laser aiming pattern turns on to assist in aiming. Ensure the barcode is within the area formed by the cross-hairs in the aiming pattern. The aiming dot increases visibility in bright lighting conditions.

The RS5100 LEDs light green and a beep sounds to indicate the barcode was decoded successfully. When the RS5100 is in Pick List mode, the RS5100 does not decode the barcode until the center of the crosshair touches the barcode.

Figure 25 RS5100 Aiming Pattern**Figure 26** RS5100 Pick List Mode with Multiple Barcodes in Aiming Pattern

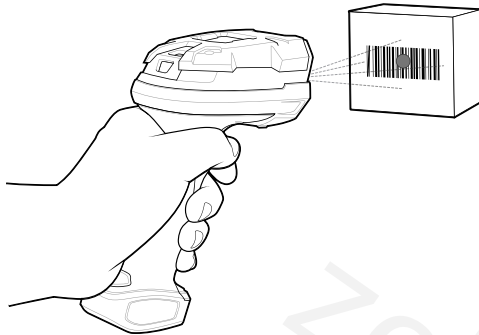
5. The captured data appears in the text field.

Scanning with the DS3678 Bluetooth Scanner

To scan with the DS3678:

1. Pair the scanner with the device. For more information, see Pairing Bluetooth Scanners.
2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
3. Point the scanner at a barcode.

Figure 27 Barcode Scanning (DS3678 shown)



4. Press and hold the trigger.

Ensure the barcode is within the area formed by the aiming pattern. The aiming dot increases visibility in bright lighting conditions.

Figure 28 DS3678 Aiming Pattern

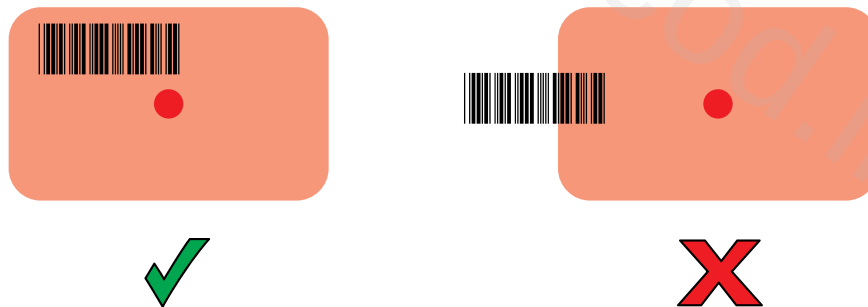
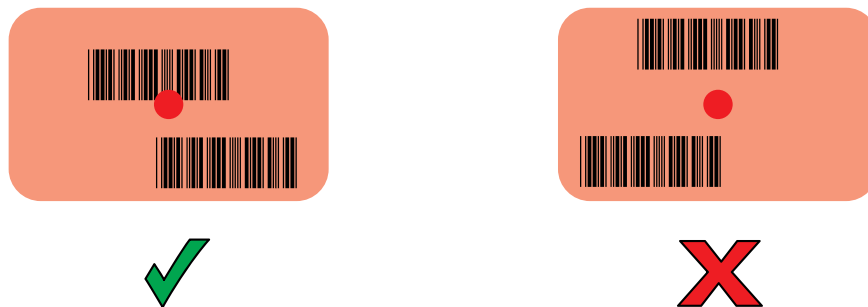


Figure 29 DS3678 Pick List Mode with Multiple Barcodes in Aiming Pattern



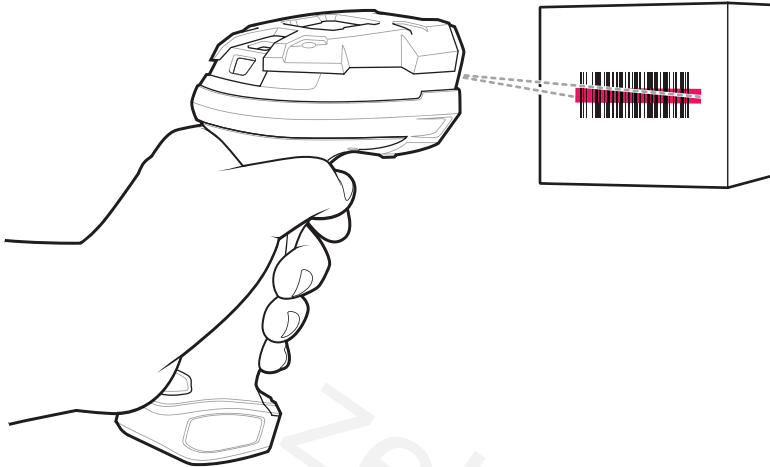
5. The captured data appears in the text field.

Scanning with LI3678 Linear Imager

To scan with the LI3678:

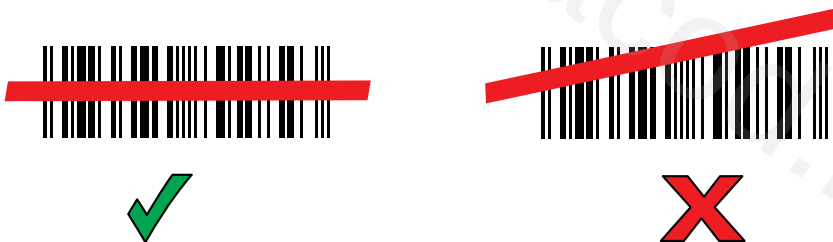
1. Pair the LI3678 with the device. See [Pairing a Bluetooth Scanner on page 80](#) for more information.
2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
3. Point the LI3678 at a barcode.

Figure 30 Barcode Scanning with LI3678



4. Press and hold the trigger.
5. Ensure the aiming pattern covers the barcode.

Figure 31 LI3678-SR Aiming Pattern

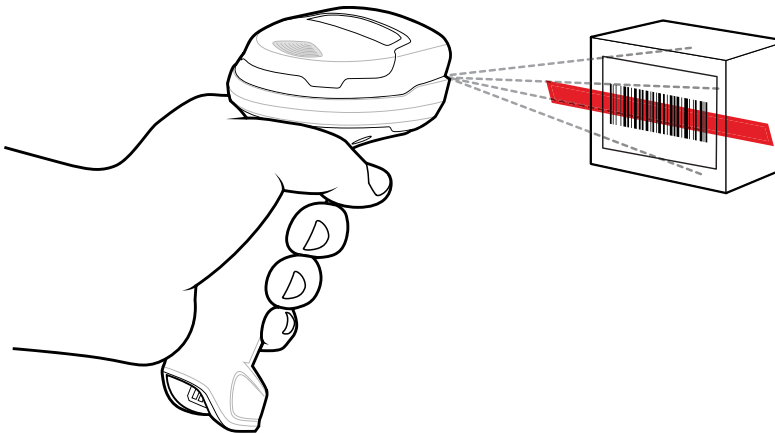


6. Upon successful decode, the scanner beeps and the LED displays a single green flash.
7. The captured data appears in the text field.

Scanning with DS2278 Digital Scanner

To scan with the DS2278:

1. Pair the DS278 with the device. See [Pairing a Bluetooth Scanner on page 80](#) for more information.
2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
3. Point the scanner at a barcode.

Figure 32 Barcode Scanning with DS2278

4. Press and hold the trigger.
5. Ensure the aiming pattern covers the barcode.

Figure 33 DS2278 Aiming Pattern

6. Upon successful decode, the scanner beeps and the LED flashes, and the scan line turns off.
7. The captured data appears in the text field.

Pairing the Bluetooth Ring Scanner

To connect the Bluetooth Ring Scanner to the device, use one of the following methods:

- Near Field Communication (NFC) (RS5100/RS6000 only)
- Simple Serial Interface (SSI)
- Bluetooth Human Interface Device (HID) Mode.

Pairing Using Near Field Communication



NOTE: RS5100 and RS6000 only.

The device provides the ability to pair the Ring Scanner using NFC.

To pair using NFC:

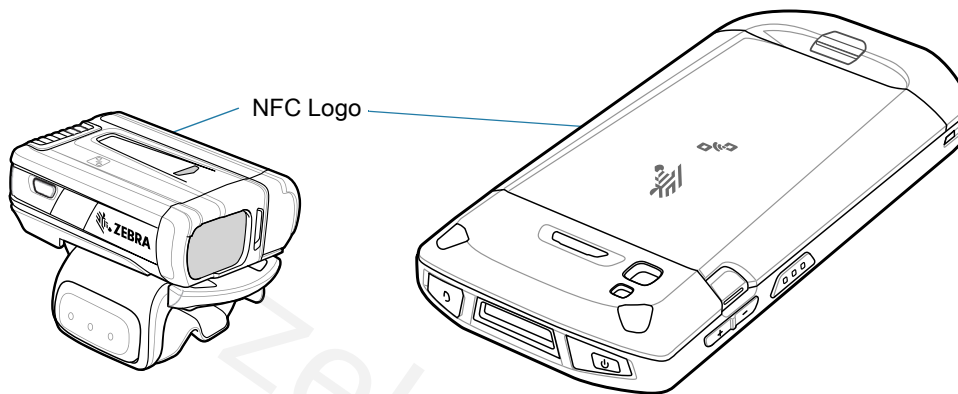
1. Ensure that the Ring Scanner is in SSI mode. Refer to the RS5100 or RS6000 User Guide for more information.
2. Ensure that NFC is enabled on the device.

3. Align the NFC icon on the Ring Scanner with the NFC antenna on the device.

The Status LED blinks blue indicating that the Ring Scanner is attempting to establish connection with the device. When connection is established, the Status LED turns off and the Ring Scanner emits a single string of low/high beeps.

A notification appears on the device screen and the  icon appears in the Status bar.

Figure 34 Align NFC Antennas (RS6000 shown)



Pairing in HID Mode Using Near Field Communication



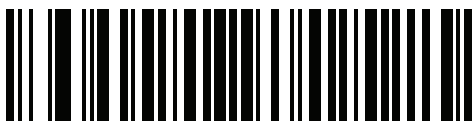
NOTE: RS5100 and RS6000 only.

The device provides the ability to pair the Ring Scanner in HID mode using NFC.

To pair in HID mode using NFC:

1. Ensure that NFC is enabled on the device.
2. Ensure that Bluetooth is enabled on the device.
3. Place the Ring Scanner in Human Interface Device (HID) mode. If the Ring Scanner is already in HID mode, skip to step 4.
 - a. Remove the battery from the Ring Scanner.
 - b. Press and hold the Restore key.
 - c. Install the battery onto the Ring Scanner.
 - d. Keep holding the Restore key for about five seconds until a chirp is heard and the Scan LEDs flash green.
 - e. Scan the barcode below to place the Ring Scanner in HID mode.

Figure 35 Ring Scanner Bluetooth HID Barcode



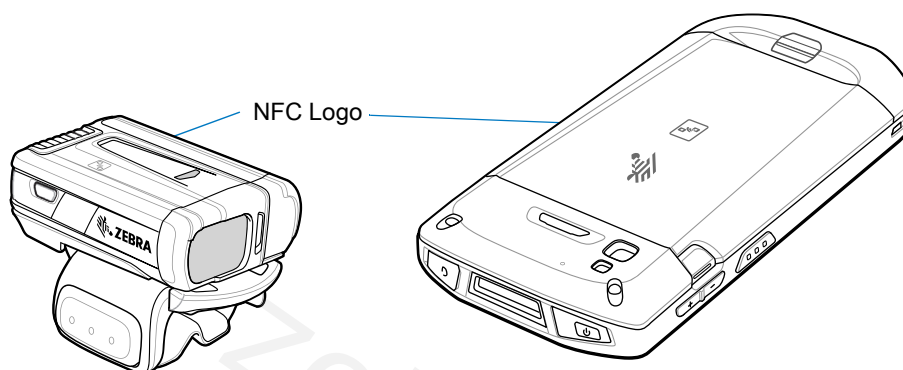
4. Remove the battery from the Ring Scanner.
5. Re-install the battery into the Ring Scanner.

- Align the NFC icon on the Ring Scanner with the NFC antenna on the device.

The Ring Scanner Status LED blinks blue indicating that the Ring Scanner is attempting to establish connection with the device. When connection is established, the Status LED turns off and the Ring Scanner emits a single string of low/high beeps.

A notification appears on the device screen and the **A** icon appears in the Status bar.

Figure 36 Align NFC Antennas (RS6000 shown)

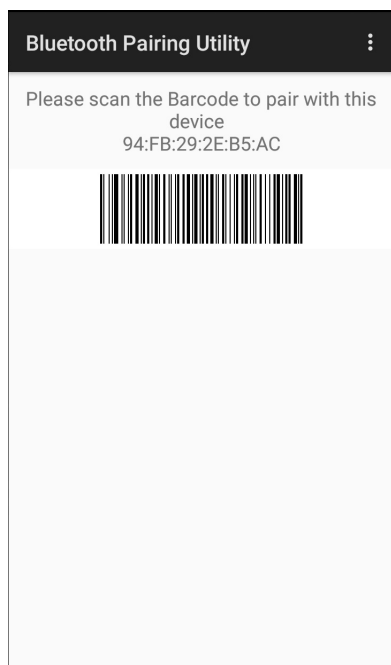


Pairing Using Simple Serial Interface

To pair the Ring Scanner with the device using SSI.

- Swipe up from the bottom of the Home screen and touch .

Figure 37 Bluetooth Pairing Utility



- Using the Ring Scanner, scan the barcode on the screen.

The Ring Scanner emits a string of high/low/high/low beeps. The Scan LED flashes green indicating that the Ring Scanner is attempting to establish connection with the device. When connection is established, the Scan LED turns off and the Ring Scanner emits one string of low/high beeps.

A notification appears on the Notification panel and the  icon appears in the Status bar.

Pairing Using Bluetooth Human Interface Device

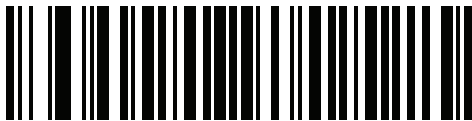
To pair the Ring Scanner with the device using Human Interface Device (HID):

- Ensure that Bluetooth is enabled on both devices.
- Ensure that the Bluetooth device to discover is in discoverable mode.
- Ensure that the two devices are within 10 meters (32.8 feet) of one another.
- Place the Ring Scanner in HID mode. If the Ring Scanner is already in HID mode, skip to step 5.
 - Remove the battery from the Ring Scanner.
 - Press and hold the Restore key.
 - Install the battery onto the Ring Scanner.
 - Keep holding the Restore key for about five seconds until a chirp is heard and the Scan LEDs flash green.
 - Scan the barcode below to place the Ring Scanner in HID mode.

Figure 38 RS507/RS507x Ring Scanner Bluetooth HID Barcode



Figure 39 RS5100 / RS6000 Ring Scanner Bluetooth HID Barcode



- Remove the battery from the Ring Scanner.
- Re-install the battery into the Ring Scanner.
- Swipe down from the Status bar to open the Quick Access panel and then touch .
- Touch **Bluetooth**.
- Touch **Pair new device**. The device begins searching for discoverable Bluetooth devices in the area and displays them under **Available devices**.
- Scroll through the list and select Ring Scanner.

The device connects to the Ring Scanner and **Connected** appears below the device name. The Bluetooth device is added to the **Paired devices** list and a trusted ("paired") connection is established.

A notification appears on Notification panel and the  icon appears in the Status bar.

Pairing a Bluetooth Scanner

Connect the scanner to the device using one of the following methods:

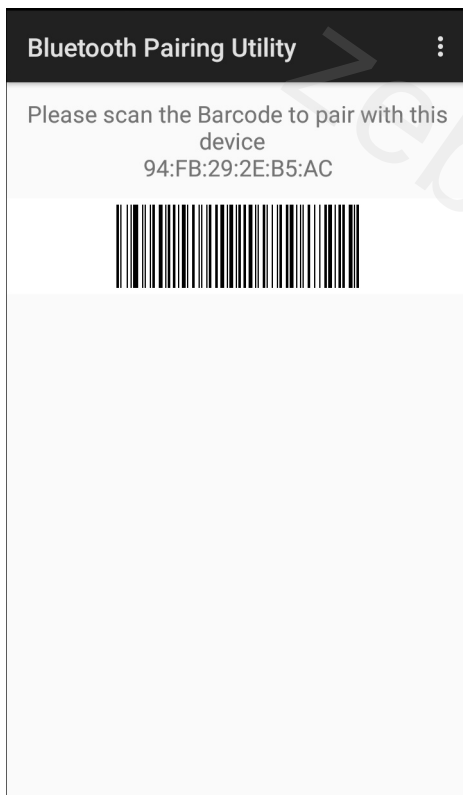
- Simple Serial Interface (SSI) mode
- Bluetooth Human Interface Device (HID) mode.

Pairing Using Simple Serial Interface

To pair the scanner with the device using SSI:

1. Ensure that the two devices are within 10 meters (32.8 feet) of one another.
2. Install the battery into the scanner.
3. On the device swipe up from the bottom of the Home screen and touch .

Figure 40 Bluetooth Pairing Utility



4. Using the scanner, scan the barcode on the screen.

The scanner emits a high/low/high/low beeps. The Scan LED flashes green indicating that the scanner is attempting to establish connection with the device. When connection is established, the Scan LED turns off and the scanner emits one string of low/high beeps.

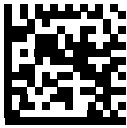
5. On the device touch the Home button.

Pairing Using Bluetooth Human Interface Device

To pair the scanner with the device using HID:

1. Remove the battery from the scanner.

2. Replace the battery.
3. After the scanner reboots, scan the barcode below to place the scanner in HID mode.



4. On the device, swipe down from the Status bar to open the Quick Access panel and then touch .
5. Touch **Bluetooth**.
6. Touch **Pair new device**. The device begins searching for discoverable Bluetooth devices in the area and displays them under **Available devices**.
7. Scroll through the list and select XXXXX xxxxxx, where XXXXX is the scanner and xxxxxx is the serial number.

The device connects to the scanner, the scanner beeps once and **Connected** appears below the device name. The Bluetooth device is added to the **Paired devices** list and a trusted ("paired") connection is established.

DataWedge

DataWedge is a utility that adds advanced barcode scanning capability to any application without writing code. It runs in the background and handles the interface to built-in barcode scanners. The captured barcode data is converted to keystrokes and sent to the target application as if it was typed on the keypad.

DataWedge allows any app on the device to get data from input sources such as a barcode scanner, MSR, RFID, voice, or serial port and manipulate the data based on options or rules.

Configure DataWedge to

- Provide data capture services from any app.
- Use a particular scanner, reader or other peripheral device.
- Properly format and transmit data to a specific app.

To configure DataWedge refer to techdocs.zebra.com/datawedge/.

Enabling DataWedge

1. Swipe up from the bottom of the Home screen and touch .
2. Touch  > **Settings**.
3. Touch the **DataWedge enabled** checkbox. A blue checkmark appears in the checkbox indicating that DataWedge is enabled.
4. Touch the Home button.

Disabling DataWedge

1. Touch .
2. Touch **Settings**.
3. Touch **DataWedge enabled**.

The blue check disappears from the checkbox indicating that DataWedge is disabled.

Supported Decoders



NOTE: DataWedge supports the decoders listed below but not all are validated on this device.

Table 10 Supported Decoders

Decoders	Camera	Internal Imager SE4710	RS5100	RS6000	RS507/RS507X	DS2278	DS3578	DS3678	LI3678	DS8178
Australian Postal	O	O	O	O	O	O	O	O	--	O
Aztec	X	X	X	X	X	X	X	X	--	X
Canadian Postal	O	O	O	O	--	--	--	--	--	--
Chinese 2 of 5	O	O	O	O	O	O	O	O	O	O
Codabar	X	X	X	X	X	X	X	X	X	X
Code 11	O	O	O	O	O	O	O	O	O	O
Code 128	X	X	X	X	X	X	X	X	X	X
Code 39	X	X	X	X	X	X	X	X	X	X
Code 93	O	O	O	O	O	O	O	O	O	O
Composite AB	O	O	O	O	O	O	O	O	--	O
Composite C	O	O	O	O	O	O	O	O	--	O
Discrete 2 of 5	O	O	O	O	O	O	O	O	O	O
Datamatrix	X	X	X	X	X	X	X	X	--	X
Dutch Postal	O	O	O	O	O	O	O	O	--	O
DotCode	X	O	O	O	O	O	O	O	O	O
EAN13	X	X	X	X	X	X	X	X	X	X
EAN8	X	X	X	X	X	X	X	X	X	X
Grid Matrix	O	O	O	O	O	O	O	O	O	O
GS1 DataBar	X	X	X	X	X	X	X	X	X	X
GS1 DataBar Expanded	X	X	X	X	X	X	X	X	X	X

Table 10 Supported Decoders (Continued)

Decoders	Camera	Internal Imager SE4710	RS5100	RS6000	RS507/RS507X	DS2278	DS3578	DS3678	LI3678	DS8178
GS1 DataBar Limited	O	O	O	O	O	O	O	O	O	O
GS1 Datamatrix	O	O	O	O	--	O	O	O	--	O
GS1 QRCode	O	O	O	O	--	O	O	O	--	O
HAN XIN	O	--	O	O	--	--	--	O	O	--
Interleaved 2 of 5	O	O	O	O	O	O	O	O	O	O
Japanese Postal	O	O	O	O	O	O	O	O	--	O
Korean 3 of 5	O	O	O	O	O	O	O	O	O	O
MAIL MARK	X	X	X	X	--	X	X	X	--	X
Matrix 2 of 5	O	O	O	O	O	O	O	O	O	O
Maxicode	X	X	X	X	X	X	X	X	--	X
MicroPDF	O	O	O	O	O	O	O	O	--	O
MicroQR	O	O	O	O	O	O	O	O	--	O
MSI	O	O	O	O	O	O	O	O	O	O
PDF417	X	X	X	X	X	X	X	X	--	X
QR Code	X	X	X	X	X	X	X	X	--	X
Decoder Signature	O	O	O	O	O	O	--	--	--	--
TLC 39	O	O	O	O	O	O	O	O	O	O
Trioptic 39	O	O	O	O	O	O	O	O	O	O
UK Postal	O	O	O	O	O	O	O	O	--	O
UPCA	X	X	X	X	X	X	X	X	X	X
UPCE0	X	X	X	X	X	X	X	X	X	X
UPCE1	O	O	O	O	O	O	O	O	O	O
US4state	O	O	O	O	O	O	O	O	--	O

Table 10 Supported Decoders (Continued)

Decoders	Camera	Internal Imager SE4710	RS5100	RS6000	RS507/RS507X	DS2278	DS3578	DS3678	LI3678	DS8178
US4state FICS	O	O	O	O	O	O	O	O	--	O
US Planet	O	O	O	O	O	O	O	O	--	O
US Postnet	O	O	O	O	O	O	O	O	--	O

Key

X = Enabled

O = Disabled

-- = Not Supported

Touch the Back button to return to the previous screen.

Wireless

This section provides information on the following wireless features:

- Wireless Local Area Network (WLAN)
- Bluetooth
- Cast
- Near Field Communications (NFC)

Wireless Local Area Networks

Wireless local area networks (WLANs) allow the device to communicate wirelessly inside a building. Before using the device on a WLAN, the facility must be set up with the required hardware to run the WLAN (sometimes known as infrastructure). The infrastructure and the device must both be properly configured to enable this communication.

Refer to the documentation provided with the infrastructure (access points (APs), access ports, switches, Radius servers, etc.) for instructions on how to set up the infrastructure.

Once the infrastructure is set up to enforce the chosen WLAN security scheme, use the **Wireless & networks** settings configure the device to match the security scheme.

The device supports the following WLAN security options:

- Open
- Wireless Equivalent Privacy (WEP)
- Wi-Fi Protected Access (WPA)/WPA2 Personal (PSK)
- WPA/WPA2/WPA3 Enterprise (EAP)
 - Protected Extensible Authentication Protocol (PEAP) - with MSCHAPV2 and GTC authentication.
 - Transport Layer Security (TLS)
 - Tunneled Transport Layer Security (TTLS) - with Password Authentication Protocol (PAP), MSCHAP and MSCHAPv2 authentication
 - Password (PWD)
 - Lightweight Extensible Authentication Protocol (LEAP).

The **Status** bar displays icons that indicate Wi-Fi network availability and Wi-Fi status.



NOTE: To extend the life of the battery, turn off Wi-Fi when not in use.

Connecting to a Wi-Fi Network

To connect to a Wi-Fi network:

1. Go to **Settings**.
2. Touch **Wi-Fi** to open the **Wi-Fi** screen. The device searches for WLANs in the area and lists them.
3. Scroll through the list and select the desired WLAN network.
4. For open networks, touch profile once or press and hold and then select **Connect** or for secure networks enter the required password or other credentials then touch **Connect**. See the system administrator for more information.

The device obtains a network address and other required information from the network using the dynamic host configuration protocol (DHCP) protocol. To configure the device with a fixed internet protocol (IP) address, see [Configuring the Device to Use a Static IP Address](#).

5. In the Wi-Fi setting field, **Connected** appears indicating that the device is connected to the WLAN.

Removing a Wi-Fi Network

To remove a remembered or connected network:

1. Go to **Settings**.
2. Touch **Network & Internet > W-Fi**.
3. Scroll down to the bottom of the list and touch **Saved networks**.
4. Touch the name of the network.
5. Touch **FORGET**.
6. Touch the Home button.

WLAN Configuration

This section provides information on configuring Wi-Fi settings.

Configuring a Secure Wi-Fi Network

1. Go to **Settings**.
2. Touch **Network & Internet > Wi-Fi**.
3. Slide the switch to the **ON** position.
4. The device searches for WLANs in the area and lists them on the screen.
5. Scroll through the list and select the desired WLAN network.
6. Touch the desired network. If the network security is **Open**, the device automatically connects to the network. For all other network security a dialog box appears.
7. If the network security is WPA/WPA2-Personal or WEP, enter the required password and then touch **Connect**.
8. If the network security is WPA/WPA2/WPA3 Enterprise:
 - Touch the **EAP method** drop-down list and select one of the following:
 - **PEAP**

- **TLS**
- **TTLS**
- **PWD**
- **LEAP**
- Touch the **Phase 2 authentication** drop-down list and select an authentication method.
- If required, touch **CA certificate** and select a Certification Authority (CA) certificate. Note: Certificates are installed using the **Security** settings.
- If required, touch **User certificate** and select a user certificate. Note: User certificates are installed using the Location & security settings.
- If required, in the **Identity** text box, enter the username credentials.
- If desired, in the **Anonymous identity** text box, enter an anonymous identity username.
- If required, in the **Password** text box, enter the password for then given identity.



NOTE: By default, the network Proxy is set to **None** and the IP settings is set to **DHCP**. See Configuring for a Proxy Server for setting connection to a proxy server and see Configuring the Device to Use a Static IP Address for setting the device to use a static IP address.

9. Touch **Connect**.

10. Touch the Home button.

Manually Adding a Wi-Fi Network

Manually add a Wi-Fi network if the network does not broadcast its name (SSID) or to add a Wi-Fi network when out of range.

1. Go to **Settings**.
2. Touch **Network & Internet > Wi-Fi**.
3. Slide the Wi-Fi switch to the **On** position.
4. Scroll to the bottom of the list and select **Add network**.
5. In the **Network name** text box, enter the name of the Wi-Fi network.
6. In the **Security** drop-down list, set the type of security to:
 - **None**
 - **WEP**
 - **WPA/WPA2-Personal**
 - **WPA/WPA2/WPA3-Enterprise**
7. If the network security is **None**, touch **Save**.
8. If the network security is **WEP** or **WPA/WPA2-Personal**, enter the required password and then touch **Save**.
9. If the network security is **WPA/WPA2/WPA3-Enterprise**:
 - Touch the **EAP method** drop-down list and select one of the following:
 - **PEAP**
 - **TLS**
 - **TTLS**

- **PWD**
- **LEAP.**
- Touch the **Phase 2 authentication** drop-down list and select an authentication method.
- If required, touch **CA certificate** and select a Certification Authority (CA) certificate. Note: Certificates are installed using the **Security** settings.
- If required, touch **User certificate** and select a user certificate. Note: User certificates are installed using the **Security** settings.
- If required, in the **Identity** text box, enter the username credentials.
- If desired, in the **Anonymous** identity text box, enter an anonymous identity username.
- If required, in the **Password** text box, enter the password for the given identity.



NOTE: By default, the network Proxy is set to **None** and the IP settings is set to **DHCP**. See [Configuring for a Proxy Server on page 88](#) for setting connection to a proxy server and see [Configuring the Device to Use a Static IP Address on page 89](#) for setting the device to use a static IP address.

10. Touch **Save**. To connect to the saved network, touch and hold on the saved network and select **Connect to network**.

11. Touch the Home button.

Configuring for a Proxy Server

A proxy server is a server that acts as an intermediary for requests from clients seeking resources from other servers. A client connects to the proxy server and requests some service, such as a file, connection, web page, or other resource, available from a different server. The proxy server evaluates the request according to its filtering rules. For example, it may filter traffic by IP address or protocol. If the request is validated by the filter, the proxy provides the resource by connecting to the relevant server and requesting the service on behalf of the client.

It is important for enterprise customers to be able to set up secure computing environments within their companies, making proxy configuration essential. Proxy configuration acts as a security barrier ensuring that the proxy server monitors all traffic between the Internet and the intranet. This is normally an integral part of security enforcement in corporate firewalls within intranets.

- 1.** Go to **Settings**.
- 2.** Touch **Network & Internet > Wi-Fi**.
- 3.** Slide the Wi-Fi switch to the **On** position.
- 4.** In the network dialog box, select and touch a network.
- 5.** Touch **Advanced options**.
- 6.** Touch **Proxy** and select **Manual**.
- 7.** In the **Proxy hostname** text box, enter the address of the proxy server.
- 8.** In the **Proxy port** text box, enter the port number for the proxy server.
- 9.** In the **Bypass proxy for** text box, enter addresses for web sites that are not required to go through the proxy server. Use a comma “,” between addresses. Do not use spaces or carriage returns between addresses.
- 10.** Touch **Connect**.
- 11.** Touch the Home button.

Configuring the Device to Use a Static IP Address

By default, the device is configured to use Dynamic Host Configuration Protocol (DHCP) to assign an Internet protocol (IP) address when connecting to a wireless network.

1. Go to **Settings**.
2. Touch **Network & Internet > Wi-Fi**.
3. Slide the Wi-Fi switch to the **On** position.
4. In the network dialog box, select and touch a network.
5. Touch **Advanced options**.
6. Touch **IP settings** and select **Static**.
7. In the **IP address** text box, enter an IP address for the device.
8. If required, in the **Gateway** text box, enter a gateway address for the device.
9. If required, in the **Network prefix length** text box, enter the prefix length.
10. If required, in the **DNS 1** text box, enter a Domain Name System (DNS) address.
11. If required, in the **DNS 2** text box, enter a DNS address.
12. Touch **Connect**.
13. Touch the Home button.

Wi-Fi Preferences

Use the **Wi-Fi preferences** to configure advanced Wi-Fi settings. From the Wi-Fi screen scroll down to the bottom of the screen and touch **Wi-Fi preferences**.

- **Turn on W-Fi automatically** - When enabled, Wi-Fi automatically turns back on when near high quality saved networks.
- **Open network notification** - When enabled, notifies the user when an open network is available.
- **Advanced** - Touch to expand options.
 - **Additional settings** - See Additional Settings.
 - **Install Certificates** - Touch to install certificates.
 - **Network rating provider** - Disabled (AOSP devices). To help determine what constitutes a good Wi-Fi network, Android supports external Network rating providers that provide information about the quality of open Wi-Fi networks. Select one of the providers listed or **None**. If none are available or selected, the Connect to open networks feature is disabled.
 - **Wi-Fi Direct** - Displays a list of devices available for a direct Wi-Fi connection.
 - **MAC address** - Displays the Media Access Control (MAC) address of the device when connecting to Wi-Fi networks.
 - **IP address** - Displays the IP address of the device when connecting to Wi-Fi networks.

Additional Wi-Fi Settings



NOTE: Additional Wi-Fi settings are for the device, not for a specific wireless network.

Use the **Additional Settings** to configure additional Wi-Fi settings. To view the additional Wi-Fi settings, scroll to the bottom of the **Wi-Fi** screen and touch **Wi-Fi Preferences > Advanced > Additional settings**.

- **Regulatory**
 - **Country Selection** - Displays the acquired country code if 802.11d is enabled, else it displays the currently selected country code.
 - **Region code** - Displays the current region code.
- **Band and Channel Selection**
 - **Wi-Fi frequency band** - Set the frequency band to: **Auto** (default), **5 GHz only** or **2.4 GHz only**.
 - **Available channels (2.4 GHz)** - Touch to display the **Available channels** menu. Select specific channels and touch **OK**.
 - **Available channels (5 GHz)** - Touch to display the **Available channels** menu. Select specific channels and touch **OK**.
- **Logging**
 - **Advanced Logging** – Touch to enable advanced logging or change the log directory.
 - **Wireless logs** - Use to capture Wi-Fi log files.
 - **Fusion Logger** - Touch to open the **Fusion Logger** application. This application maintains a history of high level WLAN events which helps to understand the status of connectivity.
 - **Fusion Status** - Touch to display live status of WLAN state. Also provides information about the device and connected profile.
- **About**
 - **Version** - Displays the current Fusion information.

Wi-Fi Direct

Wi-Fi Direct devices can connect to each other without having to go through an access point. Wi-Fi Direct devices establish their own ad-hoc network when required, letting you see which devices are available and choose which one you want to connect to.

1. Go to **Settings**.
2. Touch **Wi-Fi > Wi-Fi preferences > Advanced > Wi-Fi Direct**. The device begins searching for another Wi-Fi Direct device.
3. Under **Peer devices**, touch the other device name.
4. On the other device, select **Accept**.

Connected appears on the device. On both devices, in their respective Wi-Fi Direct screens, the other device name appears in the list.

Bluetooth

Bluetooth devices can communicate without wires, using frequency-hopping spread spectrum (FHSS) radio frequency (RF) to transmit and receive data in the 2.4 GHz Industry Scientific and Medical (ISM) band (802.15.1). Bluetooth wireless technology is specifically designed for short-range (10 m (32.8 ft)) communication and low power consumption.

Devices with Bluetooth capabilities can exchange information (for example, files, appointments, and tasks) with other Bluetooth enabled devices such as printers, access points, and other mobile devices.

The device supports Bluetooth Low Energy. Bluetooth Low Energy is targeted at applications in the healthcare, fitness, security, and home entertainment industries. It provides reduced power consumption and cost while maintaining standard Bluetooth range.

Adaptive Frequency Hopping

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

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

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

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



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

Security

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

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

Recommendations are:

- Perform pairing in a secure environment
- Keep PIN codes private and do not store the PIN codes in the device
- Implement application-level security.

Bluetooth Profiles

The device supports the Bluetooth services listed.

Table 11 Bluetooth Profiles

Profile	Description
Service Discovery Protocol (SDP)	Handles the search for known and specific services as well as general services.
Serial Port Profile (SPP)	Allows use of RFCOMM protocol to emulate serial cable connection between two Bluetooth peer devices. For example, connecting the device to a printer.
Object Push Profile (OPP)	Allows the device to push and pull objects to and from a push server.
Advanced Audio Distribution Profile (A2DP)	Allows the device to stream stereo-quality audio to a wireless headset or wireless stereo speakers.
Audio/Video Remote Control Profile (AVRCP)	Allows the device to control A/V equipment to which a user has access. It may be used in concert with A2DP.
Personal Area Network (PAN)	Allows the use of Bluetooth Network Encapsulation Protocol to provide L3 networking capabilities over a Bluetooth link. Only PANU role is supported.
Human Interface Device Profile (HID)	Allows Bluetooth keyboards, pointing devices, gaming devices and remote monitoring devices to connect to the device.
Headset Profile (HSP)	Allows a hands-free device, such as a Bluetooth headset, to place and receive calls on the device.
Hands-Free Profile (HFP)	Allows car hands-free kits to communicate with the device in the car.
Phone Book Access Profile (PBAP)	Allows exchange of Phone Book Objects between a car kit and a mobile device to allow the car kit to display the name of the incoming caller; allow the car kit to download the phone book so you can initiate a call from the car display.
Out of Band (OOB)	Allows exchange of information used in the pairing process. Pairing is completed using the Bluetooth radio, but requires information from the OOB mechanism. Using OOB with NFC enables pairing when devices simply get close, rather than requiring a lengthy discovery process.
Symbol Serial Interface (SSI)	Allows for communication with Bluetooth Imager.
Generic Attribute Profile (GATT)	Provides profile discovery and description services for Bluetooth Low Energy protocol. It defines how attributes are grouped together into sets to form services.
Dial Up Networking (DUN)	Provides a standard to access the Internet and other dial-up services over Bluetooth.
Generic Access Profile (GAP)	Use for device discovery and authentication.
Object EXchange (OBEX)	Facilitates the exchange of binary objects between devices.

Bluetooth Power States

The Bluetooth radio is off by default.

- Suspend - When the device goes into suspend mode, the Bluetooth radio stays on.
- Airplane Mode - When the device is placed in Airplane Mode, the Bluetooth radio turns off. When Airplane mode is disabled, the Bluetooth radio returns to the prior state. When in Airplane Mode, the Bluetooth radio can be turned back on if desired.

Bluetooth Radio Power

Turn off the Bluetooth radio to save power or if entering an area with radio restrictions (for example, an airplane). When the radio is off, other Bluetooth devices cannot see or connect to the device. Turn on the Bluetooth radio to exchange information with other Bluetooth devices (within range). Communicate only with Bluetooth radios in close proximity.



NOTE: To achieve the best battery life, turn off radios when not in use.

Enabling Bluetooth

1. Swipe down from the Status bar to open the Notification panel.
2. Touch  to turn Bluetooth on.
3. Touch the Home button.

Disabling Bluetooth

1. Swipe down from the Status bar to open the Notification panel.
2. Touch  to turn Bluetooth off.
3. Touch the Home button.

Discovering Bluetooth Device(s)

The device can receive information from discovered devices without pairing. However, once paired, the device and a paired device exchange information automatically when the Bluetooth radio is on.

1. Ensure that Bluetooth is enabled on both devices.
2. Ensure that the Bluetooth device to discover is in discoverable mode.
3. Ensure that the two devices are within 10 meters (32.8 feet) of one another.
4. Swipe down from the Status bar to open the Quick Access panel.
5. Touch and hold **Bluetooth**.
6. Touch **Pair new device**. The device begins searching for discoverable Bluetooth devices in the area and displays them under **Available devices**.
7. Scroll through the list and select a device. The Bluetooth pairing request dialog box appears.
8. Touch **Pair** on both devices.
9. The Bluetooth device is added to the **Paired devices** list and a trusted ("paired") connection is established.

Changing the Bluetooth Name

By default, the device has a generic Bluetooth name that is visible to other devices when connected.

1. Go to **Settings**.
2. Touch **Connected devices > Connection preferences > Bluetooth**.
3. If Bluetooth is not on, move the switch to turn Bluetooth on.
4. Touch **Device name**.
5. Enter a name and touch **RENAME**.
6. Touch the Home button.

Connecting to a Bluetooth Device

Once paired, connect to a Bluetooth device.

1. Go to **Settings**.
2. Touch **Connected devices > Connection preferences > Bluetooth**.
3. In the list, touch the unconnected Bluetooth device.

When connected, **Connected** appears below the device name.

Selecting Profiles on the Bluetooth Device

Some Bluetooth devices have multiple profiles.

1. Go to **Settings**.
2. Touch **Connected devices > Connection preferences > Bluetooth**.
3. In the **Paired Devices** list, touch  next to the device name.
4. Turn on or off a profile to allow the device to use that profile.
5. Touch the Home button.

Unpairing a Bluetooth Device

Unpairing a Bluetooth device erases all pairing information.

1. Go to **Settings**.
2. Touch **Connected devices > Connection preferences > Bluetooth**.
3. In the **Paired Devices** list, touch  next to the device name.
4. Touch **FORGET**.
5. Touch the Home button.

Cast

Use **Cast** to mirror the device screen on a Miracast enabled wireless display.

1. Go to **Settings**.
2. Touch **Connected devices > Connection preferences > Cast**.

3. Touch > **Enable wireless display.**

The device searches for nearby Miracast devices and lists them.

4. Touch a device to begin casting.

5. Touch the Home button.

Near Field Communications

NFC/HF RFID is a short-range wireless connectivity technology standard that enables secure transaction between a reader and a contactless smartcard. The technology is based on ISO/IEC 14443 type A and B (proximity) and ISO/IEC 15693 (vicinity) standards, using the HF 13.56 MHz unlicensed band.

The device supports the following operating modes:

- Reader mode
- Peer-to-Peer communication
- Card Emulation mode.

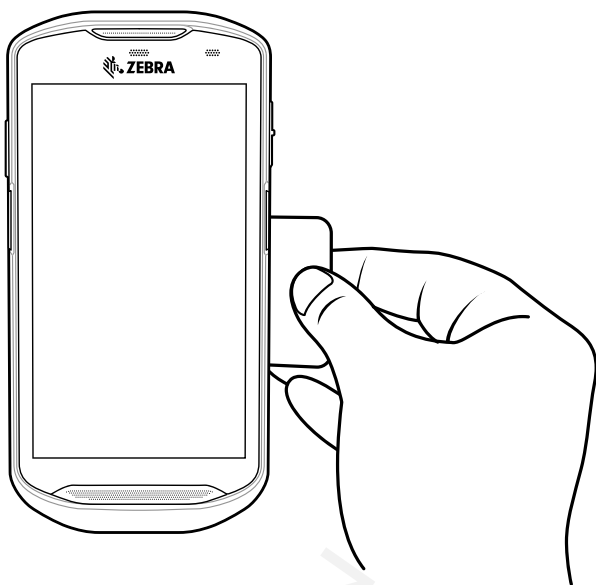
Using NFC, the device can:

- Read contactless cards such as contactless tickets, ID cards and ePassport.
- Read and write information to contactless cards such as SmartPosters and tickets, as well as devices with NFC interface such as vending machines.
- Read information from supported medical sensors.
- Pair with supported Bluetooth devices such as printers , ring scanners (ex. RS6000), and headsets (ex. HS3100).
- Exchange data with another NFC device.
- Emulate contactless card such as payment, ticket, or SmartPoster.

The device NFC antenna is positioned to read NFC cards from the top of the device while the device is being held.

Reading NFC Cards

Read contactless cards using NFC.

Figure 41 Reading Cards

1. Launch an NFC enabled application.
2. Hold device as shown.
3. Move the device close to the NFC card until it detects the card.
4. Hold the card steadily until the transaction is complete (usually indicated by the application).

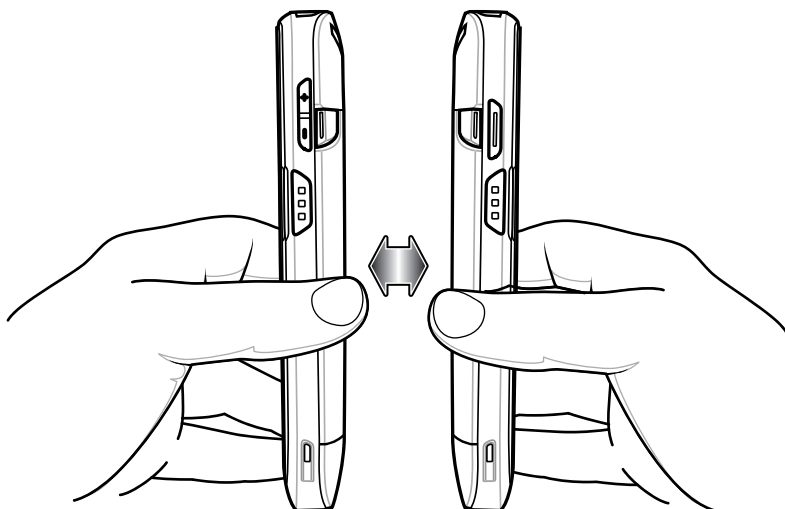
Sharing Information Using NFC

You can beam content like a web page, contact cards, pictures, YouTube links or location information from your screen to another device by bringing the devices together back to back.

Make sure both devices are unlocked, support NFC, and have both NFC and Android Beam turned on.

1. Open a screen that contains a web page, video, photo or contact.
2. Move the back of the device toward the back of the other device.

Sharing Data Using NFC



When the devices connect, a sound emits, the image on the screen reduces in size, the message **Touch to beam** displays.

3. Touch anywhere on the screen.

The transfer begins.

Enterprise NFC Settings

Improve NFC performance or increase battery life by selecting which NFC features to use on the device.

- **Card Detection Mode** - Select a card detection mode.
 - **Low** - Increases battery life by lowering the NFC detection speed.
 - **Hybrid** - Provides a balance between NFC detection speed and battery life (default).
 - **Standard** - Provides the best NFC detection speed, but reduces battery life.
- **Supported Card Technology** - Select an option to detect only one NFC tag type, increasing battery life, but reducing detection speed.
 - **All (Default)** - Detects all NFC tag types. This provides the best detection speed, but reduces battery life.
 - **ISO 14443 Type A/B**
 - **FeliCa**
 - **ISO15693**
- **Other NFC settings available with Zebra administrator tools (CSP)** - Allows configuration of additional Enterprise NFC Settings through staging tools and Mobile Device Management (MDM) solutions with an MX version that supports the Enterprise NFC Settings Configuration Service Provider (CSP). For more information on using the Enterprise NFC Settings CSP, refer to: techdocs.zebra.com.

Accessories

This section provides information for using the accessories for the device. [Table 12](#) lists the accessories available for the device.

Table 12 Accessories

Accessory	Part Number	Description
Cradles		
1-Slot USB/Charge Only Cradle Kit	CRD-TC51-1SCU-01	Provides device charging and communication. Includes cradle, power supply (PWR-BGA12V50W0WW) and DC line cord.
1-Slot Workstation Docking Cradle	CRD-TC5X-1SWS-01	Provides device charging and contains additional ports for HDMI, Ethernet, and USB ports that enable device to be used as a workstation computer when connected to a HDMI monitor, keyboard and mouse. Includes (PWR-BGA12V50W0WW) and DC line cord.
2-Slot USB/Ethernet Cradle	CRD-TC5X-2SETH	Provides device and spare battery charging, and USB and Ethernet communication. Includes cradle, power supply (PWR-BGA12V50W0WW) and DC line cord.
4-Slot Charge Only Cradle with Battery Charger Kit	CRD-TC51-5SC4B-01	Charges up to four devices and four spare batteries. Includes cradle, power supply (PWR-BGA12V108W0WW) and DC line cord
5-Slot Charge Only Cradle Kit	CRD-TC51-5SCHG-01	Charges up to five devices. Includes, cradle, power supply (PWR-BGA12V108W0WW) and DC line cord.
5-Slot Ethernet Cradle Kit	CRD-TC51-5SETH-01	Provides device charging and provides Ethernet communication for up to five devices. Includes cradle, power supply (PWR-BGA12V108W0WW) and DC line cord.
Cradle Mount	BRKT-SCRD-SMRK-01	Mounts the 5-Slot Charge Only Cradle, 5-Slot Ethernet Cradle, and 4-Slot Battery Charger to a wall or rack.
USB-Ethernet Adapter	KT-TC51-ETH1-01	Provides USB and Ethernet communication with the 1-Slot USB/Charge Only Cradle Kit.

Table 12 Accessories (Continued)

Accessory	Part Number	Description
Batteries and Chargers		
PowerPrecisionPlus Battery	BTRY-TC51-43MA1-01 BTRY-TC51-43MA1-10	Replacement battery (single pack). Replacement battery (10-pack).
4-Slot Battery Charger Kit	SAC-TC51-4SCHG-01	Charges up to four battery packs. Includes cradle, power supply (PWR-BGA12V50W0WW) and DC line cord.
Charge and Communication Cables		
Rugged Charge/USB Cable	CBL-TC51-USB1-01	Provides communication and power to the device. Requires power supply PWR-WUA5V12W0xx.
Rugged USB-C Adapter	ADPTR-TC56-USBC-01	Provides communication and power to the device using a USB-C cable (CBL-TC5X-USBC2A-01).
USB-C Communication and Charge Cable	CBL-TC5X-USBC2A-01	Provides UBC-A to USB-C communication and power to the device.
USB Communication Cable	25-124330-01R	Provides micro USB to USB communication for use with 1-Slot USB/Charge Only Cradle Kit.
Audio Accessories		
2.5 mm Audio Adapter	CBL-TC51-HDST25-01	Plugs into the device and provides audio to a wired headset with 2.5 mm plug.
2.5 mm Headset	HDST-25MM-PTVP-01	Use for PTT and VoIP calls.
3.5 mm Audio Adapter	CBL-TC51-HDST35-01	Plugs into the device and provides audio to a wired headset with collared 3.5 mm plug.
3.5 mm Headset	HDST-35MM-PTVP-01	Use for PTT and VoIP calls.
Miscellaneous		
Rugged Boot	SG-TC5X-EXO1-01	Provides additional protection for the device.
Trigger Handle	TRG-TC51-SNP1-01	Adds gun-style handle with a scanner trigger for comfortable and productive scanning. Requires Rugged Boot.
Trigger Handle Kit (with Rugged Boot)	TRG-TC51-TRG1-01	Adds gun-style handle with a scanner trigger for comfortable and productive scanning.
Screen Protector	KT-TC51-SCRNP1-01	Add additional screen protection.
SmartDEX Solution	DEX30	Provides wireless DEX communications to the device.
Wrist Lanyard	SG-PD40-WLD1-01	Use to hold the device on wrist. For use with Trigger Handle or Rugged Boot.
Rugged I/O Connector	ADP-TC51-RGIO1-03	Replacement Rugged I/O Connector (3-pack).
Carrying Solutions		
Soft Holster	SG-TC51-HLSTR1-01	Use to hold the device on hip. Accepts device with Rugged Boot and Trigger Handle

Table 12 Accessories (Continued)

Accessory	Part Number	Description
Hand Strap	SG-TC51-EHDSTP1-03	Replacement hand strap with hand strap mounting clip (3-pack).
Basic Hand Strap	SG-TC51-BHDSTP1-03	Provide a hand strap to assist in holding the device without a Rugged Boot.
Stylus and Coiled Tether	SG-TC7X-STYLUS-03	Stylus with coiled tether (3-pack).
Power Supplies		
Power Supply	PWR-BGA12V50W0WW	Provides power to the 1-Slot USB Charge cradle and 4-Slot Spare Battery Charger. Requires AC line cord.
Power Supply	PWR-BGA12V108W0WW	Provides power to the 4-Slot Charge Only Cradle with battery Charger, 5-Slot Charge Only cradle and the 5-Slot Ethernet Cradle. Requires DC Line Cord, p/n 50-16002-029R and country specific three wire grounded AC line cord sold separately.
Power Supply	PWR-WUA5V12W0US	Provides 12 VDC, 2.5 A power to the Rugged Charge/USB cable. Includes plug adapter for use in the United States.
Power Supply	PWR-WUA5V12W0GB	Provides 12 VDC, 2.5 A power to the Rugged Charge/USB cable. Includes plug adapter for use in the European Union.
Power Supply	PWR-WUA5V12W0EU	Provides 12 VDC, 2.5 A power to the Rugged Charge/USB cable. Includes plug adapter for use in the United Kingdom.
Power Supply	PWR-WUA5V12W0AU	Provides 12 VDC, 2.5 A power to the Rugged Charge/USB cable. Includes plug adapter for use in Australia.
Power Supply	PWR-WUA5V12W0CN	Provides 12 VDC, 2.5 A power to the Rugged Charge/USB cable. Includes plug adapter for use in China.
Power Supply	PWR-WUA5V12W0IN	Provides 12 VDC, 2.5 A power to the Rugged Charge/USB cable. Includes plug adapter for use in India.
Power Supply	PWR-WUA5V12W0KR	Provides 12 VDC, 2.5 A power to the Rugged Charge/USB cable. Includes plug adapter for use in Korea.
Power Supply	PWR-WUA5V12W0BR	Provides 12 VDC, 2.5 A power to the Rugged Charge/USB cable. Includes plug adapter for use in Brazil.
DC Line Cord	CBL-DC-381A1-01	Provides power from the power supply (PWR-BGA12V108W0WW) to the 4-Slot Charge Only Cradle with Battery Charger, 5-Slot Charge Only Cradle and 5-Slot Ethernet Cradle.

Table 12 Accessories (Continued)

Accessory	Part Number	Description
DC Line Cord	CBL-DC-388A1-01	Provides power from the power supply (PWR-BGA12V50W0WW) to the 1-Slot USB/Charge Only Cradle and 4-Slot Battery Charger.
2-way DC Cable	CBL-DC-523A1-01	Connects one power supply (PWR-BGA12V108W0WW) to two 4-Slot Battery Chargers.
US AC Line Cord	23844-00-00R	Provide power to power supplies.

Battery Charging

Main Battery Charging

The device's Charging/Notification LED indicates the status of the battery charging in the device. See [Table 2 on page 21](#) for device charging status. The battery charges from fully depleted to 90% in approximately 2.5 hours, and from fully depleted to 100% in approximately three hours.



NOTE: In many cases the 90% charge provides plenty of charge for daily use. A full 100% charge lasts for approximately 14 hours of use.

To achieve the best fast charging results use only Zebra charging accessories and batteries. Charge batteries at room temperature with the device in sleep mode.

Spare Battery Charging

The Spare Battery Charging LED on the cup indicates the status of the spare battery charging. The battery charges from fully depleted to 90% in approximately 2.3 hours, and from fully depleted to 100% in approximately three hours.



NOTE: In many cases the 90% charge provides plenty of charge for daily use. A full 100% charge lasts for approximately 14 hours of use.

To achieve the best fast charging results use only Zebra charging accessories and batteries.

Table 13 Spare Battery LED Charging Indicators

LED	LED	Indication
Solid amber		Spare battery is charging.
Solid amber with alternate bright amber		Best spare battery is charging. Not available on 2-Slot USB/Ethernet Cradle.
Solid Green		Spare battery charging is complete.
Solid Green with alternate bright green		Best spare battery charging is complete. Not available on 2-Slot USB/Ethernet Cradle.

Table 13 Spare Battery LED Charging Indicators (Continued)

LED	LED	Indication
Solid Red		Spare battery is charging and battery is at the end of useful life. Charging complete and battery is at the end of useful life.
Fast Blinking Red (2 blinks/second)		Error in charging; check placement of spare battery and battery is at the end of useful life.
Off		No spare battery in slot. Spare battery not placed in slot correctly. Cradle is not powered.

Charging Temperature

Charge batteries in temperatures from 5°C to 40°C (41°F to 104°F). The device or cradle always performs battery charging in a safe and intelligent manner. At higher temperatures (for example: approximately +37°C (+98°F)) the device or cradle may for small periods of time alternately enable and disable battery charging to keep the battery at acceptable temperatures. The device and cradle indicates when charging is disabled due to abnormal temperatures via its LED.

1-Slot USB Charge Cradle

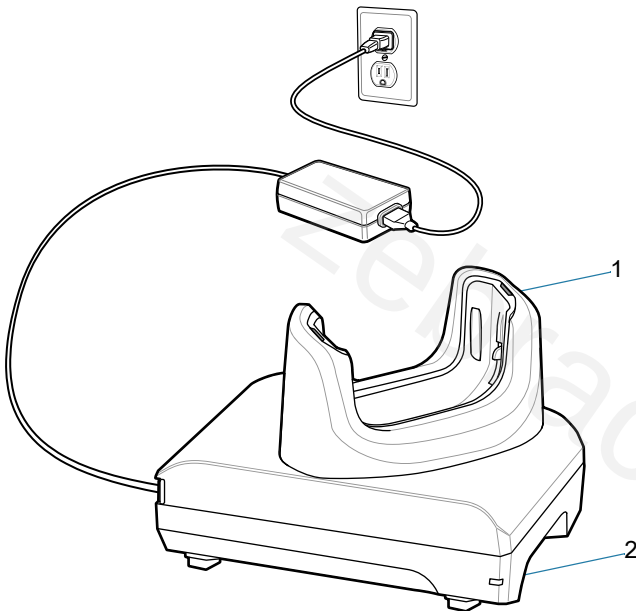


CAUTION: Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines](#) on page 179.

The 1-Slot USB Charge Cradle:

- Provides 5 VDC power for operating the device.
- Charges the device's battery.
- Provides USB communication with host computer.

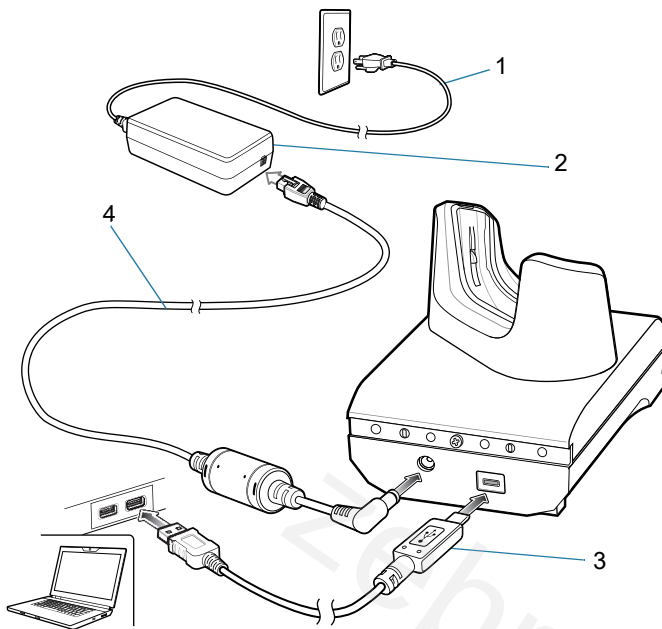
Figure 42 1-Slot USB Charge Cradle



1	Cup Insert
2	Power LED

Setup

Figure 43 1-Slot USB Charge Cradle Setup



1	AC line cord
2	Power supply
3	USB cable
4	DC line cord

Charging the Device

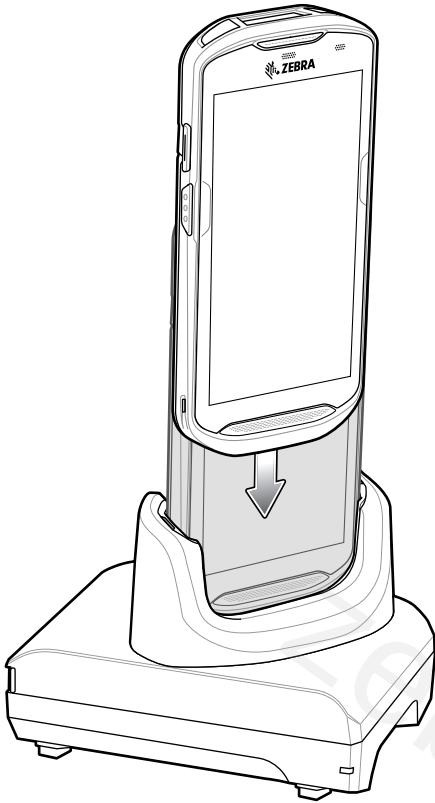
To charge a device:



NOTE: If the device has a Rugged Boot, remove the cup insert before inserting the device.

By default, the device includes an interface connector. If the interface connector is removed for USB Type C cable connectivity, then it must be replaced before charging or receiving an Ethernet IP address if placed in a cradle.

1. Insert the device into the slot to begin charging.

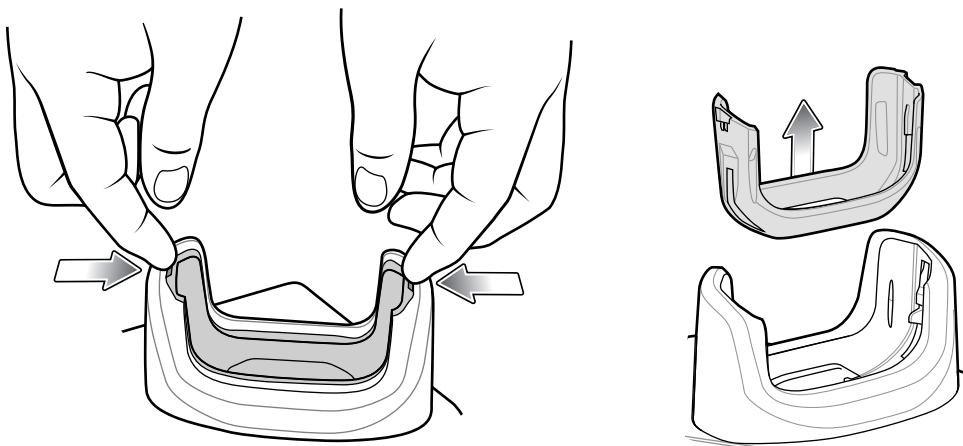


2. Ensure the device is seated properly.

Inserting a Device with Rugged Boot into Cradle

Each cradle cup has an insert that must be removed prior to inserting the device with Rugged Boot. Remove the insert and then insert the device into the cup.

Figure 44 Remove Insert from Cup



1-Slot Workstation Docking Cradle

The TC5X Workstation Cradle is an enhanced single-slot charging cradle with additional ports for HDMI, Ethernet, and four USB ports that enable a device to be used as a workstation computer when connected to a HDMI monitor, keyboard and mouse.

The workstation cradle provide:

- 5 VDC power for operating the device.
- Three 0.5 mA USB ports for USB devices (keyboard, mouse, USB scanner, etc.).
- One 1.5 mA USB port for a USB device.
- One HDMI port for connection to a monitor.

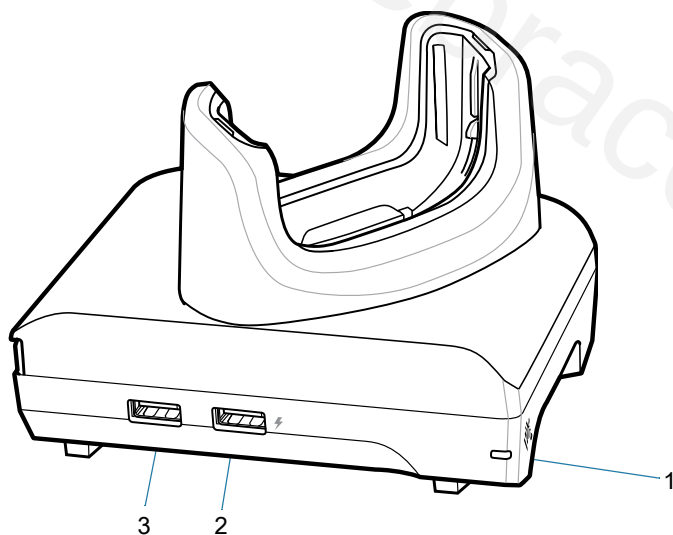


NOTE: If the user also wants audio support, they need to use a monitor that has speakers (audio through the HDMI connection).

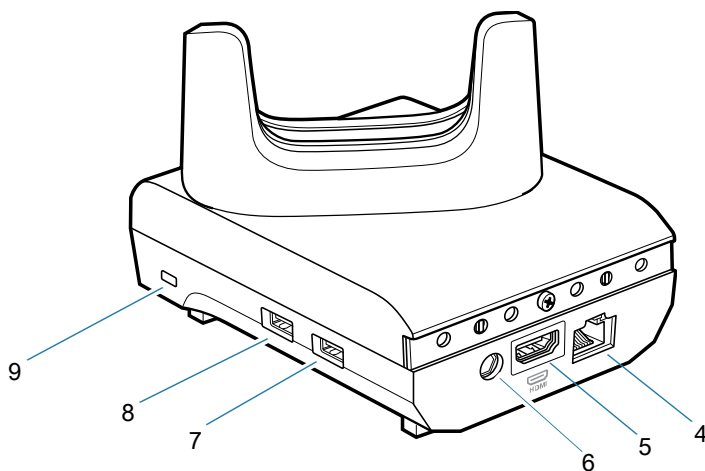
If the user also wants to support a touch monitor, they need to use a monitor that supports touch inputs and connect the feature to one of the USB ports of the cradle.

- One Ethernet port for connection to a wired Ethernet network.

Figure 45 Left Side View



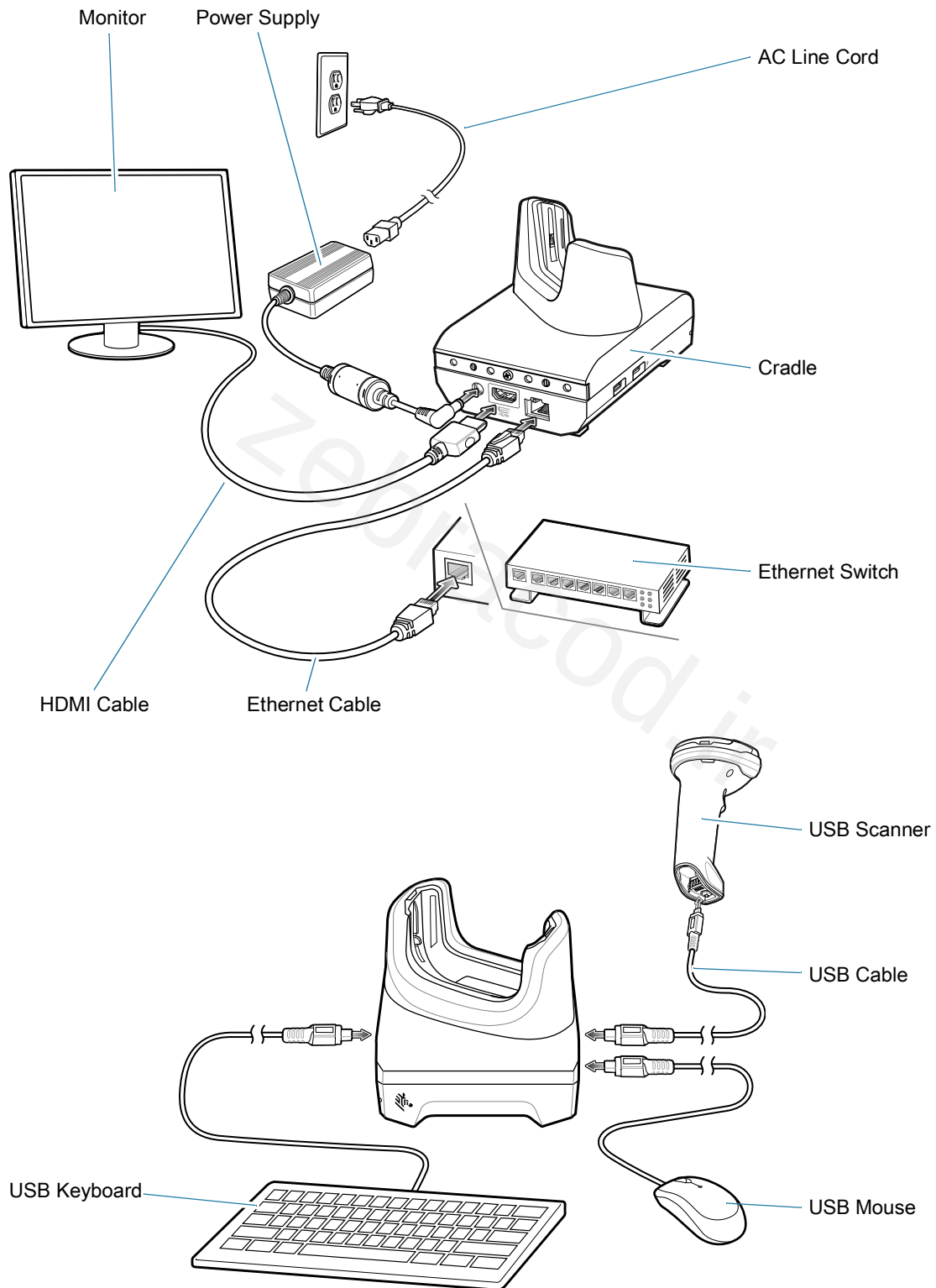
1	Power LED
2	1.5 mA USB Port
3	0.5 mA USB Port

Figure 46 Rear/Right Side View

4	Ethernet Port
5	HDMI Port
6	Power Port
7	USB Type A Port
8	USB Type A Port
9	Kensington Slot

Setup

Figure 47 Workstation Cradle Setup



Ethernet Setup

See [Ethernet Settings](#) on page 126.

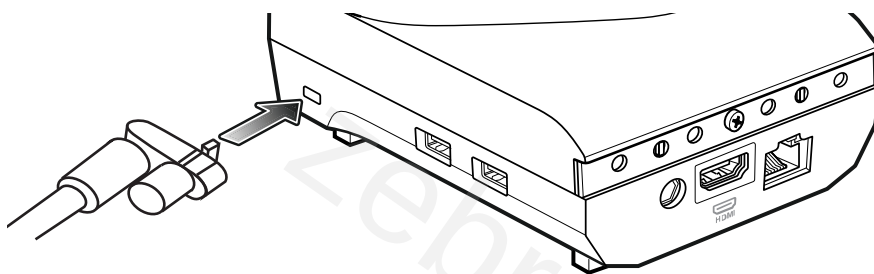
Scanner Setup

The workstation cradle only supports a USB scanner in Human Interface Device (HID) mode. Refer to the scanner Product Reference Guide for information on configuring the scanner to HID mode.

Security

The cradle provides a Kensington Slot to secure the cradle using a Kensington locking cable.

Figure 48 Securing Cradle with Kensington Lock



Using the Workstation Cradle

Turn on the device.

1. Insert the device into the cradle.

The device screen automatically rotates and mirrors on the connected monitor.

Changing Monitor Resolution

Screen resolution is automatically detected by the device when placed in the cradle. To manually change the external monitor screen resolution:

1. Go to **Settings > Display > External screen resolution**.
2. Select the a resolution for the attached monitor.
3. Insert the device into the cradle.

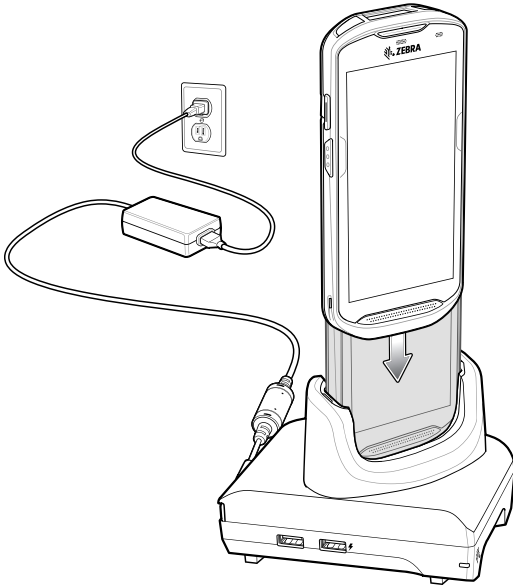
Charging the Device

To charge a device:



NOTE: If the device has a Rugged Boot, remove the cup insert before inserting the device.

1. Insert the device into the slot to begin charging.

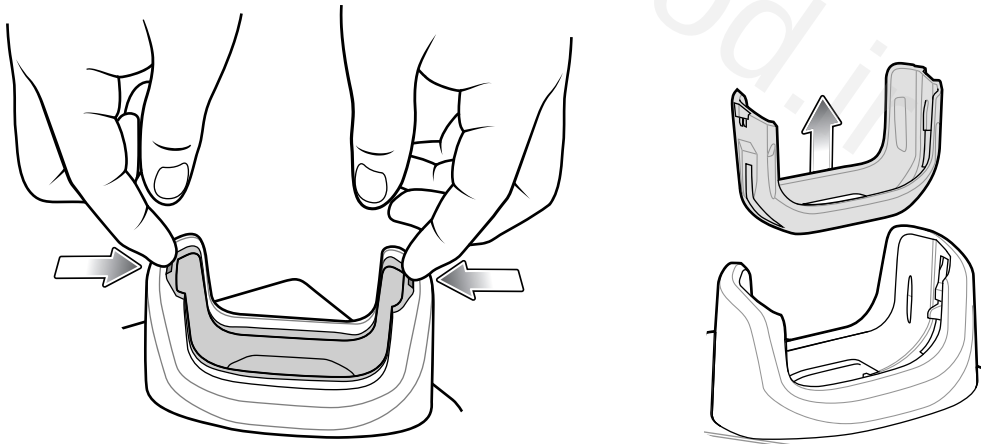


2. Ensure the device is seated properly.

Inserting a TC5X with Rugged Boot into Cradle

Each cradle cup has an insert that must be removed prior to inserting the device with Rugged Boot. Remove the insert and then insert the device into the cup.

Figure 49 Remove Insert from Cup



2-Slot USB/Ethernet Cradle

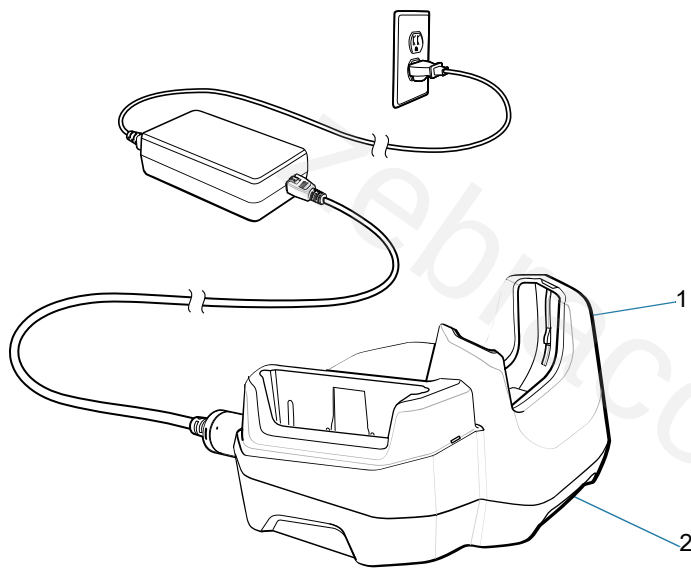


CAUTION: Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines on page 179](#).

The 2-Slot USB/Ethernet Cradle:

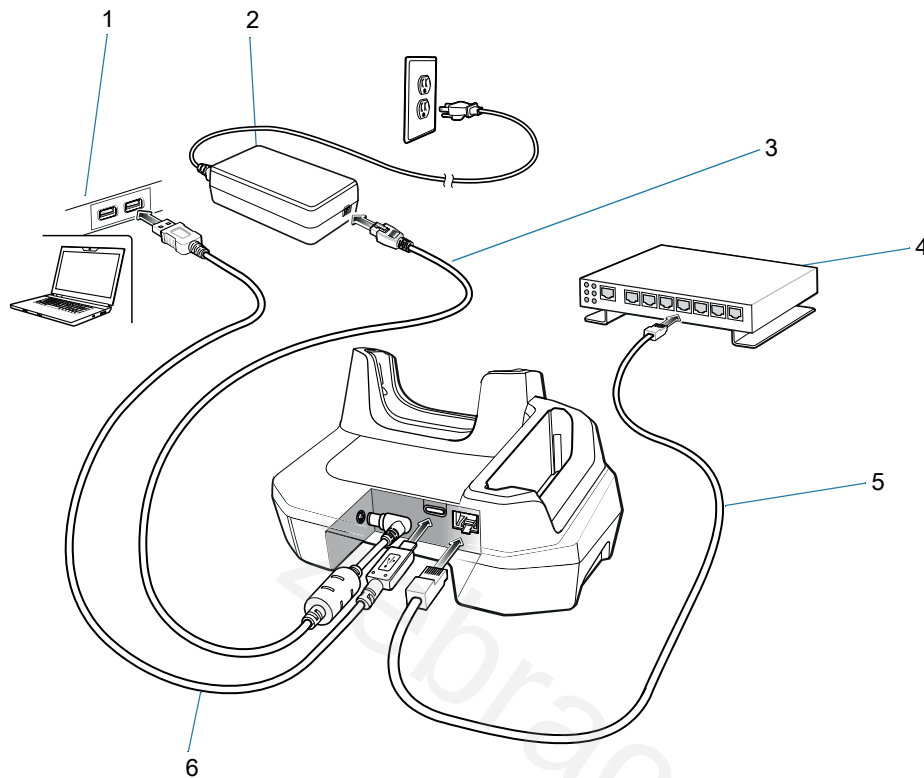
- Provides 5 VDC power for operating the device.
- Charges the device's battery.
- Charges a spare battery.
- Connects the device to an Ethernet network.
- Provides USB communication with host computer.

Figure 50 2-Slot USB/Ethernet Cradle



1	Cup insert
2	Spare battery charging LED

Setup



1	Host computer
2	Power supply
3	DC line cord
4	Ethernet switch
5	Ethernet cable
6	USB cable

Ethernet Settings

The following settings can be configured when using Ethernet communication:

- Proxy Settings
- Static IP.

Configuring Ethernet Proxy Settings

The device includes Ethernet cradle drivers. After inserting the device, configure the Ethernet connection:

1. Swipe down from the Status bar to open the Quick Settings bar and then touch .
2. Touch **Ethernet**.
3. Slide the switch to the **ON** position.
4. Place the device into the Ethernet cradle slot.
5. Touch and hold eth0 until the menu appears.

6. Touch **Modify Proxy**.
7. Touch the **Proxy** drop-down list and select **Manual**.
8. In the **Proxy hostname** field, enter the proxy server address.
9. In the Proxy port field, enter the proxy server port number.



NOTE: When entering proxy addresses in the Bypass proxy for field, do not use spaces or carriage returns between addresses.

10. In the **Bypass proxy** for text box, enter addresses for web sites that do not require to go through the proxy
11. server. Use the separator “|” between addresses.
12. Touch **MODIFY**.
13. Touch the Home button.

Configuring Ethernet Static IP Address

The device includes Ethernet cradle drivers. After inserting the device, configure the Ethernet connection:

1. Swipe down from the Status bar to open the Quick Settings bar and then touch .
2. Touch **Ethernet**.
3. Slide the switch to the **ON** position.
4. Place the device into the Ethernet cradle slot.
5. Touch **eth0**.
6. Touch **Disconnect**.
7. Touch **eth0**.
8. Touch the **IP** settings drop-down list and select **Static**.
9. In the IP address field, enter the proxy server address.
10. If required, in the **Gateway** field, enter a gateway address for the device.
11. If required, in the **Netmask** field, enter the network mask address
12. If required, in the **DNS** address fields, enter a Domain Name System (DNS) addresses.
13. Touch **CONNECT**.
14. Touch the Home button.

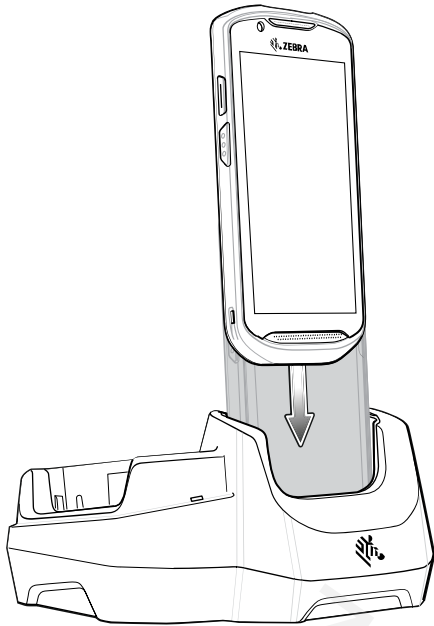
Charging the Device

To charge a device:



NOTE: If the device has a Rugged Boot, remove the cup insert before inserting the device. See Integrator Guide for details.

1. Insert the device into the slot to begin charging.

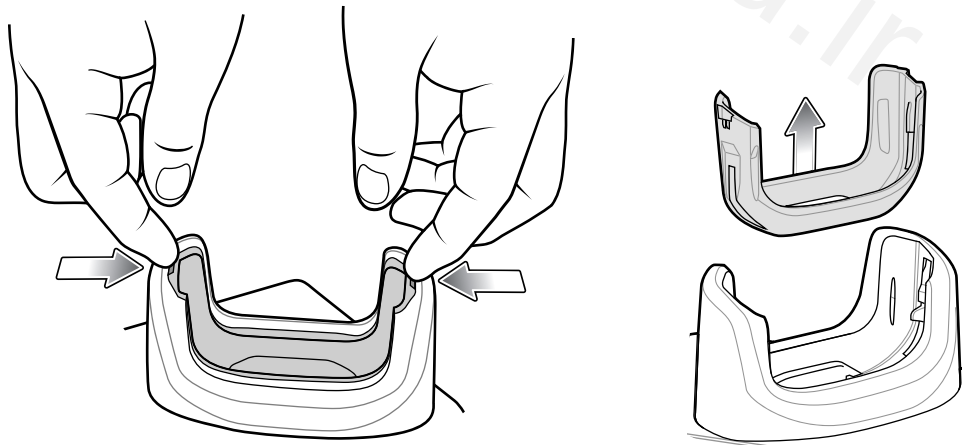


2. Ensure the device is seated properly.

Inserting a Device with Rugged Boot into Cradle

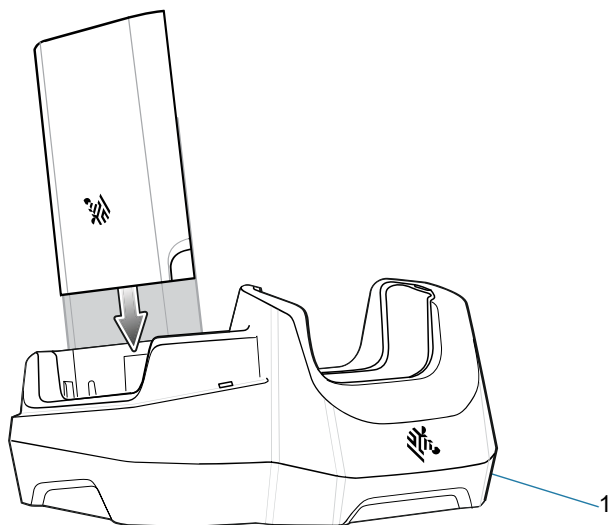
Each cradle cup has an insert that must be removed prior to inserting the device with Rugged Boot. Remove the insert and then insert the device into the cup.

Figure 51 Remove Insert from Cup



Battery Charging

1. Insert the battery into the right slot to begin charging.



1	Spare battery charging LED
---	----------------------------

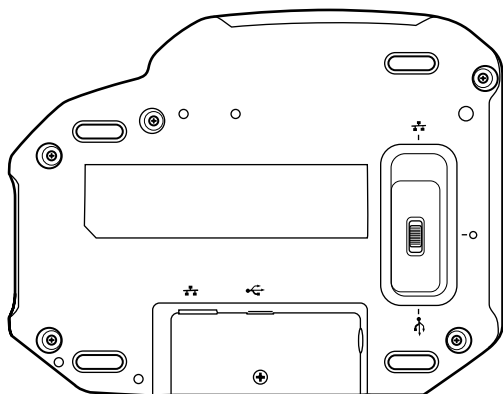
2. Ensure that the battery is seated properly.

USB/Ethernet Communication

The 2-Slot USB/Ethernet Cradle provides both Ethernet communication with a network and USB communication with a host computer. Prior to using the cradle for Ethernet or USB communication. Ensure that the switch on the USB/Ethernet module is set properly.

Turn the cradle over to view the switch.

Figure 52 2-Slot USB/Ethernet Cradle Switch



For Ethernet communication, slide the switch to the  position.

For USB communication, slide the switch to the  position.

Place the switch in the center position to disable communications.

Ethernet LED Indicators

There are two LEDs on the Ethernet RJ-45 connector. The green LED lights to indicate that the transfer rate is 100 Mbps. When the LED is not lit the transfer rate is 10 Mbps. The yellow LED blinks to indicate activity, or stays lit to indicate that a link is established. When it is not lit it indicates that there is no link.

Figure 53 LED Indicators

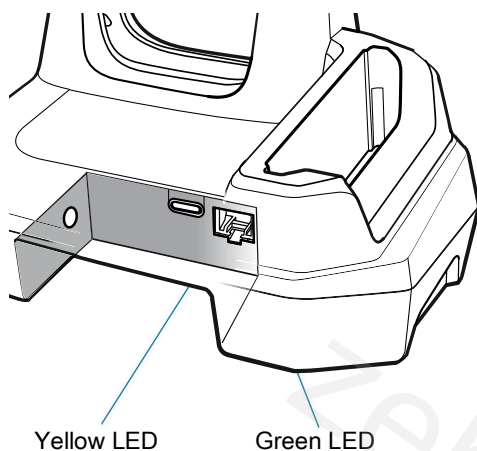


Table 14 USB/Ethernet LED Data Rate Indicators

Data Rate	Yellow LED	Green LED
100 Mbps	On/Blink	On
10 Mbps	On/Blink	Off

Establishing Ethernet Connection



NOTE: Refer to the device Integrator Guide for Android Version 8.1 for information on configuring the Ethernet settings.

1. Swipe down with two fingers from the status bar to open the quick access panel and then touch .
2. Touch  **Ethernet**.
3. Slide the Ethernet switch to the **ON** position.
4. Insert the device into a slot.
The  icon appears in the Status bar.
5. Touch **Eth0** to view Ethernet connection details.

4-Slot Charge Only Cradle with Battery Charger

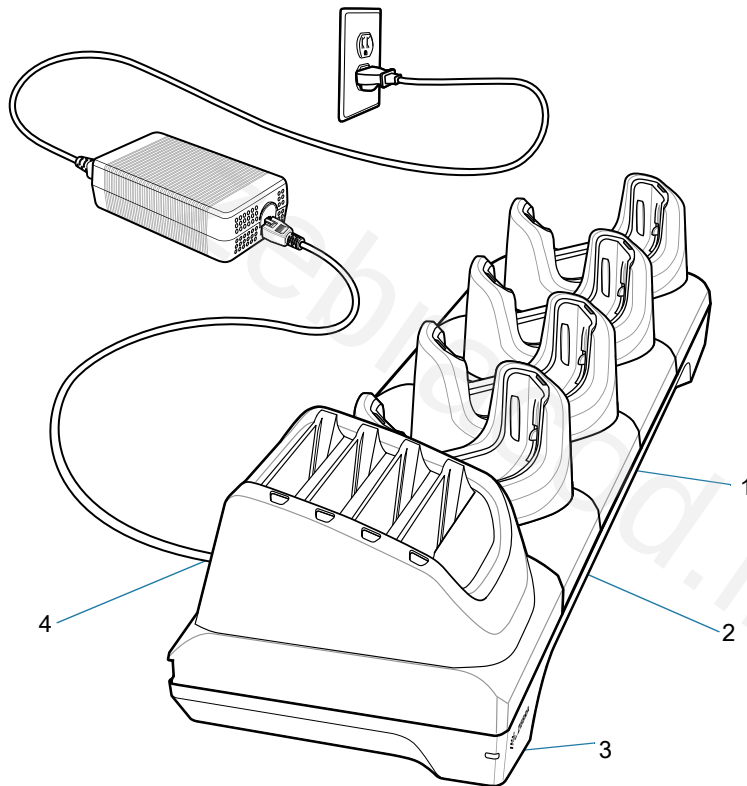


CAUTION: Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines](#) on page 179.

The 4-Slot Charge Only Cradle with Battery Charger:

- Provides 5 VDC power for operating the device.
- Simultaneously charges up to four devices and up to four spare batteries using the Battery Charger Adapter.

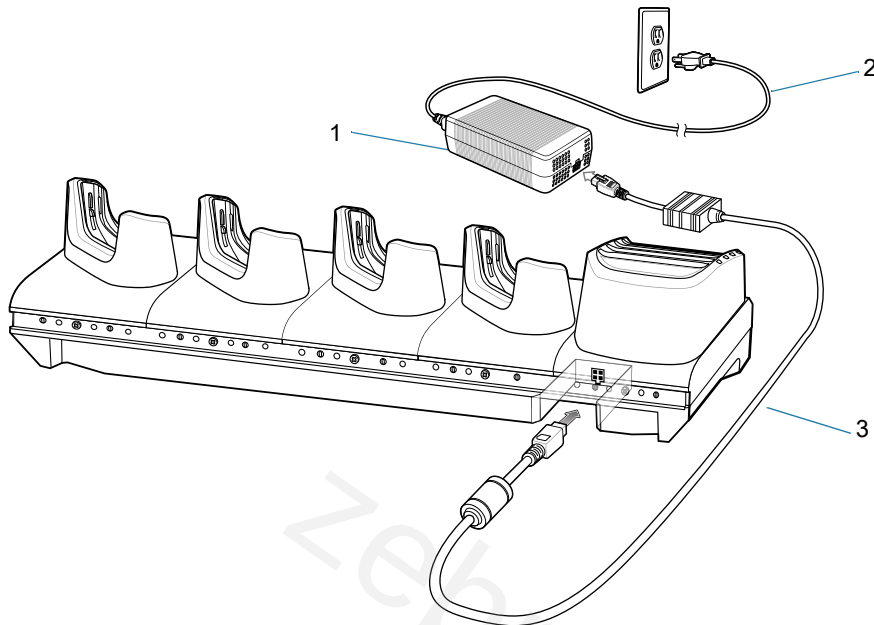
Figure 54 4-Slot Charge Only Cradle with Battery Charger



1	Charging slot
2	Spare battery slot
3	Power LED
4	Spare battery charging LED

Setup

Figure 55 4-Slot Charge Only Cradle with Battery Charger Setup



1	Power supply
2	AC line cord
3	DC line cord

Charging the Device

To charge a device:



NOTE: If the device has a Rugged Boot, remove the cup insert before inserting the device.

1. Insert the device into a slot to begin charging.

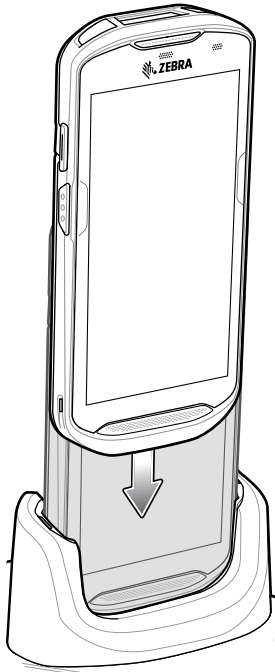
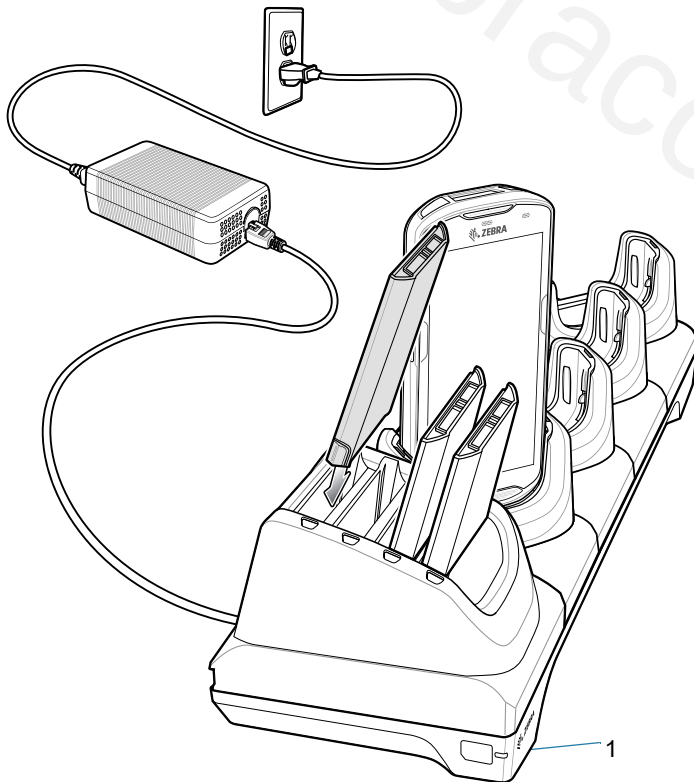


Figure 56 Spare Battery Charging



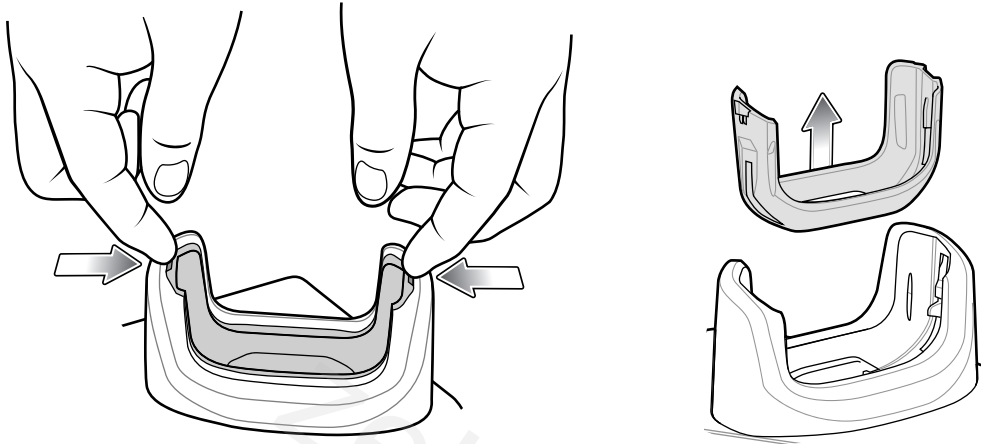
1	Power LED
---	-----------

2. Ensure the device is seated properly.

Inserting a TC52 with Rugged Boot into Cradle

Each cradle cup has an insert that must be removed prior to inserting the device with Rugged Boot. Remove the insert and then insert the device into the cup.

Figure 57 Remove Insert from Cup



5-Slot Charge Only Cradle

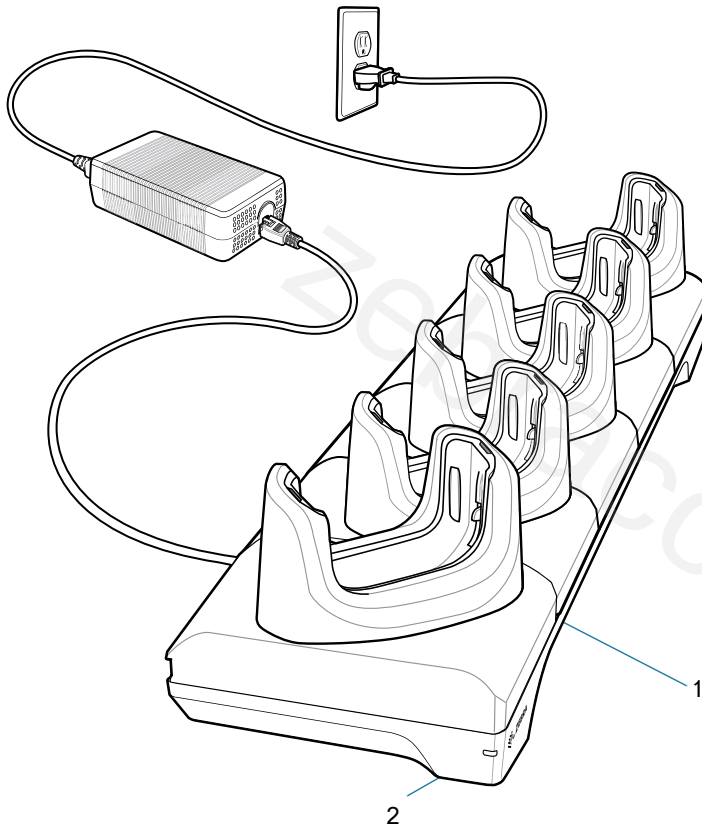


CAUTION: Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines](#) on page 179.

The 5-Slot Charge Only Cradle:

- Provides 5 VDC power for operating the device.
- Simultaneously charges up to five devices.

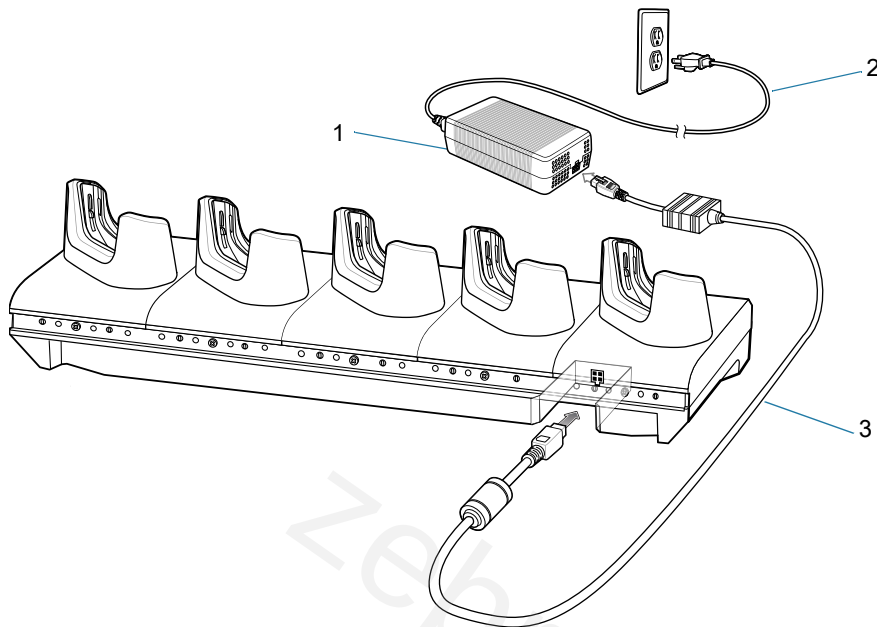
Figure 58 5-Slot Charge Only Cradle



1	Charging slot
2	Power LED

Setup

Figure 59 5-Slot Charge Only Cradle Setup



1	Power supply
2	AC line cord
3	DC line cord

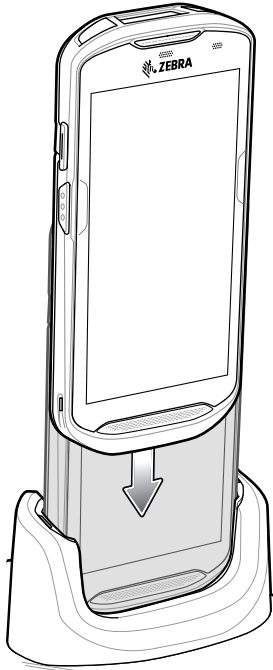
Charging the Device

To charge a device:



NOTE: If the device has a Rugged Boot, remove the cup insert before inserting the device.

1. Insert the device into a slot to begin charging.

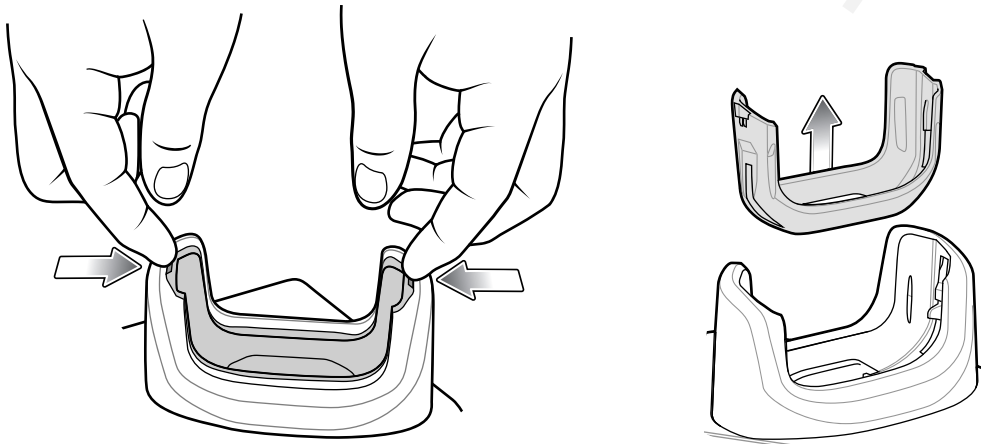


2. Ensure the device is seated properly.

Inserting a Device with Rugged Boot into Cradle

Each cradle cup has an insert that must be removed prior to inserting the device with Rugged Boot. Remove the insert and then insert the device into the cup.

Figure 60 Remove Insert from Cup



5-Slot Ethernet Cradle

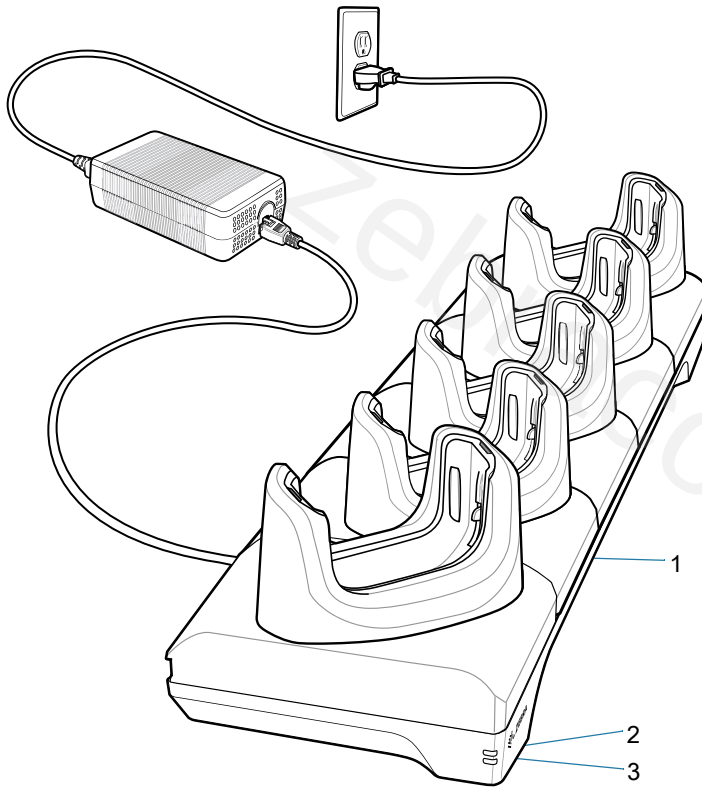


CAUTION: Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines](#) on page 179.

The 5-Slot Ethernet Cradle:

- Provides 5 VDC power for operating the device.
- Connects the device (up to five) to an Ethernet network.
- Simultaneously charges up to five devices.

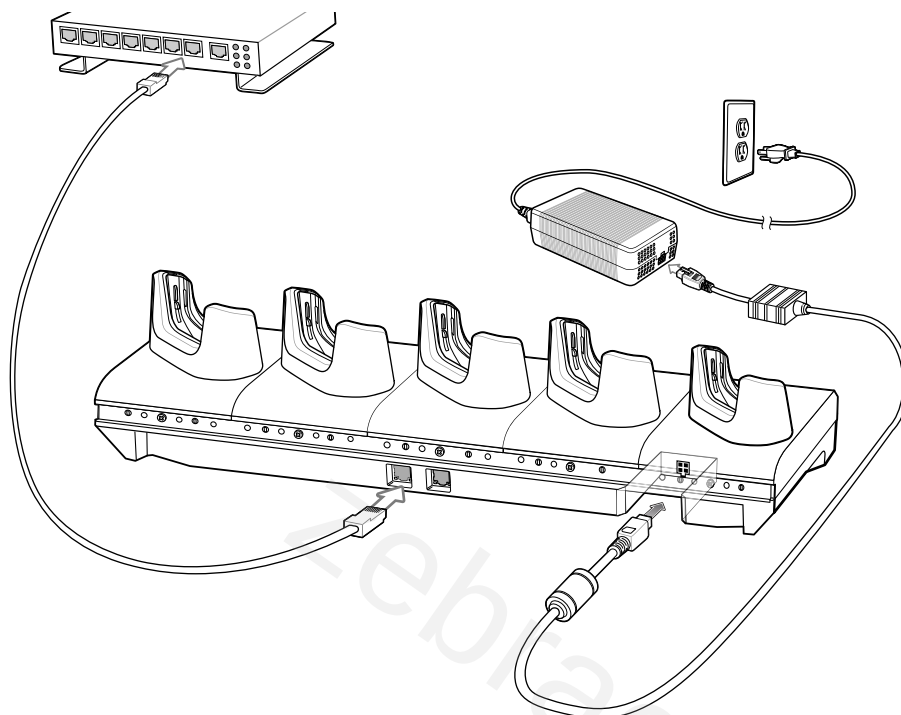
Figure 61 5-Slot Ethernet Cradle



1	Charging slot
2	1000 LED
3	10/100 LED

Setup

Figure 62 5-Slot Ethernet Cradle Setup

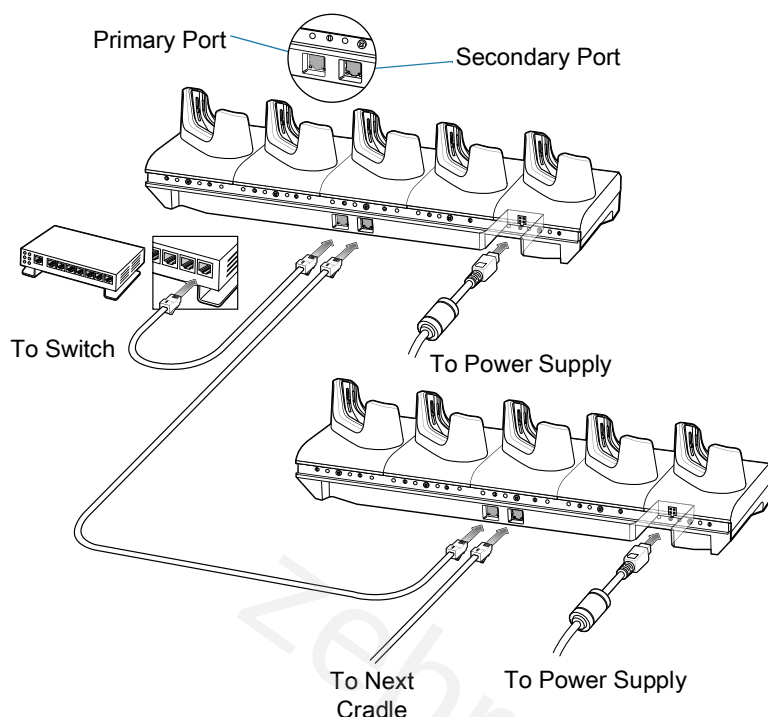


Daisy-chaining Ethernet Cradles

Daisy-chain up to ten 5-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 daisy-chain 5-Slot Ethernet cradles:

1. Connect power to each 5-Slot Ethernet cradle.
2. Connect an Ethernet cable to one of the ports on the switch and the other end to the Primary Port of the first cradle.
3. Connect an Ethernet cable to the Secondary port of the first cradle.
4. Connect the other end of the Ethernet cable to the Primary port of the next 5-Slot Ethernet cradle.

Figure 63 Daisy-chaining 5-Slot Ethernet Cradles

5. Connect additional cradles as described in step 3 and 4.

Ethernet Settings

The following settings can be configured when using Ethernet communication:

- Proxy Settings
- Static IP.

Configuring Ethernet Proxy Settings

The device includes Ethernet cradle drivers. After inserting the device, configure the Ethernet connection:

1. Swipe down from the Status bar to open the Quick Settings bar and then touch .
2. Touch **Ethernet**.
3. Slide the switch to the **ON** position.
4. Place the device into the Ethernet cradle slot.
5. Touch and hold **eth0** until the menu appears.
6. Touch **Modify Proxy**.
7. Touch the **Proxy** drop-down list and select **Manual**.
8. In the **Proxy hostname** field, enter the proxy server address.
9. In the **Proxy port** field, enter the proxy server port number.



NOTE: When entering proxy addresses in the Bypass proxy for field, do not use spaces or carriage returns between addresses.

10. In the **Bypass proxy for** text box, enter addresses for web sites that do not require to go through the proxy server. Use the separator “|” between addresses.

11. Touch **MODIFY**.

12. Touch the Home button.

Configuring Ethernet Static IP Address

The device includes Ethernet cradle drivers. After inserting the device, configure the Ethernet connection:

1. Swipe down from the Status bar to open the Quick Settings bar and then touch .
2. Touch **Ethernet**.
3. Slide the switch to the **ON** position.
4. Place the device into the Ethernet cradle slot.
5. Touch **eth0**.
6. Touch **Disconnect**.
7. Touch **eth0**.
8. Touch the IP settings drop-down list and select **Static**.
9. In the **IP** address field, enter the proxy server address.
10. If required, in the **Gateway** field, enter a gateway address for the device.
11. If required, in the **Netmask** field, enter the network mask address.
12. If required, in the **DNS** address fields, enter a Domain Name System (DNS) addresses.
13. Touch **CONNECT**.
14. Touch the Home button.

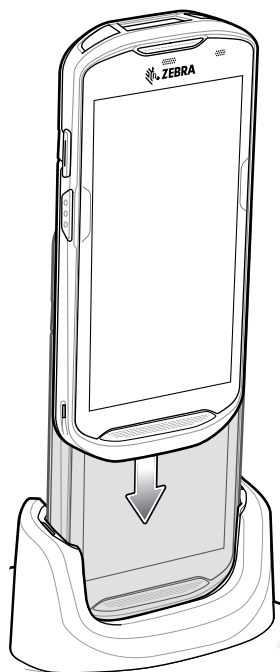
Charging the Device

To charge a device:



NOTE: If the device has a Rugged Boot, remove the cup insert before inserting the device.

1. Insert the device into a slot to begin charging.

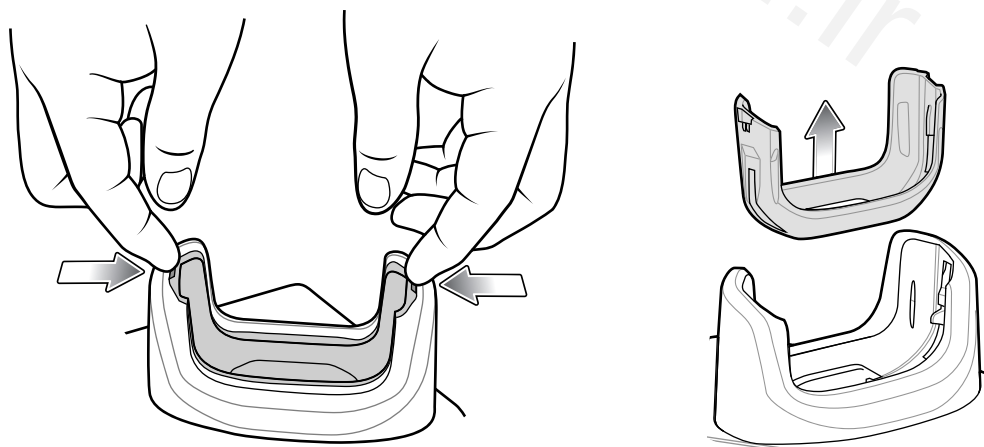


2. Ensure the device is seated properly.

Inserting a TC52 with Rugged Boot into Cradle

Each cradle cup has an insert that must be removed prior to inserting the device with Rugged Boot. Remove the insert and then insert the device into the cup.

Figure 64 Remove Insert from Cup



Establishing Ethernet Connection



NOTE: Refer to the TC52 Touch Computer Integrator Guide for Android 8 Oreo for information on configuring the Ethernet settings.

1. Swipe down with two fingers from the status bar to open the quick access panel and then touch .
2. Touch **Ethernet**.
3. Slide the Ethernet switch to the **ON** position.

4. Insert the device into a slot.

The  icon appears in the Status bar.

5. Touch **Eth0** to view Ethernet connection details.

LED Indicators

There are two green LEDs on the side of the cradle. These green LEDs light and blink to indicate the data transfer rate.

Table 15 LED Data Rate Indicators

Data Rate	1000 LED	100/10 LED
1 Gbps	On/Blink	Off
100 Mbps	Off	On/Blink
10 Mbps	Off	On/Blink

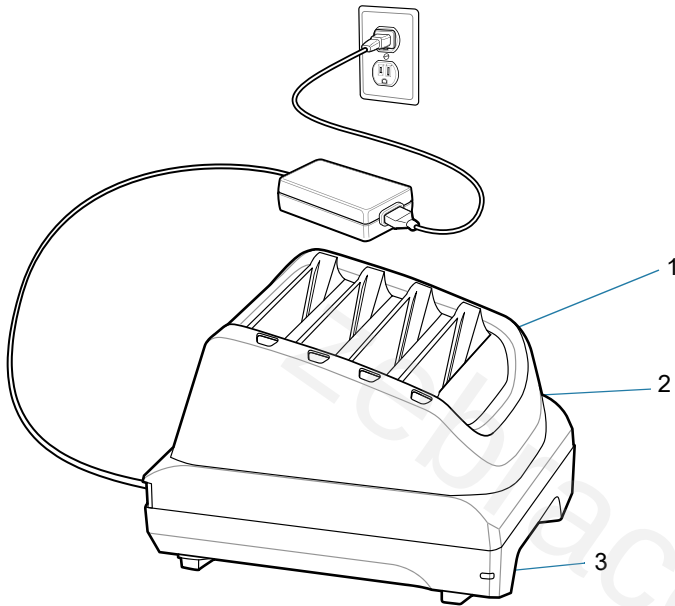
4-Slot Battery Charger



CAUTION: Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines](#) on page 179.

This section describes how to use the 4-Slot Battery Charger to charge up to four device batteries.

Figure 65 4-Slot Battery Charger

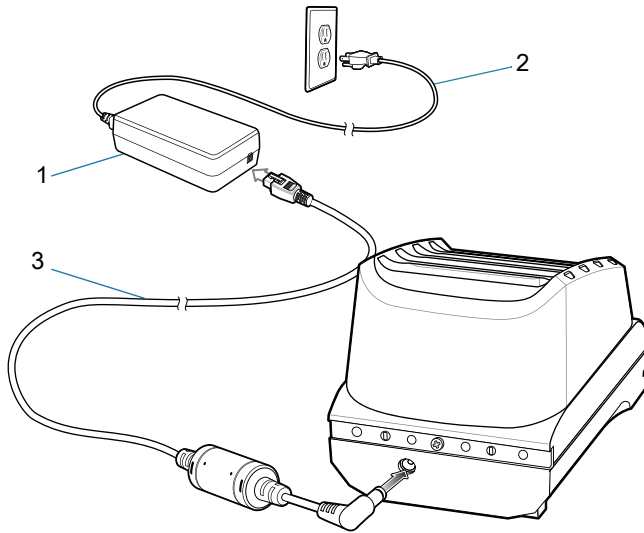


1	Battery slot
2	Battery charge LED
3	Power LED

Setup

Single Charger Setup

1. Plug the DC line cord plug into the power port on the back of the charger.
2. Plug the DC line cord connector into the power supply.
3. Plug the AC line cord into the power supply.
4. Plug the AC line cord into an AC outlet.

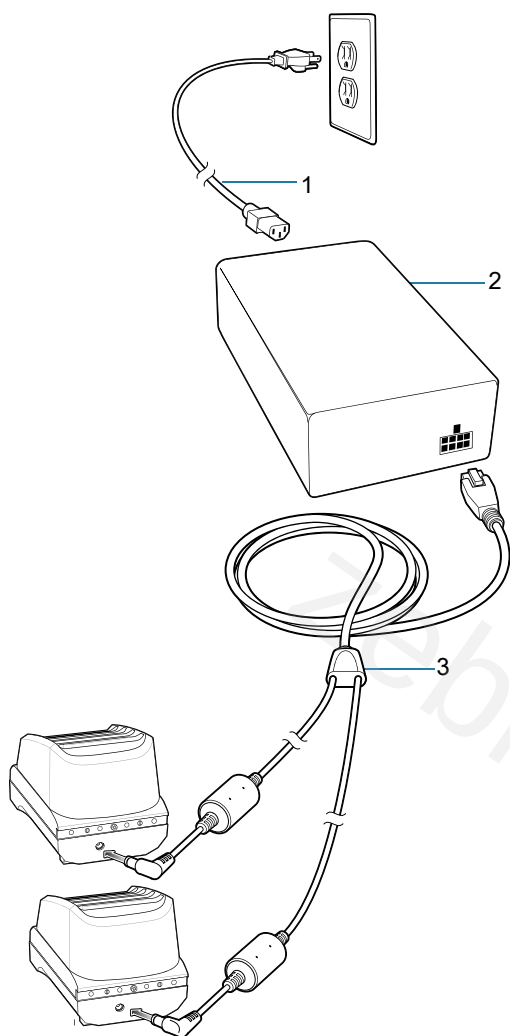


1	Power supply
2	AC line cord
3	DC line cord

Two Charger Setup

1. Plug the 2-way DC Cable plugs into the power port on the back of each charger.
2. Plug the 2-way DC Cable connector into the power output of the power supply (PWR-BGA12V108W0WW).
3. Plug the AC line cord into the power supply.

4. Plug the AC line cord into an AC outlet.

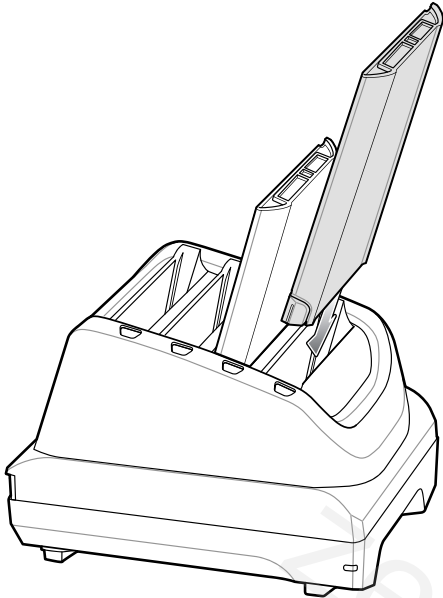


1	AC line cord
2	Power supply
3	2-way DC cable

Charging Spare Batteries

1. Connect the charger to a power source.

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



Each Battery Charging LED indicates the status of the battery charging in each slot. See [Table 13 on page 101](#) for spare battery charging indicator descriptions.

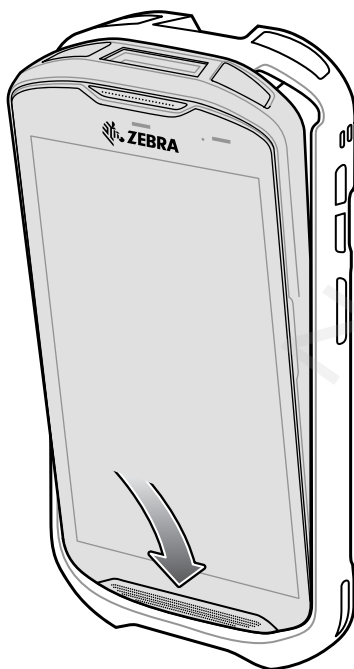
Rugged Boot

The Rugged Boot provides additional protection for the device.

Installation

To install the Rugged Boot:

1. Insert the bottom of the device into the bottom of the boot.



2. Lift the top of the Rugged Boot over the top of the device.



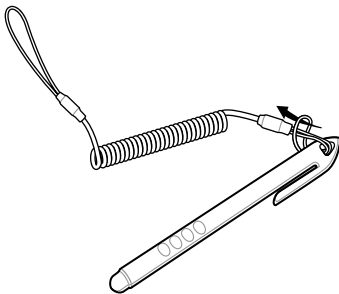
3. Push the device into the Rugged Boot.



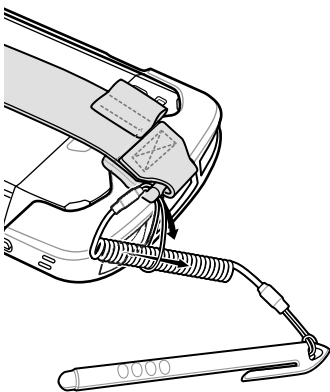
Installing Stylus

To install the optional stylus:

1. Insert one of the loop ends of the tether through the hole in the stylus.
2. Feed the tether through the loop.
3. Pull the tether until the loop tightens.



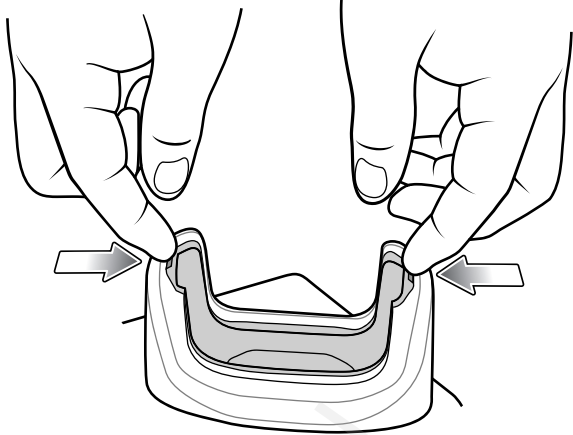
4. Insert the loop into the hand strap holder.
5. Feed the stylus through the loop.



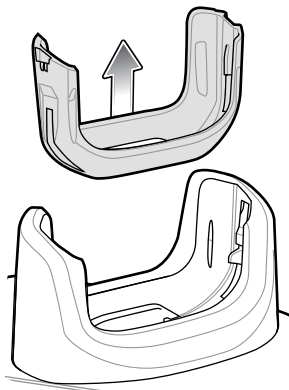
Charging with Cradles

Before inserting the device with the Rugged Boot into the cradle cup, remove the insert from the cup.

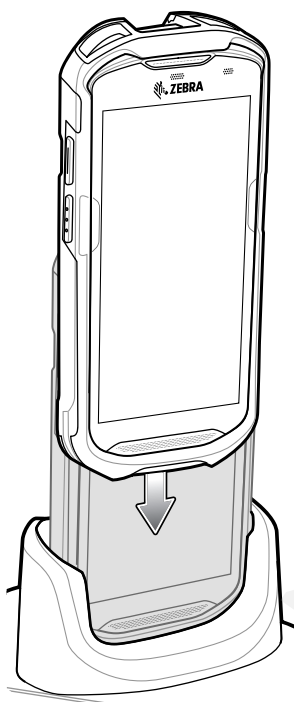
1. Using index fingers on both hands, push the insert toward the center of the cup.



2. Lift insert out of cup.



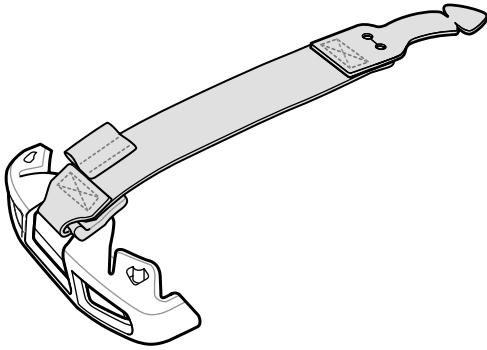
3. Insert the device into the cradle.



Basic Hand Strap Kit

Use to Basic Hand Strap Kit to add a hand strap to the device.

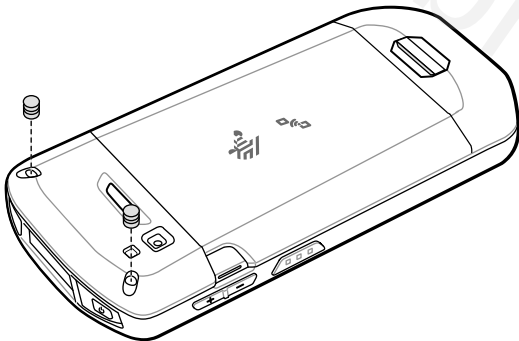
Figure 66 Basic Hand Strap Kit



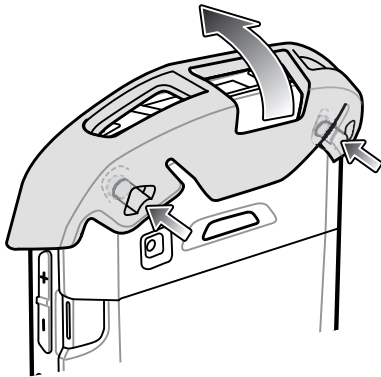
Installation

To install the Basic Hand Strap Kit:

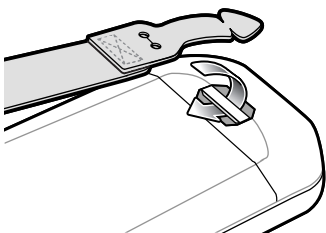
1. Remove the two rubber plugs on the back of the device.



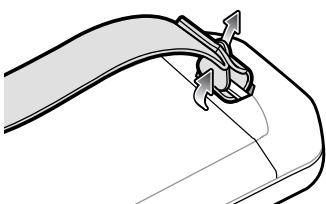
2. Align the top cap onto the device.
3. Rotate the top cap over the top of the device.



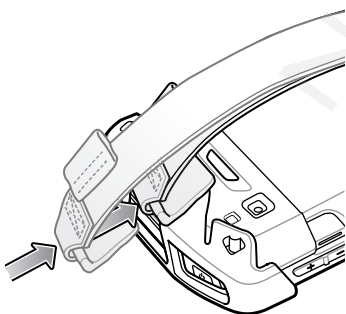
4. Insert the tab end of the hand strap into the slot on the device.



5. Feed the tab into the cut in the strap.



6. Align the hand strap clip with the top cap.

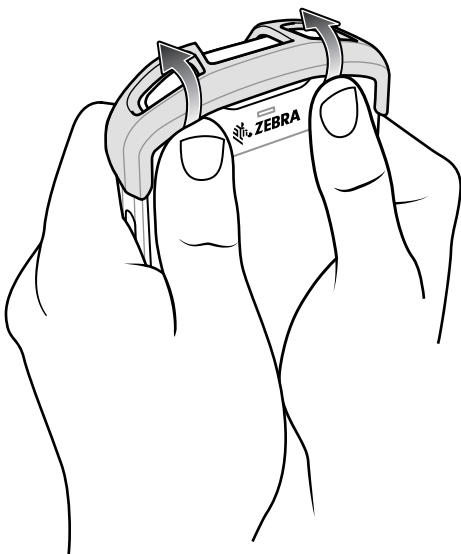


7. Push the clip onto the top cap.

Removal

To remove the Basic Hand Strap Kit:

1. Using thumbs, push the top cap up and rotate over the top of the device.



2. Pull the strap tab through the cut slot.
3. Pull the Hand Strap tab through the slot in the device.

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2.5 mm Audio Adapter



NOTE: The Audio Adapter is available for the device standard configuration.

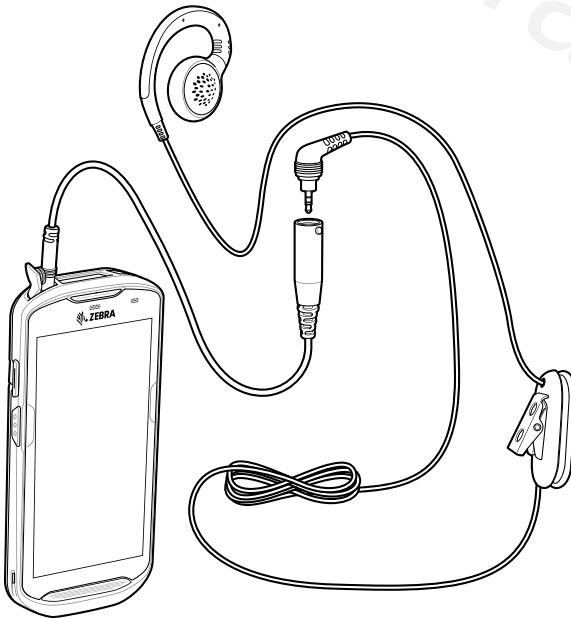
The 2.5 mm Audio Adapter plugs into the device and connects to a wired headset with a 2.5 mm plug.

To attach a 2.5 mm headset:

1. Open the headset jack cover.
2. Insert the 2.5 mm Audio Adapter plug into the headset jack.



3. Insert the 2.5 mm headset plug into the jack on the Audio Adapter.



CAUTION: After removing headset, headset jack cover must be replaced and securely seated to ensure proper device sealing.

3.5 mm Audio Adapter



NOTE: The Audio Adapter is available for the device standard configuration.

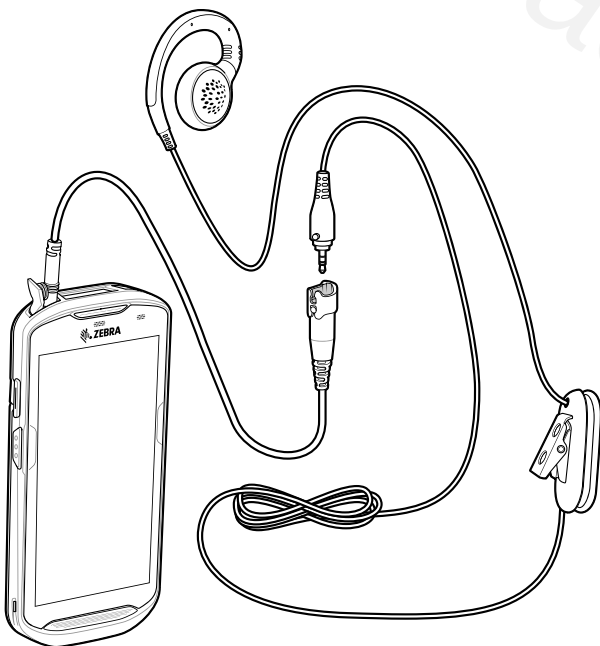
The 3.5 mm Audio Adapter plugs into the device and connects to a wired headset with a 3.5 mm plug.

To attach a 3.5 mm headset:

1. Open the headset jack cover.
2. Insert the 3.5 mm Audio Adapter plug into the headset jack.



3. Connect the 3.5 mm connector plug of the headset into the 3.5 mm Audio Adapter.

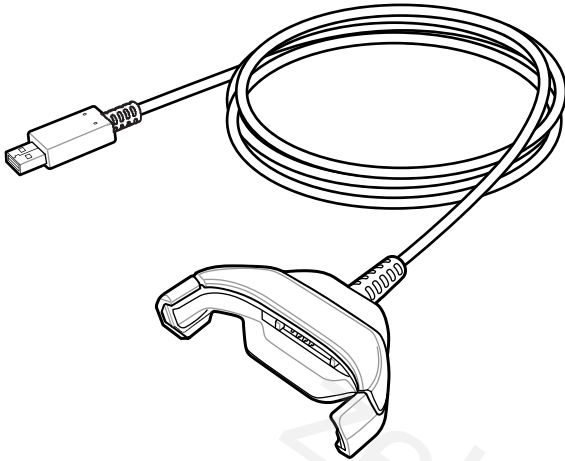


CAUTION: After removing headset, headset jack cover must be replaced and securely seated to ensure proper device sealing.

Rugged Charge/USB Cable

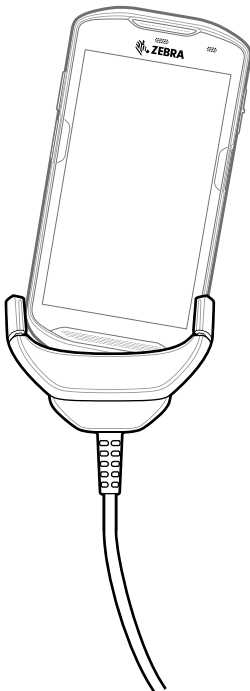
The Rugged Charge/USB Cable snaps onto the bottom of the device and removes easily when not in use. When attached to the device allows charging and allows the device to transfer data to a host computer.

Figure 67 Rugged Charge/USB Cable

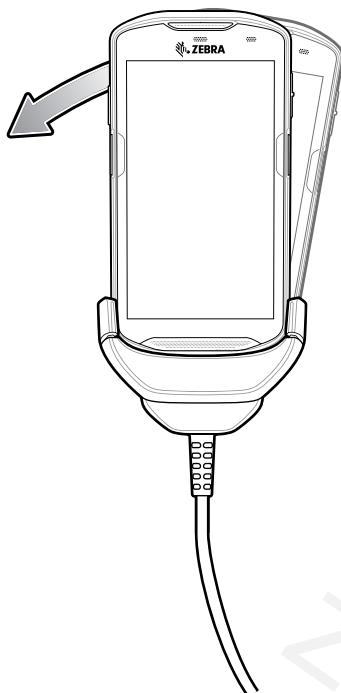


Connecting to TC52

1. Insert the device at an angle into the cable cup until the device touches the bottom of the cup.



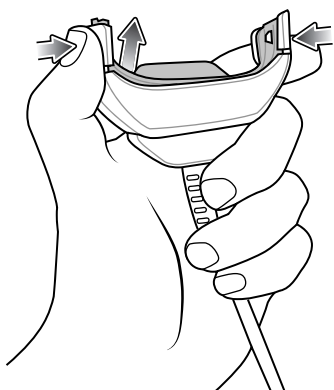
2. Rotate the device into the cup.



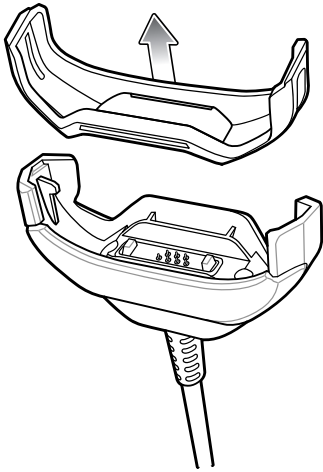
Connecting to TC52 with Rugged Boot

To connect the Rugged Charge/USB Cable to a device with a Rugged Boot:

1. Using thumb and index finger, squeeze the sides of the cup in.



2. Lift inert out of cup.

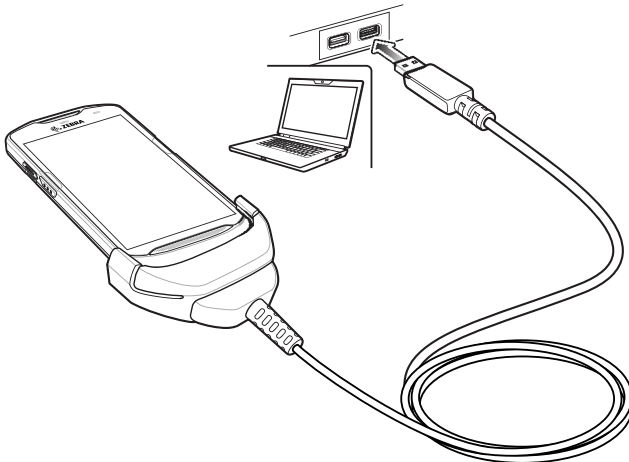


3. Align the cable cup with the bottom of the device.
4. Press the device into the cable cup until it securely in place.

USB Communication

To connect the device to a host computer:

1. Connect the Rugged Charge/USB Cable to the device.
2. Connect the USB connector of the cable to a host computer.



Charging the Device

To charge the device using the Rugged Charge/USB Cable:

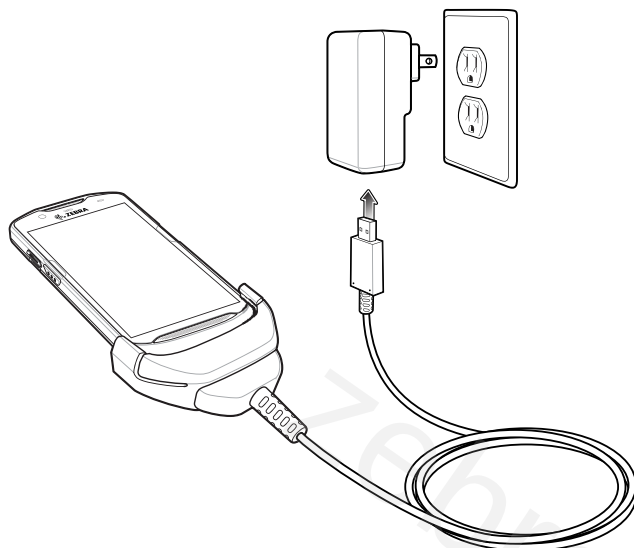
1. Connect the Rugged Charge/USB Cable to the device.
2. Connect the USB connector of the power supply.



NOTE: See [Power Supply on page 152](#) for information on setting up the power supply.

By default, the device includes an interface connector. If the interface connector is removed for USB Type C cable connectivity, then it must be replaced before charging or receiving an Ethernet IP address if placed in a cradle.

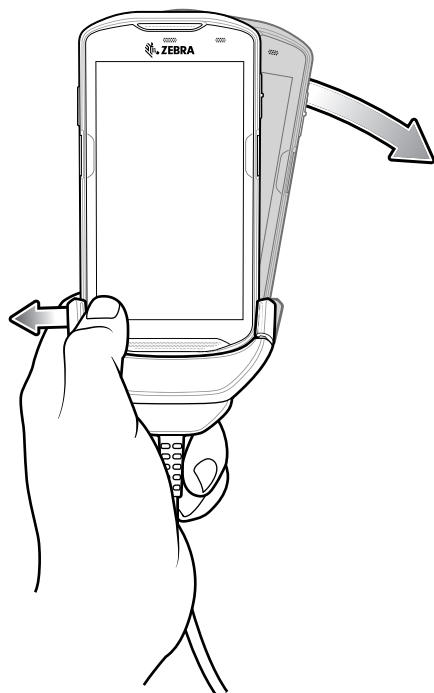
3. Plug to power supply into an power outlet.



Disconnecting the Rugged Charge/USB Cable

To disconnect the Rugged Charge/USB Cable from the device:

1. Rotate the device to one side.



2. Push the Rugged Charge/USB Cable to the other side.
3. Remove the device from the Rugged Charge/USB Cable.

Trigger Handle



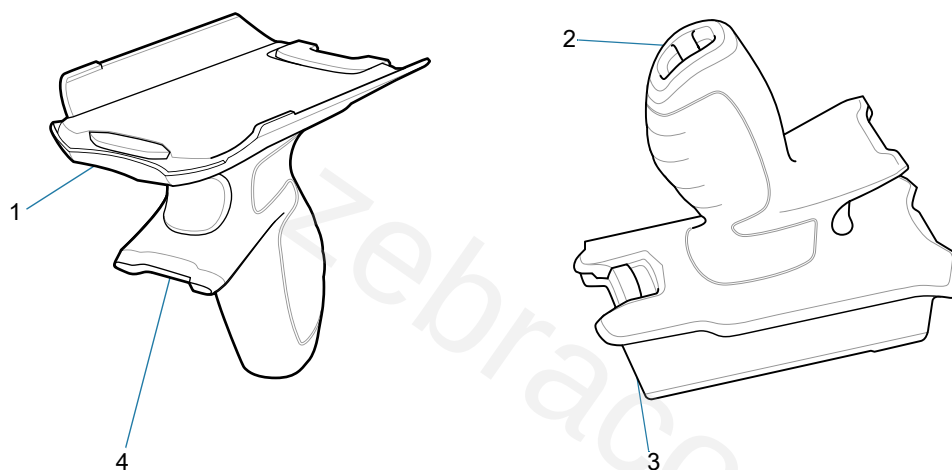
NOTE: The Rugged Boot is required to install the Trigger Handle onto the device. Trigger Handle (p/n TRG-TC51-SNP1-01) does not contain the Rugged Boot and must be purchased separately. Trigger Handle Kit (p/n TRG-TC51-TRG1-01) contains the Rugged Boot.

The Trigger Handle adds a gun-style handle with a scanning trigger to the device. It increases comfort when using the device in scan-intensive applications for extended periods of time.



The Trigger Handle is available for the TC52 standard configuration. It is also available for the TC52-HC configuration.

Figure 68 Trigger Handle



1	Flange
2	Lanyard mount
3	Release latch
4	Trigger

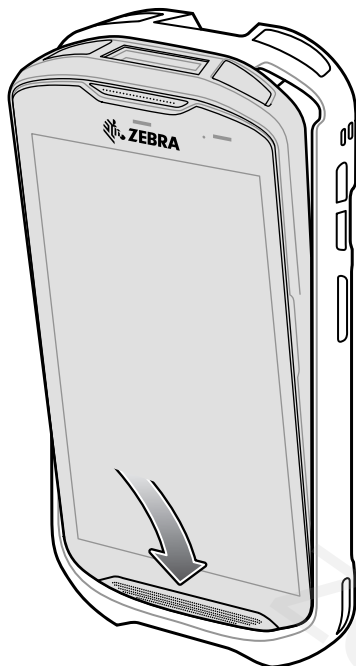
Installing the Rugged Boot



NOTE: If a Hand Strap is attached to the Rugged Boot, remove prior to installing onto device.

To install the Rugged Boot:

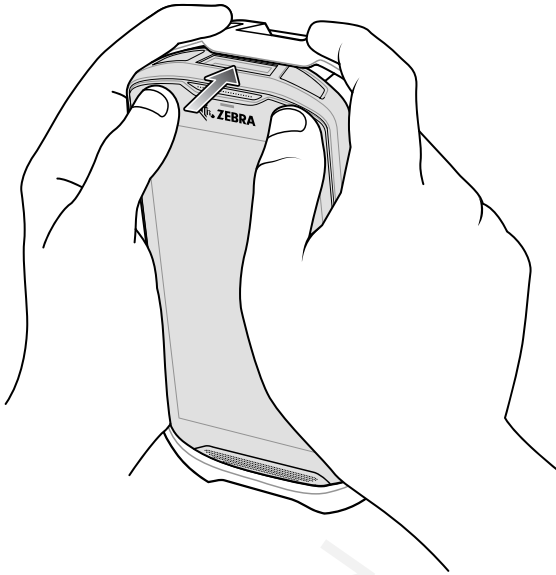
1. Insert the bottom of the device into the bottom of the boot.



2. Lift the top of the Rugged Boot over the top of the device.



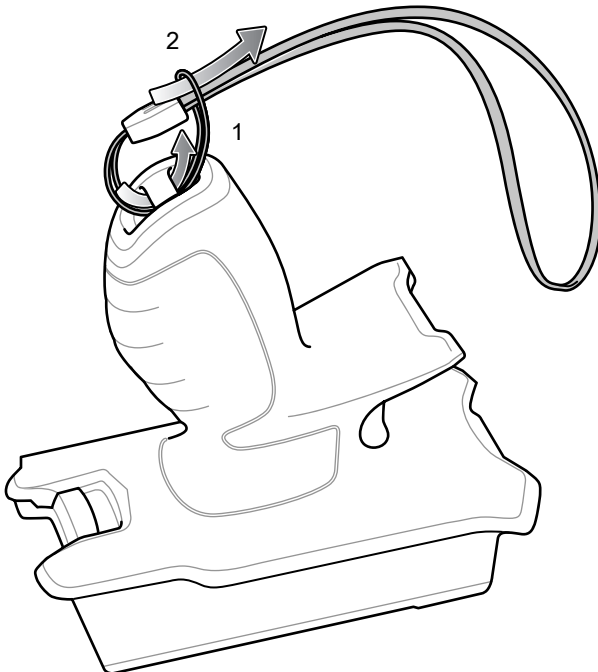
3. Push the device into the Rugged Boot.



Installing the Optional Lanyard

To install the lanyard onto the Trigger Handle:

1. Insert the loop end of the tether into the slot on the bottom of the handle.
2. Feed the lanyard through the loop.

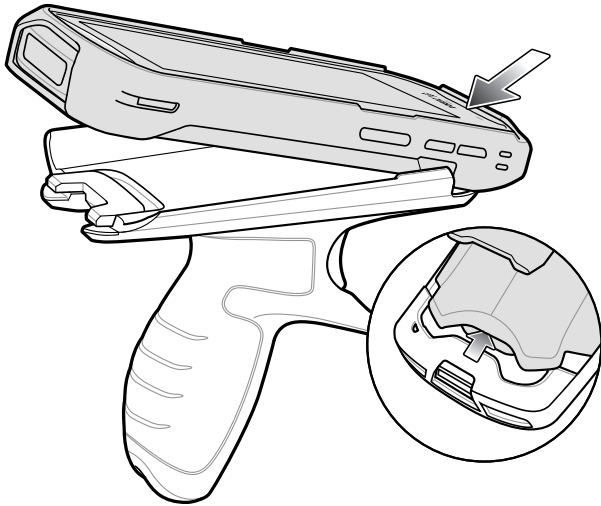


3. Pull the lanyard until the loop tightens.

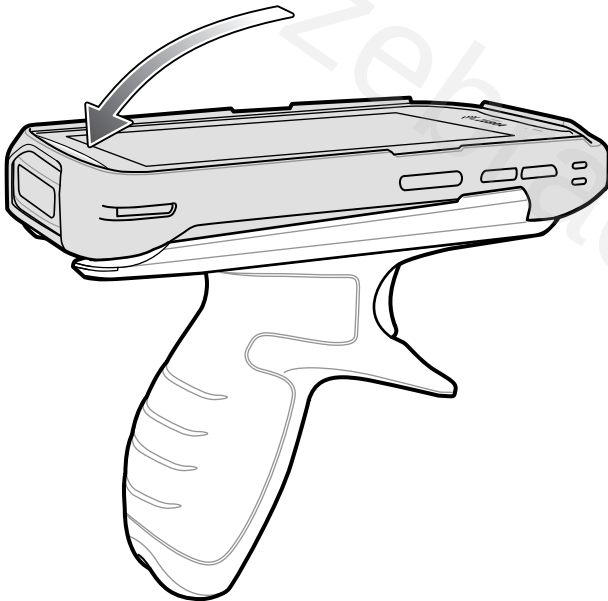
Inserting the Device into the Trigger Handle

To install the device onto the Trigger handle:

1. Align and insert the flange of the Trigger Handle with the top of the Rugged Boot.



2. Rotate the device down and press down until it snaps into place.



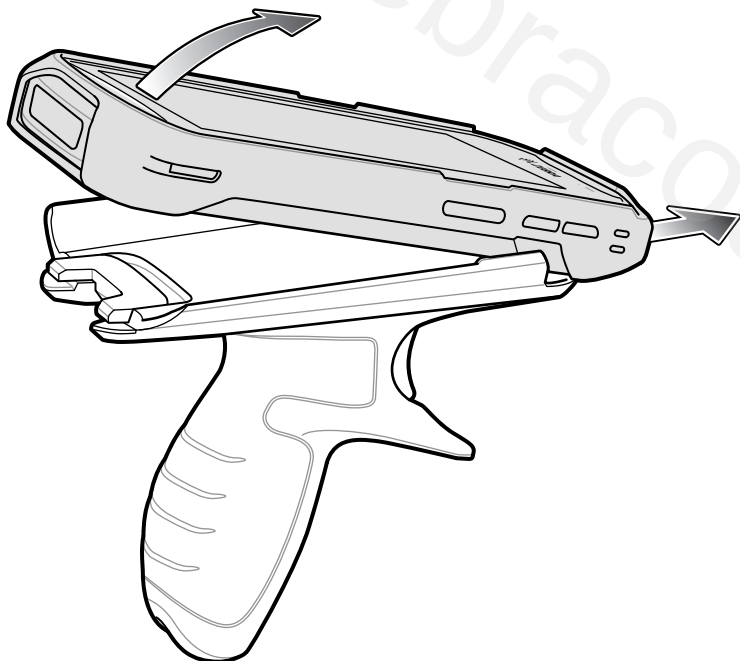
Removing the Device from the Trigger Handle

To remove the device from the Trigger Handle:

1. Press Trigger Handle release latch.



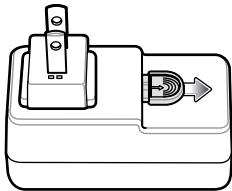
2. Slide the device forward and then rotate the bottom of the device up.



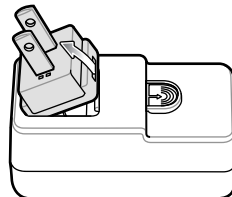
Power Supply

Use the power supply with the Rugged Charge/USB Cable to charge the device. The power supply comes in various configuration with different plug adapters for use internationally. To change the plug adapters:

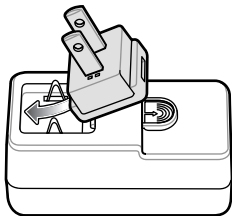
1. Pull the release button down.



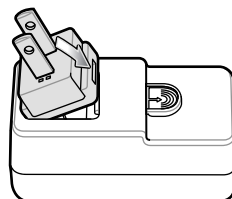
2. Rotate the plug adapter up and out of the power supply.



3. Insert the replace plug adapter into the power supply.



4. Rotate the plug adapter down and snap into place.



5-Slot Cradle Rack Installation

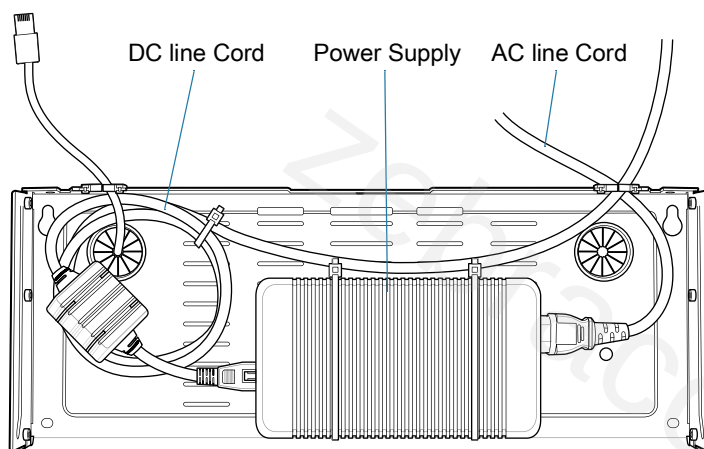
Use the Rack/Wall Mount Bracket to mount a 5-slot cradle on a rack. When installing on a rack, first assemble the bracket and cradles/chargers and then install the assembly on the rack.

1. Place the power supply in bottom tray.
2. Connect AC line cord to power supply.
3. Connect DC line cord to power supply.
4. Secure power supply and cables to bottom tray with tie wraps.



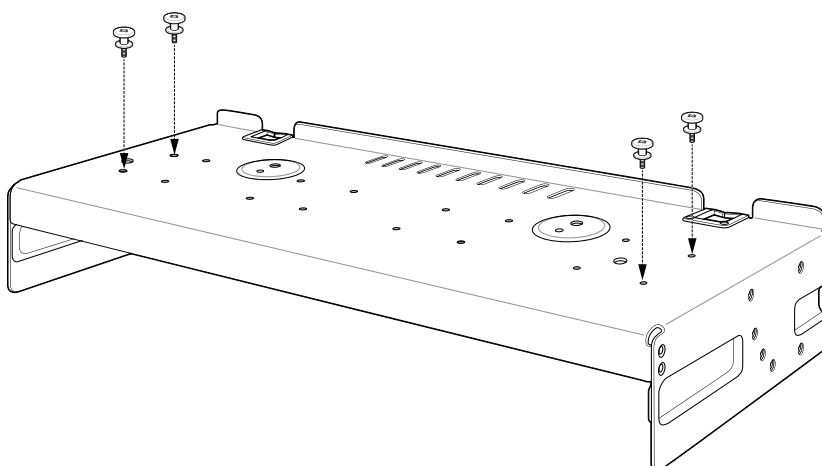
NOTE: Ensure tie wrap buckle is on side of power supply. Tie wrap buckle on top of power supply interferes with top tray.

5. Route cables through cable slots.

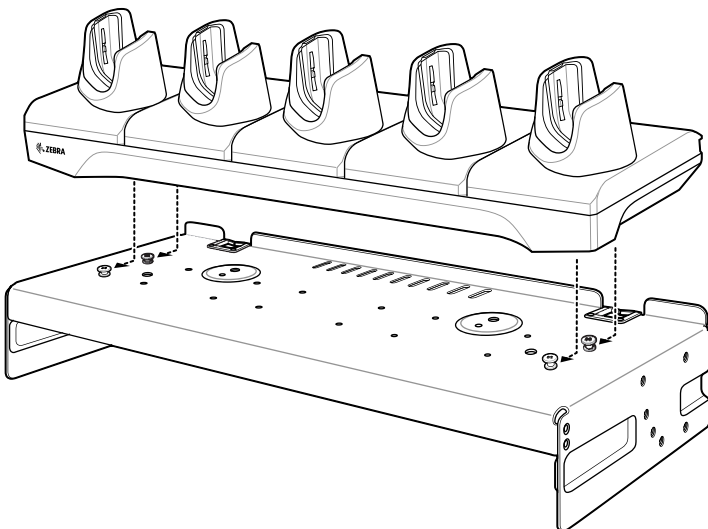


1	DC line cord
2	Power supply
3	AC line cord

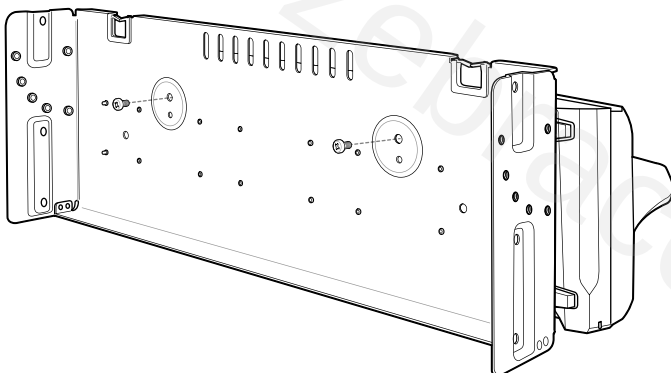
6. Secure four M2.5 studs to top tray as shown.



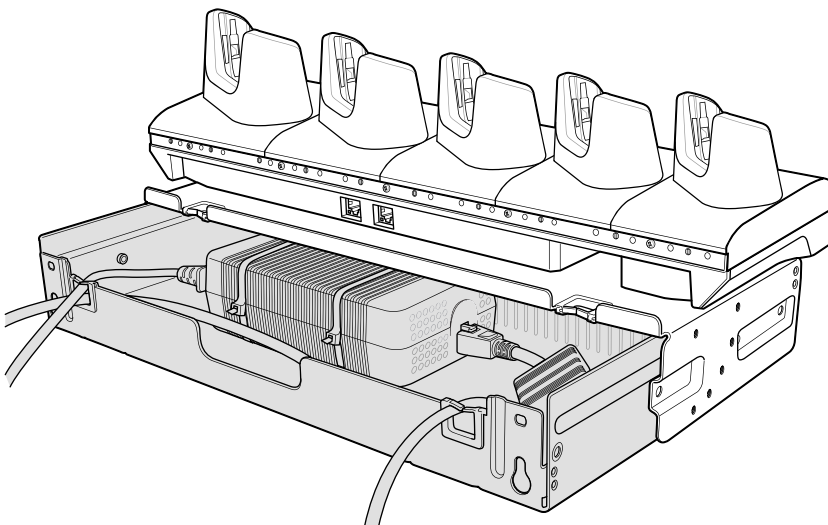
7. Align and install 5-Slot cradle onto studs of top tray.



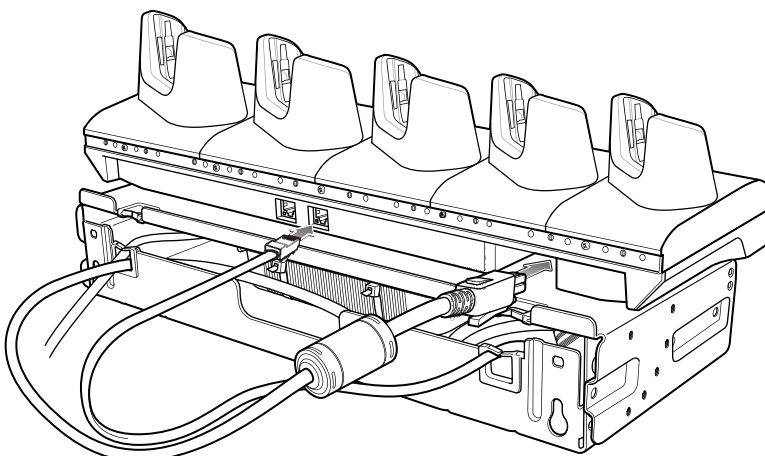
8. Secure cradle to top tray with two M2.5 safety screws.



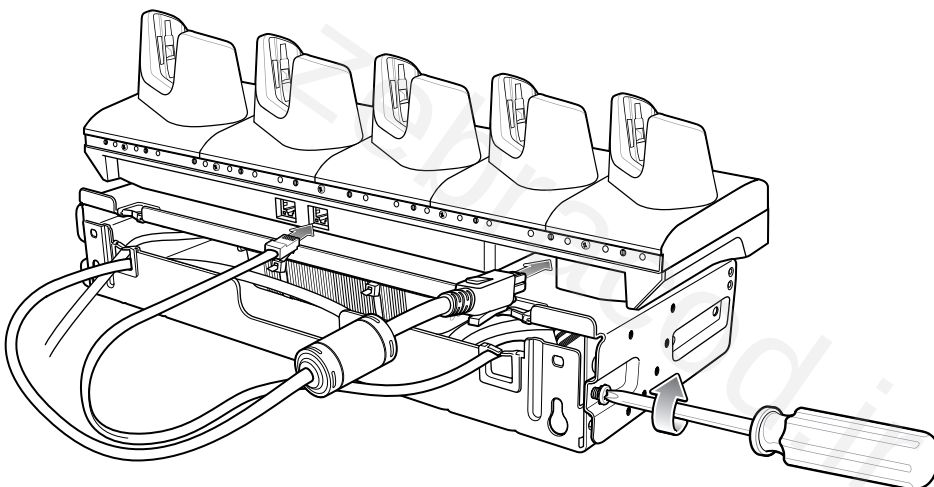
9. Slide top tray onto bottom tray.



10. Connect cables to cradle.



11. Secure top tray to bottom tray with 4 M5 screws (two on each side).

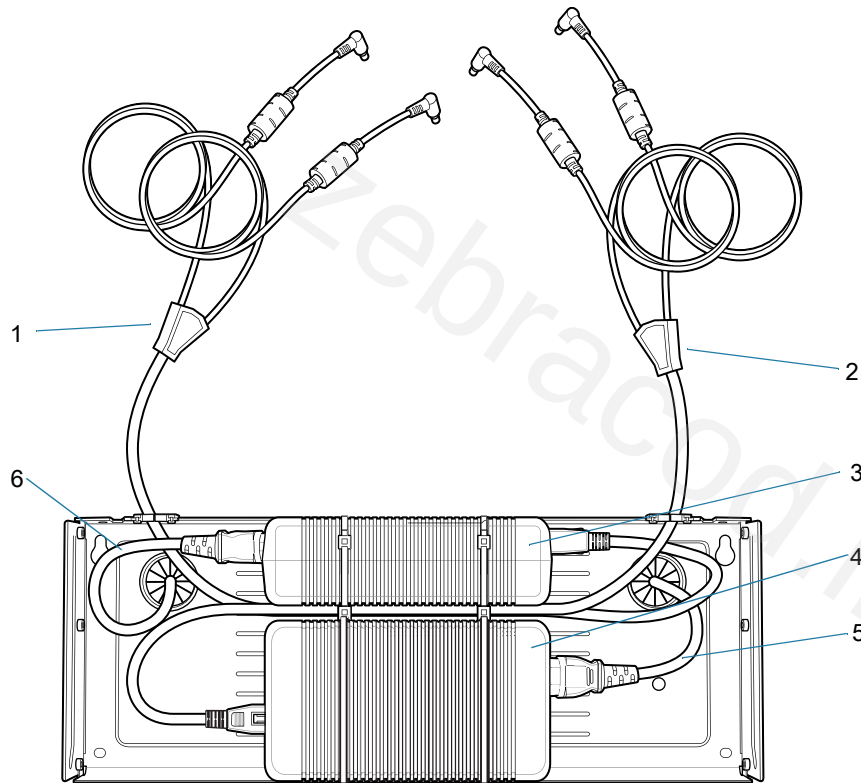


See [Rack Mount Installation on page 159](#) for installing the bracket assembly onto a rack.

4-Slot Battery Chargers Rack Installation

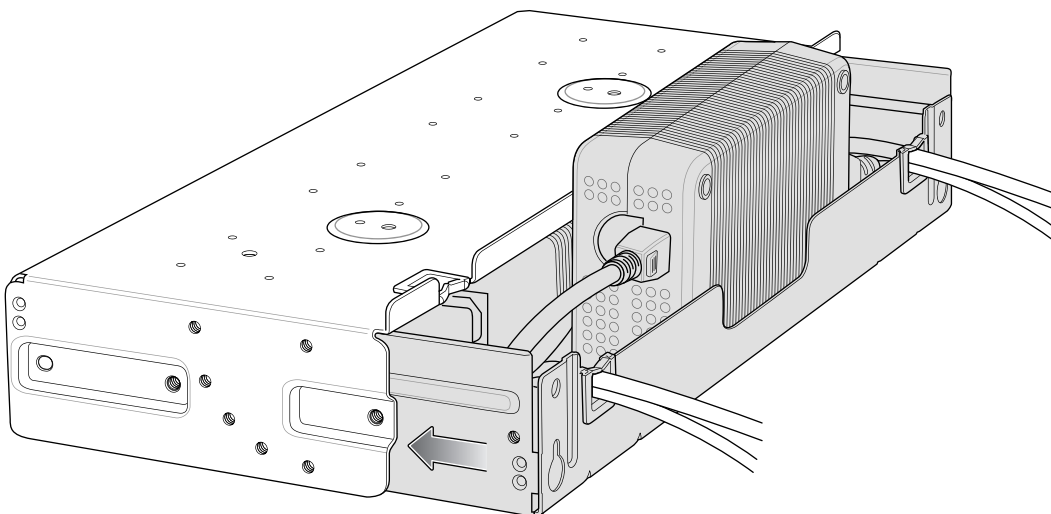
Use the Rack/Wall Mount Bracket to mount four 4-Slot Battery Chargers on a rack. When installing on a rack, first assemble the bracket and chargers and then install the assembly on the rack.

1. Place one power supply horizontally in bottom tray.
2. Place one power supply vertically in bottom tray.
3. Connect AC line cords to power supplies.
4. Connect DC line cords to power supplies.
5. Secure power supplies and cables to bottom tray with tie wraps.
6. Route cables through cable slots.

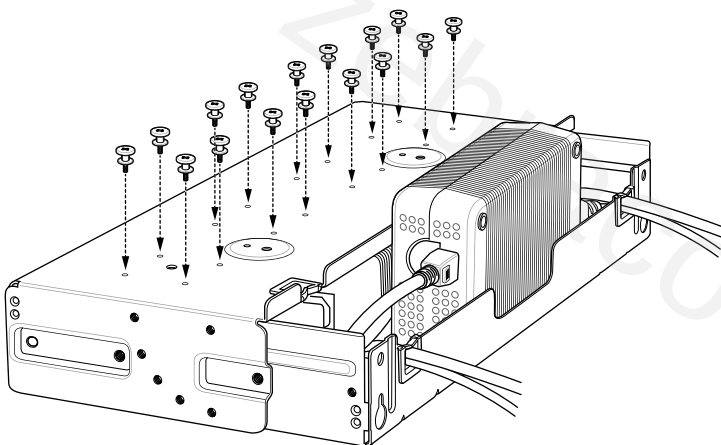


1	DC Y cable 1
2	DC Y cable 2
3	Power supply 1
4	Power supply 2
5	AC line cord 2
6	AC line cord 1

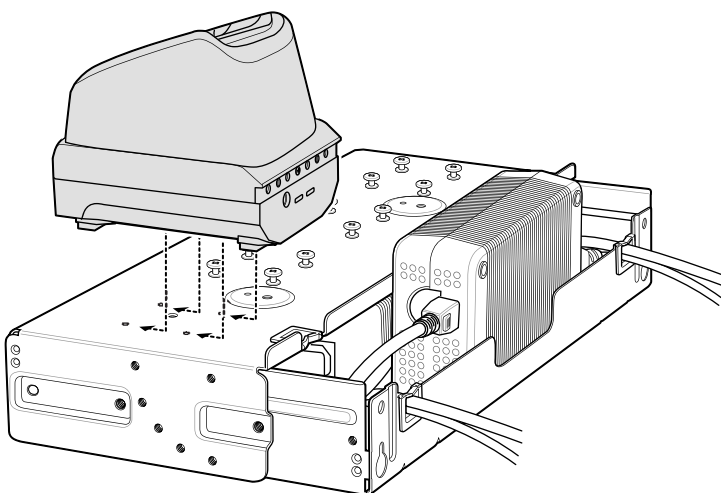
7. Slide top tray onto bottom tray until top tray touches vertical power supply.



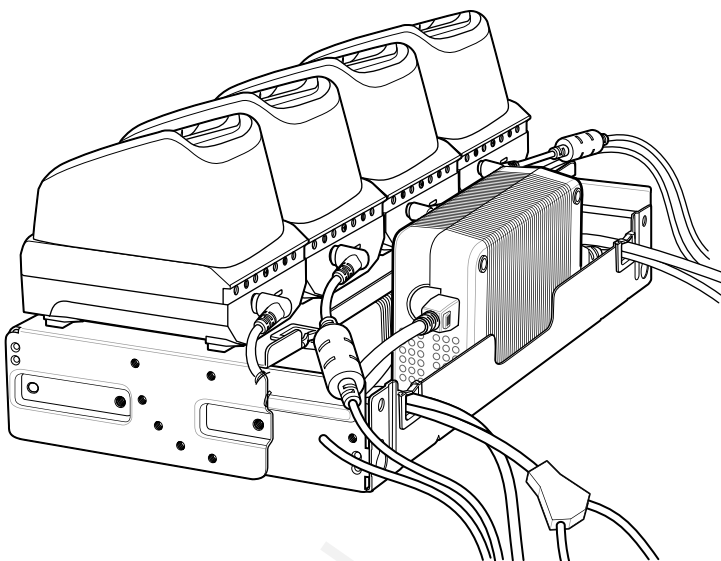
8. Install 16 M2.5 studs onto top tray as shown below.



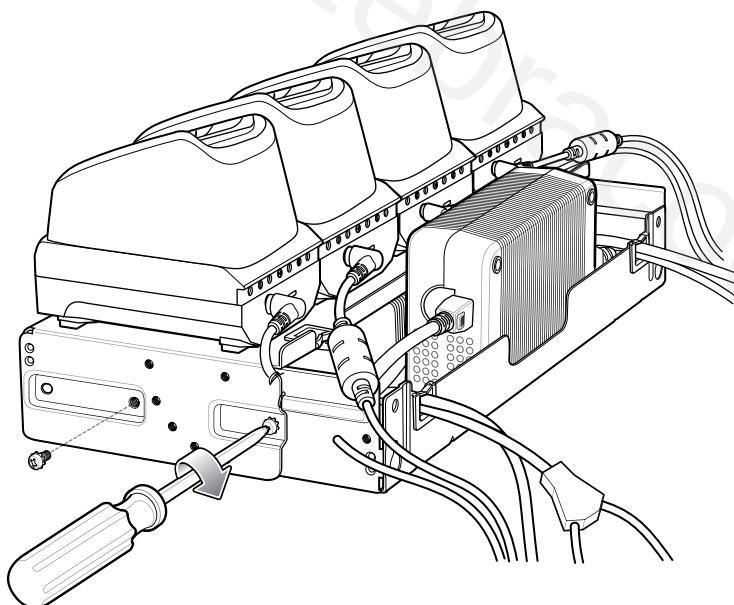
9. Align and install 4-Slot Battery Charger onto four studs.



10. Connect DC Y cables to four 4-Slot Battery Chargers.



11. Secure top tray to bottom tray with four M5 screws (two on each side).



See [Rack Mount Installation on page 159](#) for installing the bracket onto a rack.

Rack Mount Installation



NOTE: Use screws provided with rack system. Refer to rack user documentation for instructions.

1. Secure mounting brackets to both sides of top tray with four M5 screws (two on each side). For 5-Slot cradles, position the flange for horizontal installation. For 4-Slot Battery Chargers, position the flange for 25° installation.

Figure 69 Flange Horizontal Position (5-Slot Cradles)

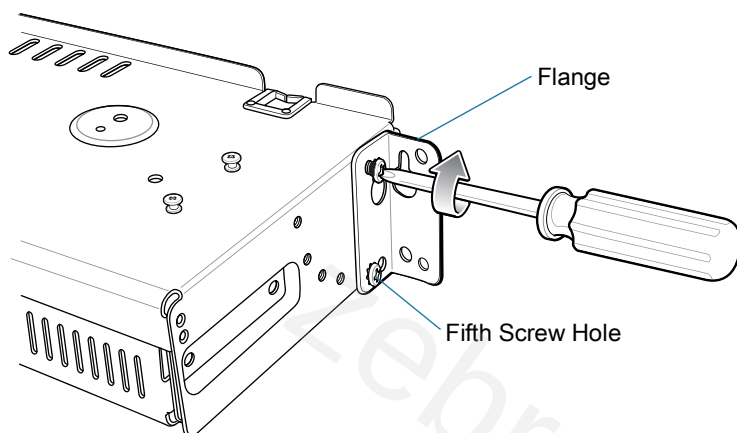
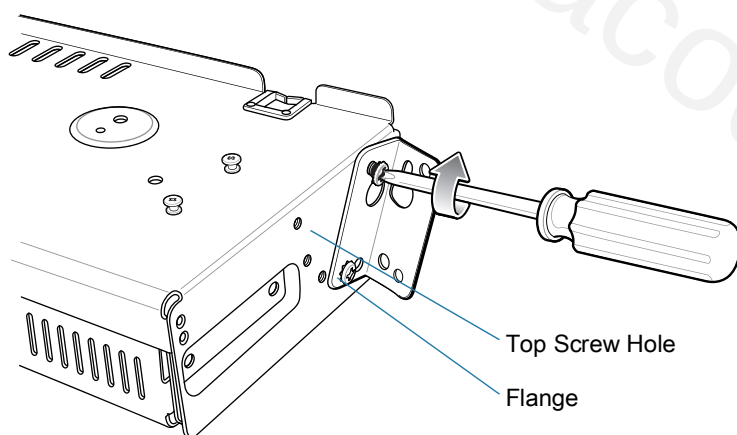


Figure 70 Flange 25° Position (4-Slot Battery Chargers)



CAUTION: Install mounting bracket with 5-Slot cradle at a maximum height of four feet from ground. Install mounting bracket with 4-Slot Battery Charger at a maximum height of three feet from ground.



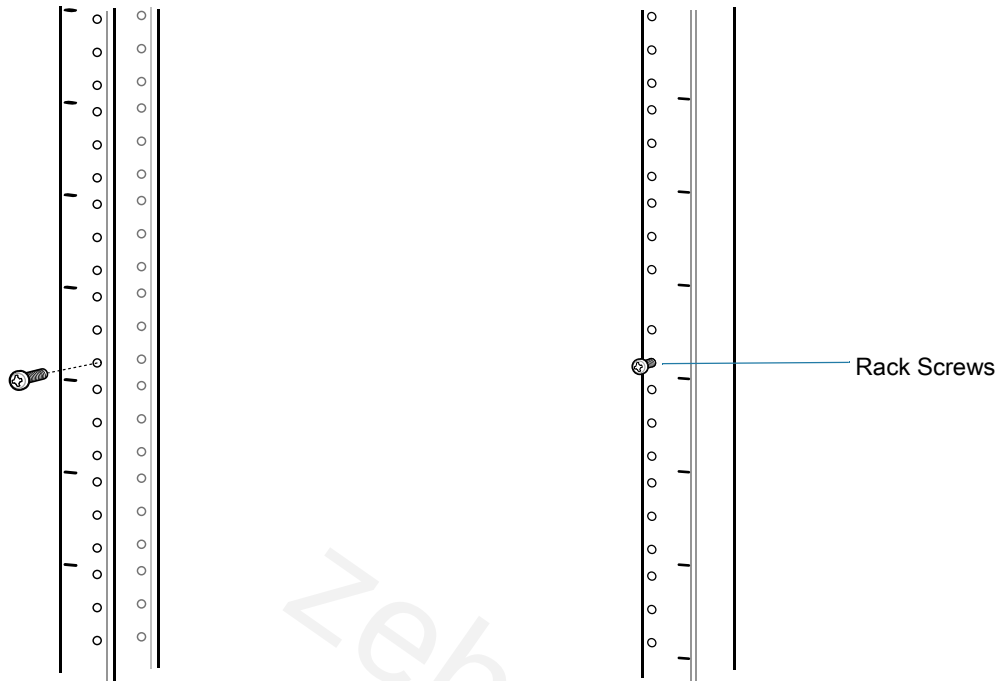
NOTE: Distance between two horizontal mounted brackets should be at least 14" apart (from top of one flange to the top of the next flange).

Distance between a horizontal mounted bracket and a 25° mounted bracket should be at least 16.25" apart (from top of one flange to the top of the next flange).

There should be enough clearance (2.75") between the top of the device and the bottom of the mounting bracket above.

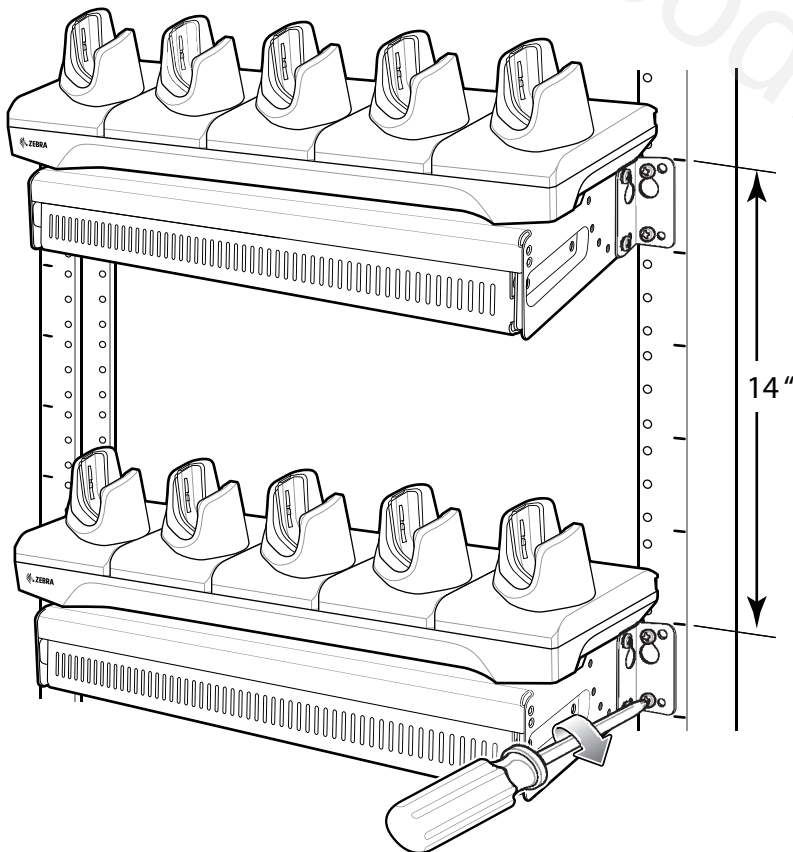
2. Install two rack system screws for top of mounting brackets. The screw heads should protrude half way from the rail.

Figure 71 Install Rack System Screws



3. Align the mounting bracket's top mounting key holes with the screws.
4. Place the brackets on the screws.

Figure 72 Secure Bracket to Rack (Horizontal Position Shown)



5. Secure the top screws.
6. Install bottom screws and tighten screws.
7. Route cables and connect to power source.



CAUTION: Installer should ensure that all building codes are followed when connecting the power supplies to an AC power source.

While installing the brackets, power supplies and cables:

- Use tie wraps to secure cables to the bracket and rails.
- Coil cables wherever possible.
- Route power cables along the rails.
- Route inter-cradle cables to the side rails and then from the rails to the bracket.

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Wall Installation

Use the Rack/Wall Mount Bracket to mount four 4-Slot Battery Chargers or a cradle on a wall. When installing on a wall, first assemble the bottom tray, install the bottom tray on the wall and then assemble the top tray.

Use mounting hardware (screws and/or anchors) appropriate for the type of wall mounting the bracket onto. The Mount Bracket mounting slots dimensions are 5 mm (0.2 in.). Fasteners must be able to hold a minimum of 20 Kg (44 lbs.)

For proper installation consult a professional installer. Failure to install the bracket properly can possibly result in damage to the hardware.



CAUTION: Install mounting bracket with 5-Slot cradle at a maximum height of four feet from ground. Install mounting bracket with 4-Slot Battery Charger at a maximum height of three feet from ground.

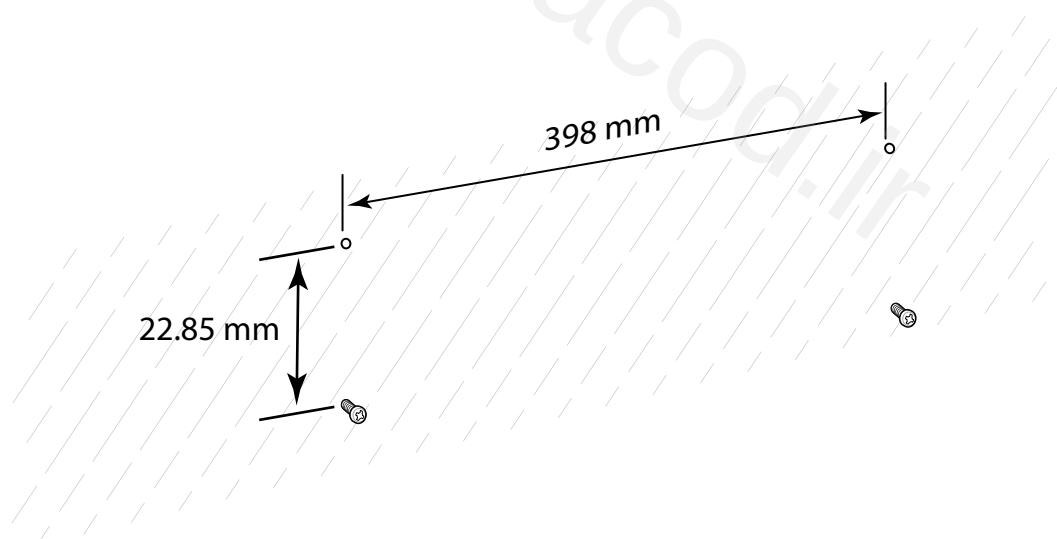
Bottom Tray Assembly

See steps 1 through 5 on page 156 for instructions.

Bracket Wall Mounting

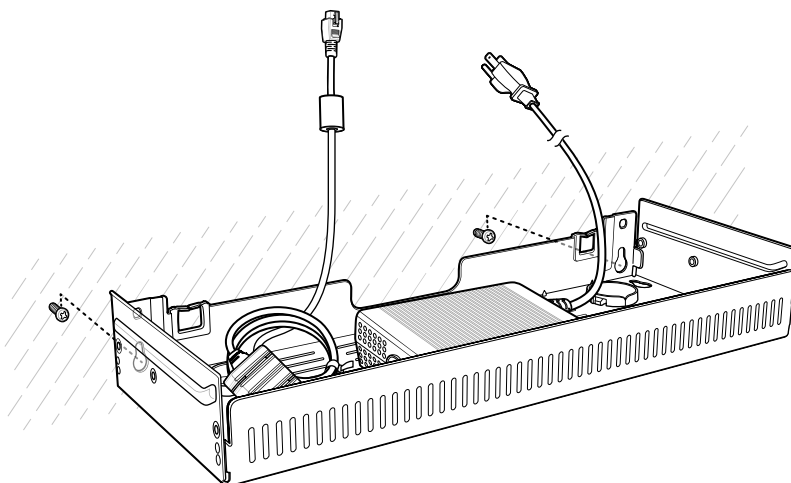
1. Drill holes and install anchors according to the template supplied with the bracket.
2. Install two screws for bottom of bracket. The screw heads should protrude 2.5 mm (0.01") from the wall.

Figure 73 Horizontal Mounting Template

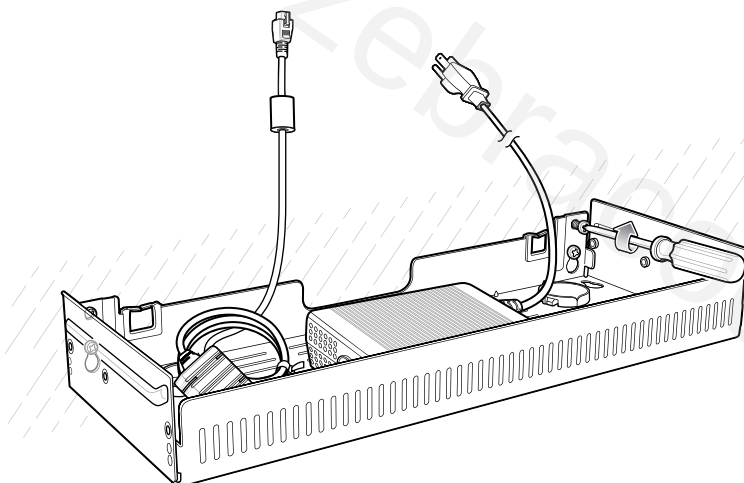


3. Align the mounting bracket's bottom mounting key holes with the screws.

4. Hang the bracket on the screws.



5. Install two top screws.
6. Tighten all screws.



7. Assembly the four 4-Slot Battery Chargers or cradle onto the bracket. See steps 7 through 11 on [page 157](#).
8. Route cables and connect to power source.



CAUTION: Installer should ensure that all building codes are followed when connecting the power supplies to an AC power source.

While installing the brackets, power supplies and cables:

- Use tie wraps to secure cables to the bracket and rails.
- Coil cables wherever possible.
- Route power cables along the rails.
- Route inter-cradle cables to the side rails and then from the rails to the bracket.

Application Deployment

Security

The device 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).



NOTE: Ensure the date is set correctly before installing certificates or when accessing secure web sites.

Secure Certificates

If the VPN or Wi-Fi networks rely on secure certificates, obtain the certificates and store them in the device's secure credential storage, before configuring access to the VPN or Wi-Fi networks.

If downloading the certificates from a web site, set a password for the credential storage. The device supports X.509 certificates saved in PKCS#12 key store files with a .p12 extension (if key store has a .pfx or other extension, change to .p12).

The device also installs any accompanying private key or certificate authority certificates contained in the key store.

Installing a Secure Certificate

To install a secure certificate:

1. Copy the certificate from the host computer to the root of the microSD card or the device's internal memory. See USB Communication for information about connecting the device to a host computer and copying files.
2. Go to **Settings**.
3. Touch **Security > Advanced > Encryption & credentials**.
4. Touch **Install from storage**.
5. Navigate to the location of the certificate file.
6. Touch the filename of the certificate to install.
7. If prompted, enter the password for credential storage. If a password has not been set for the credential storage, enter a password for it twice and then touch **OK**.
8. If prompted, enter the certificate's password and touch **OK**.

9. Enter a name for the certificate and in the Credential use drop-down, select **VPN and apps** or **Wi-Fi**.
10. Touch **OK**.

The certificate can now be used when connecting to a secure network. For security, the certificate is deleted from the microSD card or internal memory.

Configuring Credential Storage Settings

1. Go to **Settings**.
2. Touch **Security > Advanced > Encryption & credentials**.
 - **Trusted credentials** - Touch to display the trusted system and user credentials.
 - **User credentials** - Touch to display user credentials.
 - **Install from storage** - Touch to install a secure certificate from the microSD card or internal storage.
 - **Clear credentials** - Deletes all secure certificates and related credentials.

Development Tools

Android Application Development

Development Workstation

Android development tools are available at developer.android.com.

To start developing applications for the device, download Android Studio. Development can take place on a Microsoft® Windows®, Mac® OS X®, or Linux® operating system.

Applications are written in the Java language, but compiled and executed in the Dalvik virtual machine. Once the Java code is compiled cleanly, the developer tools make sure the application is packaged properly, including the AndroidManifest.xml file.

Android Studio contains a full featured IDE as well as SDK components required to develop Android applications.

Enabling Developer Options

The **Developer options** screen sets development related settings. By default, the Developer Options are hidden.

1. Go to **Settings**.
2. Touch **About phone**.
3. Scroll down to **Build number**.
4. Tap **Build number** seven times. The message **You are now a developer!** appears.
5. Touch the Back button.
6. Touch **System > Advanced > Developer options**.
7. Slide the **USB debugging** switch to the **ON** position.

EMDK for Android

EMDK for Android provides developers with tools to create business applications for enterprise mobile devices. It is designed for use with Google's Android Studio and includes Android class libraries such as Barcode, sample applications with source code, and the associated documentation.

EMDK for Android allows applications to take full advantage of the capabilities that Zebra devices have to offer. It embeds Profile Manager technology within Android Studio IDE, providing a GUI-based development tool designed specifically for Zebra devices. This allows fewer lines of code, resulting in reduced development time, effort, and errors.

For more information go to: techdocs.zebra.com.

StageNow

StageNow is Zebra's next-generation Android Staging Solution built on the MX platform. It allows quick and easy creation of device profiles, and can deploy to devices simply by scanning a bar code, reading a tag, or playing an audio file.

The StageNow Staging Solution includes the following components:

- The StageNow Workstation tool installs on the staging workstation (host computer) and lets the administrator easily create staging profiles for configuring device components, and perform other staging actions such as checking the condition of a target device to determine suitability for software upgrades or other activities. The StageNow Workstation stores profiles and other created content for later use.
- The StageNow Client resides on the device and provides a user interface for the staging operator to initiate staging. The operator uses one or more of the desired staging methods (print and scan a bar code, read an NFC tag or play an audio file) to deliver staging material to the device.

For more information go to: techdocs.zebra.com.

GMS Restricted

GMS Restricted mode deactivates Google Mobile Services (GMS). All GMS apps are disabled on the device and communication with Google (analytics data collection and location services) is disabled.

Use StageNow to disable or enable GMS Restricted mode. After a device is in GMS Restricted mode, enable and disable individual GMS apps and services using StageNow. To ensure GMS Restricted mode persists after an Enterprise Reset, use the Persist Manager option in StageNow. For more information on StageNow, refer to techdocs.zebra.com.

ADB USB Setup

To use the ADB, install the USB driver. This assumes that the development SDK has been installed on the host computer. Go to developer.android.com/sdk/index.html for details on setting up the development SDK.

ADB driver for Windows and Linux are available on the Zebra Support Central web site at www.zebra.com/support. Download the ADB and USB Driver Setup package. Follow the instructions with the package to install the ADB and USB drivers for Windows and Linux.

Enabling USB Debugging

By default, USB debugging is disabled.

1. Go to **Settings**.
2. Touch **About phone**.
3. Scroll down to **Build number**.
4. Tap **Build number** seven times. The message **You are now a developer!** appears.
5. Touch the Back button.
6. Touch **System > Advanced > Developer options**.
7. Slide the **USB debugging** switch to the **ON** position.
8. Touch **OK**.
9. Connect the device to the host computer using the Rugged Charge/USB Cable.
The **Allow USB debugging?** dialog box appears on the device.
10. On the device, touch **OK**.
11. On the host computer, navigate to the **platform-tools** folder.
12. Type **adb devices**.

The following displays:

List of devices attached

XXXXXXXXXXXXXXXXX device (where XXXXXXXXXXXXXXXXXXXX is the device number).



NOTE: If device number does not appear, ensure that ADB drivers are installed properly.

13. Touch the Home button.

Application Installation

After an application is developed, install the application onto the device using one of the following methods:

- USB connection, see [Installing Applications Using the USB Connection on page 167](#).
- Android Debug Bridge, see [Installing Applications Using the Android Debug Bridge on page 168](#).
- microSD Card, see [Installing Applications Using a microSD Card on page 168](#).
- Mobile device management (MDM) platforms that have application provisioning. Refer to the MDM software documentation for details.

Installing Applications Using the USB Connection



CAUTION: When connecting the device to a host computer and mounting the microSD card, follow the host computer's instructions for connecting and disconnecting USB devices, to avoid damaging or corrupting files.

1. **NOTE:** Connect the device to a host computer using the Rugged Charge/USB cable.
2. Pull down the Notification panel and touch **Charging this device via USB**.
3. Touch **File Transfer**.
4. On the host computer, open a file manager application.
5. On the host computer, copy the application .apk file from the host computer to the device.



CAUTION: Carefully follow the host computer's instructions to unmount the microSD card and disconnect USB devices correctly to avoid losing information.

6. Disconnect the device from the host computer.
7. Swipe the screen up and select  to view files on the microSD card or Internal Storage.
8. Locate the application .apk file.
9. Touch the application file.
10. Touch **Continue** to install the app or **Cancel** to stop the installation.
11. To confirm installation and accept what the application affects, touch **Install** otherwise touch **Cancel**.
12. Touch **Open** to open the application or **Done** to exit the installation process. The application appears in the App list.

Installing Applications Using the Android Debug Bridge

Use ADB commands to install application onto the device.



CAUTION: When connecting the device to a host computer and mounting its microSD card, follow the host computer's instructions for connecting and disconnecting USB devices, to avoid damaging or corrupting files.

1. Ensure that the ADB drivers are installed on the host computer. See [ADB USB Setup on page 166](#).
2. Connect the device to a host computer using USB. See [USB Communication](#).
3. Go to **Settings**.
4. Touch **System > Advanced > Developer options**.
5. Slide the switch to the **ON** position.
6. Touch **USB Debugging**. A check appears in the check box. The **Allow USB debugging?** dialog box appears.
7. Touch **OK**.
8. On the host computer, open a command prompt window and use the adb command:
`adb install <application>`
where: <application> = the path and filename of the apk file.
9. Disconnect the device from the host computer. See [USB Communication on page 31](#).

Installing Applications Using a microSD Card



CAUTION: When connecting the device to a host computer and mounting its microSD card, follow the host computer's instructions for connecting and disconnecting USB devices, to avoid damaging or corrupting files.

It is strongly recommended that prior to use, you must format the microSD card on the device.

1. Copy the apk file to the root of the microSD card.
 - Copy the apk file to a microSD card using a host computer (see [USB Communication](#) for more information), and then installing the microSD card into the device (see [Replacing the microSD Card](#) for more information).

- Connect the device with a microSD card already installed to the host computer, and copy apk file to the microSD card. See USB Communication for more information. Disconnect the device from the host computer.
- 2. Connect the device to a host computer using USB. See USB Communication.
- 3. Copy the application APK file from the host computer to the microSD card.
- 4. Remove the microSD card from the host computer.
- 5. Press and hold the Power button on the device until the menu appears.
- 6. Touch **Power off**.
- 7. Press the two battery latches in.
- 8. Lift the battery from the device.
- 9. Lift the access door.
- 10. Insert the microSD card.
- 11. Replace the access door.
- 12. Insert the battery, bottom first, into the battery compartment in the back of the device.
- 13. Press the battery down until the battery release latches snap into place.
- 14. Press and hold the Power button to turn on the device.
- 15. Swipe the screen up and select  to view files on the microSD card.
- 16. Touch  > **SD card**.
- 17. Locate the application .apk file.
- 18. Touch the application file.
- 19. Touch **Continue** to install the app or **Cancel** to stop the installation.
- 20. To confirm installation and accept what the application affects, touch **Install** otherwise touch **Cancel**.
- 21. Touch **Open** to open the application or **Done** to exit the installation process. The application appears in the App list.

Uninstalling an Application

1. Go to **Settings**.
2. Touch **Apps & notifications**.
3. Touch **See all apps** to view all apps in the list.
4. Scroll through the list to the app.
5. Touch the app. The **App info** screen appears.
6. Touch **Uninstall**.
7. Touch **OK** to confirm.

Performing a System Update

System Update packages can contain either partial or complete updates for the operating system. Zebra distributes the System Update packages on the Zebra Support & Downloads web site. Perform a system update using either a microSD card or using ADB.

Downloading the System Update Package

1. Go to the Zebra Support & Downloads web site, www.zebra.com/support.
2. Download the appropriate System Update package to a host computer.

Performing a System Update Using microSD Card

It is strongly recommended that prior to use, you must format the microSD card on the device.

1. Copy the System Update zip file to the root of the microSD card.
 - Copy the zip file to a microSD card using a host computer (see USB Communication for more information), and then installing the microSD card into the device (see Replacing the microSD Card for more information).
 - Connect the device with a microSD card already installed to the host computer, and copy zip file to the microSD card. See USB Communication for more information. Disconnect the device from the host computer.
2. Press and hold the Power button until the menu appears.
3. Touch **Restart**.
4. Touch **OK**. The device resets.
5. Press and hold the PTT button until the device vibrates. The System Recovery screen appears.
6. Press the Volume Up and Volume Down buttons to navigate to **apply from sdcard**.
7. Press the Power button.
8. Press the Volume Up and Volume Down buttons to navigate to **Full OTA Package** or **Diff OTA Package**.
9. Press the Power button.
10. Press the Volume Up and Volume Down buttons to navigate to the System Update file.
11. Press the Power button. The System Update installs and then the device returns to the Recovery screen.
12. Press the Power button to reboot the device.

Performing a System Update Using ADB

1. Connect the device to a host computer using the Rugged Charge/USB cable or by inserting the device into the 1-Slot USB/Charge Only Cradle.
2. Go to **Settings**.
3. Touch **System > Advanced > Developer options**.
4. Slide the switch to the **ON** position.
5. Touch **USB Debugging**. A check appears in the check box. The **Allow USB debugging?** dialog box appears.
6. Touch **OK**.

7. On the host computer, open a command prompt window and use the adb command:

adb devices

The following displays:

List of devices attached

XXXXXXXXXXXXXXXX device (where XXXXXXXXXXXXXXXXXXXX is the device number).



NOTE: If device number does not appear, ensure that ADB drivers are installed properly.

8. Type the following and press Enter:

adb reboot recovery

The System Recovery screen appears on the device.

9. Press the Volume Up and Volume Down buttons to navigate to **apply from adb**.

10. Press the Power button.

11. Use the Volume Up and Volume Down buttons to navigate to **Full OTA Package** or **Diff OTA Package**.

12. Press the Power button.

13. On the host computer command prompt window type the following and press Enter:

adb sideload <file>

where: <file> = the path and filename of the zip file.

The System Update installs (progress appears as percentage in the Command Prompt window) and then the System Recovery screen appears on the device.

14. Press the Power button to reboot the device.

Verifying System Update Installation

1. Go to **Settings**.
2. Touch **About phone**.
3. Scroll down to **Build number**.
4. Ensure that the build number matches the new system update package file number.

Enterprise Reset

An Enterprise Reset erases all user data in the **/data** partition, including data in the primary storage locations (**/sdcard** and emulated storage).

Before performing an Enterprise Reset, provision all necessary configuration files and restore after the reset.

Perform Enterprise Reset from the device settings, using a microSD card, or using ADB.

Performing an Enterprise Reset From Device Settings

1. Go to **Settings**.
2. Touch **System > Reset options > Erase all data (enterprise reset)**.
3. Touch **Erase all data** twice to confirm the Enterprise Reset.

Downloading the Enterprise Reset Package

1. Go to the Zebra Support & Downloads web site, www.zebra.com/support.
2. Download the Enterprise Reset file to a host computer.

Performing an Enterprise Reset Using microSD Card

1. Copy the Enterprise Reset zip file to the root of the microSD card.
 - Copy the zip file to a microSD card using a host computer (see USB Communication for more information) and then installing the microSD card into the device (see Replacing the microSD Card for more information).
 - Connect the device with a microSD card already installed to the host computer and copy zip file to the microSD card. See USB Communication for more information. Disconnect the device from the host computer.
2. Press and hold the Power button until the menu appears.
3. Touch **Restart**.
4. Press the Volume Up and Volume Down buttons to navigate to **apply from sdcard**.
5. Press the Power button.
6. Press the Volume Up and Volume Down buttons to navigate to **Full OTA Package** or **Diff OTA Package**.
7. Press the Power button.
8. Press the Volume Up and Volume Down buttons to navigate to the System Update file.
9. Press the Power button. The System Update installs and then the device returns to the Recovery screen.
10. Press the Power button to reboot the device.
11. Touch **OK**. The device resets.
12. Press and hold the PTT button until the device vibrates. The System Recovery screen appears.
13. Press the Volume Up and Volume Down buttons to navigate to **apply from sdcard**.
14. Press the Power button.
15. Use the Volume Up and Volume Down buttons to navigate to **Full OTA Package**.
16. Press the Power button.
17. Use the Volume Up and Volume Down buttons to navigate to the Enterprise Reset file.
18. Press the Power button. The Enterprise Reset occurs and then the device returns to the Recovery screen.
19. Press the Power button to reboot the device.

Performing an Enterprise Reset Using ADB

1. Connect the device to the Rugged Charge/USB cable or insert the device into the 1-Slot USB/Charge Only Cradle.
2. Connect the cable or cradle to the host computer.
3. Go to **Settings**.

4. Touch **System > Advanced > Developer options**.
5. Slide the switch to the **ON** position.
6. Touch **USB Debugging**. A check appears in the check box. The **Allow USB debugging?** dialog box appears.
7. Touch **OK**.
8. On the host computer, open a command prompt window and type:
`adb devices.`

The following displays:

List of devices attached

XXXXXXXXXXXXXXX device (where XXXXXXXXXXXXXXXX is the device number).



NOTE: If device number does not appear, ensure that ADB drivers are installed properly.

9. Type the following and press Enter:

`adb reboot recovery`

The System Recovery screen appears on the device.

10. Press the Volume Up and Volume Down buttons to navigate to **apply from adb**.
11. Press the Power button.
12. Press the Volume Up and Volume Down buttons to navigate to **Full OTA Package**.
13. Press the Power button.
14. On the host computer command prompt window type the following and press Enter:
`adb sideload <file>`
where: <file> = the path and filename of the zip file.
The Enterprise Reset package installs and then the System Recovery screen appears on the device.
15. Press the Power button to reboot the device.

Performing a Factory Reset

A Factory Reset erases all data in the **/data** and **/enterprise** partitions in internal storage and clears all device settings. A Factory Reset returns the device to the last installed operating system image. To revert to a previous operating system version, re-install that operating system image. See [Performing a System Update](#) for more information.

Downloading the Factory Reset Package

To download the Factory Reset package:

1. Go to the Zebra Support & Downloads web site, www.zebra.com/support.
2. Download the appropriate Factory Reset file to a host computer.

Performing a Factory Reset Using microSD Card

1. Copy the Factory Reset zip file to the root of the microSD card.

- Copy the zip file to a microSD card using a host computer (see USB Communication for more information) and then installing the microSD card into the device (see Replacing the microSD Card for more information).
 - Connect the device with a microSD card already installed to the host computer and copy zip file to the microSD card. See USB Communication for more information. Disconnect the device from the host computer.
2. Press and hold the Power button until the menu appears.
 3. Touch **Reboot**.
 4. Touch **OK**. The device resets.
 5. Press and hold the PTT button until the device vibrates. The System Recovery screen appears.
 6. Press the Volume Up and Volume Down buttons to navigate to **apply from sdcard**.
 7. Use the Volume Up and Volume Down buttons to navigate to **Full OTA Package**.
 8. Press the Power button.
 9. Use the Volume Up and Volume Down buttons to navigate to the Factory Reset file.
 10. Press the Power button. The Factory Reset occurs and then the device returns to the Recovery screen.
 11. Press the Power button to reboot the device.

Performing a Factory Reset Using ADB

To perform an Factory Reset using ADB:

1. Connect the device to the Rugged Charge/USB cable or insert the device into the 1-Slot USB/Charge Only Cradle.
2. Connect the cable or cradle to the host computer.
3. Go to **Settings**.
4. Touch **System > Advanced > Developer options**.
5. Slide the switch to the **ON** position.
6. Touch **USB Debugging**. A check appears in the check box. The **Allow USB debugging?** dialog box appears.
7. Touch **OK**.
8. On the host computer, open a command prompt window and type:

```
adb devices.
```

The following displays:

```
List of devices attached
```

```
XXXXXXXXXXXXXXXX device (where XXXXXXXXXXXXXXXXXXXX is the device number).
```



NOTE: If device number does not appear, ensure that ADB drivers are installed properly.

9. Type the following and press Enter:

```
adb reboot recovery
```

The System Recovery screen appears on the device.

10. Press the Volume Up and Volume Down buttons to navigate to **apply from adb**.

11. Press the Power button.
12. Press the Volume Up and Volume Down buttons to navigate to **Full OTA Package**.
13. Press the Power button.
14. On the host computer command prompt window type the following and press Enter:
`adb sideload <file>`
where: <file> = the path and filename of the zip file.
The Factory Reset package installs and then the System Recovery screen appears on the device.
15. Press the Power button to reboot the device.

Storage

The device contains the following types of file storage:

- Random Access Memory (RAM)
- Internal storage
- External storage (microSD card)
- Enterprise folder.

Random Access Memory

Executing programs use RAM to store data. Data stored in RAM is lost upon a reset. The operating system manages how applications use RAM. It only allows applications and component processes and services to use RAM when required. It may cache recently used processes in RAM, so they restart more quickly when opened again, but it will erase the cache if it needs the RAM for new activities.

The screen displays the amount of used and free RAM.

- **Performance** - Indicates memory performance.
- **Total memory** - Indicates the total amount of RAM available.
- **Average used (%)** - Indicates the average amount of memory (as a percentage) used during the period of time selected (default - 3 hours).
- **Free** - Indicates the total amount of unused RAM.
- **Memory used by apps** - Touch to view RAM usage by individual apps.

Viewing Memory

1. Go to **Settings**.
2. Touch **System > Advanced > Developer options > Memory**.

Internal Storage

The device has internal storage. The internal storage content can be viewed and files copied to and from when the device is connected to a host computer. Some applications are designed to be stored on the internal storage rather than in internal memory.

Viewing Internal Storage

1. Go to **Settings**.

2. Touch **Storage**.

- **Internal Storage** - Displays the total amount of space on internal storage and amount used.

If the device has removable storage installed, touch **Internal shared storage** to display a the amount of internal storage used by apps, photos, videos, audio and other files.

External Storage

The device can have a removable microSD card. The microSD card content can be viewed and files copied to and from when the device is connected to a host computer.

Viewing External Storage

1. Go to **Settings**.

2. Touch **Storage**.

Portable storage displays the total amount of space on the installed microSD card and the amount used.

To unmount the microSD card, touch ▲.

Touch **SD card** to view the contents of the card.

Formatting a microSD Card

1. Touch **SD card**.

2. Touch ⋮ > **Storage settings**.

3. Touch **Format**.

4. Touch **ERASE & FORMAT**.

5. Touch **DONE**.

Formatting a microSD Card as Internal Memory

You can format a microSD card as internal memory to increase the actual amount of the device's internal memory. Once formatted, the microSD card can only be read by this device.

1. Touch **SD card**.

2. Touch ⋮ > **Storage settings**.

3. Touch **Format as internal**.

4. Touch **ERASE & FORMAT**.

5. Touch **DONE**.

Enterprise Folder

The Enterprise folder (within internal flash) is a super-persistent storage that is persistent after a reset and an Enterprise Reset. The Enterprise folder is erased during a Factory Reset. The Enterprise folder is used for deployment and device-unique data. The Enterprise folder is approximately 128 MB (formatted). Applications can persist data after an Enterprise Reset by saving data to the enterprise/user folder. The folder is ext4 formatted and is only accessible from a host computer using ADB or from an MDM.

Managing Apps

Apps use two kinds of memory: storage memory and RAM. Apps use storage memory for themselves and any files, settings, and other data they use. They also use RAM when they are running.

1. Go to **Settings**.
2. Touch **Apps & notifications**.
3. Touch **See all XX apps** to view all apps on the device.
4. Touch **⋮ > Show system** to include system processes in the list.
5. Touch an app, process, or service in the list to open a screen with details about it and, depending on the item, to change its settings, permissions, notifications and to force stop or uninstall it.

App Details

Apps have different kinds of information and controls.

- **Force stop** - Stop an app.
- **Disable** - Disable an app.
- **Uninstall** - Remove the app and all of its data and settings from the device. See Uninstalling an Application for information about uninstalling apps.
- **Notifications** - Set the app notification settings.
- **Permissions** - Lists the areas on the device that the app has access to.
- **Storage & cache** - Lists how much information is stored, and includes buttons for clearing it.
- **Mobile data & Wi-Fi** - Provides information about data consumed by an app.
- **Advanced**
 - **Screen time** - Displays the amount of time the app has displayed on the screen.
 - **Battery** - Lists the amount of computing power used by the app.
 - **Open by default** - If you have configured an app to launch certain file types by default, you can clear that setting here.
 - **Display over other apps** - allows an app to display on top of other apps.
 - **App details** - Provides a link to additional app details on the Play store.
 - **Additional settings in the app** - Opens settings in the app.
 - **Modify system settings** - Allows an app to modify the system settings.

Managing Downloads

Files and apps downloaded using the Browser or Email are stored on the microSD card or Internal storage in the Download directory. Use the Downloads app to view, open, or delete downloaded items.

1. Swipe the screen up and touch .
2. Touch **≡ > Downloads**.
3. Touch and hold an item, select items to delete and touch . The item is deleted from the device.

Maintenance and Troubleshooting

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

Maintaining the Device

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

- To avoid scratching the screen, 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 device screen.
- The touch-sensitive screen of the device is glass. Do not drop the device or subject it to strong impact.
- Protect the device from temperature extremes. Do not leave it on the dashboard of a car on a hot day, and keep it away from heat sources.
- Do not store the device in any location that is dusty, damp, or wet.
- Use a soft lens cloth to clean the device. If the surface of the device screen becomes soiled, clean it with a soft cloth moistened with an approved cleanser. For a list of approved cleansers, see [Approved Cleaning and Disinfectant Agents for TC52 on page 180](#) or [Approved Cleaning and Disinfectant Agents for TC52-HC on page 180](#).
- Periodically replace the rechargeable battery to ensure maximum battery life and product performance. Battery life depends on individual usage patterns.

Display Best Practices

Image Retention

Image retention may occur when a static image continuously displays for extended periods of time. A user may see a faint remnant of the image even after a new image displays. To prevent image retention:

- Set the display to turn off after a few minutes of idle time.
- Rotate background images on a periodic basis.
- Turn off the display when the device is not in use.
- Use a screen saver with the following characteristics:
 - background color set to black
 - use a small moving image (approximately 2% of the display size).
 - move the image randomly across the screen

- screen saver should be active as long as the static image is used.

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 +41°F and +104°F (5°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 Global 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.
- 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 promptly dispose of used re-chargeable batteries.
- Do not dispose of batteries in fire.
- Seek medical advice immediately if a battery has been swallowed.
- 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 Global support to arrange for inspection.

Cleaning Instructions



CAUTION: Always wear eye protection.

Read warning label on alcohol product before using.

If you have to use any other solution for medical reasons please contact the Global Customer Support Center 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.

Cleaning and Disinfecting Guidelines

- Turn off and/or disconnect the device from AC/DC power.

- To avoid damage to the device or accessory, use only approved cleaning and disinfecting agents specified for the device.
- Follow the manufacturer's directions on the approved cleaning and disinfecting agent for how to use their product properly and safely.
- Use pre-moistened wipes or dampen a soft sterile cloth (not wet) with the approved agent. Never spray or pour chemical agents directly onto the device.
- Use a moistened cotton-tipped applicator to reach tight or inaccessible areas. Be sure to remove any lint left over by the applicator.
- Do not allow liquid to pool.
- Allow the device to air dry before use, or dry with a soft lint-free cloth or towelette. Ensure electrical contacts are fully dry before reapplying power

Approved Cleaning and Disinfectant Agents for TC52

100% of the active ingredients in any cleaner must consist of one or some combination of the following: isopropyl alcohol, bleach/sodium hypochlorite¹ (see important note below), hydrogen peroxide, ammonium chloride, or mild dish soap.



IMPORTANT: Use pre-moistened wipes and do not allow liquid cleaner to pool.

¹When using sodium hypochlorite (bleach) based products always follow the manufacturer's recommended instructions: use gloves during application and remove the residue afterwards with a damp alcohol cloth or a cotton swab to avoid prolonged skin contact while handling the device.

Due to the powerful oxidizing nature of sodium hypochlorite the metal surfaces on the device are prone to oxidation (corrosion) when exposed to this chemical in the liquid form (including wipes). In the event that these type of disinfectants come in contact with metal on the device, prompt removal with an alcohol-dampened cloth or cotton swab after the cleaning step is critical.

Approved Cleaning and Disinfectant Agents for TC52-HC

For detailed information on approved cleaning and disinfectant agents for the TC52-HC configuration, see at www.zebra.com/tc5x-hc-cleaning.

Special Cleaning Notes

The device 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 device, such as hand sanitizer that contain ethanolamine, hands must be completely dry before handling the device to prevent damage to the device.



IMPORTANT: If the battery connectors are exposed to cleaning agents, thoroughly wipe off as much of the chemical as possible and clean with an alcohol wipe. It is also recommended to install the battery in the terminal prior to cleaning and disinfecting the device to help minimize buildup on the connectors.

When using cleaning/disinfectant agents on the device, it is important to follow the directions prescribed by the cleaning/disinfectant agent manufacturer.

Cleaning Frequency

The cleaning frequency is at the customer's discretion due to the varied environments in which the mobile devices are used and may be cleaned as frequently as required. When dirt is visible, it is recommended to clean the mobile device to avoid build up of particles which make the device more difficult to clean later on.

For consistency and optimum image capture, it is recommended to clean the camera window periodically especially when used in environments prone to dirt or dust.

Cleaning the Device

Housing

Thoroughly wipe the housing, including all buttons and triggers, using an approved alcohol wipe.

Display

The display can be wiped down with an approved alcohol wipe, 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.

Camera and Exit Window

Wipe the camera and exit window periodically with a lens tissue or other material suitable for cleaning optical material such as eyeglasses.

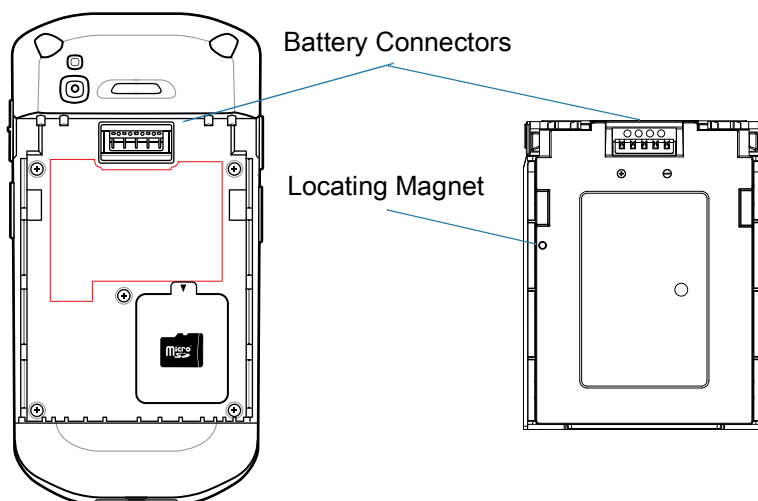
Battery Guide Slots

Insert a cotton-tipped applicator dipped in alcohol into the battery guide rails to clean out debris and then dry with a dry cotton-tipped applicator.

Battery Connector and Locating Magnet Cleaning

To clean the battery connectors and locating magnet:

Figure 74 Battery Connectors and Locating Magnet



1. Remove the main battery from the mobile computer.
2. Dip the cotton portion of the cotton-tipped applicator in isopropyl alcohol.
3. To remove any grease or dirt, rub the cotton portion of the cotton-tipped applicator back-and-forth across the locating magnet and the connectors on the battery and terminal sides. Do not leave any cotton residue on the connectors or magnet.
4. Repeat at least three times.
5. Use a dry cotton-tipped applicator and repeat steps 3 and 4. Do not leave any cotton residue on the connectors or magnet.
6. Inspect the area for any grease or dirt and repeat the cleaning process if necessary.



CAUTION: After cleaning the battery connectors or locating magnet with bleach-based chemicals, follow the Battery Connector and Locator Magnet Cleaning instructions to remove bleach from the connectors and locating magnet.

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 leave any cotton residue on the connector.
4. All sides of the connector should also be rubbed with the cotton-tipped applicator.
5. Remove any lint left by the cotton-tipped applicator.
6. If grease and other dirt can be found on other areas of the cradle, use a lint-free cloth and alcohol to remove.
7. 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 low humidity requires less drying time.



CAUTION: After cleaning the cradle connectors with bleach-based chemicals, follow the Cleaning Cradle Connectors instructions to remove bleach from the connectors.

Troubleshooting

Resetting the Device

There are two reset functions, soft reset and hard reset.

Performing a Soft Reset

Perform a soft reset if applications stop responding.

1. Press and hold the Power button until the menu appears.
2. Touch **Restart**.

3. The device reboots.

Performing a Hard Reset



CAUTION: Performing a hard reset with a microSD card installed in the device may cause damage or data corruption to the microSD card.

Perform a hard reset if the device stops responding.

1. Simultaneously press the Power, left scan, and Volume Up buttons for at least four seconds.
2. When the screen turns off, release the buttons.
3. The device reboots.

TC52

Table 16 Troubleshooting the TC52

Problem	Cause	Solution
After installing the battery, the device does not boot up.	Power button was not pressed.	Press the Power button.
When pressing the power button the device does not turn on.	Battery not charged.	Charge or replace the battery in the device.
	Battery not installed properly.	Install the battery properly.
	System crash.	Perform a reset.
When pressing the power button the device 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 device.
Battery did not charge.	Battery failed.	Replace battery. If the device still does not operate, perform a reset.
	Device removed from cradle while battery was charging.	Insert device in cradle. See Charging the Battery on page 20 .
	Extreme battery temperature.	Battery does not charge if ambient temperature is below 5°C (41°F) or above 40°C (104°F).
Cannot see characters on display.	Device not powered on.	Press the Power button.

Table 16 Troubleshooting the TC52 (Continued)

Problem	Cause	Solution
During data communication with a host computer, no data transmitted, or transmitted data was incomplete.	Device removed from cradle or disconnected from host computer during communication.	Replace the device 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.
During data communication over Wi-Fi, no data transmitted, or transmitted data was incomplete.	Wi-Fi radio is not on.	Turn on the Wi-Fi radio.
	You moved out of range of an access point.	Move closer to an access point.
During data communication over Bluetooth, no data transmitted, or transmitted data was incomplete.	Bluetooth radio is not on.	Turn on the Bluetooth radio.
	You moved out of range of another Bluetooth device.	Move within 10 meters (32.8 feet) of the other device.
No sound.	Volume setting is low or turned off.	Adjust the volume.
Device shuts off.	Device is inactive.	The display turns off after a period of inactivity. Set this period to 15 seconds, 30 seconds, 1, 2, 5, 10, or 30 minutes.
	Battery is depleted.	Replace the battery.
Tapping the window buttons or icons does not activate the corresponding feature.	The device is not responding.	Reboot the device.
A message appears stating that the device memory is full.	Too many files stored on the device.	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 device.	Remove user-installed applications on the device to recover memory. Select Settings > Apps & notifications . Select the app in the list and select UNINSTALL .

Table 16 Troubleshooting the TC52 (Continued)

Problem	Cause	Solution
The device does not decode with reading bar code.	Scanning application is not loaded.	Load a scanning application on the device or enable DataWedge. See the system administrator.
	Unreadable bar code.	Ensure the symbol is not defaced.
	Distance between exit window and bar code is incorrect.	Place the device within proper scanning range.
	Device is not programmed for the bar code.	Program the device to accept the type of bar code being scanned. Refer to the EMDK or DataWedge application.
	Device is not programmed to generate a beep.	If the device does not beep on a good decode, set the application to generate a beep on good decode.
	Battery is low.	If the scanner stops emitting a laser beam upon a trigger press, check the battery level. When the battery is low, the scanner shuts off before the device low battery condition notification. Note: If the scanner is still not reading symbols, contact the distributor or the Global Customer Support Center.
Device cannot find any Bluetooth devices nearby.	Too far from other Bluetooth devices.	Move closer to the other Bluetooth device(s), within a range of 10 meters (32.8 feet).
	The Bluetooth device(s) nearby are not turned on.	Turn on the Bluetooth device(s) to find.
	The Bluetooth device(s) are not in discoverable mode.	Set the Bluetooth device(s) to discoverable mode. If needed, refer to the device's user documentation for help.
Cannot unlock device.	User enters incorrect password.	If the user enters an incorrect password five times, the user is requested to wait for 30 seconds when using a PIN, Pattern or Password.

1-Slot Charge Only Cradle

Table 17 Troubleshooting the 1-Slot Charge Only Cradle

Symptom	Possible Cause	Action
LEDs do not light when device 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.
	Device is not seated firmly in the cradle.	Remove and re-insert the device 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 17 Troubleshooting the 1-Slot Charge Only Cradle (Continued)

Symptom	Possible Cause	Action
Device battery is not charging.	Device was removed from cradle or cradle was unplugged from AC power too soon.	Ensure cradle is receiving power. Ensure device is seated correctly. Confirm main battery is charging. The battery charges from fully depleted to 90% in approximately 2.5 hours, and from fully depleted to 100% in approximately three hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The device is not fully seated in the cradle.	Remove and re-insert the device into the cradle, ensuring it is firmly seated.
	Extreme battery temperature.	Battery does not charge if ambient temperature is below 5°C (41°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. The battery charges from fully depleted to 90% in approximately 2.5 hours, and from fully depleted to 100% in approximately three hours.
	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.

1-Slot Workstation Docking Cradle

Table 18 Troubleshooting the 1-Slot Workstation Docking Cradle

Symptom	Possible Cause	Action
LEDs do not light when device is inserted.	Cradle is not receiving power.	Ensure the power cable is connected securely to both the cradle and to AC power.
	Device is not seated firmly in the cradle.	Remove and re-insert the device into the cradle, ensuring it is firmly seated.
Device battery is not charging.	Device was removed from cradle or cradle was unplugged from AC power too soon.	Ensure cradle is receiving power. Ensure device is seated correctly. Confirm main battery is charging. The battery charges from fully depleted to 90% in approximately 2.5 hours, and from fully depleted to 100% in approximately three hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The device is not fully seated in the cradle.	Remove and re-insert the device 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).
External monitor is not detected.	The device is powered off when placed in the cradle and then turned on.	Remove the device from the cradle and re-insert. The device will then detect the monitor.

Table 18 Troubleshooting the 1-Slot Workstation Docking Cradle (Continued)

Symptom	Possible Cause	Action
Display does not change orientation quickly.	It takes a little time for the device to recognize the monitor.	Wait for screen to re-orientate.
Devices does not switch to landscape mode.	Device not detecting monitor.	Remove the device from the cradle and re-insert.
	Display setting not set properly.	Go to Settings > Display > When device detects external monitor . Ensure Rotate screen orientation is selected.
Peripheral not detected.	Bad cable connection.	Remove cable and re-connect.

2-Slot USB/Ethernet Cradle

Table 19 Troubleshooting the 2-Slot USB/Ethernet Cradle

Symptom	Possible Cause	Action
LEDs do not light when device 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.
	Device is not seated firmly in the cradle.	Remove and re-insert the device 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.
Device battery is not charging.	Device was removed from cradle or cradle was unplugged from AC power too soon.	Ensure cradle is receiving power. Ensure device is seated correctly. Confirm main battery is charging. The battery charges from fully depleted to 90% in approximately 2.5 hours, and from fully depleted to 100% in approximately three hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The device is not fully seated in the cradle.	Remove and re-insert the device 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. The battery charges from fully depleted to 90% in approximately 2.5 hours, and from fully depleted to 100% in approximately three hours.
	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.

4-Slot Charge Only Cradle with Battery Charger Troubleshooting

Table 20 Troubleshooting the 4-Slot Charge Only Cradle with Battery Charger

Problem	Cause	Solution
Battery is not charging.	Device removed from the cradle too soon.	Replace the device in the cradle. The battery charges from fully depleted to 90% in approximately 2.5 hours, and from fully depleted to 100% in approximately three hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	Device is not inserted correctly in the cradle.	Remove the device and reinsert it correctly. Verify charging is active. Touch ⚙️ > System > About phone > Status to view battery status.
	Ambient temperature of the cradle is too warm.	Move the cradle to an area where the ambient temperature is between 5°C (+41°F) and +40°C (+104°F).

5-Slot Charge Only Cradle Troubleshooting

Table 21 Troubleshooting the 5-Slot Charge Only Cradle

Problem	Cause	Solution
Battery is not charging.	Device removed from the cradle too soon.	Replace the device in the cradle. The battery charges from fully depleted to 90% in approximately 2.5 hours, and from fully depleted to 100% in approximately three hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	Device is not inserted correctly in the cradle.	Remove the device and reinsert it correctly. Verify charging is active. Touch ⚙️ > System > About phone > Status to view battery status.
	Ambient temperature of the cradle is too warm.	Move the cradle to an area where the ambient temperature is between 5°C (+41°F) and +40°C (+104°F).

5-Slot Ethernet Cradle Troubleshooting

Table 22 Troubleshooting the 5-Slot Ethernet Cradle

Problem	Cause	Solution
During communication, no data transmits, or transmitted data was incomplete.	Device removed from cradle during communication s.	Replace device in cradle and retransmit.
	Incorrect cable configuration.	Ensure that the correct cable configuration.
	Device has no active connection.	An icon is visible in the status bar if a connection is currently active.
Battery is not charging.	Device removed from the cradle too soon.	Replace the device in the cradle. The battery charges from fully depleted to 90% in approximately 2.5 hours, and from fully depleted to 100% in approximately three hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	Device is not inserted correctly in the cradle.	Remove the device and reinsert it correctly. Verify charging is active. Touch ⚙ > System > About phone > Status to view battery status.
	Ambient temperature of the cradle is too warm.	Move the cradle to an area where the ambient temperature is between 5°C (+41°F) and +40°C (+104°F).

4-Slot Battery Charger Troubleshooting

Table 23 Troubleshooting the 4-Slot Battery Charger

Problem	Cause	Solution
Spare Battery Charging LED does not light when spare battery is inserted.	Spare battery is not correctly seated.	Remove and re-insert the spare battery into the charging slot, ensuring it is correctly seated.

Table 23 Troubleshooting the 4-Slot Battery Charger (Continued)

Problem	Cause	Solution
Spare Battery not charging.	Charger is not receiving power.	Ensure the power cable is connected securely to both the charger and to AC power.
	Spare battery is not correctly seated.	Remove and re-insert the battery into the battery adapter, ensuring it is correctly seated.
	Battery adapter is not seated properly.	Remove and re-insert the battery adapter into the charger, ensuring it is correctly seated.
	Battery was removed from the charger or charger was unplugged from AC power too soon.	Ensure charger is receiving power. Ensure the spare battery is seated correctly. The battery charges from fully depleted to 90% in approximately 2.5 hours and from fully depleted to 100% in approximately three hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.

Technical Specifications

For device technical specifications, go to
www.zebra.com/us/en/products/spec-sheets/mobile-computers/handheld/tc52-tc57.html.

Table 24 Data Capture Supported Symbolologies

Item	Description
1D Bar Codes	Chinese 2 of 5, Codabar, Code 11, Code 128, Code 39, Code 93, Discrete 2 of 5, EAN-13, EAN-8, Interleaved 2 of 5, MSI, UPCA, UPCE, UPCE1, ISBN/Bookland, ISSN, Coupon Code, Matrix 2 of 5
2D Bar Codes	Australian Post, Aztec Code, Canada Postal, Composite AB, Composite C, DataMatrix, Dutch Postal, GS1 DataBar, GS1 Expanded, GS1 Limited, GS1 Datamatrix, Han Xin, Japan Postal, Maxicode, Micro PDF, Micro QR Code, PDF-417, QR Code, TLC-39, PDF-417, UK Postal, US4state, US4State FICS, US Planet, US Postnet

Decode Distances

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 25 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

Table 25 SE4710 Decode Distances (Continued)

Symbol Density/ Bar Code Type	Typical Working Ranges	
	Near	Far
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.		

I/O Connector Pin-Outs

Figure 75 I/O Connector

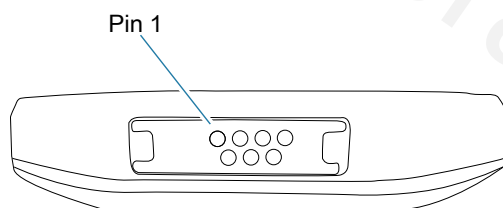


Table 26 I/O Connector Pin-Outs

Pin	Signal	Description
1	VBUS	USB Power Input
2	D-	USB Data-
3	CC	USB Type C Control
4	GND	Ground
5	D+	USB Data+
6	Not Used	Not Used
7	ID	Cradle ID

1-Slot Charge Only Cradle Technical Specifications

Table 27 1-Slot Charge Only Cradle Technical Specifications

Item	Description
Dimensions	Height: 9.9 cm (3.9 in.) Width: 9.8 cm (3.86 in.) Depth: 13.3 cm (5.24 in.)
Weight	378 g (13.3 oz.)
Input Voltage	12 VDC
Power Consumption	up to 15 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	5°C to 40°C (41°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)	+/- 20kV air +/- 10 kV contact +/- 10 kV indirect discharge

1-Slot Workstation Docking Cradle Technical Specifications

Table 28 1-Slot Workstation Docking Cradle Technical Specifications

Item	Description
Dimensions	Height: 9.9 cm (3.9 in.) Width: 9.8 cm (3.86 in.) Depth: 13.3 cm (5.24 in.)
Weight	378 g (13.3 oz.)
Input Voltage	12 VDC
Power Consumption	up to 48 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
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 20 kV air +/- 10 kV contact +/- 10 kV indirect discharge

2-Slot USB/Ethernet Cradle Technical Specifications

Table 29 2-Slot USB/Ethernet Technical Specifications

Item	Description
Dimensions	Height: 8.9 cm (3.5 in.) Width: 16.0 cm (6.3 in.) Depth: 13.0 cm (5.12 in.)
Weight	470 g (16.6 oz.)
Input Voltage	12 VDC
Power Consumption	up to 12 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	5°C to 40°C (41°F to 104°F)
Humidity	5% to 95% non-condensing
Drop	75 cm (30.0 in.) drops to concrete, two drops/side at room temperature.
Electrostatic Discharge (ESD)	+/- 20kV air +/- 10 kV contact +/- 10 kV indirect discharge

4-Slot Charge Only Cradle with Battery Charger Technical Specifications

Table 30 5-Slot Charge Only Cradle Technical Specifications

Item	Description
Dimensions	Height: 10.6 cm (4.17 in.) Width: 48.9 cm (19.25 in.) Depth: 13.3 cm (5.24 in.)
Weight	2020 g (71.3 oz.)
Input Voltage	12 VDC
Power Consumption	up to 95 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	5°C to 40°C (41°F to 104°F)
Humidity	0% to 95% non-condensing
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 20kV air +/- 10kV contact +/- 10kV indirect discharge

5-Slot Charge Only Cradle Technical Specifications

Table 31 5-Slot Charge Only Cradle Technical Specifications

Item	Description
Dimensions	Height: 10.6 cm (4.17 in.) Width: 48.9 cm (19.25 in.) Depth: 13.3 cm (5.24 in.)
Weight	1937 g (68 oz.)
Input Voltage	12 VDC
Power Consumption	up to 65 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	5°C to 40°C (41°F to 104°F)
Humidity	0% to 95% non-condensing
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 20kV air +/- 10kV contact +/- 10kV indirect discharge

5-Slot Ethernet Cradle Technical Specifications

Table 32 5-Slot Ethernet Cradle Technical Specifications

Item	Description
Dimensions	Height: 10.6 cm (4.17 in.) Width: 48.9 cm (19.25 in.) Depth: 13.3 cm (5.24 in.)
Weight	2010 g (71 oz.)
Input Voltage	12 VDC
Power Consumption	up to 70 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	5°C to 40°C (41°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)	+/- 20kV air +/- 10kV contact +/- 10kV indirect discharge

4-Slot Battery Charger Technical Specifications

Table 33 4-Slot Battery Charger Technical Specifications

Item	Description
Dimensions	Height: 9.7 cm (3.82 in.) Width: 9.8 cm (3.86 in.) Depth: 13.3 cm (5.24 in.)
Weight	450 g (15.9 oz.)
Input Voltage	12 VDC
Power Consumption	up to 48 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	5°C to 40°C (41°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)	+/- 20kV air +/- 10kV contact +/- 10kV indirect discharge

Trigger Handle Technical Specifications

Table 34 Trigger Handle Technical Specifications

Item	Description
Dimensions	Height: 11.5 cm (4.53 in.) Width: 13.2 cm (5.19 in.) Depth: 8.0 cm (3.15 in.)
Weight	114 g (4.0 oz.)
Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Humidity	10% to 95% non-condensing
Drop	1.8 m (6 feet) drops to concrete over temperature range.
Electrostatic Discharge (ESD)	+/- 20kV air +/- 10kV contact

Rugged Charge/USB Cable Technical Specifications

Table 35 Rugged Charge/USB Cable Technical Specifications

Item	Description
Length	164 +/- 6 cm (64.6 +/- 2.4 in.)
Input Voltage	5.0 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)
Humidity	10% to 95% non-condensing
Electrostatic Discharge (ESD)	+/- 20kV air +/- 10kV contact

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