ET51/56

Enterprise Tablet

Product Reference Guide

ZEBRA

MN-004223-06EN Rev A

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About This Guide

This guide provides information about setting up and using the ET51 and ET56 enterprise tablets with the Android operating system. Some screens shown in this guide may differ from the actual screens shown on the device.

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

Configurations

This guide covers the following configurations:

Table 1 Configurations

Configuration	Operating System	Radios	Display	Memory	Data Capture
ET51CE	Android	WLAN: 802.11a/b/g/n/ac/d/h/i/k/r WPAN: Bluetooth	8.4 in. color	4 GB RAM/ 32 GB Flash	Camera, SE4750 Expansion Back, Ring Scanners. Bluetooth Scanners, and USB Scanners.
ET51CE with Integrated Scanner	Android	WLAN: 802.11a/b/g/n/ac/d/h/i/k/r WPAN: Bluetooth	8.4 in. color	4 GB RAM/ 32 GB Flash	Camera, integrated scanner, Ring Scanners. Bluetooth Scanners, and USB Scanners.
ET51CT	Android	WLAN: 802.11a/b/g/n/ac/d/h/i/k/r WPAN: Bluetooth	10.1 in. color	4 GB RAM/ 32 GB Flash	Camera, SE4750 Expansion Back, Ring Scanners. Bluetooth Scanners, and USB Scanners.
ET56DE	Android	WLAN: 802.11a/b/g/n/ac/d/h/i/k/r WPAN: Bluetooth WWAN: LTE	10.1 in. color	4 GB RAM/ 32 GB Flash	Camera, SE4750 Expansion Back, Ring Scanners. Bluetooth Scanners, and USB Scanners.
ET56DT	Android	WLAN: 802.11a/b/g/n/ac/d/h/i/k/r WPAN: Bluetooth WWAN: LTE	10.1 in. color	4 GB RAM/ 32 GB Flash	Camera, SE4750 Expansion Back, Ring Scanners. Bluetooth Scanners, and USB Scanners.

Table 1 Configurations (Continued)

Configuration	Operating System	Radios	Display	Memory	Data Capture
ET56ET	Android	WLAN: 802.11a/b/g/n/ac/d/h/i/k/r WPAN: Bluetooth WWAN: LTE	10.1 in. color	4 GB RAM/ 32 GB Flash	Camera, SE4750 Expansion Back, Ring Scanners. Bluetooth Scanners, and USB Scanners.

Notational Conventions

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

- **Bold** text is used to highlight the following:
  - Dialog box, window, and screen names
  - Dropdown list and list box names
  - Checkbox and radio button names
  - Icons on a screen
  - Key names on a keypad
  - Button names on a screen
- Bullets (•) indicate:
  - Action items
  - List of alternatives
  - Lists of required steps that are not necessarily sequential.
- Sequential lists (for example, those that describe step-by-step procedures) appear as numbered lists.

Icon Conventions

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

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

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

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

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

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

Determining Software Versions

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

1. Swipe down from the Status bar with two fingers to open the Quick Access panel, and then touch .
2. Touch **About phone**.
3. Scroll to view the following information:
   - Battery information
   - SW components
   - Legal information
   - Model & hardware
   - Android version
     - Android security patch level
     - Android security patch version
     - Google Play system update
     - Baseband version
     - Kernel version
     - Build Fingerprint
     - Build number
     - Android Security Update

   To determine the device International Mobile Equipment Identity (IMEI) information (WWAN only), touch **About phone** > **IMEI**.
   - **IMEI** - Displays the IMEI number for the device.
   - **IMEI SV** - Displays the IMEI software version (SV) number for the device.

Determining the Serial Number

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

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

Service Information

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

When contacting support, please have the following information available:

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

- Software type and version number

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

If the problem cannot be solved by Customer Support, the user may need to return the equipment for servicing and will be given specific directions. We are not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty. If applicable, remove the microSD card from the device before shipping for service.

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

Getting Started

This section explains how to set the device up for the first time.

Unpacking

Carefully remove all protective material from around the tablet and save the shipping container for later storage and shipping.

Verify that you received all equipment listed below:

- Tablet with lithium-ion battery
- Quick Reference Guide
- Additional hand strap screws (ET51 Enterprise Tablet with integrated Scanner only).
- Cradle caps (ET51 Enterprise Tablet with integrated Scanner only).

Inspect the equipment for damage. If you are missing any equipment or if you find any damaged equipment, contact the Zebra Support Center immediately. See Service Information for contact information.

ET51/56 Device Features

Figure 1 ET51/ET56 Front View

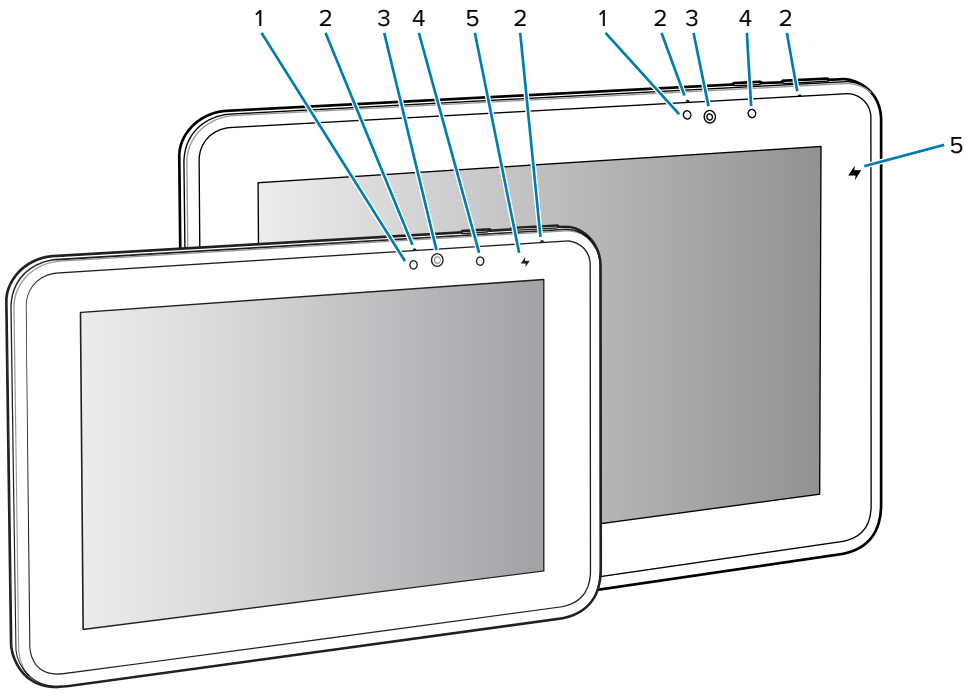


Table 2 ET51/ET56 Front View

Item	Description
1	Ambient Light Sensor - Recognizes the ambient light and adjusts the display brightness (if enabled).
2	Dual Front-Facing Microphones - Use for voice communications for audio recordings.
3	Front Facing Camera - Use for video conferencing or capturing images and video.
4	Notification LED - Lights blue when an application sends a notification.
5	Charging Indicator LED - Indicates charging status. • Off - device is not connected to charger. • Orange - device is charging. • Green - device is connected and fully charged. • Red - charge error.

Figure 2 ET51/ET56 Back View

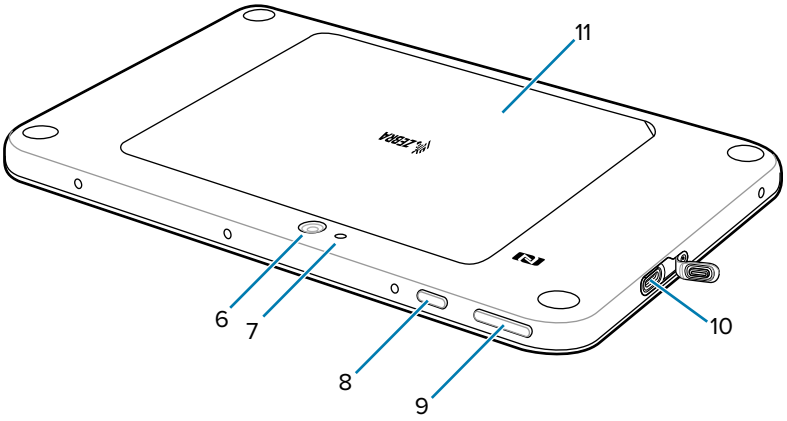


Table 3 ET51/ET56 Back View

Item	Description
6	Rear Camera - Auto-focus camera for capturing high resolution images and video.
7	Camera LED Flash - Provides illumination for the camera.
8	Power Button - Push once to start the device; push it again to enable sleep mode. Push and hold it to shut down the tablet.
9	Volume Key - Push the left side to reduce the volume. Press the right side to increase the volume.
10	USB-C / Display - Provides communications with a host computer using a USB-C cable or a video monitor using a third-party adapter.
11	Battery Cover - Covers the replaceable battery.

Figure 3 ET51/ET56 Bottom View

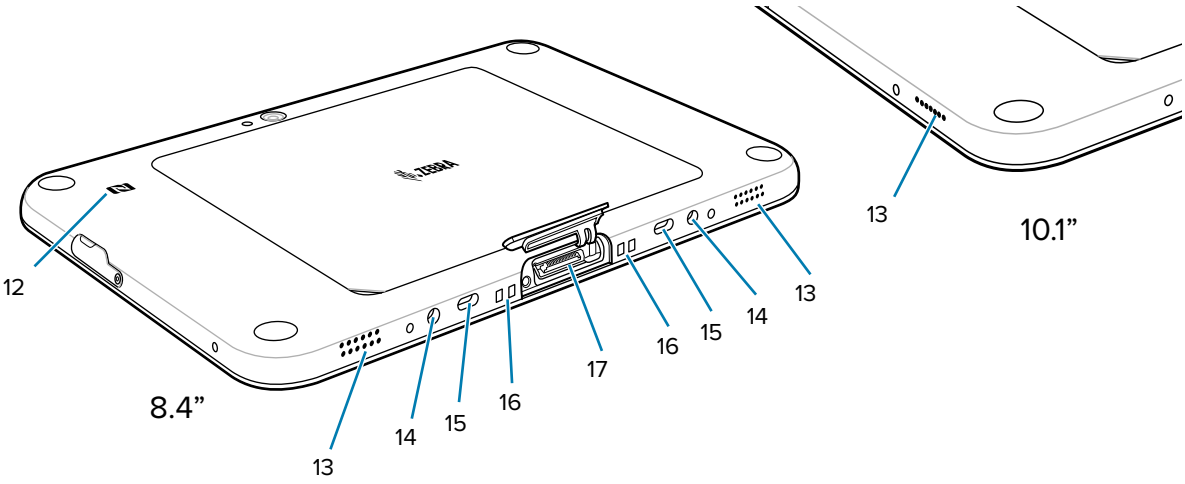


Table 4 ET51/ET56 Bottom View

Item	Description
12	NFC Antenna Position - Use to read NFC cards.
13	Stereo Speakers - Provides audio playback.
14	Alignment Holes - Use to align tablet with cradle.
15	Latching Slots - Insertion point for Communication and Charging cradle locks.
16	Charging Pins - Contact point for cradle charging.
17	Docking Connector - Interfaces with the cradle.

ET51 with Integrated Scanner Features

Figure 4 ET51 with Integrated Scanner Front View

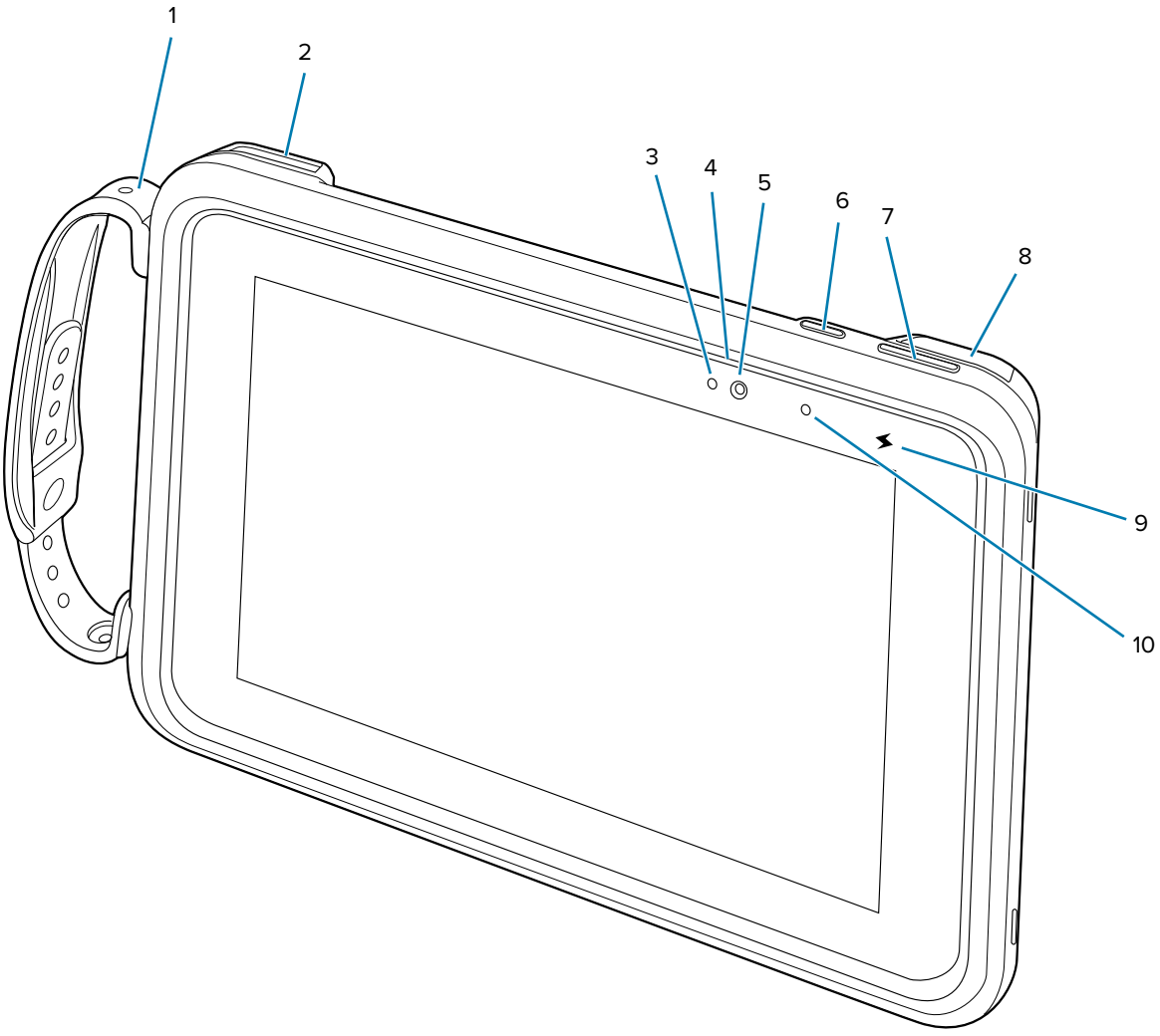


Table 5 ET51 with Integrated Scanner Front View

Item	Description
1	Adjustable Hand Strap - Use to securely hold the device in your hand.
2	Exit Window - Provides data capture using the imager.
3	Ambient Light Sensor - Recognizes the ambient light and adjusts the display brightness (if enabled).
4	Dual Front-Facing Microphones - Use for voice communications for audio recordings.
5	Front Facing Camera - Use for video conferencing or capturing images and video.
6	Power Button - Push once to start the device; push it again to enable sleep mode. Push and hold it to shut down the device.
7	Volume Key - Press the left side to reduce the volume. Press the right side to increase the volume.
8	USB Port - Use to charge the device using a USB-C cable and power supply.
9	Charging Indicator LED - Indicates charging status. • Off - device is not connected to charger. • Orange - device is charging. • Green - device is connected and fully charged. • Red - charge error.
10	Notification LED - Lights blue when an application sends a notification.

Figure 5 ET51 with Integrated Scanner Back View

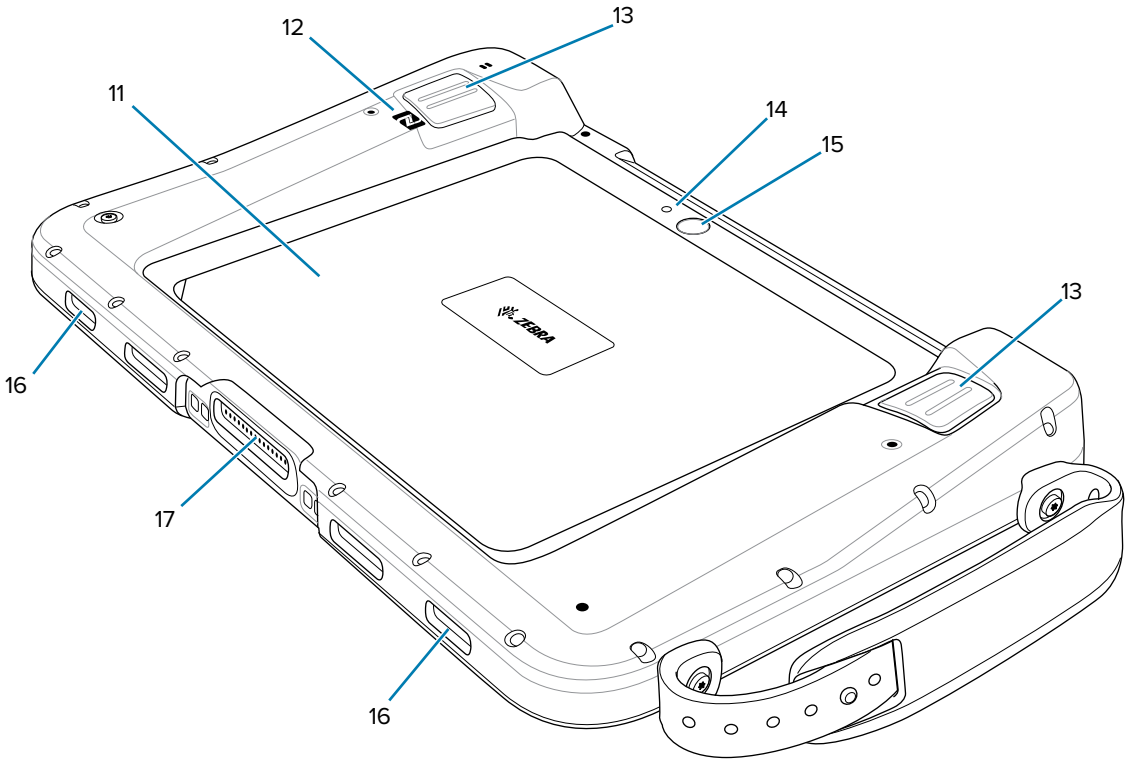


Table 6 ET51 with Integrated Scanner Back View

Item	Description
11	Back Cover - Covers the service replaceable battery.
12	NFC Antenna Position - Use to read NFC cards.
13	Scan Button - Initiates barcode data capture when a scan-enabled application is active.
14	Rear Camera - Use for high resolution images and video.
15	Camera LED Flash - Provides illumination for the camera.
16	Stereo Speakers - Provides audio playback.
17	Docking Connector - Interfaces with the cradle.

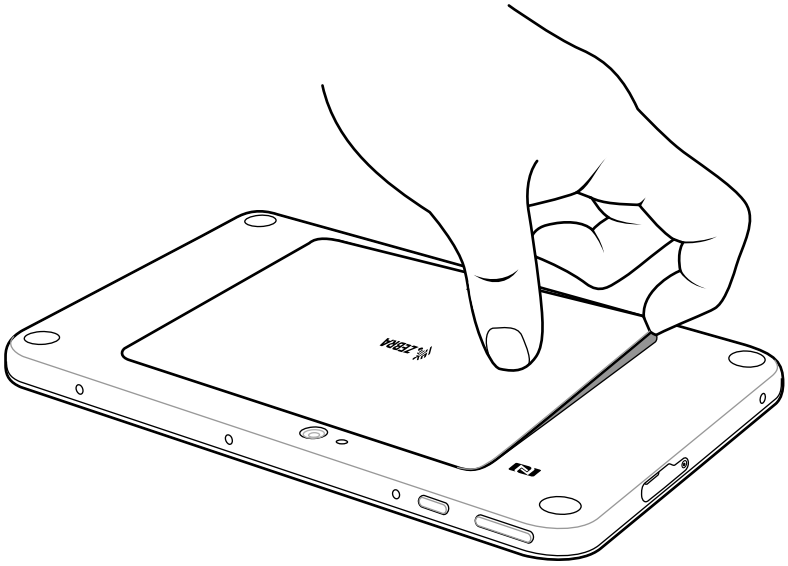
Setup

In order to start using the device for the first time:

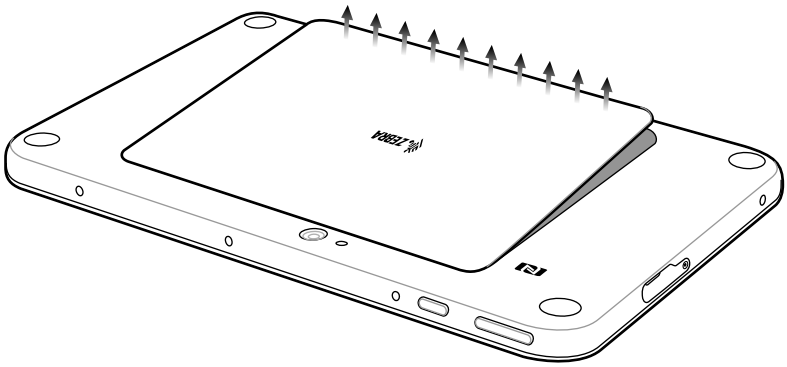
- Install the microSD card
- Install the nano SIM card (ET56 only)
- harge the device
- Perform basic configuration.

Removing the Battery

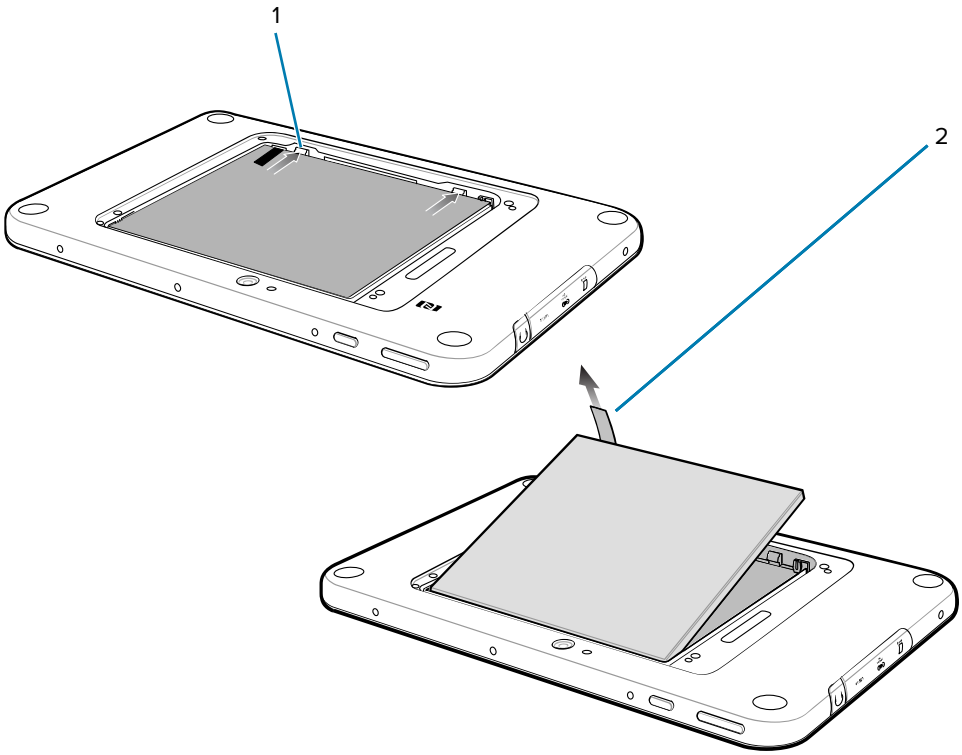
1. Press and hold the Power button until the menu appears.
2. Touch **Power off**.
3. Lift the notched corner of the battery cover.



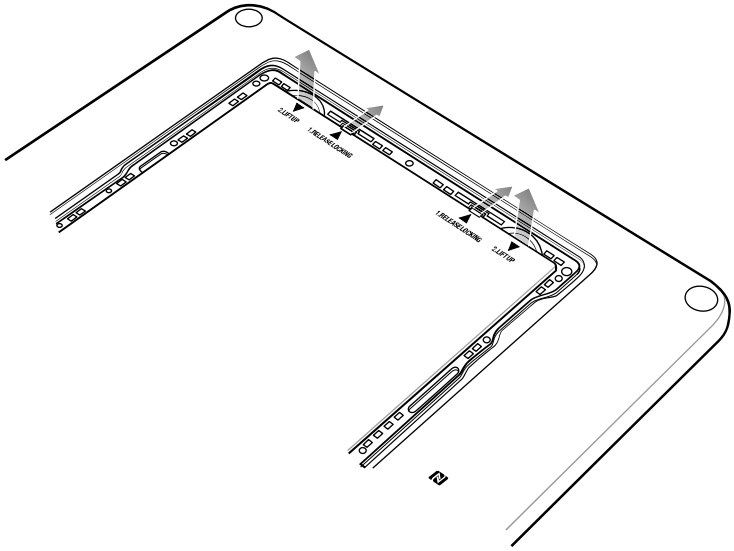
4. Carefully lift the battery cover off the device.



5. On the 8.4 inch version, push the two locking tabs (1) up, then pull up on the tab (2) to remove battery.



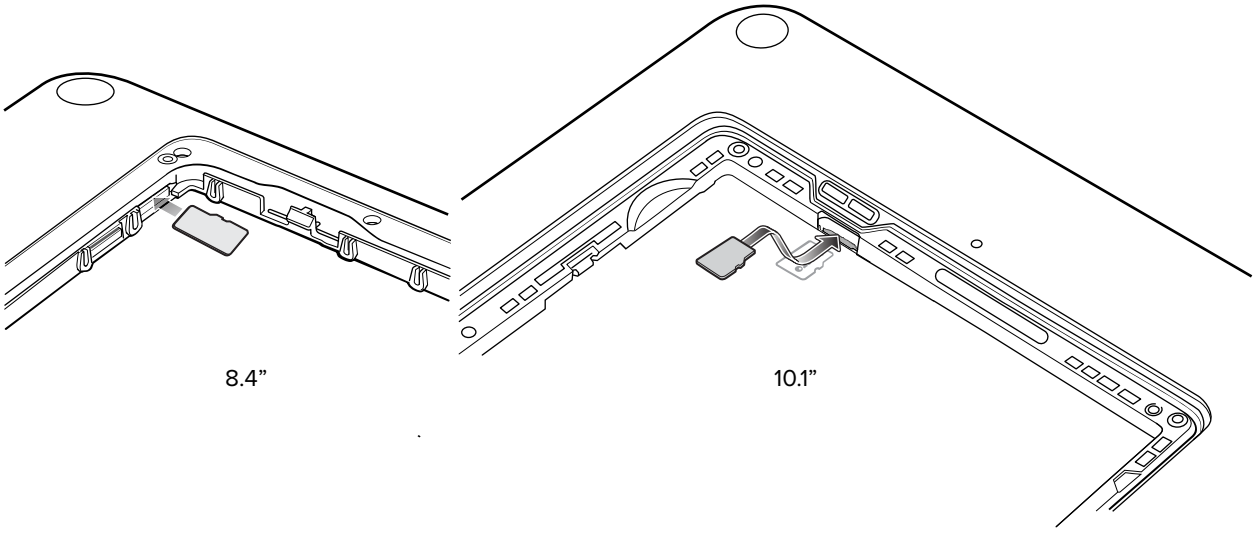
6. On the 10.1 inch version, push the two locking tabs up (1), then lift the battery up (2).



Installing a microSD Card

A microSD card is used to store additional data and to transfer files.

1. Insert the microSD card with contacts facing down; 8.4 in. version shown here.



2. Push the micro SD card in and ensure that it locks into place.

Installing the nano SIM Card

To install a SIM card into the ET56 device.

NOTE: ET56 only.

1. Insert the nano SIM card with the contacts facing down.

Figure 6 Inserting the nano SIM Card - 8.4 in.

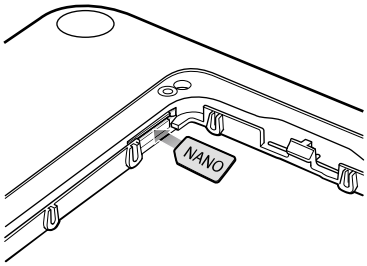
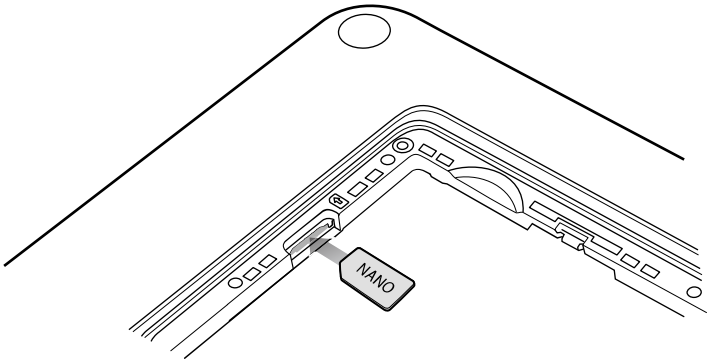
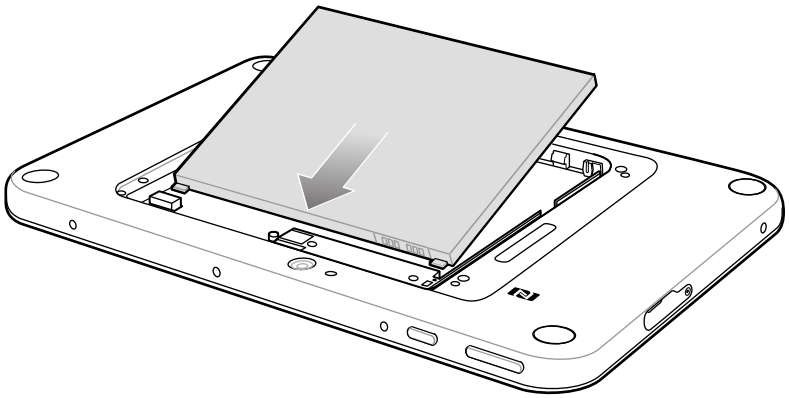


Figure 7 Inserting the nano SIM Card - 10 in.

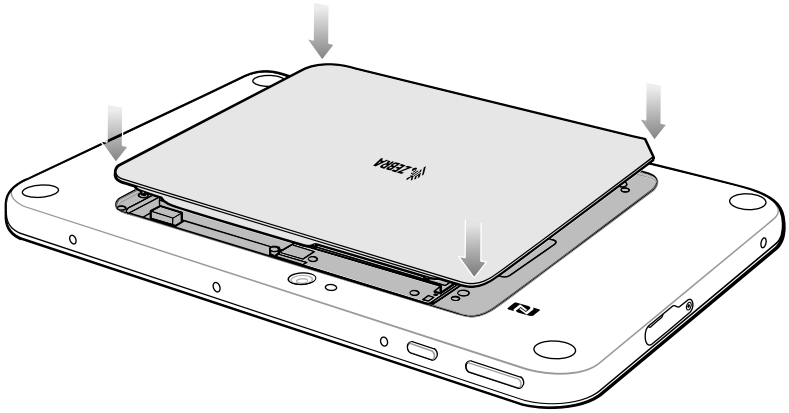


2. Push the SIM card in and ensure that it locks into place.
3. Replace the battery.
4. Press the battery down to ensure the two battery latches engage.

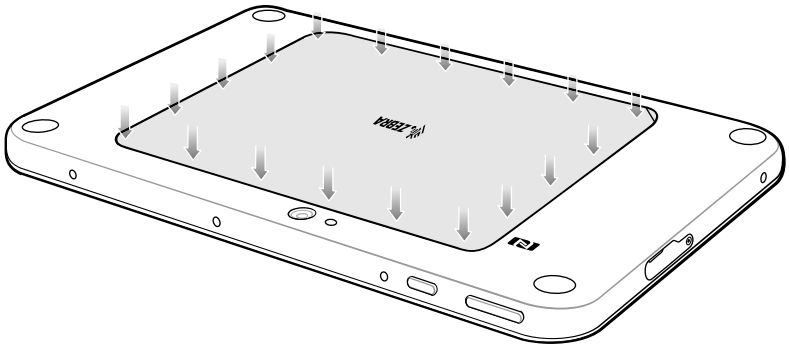


CAUTION: Be aware of the orientation of the battery cover. Failure to replace the battery cover properly may damage the battery cover.

5. Align the tabs on the underside of the cover with the slot around the battery well. Make sure that the notch on the battery cover is at the bottom left cover of the device.



6. Carefully press down around the edge of the cover. Make sure that the cover is seated properly.



7. Press Power button to turn on the device.

Charging the Battery

Use one of the cradles to charge the main battery installed in the device. See Accessories for charging accessories.

The 8.4" tablet main battery charges from fully depleted to 90% in approximately 2.5 hours and from fully depleted to 100% in approximately 3.5 hours.

The 10.1” tablet main battery charges from fully depleted to 90% in approximately three hours and from fully depleted to 100% in approximately four hours.

NOTE: The Charging indicator only illuminates when the tablet is connected to AC power.

Turning Off the Tablet

This section provides information on how to turn off the tablet.

NOTE: After the device is powered off and external power is applied to the device, the device will automatically power on. This includes powered cradles, Expansion Back with Power Pack, Rugged Charge Connector, and power supply/USB-C cable.

To turn off the device:

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

Replacing the SIM Card

Use this procedure to replace the SIM card.

NOTE: ET56DE only.

CAUTION: To avoid damage to the SIM slot, do not pull the SIM card out of the SIM slot. Push the SIM card in to eject it.

1. Press and hold the Power button until the menu appears.
2. Touch **Power off**.
3. Lift the notched corner of the battery cover and carefully lift the battery cover off the device.
4. On the 8.4" version, push the two locking tabs up, then pull up on the tab to remove battery.

   On the 10.1” version, push the two locking tabs up, then lift the battery up.
5. Push in the SIM card and release. The card eject slightly.
6. Remove the SIM card from the card slot. The card should easily slide out. If not, the SIM card was not ejected correctly. Repeat step 5.
7. Replace the battery.
8. Press the battery down to ensure the two battery latches engage.
9. Replace the battery cover.

Replacing the microSD Card

Use this procedure to replace the microSD card.

CAUTION: To avoid damage to the microSD card slot, do not pull the microSD card out of the microSD Card slot. Push the microSD card in to eject it.

1. Press and hold the Power button until the menu appears.
2. Touch **Power off**.
3. Lift the notched corner of the battery cover and carefully lift the battery cover off the device.
4. On the 8.4" version, push the two locking tabs up, then pull up on the tab to remove battery.

   On the 10.1” version, push the two locking tabs up, then lift the battery up.
5. Push in the SIM card and release. The card eject slightly.
6. Remove the microSD card from the card slot. The card should easily slide out. If not, the microSD card was not ejected correctly. Repeat step 5.
7. Insert the replacement microSD card with contacts facing down.
8. Push the microSD card in and ensure that it locks into place.
9. Replace the battery.
10. Press the battery down to ensure the two battery latches engage.
11. Replace the battery cover.

Turning Off the Display

To turn off the display press and release the power button.

Using the Device

This section explains how to use your device.

Home Screen

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

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

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

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

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

Figure 8 Android 11 Home Screen (ET56 Shown)

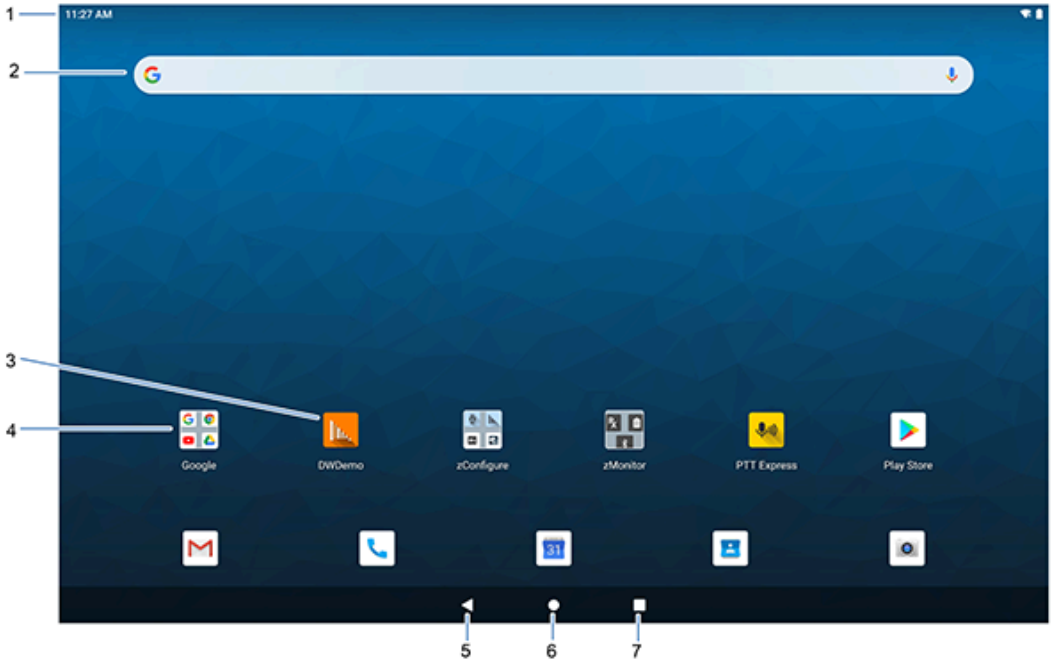
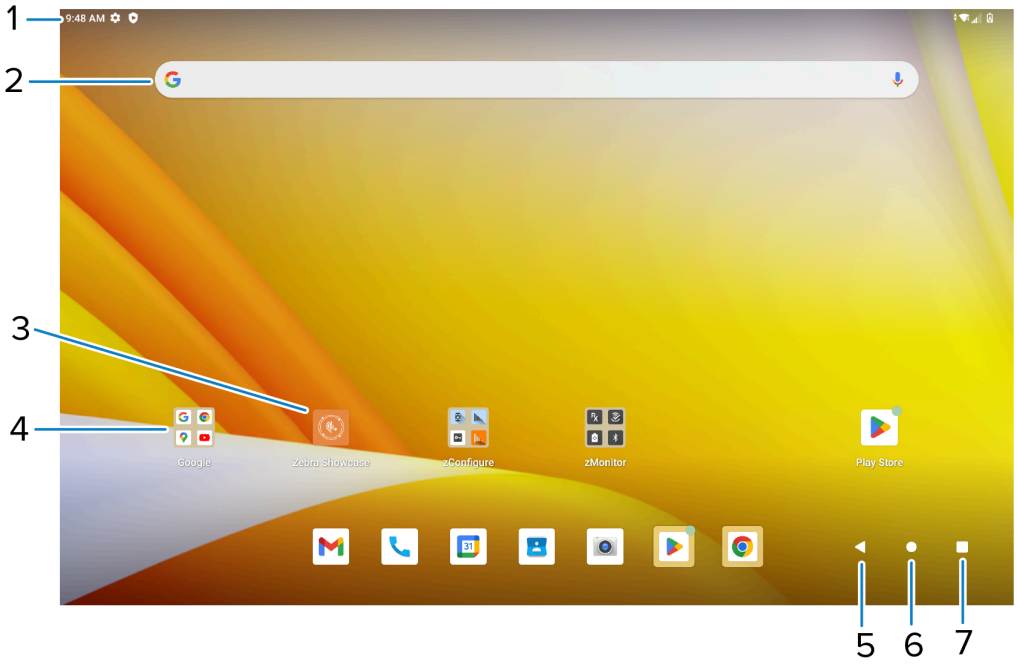


Figure 9 Android 13 Home Screen



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

Setting the Home Screen Rotation

By default, the Home screen rotation is disabled.

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

Status Bar

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

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

Figure 10 Notifications and Status Icons

1	Notification icons
2	Status icons

Notification Icons

Table 7 Notification Icons

Icon	Description
	Main battery is low.
	More notifications are available for viewing.
	Data is synching.
	Indicates an upcoming event. AOSP devices only.
	Indicates an upcoming event. GMS devices only.
	Open Wi-Fi network is available.
	Audio is playing.
	Problem with sign-in or sync has occurred.
	Device is uploading data.
	Animated: the device is downloading data. Static: the download is complete.
	Device is connected to or disconnected from a virtual private network (VPN).

Table 7 Notification Icons (Continued)

Icon	Description
	Preparing internal storage by checking it for errors.
	USB debugging is enabled on the device.
	Wired headset with a boom module is connected to the device.
	Wired headset without a boom module is connected to the device.
	PTT Express Voice client status.
	Indicates the RxLogger app is running.
	Indicates the Bluetooth scanner is connected to the device.
	Indicates the ring scanner is connected to the device in HID mode.

Status Icons

Status icons display system information for the device.

Table 8 Status Icons

Icon	Description
	Alarm is active.
	Main battery is fully charged.
	Main battery is partially drained.
	Main battery charge is low.
	Main battery charge is very low.
	Main battery is charging.

Table 8 Status Icons (Continued)

Icon	Description
	UPS battery is fully charged.
	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.
	Speakerphone enabled.
	Portable Wi-Fi hotspot is active (WWAN only).
4G LTE	Connected to a 4G LTE/LTE-CA network (WWAN only).[a]
4G	Connected to a DC-HSPA, HSDPA, HSPA+, HSUPA, LTE/LTE-CA or WCMDMA network (WWAN only).[a]
3G	Connected to a WCDMA network (WWAN only).[a]
H	Connected to a DC - HSPA, HSDPA, HSPA+ or HSUPA network (WWAN only).[a]
E	Connected to an EDGE network (WWAN only).[a]
G	Connected to a GPRS network (WWAN only).[a]

Table 8 Status Icons (Continued)

Icon	Description
R	Roaming from a network (WWAN only).
	No SIM card installed (WWAN only).
[a]Cellular network icon that appears is dependent upon the carrier/network.	

Managing Notifications

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

Figure 11 Android 11 Notification Panel

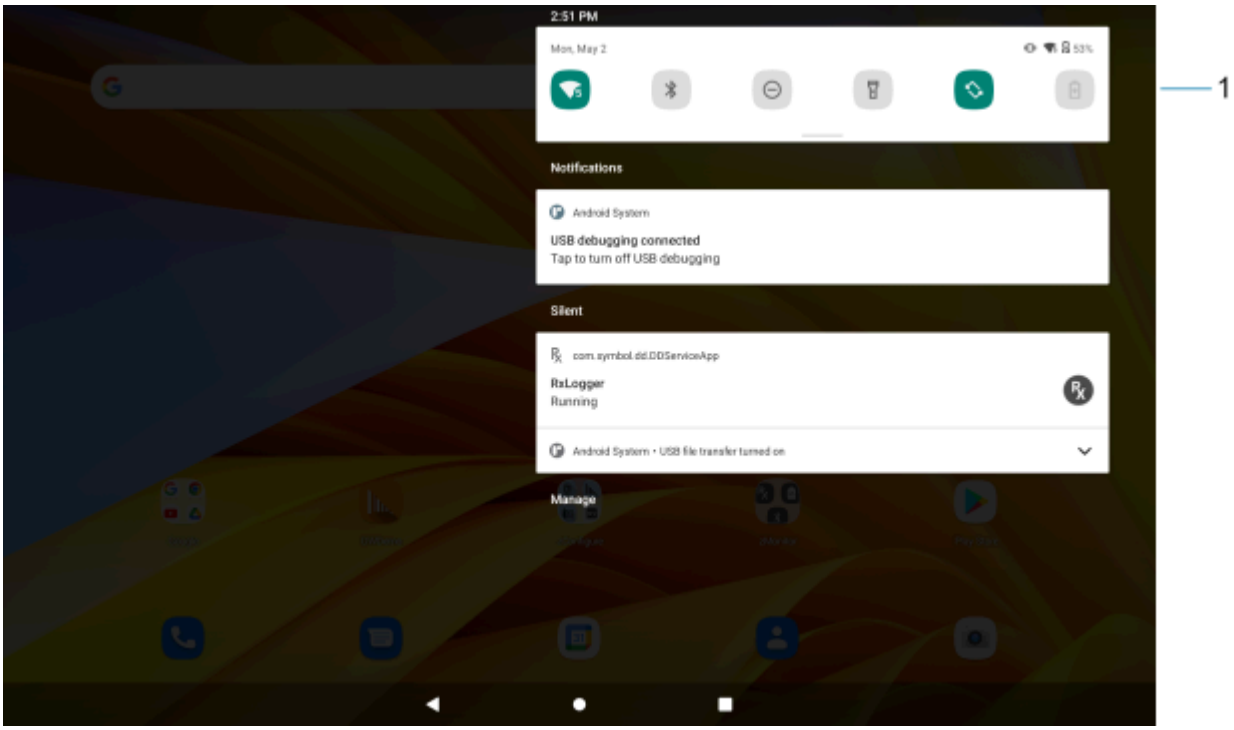
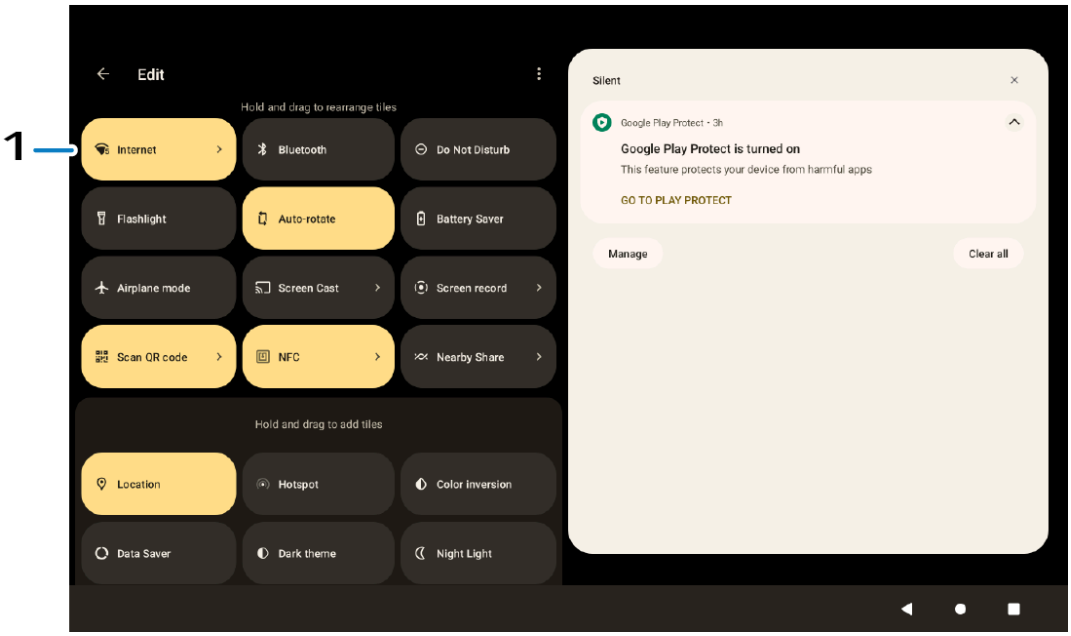


Figure 12 Android 13 Notification Panel



1	Quick settings bar

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

Quick Access Panel Icons

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

Table 9 Quick Access Panel Icons

Icon	Description
	Display brightness - Use the slider to decrease or increase the brightness of the screen. (A11 only)
	Display brightness - Use the slider to decrease or increase the brightness of the screen. (A13 only)
	Internet/Wi-Fi network - Turn Wi-Fi on or off. To open Wi-Fi settings, touch the Wi-Fi network name.

Table 9 Quick Access Panel Icons (Continued)

Icon	Description
	Bluetooth settings - Turn Bluetooth on or off. To open Bluetooth settings, touch Bluetooth.
	Battery saver - Turn Battery saver mode on or off. When Battery saver mode is on the performance of the device is reduced to preserve battery power (not applicable).
	Invert colors - Invert the display colors.
	Do not disturb - Control how and when to receive notifications.
	Mobile data - Enables or disables data transfer via the WAN. The device is still available for voice calls and texts. To open Mobile data settings, touch and hold (WWAN only).
	Airplane mode - Turn Airplane mode on or off. When Airplane mode is on the device does not connect to Wi-Fi or Bluetooth.
	Auto-rotate - Lock the device's orientation in portrait or landscape mode or set to automatically rotate.
	Flashlight - Turn the flashlight or camera flash on or off. When the flashlight is activated, it stays on unless it is turned off or the camera app is run.
	Location - Enable or disable locationing feature.
	Hotspot - Turn on to share the device's mobile data connection with other devices.
	Data Saver - Turn on to prevent some apps from sending or receiving data in the background.
	Night Light - Tint the screen amber to make it easier to look at the screen in dim light. Set Night Light to turn on automatically from sunset to sunrise, or at other times.
	Screen Cast - Share phone content on Chromecast or a television with Chromecast built-in. On the Cast screen, check the "enable wireless display" option, and then touch "cast screen" to display a list of devices. Touch a device in the list to begin casting.
	Dark Theme - Toggles dark theme on and off. Dark themes reduce the luminance emitted by the screen, while meeting minimum color contrast ratios. It helps improve visual ergonomics by reducing eye strain, adjusting brightness to current lighting conditions, and facilitating screen use in dark environments, while conserving battery power.
	Focus mode - Turn on to pause distracting apps. To open Focus mode settings, touch and hold.

Table 9 Quick Access Panel Icons (Continued)

Icon	Description
	Bedtime mode - Turn grayscale on and off. Grayscale turns the screen black and white, reducing phone distractions and improving battery life.
	Nearby Share - Helps find and interact with services and devices close to the device.
	Screen Record - Makes a video recording of everything that happens on the screen, with options to include audio and screen touches.
	NFC - Enable or disable NFC communication.
	Scan QR code - Opens the camera app for QR code reading. (A13 only)
	Calculator - Open the calculator app. (A13 only)

Opening the Quick Access Panel

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

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

Figure 13 Android 11 Quick Access Panel

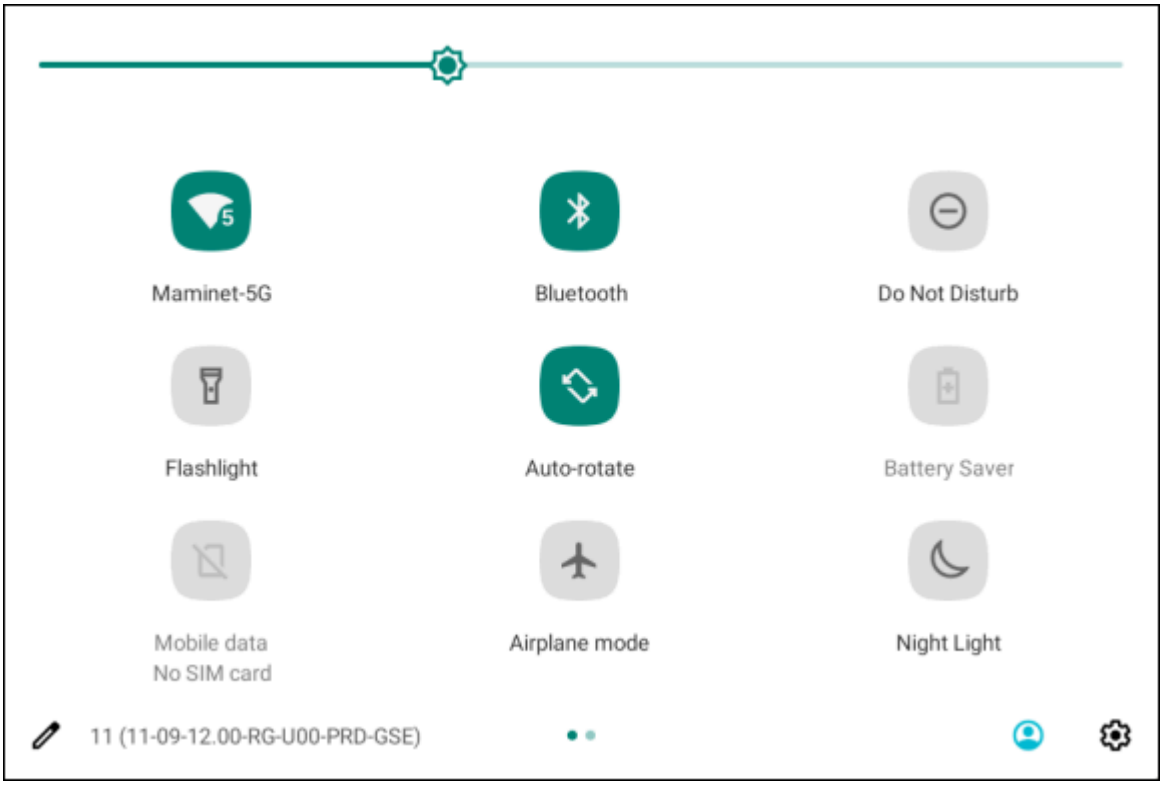
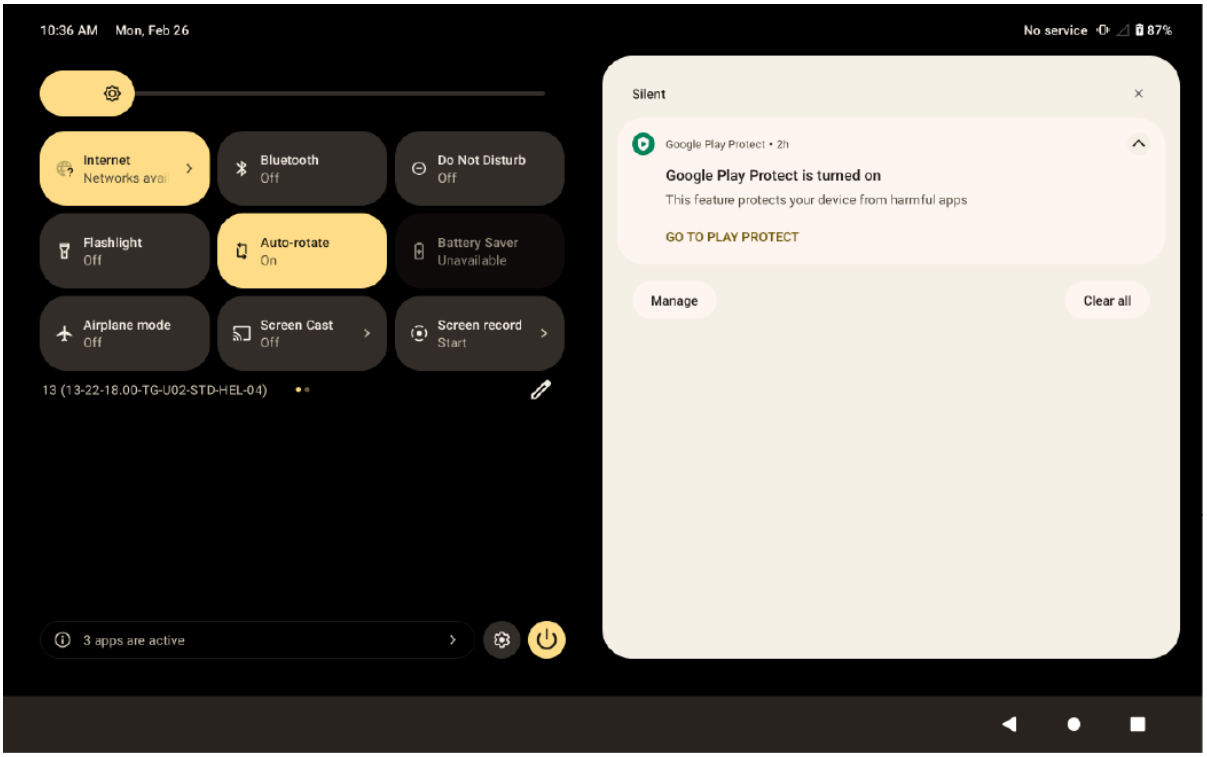


Figure 14 Android 13 Quick Access Panel

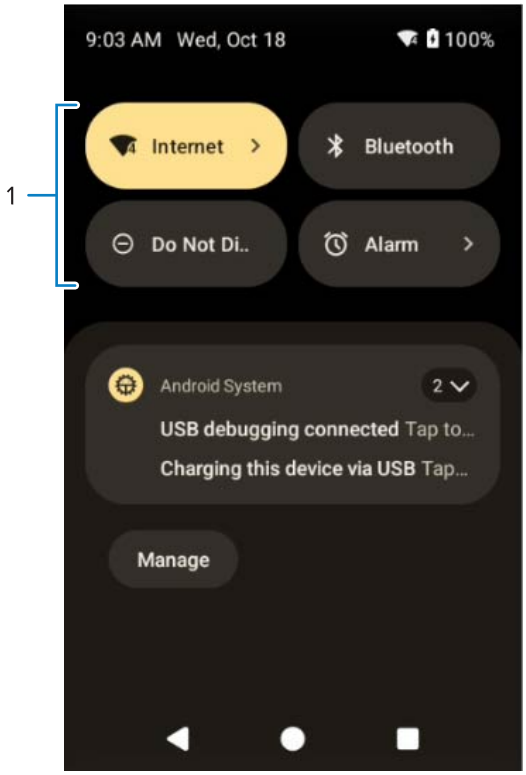


- If the device is locked, swipe down once.
- If the device is unlocked, swipe down once with two fingers, or twice with one finger.
- If the Notification panel is open, swipe down from the Quick Settings bar.

Editing the Quick Access Tiles

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

Figure 15 Notification Panel



1	Quick access tiles

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

Battery Management

Observe the recommended battery optimization tips for the device.

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

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

Checking Battery Status

- Open **Settings** and touch **About phone** > **Battery Information**. Or, swipe up from the bottom of the screen and touch to open the **Battery Manager** app.
- Swipe down with two fingers from the status bar to open the quick access panel.

Monitoring Battery Usage

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

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

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

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

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

Low Battery Notification

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

Table 10 Low Battery Notification

Charge Level Drops Below	Action
18%	The user should charge the battery soon.
10%	The user must charge the battery.
4%	The device turns off. The user must charge the battery.

Interactive Sensor Technology

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

- Gyroscope - Measures angular rotational velocity to detect rotation of the device.
- Accelerometer - Measures the linear acceleration of movement to detect the orientation of the device.
- Digital Compass - The digital compass or magnetometer provides simple orientation in relation to the Earth's magnetic field. As a result, the device always knows which way is North so it can auto rotate digital maps depending on the physical orientation of the device.
- Light Sensor - Detects ambient light and adjusts the screen brightness.

In order to take advantage of these sensors, applications use API commands. Refer to the Zebra Android EMDK for more information.

Waking the Device

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

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

   The Lock screen displays.

2. Swipe the screen up to unlock.

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

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

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

USB Communication

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

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

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**.

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

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

Transferring Photos

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

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

Disconnecting from the Host Computer

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

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

Settings

This section describes the settings on the device.

Accessing Settings

There are multiple ways to access settings on a device.

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

Display Settings

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

Setting the Screen Brightness Manually

Manually set the screen brightness using the touchscreen.

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

Setting the Screen Brightness Automatically

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

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

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

Setting Night Light

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

1. Go to **Settings**.
2. Touch **Display**.
3. Touch **Night Light**.
4. Touch **Schedule**.
5. Select one of the schedule values:
   - None (default)
   - Turns on at custom time
   - Turns on from sunset to sunrise.
6. By default, **Night Light** is disabled.
   - On Android 11, touch **TURN ON NOW** to enable.
   - On Android 13, touch **Use Night Light** to enable.
7. Adjust the tint using the **Intensity** slider.

Setting Screen Rotation

By default, screen rotation is enabled.

NOTE: To change the Home screen rotation, see Setting Home Screen Rotation

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

Setting Screen Timeout

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

1. Go to **Settings**.
2. On Android 11, touch **Display** > **Advanced** > **Screen timeout**.
3. On Android 13, touch **Display** > **Screen timeout**.
4. Select one of the sleep values:
   - **15 seconds**
   - **30 minutes**
   - **1 minute** (default)
   - **2 minutes**
   - **5 minutes**
   - **10 minutes**
   - **30 minutes**

5. On Android 13, turn on the **Screen** attention switch to prevent your screen from turning off if you are looking at it.

Setting Lock Screen Notifications

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

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

Setting Font Size

Set the size of the font in system apps.

1. Go to **Settings**.
2. On Android 11, touch **Display** > **Advanced** > **Font size**.
3. On Android 13, touch **Display** > **Display size and text**.

   Use the **Font size** + and - to vary the font size.
4. Touch **Home**.

Setting Display Size

By default, the display size is set to Default.

1. Go to **Settings**.
2. On Android 11, touch **Display** > **Advanced** > **Display size**.
3. On Android 13, touch **Display** > **Display size and text**.

   Use the **Display size** + and - to vary the text size.
4. Touch **Home**.

Setting Touch Panel Mode

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

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

1. Go to **Settings**.
2. On Android 11, touch **Display** > **Advanced**.
3. On Android 13, touch **Display**.
4. Touch **Touch Panel UI**.

5. Select:
   - **Finger Only Mode - Moisture optimized - Rain Mode** to use a finger on the screen and when the device may have water on the screen (default). (A13 only)
   - **Stylus and Finger** to use a finger or a stylus on the screen.
   - **Glove and Finger** to use a finger or a gloved finger on the screen.
6. Touch **Home**.

Setting the Date and Time

The date and time are automatically synchronized using a NITZ server when the device is connected to a cellular/wireless network. You are only required to set the time zone or set the date and time if the wireless LAN does not support Network Time Protocol (NTP) or when not connected to a cellular/wireless network.

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

General Sound Settings

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

Use the Sound settings to configure media and alarm volumes.

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

Sound Options

- **Media volume** - Controls the music, games, and media volume.
- **Call volume** - Controls the volume during a call.
- **Ring & notification volume** - Controls the ringtone and notification volume (Android 11 only).
- **Notification volume** - Controls the notification volume (Android 13 only).
- **Alarm volume** - Controls the alarm clock volume.
- **Vibrate for calls** - Switch on or off (Android 11 only).
- **Do Not Disturb** - Mutes some or all sounds and vibrations.
- **Live Caption** - Detects speech on your device and automatically generates captions (Android 13 only).
- **Media** - Shows the media player in Quick Settings while sound is playing, allowing quick access.
- **Vibration & haptics** - Enable or disable vibration and/or haptic settings (Android 13 only).
- **Shortcut to prevent ringing** - Turn on the switch to make the device vibrate when a call is received (default – enabled) (Android 13 only).
- **Phone ringtone** - Select a sound to play when the phone rings (Android 11 only).
- **Default notification sound** - Select a sound to play for all system notifications.
- **Default alarm sound** - Select a sound to play for alarms.
- **Other sounds and vibrations:**
  - **Dial pad tones** - Play a sound when pressing keys on dial pad (default - disabled) (Android 11 only).
  - **Screen locking sounds** - Play a sound when locking and unlocking the screen (default – enabled).
  - **Charging sounds and vibration** - Play a sound and vibrate when power is applied to the device (default - enabled).
  - **Touch sounds** - Play a sound when making screen selections (default – enabled).
  - **Touch vibration** - Vibrate the device when making screen selections (default – enabled) (Android 11 only).
- **Always show icon when in vibrate mode** - Turn on the switch to show the icon when in vibrate mode (default - disabled) (Android 13 only).

Zebra Volume Controls

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

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

Remapping a Button

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

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

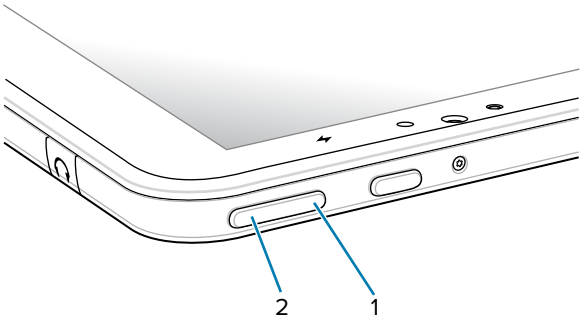
NOTE: If you select an application shortcut, the application icon appears next to the button on the Key Programmer screen.

6. Touch the Home button.

Remappable Keys

Indicates the button on the device that can be remapped.

Figure 16 Key Positions



1	VOLUME_DOWN	Volume down button
2	VOLUME_UP	Volume up button

Keyboards

The device provides multiple keyboard options.

NOTE: The Enterprise Keyboard is available for download from the Zebra Support Site.

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

Keyboard Configuration

This section describes configuring the device's keyboard.

Enabling Keyboards

1. Go to **Settings**.
2. Touch **System** > **Languages & input** > **On-screen keyboard** > **Manage on-screen keyboards**.
3. Touch a keyboard to enable.

Switching Between Keyboards

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

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

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

Using the Android and Gboard Keyboards

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

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

Edit Text

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

Entering Numbers, Symbols, and Special Characters

1. Enter numbers and symbols.
   - Touch and hold one of the top-row keys until a menu appears then select a number or special character.
   - Touch the Shift key once for a single capital letter. Touch the Shift key twice to lock in uppercase. Touch the Shift key a third time to unlock Capslock.
   - Touch **?123** to switch to the numbers and symbols keyboard.
   - Touch the =\< key on the numbers and symbols keyboard to view additional symbols.
2. Enter special characters.
   - Touch and hold a number or symbol key to open a menu of additional symbols. A larger version of the key displays briefly over the keyboard.

Enterprise Keyboard

The Enterprise Keyboard contains multiple keyboard types.

- Numeric
- Alpha
- Special characters
- Data capture

Numeric Tab

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

Alpha Tab

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

Additional Character Tab

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

- Touch ☺ to enter emoji icons in a text message.
- Touch **ABC** to return to the Symbols keyboard.

Scan Tab

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

Language Usage

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

Changing the Language Setting

1. Go to **Settings**.
2. Touch **System** > **Languages & input**.
3. Touch **Languages**.

   A list of available languages displays.
4. If the desired language is not listed, touch **Add a language** and select a language from the list.
5. Touch and hold ☰ to the right of the desired language, then drag it to the top of the list.

   The operating system text changes to the selected language.

Adding Words to the Dictionary

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

Notifications

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

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

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

Enabling Blink Light

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

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

Applications

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

Installed Applications

All the Zebra specific and other applications that are installed on the device are described in this section.

Table 11 Apps

Item	Description
	Battery Manager - Display battery information (including charge level, status, health, and wear level) and use to place the device in Battery Swap mode when replacing the battery.
	Bluetooth Pairing Utility – Use to pair a Zebra Bluetooth scanner with the device by scanning a barcode.
	Camera - Take photos or record videos.
	Calculator - Use to open the calculator app (Android 13 only).
	DataWedge - Enables data capture using the imager.
	DisplayLink Presenter - Use to present the device screen onto a connected monitor.
	DWDemo - Provides a way to demonstrate the data capture features using the imager.

Table 11 Apps (Continued)

Item	Description
	License Manager - Use to manage software licenses on the device.
	MSRN - Use to verify the authenticity of the paired Snap-on MSR and to provision the Snap-on MSR (Android 11 only).
	Phone - Use to dial a phone number when used with some Voice over IP (VoIP) clients (VoIP telephony ready only).
	RxLogger - Use to diagnose device and app issues.
	Settings - Use to configure the device.
	StageNow - Allows the device to stage a device for initial use by initiating the deployment of settings, firmware, and software.
	VC Settings - Use to control settings for the device.
	VoD - The Video on Device basic app provides a how-to video for proper device cleaning. For Video on Device licensing information, contact learningservices@zebra.com.
	Worry Free Wifi Analyzer - A diagnostic intelligent app. Use to diagnose surrounding area and display network stats, such as coverage hole detection, or AP in the vicinity. Refer to the Worry Free Wi-Fi Analyzer Administrator Guide for Android. Only available with Mobility DNA Enterprise License.
	Zebra Bluetooth Settings - Use to configure Bluetooth logging.
	Zebra Data Services - Use to enable or disable Zebra Data Services. Some options are set by the system administrator.
	Zebra Showcase - Provides a way to experience and learn about Zebra's new or existing capabilities (Android 13 only).

Accessing Apps

Access all apps installed on the device using the APPS window.

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

Switching Between Recent Apps

1. Touch **Recent**.

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

Battery Manager

The Battery Manager provides detailed information about the battery.

This section also provides battery swap procedures for supported devices.

Opening Battery Manager

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

Battery Manager Information Tab

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

Table 12 Battery Icons

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

- **Level** - The current battery charge level as a percentage. Displays -% when the level is unknown.
- **Wear** - The health of the battery in graphical form. When the wear level exceeds 80%, the bar color changes to red.

- **Health** - The health of the battery. If a critical error occurs, appears. Touch to view the error description.
  - **Decommission** - The battery is past its useful life and should be replaced. See system administrator.
  - **Good** - The battery is good.
  - **Charge error** - An error occurred while charging. See system administrator.
  - **Over Current** - An over-current condition occurred. See system administrator.
  - **Dead** - The battery has no charge. Replace the battery.
  - **Over Voltage** - An over-voltage condition occurred. See system administrator.
  - **Below Temperature** - The battery temperature is below the operating temperature. See system administrator.
  - **Failure Detected** - A failure has been detected in the battery. See system administrator.
  - **Unknown** - See system administrator.
- **Charge Status**
  - **Not charging** - The device is not connected to AC power.
  - **Not charging** - The device is not charging.
  - **Charging-AC** - The device is connected to AC power and charging or is fast charging via USB.
  - **Charging-USB** - The device is connected to a host computer with a USB cable and charging.
  - **Discharging** - The battery is discharging.
  - **Full** - The battery is fully charged.
  - **Unknown** - The battery status is unknown.
- **Time until Full** - The amount of time until the battery is fully charged.
- **Time since charging** - The amount of time since the device began charging.
- **Time until empty** - The amount of time until the battery is empty.
- **Advanced info** - Touch to view additional battery information.
- **Battery present status** - Indicates that the battery is present.
- **Battery level** - The battery charge level as a percentage of scale.
- **Battery scale** - The battery scale level used to determine battery level (100).
- **Battery voltage** - The current battery voltage in millivolts.
- **Battery temperature** - The current battery temperature in degrees Centigrade.
- **Battery technology** - The type of battery.
- **Battery current** - The average current into or out of the battery over the last second in mAh.
- **Battery manufacture date** - The date of manufacture.
- **Battery serial number** - The battery serial number. The number matches the serial number printed on the battery label.
- **Battery part number** - The battery part number.
- **Battery rated capacity** - Lists the rated capacity of the backup battery in mAh.

- **Battery decommission status** - Indicates if the battery is past its life span.
  - **Battery Good** - The battery is in good health.
  - **Decommissioned Battery** - The battery is past its useful life and should be replaced.
- **Base cumulative charge** - Cumulative charge using Zebra charging equipment only.
- **Battery present capacity** - Maximum amount of charge that could be pulled from the battery under the present discharge conditions if the battery were fully charged.
- **Battery health percentage** - With a range from 0 to 100, this is the ratio of “present_capacity” to “design_capacity” at a discharge rate of “design_capacity”.
- **% decommission threshold** - The default % decommission threshold for a gifted battery as 80%.
- **Battery present charge** - Amount of usable charge remaining in the battery at present under the current discharge conditions.
- **Battery total cumulative charge** - The total accumulated charge in all chargers.
- **Battery time since first use** - The time passed since the battery was placed in a Zebra terminal for the first time.
- **Battery error status** - The error status of the battery.
- **Battery usage number** - The health of the battery as a result of charging and discharging. A high number indicates low battery health.
- **Usage decommission threshold** - When the Battery usage number is greater than or equal to the Usage decommission threshold, the battery is past its useful life and should be replaced.
- **App version** - The application version number.

Camera

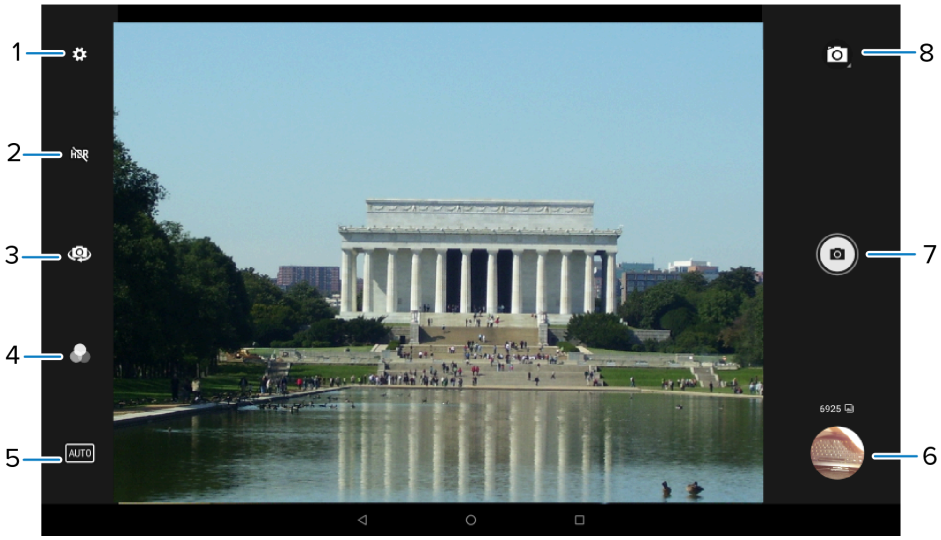
This section provides information for taking photos and recording videos using the integrated digital cameras.

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

Taking Photos on Android 11

NOTE: See Photo Settings for camera settings descriptions.

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



1	Setting
2	HDR
3	Rear/front camera
4	Color effect
5	Auto Mode
6	Thumbnail
7	Shutter button
8	Camera mode

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

The camera takes a photo and a shutter sound plays.

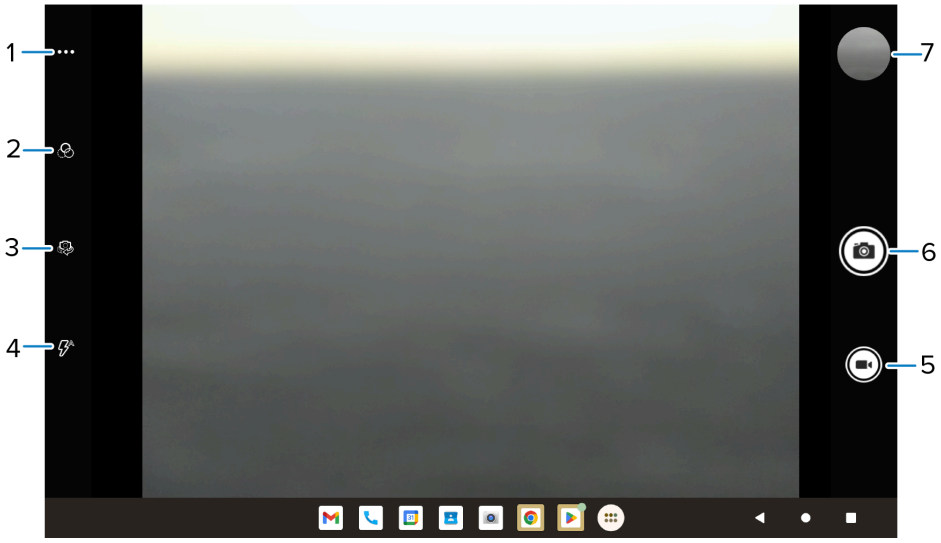
The photo momentarily displays as a thumbnail in the lower-left corner.

Taking Photos on Android 13

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

See Photo Settings for camera settings descriptions.

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



1	Camera Quick Settings
2	Filters
3	Rear/front cameras
4	Flash
5	Video mode
6	Shutter button
7	Gallery

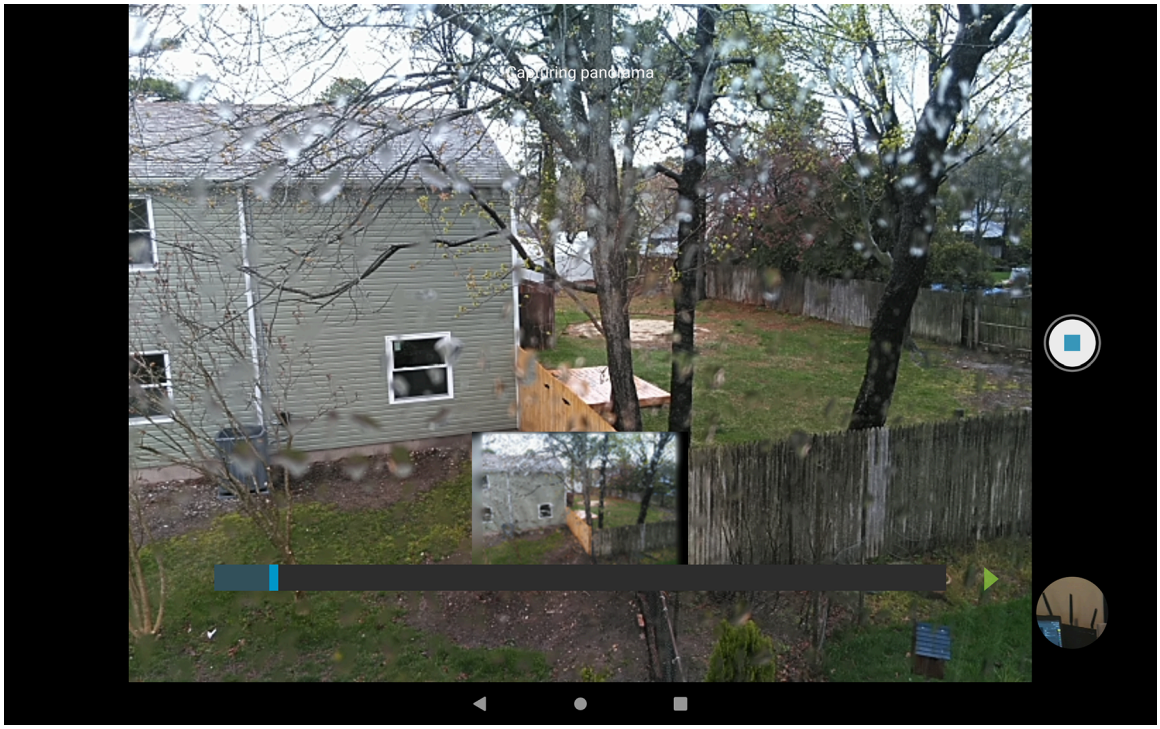
2. To switch between the rear camera and front camera (if available), touch .
3. Frame the subject on the screen.
4. Touch an area on the screen to focus. The yellow focus box displays and places that area into focus. Alternatively, **AutoFocus Animation** can be enabled in **Settings**, and the yellow focus box automatically appears when in focus.
5. To turn the Flash on, touch , which can also be accessed via the Quick Settings Menu.
6. Touch and hold an area with two fingers, then spread them apart to zoom in or pinch them together to zoom out.
7. Touch to take a photo. A shutter sound emits.

   The photo momentarily displays as a thumbnail in the upper-right corner.

Taking a Panoramic Photo

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

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



2. Touch the Camera Mode icon and touch .
3. Frame one side of the scene to capture.
4. Touch and slowly pan across the area to capture. A small white square appears inside the button indicating the capture is in progress.

   If you are panning too quickly, the message **Too fast** appears.
5. Touch to end the shot. The panorama appears immediately and a progress indicator displays while it saves the image.

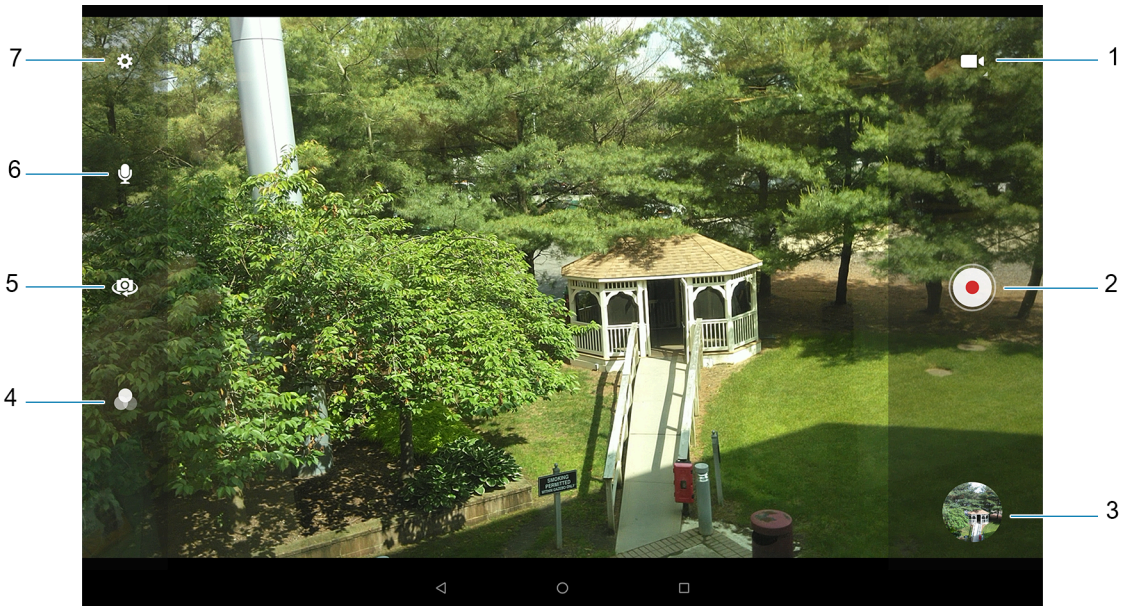
Recording Videos on Android 11

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

See Video Settings for setting descriptions.

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

2. Touch the camera mode menu and touch .



1	Camera mode
2	Shutter button
3	Thumbnail
4	Color effect
5	Camera flip
6	Audio
7	Settings

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

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

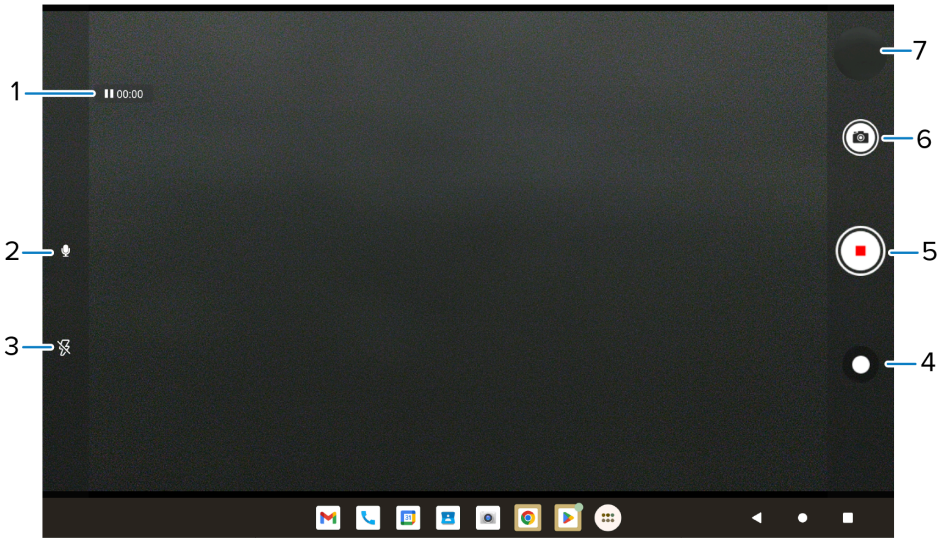
Recording Videos on Android 13

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

See Video Settings on page 65 for setting descriptions.

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

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



1	Video timer
2	Audio
3	Flash
4	Pause recording button
5	Start/stop recording button
6	Camera mode
7	Gallery

3. To switch between the rear camera and front camera, touch .
4. Point the camera and frame the scene.
5. Touch an area on the screen to focus. The yellow focus box displays and places that area into focus. Alternatively, **AutoFocus Animation** can be enabled in **Settings**, and the yellow focus box automatically appears when in focus.
6. To turn the Flash on, touch the icon, which can also be accessed via the Quick Settings Menu.
7. To zoom in or out, press two fingers on the display and pinch or expand fingers. The zoom controls appear on the screen.
8. Touch the **Record** button. The video timer is displayed in the upper-left corner.
9. Touch the **Record** button to end the recording.

   The video momentarily displays as a thumbnail in the upper-right corner.

Photo Settings

In Photo mode, photo settings appear on screen.

Touch to display the photo settings options.

Android 11 Rear Camera Photo Settings

- **Flash** - Select whether the camera relies on its light meter to decide whether a flash is necessary, or to turn it on or off for all shots.

Icon	Description
	Off - Disable flash.
	Auto - Adjust flash automatically depending upon light meter (default).
	On - Enable flash upon taking a photo.

- **Picture size** - The size (in pixels) of the photo to: 13M pixels (default), 8M pixels, 5M pixels, 3M pixels, HD 1080, 2M pixels, HD720, 1M pixels, WVGA, VGA, or QVGA.
- **Picture quality** - Set the picture quality setting to: Low, Standard (default) or High.
- **Countdown timer** - Select Off (default), 2 seconds, 5 seconds or 10 seconds.
- **Storage** – Set the location to store the photo to: Phone or SD Card.
- **Continuous Shot** - Select to take a series of photos quickly while holding the capture button. Off (default) or On.
- **Face Detection** - Set the camera to automatically adjust the focus for faces.
- **ISO** - Set camera sensitivity to light to: Auto (default), ISO Auto (HJR), ISO100, ISO200, ISO400, ISO800 or ISO1600.
- **Exposure** - Set the exposure settings to: +2, +1, 0(default), -1 or -2.
- **White balance** - Select how the camera adjusts colors in different kinds of light, to achieve the most natural-looking colors.

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.

- **Redeye reduction** - Helps eliminate redeye effect. Options: Disabled (default), or Enable.
- **ZSL** - Set the camera to immediately take a picture when the button is pressed (default – enabled).

- **Shutter Sound** - Select to play a shutter sound when taking a photo. Options: Disable (default) or Enable.
- **Anti Banding** - Allows the camera to avoid problems caused by artificial light sources that are not constant. These sources cycle (flicker) fast enough to go unnoticed to the human eye, appearing continuous. The camera's eye (its sensor) can still see this flicker. Options: Auto (default), 60 Hz, 50 Hz, or Off.

Android 13 Rear Camera Photo Settings

- **Flash** - Select whether the camera relies on its light meter to decide whether a flash is necessary, or to turn it on or off for all shots.

Icon	Description
	Off - Disable flash.
	Auto - Adjust flash automatically depending upon light meter (default).
	On - Enable flash upon taking a photo.

- **Picture size** - The size (in pixels) of the photo to: 13M pixels (default), 8M pixels, 5M pixels, 3M pixels, HD 1080, 2M pixels, HD720, 1M pixels, WVGA, VGA, or QVGA.
- **Picture quality** - Set the picture quality setting to: Low, Standard or High (default).
- **Picture Format** - All still images are saved in JPEG format. Off (default) or On.
- **Countdown timer** - Select Off (default), 2 seconds, 5 seconds or 10 seconds.
- **Storage**– Set the location to store the photo to: Phone (default) or SD Card.
- **Continuous Shot** - Select to take a series of photos quickly while holding the capture button. Off (default) or On.
- **Face Detection** - Set the camera to automatically adjust the focus for faces. Off (default) or On.
- **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. Select Auto (default), Incandescent, or Fluorescent.
- **Redeye reduction** - Helps eliminate redeye effect. Options: Disabled (default), or Enable.
- **Shutter Sound** - Select to play a shutter sound when taking a photo. Options: Disable or Enable (default).
- **AutoFocus Animation** - Select to enable or disable the camera focus ring in the camera preview. Options: Disable (default) or Enable.
- **HDR** - Select when in mixed lighting conditions such as low light and backlit scenes.
- **Pro Mode** - Easy access to ISO, exposure, white balance, and focus advanced settings.

Android 11 Front Camera Photo Settings

- **Selfie Flash** - Turns the screen white to help produce a little extra light in dimmer settings. Options: Off (default), or On.

- **GPS location** - Add GPS location information to the photo meta-data. Options: On or Off (default). (WAN only).
- **Picture size** - Set the size (in pixels) of the photo to: 5M pixels (default), 3M pixels, HD1080, 2M pixels, HD720, 1M pixels, WVGA, VGA, or QVGA.
- **Picture quality** - Set the picture quality setting to: Low, Standard or High (default).
- **Countdown timer** - Set to: Off (default), 2 seconds, 5 seconds or 10 seconds.
- **Storage** – Set location to store the photo to: Phone or SD Card.
- **Continuous Shot** - Select to take a series of photos quickly while holding the capture button. Off (default) or On.
- **Face Detection** - Select to turn face detection Off (default) or On.
- **ISO** - Set how sensitive the camera is to light. Options: Auto (default), ISO Auto (HJR), ISO100, ISO200, ISO400, ISO800 or ISO1600.
- **Exposure** - Touch to adjust the exposure settings. Options: +2, +1, 0 (default), -1 or -2.
- **White balance** - Select how the camera adjusts colors in different kinds of light, to achieve the most natural-looking colors.

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

- **Redeye reduction** - Helps eliminate redeye effect. Options: Disabled (default), or Enable.
- **ZSL** - Set the camera to immediately take a picture when the button is pressed (default – enabled)
- **Selfie Mirror** - Select to save a mirror image of the photo. Options: Disable (default), or Enable.
- **Shutter Sound** - Select to play a shutter sound when taking a photo. Options: Disable (default) or Enable.
- **Anti Banding** - Allows the camera to avoid problems caused by artificial light sources that are not constant. These sources cycle (flicker) fast enough to go unnoticed to the human eye, appearing continuous. The camera's eye (its sensor) can still see this flicker. Options: Auto (default), 60 Hz, 50 Hz, or Off.

Android 13 Front Camera Photo Settings

- **Selfie Flash** - Turns the screen white to help produce a little extra light in dimmer settings. Options: Off (default), or On.

- **GPS location** - Add GPS location information to the photo meta-data. Options: On (default) or Off. (WAN only).
- **Picture size** - Set the size (in pixels) of the photo to: 5M pixels (default), 3M pixels, HD1080, 2M pixels, HD720, 1M pixels, WVGA, VGA, or QVGA.
- **Picture quality** - Set the picture quality setting to: Low, Standard or High (default).
- **Picture Format** - All still images are saved in JPEG format. Off (default) or On.
- **Countdown timer** - Set to: Off (default), 2 seconds, 5 seconds or 10 seconds.
- **Storage** – Set location to store the photo to: Phone (default) or SD Card.
- **Continuous Shot** - Select to take a series of photos quickly while holding the capture button. Off (default) or On.
- **Face Detection** - Select to turn face detection Off (default) or On.
- **Exposure** - Touch to adjust the exposure settings. Options: +2, +1, 0 (default), -1 or -2.
- **White balance** - Select how the camera adjusts colors in different kinds of light. Select Auto (default), Incandescent, or Fluorescent.
- **Redeye reduction** - Helps eliminate redeye effect. Options: Disabled (default), or Enable.
- **Selfie Mirror** - Select to save a mirror image of the photo. Options: Disable (default), or Enable.
- **Shutter Sound** - Select to play a shutter sound when taking a photo. Options: Disable or Enable (default).
- **AutoFocus Animation** - Select to enable or disable the camera focus ring in the camera preview. Options: Disable (default) or Enable.
- **HDR** - Select when in mixed lighting conditions such as low light and backlit scenes.
- **Pro Mode** - Easy access to ISO, exposure, white balance, and focus advanced settings.

Video Settings

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

Android 11 Rear Camera Video Settings

- **Flash** - Select whether Rear-facing Camera relies on its light meter to decide whether a flash is necessary, or to turn it on or off for all shots.

Icon	Description
	Off - Disable flash.
	On - Enable flash upon taking a photo.

- **Video quality** - Set video quality to: 4k DCI, 4k UHD, HD 1080p (default), HD 720p, SD 480p, VGA, CIF, or QVGA.
- **Video duration** - Set to: 30 seconds (MMS), 10 minutes, or 30 minutes (default), or no limit.

- **GPS location** - Add GPS location information to the photo meta-data. Turn On or Off (default). (WAN only).
- **Storage** – Set the location to store the photo to: Phone (default) or SD Card.
- **White balance**- Select how the camera adjusts colors in different kinds of light, to achieve the most natural-looking colors.

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.

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

Android 13 Rear Camera Video Settings

- **Flash** - Select whether Rear-facing Camera relies on its light meter to decide whether a flash is necessary, or to turn it on or off for all shots.

Icon	Description
	Off - Disable flash.
	On - Enable flash upon taking a photo.

- **Video quality** - Set video quality to: 4k DCI, 4k UHD, HD 1080p (default), HD 720p, SD 480p, VGA, CIF, or QVGA.
- **Video duration** - Set to: 30 seconds (MMS), 10 minutes, or 30 minutes (default), or no limit.
- **Video Rotation** - Set the rotation of the video to: 0 (default), **90**, **180**, or **270**.
- **GPS location** - Add GPS location information to the photo meta-data. Turn On (default) or Off. (WAN only).
- **Storage** – Set the location to store the photo to: Phone (default) or SD Card.
- **White Balance** - Select how the camera adjusts colors in different kinds of light. Select Auto (default), Incandescent, or Fluorescent.
- **Image Stabilization** - Set to reduce blurry videos due to device movement. Options: On or Off (default).
- **Noise Reduction** - **Off** (default), **Fast**, or **High Quality**.

- **Video Encoder** - Enable to save video recording using a high-efficiency video encoder (H264) for a smaller file size.
- **Audio Encoder** - Set the audio encoder to **AMRNB** or **AAC** (default).

Android 11 Front Camera Video Settings

- **Video quality** – Set video quality to: HD1080p (default), HD 720p, SD 480p, VGA, CIF, or QVGA.
- **Video duration** – Set to: 30 seconds (MMS), 10 minutes, 30 minutes (default), or no limit.
- **Storage** – Set the location to store the photo to: Phone (default) or SD Card.
- **White balance** - Select how the camera adjusts colors in different kinds of light, to achieve the most natural-looking colors.

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

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

Android 13 Front Camera Video Settings

- **Video quality** - Set video quality to: 4k DCI, 4k UHD, HD 1080p (default), HD 720p, SD 480p, VGA, CIF, or QVGA.
- **Video duration** - Set to: 30 seconds (MMS), 10 minutes, or 30 minutes (default), or no limit.
- **Video Rotation** - Set the rotation of the video to: 0 (default), **90**, **180**, or **270**.
- **GPS location** - Add GPS location information to the photo meta-data. Turn On (default) or Off. (WAN only).
- **Storage** – Set the location to store the photo to: Phone (default) or SD Card.
- **White Balance** - Select how the camera adjusts colors in different kinds of light. Select Auto (default), Incandescent, or Fluorescent.
- **Image Stabilization** - Set to reduce blurry videos due to device movement. Options: On or Off (default).
- **Noise Reduction** - **Off** (default), **Fast**, or **High Quality**.
- **Video Encoder** - Enable to save video recording using a high-efficiency video encoder (H264) for a smaller file size.
- **Audio Encoder** - Set the audio encoder to **AMRNB** or **AAC** (default).

DWDemo

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

NOTE: DataWedge is enabled on the Home screen. To disable this feature, go to the DataWedge settings and disable the **Launcher** profile.

DWDemo Icons

This table lists the icons available on the DWDemo app.

Table 13 DataWedge Demonstration Icons

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

Selecting a Scanner

See the Data Capture section for more information.

1. To select a scanner, touch ⋮ > **Settings** > **Scanner Selection**.

2. Press the programmable button or touch the yellow scan button to capture data.

   The data appears in the text field below the yellow button.

RxLogger

RxLogger is a comprehensive diagnostic tool that provides application and system metrics, and diagnoses device and application issues.

RxLogger logs the following information: CPU load, memory load, memory snapshots, battery consumption, power states, wireless logging, cellular logging, TCP dumps, Bluetooth logging, GPS logging, logcat, FTP push/pull, ANR dumps, etc. All generated logs and files are saved onto flash storage on the device (internal or external).

RxLogger logs the following information: CPU load, memory load, memory snapshots, battery consumption, power states, wireless logging, TCP dumps, Bluetooth logging, logcat, FTP push/pull, ANR dumps, etc. All generated logs and files are saved onto flash storage on the device (internal or external).

RxLogger Configuration

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

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

Configuration File

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

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.

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

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

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

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

Enabling Logging

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

Disabling Logging

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

Extracting Log Files

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

Backing Up Data

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

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

RxLogger Utility

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

Initiating the Main Chat Head

1. Open **RxLogger**.
2. Touch > **Toggle Chat Head**.

   The Main Chat Head icon appears on the screen.
3. Touch and drag the Main Chat Head icon to move it around the screen.

Removing the Main Chat Head

1. Touch and drag the icon.

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

Viewing Logs

1. Touch the Main Chat Head icon.

   The RxLogger Utility screen appears.
2. Touch a log to open it.

   The user can open many logs with each displaying a new Sub Chat Head.
3. If necessary, scroll left or right to view additional Sub Chat Head icons.
4. Touch a Sub Chat Head to display the log contents.

Removing a Sub Chat Head Icon

- To remove a Sub Chat Head icon, press and hold the icon until it disappears.

Backing Up In Overlay View

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

The Backup icon is always available in Overlay View.

1. Touch .

   The Backup dialog box appears.
2. Touch **Yes** to create the backup.

VC Settings

Use the **VC Settings** app with a third-party vehicle cradle.

Display

Enable/disable **Stay awake** to keep the device awake when the external power source is connected.

Screen Blanking

The optional Screen Blanking setting turns the screen off when the vehicle is moving and back on when the vehicle stops.

NOTE: To use Screen Blanking, first connect a serial ports on the vehicle cradle to a user-supplied switch or relay.

- **Screen Blanking** - Enable/disable screen blanking feature.
- **Input signal** - Select the port that the screen blank cable is connected to. Options: **Input 1** or **Input 2**.
- **Source polarity** - Select blank screen option. De-select to disconnect the blank screen option.
- **Blank screen delay** - Set the amount of time after the device receives the signal to blank the screen. Options 1 to 30 seconds (default - 1).

Data Capture

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

The device supports data capture using:

- integrated camera
- Integrated Scanner (ET51 with Integrated Scanner only)
- SE4750 Expansion Back
- DS2278 Digital Scanner
- DS3608 USB scanner
- DS3678 Digital Scanner
- DS8178 Digital Scanner
- LI3608 USB Linear Imager
- LI3678 Linear Imager
- RS507/RS507X Hands-free Imager
- RS5100 Bluetooth Ring Scanner
- RS6000 Hands-free Imager

Imaging

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

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

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

Scanning Considerations

Typically, scanning is a simple matter of aim, scan, and decode, with a few quick trial efforts to master it.

However, consider the following to optimize scanning performance:

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

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

Scanning with Integrated Scanner

Use the integrated scanner to capture barcode data.

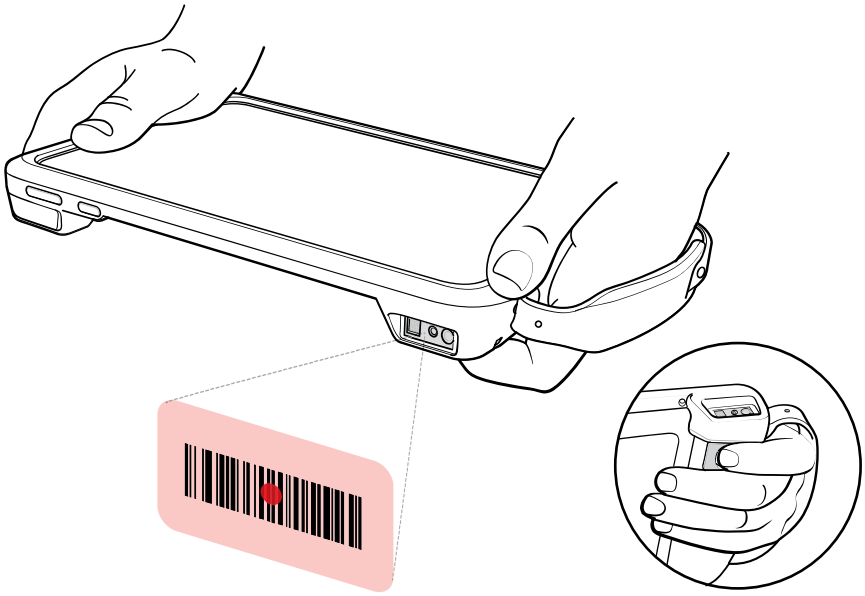
NOTE: To read a barcode, a scan-enabled app is required. The device contains the DataWedge app that allows the user to enable the scanner to decode barcode data and display the barcode content.

NOTE: Do not connect power to the USB-C port when scanning with the integrated scanner. The integrated scanner may stop functioning.

To scan with the integrated scanner:

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

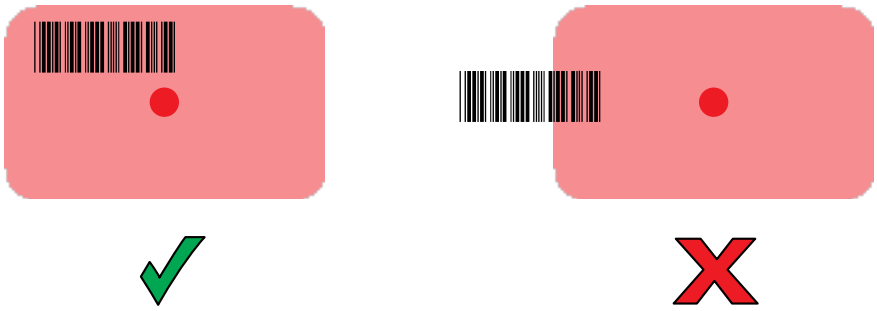
3. Press and hold one of the triggers.



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

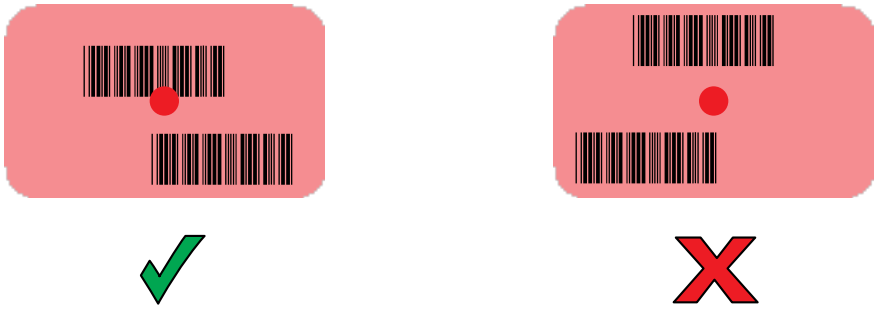
   The aiming dot increases visibility in bright lighting conditions.

Figure 17 Integrated Scanner Aiming Pattern



When the Integrated Scanner is in Pick List mode, the device does not decode the barcode until the aiming dot touches the barcode.

Figure 18 Integrated Scanner Pick List Mode with Multiple Barcodes in Aiming Pattern



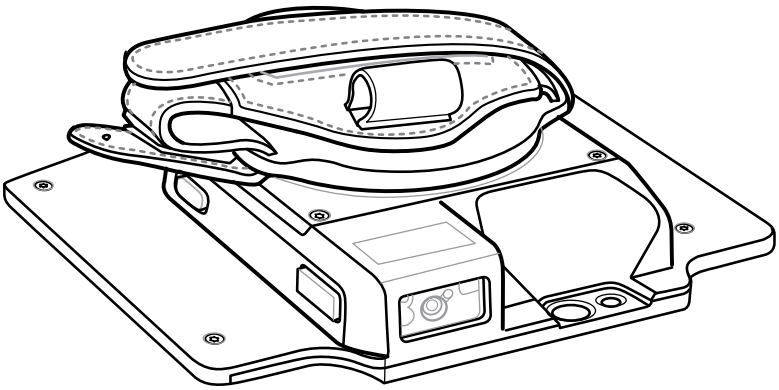
A beep sounds to indicate the barcode was decoded successfully. The captured data appears in the text field.

Scanning with the SE4750 Expansion Back

The Expansion Back is a bar code scanning solutions for both 1D and 2D bar code symbologies that attach to the tablet. Expansion Back is available for the 8.4" and 10.1” tablet.

Install the Expansion Back prior to use.

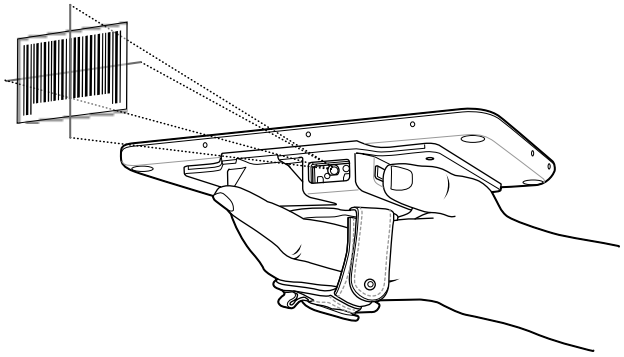
Figure 19 SE4750 Expansion Back



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

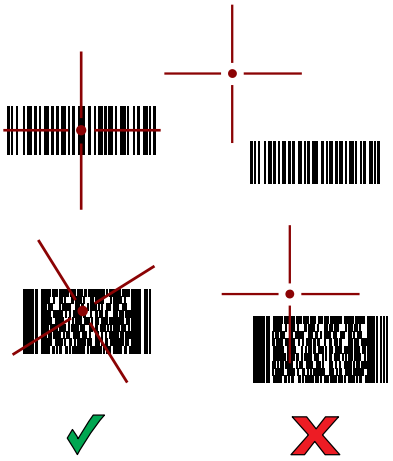
To scan with the SE4750 Expansion Back:

1. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
2. Point the Expansion Back exit window at a bar code.



3. Press and hold the Scan button.

   The red laser aiming pattern turns on to assist in aiming. Ensure the bar code is within the area formed by the cross-hairs in the aiming pattern. The aiming dot is used for increased visibility in bright lighting conditions.

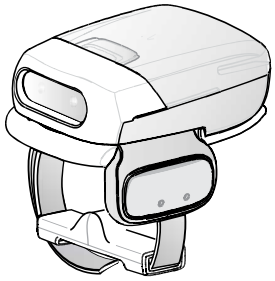


The Expansion Back beeps to indicate the bar code was decoded successfully.

Scanning with the RS507/RS507X Hands-Free Imager

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

Figure 20 RS507/RS507X Hands-Free Imager



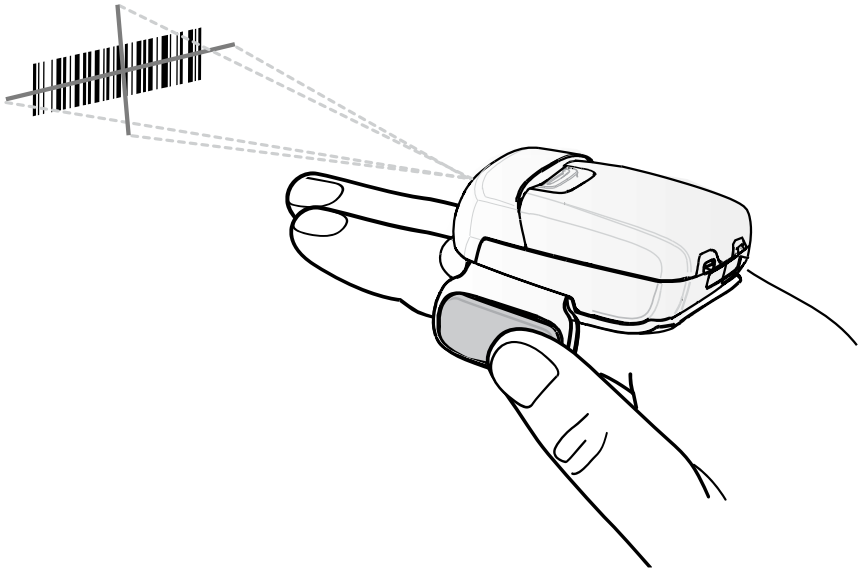
Refer to the RS507/RS507X Hands-free Imager Product Reference Guide for more information.

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

To scan with the RS507/RS507x:

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

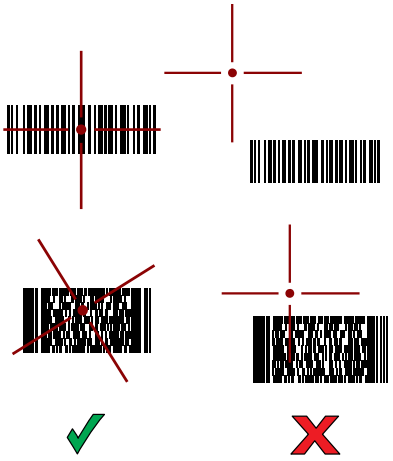
3. Point the RS507/RS507X at a barcode.



4. Press and hold the trigger.

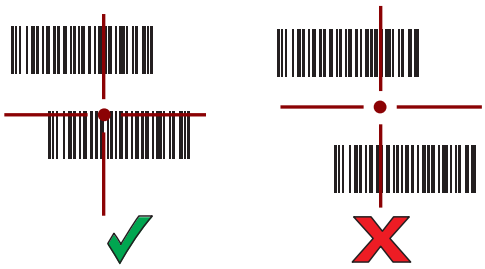
   The red laser aiming pattern turns on to assist in aiming. Ensure the barcode is within the area formed by the cross-hairs in the aiming pattern. The aiming dot increases visibility in bright lighting conditions.

Figure 21 RS507/RS507X Aiming Pattern



When the RS507/RS507X is in Pick List mode, the RS507/RS507X does not decode the barcode until the center of the crosshair touches the barcode.

Figure 22 RS507/RS507X Pick List Mode with Multiple Barcodes in Aiming Pattern



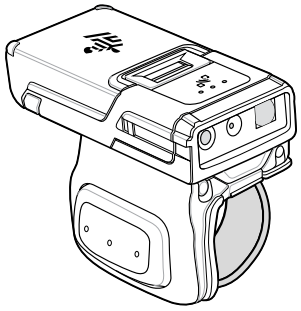
The RS507/RS507X LEDs light green and a beep sounds to indicate the barcode was decoded successfully.

The captured data appears in the text field.

Scanning with the RS5100 Ring Scanner

Use the RS5100 Ring Scanner to capture barcode data.

Figure 23 RS5100 Ring Scanner

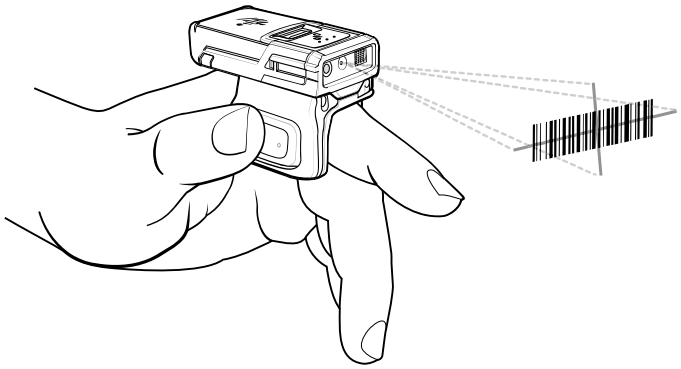


Refer to the RS5100 Ring Scanner Product Reference Guide for more information.

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

To scan with the RS5100:

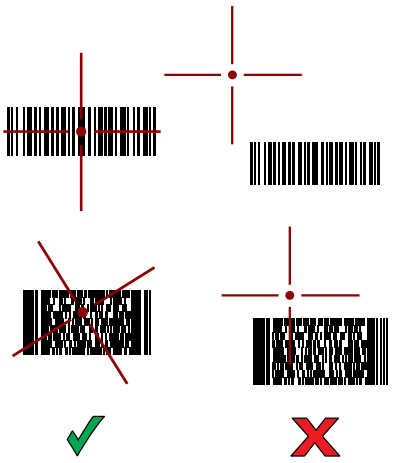
1. Pair the RS5100 with the device.
2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
3. Point the RS5100 at a barcode.



4. Press and hold the trigger.

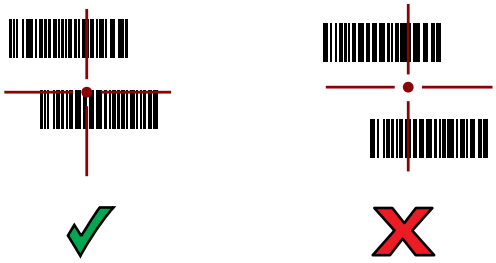
   The red laser aiming pattern turns on to assist in aiming. Ensure the barcode is within the area formed by the cross-hairs in the aiming pattern. The aiming dot increases visibility in bright lighting conditions.

Figure 24 RS5100 Aiming Pattern



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

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



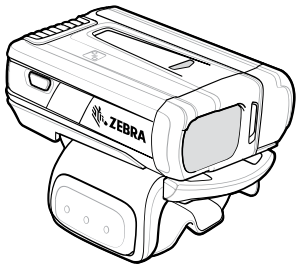
The RS5100 LEDs light green and a beep sounds to indicate the barcode was decoded successfully.

The captured data appears in the text field.

Scanning with the RS6000 Bluetooth Ring Scanner

Use the RS6000 Bluetooth Ring Scanner to capture barcode data.

Figure 26 RS6000 Bluetooth Ring Scanner

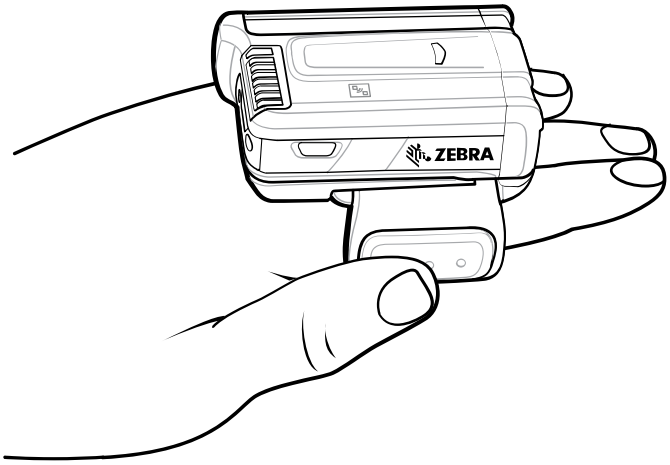


Refer to the RS6000 Bluetooth Ring Scanner Product Reference Guide for more information.

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

To scan with the RS6000:

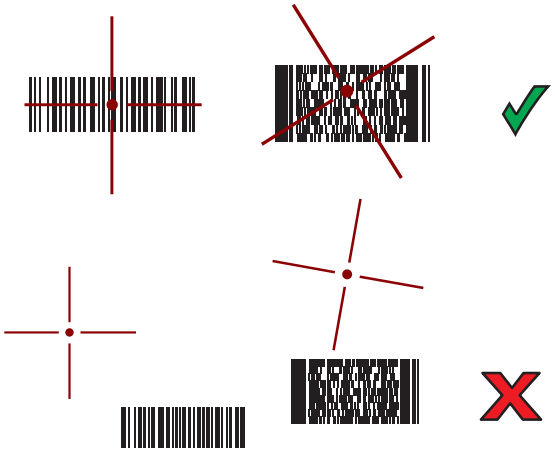
1. Pair the RS6000 with the device.
2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).
3. Point the RS6000 at a barcode.



4. Press and hold the trigger.

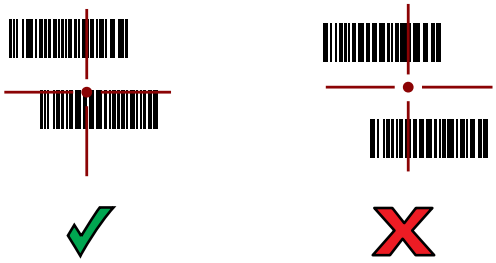
   The red laser aiming pattern turns on to assist in aiming. Ensure the barcode is within the area formed by the cross-hairs in the aiming pattern. The aiming dot increases visibility in bright lighting conditions.

   Figure 27 RS6000 Aiming Pattern



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

   Figure 28 RS6000 Pick List Mode with Multiple Barcodes in Aiming Pattern



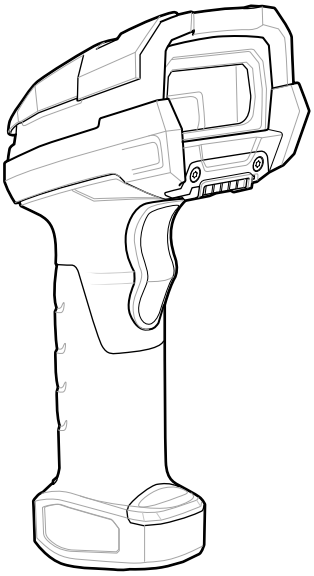
   The RS6000 LEDs light green and a beep sounds to indicate the barcode was decoded successfully.

   The captured data appears in the text field.

Scanning with the DS3678 Bluetooth Scanner

Use the DS3678 Bluetooth Scanner to capture barcode data.

Figure 29 DS3678 Digital Scanner

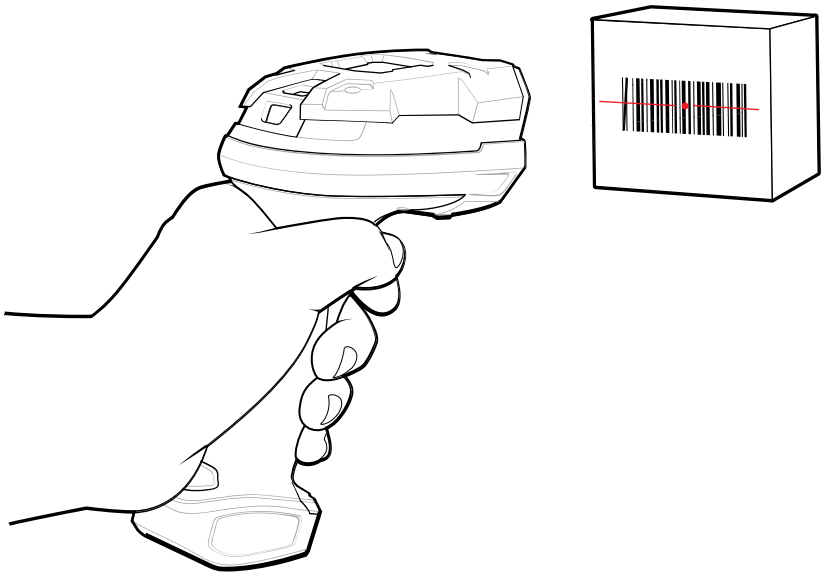


Refer to the DS3678 Product Reference Guide for more information.

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

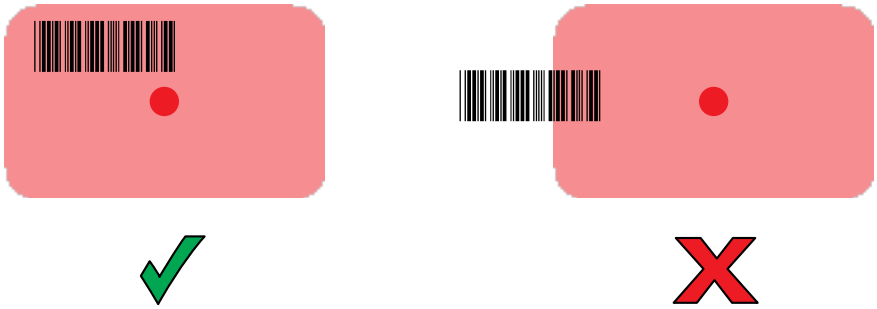
To scan with the DS3678 scanner:

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



4. Press and hold the trigger.

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



   The captured data appears in the text field.

Scanning with the DS2278 Digital Scanner

Use the DS2278 Digital Scanner to capture barcode data.

Figure 30 DS2278 Digital Scanner

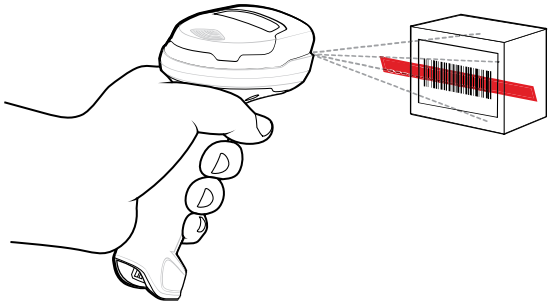
Refer to the DS2278 Digital Scanner Product Reference Guide for more information.

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

To scan with the DS2278:

1. Pair the DS2278 with the device. See Pairing a Bluetooth Scanner for more information.
2. Ensure that an app is open on the device and a text field is in focus (text cursor in text field).

3. Point the scanner at a barcode.



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

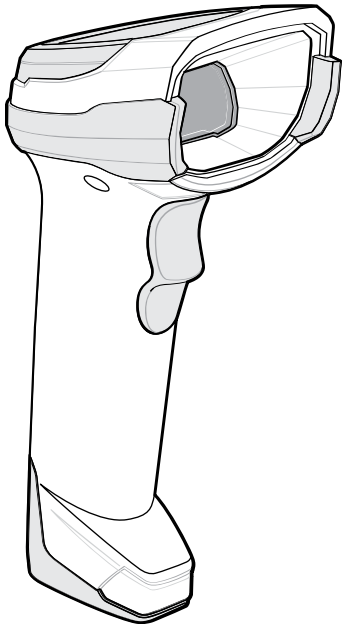
6. Upon successful decode, the scanner beeps and the LED flashes, and the scan line turns off.

   The captured data appears in the text field.

Scanning with the DS8178 Digital Scanner

Use the DS8178 Bluetooth Scanner to capture barcode data.

Figure 31 DS8178 Digital Scanner

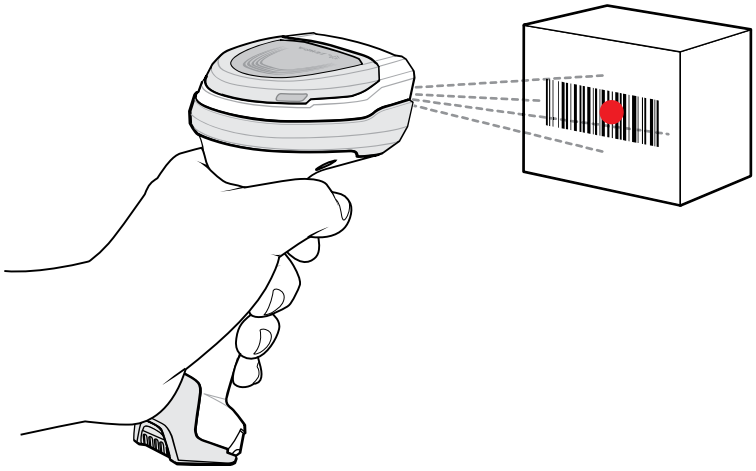


Refer to the DS8178 Digital Scanner Product Reference Guide for more information.

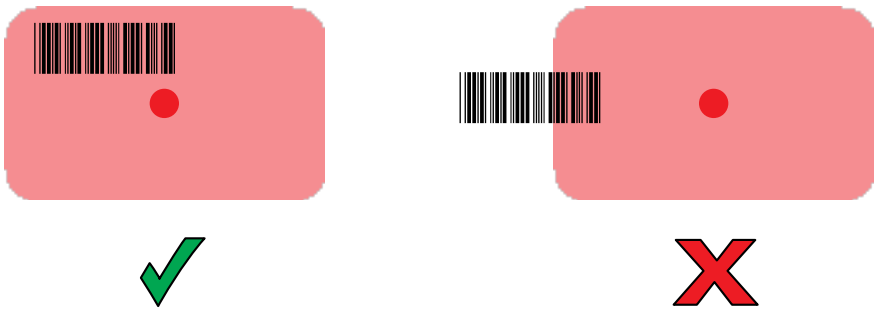
NOTE: To read a barcode, a scan-enabled app is required. The device contains the DataWedge app that allows the user to enable the scanner to decode barcode data and display the barcode content.

To scan with the DS8178 scanner:

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



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



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

Pairing a Bluetooth Ring Scanner

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

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

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

- Bluetooth Human Interface Device (HID) Mode

Pairing in SSI Mode Using Near Field Communication

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

NOTE: RS5100 or RS6000 Only.

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

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

A notification appears on the device screen.

The icon appears in the Status bar.

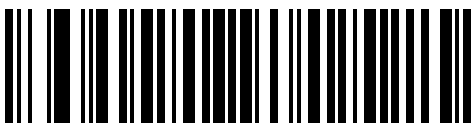
Pairing in HID Mode Using Near Field Communication

The device provides the ability to pair the RS5100/RS6100 or RS6000 Ring Scanner in HID Mode using NFC.

NOTE: RS5100/RS6100 or RS6000 Only.

1. Ensure that NFC is enabled on the device.
2. Ensure that Bluetooth is enabled on both devices.
3. Ensure that the Bluetooth device to discover is in discoverable mode.
4. Ensure that the two devices are within 10 meters (32.8 feet) of one another.
5. Place the Ring Scanner in Human Interface Device (HID) mode. If the Ring Scanner is already in HID mode, skip to step 6.
   a) Remove the battery from the Ring Scanner.
   b) Press and hold the Restore key.
   c) Install the battery onto the Ring Scanner.
   d) Keep holding the Restore key for about five seconds until a chirp is heard and the Scan LEDs flash green.
   e) Scan the barcode below to place the Ring Scanner in HID mode.

   Figure 32 Bluetooth HID Barcode

6. Remove the battery from the Ring Scanner.
7. Re-install the battery into the Ring Scanner.

8. Align the NFC icon on the Ring Scanner with the NFC icon on the device.

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

A notification appears on the device screen.

The icon appears in the Status bar.

Pairing Using Simple Serial Interface (SSI)

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

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

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

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

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

Pairing Using Bluetooth Human Interface Device

Pair the Ring Scanner to the device using Human Interface Device (HID).

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. Place the Ring Scanner in HID mode. If the Ring Scanner is already in HID mode, skip to step 5.
   a) Remove the battery from the Ring Scanner.
   b) Press and hold **Restore**.
   c) Install the battery onto the Ring Scanner.
   d) Keep holding the Restore key for about five seconds until a chirp is heard and the Scan LEDs flash green.
   e) Scan the barcode below to place the Ring Scanner in HID mode.

Figure 33 RS507 Bluetooth HID Barcode

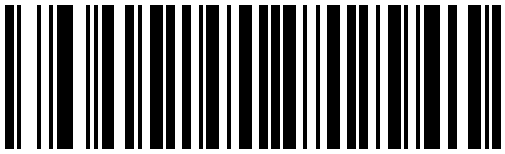
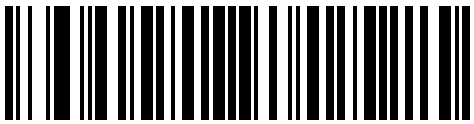


Figure 34 RS6000 Bluetooth HID Barcode



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

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

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

Connecting a USB Scanner Using HID

Connect the USB scanner to the device using HID mode.

NOTE: Refer to the scanner Product Reference Guide for the appropriate USB cable.

To connect a USB scanner using HID mode:

1. Connect the scanner cable USB connector to the USB port of the device (using a third-party USB-A to USB-C adapter). The scanner beeps.
2. Ensure that the scanner is in HID mode. Refer to the scanner Product Reference Guide and scan the **HID Keyboard** barcode or perform a factory reset.

Pairing a Bluetooth Scanner

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

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

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

Pairing Using Simple Serial Interface

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

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

Figure 35 Bluetooth Pairing Utility

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

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

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

Pairing Using Bluetooth Human Interface Device

To pair the scanner with the device using HID:

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

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

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

DataWedge

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

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

Configure DataWedge to:

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

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

Enabling DataWedge

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

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

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

Disabling DataWedge

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

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

Supported Decoders

The device supports the decoders listed in the following sections.

Camera Supported Decoders

This section lists the supported decoders for the internal camera.

Table 14 Camera-Supported Decoders

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

Table 14 Camera-Supported Decoders (Continued)

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

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

LI3608 Supported Decoders

Lists the supported decoders for the LI3608 scanner.

Table 15 LI3608 Supported Decoders

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

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

LI3678 Supported Decoders

This section lists the supported decoders for the LI3678 scanner.

Table 16 LI3678-Supported Decoders

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

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

SE4710 Internal Imager Supported Decoders

Lists the supported decoders for the SE4710 internal imager.

Table 17 Internal Imager SE4710 Supported Decoders

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

Table 17 Internal Imager SE4710 Supported Decoders (Continued)

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

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

SE4750 Expansion Back Supported Decoders

Lists the supported decoders for the SE4750 Expansion Back.

Table 18 SE4750 Expansion Back Supported Decoders

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

Table 18 SE4750 Expansion Back Supported Decoders (Continued)

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

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

RS507/RS507x Supported Decoders

This section lists the supported decoders for the RS507/RS507x Ring Scanner.

Table 19 RS507/RS507x Supported Decoders

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

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

RS5100 Supported Decoders

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

Table 20 RS5100-Supported Decoders

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

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

RS6000 Supported Decoders

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

Table 21 RS6000-Supported Decoders

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

Table 21 RS6000-Supported Decoders (Continued)

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

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

DS2278 Supported Decoders

This section lists the supported decoders for the DS2278 Digital Scanner.

Table 22 DS2278 Digital Scanner-Supported Decoders

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

Table 22 DS2278 Digital Scanner-Supported Decoders (Continued)

Decoder	Default State	Decoder	Default State	Decoder	Default State
Composite C	O	Korean 3 of 5	O	US4state	O
Discrete 2 of 5	O	MAIL MARK	X	US4state FICS	O
Datamatrix	X	Matrix 2 of 5	O	US Planet	O
Dutch Postal	O	Maxicode	X	US Postnet	O
DotCode	O	MicroPDF	O		
EAN13	X	MicroQR	O		

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

DS3678 Supported Decoders

This section lists the supported decoders for the DS3678 scanner.

Table 23 DS3678-Supported Decoders

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

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

DS8178 Supported Decoders

This section lists the supported decoders for the DS8178 Digital scanner.

Table 24 DS8178 Digital Scanner-Supported Decoders

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

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

Wireless

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

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

Wireless Wide Area Networks

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

NOTE: ET56 only.

This section provides information on:

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

Sharing the Mobile Data Connection

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

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

Enabling USB Tethering

NOTE: USB tethering is not supported on computers running Mac OS. If the computer is running Windows or a recent version of Linux (such as Ubuntu), follow these instructions without any special preparation. If running a version of Windows that precedes Windows 7, or some other operating system, you may need to prepare the computer to establish a network connection via USB.

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

   The notification **Charging this device via USB** appears in the Notifications panel.
2. Go to **Settings**.
3. Touch **Network & Internet**.
4. Touch **Hotspot & tethering**.
5. Touch the **USB tethering** switch to enable.

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

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

Enabling Bluetooth Tethering

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

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

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

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

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

Enabling Wi-Fi Hotspot

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

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

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

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

Configuring the Wi-Fi Hotspot

1. Go to **Settings**.
2. Touch **Networking & Internet**.
3. Touch **Hotspot & tethering**.

4. Touch **Wi-Fi hotspot**.
5. On Android 11, in the **Hotspot** name text field, edit the name for the hotspot.
6. On Android 13, in the **Hotspot name**, edit the name for the hotspot, and touch **OK**.
7. Touch **Security** and select a security method from the drop-down list.
   - **WPA3-Personal**
     a. Touch **Hotspot password**.
     b. Enter a password.
     c. Touch **OK**.
   - **WPA2-Personal**
     a. Touch **Hotspot password**.
     b. Enter a password.
     c. Touch **OK**.
   - **WPA2/WPA3-Personal**
     a. Touch **Hotspot password**.
     b. Enter a password.
     c. Touch **OK**.
   - **None** - If **None** is selected in the Security option, a password is not required.
8. On Android 11, touch **Advanced**.
9. In the **AP Band** drop-down list, select **2.4 GHz Band** or **5.0 GHz Band** (A11 only).
10. On Android 13, touch **AP Band** and select **2.4 GHz Band** or **5.0 GHz Band**.
11. If desired, touch **Turn off hotspot automatically** to turn off Wi-Fi Hotspot when no devices are connected.

Data Usage

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

Data usage settings allow you to:

- Enable Data Saver.
- Set the data usage warning level.
- Set a data usage limit.
- View or restrict data usage by app.
- Identify mobile hotspots and restrict background downloads that may result in extra charges.

Setting Data Usage Warning

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

1. Go to **Settings**.

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

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

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

Setting Data Limit

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

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

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

Cellular Network Settings

Cellular network settings applies to WWAN devices only.

Data When Roaming

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

Setting Preferred Network

Change the device network operating mode.

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

Using Search for MicroCell

A MicroCell acts like a mini cell tower in a building or residence and connects to an existing broadband Internet service. It improves cell signal performance for voice calls, texts, and cellular data applications like picture messaging and Web surfing.

1. Go to **Settings**.
2. Touch **Network & Internet** > **Mobile network**.
3. Touch **Search for MicroCell**.

Configuring the Access Point Name

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

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

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

Locking the SIM Card

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

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

Wireless Local Area Network

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

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

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

Once the infrastructure is set up to enforce the chosen WLAN security scheme, use the **Wireless & networks** (A11 only) or **Network & internet** (A13 only) on settings, and configure the device to match the security scheme.

The device supports the following WLAN security options:

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

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

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

Connecting to a Wi-Fi Network

1. Go to **Settings**.
2. Touch **Network & internet**.
3. On Android 11, touch **Wi-Fi** to open the **Wi-Fi** screen. The device searches for WLANs in the area and lists them.
4. On Android 13, touch **Internet** to open the **Internet** screen. The device searches for WLANs in the area and lists them.
5. Scroll through the list and select the desired WLAN network.
6. For open networks, touch profile once or press and hold and then select **Connect** or for secure networks enter the required password or other credentials then touch **Connect**. See the system administrator for more information.

   The device obtains a network address and other required information from the network using the dynamic host configuration protocol (DHCP) protocol. To configure the device with a fixed internet protocol (IP) address, see Configuring the Device to Use a Static IP Address on page 110.
7. In the Wi-Fi setting field, **Connected** appears, indicating that the device is connected to the WLAN.

Removing a Wi-Fi Network

Remove a remembered or connected Wi-Fi network.

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

WLAN Configuration

This section provides information on configuring Wi-Fi settings.

Configuring a Secure Wi-Fi Network

1. Go to **Settings**.
2. Touch **Network & Internet**.
3. On Android 11, touch **Wi-Fi**.
4. On Android 13, touch **Internet**.
5. Slide the switch to the **ON** position.
6. The device searches for WLANs in the area and lists them on the screen.
7. Scroll through the list and select the desired WLAN network.

8. Touch the desired network. If network security is **Open**, the device automatically connects to the network. For all other network security, a dialog box appears.
9. If network security is **WPA/WPA2-Personal**, or **WEP**, enter the required password and then touch **Connect**.
10. If network security is **WPA/WPA2-Personal**, **WPA3-Personal**, or **WEP**, enter the required password and then touch **Connect**.
11. If network security is **WPA/WPA2/WPA3 Enterprise**:
    a) Touch the **EAP method** drop-down list and select one of the following:
       - **PEAP**
       - **TLS**
       - **TTLS**
       - **PWD**
       - **LEAP**
    b) Fill in the appropriate information. Options vary depending on the **EAP method** chosen.
       - When selecting **CA certificate**, Certification Authority (CA) certificates are installed using the **Security** settings.
       - When using the EAP methods PEAP, TLS, or TTLS, specify a domain.
       - Touch **Advanced options** to display additional network options.

Manually Adding a Wi-Fi Network

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

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

8. In the **Security** drop-down list, set the type of security to:
   - **None**
   - **Enhanced Open**
   - **WEP**
   - **WPA/WPA2-Personal**
   - **WPA3-Personal**
   - **WPA/WPA2/WPA3-Enterprise** (A11 only)
   - **WPA/WPA2-Enterprise** (A13 only)
   - **WPA3-Enterprise** (A13 only)
   - **WPA3-Enterprise 192-bit**
9. If the network security is **None** or **Enhanced Open**, touch **Save**.
10. If the network security is **WEP**, **WPA3-Personal**, or **WPA/WPA2-Personal**, enter the required password and then touch **Save**.
11. If network security is **WPA/WPA2/WPA3 Enterprise**:
    a) Touch the **EAP method** drop-down list and select one of the following:
       - **PEAP**
       - **TLS**
       - **TTLS**
       - **PWD**
       - **LEAP**
    b) Fill in the appropriate information. Options vary depending on the **EAP method** chosen.
       - When selecting **CA certificate**, Certification Authority (CA) certificates are installed using the **Security** settings.
       - When using the EAP methods PEAP, TLS, or TTLS, specify a domain.
       - Touch **Advanced options** to display additional network options.
12. If the network security is WPA3-Enterprise 192-bit:
    - Touch **CA certificate** and select a Certification Authority (CA) certificate. Note: Certificates are installed using the Security settings.
    - Touch **User certificate** and select a user certificate. Note: User certificates are installed using the Security settings.
    - In the **Identity** text box, enter the username credentials.
13. Touch **Save**. To connect to the saved network, touch and hold on the saved network and select **Connect to network**.

Configuring for a Proxy Server

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

validated by the filter, the proxy provides the resource by connecting to the relevant server and requesting the service on behalf of the client.

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

1. Go to **Settings**.
2. Touch **Network & Internet**.
3. On Android 11, touch **Wi-Fi**.
4. On Android 13, touch **Internet**.
5. Slide the Wi-Fi switch to the **On** position.
6. In the network dialog box, select and touch a network.
7. If configuring the connected network, touch to edit the network details and then touch the down arrow to hide the keyboard.
8. Touch **Advanced options**.
9. Touch **Proxy** and select **Manual**.
10. In the **Proxy hostname** text box, enter the address of the proxy server.
11. In the **Proxy port** text box, enter the port number for the proxy server.
12. In the **Bypass proxy for** text box, enter addresses for web sites that are not required to go through the proxy server. Use a comma “,” between addresses. Do not use spaces or carriage returns between addresses.
13. If configuring the connected network, touch **Save** otherwise, touch **Connect**.
14. Touch **Connect**.

Configuring the Device to Use a Static IP Address

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

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

12. If required, in the **Network prefix length** text box, enter the prefix length.
13. If required, in the **DNS 1** text box, enter a Domain Name System (DNS) address.
14. If required, in the **DNS 2** text box, enter a DNS address.
15. If configuring the connected network, touch **Save** otherwise, touch **Connect**.

Wi-Fi Preferences

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

- **Turn on Wi-Fi automatically** - When enabled, Wi-Fi automatically turns back on when near high-quality saved networks.
- **Open network notification** (A11 only) or **Notify for public networks** (A13 only) - When enabled, it notifies the user when an open network/public network is available.
- **Additional settings** - Touch to view additional Wi-Fi settings.
- **Advanced** - Touch to expand options (A11 only).
  - **Additional settings** - See Additional Wi-Fi Settings.
  - **Install Certificates** - Touch to install certificates.
  - **Network rating provider** - Disabled (AOSP devices). To help determine what constitutes a good Wi-Fi network, Android supports external Network rating providers that provide information about the quality of open Wi-Fi networks. Select one of the providers listed or **None**. If none are available or selected, the Connect to open networks feature is disabled (A11 only).
  - **Wi-Fi Direct** - Displays a list of devices available for a direct Wi-Fi connection.

Additional Wi-Fi Settings

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

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

- **Regulatory**
  - **Country Selection** - Displays the acquired country code if 802.11d is enabled, else it displays the currently selected country code.
  - **Region code** - Displays the current region code.
- **Band and Channel Selection**
  - **Wi-Fi frequency band** - Set the frequency band to: **Auto** (default), **5 GHz only** or **2.4 GHz only**.
  - **Available channels (2.4 GHz)** - Touch to display the **Available channels** menu. Select specific channels and touch **OK**.
  - **Available channels (5 GHz)** - Touch to display the **Available channels** menu. Select specific channels and touch **OK**.

- **Logging**
  - **Logging** Touch to enable advanced logging or change the log directory (Android 11 only).
  - **Advanced Logging** - Touch to enable logging, enable **Wi-Fi Verbose Logging**, or change the log directory (Android 13 only).
  - **Wireless logs** - Use to capture Wi-Fi log files.
    - **Fusion Logger** - Touch to open the **Fusion Logger** application. This application maintains a history of high level WLAN events which helps to understand the status of connectivity.
    - **Fusion Status** - Touch to display live status of WLAN state. Also provides information about the device and connected profile.
- **About**
  - **Version** - Displays the current version information. Touch the version to display addition version details.

Wi-Fi Direct

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

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

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

Bluetooth

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

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

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

Adaptive Frequency Hopping

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

AFH for Bluetooth consists of four main sections:

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

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

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

The Bluetooth radio in this device operates as a Class 1 device power class. The maximum output power is 7.5 mW and the expected range is 30 m (98.4 ft). A definition of ranges based on power class is difficult to obtain due to power and device differences, and whether in open space or closed office space.

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

Security

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

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

Recommendations are:

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

Bluetooth Profiles

The device supports the Bluetooth services listed.

Table 25 Bluetooth Profiles

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

Table 25 Bluetooth Profiles (Continued)

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

Bluetooth Power States

The Bluetooth radio is off by default.

- **Suspend** - When the device goes into Sleep mode, the Bluetooth radio stays on.
- **Airplane Mode** -
  - Android A10 OS version and previous versions - When the device is placed in Airplane Mode, the Bluetooth radio turns off. When Airplane mode is disabled, the Bluetooth radio returns to the prior state. When in Airplane Mode, the Bluetooth radio can be turned back on if desired.
  - Android A11 OS version and versions onward - When the device is placed in Airplane Mode, the Bluetooth radio is not turned off when the device is connected to a Bluetooth headset or hearing device.
- **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.

Enabling Bluetooth

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

Disabling Bluetooth

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

Discovering Bluetooth Device(s)

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

1. Ensure that Bluetooth is enabled on both devices.
2. Ensure that the Bluetooth device to discover is in discoverable mode.
3. Ensure that the two devices are within 10 m (32.8 ft) of one another.
4. Swipe down from the Status bar to open the Quick Access panel.
5. Touch and hold **Bluetooth**.

6. Touch **Pair new device**. The device begins searching for discoverable Bluetooth devices in the area and displays them under **Available devices**.
7. Scroll through the list and select a device. The Bluetooth pairing request dialog box appears.
8. Touch **Pair** on both devices.
9. The Bluetooth device is added to the **Paired devices** list and a trusted ("paired") connection is established.

Changing the Bluetooth Name

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

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

Connecting to a Bluetooth Device

Once paired, connect to a Bluetooth device.

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

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

Selecting Profiles on the Bluetooth Device

Some Bluetooth devices have multiple profiles.

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

Unpairing a Bluetooth Device

Unpairing a Bluetooth device erases all pairing information.

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

Cast

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

1. Go to **Settings**.
2. Touch **Connected devices** > **Connection preferences** > **Cast**.
3. Touch ⋮ > **Enable wireless display**.

   The device searches for nearby Miracast devices and lists them.
4. Touch a device to begin casting.

Near Field Communications

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

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

The device supports the following operating modes:

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

Using NFC, the device can:

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

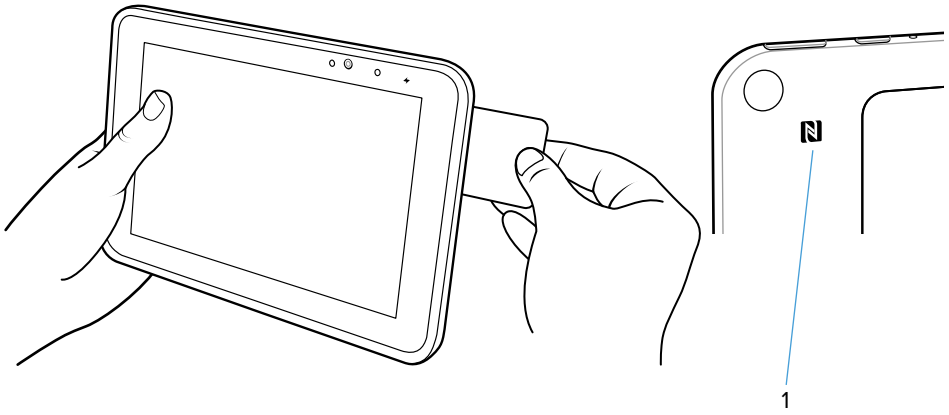
The device's NFC antenna is positioned to read NFC cards from the top of the device while the device is being held.

Reading NFC Cards

Read contactless cards using NFC.

1. Launch an NFC enabled application.
2. Hold device as shown.

3. Move the card to the NFC antenna (1) on the back of the device.



4. Hold the card steadily until the transaction is complete (usually indicated by the application).

Enterprise NFC Settings

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

- **Card Detection Mode** - Select a card detection mode.
  - **Low** - Increases battery life by lowering the NFC detection speed.
  - **Hybrid** - Provides a balance between NFC detection speed and battery life (default).
  - **Standard** - Provides the optimal NFC detection speed, but reduces battery life.
- **Supported Card Technology** - Select an option to detect only one NFC tag type, increasing battery life, but reducing detection speed.
  - **ISO 14443 Type A**
  - **ISO 14443 Type B**
  - FeliCa
  - **ISO 15693**
- **NFC Debug Logging** - Use to enable or disable debug logging for NFC.
- **Other NFC settings available with Zebra administrator tools (CSP)** - Allows configuration of additional Enterprise NFC Settings through staging tools and Mobile Device Management (MDM) solutions with an MX version that supports the Enterprise NFC Settings Configuration Service Provider (CSP). For more information on using the Enterprise NFC Settings CSP, refer to: techdocs.zebra.com.

Accessories

Accessory List

A comprehensive list of ET5x accessories, including descriptions and Zebra part numbers.

Table 26 Accessories

Accessory	Part Number	Description
Cradles		
Charge Only Cradle	CRD-ET5X-1SCG2	Charges the main battery and optional Power Pack installed in the Expansion Back. Requires power supply PWR-BGA12V50W0WW, DC line cord CBL-DC-388A1-01 and country-specific AC line cord.
Communication and Charging Cradle	CRD-ET5X-1SCOM1	Charges the main battery and optional Power Pack installed in the Expansion Back. Requires power supply PWR-BGA12V50W0WW, DC line cord CBL-DC-388A1-01, and country-specific AC line cord.
Rugged Communication and Charging Cradle	CRD-ET5X-1SCOM2R	Charges the main battery and optional Power Pack installed in the Expansion Back. Supports rugged frame and rugged IO Adapter. Requires power supply PWR-BGA12V50W0WW, DC line cord CBL-DC-388A1-01, and country-specific AC line cord.
4-Slot Charge Only Cradle	CRD-ET5X-SE4CO2-01	Charges up to four main batteries and optional Power Pack installed in the Expansion Back and up to four Power Packs in the optional 4-Slot Battery Charger. Requires power supply PWR-BGA12V108W0WW, DC line cord CBL-DC-388A1-01, and country-specific AC line cord.
Chargers		

Table 26 Accessories (Continued)

Accessory	Part Number	Description
Power Supply	PWR-BGA12V108W0WW	Provides power to the 4-Slot Charge Only Cradle.
Power Supply	PWR-BGA12V50W0WW	Provides power to the Charge Only Cradle, Communication and Charging Cradle, Rugged Communication and Charging Cradle, and 4-Slot Battery Charger for Optional Battery Power Pack.
Power Supply	PWR-WUA5V12W0xx Where xx: AR = Argentina AU = Australia BR = Brazil CN = China EU = European Union Countries GB = Great Britain IN = India KR = Korea US = United States	Provides power to the tablet using the USB-C cable CBL-TC2X-USBC-01.
4-Slot Battery Charger	SAC-ET5X-4PPK1-01	Chargers up to four Power Packs. Requires power supply PWR-BGA12V50W0WW, DC Line cord CBL-DC-388A1-01, and country-specific AC line cord.
Rugged Charge Connector	CHG-ET5X-CBL2-01	Charges the main battery and optional Power Pack installed in the Expansion Back. Requires power supply PWR-BGA12V50W0WW, DC Line Cord CBL-DC-388A1-01 and country-specific AC line cord.
Miscellaneous		
Replacement 8.4" Internal Battery	BTRY-ET5X-8IN5-01	Replacement battery for 8.4" tablet.
Replacement 10.1" Internal Battery	BTRY-ET5X-10IN5-01	Replacement battery for 10.1" tablet.
Replacement 8.4" Battery Cover	KT-ET5X-8BTDR2-01	Replacement battery cover for 8.4" tablet.
Replacement 10.1" Battery Cover	KT-ET5X-10BTDR2-01	Replacement battery cover for 10.1" tablet.

Table 26 Accessories (Continued)

Accessory	Part Number	Description
8.4" Rugged Frame with IO Adapter	SG-ET5X-8RCSE2-02	Add extra protection for the 8.4" tablet and IO Adapter for connection to the Rugged Communication and Charging Cradle.
10.1” Rugged Frame with IO Adapter	SG-ET5X-10RCSE2-01	Add extra protection for the 10.1" tablet and IO Adapter for connection to the Rugged Communication and Charging Cradle.
Replacement Rugged IO Connector	SG-ET5X-RGIO2-01	Replacement rugged IO connector for the Rugged Frames.
8.4" SE4750 Expansion Back	ZBK-ET5X-8SCN5-01	Provides data capture using the SE4750 scan engine, rotating hand strap and slot for optional Power Pack.
8.4" Expansion Back	ZBK-ET5X-8RH1-01	Provides rotating hand strap and slot for optional Power Pack.
10.1” SE4750 Expansion Back	ZBK-ET5X-10SCN5-01	Provides data capture using the SE4750 scan engine, rotating hand strap and slot for optional Power Pack.
10.1” Expansion Back	ZBK-ET5X-10RH1-01	Provides rotating hand strap and slot for optional Power Pack.
Power Pack	BTRY-ET5X-PRPK1-01	Provides additional power for charging the device battery using an Expansion Back.
Passive Stylus	SG-TC7X-STYLUS-03	Provides easy writing, drawing, and navigation and accuracy with the thin tip and hovering capabilities.
Replacement Expansion Back Hand Strap	SG-ET5X-RHTP1-01	Replacement hands strap for Expansion Backs.
Coiled Stylus Tether	SG-ET5X-SLTETR-01	Secures a stylus to the hand strap.
8.4" Operations Case	SG-ET5X-8HLST-01	Provides carrying solution for 8.4" tablet.
10.1” Operations Case	SG-ET5X-10HLST-01	Provides carrying solution for 10.1" tablet.
Breakaway Shoulder Strap	SG-ET5X-SHDRSTP-01	Use with the Operations Case and D-clips to carry tablet on shoulder.

Main Battery Charging

Charge the tablet main battery before using the tablet.

The 8.4 in. tablet main battery charges from fully depleted to 90% in approximately 2 hours and from fully depleted to 100% in approximately 3 hours.

The 10.1 in. tablet main battery charges from fully depleted to 90% in approximately 3 hours and from fully depleted to 100% in approximately 5 hours.

NOTE: The Charging indicator only illuminates when the device is connected to AC power.

Table 27 Charging Indicators

LED	Indication
Off	Device is not in cradle; not seated properly; or cradle is not powered.
Orange	Device is charging.
Green	Charging complete.
Red	Error in charging; check placement of the device.

Charging Temperature

Charge batteries in ambient temperatures from 0°C to +40°C (32°F to 104°F) as reported by the battery. Charging is intelligently controlled by the charger. To accomplish this, for small periods of time, the charger alternately enables and disables battery charging to keep the battery at acceptable temperatures.

Charge Only Cradle

This section describes how to use a Charge Only Cradle with the device.

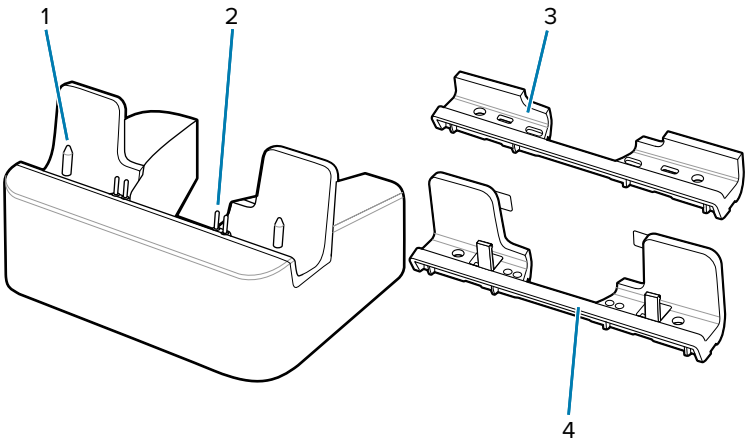
CAUTION: Ensure that you follow the guidelines for battery safety described in Battery Safety Guidelines.

NOTE: The Charge Only Cradle (CRD-ET5X-1SCG2) comes with two inserts; tall insert and short insert. Install the tall insert when using a device without a Rugged Frame or Expansion Back. Install the small insert when using with an Expansion Back and without a Rugged Frame.

The Charge Only Cradle:

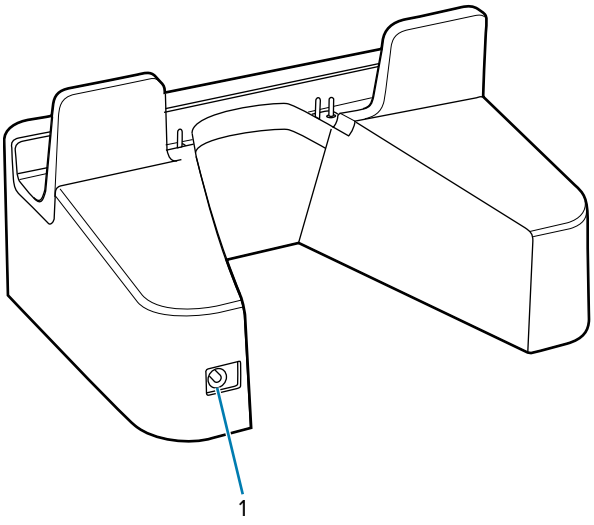
- Provides power for operating the device.
- Charges the device's battery and optional Power Pack installed in an Expansion Back.
- Support the ET51 Enterprise Tablet with Integrated Scanner.

Figure 36 Charge Only Cradle - Front View



1	Guide pins
2	Charging pins
3	Short insert
4	Tall insert

Figure 37 Charge Only Cradle - Rear View

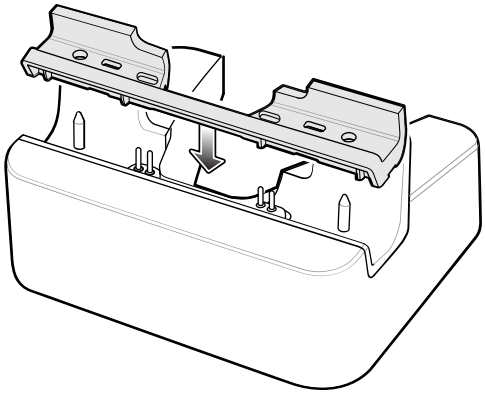


1	Power input

Installing the Short Insert

Install the short insert when using a device with an Expansion Back and without a Rugged Frame.

1. Align the insert over the pins.

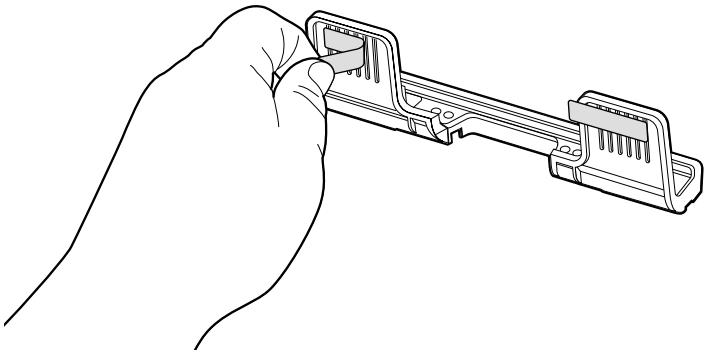


2. Press the insert down until it seats flush in the cradle.

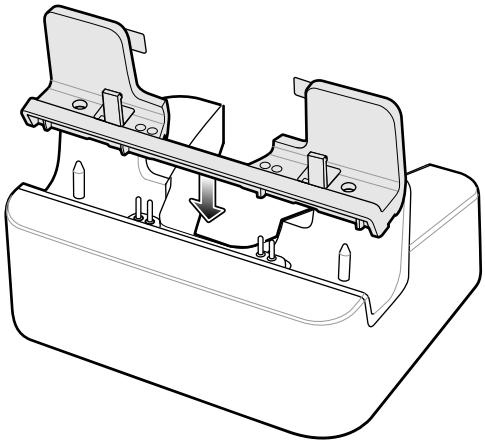
Installing the Tall Insert

Install the tall insert when using a device without a Rugged Frame or Expansion Back.

1. Peel the tape off the back of the insert.

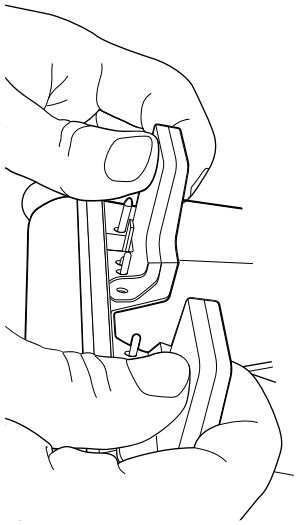


2. Align the tall insert over the pins.



3. Press the insert down until it seats flush in the cradle.

4. Press the tabs against the cradle to secure the insert to the cradle.

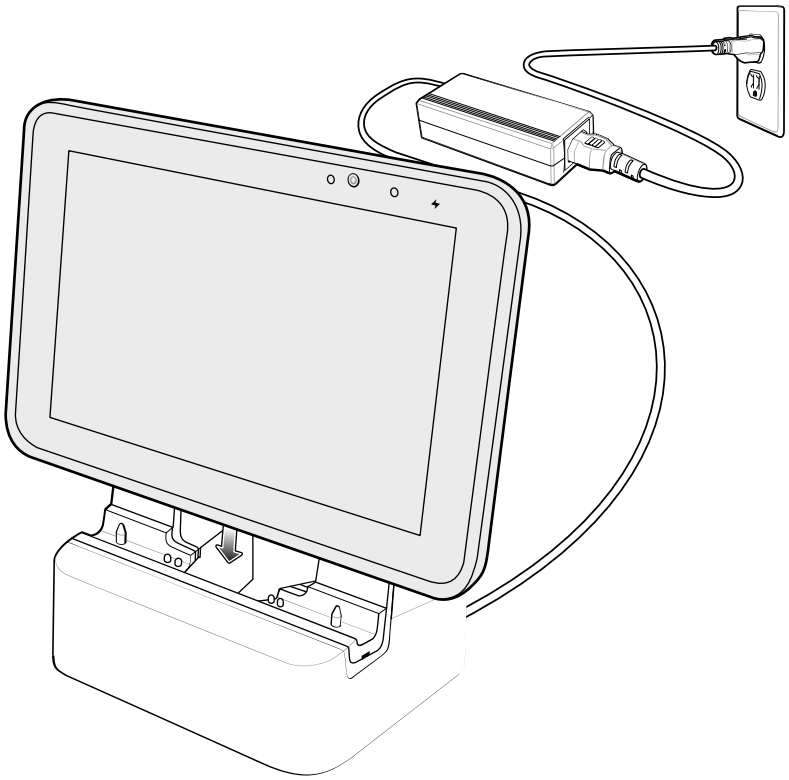


Charging the Device

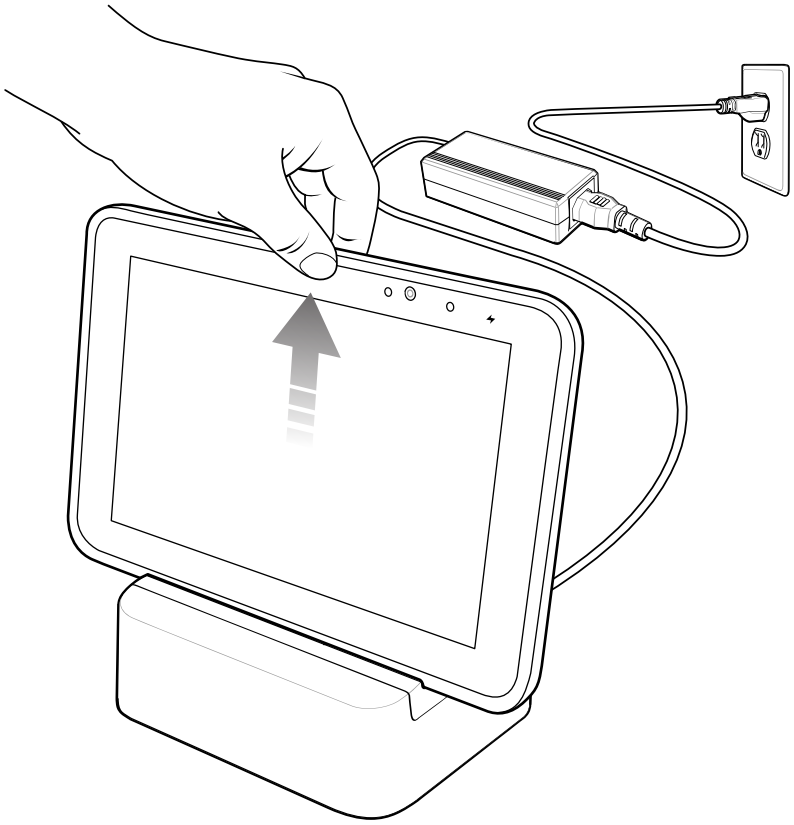
To charge the device in the Charge Only Cradle:

1. Align the device with the alignment pins on the cradle.
2. Insert the device into the cradle.

NOTE: Ensure the tablet is flat on the cradle and all charging contacts are touching the charging base.



3. The device Charging LED indicates charging.
4. To remove the device from the Charge Only Cradle, hold the cradle down with one hand and lift the device.



Communication and Charging Cradle

This section describes how to use a Communication and Charing Cradle with the device.

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

NOTE: The Communication and Charging Cradle (CRD-ET5X-1SCOM2) comes with two inserts; tall insert and short insert. Install the tall insert when using without a Rugged Frame or Expansion Back. Install the small insert when using with an Expansion Back and without a Rugged Frame.

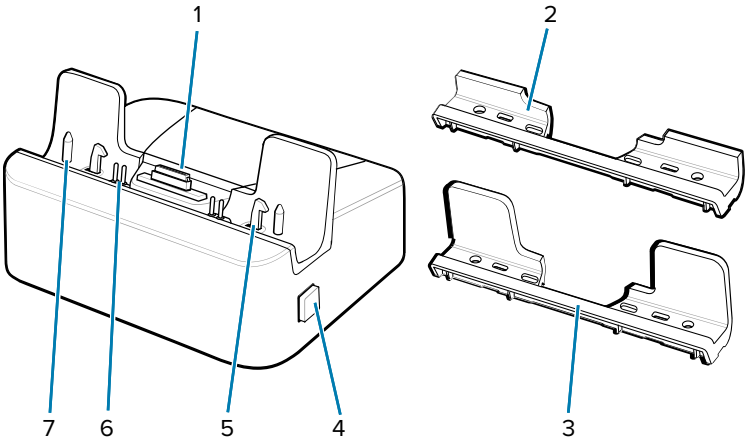
The Communication and Charging Cradle does not support the ET51 Enterprise Tablet with Integrated Scanner.

This section describes how to use a Communication and Charging Cradle with the tablet.

The Communication and Charging cradle:

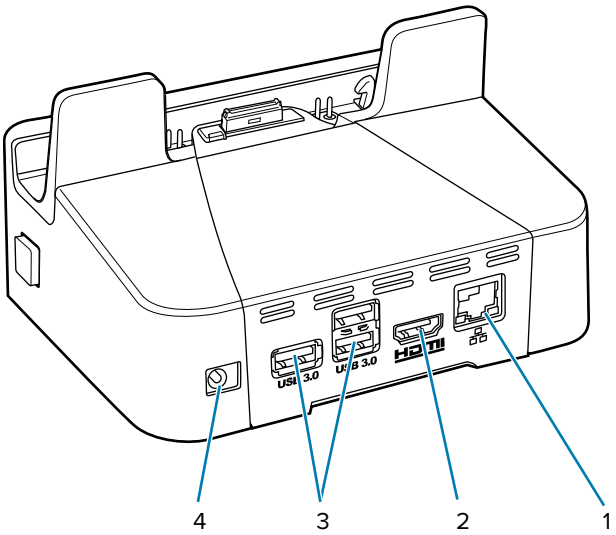
- Provides power for operating the tablet.
- Provides ports for connecting USB devices to the tablet, video output and connection to a LAN.
- Charges the tablet's battery and optional Power Pack installed in an Expansion Back.

Figure 38 Communication and Charging Cradle - Front View



1	Docking connector
2	Short insert
3	Tallinsert
4	Release button
5	Locking latches
6	Charging pins
7	Guide pins

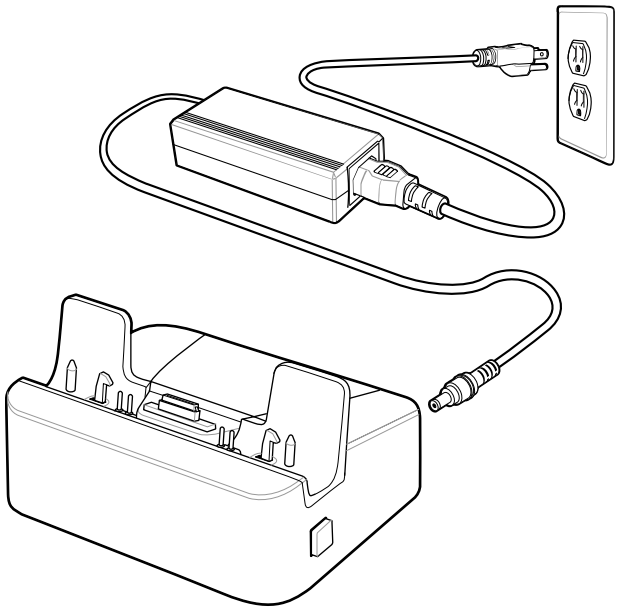
Figure 39 Communication and Charging Cradle - Rear View



1	LAN (RJ45) port
2	HDMI port
3	USB 3.0 ports

4	Power input

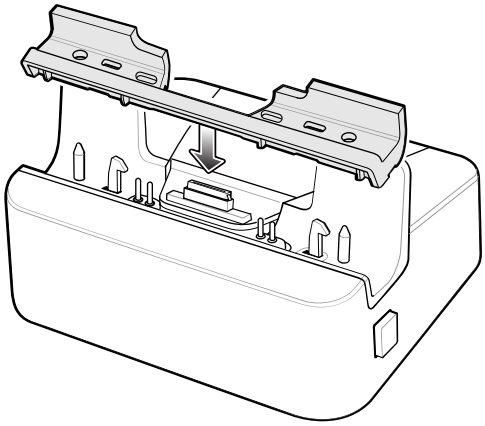
Figure 40 Communication and Charging Cradle - Setup



Installing the Insert

Install the tall insert when using a device without a Rugged Frame or Expansion Back. Install the small insert when using an device with an Expansion Back and without a Rugged Frame.

1. Align the insert over the pins.



2. Press the insert down until it seats flush in the cradle.

Charging the Device

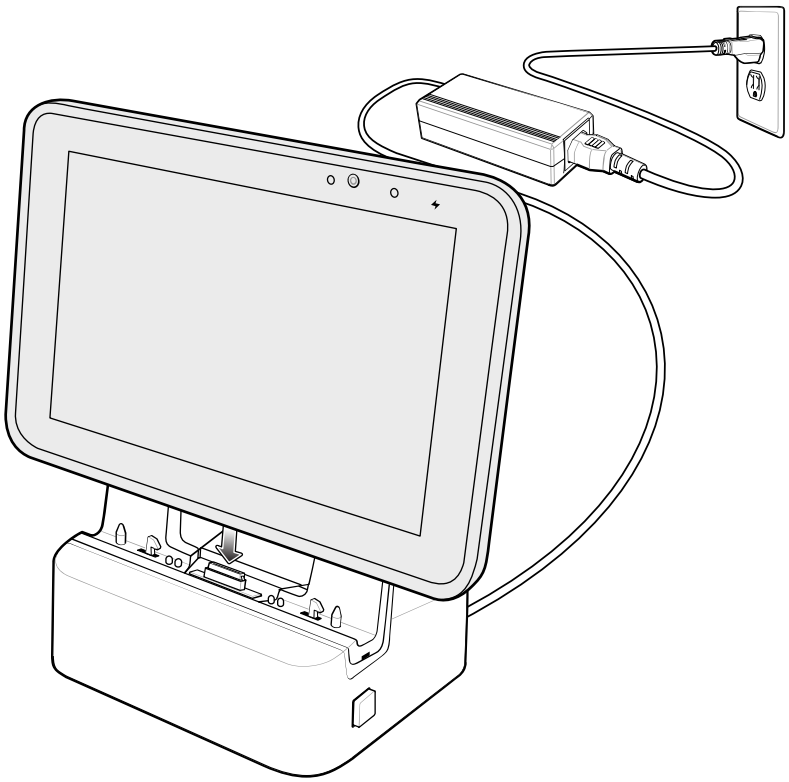
This section provides information for charging the device in the cradle.

To charge the device in the Communication and Charging Cradle:

1. Open the bottom access door and hold it to the back of the tablet.
2. Align the device with the alignment pins on the cradle.
3. Insert the device into the cradle. Note that the Communication and Charging Cradles contains a locking mechanism that locks the device to the cradle.

NOTE: Ensure the tablet is flat on the cradle and all charging contacts are touching the charging base.

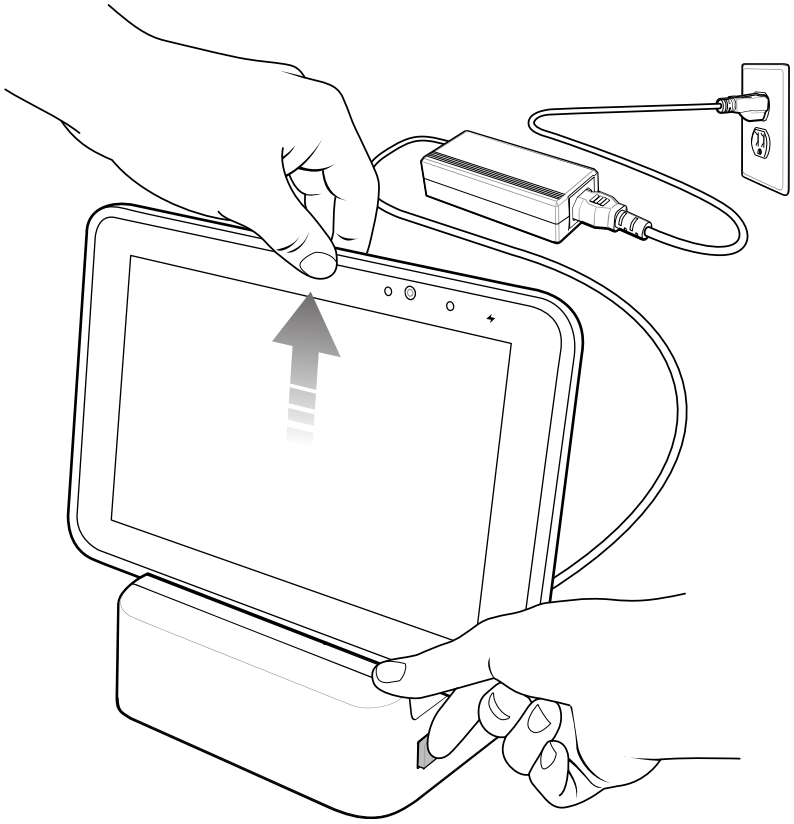
Figure 41



4. The device Charging LED indicates charging.

5. To remove the device from the Communication and Charging Cradle, press the release button on the right side of the cradle and lift the device. Use thumb to hold down the cradle.

Figure 42



Rugged Communication and Charging Cradle

This section describes how to use a Rugged Communication and Charing Cradle with the device.

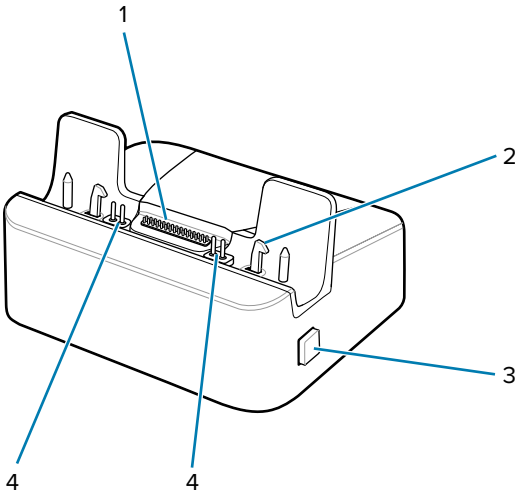
CAUTION: Ensure that you follow the guidelines for battery safety described in Battery Safety Guidelines.

NOTE: To remove the device from the Communication and Charging Cradle, press the release button on the right side of the cradle and lift the device. Use thumb to hold down the cradle.

The Rugged Communication and Charging cradle:

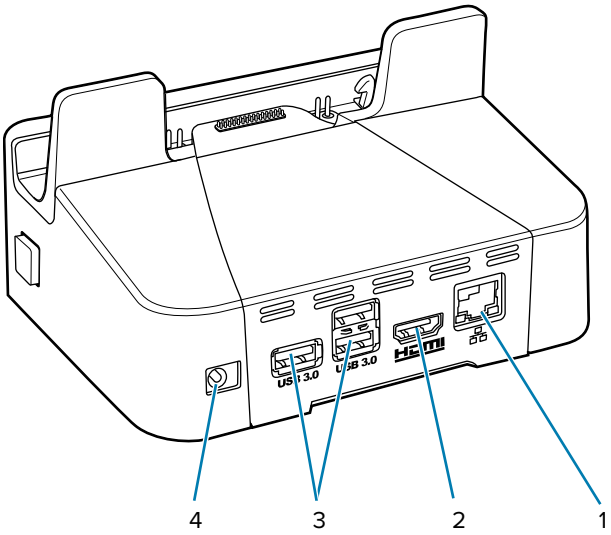
- Provides power for operating the device.
- Provides ports for connecting USB devices to the tablet, video output and connection to a LAN.
- Charges the device's battery and optional Power Pack installed in an Expansion Back.
- Support the ET51 Enterprise Tablet with Integrated Scanner.

Figure 43 Rugged Communication and Charging Cradle - Front View



1	Rugged docking connector
2	Release button
3	Locking latches
4	Charging pins

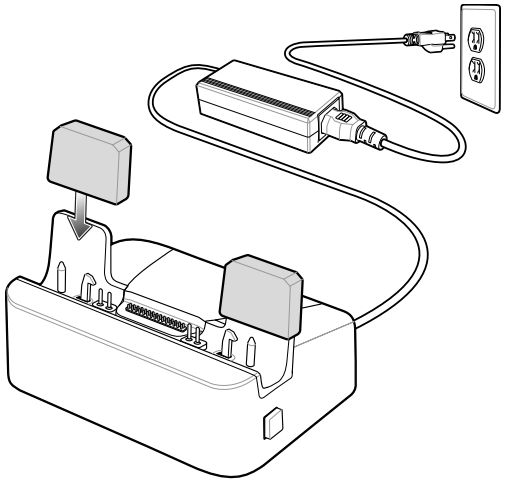
Figure 44 Rugged Communication and Charging Cradle - Rear View



1	LAN (RJ45) port
2	HDMI port
3	USB 3.0 ports
4	Power input

For the ET51 Enterprise Tablet with Integrated Scanner, ensure that the cradle pads are installed prior to inserting the device into the cradle.

Figure 45 Install Pads onto Cradle



Charging the Device

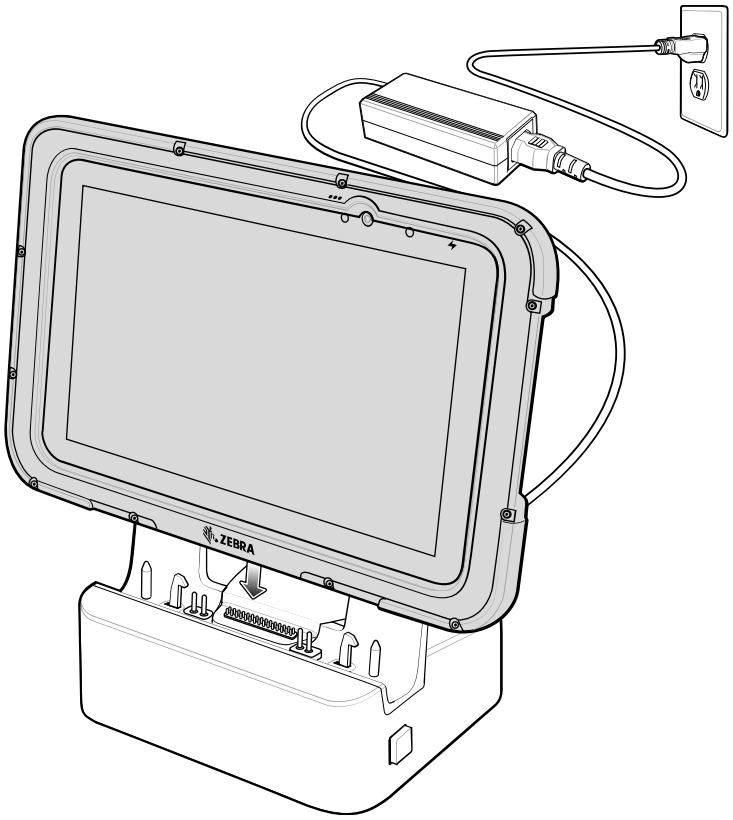
This section provides information for charging the device in the cradle.

To charge the device using the Rugged Communication and Charging Cradle:

1. Align the device with the alignment pins on the cradle.

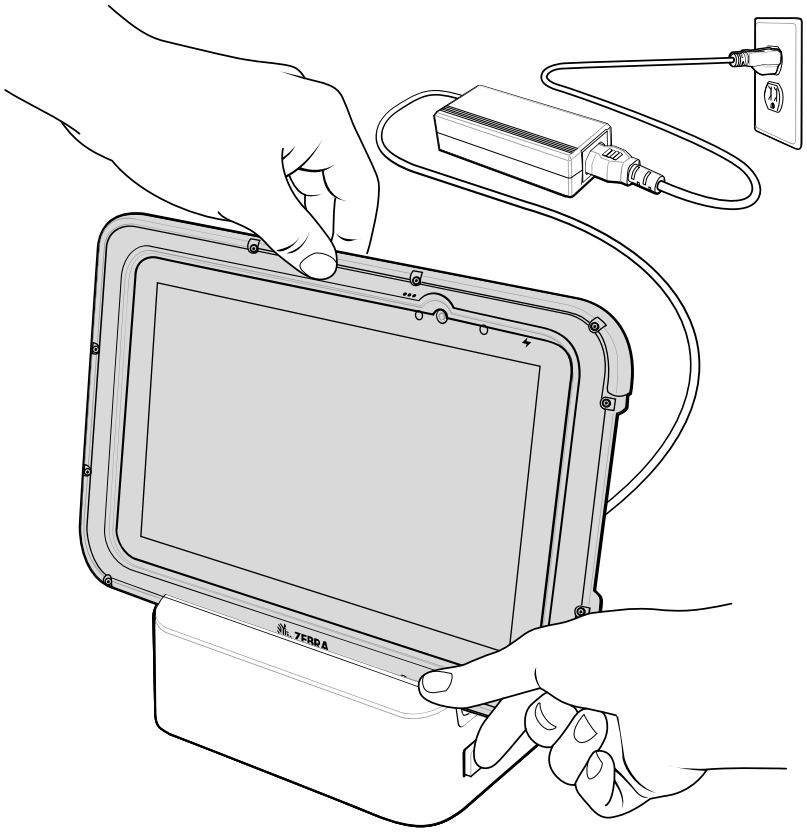
2. Insert the device into the cradle. Note that the Rugged Communication and Charging Cradles contains a locking mechanism that locks the device to the cradle.

NOTE: Ensure the tablet is flat on the cradle and all charging contacts are touching the charging base.



3. The device Charging LED indicates charging.

4. To remove the device from the Rugged Communication and Charging Cradle, press the release button on the right side of the cradle and lift the device. Use thumb to hold down the cradle.



4-Slot Charge Only Cradle

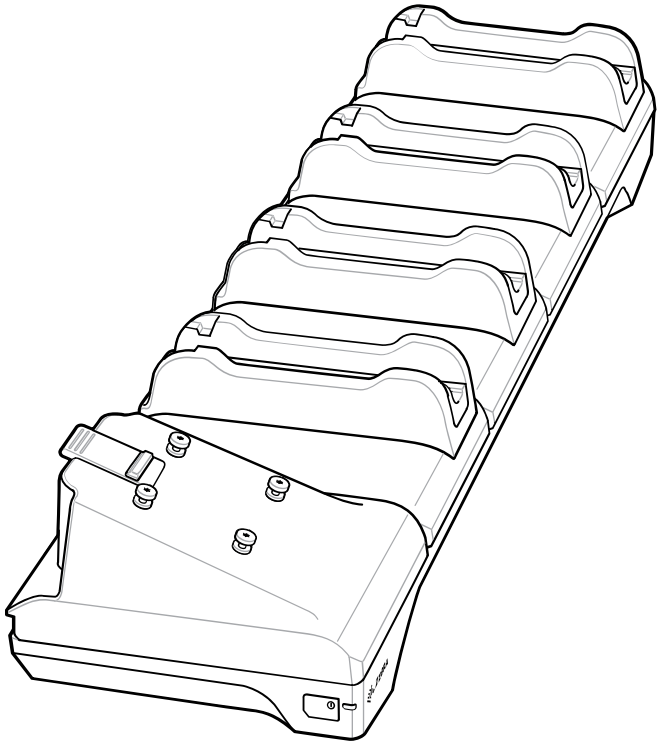
The 4-Slot Charge Only Cradle charges up to four tablets.

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

The 4-Slot Charge Only Cradle:

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

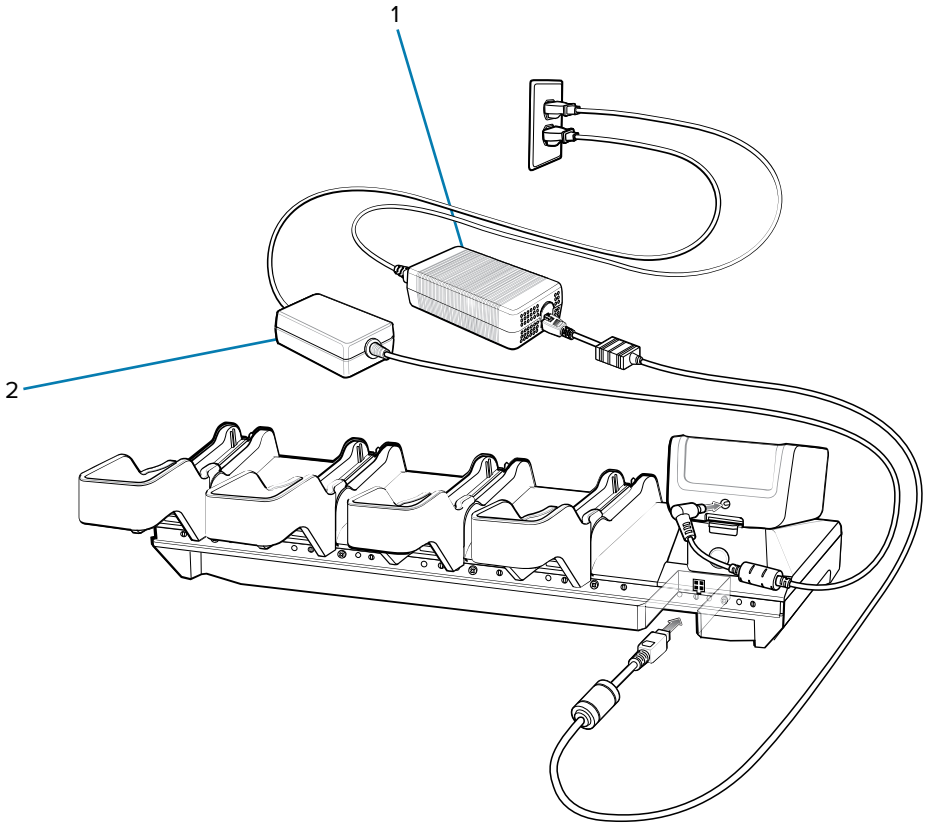
Figure 46 4-Slot Charge Only Cradle



Power Setup

This section provides cradle setup information.

Figure 47 Power Setup with Optional Charger

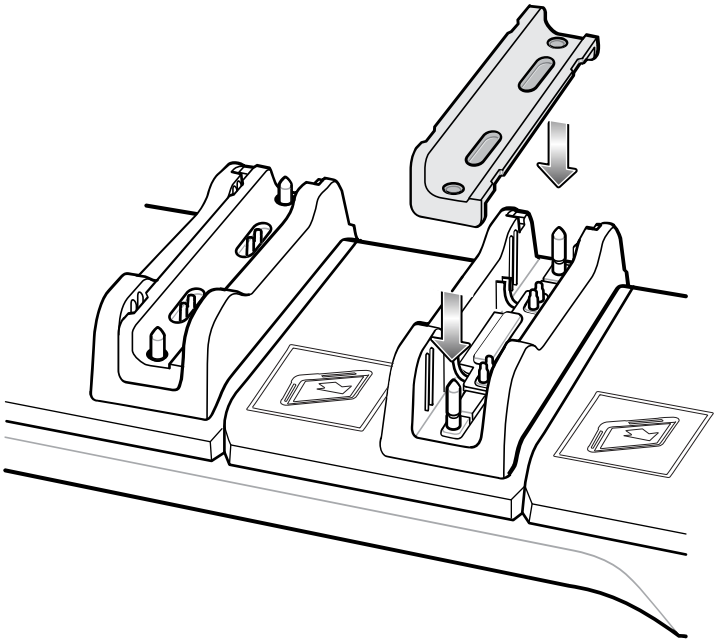


1	PWR-BGA12V108W0WW
2	PWR-BGA12V50W0WW

Installing the Insert

Install inserts into slots for devices without a Rugged Frame.

1. Align the insert with the cradle slot.

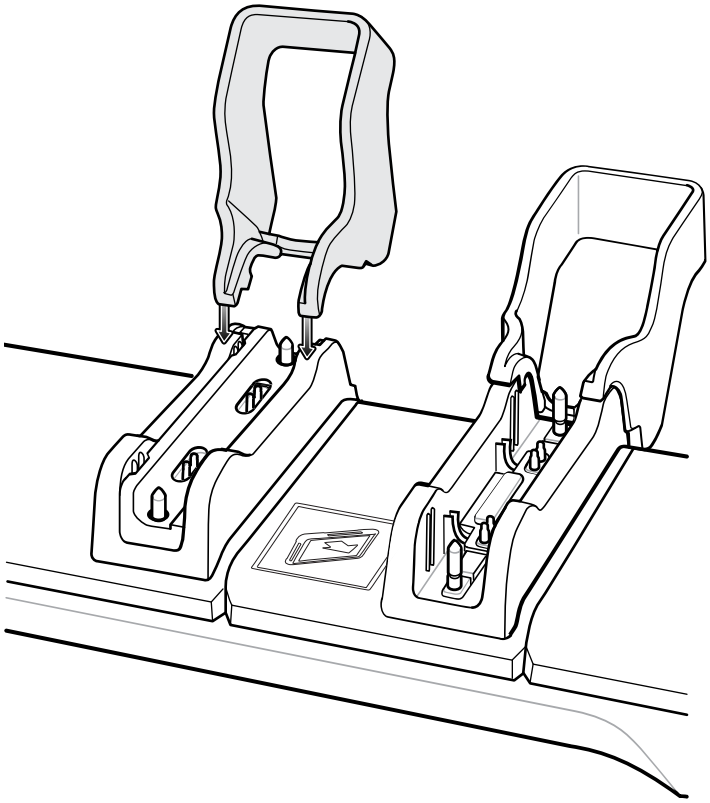


2. Press insert down until fully seated.

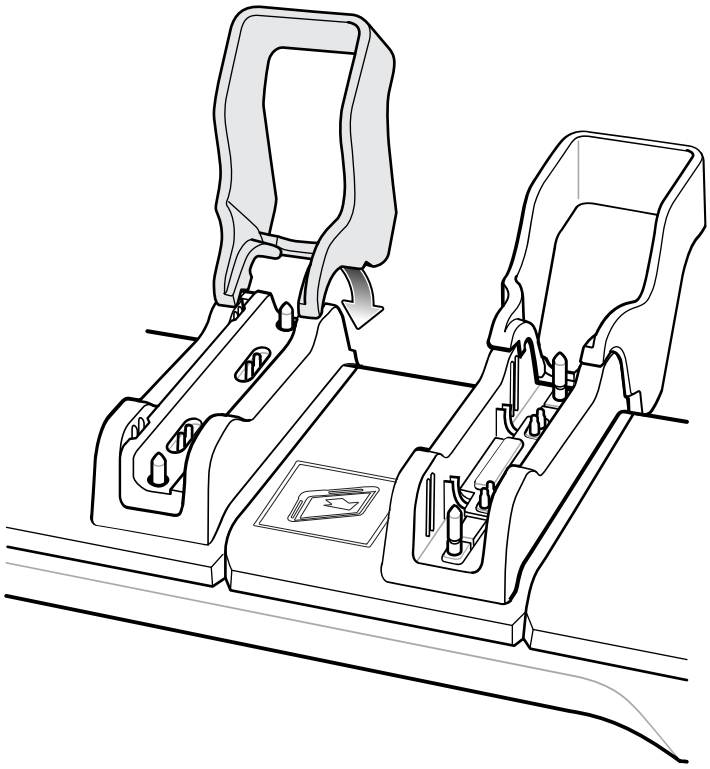
Installing the Guide

The cradle comes with four 8 in. tablets guide and four 10 in. tablet guides. Install the appropriate guides for the tablets.

1. Align the two tabs on the guide with the two slots in the cradle.



2. Place the guide down onto the cradle and then rotate the guide until it snaps into the cradle.

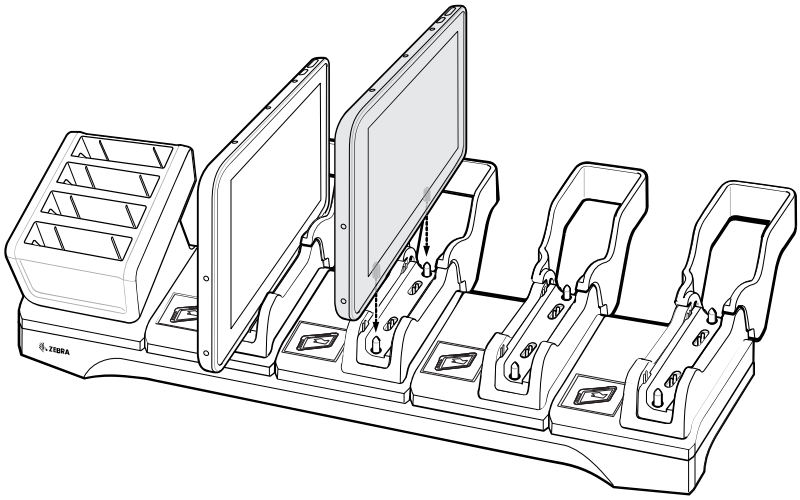


Inserting a Tablet without Rugged Frame into a Slot

Provides steps to install a tablet without a rugged frame into the cradle.

NOTE: There are rubs on the insert that prevent the tablet from being inserted in the wrong orientation.

1. Install insert into slot.
2. Align the two alignment holes on the bottom of the tablet with the two alignment pins in the slot.



3. Place the device down into the slot with display facing away from Battery Charger.

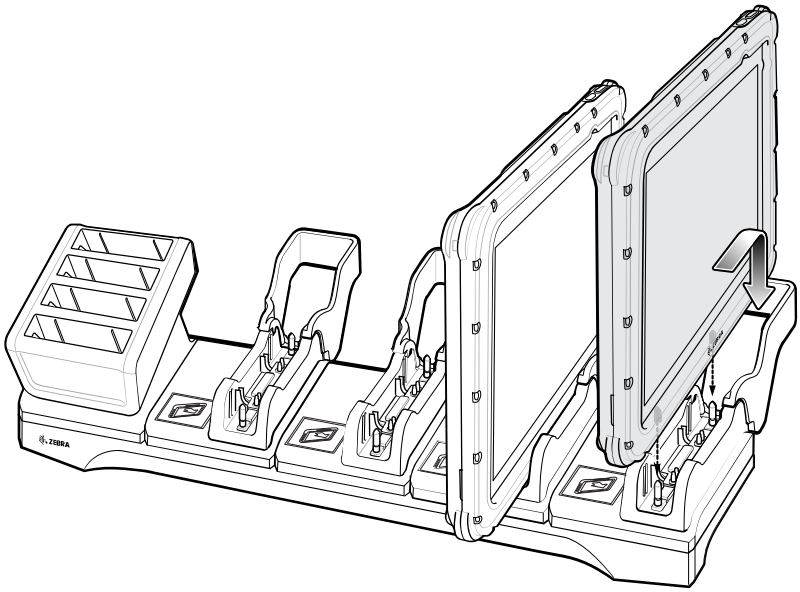
Inserting a Tablet with a Rugged Frame into a Slot

Provides steps to install a tablet with a rugged frame into the cradle.

NOTE: There are rubs on the insert that prevent the tablet from being inserted in the wrong orientation.

1. If applicable, remove insert from slot.

2. Slide device over slot until it touches the guide.

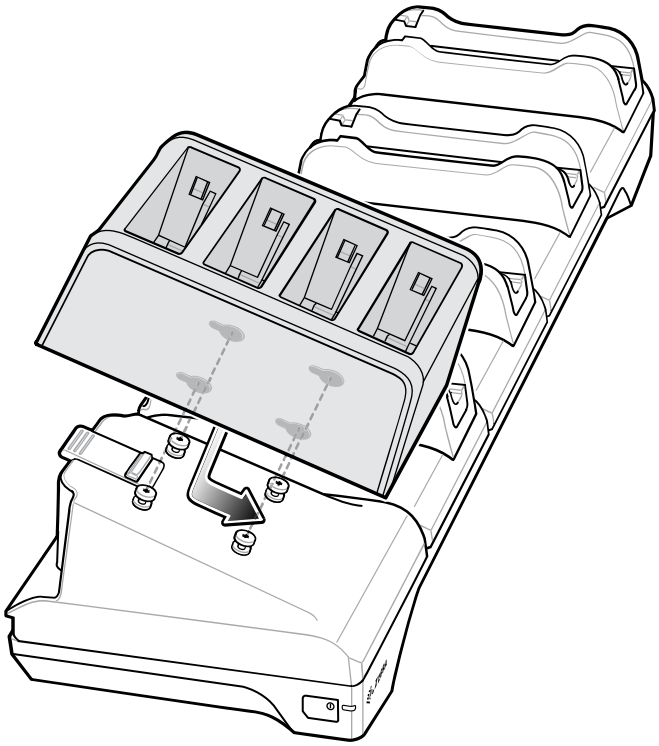


3. Place the device down into the slot with display facing away from Battery Charger.

Installing the Battery Charger

Install optional 4-Slot Battery Charger onto cradle:

1. Align the mounting holes on the bottom of the charger with the four studs on the cradle.



2. Place the charger on the cradle and then slide toward the front of the cradle.

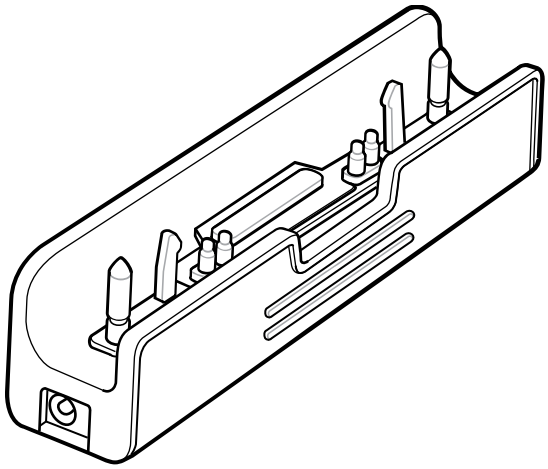
Rugged Charge Connector

Use the Rugged Charge Connector to charge an device tablet.

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

NOTE: The Rugged Connector does not support the ET51 Enterprise Tablet with Integrated Scanner.

Figure 48 Rugged Charge Connector

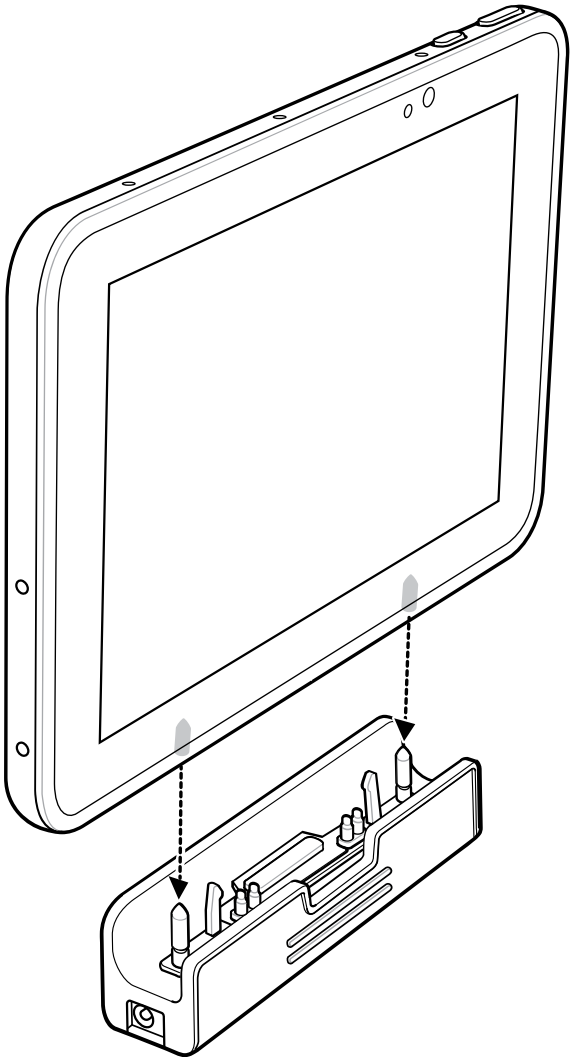


Connecting the Rugged Charge Connector

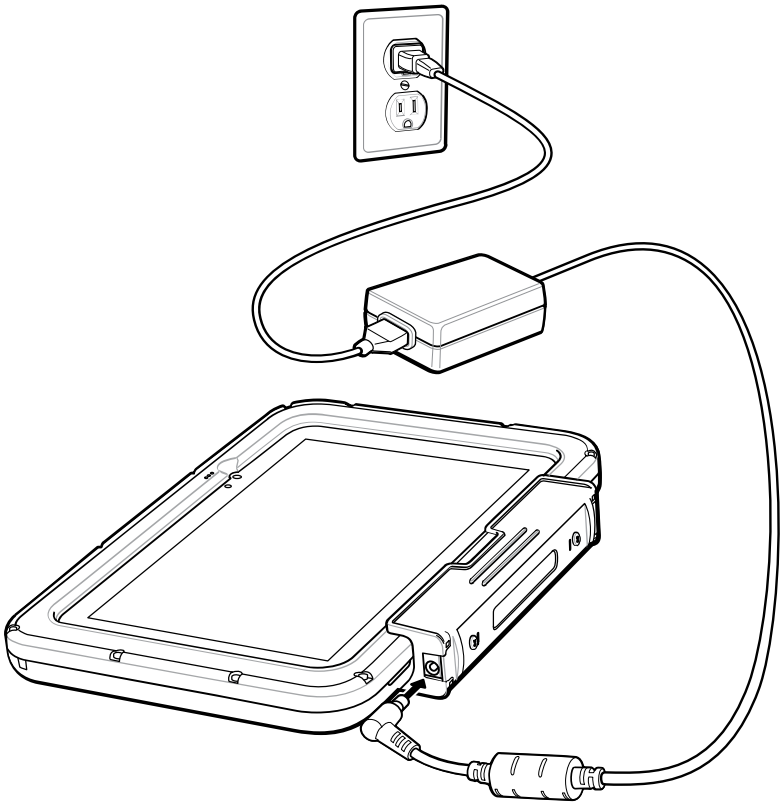
This section provides information on installing the Rugged Charge Connector onto the device.

To connect the Rugged Charge Connector to the device:

1. Align the pins in the Rugged Charge Connector with the slots in the device.



2. Plug the Power Supply connector into the Power Input Port on the Rugged Charge Connector.



4-Slot Battery Charger

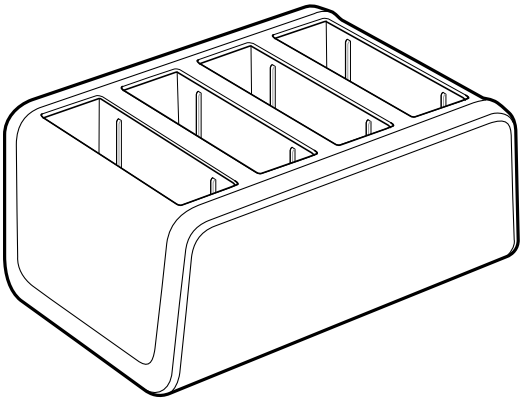
Use the 4-Slot Battery Charger to charge up to four Power Packs.

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

The 4-Slot Battery Charger:

- Provides 12 VDC power for charging the Power Packs.
- Simultaneously charges up to four Power Packs.

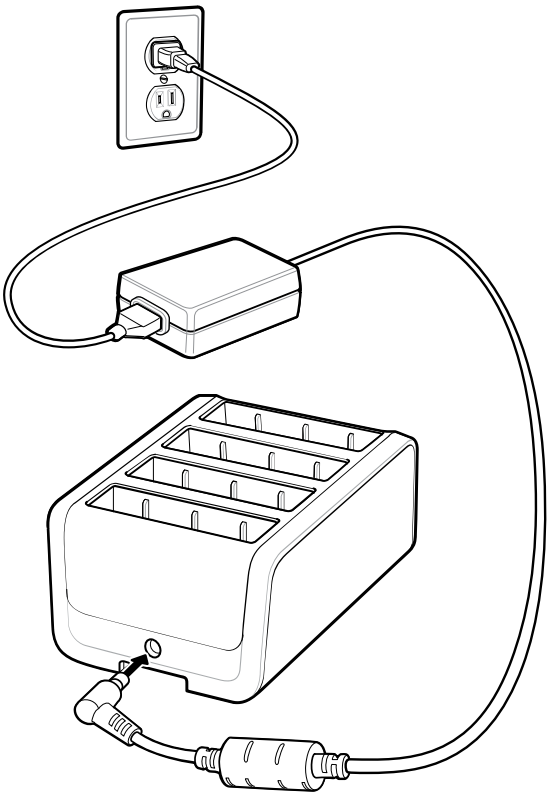
Figure 49 4-Slot Battery Charger



Power Setup

This section provides the ET40/ET45 4-Slot Battery charger setup information.

Figure 50 4-Slot Battery Charger Setup

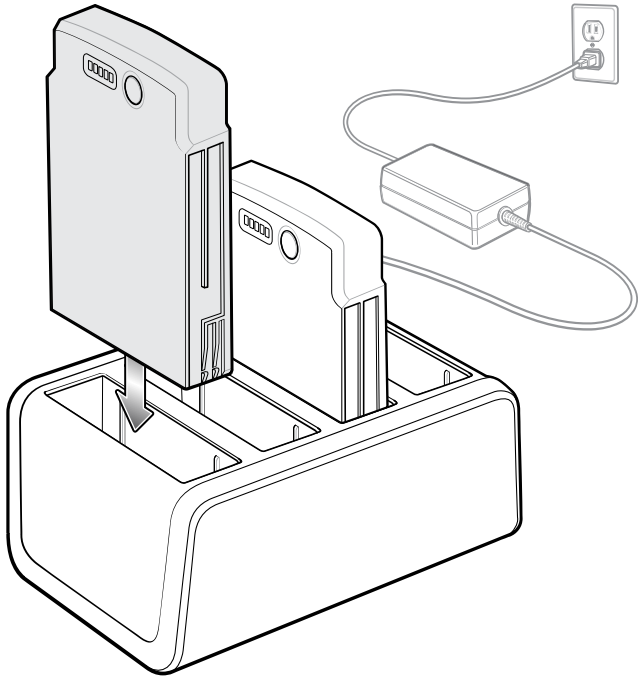


Charging the Power Pack Using the 4-Slot Battery Charger

Use the 4-Slot Battery Charger to charge up to four ET40/ET45 Power Packs.

To charge a Power Pack:

1. Connect the 4-Slot Battery Charger to AC outlet.
2. Insert the Power Pack into a slot.

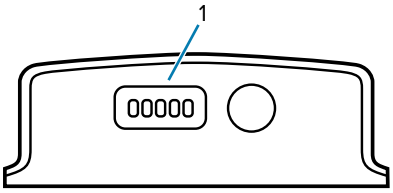


Power Pack Charging Indicators

Charge ET40/ET45 Power Packs in ambient temperatures from 0°C to +40°C (32°F to 104°F) as reported by the Power Pack. Charging is intelligently controlled by the charger. To accomplish this, for small periods of time, the charger alternately enables and disables Power Pack charging to keep the battery at acceptable temperatures.

The Power Pack charge LED shows the status of the battery charging. The Power Pack charges in less than three hours. When charging, the Charge LEDs indicate the charge level.

Figure 51 Power Pack Charge LEDs



1	Charge level indicators

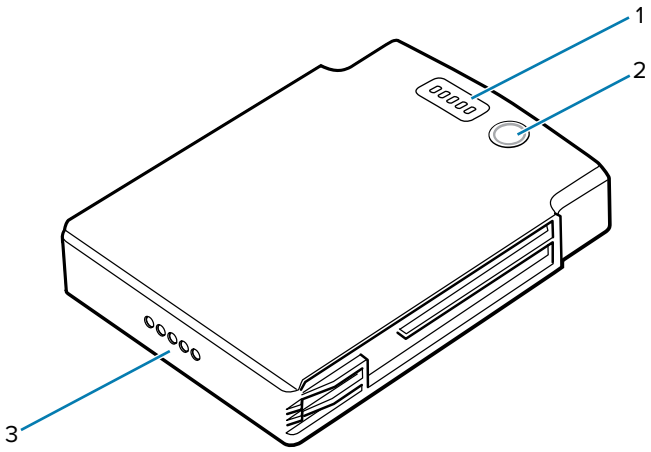
Table 28 Power Pack Charge Status Indicators

Power Pack Indicators	Description
0	**Solid Green LED**
0	**Blinking Green LED**
0	**Blinking Red LED**
00000	Power not applied to Power Pack.
00000	Charge level is between 0% and 20%.
00000	Charge level is between 20% and 40%.
00000	Change level is between 40% and 60%.
00000	Charge level is between 60% and 80%.
00000	Charge level is between 80% and 100%.
00000	Fully charged.
00000	Charging error.

Power Pack

The optional Power Pack provides additional power for charging the main battery.

Figure 52 Power Pack



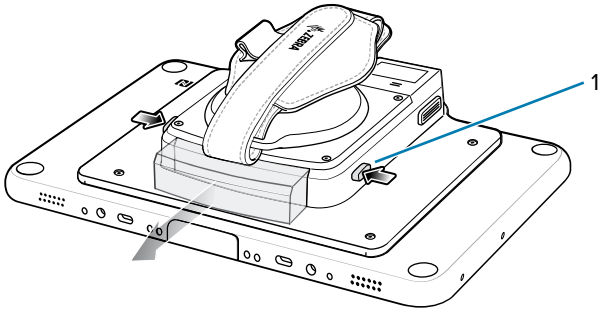
1	Charge level indicators
2	Charge indicator button

3	Power output contacts

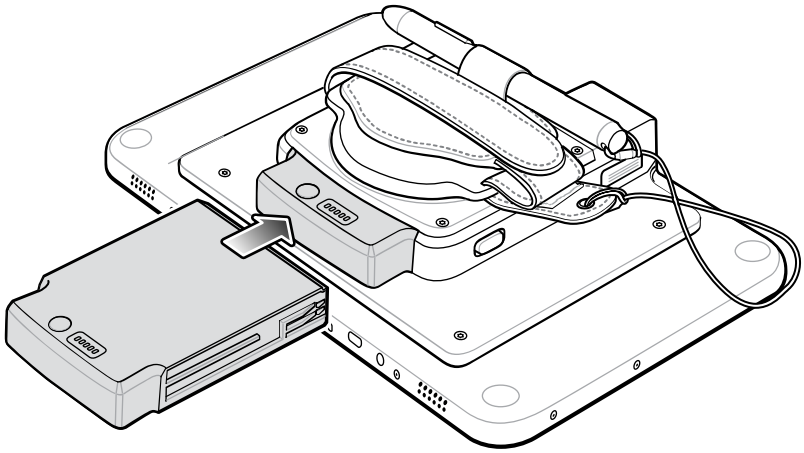
Installing the Power Pack

To install the power pack onto the device:

1. Install one of the optional Expansion Backs. See Expansion Back for more information.
2. Press the two release buttons (1) on the side of the Expansion Back. The dummy battery insert ejects slightly.



3. Remove dummy battery insert.
4. Insert Power Pack into slot until it snaps into place.



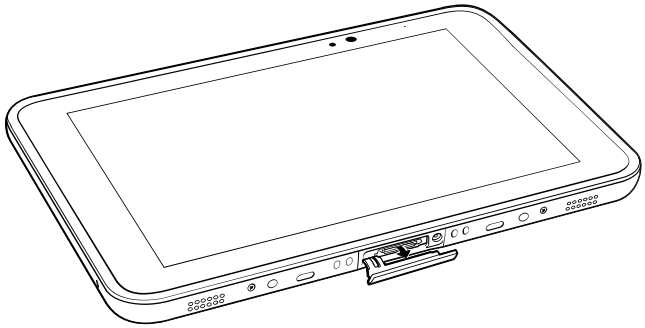
Rugged Frame

The Rugged Frame (8.4 in. and 10.1 in.) adds additional protection to the device. Use the Rugged I/O Adapter when docking the device into the Rugged Communications and Charging Cradle.

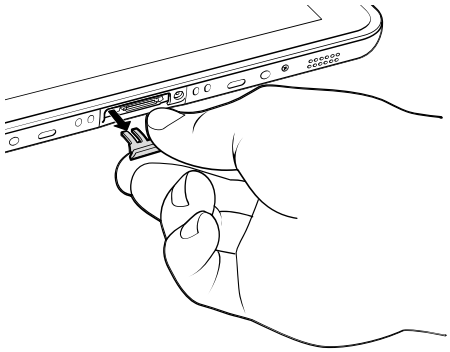
Installing the Rugged Frame

This section provides steps for installing the device into the Rugged Frame.

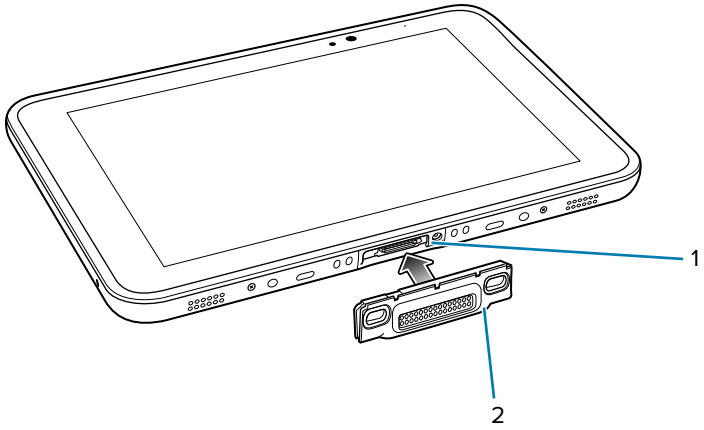
1. Open the access cover.



2. If installing the Rugged IO Adapter, pull the access cover away from the device until it separates from the device.

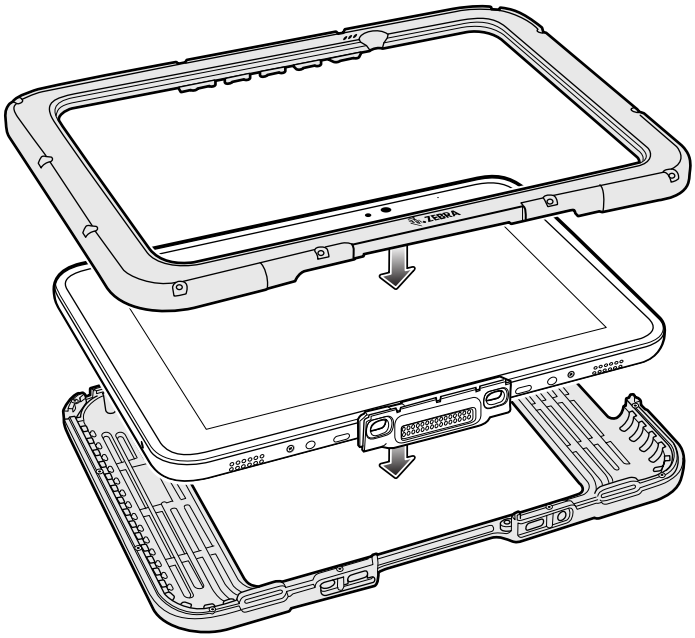


3. Insert the Rugged IO Adapter (2) onto the tablet interface connector (1).



4. Remove the Rugged Frame and screws from box.
5. Separate the top and bottom sections of the Rugged Frame.

6. Place the bottom section on a flat surface.



7. Place the device into the bottom section.
8. Align the top section over the bottom section.
9. Press the top section down onto the bottom section.

10. Using a T6 Torx screwdriver, secure the Rugged Frame together using the provided M1.6 Torx screws.

Figure 53 Secure 8 in. Rugged Frame

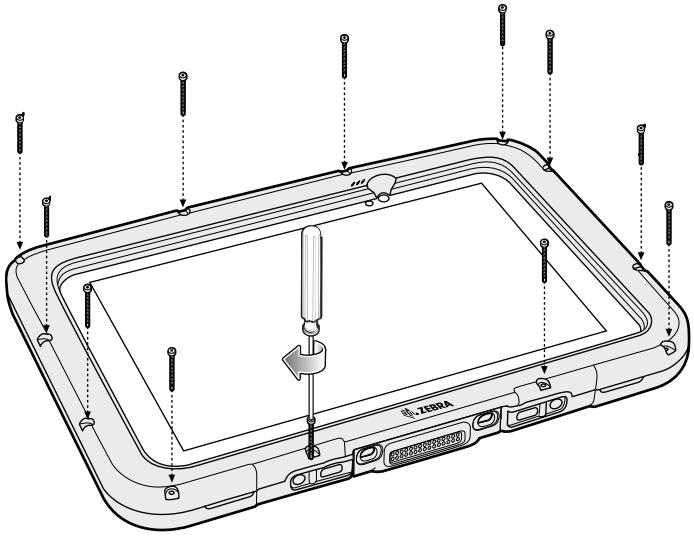
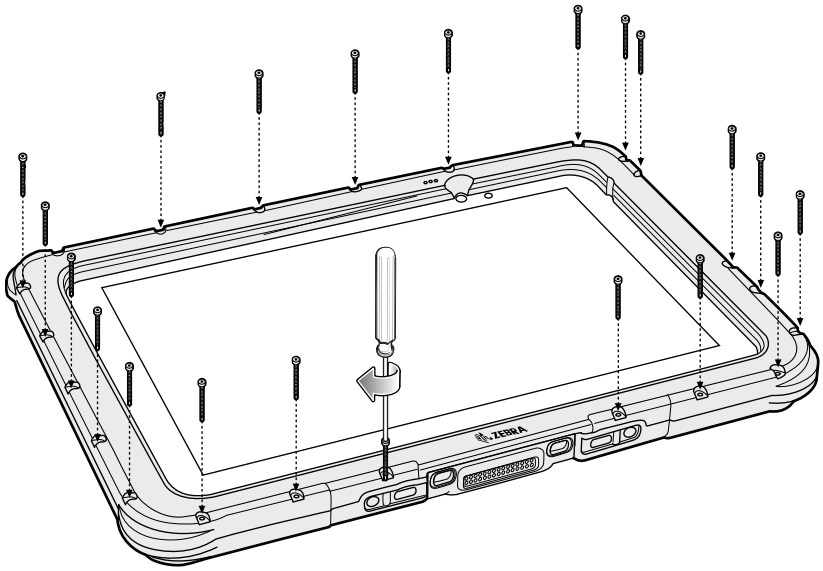


Figure 54 Secure 10 in. Rugged Frame



11. Torque the screws to 12 N-cm.

Expansion Back

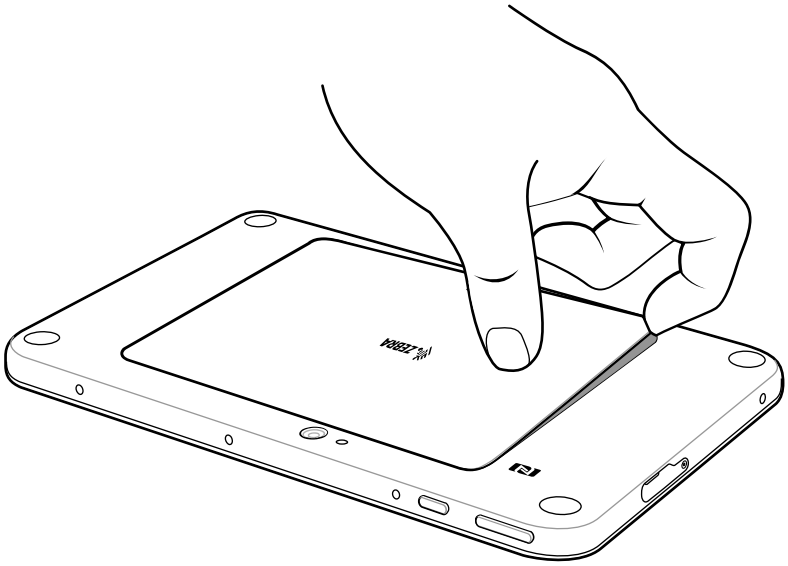
The Expansion Backs provide data capture and or Power Pack slot for the device.

Installing the Expansion Back

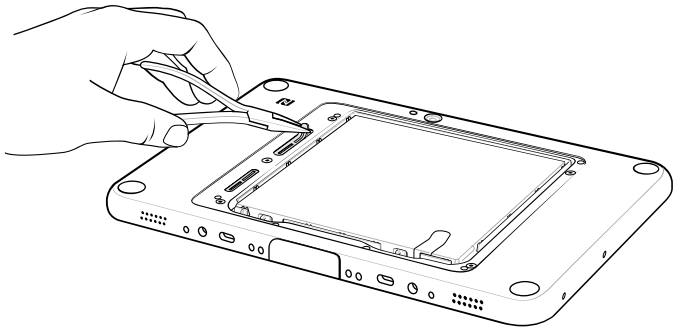
To install an Expansion Back:

CAUTION: Remove power before installing the Expansion Back.

1. Power off the device.
2. Remove battery cover and store in safe place.



3. On 8.4 in. version only, remove rubber gasket.



4. Align expansion back with device. Ensure that the power pack slot cover (1) is aligned with the bottom of the device and the interface connector (2) on expansion back aligns with interface connector on device.

Figure 55 Align Expansion Back with 8 in. Device

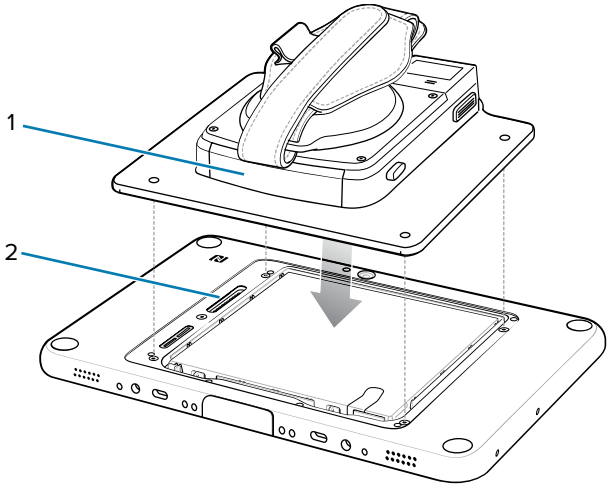
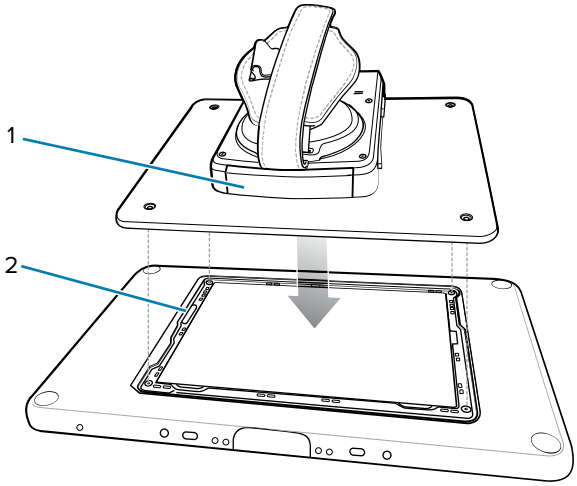
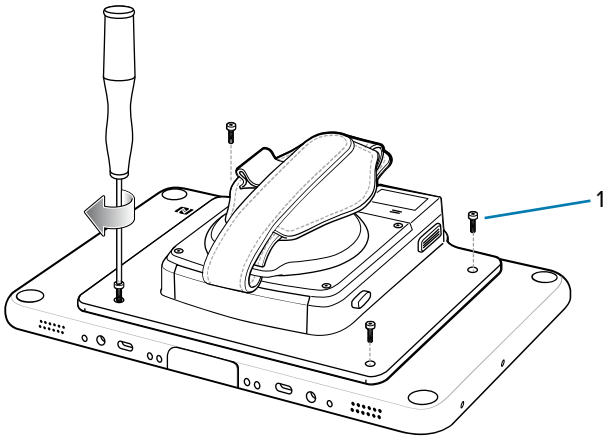


Figure 56 Align Expansion Back with 10 in. Device



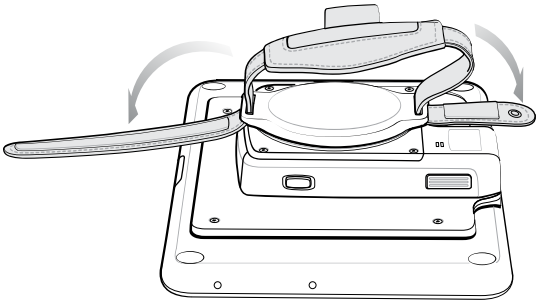
5. Using a T6 Torx screwdriver, secure expansion back to device using four screws (1). Torque to 14 n-cm.



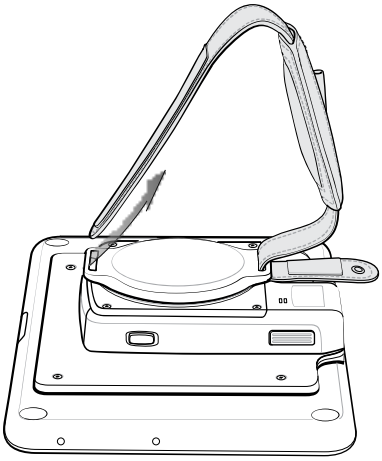
Replacing the Hand Strap

This section provides information for installing the hand strap onto the expansion back.

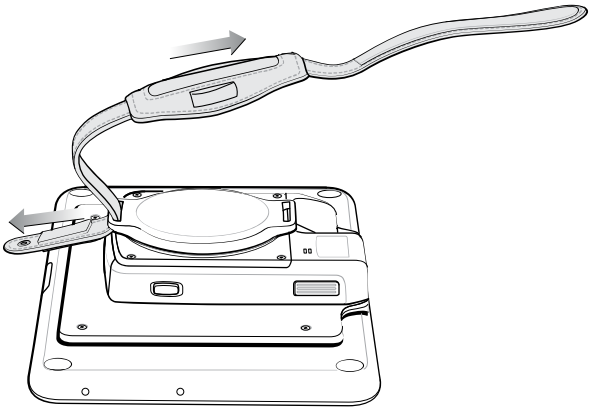
1. If the Power Pack is installed, remove the Power Pack.
2. Rotate the disk so that the strap end without the eyelet is aligned with the Power Pack opening.
3. Open both ends of the hand strap.



4. Pull the strap end without the eyelet through the slot on the Expansion Back.



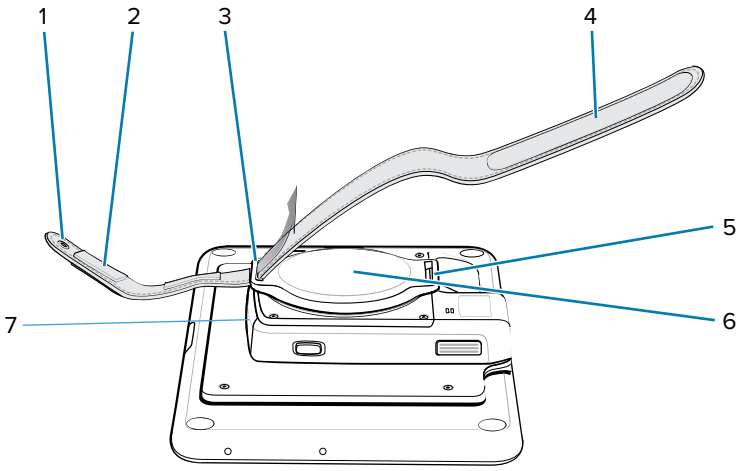
5. Rotate the disk 180°.
6. Slide the pad off the hand strap.
7. Pull the eyelet (1) end through the slot (2) on the Expansion Back.



8. Remove pad from new replacement hand strap.

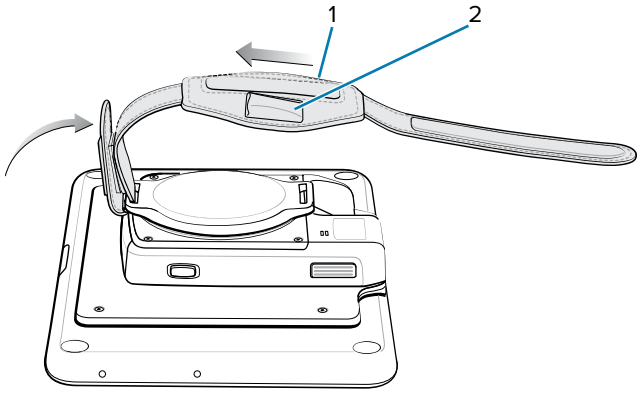
9. Rotate the disk (6) so that one of the slots is aligned with the Power Pack opening (7).

10. Feed the new hand strap through the slot (3) at the Power Pack opening (7).



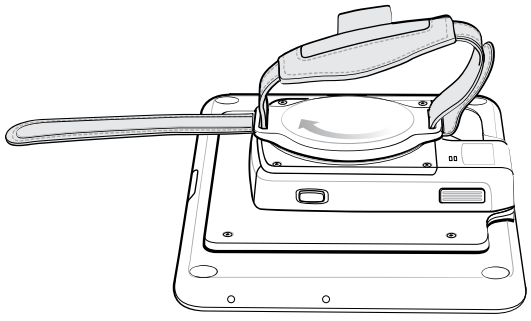
11. Slide pad (1) onto hand strap with the stylus holder (2) facing up.

12. Fold the eyelet end of the strap up and press hook and loop material together.

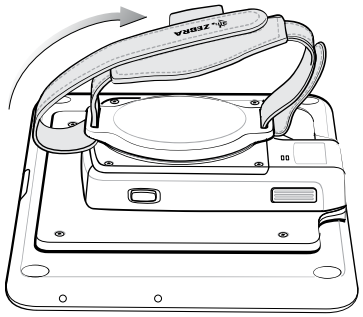


13. Rotate disk 180° so that the empty slot is aligned with the Power Pack opening.

14. Feed strap through the slot.



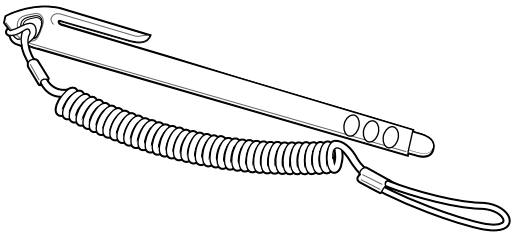
15. Fold the end of the strap up and press hook and loop material together.



Attaching the Stylus

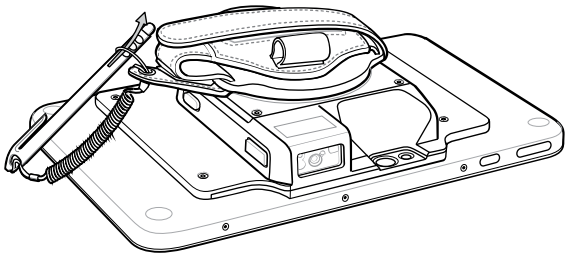
The Expansion Backs provide a holder for the stylus.

Figure 57 Passive Stylus



To install the stylus onto the Expansion Back:

1. Insert the loop of the tether through the eyelet on the hand strap of the Expansion Back.
2. Feed the stylus through the loop.



3. Pull the stylus all the way through the loop.
4. Slide the stylus into the holder for storing the stylus.

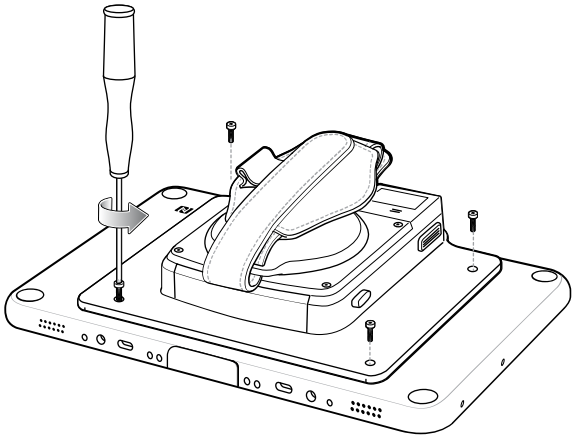
Removing the Expansion Back

This section provides steps to remove the Expansion Back.

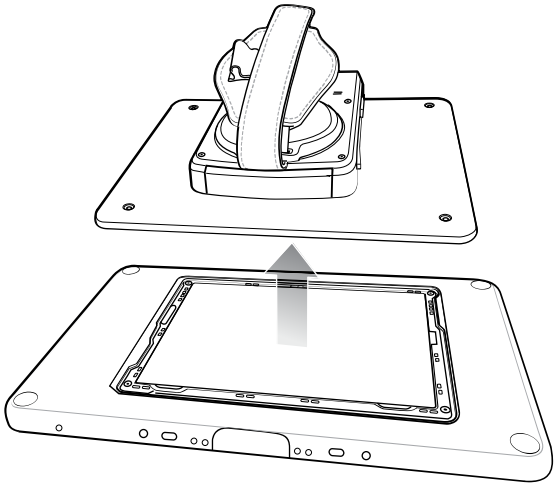
CAUTION: Remove power before removing the Expansion Back.

1. Power off the device.

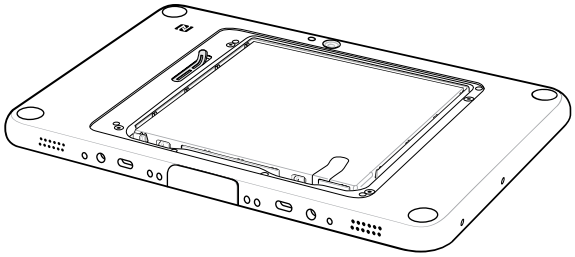
2. Using a T6 Torx screwdriver, remove four screws securing expansion back to device.



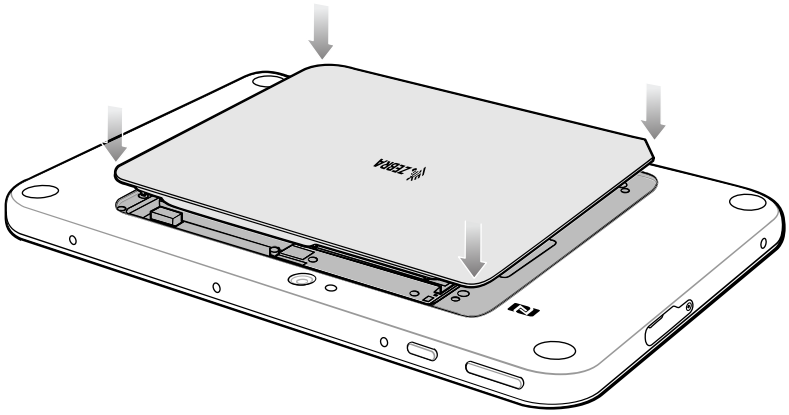
3. Lift Expansion Back off device.



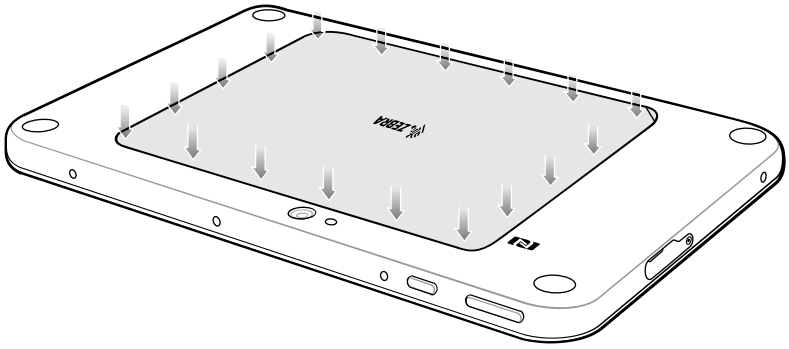
4. On 8 in. version only, replace rubber gasket removed during installation.



5. Replace battery cover.



6. Carefully press down around the edge of the cover. Make sure that the cover is seated properly.



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

ET51 with Integrated Scanner Hand Strap

The ET51 Enterprise Tablet with Integrated Scanner comes with additional screws for securing the hand strap to the device.

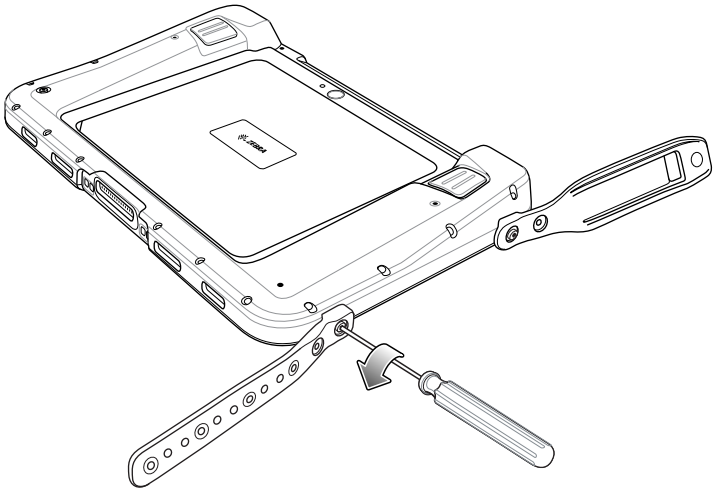
Removing the Hand Strap

This section provides information for removing the hand strap from the device.

To remove the hand strap:

1. Push the hand strap stud through the hole of the lower hand strap.
2. Pull the lower hand strap from the upper hand strap.

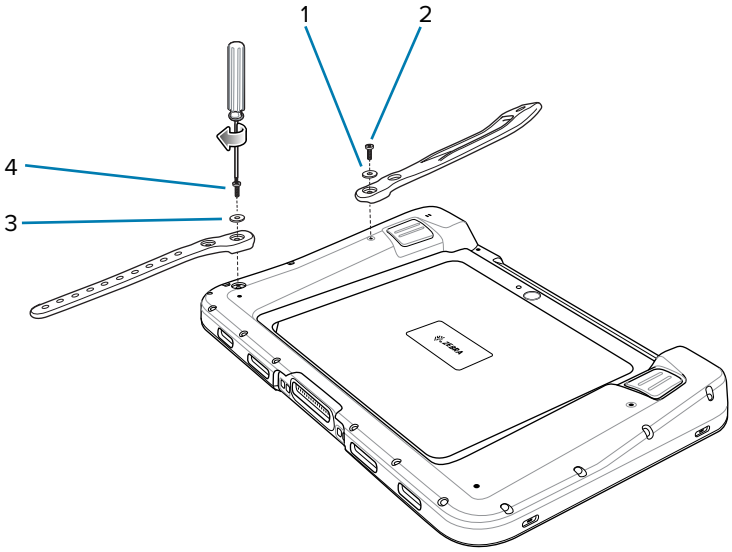
3. Remove the two screws and two washers securing the upper and lower hand strap to the device.



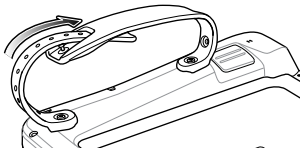
Installing the Hand Strap on the Back of the Device

This section provides information for installing the hand strap on the back of the device.

1. Align the upper and lower hand strap mounting holes with the screw holes on the device.
2. Using a T6 Torx screwdriver, secure the upper and lower hand strap to the device using the one M2x6 screw (2), one M2.5x11 screw (4), and two washers (1, 3).

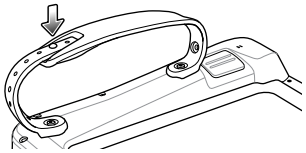


3. Torque the screws to 20 N-cm (1.77 lb in).
4. Feed the lower half of the hand strap through the upper half.



5. Position the hand strap for the right fit.

6. Align the stud with a hole in the lower half.
7. Press the lower hand strap down until the stud comes through the hole.

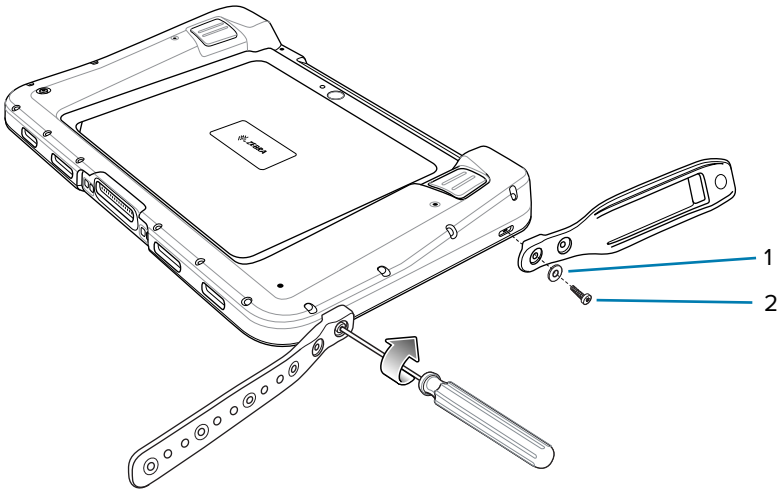


Installing the Hand Strap on the Side of the Device

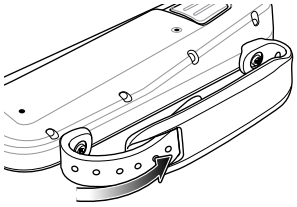
This section provides information for installing the hand strap on the side of the device.

To install the hand strap on the side of the device:

1. Align the upper and lower hand strap mounting holes with the screw holes on the device.

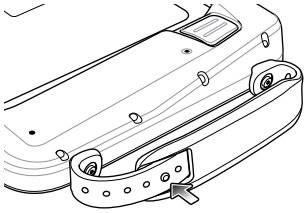


2. Using a T6 Torx screwdriver, secure the upper and lower hand strap to the device using the two M2.5x11 screws (2), and two washers (1).
3. Torque the screws to 20 N-cm (1.77 lb. in).
4. Feed the lower half of the hand strap through the upper half.



5. Position the hand strap for the right fit.
6. Align the stud with a hole in the lower half.

7. Press the lower hand strap down until the stud comes through the hole.



Application Deployment

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

Security

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

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

Secure Certificates

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

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

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

Installing a Secure Certificate

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

1. Copy the certificate from the host computer to the root of the microSD card or the device's internal memory. See USB Communication for information about connecting the device to a host computer and copying files.
2. Go to **Settings**.
3. Touch **Security** > **Encryption & credentials**.
4. Touch **Install a certificate**.
5. Navigate to the location of the certificate file.
6. Touch the filename of the certificate to install.

7. If prompted, enter the password for credential storage. If a password has not been set for the credential storage, enter a password for it twice, and then touch **OK**.
8. If prompted, enter the certificate's password and touch **OK**.
9. Enter a name for the certificate and in the Credential use drop-down, select **VPN and apps** or **Wi-Fi**.
10. Touch **OK**.

Configuring Credential Storage Settings

Configure credential storage from the device settings.

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

Android Development Tools

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

Android Development Workstation

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

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

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

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

Enabling Developer Options

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

1. Go to **Settings**.
2. Touch **About phone**.
3. Scroll down to **Build number**.
4. Tap **Build number** seven times.

   The message **You are now a developer!** appears.
5. Touch **Back**.

6. On Android 11, touch **System** > **Advanced** > **Developer options**.
7. On Android 13, touch **System** > **Developer options**.
8. Slide the **USB debugging** switch to the **ON** position.

EMDK for Android

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

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

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

StageNow for Android

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

The StageNow Staging Solution includes the following components:

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

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

GMS Restricted

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

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

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

ADB USB Setup

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

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

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

Enabling USB Debugging

By default, USB debugging is disabled.

1. Go to **Settings**.
2. Touch **About phone**.
3. Scroll down to **Build number**.
4. Tap **Build number** seven times.

   The message **You are now a developer!** appears.
5. Touch **Back**.
6. On Android 11, touch **System** > **Advanced** > **Developer options**.
7. On Android 13, touch **System** > **Developer options**.
8. Slide the **USB debugging** switch to the **ON** position.
9. Touch **OK**.
10. Connect the device to the host computer using the Rugged Charge/USB Cable.

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

    If the device and host computer are connected for the first time, the **Allow USB debugging?** dialog box with the **Always allow from this computer** check box displays. Select the check box, if required.
11. Touch **OK**.
12. Touch **OK** or **Allow**.
13. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
14. Type `adb devices`.

    The following displays:

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

    Where XXXXXXXXXXXXXXX is the device number.

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

15. Return to the Home screen.

Entering Android Recovery Manually

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

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

3. Press and hold the volume up button until the device vibrates.

   The System Recovery screen appears.

Application Installation

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

- USB connection, see Installing Applications Using the USB connection.
- Android Debug Bridge, see Installing Applications Using the Android Debug Bridge.
- Wireless Android Debug Bridge, see Installing Applications Using the Wireless Android Debug Bridge.
- microSD Card, see Installing Applications Using a microSD Card.
- Mobile device management (MDM) platforms that have application provisioning. Refer to the MDM software documentation for details.

Installing Applications Using the USB Connection

Use the USB connection to install applications onto the device.

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

NOTE: Not supported on the ET51 Enterprise Tablet with Integrated Scanner.

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

   By default, **No data transfer** is selected.
3. Touch **File Transfer**.
4. On the host computer, open a file explorer application.
5. On the host computer, copy the application APK file from the host computer to the device.

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

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

    The application appears in the App list.

Installing Applications Using the Android Debug Bridge

Use ADB commands to install applications onto the device.

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

NOTE: Not supported on the ET51 Enterprise Tablet with Integrated Scanner.

1. Ensure that the ADB drivers are installed on the host computer.
2. Connect the device to a host computer using a USB cable.
3. Enable **Developer options**.
4. Go to **Settings**.
5. On Android 11, touch **System** > **Advanced** > **Developer options**.
6. On Android 13, touch **System** > **Developer options**.
7. Slide the **USB debugging** switch to the **ON** position.
8. 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.
9. Touch **OK**.
10. Type `adb install <application>`.

    where: <application> = the path and filename of the apk file.
11. Disconnect the device from the host computer.

Installing Applications Using the Wireless Android Debug Bridge

Use ADB commands to install an application onto the device.

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

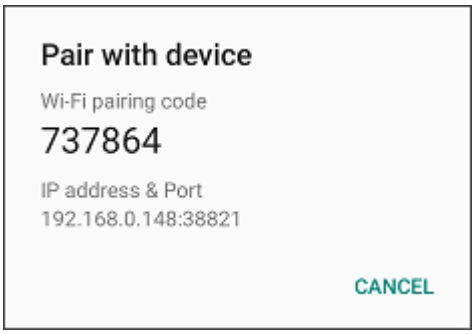
IMPORTANT: Ensure the latest adb files are installed on the host computer.

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

1. Go to **Settings**.
2. On Android 11, touch **System** > **Advanced** > **Developer options**.
3. On Android 13, touch **System** > **Developer options**.
4. Slide the **USB debugging** switch to the **ON** position.
5. Slide the **Wireless debugging** switch to the **ON** position.
6. 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.
7. Touch **ALLOW**.

8. Touch **Wireless debugging**.
9. Touch **Pair with pairing code**.

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



10. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
11. 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.
12. Press **Enter**.
13. Type the pairing code from the **Pair with device** dialog box.
14. Press **Enter**.
15. Type `adb connect 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.
16. Press **Enter**.

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

    The following displays:

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

    Where XXXXXXXXXXXXXXX is the device number.

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

18. On the host computer command prompt window type:

```
adb install <application>
```

19. On the host computer, type:

    `adb disconnect`.

Installing Applications Using a microSD Card

Use a microSD card to install applications on your device.

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

1. Copy the APK file to the root of the microSD card.
   - Copy the APK file to a microSD card using a host computer (see USB Communication for more information), and then install the microSD card into the device (see Replacing the microSD Card for more information).
   - Connect the device with a microSD card already installed to the host computer, and copy the .apk file to the microSD card. See USB Communication for more information. Disconnect the device from the host computer.
2. Press and hold **Power** to turn on the device.
3. Swipe the screen up and select to view files on the microSD card.
4. Touch **SD card**.
5. Locate the application APK file.
6. Touch the application file.
7. Touch **Continue** to install the app or **Cancel** to stop the installation.
8. To confirm installation and accept what the application affects, touch **Install**. Otherwise, touch **Cancel**.
9. Touch **Open** to open the application or **Done** to exit the installation process.

   The application appears in the App list.

Uninstalling an Application

Free up device memory by removing unused apps.

1. Go to **Settings**.
2. On Android 11, touch **Apps & notifications**.
3. On Android 13, touch **Apps**.
4. Touch **See all apps** to view all apps in the list.
5. Scroll through the list to the app.
6. Touch the app. The **App info** screen appears.
7. Touch **Uninstall**.
8. Touch **OK** to confirm.

Android System Update

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

CAUTION: These update procedures are only for updating an Android tablet (ET51CE, ET51CT, ET56DE, ET56DT). Do not attempt to update a Windows Tablet (ET51AE, ET56BE, ET51AT, ET56BT) with Android software.

Performing a System Update Using microSD Card

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

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

1. Copy the System Update zip file to the root of the microSD card.
   - Copy the ZIP file to a microSD card using a host computer, and then install the microSD card into the device. See Getting Started for information on installing the microSD card.
   - Connect the device with a microSD card already installed to the host computer, copy the ZIP file to the microSD card, and then disconnect the device from the host computer.
2. Press and hold **Power** until the menu appears.
3. Touch **Restart**.
4. Press and hold **Volume Up** until the device vibrates.

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

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

Performing a System Update Using ADB

Use ADB to perform a system update.

1. Connect the device to a host computer using the Rugged Charge/USB cable or by inserting the device into the 1-Slot USB/Charge Only Cradle.
2. Go to **Settings**.
3. On Android 11, touch **System** > **Advanced** > **Developer options**.
4. On Android 13, touch **System** > **Developer options**.
5. Slide the **USB debugging** switch to the **ON** position.
6. If the device and host computer are connected for the first time, the **Allow USB debugging?** dialog box with the **Always allow from this computer** check box displays. Select the check box, if required.
7. Touch **OK**.
8. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
9. Type `adb devices`.

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

10. Type `adb reboot recovery`.

11. Press **Enter**.

    The System Update installs (progress appears as a percentage in the Command Prompt window) and then the System Recovery screen appears on the device.
12. Press **Volume Up** and **Volume Down** to navigate to **Apply upgrade from ADB**.
13. Press **Enter**.

    The System Recovery screen appears on the device.
14. Press **Power**.
15. On the host computer command prompt window type `adb sideload <file>`.

    where: <file> = the path and filename of the zip file.
16. Press **Enter**.

    The System Update installs (progress appears as a percentage in the Command Prompt window) and then the System Recovery screen appears on the device.
17. Press **Power** to reboot the device.

If you are not able to enter Android Recovery mode through the adb command, see Entering Android Recovery Manually on page 164.

Verifying System Update Installation

Verify that the system update was successful.

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

Android Enterprise Reset

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

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

Performing an Enterprise Reset Using microSD Card

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

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

1. Copy the Enterprise Reset zip file to the root of the microSD card.
   - Copy the zip file to a microSD card using a host computer and then install the microSD card into the device. See Getting Started for more information.
   - Connect the device with a microSD card already installed to the host computer and copy zip file to the microSD card. See USB Communication for more information. Disconnect the device from the host computer.
2. Press and hold **Power** until the menu appears.
3. Touch **Restart**.
4. Press and hold **PTT** until the device vibrates.

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

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

Performing an Enterprise Reset Using ADB

Perform an Enterprise Reset using ADB.

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 the Rugged Charge/USB cable or by inserting the device into the 1-Slot USB/Charge Only Cradle.
2. Connect the cable or cradle to the host computer.
3. Go to **Settings**.
4. On Android 11, touch **System** > **Advanced** > **Developer options**.
5. On Android 13, touch **System** > **Developer options**.
6. Slide the **USB debugging** switch to the **ON** position.
7. If the device and host computer are connected for the first time, the **Allow USB debugging?** dialog box with the **Always allow from this computer** check box displays. Select the check box, if required.
8. Touch **OK**.
9. On the host computer command prompt window type `adb sideload <file>`

   where: <file> = the path and filename of the zip file.
10. Type `adb devices`.

    The following displays:

```
List of devices attached
```

```
XXXXXXXXXXXXXXX device
```

Where XXXXXXXXXXXXXXX is the device number.

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

11. Press **Enter**.

    The System Recovery screen appears on the device.
12. Press **Volume Up** and **Volume Down** to navigate to **Apply upgrade from ADB**.
13. Press **Power**.
14. On the host computer command prompt window type `adb sideload <file>`

    where: <file> = the path and filename of the zip file.
15. Press **Enter**.

    The Enterprise Reset package installs, and then the System Recovery screen appears on the device.
16. Press **Power** to reboot the device.

Android Factory Reset

A Factory Reset erases all data in the /data and /enterprise partitions in internal storage and clears all device settings. A Factory Reset returns the device to the last installed operating system image. To revert to a previous operating system version, re-install that operating system image. Zebra distributes the Factory Reset packages on the Zebra Support & Downloads website.

Performing a Factory Reset Using microSD Card

Perform a Factory Reset using a microSD card.

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

1. Copy the Factory Reset zip file to the root of the microSD card.
   - Copy the zip file to a microSD card using a host computer and then installing the microSD card into the device. See Getting Started for more information.
   - Connect the device with a microSD card already installed to the host computer, copy zip file to the microSD card, and then disconnect the device from the host computer.
2. Press and hold **Power** until the menu appears.
3. Touch **Restart**.
4. Press and hold **PTT** until the device vibrates.

   The System Recovery screen appears.
5. Press **Volume Up** and **Volume Down** to navigate to **Apply upgrade from SD card**.
6. Press **Power**.
7. Press **Volume Up** and **Volume Down** to navigate to **Full OTA Package**.
8. Press **Power**.
9. Use **Volume Up** and **Down Arrow** to navigate to the Factory Reset file.

10. Press **Power**.

    The Factory Reset occurs, and then the device returns to the Recovery screen.

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

Performing a Factory Reset Using ADB

Perform a Factory Reset using ADB.

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

1. Connect the device to a host computer using the Rugged Charge/USB cable or by inserting the device into the 1-Slot USB/Charge Only Cradle.
2. Go to **Settings**.
3. On Android 11, touch **System** > **Advanced** > **Developer options**.
4. On Android 13, touch **System** > **Developer options**.
5. Slide the **USB debugging** switch to the **ON** position.
6. If the device and host computer are connected for the first time, the **Allow USB debugging?** dialog box with the **Always allow from this computer** check box displays. Select the check box, if required.
7. Touch **OK**.
8. On the host computer, navigate to the **platform-tools** folder and open a command prompt window.
9. Type `adb devices`.

   The following displays:

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

   Where XXXXXXXXXXXXXXX is the device number.

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

10. Type:

    `adb reboot recovery`

11. Press **Enter**.

    The System Recovery screen appears on the device.

12. Press **Volume Up** and **Volume Down** buttons to navigate to **Apply upgrade from ADB**.
13. Press **Power**.
14. On the host computer command prompt window type`adb sideload <file>`.

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

15. Press **Enter**.

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

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

Android Storage

The device contains multiple types of file storage.

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

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

Random Access Memory

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

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

The screen displays the amount of used and free RAM.

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

Viewing Memory

View the amount of memory used and free RAM.

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

Internal Storage

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

Viewing Internal Storage

View available and used internal storage on the device.

1. Go to **Settings**.

2. Touch **Storage**.

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

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

External Storage

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

Viewing External Storage

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

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

   Touch **SD card** to view the contents of the card.
3. To unmount the microSD card, touch ⏏.

Formatting a microSD Card as Portable Storage

Format a microSD card as portable storage for the device.

1. Touch **SD card**.
2. Touch ⋮ > **Storage settings**.
3. Touch **Format**.
4. Touch **ERASE & FORMAT**.
5. Touch **DONE**.

Formatting a microSD Card as Internal Memory

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

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

1. Touch **SD card**.
2. Touch ⋮ > **Storage settings**.
3. Touch **Format as internal**.
4. Touch **ERASE & FORMAT**.
5. Touch **DONE**.

Enterprise Folder

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

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

Managing Apps

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

1. Go to **Settings**.
2. On Android 11, touch **Apps & notifications**.
3. On Android 13, touch **Apps**.
4. Touch **See all XX apps** to view all apps on the device.
5. Touch ⋮ > **Show system** to include system processes in the list.
6. Touch an app, process, or service in the list to open a screen with details about it and, depending on the item, to change its settings, permissions, notifications and to force stop or uninstall it.

App Details

Apps have different kinds of information and controls.

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

Managing Downloads

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

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

Maintenance and Troubleshooting

This section explains how to maintain and troubleshoot the device.

Maintaining the Device

This section provides information on maintaining the tablet.

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

- To avoid scratching the screen, use a the supplied Zebra approved stylus or plastic-tipped pens capacitive touch panel compatible stylus intended for use with a touch-sensitive screen. Never use an actual pen or pencil or other sharp object on the surface of the device screen.
- The touch-sensitive screen of the device is glass. Do not drop the device or subject it to strong impact.
- Protect the device from temperature extremes. Do not leave it on the dashboard of a car on a hot day, and keep it away from heat sources.
- Do not store the device in any location that is dusty, damp, or wet.
- Use a soft lens cloth to clean the device. If the surface of the device screen becomes soiled, clean it with a soft cloth moistened with an approved cleanser. For a list of approved cleansers, see Approved Cleanser Active Ingredients.
- Periodically replace the rechargeable battery to ensure maximum battery life and product performance. Battery life depends on individual usage patterns.

Battery Safety Guidelines

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

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

you have any questions about the compatibility of a battery or a charger, contact the Global Customer Support Center.

- For devices that utilize a USB port as a charging source, the device shall only be connected to products that bear the USB-IF logo or have completed the USB-IF compliance program.
- Do not disassemble, open, crush, bend, deform, puncture, or shred the battery.
- Severe impact from dropping any battery-operated device on a hard surface could cause the battery to overheat.
- Do not short-circuit a battery or allow metallic or conductive objects to contact the battery terminals.
- Do not modify or remanufacture, attempt to insert foreign objects into the battery, immerse or expose to water or other liquids, or expose to fire, explosion, or other hazard.
- Do not leave or store the equipment in or near areas that might get very hot, such as in a parked vehicle or near a radiator or other heat source. Do not place a battery into a microwave oven or dryer.
- Battery usage by children should be supervised.
- Please follow local regulations to properly dispose of used rechargeable batteries.
- Do not dispose of batteries in a fire.
- In the event of a battery leak, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with water for 15 minutes, and seek medical advice.
- If you suspect damage to your equipment or battery, contact Customer Support to arrange for inspection.

Cleaning Instructions

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

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

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

Approved Cleanser Active Ingredients

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

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

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

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

that these type of disinfectants come in contact with metal on the device, prompt removal with an alcohol-dampened cloth or cotton swab after the cleaning step is critical.

Harmful Ingredients

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

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

Device Cleaning Instructions

Do not apply liquid directly to the device. Dampen a soft cloth or use pre-moistened wipes. Do not wrap the device in the cloth or wipe, instead gently wipe the unit. Be careful not to let liquid pool around the display window or other places. Before use, allow the unit to air dry.

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

Special Cleaning Notes

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

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

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

Cleaning Materials Required

- Alcohol wipes
- Lens tissue
- Cotton-tipped applicators
- Isopropyl alcohol
- Can of compressed air with a tube.

Cleaning Frequency

The cleaning frequency is at the customer's discretion due to the varied environments in which the mobile devices are used and may be cleaned as frequently as required. When dirt is visible, it is recommended to

clean the mobile device to avoid the build-up of particles, which makes the device more difficult to clean later on.

Cleaning Battery Connectors

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

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

Troubleshooting

This section provides troubleshooting options for the device and accessories.

Resetting the Device

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

Performing a Soft Reset

Perform a soft reset if the applications stop responding.

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

   The device reboots.

Performing a Hard Reset

Perform a hard reset if the device stops responding.

CAUTION: Performing a hard reset with a microSD card installed in the device may cause damage or data corruption to the microSD card. All un-saved data is lost after performing a hard reset.

1. Press and hold the power button and the volume up button.
2. When the screen turns off, release the buttons.

   The device reboots.

Troubleshooting the Device

This section provides troubleshooting options for the device.

Table 29 Troubleshooting the Device

Problem	Cause	Solution
Tablet does not turn on.	Battery not charged.	Charge the battery in the tablet.
	Battery not installed properly.	Ensure battery is installed properly.
	System crash.	If the tablet does not turn on, perform a hard reset. See Performing a Hard Reset.
Battery did not charge.	Battery failed.	Replace battery. If the tablet still does not operate, try a hard reset. See Performing a Hard Reset.
	Tablet removed from cradle before charging completed.	Insert the tablet into the cradle and begin charging. The battery fully charges in approximately four hours.
	Ambient temperature of the cradle is too warm or too cold.	The ambient temperature must be between 0°C and 40°C (32 °F and 104°F).
Unable to connect to the wireless network.	SIM card is valid.	Ensure that the micro SIM card is valid and workable if using a mobile network.
	Not within range of network.	Move within the network's service range and the signal strength is good.
	Device is in airplane mode.	Ensure that device is not in Airplane mode.
The multi-touch screen responds slowly or improperly.	Finger or screen is wet.	Ensure that your hands are clean and dry when touching the screen. Restart the tablet to try again.
Tablet turns itself off.	Tablet is inactive.	The tablet turns off after a period of inactivity. If the tablet is running on battery power.
	Battery is depleted.	Place the tablet in the cradle to re-charge the battery.
	The tablet's battery is low and it powers down to protect memory content.	Place the tablet in a cradle to re-charge the battery.

Charge Only Cradle

This section provides troubleshooting options for the Charge Only Cradle.

Table 30 Troubleshooting the Charge only Cradle

Symptom	Possible Cause	Solution
Battery is not charging.	Tablet was removed from cradle or cradle was unplugged from AC power.	Ensure cradle is receiving power. Ensure tablet is seated correctly. Confirm main battery is charging. The battery fully charges in approximately four hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The tablet is not fully seated in the cradle.	Remove and re-insert the tablet into the cradle, ensuring it is firmly seated.
	Ambient temperature of the cradle is too warm or too cold.	Move the cradle to an area where the ambient temperature is between 0°C and 40°C (32°F and 104°F).

Communication and Charging Cradles

This section provides troubleshooting options for the Communication and Charging Cradles.

Table 31 Troubleshooting the Communication and Charging Cradles

Symptom	Possible Cause	Solution
Battery is not charging.	Tablet was removed from cradle or cradle was unplugged from AC power.	Ensure cradle is receiving power. Ensure tablet is seated correctly. Confirm main battery is charging. The battery fully charges in approximately four hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The tablet is not fully seated in the cradle.	Remove and re-insert the tablet into the cradle, ensuring it is firmly seated.
	Ambient temperature of the cradle is too warm or too cold.	Move the cradle to an area where the ambient temperature is between 0°C and 40°C (32°F and 104°F).
During communication, no data transmits, or transmitted data was incomplete.	Tablet removed from cradle during communications.	Replace tablet in cradle and retransmit.
	Incorrect cable configuration.	Ensure that the correct cable configuration.
Tablet does not lock into cradle.	Access cover closed.	Open tablet access cover and re-insert tablet onto cradle.
	Tablet with Rugged Frame and IO Adapter does not mate with Communication and Charging Cradle.	Use Rugged Communication and Charging Cradle.

Expansion Backs

This section provides troubleshooting options for the Expansion Backs.

Table 32 Troubleshooting the Expansion Backs

Symptom	Possible Cause	Solution
Aiming laser does not display when pressing trigger.	On 8.4 in. tablet, did not remove rubber gasket during installation.	See system administrator to re-install Expansion Back.
	Tablet is in suspend mode.	Press power button to wake the tablet.
	Battery is low.	If the scanner stops emitting a laser beam upon a scan button press, check the battery level. When the battery is low, the scanner shuts off before the tablet low battery condition notification. Note: If the scanner is still not reading bar codes, contact system administrator.
Laser comes on, but scanner does not decode the bar code.	Tablet is not programmed for the bar code.	Ensure the application is programmed to read the type of bar code being scanned. Contact system administrator.
	Unreadable bar code.	Check the symbol to ensure it is not defaced. Try scanning another bar code of the same type.
	Distance between exit window and bar code is incorrect.	Move the tablet within proper scanning range.
	Scanning application is not loaded.	Load a scanning application. See the system administrator.

Rugged Charge Connector

This section provides troubleshooting options for the rugged charge connector.

Table 33 Troubleshooting the Rugged Charge Connector

Symptom	Possible Cause	Solution
Tablet battery is not charging.	Tablet was removed from connector or connector was unplugged from AC power.	Ensure connector is receiving power. Ensure tablet is seated correctly. Confirm tablet is charging. The battery fully charges in approximately four hours.
	Battery is faulty.	Verify that other tablet batteries charge properly. If so, replace the faulty battery.
	The tablet is not fully seated in the connector.	Remove and re-insert the tablet into the connector, ensuring it is firmly seated.

Table 33 Troubleshooting the Rugged Charge Connector (Continued)

Symptom	Possible Cause	Solution
	Ambient temperature of the cradle is too warm or too cold.	Move the cradle to an area where the ambient temperature is between 0°C and 40°C (32°F and 104°F).

4-Slot Charge Only Cradle

This section provides troubleshooting options for the 4-Slot Charge Only Cradle.

Table 34 Troubleshooting the 4-Slot Charge Only Cradle

Symptom	Possible Cause	Solution
Tablet battery is not charging.	Tablet was removed from cradle or cradle was unplugged from AC power.	Ensure cradle is receiving power. Ensure tablet is seated correctly. Confirm main battery is charging. The battery fully charges in approximately four hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The tablet is not fully seated in the cradle.	Remove and re-insert the tablet into the cradle, ensuring it is firmly seated. Ensure that an insert is not used with tablet with Rugged Frame. Ensure that an insert is used with tablet without Rugged Frame.
	Ambient temperature of the cradle is too warm or too cold.	Move the cradle to an area where the ambient temperature is between 0°C and 40°C (32°F and 104°F).

4-Slot Battery Charger

This section provides troubleshooting options for the 4-Slot Battery Charger.

Table 35 Troubleshooting the 4-Slot Battery Charger

Symptom	Possible Cause	Solution
Power Pack Charging LED does not light when inserted.	Power Pack is not correctly seated.	Remove and re-insert the spare battery into the charging slot, ensuring it is correctly seated.
Power Pack is not charging.	Power Pack was removed from charger or charger was unplugged from AC power.	Ensure charger is receiving power. Ensure Power Pack is seated correctly. Confirm Power Pack is charging. The Power Pack fully charges in approximately four hours.
	Power Pack is faulty.	Verify that other Power Pack charge properly. If so, replace the faulty Power Pack.

Table 35 Troubleshooting the 4-Slot Battery Charger (Continued)

Symptom	Possible Cause	Solution
	The Power Pack is not fully seated in the charger.	Remove and re-insert the Power Pack into the charger, ensuring it is firmly seated.
	Ambient temperature of the charger is too warm or too cold.	Move the charger to an area where the ambient temperature is between 0°C and 40°C (32°F and 104°F).

Specifications

This section provides information for access device specifications and lists decode range and accessory specifications.

For device technical specifications, go to zebra.com/et5x.

Expansion Back Supported Symbologies

This section lists the barcode symbologies supported by the Expansion Back accessory.

Table 36 Expansion Back Supported Symbologies

Barcode Type	Symbologies
1D	Bookland EAN, Chinese 2 of 5, Codabar, Code 11, Code 128, Code 32, Code 39, Code 93, Discrete 2 of 5, EAN-8, EAN-13, GS1-128, Interleaved 2 of 5, Inverse 1D, ISBT-128, ISSN EAN, Korean 2 of 5, MSI, Matrix 2 of 5, Trioptic Code 39, UCC Coupon Code, UPCA, UPCE, UPCE1.
2D	Aztec, Aztec Inverse, Composite AB, Composite C, Data Matrix, Data Matrix Inverse, Maxicode, Micro PDF417, Micro QR, PDF417, QR Code, QR Code Inverse, Han Xin, Han Xin Inverse
Postal	Australian Postal, Japan Postal, UK Postal, US Planet, US Postnet, Netherlands KIX Code, USPS 4CB/One Code/Intelligent Mail, UPU FICS Postal

SE4750 Expansion Back Decode Range

This section provides the decode range information for the SE4750 Expansion Back.

Table 37 SE4750 Expansion Back Decode Range

Barcode Type	Near Distance (typical)	Far Distance (typical)
3 mil Code 39	7.1 cm (2.8 in.)	15.8 cm (6.2 in.)
5 mil Code 128	5.8 cm (2.3 in.)	22.1 cm (8.7 in.)
5 mil PDF417	7.6 cm (3.0 in.)	20.6 cm (8.1 in.)
6.67 mil PDF417	5.6 cm (2.2 in.)	26.9 cm (10.6 in.)
10 mil Data Matrix	6.1 cm (2.4 in.)	25.4 cm (10.0 in.)
100% UPCA	4.1 cm (1.6 in.)*	58.4 cm (23.0 in.)
15 mil Code 128	6.1 cm (2.4 in.)*	64.0 cm (25.2 in.)

Table 37 SE4750 Expansion Back Decode Range (Continued)

Barcode Type	Near Distance (typical)	Far Distance (typical)
20.0 mil Code 39	4.1 cm (1.6 in.)*	92.2 cm (36.3 in.)
* Limited by width of bar code in field of view. Note: Photographic quality bar code at 18° tilt pitch angle under 30 fcd ambient illumination.		

Integrated Scanner Decode Ranges

This section provides barcode decode information for the ET51 with Integrated Scanner.

Table 38 Integrated Scanner Decode Zones

Barcode Type	Near Distance (typical)	Far Distance (typical)
4 mil Code 39	8.4 cm (3.3 in.)	22.4 cm (8.8 in.)
5 mil Code 128	5.8 cm (2.3 in.)	20.8 cm (8.2 in.)
5 mil Code 39	5.1 cm (2.0 in.)	34.3 cm (13.5 in.)
5 mil PDF417	7.9 cm (3.1 in.)	21.3 cm (8.4 in.)
10 mil Data Matrix	7.4 cm (2.9 in.)	25.7 cm (10.1 in.)
100% UPCA	4.6 cm (1.8 in.)	66.0 cm (26.0 in.)
20.0 mil Code 39	5.1 cm (2.0 in.)	76.2 cm (30.0 in.)
Note: Photographic quality bar code at 18° tilt pitch angle under 30 fcd ambient illumination.		

Charge Only Cradle Specifications

This section provides specification information on the Charge Only Cradle.

Table 39 Charge Only Cradle

Feature	Description
Dimensions	Height: 7.9 cm (3.1 in.) Width: 14.2 cm (5.6 in.) Depth: 11.9 cm (4.7 in.)
Weight	423 g (14.9 oz)
Input Voltage	12 VDC
Power Consumption	60 watts
Operating Temperature	0°C to 40°C (32°F to 104°F)
Humidity	10% to 90% non-condensing
Electrostatic Discharge (ESD)	+/- 8 kV air +/- 4 kV contact

Communication and Charging Cradle Specifications

This section provides specification information on the Communication and Charging Cradle.

Table 40 Communication and Charging Cradle

Feature	Description
Dimensions	Height: 7.9 cm (3.1 in.) Width: 14.2 cm (5.6 in.) Depth: 11.9 cm (4.7 in.)
Weight	629 g (22.2 oz)
Input Voltage	12 VDC
Power Consumption	60 watts
Operating Temperature	0°C to 40°C (32°F to 104°F)
Humidity	5% to 90% non-condensing
Electrostatic Discharge (ESD)	+/- 8 kV air +/- 4 kV contact

Rugged Communication and Charging Cradle Specifications

This section provides specification information on the Rugged Communication and Charging Cradle.

Table 41 Rugged Communication and Charging Cradle

Feature	Description
Dimensions	Height: 7.9 cm (3.1 in.) Width: 14.2 cm (5.6 in.) Depth: 11.9 cm (4.7 in.)
Weight	624 g (22.0 oz)
Input Voltage	12 VDC
Power Consumption	60 watts
Operating Temperature	0°C to 40°C (32°F to 104°F)
Humidity	5% to 90% non-condensing
Electrostatic Discharge (ESD)	+/- 8 kV air +/- 4 kV contact

8.4 in. Expansion Back Specifications

This section provides specification information on the 8.4 in. Expansion Back.

Table 42 8.4 in. Expansion Back

Feature	Description
Dimensions	Height: 137 mm (5.4 in.) Width: 157.5 mm (6.2 in.) Depth: 157.5 mm (6.2 in.)
Weight	246 g (8.7 oz)
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-20°C to 60°C (-40°F to 158°F)
Humidity	5% to 95% non-condensing
Drop	1.2 m (4 ft) drop to plywood over concrete per MIL-STD 810G across operating temperatures with rugged frame.
Electrostatic Discharge (ESD)	+/- 8 kV air +/- 4 kV contact

8.4 in. SE4750 Expansion Back Specifications

This section provides specification information on the 8.4 in. SE4750 Expansion Back.

Table 43 8.4 in. SE4750 Expansion Back

Feature	Description
Dimensions	Height: 137 mm (5.4 in.) Width: 157.5 mm (6.2 in.) Depth: 157.5 mm (6.2 in.)
Weight	273 g (9.6 oz)
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-20°C to 60°C (-40°F to 158°F)
Humidity	5% to 95% non-condensing
Drop	1.0 m (3.28 ft) drop to plywood over concrete per MIL-STD 810G across operating temperatures with rugged frame.
Electrostatic Discharge (ESD)	+/- 8 kV air +/- 4 kV contact

10.1 in. Expansion Back Specifications

This section provides specification information on the 10.1 in. Expansion Back.

Table 44 10.1 in. Expansion Back

Feature	Description
Dimensions	Height: 157.7 mm (6.2 in.) Width: 184 mm (7.2 in.) Depth: 54 mm (2.1 in.)
Weight	307 g (10.8 oz)
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-20°C to 60°C (-40°F to 158°F)
Humidity	5% to 95% non-condensing
Drop	1.0 m (3.28 ft) drop to plywood over concrete per MIL-STD 810G across operating temperatures with rugged frame.
Electrostatic Discharge (ESD)	+/- 8 kV air +/- 4 kV contact

10.1 in. SE4750 Expansion Back Specifications

This section provides specification information on the 10.1 in. SE4750 Expansion Back.

Table 45 10.1 in. SE4750 Expansion Back

Feature	Description
Dimensions	Height: 157.7 mm (6.2 in.) Width: 184 mm (7.2 in.) Depth: 54 mm (2.1 in.)
Weight	336.5 g (11.9 oz)
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-20°C to 60°C (-40°F to 158°F)
Humidity	5% to 95% non-condensing
Drop	1.0 m (3.28 ft) drop to plywood over concrete per MIL-STD 810G across operating temperatures with rugged frame.
Electrostatic Discharge (ESD)	+/- 8 kV air +/- 4 kV contact