

ENTERPRISE WEARABLE SOLUTION

WS301

Product Reference Guide

MN-005453-01EN Rev B



Zebra Technologies | 3 Overlook Point | Lincolnshire, IL 60069 USA
zebra.com

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About This Guide

This guide provides information about using the WS301 wearable computer. Screen captures in this guide are samples and may differ from the final product.

Configurations

This section details the device configurations with key specifications.

Table 1 Configurations

Form Factor	Radios	Memory	Battery	Data Capture	Operating System	Camera
Camera	802.11 a/b/g/n/ac/ax Bluetooth 5.1 NFC	4 GB RAM/ 64 GB Flash	750 mAh	None	Android Open Source Project (AOSP) 14	Yes

Notational Conventions

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

- **Bold** text is used to highlight the following:
 - Dialog box, window, and screen names
 - Dropdown list and list box names
 - Checkbox and radio button names
 - Icons on a screen
 - Key names on a keypad
 - Button names on a screen
- Bullets (•) indicate:
 - Action items
 - List of alternatives
 - Lists of required steps that are not necessarily sequential

- Sequential lists (for example, those that describe step-by-step procedures) appear as numbered lists.

Icon Conventions

The documentation set is designed to give the reader more visual clues. The following visual indicators are used throughout the documentation set.



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



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



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



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



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

Service Information

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

When contacting support, please have the following information available:

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

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

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

If you purchased your Zebra business product from a Zebra business partner, contact that business partner for support.

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Determining Software Versions

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

1. Swipe up from the center of the screen and go to **Settings**.
2. Touch **About phone**.
3. Scroll to view the following information:

Basic info

- Device name
- Battery Information
- Emergency information

Legal & regulatory

- Legal information
- SW components

Device details

- Model
- Android version

Device identifiers

- IP address
- Wi-Fi MAC address
- Device Wi-Fi MAC address
- Bluetooth address
- Up time
- Build Fingerprint
- Build number

Determining the Serial Number

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

1. Touch **About phone**.
2. Touch **Model**.

Getting Started

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

Unpacking the Device

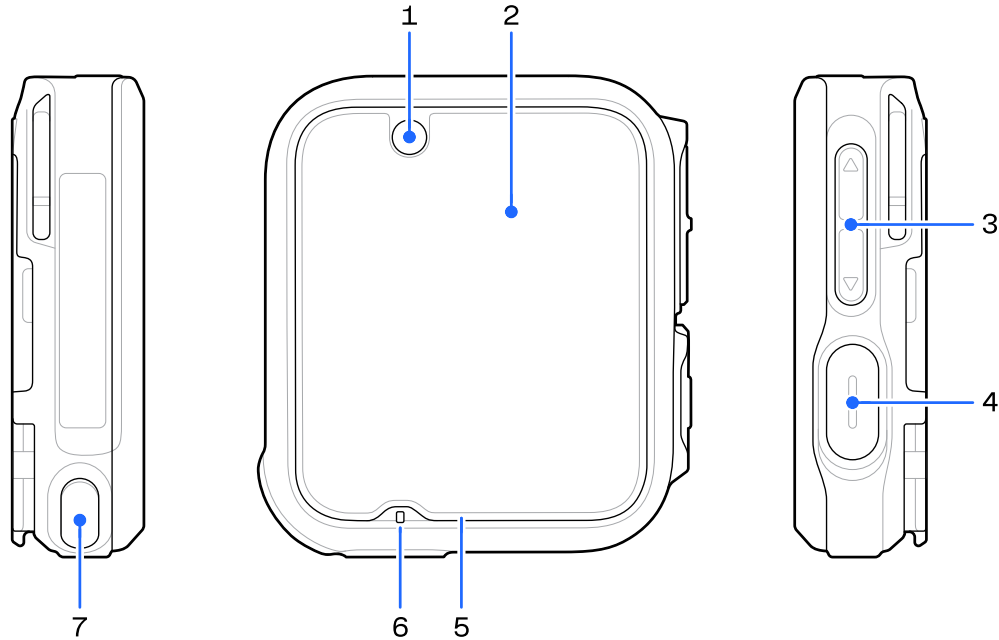
This topic provides instructions to safely unpack your device.

1. Carefully remove the device from the box.
2. Verify that the following items are in the box:
 - WS301
 - 750 mAh battery
 - Mounting options: clip mount or wrist mount
 - Regulatory Guide
3. Inspect the equipment for damage. If any equipment is missing or damaged, contact Zebra Support immediately.
4. Before using the device for the first time, remove the protective shipping films that cover the scan window, display, and camera window.

Device Features

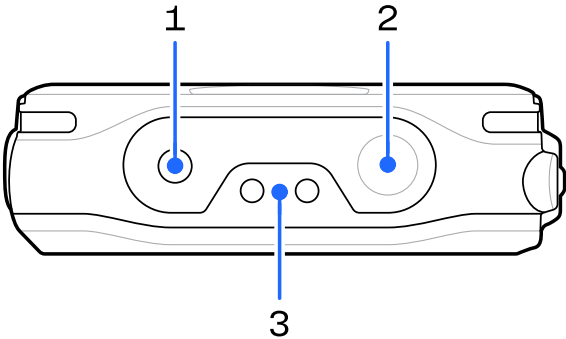
This section lists and describes the features of the device.

Figure1 Front View and Side View



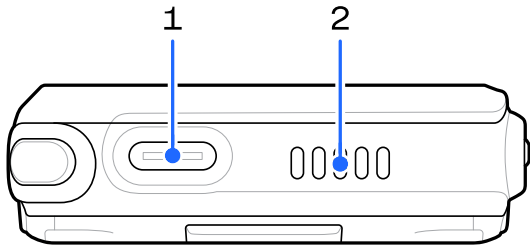
Number	Item	Description
1	5 MP Front camera	Takes photos and videos.
2	Display	Displays all information needed to operate the device.
3	Volume buttons	Adjusts the audio levels.
4	Multi-function button	By default, this is a scan button when the device is removed from the clip mount, and is a PTT button when the device is placed in the clip mount.
5	Charging LED	Indicates the battery charge state while charging.
6	Bottom microphone	Voice communication or audio recordings.
7	Duress button (programmable)	User-programmable to trigger specific functions.

Figure 2 Top View

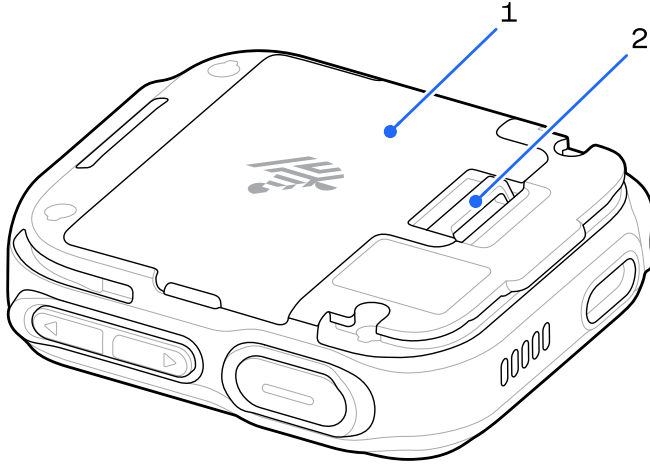


Number	Item	Description
1	Top microphone	Voice communication or audio recordings.
2	13 MP camera	Scans barcodes, takes photos, and videos.
3	Charging pins	Connects to a cradle to charge the device.

Figure 3 Bottom View



Number	Item	Description
1	USB port	Used for charging the device, data transfer, or connecting to the Clip Mount.
2	Speaker	Voice communication or audio playback.

Figure 4 Rear View

Number	Item	Description
1	Battery	Powers the device.
2	Battery latch	Locks the battery pack in place and allows safe insertion and removal of the battery.

Setting Up the Device

This section explains how to set up your device for a smooth and quick start.

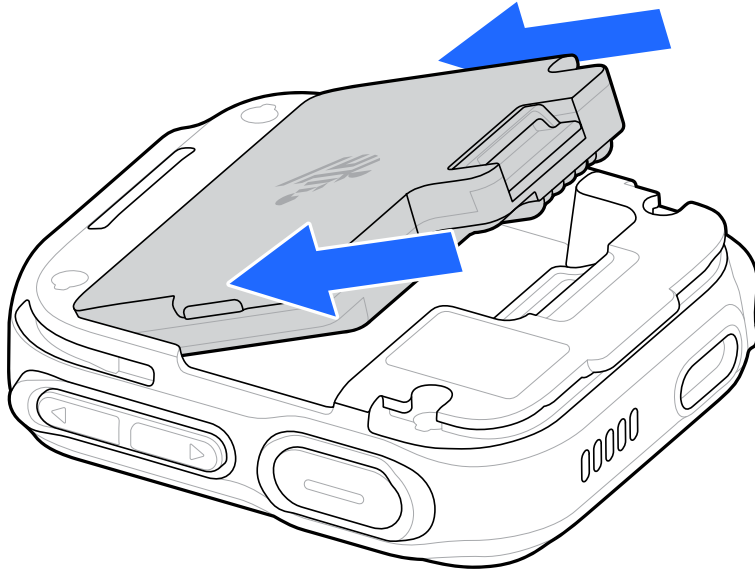
1. Install the battery.
2. Charge the device using one of the charging accessories.
3. Power on the device.

Press and hold the Multi-function button for more than two seconds.

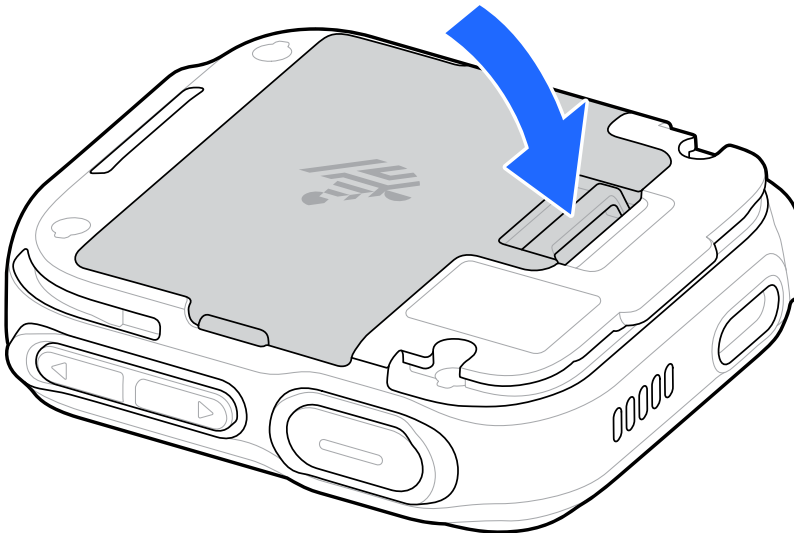
Installing the Battery

Install the 750 mAh battery to the device.

1. Align the battery so that the battery bottom engages the locking slots.



2. Press the battery latch and push the battery down into the battery compartment.

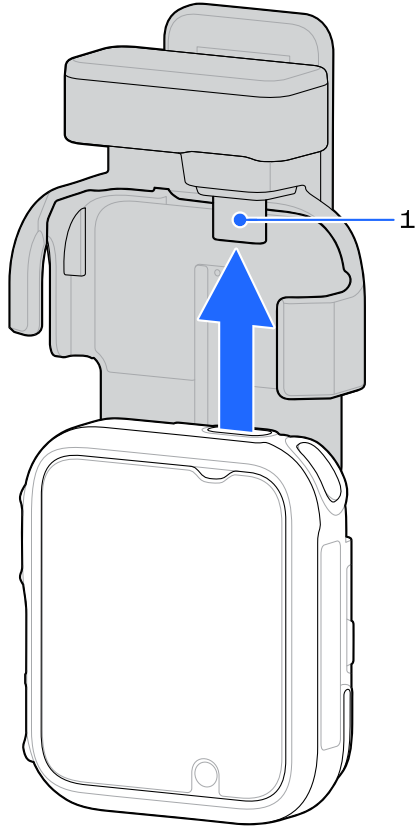


The latch clicks into place.

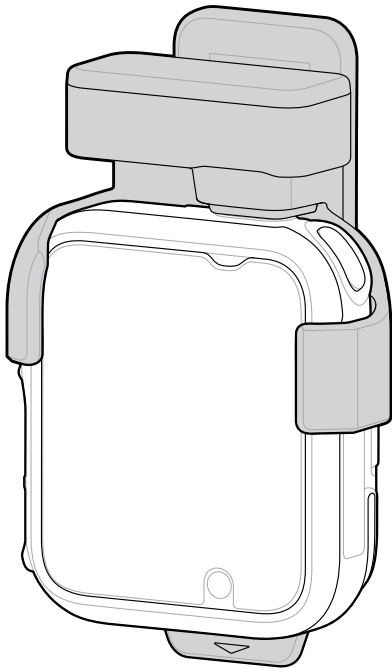
Installing the Device into the Clip Mount

The clip mount lets the operator wear the device on a belt, shirt pocket, or lapel. Install the device onto the clip mount after the battery is charged.

1. Slide the device into the clip mount until the USB-C connector (1) is inserted into the USB-C port.



2. Snap the device into place.



Connecting the Zebra Headset with the Clip Mount

This section describes how to use the headset with the device.

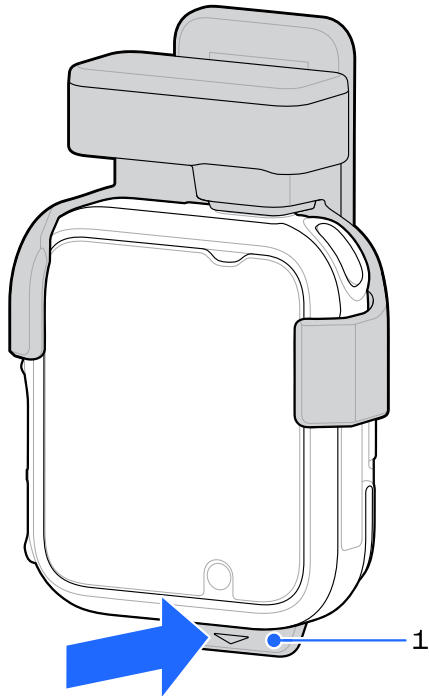
If you are using a Zebra headset with the clip mount:

1. Install the device into the clip mount.
2. Locate the 3.5mm audio port on the device.
3. Align the 3.5mm plug at the end of the headset's cable to the audio port.
4. Gently push the plug into the port until it is securely connected. You may hear a soft click.
5. Use the headset's volume control buttons to adjust it to the maximum level.

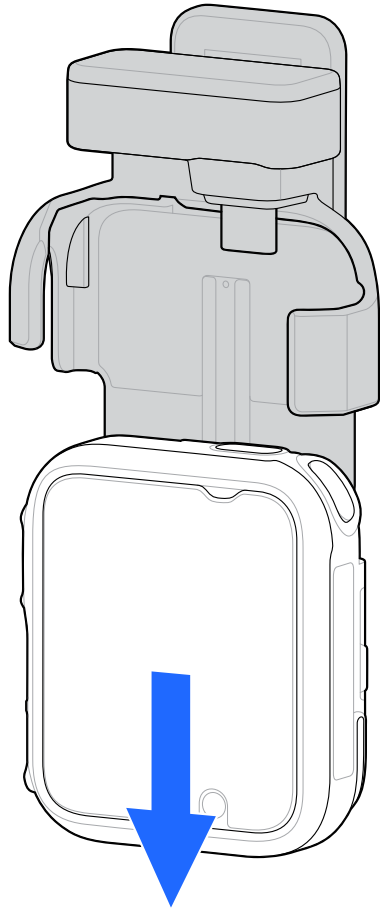
Removing the Device from the Clip Mount

This section describes how to remove the device from the clip mount.

1. Press the arrow (1) below the device on the clip mount.



2. Slide the device out.



Wearing the Device

The WS301 can be worn on a belt, apron, or vest.

Figure5 Device Worn on a Belt

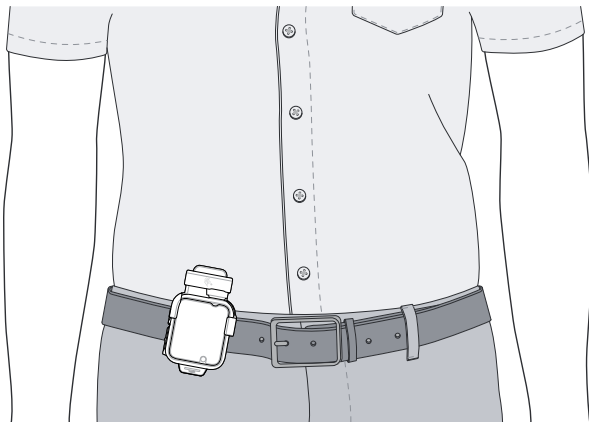


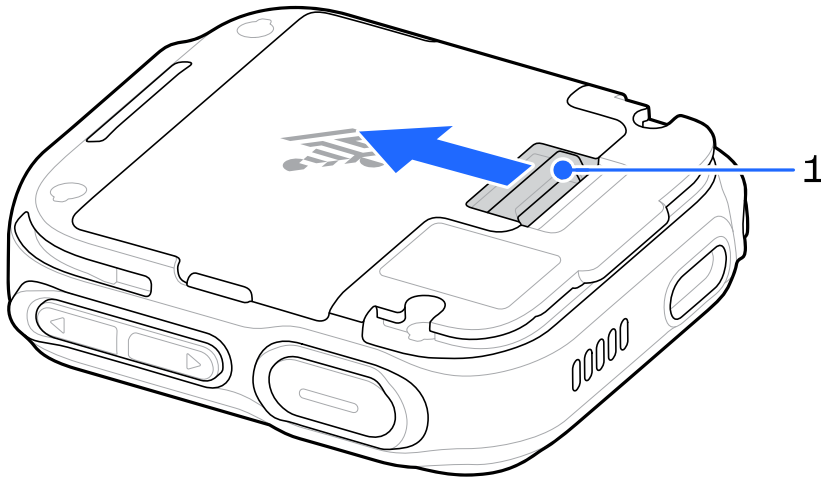
Figure 6 Device Worn on an Apron or Vest



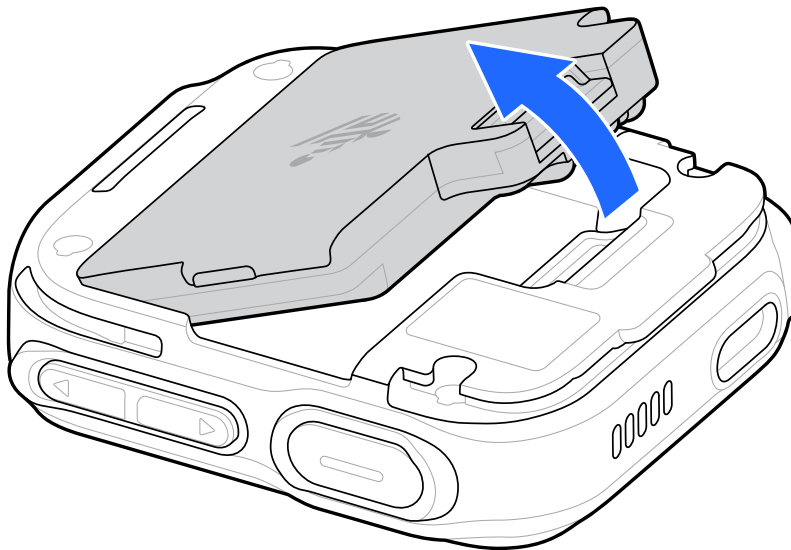
Replacing the Battery

This section explains how to replace the device battery. After you replace the battery, you must wait for the device to reboot before you can use it.

1. Remove the device from the clip mount. Go to [Removing the Device from the Clip Mount](#).
2. Push the battery release latch (1).



3. Hold the latch and lift the battery from the battery compartment.



To install the new battery, go to [Installing the Battery](#).

Using the Device

This section explains how to use the device.

Go Back

Swipe from the left or right edge of the screen to go back to the previous screen.

Figure 7 Swipe Left

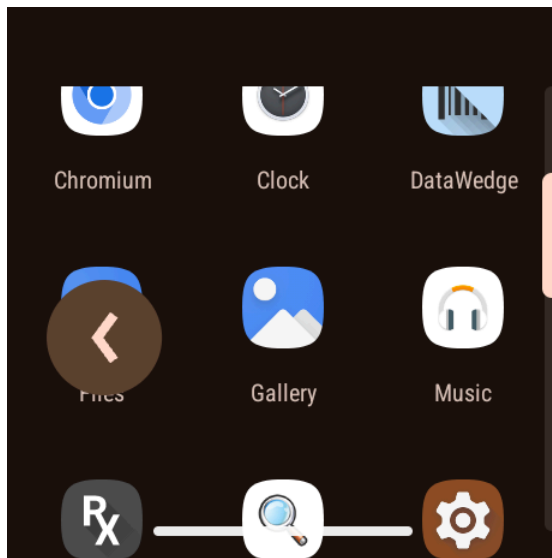
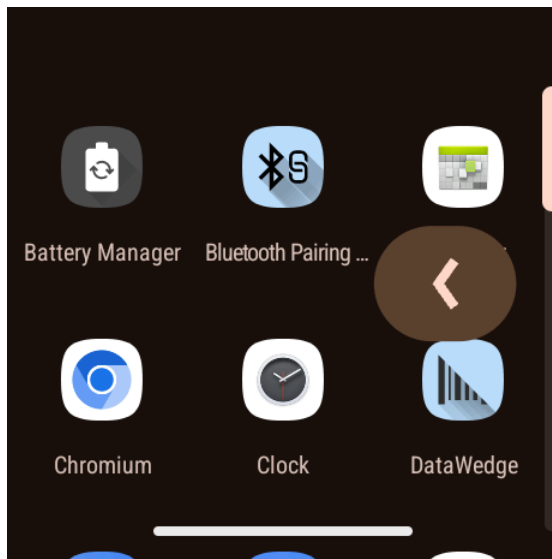


Figure 8 Swipe Right



Go to Home Screen

Swipe up from the bottom of the screen to go back to the Home Screen.

Figure 9 All Applications

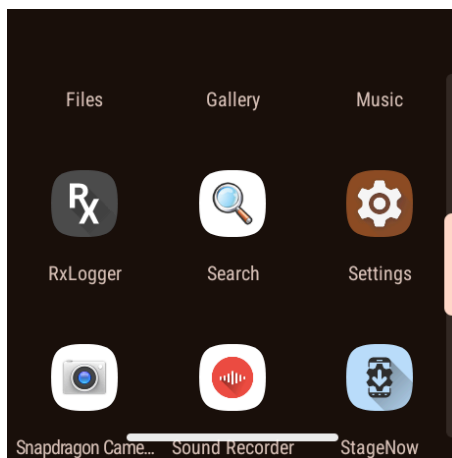
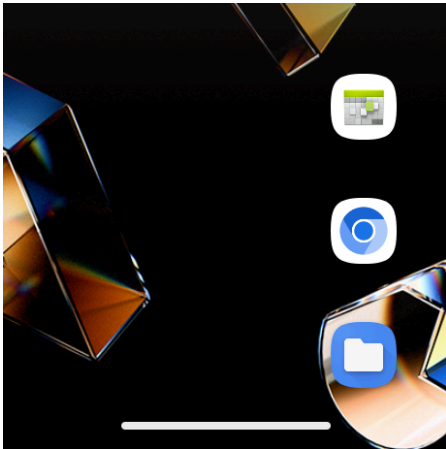


Figure 10 Home Screen

NOTE: By default, the home screen rotation is disabled.

Status Bar

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

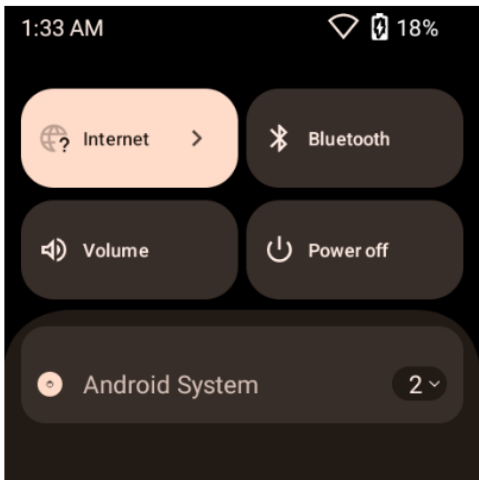
The status bar is hidden by default. Swipe down from the top to see the status bar.

Figure 11 Notifications and Status Icons

1	Notification icons
2	Status icons

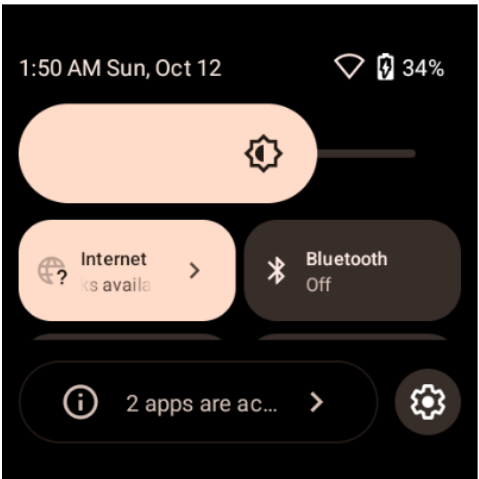
With the status bar visible, swipe down once to see the following icons.

Figure 12 Status Icons



Swipe down one more time to view the brightness slider. Swipe right to see more icons like Do Not Disturb, Alarm, Auto-rotate, Battery Saver, Screen Cast, Screen record, NFC, and Night Light.

Figure 13 Brightness Slider and Icons



Status Icons

Status icons display system information for the device.

Table 2 Status Icons

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

Table 2 Status Icons (Continued)

Icon	Description
	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.

Notification Icons

Notification icons indicate app events and messages.

Table 3 Notification Icons

Icon	Description
	The main battery is low.
	More notifications are available for viewing.

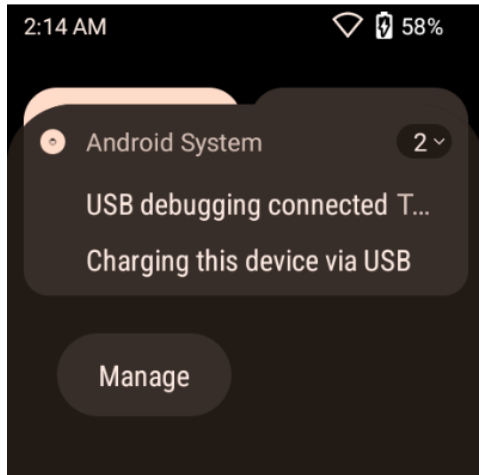
Table 3 Notification Icons (Continued)

Icon	Description
	Data is syncing.
	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.

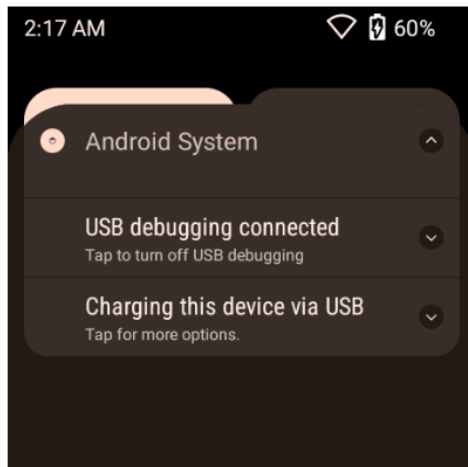
Managing Notifications

Notification icons report the arrival of new messages, calendar events, alarms, and ongoing events. When a notification occurs, an icon displays in the Status bar with a brief description.

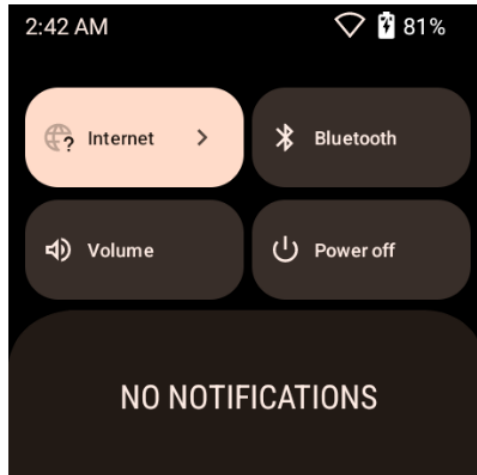
Figure 14 Notification Panel



- To view a list of all notifications, with the status bar visible, swipe down once until you see Android System. Swipe up Android System to see all the notifications.
- To respond to a notification, touch the notification number dropdown on the right to view all notifications. Select a notification to open the corresponding app.



- To manage recent or frequently used notifications, open the notification panel and then touch **Manage**. Go to **App notifications** and 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, swipe either from the left or right.



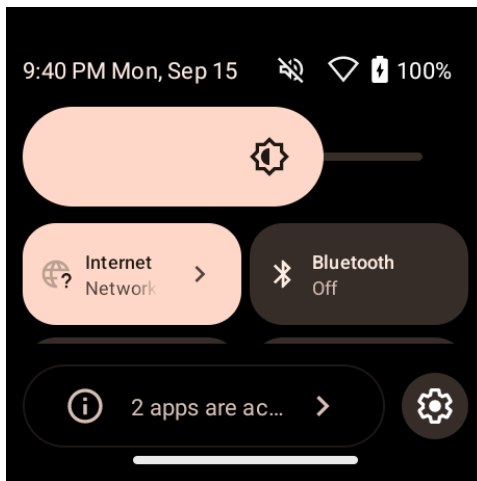
- To close the notification panel, swipe the notification panel up.

Opening the Quick Access Panel

Use the Quick Access panel to access frequently used settings (for example, Bluetooth, Screen Brightness, and so on).

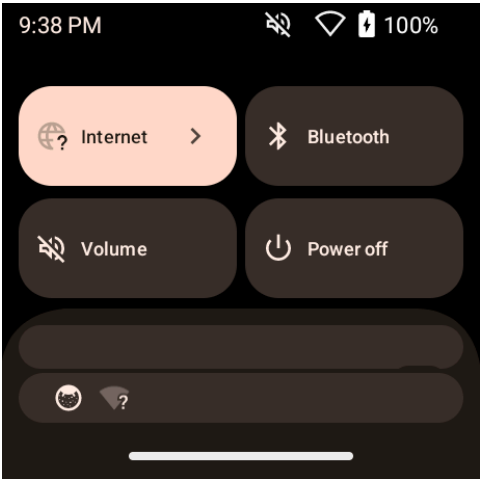
- If the device is locked, swipe down once to access the Quick Access Panel.

Figure 15 Quick Access Panel



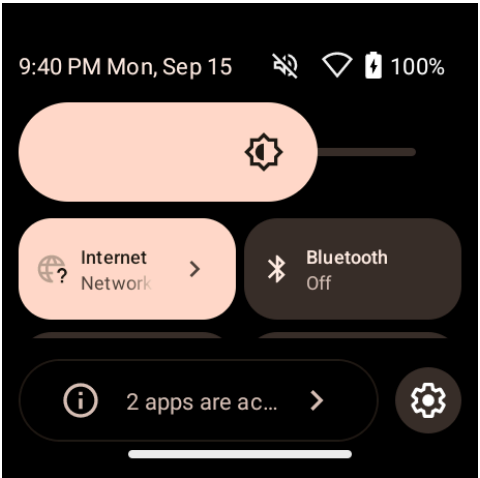
- If the device is unlocked:
 - Swipe down once until you see the Notification Panel.

Figure 16 Notification Panel



- Swipe down a second time to access the Quick Access Panel.

Figure 17 Quick Access Panel



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.

Table 4 Quick Access Panel Icons (Continued)

Icon	Description
	Volume - Use the slider to decrease or increase the Media volume.
	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.
	Bluetooth settings - Turn Bluetooth on or off. To open Bluetooth settings, touch Bluetooth.
	Do not disturb - Control how and when to receive notifications.
	Auto-rotate - Lock the device's orientation in portrait or landscape mode or set to automatically rotate.
	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 - Invert the display colors.
	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 - Tint the screen amber to make it easier to look at the screen in dim light. Set Night Light to turn on automatically from sunset to sunrise, or at other times.
	Screen record - Makes a video recording of everything that happens on the screen, with options to include audio and screen touches.

Editing Icons on the Quick Settings Panel

Manage and arrange icons within the Quick Settings Panel.

- Swipe down twice from the top of the screen until you see the brightness slider.
- Swipe up from the middle of the screen and touch  to edit, add, or remove settings tiles.

Battery Management

Observe the recommended battery optimization tips for the device.

- The screen timeout is set to 15 seconds to automatically turn the screen off during 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).

Low Battery Notification

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

Charge Level Drops Below	Action
20%	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.

Checking Battery Status

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

- Swipe up from the center of the home screen and touch  to open the **Battery Manager** app.

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

- Swipe down twice from the top of the screen to open the quick access panel.

The **battery percentage** is displayed next to the battery icon.

Monitoring Battery Usage

The Battery screen provides battery charge details and power management options to extend battery life. Different apps display different information. Some apps include buttons that open screens with settings to adjust power use.

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

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

3. Go to **Settings**.
4. Touch **Apps**.
5. Touch **See all apps**.
6. Touch an app.
7. Touch **App battery usage**.

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 any button on the device or double-tap on the screen. 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.
 - 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

To access settings on the device:

- With the status bar visible, swipe down twice the top of the 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, enable dark theme, and change font size.

Setting the Screen Brightness Manually

Manually set the screen brightness using the touchscreen.

1. With the status bar visible, swipe down twice from the top of the screen to view the brightness slider.
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**
6. By default, **Night Light** is disabled. Touch **Use Night Light** 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** (default)
 - **30 seconds**
 - **1 minute**
 - **2 minutes**
 - **5 minutes**
 - **10 minutes**
 - **30 minutes**

Setting Screen Rotation

By default, the screen rotation is enabled.

1. Go to **Settings**.
2. Touch **Display**.
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**.
3. Touch **Lock screen**.

4. You can enable or disable an option using the toggle switch.

Setting Dark Theme

The Dark Theme setting reduces the light emitted by the device, making the screen easier to read.

1. Go to **Settings**.
2. Touch **Display**.
3. Touch **Dark theme**.

Setting Font and Display Size

Set the size of the font and display in system apps.

1. Go to **Settings**.
2. Touch **Display**.
3. Touch **Display size and text**.
4. Use the size + and - slider to vary the size of the font and the display accordingly.

Setting Touch Panel Mode

The display is able to detect touches using a finger or a 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**.
3. Touch **Touch panel mode**.
4. Select:
 - **Finger Only** to use a finger (no gloves) on the screen.
 - **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 **Set time automatically** 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.
9. Touch **Update Interval** to select an interval to synchronize the system time from the network.
10. Under Time Format, choose either **Use locale default** or **Use 24-hour format**.

General Sound Setting

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

Use the Sound settings to configure media and alarm volumes.

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

Sound Options

The Sound Options menu allows users to customize and manage their device's audio and vibration settings to suit their preferences.

- **Zebra volume controls:**
 - **Media volume** - Controls the music, games, and media volume.
 - **Call volume** - Controls the volume during a call.
 - **Ring volume** - Controls the ringtone volume.
 - **Notification volume** - Controls the notification volume.
 - **Alarm volume** - Controls the alarm clock 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.
- **Vibration & haptics:**
 - **Default notification sound** - Select a sound to play for all system notifications.
 - **Default alarm sound** - Select a sound to play for alarms.
 - **Screen locking sound** - Play a sound when locking and unlocking the screen (default - enabled).
 - **Charging sounds and vibration** - Play a sound and vibrate when power is applied to the device (default - disabled).
 - **Tap & click sounds** - Play a sound when interacting with the screen (default - enabled).
 - **Always show icon when in vibrate mode** - Enable the vibrate mode status bar icon.

Wake-Up Sources

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

To configure the wake-up button, go to [WS301 TechDocs](#).

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, go to: [WS301 TechDocs](#).



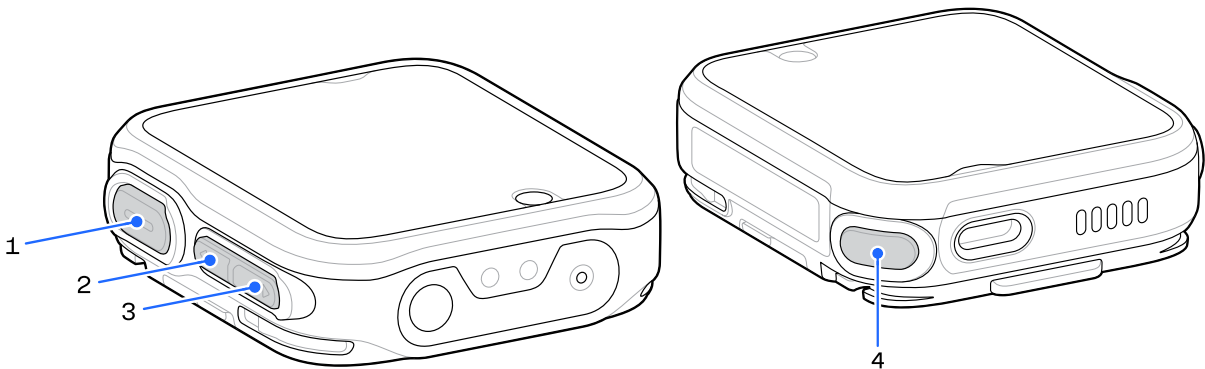
NOTE: The Push-to-Talk button was moved to a more ergonomic position to optimize the efficiency of voice-centric use cases in Workcloud Communications.

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 WS301 Programmer's Guide at [WS301 TechDocs](#).

Figure 18 Scanner Key Positions



1	MULTI_FUNCTION
2	VOLUME_DOWN
3	VOLUME_UP
4	DURESS

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**.
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 > Notifications > Device & app notifications**.

To view app notifications, touch **Settings > Notifications > App notifications**, and then select an app.

Applications

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

Installed Applications

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



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 5 Apps

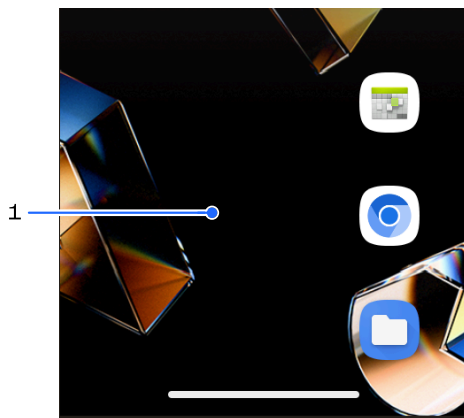
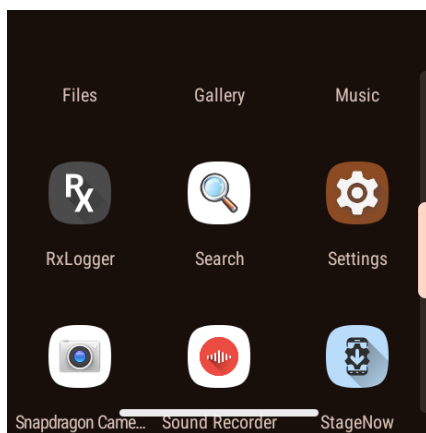
Icon	Description
	Battery Manager - Display battery information, including charge level, status, health and wear level.
	Bluetooth Pairing Utility - Use to pair peripherals with the device by scanning a barcode.
	DataWedge - Enables data capture using the imager.
	RxLogger - Use to diagnose device and 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 5 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

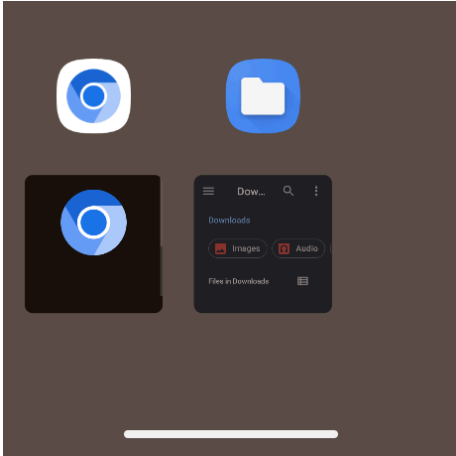
Swipe up from the center (1) of the screen to see all installed applications.

Figure 19 Home Screen**Figure 20** All Applications

Find All Open Applications

Swipe up from the bottom, hold, and then let go to see all open applications.

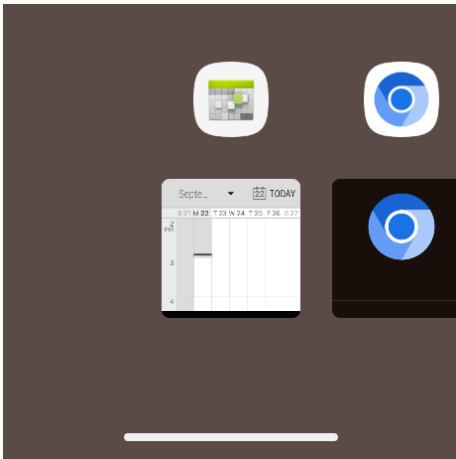
Figure 21 Open Applications



Switch Between Open Applications

At the very bottom of the screen, swipe from left to right.

Figure 22 Open Applications



Battery Manager

The Battery Manager provides detailed information about the battery.

Opening Battery Manager

- Swipe up from the middle of the screen to view all applications.
- Touch .

Battery Manager Information

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

Table 6 Battery Icons

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

- **Level** - The current battery charge level as a percentage. Displays -% when the level is unknown.
- **Wear** - The health of the battery in graphical form. When the wear level exceeds 80%, the bar color changes to red.
- **Health** - The health of the battery. If a critical error occurs,  displays. Touch to view the error description.
 - **Decommission** - The battery is past its useful life and should be replaced. Contact the system administrator.
 - **Good** - The battery is good.
 - **Charge error** - An error occurred while charging. Contact the system administrator.
 - **Over Current** - An over-current condition occurred. Contact the system administrator.
 - **Dead** - The battery has no charge. Replace the battery.
 - **Over Voltage** - An over-voltage condition occurred. Contact the system administrator.
 - **Below Temperature** - The battery temperature is below the operating temperature. Contact the system administrator.
 - **Failure Detected** - A failure has been detected in the battery. Contact the system administrator.
 - **Unknown** - Contact the 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).

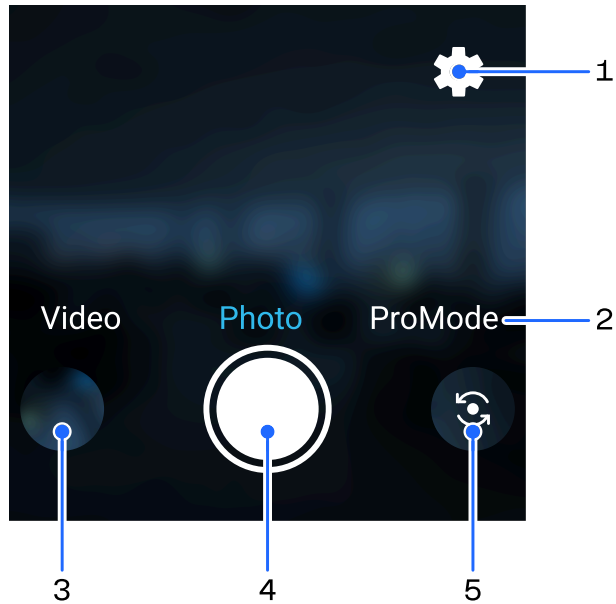
- **Battery level** - The battery charge level as a percentage of scale.
- **Battery voltage** - The current battery voltage in millivolts.
- **Battery temperature** - The current battery temperature in degrees Celsius.
- **Battery technology** - The type of battery.
- **Battery current** - The average current into or out of the battery over the last second in mAh.
- **Battery manufacture date** - The date of manufacture.
- **Battery serial number** - The battery serial number. The number matches the serial number printed on the battery label.
- **Battery part number** - The battery part number.
- **Battery decommission status** - Indicates if the battery is past its life span.
 - **Battery Good** - The battery is in good health.
 - **Decommissioned Battery** - The battery is past its useful life and should be replaced.
- **Base cumulative charge** - Cumulative charge using Zebra charging equipment only.
- **Battery usage number** - The health of the battery as a result of charging and discharging. A high number indicates low battery health.
- **Usage decommission threshold** - When the Battery usage number is greater than or equal to the Usage decommission threshold, the battery is past its useful life and should be replaced.
- **Battery error status** - The error status of the battery.
- **App version** - The application version number.

Camera

This section provides information for taking photos and recording videos using the Snapdragon camera. The device saves photos and videos on internal storage.

Taking Photos

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



1	Settings
2	Camera mode
3	Gallery
4	Shutter button
5	Top or front camera switch

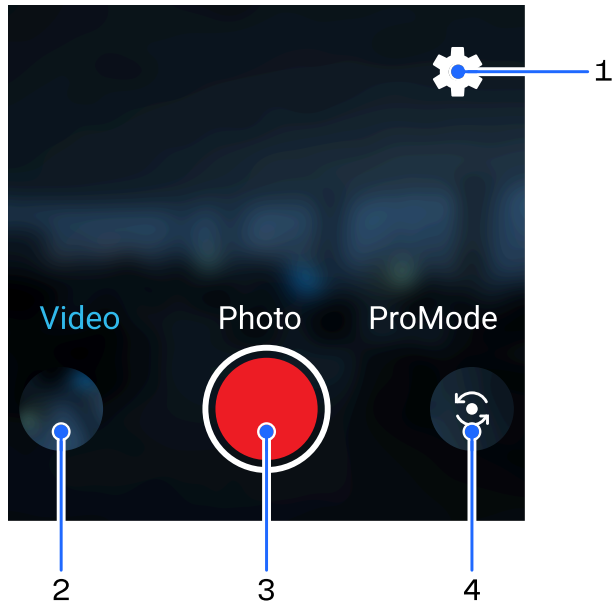
2. Frame the subject on the screen.
3. To zoom in or out, press two fingers on the display and pinch or expand your fingers.

4. Touch 

The camera takes a photo and a shutter sound plays.

Recording Videos

1. Swipe up from the center of the screen and touch **Camera**.
2. Touch **Video**.
3. Touch  to start recording.

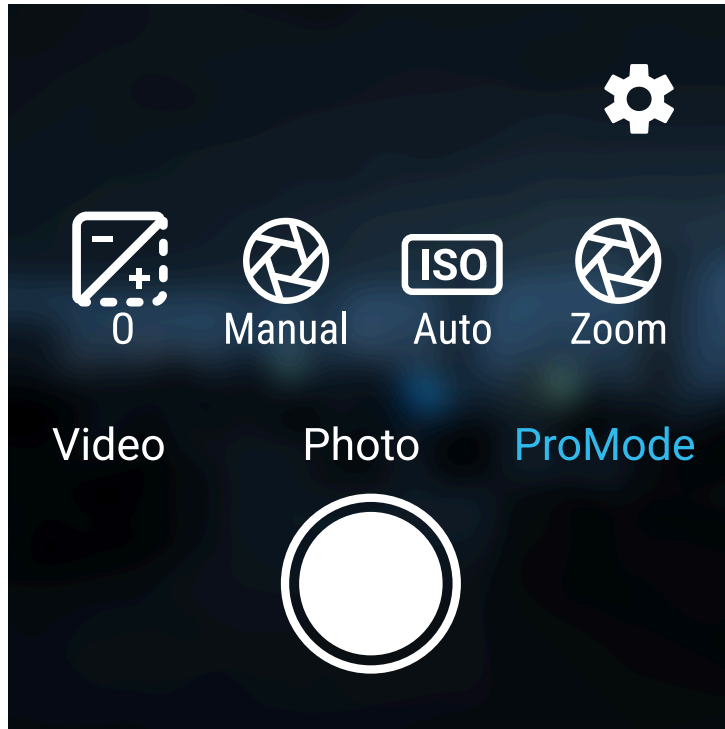


1	Settings
2	Gallery
3	Shutter button
4	Top or front camera switch

4. Point the camera and frame the scene.
5. To zoom in or out, press two fingers on the display and pinch or expand fingers. The zoom controls appear on the screen.
6. Touch:
 -  to switch the audio on and off.
 -  to take a photo in the video mode.
 -  to pause the recording.
 -  to end the recording.

ProMode

1. Swipe up from the center of the screen and touch **Camera**.
2. Touch **ProMode**.



	Exposure - Set the exposure settings to: +2, +1, 0(default), -1 or -2.
	Manual Focus - Set the focus distance from macro to infinity.
	ISO - Set camera sensitivity to light to: Auto (default), ISO Auto (HJR), ISO100, ISO200, ISO400, ISO800, ISO1600 or ISO3200.
	Zoom - Set the zoom ratio from 1.0x to 8.0x.

Camera Settings

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

- **General** - These settings apply to both the still camera and video camera.
 - **Face Detection** - Select to turn face detection Off (default) or On.
- **Still Camera** - These settings apply only to the still camera.
 - **Countdown timer** - Select Off (default), 2 seconds, 5 seconds, or 10 seconds.
 - **Continuous Shot** - Select to take a series of photos quickly while holding the capture button.
 - **Picture size** - The size (in pixels) of the photo to: 13M pixels (camera default), 8M pixels, Square (1:1), 5M pixels, 3M pixels, HD1080, 2M pixels, HD720, 1M pixels, WVGA, 720 x 480, VGA, CIF, QVGA.
 - **Picture quality** - Set the picture quality setting to: Low, Standard (default), or High.
 - **Exposure** - Set the exposure settings to: +2, +1, 0 (default), -1 or -2.
 - **White balance** - Select how the camera adjusts colors in different kinds of light, to achieve the most natural-looking colors.

Icon	Description
	Incandescent - Adjust the white balance for incandescent lighting.
	Fluorescent - Adjust the white balance for florescent lighting.
	Auto - Adjust the white balance automatically (default).
	Daylight - Adjust the white balance for daylight.
	Cloudy - Adjust the white balance for a cloudy environment.

- **Focus Animation** - Select to show focus circle for auto/manual focus. Options: Disable or Enable (default).
- **Shutter Sound** - Select to play a shutter sound when taking a photo. Options: Disable or Enable (default).
- **MFNR** - Set multiple frame noise reduction functions to: Disable(default), Enable, or Auto.
- **Video Camera** - These settings apply only to the video camera.
 - **Video quality** - Set video quality to: HD 1080p (default), HD 720p, SD 480p, VGA, CIF, or QVGA.
 - **Image Stabilization** - Set to reduce blurry videos due to device movement. Options: On or Off (default).
 - **Noise Reduction** - Set video noise reduction level. Options: Off, Fast or High Quality (default)..
 - **Video Encoder** - Select video encoder format. Options: H264 (default) or H265.
 - **Video EIS** - Set video electronical image stabilization. Option: Disable or V3 (default).

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, and so on. All generated logs and files are saved onto flash storage on the device (internal or external).

RxLogger Configuration

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

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

Configuration File

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

The config.json configuration file is located 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 up from the middle of the screen to view all applications.
2. Select .
3. Touch **Start**.

Disabling Logging

1. Swipe up from the middle of the screen to view all applications.
2. Select .
3. Touch **Stop**.

Extracting Log Files

This section describes the method for 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 Camera

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 Internal Camera

Use the internal camera to capture barcode data.



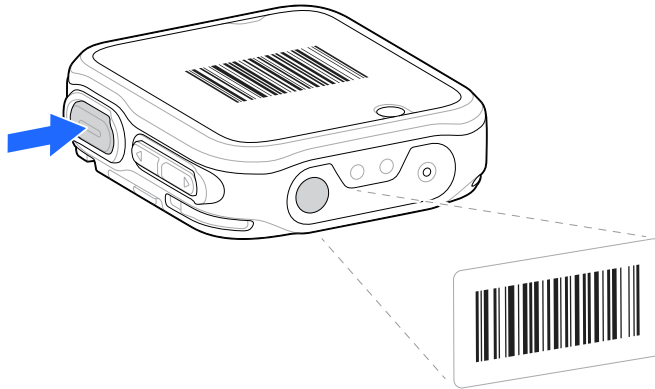
NOTE: To read a barcode, a scan-enabled app is required. The device contains the DataWedge app that allows you to enable the scanner to decode barcode data and display the barcode content.

To scan with the internal camera:

1. Launch a scanning application.
2. Point the camera window at a barcode.



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



3. Press and hold the scan button. By default, a preview window displays on the screen.
4. Move the device until the barcode is visible on the screen.
5. The Scan/Custom LED lights green, a beep sounds and the device vibrates, by default, to indicate the barcode is decoded successfully.

The captured data displays in the text field.

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, , voice, or serial port and manipulate the data based on options or rules.

Configure DataWedge to:

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

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



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 center of the screen to view all applications.
2. Touch .
3. Touch  > **Settings**.
4. Touch the **DataWedge enabled** checkbox.

A blue checkmark displays 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 center of the screen to view all applications.
2. Touch .
3. Touch .
4. Touch **Settings**.
5. Uncheck the **DataWedge enabled** checkbox.

Configuring a Ring Scanner Parameter in DataWedge

To configure the Interleaved 2 of 5 (I2OF5) settings for the WS301 when paired with a Ring scanner, import the configured DataWedge Config file from any Android 14 device paired with Ring scanner to the WS301.



NOTE: These configuration steps apply to all parameters or decoders requiring configuration in the WS301, not limited to the I2OF5 parameters settings. The same steps apply to the configuration of the Ring scanner parameters.

1. On the Android 14 device, open **Settings** > **Bluetooth Pairing Utility**.
2. Scan and pair with the Ring scanner.
3. Ensure the Ring scanner is connected to the Android 14 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 14 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 WS301 at the location `/sdcard/Android/Data/com.symbol.datawedge/files/autoimport`.
8. In the WS301, open **DataWedge**, go to  > **Import Configuration**.
9. Pair with a Ring scanner.
10. Launch Chromium and scan a I2OF5 barcode.
The captured data displays in the text field.

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 support the WLAN (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, and so on.) 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
- Enhanced Open
- 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.
 - Lightweight Extensible Authentication Protocol (LEAP).
- WPA3 Enterprise
- WPA3 Enterprise 192-bit

Connecting to a Wi-Fi Network

1. Go to **Settings**.
2. Touch **Network & internet**.
3. Touch **Internet** 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, go to [Configuring the Device to Use a Static IP Address](#).

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

Wi-Fi Version

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

Table 7 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**.
3. Touch **Internet**.
4. Disable the **Wi-Fi** toggle switch.
5. Touch **Saved networks**.
6. Touch the name of the network.
7. Touch **Forget**.

WLAN Configuration

This section provides information on configuring Wi-Fi settings.

Configuring a Secure Wi-Fi Network

Add a Wi-Fi network on the device to connect to the internet.

1. Go to **Settings**.
2. Touch **Network & Internet**.
3. Touch **Internet**.
4. Slide the Wi-Fi switch to the **ON** position.
The device searches for WLANs in the area and lists them on the screen.
5. Scroll through the list and select the desired WLAN network.
6. Touch the desired network. If network security is **Open**, the device automatically connects to the network. For all other network security, a dialog box displays.
7. If network security is **WPA/WPA2-Personal**, **WPA3-Personal**, or **WEP**, enter the required password and then touch **Connect**.
8. If network security is **WPA/WPA2-Enterprise** or **WPA3-Enterprise**:
 - a) Touch the **EAP method** drop-down list and select one of the following:
 - **PEAP**
 - **TLS**
 - **TTLS**
 - **PWD**
 - **LEAP**
 - b) Fill in the appropriate information. Options vary depending on the **EAP method** chosen.
 - When selecting **CA certificate**, Certification Authority (CA) certificates are installed using the **Security** settings.
 - When using the EAP methods PEAP, LEAP, TLS, or TTLS, specify a domain.
 - Touch **Advanced options** to display additional network options.
9. If the network security is **WPA3-Enterprise 192-bit**:
 - Touch **CA certificate** and select a Certification Authority (CA) certificate.



NOTE: Certificates are installed using the Security settings.

- For WPA3-Enterprise 192-bit, specify a domain.
- Touch **User certificate** and select a user certificate.



NOTE: User certificates are installed using the Security settings.

- In the **Identity** text box, enter the username credentials.



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

10. 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**.
3. Touch **Internet**.
4. Slide the Wi-Fi switch to the **On** position.
5. Scroll to the bottom of the list and select **Add network**.
6. In the **Network name** text box, enter the name of the Wi-Fi network.
7. In the **Security** drop-down list, set the type of security to:
 - None
 - Enhanced Open
 - WEP
 - WPA/WPA2-Personal
 - WPA3-Personal
 - WPA/WPA2-Enterprise/WPA3-Enterprise
 - WPA3-Enterprise 192-bit
8. If the network security is **None** or **Enhanced Open**, touch **Save**.
9. If the network security is **WEP**, **WPA3-Personal**, or **WPA/WPA2-Personal**, enter the required password and then touch **Save**.
10. If the network security is **WEP** or **WPA/WPA2-Personal**, enter the required password and then touch **Save**.



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

11. If network security is **WPA/WPA2-Enterprise/WPA3-Enterprise**:
 - a) Touch the **EAP method** drop-down list and select one of the following:
 - **PEAP**
 - **LEAP**
 - **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, LEAP, TLS, or TTLS, specify a domain.
 - Touch **Advanced options** to display additional network options.
 - 12. If the network security is **WPA3-Enterprise 192-bit**:
 - Touch **CA certificate** and select a Certification Authority (CA) certificate.
-  **NOTE:** Certificates are installed using the Security settings.
- For WPA3-Enterprise 192-bit, specify a domain.
 - Touch **User certificate** and select a user certificate.
-  **NOTE:** User certificates are installed using the Security settings.
- In the **Identity** text box, enter the username credentials.
13. Touch **Save**. To connect to the saved network, touch and hold on the saved network and select **Connect to network**.

Configuring for a Proxy Server

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

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

1. Go to **Settings**.
2. Touch **Network & Internet**.
3. Touch **Internet**.
4. Slide the Wi-Fi switch to the **On** position.
5. In the network dialog box, select and touch a network.
6. If configuring the connected network, touch  to edit the network details and then touch the down arrow to hide the keyboard.
7. Touch **Advanced options**.
8. Touch **Proxy** and select **Manual**.
9. In the **Proxy hostname** text box, enter the address of the proxy server.
10. In the **Proxy port** text box, enter the port number for the proxy server.

11. 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.
12. If configuring the connected network, touch **Save** otherwise, touch **Connect**.
13. Touch **Connect**.

Configuring the Device to Use a Static IP Address

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

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

Wi-Fi Preferences

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

- **Turn on Wi-Fi automatically** - When enabled, Wi-Fi automatically turns back on when near high-quality saved networks.
- **Notify for public networks** - When enabled, notifies when an open network is available.
- **Allow WEP networks** - When enabled, connects to WEP-secured networks.
- **Additional settings** - Touch to view additional Wi-Fi settings.
- **Install Certificates** - Touch to install certificates.
- **Wi-Fi Direct** - Displays a list of devices available for a direct Wi-Fi connection.

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 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 you to respond to the key request event). Authentication of Bluetooth devices is based upon a challenge-response transaction. Bluetooth allows for a PIN or passkey used to create other 128-bit keys used for security and encryption. The encryption key is derived from the link key used to authenticate the pairing devices. Also, the limited range and fast frequency hopping of the Bluetooth radios make long-distance eavesdropping difficult.

Recommendations are:

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

Bluetooth Profiles

The device supports the Bluetooth services listed.

Table 8 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 device Bluetooth radio is off by default.

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

Bluetooth Radio Power

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



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

Enabling Bluetooth

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

Disabling Bluetooth

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

Discovering Bluetooth Device(s)

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

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

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

Changing the Bluetooth Name

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

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

Connecting to a Bluetooth Device

Once paired, connect to a Bluetooth device.

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

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

Selecting Profiles on the Bluetooth Device

Some Bluetooth devices have multiple profiles.

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

Unpairing a Bluetooth Device

Unpairing a Bluetooth device erases all pairing information.

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

Near Field Communications

NFC 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.

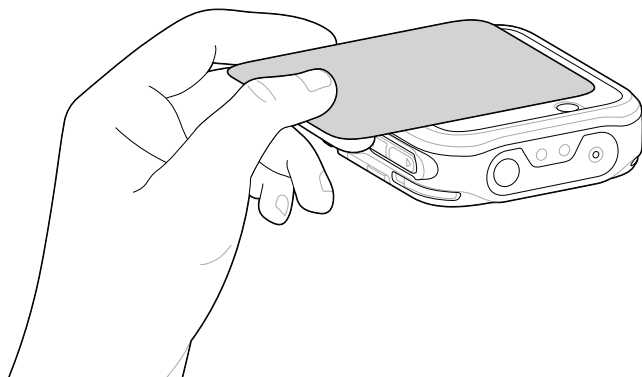
Supported NFC cards:

- 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 top of 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		
4-Slot Charge-Only Cradle	CRD-WS1X3-4SC-01	Charges up to four devices. Requires power supply PWR-BGA12V150W1WW and country-specific AC line cord.
20-Slot Charge-Only Cradle	CRD-WS1X3-20SC-01	Charges up to twenty devices. Requires power supply PWR-BGA12V150W1WW and country-specific AC line cord.
Batteries and Chargers		
750 mAh High Capacity Battery	BTRY-WS3X-7MA-01	Spare battery.
6-Slot Battery Charger	SAC-WS3X-6S7-01	Charges up to six 750 mAh spare batteries. Requires power supply PWR-WUA5V45W1XX and country-specific AC line cord.
30-Slot Battery Charger	SAC-WS3X-30S7-01	Charges up to thirty 750 mAh spare batteries. Requires power supply PWR-WUA5V45W1XX and country-specific AC line cord.
Charge and Communication Cables		
USB Communication and Charge Cables	CBL-EC5X-USBC3A-01	Cables provide USB communication and power to the device.
Clip Mount		
Clip Mount	SG-WS3X-CLPJK-01	Replacement Clip Mount with 3.5mm audio jack.
Mounting Bracket		
Rack/Wall Cradles	BRKT-SCRD-SMRK-01	Rack/Wall Mounting bracket for 20-slot device cradle, 30-slot spare battery charger.
Power Supply		

Accessory	Part Number	Description
Power Supply	PWR-BGA12V150W1WW	Provides power to the 20-Slot Charge and 30-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-WUA5V45W1XX	Requires USB cable CBL-EC5X-USBC3A-01.
Power Supply	PWR-WUA5V45W1US	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in the United States.
Power Supply	PWR-WUA5V45W1GB	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in the United Kingdom.
Power Supply	PWR-WUA5V45W1EU	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in the European Union.
Power Supply	PWR-WUA5V45W1AR	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in Argentina.
Power Supply	PWR-WUA5V45W1AU	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in Australia.
Power Supply	PWR-WUA5V45W1CN	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in China.
Power Supply	PWR-WUA5V45W1BR	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in Brazil.
Power Supply	PWR-WUA5V45W1KR	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in Korea.
Power Supply	PWR-WUA5V45W1IN	Provides 5 VDC, 2.5 A power to the USB cable. Includes plug adapter for use in India.

Battery Charging

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

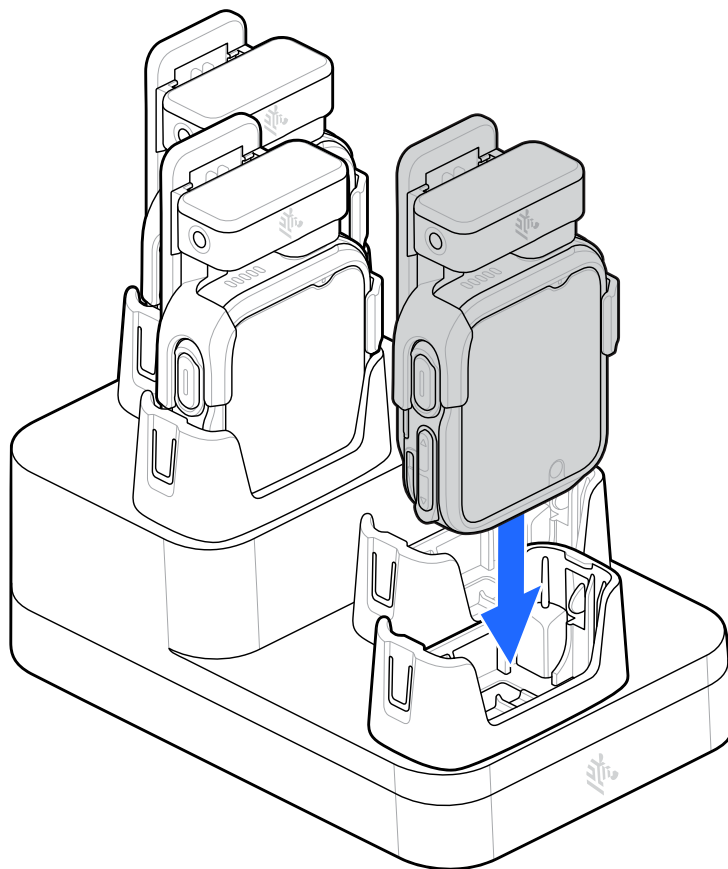
Charging the Main Battery

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](#).

1. Connect the charger to a power source.
2. Insert the device into a cradle slot 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.

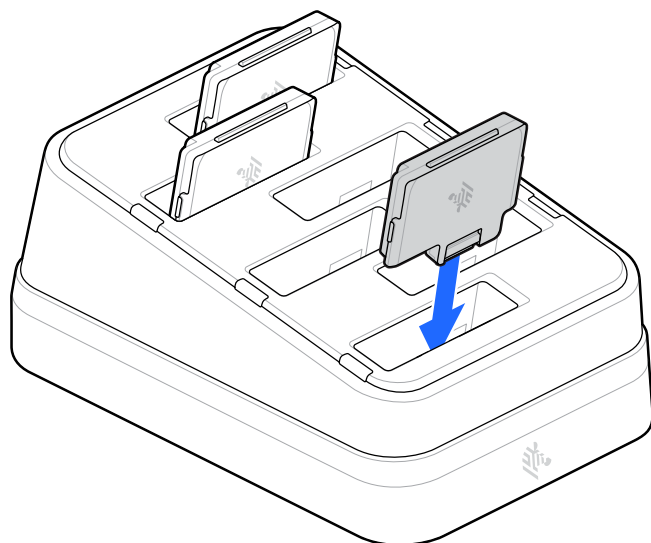


NOTE: Insert the device properly in the slot to charge it.

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 9 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 6°C to 40°C (42.8°F to 104°F). The device or cradle always performs battery charging in a safe and intelligent manner. At higher temperatures (for example, approximately +37°C (+98°F) the device or cradle may, for short periods, alternately enable and disable battery charging to maintain the battery at an acceptable temperature. The device and cradle indicate when charging is disabled due to abnormal temperatures via their LED.

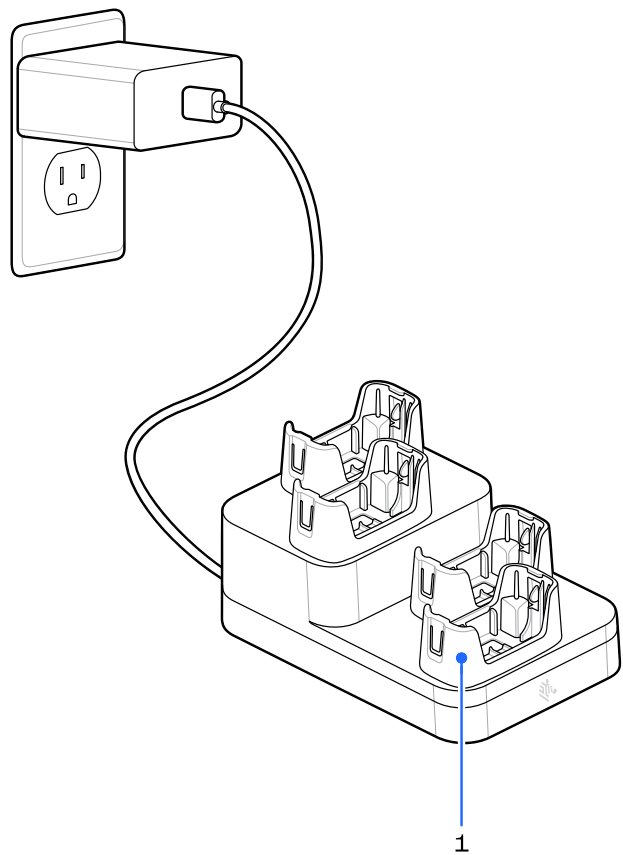
4-Slot Charge-Only Cradle

The 4-Slot Charge-Only Cradle provides power for operating the device and can charge up to four devices.



CAUTION: Ensure that you follow the guidelines for [Battery Safety](#).

Figure 23 4-Slot Charge-Only Cradle



1	Device charging slot
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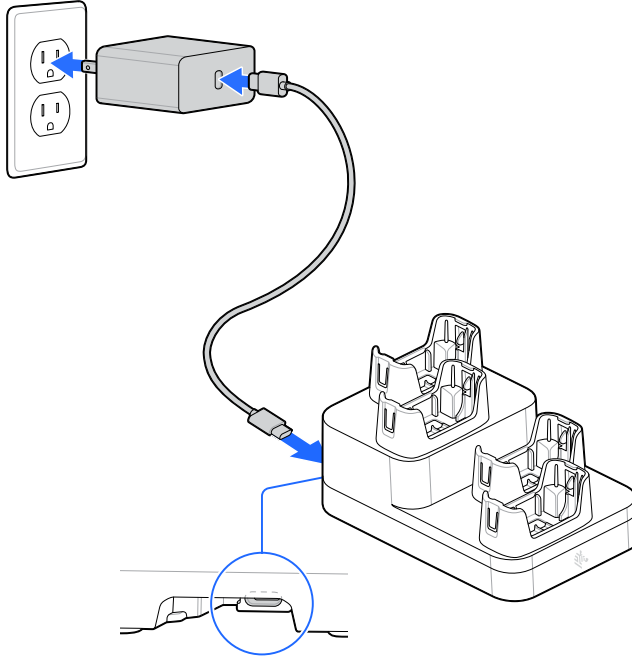


NOTE: Insert the device properly in the slot to charge it.

Setup

This section shows how to set up the cradle.

Figure 24 4-Slot Charge-Only Cradle Setup



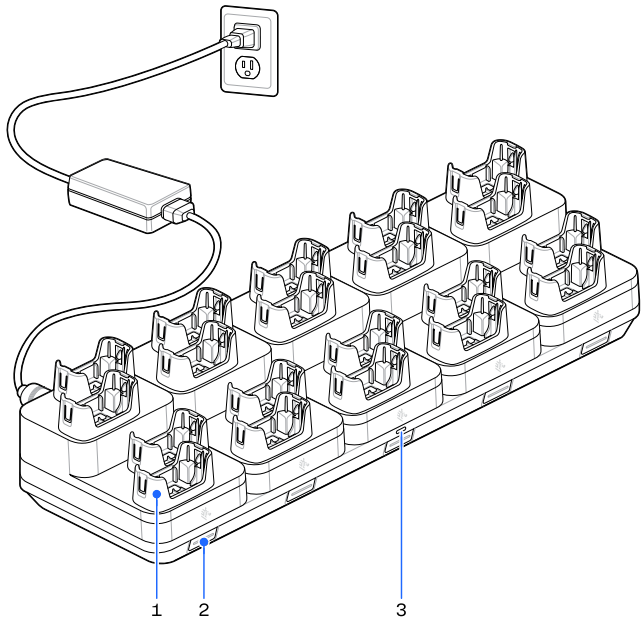
20-Slot Charge-Only Cradle

The 20-Slot Charge-Only Cradle provides power for operating the device and can charge up to 20 devices.



CAUTION: Ensure that you follow the guidelines for [Battery Safety](#).

Figure 25 20-Slot Charge-Only Cradle



1	Device charging slot
2	Release button
3	Base power LED

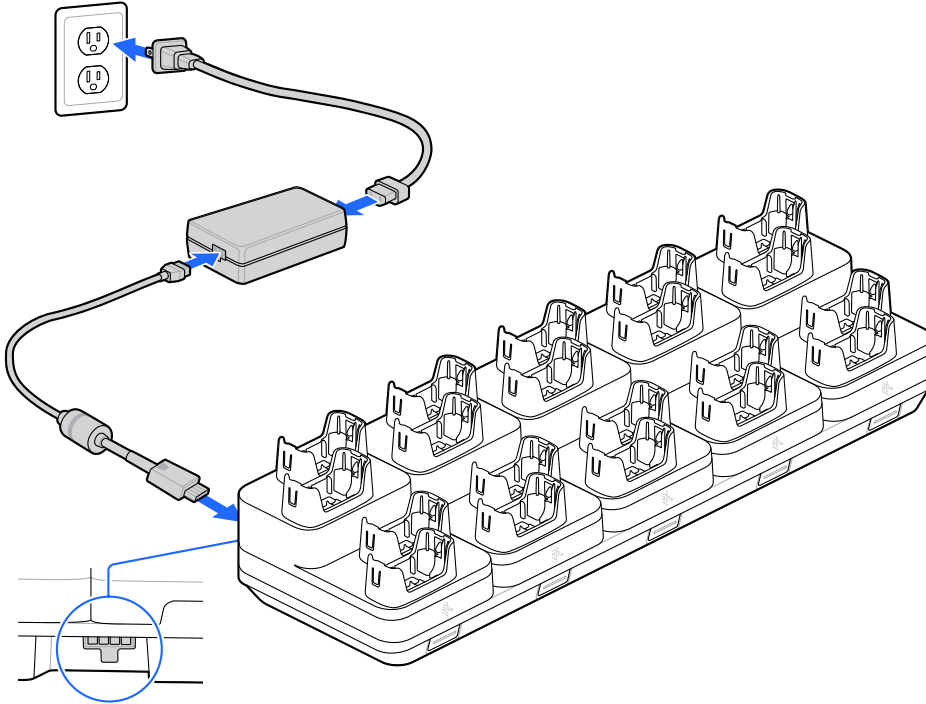


NOTE: Insert the device properly in the slot to charge it.

Setup

This section shows how to set up the cradle.

Figure 26 20-Slot Charge-Only Cradle Setup



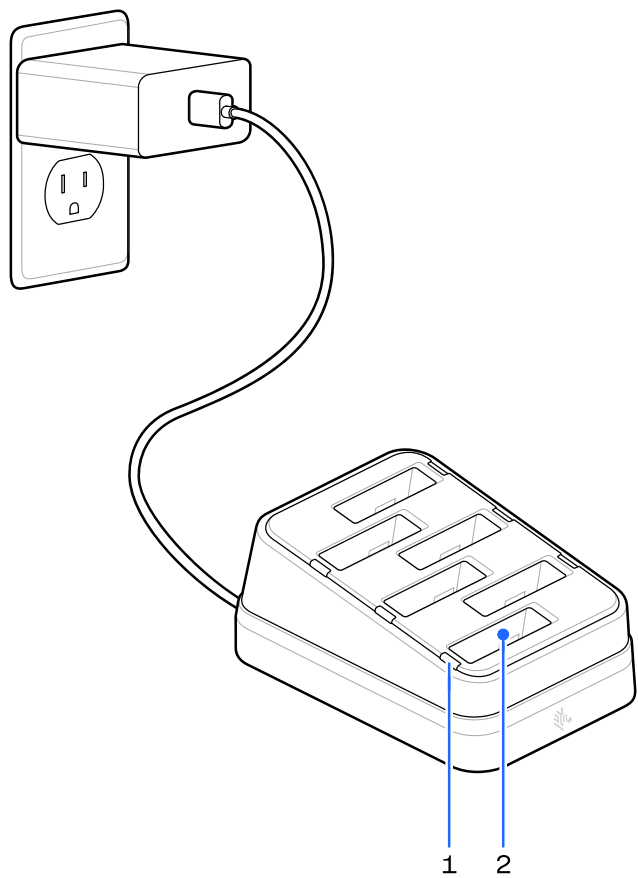
6-Slot Battery Charger

The 6-Slot Battery Charger charges up to six spare batteries.



CAUTION: Ensure that you follow the guidelines for [Battery Safety](#).

Figure 27 6-Slot Battery Charger



1	Charging LED
2	Battery slot

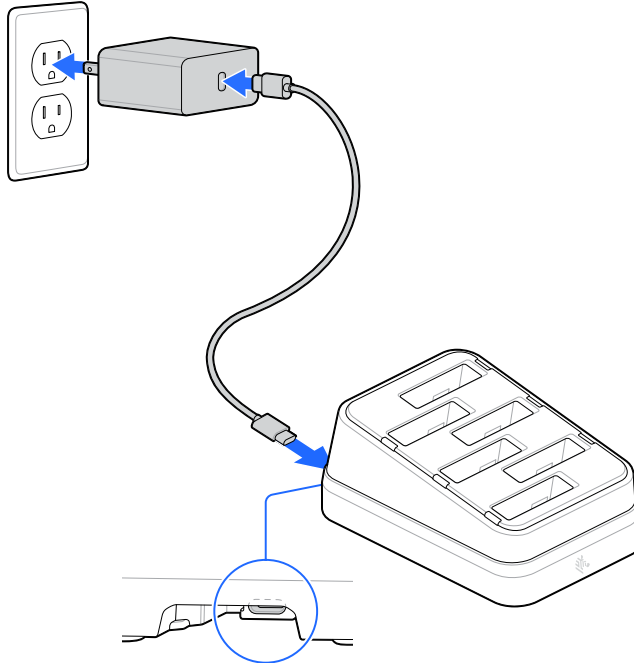


NOTE: Insert the battery properly in the slot to charge it.

Setup

This section shows how to set up the battery charger.

Figure 28 6-Slot Battery Charger Setup



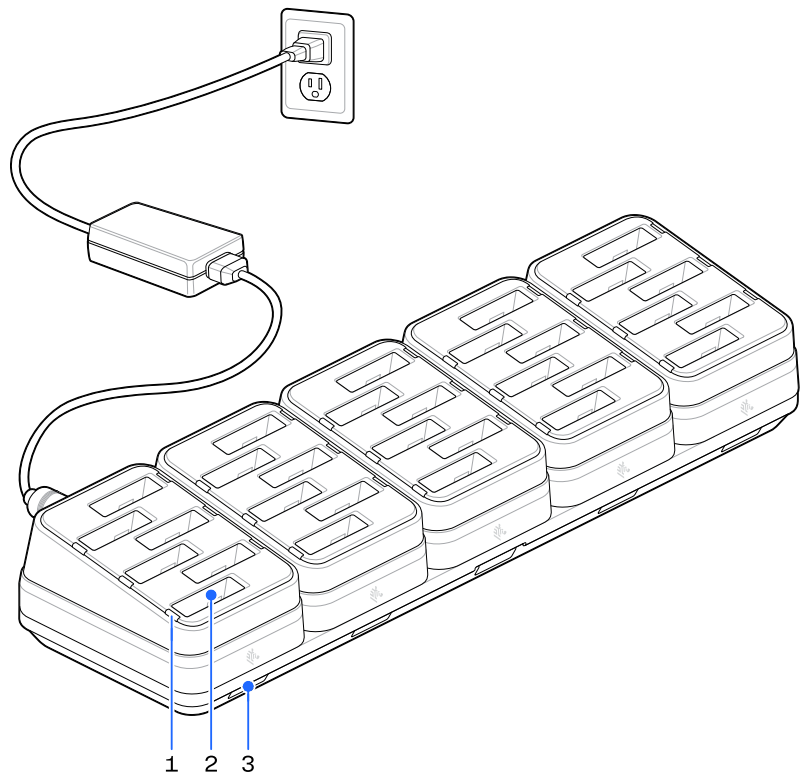
30-Slot Battery Charger

The 30-Slot Battery Charger charges up to 30 spare batteries.



CAUTION: Ensure that you follow the guidelines for [Battery Safety](#).

Figure 29 30-Slot Battery Charger



1	Charging LED
2	Battery slot
3	Base power LED

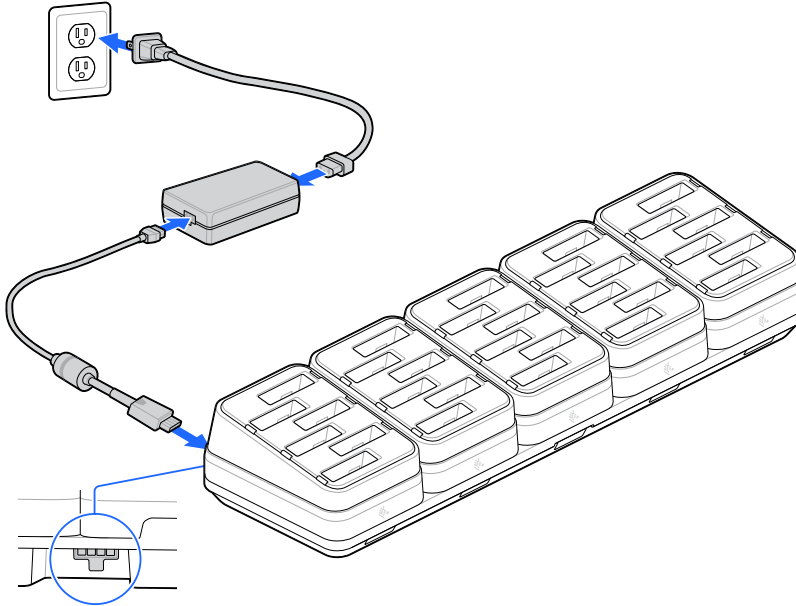


NOTE: Insert the battery properly in the slot to charge it.

Setup

This section shows how to set up the battery charger.

Figure 30 30-Slot Battery Charger Setup



USB Charge Cable

The USB charge cable plugs into the bottom of the device and is easily removed when not in use. The cable charges the device and enables it to transfer data to a host computer.

Figure 31 Connecting to a Power Source

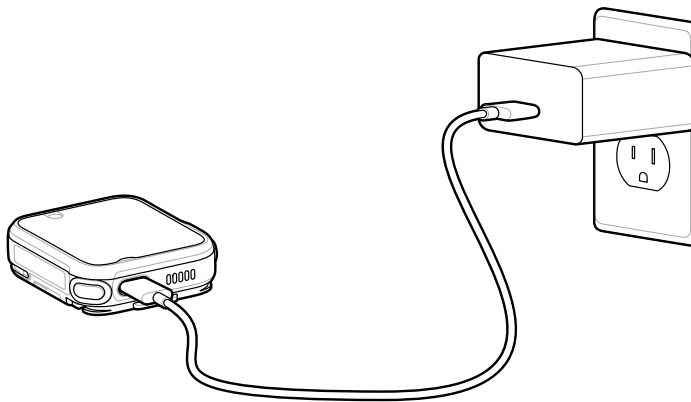
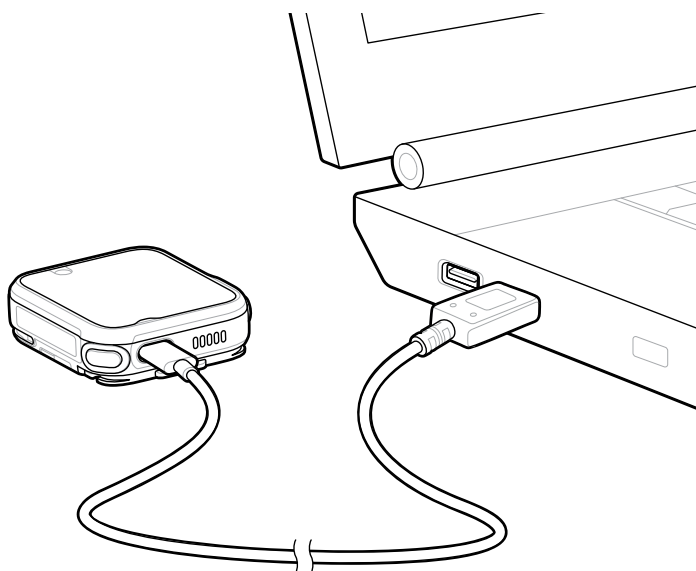
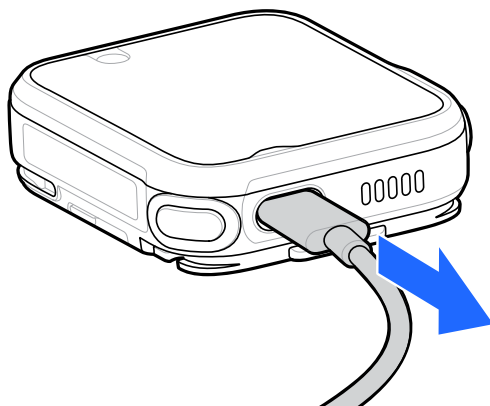


Figure 32 Connecting to a Computer

Disconnecting the USB Charge Cable

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

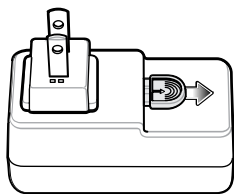
Figure 33 Disconnect the USB Charge Cable

USB Power Supply

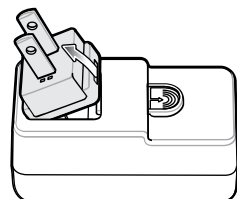
Use the power supply with the USB cable to charge the device. The power supply comes in various configurations with different plug adapters for use internationally.

Setting Up the USB Power Supply

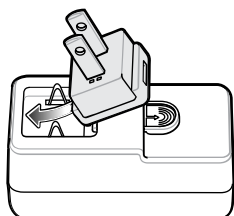
1. Pull the release button down.



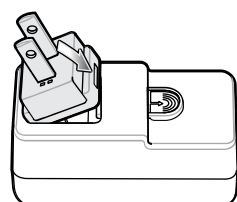
2. Rotate the plug adapter up and out of the power supply.



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



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



Application Deployment

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



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

Android Security

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



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

Secure Certificates

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

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

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

Installing a Secure Certificate

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

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

6. Touch **Install a certificate**.
7. Navigate to the location of the certificate file.
8. Touch the filename of the certificate to install.
9. 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**.
10. If prompted, enter the certificate's password and touch **OK**.
11. Enter a name for the certificate and in the Credential use drop-down, select **VPN and apps** or **Wi-Fi**.
12. Touch **OK**.

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

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

Configuring Credential Storage Settings

Configure credential storage from the device settings.

1. Go to **Settings**.
2. Touch **Security > More security settings**.
3. Touch **Encryption & credentials**.
4. Select an option.
 - Touch **Trusted credentials** to display the trusted system credentials.
 - Touch **User credentials** to display user credentials.
 - Touch **Install a certificate** to install a secure certificate from 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. After 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!** displays.
5. Touch **Back**.
6. Touch **System > Developer options**.
7. Slide the **USB debugging** switch to the **ON** position.

EMDK for Android

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

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

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

StageNow for Android

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

The StageNow Staging Solution includes the following components:

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

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

ADB USB Setup

To use the Android Debug Bridge (ADB), install the development SDK on the host computer then install the ADB and USB drivers.

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

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

Enabling USB Debugging

By default, USB debugging is disabled.

1. Go to **Settings**.
2. Touch **About phone**.
3. Scroll down to **Build number**.
4. Tap **Build number** seven times.
The message **You are now a developer!** displays.
5. Touch **Back**.
6. Touch **System > Developer options**.
7. Slide the **USB debugging** switch to the **ON** position.
8. Touch **OK**.
9. Connect the device to the host computer using the USB Cable.

The **Allow USB debugging?** dialog box displays 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      XXXXXXXXXXXXXXXX device
```

Where XXXXXXXXXXXXXXXX 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.

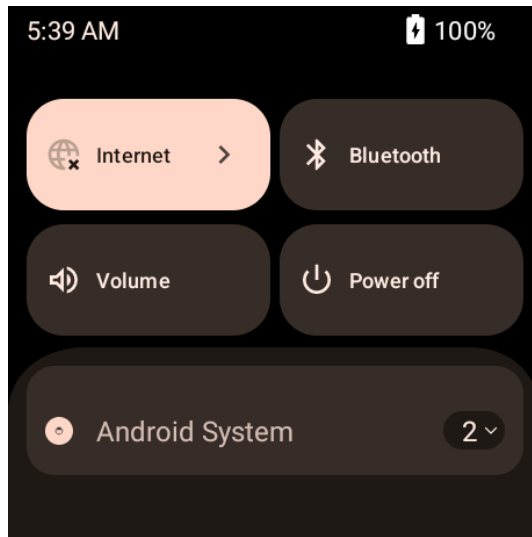


IMPORTANT: Connect the device to the USB cable prior to performing the following steps to enter Android Recovery mode.



NOTE: When the device connecting with the USB cable reboots, press the volume down button to enter Fastboot mode.

1. On the Quick Access panel, press and hold the **Power off** icon until the menu displays.



2. Press **Restart**.
3. Press and hold the volume up button until the Zebra logo displays, and then release the button. The System Recovery screen displays.

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 the USB-C cable.
When transferring files or debugging, ensure only one USB connection to the device exists. For example, do not dock the device or attach an expansion back if using a USB cable.
3. Go to **Settings**.
4. Touch **System > Developer options**.
5. Slide the **USB debugging** switch to the **ON** position.
6. Touch **OK**.
7. If the device and host computer are connected for the first time, the **Allow USB debugging?** dialog box with the **Always allow from this computer** check box displays. Select the check box, if required.
8. Touch **OK** or **Allow**.
9. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
10. Type `adb install <application>`.
where: <application> = the path and filename of the apk file.
11. Disconnect the USB-C cable from the device.

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.

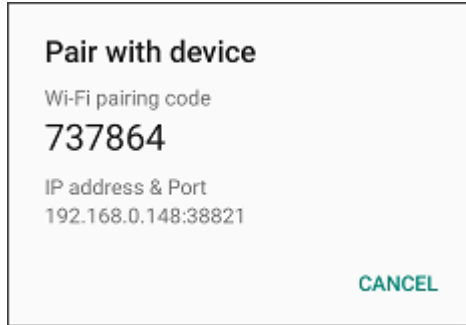


IMPORTANT: Ensure the latest adb files are installed on the host computer.



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

1. Go to **Settings**.
2. Touch **System > 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:XXXXX` 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	XXXXXXXXXXXXXXXXXXXX device
--------------------------	-----------------------------

Where XXXXXXXXXXXXXXXX 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. Touch **Apps**.
3. Touch **See all apps** to view all apps in the list.
4. Scroll through the list to the app.

5. Touch the app.
The **App info** screen displays.
6. Touch **Uninstall**.
7. Touch **OK** to confirm.

Android System Update

System Update packages can contain either partial or complete updates for the operating system. Zebra distributes the System Update packages on the Zebra Support & Downloads website. Perform a system update using 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** icon.
3. Touch **Restart**.
4. Press and hold the volume up button until the Zebra logo displays.
5. Release the volume up button and the **Recovery** screen displays.
6. Press the volume up and down buttons to navigate the menu.
7. Hold any key to select **Apply upgrade from ADB**.

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

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

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 > Reset Options > Erase all data (factory 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 > Developer options**.
4. Slide the **Use developer options** to **ON** position.
5. Scroll down and slide the **USB debugging** switch to the **ON** position.
6. If the device and host computer are connected for the first time, the **Allow USB debugging?** dialog box with the **Always allow from this computer** check box displays. Select the check box, if required.
7. Touch **USB Debugging**. A check appears in the check box. The **Allow USB debugging?** dialog box appears.
8. Touch **OK** or **Allow**.
9. Press and hold the **Power** icon.
10. Touch **Restart**.
11. Press and hold the volume up button until the Zebra logo displays.
12. Release the volume up button and the **Recovery** screen displays.
13. Press the volume up and down buttons to navigate the menu.
14. Hold any key to select **Full OTA Package**.
15. Reboot the device.

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

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.

Complete [Enabling Developer Options](#) before you continue:

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

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 256 MB (formatted). Applications can persist data after an Enterprise Reset by saving data to the enterprise/user folder. The folder is ext4 formatted and is only accessible from a host computer using ADB or from an MDM.

Managing Apps

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

1. Go to **Settings**.

2. Touch **Apps**.
3. Touch **See all 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.
- 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
 - 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 6°C to 40°C (42.8°F to 104°F).
- Do not use incompatible batteries and chargers, including non-Zebra batteries and chargers. Use of an incompatible battery or charger may present a risk of fire, explosion, leakage, or other hazard. If you have any questions about the compatibility of a battery or a charger, contact the Global Customer Support Center.
- For devices that utilize a USB port as a charging source, the device shall only be connected to products that bear the USB-IF logo or have completed the USB-IF compliance program.
- Do not disassemble 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 Devices Operating in Hot Environments and Direct Sunlight

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

- Avoid direct sunlight to the device - The easiest way to prevent overheating is to keep the device out of direct sunlight. The device absorbs light and heat from the sun and retains it, getting hotter the longer it remains in sunlight and heat.
- Avoid leaving the device in a vehicle on a hot day or hot surface - Similar to leaving the device out in direct sunlight, the device will also absorb the thermal energy from a hot surface or when left on the

dashboard of a vehicle or seat, getting warmer the longer it remains on the hot surface or inside the hot vehicle.

- Turn off unused apps on the device. Open, unused apps running in the background can cause the device to work harder, which in turn may cause it to heat up. This will also improve your mobile computer device's battery life performance.
- Avoid turning your screen brightness up - Just the same as running background apps, turning your brightness up will force your battery to work harder and create more heat. Minimizing your screen brightness may extend operating the mobile computer device in hot environments.

Cleaning Instructions

This section provides instructions for cleaning the device.

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



CAUTION: Always wear eye protection. Read the warning label on alcohol product before using. If you have to use any other solution for medical reasons please contact the Global Customer Support Center for more information.



WARNING: Avoid exposing this product to contact with hot oil or other flammable liquids. If such exposure occurs, unplug the device and clean the product immediately in accordance with these guidelines.

Approved Cleaning and Disinfectant Agents

100% of the active ingredients in any cleaner must consist of isopropyl alcohol or mild dish soap.



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



WARNING: Do not use Clorox Disinfecting Wipes, hydrogen peroxide cleaners, or bleach products.

Approved cleaners:

- Purell Ethanol Wipes
- 409 Glass Cleaner
- Windex Blue

Cleaning and Disinfecting Guidelines

This section explains the proper procedures for cleaning and disinfecting the device.

- Turn off and/or disconnect the device from AC/DC power.
- Use only approved cleaning and disinfecting agents specified for the device to avoid damage to it or its accessories.
- Follow the manufacturer's directions on the approved cleaning and disinfecting agent for using their product properly and safely.
- Use pre-moistened wipes or dampen a soft sterile cloth (not wet) with the approved agent. Never spray or pour chemical agents directly onto the device.

- Use a moistened cotton-tipped applicator to reach tight or inaccessible areas. Be sure to remove any lint the applicator leaves behind.
- Do not allow liquid to pool.
- Allow the device to air dry before use or dry with a soft lint-free cloth or towelette. Ensure the electrical contacts are fully dry before reapplying power.

Cleaning Frequency

This section explains how often you must clean the device.

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

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

Special Cleaning Notes

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 ethanalamine, hands must be completely dry before handling the device to prevent damage to the device.

Cleaning the Device

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

Housing

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

Display

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

Camera Window

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

Shelf Mode

Devices left in storage for extended periods should be put in Shelf Mode to preserve the battery and prevent it from depleting. A device in shelf mode maintains a functional battery level for up to a year.

This mode is particularly useful for devices stored for an extended period. The conditions for storing a device in Shelf Mode are:

- The device's battery level is between 60 - 80%.



NOTE: The recommended battery state of charge (SOC) is the optimal range to guarantee battery life in shelf mode at room temperature.

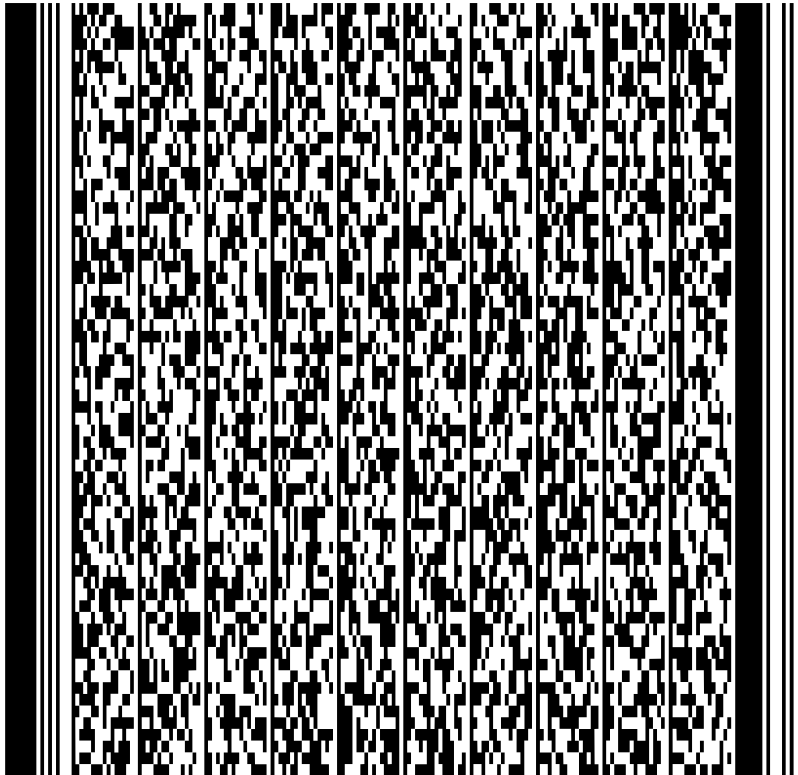
- The storage temperature is < 40°C (104°F).

Using Shelf Mode

Enter and exit shelf mode using the StageNow app.

Minimum compatible MXMF version: 13.4.

1. Open the StageNow app.
2. Scan the barcode.



The device disables BLE beaconing and executes a graceful shutdown.



NOTE: To exit shelf mode, place the device on a charger or power it on.

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.

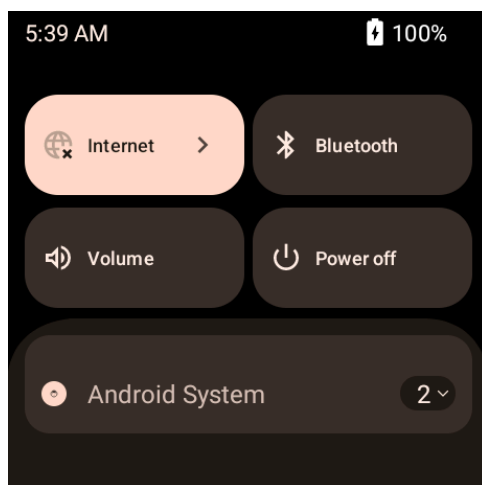
There are three reset functions:

- Soft reset
- Hard reset
- Enterprise reset.

Performing a Soft Reset

Perform a soft reset if applications stop responding.

1. On the Quick Access panel, press and hold the **Power off** icon until the menu displays.



2. Touch **Restart**.

The device reboots.

Performing a Hard Reset

Perform a hard reset if the device stops responding.

1. Simultaneously press and hold the multi-function button and the volume up button for more than 9 seconds.
2. When the screen turns off, release the buttons.

The device reboots.

Troubleshooting the Device

Table 10 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.
	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 6°C and 40°C (42.8°F and 104.8°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, no data was transmitted, or transmitted data was incomplete.	Device is not configured correctly.	Go to Settings > Connected devices to configure the desired data communication.
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.

Table 10 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.
No sound (While using clip mount)	Headset is not inserted into the port.	Insert the headset fully into the headset port on the clip mount.
No sound (While using Zebra headset)	Volume setting is low.	Increase the volume to maximum.
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 a 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.

4-Slot Charge-Only Cradle

Table 11 Troubleshooting the 4-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 6°C and 40°C (42.8°F and 104.8°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.

20-Slot Charge-Only Cradle

Table 12 Troubleshooting the 20-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 6°C and 40°C (42.8°F and 104.8°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.

6-Slot Battery Charger

Table 13 Troubleshooting the 6-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 6°C and 40°C (42.8°F and 104.8°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.

30-Slot Battery Charger

Table 14 Troubleshooting the 30-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 6°C and 40°C (42.8°F and 104.8°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.

4-Slot Charge-Only Cradle

Table 15 4-Slot Charge-Only Cradle Technical Specifications

Item	Description
Dimensions	Height: 79 mm (3.1 in.) Width: 97.5 mm (3.8 in.) Depth: 146 mm (5.75 in.)
Weight	0.48 kg (1.06 lbs.)
Input Voltage	12 VDC
Power Consumption	Up to 13.5 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	6°C to 40°C (42°F to 104°F)
Humidity	5% to 95% non-condensing in the operating temperature range.
Drop	75 cm (30.0 in.) drops to concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 20 kV air +/- 10 kV contact discharge

20-Slot Charge-Only Cradle

Table 16 20-Slot Charge-Only Cradle Technical Specifications

Item	Description
Dimensions	Height: 105.5 mm (4.15 in.) Width: 489.0 mm (19.3 in.) Depth: 146 mm (5.75 in.)

Table 16 20-Slot Charge-Only Cradle Technical Specifications (Continued)

Item	Description
Weight	2.42 kg (5.35 lbs.)
Input Voltage	12 VDC
Power Consumption	Up to 70 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	6°C to 40°C (42°F to 104°F)
Humidity	5% to 95% non-condensing in the operating temperature range.
Drop	75 cm (30.0 in.) drops to vinyl tiled concrete at room temperature.
Electrostatic Discharge (ESD)	+/- 20 kV air +/- 10 kV contact discharge

6-Slot Battery Charger

Table 17 6-Slot Battery Charger Technical Specifications

Item	Description
Dimensions	Height: 64.5 mm (2.4 in.) Width: 97.5 mm (3.8 in.) Depth: 146 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	6°C to 40°C (42°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

30-Slot Battery Charger

Table 18 30-Slot Battery Charger Technical Specifications

Item	Description
Dimensions	Height: 90.9 mm (3.58 in.) Width: 489.0 mm (19.3 in.) Depth: 146 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	6°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

