TC22R

Integrated Handheld RFID Reader

Product Reference Guide

ZEBRA

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Contents

About This Guide

This guide provides information about setting up and using TC22R Integrated Handheld RFID Reader with the Android™ operating system. Some screens shown in this guide may differ from the actual screens shown on the device.

Mobility DNA Enterprise License

Powerful complimentary Mobility DNA tools are made available and ready to use, making it easier to stage, secure, and troubleshoot the devices; capture and send data to your applications right out of the box; restrict access to features and applications; and more. The Mobility DNA Enterprise License delivers premium voice capabilities over Wi-Fi and unlocks powerful tools and utilities that take workforce productivity and device management simplicity to a new level.

Zebra's advanced VoWiFi technology, included with the Mobility DNA Enterprise License, delivers superior voice quality over all of your WiFi voice applications. For example, basic Push-to-Talk Express and the advanced WorkCloud Communication PTT Pro subscription service, for walkie-talkie style communication over Wi-Fi networks.

Licensed Features

Licensed features are only available on this device with the purchase of a Mobility DNA Enterprise License. A single license unlocks all premium features on the device. Some apps may require a download from zebra.com/support. Please contact your administrator or go to zebra.com for more information.

NOTE: Android Multi-User Mode is not supported by the Mobility DNA Enterprise License. Entering Multi-User Mode on a device with an active Mobility DNA Enterprise License may cause undefined behavior.

Core OS, Apps, and mDNA

Core OS, apps, and mDNA features that require the purchase of a Mobility DNA Enterprise License.

- PowerPrecision Console
- Zebra Volume Control
- Secure NFC through EMDK
- Firmware Over the Air (FOTA)
- Device Tracker

- Enterprise Keyboard
- Device Central
- NG SimulScan through EMDK and DataWedge
- WorkCloud Communication Voice

Fusion

Fusion features that require the purchase of a Mobility DNA Enterprise License.

- Power Management (WMM U-APSD)
- EAP Methods (LEAP)
- PEAP Phase 2: GTC Dynamic Password
- Fast Roam (CCKM)
- CCXv4 (compliant, but not certified)
- Band Preference (5 GHz Only)
- Subnet Roam
- 802.11v
- Fusion Logger
- Fusion Status
- Wireless Analyzer
- Wi-Fi Manager (Wi-Fi)
  - Channel mask
  - AutoTimeConfig
  - CCKM
  - WLANPowerSave (WMM-PS)
  - EnableRestrictedSettingsUI
  - BandPreference
  - SubNetRoam
  - PasswordProtectEncryption
  - 802.11v
  - CallAdmissionControl
  - Gratuitous ARP
  - Profile configuration (Dynamic GTC)
  - Profile configuration (LEAP)

Connectivity

Connectivity features that require the purchase of a Mobility DNA Enterprise License.

- Bluetooth Silent Pairing, Trusted and Single Pairing

- Bluetooth NFC Tap and Pair
- Bluetooth CSPs
- Disable future pairing with remote Bluetooth devices.
- Do not allow the device to be visible to other devices over Bluetooth.
- Allow Silent Pairing
- SmartLeash (Quality monitoring feature)
- Clear All PDL (Paired Device List)

Request Licenses

Customers, partners, and distributors require a Mobility DNA Enterprise License. Please request an evaluation or trial license through your account manager.

Notational Conventions

The following notational conventions make the content of this document easy to navigate.

- **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 you to know and that is not required to complete a task.

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

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

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

DANGER: If danger is not avoided, you 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/firmware 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. Scroll to view the following information:
    - Device name
    - Battery information
    - Phone information
    - Legal information
    - SW components
    - Model & hardware
    - Model
    - EID
    - Android version
        - Android security update
        - Google Play system update
        - Baseband version
        - Kernel version
        - Build Fingerprint
        - Build number
        - Android Security Update
    - IP address
    - Wi-Fi MAC address
    - Device Wi-Fi MAC address
    - Bluetooth address
    - Up time

Determining Serial Number

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

1. Swipe down from the Status bar with two fingers to open the Quick Access panel, and then touch ⚙.
2. Touch **About phone**.
3. Touch **Model**.

Getting Started

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

Unpacking the Device

When you receive the device, ensure that all the items are in the shipping container.

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:
   - Device
   - 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 all the features of the TC22R.

Figure 1 Front Right View

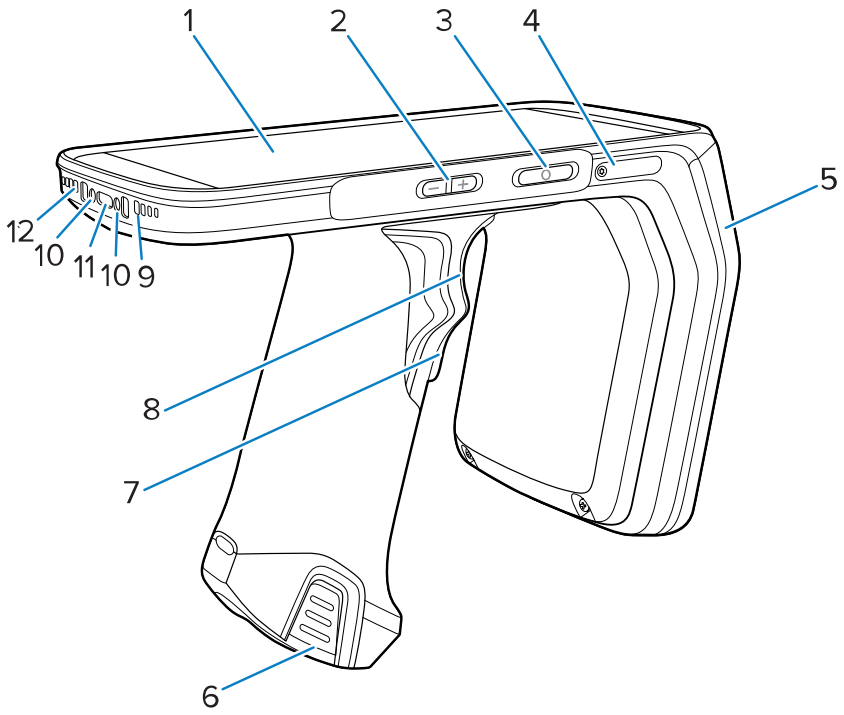


Table 1 Front Right View Features

Number	Item	Description
1	Touch screen	Displays all information needed to operate the device.
2	Volume up/down button	Increase and decrease audio volume (programmable).
3	Power button	Turns the display on and off. Press and hold to reset the device or power it off.
4	Card holder	Holds a microSD card.
5	RFID antenna	Convert the RFID reader's signal into radio frequency waves that can be received by the RFID tag.
6	Battery release latches	Press to remove the battery.
7	Lower trigger	By default, for barcode scanning.
8	Upper trigger	By default, for RFID.
9	Speaker	Provides audio output for video and music playback. Provides audio in speakerphone mode.

Table 1 Front Right View Features (Continued)

Number	Item	Description
10	Cradle charging contacts	Provides device charging via cradles and accessories.
11	USB-C connector with plug	Provides USB host, client communications, and device charging via cables and accessories.
12	Microphone	Use for voice input.

Figure 2 Front Left View

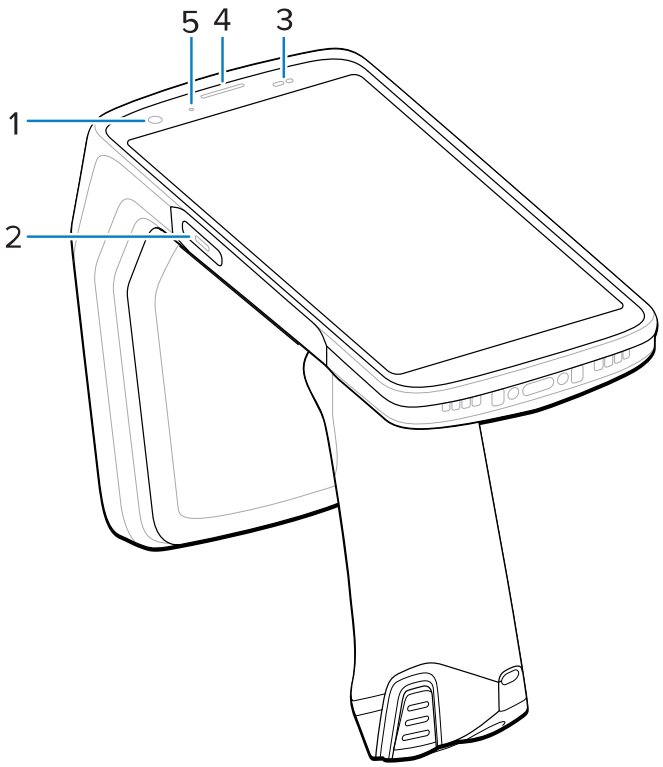


Table 2 Front Left View Features

Number	Item	Description
1	Front camera	Takes photos and videos (available on some models).
2	Programmable button	This button is typically used for barcode scanning.
3	Light/proximity sensor	Determines ambient light for controlling display backlight intensity and proximity for turning off the display when in handset mode.
4	Data capture LED	Indicates data capture status.
5	Charging/notification LED	Indicates battery charging status while charging and application-generated notifications.

Figure 3 Side and Bottom View

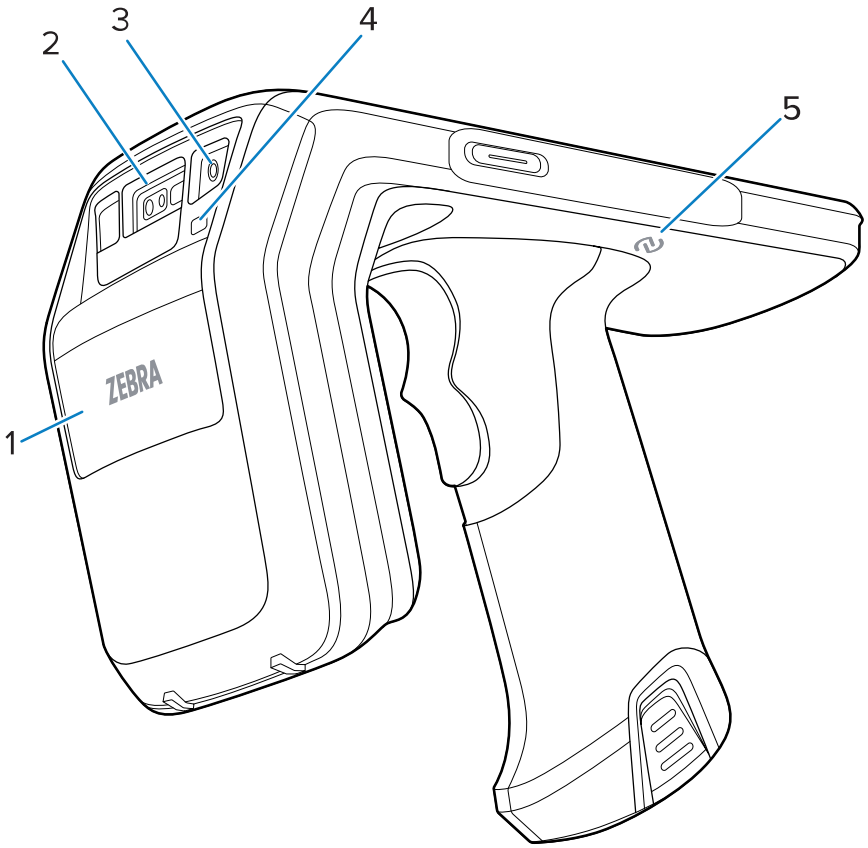


Table 3 Side and Bottom View Features

Number	Item	Description
1	Label placement	Allows for customer branding if desired. **NOTE:** For assistance with rebranding, please contact customer support at zebra.com/support.
2	Scanner exit window	Provides data capture using the imager.
3	Forward-facing camera	Takes photos and videos.
4	Camera flash	Provides illumination for the camera and operates as a flashlight.
5	NFC	Provides communication with other NFC-enabled devices.

Setting Up the Device

Set up the device before using it for the first time.

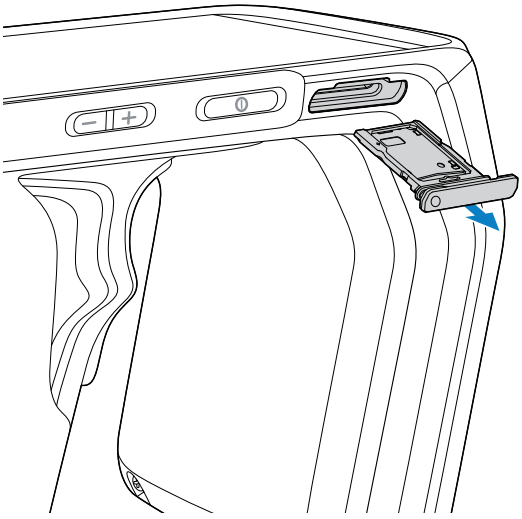
1. Install the battery.
2. Install a micro secure digital (SD) card (optional).
3. Charge the device.

Installing a microSD Card

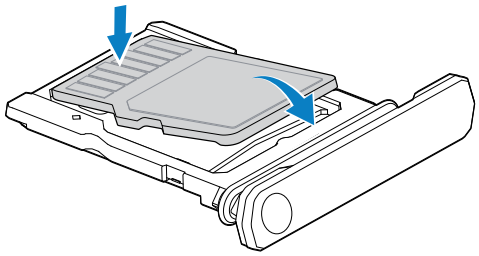
The microSD card slot provides secondary non-volatile storage. Refer to the documentation provided with the card for more information, and follow the manufacturer's recommendations for use.

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

1. Pull the card holder out of the device.

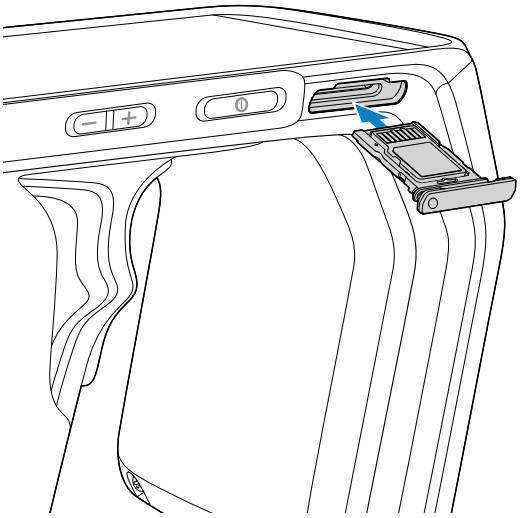


2. Place the microSD card, contact end first, with contacts facing up, into the card holder, then rotate the microSD card down.



3. Press the card down into the cardholder and ensure that it seats properly.

4. Reinstall the cardholder.



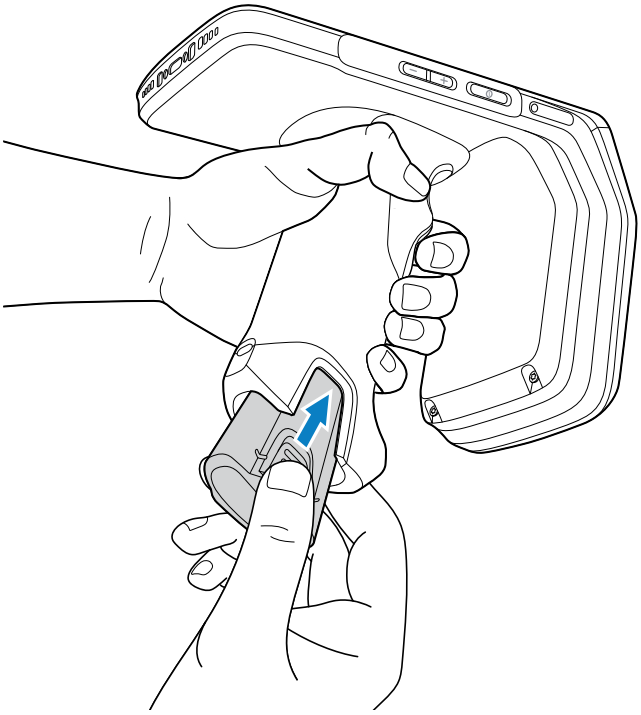
Installing the Battery

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

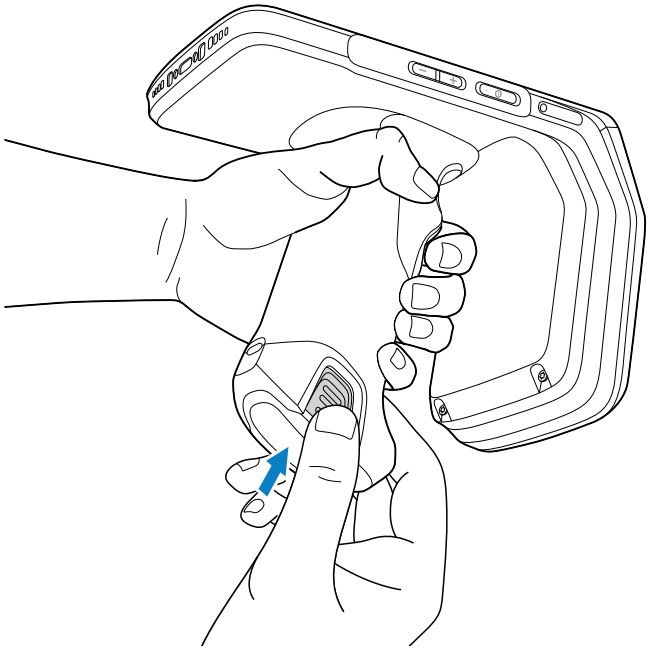
NOTE: User modification of the device, particularly in the battery well, such as labels, asset tags, engravings, stickers, etc., may compromise the intended performance of the device or accessories. Performance levels such as sealing (Ingress Protection (IP)), impact performance (drop and tumble), functionality,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

NOTE: The battery is keyed to ensure correct insertion. The notch on the battery is located on the back of the device.

1. Align the battery with the notch facing the back of the device, and slide the battery into the handle of the device.



2. Push the battery up into the handle until the battery release latches snap into place.



Battery Charging

Before using the device for the first time, charge the battery until the green Charging/Notification light-emitting diode (LED) remains lit. Use a cable or a cradle with the appropriate power supply to charge the device.

The compatible battery specification for the product is TC22R 7000 mAh PowerPrecision Plus Li-Ion Battery, with part numbers BTRY-RFD49-70MA1-01 worldwide and BTRY-RFD49-70MA1-IN in India.

The device's Charging/Notification LED indicates the battery charging status. The battery typically charges from 5% to 95% in approximately 4 hours.

NOTE: Charge batteries at room temperature with the device in Sleep mode.

Table 4 Charging/Notification LED Charging Indicators

State	Indication
Off	The device is not charging. It is incorrectly inserted in the cradle or connected to a power source, and 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.
Solid green	Charging 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, for example: • Temperature is too low or too high. • Charging has gone on too long without completion (typically eight hours).
Fast blinking red (2 blinks/second)	Charging error, but the battery is at the end of its useful life, for example: • Temperature is too low or too high. • Charging has gone on too long without completion (typically eight hours).

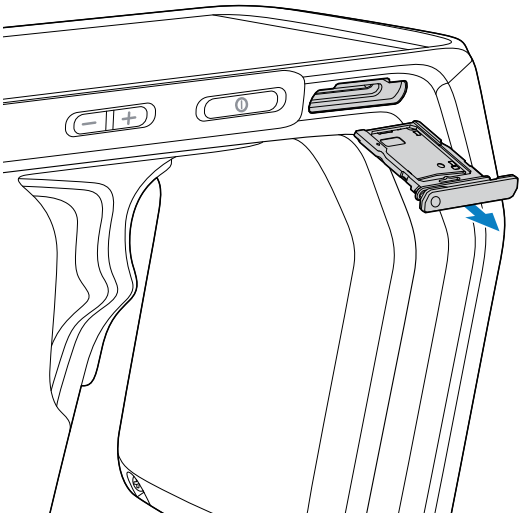
Replacing the microSD Card

Use these procedures to replace a microSD card.

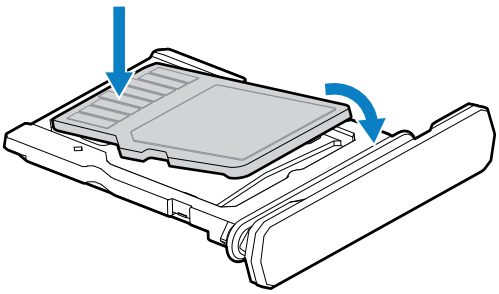
To replace the microSD card:

1. Press the Power button until the menu appears.
2. Touch **Power off**.
3. Touch **OK**.

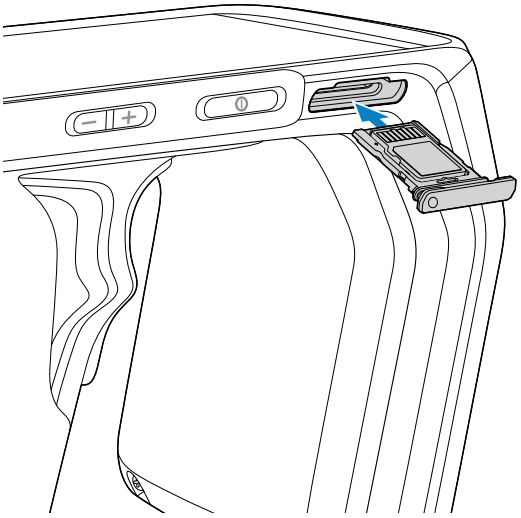
4. Pull the card holder out of the device.



5. Remove the microSD card from the card holder.
6. Place the microSD card, contact end first, with contacts facing up, into the card holder, then rotate the microSD card down.



7. Press the card down into the card holder and ensure that it seats properly.
8. Reinstall the card holder.



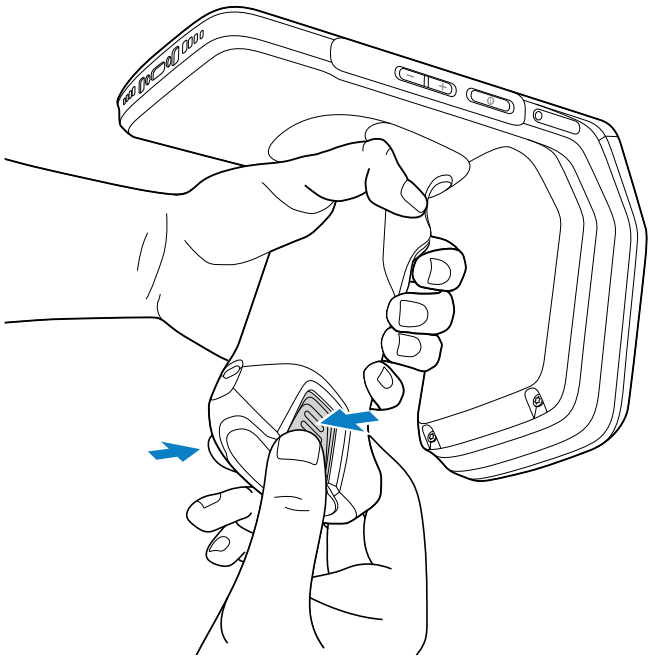
Replacing the Battery

Replace the battery in the device.

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

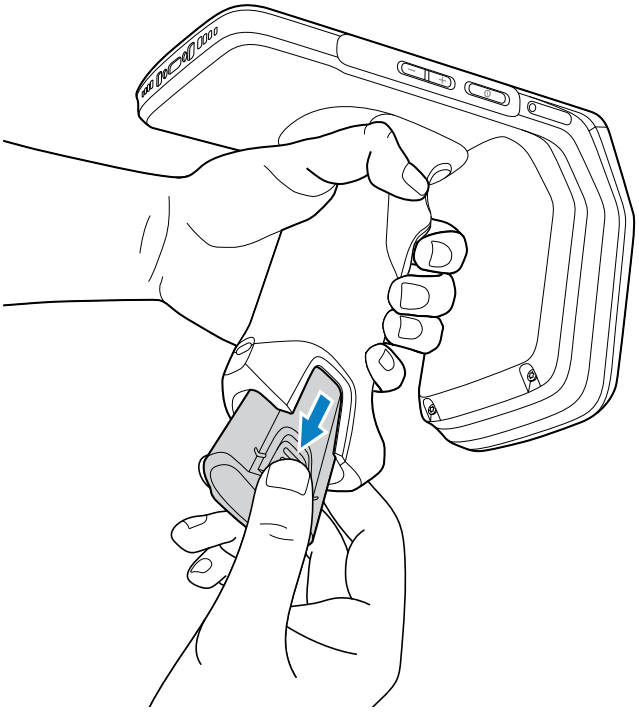
CAUTION: Do not add or remove the microSD card during battery replacement.

1. Press the Power button until the menu appears.
2. Touch **Power Off**.
3. Press the two latches down.



NOTE: Do not attempt to insert fingers under the latches when pulling on the battery. This could damage the latches.

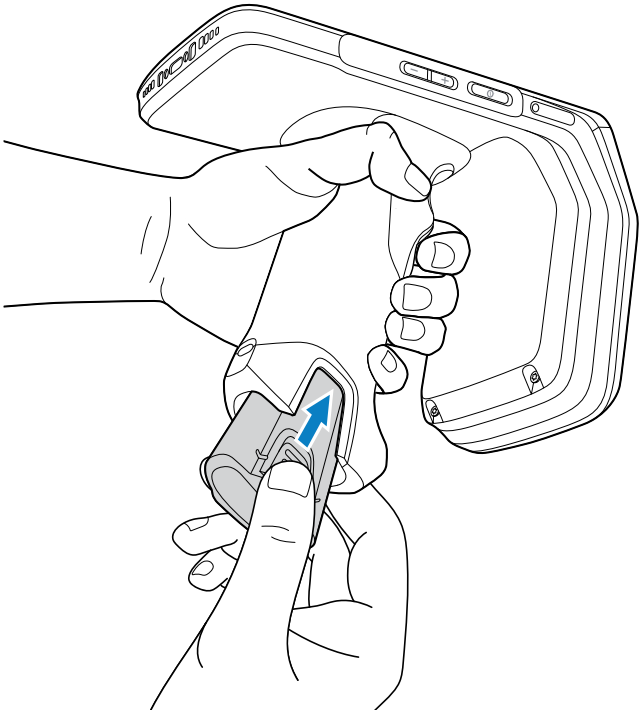
4. While pressing the latches down, press the two latches in toward the center of the device. The latches must be pressed in completely to release the battery.



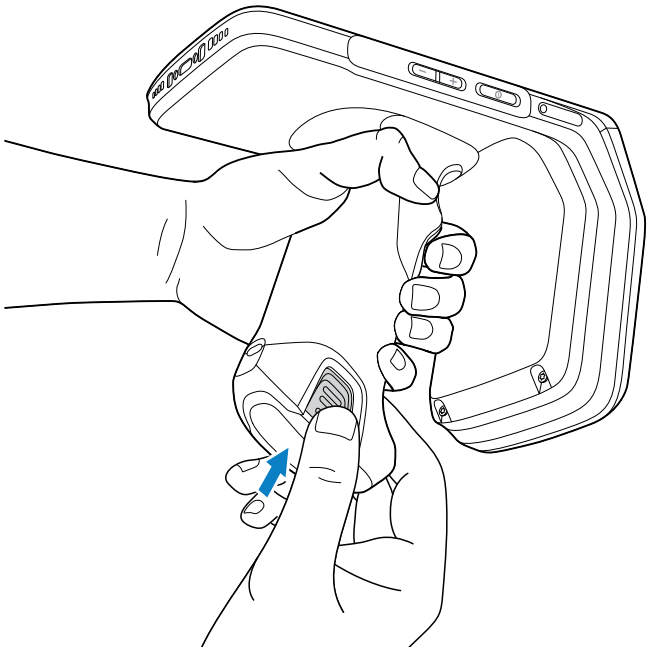
5. Lift the battery from the handle.

6. Insert the replacement battery into the handle of the device.

NOTE: The battery is keyed to ensure correct insertion. The notch on the battery faces the back of the device.



7. Press the battery down into the handle until the battery release latches snap into place.



8. Press the Power button to turn on the device.

Using the Device

This section explains how to use the device.

Home Screen

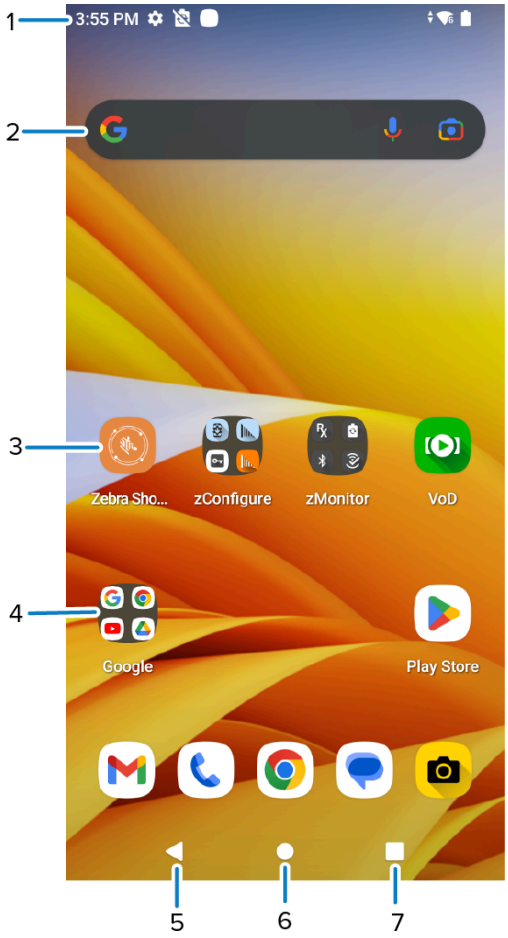
Turn on the device to display the Home screen. Depending on how your system administrator configured your device, your Home screen may appear differently than the graphics in this section.

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 4 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 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 on the left side, and status icons on the 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 icons.

1	Notification icons
2	Status icons

Status Icons

Status icons display system information for the device.

Table 5 Status icons

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.
	All sounds except media and alarms are muted.
	All sounds except media and alarms are muted.

Table 5 Status icons (Continued)

Icon	Description
	Do Not Disturb mode active.
	Airplane Mode is active. All radios are turned off.
	Bluetooth is on.
	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).
	Indicates that a BT headset is connected to the device.

Notification Icons

Notification icons indicate app events and messages.

Table 6 Notification Icons

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

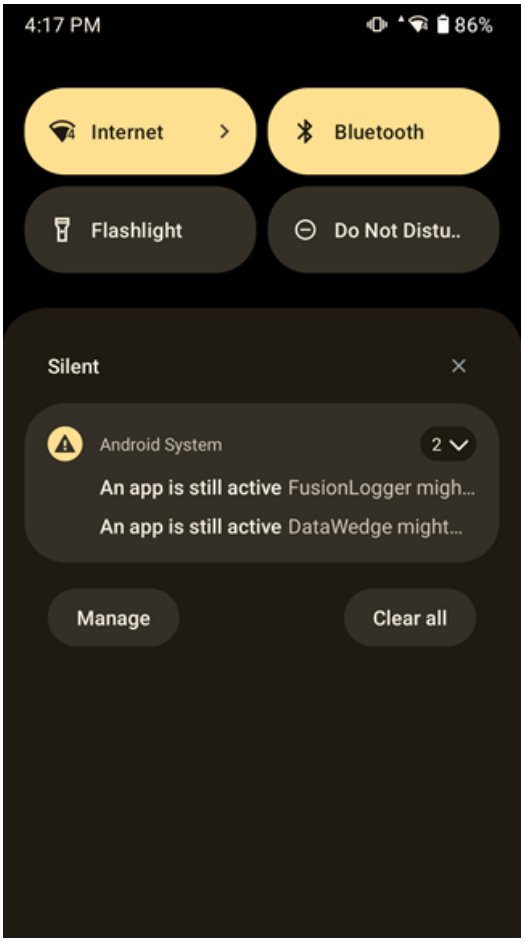
Table 6 Notification Icons (Continued)

Icon	Description
	Indicates an upcoming event. GMS devices only.
	An Open Wi-Fi network is available. The device is not connected to it.
	Audio is playing.
	A problem with sign-in or sync has occurred.
	The device is uploading data.
	Animated: the device is downloading data. Static: the download is complete.
	The device is connected to or disconnected from a virtual private network (VPN).
	Preparing internal storage by checking it for errors.
	The RxLogger app is running.
	A Bluetooth scanner is connected to the device.
	A ring scanner is connected to the device in HID mode.

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 5 Notification Panel



- 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 on 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 6 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.
- Swipe down from the Quick Settings bar if the Notification panel is open.

Quick Access Panel Icons

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

Table 7 Quick Access Panel Icons

Icon	Description
	Display brightness - Use the slider to decrease or increase the brightness of the screen.
	Internet/Wi-Fi network - Turn Wi-Fi on or off. To open Wi-Fi settings, touch the Wi-Fi network name.
	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).
	Bluetooth settings - Turn Bluetooth on or off. To open Bluetooth settings, touch Bluetooth.
	Invert colors - Invert the display colors.
	Do not disturb - Control how and when to receive notifications.
	Airplane mode - Turn Airplane mode on or off. When Airplane mode is on the device does not connect to Wi-Fi or Bluetooth.
	Auto-rotate - Lock the device's orientation in portrait or landscape mode or set to automatically rotate.
	Flashlight - Turn 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.
	Hotspot - Turn on to share the device's mobile data connection with other devices.
	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 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.
	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.

Table 7 Quick Access Panel Icons (Continued)

Icon	Description
	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.
	Screen record - Makes a video recording of everything that happens on the screen, with options to include audio and screen touches.
	NFC - Enable or disable NFC communication.
	Wallet - Opens Android wallet.
	Alarm - Opens the Alarm app.
	Scan QR code - Opens the camera app for QR code reading.
	Extra dim - Reduces screen brightness up to 50%.
	Color correction - Enable to help your device compensate for color blindness.
	Live caption - Enables captions to appear for any media playing, regardless of the device's volume level.
	Calculator - Open the calculator app.

Editing Icons on the Quick Settings Bar

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

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 non-use (recommended: 15 seconds).
- Reduce screen brightness (recommended: 30-50%).

- 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).

Battery status indicates that the battery is discharging and Battery level lists the battery charge (as a percentage of fully charged).

Low Battery Notification

When the battery charge level drops below the charge 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 8 Low Battery Notification

Charge Level Drops Below	Action
15%	You should charge the battery soon.
10%	You must charge the battery.
7%	The device turns off. You 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.

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.
- Under **Advanced Info**:
  - **Battery present status** indicates if the main battery is present.
  - **Battery level** lists the main battery charge (as a percentage of fully charged).
- Swipe down with two fingers from the status bar to open the quick access panel. The **battery percentage** displays 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 .

To general battery information:

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

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

- Go to **Settings**.
- Touch **Apps** > **See all apps**.
- Select an app.
- Touch **App Battery Usage**. The power management options display. Use **DISABLE** or **FORCE STOP** to turn off apps that consume too much power.

Interactive Sensor Technology

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

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

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.

Transferring Files

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

NOTE: It is recommended to install a microSD card in the device for storing files due to limited internal storage.

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. Touch **File Transfer**.
5. On the host computer, open **File Explorer**.
6. Locate the **device** as a portable device.
7. Open the **Internal storage** folder.
8. Open the SD card or the Internal storage folder.
9. 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.

It is recommended to install a microSD card in the device for storing photos due to limited internal storage.

1. Connect the device to a host computer using a USB accessory.

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

Disconnecting from the Host Computer

This section describes how to disconnect a USB device from the host computer.

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

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, enable dark theme, and change font size.

Setting the Screen Brightness Automatically

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

To set the screen brightness automatically:

1. Go to **Settings**.
2. Touch **Display**.
3. If disabled, touch **Adaptive brightness** to adjust the brightness automatically.

   By default, **Adaptive brightness** is enabled. Toggle the switch to disable.

Setting the Screen Brightness Manually

Manually set the screen brightness using the touchscreen.

To set the screen brightness manually:

1. Swipe down with two fingers from the Status bar to open the Quick Access panel.

2. Slide the icon to adjust the screen brightness level.

Setting 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** > **Night Light**.
3. Touch **Schedule**.

NOTE: By default, Night Light is disabled. Touch **TURN ON NOW** to enable.

4. Select one of the schedule values:
   - **None** (default)
   - **Turns on the custom time**
   - **Turns on from sunset to sunrise**.
5. 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 Home Screen Rotation.

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

Setting Lock Screen Notifications

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

1. Go to **Settings**.
2. Touch **Display** > **Lock screen**.
3. In the **When to show** section, enable or disable an option using the switch.

Setting Display and Text Size

Set the text size (font) in system apps and for the display.

As you adjust the sizes, the **Preview** section displays the changes made.

1. Go to **Settings**.

2. Touch **Display** > **Display size and text**.
   - In **Font size**, touch + or **-** to change the size of the text.
   - In **Display size**, touch + or **-** to change the size of the display.
   - Turn on the **Bold text** switch to improve text visibility.
   - Turn on the **High contrast text** switch to change the text color to black or white, which maximizes the contrast with the background.

Notification LED Brightness Level

1. Go to **Settings**.
2. Touch **Display** > **Notification LED brightness Level**.
3. Use the slider to set the brightness level (default: 15).

Setting Touch Panel Mode

The device display is able to detect touches using a finger or gloved finger.

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

1. Go to **Settings**.
2. Touch **Display** > **Touch panel mode**.
3. Select:
   - **Glove and Finger**
   - **Finger Only**.
4. Touch Home.

Setting the Date and Time

The date and time are automatically synchronized using a NITZ server when the device is connected to a wireless network.

1. Go to **Settings**.
2. Touch **System** > **Date & time**.
3. Touch **Set time automatically** to disable automatic date and time synchronization.
4. Touch **Set time zone automatically** to disable automatic time-zone synchronization.
5. Touch **Date** to select the date in the calendar.
6. Touch **OK**.
7. 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**.

8. Touch **OK**.
9. Touch **Time zone** to select the current time zone from the list.
10. Touch **Update Interval** to select an interval to synchronize the system time from the network.
11. In **TIME FORMAT**, choose either **Use locale default** or **Use 24-hour format**.

NOTE: TC22R does not have an internal backup battery. So the clock on TC22R will reset if the battery is removed. It is always recommended that TC22R be connected to a WLAN with automatic time synchronization to avoid manually setting time after a battery change.

General Sound Setting

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. Touch **Sound**.
3. Touch an option to set sounds.

Sound Options

Use the **Sound & vibration** screen to set various sound and vibration settings.

- **Media volume** - Controls the music, games, and media volume.
- **Call volume** - Controls the volume during a call.
- **Ring volume** - Controls the ringtone volume.
- **Alarm volume** - Controls the alarm clock volume.
- **Do Not Disturb** - Mutes some or all sounds and vibrations.
- **Notifications volume** - Controls the notification volume.
- **Live caption** - Enable the device to detect speech and automatically display captions.
- **Media** - Enable media playback options.
- **Vibration & haptics** - Enables various vibration and haptic feedback.
- **Default notification sound** - Select a sound to play for all system notifications.
- **Default alarm sound** - Select a sound to play for alarms.
- **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).
- **Tap & click sounds** - Play a sound when making screen selections (default – enabled).
- **Always show icon when in vibrate mode** - Toggle the display of the vibrate icon when in vibrate mode (default - disabled).

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 the Programmable button on the left side of the device.

1	Programmable button

1. Go to **Settings**.
2. Touch **Wake-Up Sources**.
   - Tap to enable **SCAN**.

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, go to techdocs.zebra.com/keymappingmgr/.

NOTE: Zebra does not recommend remapping 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.

Remapping Keys

List of remappable device keys on the TC22R.

Figure 7 Remappable Keys

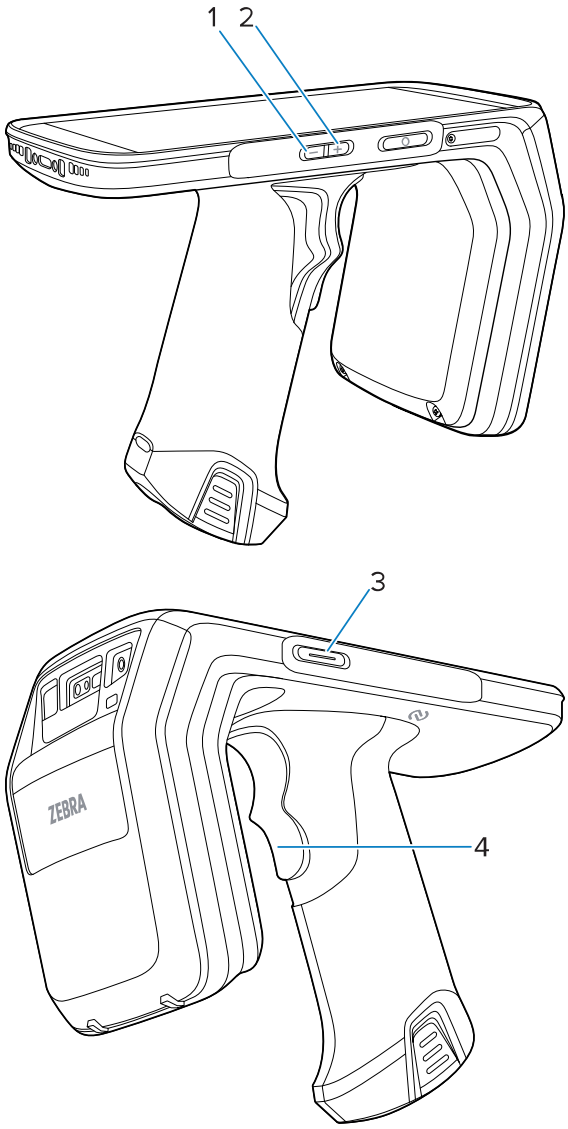


Table 9 Default Key Programmer Settings

Item	Setting	Description
1	VOLUME_DOWN	Volume down button.
2	VOLUME_UP	Volume up button.
3	SCAN	Left programmable button.
4	BUTTON_L1	Lower gun trigger.
N/A	SYMBOL_TRIGGER_1	Remote Bluetooth scan trigger.

Keyboards

The device provides multiple keyboard options.

- Android Keyboard - AOSP devices only
- Gboard - GMS devices only
- Enterprise Keyboard - Only available with Mobility DNA Enterprise License.

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

Enabling Keyboards

Go to **Settings**.

Switching Between Keyboards

To switch between keyboards, touch in a text box to display the current keyboard.

NOTE: By default, the Gboard is enabled. All other virtual keyboards are disabled.

- On the Gboard keyboard, touch and hold (GMS devices only).
- On the Android keyboard, touch, and hold (AOSP devices only).
- On the Enterprise keyboard, touch . Only available with Mobility DNA Enterprise License. Not pre-installed on the device. Contact Zebra Support for more information.

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

This section describes how to input numbers, symbols, and special characters using the keyboard.

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: Only available with Mobility DNA Enterprise License.

- 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. Touch **System** > **Languages & input** > **Personal dictionary**.

   If prompted, select the language where this word or phrase is stored.
3. Touch **+** to add a new word or phrase to the dictionary.
4. Enter the word or phrase.
5. In the **Shortcut** text box, enter a shortcut for the word or phrase.

Notifications

Device notification settings allow you to configure how notifications occur on the device, and app notification settings allow you to configure how notifications for a specific app occur.

To view device notification settings, touch **Settings** > **Notifications**. To view app notifications, touch **Settings** > **Apps** > **All apps**, and then select an app.

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. Touch **Notifications**.
3. Touch **Blink light** to toggle the notification on or off.

Applications

The APPS screen displays icons for all installed apps. Go to Application Deployment for information on installing and uninstalling apps. For information on standard Android apps, refer to the Google Play Store (https://play.google.com/store/apps).

Installed Applications

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

Table 10 Apps

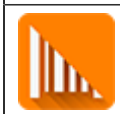
Icon	Description
	**123RFID Mobile** - Runs on Android mobile devices and demonstrates capability and tag operation functionality.
	**Battery Manager** - Display battery information, including charge level, status, health and wear level.
	**Bluetooth Pairing Utility** - Use to pair a Zebra Bluetooth scanner with the device by scanning a barcode.
	**DataWedge** - Enables data capture using the imager.
	**DisplayLink Presenter** - Use to present the device screen onto a connected monitor.
	**DWDemo** - Provides a way to demonstrate the data capture features using the imager.

Table 10 Apps (Continued)

Icon	Description
	**License Manager** - Use to manage software licenses on the device.
	**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.

Opening Battery Manager

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

Battery Manager Information

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

Table 11 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 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 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.
  - **Battery error status** - The error status of the battery.
  - **App version** - The application version number.

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.

On camera only devices without an internal scan engine, the back camera is used for barcode scanning.

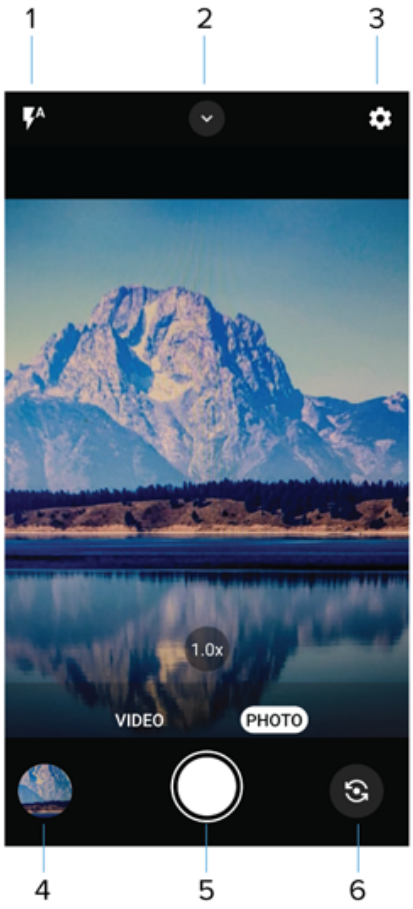
When the front camera is used by an app, such as for indoor locationing, the back camera becomes disabled and cannot be used for barcode scanning.

Taking Photos

This section provides information for taking photos using the integrated digital camera.

NOTE: See Camera Settings for camera settings descriptions.

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



1	Flash options
2	Quick settings

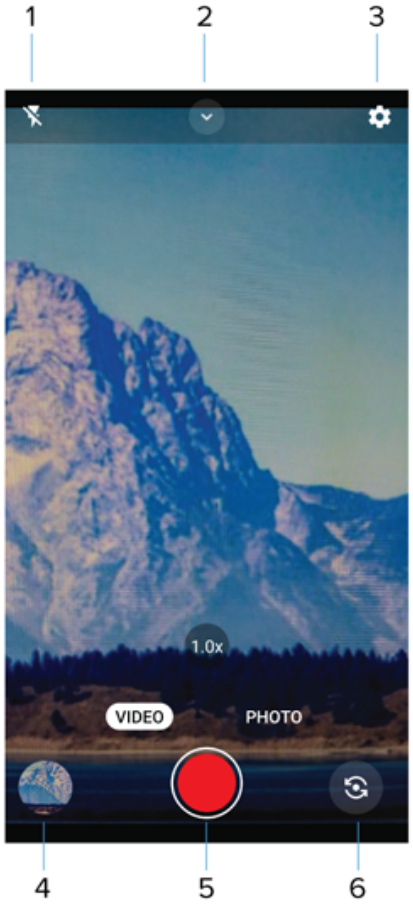
3	Advanced settings
4	Gallery
5	Shutter button
6	Camera switch

2. If necessary, touch the **PHOTO**
3. To switch between the rear camera and front camera, touch  .
4. Frame the subject on the screen.
5. To zoom in or out, press two fingers on the display and pinch or expand your fingers. The zoom controls appear on the screen.
6. Touch an area on the screen to focus. The focus circle appears. The two bars turn green when in focus.
7. Touch  .

Recording Videos

This section provides information for recording videos using the integrated digital camera.

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



1	Flash options
2	Quick settings
3	Advanced settings
4	Gallery
5	Shutter button
6	Camera switch

2. Touch **VIDEO**.
3. To switch between the rear camera and front camera (if available), touch .
4. Point the camera and frame the scene.
5. To zoom in or out, press two fingers on the display and pinch or expand your fingers. The zoom controls appear on the screen.

6. Touch to start recording.

   The video time remaining appears in the top of the screen.

7. Touch to end the recording.

Camera Settings

Settings vary depending on whether the front or rear camera is active.

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

- **Still camera**
  - **AF Animation** - Select to enable or disable the camera focus ring in the camera preview. Options: Disable (default) or Enable.
  - **Countdown timer** - Select Off (default), 2 seconds, 5 seconds or 10 seconds.
  - **MFNR** - Sets multi-frame noise reduction to improve quality in low light conditions. Options: Enabled (default), or Disabled.
  - **Picture Format** - Save still images as JPEG (default), or RAW+JPEG.
  - **Picture size** - The size (in pixels) of the photo to: 16M pixels (rear camera only, default), 8M pixels, 5M pixels (front camera default), WVGA, VGA, or QVGA.
  - **Picture quality** - Set the picture quality setting to: Low, Standard, or High (default).
  - **Photo Grid** - Displays a 3 x 3 grid guide on the camera viewport. Options: Disabled (default), or Enable.
  - **Selfie Flash** - Turns the screen white to help produce a little extra light in dimmer settings. Available for the front camera only. Options: Off (default), or On.
  - **Selfie Mirror** - Select to save a mirror image of the photo. Available for the front camera only. Options: Off (default) or On.
- **Video camera**
  - **Audio Encoder** - Set the audio encoder to: AMRNB, or AAC (default).
  - **HEVC Encoder** - Save video recordings using high-efficiency video codec (HEVC/h265) for smaller file size. Options: Disabled (default), or Enable.
  - **Noise Reduction** - Off (default), Fast, or High Quality.
  - **Video duration** - Set to: 30 seconds (MMS), 10 minutes (default), 30 minutes, or no limit.
  - **Video quality** - Set video quality to: 4k UHD, HD 1080p (default), HD 720p, SD 480p, VGA, CIF, or QVGA.
  - **Video Rotation** - Set the rotation of the video to: 0 (default), 90, 180, or 270.
- **System**
  - **About** - Displays the software version of the camera app.
  - **Restore defaults** - Select to restore all settings to the default values.

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. DataWedge converts the captured barcode data to keystrokes and sends it to the target application as if it were 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, go to techdocs.zebra.com/datawedge/.

DWDemo Icons

This table lists the icons available on the DWDemo app.

Table 12 DWDemo Icons

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

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, go 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.

The config.json configuration file is located on the microSD card in the RxLogger\config folder. Copy the file from the device to a host computer using a USB connection. Edit the configuration file and then replace the JSON file on the device. There is no need to stop and restart the RxLogger service because the file change is automatically detected.

IMPORTANT: The RxLogger configuration file is human-readable; however, 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 displays.
2. Touch a log to open it.

   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 Imager
- Integrated Camera
- Bluetooth Ring 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 with an integrated camera based barcode scanning solution has the following features:

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.

- 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.

On camera only devices without an internal scan engine, the back camera is used for barcode scanning.

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 you hold 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.

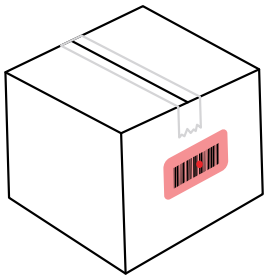
NOTE: Scanning procedures depend on the app and device configuration. An app may use different scanning procedures from the one listed above.

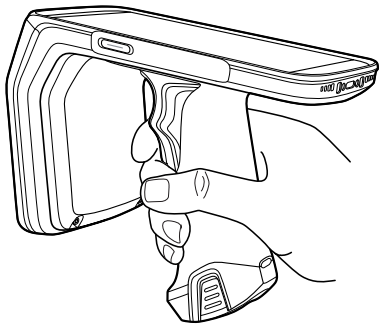
Scanning with Internal Imager

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 imager displays a red dot 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 scanner exit window of the device at a barcode.

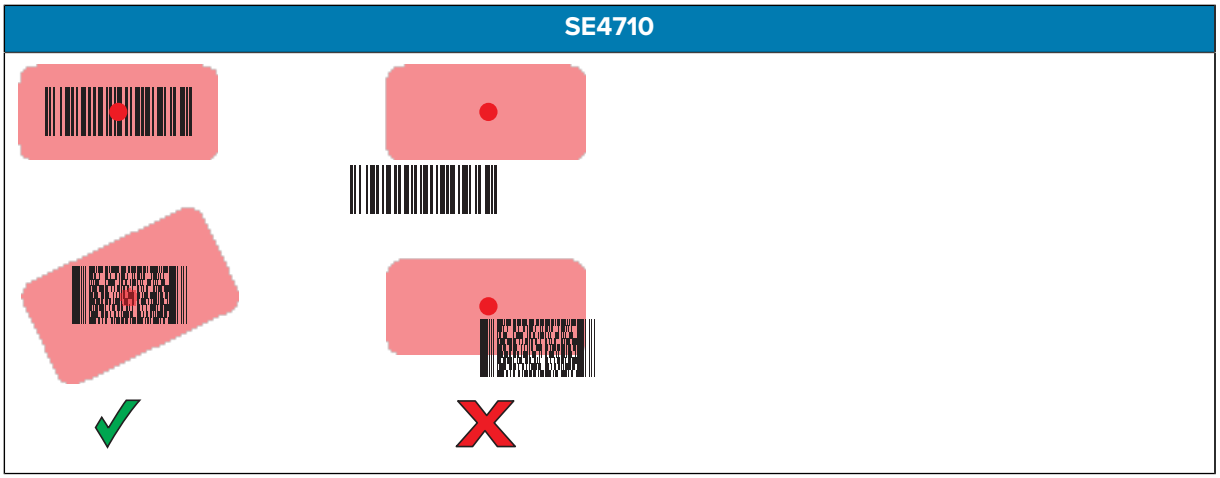


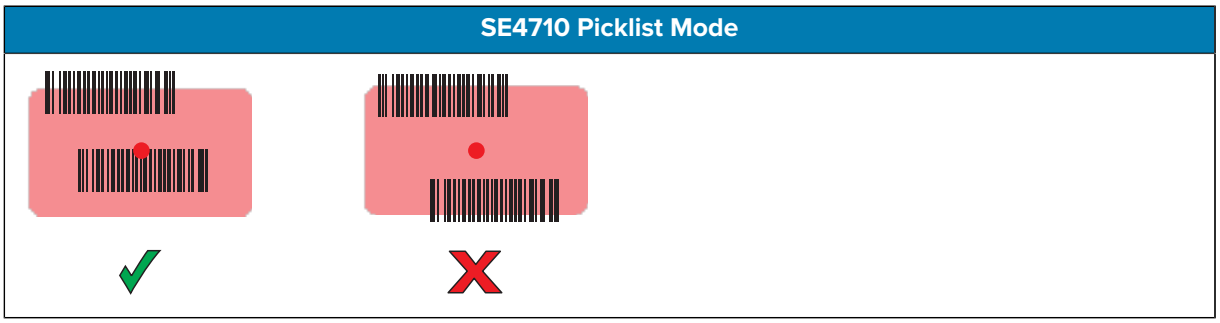


3. Press and hold the lower trigger for scanning.

   The device projects the aiming pattern.

4. Ensure the barcode is within the area formed by the aiming pattern. The aiming dot is used for increased visibility in bright lighting conditions.





The Data Capture LED light turns on, and the device beeps, by default, to indicate that the barcode was decoded successfully.

5. Release the scan button.

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

The device displays the barcode data in the text field.

Scanning with the 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 you 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. Point the camera window at a barcode.

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

2. Launch a scanning application.
3. Press and hold the scan button. By default, a preview window appears on the screen.
4. Move the device until the barcode is visible on the screen.
5. The Decode LED lights green, a beep sounds and the device vibrates, by default, to indicate the barcode is decoded successfully.
6. The captured data appears in the text field.
7. Release the scan button.

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. DataWedge converts the captured barcode data to keystrokes and sends it to the target application as if it were 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, go 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. Uncheck the **DataWedge enabled** checkbox.

Supported Decoders

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

Camera Supported Decoders

This section lists the supported decoders for the internal camera.

Table 13 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

SE4710 Internal Imager Supported Decoders

This section lists the supported decoders for the SE4710 internal imager.

Table 14 Internal Imager SE4710 Supported Decoders

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

Table 14 Internal Imager SE4710 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

Wireless

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

The following wireless features are available on the device:

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

Wireless Local Area Networks

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

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

Refer to the documentation provided with the infrastructure [access points (APs), access ports, switches, Radius servers, etc.] on set up. When the infrastructure is set up to enforce the chosen WLAN security scheme, use the **Network & internet** settings to configure the device to match the security scheme.

Connecting to a Wi-Fi Network

This section describes how to connect to a Wi-Fi network.

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

   The **Internet** screen displays, and the device searches for WLANs in the area and lists them.
3. Scroll through the list and select the desired WLAN network.

4. For open networks, touch the profile (or press and hold) and select **Connect**. For secure networks, enter the required password or other credentials and 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.

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

Wi-Fi Version

When the device is connected to a Wi-Fi network, the Wi-Fi icon on the Status bar indicates the Wi-Fi network version.

Table 15 Wi-Fi Version Icons

Icon	Description
	Connected to Wi-Fi 6, the 802.11ax standard.
	Connected to Wi-Fi 5, the 802.11ac standard.
	Connected to Wi-Fi 4, the 802.11n standard.

Removing a Wi-Fi Network

This section describes how to remove a Wi-Fi network.

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

   The device automatically disconnects from the Wi-Fi network.

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** > **Internet**.
3. Turn on the **Wi-Fi** switch.

   The device searches for WLANs in the area and lists them on the screen.
4. Scroll through the list and select the desired WLAN network.

5. 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.
6. If network security is **WPA/WPA2-Personal**, **WPA3-Personal**, or **WEP**, enter the required password, and then touch **Connect**.
7. 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** > **Internet**.
3. Turn on the **Wi-Fi** switch.
4. Scroll to the bottom of the list and select **Add network**.
5. In the **Network name** text box, enter the name of the Wi-Fi network.
6. In the **Security** drop-down list, set the type of security to:
   - **None**
   - **Enhanced Open**
   - **WEP**
   - **WPA/WPA2-Personal**
   - **WPA3-Personal**
   - **WPA/WPA2-Enterprise**
   - **WPA3-Enterprise**
   - **WPA3-Enterprise 192-bit**

7. If the network security is **None** or **Enhanced Open**, touch **Save**.
8. 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 are set to **DHCP**. See Configuring for a Proxy Server and Configuring the Device to Use a Static IP Address.

9. 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 selected **EAP method**
      - 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.
10. 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.
11. Touch **Save**. To connect to the saved network, touch and hold on the saved network and select **Connect to network**.

Configuring 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.

Enterprise customers must set up secure computing environments within their companies, making proxy configuration essential. Proxy configuration acts as a security barrier, ensuring the proxy server monitors all traffic between the internet and intranet traffic. This is normally an integral part of security enforcement in corporate firewalls within intranets.

1. Go to **Settings**.

2. Touch **Network & internet** > **Internet**.
3. Turn on the **Wi-Fi** switch.
4. In the network dialog box, select and touch a network.
5. If configuring the connected network, touch to edit the network details and then touch the down arrow to hide the keyboard.
6. Touch **Advanced options**.
7. Touch **Proxy** and select **Manual**.
8. In the **Proxy hostname** text box, enter the address of the proxy server.
9. In the **Proxy port** text box, enter the port number for the proxy server.
10. In the **Bypass proxy for** text box, enter addresses for websites that are not required to go through the proxy server. Use a comma "," between addresses. Do not use spaces or carriage returns between addresses.
11. If configuring the connected network, touch **Save** otherwise, 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** > **Internet**.
3. Turn on the **Wi-Fi** switch.
4. In the network dialog box, select and touch a network.
5. If you are configuring the connected network, touch to edit the network details and then touch the down arrow to hide the keyboard.
6. Touch **Advanced options**.
7. Touch **IP settings** and select **Static**.
8. In the **IP address** text box, enter an IP address for the device.
9. If required:
   - In the **Gateway** text box, enter a gateway address for the device.
   - In the **Network prefix length** text box, enter the prefix length.
   - In the **DNS 1** text box, enter a Domain Name System (DNS) address.
   - In the **DNS 2** text box, enter a DNS address.
10. If you are configuring the connected network, touch**Save** otherwise, touch **Connect**.

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 to connect to.

To view available devices and connect to a device:

1. Go to **Settings**.
2. Touch **Network & internet** > **Internet**.
3. Slide the **Wi-Fi** switch to the **On** position.
4. Scroll down to the bottom of the screen and touch **Network preferences** > **Wi-Fi Direct**.
5. Under **Peer devices**, touch a device's name.
6. On the other device, select **Accept**.

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

Wi-Fi Preferences

Use the Wi-Fi preferences to configure advanced Wi-Fi settings.

From the **Internet** screen, scroll down and touch **Network preferences**.

- **Turn on Wi-Fi automatically** - When enabled, Wi-Fi automatically turns back on when near high-quality saved networks.
- **Notify for public networks** - When enabled, it notifies you when a public network is available.
- **Additional settings** - Touch to view additional Wi-Fi settings.
- **Install Certificates** - Touch to install certificates.
- **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. To view the additional Wi-Fi settings, scroll to the bottom of the Internet screen and touch **Network Preferences** > **Additional 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**. Only available with mDNA Enterprise Bundle upgrade.
  - **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**. Only available with mDNA Enterprise Bundle upgrade.

- **Logging**
  - **Advanced Logging** – Touch to enable advanced logging, verbose logging, or change the log directory.
  - **Wireless logs** - Use to capture Wi-Fi log files.
    - **Fusion Logger** - Touch to open the **Fusion Logger** application. This application maintains a history of high level WLAN events which helps to understand the status of connectivity. Only available with mDNA Enterprise Bundle upgrade.
    - **Fusion Status** - Touch to display live status of WLAN state. Also provides information about the device and connected profile. Only available with mDNA Enterprise Bundle upgrade.

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 to connect to.

To view available devices and connect to a device:

1. Go to **Settings**.
2. Touch **Network & internet** > **Internet**.
3. Slide the **Wi-Fi** switch to the **On** position.
4. Scroll down to the bottom of the screen and touch **Network preferences** > **Wi-Fi Direct**.
5. Under **Peer devices**, touch a device's name.
6. On the other device, select **Accept**.

   Connected displays on the device. On both devices, on their respective Wi-Fi Direct screens, the other device name displays 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 needs. 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 you 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, the limited range and fast frequency hopping of the Bluetooth radios make 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 16 Bluetooth Profiles

Profile	Description
Service Discovery Protocol (SDP)	Handles the search for known and specific services as well as general services.

Table 16 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.
Object Push Profile (OPP)	Allows the device to push and pull objects to and from a push server.
Advanced Audio Distribution Profile (A2DP)	Allows the device to stream stereo-quality audio to a wireless headset or wireless stereo speakers.
Audio/Video Remote Control Profile (AVRCP)	Allows the device to control A/V equipment to which a user has access. It may be used in concert with A2DP.
Personal Area Network (PAN)	Allows the use of Bluetooth Network Encapsulation Protocol to provide L3 networking capabilities over a Bluetooth link. Only PANU role is supported.
Human Interface Device Profile (HID)	Allows Bluetooth keyboards, pointing devices, gaming devices and remote monitoring devices to connect to the device.
Headset Profile (HSP)	Allows a hands-free device, such as a Bluetooth headset, to place and receive calls on the device.
Hands-Free Profile (HFP)	Allows car hands-free kits to communicate with the device in the car.
Phone Book Access Profile (PBAP)	Allows exchange of Phone Book Objects between a car kit and a mobile device to allow the car kit to display the name of the incoming caller; allow the car kit to download the phone book so you can initiate a call from the car display.
Out of Band (OOB)	Allows exchange of information used in the pairing process. Pairing is completed using the Bluetooth radio, but requires information from the OOB mechanism. Using OOB with NFC enables pairing when devices simply get close, rather than requiring a lengthy discovery process.
Out of Band (OOB)	Allows exchange of information used in the pairing process. Pairing is initiated by NFC but completed using the Bluetooth radio. Paring requires information from the OOB mechanism. Using OOB with NFC enables pairing when devices simply get close, rather than requiring a lengthy discovery process.
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.
Symbol Serial Interface (SSI)	Allows for communication with Bluetooth Imager.
File Transfer Profile (FTP)	Provides the capability to browse, manipulate and transfer files in file system of another system. Uses GOEP as a basis.
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.
HID Over GATT Profile (HOGP)	Defines the procedures and features used by Bluetooth low energy HID Devices using GATT and Bluetooth HID Hosts using GATT.
Scan Parameters Profile (ScPP)	Provides devices with information to assist them in managing their connection idle timeout and advertising parameters to optimize for power consumption and/or reconnection latency.

Table 16 Bluetooth Profiles (Continued)

Profile	Description
Dial Up Networking (DUN)	Provides a standard to access the Internet and other dial-up services over Bluetooth.
Generic Access Profile (GAP)	Use for device discovery and authentication.
OBject EXchange (OBEX)	Facilitates the exchange of binary objects between devices.

Bluetooth Power States

The Bluetooth radio is off by default.

- **Suspend** - When the device goes into 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

This section describes the method for enabling Bluetooth.

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

Disabling Bluetooth

This section describes the method for 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 m (32.8 ft) 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 displays.
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** displays 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 Communications

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

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

NOTE: A Mobility DNA Enterprise License is required to pair and connect Zebra ring scanners.

The device supports the following operating modes:

- Reader mode.
- Card Emulation mode.

Using NFC, the device can:

- Read contactless cards, such as contactless tickets, ID cards, and ePassport.
- Read and write information to contactless cards, such as SmartPosters and tickets, as well as devices with an NFC interface, such as vending machines.
- Read information from supported medical sensors.
- Pair with supported Bluetooth devices such as printers (for example, ZQ5x, ZD5x), ring scanners (for example, RS6000), and headsets (for example, HS3100).
- Exchange data with another NFC device.
- Emulate a contactless card such as a ticket.
- Emulate contactless cards such as a payment or ticket.

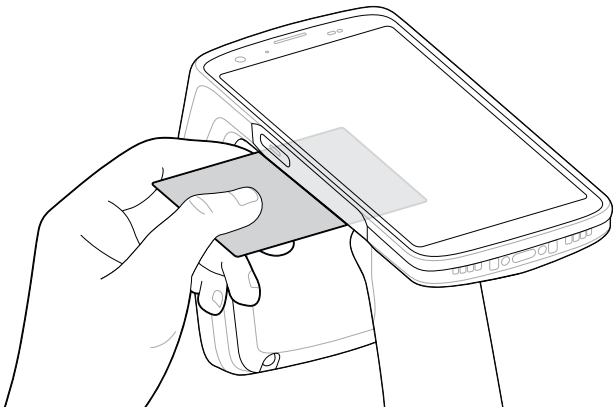
The device's NFC antenna is positioned to read NFC cards from the top of the device while the device is being held.

Reading NFC Cards

Read contactless cards using NFC.

1. Launch an NFC-enabled application.

2. Hold the device as shown.



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

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 optimal NFC detection speed, but reduces battery life.
- **Supported Card Technology** - Select an option to detect only one NFC tag type, increasing battery life, but reducing detection speed.
  - **All (Default)** - Detects all NFC tag types. This provides the best detection speed, but reduces battery life.
  - **ISO 14443 Type A**
  - **ISO 14443 Type B**
  - **ISO 15693**
- **NFC Debug Logging** - Use to enable or disable debug logging for NFC.
- **Other NFC settings available with Zebra administrator tools (CSP)** - Allows configuration of additional Enterprise NFC Settings through staging tools and Mobile Device Management (MDM) solutions with an MX version that supports the Enterprise NFC Settings Configuration Service Provider (CSP). For more information on using the Enterprise NFC Settings CSP, go to: techdocs.zebra.com/nfcmgr/.

Accessories

This section provides information on 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	CRD-TC2R-BS1CG-01	Provides device charging only. Requires USB-C cable (CBL-EC5X-USBC3A-01) and power supply (PWR-WUA5V45W1XX).
4-Slot Charge-Only Cradle	CRD-TC2R-BS4CG-01	Charges up to four devices. Requires power supply (PWR-WUA5V12W0XX), DC line cord (CBL-DC-381A1-01), and country-specific AC line cord.
4-Slot Ethernet Cradle	CRD-TC2R-SE4ET-01	Provides device charging and provides Ethernet communication for up to four devices. Requires power supply (PWR-WUA5V12W0XX), DC line cord (CBL-DC-381A1-01), and country-specific AC line cord.
Cradle Mount	BRKT-SCRD-SMRK-01	Mounts the 4-Slot Charge-Only Cradle, 4-Slot Ethernet Cradle, and 4-Slot Battery Charger to a rack.
Batteries and Chargers		
4-Slot Battery Charger	SAC-TC8X-4SCHG-01	Spare battery charger to charge up to four batteries. Requires Power Supply (PWR-WUA5V12W0XX), DC Line Cord (CBL-DC-381A1-01), and Country Specific Line Cord.
Charge and Communication Cables		
USB Communication and Charge Cable	CBL-TC5X-USB2A-01	Provides USB-A to USB-C communication and power to the device.
USB-C Communication and Charge Cable	CBL-EC5X-USBC3A-01	Provides UBC-C to USB-C communication and power to the device.
Audio Accessories		
USB-C Digital Audio Adapter	ADP-USBC-35MM1-01	Plugs into the device and provides audio to a wired headset with a collared 3.5 mm plug.

Accessory	Part Number	Description
HS2100 Rugged Wired Headset	HS2100-OTH	Rugged Corded Headset. Includes HS2100 Boom Module and HSX100 OTH Headband Module.
HS3100 Rugged Wired Headset	HS3100-OTH	Rugged Wireless Headset. Includes HS3100 Boom Module and HSX100 OTH Headband Module.
Wired Headset	HDST-USBC-PTT1-01	PTT headset with USB-C connector.
Miscellaneous		
Tempered Glass Screen Protector	SG-TC2R-SCRNPT1-01	Add additional screen protection.
Power Supplies		
Power Supply	PWR-WUA5V45W1US	Provides power to the 1-Slot Charge-Only Cradle. Requires DC line cord (p/n CBL-DC-388A1-01 and country-specific three-wire grounded AC line cord sold separately.
Power Supply	PWR-WUA5V12W0WW	Provides power to the 4-Slot Charge-Only cradle and the 4-Slot Ethernet Cradle. Requires DC Line Cord, p/n CBL-DC-381A1-01, and country-specific three-wire grounded AC line cord sold separately.
Power Supply	PWR-WUA5V12W0US	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in the United States.
Power Supply	PWR-WUA5V12W0EU	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in the European Union.
Power Supply	PWR-WUA5V12W0GB	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in the United Kingdom.
Power Supply	PWR-WUA5V12W0AU	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in Australia.
Power Supply	PWR-WUA5V12W0CN	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in China.
Power Supply	PWR-WUA5V12W0IN	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in India.
Power Supply	PWR-WUA5V12W0KR	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in Korea.
Power Supply	PWR-WUA5V12W0BR	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in Brazil.
DC Line Cord	CBL-DC-381A1-01	Provides power from the power supply (PWR-WUA5V12W0XX) to the 4-Slot Charge-Only Cradle and 4-Slot Ethernet Cradle.
DC Line Cord	CBL-DC-388A1-01	Provides power from the power supply (PWR-WUA5V45W1US) to the 1-Slot Charge-Only Cradle.

Accessory	Part Number	Description
US AC Line Cord	23844-00-00R	Provide power to power supplies.

Battery Charging

Before using the device for the first time, charge the battery until the green Charging/Notification light-emitting diode (LED) remains lit. Use a cable or a cradle with the appropriate power supply to charge the device.

The compatible battery specification for the product is TC22R 7000 mAh PowerPrecision Plus Li-Ion Battery, with part numbers BTRY-RFD49-70MA1-01 worldwide and BTRY-RFD49-70MA1-IN in India.

The device's Charging/Notification LED indicates the battery charging status. The battery typically charges from 5% to 95% in approximately 4 hours.

NOTE: Charge batteries at room temperature with the device in Sleep mode.

Table 17 Charging/Notification LED Charging Indicators

State	Indication
Off	The device is not charging. It is incorrectly inserted in the cradle or connected to a power source, and 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.
Solid green	Charging 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, for example: • Temperature is too low or too high. • Charging has gone on too long without completion (typically eight hours).
Fast blinking red (2 blinks/second)	Charging error, but the battery is at the end of its useful life, for example: • Temperature is too low or too high. • Charging has gone on too long without completion (typically eight hours).

Battery Charging Indicators

The LEDs on the 4-Slot Battery Charger indicate the status of the battery charging.

The battery charges from fully depleted to 90% in less than 4 hours.

LED	Indication
Solid amber	The battery is charging.

LED	Indication
Solid green	The battery charging is complete.
Solid red	The battery is charging, and the battery 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 battery, and the battery is at the end of its useful life.
Off	No battery in the slot. The battery is not placed in the slot correctly. The cradle is not powered.

Charging Temperature

Charge batteries in temperatures from 0°C to 40°C (32°F to 104°F). The device or cradle always performs battery charging safely and intelligently. At higher temperatures (for example, approximately +37°C / +98°F), the device or cradle may, for small periods, alternately enable and disable battery charging to keep the battery at acceptable temperatures. The device and cradle indicate when charging is disabled due to abnormal temperatures via their LED.

1-Slot Charge-Only Cradle

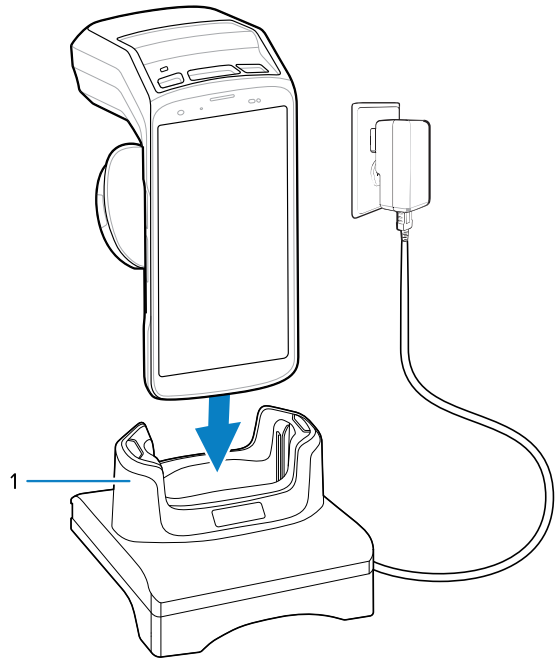
The 1-Slot Charge-Only Cradle provides power to the device.

CAUTION: Ensure that you follow the guidelines for battery safety described in Battery Safety Guidelines.

The 1-Slot Charge-Only Cradle:

- Provides 5 VDC power for operating the device.
- Charges the device's battery.

Figure 8 1-Slot Charge-Only Cradle

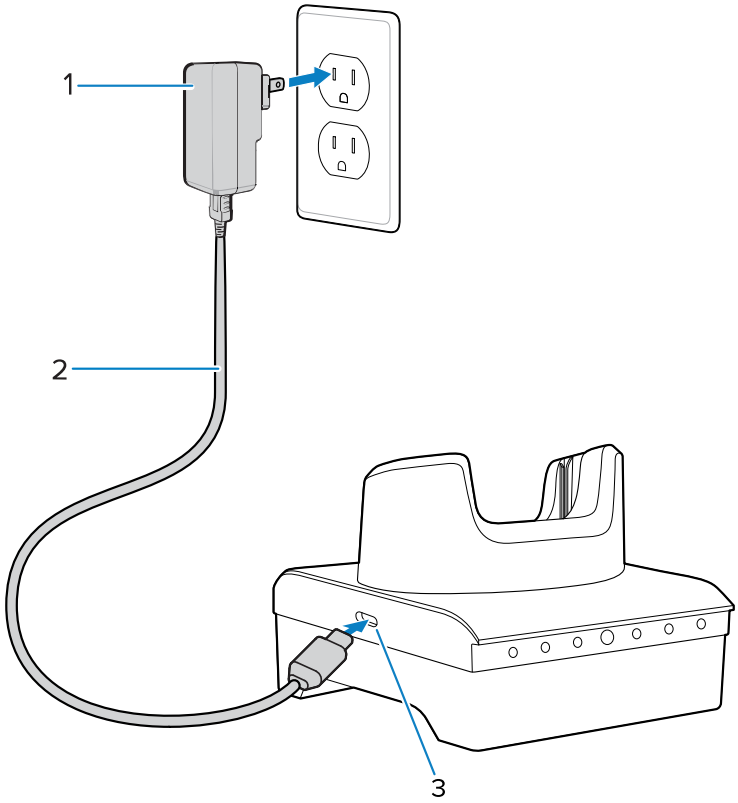


1	Device charging slot with a shim.

NOTE: To charge the device, insert it properly in the slot.

Setup

This section shows how to set up the cradle.



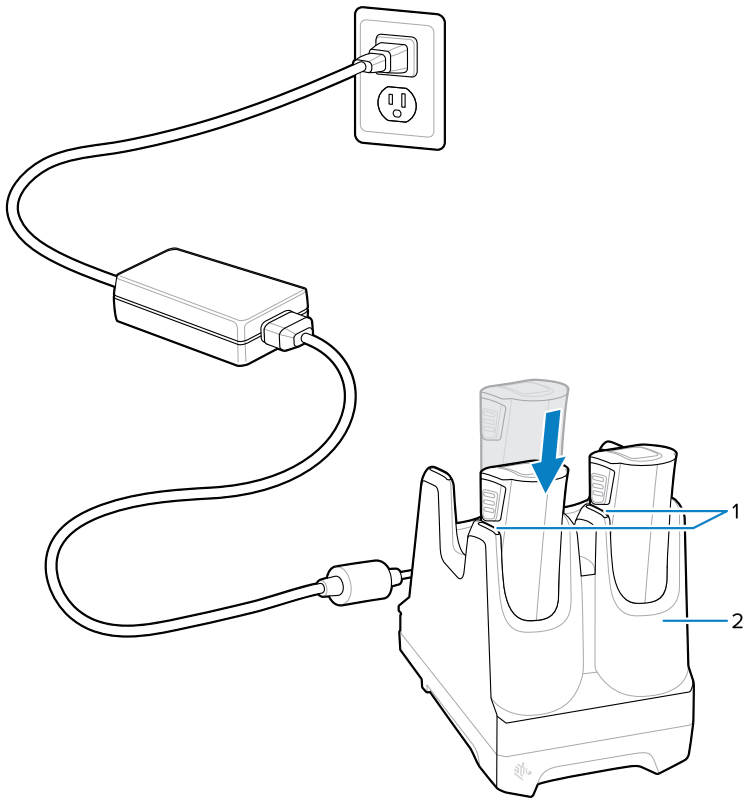
1	Power supply
2	USB-C cable
3	USB-C port

4-Slot Battery Charger

This section describes how to use the charger to charge up to four batteries simultaneously.

CAUTION: Ensure that you follow the guidelines for battery safety described in Battery Safety Guidelines.

Figure 9 4-Slot Battery Charger



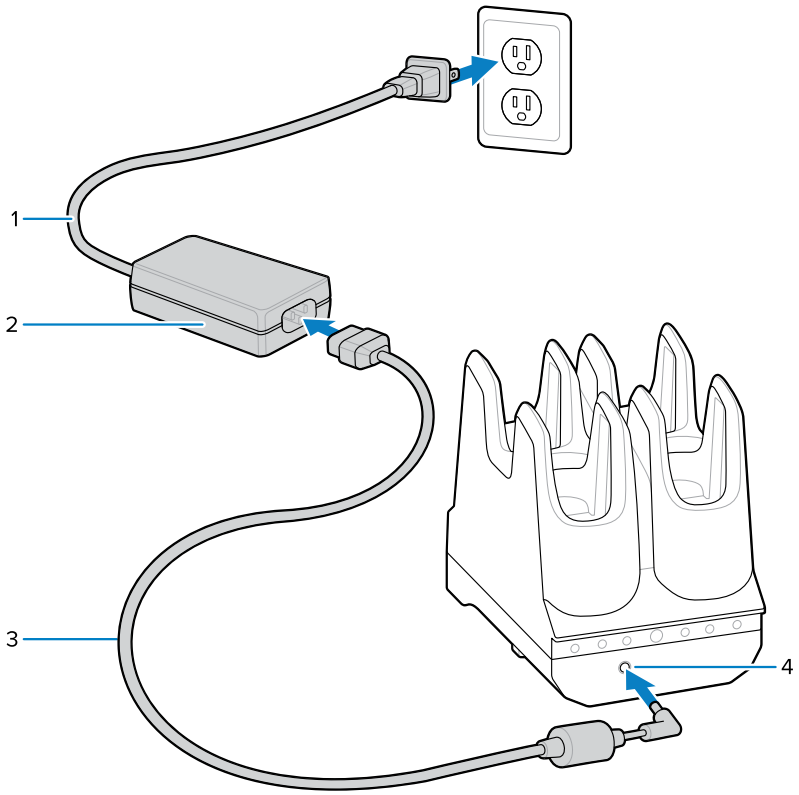
1	Battery charge LED
2	Battery slot

NOTE: To charge the battery, insert it properly in the slot.

Each LED displays the charging status of the battery in its corresponding slot. For more information, see Battery Charging Indicators.

Setup

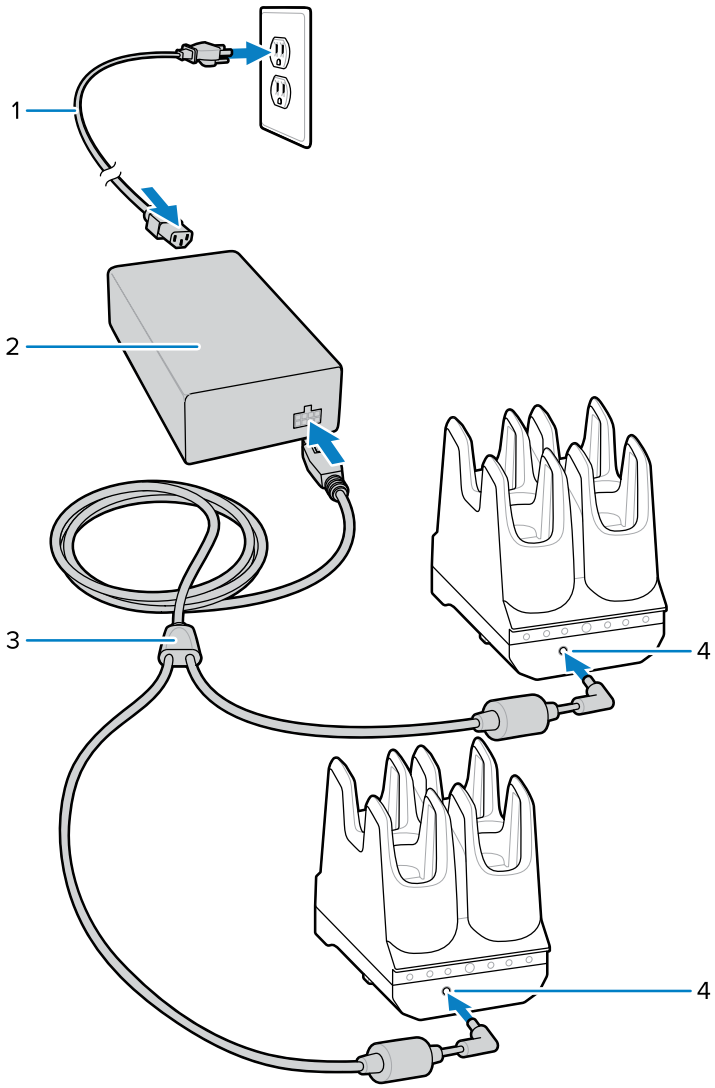
This section shows how to set up the battery charger.



1	AC line cord
2	Power supply
3	DC line cord
4	DC power port

Two Charger Setup

Use the DC Y-line cord to power two 4-Slot Battery Chargers.



1	AC line cord
2	Power supply
3	DC Y-cord
4	DC power port

4-Slot Charge-Only Cradle

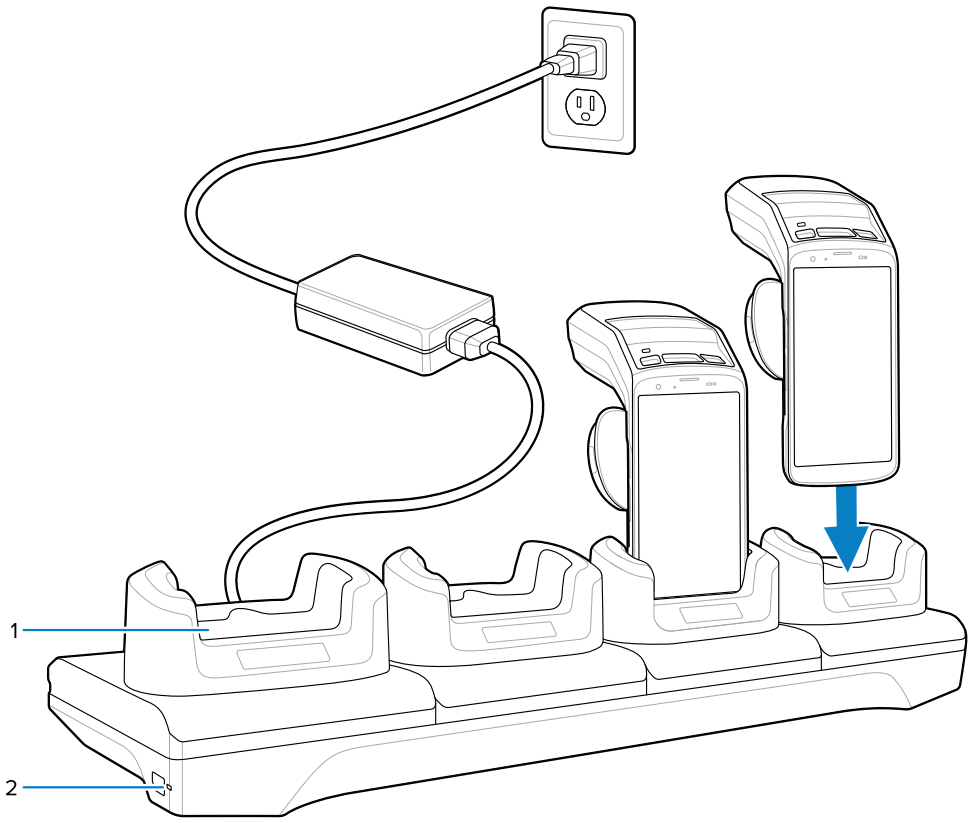
This section describes how to use the 4-Slot Charge-Only Cradle to charge up to four devices.

CAUTION: Ensure that you follow the guidelines for battery safety described in Battery Safety Guidelines.

The 4-Slot Charge-Only Cradle:

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

Figure 10 4-Slot Charge-Only Cradle



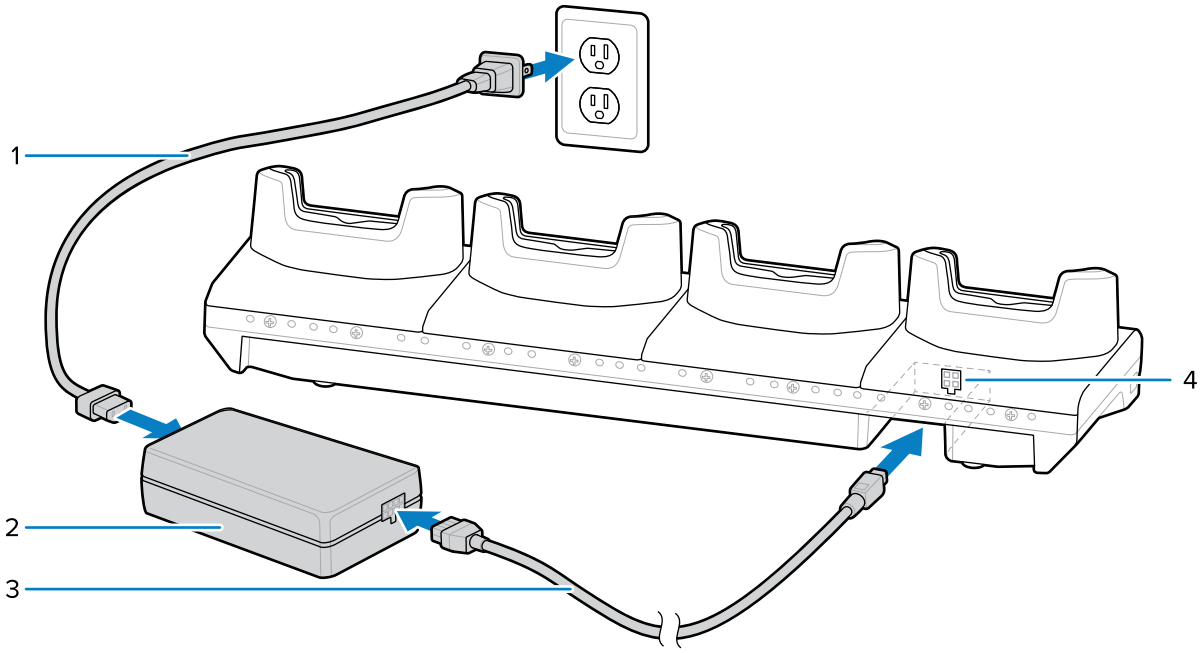
1	Device charging slot with shim
2	Power LED

NOTE: To charge the device, insert it properly in the slot.

Setup

This section shows how to set up the cradle.

Figure 11 4-Slot Charge-Only Cradle Setup



1	AC line cord
2	Power supply
3	DC line cord
4	DC power port

4-Slot Ethernet Cradle

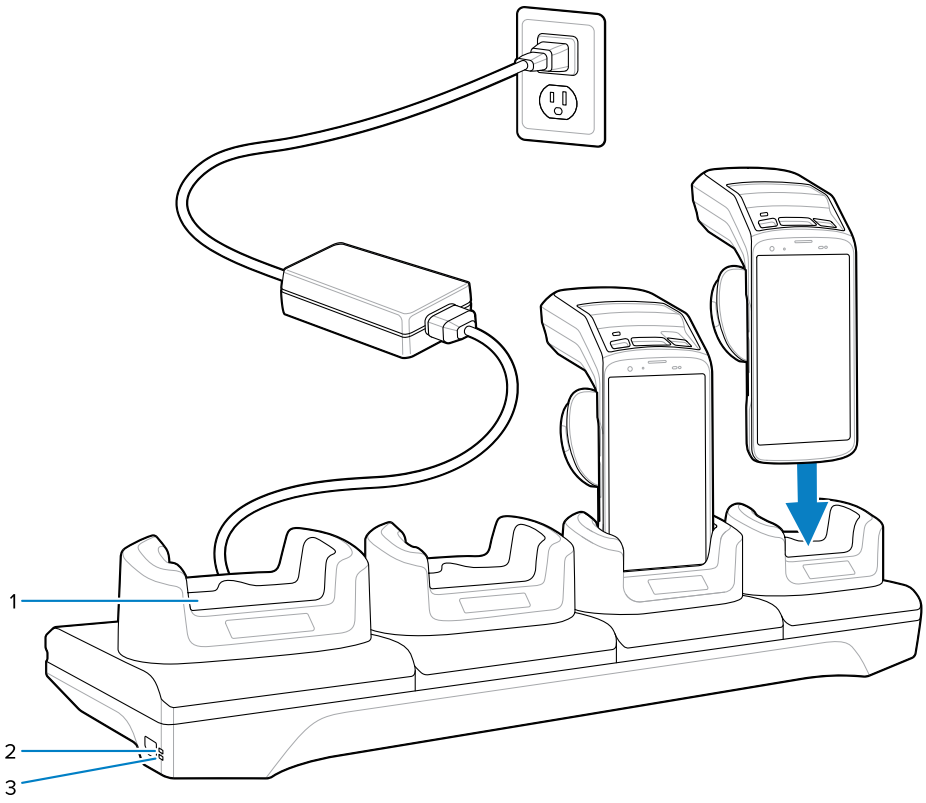
The 4-Slot Ethernet Cradle simultaneously charges up to four devices and provides Ethernet communication.

CAUTION: Ensure that you follow the guidelines for battery safety described in the Battery Safety Guidelines.

The 4-Slot Ethernet Cradle:

- Provides 5.0 VDC power for operating the device.
- Connects up to four devices to an Ethernet network.

Figure 12 4-Slot Ethernet Cradle



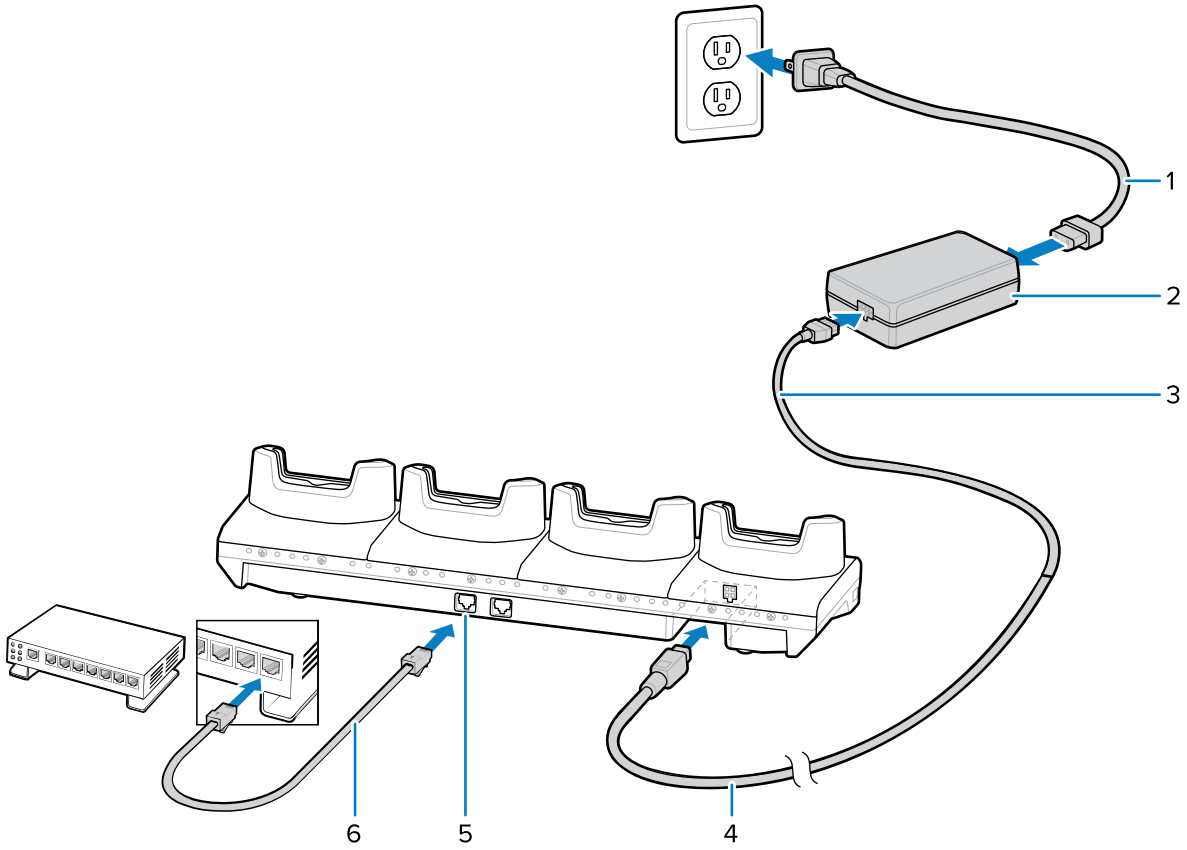
1	Device charging slot with shim
2	10/100Base-T LED
3	1000Base-T LED

NOTE: To charge the device, insert it properly in the slot.

Setup

This section shows how to set up the cradle.

Figure 13 4-Slot Ethernet Cradle Setup



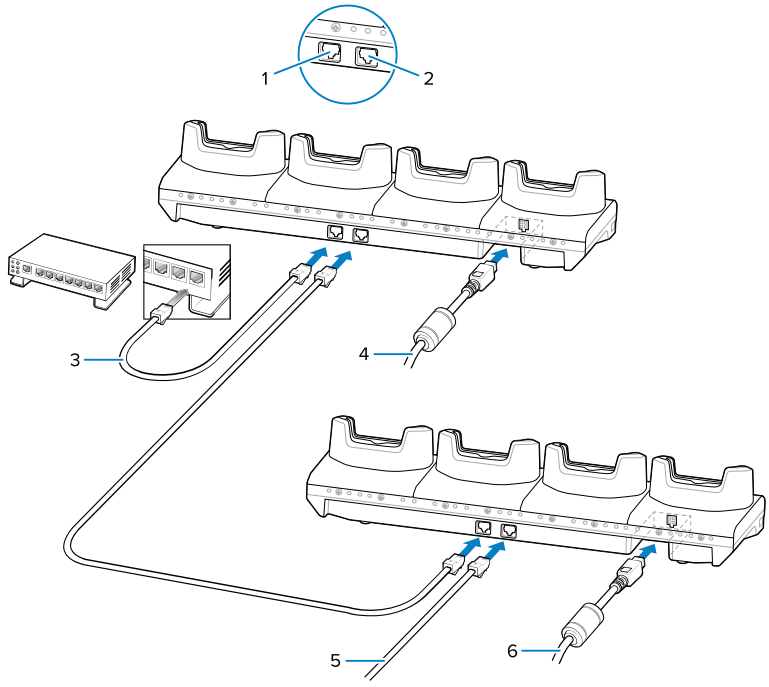
1	AC line cord
2	Power supply
3	DC line cord
4	DC power port
5	Ethernet port
6	Ethernet cable

Daisy-chaining Ethernet Cradles

Daisy-chain up to ten 4-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 power to each 4-Slot Ethernet cradle.
2. Connect an Ethernet cable to one of the ports on the switch and the other end to the to Primary Port of the first cradle.

3. Connect an Ethernet cable to the Secondary port of the first cradle.
4. Connect the other end of the Ethernet cable to the Primary port of the next 4-Slot Ethernet cradle.



1	Primary Port
2	Secondary Port
3	To Switch
4	To Power Supply
5	To Next Cradle
6	To Power Supply

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

Ethernet Communication

This section describes how to establish an Ethernet connection, configure proxy settings, and configure a static IP address.

Ethernet 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 18 LED Data Rate Indicators

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

Table 18 LED Data Rate Indicators (Continued)

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

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

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

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

Configuring Ethernet Static IP Address

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

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

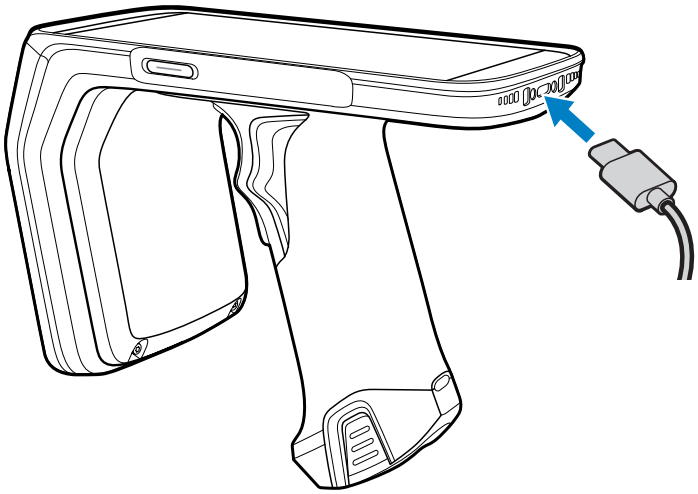
3. Slide the switch to the **ON** position.
4. Place the device into the Ethernet cradle slot.
5. Touch **eth0**.
6. Touch **Disconnect**.
7. Touch **eth0**.
8. Touch the IP settings drop-down list and select **Static**.
9. In the **IP** address field, enter the proxy server address.
10. If required, 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 Home.

Charge/USB-C Cable

The USB-C Cable snaps onto the bottom of the device and can be removed easily when not in use.

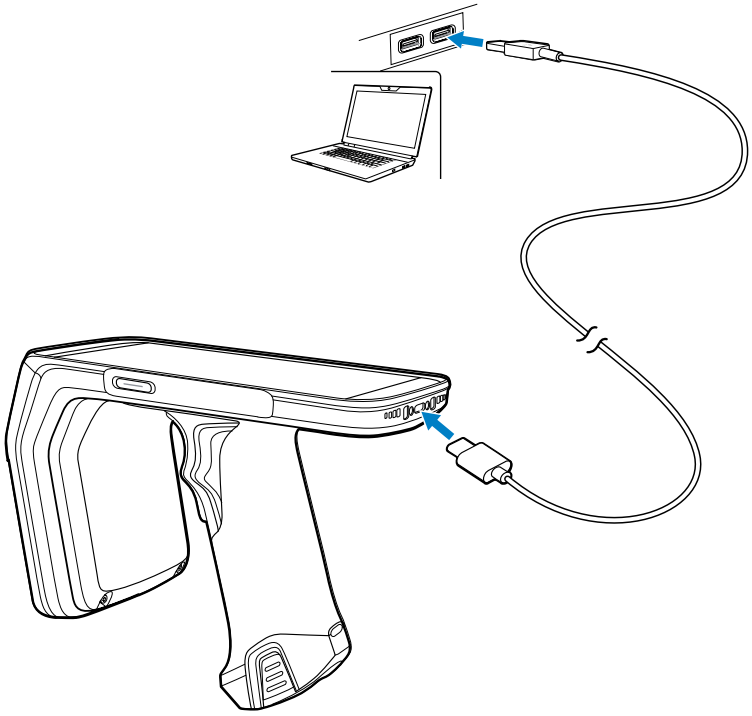
NOTE: When attached to the device, it provides charging and allows the device to transfer data to a host computer.

Figure 14 USB-C Cable



USB Communication

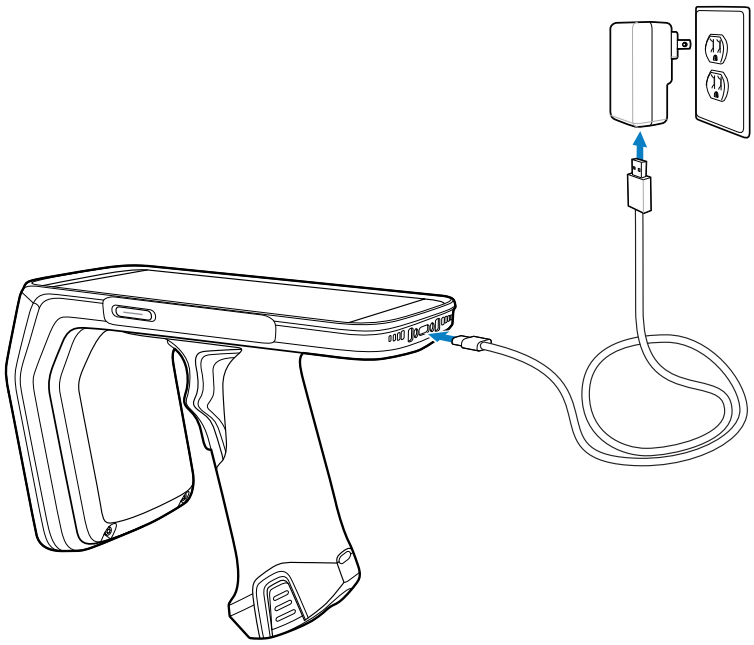
1. Connect the USB cable to the device.
2. Connect the USB connector of the cable to a host computer.



Charging the Device

1. Connect the USB-C cable to the device.
2. Connect the USB connector of the power supply.

3. Plug the power supply into a power outlet.



4-Slot Cradle Rack Installation

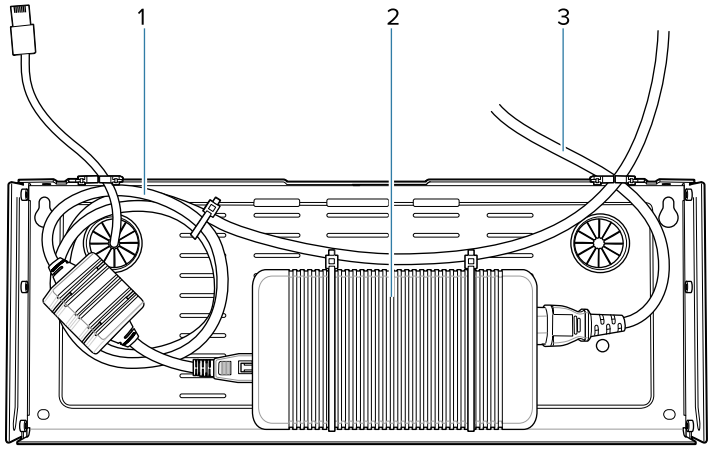
Use the Rack/Wall Mount Bracket to mount a 4-slot cradle on a rack. When installing on a rack, assemble the bracket and cradles/chargers, then install the assembly on the rack.

Installing the 4-Slot Cradle on a Rack

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

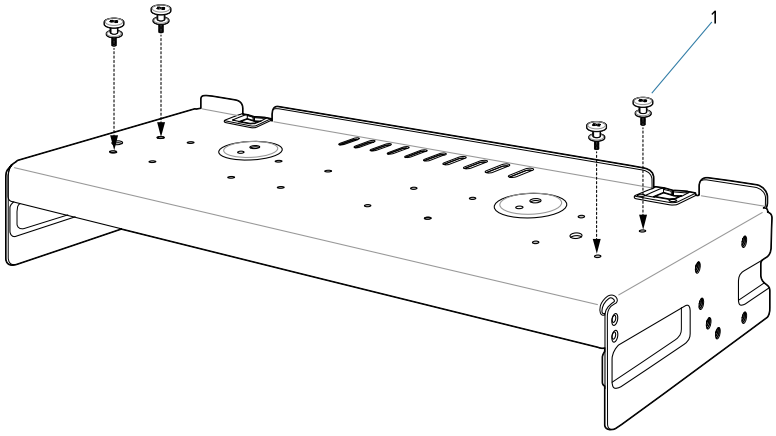
1. Place the power supply in the bottom tray.
2. Connect the AC line cord to the power supply.
3. Connect the DC line cord to the power supply.
4. Secure power supply and cables to the bottom tray with tie wraps.

5. Route cables through cable slots.



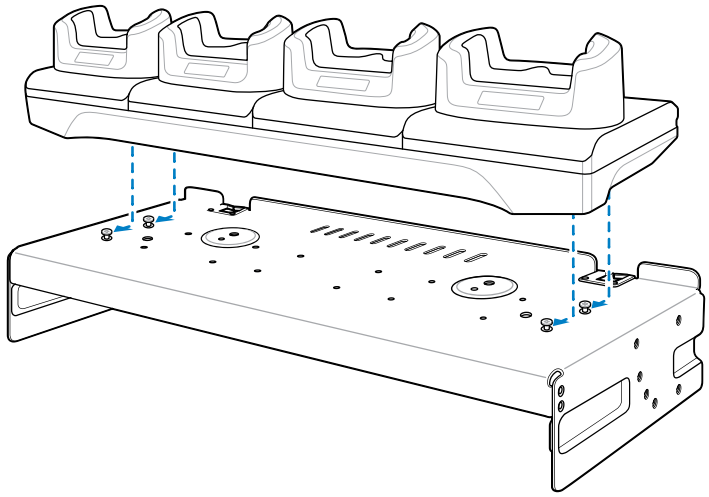
1	DC line cord
2	Power supply
3	AC line cord

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

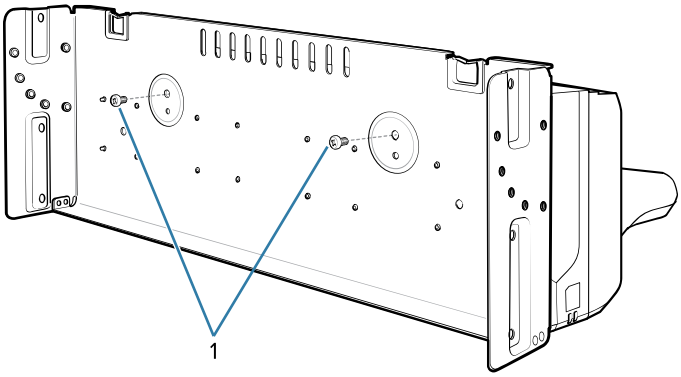


1	Studs (4)

7. Align and install the 4-Slot cradle onto the studs of the top tray.

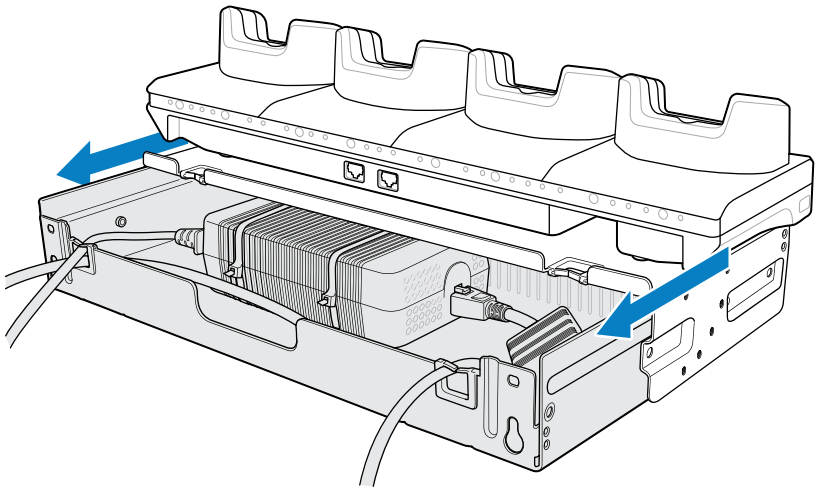


8. Secure the cradle to the top tray with two M2.5 safety screws.

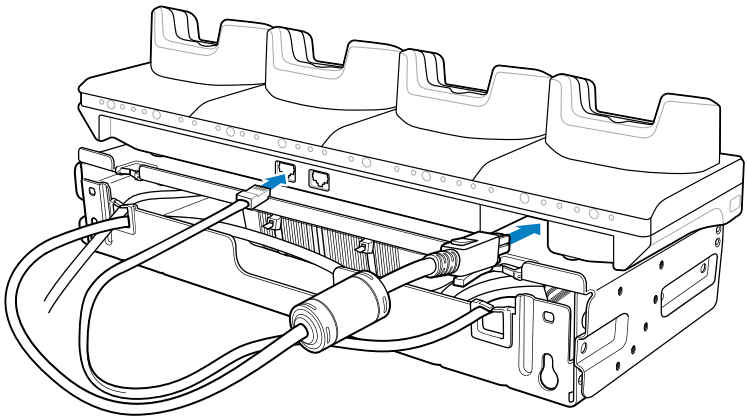


1	Safety Screws(2)

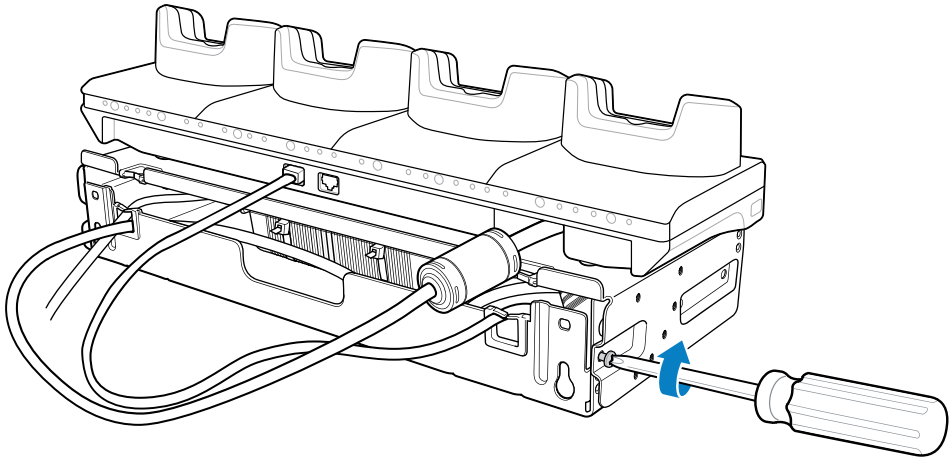
9. Slide the top tray onto the bottom tray.



10. Connect cables to the cradle.



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



See Installing the Rack Mount for installing the bracket assembly onto a rack.

Installing the Rack Mount

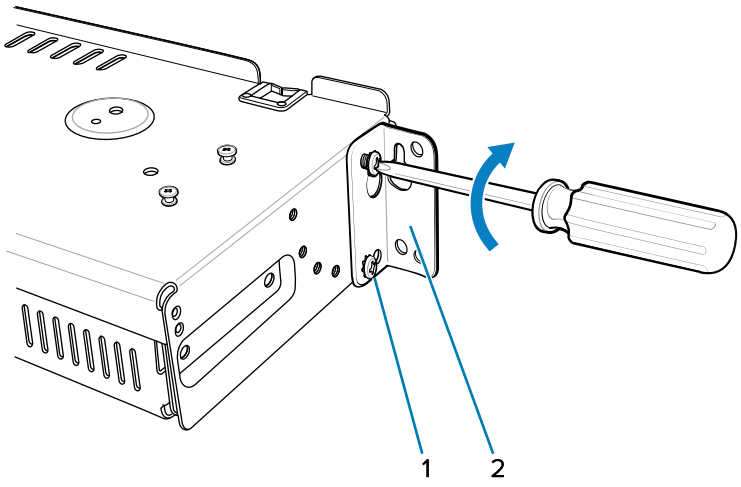
NOTE: Use the screws provided with the rack system. Refer to the rack user documentation for instructions.

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

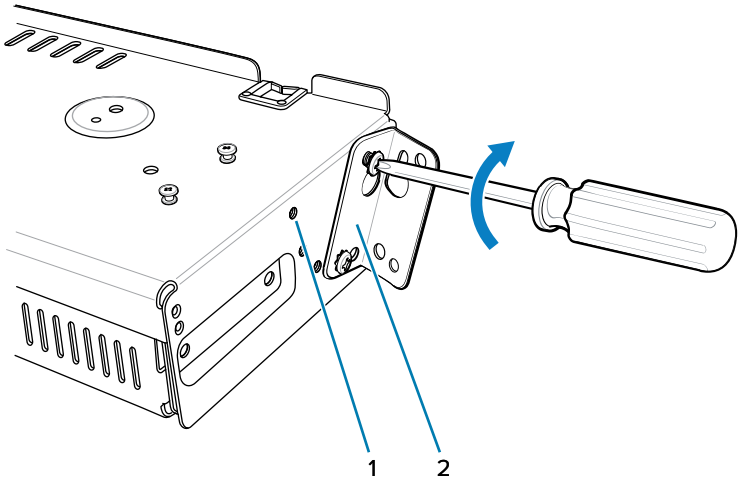
     Figure 15 Flange Horizontal Position (4-Slot Cradles)



1	Flange
2	Fifth Screw Hole

   - For 4-Slot Battery Chargers, position the flange for 25° installation.

     Figure 16 Flange 25° Position (4-Slot Battery Chargers)



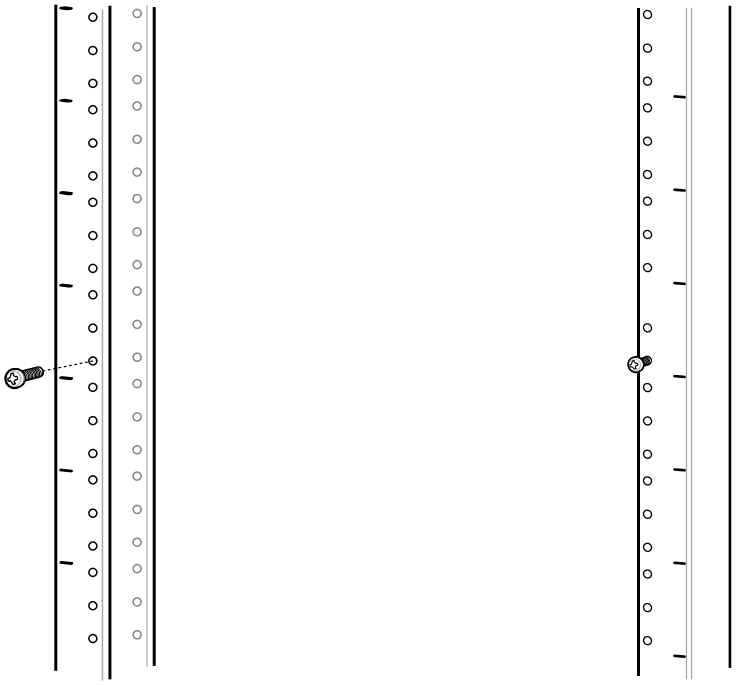
1	Top Screw Hole
2	Flange

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

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

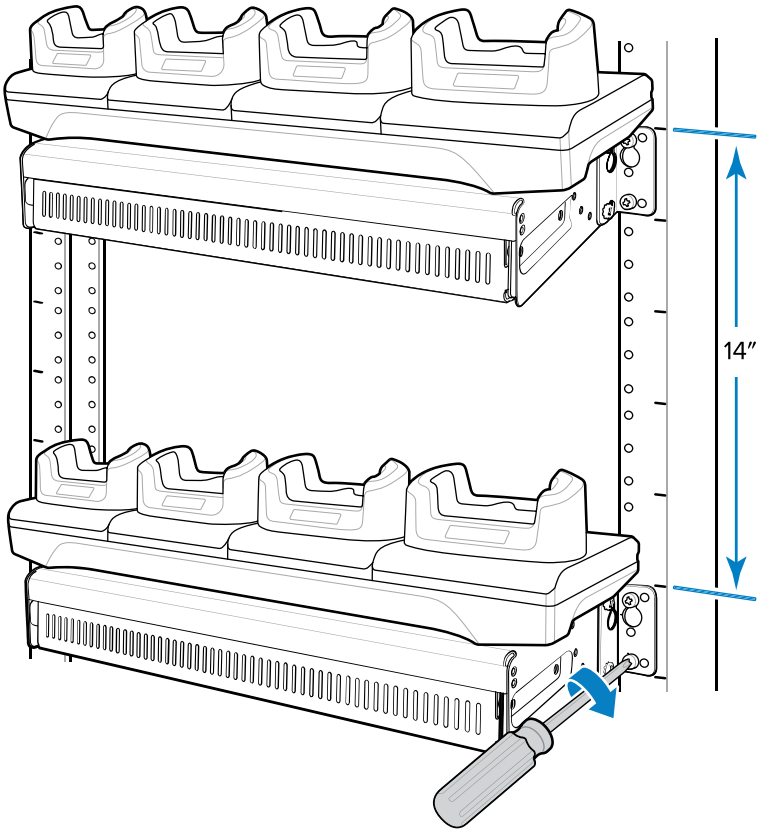
bracket and a 25° mounted bracket should be at least 16.25” apart (from top of one flange to the top of the next flange). There should be enough clearance (2.75”) between the top of the device and the bottom of the mounting bracket above.

2. The screw heads should protrude halfway from the rail.



3. Align the mounting bracket’s top mounting key holes with the screws.

4. Place the brackets on the screws.



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

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

Android Security

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

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

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 website, 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** > **More security settings** > **Encryption & credentials**.
4. Touch **Install a certificate**.
5. Select the Credential type, **CA certificate**, **VPN and app user certificate**, or **Wi-Fi certificate**.

6. Navigate to the location of the certificate file.
7. Touch the filename of the certificate to install.
8. If prompted, enter the password for credential storage. If a password has not been set for the credential storage, enter a password for it twice, and then touch **OK**.
9. Touch **OK**.

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

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. Touch **System** > **Developer Options**.
7. Slide the **USB debugging** switch to the on position.

EMDK for Android

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

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

For more information, go to techdocs.zebra.com/emdk-for-android/about/.

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 or reading a tag.

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 or read an NFC tag) to deliver staging material to the device.

For more information, go to techdocs.zebra.com/stagenow/.

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, go to techdocs.zebra.com/gmsmgr/.

ADB USB Setup

To use the Android Debug Bridge (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 website 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!** displays.
5. Touch **Back**.
6. Touch **System** > **Developer options** .
7. Slide the **USB debugging** switch to the **ON** position.
8. Touch **OK**.
9. Connect the device to the host computer using the Rugged Charge/USB Cable.

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

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

    The following displays:

```
List of devices attached          XXXXXXXXXXXXXXX device
```

    Where XXXXXXXXXXXXXXX is the device number.

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

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
- Android Debug Bridge
- microSD Card
- 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: 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.

NOTE: This method is not recommended due to limited Internal Storage.

1. Connect the device to a host computer using the USB-C 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.
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.

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. Touch **System** > **Developer options**.

5. Touch the **USB debugging** toggle to enable it.

   The **Allow USB debugging?** message appears.

6. Touch **OK**.
7. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
8. Type `adb install <application>`.

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

9. Disconnect the device from the host computer.

Installing Applications Using Wireless ADB

Use ADB commands to install an application onto the device.

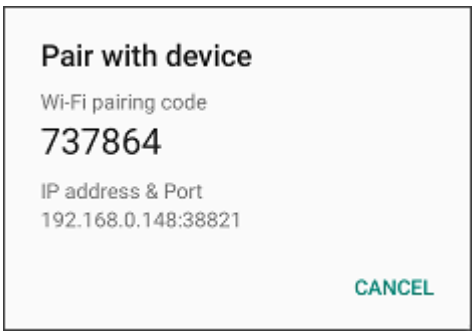
Go to the Zebra Support & Downloads web site at zebra.com/support and download the appropriate file to a host computer.

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. Touch **System** > **Developer options**.
3. Slide the **USB debugging** switch to the **ON** position.
4. Slide the **Wireless debugging** switch to the **ON** position.
5. 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 from this network** check box displays. Select the check box, if required.
6. Touch **ALLOW**.
7. Touch **Wireless debugging**.
8. Touch **Pair with pairing code**.

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



9. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
10. Type `adb pair XX.XX.XX.XX.XXXXX`.

    where XX.XX.XX.XX:XXXXX is the IP address and port number from the **Pair with device** dialog box.

11. Type:`adb connect XX.XX.XX.XX.XXXXX`
12. Press **Enter**.
13. Type the pairing code from the **Pair with device** dialog box.
14. Press **Enter**.
15. Type `adb connect`.

    The device is now connected to the host computer.
16. Type `adb devices`.

    The following displays:

```
List of devices attached          XXXXXXXXXXXXXXX device
```

    Where XXXXXXXXXXXXXXX is the device number.

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

17. On the host computer command prompt window type:

```
adb install <application>
```

18. On the host computer, type:

    `adb disconnect`.

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.

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. Remove the card holder.
8. Insert the microSD card into the card holder.

9. Replace the card holder.
10. Press and hold **Power** to turn on the device.
11. Swipe the screen up and select to view files on the microSD card.
12. Touch **SD card**.
13. Locate the application APK file.
14. Touch the application file.
15. Touch **Continue** to install the app or **Cancel** to stop the installation.
16. To confirm installation and accept what the application affects, touch **Install**. Otherwise, touch **Cancel**.
17. Touch **Open** to open the application or **Done** to exit the installation process.

    The application appears in the App list.

Uninstalling an Application

Free up device memory by removing unused apps.

1. Go to **Settings**.
2. Touch **Apps**.
3. Touch **See all apps** to view all apps in the list.
4. Scroll through the list to the app.
5. Touch the app.

   The **App info** screen displays.
6. Touch **Uninstall**.
7. 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.

Performing a System Update Using microSD Card

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 Installing a microSD Card for more information.
   - 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.
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.

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

NOTE: If you are not able to enter Android Recovery mode through the adb command, see Entering Android Recovery Manually.

1. Connect the device to a host computer using a USB cable.
2. Go to **Settings**.
3. Touch **System** > **Developer options**.
4. Slide the **USB debugging** switch to the **ON** position.
5. 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.
6. Touch **OK**.
7. Type `adb devices`.

   If the device number does not appear, ensure that the ADB drivers are installed properly.
8. Type `adb reboot recovery`.
9. Press **Enter**.

   The System Recovery screen displays on the device.
10. Press **Up Arrow** and **Down Arrow** to navigate to **Apply upgrade from ADB**.
11. Press **Enter**.

    The System Recovery screen displays on the device.
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 System Update installs (the progress displays as a percentage in the Command Prompt window) and then the System Recovery screen displays on the device.
14. Navigate to **Reboot system now** and press the Enter key or Power button to reboot the device.

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.

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

Performing an Enterprise Reset From Device Settings

Perform an Enterprise Reset from the device settings.

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

Performing an Enterprise Reset Using microSD Card

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

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

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 Installing a microSD Card for more information.
   - Connect the device with a microSD card already installed to the host computer and copy zip file to the microSD card. See USB Communication for more information. Disconnect the device from the host computer.
2. Press and hold **Power** until the menu appears.
3. Touch **Restart**.
4. Press and hold **Programmable Button** 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.

NOTE: If you are not able to enter Android Recovery mode through the adb command, see Entering Android Recovery Manually.

1. Connect the device to a host computer using a USB cable.
2. Go to **Settings**.
3. Touch **System** > **Developer options**.
4. Slide the **USB debugging** switch to the **ON** position.
5. 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.
6. Touch **OK**.
7. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
8. Type `adb reboot recovery`.
9. Press **Volume Up** and **Volume Down** to navigate to **Apply upgrade from ADB**.
10. Press **Power**.
11. On the host computer command prompt window type `adb sideload <file>`

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

12. Press **Enter**.

    The Enterprise Reset package installs and then the System Recovery screen appears on the device.

13. 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.

Performing a Factory Reset Using 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 Installing a microSD Card for more information.
   - Connect the device with a microSD card already installed to the host computer, 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. 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.

Performing a Factory Reset Using ADB

Perform a Factory Reset using ADB.

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

NOTE: If you are not able to enter Android Recovery mode through the adb command, see Entering Android Recovery Manually.

1. Connect the device to a host computer using a USB cable.
2. Go to **Settings**.
3. Touch **System** > **Developer options**.
4. Slide the **USB debugging** switch to the **ON** position.
5. 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.
6. Touch **OK**.
7. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
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)
- 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. Touch **System** > **Developer options**.
3. 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**.

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

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

External Storage

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

Viewing External Storage

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

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

   Touch **SD card** to view the contents of the card.
3. To unmount the microSD card, 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. Touch **Apps**.
3. Touch **See all XX apps** to view all apps on the device.
4. Touch ⋮ > **Show system** to include system processes in the list.
5. Touch an app, process, or service in the list to open a screen with details about it and, depending on the item, to change its settings, permissions, and 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.

- **Advanced:**
  - **Screen time** - Displays the amount of time the app has displayed on the screen.
  - **Battery** - Lists the amount of computing power used by the app.
  - **Open by default** - If you have configured an app to launch certain file types by default, you can clear that setting here.
  - **Display over other apps** - Allows an app to display on top of other apps.
  - **App details** - Provides a link to additional app details on the Play store.
  - **Additional settings in the app** - Opens settings in the app.
  - **Modify system settings** - Allows an app to modify the system settings.

Managing Downloads

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

1. Swipe the screen up and touch .
2. Touch > **Downloads**.
3. Touch and hold an item to delete, and then 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

Follow these guidelines to maintain the device properly.

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

- To avoid scratching the screen, use a Zebra-approved, capacitive-compatible stylus 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 device's touch-sensitive screen is made of 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 dusty, damp, or wet location.
- 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.
- Periodically replace the rechargeable battery to ensure maximum battery life and product performance. Battery life depends on individual usage patterns.
- A screen protector is available for the device. Zebra recommends using a screen protector to minimize wear and tear. Screen protectors enhance the usability and durability of touch screen displays. Benefits include:
  - Protection from scratches and gouges
  - Durable writing and touch surface with tactile feel
  - Abrasion and chemical resistance
  - Glare reduction
  - Keeping the device’s screen looking new
  - Quick and easy installation.

Best Practices for Enterprise Mobile 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 you of a shutdown of 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.

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.
- To charge the mobile device battery, the ambient battery and charger temperatures must be between 5° C and 40° C (41° F and 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.
- To enable authentication of an approved battery, as required by IEEE1725 clause 10.2.1, all batteries will carry a hologram. Do not fit any battery without checking if it has the authentication hologram.
- 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.

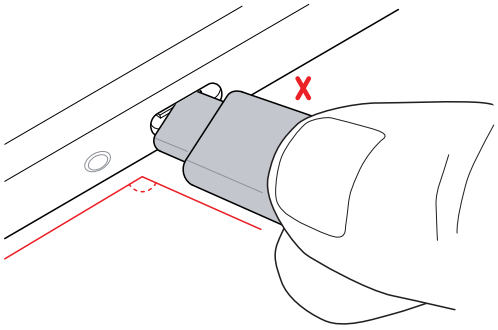
- Do not leave or store the equipment in or near areas that might get very hot, such as in a parked vehicle or near a radiator or other heat source. Do not place a battery into a microwave oven or dryer.
- Battery usage by children should be supervised.
- Please follow local regulations to properly dispose of used rechargeable batteries.
- Do not dispose of batteries in a fire.
- 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.

Properly Plugging and Unplugging a USB-C Cable

This section outlines the proper procedures for safely connecting and disconnecting a USB Type-C cable to prevent damage to the device's connector port.

When connecting/disconnecting the cable from your device:

- Visually inspect the input connector for damage, foreign materials, or signs of moisture.
- Avoid inserting or removing the cable in a non-horizontal direction (for example, upward, downward, left, right, or forward direction). Keep it straight.



- Avoid inserting or removing the cable in a forceful manner.
- Avoid wiggling the cable when plugged into the port.
- Avoid pulling or tugging the cable when plugged into the port.

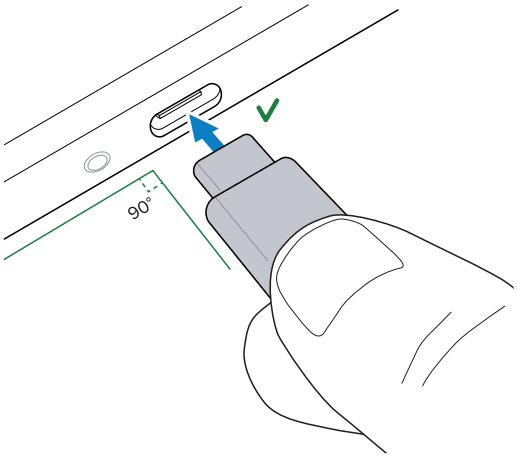
Connecting a USB-C Cable

It is important to correctly align the cable in a straight line when inserting it into the device to prevent damage to the connector or cable.

Examine the device's USB-C port and USB-C connector for damage. If either is damaged, stop using it and get it serviced or repaired.

1. Using your index finger and thumb, hold both sides of the USB-C cable.

2. Insert the cable straight into the port and not at an angle.

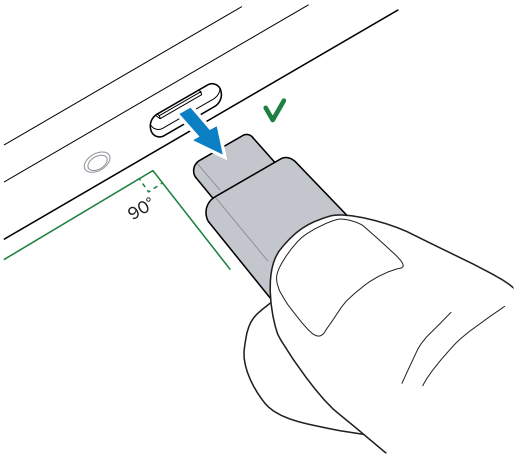


Disconnecting a USB-C Cable

It is important to correctly align the cable in a straight line when removing it from the device to prevent damage to the connector or cable.

Examine the device's USB-C port and USB-C connector for damage. If either is damaged, stop using it and get it serviced or repaired.

1. Using your index finger and thumb, hold both sides of the USB-C cable where it is connected to the device.
2. Gently pull it straight out and not at an angle.



Cleaning Instructions

This section provides instructions for cleaning the device.

Use caution and avoid damaging the device when using cleaning materials.

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.

Approved Cleanser Active Ingredients

100% of the active ingredients in any cleaner must consist of one or some combination of the following: isopropyl alcohol, bleach/sodium hypochlorite (see important note below), hydrogen peroxide, ammonium chloride, or mild dish soap. [1]

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

Due to the powerful oxidizing nature of sodium hypochlorite, the metal surfaces on the device are prone to oxidation (corrosion) when exposed to this chemical in the liquid form (including wipes). In the event that these 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.

Approved cleaners include:

- Purell Ethanol Wipes
- 409 Glass Cleaner
- Windex Blue

Harmful Ingredients

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

Many vinyl gloves contain phthalate additives, which are often not recommended for medical use and are known to be harmful to the housing of the device.

Device Cleaning Instructions

Do not apply liquid directly to the device. Dampen a soft cloth or use pre-moistened wipes. Do not wrap the device in the cloth or wipe, instead gently wipe the unit. Before use, allow the unit to air dry.

NOTE: For thorough cleaning, it is recommended to first remove all accessory attachments, such as hand straps or cradle cups from the mobile device and to clean them separately.

Special Cleaning Notes

Do not handle the device while wearing vinyl gloves containing phthalates. Remove vinyl gloves and wash hands to eliminate any residue left from the gloves.

[1] 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.

If products containing any of the harmful ingredients listed above are used prior to handling the device, such as a hand sanitizer that contains ethanolamine, hands must be completely dry before handling the device to prevent damage to the device.

IMPORTANT: If the battery connectors are exposed to cleaning agents, thoroughly wipe off as much of the chemical as possible and clean with an alcohol wipe. It is also recommended to install the battery in the terminal prior to cleaning and disinfecting the device to help minimize buildup on the connectors. When using cleaning/disinfectant agents on the device, it is important to follow the directions prescribed by the cleaning/disinfectant agent manufacturer.

Cleaning Materials Required

- Alcohol wipes with 70% isopropyl alcohol
- Lens tissue
- Cotton-tipped applicators
- 70% Isopropyl alcohol
- Can of compressed air for electronics with a dispenser tube

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.

Cleaning the Device

This section describes how to clean the housing and battery of the device.

For more information on cleaning the device connector, refer to Cleaning the Connectors.

Housing

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

Display

The display can be wiped down with an approved alcohol wipe, but care should be taken not to allow any pooling of liquid around the edges of the display. Immediately dry the display with a soft, non-abrasive cloth to prevent streaking.

Camera and Exit Window

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

Cleaning Battery Connectors

1. Remove the main battery from the mobile computer.
2. Dip the cotton portion of the cotton-tipped applicator in isopropyl alcohol.
3. To remove any grease or dirt, rub the cotton portion of the cotton-tipped applicator back and forth across the 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 instructions for resetting the device and troubleshooting the device and cradles.

Resetting the Device

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

Performing a Soft Reset

Perform a soft reset if applications stop responding.

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

Performing a Hard Reset

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

Perform a hard reset if the device stops responding.

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

Troubleshooting the Device

The following table provides typical problems that might arise and the solution for correcting the problem.

Table 19 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.
The battery did not charge.	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.

Table 19 Troubleshooting the Device (Continued)

Problem	Cause	Solution
	Extreme battery temperature.	The battery does not charge if the ambient temperature is below 5°C to 50°C (41°F to 122°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 is 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 transmitted or transmitted data 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 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.
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, 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. 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** > **All Apps**. Select the app in the list and select **UNINSTALL**.
The device does not decode with reading bar code.	The scanning application is not loaded.	Load a scanning application on the device or enable DataWedge. See the system administrator.
	Unreadable bar code.	Ensure the symbol is not defaced.

Table 19 Troubleshooting the Device (Continued)

Problem	Cause	Solution
	The distance between the exit window and barcode is incorrect.	Place the device within the proper scanning range.
	The device is not programmed for the bar code.	Program the device to accept the type of bar code being scanned. Refer to the EMDK or DataWedge application.
	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.
	The battery is low.	Check the battery level if the scanner stops emitting a laser beam upon a trigger press. The scanner shuts off when the battery is low before the device's low battery condition notification. Note: If the scanner is still not reading symbols, contact the distributor or the Global Customer Support Center.
The 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 is 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.	The user enters an incorrect password.	If the user enters an incorrect password five times, the user is requested to wait for 30 seconds when using a PIN, Pattern, or Password.
Multi-User mode is causing undefined behavior.	Multi-User mode is not supported by the Mobility DNA Enterprise License.	Perform a soft or hard reset on the device.

1-Slot Charge-Only Cradle Troubleshooting

The following table provides troubleshooting information for the cradle.

Table 20 Troubleshooting the 1-Slot Charge-Only Cradle

Symptom	Possible Cause	Action
The device battery is not charging.	The device was removed from the cradle, or the cradle was unplugged from AC power too soon.	Ensure the cradle is receiving power. Ensure the device is seated correctly. Confirm main battery is charging. The standard battery charges from fully depleted to 80% in less than 1 hour and 20 minutes. The extended battery charges from fully depleted to 80% in less than 1 hour and 50 minutes.
	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 re-insert the device into the cradle, ensuring it is firmly seated.

Table 20 Troubleshooting the 1-Slot Charge-Only Cradle (Continued)

Symptom	Possible Cause	Action
	Extreme battery temperature.	The battery does not charge if the ambient temperature is below 5°C (41°F) or above 40°C (104°F).

4-Slot Battery Charger Troubleshooting

The following table provides troubleshooting information for the 4-Slot Battery Charger.

Table 21 Troubleshooting the 4-Slot Battery Charger

Problem	Cause	Solution
The Battery Charging LED does not light when the battery is inserted.	The battery is not correctly seated.	Remove and re-insert the battery into the charging slot, ensuring it is correctly seated.
The battery is not charging.	The charger is not receiving power.	Ensure the power cable is connected securely to the charger and AC power.
	The 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 re-insert 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 the charger is receiving power. Ensure the battery is seated correctly. The standard battery charges from fully depleted to 90% in less than 4 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 40°C (104°F).

4-Slot Charge-Only Cradle Troubleshooting

The following table provides troubleshooting information for the 4-Slot Charge-Only cradle.

Table 22 Troubleshooting the 4-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 standard battery charges from fully depleted to 80% in less than 1 hour and 20 minutes. The extended battery charges from fully depleted to 80% in less than 1 hour and 50 minutes.
	The battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The device is not inserted correctly into the cradle.	Remove the device and reinsert it correctly. Verify charging is active. Open the **Battery Manager** app.
	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).

4-Slot Ethernet Cradle Troubleshooting

The following table provides troubleshooting information for the 4-Slot Ethernet cradle.

Table 23 Troubleshooting the 4-Slot Ethernet Cradle

Problem	Cause	Solution
During communication, no data was transmitted, or 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 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 standard battery charges from fully depleted to 80% in less than 1 hour and 20 minutes. The extended battery charges from fully depleted to 80% in less than 1 hour and 50 minutes.
	The battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The device is not inserted correctly into the cradle.	Remove the device and reinsert it correctly. Verify charging is active. Open the **Battery Manager** app.

Table 23 Troubleshooting the 4-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 5°C (41°F) and 40°C (104°F).

Technical Specifications

For device technical specifications, go to zebra.com/support.

SE4710 Decode Distances

The table lists the typical distances for selected barcode densities. The minimum element width (or “symbol density”) is the width in mils of the narrowest element (bar or space) in the symbol.

Table 24 SE4710 Decode Distances

Bar Code Type	Near Distance	Far Distance
	Typical	Typical
5 mil Code 39	2.4 in. 6.1 cm	9.5 in. 24.1 cm
5.0 mil Code 128	2.8 in. 7.1 cm	9.0 in. 22.9 cm
6.6 mil PDF417	2.4 in. 6.1 cm	8.0 in. 20.3 cm
10 mil Data Matrix	2.9 in. 7.49 cm	9.0 in. 22.9 cm
100% UPCA	1.8 in. 5.1 cm	19.5 in. 26.2 cm
15 mil QR Code	1.2 in. 4.6 cm	12 in. 30.5 cm
20 mil QR Code	1.2 in. 4.6 cm	14 in. 35.6 cm
20 mil Code 39	2.0 in. 5.1 cm	26.0 in. 66.0 cm

Table 24 SE4710 Decode Distances (Continued)

Bar Code Type	Near Distance	Far Distance
	Typical	Typical
*Limited by width of barcode in field of view. **NOTE:** Photographic quality barcode at 15° tilt pitch angle under 30 fcd ambient illumination. Distances measured from the front edge of the scan engine chassis.		

1-Slot Charge-Only Cradle Specifications

The following table provides technical specifications for the 1-Slot Charge-Only cradle.

Table 25 1-Slot Charge-Only Cradle Technical Specifications

Item	Description
Dimensions	Height: 11.5 cm (4.5 in.) Width: 11.3 cm (4.4 in.) Depth: 15 cm (5.9 in.)
Weight	306 g (10.8 oz.)
Input Voltage	5 VDC
Power Consumption	up to 12.5 watts
Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	5°C to 40°C (41°F to 104°F)
Humidity	5% to 95% non-condensing
Drop	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

4-Slot Battery Charger Specifications

The following table provides technical specifications for the 4-Slot Battery Charger.

Table 26 4-Slot Battery Charger Technical Specifications

Item	Description
Dimensions	Height: 12.96 cm (5.10 in.) Width: 9.75 cm (3.84 in.) Depth: 13.45 cm (5.30 in.)
Weight	570 g (20.11 oz.)
Input Voltage	12 V DC
Power Consumption	27 watts
Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	0°C to 40°C (32°F to 104°F)
Humidity	5% to 95% non-condensing
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 20 kV air +/- 10 kV contact +/- 10 kV indirect discharge

4-Slot Charge-Only Cradle Specifications

The following table provides technical specifications for the 4-Slot Charge-Only cradle.

Table 27 4-Slot Charge-Only Cradle Technical Specifications

Item	Description
Dimensions	Height: 10.2 cm (4.0 in.) Width: 13.1 cm (5.2 in.) Depth: 48.9 cm (19.3 in.)
Weight	1,968 g (69.4 oz.)
Input Voltage	12 VDC
Power Consumption	up to 108 watts
Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	5°C to 40°C (41°F to 104°F)
Humidity	5% to 95% non-condensing
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature.

Table 27 4-Slot Charge-Only Cradle Technical Specifications (Continued)

Item	Description
Electrostatic Discharge (ESD)	+/- 20 kV air +/- 10 kV contact +/- 10 kV indirect discharge

4-Slot Ethernet Cradle Specifications

The following table provides technical specifications for the 4-Slot Ethernet cradle.

Table 28 4-Slot Ethernet Cradle Technical Specifications

Item	Description
Dimensions	Height: 9.5 cm (3.7 in.) Width: 13.5 cm (5.3 in.) Depth: 49 cm (19.3 in.)
Weight	2,107 g (74.3 oz.)
Input Voltage	12 VDC
Power Consumption	up to 108 watts
Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	5°C to 40°C (41°F to 104°F)
Humidity	5% to 95% non-condensing
Drop	76.2 cm (30.0 in.) drops to vinyl-tiled concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 20 kV air +/- 10 kV contact +/- 10 kV indirect discharge

Known Limitations and Recommendations

This section describes the device's limitations, and provides recommendations to address them.

Table 29 Limitations and Recommendations

Limitation	Recommendation
Absence of a backup battery to maintain system time.	The device is powered by a single removable battery. When you power off the device without a battery power source, for example, when the battery is fully discharged or removed, the system time configuration is reset. Zebra recommends that you connect the device to a Wi-Fi network with DHCP and utilize time synchronization with NTP to automatically restore and maintain the correct time.
Removing the device battery while the device is powered on can cause issues.	Zebra does not recommend ejecting the battery when the device is operational. The device does not have an alternative power source except the main battery. Removing the battery can result in potential issues, such as file system corruption. To remove the battery Zebra recommends that you first power off the device (Press **Power Button**, then **Power Off**), and then remove the battery.
Two-way audio in Handset mode is not supported.	The device has a single microphone and speaker. If the internal speaker and microphone are used together, for example, for a two-way audio function, there can be user-perceivable echo and/or degradation in overall voice quality. Zebra recommends an external USB or Bluetooth headset for use cases that require simultaneous use of speaker and microphone functions.
The gun trigger for barcode scanning is available only when the application is connected to the RFID reader.	Gun trigger activation of the barcode scanner requires an application to maintain RFID functionality. In an existing barcode scanning application, for example, the Zebra Enterprise Mobility Development Kit, which currently utilizes the left trigger button for activating barcode scanning and requires the use of the gun trigger as well for the barcode scanner, the application needs modification to use RFID APIs to open the RFID device and keep the device open for the duration of scanning application usage. Refer to **"Hello RFID Application"** tutorial in Android RFID APIs on how the `RFIDReader` class and its `Connect()` method are used to connect to RFID.

Table 29 Limitations and Recommendations (Continued)

Limitation	Recommendation
UHF RFID and NFC functions are exclusive to each other.	When UHF RFID is enabled, NFC is unavailable, and vice versa. This limitation is by design to protect the device's overall power consumption and cannot be overridden.
NFC gets enabled in Airplane mode after a device reboot.	If airplane mode is activated, radios, including NFC, are turned off. However, if the device is rebooted, NFC is re-enabled. Zebra recommends to manually disable NFC using Android **Quick Settings** from the **Notification** Quick Access Panel.
Operating at the highest RFID transmit power at low battery level and low temperature.	Zebra recommends that you not operate RFID at 32 dBm with low battery levels (20% and below), and at low operating temperatures (approximately -10° C/50° F). The device may power off resulting in data loss. When operating at very low temperatures, ensure the battery has a charge of at least 50%. Alternatively, consider operating at a lower transmit power level of 27 dBm or lower if the battery level is low (below 20%).
The scanning session times out in 2 seconds if the RFID is connected.	When using RFID, the barcode scanning session times out after two seconds if the barcode is not in the field of view. This limitation is by design to prevent high power consumption. If the scanning session needs to be prolonged beyond two seconds, close the RFID application.
Continuous scanning mode and presentation mode are not supported.	The scanner in the device does not support continuous scanning mode and presentation mode in DataWedge. This limitation is by design to limit power consumption.
The Fastest Read mode in 123RFID is not recommended for continuous use.	Prolonged use of the device in this mode can quickly drain the battery and may cause the unit to overheat. Zebra recommends, that you enable **Balanced Mode with Dynamic Power Optimization**.