WS501

Enterprise Wearable Solution

Product Reference Guide
for Android ™ 14

ZEBRA

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About This Guide

This guide provides information about using the WS501 wearable computer. Screens and windows pictured in this guide are samples and can differ from actual screens.

Configurations

The guide covers configurations described in the table.

Table 1   Configurations

Form Factor	Radios	Memory	Battery	Data Capture	Operating System	Camera
Scanner	802.11 a/b/g/n/ac/ax Bluetooth 5.3 NFC	3 GB RAM/32 GB Flash	1300 mAh	SE4770	Android Open Source Project (AOSP) 14	No

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 the user to know and that is not required to complete a task.

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

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

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

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

Service Information

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

When contacting support, please have the following information available:

- Serial number of the unit
- Model number or product name
- Software/firmware type and version number

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Determining Software Versions

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

1. Go to **Settings**.

2. Touch **About phone**.

3. Scroll to view the following information:

   - Device name
   - SW components
   - Legal information
   - Model & hardware
   - Android version
     - Android version
     - Android security update
     - Google Play system update
     - Kernel version
     - Build number

Determining the Serial Number

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

1. Touch **About phone**.

2. Touch **Model & hardware**.

Getting Started

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

Unpacking the Device

Unpacking the device from the box.

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

2. Verify that box contains all the equipment listed below:

   - Wearable computer
   - Lithium-ion battery
   - Regulatory guide.

3. Inspect the equipment for damage. If you are missing any equipment or if you find any damaged equipment, contact Support immediately. See Service Information on page 4 for contact information.

Device Features

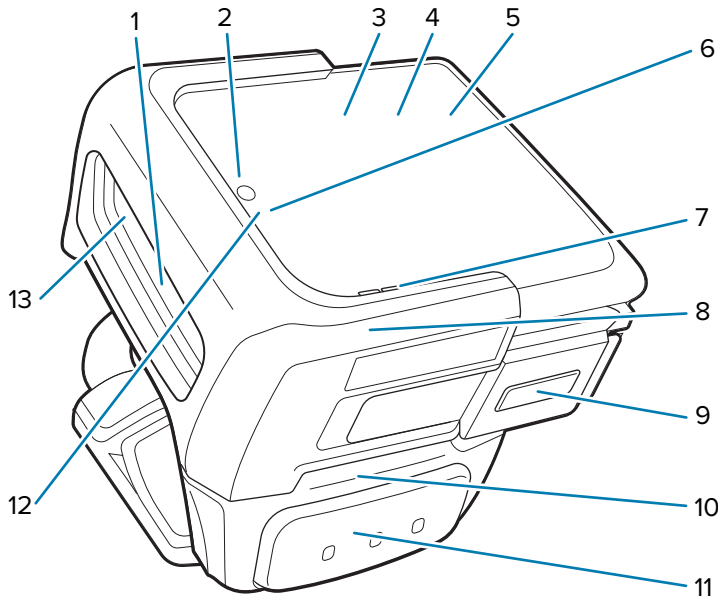The WS501 is a wearable computer that offers flexible hands-free operation for right or left-hand users.

The devices is available in the following configuration:

- Scanner

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Scanner Features

The Scanner is worn on the operator's index and middle fingers and utilizes a thumb-operated trigger. It has a touch panel, a trigger assembly, an SE4770 scan engine, and other features.

Front View

1	Scanner window	Provides data capture using the imager.
2	Microphone	Use for voice communications or audio recordings.
3	Display	Displays all information needed to operate the device.
4	Ambient light sensor (under the display)	Determines ambient light for controlling display backlight intensity.
5	NFC antenna (under the display)	Provides communication with other NFC-enabled devices.
6	Charging LED	Indicates the battery charge state while charging.
7	Speaker	Use for voice communication or audio playback.
8	Deflector	Protects the device. **NOTE:** The deflector includes mandatory laser safety warning markings and must always be fitted when in use.
9	Left button	User programmable; defaults to **Back** button.
10	Trigger assembly	Consists of a finger strap and a scan trigger; rotatable to provide left-hand or right-hand use.
11	Scan trigger	Initiates barcode data capture when a scan-enabled application is active.
12	Notification LED	Indicates an application notification is received.
13	Proximity sensor (optional)	Detects objects close to the device, enables the SE4770.

Rear View
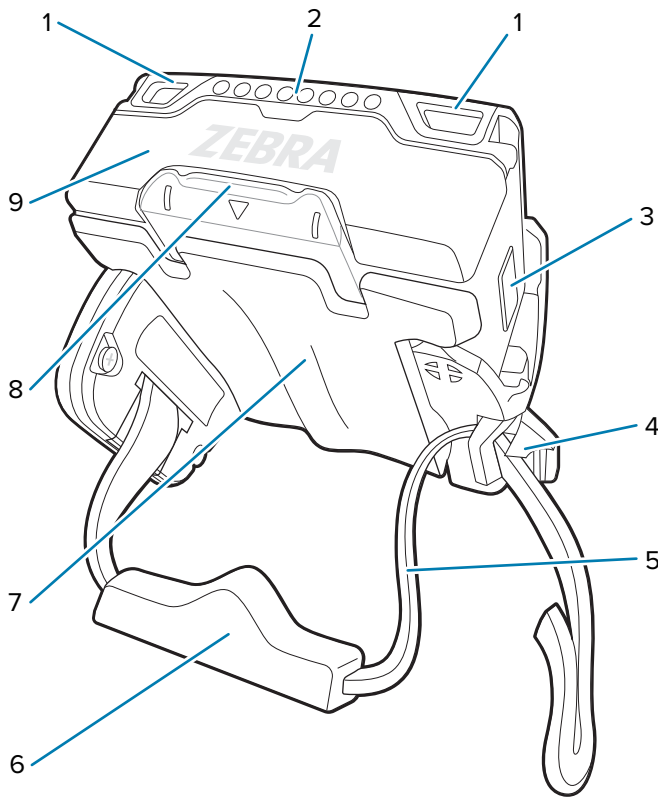
1	Scan/Custom LED	Indicates data capture and custom applications-controlled status.
2	Interface connector	Provides USB host and client communication, and device charging via cables and accessories.
3	Right button	User programmable; defaults to **Home** button; presses to power on the device.
4	Strap buckle	Tightens or loosens the finger strap on the fingers.
5	Finger strap	Use for securely holding the device on the fingers. Comes pre-installed on every Converged Scanner.
6	Finger wedge	Cushions and stabilizes fingers within the strap.
7	Finger comfort pad	Cushions the fingers from the device.
8	Shell release tab	Press down to release the device from the shell.
9	Battery	High capacity 1300 mAh battery, provides power for operating the device.

NOTE: To use the Scanner with the back of hand (BOH) mount, replace the trigger assembly with the BOH mount. See Installing the Back of Hand Mount on page 87 for more details.

See Also

Installing the Trigger and Shell Assembly for the Scanner
Changing the Trigger Position for the Scanner
Removing the Trigger and Shell Assembly

Setting Up the Device

To start using the device for the first time:

1. Install the battery.
2. Install the wearable assembly.
   - Finger trigger assembly
3. Charge the device using one of the charging accessories.
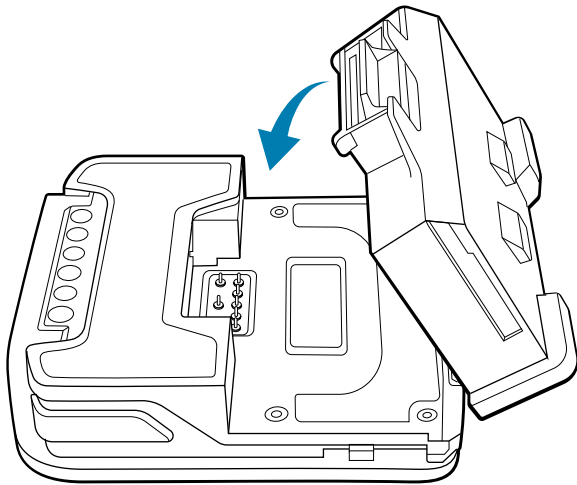4. Power on the device.

Installing the Battery

Install the 1300 mAh battery to the WS501 Scanner.

1. Align the battery so that the battery bottom engages the locking slots (1).
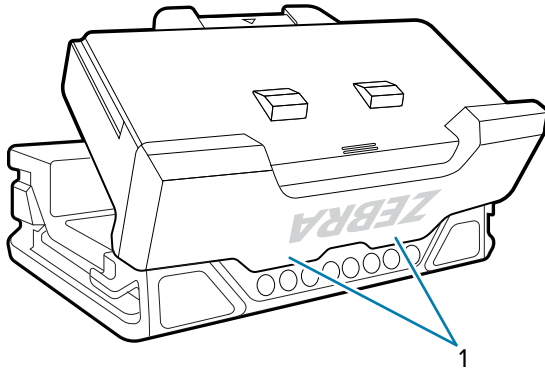
2. Press the battery down into the battery compartment until the battery release latches snap into place.

## Installing the Trigger and Shell Assembly for the Scanner

Install the device to the trigger and shell assembly to utilize a thumb-operated trigger.

1. Ensure the touch panel of the device faces upward.

2. Slide the device (2) into the trigger and shell assembly (1) until the shell release latch snaps into place.

> **NOTE:** Install the battery to the device before sliding the device into the shell.
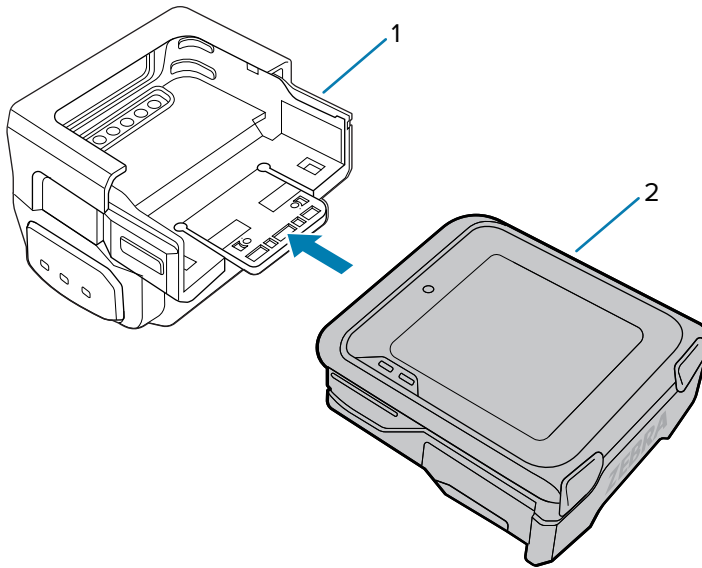

Changing the Trigger Position for the Scanner

The trigger assembly can be changed to accommodate left-hand or right-hand use.

Determine whether the Scanner is used on the right or left hand so that the Scan Trigger is positioned next to the thumb.

> **NOTE:** The described procedures are applicable to both right-handed and left-handed users. The illustrations in this section show the steps to change the trigger position from right to left as an example.

1. On the bottom of the device, lift the finger comfort pad from the front of the device, and then lift it from the rear.
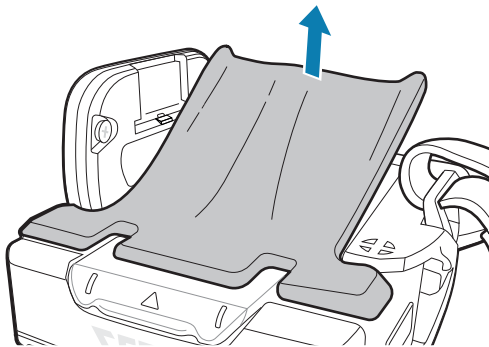
2. Follow the instructions on the back of the device to unmount the trigger assembly.

    a) Unlock the trigger assembly by pushing the release latch to Unlock (4).

    b) Slide the trigger assembly following the Unlock (1) direction until the black triangle (2) is aligned with the engraved triangle (3).
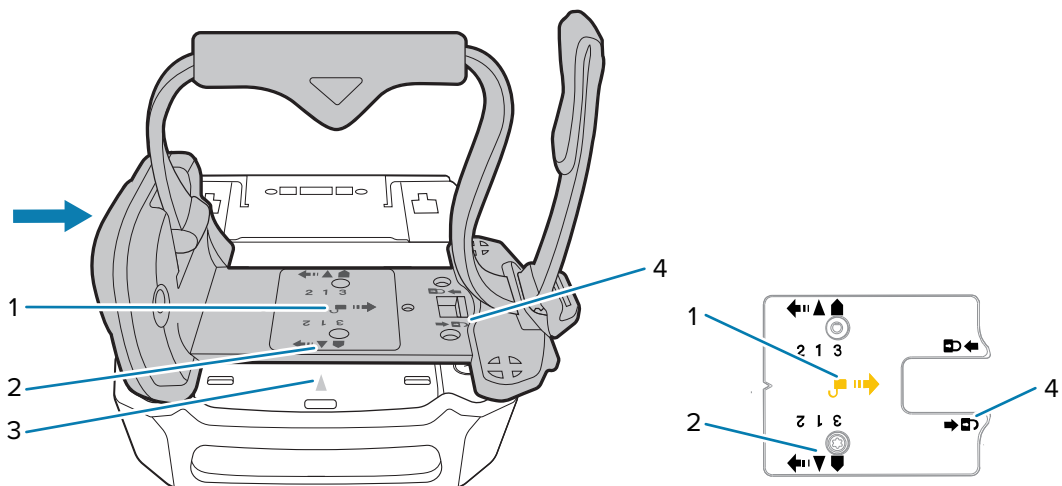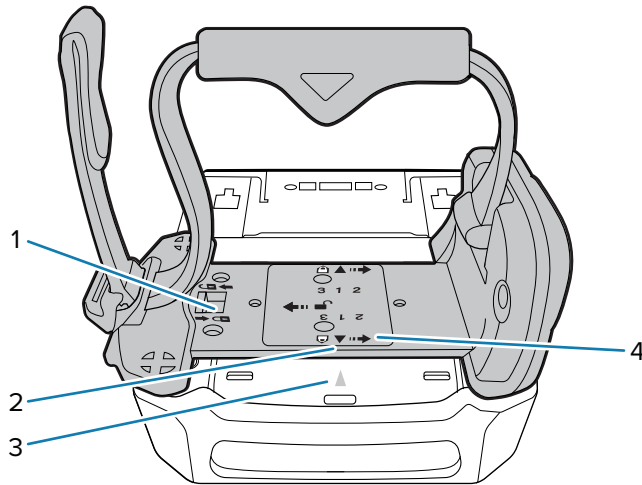

    c) Lift the trigger assembly.
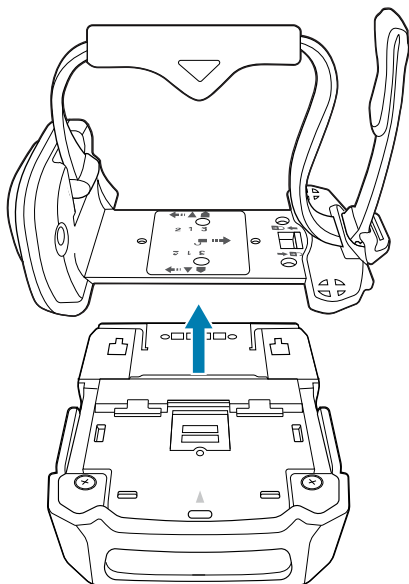
3. Rotate the trigger assembly so that the scan trigger is positioned next to the thumb.

4. When replacing the trigger assembly onto the back of the core in the shell, ensure the black triangle (2) is aligned with the engraved triangle (3).

5. Slide the trigger assembly following the Lock (4) direction.

6. Lock the trigger assembly by pushing the latch to the Lock (1) position, if necessary.

7. Reattach the finger comfort pad onto the bottom of the device.
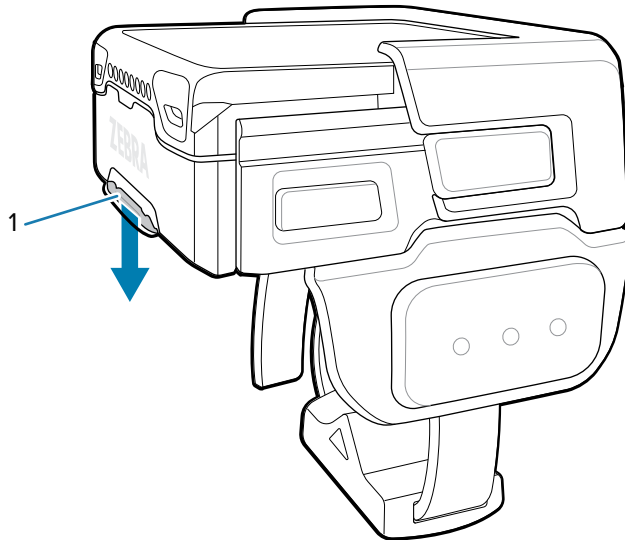
See Also
Locking the Trigger Assembly

Removing the Trigger and Shell Assembly

Remove the device from the trigger and shell assembly when you need to change a battery.

1. Press down the shell release tab (1).

2. Slide the device (1) away from the trigger and shell assembly (2).
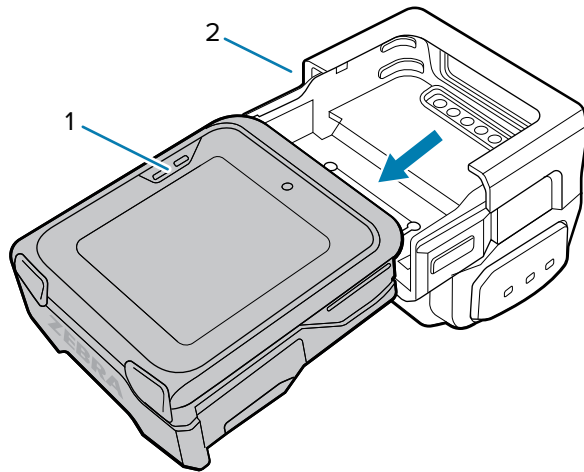
Replacing the Battery

The device supports Hot Swap mode where the user can replace the battery without powering off the device. When the user removes the device from the shell, the display turns off and the device enters a low power state (indicated by a single red flash of the scan/custom LED). Replace the battery within two minutes to preserve memory persistence.

1. Remove the wearable assembly.

For information about removing the finger trigger, see Removing the Trigger and Shell Assembly on page 12.

2. Rotate the device so that the touch screen is facing downward.

3. Push the battery release latch (1).
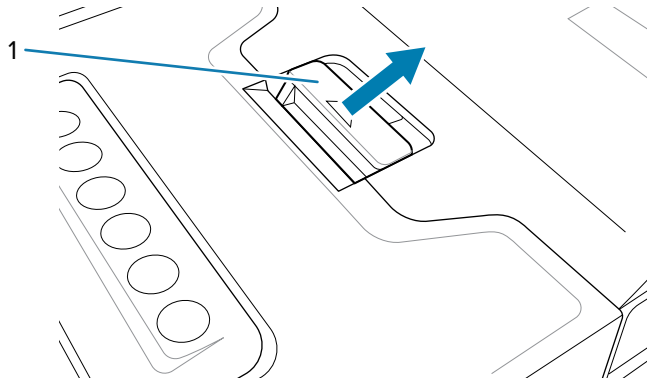
4. Lift the battery from the battery compartment.
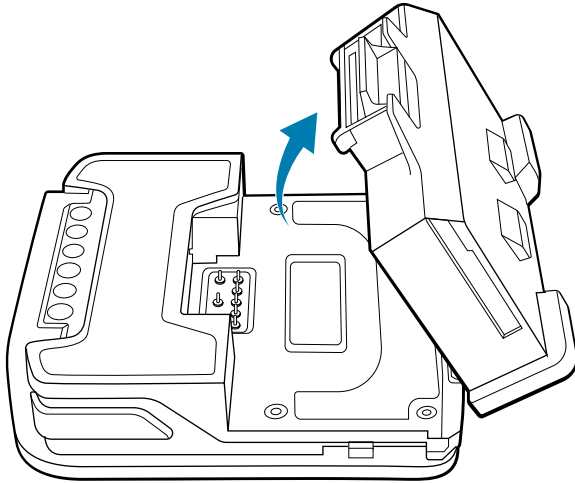
5. Align the battery so that the battery bottom engages the locking slots (1).

1
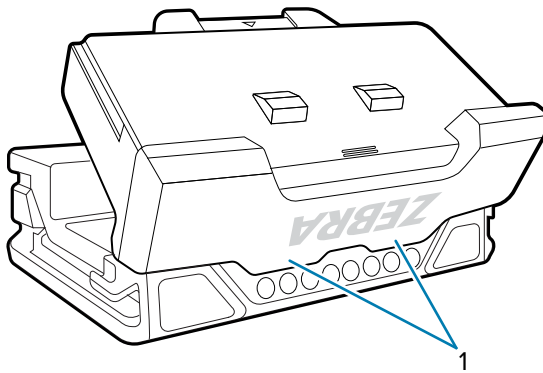
6. Press the battery down into the battery compartment until the battery release latches snap into place.
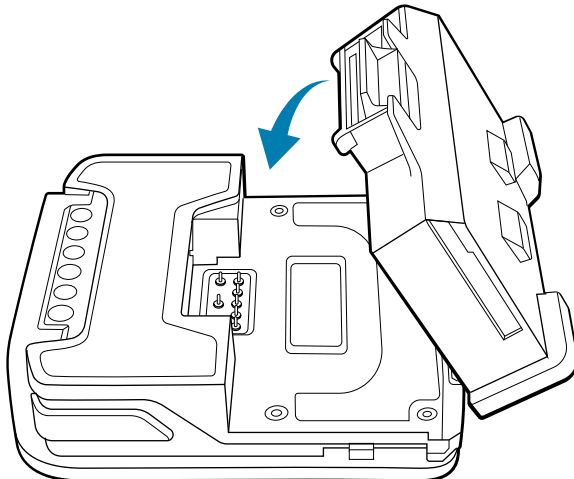
Mounting the Scanner

Wear the scanner on the index and middle fingers.

To change the orientation of the scan trigger, see Changing the Trigger Position for the Scanner on page 10.

1. Slide the scanner onto the index and middle fingers with the scan trigger next to the thumb.

2. Lift the strap buckle prior to loosening or tightening the finger strap.
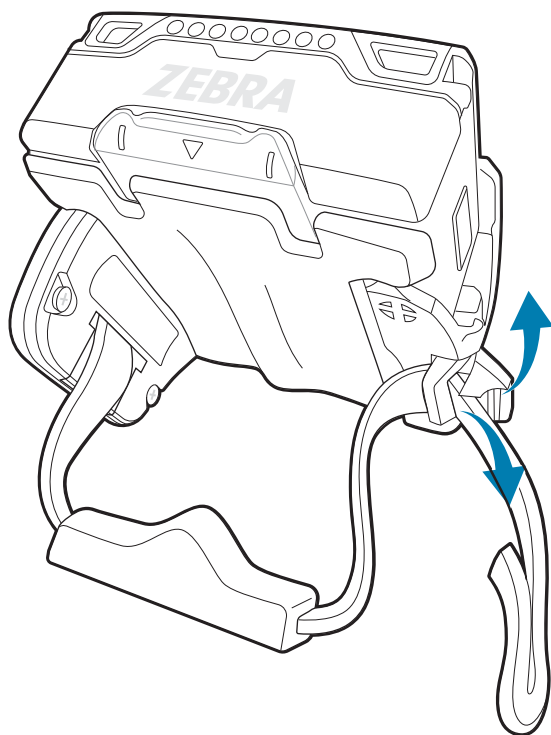
3. Adjust the strap through the strap buckle.

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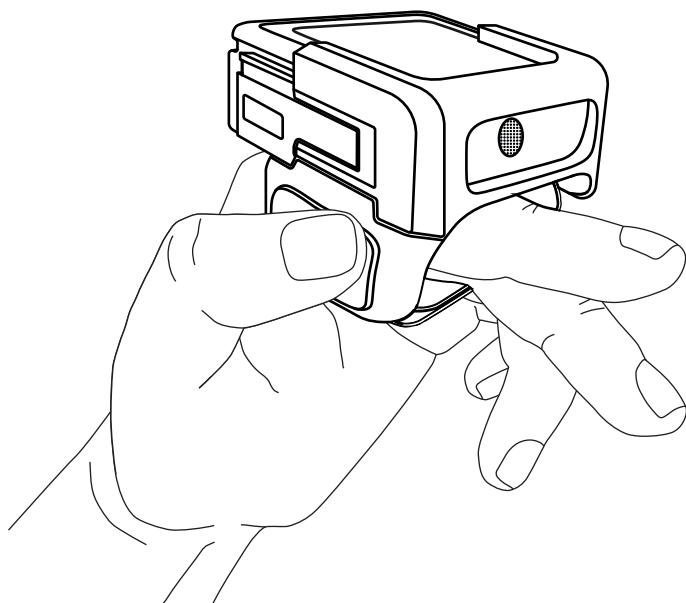
Using the Device

This section explains how to use the device.

Home Screen

Turn on the device to display the Home screen.

After a suspend or screen time-out, press the **Home** or **Back** button, the Home screen displays.

By default, the Home screen displays the APPS menu (1) and screen rotation is enabled.

Figure 1   Home Screen
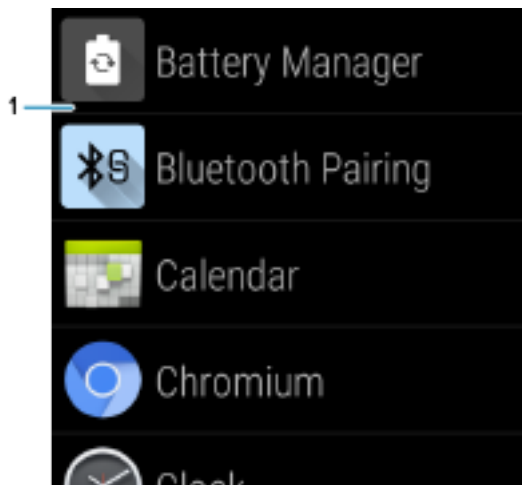
> **NOTE:** To change screen rotation, go to

Status Bar

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

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

Swipe down once until the Status bar appears at the top of the screen.

Figure 2   Notifications and Status Icons

1	Notification icons
2	Status icons

Notification Icons

Notification icons indicate app events and messages.

Table 2   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.
	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).
	USB debugging is enabled on the device.
	A Bluetooth scanner is connected to the device.

Status Icons

Status icons display system information for the device.

Table 3   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.
	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.

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 3 Notification Panel
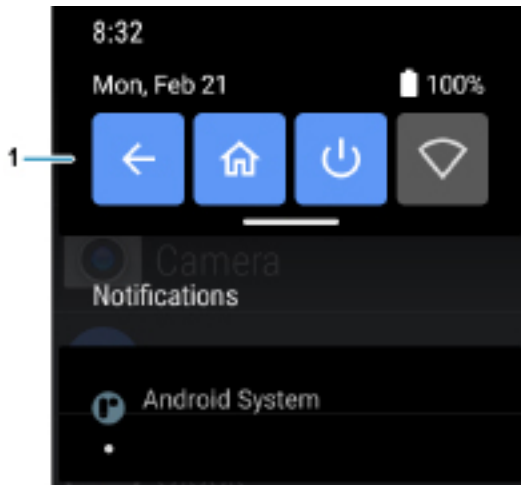
1	Quick settings bar

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

- To respond to a notification, open the Notification panel and then touch a notification. The Notification panel closes and the corresponding app opens.

- To manage recent or frequently used notifications, open the Notification panel and then touch Manage notifications. Touch the toggle switch next to an app to turn off all notifications, or touch an app for more notification options.

- To clear all notifications, open the Notification panel and then touch **Clear all**. All event-based notifications are removed. Ongoing notifications remain in the list.

- To close the Notification panel, swipe the Notification panel up.

Opening the Quick Access Panel

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

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

Figure 4   Quick Access Panel
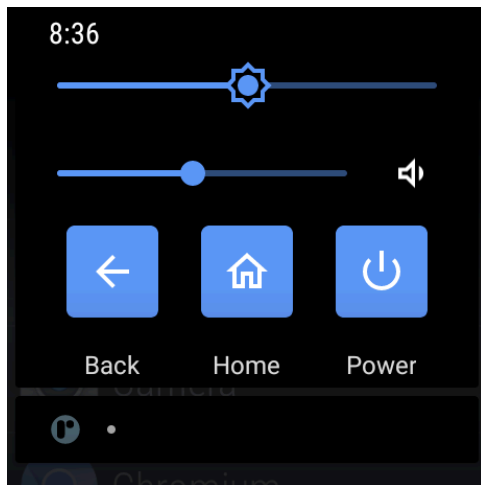
- If the device is locked, swipe down once.

- If the device is unlocked:

    a) Swipe down once until you see the Status bar.

    b) Swipe down twice with one finger.

- If the Notification panel is open, swipe down from the Quick Settings bar.

Quick Access Panel Icons

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

Table 4   Quick Access Panel Icons

Icon	Description
	Display brightness - Use the slider to decrease or increase the brightness of the screen.
	Volume - Use the slider to decrease or increase the Media volume.
	Back - Displays the previous screen.
	Home - Displays the Home screen.
	Power - Press to suspend device, and hold to select the following options: • **Power off** - Turn off the device. • **Restart** - Reboot the device when software stops responding.
	Internet/Wi-Fi network - Turn Wi-Fi on or off. To open Wi-Fi settings, touch the Wi-Fi network name.

Table 4   Quick Access Panel Icons (Continued)

Icon	Description
(Bluetooth icon)	Bluetooth settings - Turn Bluetooth on or off. To open Bluetooth settings, touch Bluetooth.
(Flashlight icon)	Flashlight - Turn the flashlight on or off. (Applicable to the Wrist Mount)
(Do not disturb icon)	Do not disturb - Control how and when to receive notifications.
(Auto-rotate icon)	Auto-rotate - Lock the device's orientation in portrait or landscape mode or set to automatically rotate.
(Airplane mode icon)	Airplane mode - Turn Airplane mode on or off. When Airplane mode is on the device does not connect to Wi-Fi or Bluetooth.
(Invert colors icon)	Invert colors - Invert the display colors.
(Data Saver icon)	Data Saver - Turn on to prevent some apps from sending or receiving data in the background.
(Dark Theme icon)	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.
(Night Light icon)	Night Light - Tint the screen amber to make it easier to look at the screen in dim light. Set Night Light to turn on automatically from sunset to sunrise, or at other times.
(Screen Record icon)	Screen Record - Makes a video recording of everything that happens on the screen, with options to include audio and screen touches.

Editing Icons on the Quick Settings Bar

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

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

Battery Management

Observe the recommended battery optimization tips for the device.

* Set the screen to turn off after a short period of inactivity.
* Reduce screen brightness.
* Turn off all wireless radios when not in use.

- Turn off automatic syncing for Email, Calendar, Contacts, and other apps.

- Minimize the use of apps that keep the device from sleeping, for example, music and video apps.

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

Checking Battery Status

- On the Home screen, touch 🔲 to open the **Battery Manager** app.

   Battery present status indicates if the battery is present.

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

- Swipe down once until you see the Status bar, and then swipe down from the Status bar to open the Notification panel.

   Battery percentage is displayed next to the battery icon.

Monitoring Battery Usage

The Battery screen provides battery charge details and power management options to extend battery life. Different apps display different information. Some apps include buttons that open screens with settings to adjust power use. Use the DISABLE or FORCE STOP buttons to turn off apps that consume too much power.

- Go to **Settings**.

- Touch **Battery**.

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

- Go to **Settings**.

- Touch **Apps & notifications**.

- Touch an app.

- Touch **Advanced** > **Battery**.

Low Battery Notification

When the battery charge level drops below the change level in the table below, the device displays a notice to connect the device to power. Charge the battery using one of the charging accessories.

Charge Level Drops Below	Action
18%	The device displays a notice to connect the device to power. The user should charge the battery using one of the charging accessories.
10%	The device displays a notice to connect the device to power. The user must charge the battery using one of the charging accessories.
4%	The device turns off. The user must charge the battery using one of the charging accessories.

NOTE: The RFID reader will not operate when the battery drops down to 5%.

Interactive Sensor Technology

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.

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.
- Light Sensor - Detects ambient light and adjusts the screen brightness.

Waking the Device

The device goes into Sleep mode after a period of inactivity (set in the Display settings window).

- To wake the device from Sleep mode, press the **Home** or **Back** button.

  The Home screen displays.

- If screen lock is used, 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.

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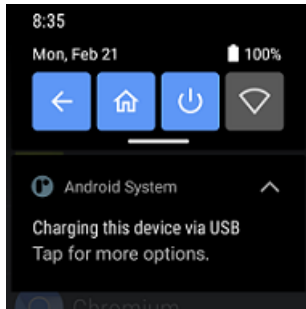
By default, **No data transfer** is selected.

3. Touch **File Transfer**.

4. On the host computer, open **File Explorer**.

5. Locate the **device** as a portable device.

6. Open the **Internal storage** folder.

7. Copy files to and from the device or delete files as required.

Transferring Photos

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

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

2. On the device, pull down the Notification panel and touch **Charging this device via USB**.

3. Touch **PTP**.

4. On the host computer, open a file explorer application.

5. Open the **Internal storage** folder.

6. Copy or delete photos as required.

Disconnecting from the Host Computer

⚠️ **CAUTION:** Carefully follow the host computer's instructions to 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 two ways to access settings on a device.

- Swipe down once to display the Status bar. Swipe down from the top of the Home screen to open the Quick Access panel and touch ⚙.

- Touch ⬚ **Settings** in the APPS menu.

Display Settings

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

Setting the Screen Brightness Manually

Manually set the screen brightness using the touchscreen.

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

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

Setting the Screen Brightness Automatically

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

1. Go to **Settings**.

2. Touch **Display**.

3. If disabled, touch **Adaptive brightness** to automatically adjust the brightness.

    By default, **Adaptive brightness** is disabled. Toggle the switch to enable.

Setting Night Light

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

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

Setting Screen Timeout

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

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

Setting Screen Rotation

By default, screen rotation is enabled.

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

Setting Lock Screen Notifications

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

1. Go to **Settings**.
2. Touch **Display** > **Advanced**.

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3. Touch **Lock screen**.

4. In the **When to show** section, enable or disable an option using the switch.

Setting Font Size

Set the size of the font in system apps.

1. Go to **Settings**.

2. Touch **Display** > **Advanced**.

3. Touch **Font size**.

4. Select a font size option:

   - **Small**

   - **Default**

   - **Large**

   - **Largest**

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. The device supports light to medium weight gloves, and may not detect touches from heavy outdoor gloves.

1. Go to **Settings**.

2. Touch **Display** > **Advanced**.

3. Touch **Touch Panel Mode**.

   - **Finger Only** to use a finger (no gloves) on the screen (default).

   - **Glove and Finger (Screen Protector OFF)** to use a finger or a gloved finger on the screen without a screen protector.

   - **Finger Only (Screen Protector ON)** to use a finger on the screen without a screen protector.

   - **Glove and Finger (Screen Protector ON)** to use a finger or a gloved finger on the screen with a screen protector.

Setting the Date and Time

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

1. Go to **Settings**.

2. Touch **System** > **Date & time**.

3. Touch **Use network-provided time** to disable automatic date and time synchronization.

4. Touch **Date** to select the date in the calendar.

5. Touch **OK**.

6.   Touch **Time**.

    a) Select current hour.

    b) Select current minute.

    c) Touch **AM** or **PM**.

7.   Touch **OK**.

8.   Touch **Time zone** to select the current time zone from the list. This option may not be available in some locations.

9.   Touch **Time zone** > **Region** to select the current time zone from the list.

10. In **TIME FORMAT**, choose either **Use locale default** or **Use 24-hour format**.

General Sound Setting

Open the Quick Access panel to display the on-screen Media volume control.

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

You can set the different volumes for various sound options.

- **Media volume** - Controls the music, games, and media volume.
- **Call volume** - Controls the volume during a call.
- **Alarm volume** - Controls the alarm clock volume.
- **Notifications volume** - Controls the notification volume.
- **Do Not Disturb** - Mutes some or all sounds and vibrations.
- **Media** - Shows the media player in Quick Settings while sound is playing, allowing quick access.
- **Default notification sound** - Select a sound to play for all system notifications.
- **Default alarm sound** - Select a sound to play for alarms.
- **Other sounds and vibrations:**
  - **Screen locking sounds** - Play a sound when locking and unlocking the screen (default – enabled).
  - **Charging sounds** - Play a sound and vibrates when power is applied to the device (default - enabled).
  - **Touch sounds** - Play a sound when making screen selections (default – enabled).
  - **Touch vibration** - Vibrate the device when making screen selections (default – enabled).

Wake-Up Sources

By default, the device wakes from suspend mode when the user presses any physical button or trigger on the device.

See Also
[To configure the wake-up button, go to techdocs.zebra.com/ws50/.](techdocs.zebra.com/ws50/)

Button Remapping

Buttons on the device can be programmed to perform different functions or as shortcuts to installed apps. For a list of key names and descriptions, refer to: [techdocs.zebra.com/ws50/.](techdocs.zebra.com/ws50/)

NOTE: The Push-to-Talk button was moved to a more ergonomic position to optimize the efficiency of voice-centric use cases in Workcloud Communications.

Remappable Keys

Use Key Mapping Manager to program the buttons on the device to perform a different function.

For more information, go to the Key Remapping section in the WS50 Programmer's Guide at [techdocs.zebra.com/ws50/.](techdocs.zebra.com/ws50/)

Figure 5   Scanner Key Positions
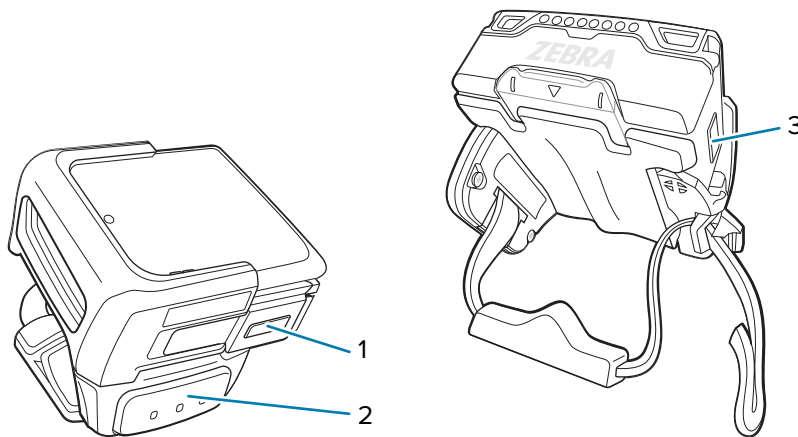
Table 5   Key Position Descriptions

Number	Item	Default function	Clip Mount
1	Left	Back	Back
2	L1	Button L1 (scan)	n/a
3	Right	Home	Home

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Keyboards

The device provides multiple keyboard options.

- Scrolling Keyboard

- Physical Keyboard

Enabling Keyboards

By default, the **Scrolling Keyboard** is enabled.

1. Go to **Settings**.

2. Touch **System** > **Languages & input** > **On-screen keyboard** > **Manage on-screen keyboards**.

3. Touch a keyboard to enable.

Using the Scrolling Keyboard

Use the Scrolling Keyboard to enter text in a text field.

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

You can enter numbers, symbols, and special characters using the Scrolling Keyboard.

- Enter numbers and symbols.

  - 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.

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.

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** > **Apps & notifications** > **Notifications**.

To view app notifications, touch **Settings** > **Apps & notifications** > **App info**, 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 **Apps & notifications** > **Notifications** > **Advanced**.
3. Touch **Blink light** to toggle the notification on or off.

Applications

Apart from the standard pre-installed Android applications, the following table lists Zebra-specific applications installed on the device.

Installed Applications

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

NOTE: To ensure the stable operation of the device, the recommended maximum memory utilization for the device should be kept below 350 MB for total user applications. This includes Enterprise Mobility Management (EMM).

Table 6   Apps

Icon	Description
	Battery Manager - Display battery information, including charge level, status, health and wear level.
	Bluetooth Pairing Utility - Use to pair peripherals with the device by scanning a barcode.
	DataWedge - Enables data capture using the imager.
	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.
	Zebra Bluetooth - Use to configure Bluetooth logging.

Table 6   Apps (Continued)

Icon	Description
	Zebra Data Services - Use to enable or disable Zebra Data Services. Some options are set by the system administrator.

Accessing Apps

Access all apps installed on the device using the **APPS** menu.

1. On the Home screen, slide the **APPS** menu up or down to view more app icons.

2. Touch an icon to open the app.

Swipe down twice to open the quick setting bar, then touch the **Home** icon to return to the Home screen.

Battery Manager

The Battery Manager provides detailed information about the battery.

Opening Battery Manager

• To open the Battery Manager app, touch on the Home screen.

Battery Manager Information

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

Table 7   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.

- **Battery present status** - Indicates that the battery is present.

- **Battery scale** - The battery scale level used to determine battery level (100).

- **Battery level** - The battery charge level as a percentage of scale.

- **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.

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, TCP dumps, Bluetooth logging, logcat, FTP push/pull, ANR dumps, etc. All generated logs and files are saved onto flash storage on the device (internal or external).

RxLogger Configuration

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

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

Configuration File

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

The config.json configuration file is located 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.

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**.

Data Capture

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

The device supports data capture using:

- Integrated SE4770-Standard Range Imager
- Hands-free and Bluetooth ring scanners such as RS6000 and RS5100
- Bluetooth barcode scanners such as DS3678

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.

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.
- 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).

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.

Digital Camera

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

* Omnidirectional reading of a variety of barcode symbologies, including the most popular linear, postal, QR, PDF417, and 2D matrix code types.

* Cross-hair reticle for easy point-and-shoot operation.

* Picklist mode to decode a particular barcode from many in the field of view.

Scanning with the Internal Imager

Use the internal imager to capture barcode data.

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.

To scan with the internal imager:

1. Ensure that an application is open on the device and a text field is in focus (text cursor in text field).

2. Point the exit window of the device at a barcode.
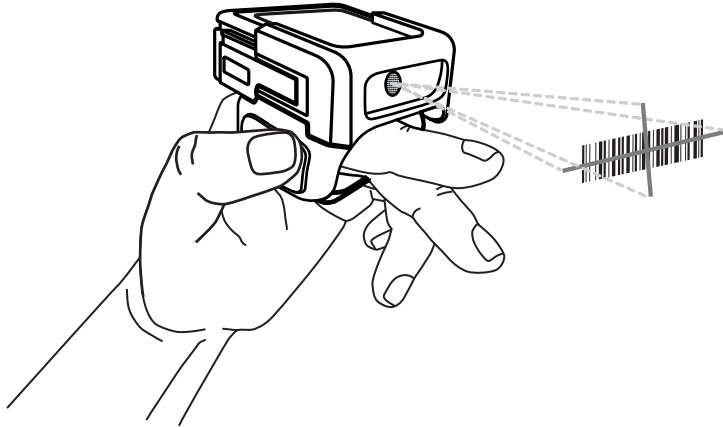
3. Press and hold the scan button.

   The red laser aiming pattern turns on to assist in aiming.

4. Ensure the barcode is within the area formed by aiming pattern.

Figure 6   Aiming Pattern: Standard Range
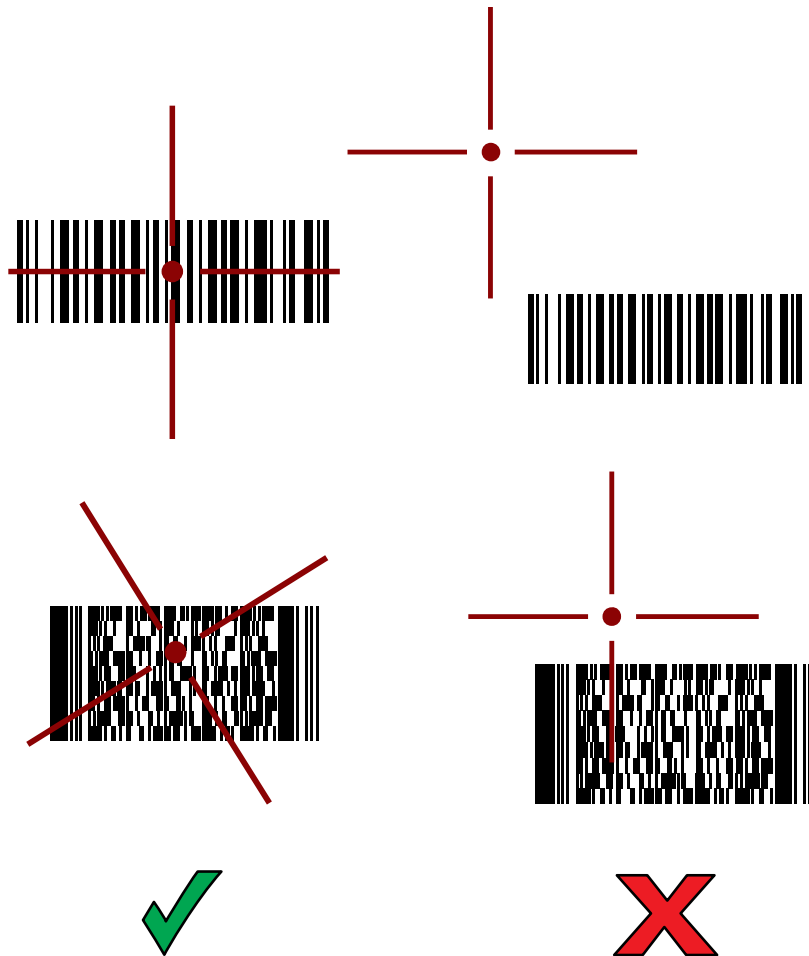
The Scan/Custom LED light green and a beep sounds, by default, to indicate the barcode was decoded successfully.

5. Release the scan button.

The barcode content data appears in the text field.

Scanning with the RS6000 Bluetooth Ring Scanner

Use the RS6000 Bluetooth Ring Scanner to capture barcode data.

Figure 7   RS6000 Bluetooth Ring Scanner
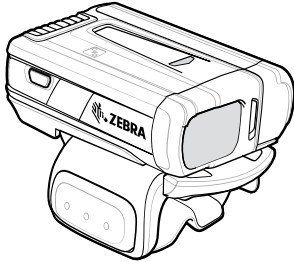
Refer to the RS6000 Bluetooth Ring Scanner Product Reference Guide for more information.

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

To scan with the RS6000:

1. Pair the RS6000 with the device.

2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).

3. Point the RS6000 at a barcode.
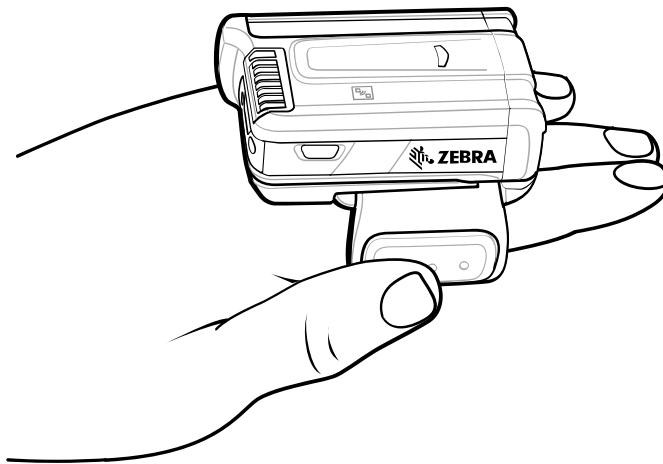
4. Press and hold the trigger.

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

   Figure 8   RS6000 Aiming Pattern
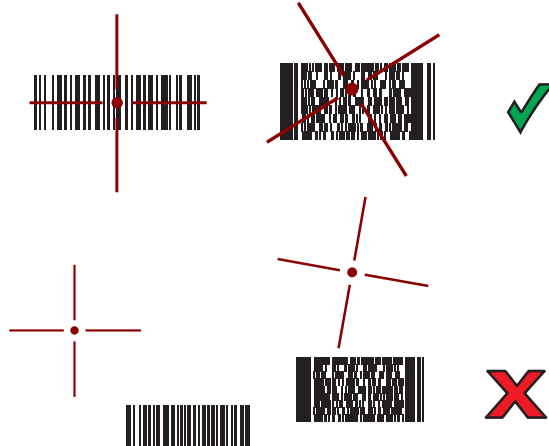
   When the RS6000 is in Pick List mode, the RS6000 does not decode the barcode until the center of the crosshair touches the barcode.

   Figure 9   RS6000 Pick List Mode with Multiple Barcodes in Aiming Pattern
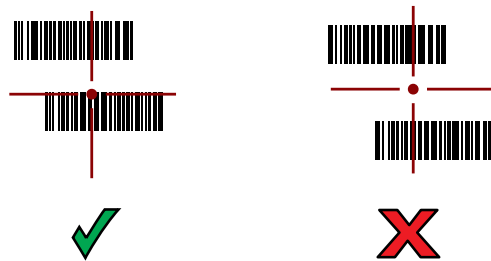
   The RS6000 LEDs light green and a beep sounds to indicate the barcode was decoded successfully.

   The captured data appears in the text field.

Scanning with the RS5100 Ring Scanner

Use the RS5100 Ring Scanner to capture barcode data.

Figure 10 RS5100 Ring Scanner
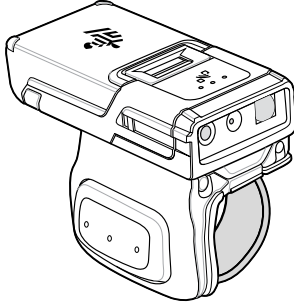
Refer to the RS5100 Ring Scanner Product Reference Guide for more information.

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

To scan with the RS5100:

1. Pair the RS5100 with the device.

2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).

3. Point the RS5100 at a barcode.
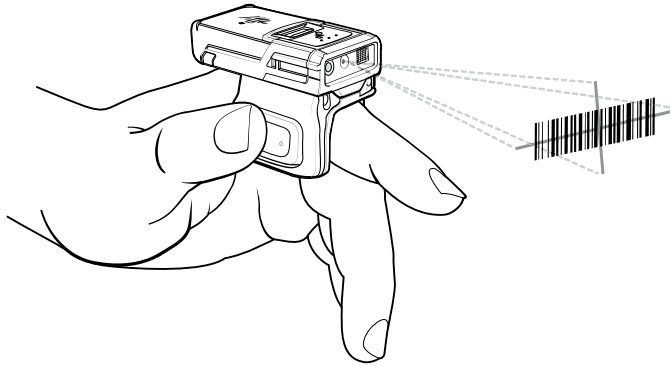
4. Press and hold the trigger.

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

   Figure 11   RS5100 Aiming Pattern
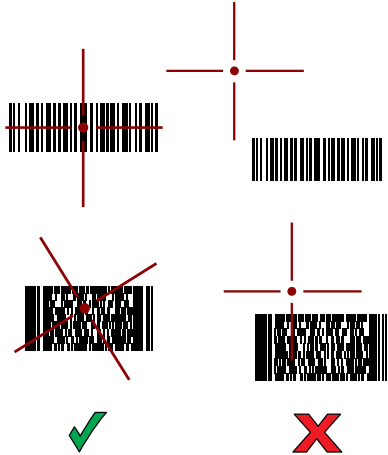
   When the RS5100 is in Pick List mode, the RS5100 does not decode the barcode until the center of the crosshair touches the barcode.

   Figure 12   RS5100 Pick List Mode with Multiple Barcodes in Aiming Pattern
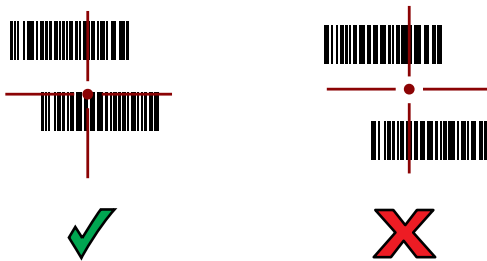
   The RS5100 LEDs light green and a beep sounds to indicate the barcode was decoded successfully.

   The captured data appears in the text field.

Scanning with the DS3678 Bluetooth Scanner

Use the DS3678 Bluetooth Scanner to capture barcode data.

Figure 13   DS3678 Digital Scanner
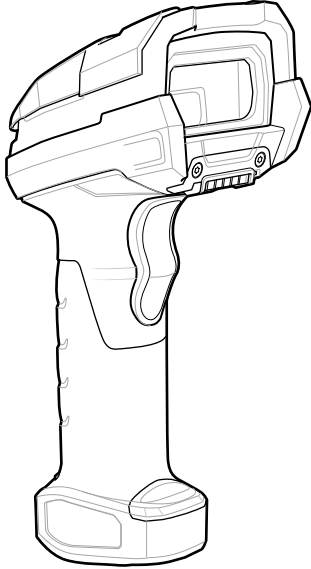
Refer to the DS3678 Product Reference Guide for more information.

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

To scan with the DS3678 scanner:

1. Pair the scanner with the device. See Pairing Bluetooth Scanners for more information.

2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).

3. Point the scanner at a barcode.
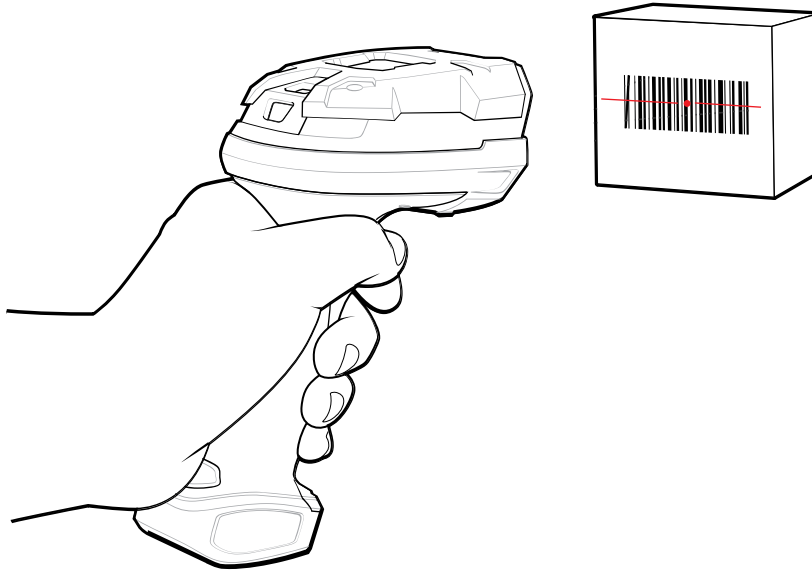
4. Press and hold the trigger.

Ensure the barcode is within the area formed by the aiming pattern. The aiming dot increases visibility in bright lighting conditions.
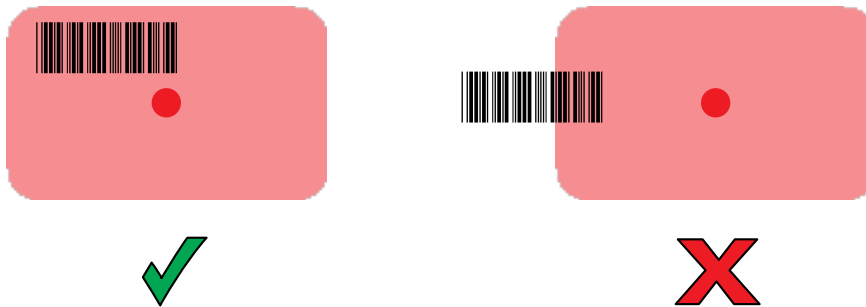
The captured data appears in the text field.

Pairing the Bluetooth Ring Scanner

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

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

- Near Field Communication (NFC) (RS5100 and RS6000 only)
- Simple Serial Interface (SSI)

Pairing in SSI Mode Using Near Field Communication

The device provides the ability to pair the RS5100/6100 or RS6000 Ring Scanner in SSI Mode using NFC.

1. Ensure that NFC is enabled on the device.

2. Align the NFC icon (2) on the Ring Scanner with the display (NFC antenna (1) is under the display).
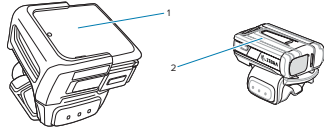
The Status LED blinks blue indicating that the Ring Scanner is attempting to establish a connection with the device. When a connection is established, the Status LED turns off and the Ring Scanner emits a single string of low/high beeps.

A notification appears on the device screen.

The ⬚ icon appears in the Status bar.

Pairing a Bluetooth Scanner

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

Connect the scanner to the device using Simple Serial Interface (SSI) mode.

Pairing Using Simple Serial Interface

Pair the Bluetooth scanner to the device using Simple Serial Interface (SSI).

1. Ensure that the two devices are within 10 meters (32.8 feet) of one another.

2. Install the battery into the scanner.

3. Swipe up from the bottom of the Home screen and touch ⬚.

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

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

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

DataWedge

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

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

Configure DataWedge to:

- Provide data capture services from any app.

- Use a particular scanner, reader, or other peripheral devices.

- Properly format and transmit data to a specific app

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

> **NOTE:** Do not enable **Decode Haptic Feedback** because the life of the vibrator is significantly reduced in frequent scanning use cases.

Enabling DataWedge

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

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

2. Touch ⋮ > **Settings**.

3. Touch the **DataWedge enabled** checkbox.

   A blue checkmark appears in the checkbox indicating that DataWedge is enabled.

Disabling DataWedge

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

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

2. Touch ⋮ .

3. Touch **Settings**.

4. Touch **DataWedge enabled**.

Configuring a Ring Scanner Parameter in DataWedge

To configure the Interleaved 2 of 5 (I2OF5) settings for the WS50 when paired with a Ring scanner, import the configured DataWedge Config file from any Android 11 device paired with Ring scanner to the WS50.

NOTE: These configuration steps apply to all parameters or decoders requiring configuration in the WS50, not limited to the I2OF5 parameters settings. The same steps apply to the configuration of the Ring scanner parameters.

1. On the Android 11 device, open **Settings** > **Bluetooth Pairing Utility**.

2. Scan and pair with the Ring scanner.

3. Ensure the Ring scanner is connected to the Android 11 device.

4. Enable **I2OF5** and **Send ENTER key** in DataWedge:

   a) Open **DataWedge**.

   b) Select **Profile0**.

   c) Select **Configure scanner settings**.

   d) Select **Decoders**.

   e) Select **Interleaved 2of5**.

   f) Select the **Enabled** checkbox.

   g) Touch **Back** until you get to the **Profile0** screen.

   h) Select **Basic data formatting**.

   i) Select the **Send ENTER key** checkbox.

5. On the Android 11 device, open **DataWedge**, go to ⋮ > **Settings** > **Export**.

6. Navigate to `Sdcard/Android/Data/com.symbol.datawedge/files/datawedge.db` and export the `datawedge.db` file to a local computer.

7. From the local computer, import `datawedge.db` file to the WS50 at the location `/sdcard/Android/Data/com.symbol.datawedge/files/autoimport`.

8. In the WS50, open **DataWedge**, go to ⋮ > **Import Configuration**.

9. Pair with a Ring scanner.

10. Launch Chromium and scan a I2OF5 barcode.

    The captured data appears in the text field.

Supported Decoders

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

SE4770 Internal Imager Supported Decoders

This section lists the supported decoders for the SE4770 internal imager.

Table 8 SE4770 Internal Imager-Supported Decoders

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

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

RS6000 Supported Decoders

This section lists the supported decoders for the RS6000 Ring Scanner.

Table 9 RS6000-Supported Decoders

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

Table 9 RS6000-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

RS5100 Supported Decoders

This section lists the supported decoders for the RS5100 Ring Scanner.

Table 10 RS5100-Supported Decoders

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

Table 10   RS5100-Supported Decoders (Continued)

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

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

DS3678 Supported Decoders

This section lists the supported decoders for the DS3678 scanner.

Table 11   DS3678-Supported Decoders

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

Table 11 DS3678-Supported Decoders (Continued)

Decoder	Default State	Decoder	Default State	Decoder	Default State
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
- Near Field Communications (NFC)

Wireless Local Area Networks

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

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

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

The device supports the following WLAN security options:

- None
- Wireless Equivalent Privacy (WEP)
- Wi-Fi Protected Access (WPA)/WPA2 Personal (PSK)
- WPA3-Personal
- WPA/WPA2 Enterprise
    - Protected Extensible Authentication Protocol (PEAP) - with MSCHAPV2 and GTC authentication.
    - Improved Extensible Authentication Protocol Method for Authentication and Key Agreement (AKA').
    - Lightweight Extensible Authentication Protocol (LEAP).
    - Protected Extensible Authentication Protocol (PEAP) - with MSCHAPV2 and GTC authentication.

Connecting to a Wi-Fi Network

1. Go to **Settings**.

2. Touch **Network & internet**.

3. Touch **Wi-Fi** to open the **Wi-Fi** screen. The device searches for WLANs in the area and lists them.

4. Slide the switch to the **ON** position.

    The device searches for WLANs in the area and displays the list.

5. Scroll through the list and select the desired WLAN network.

6. For open networks, touch profile once or press and hold and then select **Connect** or for secure networks enter the required password or other credentials then touch **Connect**. See the system administrator for more information.

    The device obtains a network address and other required information from the network using the dynamic host configuration protocol (DHCP) protocol. To configure the device with a fixed internet protocol (IP) address, see Configuring the Device to Use a Static IP Address on page 58.

7. In the Wi-Fi setting field, **Connected** appears, 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 12   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

Remove a remembered or connected Wi-Fi network.

1. Go to **Settings**.

2. Touch **Network & Internet** > **Wi-Fi**.

3. Touch **Network & Internet**.

4. On Android 11, touch **Wi-Fi**.

5. On Android 13, touch **Internet**.

WLAN Configuration

This section provides information on configuring Wi-Fi settings.

Configuring a Secure Wi-Fi Network

1. Go to **Settings**.

2. Touch **Network & Internet**.

3. Slide the switch to the **ON** position.

   The device searches for WLANs in the area and lists them on the screen.

4. The device searches for WLANs in the area and lists them on the screen.

5. Scroll through the list and select the desired WLAN network.

6. 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 Enterprise**:

   a) Touch the **EAP method** drop-down list and select one of the following:

   - **PEAP**

   - **TLS**

   - **TTLS**

   - **PWD**

   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.

> **NOTE:** By default, the network Proxy is set to None and the IP settings is set to DHCP. See Configuring for a Proxy Server on page 57 for setting the connection to a proxy server and see Configuring the Device to Use a Static IP Address on page 58 for setting the device to use a static IP address.

8. Touch **Connect**.

Manually Adding a Wi-Fi Network

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

1. Go to **Settings**.

2. Touch **Network & Internet** > **Wi-Fi**.

3. Slide the Wi-Fi switch to the **On** position.

4. Scroll to the bottom of the list and select **Add network**.

5. In the **Network name** text box, enter the name of the Wi-Fi network.

6. In the **Security** drop-down list, set the type of security to:

   - **None**
   - **WEP**
   - **WPA/WPA2-Personal**
   - **WPA3-Personal**
   - **WPA/WPA2-Enterprise**

7. If the network security is **None**, touch **Save**.

8. If the network security is **WEP**, **WPA3-Personal**, or **WPA/WPA2-Personal**, enter the required password and then touch **Save**.

9. If network security is **WPA/WPA2 Enterprise**:

   - **EAP method**:
     - **PEAP**
     - **TLS**
     - **TTLS**
     - **PWD**
   - You must specify a domain.

> **NOTE:** By default, the network Proxy is set to None and the IP settings is set to DHCP. See Configuring for a Proxy Server on page 57 for setting the connection to a proxy server and see Configuring the Device to Use a Static IP Address on page 58 for setting the device to use a static IP address.

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

Configuring for a Proxy Server

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

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

1. Go to **Settings**.

2. Touch **Network & Internet** > **Wi-Fi** .

3. Slide the Wi-Fi switch to the **On** position.

4. In the network dialog box, select and touch a network.

5. If configuring the connected network, touch 🖉 to edit the network details.

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 web sites that are not required to go through the proxy server. Use a comma "," between addresses. Do not use spaces or carriage returns between addresses.

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** > **Wi-Fi**.

3. Touch **Network & Internet**.

4. On Android 11, touch **Wi-Fi**.

5. If configuring the connected network, touch 🖉 to edit the network details.

6. Slide the Wi-Fi switch to the **On** position.

7. In the network dialog box, select and touch a network.

8. If configuring the connected network, touch 🖉 to edit the network details and then touch the down arrow to hide the keyboard.

9. Touch **Advanced options**.

10. Touch **IP settings** and select **Static**.

11. In the **IP address** text box, enter an IP address for the device.

12. If required, in the **Gateway** text box, enter a gateway address for the device.

13. If required, in the **Network prefix length** text box, enter the prefix length.

Wi-Fi Preferences

Use the Wi-Fi preferences to configure advanced Wi-Fi settings. From the Wi-Fi screen, scroll down to the bottom of the screen and touch Wi-Fi preferences on Android 11 or Network preference on Android 13.

- **Turn on Wi-Fi automatically** - When enabled, Wi-Fi automatically turns back on when near high-quality saved networks.

- **Notify for public networks** - When enabled, notifies the user when an open network is available.

- **Advanced** (Android 11 only) - Touch to expand options.

  - **Install Certificates** - Touch to install certificates.

  - **Network rating provider** (Android 11 only) - Disabled (AOSP devices). To help determine what constitutes a good Wi-Fi network, Android supports external Network rating providers that provide information about the quality of open Wi-Fi networks. Select one of the providers listed or **None**. If none are available or selected, the Connect to open networks feature is disabled (Android 11 only).

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 1 device power class. The maximum output power is 4.5 mW and the expected range is 20 m (65.5 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 the user to respond to the key

request event). Authentication of Bluetooth devices is based upon a challenge-response transaction. Bluetooth allows for a PIN or passkey used to create other 128-bit keys used for security and encryption. The encryption key is derived from the link key used to authenticate the pairing devices. Also, 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 13   Bluetooth Profiles

Profile	Description
Service Discovery Protocol (SDP)	Handles the search for known and specific services as well as general services.
Serial Port Profile (SPP)	Allows use of RFCOMM protocol to emulate serial cable connection between two Bluetooth peer devices. For example, connecting the device to a printer.
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.
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.
Out of Band (OOB)	Allows exchange of information used in the pairing process. Pairing is completed using the Bluetooth radio, but requires information from the OOB mechanism. Using OOB with NFC enables pairing when devices simply get close, rather than requiring a lengthy discovery process.
Symbol Serial Interface (SSI)	Allows for communication with Bluetooth Imager.
Generic Attribute Profile (GATT)	Provides profile discovery and description services for Bluetooth Low Energy protocol. It defines how attributes are grouped together into sets to form services.
Generic Access Profile (GAP)	Use for device discovery and authentication.

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** -

    - Android A10 OS version and previous versions - When the device is placed in Airplane Mode, the Bluetooth radio turns off. When Airplane mode is disabled, the Bluetooth radio returns to the prior state. When in Airplane Mode, the Bluetooth radio can be turned back on if desired.

    - Android A11 OS version and versions onward - 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.

- **Headset mode** - When the device is connected to a hands-free device, such as a Bluetooth headset, the Bluetooth radio stays on.

Bluetooth Radio Power

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

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

Enabling Bluetooth

1. Swipe down from the Status bar to open the Notification panel.

2. Touch   to turn Bluetooth on.

    The tile turns blue when Bluetooth is on.

    If   is not visible, swipe left on the Quick Access panel to locate it.

Disabling Bluetooth

1. Swipe down from the Status bar to open the Notification panel.

2. Touch   to turn Bluetooth off.

    The tile turns grey when Bluetooth is off.

    If   is not visible, swipe left on the Quick Access panel to locate it.

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 appears.

8. Touch **Pair** on both devices.

9. The Bluetooth device is added to the **Paired devices** list and a trusted ("paired") connection is established.

Changing the Bluetooth Name

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

1. Go to **Settings**.

2. Touch **Connected devices** > **Connection preferences** > **Bluetooth**.

3. If Bluetooth is not on, move the switch to turn Bluetooth on.

4. Touch **Device name**.

5. Enter a name and touch **RENAME**.

Connecting to a Bluetooth Device

Once paired, connect to a Bluetooth device.

1. Go to **Settings**.

2. Touch **Connected devices** > **Connection preferences** > **Bluetooth**.

3. In the list, touch the unconnected Bluetooth device.

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

Selecting Profiles on the Bluetooth Device

Some Bluetooth devices have multiple profiles.

1. Go to **Settings**.

2. Touch **Connected devices** > **Connection preferences** > **Bluetooth**.

3. In the **Paired Devices** list, touch ⚙ next to the device name.

4. Turn on or off a profile to allow the device to use that profile.

Unpairing a Bluetooth Device

Unpairing a Bluetooth device erases all pairing information.

1. Go to **Settings**.

2. Touch **Connected devices** > **Connection preferences** > **Bluetooth**.

3. In the **Paired Devices** list, touch ⚙ next to the device name.

4. Touch **FORGET**.

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 device supports the following operating modes:

- Reader mode
- Card Emulation mode.

Using NFC, the device can:

- Read contactless cards such as contactless tickets, and ID cards.
- 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.
- Exchange data with another NFC device.
- Emulate contactless cards.

Supported NFC cards:

- Mifare Standard / Classic
- Mifare Ultralight
- TI tag-it Plus 2K (ISO 15693)
- NFC Tag Type 1 (NDEF Topaz)
- NFC Tag Type 2 (NDEF NTAG)
- NFC Tag Type 3 (NDEF FeliCa)
- NFC Tag Type 5 (NDEF Vicinity tag) or NXP Icode SLI-X
- UPM Midas NTAG213 token 20 mm
- NXP i-Code SLI token 16 mm
- NFC Barcode.

Reading NFC Cards

Read contactless cards using NFC.

1. Launch an NFC-enabled application.

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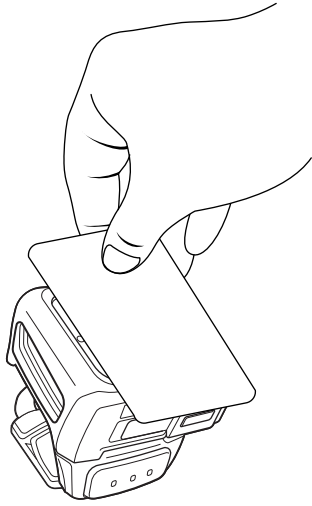
3. Hold the card steadily until the transaction is complete (usually indicated by the application).

Accessories

This section provides information for using the accessories for the device.

Device Accessories

This table provides the accessories available for the device.

Accessory	Part Number	Description
Charge-Only Cradles		
2-Slot Charge Only Cradle for Converged Scanners	CRD-WS5X-2SCV-01	Charges up to two Converged Scanners. Requires power supply (PWR-BGA12V50W0WW), DC line cord (CBL-DC-388A1-01), and country-specific AC line cord.
10-Slot Charge Only Cradle for Converged Scanners	CRD-WS5X-10SCV-01	Charges up to ten Converged Scanners. Requires power supply (PWR-BGA12V108W0WW), DC line cord (CBL-DC-382A1-01), and country-specific AC line cord.
5-Slot Ethernet Cradle with 5-Slot Battery Charger for Converged Scanners	CRD-WS5X-5SECV-01	Charges up to five Converged Scanners and five 1300 mAh spare batteries. Provides Ethernet communication for up to five devices. Requires power supply (PWR-BGA12V108W0WW), DC line cord (CBL-DC-382A1-01), and country-specific AC line cord.
Batteries and Chargers		
1300 mAh High Capacity Battery	BTRY-WS5X-13MA-01	Spare battery for the Converged Scanner.
4-Slot Battery Charger for Converged Scanners	SAC-WS5X-4S13-01	Charges up to four 1300 mAh spare batteries. Requires power supply (PWR-BGA12V50W0WW), DC line cord (CBL-DC-388A1-01), and country-specific AC line cord.
20-Slot Battery Charger for Converged Scanners	SAC-WS5X-20S13-01	Charges up to twenty 1300 mAh spare batteries. Requires power supply (PWR-BGA12V108W0WW), DC line cord (CBL-DC-382A1-01), and country-specific AC line cord.
Charge and Communication Cables		
USB Communication and Charge Cables	CBL-WS5X-USB1-02 CBL-WS5X-USBA-01	Cables provide USB communication and power to the device.

Accessory	Part Number	Description
Shell		
Converged Scanner Shell	SG-WS5X-SHLCS-01	Replacement of the shell for the Converged Scanner.
Clip Mount		
Clip Mount	WS5001-0M203D10EA6	Replacement of the clip mount for the Converged Scanner (Rest of World).
Clip Mount	WS5001-0M203D10ENA	Replacement of the clip mount for the Converged Scanner (US, Canada, Puerto Rico).
Clip Mount	WS5002-0M203D10EA6	Replacement of the clip mount for the Converged Scanner (Rest of World).
Clip Mount	WS5002-0M203D10ENA	Replacement of the clip mount for the Converged Scanner (US, Canada, Puerto Rico).
Clip Mount	WS5002-0M203010EA6	Replacement of the clip mount for the Converged Scanner with no camera (Rest of World).
Clip Mount	WS5002-0M203010ENA	Replacement of the clip mount for the Converged Scanner with no (US, Canada, Puerto Rico).
Triggers and Soft Goods		
Screen Protector	SG-WS5X-SCRNP1-01	Provides additional screen protection.
Trigger Assembly	SG-WS5X-TRGA-01	Replacement trigger assembly for the Converged Scanner configuration.
Finger Strap	SG-WS5X-STRP-10	Replacement finger strap for the Converged Scanner configuration (10-pack).
Back of Hand (BOH) Mount	SG-WS5X-BHMT-01	Replacement BOH mount.
Power Supply		
Power Supply	PWR-BGA12V50W0WW	Provides power to the 2-Slot Charge Only Cradle and 4-Slot Battery Charger. Requires AC line cord.
Power Supply	PWR-BGA12V108W0WW	Provides power to the 10-Slot Charge Only Cradle, 5-Slot Ethernet Cradle with 5-Slot Battery Charger, and 20-Slot Battery Charger. Requires DC Line Cord, p/n CBL-DC-382A1-01, 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-WUA5V12W0GB	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in the United Kingdom.
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-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.

Accessory	Part Number	Description
Power Supply	PWR-WUA5V12W0BR	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in Brazil.
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-WUA5V12W0IN	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in India.
DC Line Cord	CBL-DC-388A1-01	Provides power from the power supply (PWR-BGA12V50W0WW) to the 2-Slot Charge Only Cradle and 4-Slot Battery Charger.
DC Line Cord	CBL-DC-382A1-01	Provides power from the power supply (PWR-BGA12V108W0WW) to the 10-Slot Charge Only Cradle, 5-Slot Ethernet Cradle with 5-Slot Battery Charger, and 20-Slot Battery Charger.

Battery Charging

Charge the device with a battery installed or charge the spare batteries.

Charging the Main Battery

Charge the battery in a device with one of the charge-only cradles or the USB charge cable.

⚠️ **CAUTION:** Ensure that you follow the guidelines for battery safety described in the Battery Safety Guidelines on page 106.

1. Connect the charger to a power source.

2. Insert the device into a cradle slot (1) or attach it to the USB charge cable.
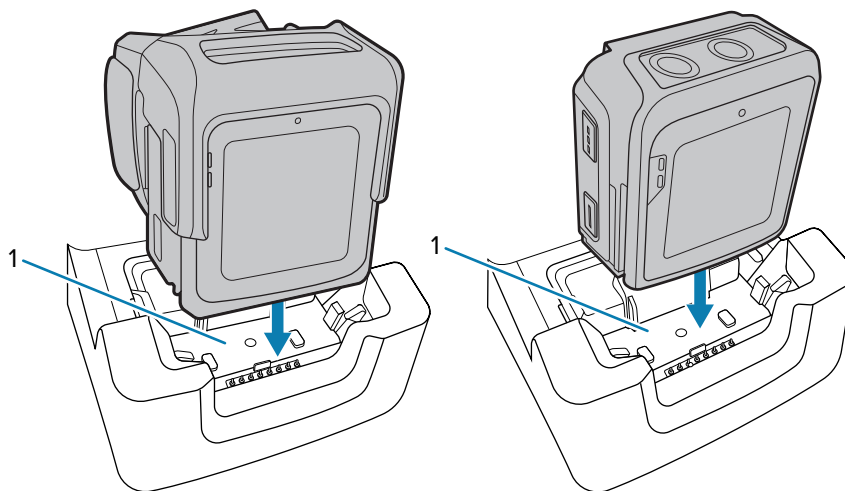
The device turns on and begins charging. The Notification LED on the touch panel shows amber while charging, then turns solid green when fully charged.

Charging the Spare Battery

Charge the spare battery with one of the battery chargers.

1. Connect the charger to a power source.

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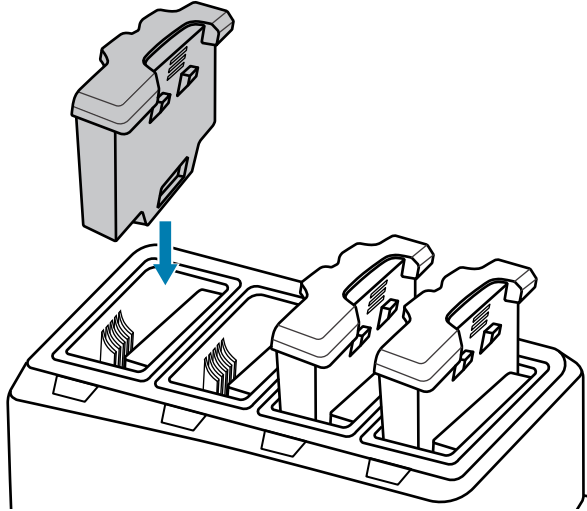
3. Gently press down on the battery to ensure proper contact.

   The spare battery charging LED on the battery charger indicates the status of the battery charging.

Charging Indicators

The spare battery charging LED on the cradle cup indicates the status of the spare battery charging.

Table 14   Spare Battery Charging LED Indicators

State	Indication
Off	The battery is not charging. The battery is not inserted correctly in the cradle or connected to a power source. Cradle is not powered.
Solid Amber	Healthy battery is charging.
Solid Green	Healthy battery charging is complete.
Fast Blinking Red (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).
Solid Red	Unhealthy battery is charging or fully charged.

Charging Temperature

Charge batteries in temperatures from 2°C to 46°C (35.6°F to 114.8°F). The device or cradle always performs battery charging in a safe and intelligent manner. At higher temperatures (for example, approximately +37°C (+98°F)) the device or cradle may for small periods of time alternately enable and disable battery

charging to keep the battery at acceptable temperatures. The device and cradle indicate when charging is disabled due to abnormal temperatures via its LED.

Hot Swap Mode

The device supports Hot Swap mode where the user can replace the battery without powering off the device.

When the user removes the device from the shell, the display turns off and the device enters a low-power state (indicated by a single red flash of the scan/custom LED). Replace the battery within two minutes to preserve memory persistence.

2-Slot Charge Only Cradle

2-Slot Charge Only Cradle:

• Provides 12 VDC (nominal) power for operating the device.

• Charges the device's battery.

Figure 14   2-Slot Charge Only Cradle
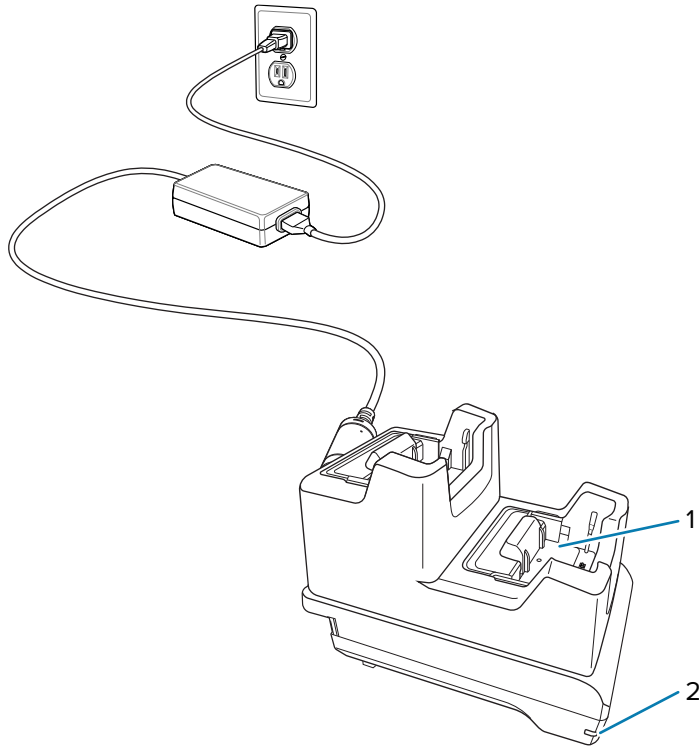
| 1 | Device charging slot |
| 2 | Power LED |

Setup

The 2-slot charge-only cradle provides device charging.

Figure 15 2-Slot Charge Only Cradle Setup
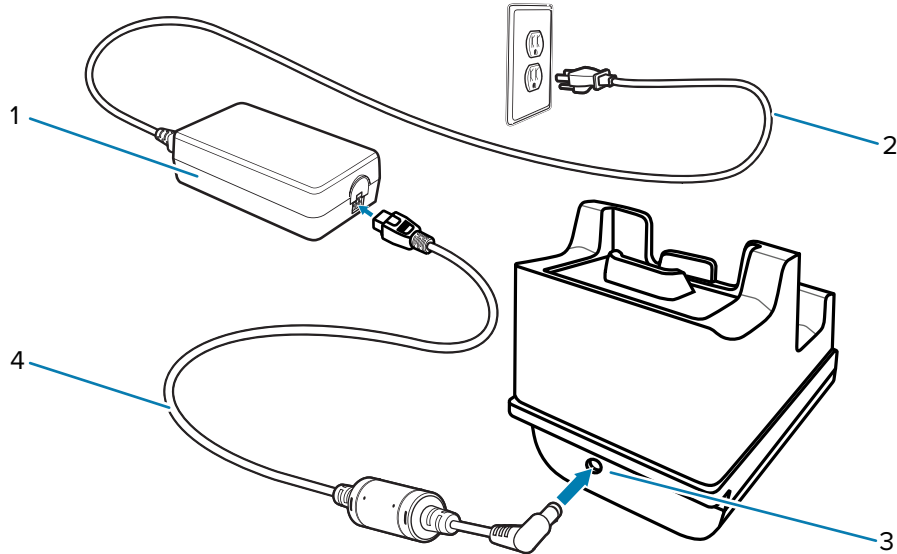
1	Power supply
2	AC line cord
3	DC power port
4	DC line cord

10-Slot Charge Only Cradle

10-Slot Charge Only Cradle:

- Provides 12 VDC (nominal) power for operating the device.
- Charges the device's battery.

Figure 16 10-Slot Charge Only Cradle
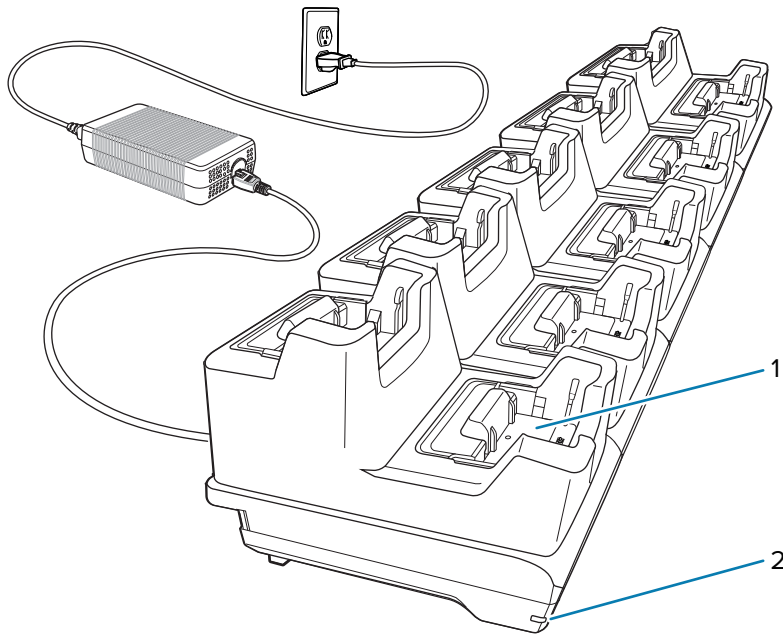
1	Device charging slot
2	Power LED

Setup

The 10-slot charge-only cradle provides device charging.

Figure 17 10-Slot Charge Only Cradle Setup
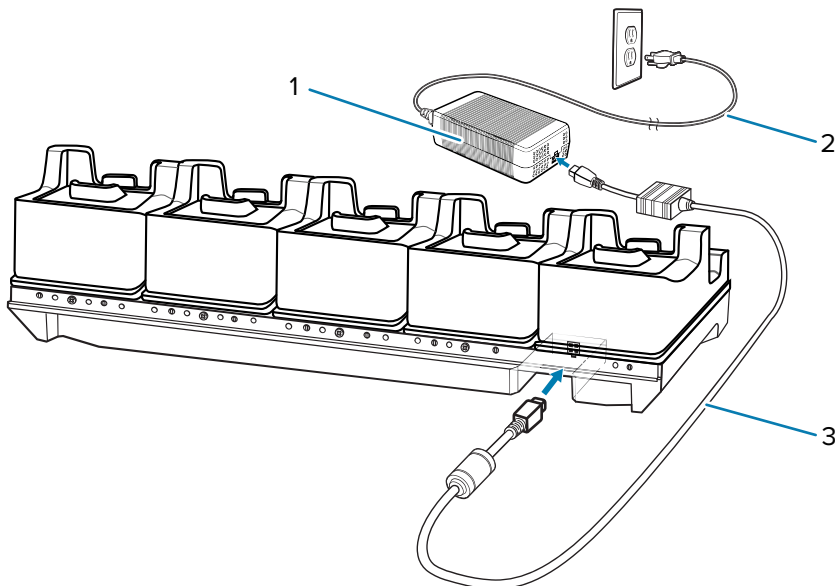
1	Power supply

2	AC line cord
3	DC line cord

5-Slot Ethernet Cradle with Battery Charger

5-Slot Ethernet Cradle with Battery Charger:

- Provides 12 VDC (nominal) power for operating the device.
- Connects the device (up to five) to an Ethernet network.
- Simultaneously charges up to five devices and up to five spare batteries.

Figure 18 5-Slot Ethernet Cradle with Battery Charger
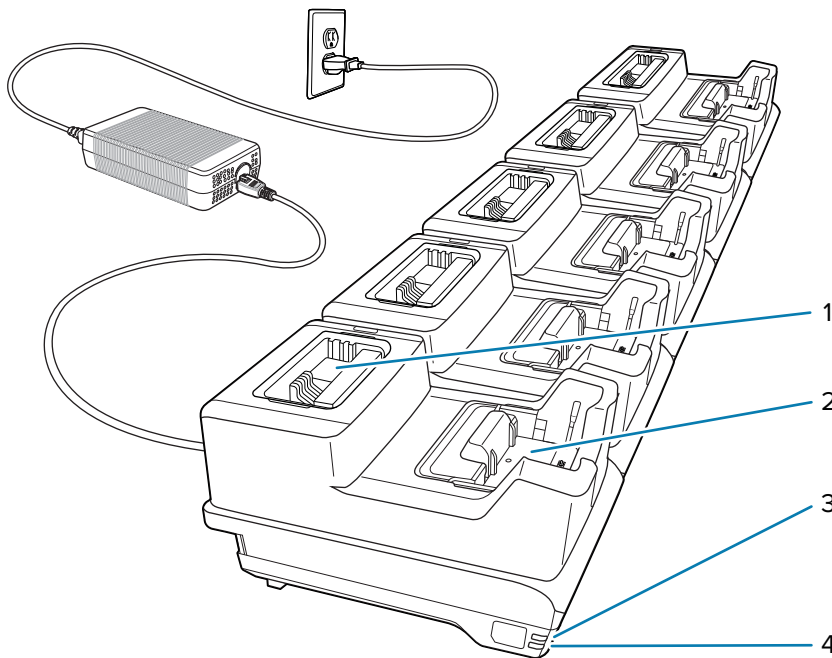
1	Battery slot
2	Device charging slot
3	1000 LED
4	100/100 LED

Setup

The 5-Slot Ethernet cradle with battery charger provides up to five devices charging and communication, and up to five spare batteries charging.

Figure 19   5-Slot Ethernet Cradle with Battery Charger Setup
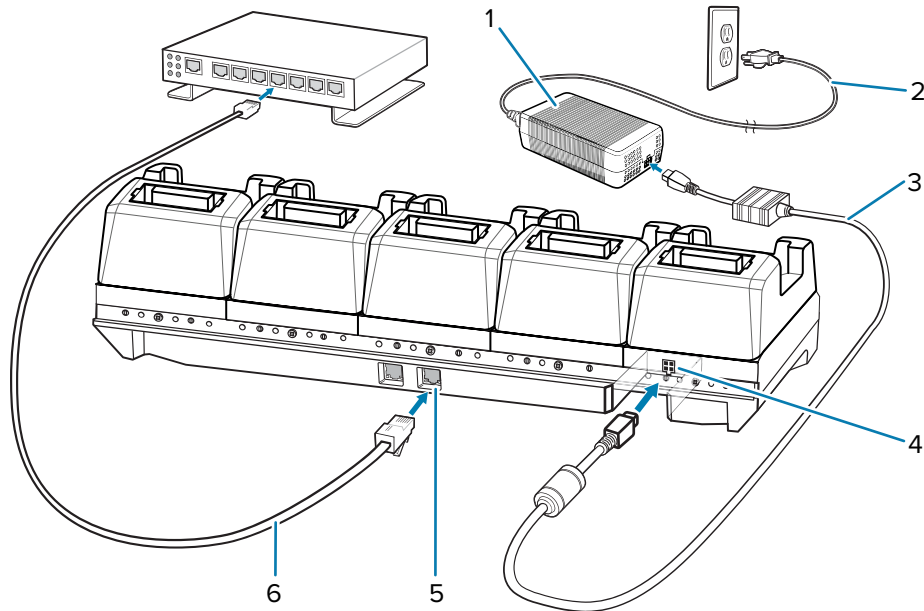
1	Power supply
2	AC line cord
3	DC line cord
4	DC power port
5	RJ-45 port
6	Ethernet cable

Daisy-Chaining Ethernet Cradles

Daisy-chain up to ten 5-Slot Ethernet cradles with batteries charger 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 (4) to each 5-Slot Ethernet cradle.
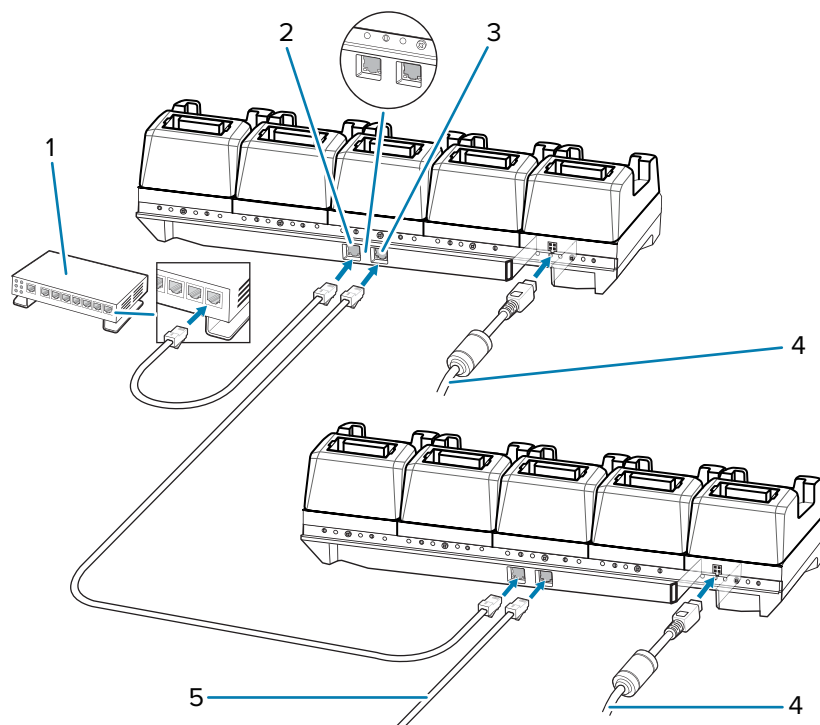
2. Connect an Ethernet cable to one of the ports on the Ethernet switch (1) and the other end to the Primary Port (2) of the first cradle.

3. Connect an Ethernet cable to the Secondary Port (3) of the first cradle.

4. Connect the other end of the Ethernet cable (5) to the Primary Port of the next 5-Slot Ethernet cradle.

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

Ethernet Settings

Configure the Ethernet communication using StageNow.

For detailed information on configuring the Ethernet communication, refer to techdocs.zebra.com/stagenow.

LED Indicators

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

Table 15   LED Data Rate Indicators

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

4-Slot Battery Charger

The 4-Slot Battery Charger charges up to four spare batteries.

Figure 20   4-Slot Battery Charger
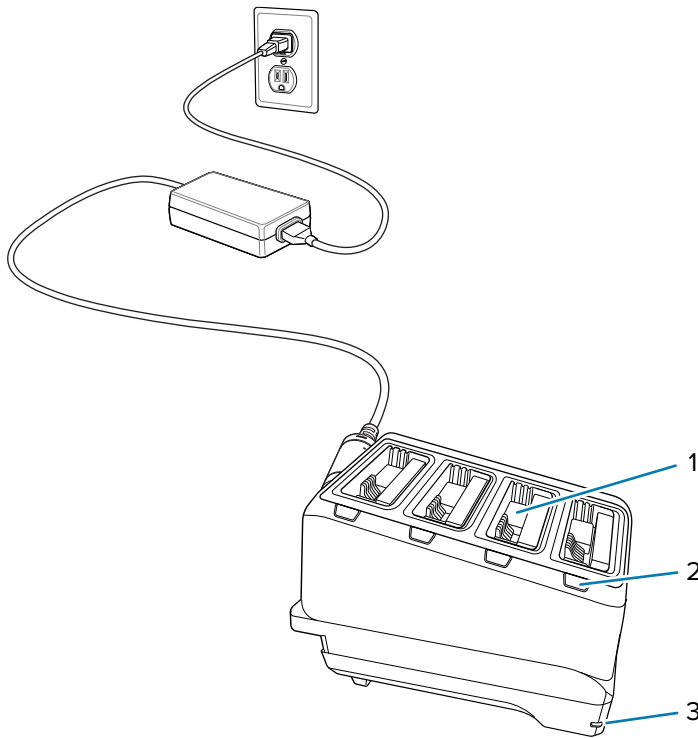
1	Battery slot
2	Battery charging LED
3	Power LED

Setup

The 4-slot battery charger provides up to four spare battery charging.

Figure 21   4-Slot Battery Charger Setup
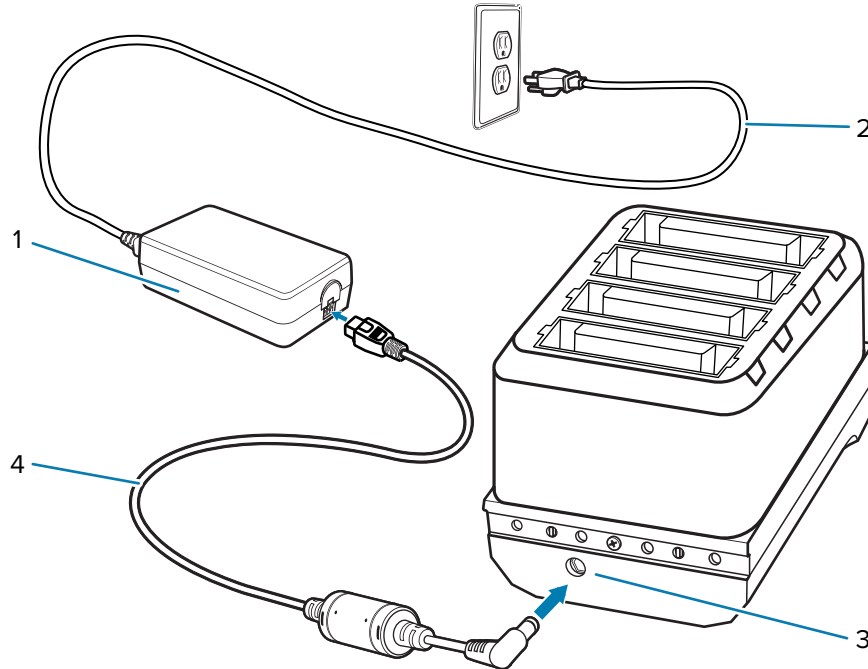
1	Power supply
2	AC line cord
3	DC power port
4	DC line cord

20-Slot Battery Charger

The 20-Slot Battery Charger charges up to 20 spare batteries.

Figure 22   20-Slot Battery Charger
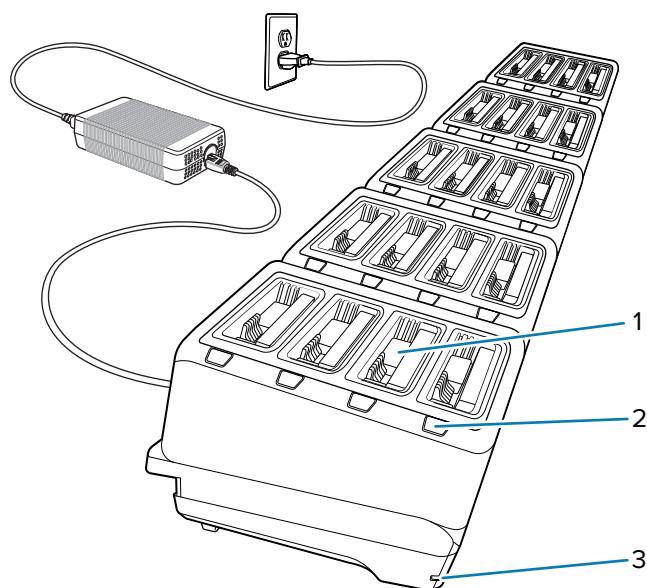
1	Battery slot
2	Battery charging LED
3	Power LED

Setup

The 20-slot battery charger can charge up to 20 spare batteries.

Figure 23   20-Slot Battery Charger Setup
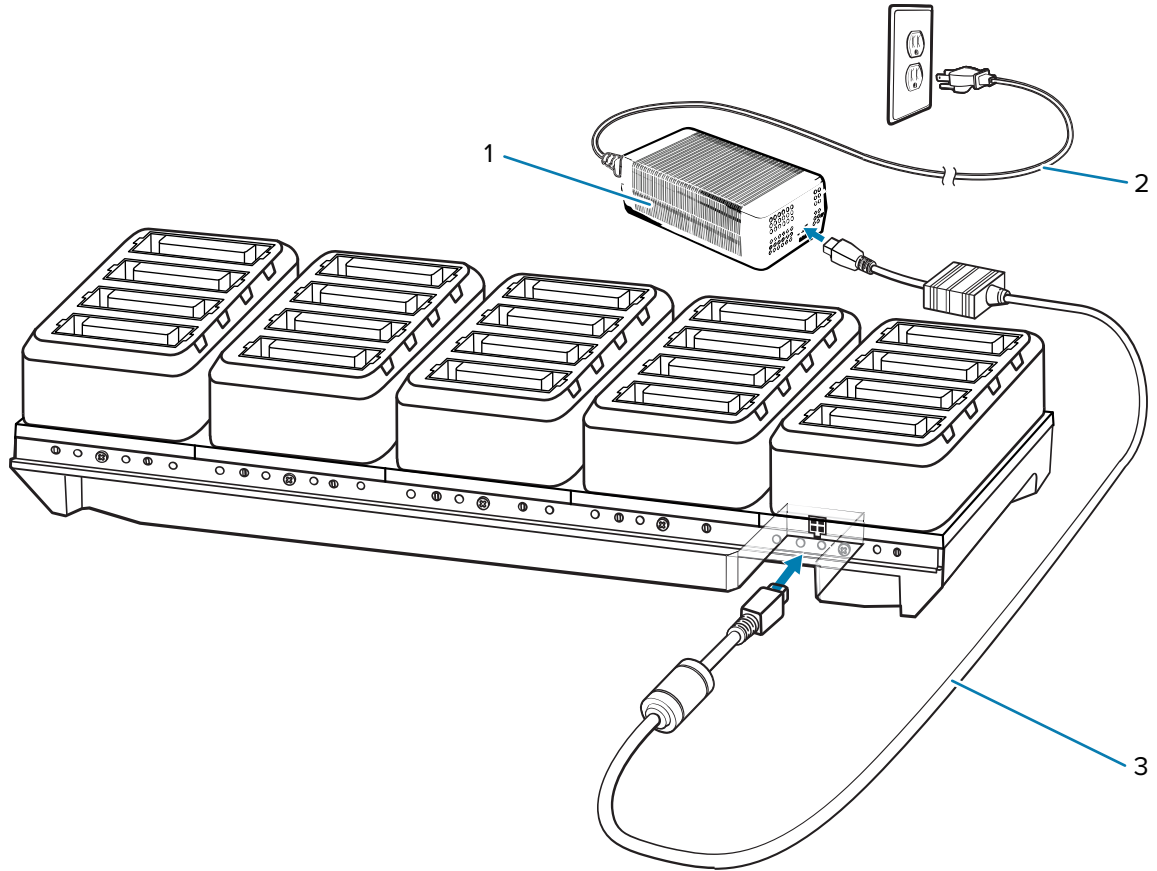
1	Power supply
2	AC line cord
3	DC line cord

USB Charge Cable

The USB Charge Cable snaps onto the bottom of the device and is easily removed when not in use. The cable charges the device and allows the device to transfer data to a host computer.
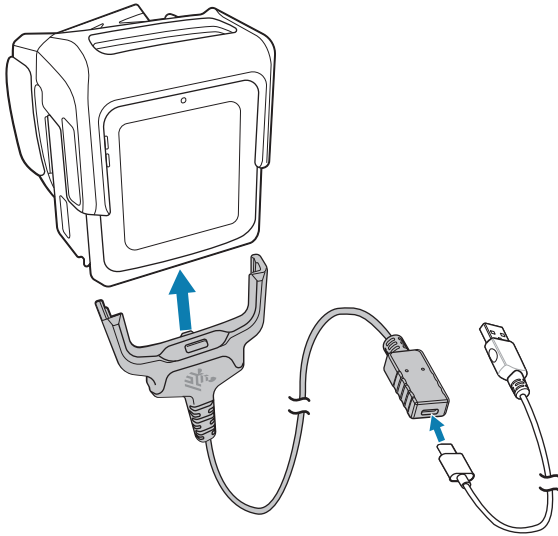
Connecting the USB Charge Cable to the Device

Insert the USB Charge Cable straight onto the device until the device touches the bottom of the cable cup.

NOTE: The device must be in the shell before being connected to the USB Charge Cable.

- Connect the USB Charge Cable to the Converged Scanner.
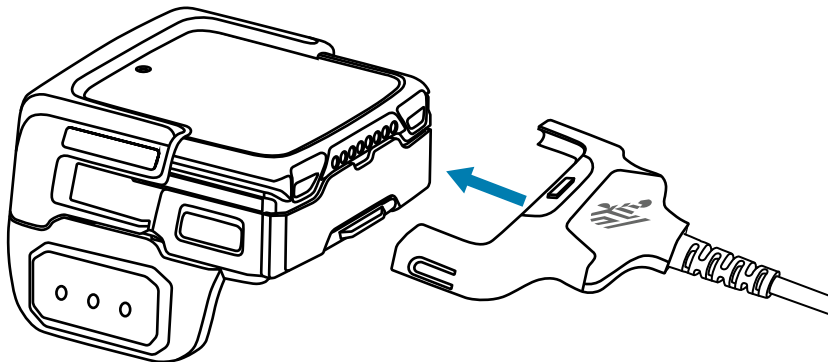
USB Communication and Charging

Use the USB Charge Cable for device charging and transferring data to a host computer.

📝 **NOTE:** The USB-C to USB-A or the USB-C to USB-C cables such as CBL-TC2X-USBC-01 and CBL-TC5X-USBC2A-01 are sold separately.

- To connect the USB Charge Cable (2) to a host computer, connect the USB connector of the cable to a USB-C to USB-A or a USB-C to USB-C cable (1), and then to a host computer.
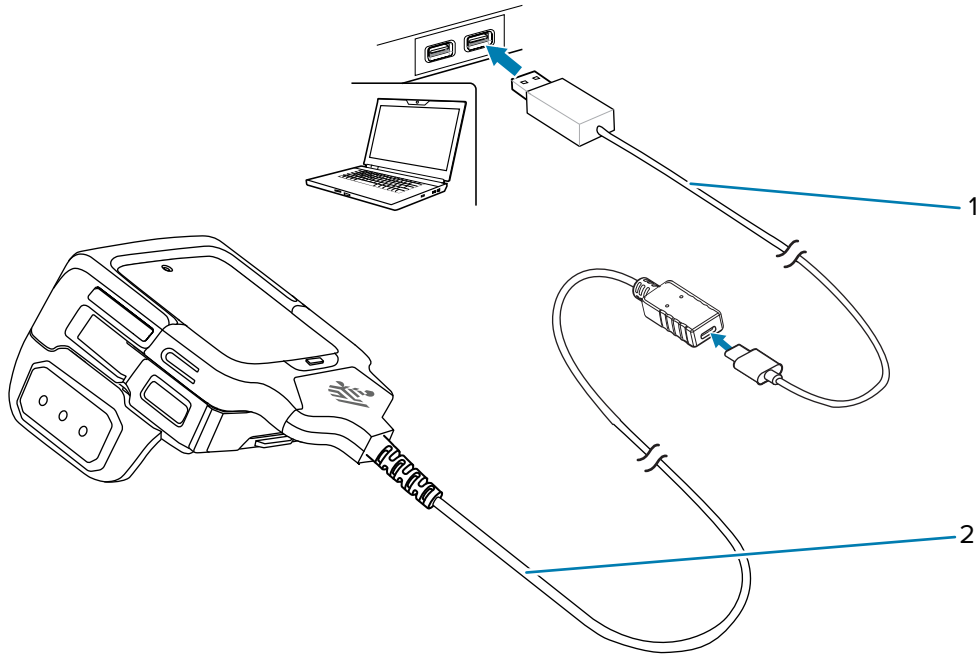
- To charge the device using the USB Charge Cable (2), connect the USB connector of the cable to a USB-C to USB-A or a USB-C to USB-C cable (1), and then to the power supply.
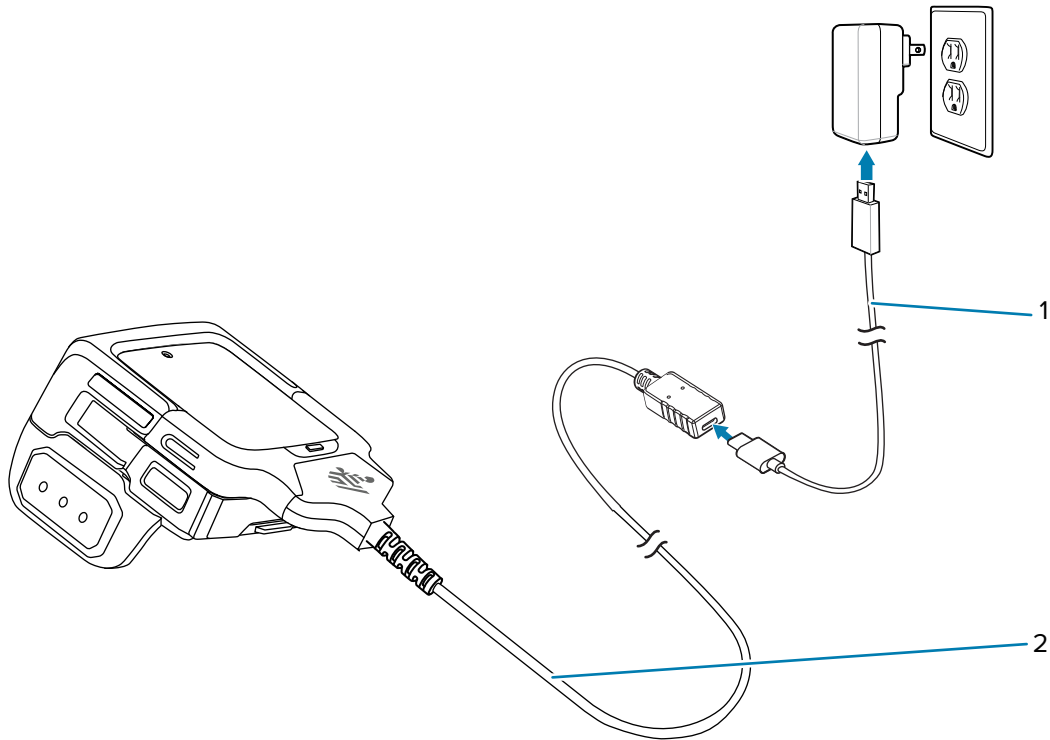
Disconnecting the USB Charge Cable

Disconnect the USB charge cable carefully from the device after use.

1. Grasp the cable cup in one hand and the device in the other hand.

2. Remove the device by pulling straight up.
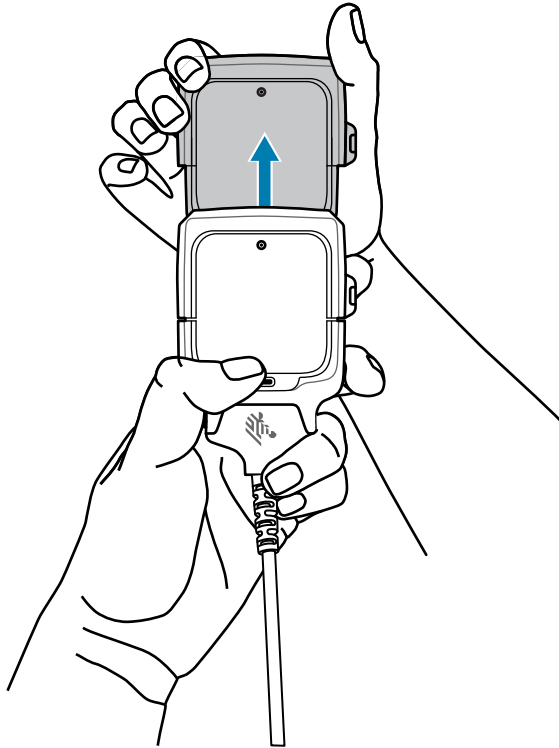
USB Power Supply

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

Setting Up the USB Power Supply

1. Pull the release button down.
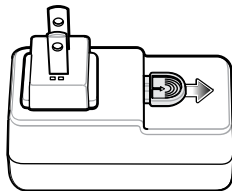
2. Rotate the plug adapter up and out of the power supply.
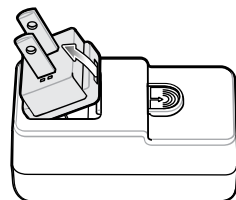
3. Insert the replacement plug adapter into the power supply.
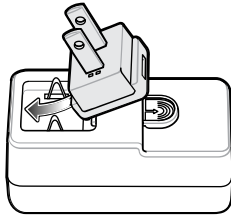
4. Rotate the plug adapter down, and snap it into place.
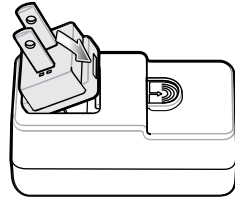
Trigger Assembly

The Converged Scanner with the trigger assembly is worn on the index and middle fingers. A screw is provided for the users to secure the trigger assembly on the device.

See Changing the Trigger Position for the Scanner on page 10 to change the position of the trigger assembly.

You can install a screw to the trigger assembly on the Converged Scanner to prevent other users from unmounting it. See Locking the Trigger Assembly on page 83 for instructions.

Locking the Trigger Assembly

To prevent the operator from removing the trigger assembly, secure it on the Converged Scanner using a screw (provided).

1. On the bottom of the device, lift the finger comfort pad from the front of the device, and then lift it from the rear.
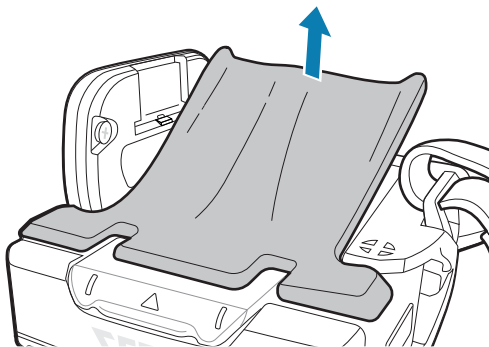
2. To secure the trigger assembly (1), use a Torx T4 screwdriver to tighten a screw (provided) with a torque requirement of 0.9 kgf-cm.
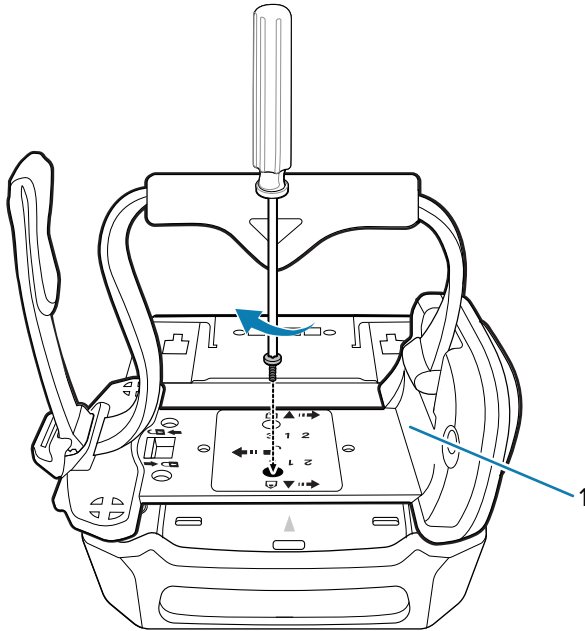
Deflector on the Converged Scanner

The deflector on the Converged Scanner adds protection to the touch screen and the SE4770 scan engine. The deflector has laser safety warning markings and must always be fitted when using the device.

Replacing the Deflector

The deflector is mounted to the Converged Scanner shell with two screws. Replace a new deflector when necessary.

Unmount the device from the trigger and shell assembly, and then unmount the trigger assembly.

1. Loosen the screws underneath the shell.
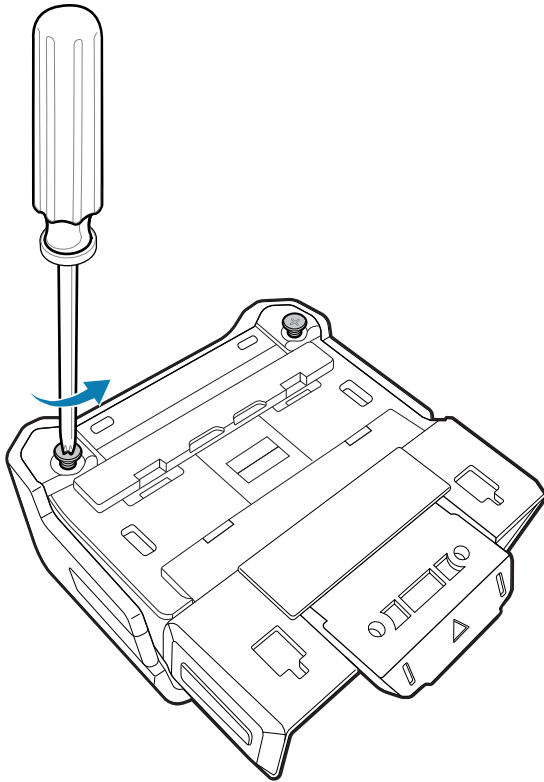
2. Rotate the deflector (1) away from the shell (2).
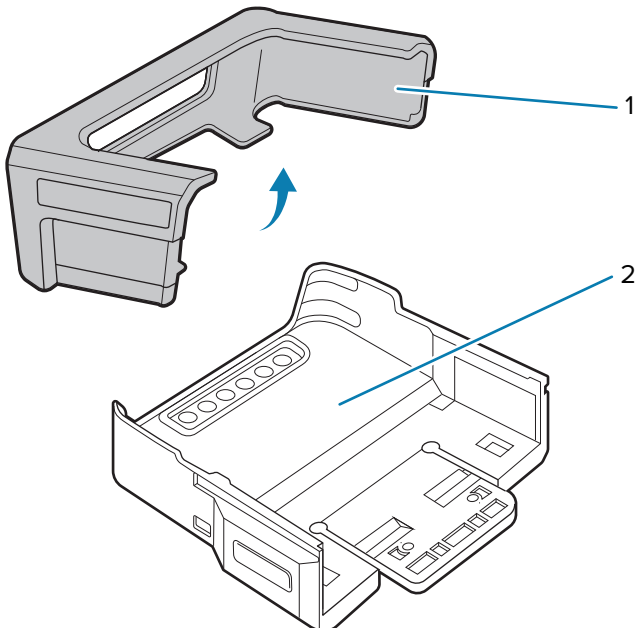
3. Replace a new deflector to the shell.

4. Torque screws underneath the shell to 1.2 kgf-cm (6.7 lbf-in) with a Phillips PH0 screwdriver.

Replace the device into the shell, and then replace the trigger assembly.

Finger Strap of the Trigger Assembly

The finger strap is used for securely holding the Converged Scanner on the index and middle fingers. Replace the finger strap on the trigger assembly when necessary.

Replacing the Finger Strap

The finger strap on the trigger assembly is removable.

*   To remove the finger strap:

    a) Pull the finger strap horizontally away from the locking slot.
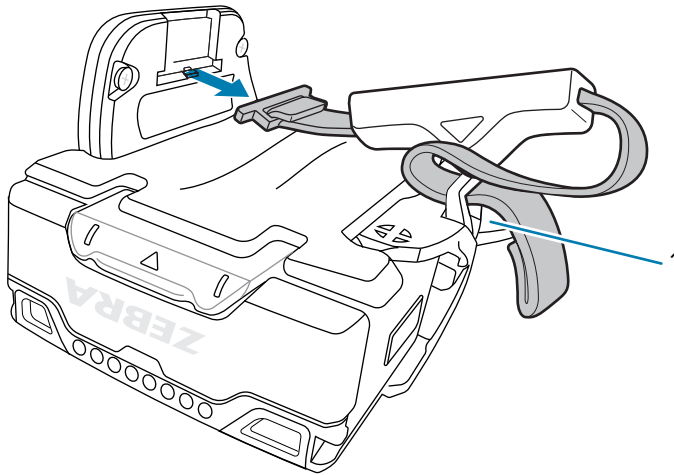
    b) Lift the strap buckle (1) before pulling the other end of the strap away.

*   To replace the finger strap:

    a) Lift the strap buckle and push the end of the finger strap through.

    b) Insert the finger strap horizontally into the locking slot as shown.
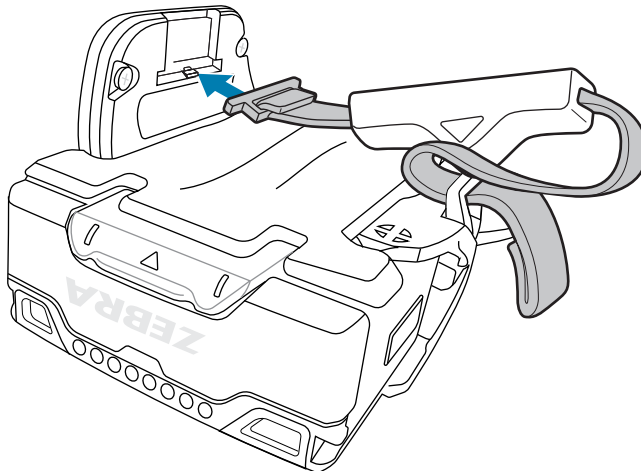
Back of Hand Mount

The back of hand (BOH) mount allows the Converged Scanner to be installed on the back of your hand and provides a remote finger trigger. It must be used with the hand mount glove and is available for right-handed and left-handed users.

Figure 24   Back of Hand Mount
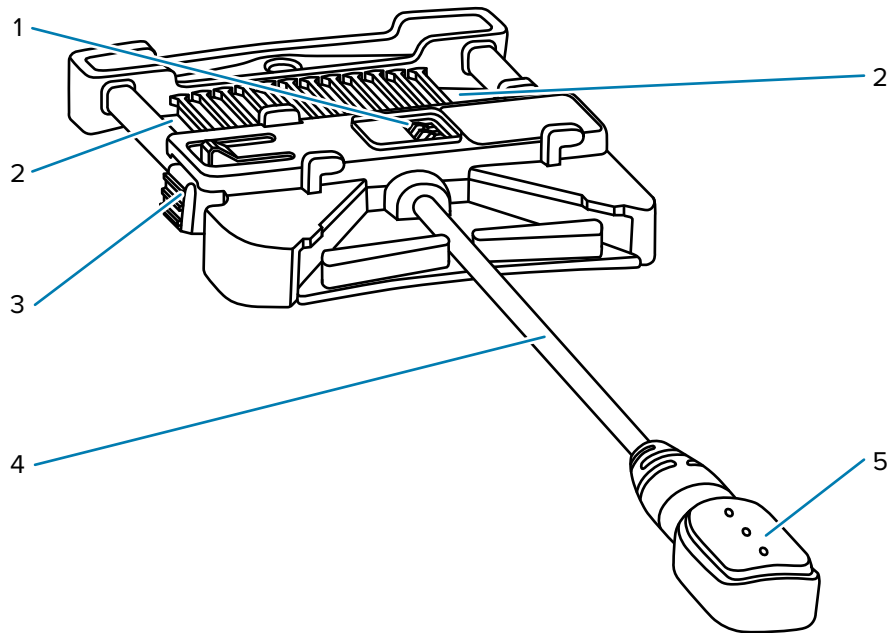
1	BOH mount contacts
2	Glove strap slot
3	BOH mount latch
4	Trigger cable
5	Finger trigger

Installing the Back of Hand Mount

Mount the Back of Hand (BOH) mount to the hand wrap, and then install the device in the shell onto the BOH mount.

Determine whether the device is used on the right or left hand.

NOTE: The described procedures are applicable to both right-handed and left-handed users. The steps in this section is using a right-hand wrap as an example.
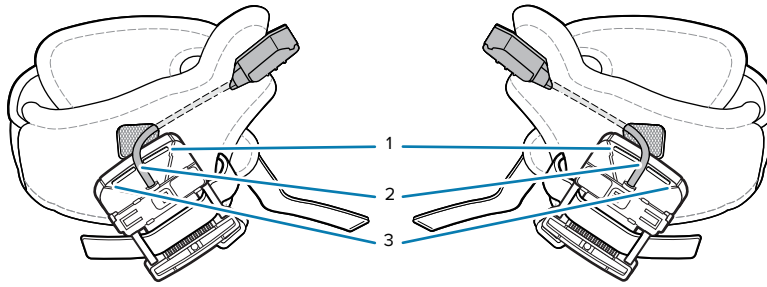
The BOH mount has three slots for the user to position the trigger cable. Insert the trigger cable into one of the slots according to the size of the user's hand:

1	For large-hand users
2	For medium-hand users
3	For small-hand users

1. To mount a BOH mount to the hand wrap:

   a) Insert the trigger cable and button (1) through the trigger slot of the hand wrap (2).
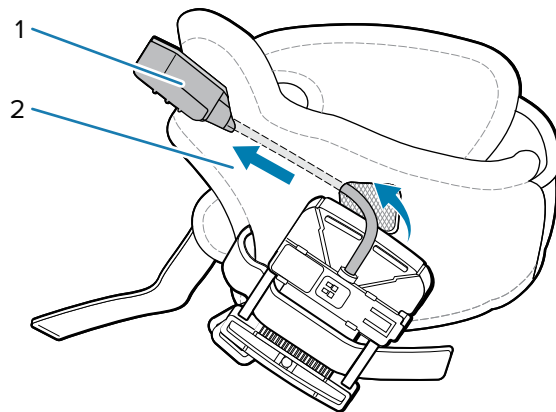
   b) Insert the strap (2) through one of the strap slots (3) on the BOH mount (1).
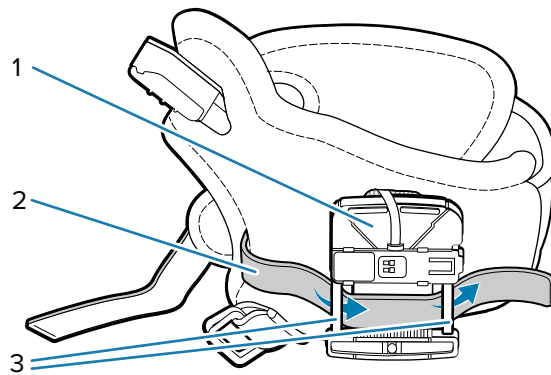
   c) Insert the strap through the other slot of the mount, and then fasten it with the hook and loop fastener.

2. Position the hand wrap on the hand by sliding your hand through the hand wrap, with your thumb through the smaller opening and your remaining four fingers through the larger opening.
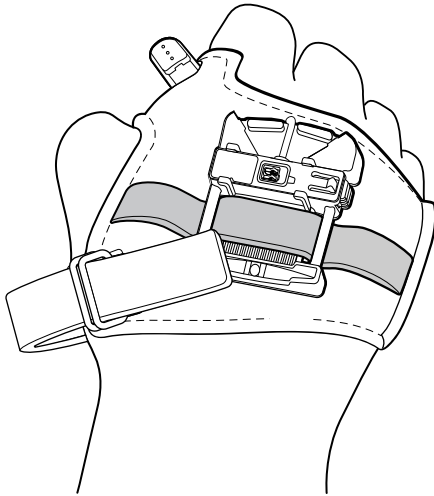
3. Slide the strap (1) through the buckle and secure the end of the strap in place with the hook and loop fastener.
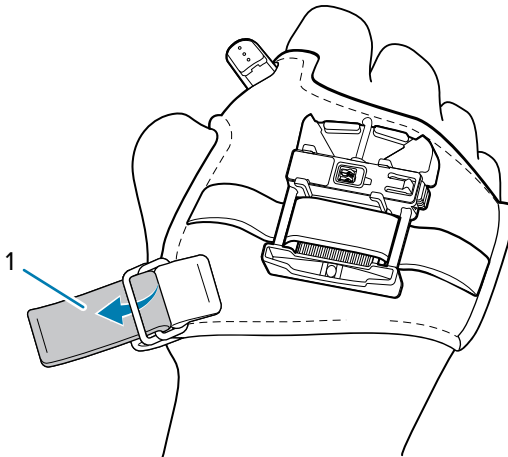
Adjust the strap to a comfortable position to fit securely by tightening or loosening the strap.

4. Position the trigger button so that the button is easy-access to your thumb, and then secure it on the hand wrap using the hook and loop fastener.

5. Slide the device (1) in the shell onto the BOH mount. Press the BOH mount button (2) when mounting.
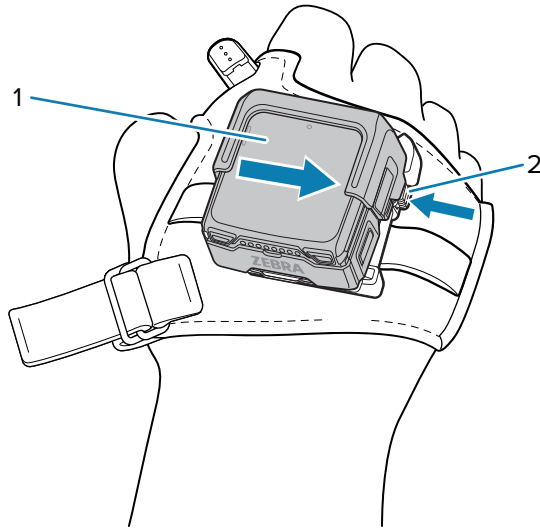
Release the button (2) when the device snaps into place on the BOH mount.

6. Reposition the mount on the hand wrap to align the mount with the middle finger knuckle.

7. Tighten or loosen the hand wrap strap, if necessary.

To unmount the device in the shell from the BOH mount, press the BOH mount button and slide the device in the shell away from the BOH mount button.

Unmounting the Back of Hand Mount

1. To detach the device in the shell from the BOH mount:

   a) Press the BOH mount button (2) and then slide the device in the shell (1) to the left.
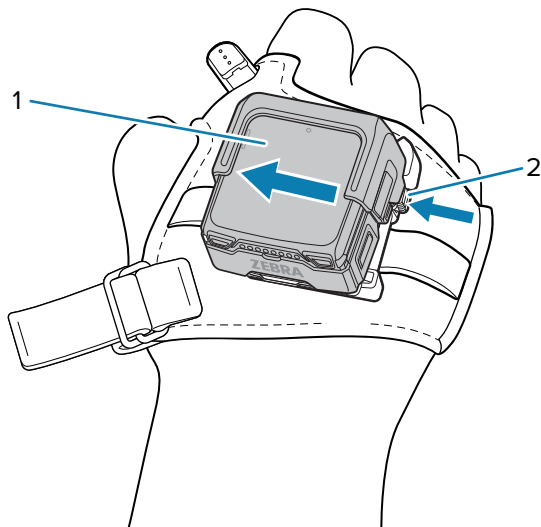
   b) Lift the device in the shell off the BOH mount.
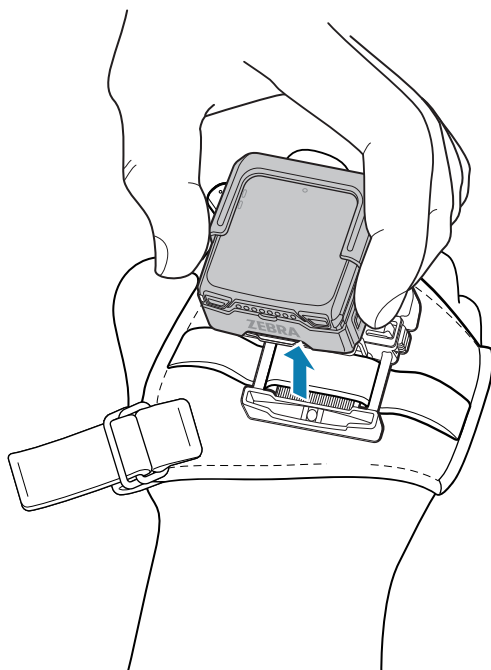
2. Unfasten the strap (2) securing the BOH mount.
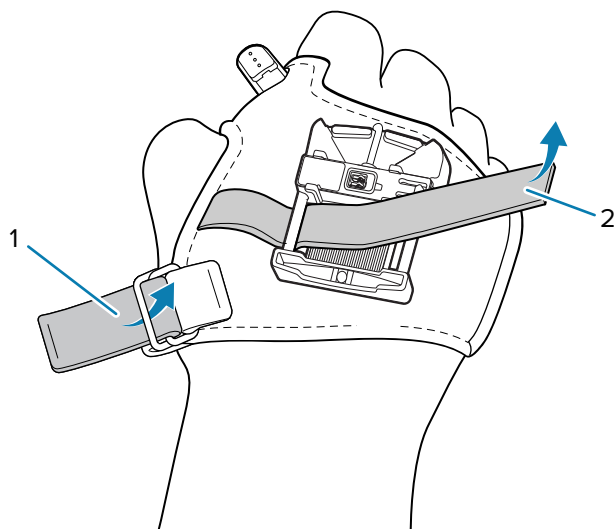
3. Unfasten the hand mount strap (1) and then slide your hand out from the hand wrap.

4. Remove the finger trigger button and cable from the hand wrap.
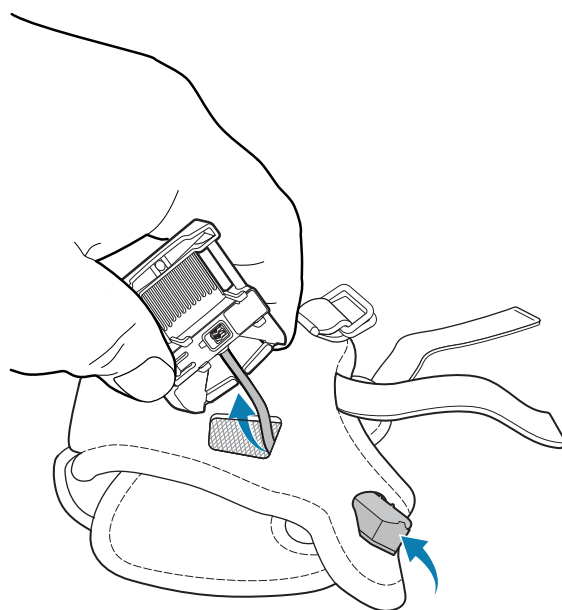
Application Deployment

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 web sites.

Secure Certificates

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

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

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

Installing a Secure Certificate

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

1. Copy the certificate from the host computer to the root of the microSD card or the device's internal memory.
2. Go to **Settings**.
3. Touch **Security** > **Encryption & credentials**.

4. Touch **Install a certificate** and select one of the following:

  - **CA certificate**

  - **VPN & app user certification**

  - **Wi-Fi certificate**.

5. Navigate to the location of the certificate file.

6. Touch the filename of the certificate to install.

7. If prompted, enter the password for credential storage. If a password has not been set for the credential storage, enter a password for it twice, and then touch **OK**.

8. If prompted, enter the certificate's password and touch **OK**.

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 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** > **Advanced** > **Developer options**.

7. Slide the **USB debugging** switch to the **ON** position.

EMDK for Android

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

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

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

RFID SDK

RFID SDK for Android is an Android aar library that adds a comprehensive set of APIs to easily create powerful applications for the WS50 RFID. RFID SDK for Android includes a class library, sample apps, and source code to enable developers to easily build apps that take full advantage of the power of the Zebra device.

RFID SDK is used to develop applications such as RFID Utility which is the pre-installed application on the WS50 RFID. The utility showcases the capabilities of RFID, and it appears when an RFID module is present.

See Also
For more information go to techdocs.zebra.com.

StageNow for Android

StageNow is Zebra's next-generation Android Staging Solution built on the MX platform. It allows quick and easy creation of device profiles and can deploy to devices simply by scanning a barcode 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.

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 web site at zebra.com/support. Download the ADB and USB Driver Setup package. Follow the instructions with the package to install the ADB and USB drivers for Windows and Linux.

Enabling USB Debugging

By default, USB debugging is disabled.

1. Go to **Settings**.

2. Touch **About phone**.

3. Scroll down to **Build number**.

4. Tap **Build number** seven times.

    The message **You are now a developer!** appears.

5. Touch **Back**.

6. Touch **System** > **Advanced** > **Developer options**.

7. Slide the **USB debugging** switch to the **ON** position.

8. Touch **OK**.

9. Connect the device to the host computer using the 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** or **Allow**.

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.

13. Return to the Home screen.

Entering Android Recovery Manually

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

> **IMPORTANT:** Connect the device to the USB cable prior to performing the following steps to enter Android Recovery mode.

> **NOTE:** When the device connecting with the USB cable reboots, press the scan trigger button to enter Fastboot mode.

1. On the Quick Access panel, press and hold the **Power** button until the menu appears.
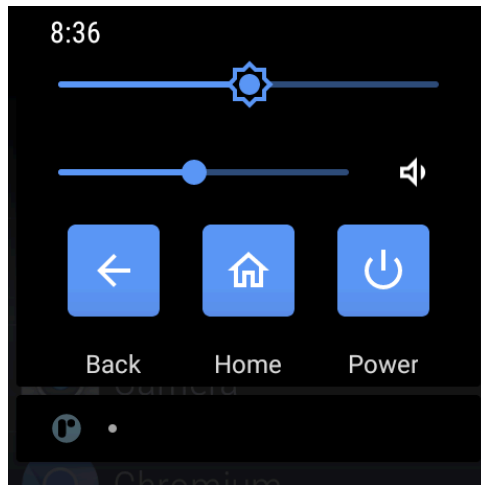
2. Press **Restart**.

3. Press and hold the **Back** button until the Zebra logo displays, and then release the button.

   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.

> **NOTE:** To ensure the stable operation of the device, the recommended maximum memory utilization for the device should be kept below 350 MB for total user applications. This includes Enterprise Mobility Management (EMM).

- Android Debug Bridge

- Wireless Android Debug Bridge

- Mobile device management (MDM) platforms that have application provisioning. Refer to the MDM software documentation for details.

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** > **Advanced** > **Developer options**.

5. On Android 11, touch **System** > **Advanced** > **Developer options**.

6. On Android 13, touch **System** > **Developer options**.

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

8. Enable **Developer options**.

9. Slide the **USB debugging** switch to the **ON** position.

10. Touch **OK**.

11. 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.

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 Factory Reset file to a host computer.

IMPORTANT: Ensure the latest adb files are installed on the host computer.

IMPORTANT: The device and host computer must be on the same wireless network.

1. Go to **Settings**.

2. Touch **System** > **Advanced** > **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.
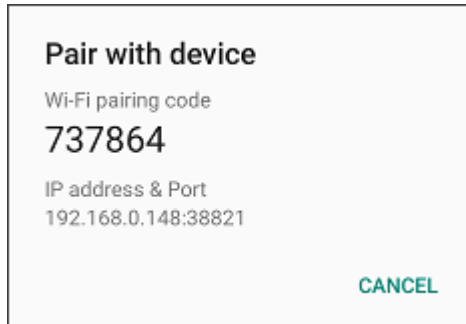
9. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.

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. Press **Enter**.

12. Type the pairing code from the **Pair with device** dialog box.

13. Press **Enter**.

14. Type `adb connect XX.XX.XX.XX:XXXXX`.

    where XX.XX.XX.XX:XXXX is the **IP address & Port** on the **Wireless debugging** screen.

    The device is now connected to the host computer.

15. 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.

16. On the host computer command prompt window type:

```
adb install <application>
```

17. On the host computer, type:

    `adb disconnect.`

Uninstalling an Application

Free up device memory by removing unused apps.

1. Go to **Settings**.

2. On Android 11, touch **Apps & notifications**.

3. On Android 13, touch **Apps**.

4. Touch **See all apps** to view all apps in the list.

5. Scroll through the list to the app.

6. Touch the app.

   The **App info** screen displays.

7. Touch **Uninstall**.

8. Touch **OK** to confirm.

Android System Update

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

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.

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

2. Press and hold the **Power** button.

3. Touch **Restart**.

4. Press and hold the **Left** button until the **Recovery** screen appears.

5. Press the **Left** button to navigate to **Apply upgrade from ADB**.

6. Press the **Right** button.

7. Press **Enter**.

8. Press **Enter** or **Power** to select.

9. Press and hold the **Right** button to reboot the device.

10. Press **Enter**.

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

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

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 (emulated storage), while preserving the contents of the /enterprise folder and its subfolders. 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** > **Advanced** > **Reset Options** > **Erase all data (enterprise reset)**.
3. Touch **Erase all data** twice to confirm the Enterprise Reset.

Performing an Enterprise Reset Using ADB

Perform an Enterprise Reset using ADB.

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

1. Connect the device to a host computer using a USB cable.
2. Go to **Settings**.
3. Touch **System** > **Advanced** > **Developer options** .
4. On Android 11, touch **System** > **Advanced** > **Developer options**.
5. On Android 13, touch **System** > **Developer options**.
6. Touch **System** > **Developer options**.
7. Slide the switch to the **ON** position.
8. Slide the **USB debugging** switch to the **ON** position.
9. 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 **USB Debugging**. A check appears in the check box. The **Allow USB debugging?** dialog box appears.
11. Touch **OK** or **Allow**.
12. Press the **Right** button to navigate to **Apply upgrade from ADB**.
13. Press and hold the **Right** button.
14. Use **Up** and **Down** to navigate to **Full OTA Package**.
15. Press **Up Arrow** and **Down Arrow** keys to navigate to **Full OTA Package**.
16. Press and hold the **Right** button to reboot the device.
17. Press **Power** to reboot the device.

If you are not able to enter Android Recovery mode through the adb command, see

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 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.

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

2. Go to **Settings**.

3. Touch **System** > **Advanced** > **Developer options** .

4. On Android 11, touch **System** > **Advanced** > **Developer options**.

5. On Android 13, touch **System** > **Developer options**.

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

7. Slide the switch to the **ON** position.

8. Slide the **USB debugging** switch to the **ON** position.

9. 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 **USB Debugging**. A check appears in the check box. The **Allow USB debugging?** dialog box appears.

11. Touch **OK** or **ALLOW**.

12. Press the **Right** button to navigate to **Apply upgrade from ADB** or **Apply downgrade from ADB**.

13. Press and hold the **Right** button to select.

14. Press **Up Arrow** and **Down Arrow** to navigate to **Full OTA Package**.

15. Use **Up** and **Down** to navigate to **Full OTA Package**.

16. Press and hold the **Right** button to reboot the device.

17. Navigate to **Reboot system now** and press the Enter key or Power button to reboot the device.

If you are not able to enter Android Recovery mode through the adb command, see Entering Android Recovery Manually on page 97.

Android Storage

The device contains multiple types of file storage.

- Random Access Memory (RAM)
- Enterprise folder.

Random Access Memory

Executing programs use RAM to store data. Data stored in RAM is lost upon a reset.

The operating system manages how applications use RAM. It only allows applications and component processes and services to use RAM when required. It may cache recently used processes in RAM, so they restart more quickly when opened again, but it will erase the cache if it needs the RAM for new activities.

The screen displays the amount of used and free RAM.

- **Performance** - Indicates memory performance.

- **Total memory** - Indicates the total amount of RAM available.

- **Average used (%)** - Indicates the average amount of memory (as a percentage) used during the period of time selected (default - 3 hours).

- **Free** - Indicates the total amount of unused RAM.

- **Memory used by apps** - Touch to view RAM usage by individual apps.

Viewing Memory

View the amount of memory used and free RAM.

1. Go to **Settings**.

2. Touch **System** > **Advanced** > **Developer options**.

3. Touch **System** > **Advanced** > **Developer options** .

Enterprise Folder

The Enterprise folder (within internal flash) is a super-persistent storage that is persistent after a reset and an Enterprise Reset.

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

Managing Apps

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

1. Go to **Settings**.

2. Touch **Apps & notifications**.

3. Touch **See all XX apps** to view all apps on the device.

4. Touch ⋮ > **Show system** to include system processes in the list.

5. Touch an app, process, or service in the list to open a screen with details about it and, depending on the item, to change its settings, permissions, notifications and to force stop or uninstall it.

App Details

Apps have different kinds of information and controls.

- **Force stop** - Stop an app.

- **Disable** - Disable an app.

- **Uninstall** - Remove the app and all of its data and settings from the device.

- **Notifications** - Set the app notification settings.

- **Permissions** - Lists the areas on the device that the app has access to.

- **Storage & cache** - Lists how much information is stored and includes buttons for clearing it.

- **Mobile data & Wi-Fi** - Provides information about data consumed by an app.

- **Mobile data & Wi-Fi** - Provides information about data consumed by an app. Mobile data not supported.

- **Advanced**

  - **Screen time** - Displays the amount of time the app has displayed on the screen.

  - **Battery** - Lists the amount of computing power used by the app.

  - **Open by default** - If you have configured an app to launch certain file types by default, you can clear that setting here.

  - **Display over other apps** - Allows an app to display on top of other apps.

  - **App details** - Provides a link to additional app details on the Play store.

  - **Additional settings in the app** - Opens settings in the app.

  - **Modify system settings** - Allows an app to modify the system settings.

Managing Downloads

Files and apps downloaded using the Browser or Email are stored on the 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 explains how to maintain and troubleshoot the device and accessories.

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 applied to the device. Zebra recommends using a screen protector to minimize wear and tear. Screen protectors enhance the usability and durability of touchscreen 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.

- Periodically inspect accessory cables and connectors. Check the inside and outside of cradles to ensure good electrical contact.

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 where the device is charged in a non-commercial environment.

- Follow battery usage, storage, and charging guidelines found in this guide.

- Improper battery use may result in a fire, explosion, or other hazard.

- To charge the mobile device battery, the ambient battery and charger temperatures must be between 2°C to 46°C (35.6°F to 114.8°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 it has the authentication hologram.

- Do not disassemble or open, crush, bend or 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 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 fire.

- Seek medical advice immediately if a battery has been swallowed.

- In the event of a battery leak, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with water for 15 minutes, and seek medical advice.

- If you suspect damage to your equipment or battery, contact Customer Support to arrange for inspection.

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

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

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

- Avoid leaving the device in a vehicle on a hot day or hot surface - Similar to leaving the device out in direct sunlight, the device will also absorb the thermal energy from a hot surface or when left on the dashboard of a vehicle or seat, getting warmer the longer it remains on the hot surface or inside the hot vehicle.

- Turn off unused apps on the device. Open, unused apps running in the background can cause the device to work harder, which in turn may cause it to heat up. This will also improve your mobile computer device's battery life performance.

- Avoid turning your screen brightness up - Just the same as running background apps, turning your brightness up will force your battery to work harder and create more heat. Minimizing your screen brightness may extend operating the mobile computer device in hot environments.

Cleaning Instructions

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, ammonium chloride, or mild dish soap.

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

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. Be careful not to let liquid pool around the display window or other places. 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.

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, display, and camera for 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

In rare circumstances, to troubleshoot the device, you may need to reset the device.

Resetting the Device

This section describes options to reset the device.

There are four reset functions:

- Soft reset
- Hard reset
- Enterprise reset.
- Factory reset.

Performing a Soft Reset

Perform a soft reset if applications stop responding.

1. On the Quick Access panel, press and hold the **Power** button until the menu appears.
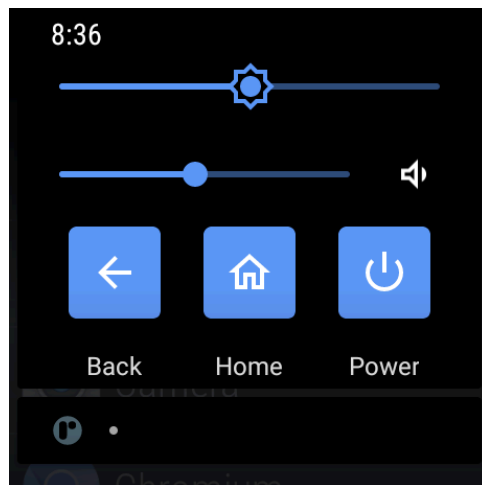
2. Touch **Restart**.

    The device reboots.

Performing a Hard Reset

Perform a hard reset if the device stops responding.

1. Press and hold both the **Back** and **Home** buttons.

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

   The device reboots.

Troubleshooting the Device

Table 16   Troubleshooting the Device

Problem	Cause	Solution
Device does not turn on.	Battery not charged.	Charge or replace the battery in the device.
	Battery not installed properly.	Ensure battery is installed properly. See Installing the Battery on page 9.
	System crash.	Perform a soft reset. If the device still does not turn on, perform a hard reset.
Battery did not charge.	Battery failed.	Replace battery. If the device still does not operate, try a soft reset, then a hard reset.
	Device removed from cradle before charging completed.	Insert the device into the cradle and begin charging. The battery fully charges in approximately 3 hours (from 0 to 90%).
	Extreme battery temperature.	The battery and charger temperatures must be between 2°C and 46°C (35.6°F and 114.8°F).
During data communication, no data was transmitted, or transmitted data was incomplete.	Device unplugged from host computer during communication.	Reconnect the programming cable to the host computer and re-transmit.
	Communication software was incorrectly installed or configured.	See system administrator.
During data communication over Wi-Fi, no data transmitted, or transmitted data was incomplete.	Wi-Fi radio is not on.	Turn on the Wi-Fi radio.
	You moved out of range of an access point.	Move closer to an access point.
Device turns itself off.	Device is inactive	The device turns off after a period of inactivity. If the device is running on battery power, this period can be set to 15 seconds, 30 seconds, 1 minute, 2 minutes, 5 minutes, 10 minutes, or 30 minutes. Change the setting if you need a longer delay before the automatic shutoff feature activates.
	Battery is depleted	Place the device in the cradle to re-charge the battery. Replace the battery.
	Battery is not inserted properly	Insert the battery properly. See Installing the Battery on page 9.

Table 16   Troubleshooting the Device (Continued)

Problem	Cause	Solution
	The devices' battery is low and it powers down to protect memory content.	Place the device in the cradle to re-charge the battery.
No sound	Volume setting is low or turned off.	Adjust the volume.
Tapping the window buttons or icons does not activate the corresponding feature.	The device is not responding.	Reboot the device.
The device does not decode with reading barcode.	Unreadable barcode.	Ensure the symbol is not defaced.
	Distance between exit window and barcode is incorrect.	Move the device closer or further from the barcode to the proper scanning range.
	Device is not programmed for the barcode	Verify that the device can read the type of barcode being scanned. Ensure that the barcode parameters are set properly for the barcode being scanned.
	Device is not programmed to generate a beep.	Verify that a beep on a good decode is used.

2-Slot Charge Only Cradle

Table 17   Troubleshooting the 2-Slot Charge Only Cradle

Symptom	Possible Cause	Action
Battery is not charging.	Device removed from the cradle too soon.	Replace the device in the cradle. The standard or high-capacity battery in device charges from fully depleted to 90% in approximately 3 hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	Device is not inserted correctly in the cradle.	Remove and re-insert the device into the cradle, ensuring it is firmly seated.
	Ambient temperature of the cradle is too warm.	Move the cradle to an area where the ambient temperature is between 2°C and 46°C (35.6°F and 114.8°F).
LEDs do not light when device is inserted.	Cradle is not receiving power.	Ensure the power cable is connected securely to both the cradle and to AC power.
	Device is not seated firmly in the cradle.	Remove and re-insert the device into the cradle, ensuring it is firmly seated.

10-Slot Charge Only Cradle

Table 18   Troubleshooting the 10-Slot Charge Only Cradle

Symptom	Possible Cause	Action
Battery is not charging.	Device removed from the cradle too soon.	Replace the device in the cradle. The standard or high-capacity battery in device charges from fully depleted to 90% in approximately 3 hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	Device is not inserted correctly in the cradle.	Remove and re-insert the device into the cradle, ensuring it is firmly seated.
	Ambient temperature of the cradle is too warm.	Move the cradle to an area where the ambient temperature is between 2°C and 46°C (35.6°F and 114.8°F).
LEDs do not light when device is inserted.	Cradle is not receiving power.	Ensure the power cable is connected securely to both the cradle and to AC power.
	Device is not seated firmly in the cradle.	Remove and re-insert the device into the cradle, ensuring it is firmly seated.

5-Slot Ethernet Cradle with Battery Charger

Table 19   Troubleshooting the 5-Slot Ethernet Cradle with Battery Charger

Symptom	Possible Cause	Action
During communication, no data transmits, or transmitted data was incomplete.	Device removed from cradle during communications.	Replace device in cradle and retransmit.
	Incorrect cable configuration.	Ensure that the correct cable configuration.
	Device has no active connection.	An icon is visible in the status bar if a connection is currently active.
Battery is not charging.	Device removed from the cradle too soon.	Replace the device in the cradle. The standard or high-capacity battery in device charges from fully depleted to 90% in approximately 3 hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	Device is not inserted correctly in the cradle.	Remove and re-insert the device into the cradle, ensuring it is firmly seated.
	Ambient temperature of the cradle is too warm.	Move the cradle to an area where the ambient temperature is between 2°C and 46°C (35.6°F and 114.8°F).
LEDs do not light when device is inserted.	Cradle is not receiving power.	Ensure the power cable is connected securely to both the cradle and to AC power.
	Device is not seated firmly in the cradle.	Remove and re-insert the device into the cradle, ensuring it is firmly seated.

Table 19   Troubleshooting the 5-Slot Ethernet Cradle with Battery Charger (Continued)

Symptom	Possible Cause	Action
Spare Battery not charging.	Charger is not receiving power.	Ensure the power cable is connected securely to both the charger and to AC power.
	Spare battery is not correctly seated.	Remove and re-insert the battery into the battery adapter, ensuring it is correctly seated.
	Battery adapter is not seated properly.	Remove and re-insert the battery adapter into the charger, ensuring it is correctly seated.
	Battery was removed from the charger or charger was unplugged from AC power too soon.	Ensure charger is receiving power. Ensure the spare battery is seated correctly. The standard or high-capacity spare battery charges from fully depleted to 90% in approximately 3 hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	Ambient temperature of the cradle is too warm.	Move the cradle to an area where the ambient temperature is between 2°C and 46°C (35.6°F and 114.8°F).
Spare Battery Charging LED does not light when spare battery is inserted.	Spare battery is not correctly seated.	Remove and re-insert the spare battery into the charging slot, ensuring it is correctly seated.

4-Slot Battery Charger

Table 20   Troubleshooting the 4-Slot Battery Charger

Symptom	Possible Cause	Action
Spare Battery not charging.	Charger is not receiving power.	Ensure the power cable is connected securely to both the charger and to AC power.
	Spare battery is not correctly seated.	Remove and re-insert the battery into the battery adapter, ensuring it is correctly seated.
	Battery adapter is not seated properly.	Remove and re-insert the battery adapter into the charger, ensuring it is correctly seated.
	Battery was removed from the charger or charger was unplugged from AC power too soon.	Ensure charger is receiving power. Ensure the spare battery is seated correctly. The standard or high-capacity spare battery charges from fully depleted to 90% in approximately 3 hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	Ambient temperature of the cradle is too warm.	Move the cradle to an area where the ambient temperature is between 2°C and 46°C (35.6°F and 114.8°F).
Spare Battery Charging LED does not light when spare battery is inserted.	Spare battery is not correctly seated.	Remove and re-insert the spare battery into the charging slot, ensuring it is correctly seated.

20-Slot Battery Charger

Table 21   Troubleshooting the 20-Slot Battery Charger

Symptom	Possible Cause	Action
Spare Battery not charging.	Charger is not receiving power.	Ensure the power cable is connected securely to both the charger and to AC power.
	Spare battery is not correctly seated.	Remove and re-insert the battery into the battery adapter, ensuring it is correctly seated.
	Battery adapter is not seated properly.	Remove and re-insert the battery adapter into the charger, ensuring it is correctly seated.
	Battery was removed from the charger or charger was unplugged from AC power too soon.	Ensure charger is receiving power. Ensure the spare battery is seated correctly. The standard or high-capacity spare battery charges from fully depleted to 90% in approximately 3 hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	Ambient temperature of the cradle is too warm.	Move the cradle to an area where the ambient temperature is between 2°C and 46°C (35.6°F and 114.8°F).
Spare Battery Charging LED does not light when spare battery is inserted.	Spare battery is not correctly seated.	Remove and re-insert the spare battery into the charging slot, ensuring it is correctly seated.

Technical Specifications

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

SE4770-SR Decode Zones

The table below lists the typical distances for selected barcode densities.

Table 22   SE4770-SR Decode Distances

Symbology	Typical Working Ranges	
	Near	**Far**
3 mil Code 39	3.0 in. 7.6 cm	5.8 in. 14.7 cm
5 mil Code 128	2.3 in. 5.8 cm	9.8 in. 24.9 cm
5 mil PDF417	3.0 in. 7.6 cm	7.9 in. 20.1 cm
6.67 mil PDF417	2.5 in. 6.4 cm	10.1 in. 25.7 cm
10 mil DataMatrix	2.1 in. 5.3 cm	11.0 in. 27.9 cm
100% UPCA	1.6 in. 4.1 cm	24.9 in. 63.2 cm
15 mil Code 128	2.4 in. 6.1* cm	27.8 in. 70.1 cm
20 mil Code 39	1.6 in. 4.1 cm	36.1 in. 91.7 cm
20 mil QR	1.1 in. 2.8 cm	17.5 in. 44.5 cm

Table 22   SE4770-SR Decode Distances (Continued)

Symbology	Typical Working Ranges	
	Near	Far
* Limited by width of barcode in field of view.		
Note:		
• Photographic quality barcode at 18° tilt pitch angle under 30 fcd ambient illumination.		
• Distances measured from front edge of scan engine chassis.		

I/O Connector Pin-Outs

Describes the pin-outs for the I/O connector.

⚠️ **CAUTION:** The interface connector at the bottom of the device is not removable. Trying to remove the connector will cause damage to the device and can void warranty.

Figure 25   I/O Connector
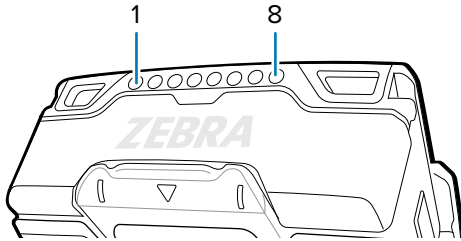
Table 23   I/O Connector Pin-Outs

Pin	Signal	Description
1	GND	Ground
2	CC	Micro USB A/B Configuration Channel
3	POWER IN	DC Power input
4	RSVD GPIO	Unused
5	VBUS	USB power input (device)/output (host)
6	D+	USB Data +
7	D-	USB Data -
8	GND	Ground

2-Slot Charge Only Cradle

Table 24   2-Slot Charge Only Cradle Technical Specifications

Item	Description
Dimensions	Height: 117.3 mm (4.6 in.) Width: 97.5 mm (3.8 in.) Depth: 147.7 mm (5.8 in.)
Weight	0.48 kg (1.06 lbs.)
Input Voltage	12 VDC
Power Consumption	Up to 10 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) 85% relative humidity (RH) condensing
Charging Temperature	0 °C to 40 °C (32 °F to 104 °F)
Humidity	5% to 95% non-condensing in the operating temperature range
Drop	76.2 cm (30.0 in.) drops to concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 20 kV air +/- 10 kV contact discharge

10-Slot Charge Only Cradle

Table 25   10-Slot Charge Only Cradle Technical Specifications

Item	Description
Dimensions	Height: 124.8 mm (4.9 in.) Width: 489.0 mm (19.3 in.) Depth: 147.7 mm (5.8 in.)
Weight	2.42 kg (5.35 lbs.)
Input Voltage	12 VDC
Power Consumption	Up to 50 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) 85% relative humidity (RH) condensing
Charging Temperature	0 °C to 40 °C (32 °F to 104 °F)
Humidity	5% to 95% non-condensing in the operating temperature range
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 20 kV air +/- 10 kV contact discharge

5-Slot Ethernet Cradle with Battery Charger

Table 26 5-Slot Ethernet Cradle with Battery Charger Technical Specifications

Item	Description
Dimensions	Height: 105.0 mm (4.1 in.) Width: 489.0 mm (19.3 in.) Depth: 133.7 mm (5.3 in.)
Weight	2.40 kg (5.29 lbs.)
Input Voltage	12 VDC
Power Consumption	Up to 45 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) 85% relative humidity (RH) condensing
Charging Temperature	0 °C to 40 °C (32 °F to 104 °F)
Humidity	5% to 95% non-condensing in the operating temperature range
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 20kV air +/- 10 kV contact discharge

4-Slot Battery Charger

Table 27 4-Slot Battery Charger Technical Specifications

Item	Description
Dimensions	Height: 101.7 mm (4.0 in.) Width: 97.5 mm (3.8 in.) Depth: 147.4 mm (5.8 in.)
Weight	0.33 kg (0.73 lbs.)
Input Voltage	12 VDC
Power Consumption	Up to 16 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) 85% relative humidity (RH) condensing
Charging Temperature	0 °C to 40 °C (32 °F to 104 °F)
Humidity	5% to 95% non-condensing in the operating temperature range
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 20 kV air +/- 10 kV contact discharge

20-Slot Battery Charger

Table 28   20-Slot Battery Charger Technical Specifications

Item	Description
Dimensions	Height: 108.8 mm (4.28 in.) Width: 489.0 mm (19.3 in.) Depth: 147.4 mm (5.8 in.)
Weight	2.72 kg (6.00 lbs.)
Input Voltage	12 VDC
Power Consumption	Up to 80 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) 85% relative humidity (RH) condensing
Charging Temperature	0 °C to 40 °C (32 °F to 104 °F)
Humidity	5% to 95% non-condensing in the operating temperature range
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 20 kV air +/- 10 kV contact discharge

USB Charge Cable

Table 29   USB Charge Cable Technical Specifications

Item	Description
Length	50 mm
Weight	40 g
Input Voltage	5 VDC
Operating Temperature	0 °C to 40°C (32 °F to 104°F)
Storage Temperature	-40 °C to 70 °C (-40 °F to 158 °F) 85% relative humidity (RH) condensing
Charging Temperature	0 °C to 40 °C (32 °F to 104 °F)
Humidity	5% to 95% non-condensing in the operating temperature range
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