

TC73/TC78

Touch Computer



ZEBRA

Product Reference Guide

2024/01/22

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About This Guide

This guide provides information about setting up and using TC73/TC78 touch computers with the Android operating system. Some screens shown in this guide may differ from the actual screens shown on the device.

This guide includes Android operating system (OS) 11 and above. Android 11 is the baseline, and updated OS releases are indicated in the content where applicable.

Configurations

This guide covers the following device configurations.

Configuration	Radios	Display	Memory	Data Capture Options	Operating System
TC73	WLAN: IEEE 802.11 a/b/g/n/ac/d/h/i/r/k/v/w/mc/ax; 2x2 MU-MIMO; Wi-Fi 6E (802.11ax); Wi-Fi™ certified; Wi-Fi™ 6E Certified; Dual Band Simultaneous; IPv4, IPv6; PAN Class 2, Bluetooth v5.2 and Secondary BLE for beaconing within BLE battery	6.0 inch Full High Definition + (1080 X 2160); LED backlight	4 GB RAM/64 GB UFS Flash or 8 GB RAM/128 GB UFS Flash	SE55 1D/2D Advanced Range Scan Engine with IntelliFocus™ technology or SE4770 1D/2D Scan Engine; camera and integrated NFC	Android-based, Google™ Mobile Services (GMS)
TC78	WWAN: 5G and CBRS (NA only); WLAN: IEEE 802.11 a/b/g/n/ac/d/h/i/r/k/v/w/mc/ax; 2x2 MU-MIMO; Wi-Fi 6E (802.11ax); Wi-Fi™ certified; Wi-Fi™ 6E Certified; Dual Band Simultaneous; IPv4, IPv6; PAN: Class 2, Bluetooth v5.2 and Secondary BLE for beaconing within BLE battery	6.0 inch Full High Definition + (1080 X 2160); LED backlight	4 GB RAM/64 GB UFS Flash or 8 GB RAM/128 GB UFS Flash	SE55 1D/2D Advanced Range Scan Engine with IntelliFocus™ technology or SE4770 1D/2D Scan Engine; camera and integrated NFC	Android-based, Google™ Mobile Services (GMS)

Notational Conventions

The following conventions are used in this document:

- **Bold** text is used to highlight the following:
 - Dialog box, window, and screen names
 - Dropdown list and list box names
 - Checkbox and radio button names
 - Icons on a screen
 - Key names on a keypad
 - Button names on a screen
- Bullets (•) indicate:
 - Action items
 - List 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 documentation set is designed to give the reader more visual clues. The following visual indicators are used throughout the documentation set.



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 a 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 Zebra Global 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
- Model number or product name
- Software type and version number


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

If your problem cannot be solved by Zebra Customer Support, you may need to return your equipment for servicing and will be given specific directions. Zebra is not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty.

If you purchased your Zebra business product from a Zebra 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. Touch **About tablet**.
4. Scroll to view the following information:
 - Status
 - Battery information
 - Emergency information
 - SW components
 - Legal information
 - Model & hardware
 - Model
 - Android version
 - Android security patch level
 - Android security patch version
 - Google Play system update
 - Baseband version
 - Kernel version
 - Build Fingerprint
 - Build number
 - Android Security Update

To determine the device International Mobile Equipment Identity (IMEI) information (WWAN only), touch **About phone > IMEI**.

- **IMEI** - Displays the IMEI number for the device.
- **IMEI SV** - Displays the IMEI software version (SV) number for the device.

Determining the Serial Number

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

- Swipe down from the Status bar with two fingers to open the Quick Access panel, and then touch .

- Touch **About phone**.
- Touch **Status**.
- Touch **Model & hardware**.
- Touch **Serial number**.

Getting Started

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

Unpacking the Device

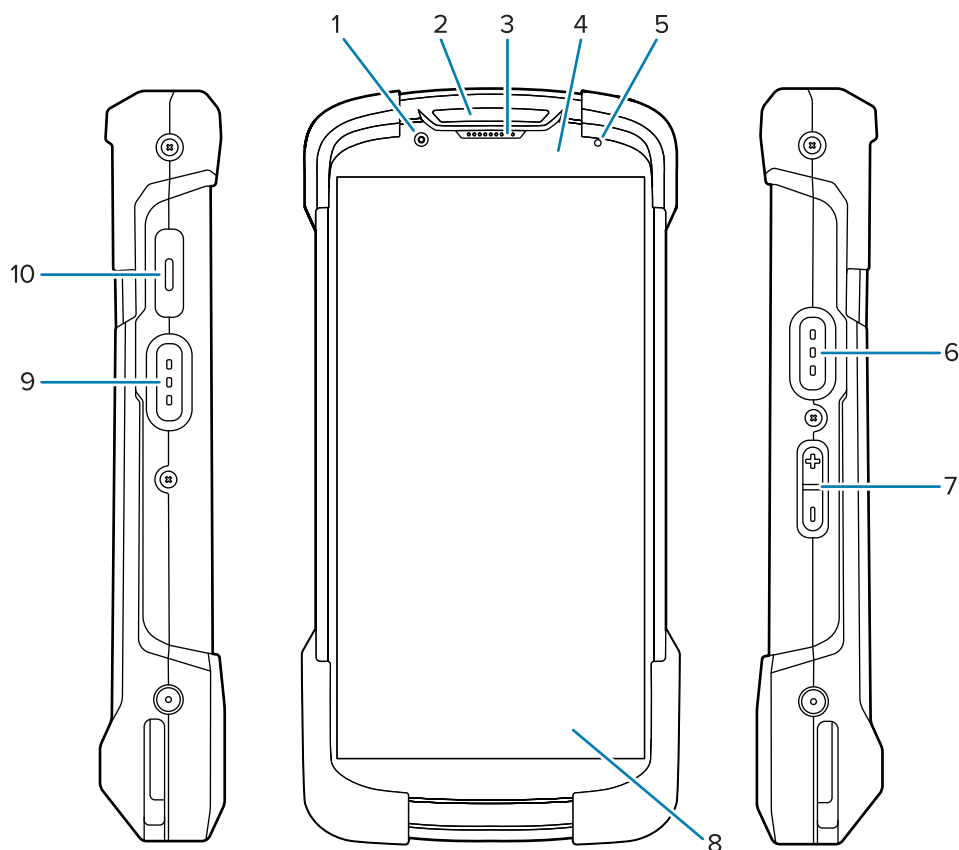
Unpacking the device from the box.

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
 - ≥ 17.7 Watt hours (min) / $\geq 4,400$ mAh PowerPrecision+ Lithium-ion battery
 - Regulatory Guide.
3. Inspect the equipment for damage. If any equipment is missing or damaged, contact the Global 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.

Features

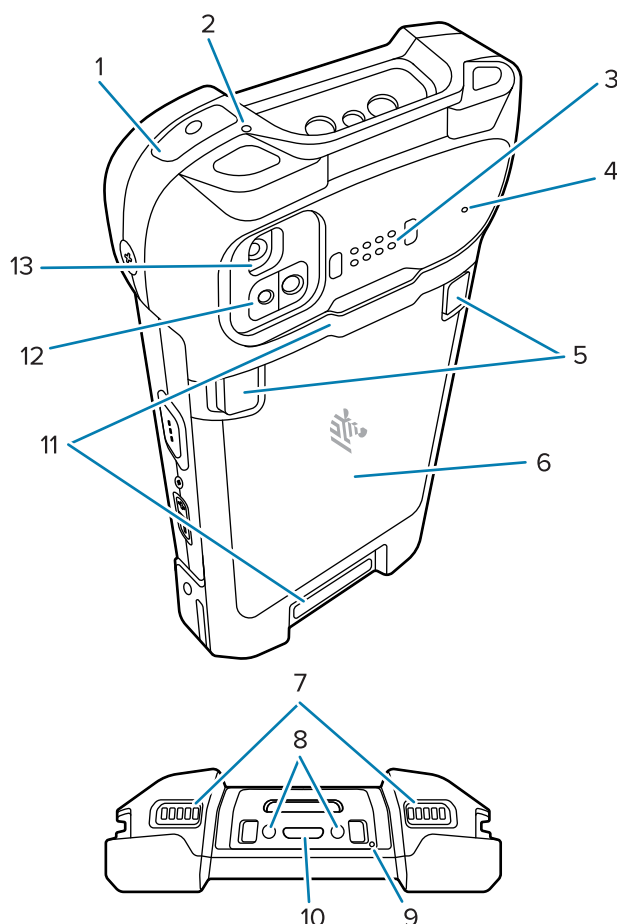
This section lists the features of the TC73/TC78 touch computers.

Figure 1 Front and Side Views




Number	Item	Description
1	8 MP front camera	Takes photos and videos.
2	Scan LED	Indicates data capture status.
3	Receiver	Use for audio playback in Handset mode.
4	Proximity/light sensor	Determines proximity and ambient light for controlling display backlight intensity.
5	Battery status LED	Indicates battery charging status while charging and application-generated notifications.
6, 9	Scan button	Initiates data capture (programmable).
7	Volume up/down button	Increase and decrease audio volume (programmable).
8	6 in. touch screen	Displays all information needed to operate the device.
10	PTT button	Typically used for PTT communications. User reprogrammable to generate other keycodes or to launch applications.

Figure 2 Back, Top, and Bottom View



Number	Item	Description
1	Power button	Turns the display on and off. Press and hold to reset the device, to power it off, or to swap the battery.
2, 4, 9	Microphone	Use for noise cancellation.
3	Back common I/O 8 pins	Provides host communications, audio, device charging via cables, and accessories.
5	Battery release latches	Pinch both latches in and lift up to remove the battery.
6	Battery	Provides power to the device.
7	Speaker	Provides audio output for video and music playback. Provides audio in speakerphone mode.
8	DC input pins	Power/ground for charging (5V through 9V).
10	USB Type C receptacle	Provides power and communications via standard USB-C cable.
11	Hand strap attachment points	Attachment points for the hand strap.

Number	Item	Description
12	ToF module	<p>Employs time of flight techniques to resolve distance between the camera and subject.</p> <p> NOTE: The ToF feature is available only in premium configurations.</p>
13	16 MP rear camera with flash	Takes photos and videos with flash to provide illumination for the camera.

Setting Up the Device

To start using the device for the first time, do the following:

1. Install a nano SIM card (optional, TC78 only).
2. Install a micro secure digital (SD) card (optional).
3. Install a hand strap (optional).
4. Install the battery.
5. Charge the device.
6. Power on the device.

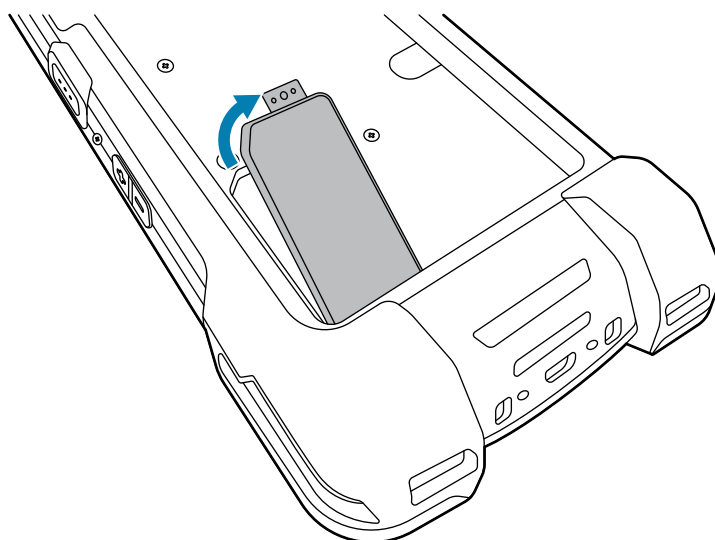
Installing a MicroSD Card

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.



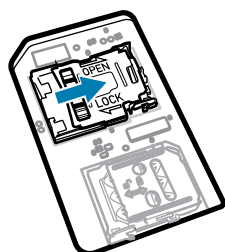
CAUTION—ESD: Follow proper electrostatic discharge (ESD) precautions to avoid damaging the microSD card. Proper ESD precautions include, but are not limited to, working on an ESD mat and ensuring the operator is properly grounded.

1. Remove the access cover.

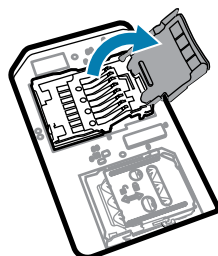


NOTE: Some devices have a locking cover that secures with a special screw to prevent unauthorized access to the compartment.

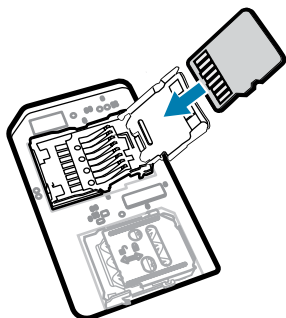
2. Slide the microSD card holder to the Open position. (TC78 shown.)



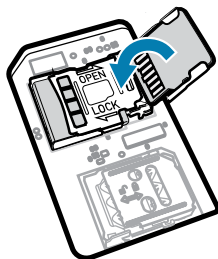
3. Lift the microSD card holder door.



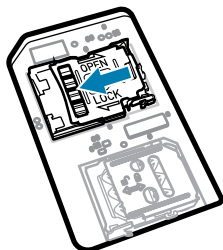
4. Insert the microSD card into the card holder, ensuring that the card slides into the holding tabs on each side of the door.



5. Close the microSD card holder door.

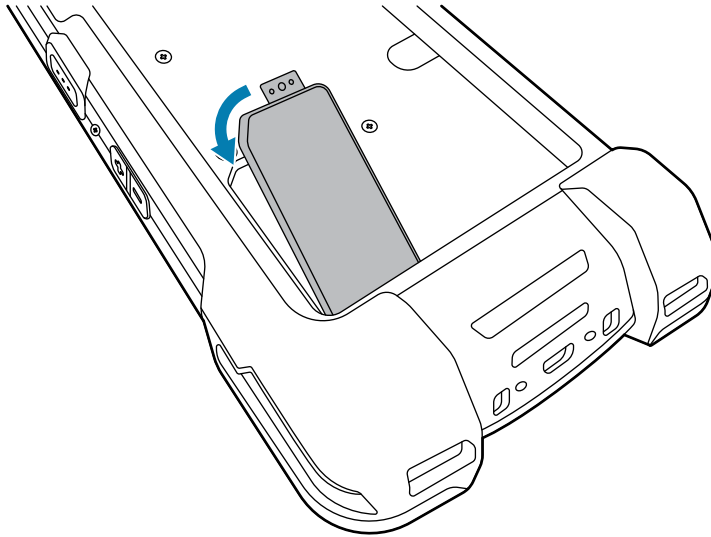


6. Slide the microSD card holder door to the Lock position.



IMPORTANT: The access cover must be replaced and securely seated to ensure proper device sealing.

7. Reinstall the access cover.



Installing the SIM Card

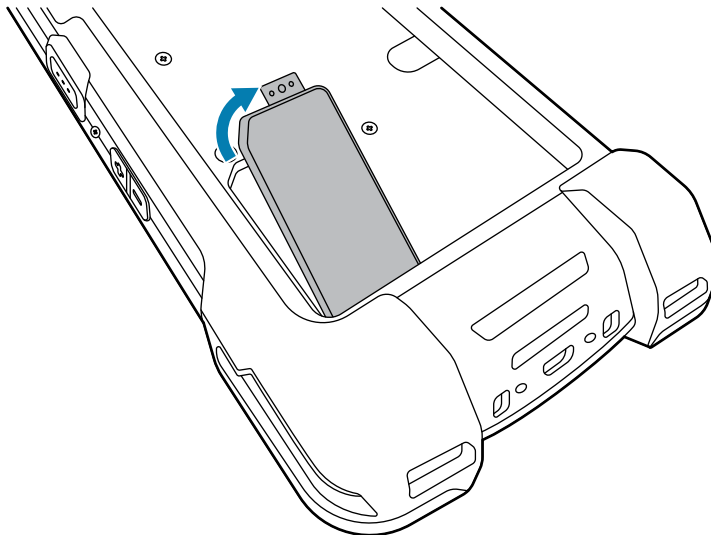


NOTE: Applies to TC78 only.



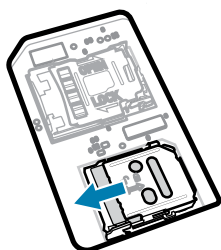
CAUTION—ESD: Follow proper electrostatic discharge (ESD) precautions to avoid damaging the SIM card. Proper ESD precautions include, but are not limited to, working on an ESD mat and ensuring the operator is properly grounded.

1. Remove the access cover.

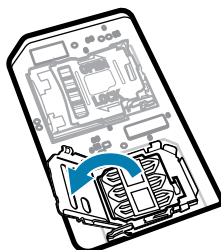


NOTE: Some devices have a locking cover that secures with a special screw to prevent unauthorized access to the compartment.

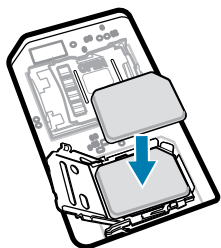
2. Slide the SIM card holder to the unlock position.



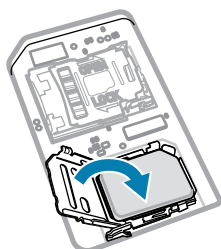
3. Lift the SIM card holder door.



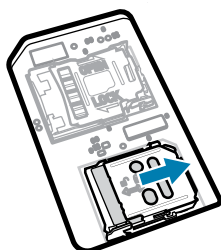
4. Place the SIM card into the card holder with contacts facing down.



5. Close the SIM card holder door.

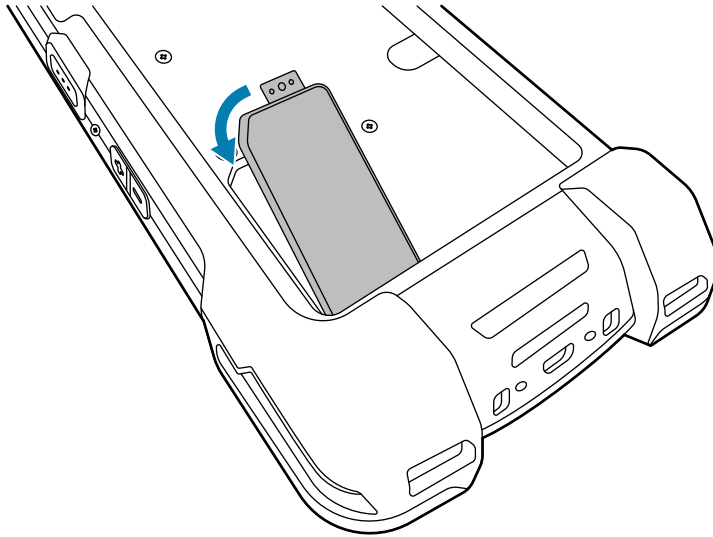


6. Slide to SIM card holder door to the lock position.



IMPORTANT: The access cover must be replaced and securely seated to ensure proper device sealing.

7. Reinstall the access cover. If you removed a screw previously, reinstall it.



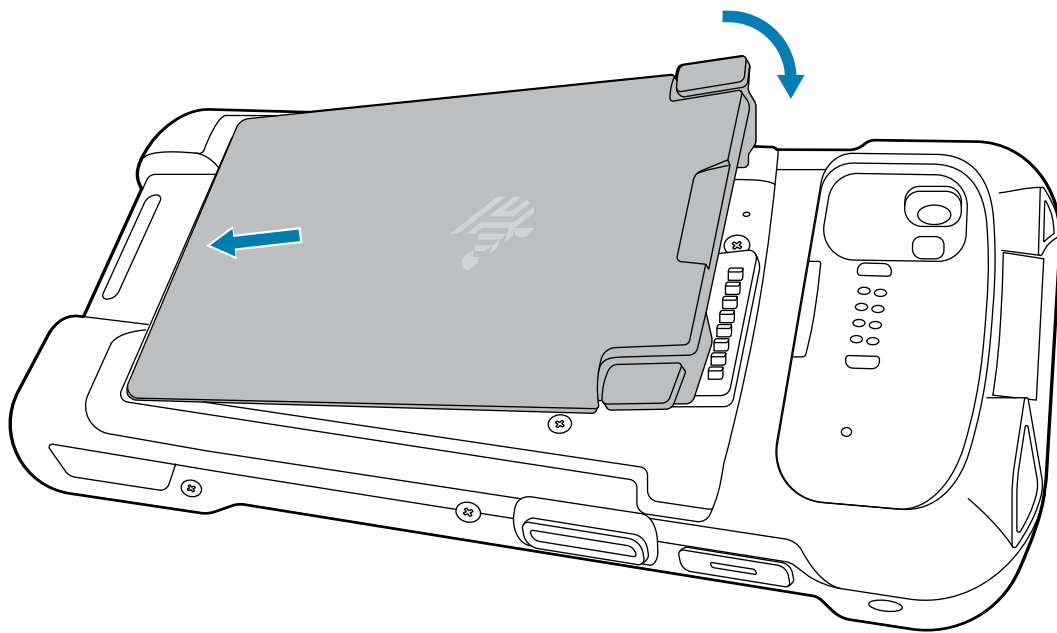
Installing a Battery

This section describes how to install a battery into the device.



NOTE: Do not put any labels, asset tags, engravings, stickers, or other objects in the battery well. Doing so may compromise the intended performance of the device or accessories. Performance levels such as sealing (Ingress Protection (IP)), impact performance (drop and tumble), functionality, or temperature resistance could be affected.

1. Insert the battery, bottom first, into the battery compartment in the back of the device.
2. Press the battery down until it snaps into place.



Charging the Device

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

A standard battery charges from fully depleted to 90% in approximately 2 hours and from fully depleted to 100% in approximately 3 hours. In many cases, a 90% charge provides enough charge for daily use. Depending on the usage profile, a full 100% charge may last for approximately 14 hours of use.



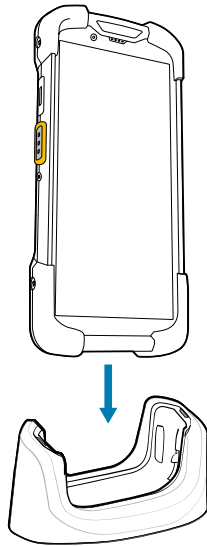
IMPORTANT: Follow the guidelines for battery safety described in the Battery Best Practices file available at zebra.com/batteries.

The device or accessory always performs battery charging in a safe and intelligent manner. The device or accessory indicates when charging is disabled due to abnormal temperatures via its LED, and a notification appears on the device display.

Temperature	Battery Charging Behavior
20 to 45°C (68°F to 113°F)	Optimal charging range.
0 to 20°C (32 to 68°F) 45 to 50°C (113 to 122°F)	Charging slows to optimize the JEITA requirements of the cell.
Below 0°C (32°F) Above 50°C (122°F)	Charging stops.
Above 58°C (136°F)	The device shuts down.

To charge the device using a cradle:

1. Connect the charging accessory to the appropriate power source.
2. Insert the device into a slot to begin charging. Ensure that the device is properly seated.



The device turns on and begins charging. The Charging/Notification LED blinks amber while the device is charging and then turns solid green when the device is fully charged.

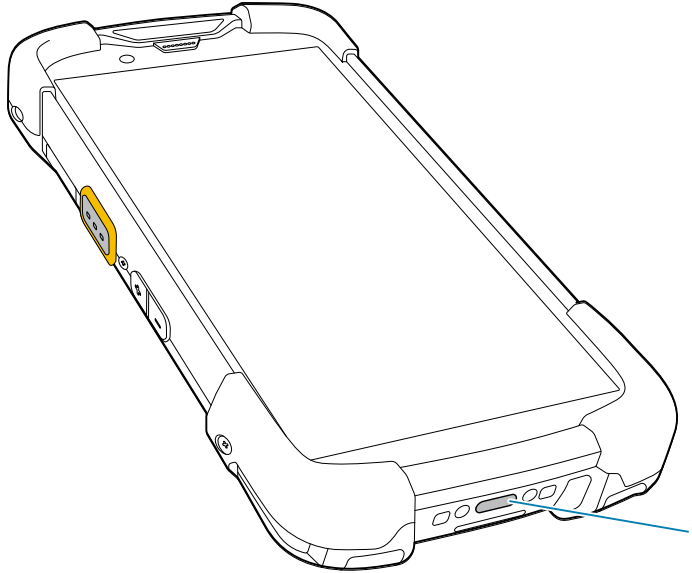
See Also

[Charging Indicators](#)

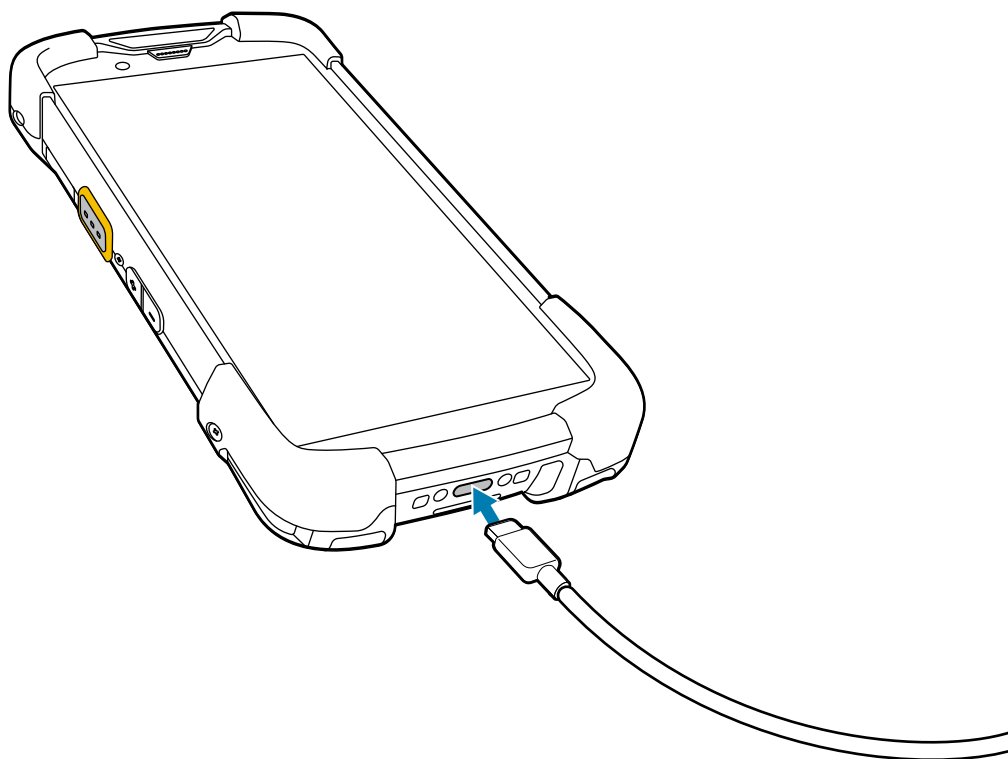
Charging the Device by USB Cable

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

1. Remove the USB-C cover/port (1).



2. Connect the Charge/USB Cable to the device.

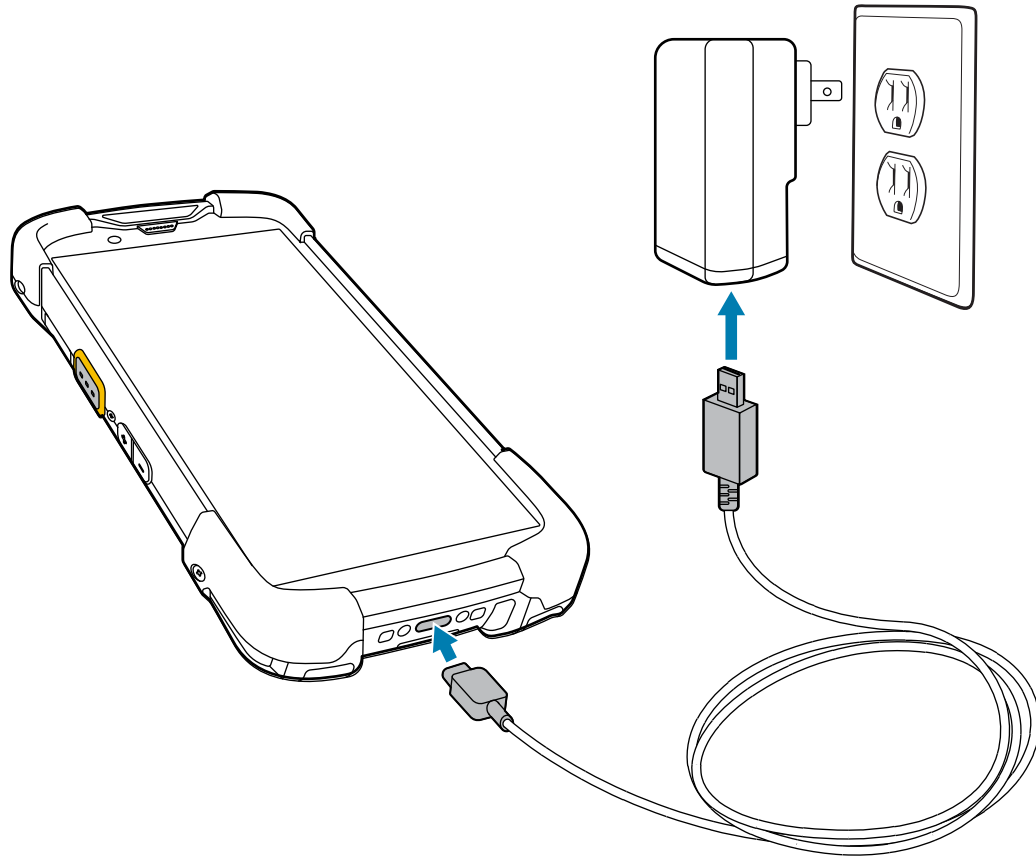


3. Connect the USB connector to the power supply.



NOTE: See [Power Supply with Plug Adapters](#) on page 200 for information on setting up the power supply. By default, the device includes an interface connector. If the interface connector is removed for USB-C cable connectivity, then it must be replaced before charging or before receiving an Ethernet IP address if placed in a cradle.

4. Plug the power supply into a power outlet.



Charging Indicators

The charging/notification LED on the device indicates the charging status.

Table 1 Charging/Notification LED Charging Indicators








State	LED Color	Indications
Off		The device is not charging. <ul style="list-style-type: none"> The device is not inserted correctly in the cradle or connected to a power source. The charger/cradle is not powered.
Slow Blinking Amber (1 blink every 4 seconds)		The device is charging.
Slow Blinking Red (1 blink every 4 seconds)		The device is charging, but the battery is at the end of its useful life.

Table 1 Charging/Notification LED Charging Indicators (Continued)

State	LED Color	Indications
Solid Green		Charging is complete.
Solid Red		Charging is complete, but the battery is at the end of its useful life.
Fast Blinking Amber (2 blinks/second)		Charging error, such as: <ul style="list-style-type: none"> • Temperature is too low or too high. • Charging has gone on too long without completion (typically twelve hours).
Fast Blinking Red (2 blinks/second)		Charging error, and the battery is at the end of its useful life. For example: <ul style="list-style-type: none"> • The temperature is too low or too high. • Charging has gone on too long without completion (typically 12 hours).

Charging the Spare Battery

This section provides information on charging a spare battery. To achieve optimal charging results, use only Zebra charging accessories and batteries.

1. Insert a spare battery into the spare battery slot.
2. Ensure the battery is seated properly.

The Spare Battery Charging LED blinks indicating charging.

The battery charges from fully depleted to 90% in approximately 2.5 hours and from fully depleted to 100% in approximately 3.5 hours. In many cases, the 90% charge provides plenty of charge for daily use. Depending on the usage profile, a full 100% charge may last for approximately 14 hours of use.

See Also

[Spare Battery Charging Indicators](#)

Spare Battery Charging Indicators

Table 2 Spare battery LED Charging Indicators








Indication	LED	Description
Solid amber		The spare battery is charging.
Amber alternating with bright amber		Best spare battery is charging. Not available on 2-Slot USB/Ethernet Cradle.

Table 2 Spare battery LED Charging Indicators (Continued)

Indication	LED	Description
Solid Green		Spare battery charging is complete.
Green alternating with bright green		Best spare battery charging is complete. Not available on 2-Slot USB/Ethernet Cradle.
Solid Red		One of the following: <ul style="list-style-type: none"> The spare battery is charging and is at the end of its useful life. Charging is complete, and the battery is at the end of its useful life.
Fast Blinking Red (2 blinks/second)		Error in charging; check the placement of the spare battery. The battery is at the end of its useful life.
Off		One of the following: <ul style="list-style-type: none"> No spare battery is in the slot. The spare battery is not placed in the slot correctly. The cradle is not powered.

Replacing the Battery



NOTE: Do not put any labels, asset tags, engravings, stickers, or other objects in the battery well. Doing so may compromise the intended performance of the device or accessories. Performance levels such as sealing (Ingress Protection (IP)), impact performance (drop and tumble), functionality, or temperature resistance could be affected.



CAUTION—PRODUCT DAMAGE: Do not add or remove the SIM or microSD cards during battery replacement.

Battery True Hot Swap



NOTE: Battery True Hot Swap applies to Premium Devices only.

Replacing the main battery using the True Hot Swap feature allows the device to maintain Wi-Fi/WAN connectivity and memory persistence while replacing the depleted battery with a fully charged battery. When the battery is removed, the backup super capacitor immediately takes over to maintain the system, including Wi-Fi/WAN connectivity (only voice, data and current state of applications) for a maximum of 30 seconds. During this time, the user is still able to interact with the device, however, some mitigations, such as dimming the display backlight, disabling the scanner, disabling NFC, and lowering the volume are made to conserve power consumption.

After this period, the device enters emergency (critical) suspend and maintains the memory (device resumes instead of rebooting) for a maximum of 60 seconds. If the battery is not replaced within 60 seconds, the memory persistence may run out, and the device will reboot after installing the charged battery.

Persistence during True Battery Hot Swap

The persistence duration of 30 seconds for Wi-Fi/WAN and 60 seconds for memory are maximum values. These durations may be reduced depending on the usage of the applications, network considerations, and hardware features being used on the device. Although there is the ability to interact with the device during this time, the device settings will be in the following state during the Battery True Hot Swap and restored after the swap:

- dims to 10% brightness
- reduces volume to level 1
- reduced uplink/downlink throughput
- features disabled: NFC, scanner, Soft AP, Wi-Fi direct

Other Factors Affecting Battery True Hot Swap Behavior

Avoid the following activities before and during a Battery True Hot Swap:

- Any new user-initiated activities on the device during battery removal
- Third-party applications or launchers holding a wakelock
- Initiating or maintaining a WAN voice call
- Initiating or maintaining a WAN data transfer (files, streaming).

Replacing a Battery Using True Hot Swap

This section describes how to replace the battery in premium TC73 and TC78 devices.



NOTE: Do not put any labels, asset tags, engravings, stickers, or other objects in the battery well. Doing so may compromise the intended performance of the device or accessories. Performance levels such as sealing (Ingress Protection (IP)), impact performance (drop and tumble), functionality, or temperature resistance could be affected.



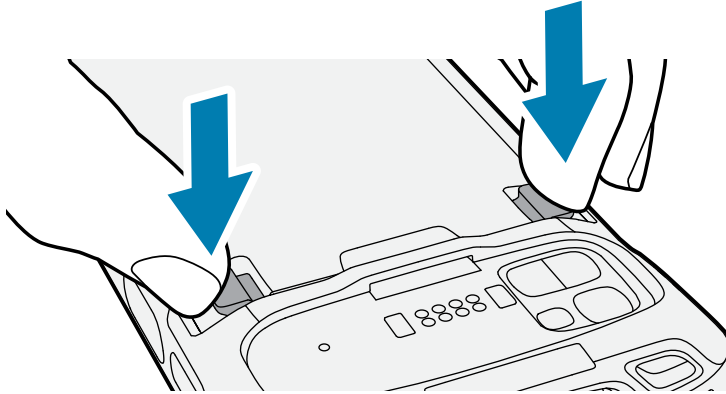
CAUTION—PRODUCT DAMAGE: Do not add or remove a microSD card during battery replacement.



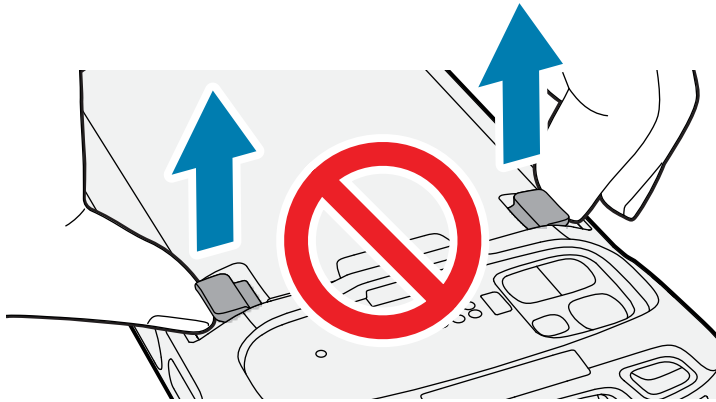
IMPORTANT: True Hot Swap applies to premium devices only.

1. If a hand strap is attached, remove the hand strap.

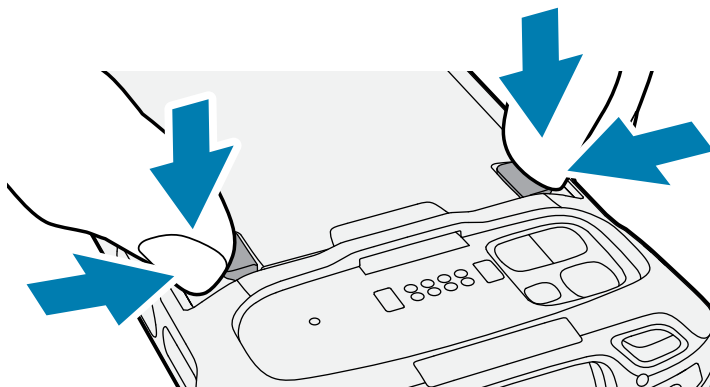
2. Press the two battery latches down.



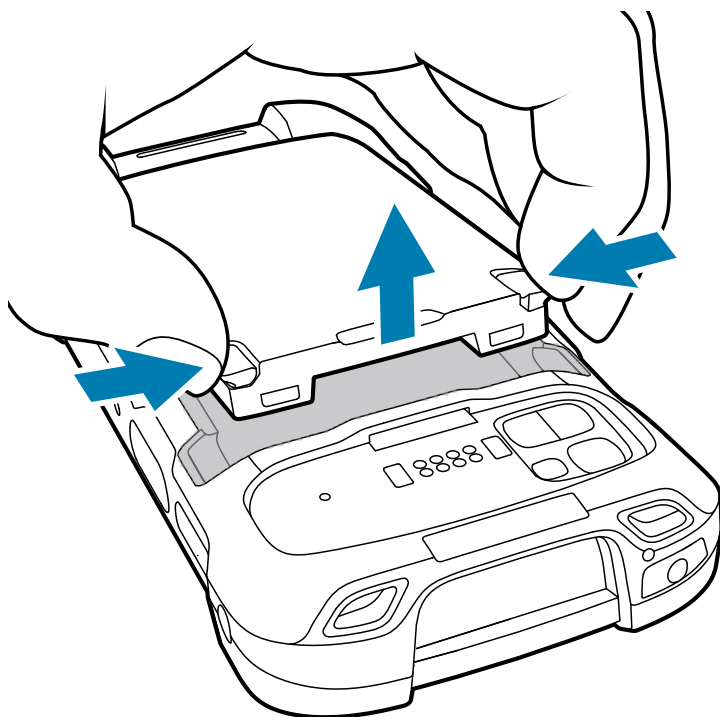
CAUTION: Do not attempt to insert fingers under the latches when pulling on the battery. Damage to the latches may occur.



3. While pressing the latches down, press the two latches in toward the center of the device. The latches must be pressed in completely to release the battery.



4. Lift the battery from the device.

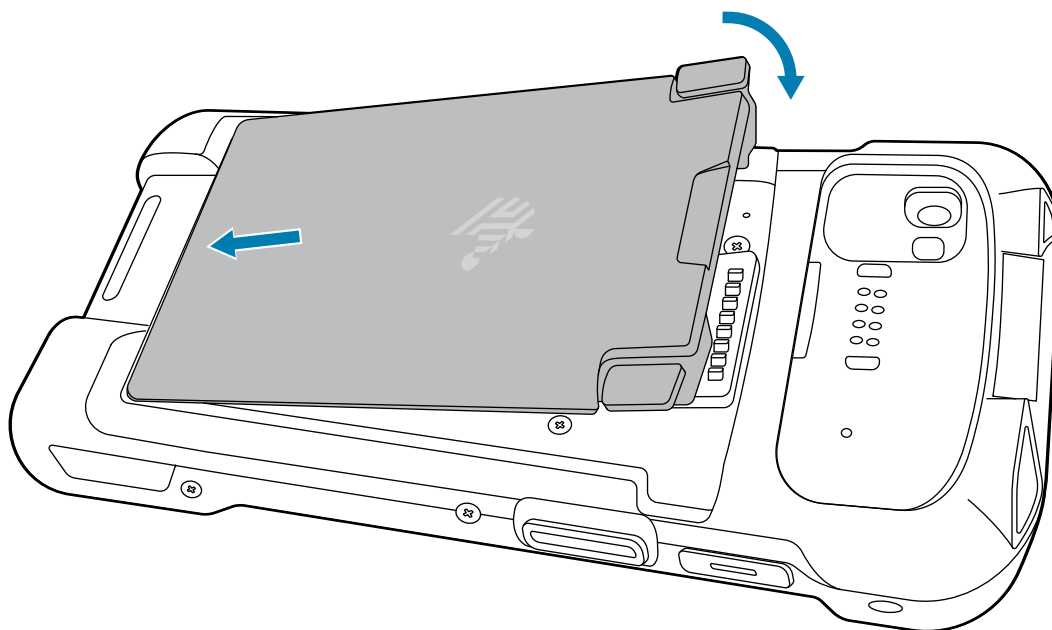


A 30 second countdown timer displays at the top of the screen. The backup supercapacitor takes over immediately, and the device remains powered with the display dimmed.



NOTE: If the battery is not replaced after 30 seconds (max.), the device display turns off, and the device enters into memory persistence state for an additional 60 seconds (max.).

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



6. Press the battery down until it snaps into place. If the device display turned off, it should automatically turn on.



NOTE: If the device does not automatically turn on, press and hold the power button for 6 seconds to reboot the device.

7. Replace the hand strap, if required.

Replacing the Battery Using Battery Swap

This section describes how to replace the battery in standard TC73 and TC78 devices.



NOTE: Do not put any labels, asset tags, engravings, stickers, or other objects in the battery well. Doing so may compromise the intended performance of the device or accessories. Performance levels such as sealing (Ingress Protection (IP)), impact performance (drop and tumble), functionality, or temperature resistance could be affected.



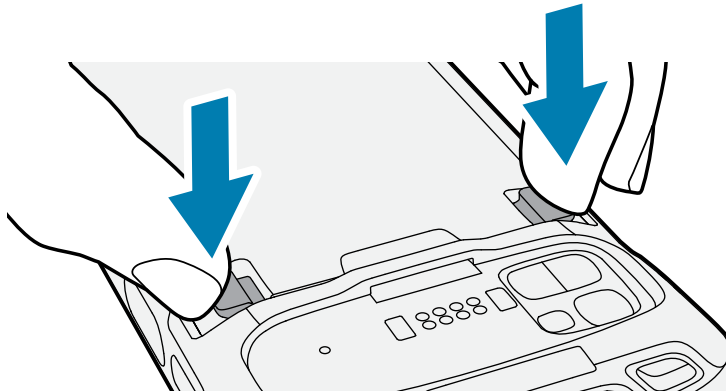
CAUTION: Do not add or remove a microSD card during battery replacement.

1. If a hand strap is attached, remove it.
2. Press and hold the Power button until the menu appears.
3. Touch **Battery Swap**.
4. Follow the on-screen instructions.

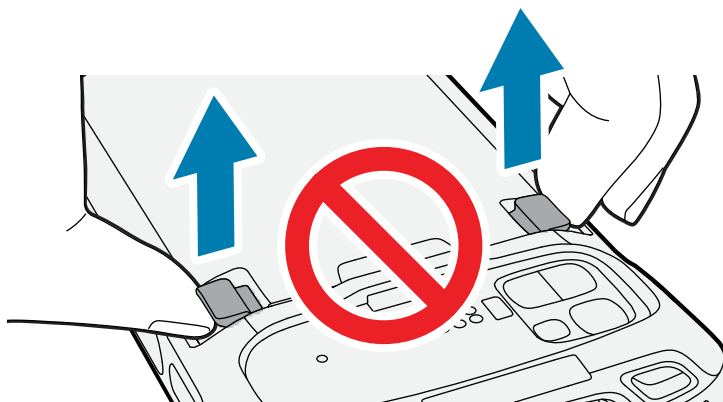


IMPORTANT: Do not remove the battery until after the red LED completely turns off. Loss of data may result.

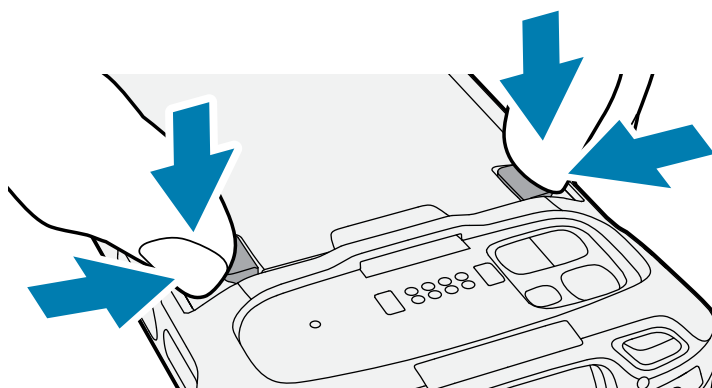
5. Wait for the red LED to completely turn off.
6. Press the two battery latches down.



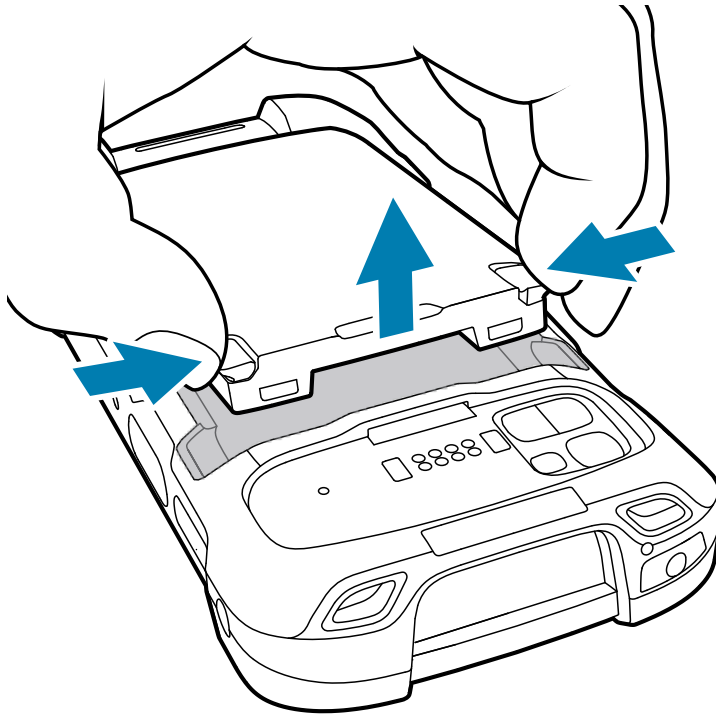
CAUTION: Do not attempt to insert fingers under the latches when pulling on the battery. Damage to the latches may occur.



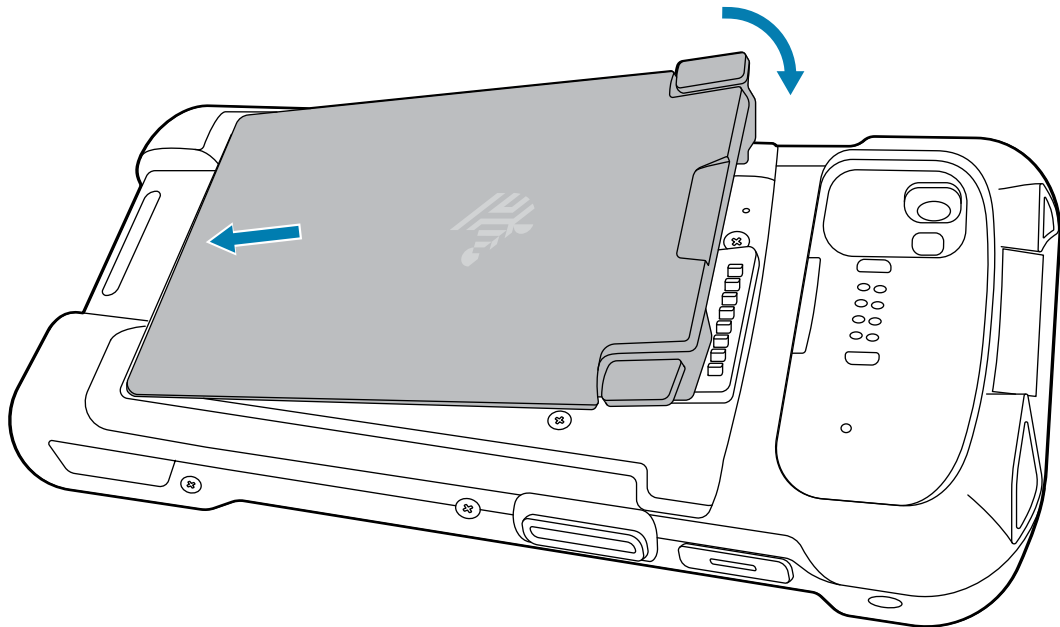
7. While pressing the latches down, press the two latches in toward the center of the device. The latches must be pressed in completely to release the battery.



8. Lift the battery from the device.



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



10. Press the battery down until it snaps into place.
11. Replace the hand strap, if required.
12. Press the Power button to turn on the device.

Replacing the MicroSD Card

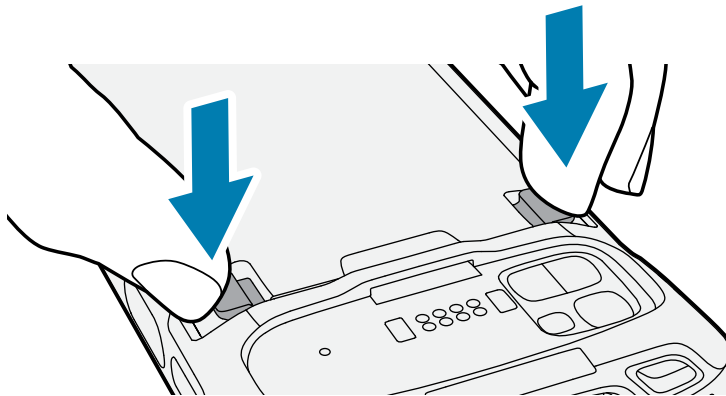


CAUTION—ESD: Follow proper electrostatic discharge (ESD) precautions to avoid damaging the SIM card. Proper ESD precautions include, but are not limited to, working on an ESD mat and ensuring the operator is properly grounded.

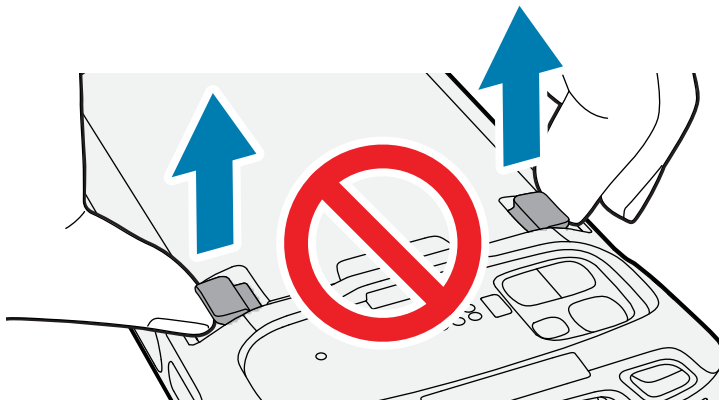


IMPORTANT: Do not put any labels, asset tags, engravings, stickers, or other objects in the battery well. Doing so may compromise the intended performance of the device or accessories. Performance levels such as sealing (Ingress Protection (IP)), impact performance (drop and tumble), functionality, or temperature resistance could be affected.

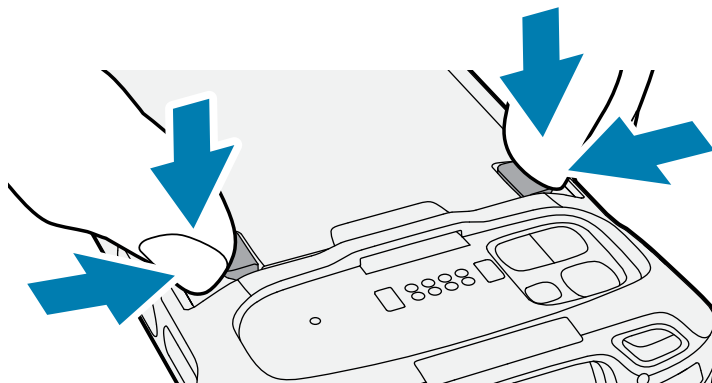
1. Press the Power button until the menu appears.
2. Touch **Power off**.
3. Touch **OK**.
4. If a hand strap is attached, remove it.
5. Press the two battery latches down.



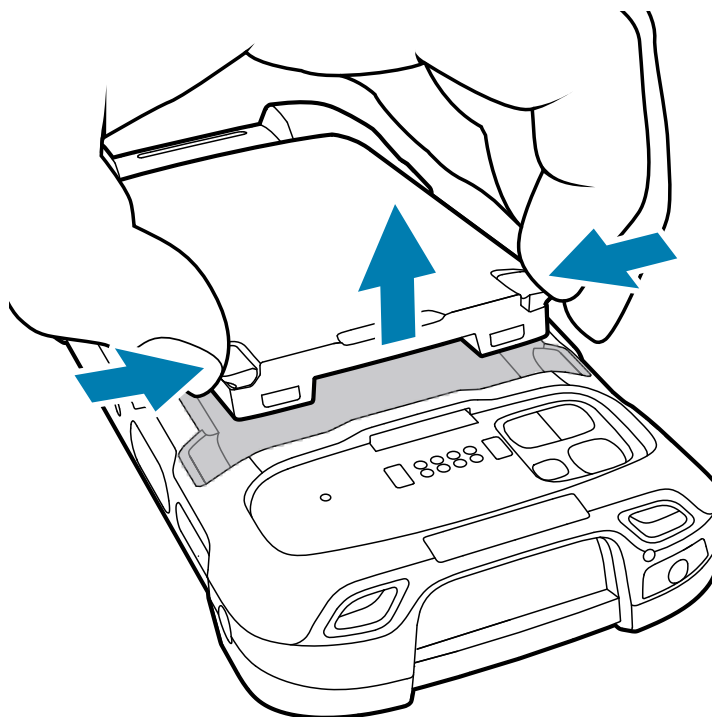
CAUTION: Do not attempt to insert fingers under the latches when pulling on the battery. Damage to the latches may occur.



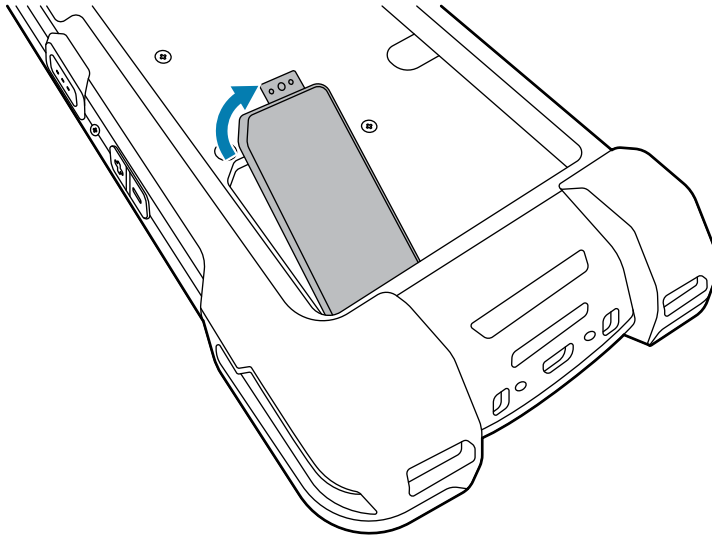
6. While pressing the latches down, press the two latches in toward the center of the device. The latches must be pressed in completely to release the battery.



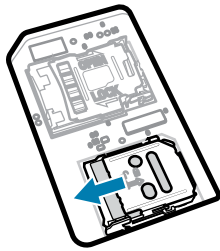
7. Lift the battery from the device.



8. Remove the access cover.



9. Slide the SIM card holder to the unlock position.



10. Slide the microSD card holder to the Open position.

11. Lift the microSD card holder door.

12. Remove the old microSD card from the holder.

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

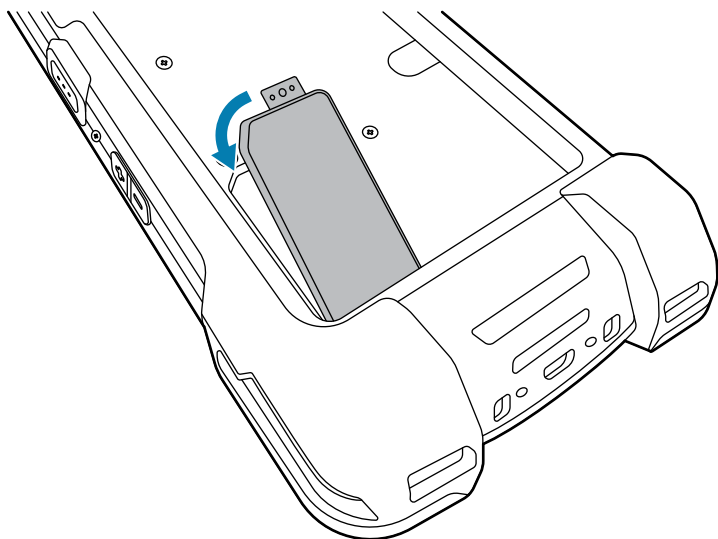
14. Close the microSD card holder door.

15. Slide the microSD card holder door to the Lock position.

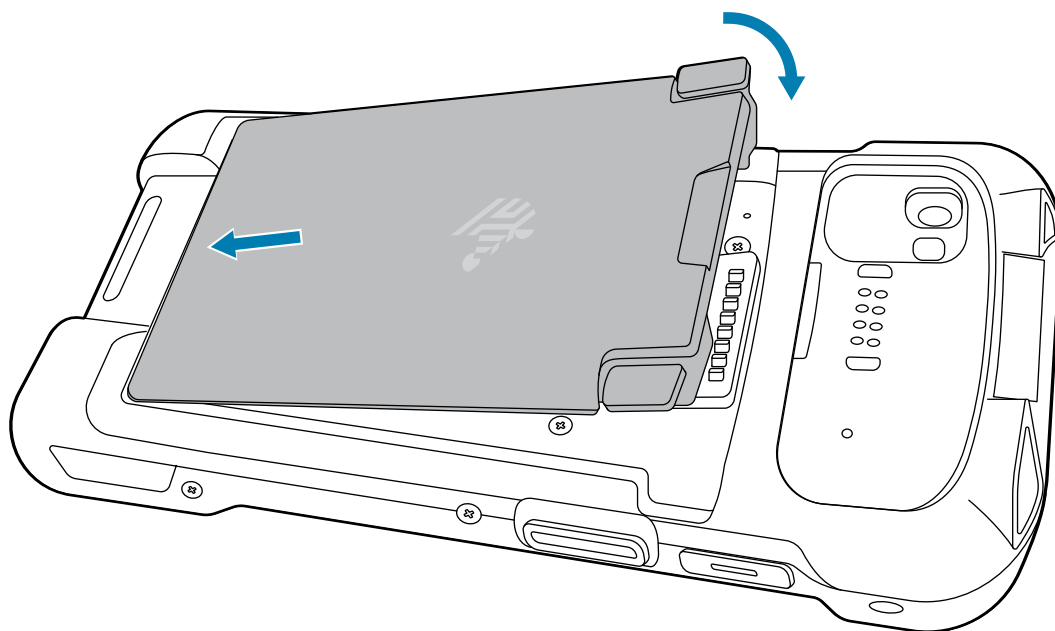


IMPORTANT: The access cover must be replaced and securely seated to ensure proper device sealing.

16. Reinstall the access cover.



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



18. Press the battery down until it snaps into place.
19. Replace the hand strap, if required.
20. Press and hold the Power button to turn on the device.

Replacing the SIM Card



NOTE: Applies to TC78 only.

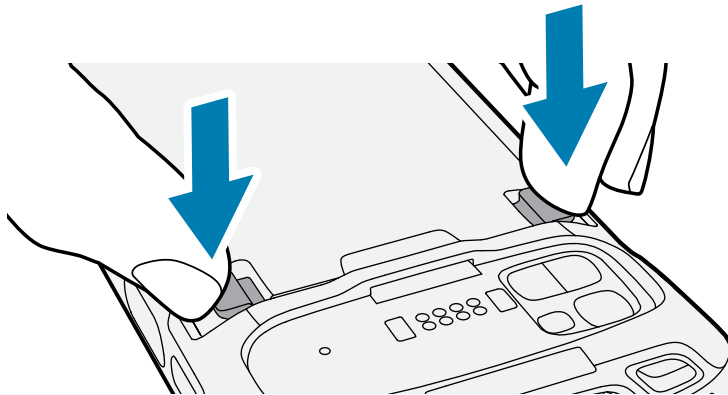


CAUTION—ESD: Follow proper electrostatic discharge (ESD) precautions to avoid damaging the SIM card. Proper ESD precautions include, but are not limited to, working on an ESD mat and ensuring the operator is properly grounded.

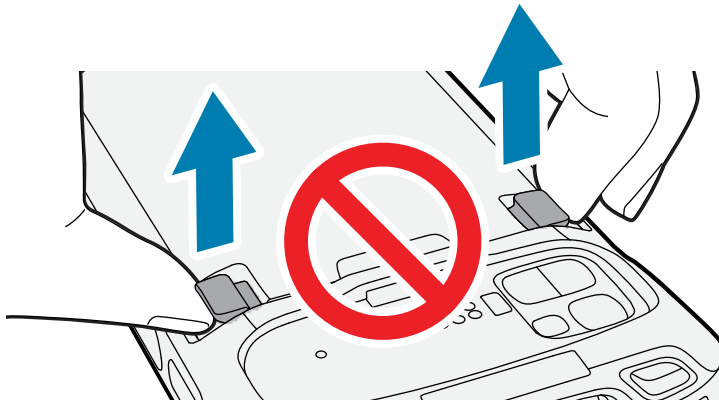


IMPORTANT: Do not put any labels, asset tags, engravings, stickers, or other objects in the battery well. Doing so may compromise the intended performance of the device or accessories. Performance levels such as sealing (Ingress Protection (IP)), impact performance (drop and tumble), functionality, or temperature resistance could be affected.

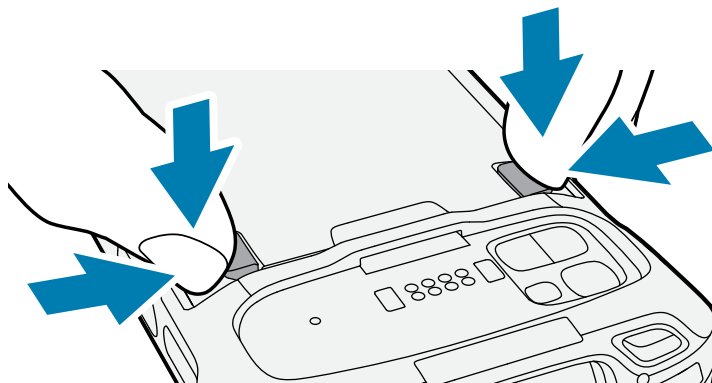
1. Press the Power button until the menu appears.
2. Touch **Power off**.
3. Touch **OK**.
4. If a hand strap is attached, remove it.
5. Press the two battery latches down.



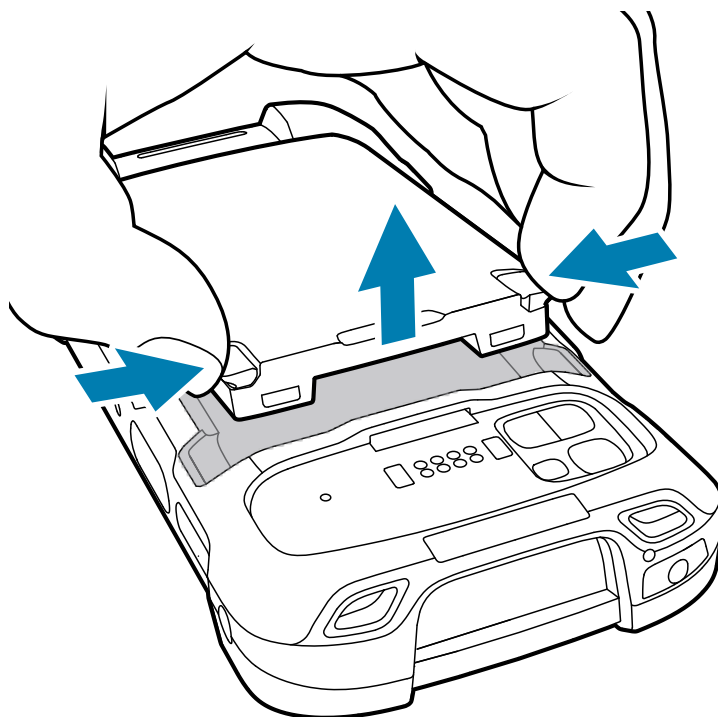
CAUTION: Do not attempt to insert fingers under the latches when pulling on the battery. Damage to the latches may occur.



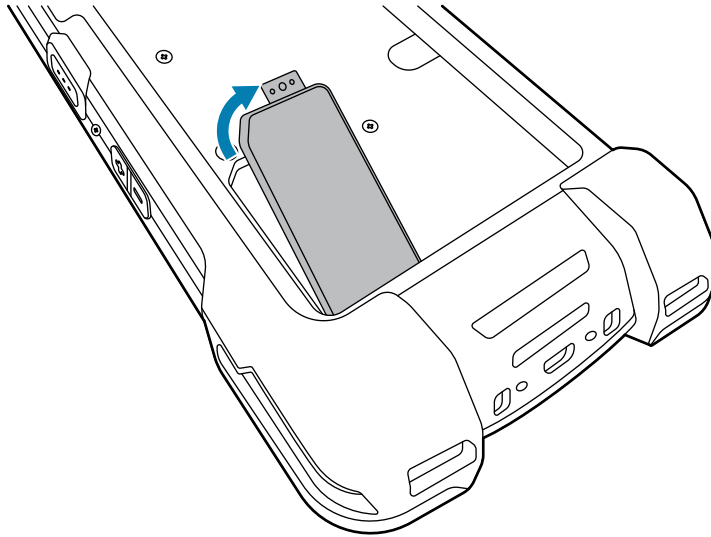
6. While pressing the latches down, press the two latches in toward the center of the device. The latches must be pressed in completely to release the battery.



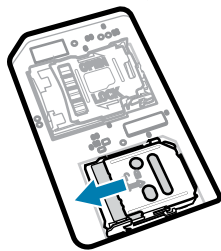
7. Lift the battery from the device.



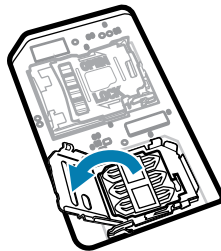
- 8.** Remove the access cover.



- 9.** Slide the SIM card holder to the unlock position.

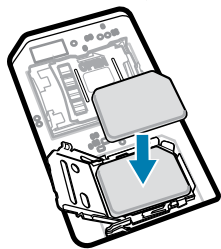


- 10.** Lift the SIM card holder door.

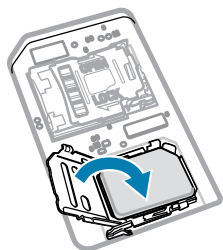


- 11.** Remove the old SIM card.

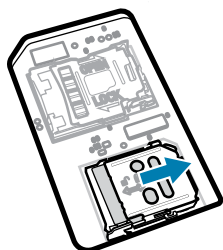
- 12.** Place the new SIM card into the card holder with contacts facing down.



13. Close the SIM card holder door.

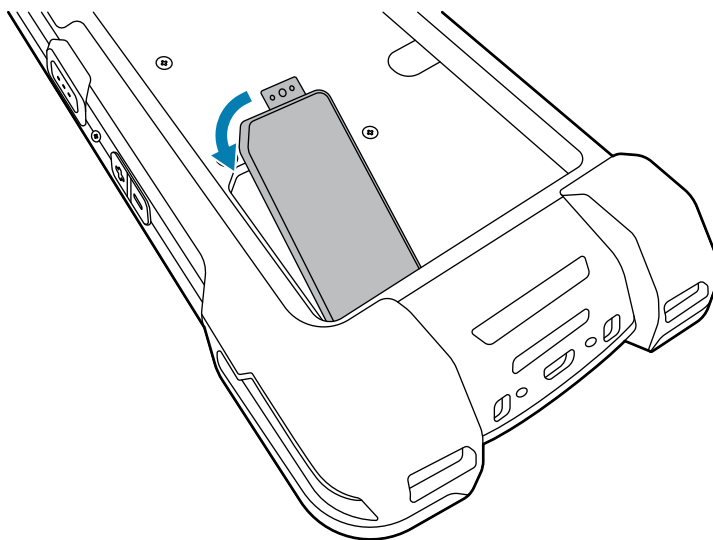


14. Slide the SIM card holder door to the lock position.

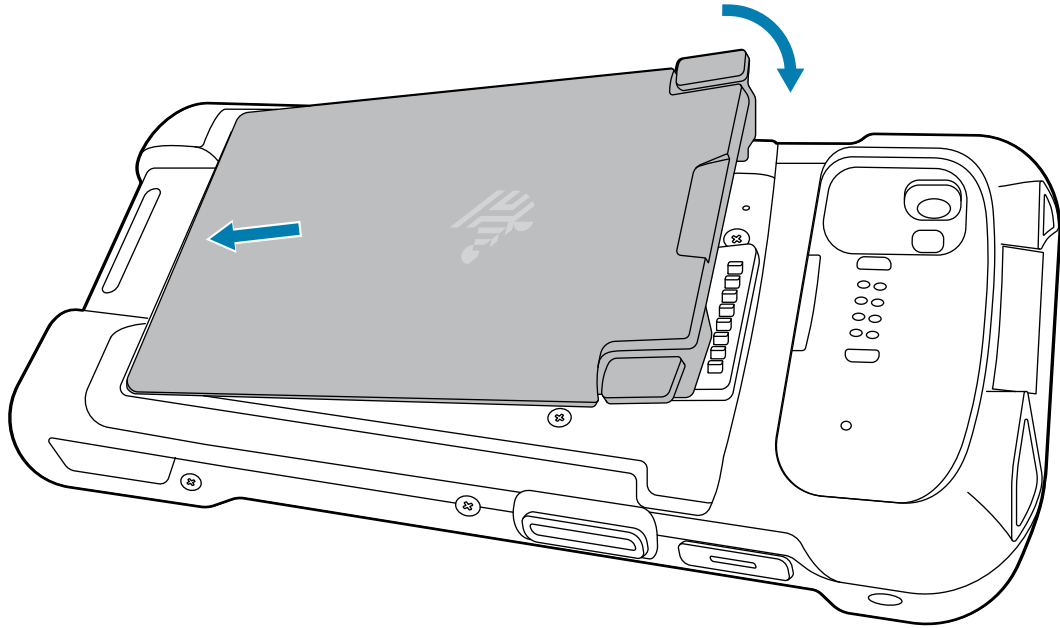


IMPORTANT: The access cover must be replaced and securely seated to ensure proper device sealing.

15. Reinstall the access cover.



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



17. Press the battery down until it snaps into place.
18. Replace the hand strap, if required.
19. Press and hold the Power button to turn on the device.

Using the Device

This section explains how to use 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 the device goes into Sleep mode, the Home screen displays with the lock icon. Touch the screen and swipe up to unlock. The Home screen provides four additional screens to place widgets and shortcuts. Touch and hold on an icon, and then move it for the option to place the icon on one of the other screens. Swipe the Home 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 Android 11 Home Screen

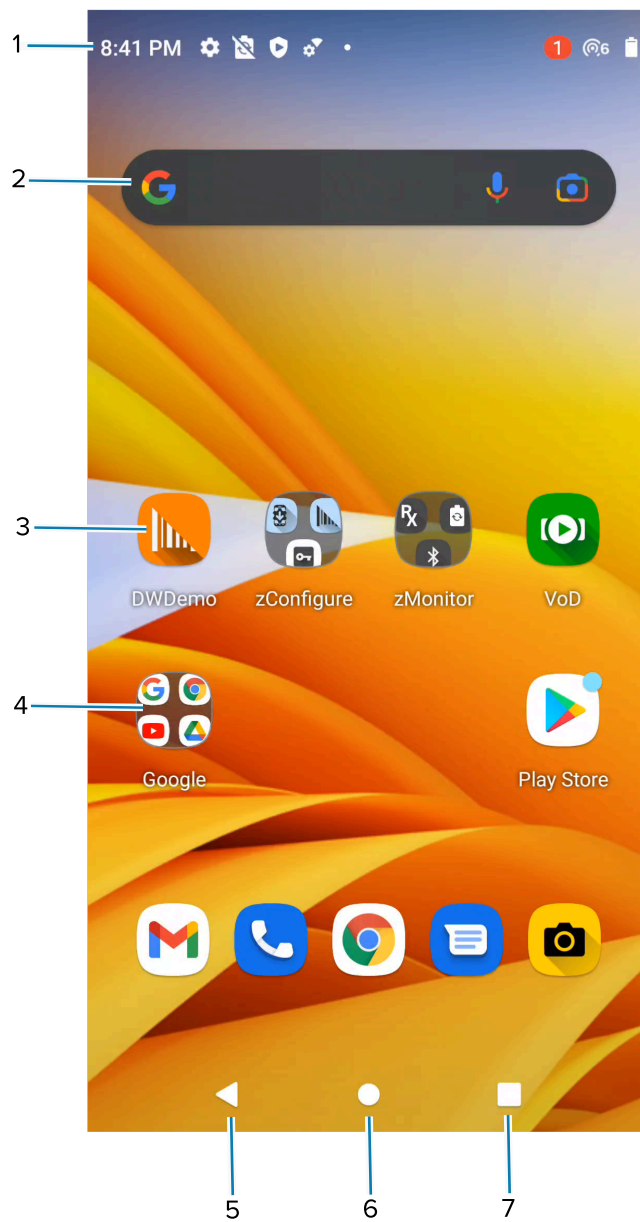
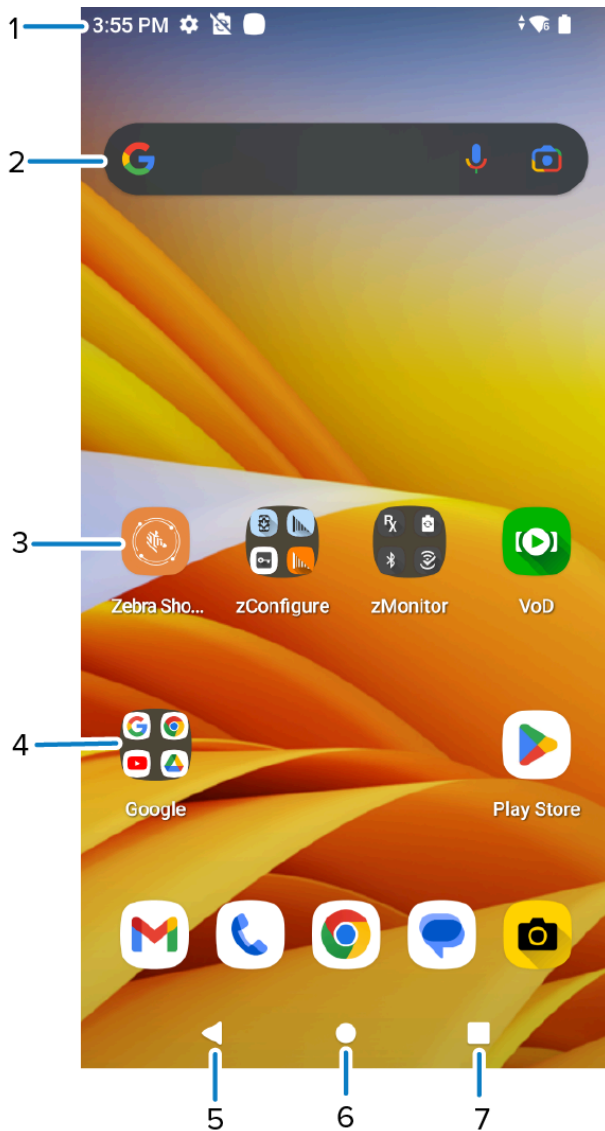


Figure 4 Android 13 Home Screen



1	Status bar	Displays the time, status icons (right side), and notification icons (left side).
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 the Home Screen Rotation

By default, the Home screen rotation is disabled.



NOTE: Auto-rotate must be enabled in the Quick Access panel or in Settings before the Home Screen Rotation setting can be used.

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 **Home**.
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 5 Notifications and Status Icons



















1	Notification icons
2	Status icons

Notification Icons

Notification icons indicate app events and messages.


















Icon	Description
	Main battery is low.
	More notifications are available for viewing.
	Data is synching.
	Indicates an upcoming event. AOSP devices only.
	Indicates an upcoming event. GMS devices only.


Using the Device

Icon	Description
	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.
	Call is in progress (WWAN only).
	The mailbox contains one or more voice message (WWAN only).
	Call is on hold (WWAN only).
	Call was missed (WWAN only).
	PTT Express Voice client status.
	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.

Icon	Description
	Alarm is active.
	Main battery is fully charged.
	Main battery is partially drained.
	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.
	Portable Wi-Fi hotspot is active (WWAN only).
	Connected to a 5G network (WWAN only). ^a

Icon	Description
4G LTE	Connected to a 4G LTE/LTE-CA network (WWAN only). ^a
4G	Connected to a DC-HSPA, HSDPA, HSPA+, HSUPA, LTE/LTE-CA or WCDMA network (WWAN only). ^a
3G	Connected to a 1x-RTT (Sprint), EGDGE, EVDO, EVDV or WCDMA network (WWAN only). ^a
2G	Connected to a GPRS network (WWAN only). ^a
3G	Connected to a WCDMA network (WWAN only). ^a
H	Connected to a DC - HSPA, HSDPA, HSPA+ or HSUPA network (WWAN only). ^a
E	Connected to an EDGE network (WWAN only). ^a
G	Connected to a GPRS network (WWAN only). ^a
1X	Connected to a 1x-RTT (Verizon) network (WWAN only). ^a
R ↓↑	Roaming from a network (WWAN only).
	No SIM card installed (WWAN only).

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.

Figure 6 Android 11 Notification Panel

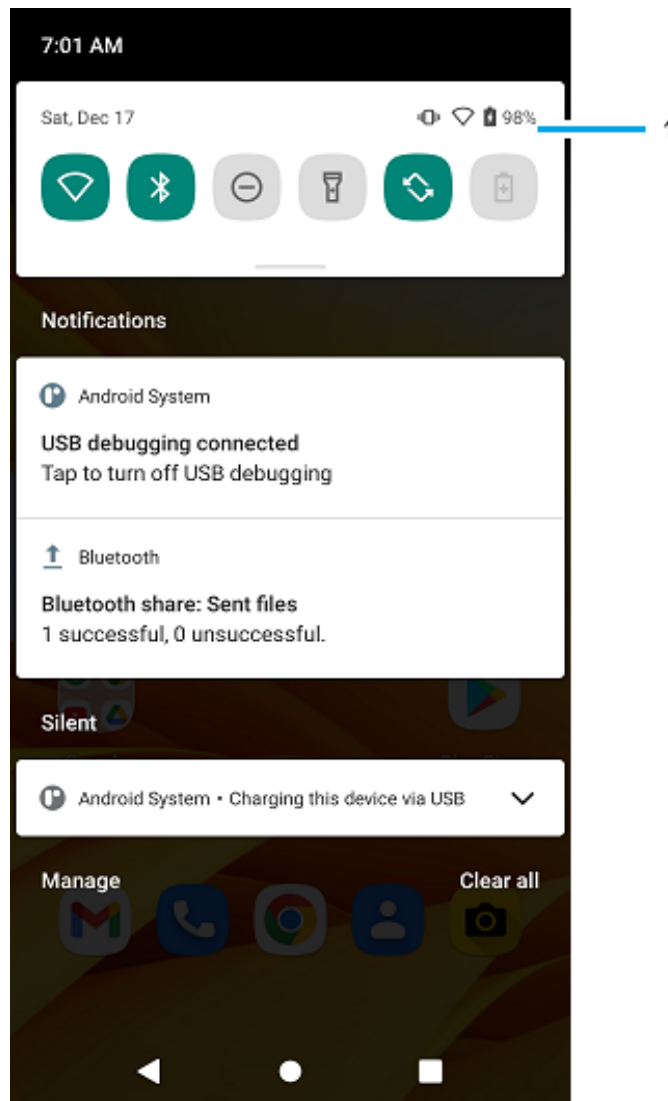
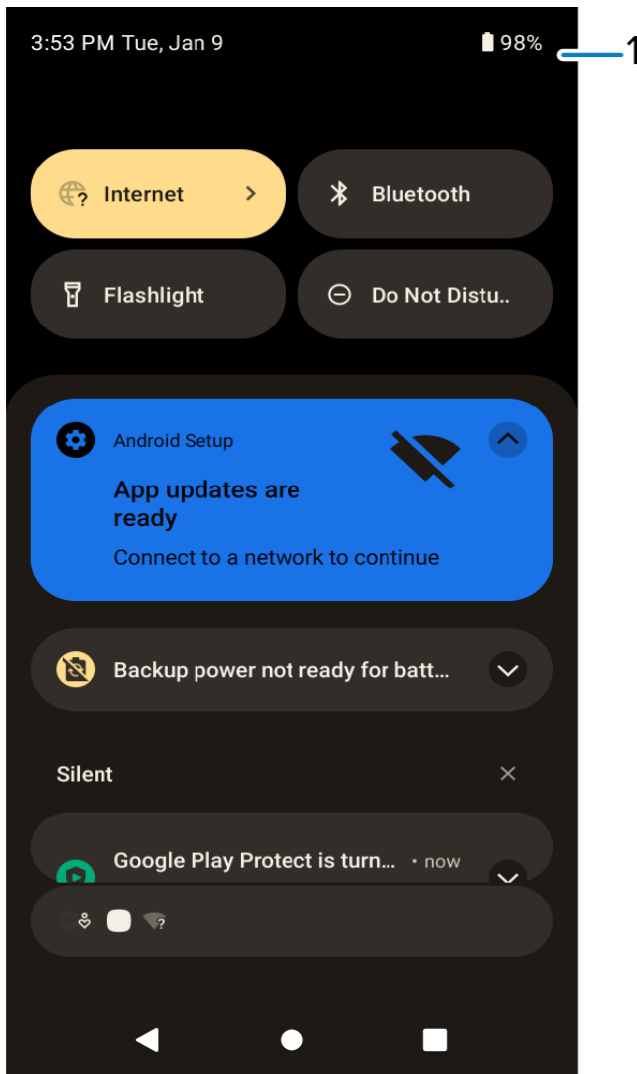


Figure 7 Android 13 Notification Panel



1	Quick settings bar
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- To view a list of all notifications, open the Notification panel by dragging the Status bar down from the top of the screen.
- To respond to a notification, open the Notification panel and then touch a notification. The Notification panel closes and the corresponding app opens.
- 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.
- 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.

- 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).



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

Figure 8 Android 11 Quick Access Panel

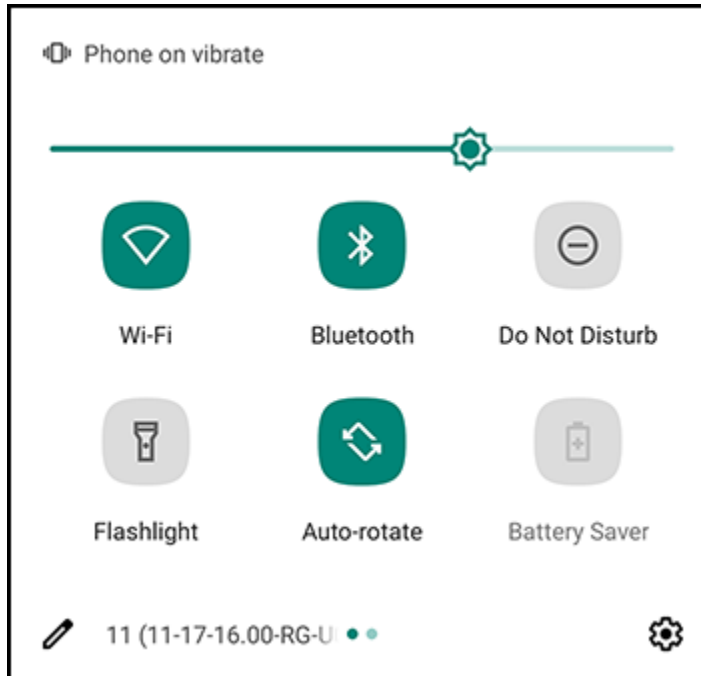
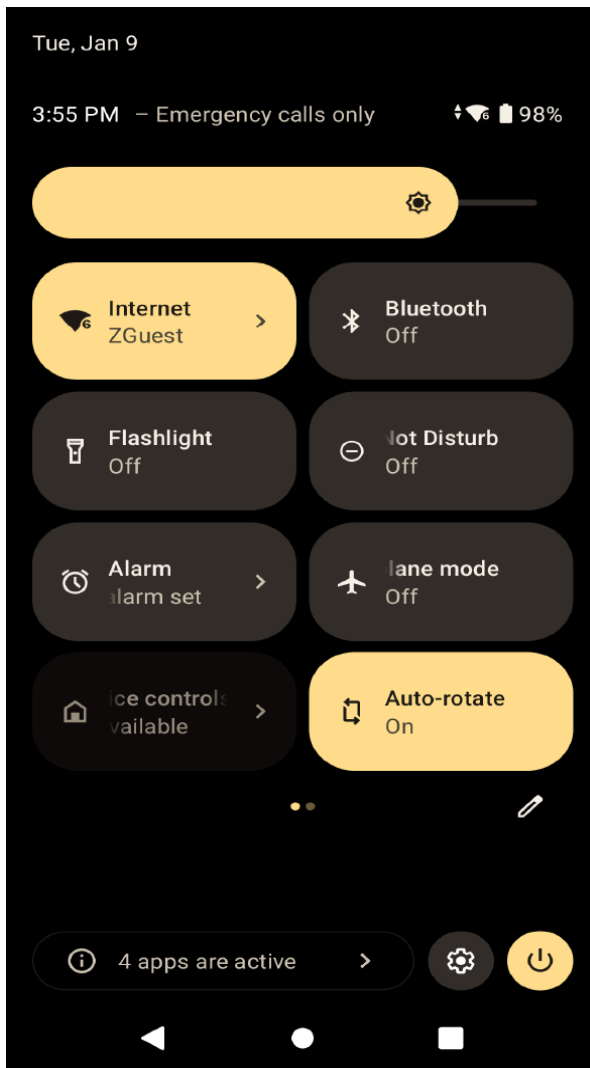


Figure 9 Android 13 Quick Access Panel



- 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.

Quick Access Panel Icons

Quick Access panel icons indicate frequently used settings (for example, Airplane mode).

Table 3 Quick Access Panel Icons





























Icon	Description
	Display brightness - Use the slider to decrease or increase the brightness of the screen. (A11 only)
	Display brightness - Use the slider to decrease or increase the brightness of the screen. (A13 only)
	Internet/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 (not applicable).
	Invert colors - Invert the display colors.
	Do not disturb - Control how and when to receive notifications.
	Mobile data - Enables or disables data transfer via the WAN. The device is still available for voice calls and texts. To open Mobile data settings, touch and hold (WWAN only).
	Airplane mode - Turn Airplane mode on or off. When Airplane mode is on the device does not connect to Wi-Fi or Bluetooth.
	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.
	Auto-rotate - Lock the device's orientation in portrait or landscape mode or set to automatically rotate.
	Flashlight - Turn the flashlight or camera flash on or off. When the flashlight is activated, it stays on unless it is turned off or the camera app is run.
	Location - Enable or disable locationing feature.
	Hotspot - Turn on to share the device's mobile data connection with other devices.

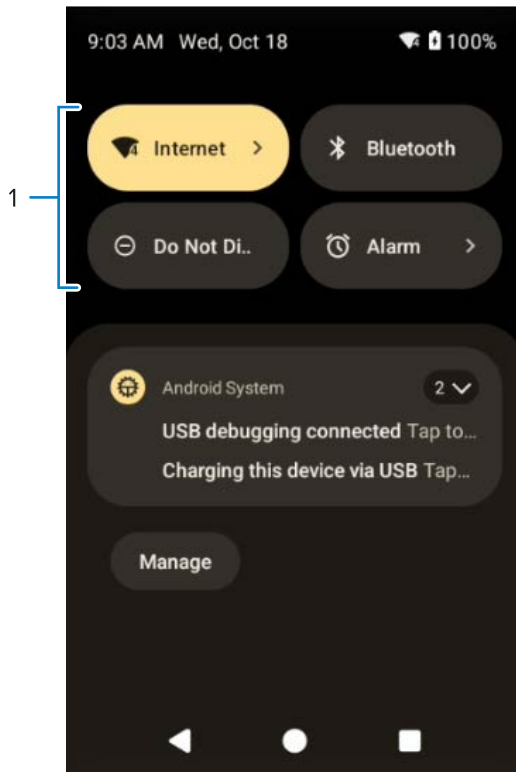
Table 3 Quick Access Panel Icons (Continued)

Icon	Description
	Data Saver - Turn on to prevent some apps from sending or receiving data in the background.
	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 Record - Makes a video recording of everything that happens on the screen, with options to include audio and screen touches.
	Nearby Share - Helps find and interact with services and devices close to the device.
	Screen Cast - Share phone content on Chromecast or a television with Chromecast built-in. On the Cast screen, check the "enable wireless display" option, and then touch "cast screen" to display a list of devices. Touch a device in the list to begin casting.
	NFC - Enable or disable NFC communication.
	Focus mode - Turn on to pause distracting apps. To open Focus mode settings, touch and hold.
	Bedtime mode - Turn grayscale on and off. Grayscale turns the screen black and white, reducing phone distractions and improving battery life.
	Scan QR code - Opens the camera app for QR code reading. (A13 only)
	Extra dim - Reduces screen brightness up to 50%. (A13 only)
	Live caption - Enables captions to appear for any media playing, regardless of the device's volume level. (A13 only)
	Color correction - Enable to help your device compensate for color blindness. (A13 only)
	Alarm - Opens the Alarm app. (A13 only)
	Calculator - Open the calculator app.

Editing the Quick Access Tiles

The first four setting tiles from the Quick Access panel become the Quick Access tiles on the Notification panel.

Figure 10 Notification Panel



1	Quick access tiles
---	--------------------

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

Battery Management

Observe the recommended battery optimization tips for the device.

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

Check the battery status through the Battery Information settings, the Battery Manager app, or the quick access panel.

- 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.

Battery present status indicates if the battery is present.

Battery level lists the battery charge (as a percentage of fully charged).

- Swipe down from the status bar to open the quick access panel.

The **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. Different apps display different information. Some apps include buttons that open screens with settings to adjust power use. To turn off apps that consume too much power, touch the square (recent app) button at the bottom of the home screen. Swipe left or right to view recent applications. Swipe up on an application to close it.

- Go to **Settings**.
- Touch **Battery**.

To display battery information and power management options for a specific app:

- Go to **Settings**.
- On Android 11, touch **Apps & notifications**.
- On Android 13, touch **Apps**.
- Touch an app.
- On Android 11, touch **Advanced** > **Battery**.
- On Android 13, touch **App Battery Usage**.

Different apps display different information. Some apps include buttons that open screens with settings to adjust power use. 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 the change level in the table below, the device displays a notice to connect the device to power. Charge the battery using one of the charging accessories.


Table 4 Low Battery Notification

Charge Level Drops Below	Action
18%	The user should charge the battery soon.
10%	The user must charge the battery.

Table 4 Low Battery Notification (Continued)

Charge Level Drops Below	Action
4%	The device turns off. The user must charge the battery.

Turning Off the Radios

1. Swipe down from the Status bar to open the Quick Settings panel.
2. Touch Airplane mode. The airplane icon  appears in the Status bar indicating that all the radios are off.

Using the Rechargeable Li-Ion Battery with BLE Beacon

This device utilizes a rechargeable Li-Ion battery to facilitate BLE Beacon. When BLE Beacon is enabled, the battery transmits a BLE signal for up to 7 days while the device is powered off due to battery depletion.



NOTE: The device transmits a Bluetooth beacon only when the device is powered off or in Airplane Mode.

For additional information on configuring the Secondary BLE settings, see techdocs.zebra.com/emdk-for-android/11-0/mx/beaconmgr/.

Using the Rechargeable Li-Ion Wireless Battery

This device utilizes a rechargeable Li-Ion battery to facilitate wireless charging.



NOTE: The rechargeable Li-Ion wireless battery must be used along with the terminal in the Zebra Wireless Charge Vehicle Cradle or Qi-certified wireless chargers.



NOTE: Applies to TC78 only.

The wireless battery can be identified by the wireless logo (1) on the back.



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.
- Pressure Sensor - Detects pressure on the touch screen.

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 Sleep mode when you press **Power** or after a period of inactivity (set in the Display settings window).

1. To wake the device from Sleep mode, press **Power** or the configured wake-up sources.

The Lock screen displays.

2. Swipe the screen up to unlock.

- If the screen option is set to Swipe, the Home screen displays.
- If either the PIN or Password screen unlock feature is enabled, a prompt displays. Enter the PIN or password to unlock the device and move to the Home screen.
- If the Pattern screen unlock feature is enabled, the Pattern screen displays. Swipe the correct pattern between the dots to unlock the device and move to the Home 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.

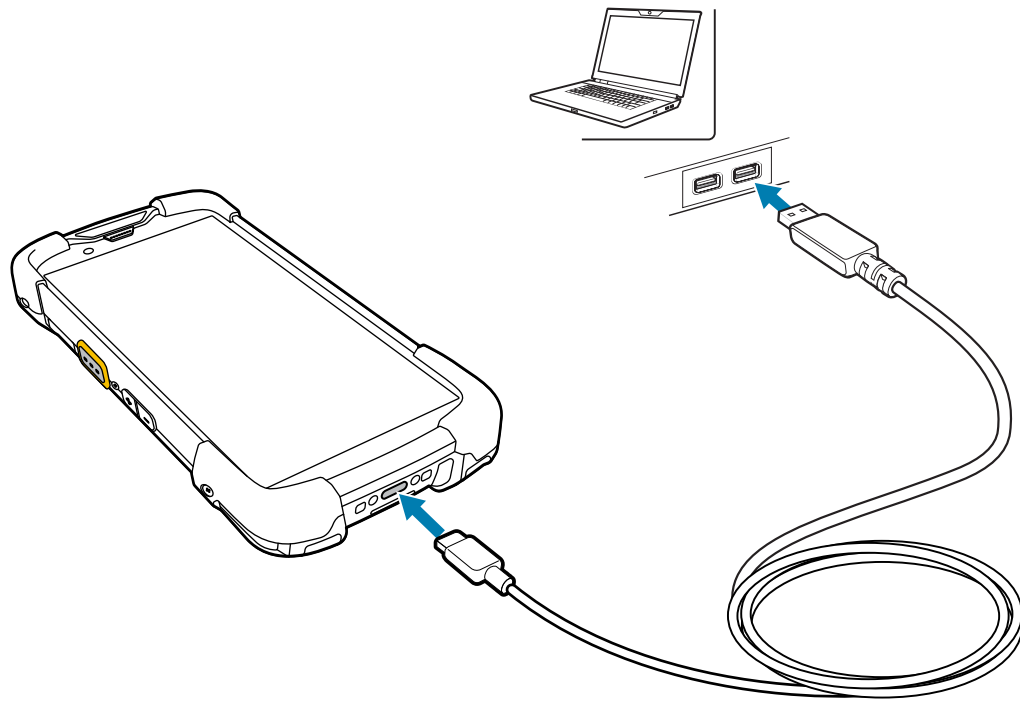
USB Communication

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.

1. Connect the Charge/USB-C Cable to the device.

2. Connect the USB connector of the cable to a host computer.



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 disconnecting 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 **File Explorer**.
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 **Transfer photos 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.

Disconnecting from the Host Computer



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



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

Settings

This section describes the settings on the device.

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 screen timeout, and change font size.

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.

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  left or right to adjust the screen brightness level.

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.
 - On Android 11, touch **TURN ON NOW** to enable.
 - On Android 13, touch **Use Night Light** to enable.
7. Adjust the tint using the **Intensity** slider.

Setting Screen Rotation

By default, screen rotation is enabled.



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

1. Go to **Settings**.
2. On Android 11, touch **Display > Advanced**.
3. On Android 13, touch **Accessibility > System controls**.
4. Touch **Auto-rotate screen**.
5. Touch the Home button.

Setting Screen Timeout

The screen turns off and goes into Suspend mode after the selected period of inactivity.

1. Go to **Settings**.
2. On Android 11, touch **Display > Advanced > Screen timeout**.
3. On Android 13, touch **Display > Screen timeout**.

4. Select one of the sleep values:
 - **15 seconds**
 - **30 seconds**
 - **1 minute** (default)
 - **2 minutes**
 - **5 minutes**
 - **10 minutes**
 - **30 minutes**
5. On Android 13, turn on the **Screen** attention switch to prevent your screen from turning off if you are looking at it.

Setting Lock Screen Notifications

The lock screen display setting wakes the screen when notifications are received.

1. Go to **Settings**.
2. On Android 11, touch **Display > Advanced**.
3. On Android 13, touch **Display**.
4. Touch **Lock screen**.
5. On Android 11, in the **When to show** section, enable or disable an option using the switch.
6. On Android 13, in the **What to show** and **When to show** sections, enable or disable an option using the switch.

Setting Font Size

Set the size of the font in system apps.

1. Go to **Settings**.
2. On Android 11, touch **Display > Advanced > Font size**.
3. On Android 13, touch **Display size and text**. Use the **Font size** + and - to vary the font size.
4. Select a font size option:
 - **Small**
 - **Default**
 - **Large**
 - **Largest**
5. Touch **Home**.

Setting Display Size

By default, the display size is set to Default.

1. Go to **Settings**.

2. On Android 11, touch **Display > Advanced > Display size**
3. On Android 13, touch **Display size and text**.
Use the **Display size** + and - to vary the text size.
4. Select a display size option:
 - **Small**
 - **Default**
 - **Large**
5. Touch **Home**.

Notification LED Brightness Level

1. Go to **Settings**.
2. On Android 11, touch **Display > Advanced**.
3. On Android 13, touch **Display**.
4. Touch **Notification LED Brightness Level**.
5. Use the slider to set the brightness value (default: 15).

Setting Touch Panel Mode

The device display is able to detect touches using a finger, a conductive-tip stylus, or a 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. On Android 11, touch **Display > Advanced**.
3. On Android 13, touch **Display**.
4. Touch **Touch panel mode**.
5. Select:
 - **Stylus and Finger (Screen Protector OFF)** to use a finger or a stylus on the screen without a screen protector.
 - **Glove and Finger (Screen Protector OFF)** to use a finger or a gloved finger on the screen without a screen protector.
 - **Stylus and Finger (Screen Protector ON)** to use a finger or a stylus on the screen with a screen protector.
 - **Glove and Finger (Screen Protector ON)** to use a finger or a gloved finger on the screen with a screen protector.
 - **Finger Only** to use a finger on the screen (default).
6. Touch the Home button.

Setting the Date and Time

The date and time are automatically synchronized using a NITZ server when the device is connected to a cellular/wireless network. 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) or when not connected to a cellular/wireless network.

1. Go to **Settings**.
2. Touch **System** > **Date & time**.
3. On Android 11, touch **Use network-provided time** to disable automatic date and time synchronization.
4. On Android 13, touch **Set time automatically** to disable automatic date and time synchronization.
5. On Android 11, touch **Use network-provided time zone** to disable automatic time zone synchronization.
6. On Android 13, touch **Set time zone automatically** to disable automatic time zone synchronization.
7. Touch **Date** to select the date in the calendar.
8. Touch **OK**.
9. Touch **Time**.
 - a) Touch the circle, drag to the current hour, and then release.
 - b) Touch the circle, drag to the current minute, and then release.
 - c) Touch **AM** or **PM**.
10. Touch **OK**.
11. Touch **Time zone** to select the current time zone from the list.
12. Touch **Update Interval** to select an interval to synchronize the system time from the network.
13. In **TIME FORMAT**, choose either **Use locale default** or **Use 24-hour format**.

General Sound Settings

Press the volume buttons on the device to display on-screen volume controls.

Use the Sound settings to configure media and alarm volumes.

1. Go to **Settings**.
2. On Android 11, touch **Sound**.
3. On Android 13, touch **Sound & Vibrations**.
4. Touch an option to set sounds.

Sound Options

- **Media volume** - Controls the music, games, and media volume.
- **Call volume** - Controls the volume during a call.
- **Ring & notification volume** - Controls the ringtone and notification volume.
- **Alarm volume** - Controls the alarm clock volume.
- **Vibrate for calls** - Switch on or off (A11 only).

- **Do Not Disturb** - Mutes some or all sounds and vibrations.
- **Media** - Shows the media player in Quick Settings while sound is playing, allowing quick access.
- **Vibration & haptics** - Enable or disable vibration and/or haptic settings (A13 only).
- **Shortcut to prevent ringing** - Turn on the switch to make the device vibrate when a call is received (default – enabled) (A13 only).
- **Phone ringtone** - Select a sound to play when the phone rings.
- **Live Caption** - Detects speech on your device and automatically generates captions (A13 only).
- **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** (A11 only):
 - **Dial pad tones** - Play a sound when pressing keys on dial pad (default - disabled).
 - **Screen locking sounds** - Play a sound when locking and unlocking the screen (default – enabled).
 - **Charging sounds and vibration** - Play a sound and vibrate 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 – enabled).

Zebra Volume Controls

In addition to the default sound settings, Zebra Volume Controls display when the volume buttons are pressed.

Zebra Volume Controls are configured using Audio Volume UI Manager (AudioVolUIMgr). Administrators can use AudioVolUIMgr to add, delete and replace Audio Profiles, select an Audio Profile to use the device, and modify the default Audio Profile. For information on how to configure Zebra Volume Controls using AudioVolUIMgr, refer to techdocs.zebra.com.

Setting Wake-Up Sources

By default, the device wakes from Sleep mode when the user presses **Power**. The device can be configured to wake when the user presses a different button.

1. Go to **Settings**.
2. Touch **Wake-Up Sources**.
 - **LEFT_TRIGGER_2** - PTT button.
 - **GUN_TRIGGER** - Optional Trigger Handle scan button.
 - **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 **SHORTCUT**, the **KEYS and BUTTONS**, or the **TRIGGER** tabs that list the available functions, applications, and triggers.
5. Touch a function or application shortcut to map to the button.

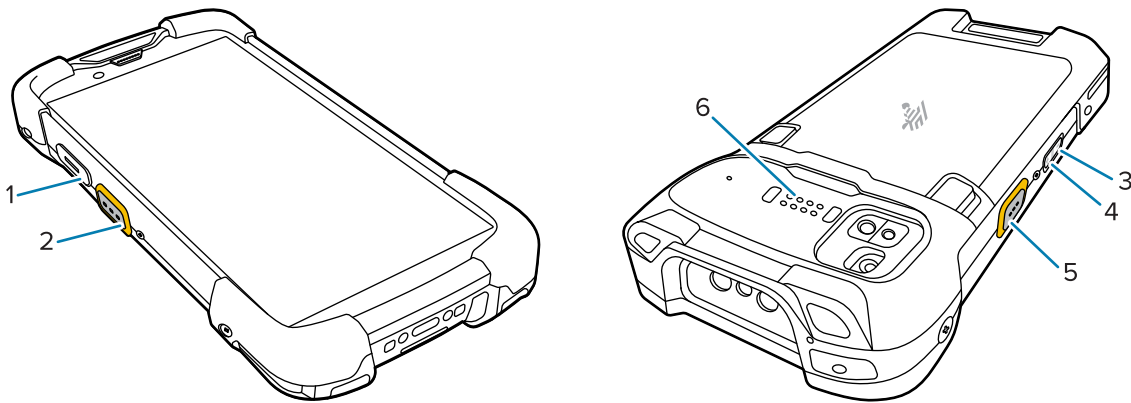


NOTE: If you select an application shortcut, the application icon appears next to the button on the Key Programmer screen.

Remappable Keys

List of remappable device keys.

Figure 11 Key Positions



1	BUTTON_L2	PTT button
2	SCAN	Left scan button
3	VOLUME_DOWN	Volume down button
4	VOLUME_UP	Volume up button
5	BUTTON_R1	Right scan button
6	BUTTON_L1	I/O for programming accessories

Alert Button

Configure any remappable key on the device as an Alert button using StageNow.

Use an Alert button to launch an app and a command, or call a specified phone number.

Configure the Alert Button

This section provides basic configuration. For detailed information on configuring the Alert button, refer to zebra.techdocs.com/stagenow.

Configure the Alert button through StageNow, using the following Configuration Service Providers (CSPs).

- PowerMgr - Set All Wake-Up Sources to Turn on. This wakes the device if it is in Sleep mode.
- Intent - Create a new setting:
 - Mode - Set to Schedule sending of Intent on key presses.
 - Keep Device Awake - Enable this option to keep the device awake after the short key press.
 - Key Identifier - Select a remappable key. For example, Rear Button.
 - Android Action Name - Enter the action name. For example, to initiate a call, enter `android.intent.action.CALL`.
 - URI - Enter the URI. For example, to call a phone number, enter `tel:123456789`.
- KeyMappingMgr - Modify the default behavior of the button. It is recommended to set this to **None**. Otherwise, the button performs its default behavior and sends out an alert.

Using an Alert Button

Activate the Alert button using a long-press of at least one second to prevent accidental alerts.

- If the device is in Sleep mode, perform a short-press on the Alert button, followed by a long-press.
- If the device is awake, perform a long-press on the Alert button.

Keyboards

The device provides multiple keyboard options.



NOTE: By default, the Enterprise and Virtual Keyboards are disabled. The Enterprise Keyboard is available for download from the [Zebra Support Site](#).

- Android Keyboard - AOSP devices only
- Gboard - GMS devices only
- Physical Keyboard
- Enterprise Keyboard - Not pre-installed on the device. Contact Zebra Support for more information.

Keyboard Configuration

This section describes configuring the device's keyboard.

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 **?123** 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.

Enterprise Keyboard

The Enterprise Keyboard contains multiple keyboard types.



NOTE: To use Zebra Enterprise Keyboard on this device, download and install it from Google Play at play.google.com.

- 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.
The operating system text changes to the selected language.

Adding Words to the Dictionary

1. Go to **Settings**.
2. On Android 11, touch **System > Languages & input > Advanced > Personal dictionary**.
3. On Android 13, touch **System > Languages & input > Personal dictionary**.
4. If prompted, select the language where this word or phrase is stored.
5. Touch + to add a new word or phrase to the dictionary.
6. Enter the word or phrase.
7. In the Shortcut text box, enter a shortcut for the word or phrase.

Notifications

The user can configure notifications for the device and for specific apps. Device notifications settings allow the user to configure how notifications occur on the device. App notification settings allow the user to configure how notifications for a specific app occur.

On Android 11, to view device notification settings, touch **Settings > Apps & notifications > Notifications**. To view app notifications, **Settings > Apps & notifications > App info**, then select an app.

On Android 13, to view device notification settings, touch **Settings > Notifications**. To view app notifications, **Settings > App > All Apps**, and then select an app.

Setting App Notifications

Configure the notifications settings for a specific app.

1. Go to **Settings**.
2. On Android 11, touch **Apps & notifications > SEE ALL XX APPS**. The App info screen displays.
3. On Android 13, touch **Apps > All Apps**.
4. Select an app.
5. Touch **Notifications**.

Options vary depending on the app selected.

6. On Android 11, 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 a sound.
 - **Pop on screen** - Allow notifications from this app to pop notifications on the screen.
- **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 a sound.
 - **Minimize** - In the Notification panel, collapse notifications to one line.
- **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.
7. On Android 13, touch the switch to turn on or off notifications for this app.
 - **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 Notifications

1. Go to **Settings**.

2. On Android 11, touch **Apps & Notification**.
3. On Android 13, touch **Notification > Apps Settings**.
4. Scroll down to **Notifications** to view how many apps have notifications turned off.

Controlling Lock Screen Notifications

Control whether notifications can be seen when the device is locked.

1. Go to **Settings**.
2. On Android 11, touch **Apps & notifications > Notifications**.
3. On Android 13, touch **Notifications**.
4. On Android 11, touch **Notifications on lock screen** and select one of the following:
 - **Show alerting and silent notifications (default)**
 - **Show alerting notifications only**
 - **Don't show notifications.**
5. On Android 13, touch **Notifications on lock screen** and select one of the following:
 - **Show conversations, default, and silent (default)**
 - **Hide silent conversations and notifications**
 - **Don't show any notifications.**

Enabling Blink Light

The Notification LED lights are 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.

1. Go to **Settings**.
2. On Android 11, touch **Apps & notifications > Notifications > Advanced**.
3. On Android 13, touch **Notifications**.
4. Touch **Blink light** to toggle the notification on or off.

Applications

The APPS screen displays icons for all installed apps. See [Application Deployment](#) on page 213 for information on installing and uninstalling apps. For information on standard Android apps, go to the Google Play [Apps store](#).

Installed Applications

Aside from the common Google apps, the Zebra-specific apps that are installed on the device are described in this section.

Table 5 Apps
















Item	Description
	Battery Manager - Displays battery information, including charge level, status, health and wear level, and use to place device in Battery Swap mode (non-premium models only) when replacing the battery.
	Bluetooth Pairing Utility – Use to pair a Zebra Bluetooth scanner with the device by scanning a barcode.
	DataWedge - Enables data capture using the imager.
	Camera - Take photos or record videos.
	DisplayLink Desktop - Use to present the device screen onto a connected monitor.
	DWDemo - Provides a way to demonstrate the data capture features using the imager.
	License Manager - Use to manage software licenses on the device.

Table 5 Apps (Continued)

Item	Description
	Phone - Use to dial a phone number when used with some Voice over IP (VoIP) clients (VoIP telephony ready only).
	RxLogger - Use to diagnose device and app issues.
	StageNow - Allows the device to stage a device for initial use by initiating the deployment of settings, firmware, and software.
	VoD - The Video on Device basic app provides a how-to video for proper device cleaning. For Video on Device licensing information, contact learningservices@zebra.com .
	Wireless Analyzer - A diagnostic intelligent app. Use to diagnose surrounding area and display network stats, such as coverage hole detection or AP in the vicinity. Refer to the Worry Free Wi-Fi Analyzer Administrator Guide for Android. Only available with Mobility DNA Enterprise License.
	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.
	Zebra Showcase - Provides a way to experience and learn about Zebra's new or existing capabilities.

Accessing Apps

Access all apps installed on the device 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

1. Touch **Recent**.
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 the app from the list and force close the app.


4. Touch an icon to open an app or touch **Back** to return to the current screen.

Battery Manager

The Battery Manager provides detailed information about the battery.

This section also provides battery swap procedures for 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 Icons

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 the 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.
 - **Not charging** - The device is not charging.
 - **Charging-AC** - The device is connected to AC power and charging or is fast charging via USB.
 - **Charging-USB** - The device is connected to a host computer with a USB cable and charging.
 - **Discharging** - The battery is discharging.
 - **Full** - 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

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



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


Camera

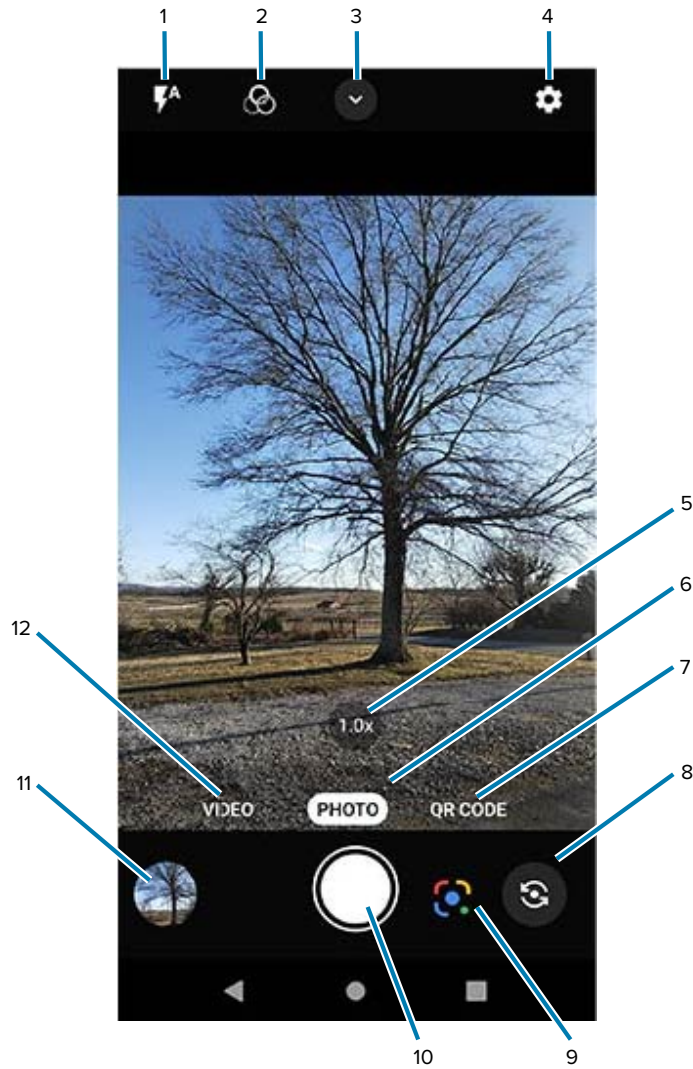
This section provides information for taking photos and recording videos using the integrated digital cameras.



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 internal storage.




Taking Photos on Android 11

1. Swipe up from the bottom of the Home screen and touch  to access the Camera application. Photo mode is the standard mode that displays.



1	Flash
2	Filters
3	Camera Quick Settings
4	Camera App Settings
5	Zoom
6	Photo mode
7	QR Code mode
8	Rear/front cameras

9	Google Lens app
10	Shutter button
11	Thumbnail of last photo or video
12	Video mode

2. To switch between the rear camera and front camera, touch .
3. Frame the subject on the screen.
4. Touch an area on the screen to focus. The yellow focus box displays and places that area into focus. Alternatively, the AutoFocus Animation can be enabled in the Settings menu, and the yellow focus box automatically appears when in focus.
5. To turn the Flash on, touch the  icon, which can also be accessed via the Quick Settings Menu.
6. To zoom in or out, the following options are available:
 - Tap the 1.0x zoom button to toggle between 1.0x and 2.0x.
 - Press and hold the **1.0x** zoom icon until the zoom slider displays. Slide the slider to the desired zoom.
 - Touch and hold an area with two fingers, then spread them apart to zoom in or pinch them together to zoom out.
7. Touch  to take a photo.

A shutter sound emits.

The last photo displays as a thumbnail in the lower-left corner.

See Also


[Camera and Video Settings](#)

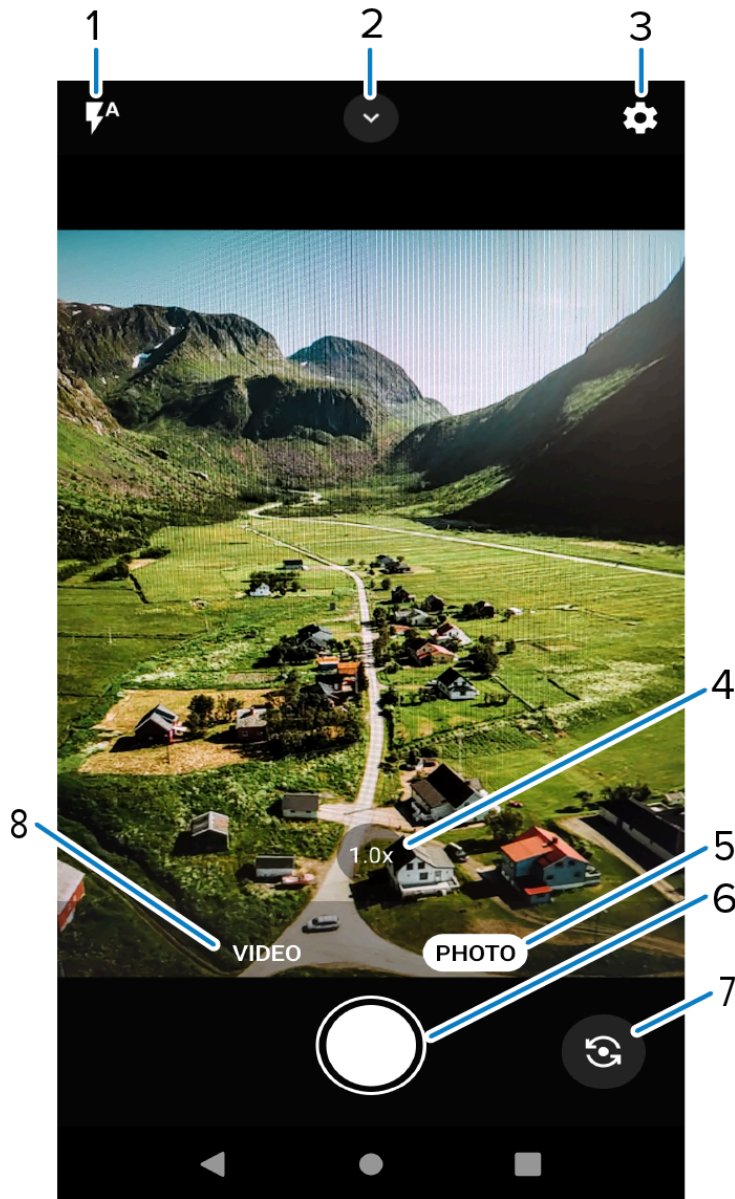
Taking Photos on Android 13

This section describes how to use the photo feature on the Camera app.






NOTE: See [Camera and Video Settings](#) for setting descriptions.

1. Swipe up from the bottom of the Home screen and touch  to access the Camera application. Photo mode is the standard mode that displays.




1	Flash
2	Camera Quick Settings
3	Camera App Settings
4	Zoom
5	Photo mode
6	Shutter button
7	Rear/front cameras

8	Video mode
---	------------

2. To switch between the rear camera and front camera, touch .
3. Frame the subject on the screen.
4. Touch an area on the screen to focus. The yellow focus box displays and places that area into focus. Alternatively, the AutoFocus Animation can be enabled in the Settings menu, and the yellow focus box automatically appears when in focus.
5. To turn the Flash on, touch the  icon, which can also be accessed via the Quick Settings Menu.
6. To zoom in or out, the following options are available:
 - Tap the 1.0x zoom button to toggle between 1.0x and 2.0x.
 - Press and hold the **1.0x** zoom icon until the zoom slider displays. Slide the slider to the desired zoom.
 - Touch and hold an area with two fingers, then spread them apart to zoom in or pinch them together to zoom out.
7. Touch  to take a photo.
A shutter sound emits.

Recording Videos on Android 11



1. Swipe up from the bottom of the Home screen and touch  to launch the Camera application.

2. Touch **Video** to access Video mode.



1	Flash
2	Filters
3	Camera Quick Settings
4	Camera App Settings
5	Zoom

6	Photo mode
7	QR Code mode
8	Rear/front cameras
9	Google Lens app
10	Record button
11	Thumbnail of last photo or video
12	Video mode

3. To switch between the rear camera and front camera, touch .
4. Point the camera and frame the scene.
5. Touch an area on the screen to focus. The yellow focus box displays and places that area into focus. Alternatively, the AutoFocus Animation can be enabled in the Settings menu and the yellow focus box automatically appears when in focus.
6. To turn the Flash on, touch the  icon which can also be accessed via the Quick Settings Menu.
7. Tap the 1.0x zoom button to toggle between 1.0x and 2.0x or press and hold the 1.0x zoom icon until the zoom slider displays and slide the slider to the desired zoom.

8. Touch the **Record** button. The video timer displays at the top of the screen.



1	Video timer
2	Audio
3	Zoom
4	Pause recording button
5	Start/stop recording button
6	Still image capture button (during video recording)

9. Touch the **Record** button to end the recording.


The last photo or video displays as a thumbnail in the lower-left corner.

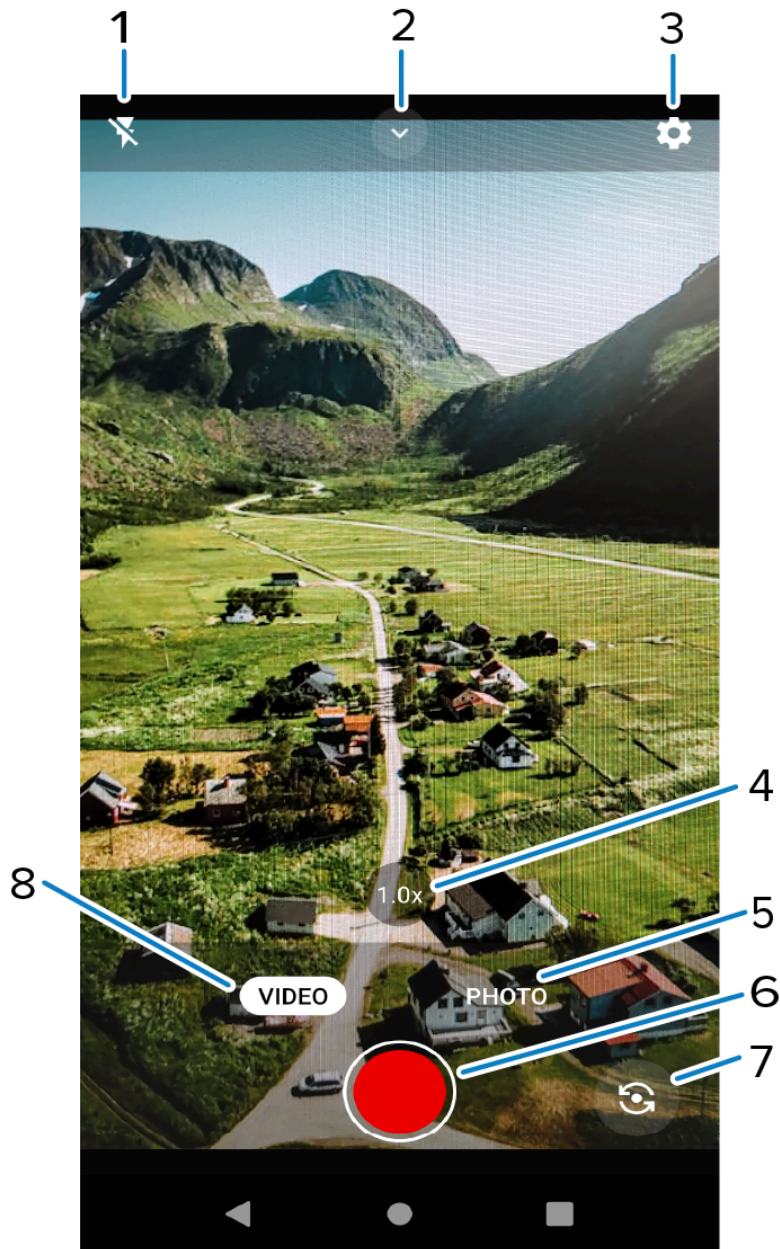
Recording Videos on Android 13

This section describes how to use the video feature on the Camera app.





NOTE: See [Camera and Video Settings](#) for setting descriptions.

1. Swipe up from the bottom of the Home screen and touch  to launch the Camera application.
2. Touch **Video** to access Video mode.

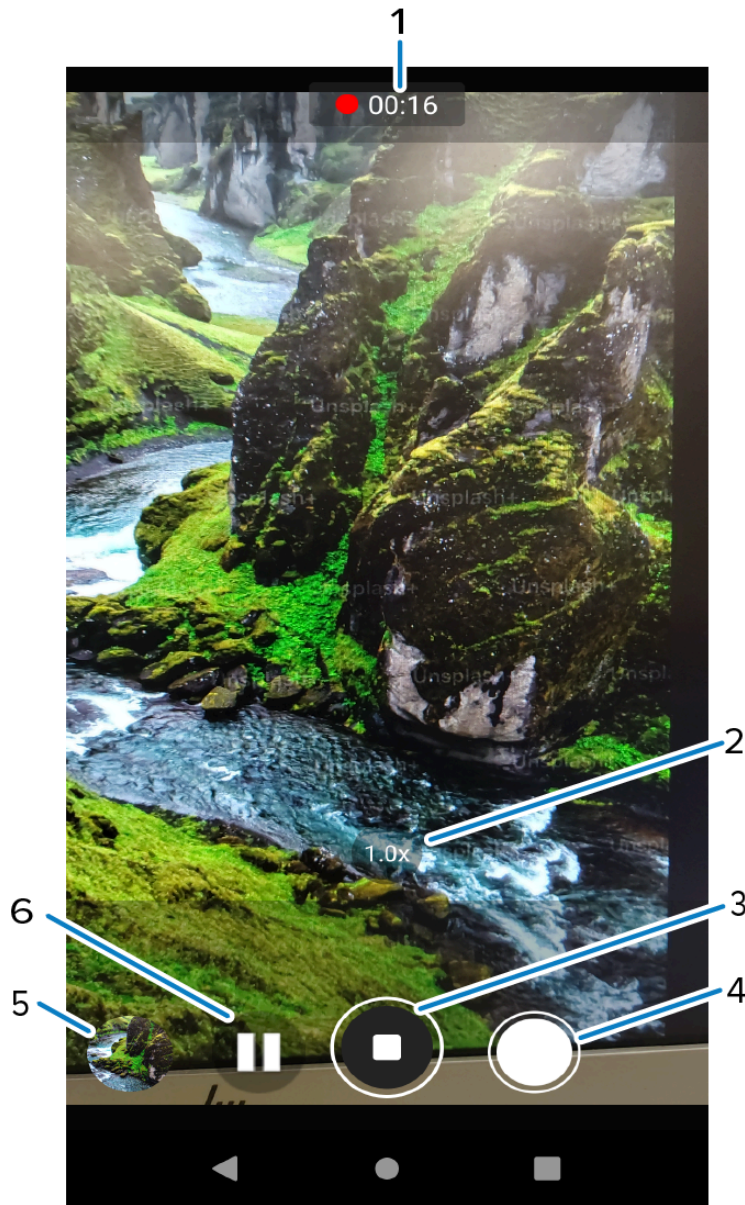


1	Flash
---	-------

2	Camera Quick Settings
3	Camera App Settings
4	Zoom
5	Photo mode
6	Record button
7	Rear/front cameras
8	Video mode

3. To switch between the rear camera and front camera, touch .
4. Point the camera and frame the scene.
5. Touch an area on the screen to focus. The yellow focus box displays and places that area into focus. Alternatively, the AutoFocus Animation can be enabled in the Settings menu and the yellow focus box automatically appears when in focus.
6. To turn the Flash on, touch the  icon which can also be accessed via the Quick Settings Menu.
7. Tap the 1.0x zoom button to toggle between 1.0x and 2.0x or press and hold the 1.0x zoom icon until the zoom slider displays and slide the slider to the desired zoom.


8. Touch the **Record** button. The video timer displays at the top of the screen.



1	Video timer
2	Zoom
3	Start/stop recording button
4	Still image capture button (during video recording)
5	Thumbnail of last photo or video
6	Pause recording button

9. Touch the **Record** button to end the recording.

Quick Camera Photo Mode and Video Mode Settings

In Photo mode, touch  to display the setting options.

- **Flash** - Compensates for the lack of brightness when shooting in dimly lit environments. Select **Auto** (default), **On**, or **Off**.
- **Timer** - Set a delay between taking a photo. Select **Off** (default), **3 seconds**, or **10 seconds**.
- **White Balance** - Select how the camera adjusts colors in different kinds of light. Select **Auto** (default), **Incandescent**, or **Fluorescent**.
- **HDR** - Select when in mixed lighting conditions such as low light and backlit scenes.
- **Pro Mode** - Easy access to ISO, exposure, white balance, and focus advanced settings.


In Video mode, touch  to display the setting options.

- **Flash** - Compensates for the lack of brightness when shooting in dimly lit environments. Select **Auto** (default), **On**, or **Off**.
- **Resolution** - Number of pixels in each frame. Select **4K UHD**, **HD 1080p** (default), or **SD 480p**.
- **Audio** - Enable or disable the audio.
- **White Balance** - Select how the camera adjusts colors in different kinds of light. Select **Auto** (default), **Incandescent**, or **Fluorescent**.



NOTE: See [Android 11 Camera and Video Settings](#) on page 92 and [Android 13 Camera and Video Settings](#) on page 93 for more setting descriptions.

Android 11 Camera and Video Settings

While in the Camera app, touch  to display the camera setting options.

General

- **Camera Sounds** - Select to play a shutter sound when taking a photo. Options: Disable or Enable (default).
- **Location Tags** - Includes location information when pictures and videos are taken.
- **Storage** - Set the location to store the photo to: Phone or SD Card.
- **Dirty Lens Detection** - Notifies when the camera lens might be dirty. Options: Disable (default) or Enable.
- **QR Code Mode** - Enable to scan QR Codes with the option to launch URL. Options: Disable (default) or Enable.
- **Google Lens** - Select to enable Google-developed recognition technology that brings up relevant information related to identified objects within an image.
- **Digital Level** - Display a level line to ensure the photo or video is level. Options: Disable (default) or Enable.
- **Face Detection** - Select to turn face detection Off (default) or On.
- **Gestures** - View gestures and power user controls. Gestures include: Swipe Down, Swipe Up, Side Swipe, Tap, Tap + Hold, Double Tap, and Hold Zoom.

Still Camera

- **Photo Grid** - Displays a 3 x 3 grid guide on the camera viewport. Options: Disabled (default), or Enable.
- **Countdown timer** - Select Off (default), 3 seconds, or 10 seconds.
- **Picture size** - The size (in pixels) of the photo to: 16M pixels (default), 8M pixels, WVGA, VGA, QVGA.
- **Picture quality** - Set the picture quality setting to: Low, Standard, or High (default).
- **Picture Format** - All still images are saved in JPEG (default) or RAW format.
- **MFNR** - Sets multi-frame noise reduction to improve quality in low light conditions. Options: Enabled (default), or Disabled.
- **AutoFocus Animation** - Select to enable or disable the camera focus ring in the camera preview. Options: Disable (default) or Enable.

Video Camera

- **Video quality** - Set video quality to: 4k UHD (rear camera only), HD 1080p (default), HD 720p, SD 480p, VGA, CIF, or QVGA.
- **Video duration** - Set to: 30 seconds (MMS), 10 minutes, 30 minutes (default), or no limit.
- **Noise Reduction** - Off, Fast, or High Quality (default).
- **HEVC Encoder** - Save video recordings using high-efficiency video codec (HEVC/h265) for smaller file size. Options: Disabled (default), or Enable.
- **Audio Encoder** - Set the audio encoder to: AMRNB, or AAC (default).
- **Video Rotation** - Set the rotation of the video to: 0 (default), 90, 180, or 270.

System

- **Restore defaults** - Select to restore all settings to the default values.
- **About** - Displays the software version of the camera app.

Android 13 Camera and Video Settings

In Photo or Video mode, camera settings are displayed on the screen by touching  on the top right.

- **General** - These settings apply to both the still camera and video.
 - **Camera Sounds** - Enable (default) or disable camera sounds.
 - **Location Tags** - Enable location information when pictures and videos are taken.
 - **Storage** - Photos and videos are stored on the phone.
 - **Dirty Lens Detection** - Enable to receive alerts when the camera lens is dirty.
 - **QR Code Mode** - Enable QR Code scanning with an option to open URLs via the browser (Rear camera and video only).
 - **Google Lens Mode** - Enable Google-developed recognition technology that displays relevant information about identified objects within an image.
 - **Digital Level** - Enable digital guide to keep photos aligned.
 - **Face Detection** - Enable to turn on (or off).
 - **Gestures** - View gestures and power user controls. Gestures include **Swipe Down**, **Swipe Up**, **Side Swipe**, **Tap**, **Tap + Hold**, **Double Tap**, and **Hold Zoom**.

- **Still Camera** - These settings only apply to the still camera.
 - **Photo Grid** - Enable to apply a 3x3 grid guide to the camera viewport.
 - **Countdown timer** - Select **Off** (default), **3 seconds**, or **10 seconds**.
 - **Selfie Mirror** - Enable to save a mirror image of the photo (Front camera and video only).
 - **Picture size** - Set the size (in pixels) of the photo to **16M pixel** (default for rear camera/video), **8M pixels** (default for front camera/video), **5M pixels**, **WVGA**, **VGA**, or **QVGA**.
 - **Picture quality** - Set setting to **Low**, **Standard**, or **High** (default).
 - **Selfie Flash** - Enable to turn on the front-facing flash (Front camera and video only).
 - **Picture Format** - All still images are saved in **JPEG** (default) or **RAW + JPEG** format.
 - **MFNR** - Disabled (default) Multi-frame Noise Reduction improves picture quality in low-light conditions.
 - **AutoFocus Animation** - Enable the camera focus ring in the camera preview (Rear camera and video only).
- **Video Camera** - These settings only apply to the video camera.
 - **Video quality** - Set the video quality to **HD 1080p** (default), **HD 720p**, **SD 480p**, **VGA**, **CIF**, or **QVGA**.
 - **Video duration** - Set to **30 seconds (MMS)**, **10 minutes** (default), **30 minutes**, or **no limit**.
 - **Noise Reduction** - Set to **Off**, **Fast**, or **High Quality** (default).
 - **HEVC Encoder** - Enable to save video recording using a high-efficiency video encoder for a smaller file size.
 - **Audio Encoder** - Set the audio encoder to **AMRNB** or **AAC** (default).
 - **Video Rotation** - Set the rotation to **0** (default), **90**, **180**, or **270**.
- **System**
 - **Restore defaults** - Select to restore all settings to the default values.
 - **About** - Displays the software version of the camera app.

DWDemo

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

DWDemo Icons

This table lists the icons available on the DWDemo app.

Table 7 DataWedge Demonstration Icons











Category	Icon	Description
Illumination		Imager illumination is on. Touch to turn illumination off.
Illumination		Imager illumination is off. Touch to turn illumination on.

Table 7 DataWedge Demonstration Icons (Continued)

Category	Icon	Description
Data Capture		The data capture function is through the internal imager.
Data Capture		The data capture function is through the rear camera.
Data Capture		A Bluetooth scanner is connected.
Data Capture		A Bluetooth scanner is not connected.
Scan Mode		Imager is in picklist mode. Touch to change to normal scan mode.
Scan Mode		Imager is in normal scan mode. Touch to change to picklist mode.
Menu		Opens a menu to view the application information or to set the application DataWedge profile.

Selecting a Scanner

See the [Data Capture](#) on page 98 section for more information.

1. To select a scanner, touch  > **Settings** > **Scanner Selection**.
2. Press the programmable button or touch the yellow scan button to capture data.
The data appears in the text field below the yellow button.

RxLogger

RxLogger is a comprehensive diagnostic tool that provides application and system metrics, 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 logs the following information: CPU load, memory load, memory snapshots, battery consumption, power states, wireless logging, TCP dumps, Bluetooth 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

All RxLogger settings are stored in a file on the device, permitting remote configuration and mass deployment of setting files using an enterprise mobile management (EMM) system.




IMPORTANT: The RxLogger configuration file is human-readable, but it should not be edited by hand as doing so can lead to unpredictable behavior. Zebra recommends modifying RxLogger settings only through the RxLogger UI.


- File name: `config.json`
- Location: `/<internal_storage>/RxLogger`
- With external SD Card: `/storage/sdcard1/RxLogger`
- With no external SD Card: `/storage/sdcard0/RxLogger` When a new settings file is pushed to the device, RxLogger restarts all affected modules and applies the new settings immediately.

Copy the file from the device to a host computer using a USB connection. Edit the configuration file through the RxLogger UI and then replace the JSON file on the device. There is no need to stop and restart the RxLogger service because the file change is automatically detected.

Enabling Logging

1. Swipe the screen up and select .
2. Touch **Start**.

Disabling Logging

1. Swipe the screen up and select .
2. Touch **Stop**.

Extracting Log Files

1. Connect the device to a host computer using a 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 Data


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

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

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

Viewing 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 backup.

Data Capture

This section provides information for capturing barcode data using various scanning options.

The device supports data capture using:

- Integrated SE55 imager
- Integrated SE4770 imager
- Integrated camera
- RS507/RS507x Bluetooth Ring Scanner
- RS5100 Bluetooth Ring Scanner
- RS6000 Bluetooth Ring Scanner
- RS6100 Bluetooth Ring Scanner
- DS3678 Digital Scanner
- DS2278 Digital Scanner
- DS8178 Digital Scanner
- LI3678 Linear Scanner.

Imaging

The device with an integrated 2D imager has the following features:

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

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

Digital Camera

The device includes an integrated camera-based barcode scanning solution with 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.

Operational Modes

The device with an integrated imager supports three modes of operation.

Activate each mode by pressing **Scan**.

- Decode mode — The device attempts to locate and decode enabled barcodes within its field of view. The imager remains in this mode as long as you hold the scan button, or until it decodes a barcode.



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

- Picklist mode — Selectively decode a barcode when more than one barcode is in the device's field of view by moving the aiming crosshair or dot over the required barcode. Use this feature for pick lists containing multiple barcodes and manufacturing or transport labels containing more than one barcode type (either 1D or 2D).



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

- 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). This may be a fixed amount, meaning it scans X unique barcodes, or can be set as a range to scan a different number of unique barcodes each session.
 - 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 MultiBarcode Mode 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.
- MultiBarcode Mode does not support concatenated barcodes.

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 optimally 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 the Internal Imager

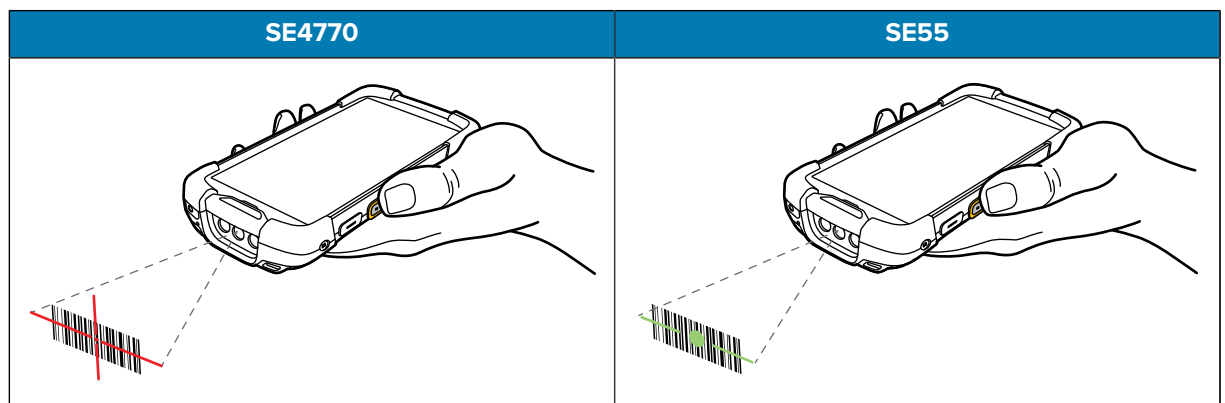
To read a barcode, a scan-enabled application is required. The device contains the DataWedge application, which allows you to enable the imager, decode the barcode data, and display the barcode content.



NOTE: The SE55 displays a green dash-dot-dash aimer. The SE4770 imager displays a red crosshair aimer.

1. Ensure that an application 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 or QR code.
3. Press and hold the scan button.

The device projects the aiming pattern.



NOTE: Imager decoding usually occurs instantaneously. When the device is in Picklist mode, the imager does not decode the barcode until the red crosshair or green dash-dot-dash touches the barcode.

4. Ensure that the barcode is within the area formed in the aiming pattern.

Figure 12 Aiming Patterns

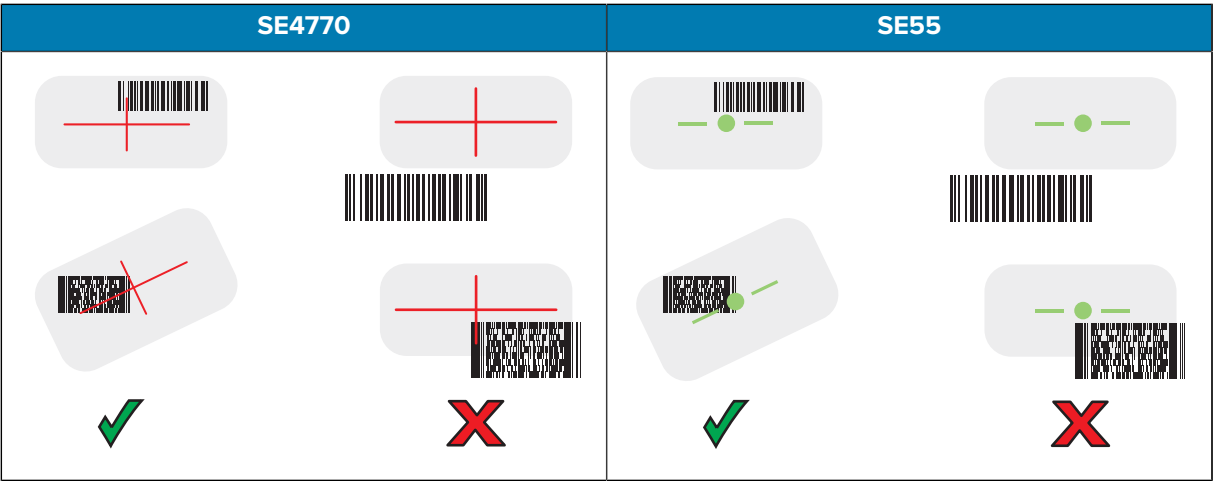
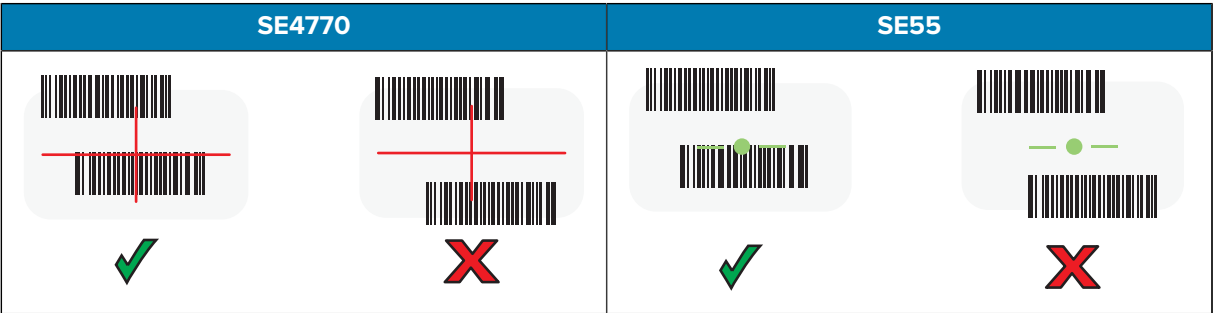


Figure 13 Picklist Mode with Multiple Barcodes in Aiming Pattern



The Data Capture LED lights green, and the device beeps, by default, to indicate that the barcode or QR code was decoded successfully.



NOTE: 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.

5. Release the scan button.

The device displays the barcode or QR code data in the text field.

Scanning with the Internal Camera

Use the internal camera to capture barcode data.



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

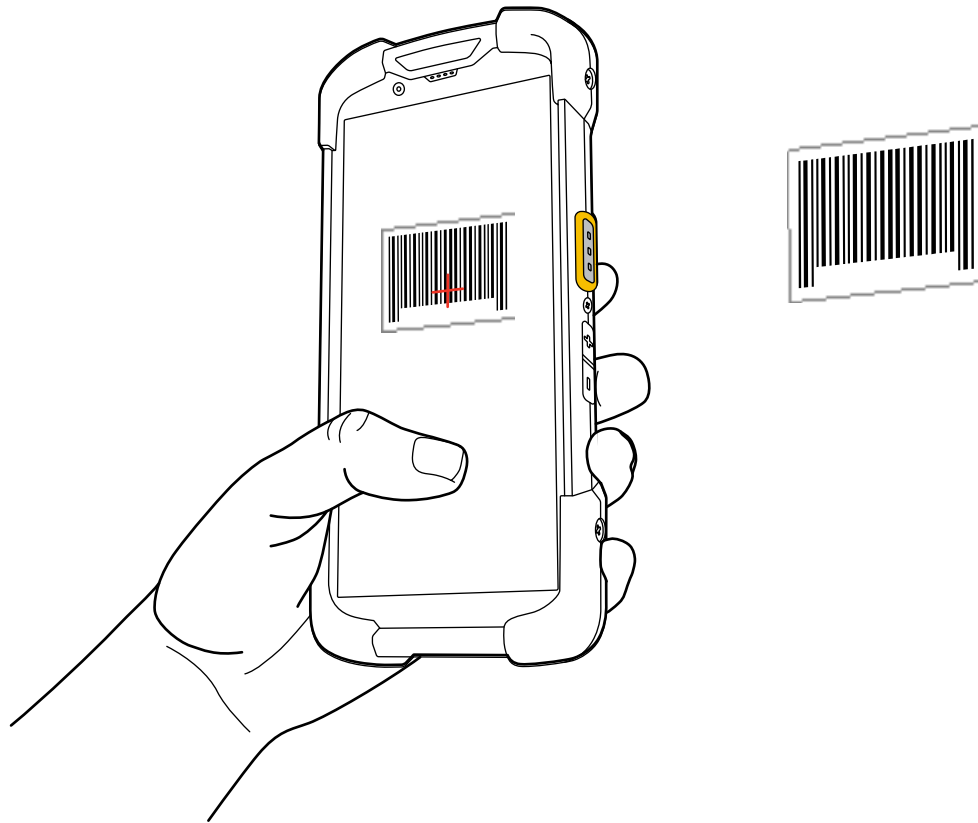


NOTE: The integrated camera is intended for light-duty barcode scanning. For heavy-duty scanning, 100 or more scans per day, use the 2D imager.

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

To scan with the internal camera:

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 window at a barcode.



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

3. Move the device until the barcode is visible on the screen.

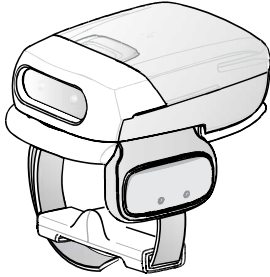
The Decode LED lights green, a beep sounds, and the device vibrates, by default, to indicate the barcode was decoded successfully.

The captured data appears in the text field.

Scanning with the RS507/RS507X Hands-Free Imager

Use the RS507/RS507X Hands-Free Imager to capture barcode data.

Figure 14 RS507/RS507X Hands-Free Imager



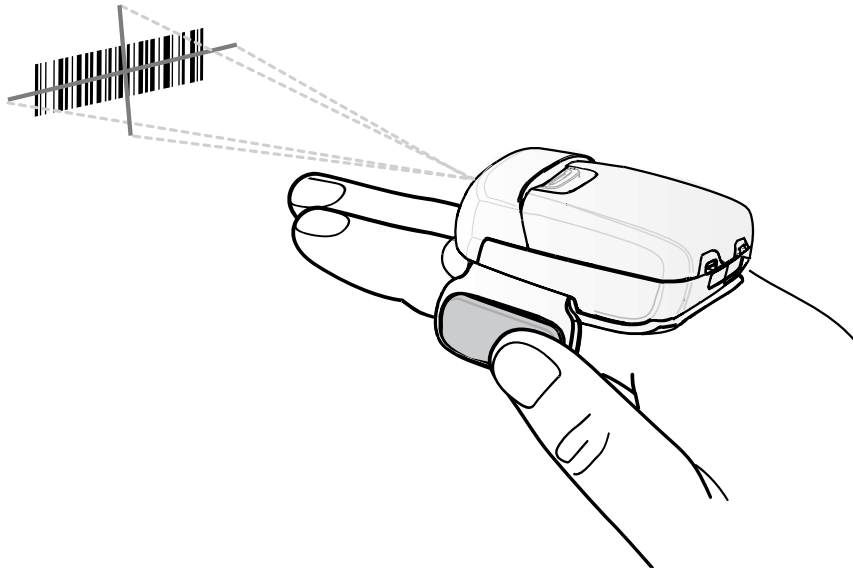
Refer to the RS507/RS507X Hands-free Imager Product Reference Guide for more information.



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

To scan with the RS507/RS507x:

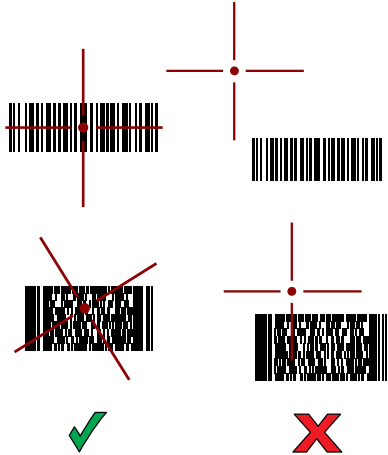
1. Pair the RS507/RS507X with the device.
2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
3. Point the RS507/RS507X at a barcode.



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.

Figure 15 RS507/RS507X Aiming Pattern



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



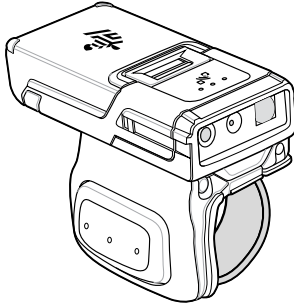
The RS507/RS507X LEDs light green and a beep sounds to indicate the barcode was decoded successfully.

The captured data appears in the text field.

Scanning with the RS5100 Ring Scanner

Use the RS5100 Ring Scanner to capture barcode data.

Figure 17 RS5100 Ring Scanner



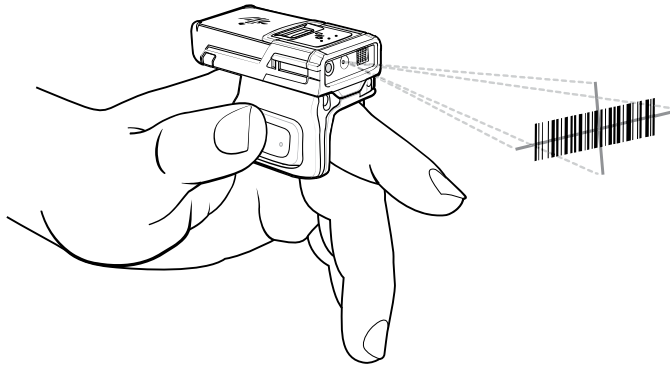
Refer to the RS5100 Ring Scanner Product Reference Guide for more information.



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

To scan with the RS5100:

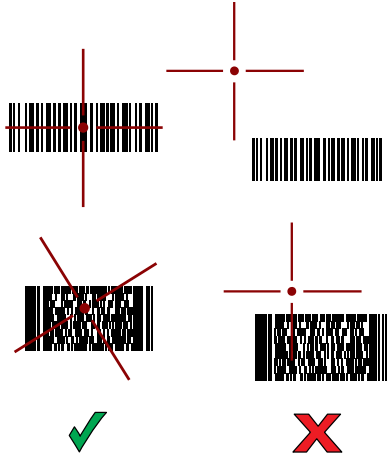
1. Pair the RS5100 with the device.
2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
3. Point the RS5100 at a barcode.



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.

Figure 18 RS5100 Aiming Pattern



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 19 RS5100 Pick List Mode with Multiple Barcodes in Aiming Pattern

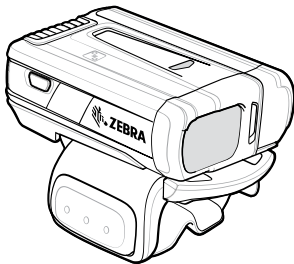


The RS5100 LEDs light green and a beep sounds to indicate the barcode was decoded successfully. The captured data appears in the text field.

Scanning with the RS6000 Bluetooth Ring Scanner

Use the RS6000 Bluetooth Ring Scanner to capture barcode data.

Figure 20 RS6000 Bluetooth Ring Scanner



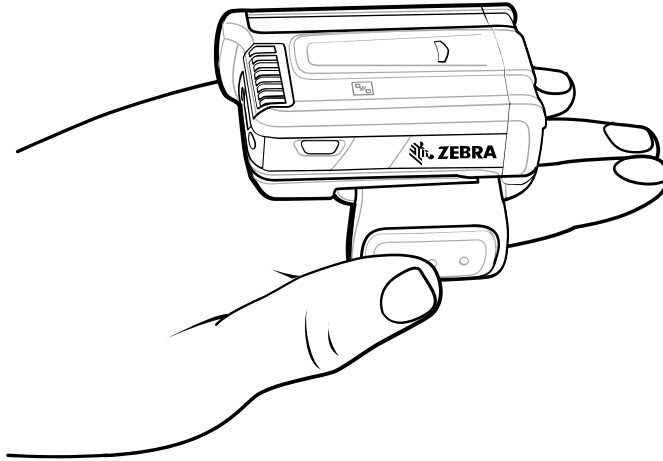
Refer to the RS6000 Bluetooth Ring Scanner Product Reference Guide for more information.



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

To scan with the RS6000:

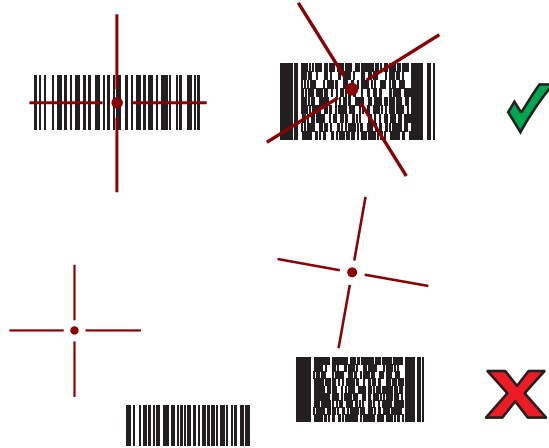
1. Pair the RS6000 with the device.
2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
3. Point the RS6000 at a barcode.



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.

Figure 21 RS6000 Aiming Pattern



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 Pick List Mode with Multiple Barcodes in Aiming Pattern

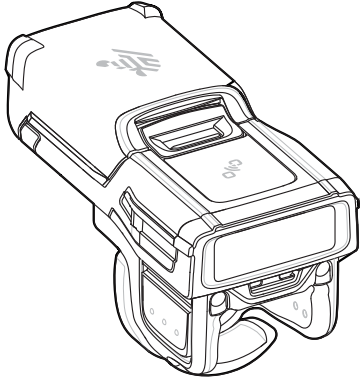


The RS6000 LEDs light green and a beep sounds to indicate the barcode was decoded successfully. The captured data appears in the text field.

Scanning with the RS6100 Bluetooth Ring Scanner

Use the RS6100 Bluetooth Ring Scanner to capture barcode data.

Figure 23 RS6100 Bluetooth Ring Scanner



Refer to the RS6100 Bluetooth Ring Scanner Product Reference Guide for more information.



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

To scan with the RS6100:

1. Pair the RS6100 with the device.
2. Ensure that an app is open on the device and that a text field is in focus (text cursor in text field).
3. Point the RS6100 at a barcode.

4. Press and hold the trigger.

The green 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.

Figure 24 RS6100 Aiming Pattern



When the RS6100 is in Pick List mode, the RS6100 does not decode the barcode until the center of the crosshair touches the barcode.

Figure 25 RS6000 Pick List Mode with Multiple Barcodes in Aiming Pattern

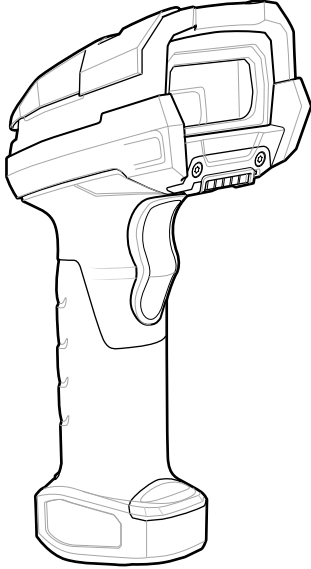


The RS6100 LEDs light green and a beep sounds to indicate the barcode was decoded successfully. The captured data appears in the text field.

Scanning with the DS3678 Bluetooth Scanner

Use the DS3678 Bluetooth Scanner to capture barcode data.

Figure 26 DS3678 Digital Scanner



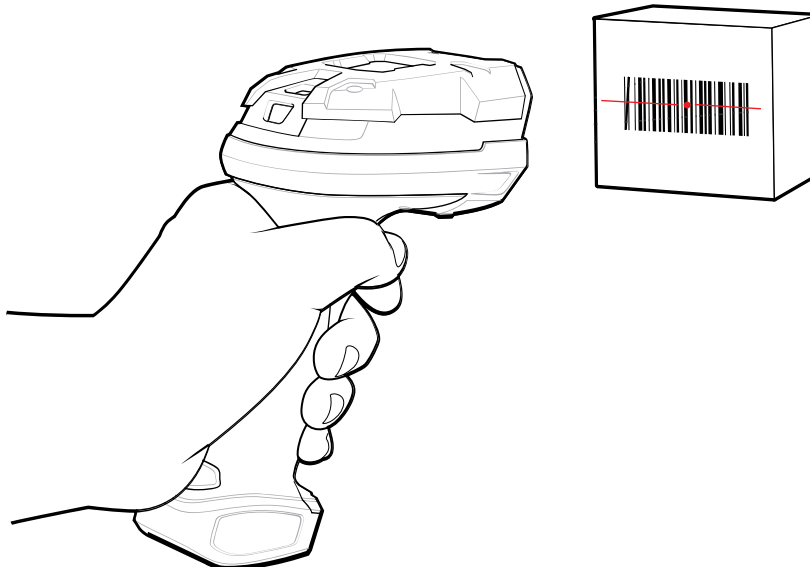
Refer to the DS3678 Product Reference Guide for more information.



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

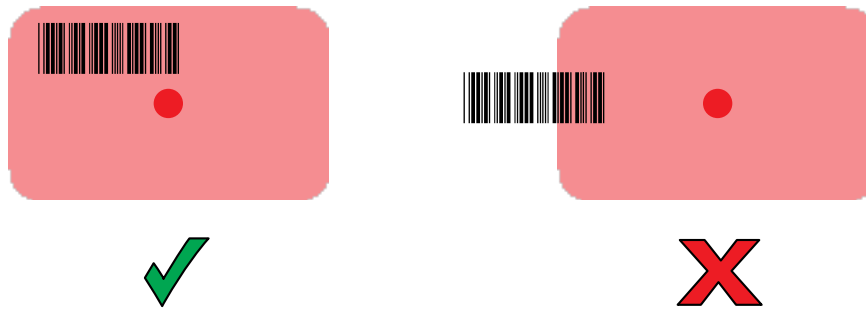
To scan with the DS3678 scanner:

1. Pair the scanner with the device. See [Pairing Bluetooth Scanners](#) 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.



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.

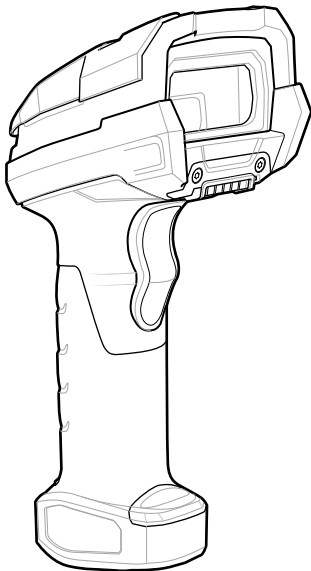


The captured data appears in the text field.

Scanning with the LI3678 Linear Imager

Use the LI3678 linear imager to capture barcode data.

Figure 27 LI3678 Bluetooth Scanner



Refer to the LI3678 Product Reference Guide for more information.

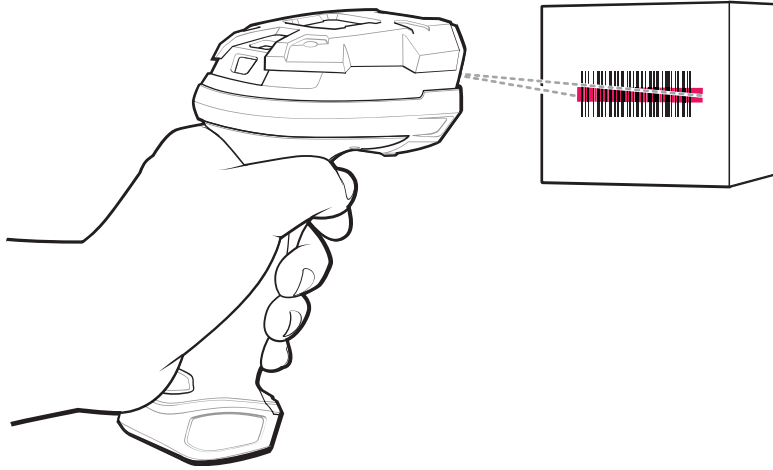


NOTE: To read a barcode, a scan-enabled app is required. The device contains the DataWedge app that allows the user to enable the scanner to decode barcode data and display the barcode content.

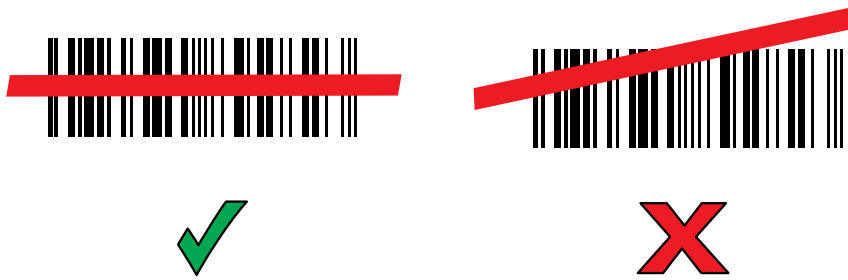
To scan with the LI3678:

1. Pair the LI3678 with the device. See [Pairing a Bluetooth Scanner](#) 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.

4. Press and hold the trigger.



5. Ensure the aiming pattern covers the barcode.



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

Scanning with the DS2278 Digital Scanner

Use the DS2278 Digital Scanner to capture barcode data.

Figure 28 DS2278 Digital Scanner



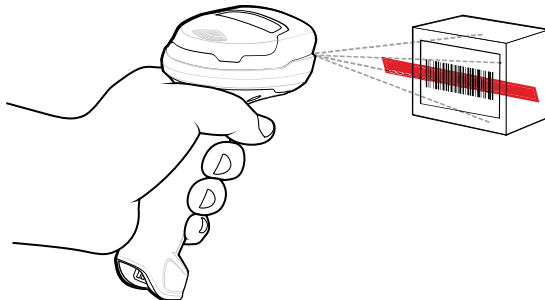
Refer to the DS2278 Digital Scanner Product Reference Guide for more information.



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

To scan with the DS2278:

1. Pair the DS2278 with the device. See [Pairing a Bluetooth Scanner](#) 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.



4. Press and hold the trigger.

5. Ensure the aiming pattern covers the barcode.

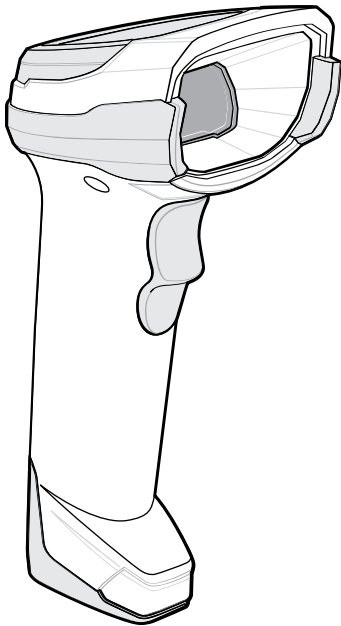


6. Upon successful decode, the scanner beeps and the LED flashes, and the scan line turns off.
The captured data appears in the text field.

Scanning with the DS8178 Digital Scanner

Use the DS8178 Bluetooth Scanner to capture barcode data.

Figure 29 DS8178 Digital Scanner



Refer to the DS8178 Digital Scanner Product Reference Guide for more information.

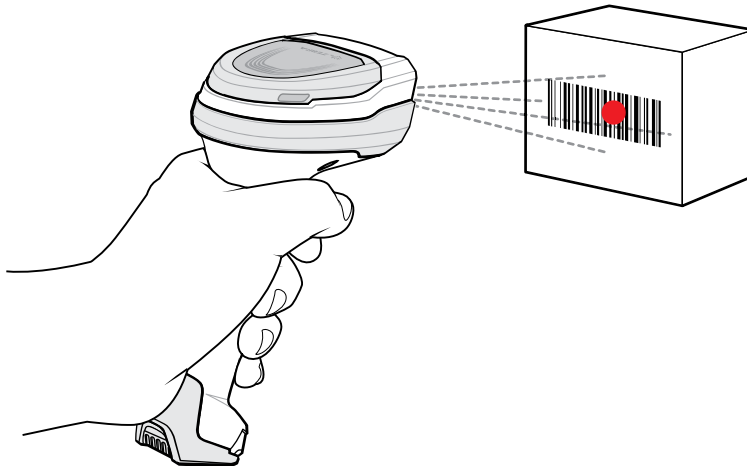


NOTE: To read a barcode, a scan-enabled app is required. The device contains the DataWedge app that allows the user to enable the scanner to decode barcode data and display the barcode content.

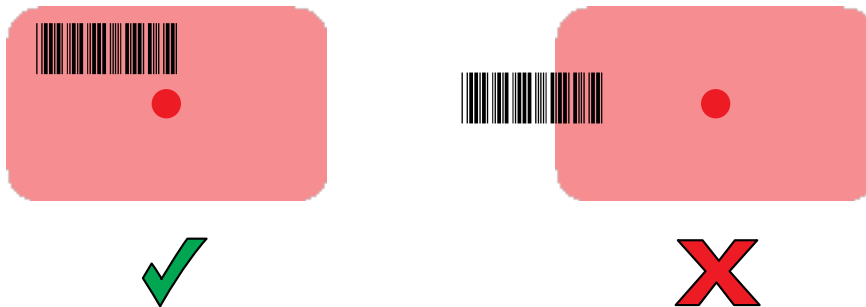
To scan with the DS8178 scanner:

1. Pair the scanner with the device. See [Pairing Bluetooth Scanners](#) 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.



4. Press and hold the trigger.
5. Ensure the barcode is within the area formed by the aiming pattern. The aiming dot increases visibility in bright lighting conditions.



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

Pairing a Bluetooth Ring Scanner

Before using a Bluetooth Ring Scanner with the device, connect the device to the Ring Scanner.

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

- Near Field Communication (NFC)
- Simple Serial Interface (SSI)
- Bluetooth Human Interface Device (HID) Mode


Pairing in SSI Mode Using Near Field Communication

The device provides the ability to pair NFC-capable ring scanners (such as the RS5100, RS6000, or RS6100) in SSI Mode using NFC.

1. Ensure that NFC is enabled on the device.
2. Align the NFC icon on the Ring Scanner with the NFC antenna on the front of the device.

The Status LED blinks blue indicating that the Ring Scanner is attempting to establish a connection with the device. When a 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.

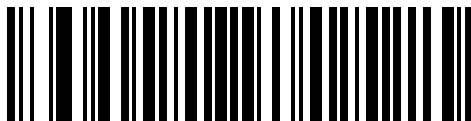
The  icon appears in the Status bar.

Pairing in HID Mode Using Near Field Communication

The device provides the ability to pair NFC-capable ring scanners (such as the RS5100, RS6000, or RS6100) in HID Mode using NFC.

1. Ensure that NFC is enabled on the device.
2. Ensure that Bluetooth is enabled on both devices.
3. Ensure that the Bluetooth device to discover is in discoverable mode.
4. Ensure that the two devices are within 10 meters (32.8 feet) of one another.
5. Place the Ring Scanner in Human Interface Device (HID) mode. If the Ring Scanner is already in HID mode, skip to step 6.
 - 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 30 Bluetooth HID Barcode



6. Remove the battery from the Ring Scanner.
7. Re-install the battery into the Ring Scanner.
8. 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 a connection with the device. When a 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.

The  icon appears in the Status bar.

Pairing Using Simple Serial Interface (SSI)

Pair the Ring Scanner to the device using Simple Serial Interface.

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

- 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 a connection with the device. When a 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

Pair the Ring Scanner to 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 **Restore**.
 - 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 31 RS507 Bluetooth HID Barcode

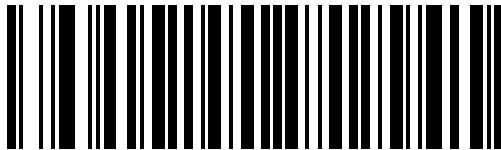
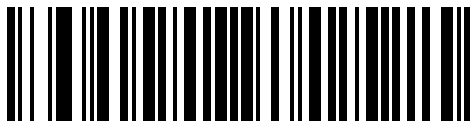



Figure 32 RS6000 Bluetooth HID Barcode



- 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 the Notification panel and the  icon appears in the Status bar.

Pairing a Bluetooth Scanner


Before using a Bluetooth scanner with the device, connect the device to the Bluetooth scanner.

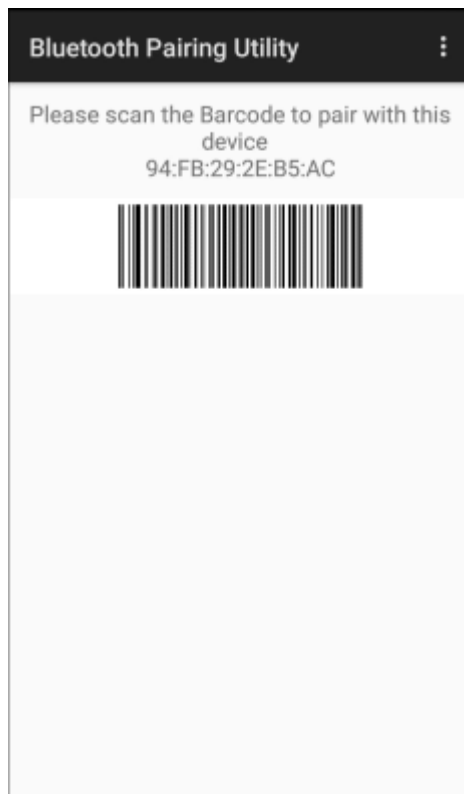
Connect the scanner to the device using one of the following methods:

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

Pairing Using Simple Serial Interface

Pair the Ring Scanner to the device using Simple Serial Interface.

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



4. 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 a connection with the device. When a 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 in SSI Mode Using Near Field Communication

The device provides the ability to pair NFC-capable ring scanners (such as the RS5100, RS6000, or RS6100) in SSI Mode using NFC.

1. Ensure that NFC is enabled on the device.
2. Align the NFC icon on the Ring Scanner with the NFC antenna on the front of the device.

The Status LED blinks blue indicating that the Ring Scanner is attempting to establish a connection with the device. When a 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.

The  icon appears in the Status bar.

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 devices.
- Properly format and transmit data to a specific app.

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

Enabling DataWedge



This procedure provides information on how to enable DataWedge on the device.

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.

Disabling DataWedge

This procedure provides information on how to disable DataWedge on the device.

1. Swipe up from the bottom of the Home screen and touch .
2. Touch .
3. Touch **Settings**.
4. Touch **DataWedge enabled**.

Supported Decoders

This sections provides the supported decoders for each data capture option.

Camera Supported Decoders

Lists the supported decoders for the internal camera.

Table 8 Camera Supported Decoders

Decoder	Default State	Decoder	Default State	Decoder	Default State
Australian Postal	O	EAN8	X	MSI	O
Aztec	X	Grid Matrix	O	PDF417	X
Canadian Postal	O	GS1 DataBar	X	QR Code	X
Chinese 2 of 5	O	GS1 DataBar Expanded	X	Decoder Signature	O
Codabar	X	GS1 DataBar Limited	O	TLC 39	O
Code 11	O	GS1 Datamatrix	O	Trioptic 39	O
Code 128	X	GS1 QRCode	O	UK Postal	O
Code 39	X	HAN XIN	O	UPCA	X
Code 93	O	Interleaved 2 of 5	O	UPCE0	X
Composite AB	O	Japanese Postal	O	UPCE1	O
Composite C	O	Korean 3 of 5	O	US4state	O
Discrete 2 of 5	O	MAIL MARK	X	US4state FICS	O
Datamatrix	X	Matrix 2 of 5	O	US Planet	O
Dutch Postal	O	Maxicode	X	US Postnet	O
DotCode	X	MicroPDF	O		
EAN13	X	MicroQR	O		

Key: X = Enabled, O = Disabled, - = Not Supported

SE4770 Internal Imager Supported Decoders

Lists the supported decoders for the SE4770 internal imager.

Table 9 SE4770 Internal Imager Supported Decoders

Decoder	Default State	Decoder	Default State	Decoder	Default State
Australian Postal	O	EAN8	X	MSI	O

Table 9 SE4770 Internal Imager Supported Decoders (Continued)

Decoder	Default State	Decoder	Default State	Decoder	Default State
Aztec	X	Grid Matrix	O	PDF417	X
Canadian Postal	O	GS1 DataBar	X	QR Code	X
Chinese 2 of 5	O	GS1 DataBar Expanded	X	Decoder Signature	O
Codabar	X	GS1 DataBar Limited	O	TLC 39	O
Code 11	O	GS1 Datamatrix	O	Trioptic 39	O
Code 128	X	GS1 QRCode	O	UK Postal	O
Code 39	X	HAN XIN	O	UPCA	X
Code 93	O	Interleaved 2 of 5	O	UPCE0	X
Composite AB	O	Japanese Postal	O	UPCE1	O
Composite C	O	Korean 3 of 5	O	US4state	O
Discrete 2 of 5	O	MAIL MARK	X	US4state FICS	O
Datamatrix	X	Matrix 2 of 5	O	US Planet	O
Dutch Postal	O	Maxicode	X	US Postnet	O
DotCode	O	MicroPDF	O		
EAN13	X	MicroQR	O		

Key: X = Enabled, O = Disabled, - = Not Supported

SE55 Internal Imager Supported Decoders

Lists the supported decoders for the SE55 internal imager.

Table 10 SE55 Internal Imager Supported Decoders

Decoder	Default State	Decoder	Default State	Decoder	Default State
Australian Postal	O	EAN8	X	MSI	O
Aztec	X	Grid Matrix	O	PDF417	X
Canadian Postal	O	GS1 DataBar	X	QR Code	X
Chinese 2 of 5	O	GS1 DataBar Expanded	X	Decoder Signature	O
Codabar	X	GS1 DataBar Limited	O	TLC 39	O
Code 11	O	GS1 Datamatrix	O	Trioptic 39	O

Table 10 SE55 Internal Imager Supported Decoders (Continued)

Decoder	Default State	Decoder	Default State	Decoder	Default State
Code 128	X	GS1 QRCode	O	UK Postal	O
Code 39	X	HAN XIN	O	UPCA	X
Code 93	O	Interleaved 2 of 5	O	UPCE0	X
Composite AB	O	Japanese Postal	O	UPCE1	O
Composite C	O	Korean 3 of 5	O	US4state	O
Discrete 2 of 5	O	MAIL MARK	X	US4state FICS	O
Datamatrix	X	Matrix 2 of 5	O	US Planet	O
Dutch Postal	O	Maxicode	X	US Postnet	O
DotCode	O	MicroPDF	O		
EAN13	X	MicroQR	O		

RS507/RS507x Supported Decoders

Lists the supported decoders for the RS507/RS507x Ring Scanner.

Table 11 RS507/RS507x Supported Decoders

Decoder	Default State	Decoder	Default State	Decoder	Default State
Australian Postal	O	EAN8	X	MSI	O
Aztec	X	Grid Matrix	O	PDF417	X
Canadian Postal	-	GS1 DataBar	X	QR Code	X
Chinese 2 of 5	O	GS1 DataBar Expanded	X	Decoder Signature	O
Codabar	X	GS1 DataBar Limited	O	TLC 39	O
Code 11	O	GS1 Datamatrix	-	Trioptic 39	O
Code 128	X	GS1 QRCode	-	UK Postal	O
Code 39	O	HAN XIN	-	UPCA	X
Code 93	O	Interleaved 2 of 5	O	UPCE0	X
Composite AB	O	Japanese Postal	O	UPCE1	O
Composite C	O	Korean 3 of 5	O	US4state	O
Discrete 2 of 5	O	MAIL MARK	-	US4state FICS	O
Datamatrix	X	Matrix 2 of 5	O	US Planet	O

Table 11 RS507/RS507x Supported Decoders (Continued)

Decoder	Default State	Decoder	Default State	Decoder	Default State
Dutch Postal	O	Maxicode	X	US Postnet	O
DotCode	O	MicroPDF	O		
EAN13	X	MicroQR	O		

Key: X = Enabled, O = Disabled, - = Not Supported

RS5100 Supported Decoders

Lists the supported decoders for the RS5100 Ring Scanner.

Table 12 RS5100 Supported Decoders

Decoder	Default State	Decoder	Default State	Decoder	Default State
Australian Postal	O	EAN8	X	MSI	O
Aztec	X	Grid Matrix	O	PDF417	X
Canadian Postal	O	GS1 DataBar	X	QR Code	X
Chinese 2 of 5	O	GS1 DataBar Expanded	X	Decoder Signature	O
Codabar	X	GS1 DataBar Limited	O	TLC 39	O
Code 11	O	GS1 Datamatrix	O	Trioptic 39	O
Code 128	X	GS1 QRCode	O	UK Postal	O
Code 39	X	HAN XIN	O	UPCA	X
Code 93	O	Interleaved 2 of 5	O	UPCE0	X
Composite AB	O	Japanese Postal	O	UPCE1	O
Composite C	O	Korean 3 of 5	O	US4state	O
Discrete 2 of 5	O	MAIL MARK	X	US4state FICS	O
Datamatrix	X	Matrix 2 of 5	O	US Planet	O
Dutch Postal	O	Maxicode	X	US Postnet	O
DotCode	O	MicroPDF	O		
EAN13	X	MicroQR	O		

Key: X = Enabled, O = Disabled, - = Not Supported

RS6000 Supported Decoders

Lists the supported decoders for the RS6000 Ring Scanner.

Table 13 RS6000 Supported Decoders

Decoder	Default State	Decoder	Default State	Decoder	Default State
Australian Postal	O	EAN8	X	MSI	O
Aztec	X	Grid Matrix	O	PDF417	X
Canadian Postal	O	GS1 DataBar	X	QR Code	X
Chinese 2 of 5	O	GS1 DataBar Expanded	X	Decoder Signature	O
Codabar	X	GS1 DataBar Limited	O	TLC 39	O
Code 11	O	GS1 Datamatrix	O	Trioptic 39	O
Code 128	X	GS1 QRCode	O	UK Postal	O
Code 39	X	HAN XIN	O	UPCA	X
Code 93	O	Interleaved 2 of 5	O	UPCE0	X
Composite AB	O	Japanese Postal	O	UPCE1	O
Composite C	O	Korean 3 of 5	O	US4state	O
Discrete 2 of 5	O	MAIL MARK	X	US4state FICS	O
Datamatrix	X	Matrix 2 of 5	O	US Planet	O
Dutch Postal	O	Maxicode	X	US Postnet	O
DotCode	O	MicroPDF	O		
EAN13	X	MicroQR	O		

Key: X = Enabled, O = Disabled, - = Not Supported

RS6100 Supported Decoders

Lists the supported decoders for the RS6100 Ring Scanner.

Table 14 RS6100 Supported Decoders

Decoder	Default State	Decoder	Default State	Decoder	Default State
Australian Postal	O	EAN8	X	MSI	O
Aztec	X	Grid Matrix	O	PDF417	X
Canadian Postal	O	GS1 DataBar	X	QR Code	X
Chinese 2 of 5	O	GS1 DataBar Expanded	X	Decoder Signature	O
Codabar	X	GS1 DataBar Limited	O	TLC 39	O

Table 14 RS6100 Supported Decoders (Continued)

Decoder	Default State	Decoder	Default State	Decoder	Default State
Code 11	O	GS1 Datamatrix	O	Trioptic 39	O
Code 128	X	GS1 QRCode	O	UK Postal	O
Code 39	X	HAN XIN	O	UPCA	X
Code 93	O	Interleaved 2 of 5	O	UPCE0	X
Composite AB	O	Japanese Postal	O	UPCE1	O
Composite C	O	Korean 3 of 5	O	US4state	O
Discrete 2 of 5	O	MAIL MARK	X	US4state FICS	O
Datamatrix	X	Matrix 2 of 5	O	US Planet	O
Dutch Postal	O	Maxicode	X	US Postnet	O
DotCode	O	MicroPDF	O		
EAN13	X	MicroQR	O		

Key: X = Enabled, O = Disabled, - = Not Supported

DS2278 Supported Decoders

Lists the supported decoders for the DS2278 Digital Scanner.

Table 15 DS2278 Digital Scanner Supported Decoders

Decoder	Default State	Decoder	Default State	Decoder	Default State
Australian Postal	O	EAN8	X	MSI	O
Aztec	X	Grid Matrix	O	PDF417	X
Canadian Postal	—	GS1 DataBar	X	QR Code	X
Chinese 2 of 5	O	GS1 DataBar Expanded	X	Decoder Signature	O
Codabar	X	GS1 DataBar Limited	O	TLC 39	O
Code 11	O	GS1 Datamatrix	O	Trioptic 39	O
Code 128	X	GS1 QRCode	O	UK Postal	O
Code 39	X	HAN XIN	—	UPCA	X
Code 93	O	Interleaved 2 of 5	O	UPCE0	X
Composite AB	O	Japanese Postal	O	UPCE1	O
Composite C	O	Korean 3 of 5	O	US4state	O

Table 15 DS2278 Digital Scanner Supported Decoders (Continued)

Decoder	Default State	Decoder	Default State	Decoder	Default State
Discrete 2 of 5	O	MAIL MARK	X	US4state FICS	O
Datamatrix	X	Matrix 2 of 5	O	US Planet	O
Dutch Postal	O	Maxicode	X	US Postnet	O
DotCode	O	MicroPDF	O		
EAN13	X	MicroQR	O		

Key: X = Enabled, O = Disabled, — = Not Supported

DS3678 Supported Decoders

Lists the supported decoders for the DS3678 scanner.

Table 16 DS3678 Supported Decoders

Decoder	Default State	Decoder	Default State	Decoder	Default State
Australian Postal	O	EAN8	X	MSI	O
Aztec	X	Grid Matrix	O	PDF417	X
Canadian Postal	—	GS1 DataBar	X	QR Code	X
Chinese 2 of 5	O	GS1 DataBar Expanded	X	Decoder Signature	—
Codabar	X	GS1 DataBar Limited	O	TLC 39	O
Code 11	O	GS1 Datamatrix	O	Trioptic 39	O
Code 128	X	GS1 QRCode	O	UK Postal	O
Code 39	X	HAN XIN	O	UPCA	X
Code 93	O	Interleaved 2 of 5	O	UPCE0	X
Composite AB	O	Japanese Postal	O	UPCE1	O
Composite C	O	Korean 3 of 5	O	US4state	O
Discrete 2 of 5	O	MAIL MARK	X	US4state FICS	O
Datamatrix	X	Matrix 2 of 5	O	US Planet	O
Dutch Postal	O	Maxicode	X	US Postnet	O
DotCode	O	MicroPDF	O		
EAN13	X	MicroQR	O		

Key: X = Enabled, O = Disabled, — = Not Supported

DS8178 Supported Decoders

Lists the supported decoders for the DS8178 Digital scanner.

Table 17 DS8178 Digital Scanner Supported Decoders

Decoder	Default State	Decoder	Default State	Decoder	Default State
Australian Postal	O	EAN8	X	MSI	O
Aztec	X	Grid Matrix	O	PDF417	X
Canadian Postal	—	GS1 DataBar	X	QR Code	X
Chinese 2 of 5	O	GS1 DataBar Expanded	X	Decoder Signature	—
Codabar	X	GS1 DataBar Limited	O	TLC 39	O
Code 11	O	GS1 Datamatrix	O	Trioptic 39	O
Code 128	X	GS1 QRCode	O	UK Postal	O
Code 39	X	HAN XIN	—	UPCA	X
Code 93	O	Interleaved 2 of 5	O	UPCE0	X
Composite AB	O	Japanese Postal	O	UPCE1	O
Composite C	O	Korean 3 of 5	O	US4state	O
Discrete 2 of 5	O	MAIL MARK	X	US4state FICS	O
Datamatrix	X	Matrix 2 of 5	O	US Planet	O
Dutch Postal	O	Maxicode	X	US Postnet	O
DotCode	O	MicroPDF	O		
EAN13	X	MicroQR	O		

Key: X = Enabled, O = Disabled, — = Not Supported

LI3678 Supported Decoders

Lists the supported decoders for the LI3678 scanner.

Table 18 LI3678 Supported Decoders

Decoder	Default State	Decoder	Default State	Decoder	Default State
Australian Postal	—	EAN8	X	MSI	O
Aztec	—	Grid Matrix	O	PDF417	—
Canadian Postal	—	GS1 DataBar	X	QR Code	—

Table 18 LI3678 Supported Decoders (Continued)

Decoder	Default State	Decoder	Default State	Decoder	Default State
Chinese 2 of 5	O	GS1 DataBar Expanded	X	Decoder Signature	—
Codabar	X	GS1 DataBar Limited	O	TLC 39	O
Code 11	O	GS1 Datamatrix	—	Trioptic 39	O
Code 128	X	GS1 QRCode	—	UK Postal	—
Code 39	X	HAN XIN	O	UPCA	X
Code 93	O	Interleaved 2 of 5	O	UPCE0	X
Composite AB	—	Japanese Postal	—	UPCE1	O
Composite C	—	Korean 3 of 5	O	US4state	—
Discrete 2 of 5	O	MAIL MARK	—	US4state FICS	—
Datamatrix	—	Matrix 2 of 5	O	US Planet	—
Dutch Postal	—	Maxicode	—	US Postnet	—
DotCode	O	MicroPDF	—		
EAN13	X	MicroQR	—		

Key: X = Enabled, O = Disabled, — = Not Supported

Wireless

This section provides information on the wireless features of the device.

The following wireless features are available on the device:

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

Wireless Wide Area Networks

Use Wireless wide area networks (WWANs) to access data over a cellular network.



NOTE: Applies to TC78 only.

This section provides information on:

- Sharing a data connection
- Monitoring data usage
- Changing Cellular Network settings

Sharing the Mobile Data Connection

The **Tethering & Portable Hotspot** settings allow sharing the mobile data connection with a single computer via USB tethering or Bluetooth tethering.

Share the data connection with up to eight devices at once, by turning it into a portable Wi-Fi hotspot. While the device is sharing its data connection, an icon displays at the top of the screen and a corresponding message appears in the notification list.

Enabling USB Tethering



NOTE: USB tethering is not supported on computers running Mac OS. If the computer is running Windows or a recent version of Linux (such as Ubuntu), follow these instructions without any special preparation. If running a version of Windows that precedes Windows 7, or some other

operating system, you may need to prepare the computer to establish a network connection via USB.

1. Connect the device to a host computer with a USB cable.

The notification **Charging this device via USB** appears in the Notifications panel.

2. Go to **Settings**.
3. Touch **Network & Internet**.
4. Touch **Hotspot & tethering**.
5. Touch the **USB tethering** switch to enable.

The host computer is now sharing the device's data connection.

To stop sharing the data connection, touch the **USB tethering** switch again or disconnect the USB cable.

Enabling Bluetooth Tethering

Use Bluetooth tethering to share the data connection with a host computer.

Configure the host computer to obtain its network connection using Bluetooth. For more information, see the host computer's documentation.

1. Pair the device with the host computer.
2. Go to **Settings**.
3. Touch **Networking & Internet**.
4. On Android 11, touch **Advanced**.
5. On Android 13, touch **Hotspot & tethering**.
6. Touch the **Bluetooth tethering** switch to enable.


The host computer is now sharing the device's data connection.

To stop sharing the data connection, touch the **Bluetooth tethering** switch again.

Enabling Wi-Fi Hotspot

After configuring the device as a Wi-Fi Hotspot, turn on Wi-Fi Hot Spot to begin using it.

1. Go to **Settings**.
2. Touch **Networking & Internet**.
3. Touch **Hotspot & tethering**.
4. Touch **Wi-Fi hotspot**.
5. Toggle the switch to enable.

After a moment, the device starts broadcasting its Wi-Fi network name (SSID). Connect to it with up to eight computers or other devices. The Hotspot  icon appears in the Status bar.

To stop sharing the data connection, touch the toggle switch again.

Configuring the Wi-Fi Hotspot

1. Go to **Settings**.

2. Touch **Networking & Internet**.
3. Touch **Hotspot & tethering**.
4. Touch **Wi-Fi hotspot**.
5. On Android 11, in the **Hotspot** name text field, edit the name for the hotspot.
6. On Android 13, in the **Hotspot name**, edit the name for the hotspot, and touch **OK**.
7. Touch **Security** and select a security method from the drop-down list.
 - **WPA3-Personal**
 - a. Touch **Hotspot password**.
 - b. Enter a password.
 - c. Touch **OK**.
 - **WPA2-Personal**
 - a. Touch **Hotspot password**.
 - b. Enter a password.
 - c. Touch **OK**.
 - **WPA2/WPA3-Personal**
 - a. Touch **Hotspot password**.
 - b. Enter a password.
 - c. Touch **OK**.
 - **None** - If **None** is selected in the Security option, a password is not required.
8. On Android 11, touch **Advanced**.
 - a) In the **AP Band** drop-down list, select **2.4 GHz Band**, **5.0 GHz Band**, or **6.0 GHz Band**.
9. On Android 13, touch AP Band and select **2.4 GHz Band**, **5.0 GHz Band**, or **6.0 GHz Band**.
10. To change the Data Usage Warning & Limit for the TC78 only, go to **Settings > Networking & Internet > Mobile network** and select the **Data Warning & Limit**.
11. If desired, touch **Turn off hotspot automatically** to turn off Wi-Fi Hotspot when no devices are connected.
12. Select **Additional Settings** to configure Hotspot channel for chosen band, Maximum clients, and connect devices.

Data Usage

Data usage refers to the amount of data uploaded or downloaded by the device during a given period. Depending on the wireless plan, you may be charged additional fees when your data usage exceeds your plan's limit.


Data usage settings allow you to:

- Enable Data Saver.
- Set the data usage warning level.
- Set a data usage limit.
- View or restrict data usage by app.

- Identify mobile hotspots and restrict background downloads that may result in extra charges.

Setting Data Usage Warning

Set a warning alert when the device has used a certain amount of mobile data.


1. Go to **Settings**.
2. Touch **Network & internet** > **Mobile network** > **Data usage** > .
3. If necessary, touch **Set data warning** to enable it.
4. Touch **Data warning**.
5. Enter a number.

To switch between megabytes (MB) and gigabytes (GB), touch the down arrow.

6. Touch **SET**.

When the data usage reaches the set level, a notification appears.

Setting Data Limit

1. Go to **Settings**.
2. Touch **Network & internet** > **Mobile network** > **Data usage** > .
3. Touch **Set data limit**.
4. Touch **OK**.
5. Touch **Data limit**.
6. Enter a number.

To switch between megabytes (MB) and gigabytes (GB), touch the down arrow.

7. Touch **Set**.

When the limit is reached, data automatically turns off and a notification appears.

Cellular Network Settings

Cellular network settings applies to TC78 WWAN devices only.

Data When Roaming

Roaming is disabled by default to prevent the device from transmitting data over other carriers' mobile networks when leaving an area that is covered by the carrier's networks. This is useful for controlling expenses if the service plan does not include data roaming.

Enabling Data on GSM Devices

1. Go to **Settings**.
2. Touch **Networking & Internet** > **Mobile network**.
3. Touch **Roaming**.

The switch moves to the on position.

Setting Preferred Network

Change the network operating mode.

1. Go to **Settings**.
2. Touch **Network & Internet > Mobile network > Advanced**.
3. Touch **Automatically select network**.
4. Touch **Network**.
5. In the **Available network** list, select a carrier network.

Configuring the Access Point Name

To use the data on a network, configure the APN information.



NOTE: Many service provider Access Point Name (APN) data are pre-configured in the device. The APN information for all other service providers must be obtained from the wireless service provider.

1. Go to **Settings**.
2. Touch **Network & Internet > Mobile network > Advanced**.
3. Touch **Access Point Names**.
4. Touch an APN name in the list to edit an existing APN or touch + to create a new APN.
5. Touch each APN setting and enter the appropriate data obtained from the wireless service provider.
6. When finished, touch **⋮ > Save**.
7. Touch the radio button next to the APN name to start using it.

Locking the SIM Card

Locking the SIM card requires the user to enter a PIN every time the device is turned on. If the correct PIN is not entered, only emergency calls can be made.

1. Go to **Settings**.
2. Touch **Security > SIM card lock**.
3. Touch **Lock SIM card**.
4. Enter the PIN associated with the card.
5. Touch **OK**.
6. Reset the device.

Wireless Local Area Network

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** (A11 only) or **Network & internet** (A13 only) on settings, and configure the device to match the security scheme.

The device supports the following WLAN security options:

- None
- Enhanced Open
- Wireless Equivalent Privacy (WEP)
- Wi-Fi Protected Access (WPA)/WPA2 Personal (PSK)
- WPA3-Personal
- WPA/WPA2/WPA3 Enterprise (EAP) (A11 only)
 - 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).
 - Extensible Authentication Protocol Method for Subscriber Identity Module (SIM)
 - Extensible Authentication Protocol Method for Authentication and Key Agreement (AKA)
 - Improved Extensible Authentication Protocol Method for Authentication and Key Agreement (AKA')
 - Lightweight Extensible Authentication Protocol (LEAP).
- WPA/WPA2-Enterprise (A13 only)
 - Protected Extensible Authentication Protocol (PEAP) - with MSCHAPV2 and GTC authentication.
 - Transport Layer Security (TLS)
 - Tunneled Transport Layer Security (TTLS) - with Password Authentication Protocol (PAP) with MSCHAP and MSCHAPv2 authentication, and GTC authentication.
 - Password (PWD).
 - Extensible Authentication Protocol Method for Subscriber Identity Module (SIM)
 - Extensible Authentication Protocol Method for Authentication and Key Agreement (AKA)
 - Improved Extensible Authentication Protocol Method for Authentication and Key Agreement (AKA')
 - Lightweight Extensible Authentication Protocol (LEAP).
- WPA3-Enterprise 192-bit
- WPA3-Enterprise (A13 only)
 - Protected Extensible Authentication Protocol (PEAP) - with MSCHAPV2 and GTC authentication.
 - Transport Layer Security (TLS)
 - Tunneled Transport Layer Security (TTLS) - with Password Authentication Protocol (PAP) with MSCHAP and MSCHAPv2 authentication, and GTC authentication.
 - Password (PWD).
 - Extensible Authentication Protocol Method for Subscriber Identity Module (SIM)
 - Extensible Authentication Protocol Method for Authentication and Key Agreement (AKA)

- Improved Extensible Authentication Protocol Method for Authentication and Key Agreement (AKA')
- 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

1. Go to **Settings**.
2. Touch **Network & internet**.
3. On Android 11, touch **Wi-Fi** to open the **Wi-Fi** screen. The device searches for WLANs in the area and lists them.
4. On Android 13, touch **Internet** to open the **Internet** screen. The device searches for WLANs in the area and lists them.
5. Scroll through the list and select the desired WLAN network.
6. For open networks, touch the 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](#).
7. In the Wi-Fi setting field, **Connected** appears, indicating that the device is connected to the WLAN.

Removing a Wi-Fi Network

Remove a remembered or connected Wi-Fi network.

1. Go to **Settings**.
2. Touch **Network & Internet**.
3. On Android 11, touch **Wi-Fi**.
4. On Android 13, touch **Internet**.
5. Scroll down to the bottom of the list and touch **Saved networks**.
6. Touch the name of the network.
7. Touch **FORGET**.

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**.

3. On Android 11, touch **Wi-Fi**.
4. On Android 13, touch **Internet**.
5. Slide the switch to the **ON** position.
6. The device searches for WLANs in the area and lists them on the screen.
7. Scroll through the list and select the desired WLAN network.
8. Touch the desired network. If network security is **None**, the device automatically connects to the network. For all other network security, a dialog box appears.
9. If network security is **WPA/WPA2-Personal**, **WPA3-Personal**, or **WEP**, enter the required password, and then touch **Connect**.
10. If network security is **WPA/WPA2/WPA3 Enterprise**:
 - a) Touch the **EAP method** drop-down list and select one of the following:
 - **PEAP**
 - **TLS**
 - **TTLS**
 - **PWD**
 - **SIM**
 - **AKA**
 - **AKA'**
 - **LEAP**
 - b) Fill in the appropriate information. Options vary depending on the **EAP method** chosen.
 - When selecting **CA certificate**, Certification Authority (CA) certificates are installed using the **Security** settings.
 - When using the EAP methods PEAP, TLS, or TTLS, specify a domain.
 - Touch **Advanced options** to display additional network options.

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**.
3. On Android 11, touch **Wi-Fi**.
4. On Android 13, touch **Internet**.
5. Slide the Wi-Fi switch to the **On** position.
6. Scroll to the bottom of the list and select **Add network**.
7. In the **Network name** text box, enter the name of the Wi-Fi network.

8. In the **Security** drop-down list, set the type of security to:
 - **None**
 - **Enhanced Open**
 - **WEP**
 - **WPA/WPA2-Personal**
 - **WPA3-Personal**
 - **WPA/WPA2/WPA3-Enterprise** (A11 only)
 - **WPA/WPA2-Enterprise** (A13 only)
 - **WPA3-Enterprise** (A13 only)
 - **WPA3-Enterprise 192-bit**
9. If the network security is **None** or **Enhanced Open**, touch **Save**.
10. If the network security is **WEP**, **WPA3-Personal**, or **WPA/WPA2-Personal**, enter the required password and then touch **Save**.



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 the 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.


11. If network security is **WPA/WPA2/WPA3 Enterprise**:
 - a) Touch the **EAP method** drop-down list and select one of the following:
 - **PEAP**
 - **TLS**
 - **TTLS**
 - **PWD**
 - **SIM**
 - **AKA**
 - **AKA'**
 - **LEAP**
 - b) Fill in the appropriate information. Options vary depending on the **EAP method** chosen.
 - When selecting **CA certificate**, Certification Authority (CA) certificates are installed using the **Security** settings.
 - When using the EAP methods PEAP, TLS, or TTLS, specify a domain.
 - Touch **Advanced options** to display additional network options.
12. If the network security is **WPA3-Enterprise 192-bit**:
 - Touch **CA certificate** and select a Certification Authority (CA) certificate. Note: Certificates are installed using the Security settings.
 - Touch **User certificate** and select a user certificate. Note: User certificates are installed using the Security settings.
 - In the **Identity** text box, enter the username credentials.

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

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**.
3. On Android 11, touch **Wi-Fi**.
4. On Android 13, touch **Internet**.
5. Slide the Wi-Fi switch to the **On** position.
6. In the network dialog box, select and touch a network.
7. If configuring the connected network, touch  to edit the network details and then touch the down arrow to hide the keyboard.
8. Touch **Advanced options**.
9. Touch **Proxy** and select **Manual**.
10. In the **Proxy hostname** text box, enter the address of the proxy server.
11. In the **Proxy port** text box, enter the port number for the proxy server.
12. 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.
13. If configuring the connected network, touch **Save** otherwise, touch **Connect**.
14. Touch **Connect**.

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**.
3. On Android 11, touch **Wi-Fi**.
4. On Android 13, touch **Internet**.
5. Slide the Wi-Fi switch to the **On** position.

6. In the network dialog box, select and touch a network.
7. If configuring the connected network, touch  to edit the network details and then touch the down arrow to hide the keyboard.
8. Touch **Advanced options**.
9. Touch **IP settings** and select **Static**.
10. In the **IP address** text box, enter an IP address for the device.
11. If required, in the **Gateway** text box, enter a gateway address for the device.
12. If required, in the **Network prefix length** text box, enter the prefix length.
13. If required, in the **DNS 1** text box, enter a Domain Name System (DNS) address.
14. If required, in the **DNS 2** text box, enter a DNS address.
15. If configuring the connected network, touch **Save** otherwise, touch **Connect**.

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 on Android 11 or Network preference on Android 13.

- **Turn on Wi-Fi automatically** - When enabled, Wi-Fi automatically turns back on when near high-quality saved networks.
- **Open network notification** (Android 11 only) or **Notify for public networks** (Android 13 only) - When enabled, it notifies the user when an open network / public network is available.
- **Advanced** - Touch to expand options (Android 11 only).
 - **Additional settings** - Touch to view additional Wi-Fi 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 (Android 11 only).
 - **Wi-Fi Direct** - Displays a list of devices available for a direct Wi-Fi connection.

Additional Wi-Fi Settings

Use the Additional Settings to configure additional Wi-Fi settings.



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

- **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**.
 - **Available channels (6 GHz)** - Touch to display the **Available channels** menu. Select specific channels and touch **OK**.
- **Logging**
 - **Logging** - Touch to enable advanced logging or change the log directory (Android 11 only).
 - **Advanced Logging** - Touch to enable advanced logging or change the log directory (Android 13 only).
 - **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 version information. Touch the version to display addition version details.

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 **Network & Internet**.
3. On Android 11, touch **Wi-Fi**.
4. On Android 13, touch **Internet**.
5. Slide the **Wi-Fi** switch to the **On** position.
6. In the network dialog box, select and touch a network.
7. On Android 11, scroll down to the bottom of the screen and touch **Wi-Fi preferences > Advanced > Wi-Fi Direct**. The device begins searching for another Wi-Fi Direct device.
8. On Android 13, scroll down to the bottom of the screen and touch **Network preferences > Wi-Fi Direct**. The device begins searching for another Wi-Fi Direct device.
9. Under **Peer devices**, touch the other device name.
10. 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 19 Bluetooth Profiles

Profile	Description
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.
Dial Up Networking (DUN)	Provides a standard to access the Internet and other dial-up services over Bluetooth.
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.
Generic Access Profile (GAP)	Use for device discovery and authentication.
Human Interface Device Profile (HID)	Allows Bluetooth keyboards, pointing devices, gaming devices and remote monitoring devices to connect to the device.
Hands-Free Profile (HFP)	Allows car hands-free kits to communicate with the device in the car.
Headset Profile (HSP)	Allows a hands-free device, such as a Bluetooth headset, to place and receive calls on the device.
Object EXchange (OBEX)	Facilitates the exchange of binary objects between devices.
Object Push Profile (OPP)	Allows the device to push and pull objects to and from a push server.
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.
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.
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.

Table 19 Bluetooth Profiles (Continued)

Profile	Description
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.
Service Discovery Protocol (SDP)	Handles the search for known and specific services as well as general services.
Symbol Serial Interface (SSI)	Allows for communication with Bluetooth Imager.

Bluetooth Power States

The Bluetooth radio is off by default.

- **Suspend** - When the device goes into Sleep mode, the Bluetooth radio stays on.
- **Airplane Mode** - When the device is placed in Airplane Mode, the Bluetooth radio is not turned off when the device is connected to a Bluetooth headset or hearing device.

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 optimal 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 the Bluetooth icon to enable (the Bluetooth icon is gray when it is disabled).

Disabling Bluetooth

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

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**.

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.

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**.

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.

Near Field Communication

NFC/HF RFID is a short-range wireless connectivity technology standard that enables a secure transaction between a reader and a contactless smart card.



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

The technology is based on ISO/IEC 14443 type A and B, FeliCa (proximity) ISO/IEC 15693 (vicinity) standards, using the HF 13.56 MHz unlicensed band.

The device supports the following operating modes:

- Reader mode
- Card Emulation mode.

The device also supports ECP polling.

Using NFC, the device can:

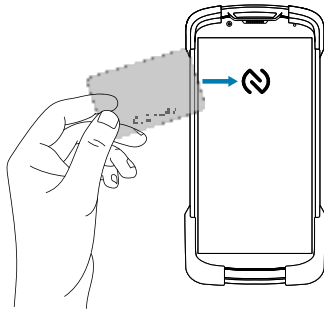
- Read contactless cards, such as contactless tickets, ID cards, and ePassport.
- Read and write information to contactless cards, such as SmartPosters and tickets, as well as devices with an NFC interface, such as vending machines.
- Read information from supported medical sensors.
- Pair with supported Bluetooth devices such as printers, ring scanners (for example, RS6000), and headsets (for example, HS3100).
- Emulate a contactless card such as a ticket.

Reading NFC Cards

Read contactless cards using NFC.

1. Launch an NFC enabled application.

2. Hold the device as shown.



3. Move the card to the NFC antenna on the front of the device.
4. Move the device close to the NFC card until it detects the card.
5. Hold the card steadily until the transaction is complete (usually indicated by the application).

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 (Mandatory setting for ECP Polling).
- **Supported Card Technology** - Select an option to detect only one NFC tag type, increasing battery life, but reducing detection speed.
 - **ISO 14443 Type A**
 - **ISO 14443 Type B**
 - **FeliCa**
 - **ISO15693**
- **NFC Debug Logging** - Use to enable or disable debug logging for NFC.
- Other NFC settings available with Zebra administrator tools (CSP):
 - Communication speed for Type A and Type B cards and ISO 14443-4 cards - Higher rate improves transaction speed.
 - NDEF Support - Improves card detection speed for non-NDEF cards.
 - CPU Speed - Boosts CPU speed during short NFC transactions and improves transaction speed.
 - Card Emulation - Enables workaround for Card Emulation interoperability issues.
 - Reset to Factory Defaults - Default settings are reset to factory defaults.

Calls

Make a phone call from the Phone app, the Contacts app, or other apps or widgets that display contact information.



NOTE: This section applies to WWAN devices only.

Emergency Calling

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



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

Audio Modes

The device offers three audio modes for use during phone calls.

- Handset Mode - Switch audio to the receiver at the top front of the device to use the device as a handset. This is the default mode.
- Speaker Mode - Use the device as a speakerphone.
- Headset Mode - Connect a Bluetooth headset to automatically switch audio to the headset.

Bluetooth Headset

Use a Bluetooth headset for audio communication when using an audio-enabled app.

See [Bluetooth](#) for information on connecting a Bluetooth headset to the device. Set the volume appropriately before putting on the headset. When a Bluetooth headset is connected, the device's speakerphone is muted.




Adjusting Audio Volume







Use the volume buttons to adjust the phone volume.

- Ring and notification volumes when not in a call.
- Conversation volume during a call.

Making a Call Using the Dialer




Use the dialer tab to dial phone numbers.

1. On the Home screen touch .
2. Touch .
3. Touch the keys to enter the phone number.
4. Touch  below the dialer to initiate the call.

Option	Description
	Send audio to the speakerphone.
	Mute the call.
	Display the dial pad.
	Place the call on hold (not available on all services).
	Create a conference call.
	Increase audio level.


5. Touch  to end the call.

If using a Bluetooth headset, additional audio options are available. Touch the audio icon to open the audio menu.

Option	Description
	Audio is routed to the Bluetooth headset.
	Audio is routed to the speakerphone.
	Audio is routed to the earpiece.

Accessing Dialing Options




The dialer provides options to save the dialed number to contacts, send an SMS, or insert pauses and wait into the dial string.







- Enter at least one digit in the dialer, then touch .
- **Add 2–sec pause** - Pause the dialing of the next number for two seconds. Multiple pauses are added sequentially.
- **Add wait** - Wait for confirmation to send the rest of the digits.

Make a Call Using Contacts

There are two ways to make a call using contacts, using the Dialer or using the Contacts app.




Using the Dialer

1. On the Home screen touch .
2. Touch .
3. Touch the contact.
4. Touch  to initiate the call.



Option	Description
	Send audio to the speakerphone.
	Mute the call.
	Display the dial pad.
	Place the call on hold (not available on all services).
	Create a conference call.
	Increase audio level.

5. Touch  to end the call.

If using a Bluetooth headset, additional audio options are available. Touch the audio icon to open the audio menu.

Option	Description
	Audio is routed to the Bluetooth headset.
	Audio is routed to the speakerphone.
	Audio is routed to the earpiece.

Using the Contacts App




1. Touch .
2. Touch a contact name.
3. Touch  to initiate the call.

Make a Call Using Call History





Call History lists all the calls placed, received, or missed. It provides a convenient way to redial a number, return a call, or add a number to Contacts.

Arrow icons beside a call indicate the type of call. Multiple arrows indicate multiple calls.

Table 20 Call Type Indicators

Icon	Description
	Missed incoming call
	Received incoming call
	Outgoing call

Using the Call History List










1. On the Home screen touch .
2. Touch the  tab.
3. Touch  next to the contact to initiate the call.
4. Touch the contact to perform other functions.
5. Touch  to end the call.



Making a Conference Call on GSM




Create a conference phone session with multiple people



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

1. On the Home screen touch .
2. Touch .
3. Touch the keys to enter the phone number.
4. Touch  below the dialer to initiate the call.
5. When the call connects, touch .
The first call is placed on hold.
6. Touch .
7. Touch the keys to enter the second phone number.
8. Touch  below the dialer to initiate the call.
When the call connects, the first call is placed on hold and the second call is active.
9. Touch  to create a conference call with three people.
10. Touch  to add another call.
The conference is placed on hold.
11. Touch .
12. Touch the keys to enter another phone number.

13. Touch  below the dialer to initiate the call.
14. Touch  icon to add the third call to the conference.
15. Touch **Manage conference call** to view all callers.

Option	Description
	Remove a caller from the conference.
	Speak privately with one party during a conference call.
	Include all parties again.

Making a Call Using a Bluetooth Headset


1. Pair the Bluetooth headset with the device.
2. Press the Call button on the Bluetooth headset.
3. Press the Call button on the Bluetooth headset to end the call.

Answering Calls

When receiving a phone call, the **Incoming Call** screen displays the caller ID and any additional information about the caller that is in the **Contacts** app.






NOTE: Not all options are available for all configurations.

To modify phone call settings, on the Home screen touch  >  > **Settings**.

- Touch **ANSWER** to answer the call or **DECLINE** to send the caller to voice mail.

If the screen lock is enabled, the user can answer the call without unlocking the device.



- When a call arrives:
 - Touch  and slide up to answer the call.
 - Touch  and slide down to send the call to voice mail.
 - Touch  to open a list of quick text responses. Touch one to send it to the caller immediately.

When the calls ends, the device remains locked.

If using a Bluetooth headset when a call arrives, touch the Call button on the Bluetooth headset to answer the call. To end the call press the headset Call button.

All incoming calls are recorded in the Phone app Call log tab. If you miss a call, you receive a notification. To silence the ringer before answering the call, press the volume down button on the side of device.

Call Settings

To modify phone call settings, on the Home screen touch  >  > **Settings**.



NOTE: Not all options are available for all configurations.

Assistive

- **Caller ID & spam**
 - **See caller and spam ID** - Enable to identify business and spam numbers.
 - **Filter spam calls** - Enable to prevent suspected spam calls from disturbing you.
 - **Verified calls** - Enable to see the caller ID and reason for incoming calls from businesses.

General

- **Accessibility**
 - **Hearing aids** - Select to enable hearing air compatibility.
- **Assisted dialing** - Enable to predict and add a country code when calling while traveling abroad.
 - **Default home country** - Automatically detected.
- **Blocked numbers** - Set to block calls and texts from certain phone numbers.
 - **Unknown** - Block calls from unidentified callers.
 - **Add a number** - Block a specific phone number.
- **Calls**
 - **Calling accounts**
 - **Make & receive calls** - Enable **Vibrating for outgoing call accepted** to enable vibrating mode when an outgoing call is accepted.
 - **SIP settings** - Touch a mobile provider to display options for that provider.
 - **SIP accounts** - Choose to receive Internet calls for accounts added to the device, view or change SIP accounts, or add an Internet calling account.
 - **Use SIP calling** - Set to **For all calls** or **Only for SIP calls** (default).
 - **Receive incoming calls** - Enable to allow incoming calls (default - disabled).
 - **Display options**
 - **Sort by** - Set to **First name** or **Last name**.
 - **Name format** - Set to **First name first** or **Last name first**.
 - **Choose theme** - Set to **Light**, **Dark**, or **System default**.
 - **Nearby places** - Enable to use your location to find nearby places matching a query, even if not in contacts.
 - **Personalized search results** - Enable to improve search results by including items in search history.
 - **Location permission is denied** - Enable to require location permission to conduct a nearby places search.
- **Quick responses** - Touch to edit quick responses to use instead of answering a call.


- **Sounds and vibration** - Touch to edit the general sound settings for the device.
- **Speed dial settings** - Set speed dial contact shortcuts.
- **Voicemail**

Advanced

- **Caller ID announcement** - Set to **Always**, **Only when using a headset**, or **Never** to read the caller's name and number out loud for incoming calls.
- **Flip To Silence** - Enable to silence an incoming call by placing the phone face down on a flat surface.

Accessories

This section provides information for using the accessories for the device. The following table lists the accessories available for the device.

Accessory	Part Number	Description
Cradles		
1-Slot Charge Only Cradle Kit	CRD-NGTC7-2SC1B	Provides device and spare battery charging. Includes cradle, power supply (PWR-BGA12V50W0WW), and DC line cord.
1-Slot Ethernet Cradle Kit	CRD-NGTC7-2SE1B	Provides device and spare battery charging, and USB and Ethernet communication. Includes cradle, power supply (PWR-BGA12V50W0WW), and DC line cord.
4-Slot Battery Charger Kit	SAC-NGTC5TC7-4SCHG	Charges up to four spare batteries. Includes cradle, power supply (PWR-BGA12V50W0WW), and DC line cord.
4-Slot Charge Only Cradle with Battery Charger Kit	CRD-NGTC7-5SC4B	Charges up to four devices and four spare batteries. Includes cradle, power supply (PWR-BGA12V108W0WW), and DC line cord (CBL-DC381A1-01).
5-Slot Charge Only Cradle Kit	CRD-NGTC7-5SC5D	Charges up to five devices. Includes, cradle, power supply (PWR-BGA12V108W0WW), and DC line cord (CBL-DC381A1-01).
5-Slot Ethernet Cradle Kit	CRD-NGTC7-5SE5D	Provides device charging and provides Ethernet communication for up to five devices. Includes cradle, power supply (PWR-BGA12V108W0WW), and DC line cord (CBL-DC381A1-01).
Wireless Charging Vehicle Cradle	CRD-TC78-WCVC-01	For mounting, requires the windshield suction mount RAM-B-166U (sold separately).  NOTE: Must be used with wireless charging battery (sold separately). For TC78 Premium configurations only.
Vehicle Holder	CRD-TC7NG-NCCD-01	Passive, no-charge vehicle holder. For mounting, requires the windshield suction mount RAM-B-166U (sold separately).
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.

Accessories

Accessory	Part Number	Description
Cradle Cup Replacement	CRDCUP-NGTC5TC7	Replacement cup for the cradle.
Batteries		
Standard Battery	BTRY-NGTC5TC7-44MA-01	Standard 4400 mAh battery.
Standard Battery BLE	BTRY-NGTC5TC7-44MABLE-01	Standard 4400 mAh BLE battery.
High Capacity Battery	BTRY-NGTC5TC7-66MA-01	Higher capacity 6600 mAh battery.
Wireless Charging Battery (TC78 only)	BTRY-NGTC5TC7-44MAWC-01	Wireless charging 4400 mAh battery.
Payment Battery	BTRY-NGTC5TC7-PYMT	Charging 4400 mAh battery. Allows integration to PD20 credit card readers.
Charge and Communication Cables		
USB-C Communication and Charge Cable	CBL-TC5X-USBC2A-01	Provides UBC-A to USB-C communication and power to the device.
Miscellaneous		
Trigger Handle	TRG-NGTC7-ELEC-01	Adds a gun-style handle with a scanner trigger for comfortable and productive scanning.
Screen Protector	SG-NGTC7-SCRNP-03	Adds additional screen protection (3-pack).
Soft Holster	SG-NGTC5TC7-HLSTR-01	Used to hold the device on a hip. Accepts devices with and without the Trigger Handle.
Hand Strap	SG-NGTC5TC7-HDSTP-03	Replacement hand strap with hand strap mounting clip (3-pack).
Tether	SG-TC5NGTC7NG-TETHR-03	The stylus tether connects the stylus to the device or hand strap (3-pack).
Stylus	SG-STYLUS-TCX-MTL-03	Stylus for touch screen use.
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, the 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 United Kingdom.

Accessories

Accessory	Part Number	Description
Power Supply	PWR-WUA5V12W0EU	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-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.
DC Line Cord	CBL-DC-388A1-01	Provides power from the power supply (PWR-BGA12V50W0WW) to the 2-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.

Accessories for Charging

Use one of the following accessories to charge the device and/or spare battery.

Charging and Communication

Description	Part Number	Charging		Communication	
		Battery (In device)	Spare Battery	USB	Ethernet
1-Slot Charge Only Cradle	CRD-NGTC7-2SC1B	Yes	Yes	No	No
1 Slot Ethernet Cradle	CRD-NGTC7-2SE1B	Yes	Yes	Yes	Yes
5-Slot Charging Cradle	CRD-NGTC7-5SC5D	Yes	No	No	No
5-Slot Ethernet Cradle	CRD-NGTC7-5SE5D	Yes	No	No	Yes
4-Slot Charge Only Cradle with Battery Charger	CRD-NGTC7-5SC4B	Yes	Yes	No	No

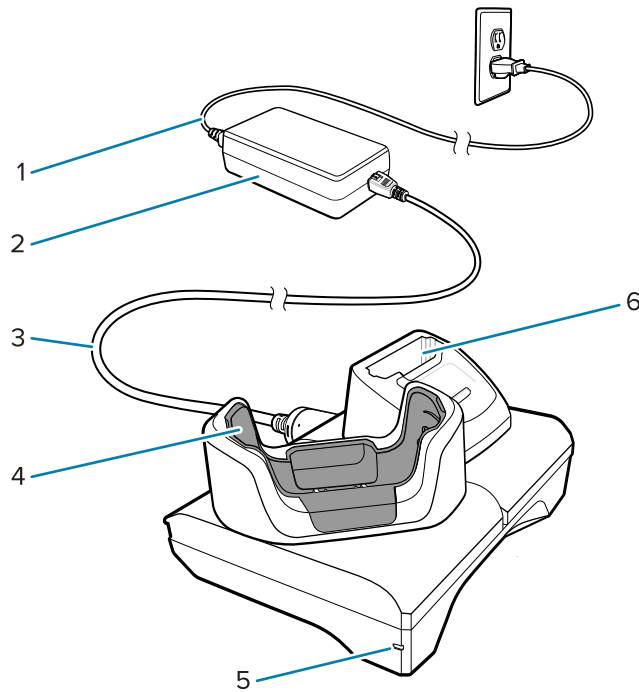
Description	Part Number	Charging		Communication	
		Battery (In device)	Spare Battery	USB	Ethernet
Charge/USB Cable	CBL-TC5X-USBC2A-01	Yes	No	Yes	No

1-Slot Charge Only Cradle

This USB cradle provides power and host communications.



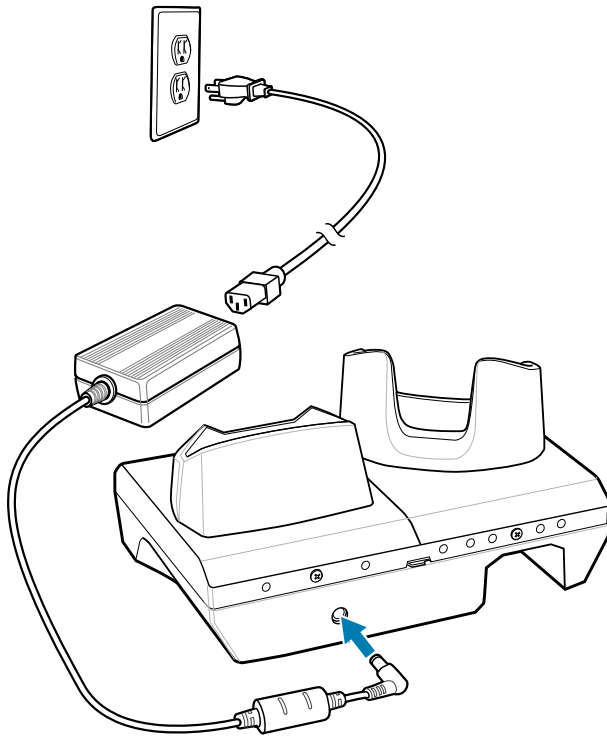
CAUTION: Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines](#) on page 232.



1	AC line cord
2	Power supply
3	DC line cord
4	Device charging slot
5	Power LED
6	Spare battery charging slot

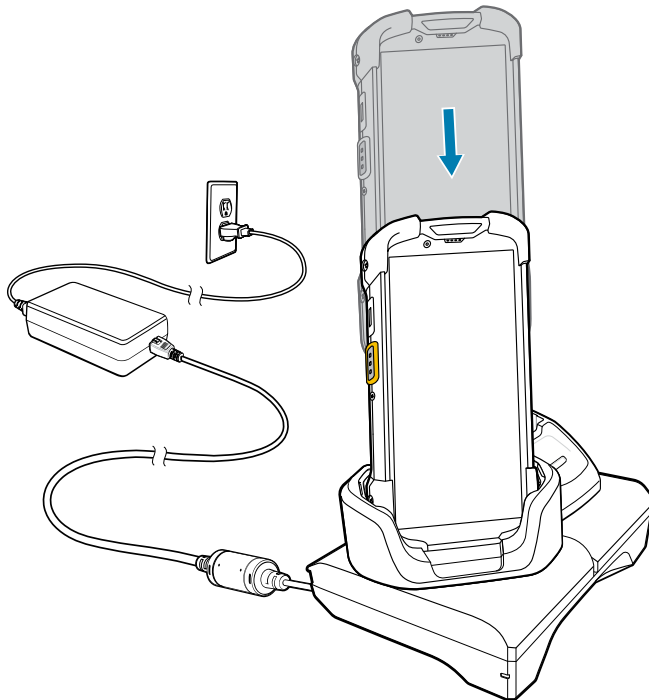
1-Slot Charge Only Cradle Setup

The 1-Slot Charge Only Cradle provides charging for one device and one spare battery.



Charging the Device with the 1-Slot Charge Only Cradle

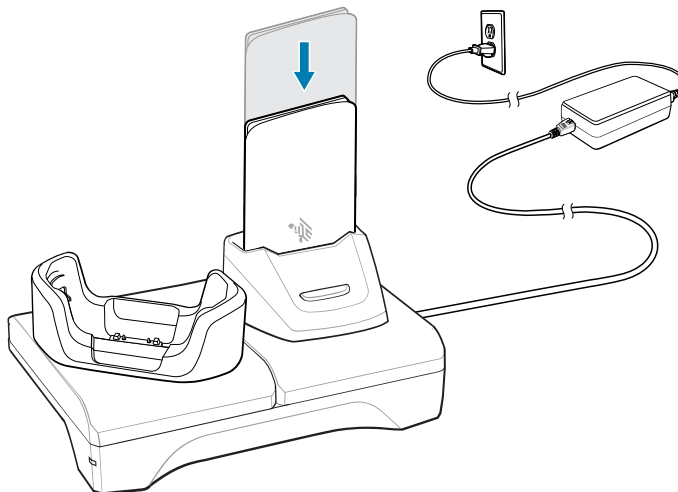
1. Insert the device into the slot to begin charging.



2. Ensure that the device is seated properly.

Charging the Spare Battery with the 1-Slot Charge Only Cradle

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



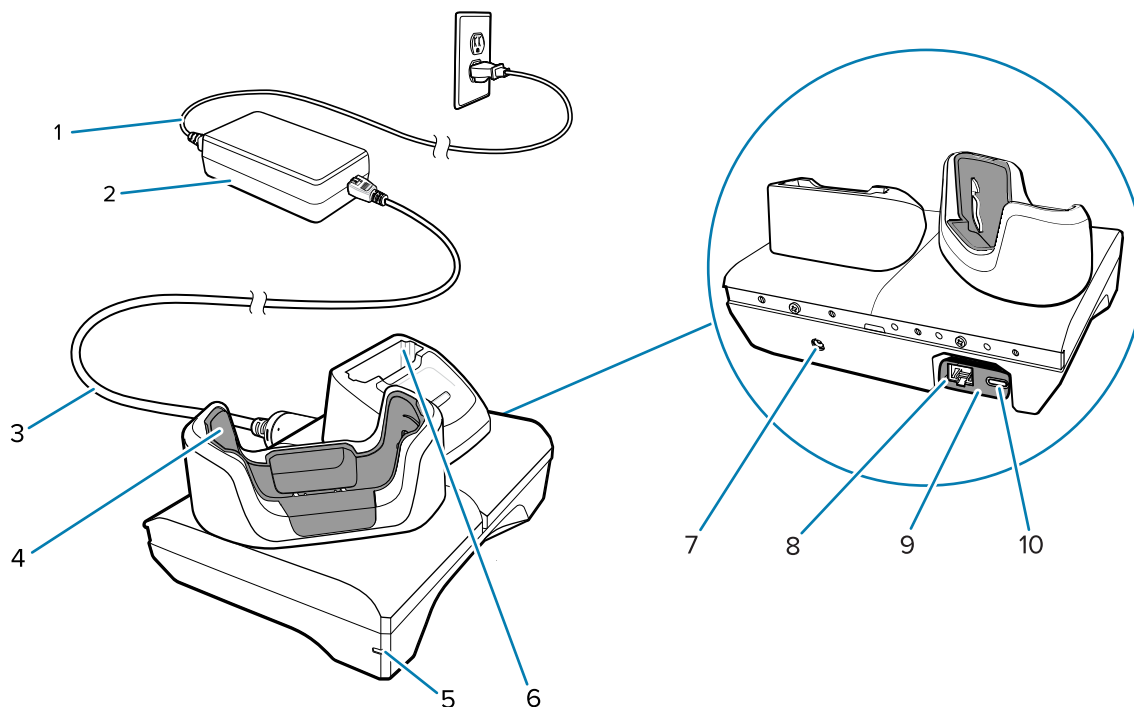
2. Ensure that the battery is seated properly.

1-Slot USB-Ethernet Cradle

This Ethernet cradle provides power and host communications.

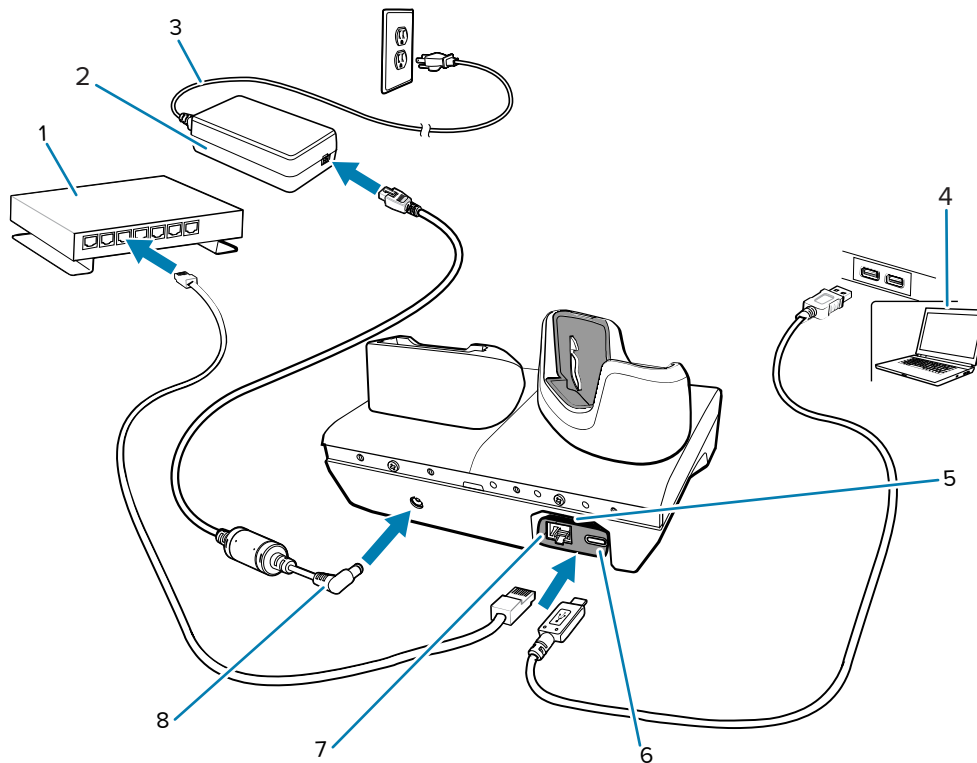


CAUTION: Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines](#) on page 232.



1	AC line cord
2	Power supply
3	DC line cord
4	Device charging slot
5	Power LED
6	Spare battery charging slot
7	DC line cord input
8	Ethernet port (on USB to Ethernet module kit)
9	USB to Ethernet module kit
10	USB port (on USB to Ethernet module kit)

1 Slot USB-Ethernet Charging Cradle Setup



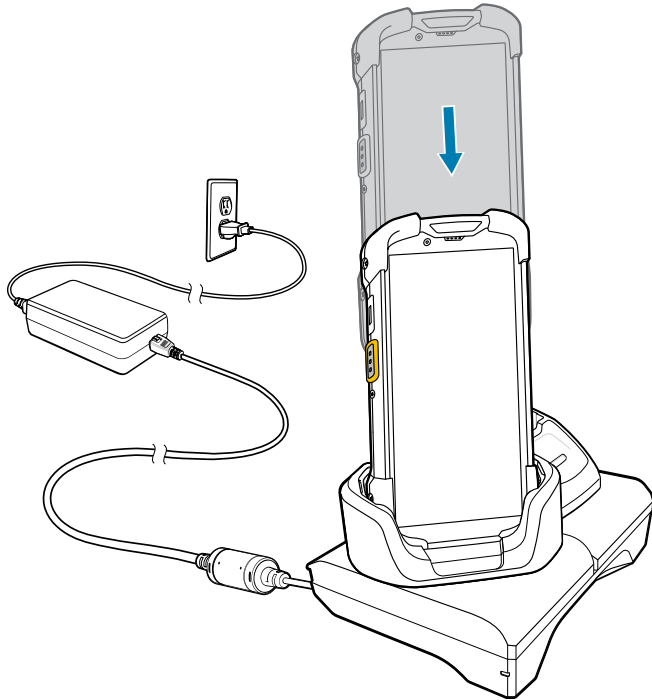
1	Ethernet switch
2	Power supply
3	AC line cord
4	Host computer
5	USB to Ethernet module kit (sold separately)
6	USB port (on USB to Ethernet module kit)
7	Ethernet port (on USB to Ethernet module kit)
8	DC line cord



NOTE: The USB to Ethernet module kit (MOD-MT2-EU1-01) connects via a single-slot USB charger.

Charging the Device with the 1-Slot USB-Ethernet Cradle

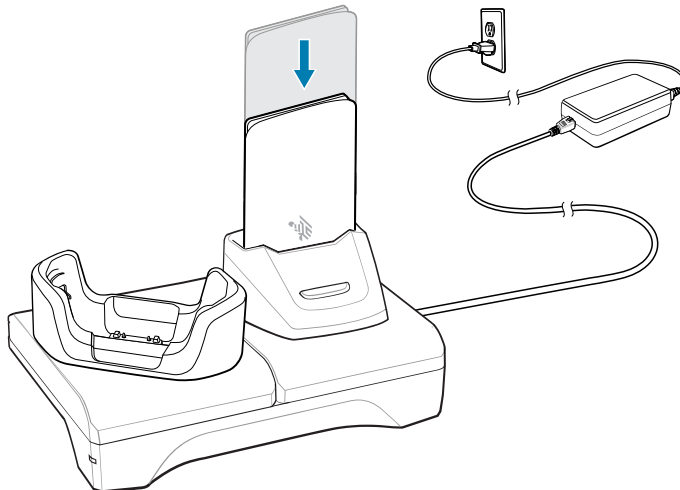
1. Insert the device into the slot to begin charging.



2. Ensure that the device is seated properly.

Charging the Spare Battery with the 1-Slot USB-Ethernet Cradle

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



2. Ensure that the battery is seated properly.

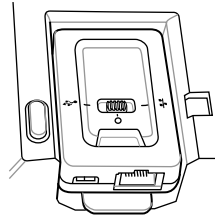
USB and Ethernet Communication




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.

Setting the USB Ethernet Module

- Turn the cradle over to view the module.


Figure 33 2-Slot USB/Ethernet Cradle Module 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.

Establishing Ethernet Connection


1. Go to **Settings**.
2. Touch **Network & internet > 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.

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 **Network & internet**.
3. Touch **Ethernet**.
4. Slide the switch to the **ON** position.
5. Place the device into the Ethernet cradle slot.
6. Touch and hold **eth0** until the menu appears.
7. Touch **Modify Proxy**.
8. Touch the **Proxy** drop-down list and select **Manual**.
9. In the **Proxy hostname** field, enter the proxy server address.
10. 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.

11. 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.
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.

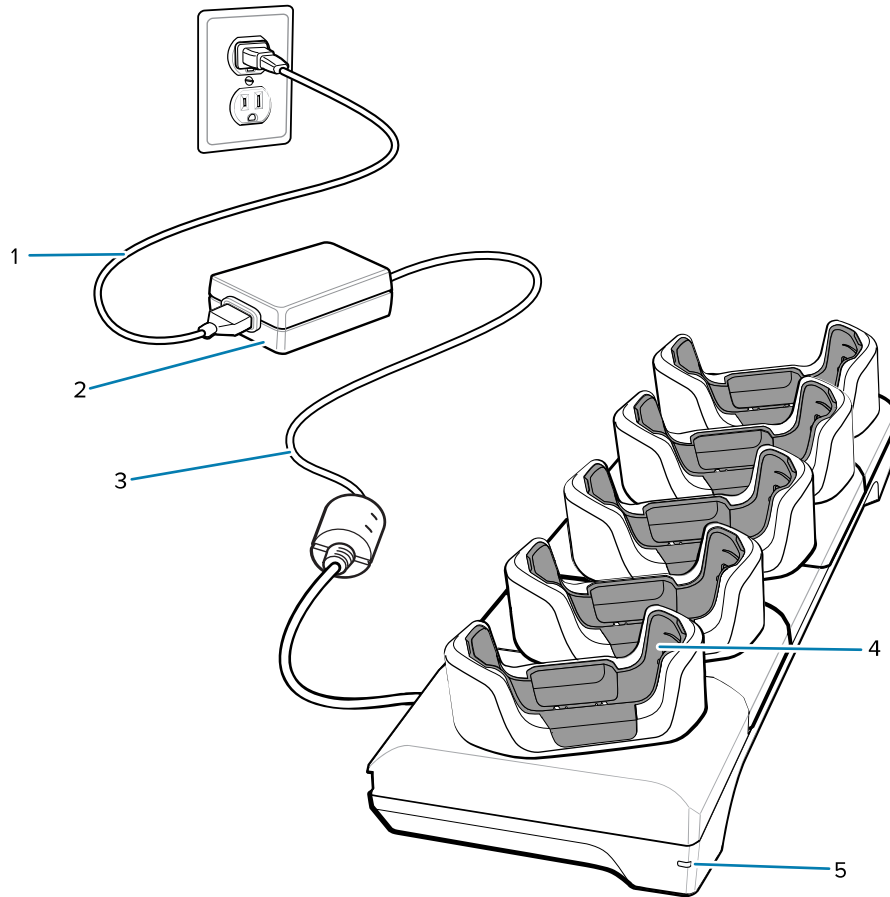
5-Slot Charge Only Cradle



CAUTION: Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines](#) on page 232.

The 5-Slot Charge Only Cradle:

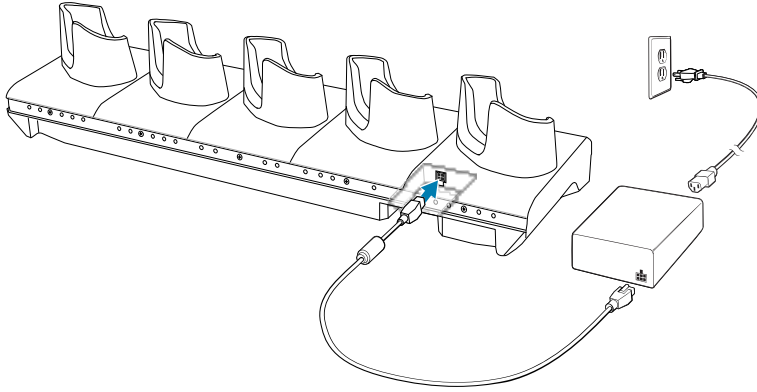
- Provides 5 VDC power for operating the device.
- Simultaneously charges up to five devices and up to four devices and one 4-Slot Battery Charger using the Battery Charger Adapter.
- Consists of a cradle base and cups that can be configured for various charging requirements.



1	AC line cord
2	Power supply
3	DC line cord
4	Device charging slot
5	Power LED

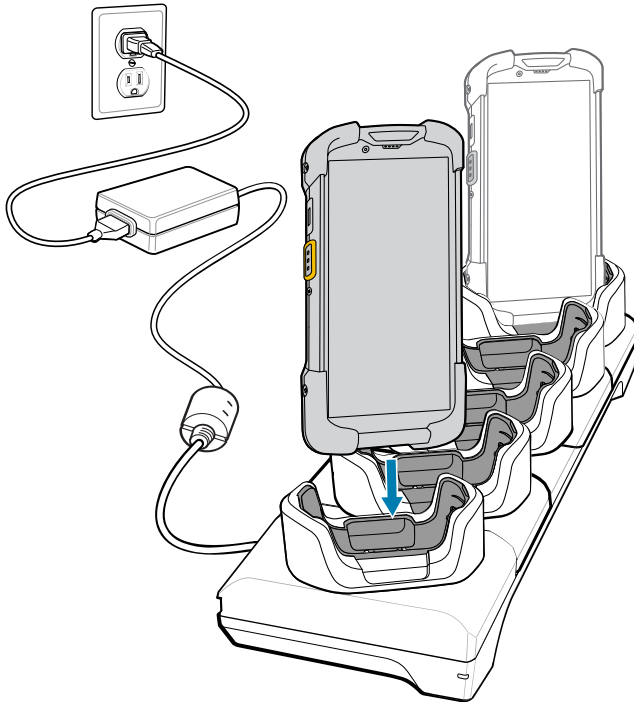
5-Slot Charge Only Cradle Setup

The 5-Slot Charge Only Cradle provides charging for up to five devices.



Charging the Device with the 5-Slot Charge Only Cradle

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



2. Ensure that the device is seated properly.

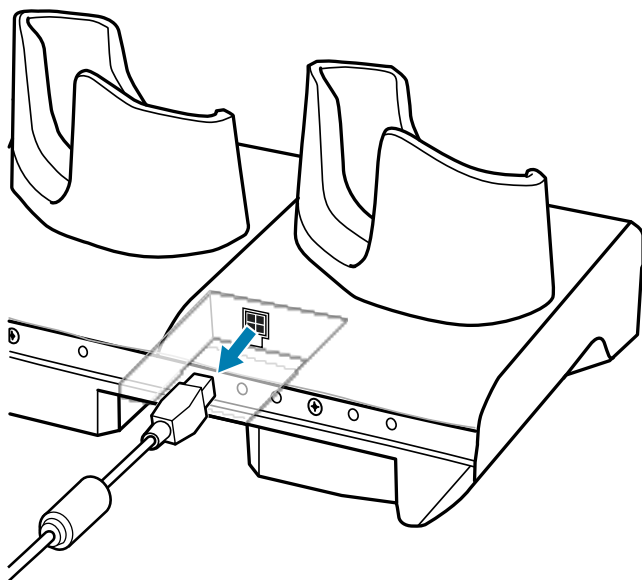
Installing the 4-Slot Battery Charger

Install the 4-Slot Battery charger onto a 5-Slot Charge Only Cradle base. This provides a total of four device charging slots and four battery charging slots.

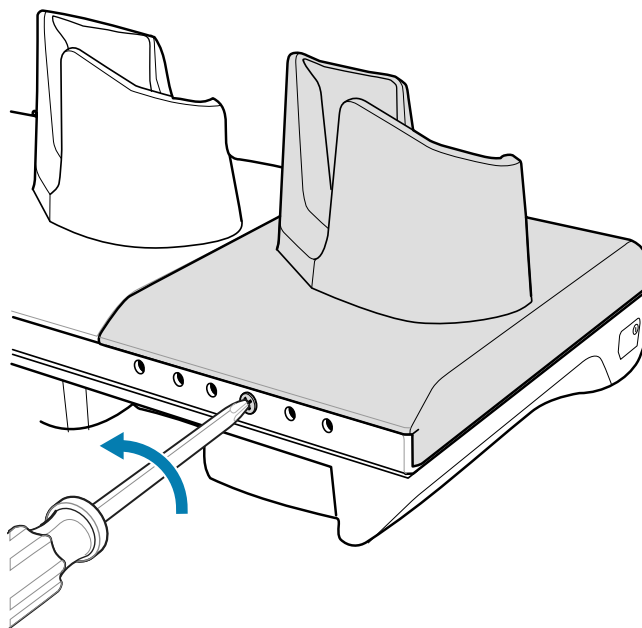


NOTE: The Battery Charger must be installed in the first slot only.

1. Remove power from the cradle.

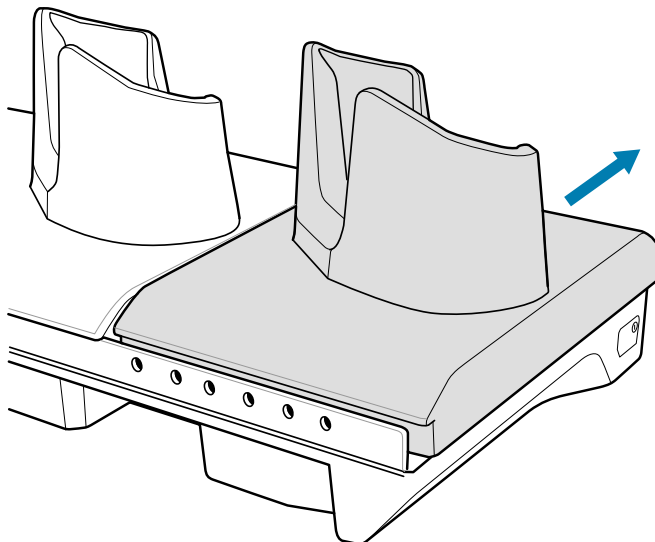


2. Using a Phillips screwdriver, remove the screw securing the cup to the cradle base.

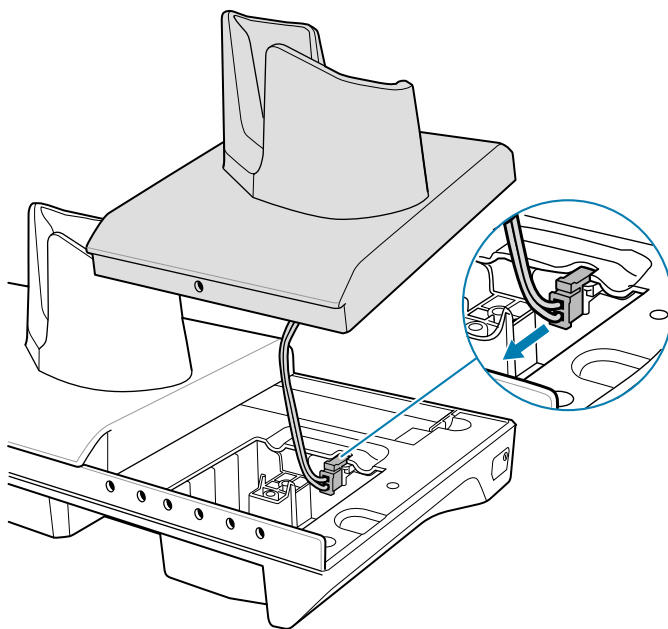


3. Slide the cup to the front of the cradle.

Figure 34 Remove Cup

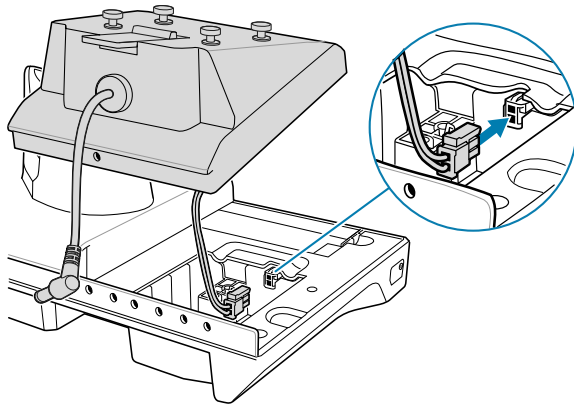


4. Carefully lift the cup up to expose the cup power cable.
5. Disconnect the cup power cable.

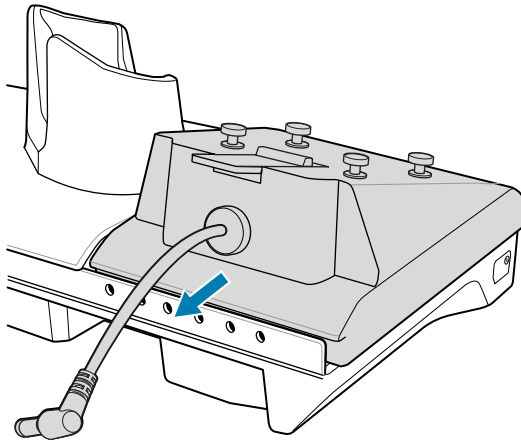


NOTE: Place the power cable into the adapter to avoid pinching the cable.

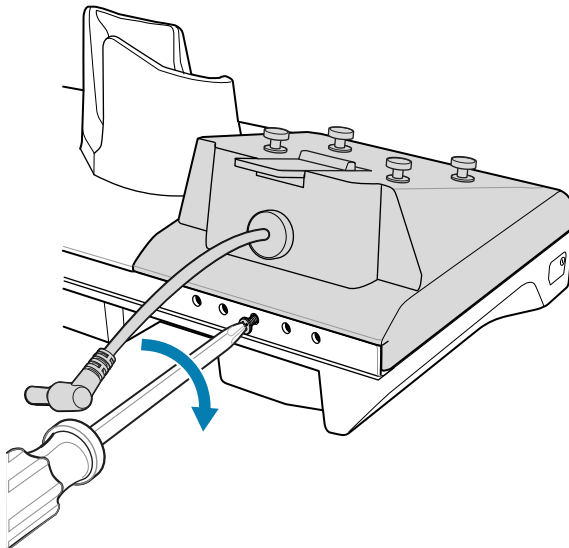
6. Connect the Battery Adapter power cable to the connector on the cradle.



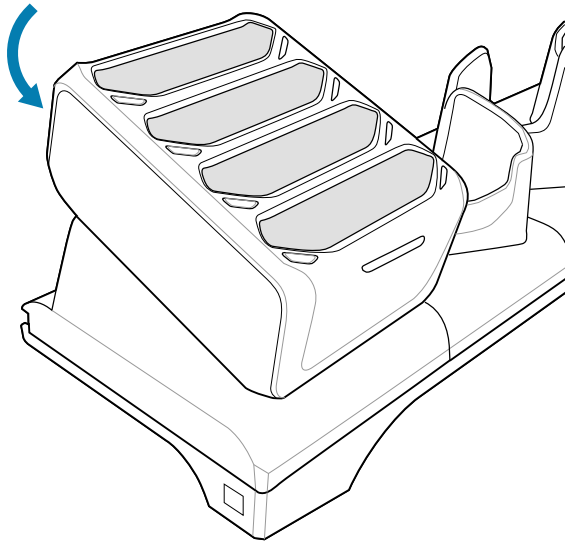
7. Place the adapter onto the cradle base and slide it toward the rear of the cradle.



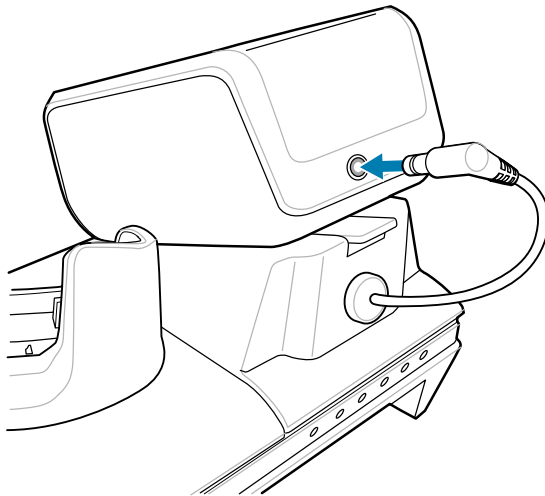
8. Using a Phillips screwdriver, secure the adapter to the cradle base with a screw.



9. Align mounting holes on the bottom of the 4-Slot Battery Charger with the stubs on the Battery Adapter.



10. Slide the 4-Slot battery charger down toward the front of the cradle.
11. Connect the output power plug into the power port on the 4-Slot Battery Charger.



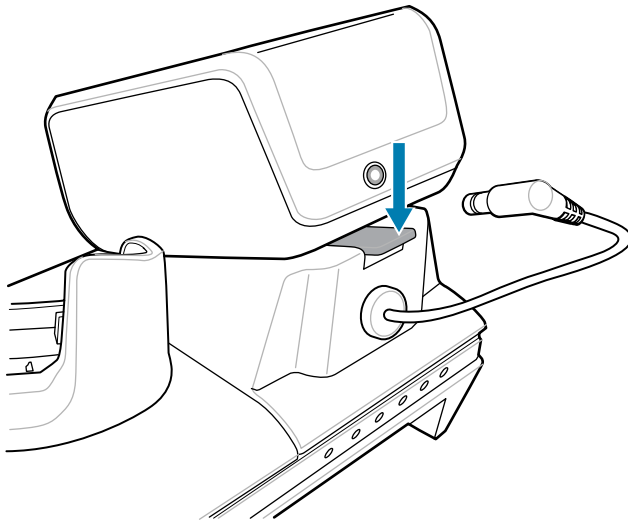
12. Reconnect the power to the cradle.

Removing the 4-Slot Battery Charger

If necessary, you can remove the 4-Slot Battery Charger from the 5-Slot Charge Only Cradle base.

1. Disconnect the output power plug from the 4-Slot Battery Charger.

2. At the back of the cup, press down on the release latch.



3. Slide the 4-Slot Battery Charger toward the front of the cradle.
4. Lift the 4-Slot Battery Charger off the cradle cup.

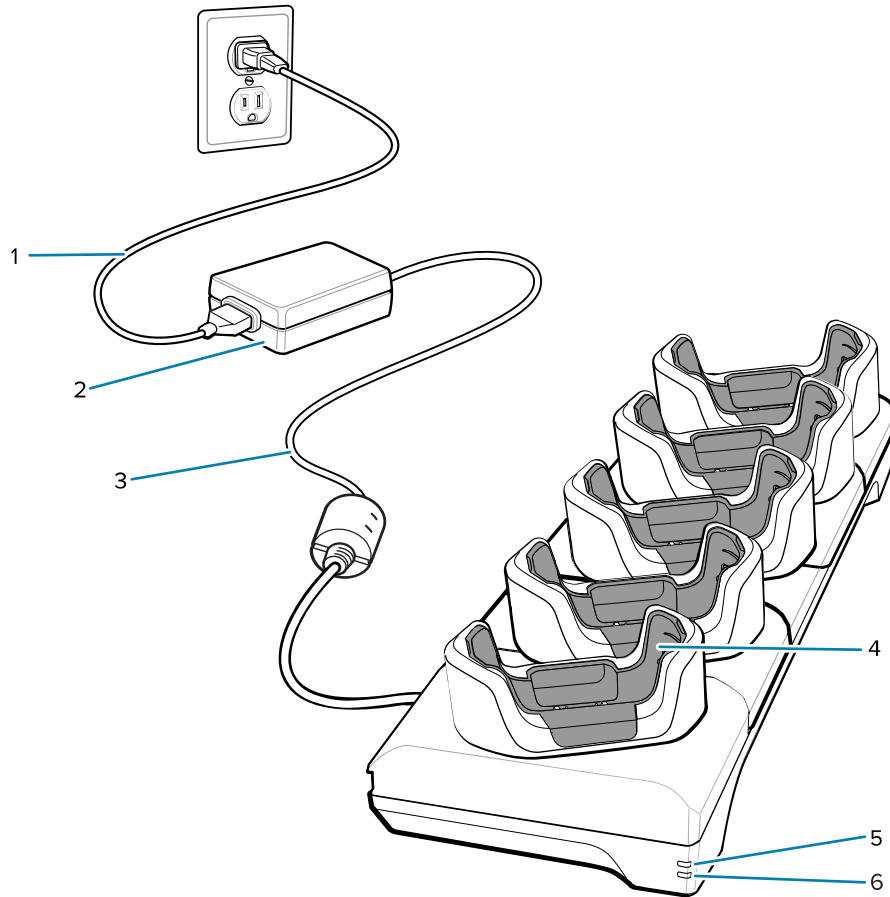
5-Slot Ethernet Cradle



CAUTION: Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines](#) on page 232.

The 5-Slot Ethernet Cradle:

- Provides 5.0 VDC power for operating the device.
- Connects up to five devices to an Ethernet network.
- Simultaneously charges up to five devices or up to four devices and four batteries using the 4-slot battery charger adapter.



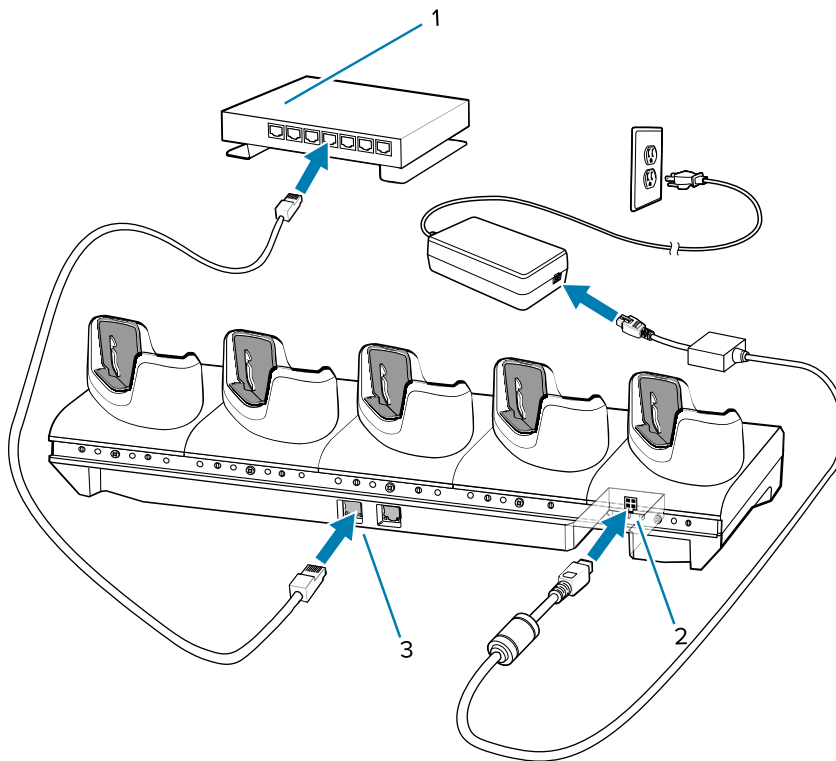
1	AC line cord
2	Power supply
3	DC line cord
4	Device charging slot
5	1000Base-T LED
6	10/100Base-T LED

5-Slot Ethernet Cradle Setup



CAUTION: Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines](#) on page 232.

Figure 35 5-Slot Ethernet Cradle

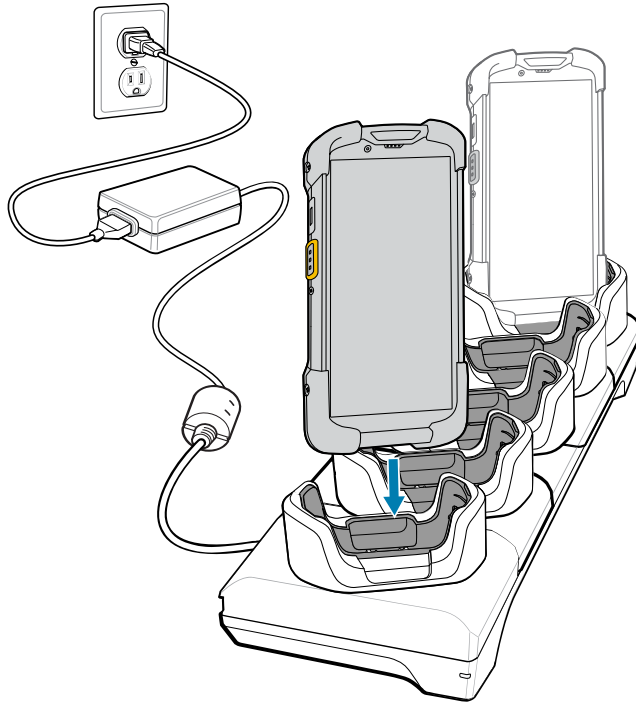


1	Ethernet switch
2	Power supply
3	Ethernet port

Charging the Device with a 5-Slot Ethernet Cradle

Charge up to five Ethernet devices.

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



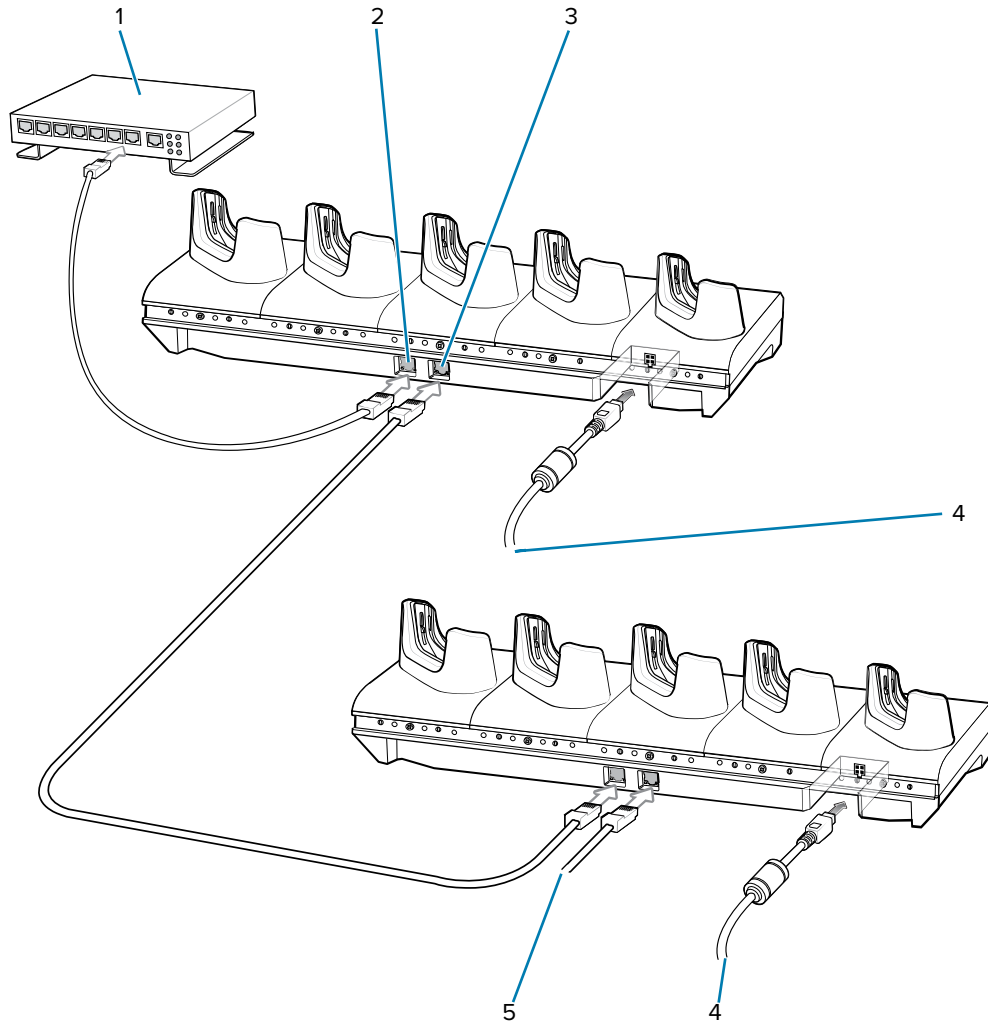
2. Ensure that the device is seated properly.

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.

1. Connect one end of an Ethernet cable to one of the ports on the switch (1) and the other end to the primary port (2) of the first cradle.



1	Ethernet switch
2	Primary port
3	Secondary port
4	To power supply
5	To next cradle

2. Connect an Ethernet cable to the secondary port (3) of the first cradle.
3. Connect the other end of the Ethernet cable to the primary port of the next 5-Slot Ethernet cradle.
The two cradles are connected.
4. Repeat steps 2 and 3 to connect additional cradles.
5. Connect power (4) to each cradle.

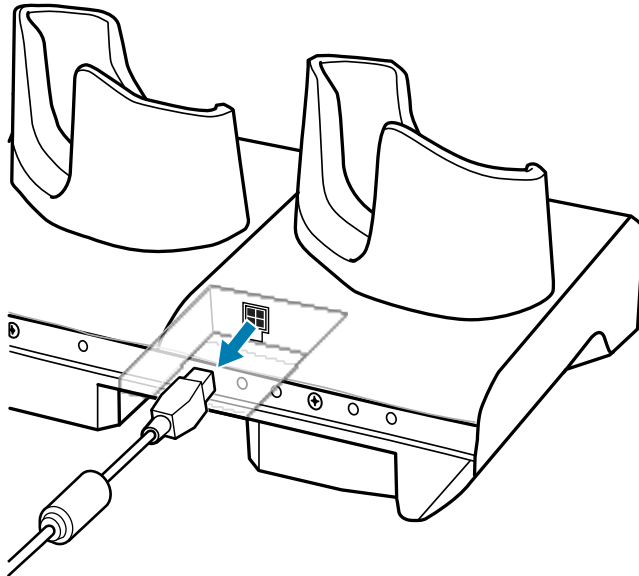
Installing the 4-Slot Battery Charger

Install the 4-Slot Battery charger onto a 5-Slot Charge Only Cradle base. This provides a total of four device charging slots and four battery charging slots.

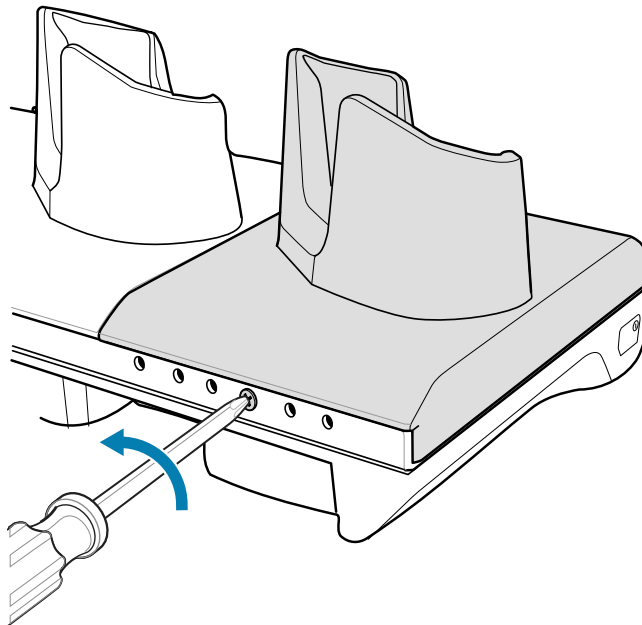


NOTE: The Battery Charger must be installed in the first slot only.

1. Remove power from the cradle.

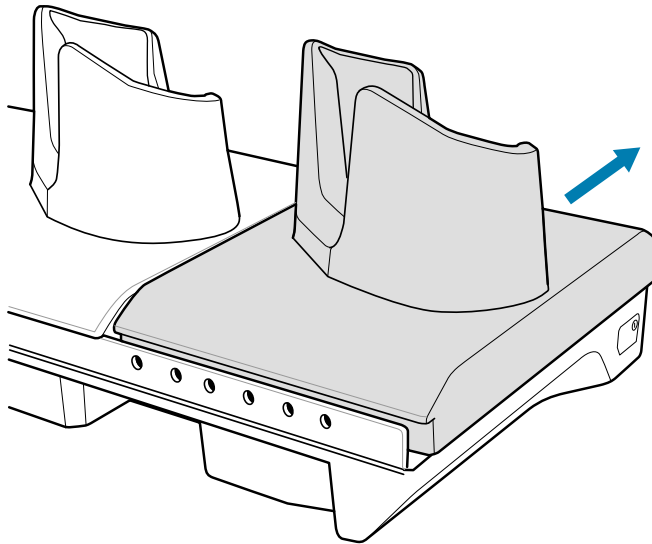


2. Using a Phillips screwdriver, remove the screw securing the cup to the cradle base.

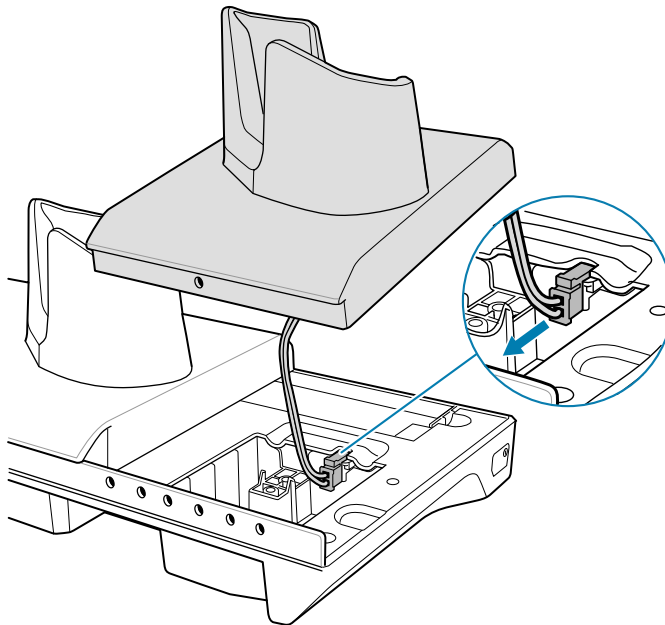


3. Slide the cup to the front of the cradle.

Figure 36 Remove Cup

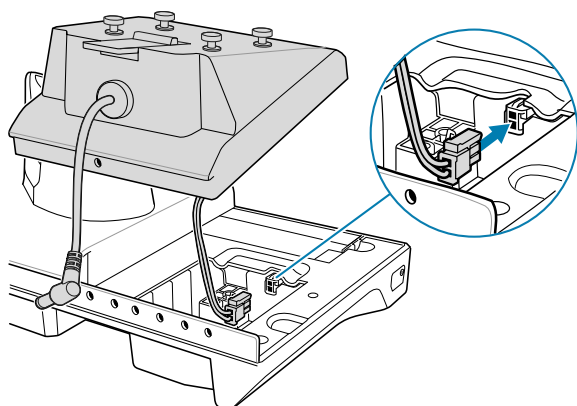


4. Carefully lift the cup up to expose the cup power cable.
5. Disconnect the cup power cable.

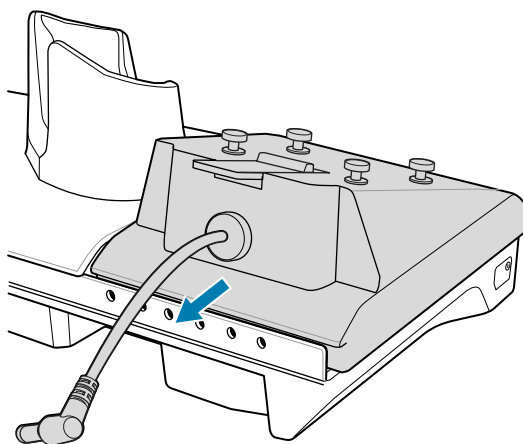


NOTE: Place the power cable into the adapter to avoid pinching the cable.

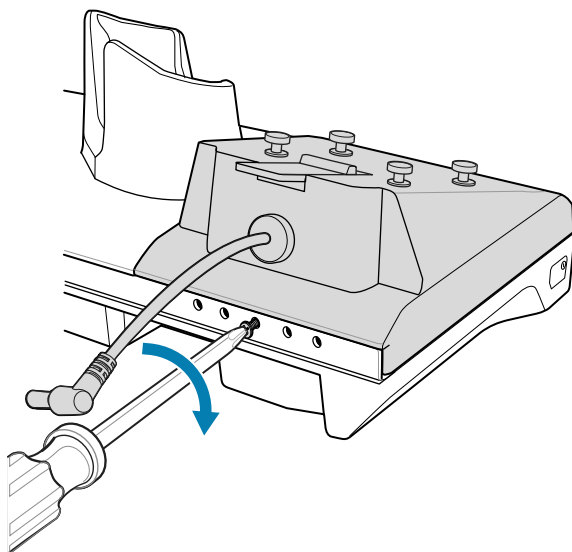
6. Connect the Battery Adapter power cable to the connector on the cradle.



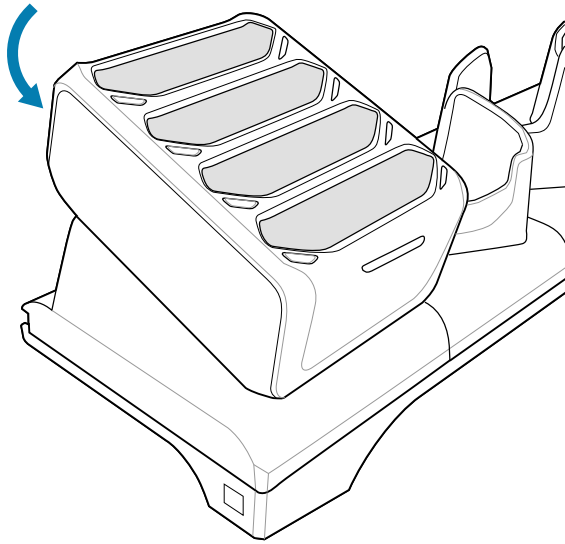
7. Place the adapter onto the cradle base and slide it toward the rear of the cradle.



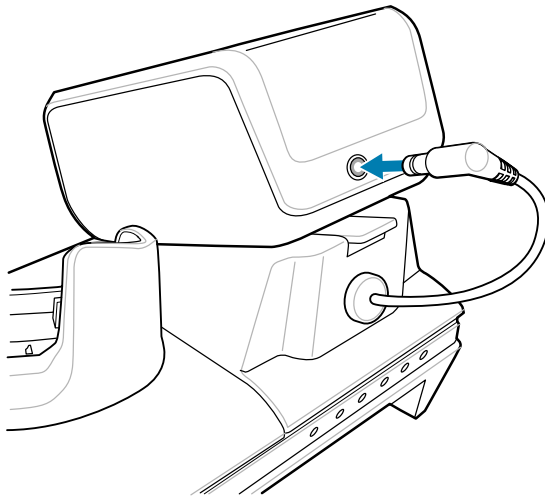
8. Using a Phillips screwdriver, secure the adapter to the cradle base with a screw.



9. Align mounting holes on the bottom of the 4-Slot Battery Charger with the stubs on the Battery Adapter.



10. Slide the 4-Slot battery charger down toward the front of the cradle.
11. Connect the output power plug into the power port on the 4-Slot Battery Charger.



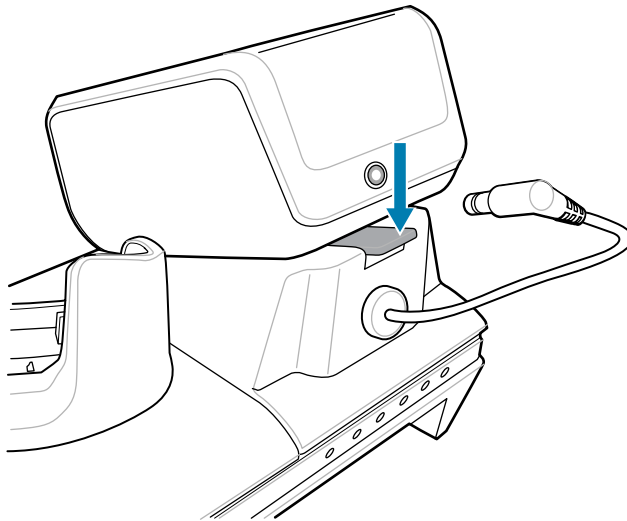
12. Reconnect the power to the cradle.

Removing the 4-Slot Battery Charger

If necessary, you can remove the 4-Slot Battery Charger from the 5-Slot Charge Only Cradle base.

1. Disconnect the output power plug from the 4-Slot Battery Charger.

2. At the back of the cup, press down on the release latch.



3. Slide the 4-Slot Battery Charger toward the front of the cradle.
4. Lift the 4-Slot Battery Charger off the cradle cup.

Ethernet Communication

The 5-Slot Ethernet Cradle provides Ethernet communication with a network.




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 21 LED Data Rate Indicators


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

Establishing Ethernet Connection

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.

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 **Network & internet**.
3. Touch **Ethernet**.
4. Slide the switch to the **ON** position.
5. Place the device into the Ethernet cradle slot.
6. Touch and hold **eth0** until the menu appears.
7. Touch **Modify Proxy**.
8. Touch the **Proxy** drop-down list and select **Manual**.
9. In the **Proxy hostname** field, enter the proxy server address.
10. 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.

11. 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.
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.

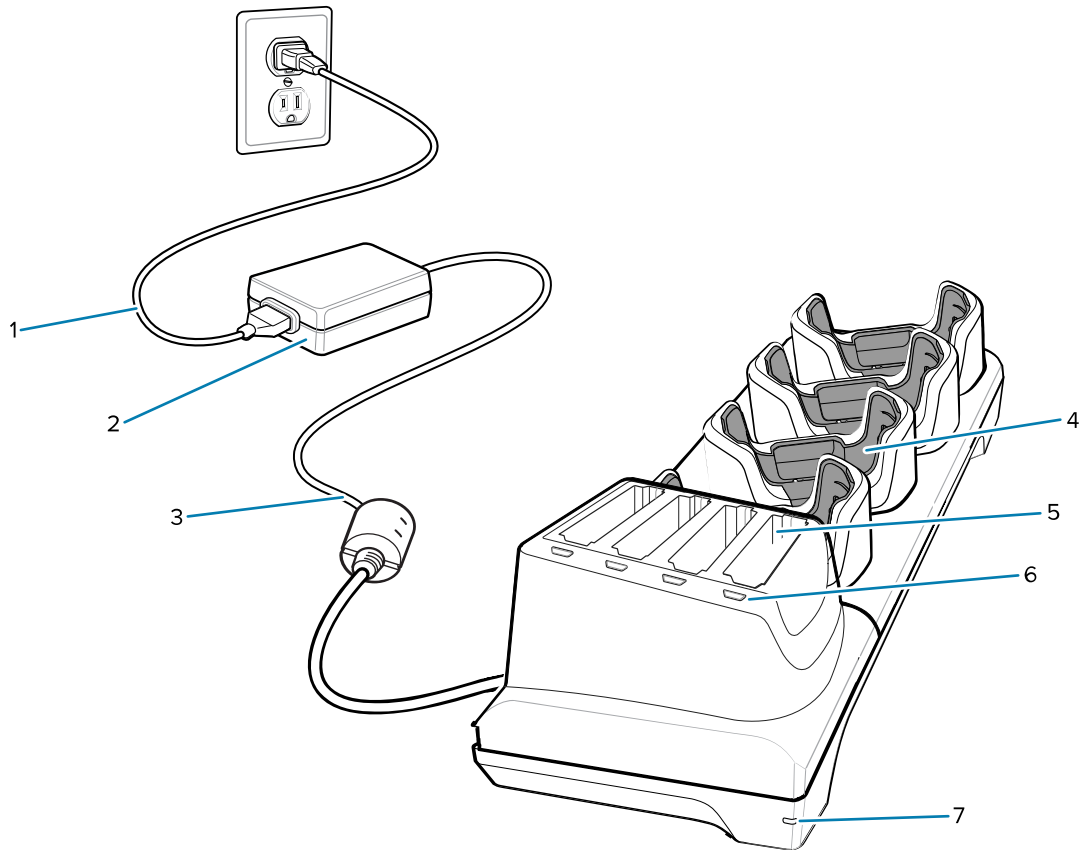
4-Slot Charge Only Cradle with Battery Charger



CAUTION: Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines](#) on page 232.

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.



1	AC line cord
2	Power supply
3	DC line cord
4	Device charging slot
5	Spare battery charging slot
6	Spare battery charging LED
7	Power LED

4-Slot Charge Only Cradle with Battery Charger Setup

Figure 37 Connect Battery Charger Output Power Plug

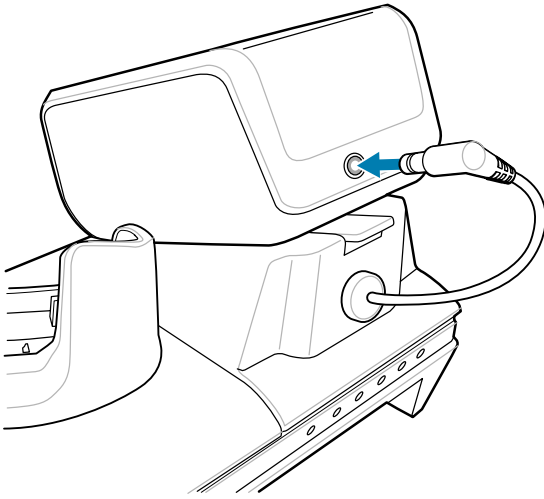
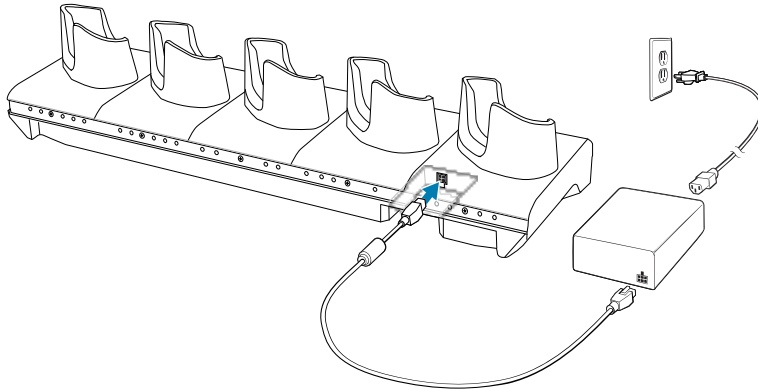


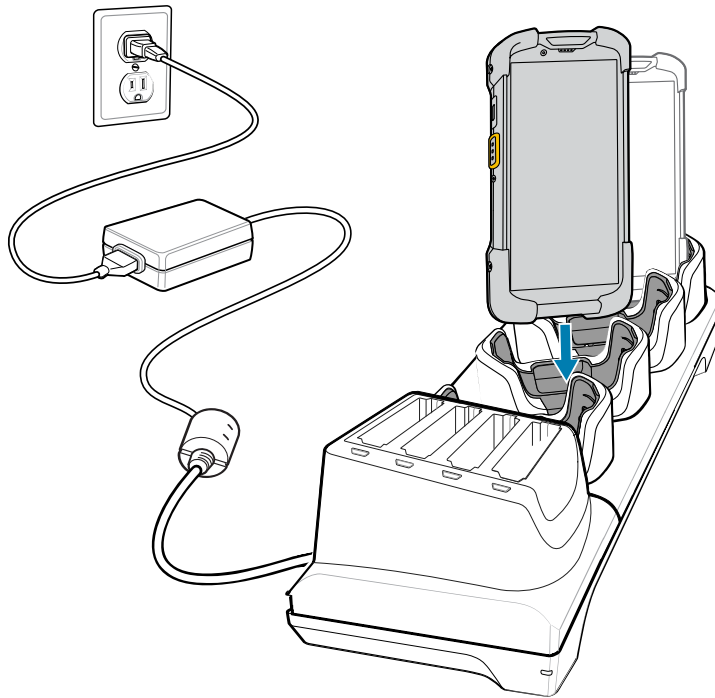
Figure 38 Connect Charge Only Cradle Power



Charging the Device with a 4-Slot Charge Only Cradle with Battery Charger

Use the 4-Slot Charge Only Cradle with Battery Charger to charge up to four devices and four spare batteries at the same time.

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



2. Ensure that the device is seated properly.



NOTE: See [Installing the 4-Slot Battery Charger](#) on page 167 for information on installing the 4-Slot Battery Charger onto the cradle.

Wireless Charging Vehicle Cradle



NOTE: Applies to TC78 only.



IMPORTANT: The Vehicle Cradle operating temperature is -20°C to +50°C (-4°F to 122°F). When in the cradle, the device charges only when its temperature is from 0°C to +40°C (32°F to 104°F).

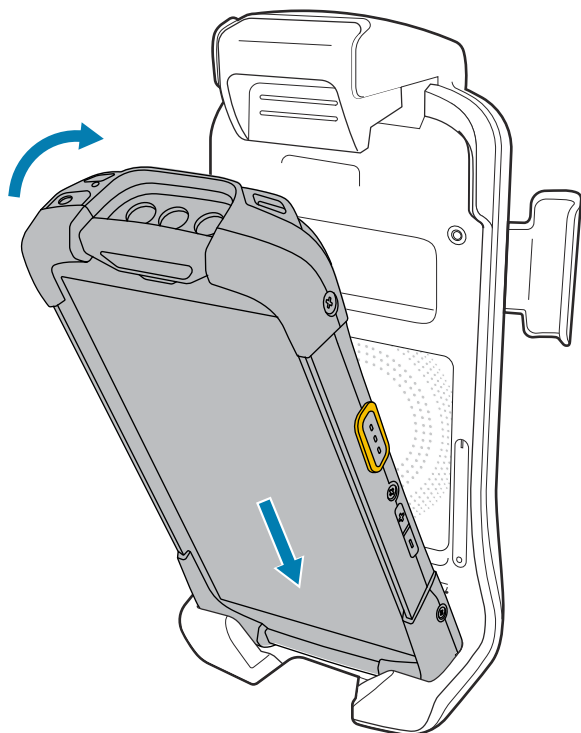
When installed into a vehicle, the cradle:

- holds the device securely in place
- provides wireless power for operating the device
- charges a wireless charge battery

Charging the Device in the Vehicle Cradle

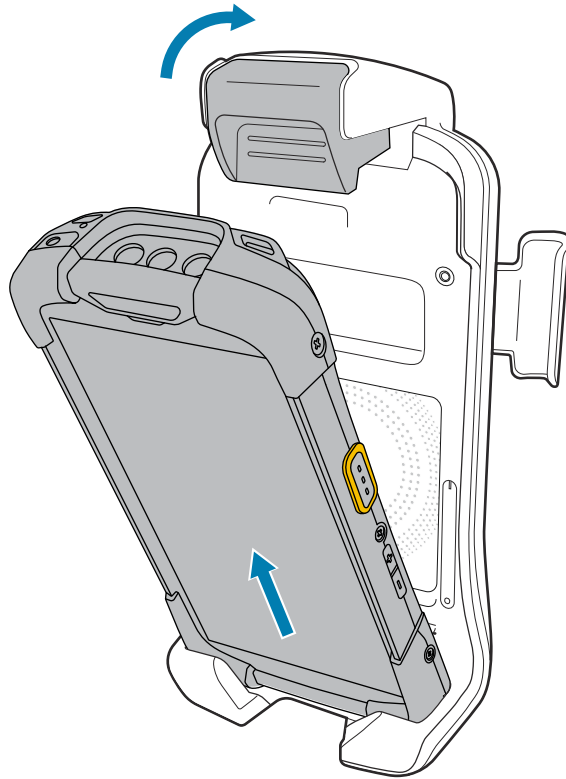
1. Ensure that the cradle is connected to a power source.

2. Align the device with the guide rails on the bottom of the cradle, and rotate the device upward until you hear an audible click as it snaps into place in the cradle.



Removing the Device from the Vehicle Cradle

1. Lift the release latch on the vehicle cradle.



2. Grasp the device, and lift it out.

Mounting the Cradle to a RAM Mount

Follow these steps to mount the cradle onto a diamond- (RAM-B-238U) or round- (RAM-202U) shaped RAM Mount (RAM-B-166U).



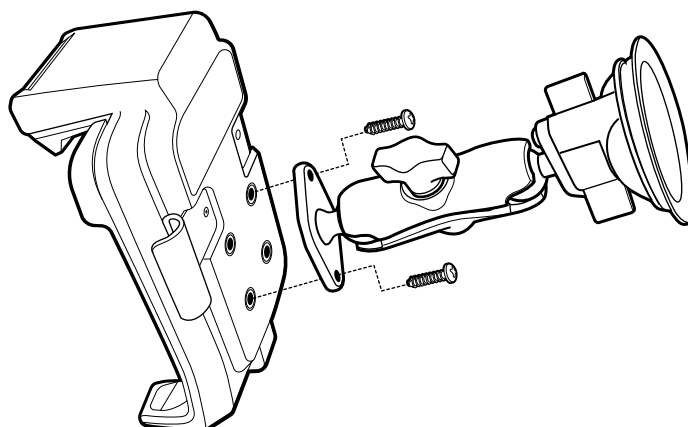
CAUTION: Do not install a Vehicle Cradle on or near an airbag cover plate or within an area that could cause personal injury. Also, do not install it in a location that affects vehicle safety or your ability to drive.



IMPORTANT: Only mount the Vehicle Cradle in a vertical position. Never mount the vehicle cradle sideways, upside-down, or on a wall that can be subject to impact or collision of greater than 10Gs, in accordance with SAE J1455 Section 4.10.3.5.

1. Follow the instructions that are provided with the RAM Mount for RAM Mount mounting instructions.
2. Align the vehicle cradle with the RAM Mount ball base.

3. Secure the vehicle cradle to the ball base using M4 screws, lock washers, and flat washers (provided).



4. Secure the RAM Mount to the vehicle depending upon the type of RAM Mount. See instructions provided with RAM Mount.
5. Tighten the screws to secure the cradle to the mounting plate.
6. Adjust the RAM Mount according to the RAM Mount instructions.

See Also

[Mounting to a Windshield](#)

[Mounting to a Dashboard](#)

Mounting to a Windshield

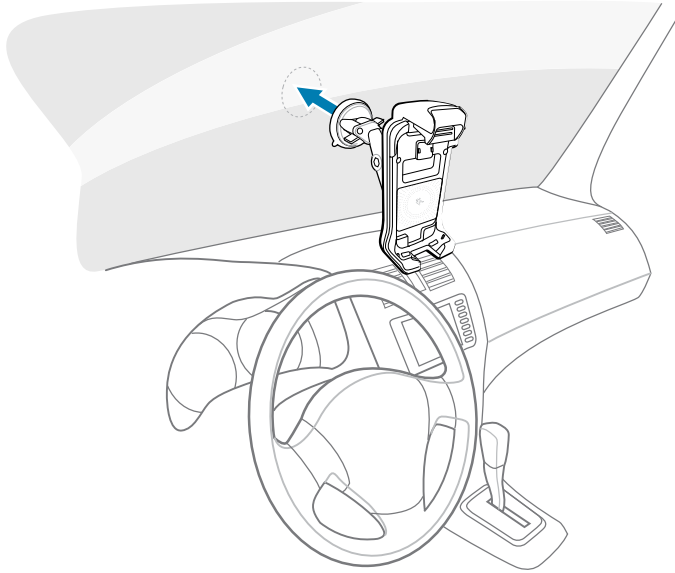


CAUTION: Do not install a Vehicle Cradle on or near an airbag cover plate or within an area that could cause personal injury. Also, do not install it in a location that affects vehicle safety or your ability to drive.



IMPORTANT: Only mount the Vehicle Cradle in a vertical position. Never mount the vehicle cradle sideways, upside-down, or on a wall that can be subject to impact or collision of greater than 10Gs, in accordance with SAE J1455 Section 4.10.3.5.

1. Hold the RAM Mount against the selected area.



2. Twist the lever on the RAM Mount suction cup base to create a vacuum between the suction cup and the windshield.

**IMPORTANT:**

To prevent suction cups from falling off of the windshield due to bleeding air over time and with extreme heat:

- Ensure that the glass and the suction cup are completely clean and free of oils and debris before installing.
 - Periodically remove, clean, and reseal the suction cup on the glass (more frequently in the summer and in hot, sunny climates).
3. Adjust the vehicle cradle in a vertical position and ensure that the suction bond is strong enough before installing the device.
 4. Insert the device and verify that the suction cup holds to the windshield.
 5. Connect the vehicle cradle to a power supply.

See Also

[Power Connection](#)

Mounting to a Dashboard

CAUTION: Do not install a Vehicle Cradle on or near an airbag cover plate or within an area that could cause personal injury. Also, do not install it in a location that affects vehicle safety or your ability to drive.

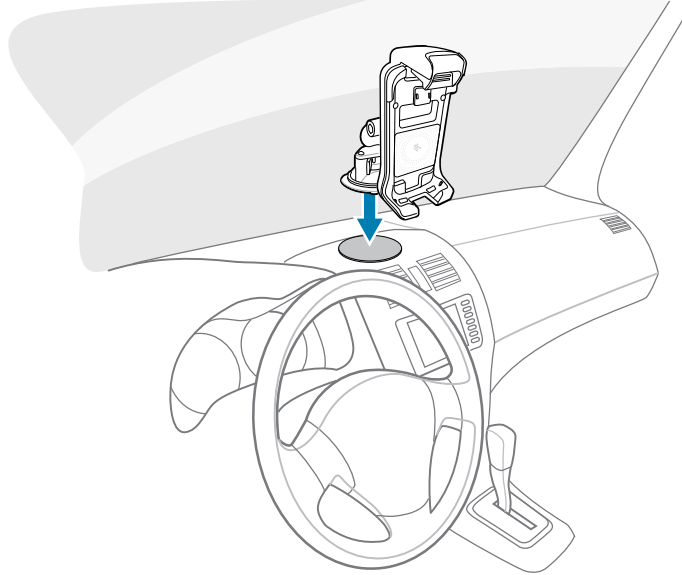


IMPORTANT: Only mount the Vehicle Cradle in a vertical position. Never mount the vehicle cradle sideways, upside-down, or on a wall that can be subject to impact or collision of greater than 10Gs, in accordance with SAE J1455 Section 4.10.3.5.

1. Hold the RAM Mount against the selected area.



IMPORTANT: Ensure that the vehicle cradle does not rest on the dashboard or other structure that could transmit the vehicle vibrations, which would normally be reduced by the suction cup.



2. Twist the lever on the RAM Mount suction cup base to create a vacuum between the suction cup and the dashboard.
3. Adjust the vehicle cradle in a vertical position and ensure that the suction bond is strong enough before installing the device.
4. Insert the device and verify that the suction cup holds to the dashboard.
5. Connect the vehicle cradle to a power supply.

See Also

[Power Connection](#)

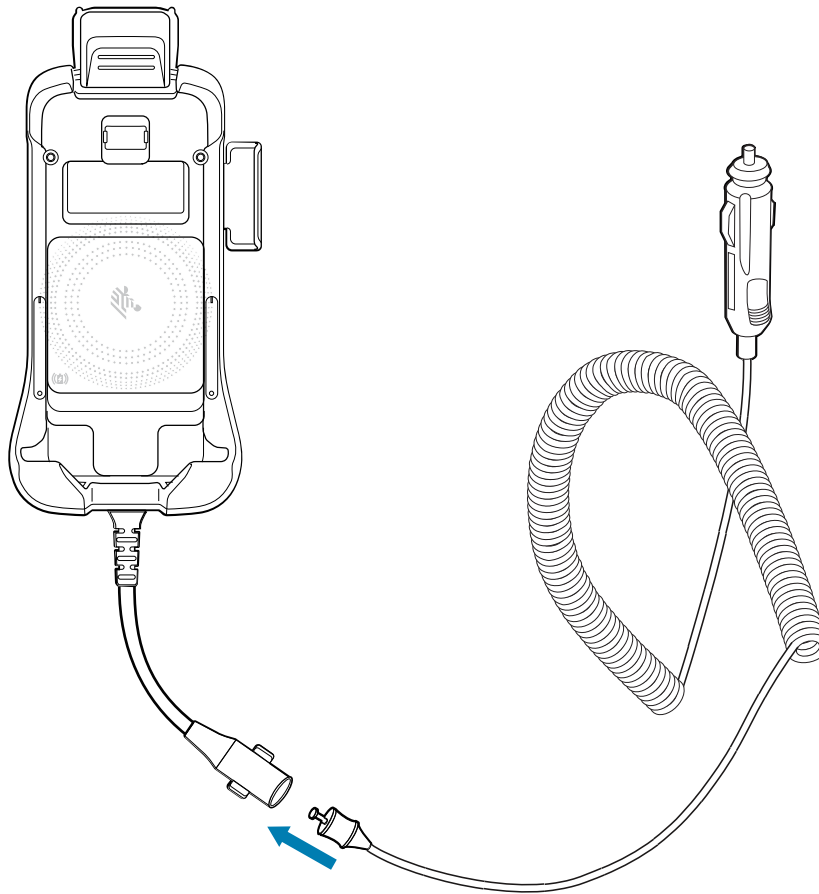
Power Connection

The wireless vehicle cradle can be powered using a CLA (cigarette lighter receptacle) Cable (CHG-AUTO-CLA1-01).



NOTE: To hardwire the wireless vehicle cradle, have a professional install the Hardwire Auto Charge Cable (CHG-AUTO-HWIRE1-01).

1. Plug the CLA cable connector into the wireless vehicle cradle cable.



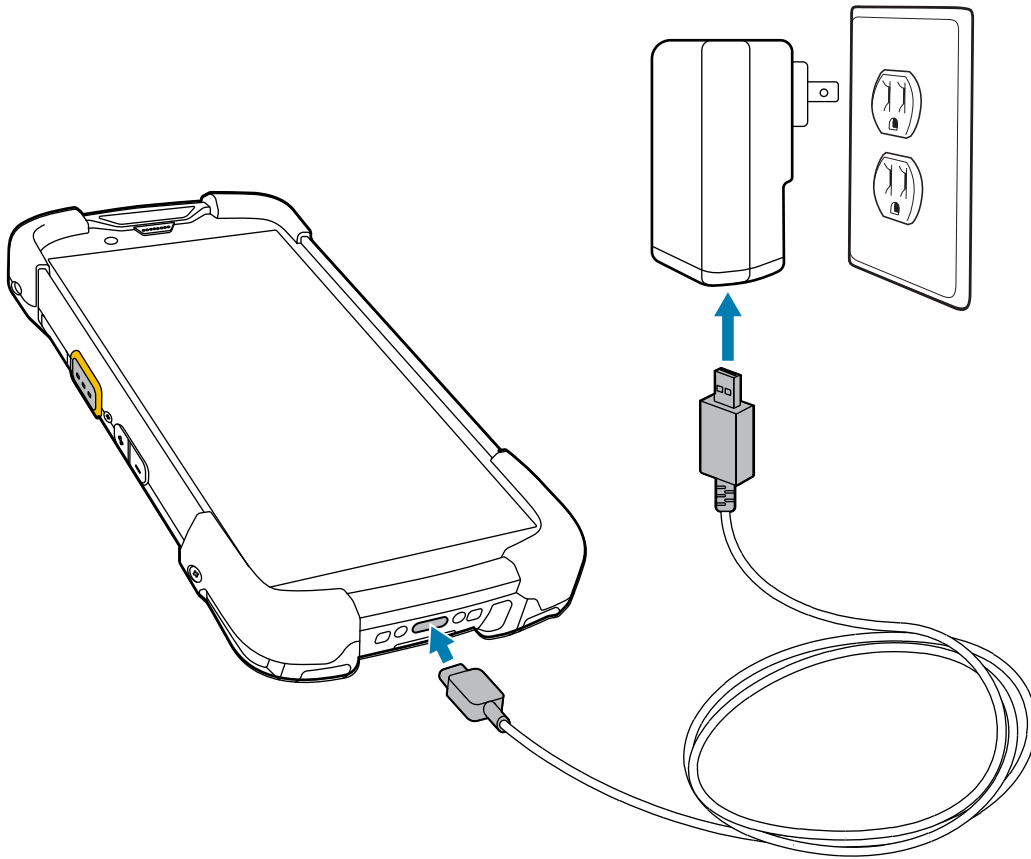
2. Plug the cigarette adapter into a cigarette lighter receptacle.

Charge/USB-C Cable

The USB-C Cable snaps onto the bottom of the device and removes easily when not in use. When attached to the device, it provides charging and allows the device to transfer data to a host computer.



CAUTION: Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines](#) on page 232.



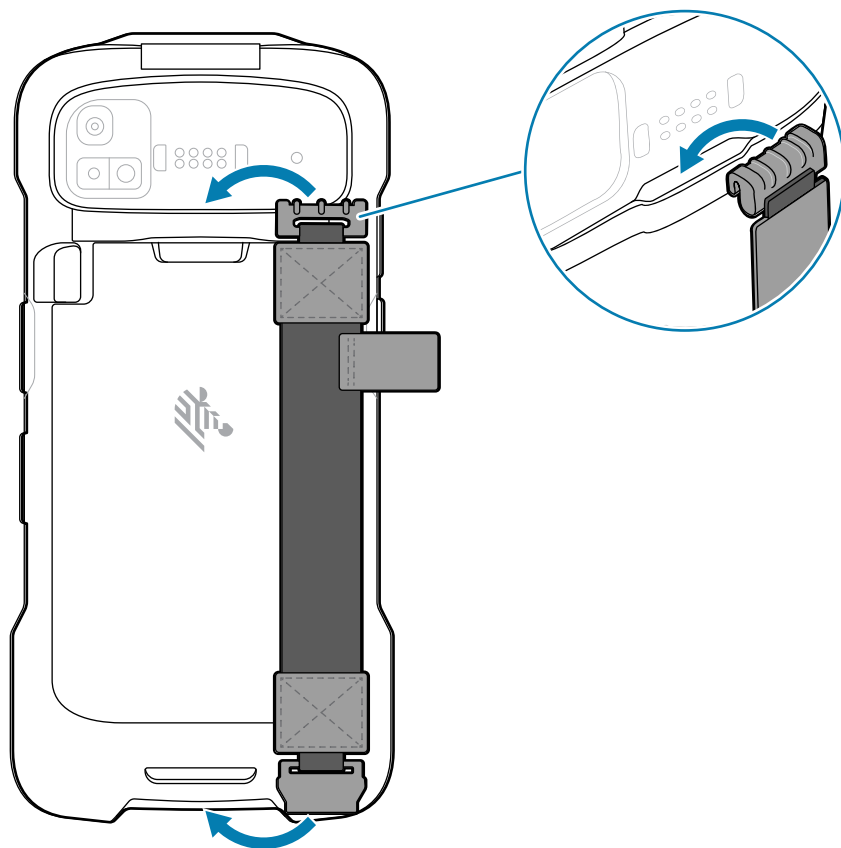
Basic Hand Strap

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

Hand Strap Installation

To install the Basic Hand Strap:

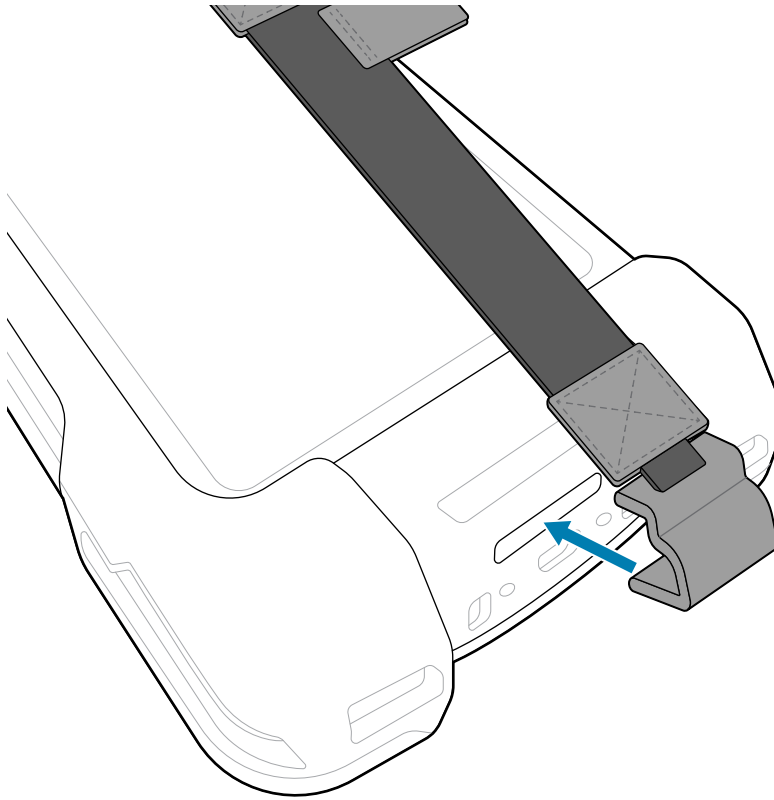
1. Clip the top of the hand strap onto the top hand strap bar of the device.



2. Insert the bottom of the hand strap onto the bottom hand strap bar of the device.

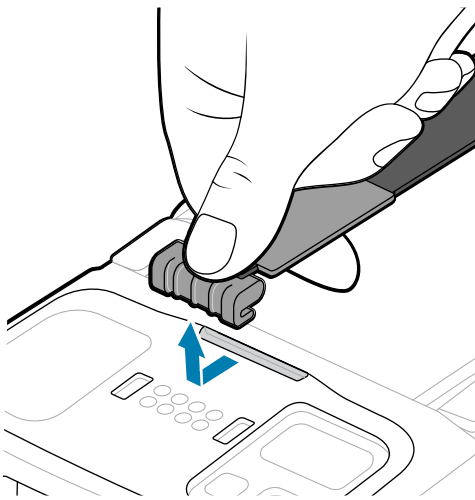


NOTE: The optional stylus must be installed on the hand strap before the hand strap is installed on the device.

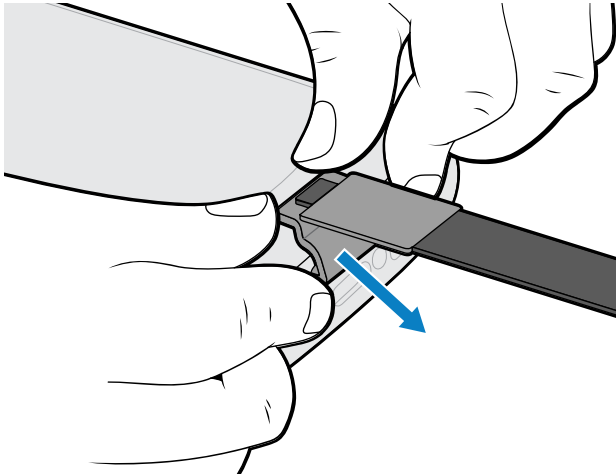


Hand Strap Removal

1. Place your thumb on the top of the hand strap (below the top clip) and your index finger underneath the top of the hand strap. Then push with your index finger to remove the clip.



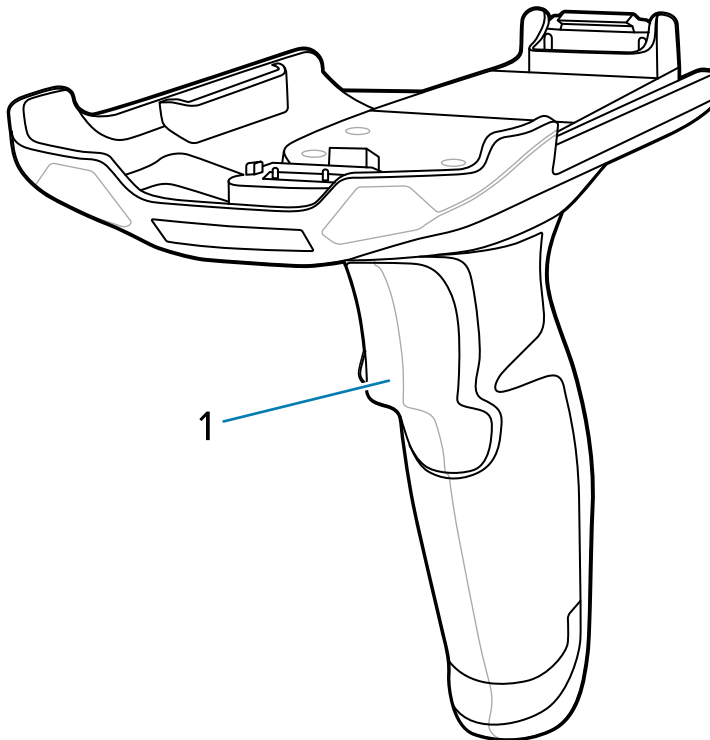
2. Place both thumbs on the bottom clip and push down and away from the device to unclip.



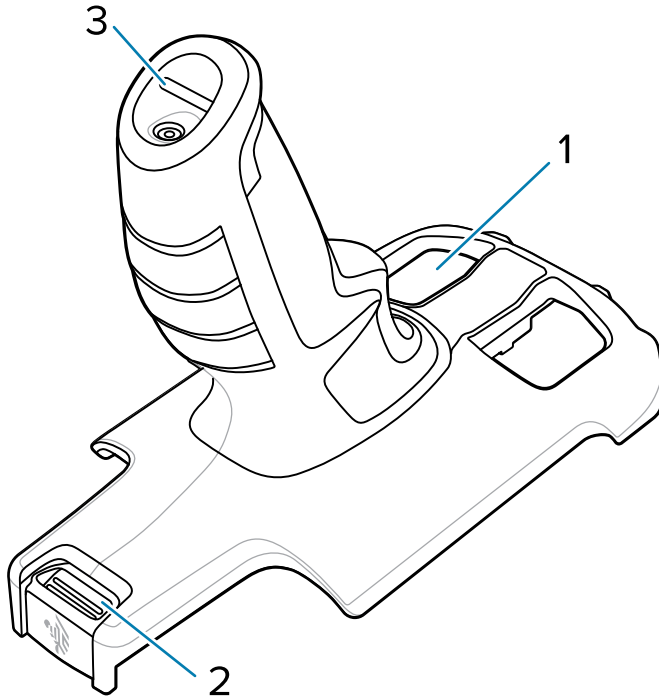
Trigger Handle

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.

Figure 39 Top View



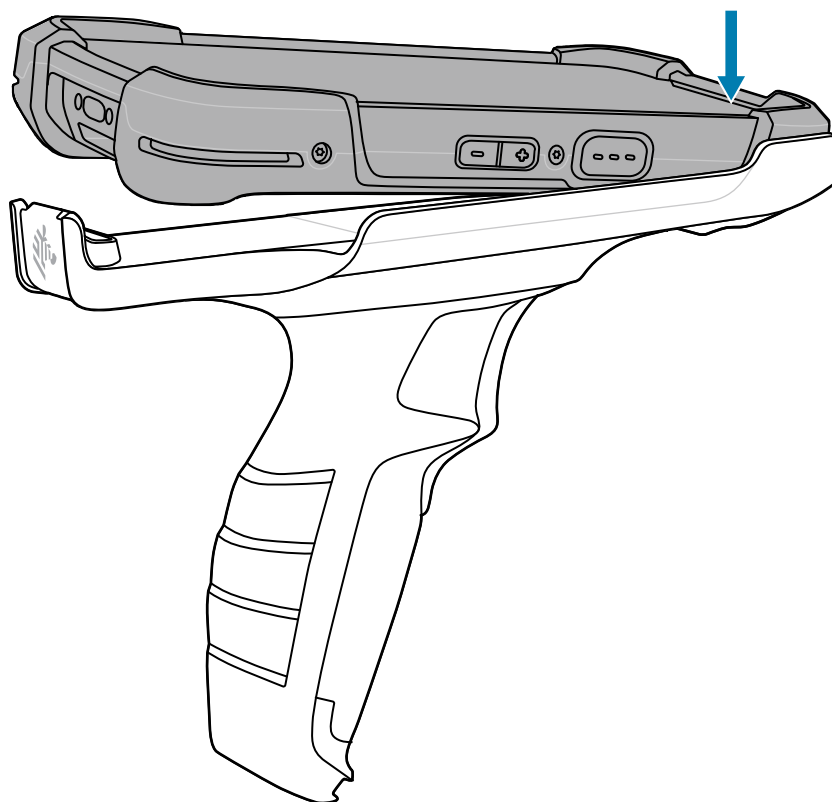
1	Trigger
---	---------

Figure 40 Bottom View

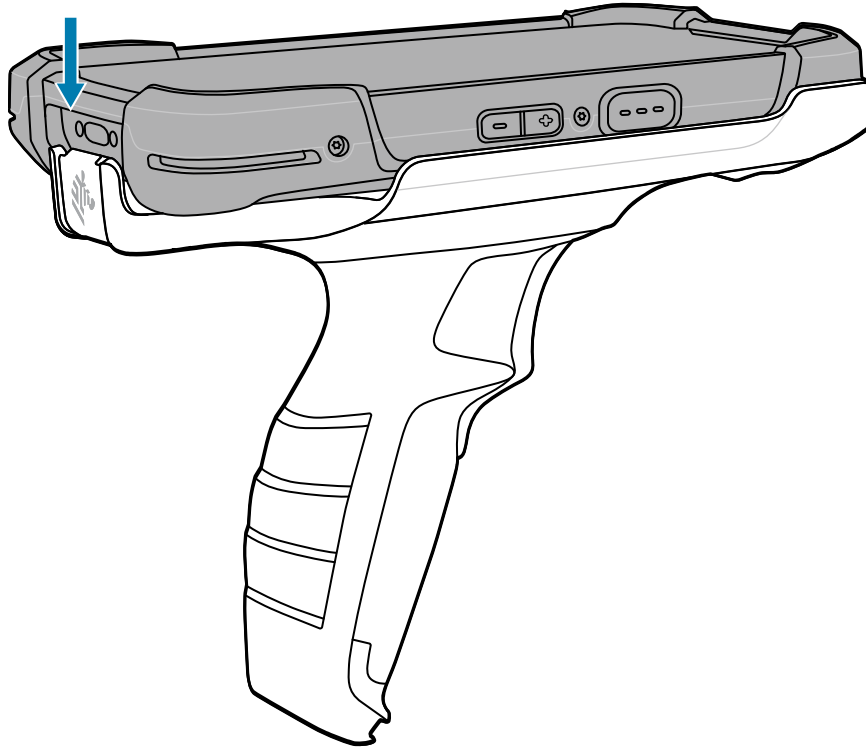
1	Camera window
2	Release latch
3	Lanyard mount

Inserting the Device into the Trigger Handle

1. Align and insert the device into the top of the trigger.



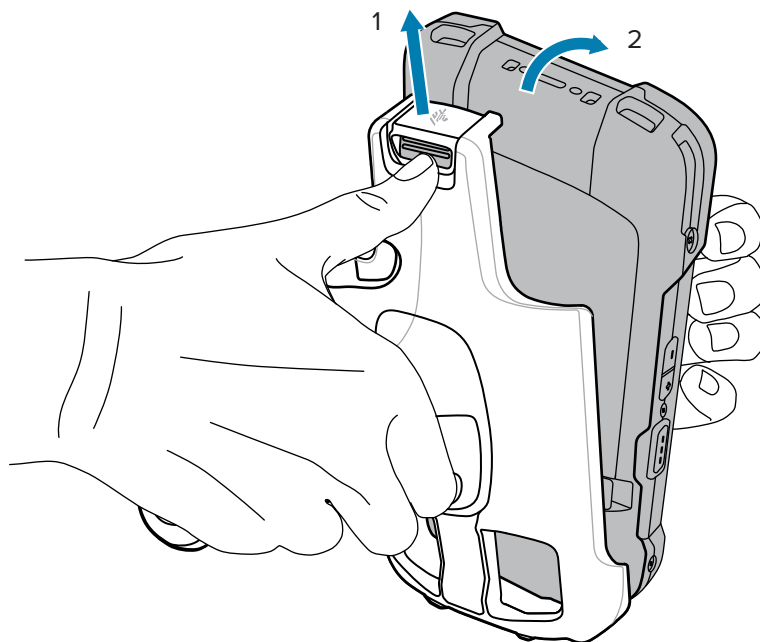
2. Rotate the device down and press down until it snaps into place.



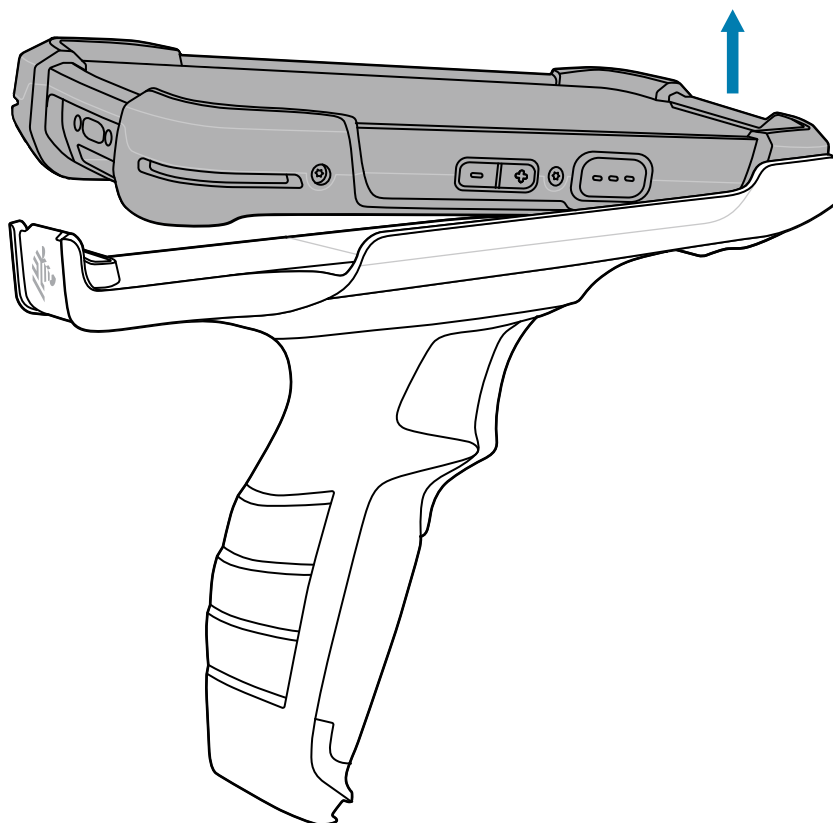
Removing the Device from the Trigger Handle

1. Place one hand around the trigger handle while holding the device with the other hand.

2. Push up the trigger handle release latch with your thumb (1), and then rotate the device away from the trigger handle (2).

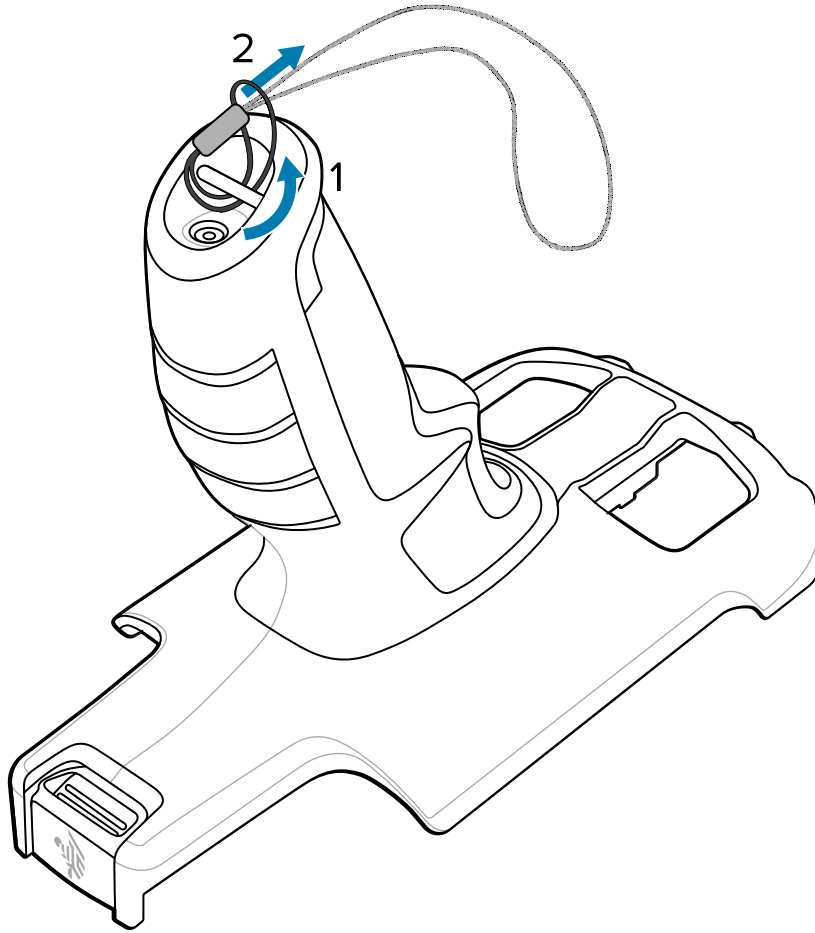


3. Slide the device out of the trigger handle.



Installing the Optional Lanyard

1. Insert the loop end of the tether into the slot on the bottom of the device handle (1).



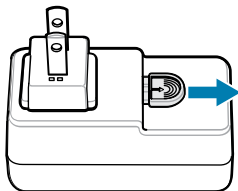
2. Feed the lanyard through the loop (2).
3. Pull the lanyard until the loop tightens.

Power Supply with Plug Adapters

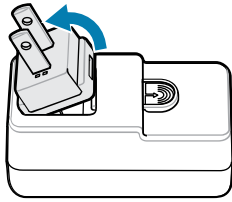
Use the power supply with the Rugged Charge/USB Cable to charge the device. The power supply comes in various configurations with different plug adapters for use internationally.

To change the plug adapters:

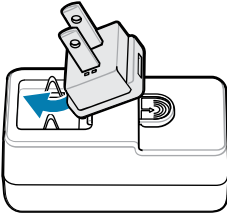
1. Pull the release button down.



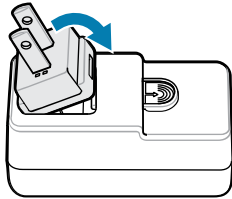
2. Rotate the plug adapter up and out of the power supply.



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



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



Wall Installation

Use the Rack/Wall Mount Bracket to mount battery chargers or a cradle to a wall.



IMPORTANT: For proper installation, consult a professional installer. Failure to install the bracket properly could result in damage to the hardware.

When installing the rack/wall mount bracket 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 that the bracket is being mounted to.
 - The Mount Bracket mounting slot dimensions are 5 mm (0.2 in.).
 - Fasteners must be able to hold a minimum of 20 kg (44 lb).
- Install mounting brackets at the following maximum heights from the ground:
 - 5-slot cradle: 1.2 m (4 ft)
 - 4-slot battery charger: 0.91 m (3 ft)

5-Slot Cradle Bracket 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.

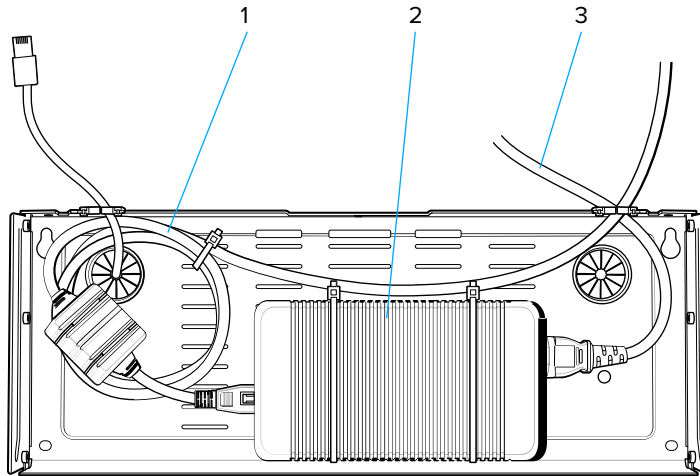
1. Place the power supply in the bottom tray.

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



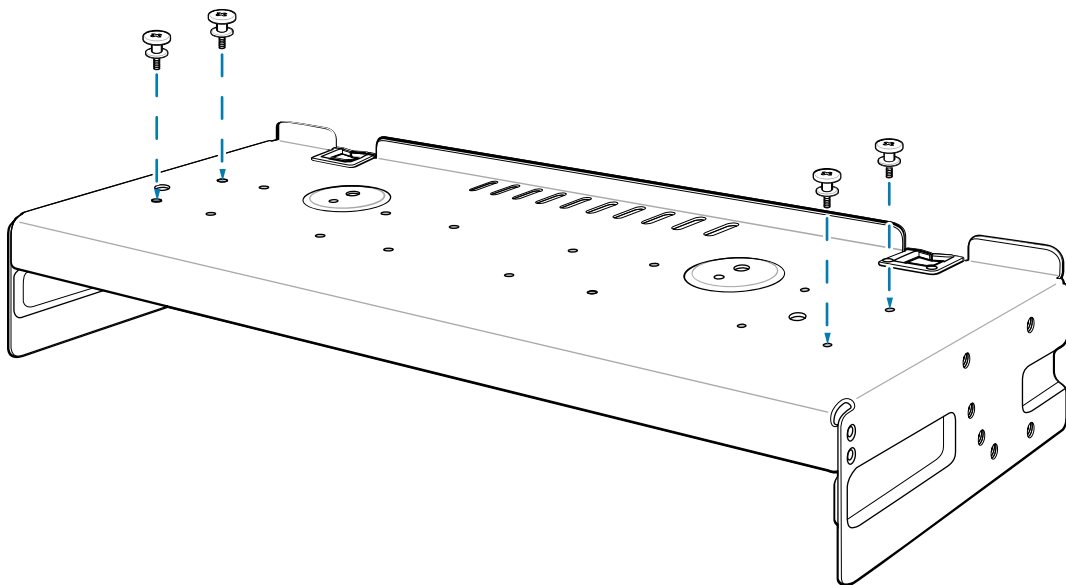
NOTE: Ensure that the tie wrap buckle is on the side of the power supply and not on top. Having the tie wrap buckle on top of the power supply interferes with the top tray.

5. Route cables through the cable slots.

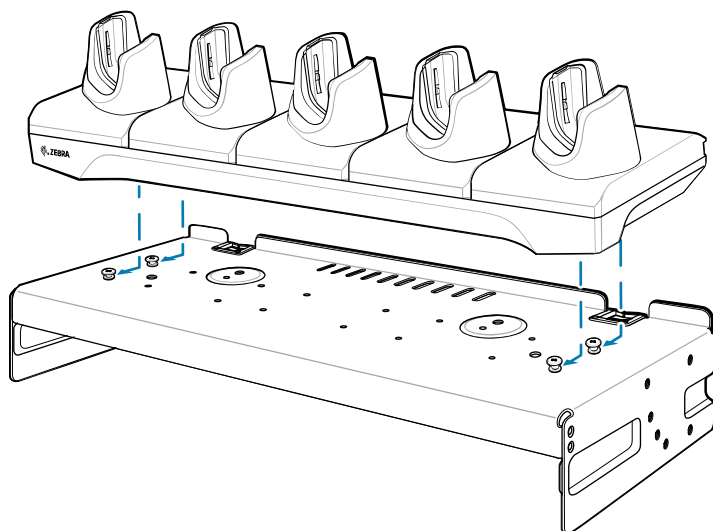


1	DC line cord
2	Power supply
3	AC line cord

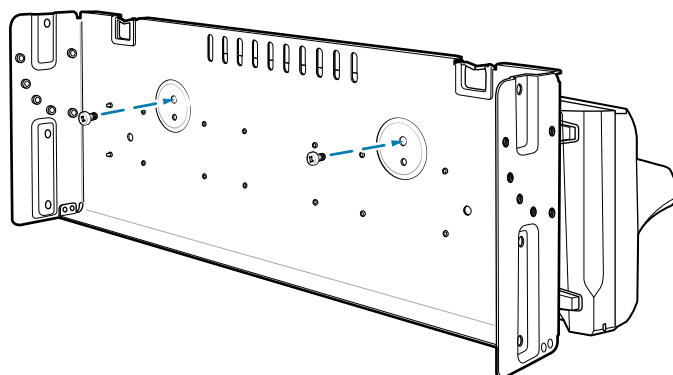
6. Secure four M2.5 studs to the top tray as shown.



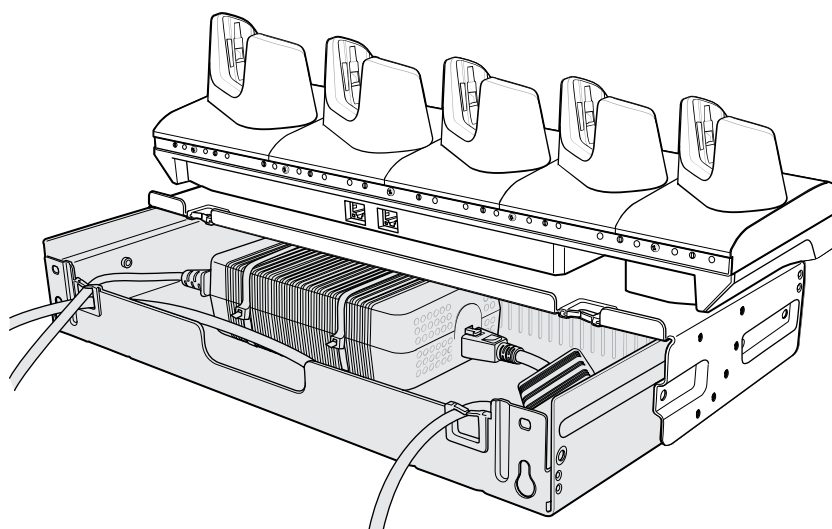
7. Align and install a 5-Slot cradle onto the studs of the top tray.



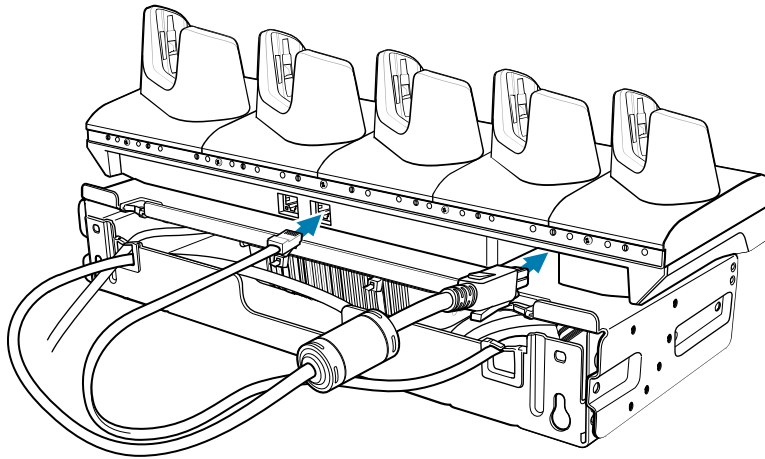
8. Secure cradle to top tray with two M2.5 safety screws.



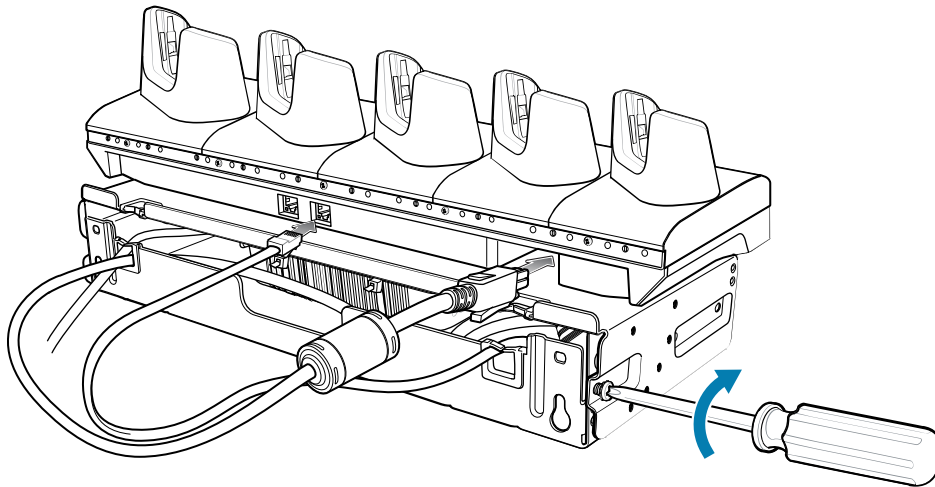
9. Slide the top tray onto the bottom tray.



10. Connect cables to cradle.



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



See Also

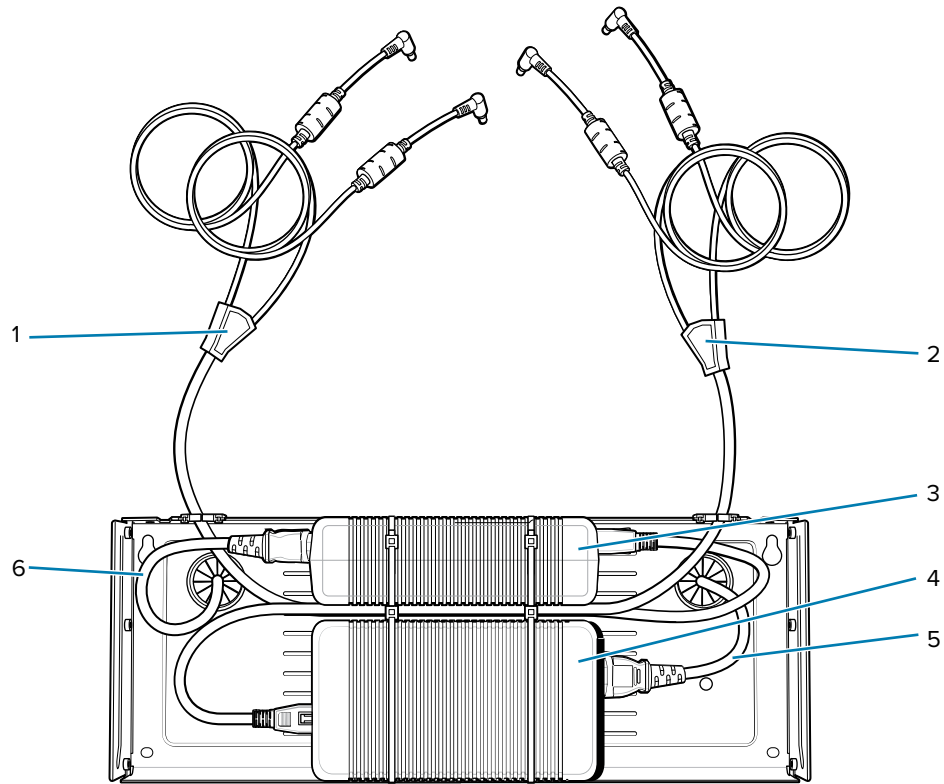
[Mounting a Single Bracket to a Wall](#)
[Rack Mount Installation](#)

Four 4-Slot Battery Charger Bracket 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.

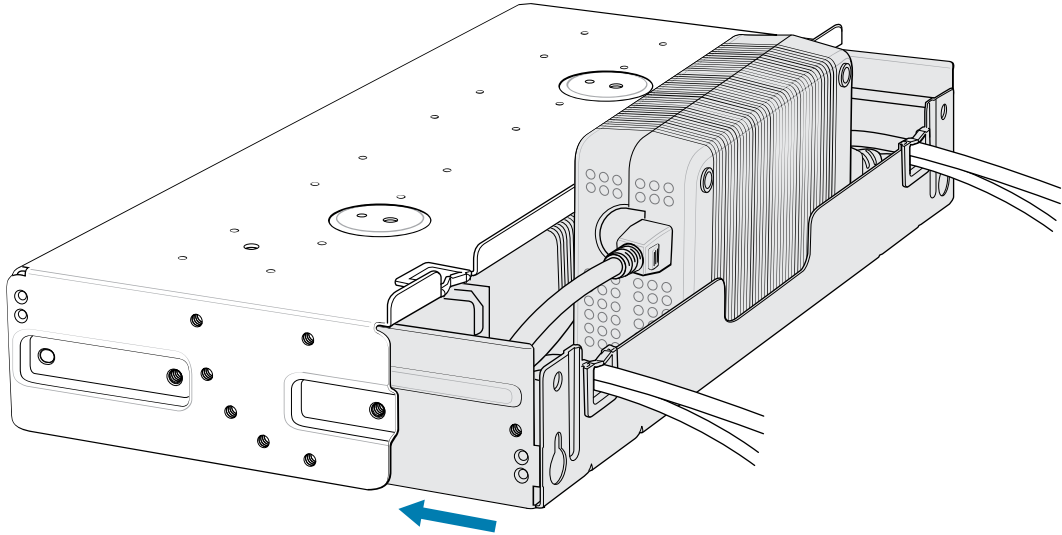
1. Place one power supply horizontally in the bottom tray.
2. Place another power supply vertically in the bottom tray.
3. Connect AC line cords to the power supplies.
4. Connect DC line cords to the power supplies.
5. Secure the power supplies and cables to the bottom tray with tie wraps.

6. Route the cables through the cable slots.

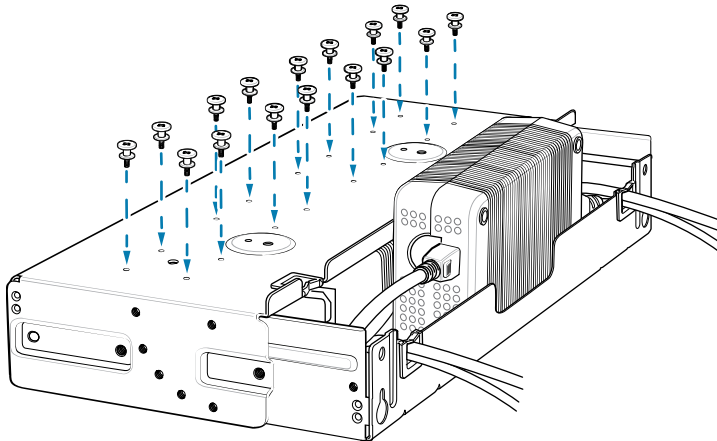


1	DC Y cable 1
2	DC Y cable 2
3	Power supply 1
4	Power supply 2
5	AC line cord 2
6	AC line cord 1

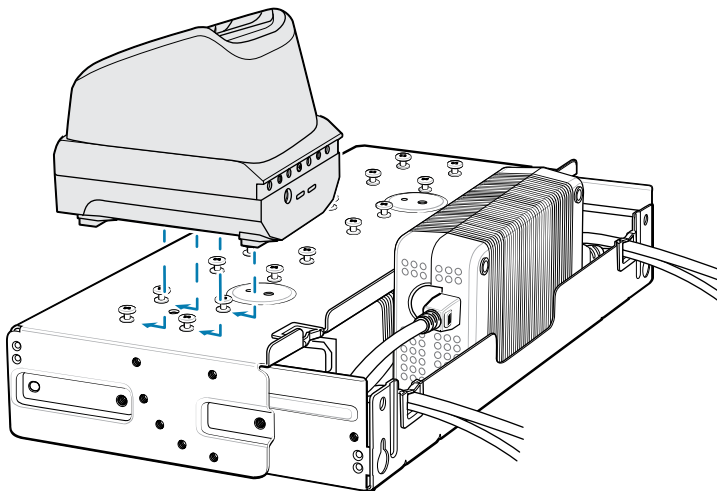
7. Slide the top tray and the bottom tray together until the top tray touches the vertical power supply.



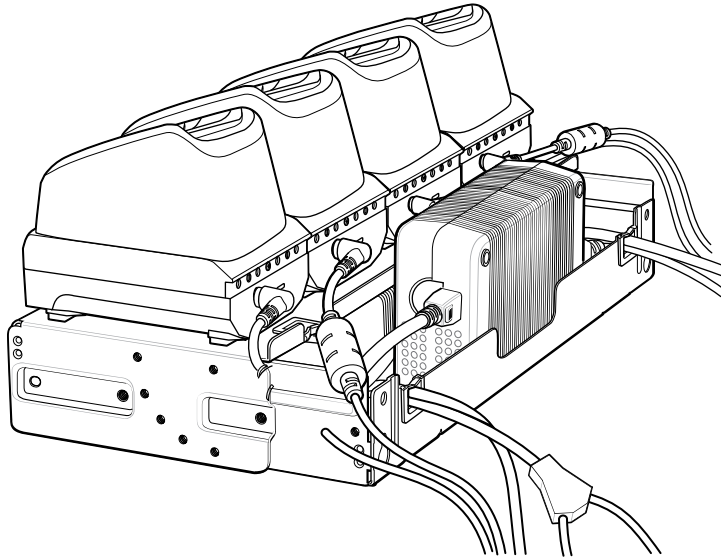
8. Install 16 M2.5 studs onto the top tray as shown.



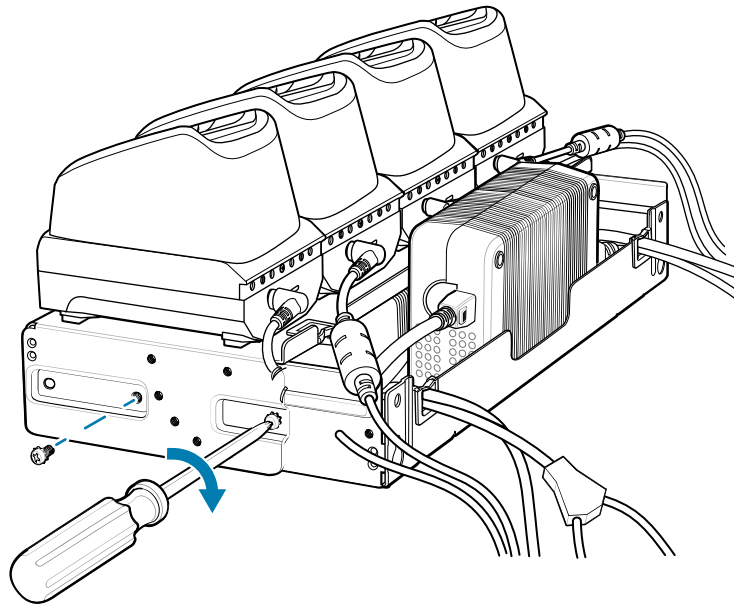
9. Align and install a 4-Slot Battery Charger onto each set of four studs.



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



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



See Also

[Mounting a Single Bracket to a Wall](#)
[Rack Mount Installation](#)

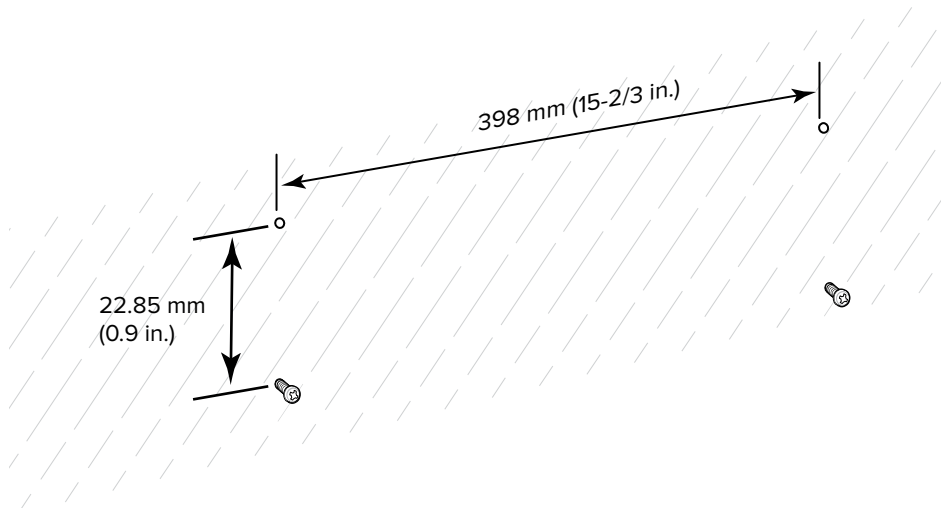
Mounting a Single Bracket to a Wall



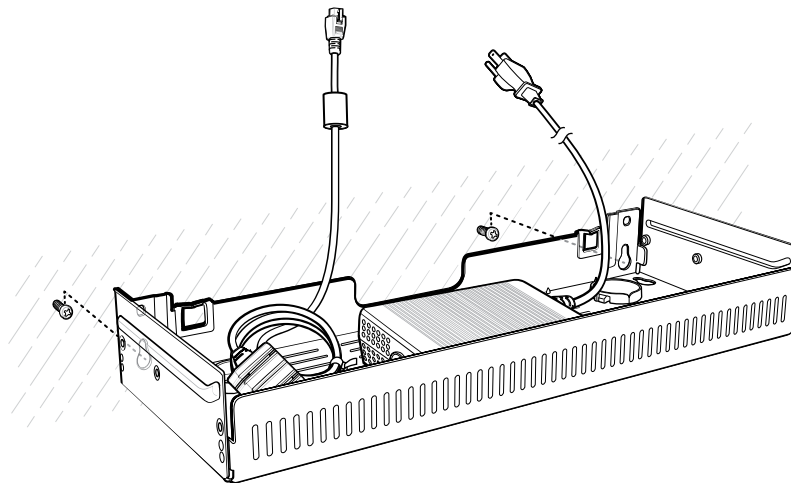
IMPORTANT: When installing the bracket, ensure that all building codes are followed when connecting the power supplies to an AC power source.

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

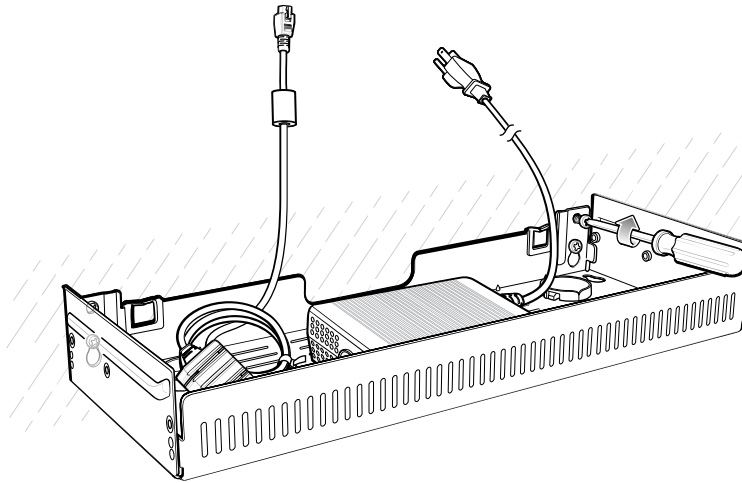


3. Align the mounting bracket's bottom mounting keyholes with the screws.
4. Hang the bracket on the screws.



5. Install the two top screws.

6. Tighten all screws.



7. Add the four 4-Slot battery chargers or cradle onto the bracket.
8. Route the cables as appropriate, and connect to a power source.

Rack Mount Installation



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



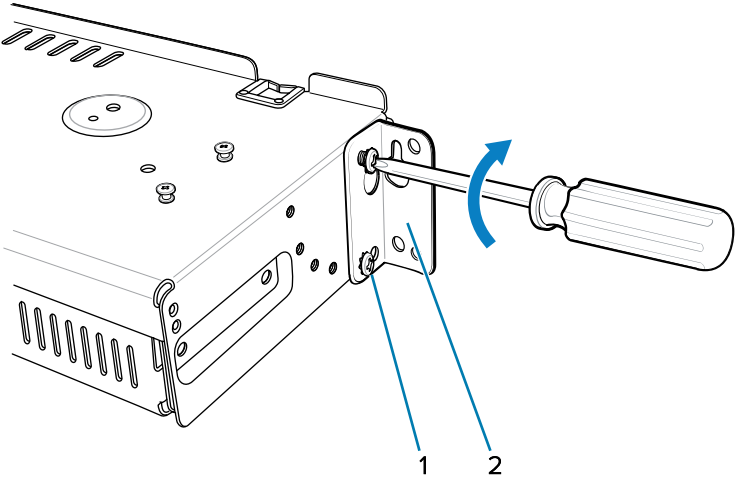
IMPORTANT: When installing the rack, ensure that all building codes are followed when connecting the power supplies to an AC power source.

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.
- Install mounting brackets at the following maximum heights from the ground:
 - 5-slot cradle: 1.2 m (4 ft)
 - 4-slot battery charger: 0.91 m (3 ft)

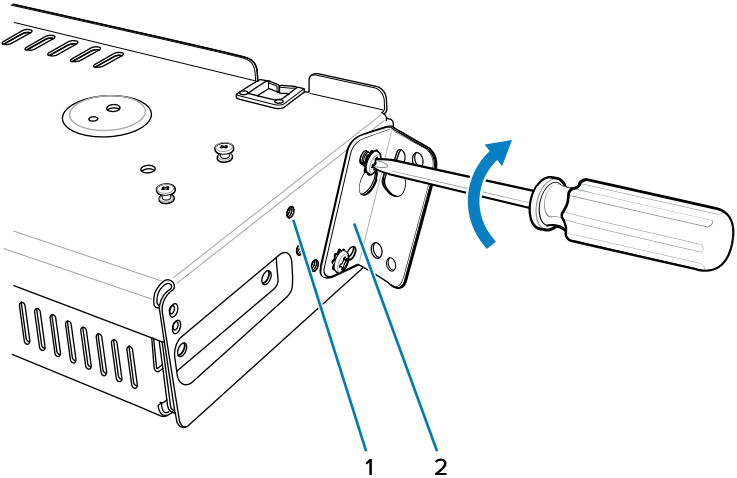
1. Secure the mounting brackets to both sides of the top tray with four M5 screws (two on each side). For 5-slot cradles, position the flange for horizontal installation. For 4-slot battery chargers, position the flange for 25° installation.

Figure 41 Flange Horizontal Position (5-Slot Cradles)



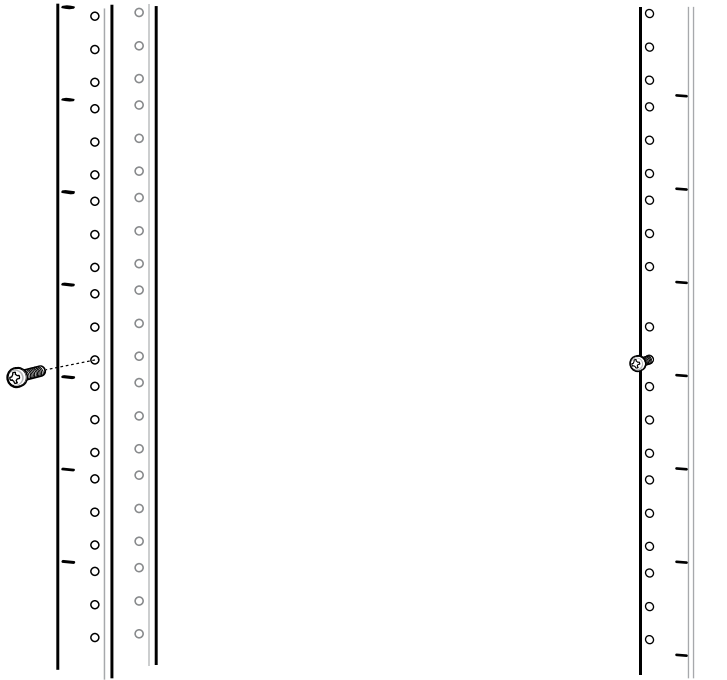
1	Fifth screw hole
2	Flange

Figure 42 Flange 25° Position (4-Slot Battery Chargers)



1	Top screw hole
2	Flange

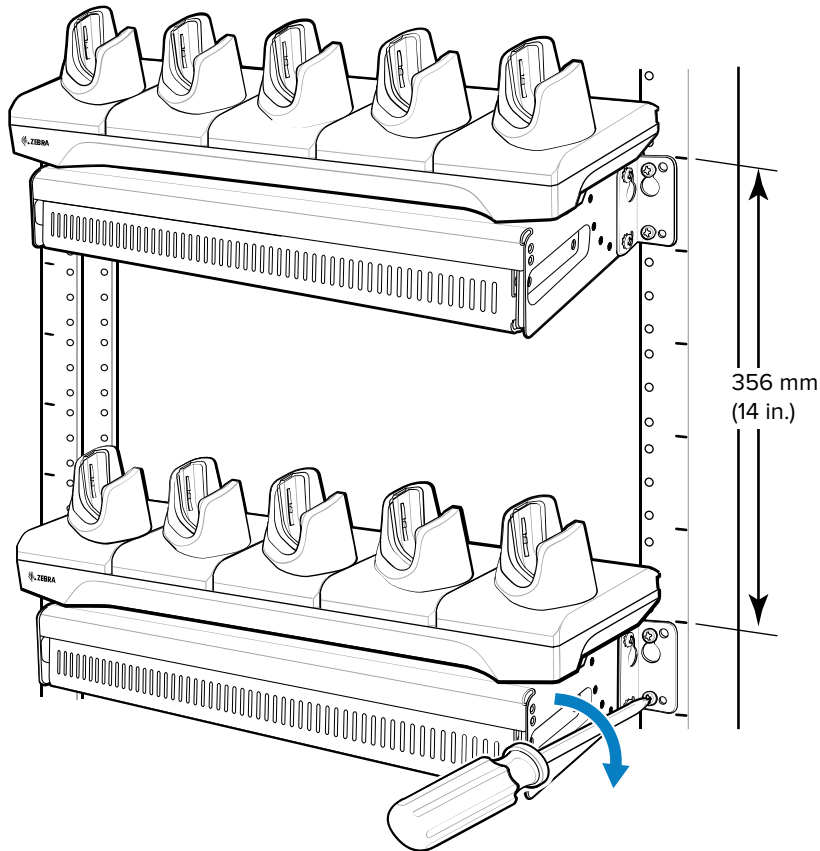
2. Partially install two rack system mounting screws for each mounting bracket to be installed. The screw heads should protrude halfway from the rail.



Note the following distances:

- Allow a clearance of at least 7 cm (2.75 in.) between the top of a device and the bottom of the mounting bracket above it.
- Two horizontally mounted brackets should be at least 35.6 cm (14 in.) apart vertically (from the top of one flange to the top of the next flange).
- A horizontally mounted bracket and a 25° mounted bracket should be at least 33.7 cm (16.25 in.) apart vertically (from top of one flange to the top of the next flange).

3. For each mounting bracket, align the bracket's top mounting key holes with the screws. Place the brackets on the screws.



4. Tighten the top screws for each bracket.
5. Install and tighten the bottom screws to fully secure the brackets.
6. Route the cables as appropriate, and connect to a power source.

Application Deployment

This section provides steps on device security, app development, and app management. It also provides instructions for installing apps and updating the device software.



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

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.

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

If required by the VPN or Wi-Fi network, install a secure certificate on the device.

1. Copy the certificate from the host computer to the root of the microSD card or the device's internal memory.
2. Go to **Settings**.
3. Touch **Security > Encryption & credentials**.
4. Select the type of certificate.
5. Navigate to the location of the certificate file.
6. Touch the filename of the certificate to install.
7. If prompted, enter the certificate's password and touch **OK**.
8. Enter a name for the certificate and in the Credential use drop-down, select **VPN and apps** or **Wi-Fi**.
9. 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.

See Also

[USB Communication](#)

Configuring Credential Storage Settings

Configure credential storage from the device settings.

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

Android Development Tools

Development tools for Android include Android Studio, EMDK for Android, and StageNow.

Android 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 Java or Kotlin, 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 **Back**.
6. On Android 11, touch **System > Advanced > Developer options**.
7. On Android 13, touch **System > Developer options**.
8. 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.

See Also

[For more information, go to techdocs.zebra.com.](https://techdocs.zebra.com)

StageNow for Android

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 barcode, 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 barcode, read an NFC tag or play an audio file) to deliver staging material to the device.

See Also

[For more information, go to techdocs.zebra.com.](https://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, go to techdocs.zebra.com.

ADB USB Setup

To use the ADB, install the development SDK on the host computer then install the ADB and USB drivers.

Before installing the USB driver, make sure that the development SDK is installed on the host computer. Go to developer.android.com/sdk/index.html for details on setting up the development SDK.

The ADB and USB drivers for Windows and Linux are available on the Zebra Support Central web site at 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 **Back**.
6. On A11, touch **System > Advanced > Developer options**.
7. On A13, touch **System > Developer options**.
8. Slide the **USB debugging** switch to the **ON** position.
9. Touch **OK**.
10. Connect the device to the host computer using the Rugged Charge/USB Cable.

The **Allow USB debugging?** dialog box appears on the device.

If the device and host computer are connected for the first time, the **Allow USB debugging?** dialog box with the **Always allow from this computer** check box displays. Select the check box, if required.

11. Touch **OK**.

12. Touch **OK** or **Allow**.
13. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
14. Type `adb devices`.

The following displays:

```
List of devices attached      XXXXXXXXXXXXXXXXXX device
```

Where XXXXXXXXXXXXXXXXXX is the device number.



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

15. Return to the Home screen.

Entering Android Recovery Manually

Many of the update methods discussed in this section require putting the device into Android Recovery mode. If you are unable to enter Android Recovery mode through `adb` commands, use the following steps to manually enter Android Recovery mode.

1. Press and hold the Power button until the menu appears.
2. Touch **Restart**.
3. Press and hold the PTT button until the device vibrates.

The System Recovery screen appears.

Application Installation Methods

After an application is developed, install the application onto the device using one of the supported methods.

- USB connection, go to [Installing Applications Using the USB Connection](#) on page 217.
- Android Debug Bridge, go to [Installing Applications Using the Android Debug Bridge](#) on page 218.
- Wireless Android Debug Bridge, go to [Installing Applications Using Wireless Android Debug Bridge](#) on page 218.
- microSD Card, go to [Installing Applications Using a microSD Card](#) on page 221.
- Mobile device management (MDM) platforms that have application provisioning. Refer to the MDM software documentation for details.

Installing Applications Using the USB Connection

Use the USB connection to install applications onto the device.




CAUTION—PRODUCT DAMAGE: 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. Connect the device to a host computer using the Rugged Charge/USB cable.

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**.
4. On the host computer, open a file explorer application.
5. On the host computer, copy the application APK file from the host computer to the device.



CAUTION—PRODUCT DAMAGE: 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 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 applications onto the device.



CAUTION—PRODUCT DAMAGE: 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. Ensure that the ADB drivers are installed on the host computer.
2. Connect the device to a host computer using a USB cable.
3. Go to **Settings**.
4. On Android 11, touch **System > Advanced > Developer options**.
5. On Android 13, touch **System > Developer options**.
6. Slide the **USB debugging** switch to the **ON** position.
7. Touch **USB Debugging**. A check appears in the check box. The **Allow USB debugging?** dialog box appears.
8. Touch **OK**.
9. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
10. Type `adb install <application>`.
where: <application> = the path and filename of the apk file.
11. Disconnect the device from the host computer.

Installing Applications Using Wireless Android Debug Bridge

Use ADB commands to install an application onto the device.

Go to the Zebra Support & Downloads web site at zebra.com/support and download the appropriate file to a host computer.



IMPORTANT: Note the following:

- Ensure that the latest adb files are installed on the host computer.
- The device and the host computer must be on the same wireless network.

1. Go to **Settings**.
2. On Android 11, touch **System > Advanced > Developer options**.
3. On Android 13, touch **System > Developer options**.

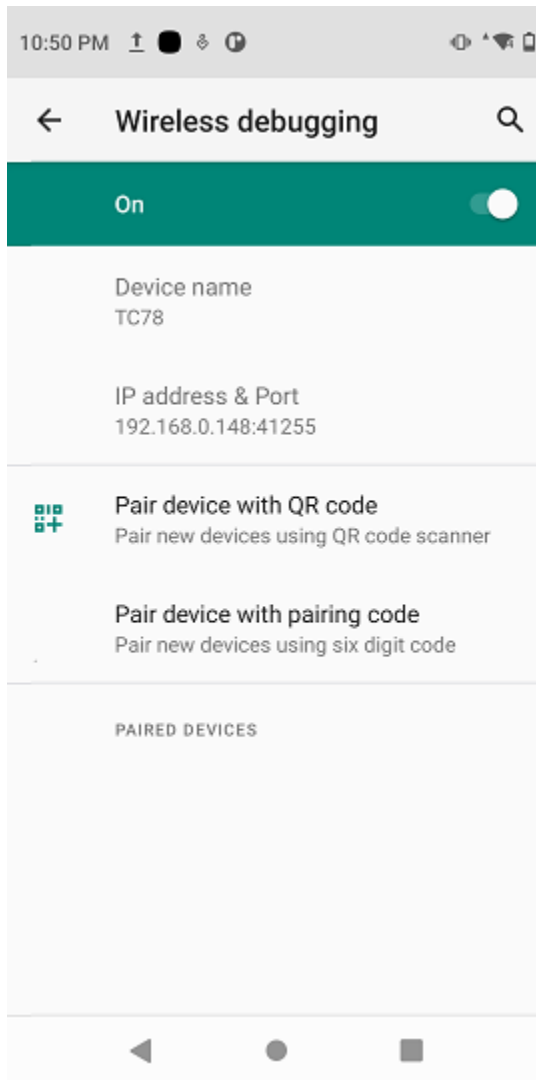


IMPORTANT: If **Developer options** does not appear in the advanced system settings on your device, perform the steps in [Enabling Developer Options](#) on page 215.

4. Slide the **USB debugging** switch to the **ON** position.
5. At the prompt, tap **OK**.
6. Slide the **Wireless debugging** switch to the **ON** position.
 - a) If the device and host computer are connected for the first time, the **Allow wireless debugging on this network?** dialog box with the **Always allow on this network** check box displays. Select the check box, if required.
 - b) Touch **ALLOW**.

7. Touch **Wireless debugging**.

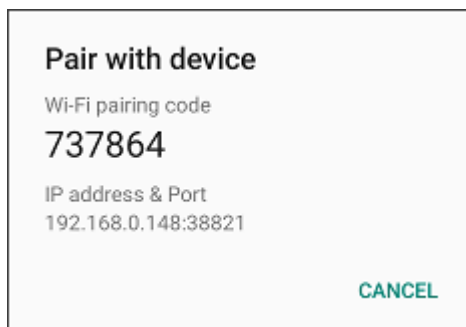
The Wireless debugging screen displays.



8. Note the IP address and Port on the **Wireless debugging** screen.

9. Touch **Pair device with pairing code**.

The **Pair with device** dialog box displays.



10. Note the Port on the **Pair with device** dialog box. It will be different than the one on the **Wireless debugging** screen. The IP address will be the same.
11. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
12. Type `adb pair XX.XX.XX.XX:XXXXXX`
where XX.XX.XX.XX:XXXXXX is the IP address and port number from the **Pair with device** dialog box.
13. Press **Enter**.
14. Type the pairing code from the **Pair with device** dialog box.
15. Press **Enter**.
16. Type `adb connect XX.XX.XX.XX:XXXXXX`
where XX.XX.XX.XX:XXXXXX is the IP address and port number from the **Wireless debugging** screen.
17. Press **Enter**.
The device is now connected to the host computer.
18. Type `adb devices`.
The following displays:

```
List of devices attached
XXXXXXXXXXXXXXXXXX device
```

Where XXXXXXXXXXXXXXXX is the device number.



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

19. Press **Enter**.
20. Type `adb install <file>`.
where <file> = the path and filename of the apk file.
21. Press **Enter**.
22. On the host computer, type `adb disconnect`.
23. Press **Enter**.


Installing Applications Using a microSD Card

Use a microSD card to install applications on your device.



CAUTION—PRODUCT DAMAGE: 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.

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 install 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 the .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.
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 **Power** to turn on the device.
15. Swipe the screen up and select  to view files on the microSD card.
16. Locate the application APK file.
17. Touch the application file.
18. Touch **Continue** to install the app or **Cancel** to stop the installation.
19. To confirm installation and accept what the application affects, touch **Install**. Otherwise, touch **Cancel**.
20. Touch **Open** to open the application or **Done** to exit the installation process.

The application appears in the App list.

See Also

[USB Communication](#)

Uninstalling an Application

Free up device memory by removing unused apps.

1. Go to **Settings**.
2. On Android 11, touch **Apps & notifications**.
3. On Android 13, touch **Apps**.
4. Touch **See all apps** to view all apps in the list.
5. Scroll through the list to the app.

6. Touch the app. The **App info** screen appears.
7. Touch **Uninstall**.
8. Touch **OK** to confirm.

Android 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 website. Perform a system update using either a microSD card or using ADB.



NOTE: his update cannot be performed using wireless ADB.

Performing a System Update Using a microSD Card

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

Go to the Zebra Support & Downloads website at zebra.com/support and download the appropriate System Update package to a host computer.

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, and then install the microSD card into the device. See Getting Started for information on installing the microSD card.
 - Connect the device (with a microSD card already installed) to the host computer, copy the ZIP file to the microSD card, and then disconnect the device from the host computer.
2. Press and hold **Power** until the menu appears.
3. Touch **Restart**.
4. Press and hold **PTT** until the device vibrates.

The System Recovery screen appears.
5. Press **Volume Up** and **Volume Down** to navigate to **Apply upgrade from SD card**.
6. Press **Power**.
7. Press **Volume Up** and **Volume Down** to navigate to the System Update file.
8. Press **Power**.

The System Update installs, and then the device returns to the Recovery screen.
9. Press **Power** to reboot the device.

Performing a System Update Using ADB

Use ADB to perform a system update.

1. Connect the device to a host computer using a USB-C cable or by inserting the device into the 1-Slot USB/Ethernet Cradle.
2. Go to **Settings**.
3. On Android 11, touch **System > Advanced > Developer options**.
4. On Android 13, touch **System > Developer options**.

5. Slide the **USB debugging** switch to the **ON** position.
6. If the device and host computer are connected for the first time, the **Allow USB debugging?** dialog box with the **Always allow from this computer** check box displays. Select the check box, if required.
7. Touch **OK**.
8. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
9. Type `adb devices`.



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

10. Type `adb reboot recovery`.
11. Press **Enter**.

The System Recovery screen appears on the device.

12. Press **Volume Up** and **Volume Down** to navigate to **Apply upgrade from ADB**.

13. Press **Power**.

14. On the host computer command prompt window type `adb sideload <file>`.

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

15. Press **Enter**.

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

16. Press **Power** to reboot the device.

If you are not able to enter Android Recovery mode through the adb command, go to [Entering Android Recovery Manually](#) on page 217.

Verifying System Update Installation

Verify that the system update was successful.

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.

Android Enterprise Reset

An Enterprise Reset erases all user data in the /data partition, including data in the primary storage locations (/sdcard and emulated storage), while preserving the contents of the /enterprise folder and its subfolders. The contents of the /enterprise folder and its subfolders are preserved. Zebra distributes the Enterprise Reset packages on the Zebra Support & Downloads website.



NOTE: This reset cannot be performed using wireless ADB.

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

Performing an Enterprise Reset Using a microSD Card

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

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 and then install the microSD card into the device. See [Getting Started](#) 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 **Power** until the menu appears.
3. Touch **Restart**.
4. Press and hold **PTT** until the device vibrates.

The System Recovery screen appears.
5. Press **Volume Up** and **Volume Down** to navigate to **Apply upgrade from SD card**.
6. Press **Power**.
7. Press **Volume Up** and **Volume Down** to navigate to the Enterprise Reset file.
8. Press **Power**.

The Enterprise Reset occurs and then the device returns to the Recovery screen.
9. Press **Power** to reboot the device.

Performing an Enterprise Reset Using ADB

Perform an Enterprise Reset 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. Connect the cable or cradle to the host computer.
3. Go to **Settings**.
4. On Android 11, touch **System > Advanced > Developer options**.
5. On Android 13, touch **System > Developer options**.
6. Slide the **USB debugging** switch to the **ON** position.
7. If the device and host computer are connected for the first time, the **Allow USB debugging?** dialog box with the **Always allow from this computer** check box displays. Select the check box, if required.
8. Touch **OK**.
9. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
10. Type `adb reboot recovery`.
11. Press **Enter**.

The System Recovery screen appears on the device.



NOTE: If you are not able to enter Android Recovery mode through the adb command, go to [Entering Android Recovery Manually](#).

12. Press **Volume Up** and **Volume Down** to navigate to **Apply upgrade from ADB**.
13. Press **Power**.
14. On the host computer command prompt window type `adb sideload <file>`
where: <file> = the path and filename of the zip file.
15. Press **Enter**.
The Enterprise Reset package installs, and then the System Recovery screen appears on the device.
16. Press **Power** to reboot the device.

Android 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. Zebra distributes the Factory Reset packages on the Zebra Support & Downloads website.



NOTE: This reset cannot be performed using wireless ADB.

Performing a Factory Reset Using a microSD Card

Perform a Factory Reset using a microSD card.

Go to the Zebra Support & Downloads website at zebra.com/support and download the appropriate Factory Reset file to a host computer.

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 and then installing the microSD card into the device. See Getting Started for more information.
 - Connect the device with a microSD card already installed to the host computer, copy zip file to the microSD card, and then disconnect the device from the host computer.
2. Press and hold **Power** until the menu appears.
3. Touch **Restart**.
4. Press and hold **PTT** until the device vibrates.
The System Recovery screen appears.
5. Press **Volume Up** and **Volume Down** to navigate to **Apply upgrade from SD card**.
6. Press **Power**.
7. Use **Volume Up** and **Down Arrow** to navigate to the Factory Reset file.
8. Press **Power**.
The Factory Reset occurs, and then the device returns to the Recovery screen.
9. Press **Power** to reboot the device.

See Also

[USB Communication](#)

Performing a Factory Reset Using ADB

Perform a Factory Reset using ADB.

Go to the Zebra Support & Downloads website at zebra.com/support and download the appropriate Factory Reset file to a host computer.

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. On Android 11, touch **System > Advanced > Developer options**.
4. On Android 13, touch **System > Developer options**.
5. Slide the **USB debugging** switch to the **ON** position.
6. If the device and host computer are connected for the first time, the **Allow USB debugging?** dialog box with the **Always allow from this computer** check box displays. Select the check box, if required.
7. Touch **OK**.
8. Type:
`adb reboot recovery`
9. Press **Enter**.
The System Recovery screen appears on the device.
10. Press **Volume Up** and **Volume Down** buttons to navigate to **Apply upgrade from ADB**.
11. Press **Power**.
12. On the host computer command prompt window type, `adb sideload <file>`.
where: <file> = the path and filename of the zip file.
13. Press **Enter**.
The Factory Reset package installs, and then the System Recovery screen appears on the device.
14. Press **Power** to reboot the device.

Android Storage

The device contains multiple types of file storage.

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



NOTE: It is recommended to install a microSD card on the device due to limited internal storage space.

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

View the amount of memory used and free RAM.

1. Go to **Settings**.
2. On Android 11, touch **System** > **Advanced** > **Developer options**.
3. On Android 13, touch **System** > **Developer options**
4. Touch **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

View available and used internal storage on the device.

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

Storage displays the total amount of space on internal storage and the amount used.



If the device has removable storage installed, touch **Internal shared storage** to display 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. The device can have a removable USB drive. The USB drive content can be viewed and files copied to and from when the device is connected to a host computer.


Viewing External Storage

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

1. Go to **Settings**.
2. Touch **Storage**.
Touch **General USB Drive** to view the contents of the card.
Touch **SD card** to view the contents of the card.
3. To unmount the microSD card, touch .
4. To unmount the USB drive, touch .

Formatting a microSD Card as Portable Storage

Format a microSD card as portable storage for the device.

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.



NOTE: The suggested maximum SD card size is 128 GB when using internal storage.

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. On Android 11, touch **Apps & notifications**.
3. On Android 13, touch **Apps**.
4. Touch **See all XX apps** to view all apps on the device.
5. Touch  > **Show system** to include system processes in the list.
6. 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.
- **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.
- **Mobile data & Wi-Fi** - Provides information about data consumed by an app. Mobile data not supported.
- **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 USB drive or Internal storage in the Download directory. Use the Downloads app to view, open, or delete downloaded items. 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

- 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, 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](#) on page 234.
- Periodically replace the rechargeable battery to ensure maximum battery life and product performance. Battery life depends on individual usage patterns.

Battery Safety Guidelines

To use the device safely, you must follow the battery guidelines.

- The area in which the units are charged should be clear of debris and combustible materials or chemicals. Particular care should be taken when the device is charged in a non-commercial environment.
- Follow the battery usage, storage, and charging guidelines found in this guide.
- Improper battery use may result in a fire, explosion, or other hazard.
- To charge the mobile device battery, the ambient battery and charger temperatures must be between 0°C to 40°C (32°F to 104°F).
- Do not use incompatible batteries and chargers, including non-Zebra 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 the Global Customer Support Center.

- 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, open, crush, bend, deform, puncture, or shred the battery.
- 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 a battery into a microwave oven or dryer.
- Battery usage by children should be supervised.
- Please follow local regulations to properly dispose of used rechargeable batteries.
- Do not dispose of batteries in a 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 water for 15 minutes, and seek medical advice.
- If you suspect damage to your equipment or battery, contact Customer Support to arrange for inspection.

Display Best Practices

When a static image displays for extended periods of time, you may see a faint remnant of that image even after a new image displays. This is called image retention.

To prevent image retention:

- Set the display to turn off after a few minutes of idle time.
- Rotate background images periodically.
- Turn off the display when the device is not in use.
- While the static image is active, use a screen saver with one or more of the following characteristics:
 - The background color is set to black.
 - A small moving image (approximately 2% of the display size).
 - The image moves randomly across the screen.

Best Practices for Enterprise Mobile Computing Devices Operating in Hot Environments and Direct Sunlight

Exceeding the operating temperature by external hot environments will cause the device's thermal sensor to notify the user of a shutdown of the WAN modem or shutdown the device until the device's temperature returns to the operational temperature range.

- Avoid direct sunlight to the device - The easiest way to prevent overheating is to keep the device out of direct sunlight. The device absorbs light and heat from the sun and retains it, getting hotter the longer it remains in sunlight and heat.

- Avoid leaving the device in a vehicle on a hot day or hot surface - Similar to leaving the device out in direct sunlight, the device will also absorb the thermal energy from a hot surface or when left on the dashboard of a vehicle or seat, getting warmer the longer it remains on the hot surface or inside the hot vehicle.
- Turn off unused apps on the device. Open, unused apps running in the background can cause the device to work harder, which in turn may cause it to heat up. This will also improve your mobile computer device's battery life performance.
- Avoid turning your screen brightness up - Just the same as running background apps, turning your brightness up will force your battery to work harder and create more heat. Minimizing your screen brightness may extend operating the mobile computer device in hot environments.

Cleaning Instructions



CAUTION: Always wear eye protection. Read the 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

Use pre-moistened wipes, and do not allow the liquid cleaner to pool. 100% of the active ingredients in any cleaner must consist of one or some combination of the following:

- Isopropyl alcohol
- Bleach/sodium hypochlorite (see Important note below)
- Hydrogen peroxide
- Ammonium chloride
- Mild dish soap

**IMPORTANT:**

When using sodium hypochlorite (bleach) based products, always follow the manufacturer's recommended instructions: Use gloves during application and remove the residue afterward with a damp alcohol cloth or a cotton swab to avoid prolonged skin contact while handling the device. Because of the powerful oxidizing nature of sodium hypochlorite, the metal surfaces on the device are prone to oxidation (corrosion) when exposed to this chemical in liquid form (including wipes).

If these types 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.

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 the build-up of particles, which makes 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.

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 (such as hand sanitizer that contains ethanolamine) containing any harmful ingredients are used prior to handling the device, 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 the connectors 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 the Device

This section describes how to clean the housing, display, and camera for 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.

Battery Guide Slots

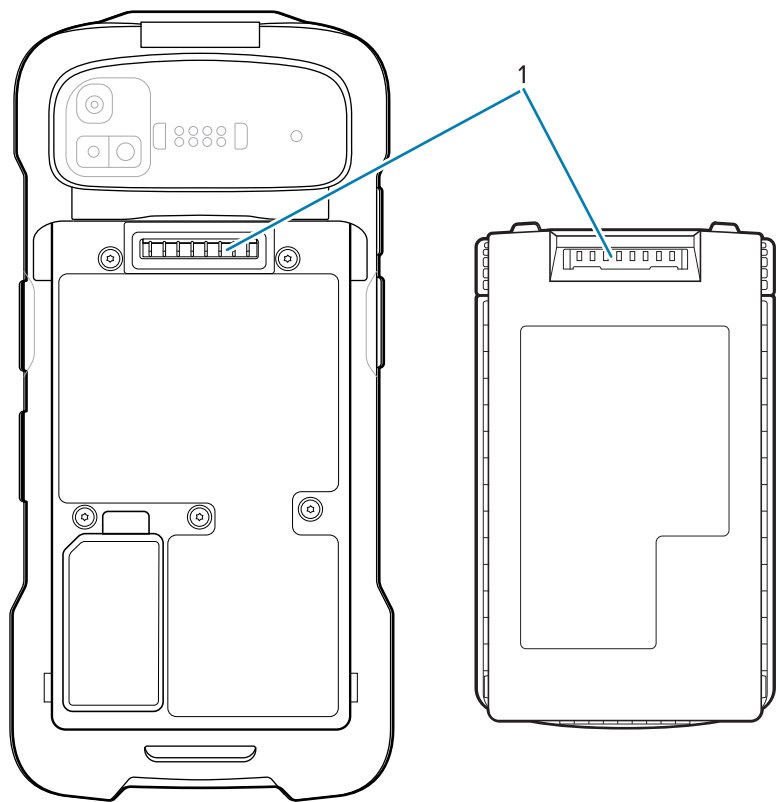
Insert a cotton-tipped applicator dipped in alcohol into the battery guide rails to clean out debris and then dry with a dry cotton-tipped applicator.

Camera and Exit Window

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

Cleaning the Battery Connector

1. Remove the main battery from the mobile computer.



Option	Description
1	Battery connectors

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 connectors on the battery and terminal sides. Do not leave any cotton residue on the connectors.
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.

6. Inspect the area for any grease or dirt and repeat the cleaning process if necessary.



CAUTION: After cleaning the battery connectors with bleach-based chemicals, follow the Battery Connector Cleaning instructions to remove bleach from the connectors.

Cleaning Cradle Connectors

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

This section provides information for resetting and troubleshooting the device and accessories.

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 Power until the menu appears.
2. Touch **Restart**.

The device reboots.

Performing a Hard Reset

Perform a hard reset if the device stops responding.



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

1. Simultaneously press the Power, left scan, and Volume Up buttons for at least 4 seconds.

2. When the screen turns off, release the buttons.

The device reboots.

Device Troubleshooting

The table below provides solutions to common device issues.


Table 22 Troubleshooting the Device

Problem	Cause	Solution
After installing the battery, the device does not boot up.	The power button was not pressed.	Press the Power button.
When pressing the power button the device does not turn on.	The battery is not charged.	Charge or replace the battery in the device.
	The battery is 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 the battery should be recharged.	Charge or replace the battery in the device.
Battery did not charge.	The battery failed.	Replace battery. If the device still does not operate, perform a reset.
	The device was removed from the cradle while the battery was charging.	Insert the device in the cradle.
	Extreme battery temperature.	The battery does not charge if the ambient temperature is below 5°C (41°F) or above 40°C (104°F).
Cannot see characters on display.	The device is not powered on.	Press the Power button.
During data communication with a host computer, no data transmitted, or transmitted data was incomplete.	The device was removed from the cradle or disconnected from the 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 was transmitted or data transmission was incomplete.	The 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 was transmitted, or transmitted data was incomplete.	The 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.

Table 22 Troubleshooting the Device (Continued)

Problem	Cause	Solution
During data communication over WAN, no data transmitted, or transmitted data was incomplete.	You are in an area of poor cellular service.	Move into an area that has better service.
	APN is not set up correctly.	See your system administrator for APN setup information.
	SIM card not installed properly.	Remove and re-install the SIM card.
	The data plan is not activated.	Contact your service provider and ensure that your data plan is enabled.
No sound.	The volume setting is low or turned off.	Adjust the volume.
The device shuts off.	The device is inactive.	The display turns off after a period of inactivity. Set this period to 15 seconds; 30 seconds; or 1, 2, 5, 10, or 30 minutes.
	The 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's memory is full.	Too many files are 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 are 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 .
The device does not decode with reading the barcode.	The scanning application is not loaded.	Load a scanning application on the device or enable DataWedge. See the system administrator.
	Unreadable barcode.	Ensure the symbol is not defaced.
	The distance between the exit window and the barcode is incorrect.	Place the device within the proper scanning range.
	The device is not programmed for the barcode.	Program the device to accept the type of barcode being scanned. Refer to the EMDK or DataWedge application.
	The 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.

Table 22 Troubleshooting the Device (Continued)

Problem	Cause	Solution
	The battery is low.	<p>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.</p> <p> NOTE: If the scanner is still not reading symbols, contact the distributor or the Global Customer Support Center.</p>
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 the device.	You entered an incorrect password.	If you enter an incorrect password five times, you must wait for 30 seconds when using a PIN, Pattern, or Password.

1-Slot Charge Only Cradle Troubleshooting

The table below provides troubleshooting options for the cradle.

Table 23 Troubleshooting the 1-Slot Charge Only Cradle

Problem	Cause	Solution
LEDs do not light when the device is inserted.	The cradle is not receiving power.	Ensure the power cable is connected securely to both the cradle and to AC power.



Table 23 Troubleshooting the 1-Slot Charge Only Cradle (Continued)

Problem	Cause	Solution
	The device is not seated firmly in the cradle.	Remove and reinsert the device into the cradle, ensuring it is firmly seated.
The device battery is not charging.	The device was removed from the cradle or the cradle was unplugged from AC power too soon.	<ul style="list-style-type: none"> Ensure that the cradle is receiving power. Ensure that the device is seated correctly. Confirm that the main battery is charging. The battery charges from fully depleted to 90% in less than 2 hours and from fully depleted to 100% in approximately 3 hours.
	The 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 reinsert the device into the cradle, ensuring that it is firmly seated.
	Extreme battery temperature.	The battery does not charge if the ambient temperature is below 0°C (32°F) or above 50°C (122°F).
The spare battery is not charging.	The battery is not fully seated in the charging slot.	Remove and re-insert the spare battery in the cradle, ensuring it is firmly seated. The 4400 mAh battery fully charges in less than five hours.
	The battery is inserted incorrectly.	Reinsert the battery so that the charging contacts on the battery align with the contacts on the cradle.
	The battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.

1-Slot USB-Ethernet Cradle Troubleshooting

The table below provides troubleshooting options for the USB-Ethernet cradle.

Table 24 Troubleshooting the 1-Slot USB/Ethernet Cradle

Symptom	Possible Cause	Action
During communication, no data transmitted, or transmitted data was incomplete.	The device was removed from the cradle during communications.	Replace the device in the cradle and retransmit the data.
	Incorrect cable configuration.	Ensure that the correct cable configuration.
	The device has no active connection.	An icon is visible in the status bar if a connection is currently active. Investigate why there is no active connection.
	USB/Ethernet module switch is not in the correct position.	For Ethernet communication, slide the switch to the  position. For USB communication, slide the switch to the  position.
LEDs do not light when device or spare battery is inserted.	The cradle is not receiving power.	Ensure that the power cable is connected securely to the cradle and to AC power.
	The device is not seated firmly in the cradle.	Remove and reinsert the device into the cradle, ensuring it is firmly seated.
	The spare battery is not seated firmly in the cradle.	Remove and reinsert the spare battery into the charging slot, ensuring it is firmly seated.
The device battery is not charging.	The device was removed from the cradle or the cradle was unplugged from AC power too soon.	Ensure that the cradle is receiving power. Ensure that the device is seated correctly. Confirm main battery is charging. The 4400 mAh battery fully charges in less than five hours.
	The 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 reinsert the device into the cradle, ensuring it is firmly seated.
	Extreme battery temperature.	The battery does not charge if the ambient temperature is below 0 °C (32 °F) or above 40 °C (104 °F).
The spare battery is not charging.	The battery is not fully seated in the charging slot.	Remove and re-insert the spare battery in the cradle, ensuring it is firmly seated. The 4400 mAh battery fully charges in less than five hours.
	The battery is inserted incorrectly.	Reinsert the battery so that the charging contacts on the battery align with the contacts on the cradle.
	The battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.

5-Slot Charge Only Cradle Troubleshooting

The table below provides troubleshooting options for the cradle.

Table 25 Troubleshooting the 5-Slot Charge Only Cradle

Problem	Cause	Solution
The battery is not charging.	The device was removed from the cradle too soon.	Replace the device in the cradle. The battery charges from fully depleted to 90% in less than 2 hours and from fully depleted to 100% in approximately 3 hours.
	The battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The device is not inserted correctly in the cradle.	Remove the device and reinsert it correctly. Verify charging is active. Touch Settings > Battery to view battery status.
	The 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

The table below provides troubleshooting options for the cradle.

Table 26 Troubleshooting the 5-Slot Ethernet Cradle

Problem	Cause	Solution
During communication, no data transmits, or the transmitted data was incomplete.	The device was removed from the cradle during communications.	Replace the device in the cradle and retransmit.
	Incorrect cable configuration.	Ensure that the correct cable configuration.
	The device has no active connection.	An icon is visible in the status bar if a connection is currently active.
The battery is not charging.	The device was removed from the cradle too soon.	Replace the device in the cradle. The battery charges from fully depleted to 90% in less than 2 hours and from fully depleted to 100% in approximately three hours.
	The battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The device is not inserted correctly in the cradle.	Remove the device and reinsert it correctly. Verify charging is active. Touch Settings > Battery to view battery status.

Table 26 Troubleshooting the 5-Slot Ethernet Cradle (Continued)

Problem	Cause	Solution
	The ambient temperature of the cradle is too warm.	Move the cradle to an area where the ambient temperature is between 0°C (+32°F) and +50°C (+122°F).

4-Slot Battery Charger Troubleshooting

The table below provides troubleshooting options for the charger.

Table 27 Troubleshooting the 4-Slot Battery Charger

Problem	Cause	Solution
The Spare Battery Charging LED does not light when the spare battery is inserted.	The spare battery is not correctly seated.	Remove and reinsert the spare battery into the charging slot, ensuring it is correctly seated.
The spare battery is not charging.	The charger is not receiving power.	Ensure the power cable is connected securely to both the charger and to AC power.
	The spare battery is not correctly seated.	Remove and re-insert the battery into the battery adapter, ensuring it is correctly seated.
	The battery adapter is not seated properly.	Remove and reinsert the battery adapter into the charger, ensuring it is correctly seated.
	The battery was removed from the charger or the charger was unplugged from AC power too soon.	Ensure that the charger is receiving power. Ensure the spare battery is seated correctly. The battery charges from fully depleted to 90% in less than 2 hours and from fully depleted to 100% in approximately three hours.
	The battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The ambient temperature of the cradle is too warm.	Move the cradle to an area where the ambient temperature is between 0°C (+32°F) and +50°C (+122°F).

Wireless Charging Vehicle Cradle Troubleshooting

The table below provides troubleshooting options for the cradle.

Table 28 Troubleshooting the Wireless Charging Vehicle Cradle

Problem	Cause	Solution
The TC78 charging LED does not light up.	The cradle is not receiving power.	Ensure that the power input cable is securely connected to the cradle's power port.
The TC78 battery is not charging.	The battery is faulty.	Ensure that you are using a wireless charge battery. Replace the battery.
	The TC78 was not placed correctly in the cradle.	<p>The TC78 battery charging LED slowly blinks amber when the TC78 is correctly inserted and charging. If this is not happening:</p> <ul style="list-style-type: none"> • Ensure that the device is seated properly. • Remove the TC78 from the cradle, and reinsert it correctly. If the battery still does not charge, contact your system administrator.
	The ambient temperature is too high or too low.	The ambient temperature within the vehicle may be too high or too low. Charging will begin when the temperature inside the vehicle is within the TC78 charging temperature range (0° C to 40° C/32° F to 104° F).

Technical Specifications

For device technical specifications, go to zebra.com/us/en/products/mobile-computers/handheld/tc7x-series.

SE55 Decode Distances

The following table provides the decode distances for the SE55 scan engine.

Symbol Density/ Bar Code Type	Typical Working Ranges	
	Near	Far
3 mil Code 39	6.9 cm (2.7 in.)	41.1 cm (16.2 in.)
5 mil Code 39	6.4 cm (2.5 in.)	67.6 cm (26.6 in.)
5 mil PDF417	7.1 cm (2.8 in.)	49.9 cm (19.6 in.)
6.67 mil PDF417	6.6 cm (2.6 in.)	65.0 cm (25.6 in.)
80% UPCA	5.0 cm* (2.0 in.)	141.0 cm (55.5 in.)
100% UPCA	6.4 cm* (2.5 in.)	180.0 cm (71.0 in.)
10 mil Data Matrix	5.6 cm* (2.2 in.)	68.8 cm (27.1 in.)
15 mil Code 128 (4 in. wide)	18.2 cm* (7.2 in.)	181.0 cm (72.0 in.)
20 mil Code 39	*	277.0 cm (109.0 in.)
55 mil Code 39	*	744.0 cm (293.0 in.)
100 mil Code 39	*	1407.0 cm (554.0 in.)
* Limited by the width of the barcode in the field of view.		

SE4770 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.

Symbol Density/ Bar Code Type	Typical Working Ranges	
	Near	Far
3 mil Code 39	3.0 in. (7.9 cm)	5.8 in. (14.7 cm)
5.0 mil Code 128	2.3 in. (8.89 cm)	9.8 in. (24.9 cm)

Technical Specifications

Symbol Density/ Bar Code Type	Typical Working Ranges	
	Near	Far
5 mil PDF417	3.0 in. (7.6 cm)	7.9 in. (20 cm)
6.67 mil PDF417	2.5 in. (6.35 cm)	10.1 in. (26 cm)
10 mil Data Matrix	2.1 in. (5.3 cm)	11.0 in. (28 cm)
100% UPCA	1.6 in. (4.0 cm)	24.9 in. (63.2 cm)
15 mil Code 128	2.4 in. (6.0 cm)	27.8 in. (70.6 cm)
20 mil Code 39	1.6 in. (4.0 cm)	36.1 in. (91.7 cm)
Note: Photographic quality bar code at 18° tilt pitch angle under 30 fcd ambient illumination.		

1-Slot Charge Only Cradle Technical Specifications

Item	Description
Dimensions	Height: 9.9 cm (3.9 in.) Width: 19.6 cm (7.71 in.) Depth: 13.3 cm (5.24 in.)
Weight	816 g (28.7 oz.) Charge only configuration 823 g (29.0 oz.) Ethernet configuration
Input Voltage	12 VDC
Power Consumption	up to 35 watts (1 device charging and communication and 1 battery charging at the same time)
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	0°C to 50°C (32°F to 122°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)	+/- 15kV air /- 8 kV contact /- 8 kV indirect discharge

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	1,937 g (68 oz.)

Technical Specifications

Item	Description
Input Voltage	12 VDC
Power Consumption	up to 100 watts (5 devices charging and communication at the same time)
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	0°C to 50°C (32°F to 122°F)
Humidity	5% to 95% non-condensing
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 15 kV air /- 8 kV contact +/- 8 kV indirect discharge

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	2,010 g (71 oz.)
Input Voltage	12 VDC
Power Consumption	up to 100 watts (5 devices charging and communication at the same time)
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	0°C to 50°C (32°F to 122°F)
Humidity	5% to 95% non-condensing
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 15 kV air /- 8 kV contact /- 8 kV indirect discharge

Trigger Handle Technical Specifications

Item	Description
Dimensions	Height: 17.2 cm (6.7 in.) Width: 13.3 cm (5.2 in.) Depth: 8.8 cm (3.4 in.)
Weight	127.6 g (4.5 oz.)
Input Voltage	12 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	5% to 95% non-condensing
Drop	Trigger plus device: 6 feet drop - 4 drops on 6 sides to concrete over -20°C to 50°C temperature range. Separation of terminal and trigger handle is acceptable during drop.
	Trigger only: 6 feet drop - 4 drops on 6 sides to concrete over -20°C to 50°C temperature range.
Electrostatic Discharge (ESD)	+/- 15 kV air /- 8 kV contact

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
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 15 kV air /- 8 kV contact

