RFD40 Series Premium and Premium Plus RFID Sleds

Quick Start Guide

MN-004375-03EN Rev B

ZEBRA

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

Copyright

2026/02/25

Terms of Use

Proprietary Statement

This manual contains proprietary information of Zebra Technologies Corporation and its subsidiaries ("Zebra Technologies"). It is intended solely for the information and use of parties operating and maintaining the equipment described herein. Such proprietary information may not be used, reproduced, or disclosed to any other parties for any other purpose without the express, written permission of Zebra Technologies.

Product Improvements

Continuous improvement of products is a policy of Zebra Technologies. All specifications and designs are subject to change without notice.

Liability Disclaimer

Zebra Technologies takes steps to ensure that its published Engineering specifications and manuals are correct; however, errors do occur. Zebra Technologies reserves the right to correct any such errors and disclaims liability resulting therefrom.

Limitation of Liability

In no event shall Zebra Technologies or anyone else involved in the creation, production, or delivery of the accompanying product (including hardware and software) be liable for any damages whatsoever (including, without limitation, consequential damages including loss of business profits, business interruption, or loss of business information) arising out of the use of, the results of use of, or inability to use such product, even if Zebra Technologies has been advised of the possibility of such damages. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

RFD40 QSG

Model Number

This guide applies to the following model number: RFD4031

Getting Started with the RFD40/RDF40-M

The RFD40 UHF RFID Premium sled provides RAIN Radio Frequency Identification (RFID) tag reading, writing, and locating capability to supported Zebra mobile computers and other host devices.

To use the RFD40 sled for the first time with a mobile computer:

1. Insert the battery into the device.
2. Charge the RFD40 sled using the charging cradle, charging cup, or USB-C cable.
3. Replace the cover with the adaptor that is specific to the mobile computer to be used with the sled.
4. Place the mobile computer into the adaptor headfirst.
5. Secure the mobile computer into the adaptor by pressing down on the bottom of the mobile computer.
6. Set the region using 123RFID Desktop or 123RFID Mobile.

For the latest versions of guides and software, go to: zebra.com/support.

For detailed information, refer to the Product Reference Guide at: zebra.com/support.

For a detailed configuration of the sleds, refer to the 123RFID Desktop User Guide.

Unpacking

This chapter provides information on RFD40 RFID Premium sled parts, battery installation, mobile device attachment, LED indications, and charging. Carefully remove all protective material from the RFD40 RFID sled and save the shipping container for later storage and shipping.

Verify the following items are in the box:

- RFD40 RFD Premium or Premium Plus or RFD40-M Premium Plus Sled
- Battery
- Lanyard
- Quick Start Guide

Inspect the equipment for damage. If any equipment is missing or damaged, contact the Zebra Support Center immediately.

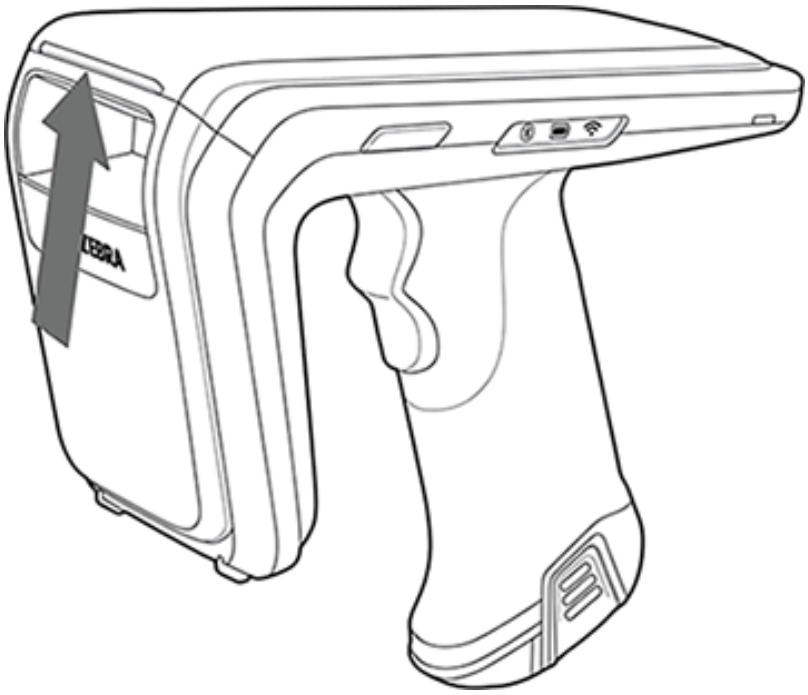
For a full list of accessories that can be used with the RFD40 Premium/Premium Plus/RFD40-M Premium Plus Sled, refer to the product specific Technical Accessory Guide available at zebra.com/support.

Adaptor Installation

RFD40 Ultra-Rugged UHF RFID sleds can be used with various mobile devices by using an adaptor to mount the device onto the sled.

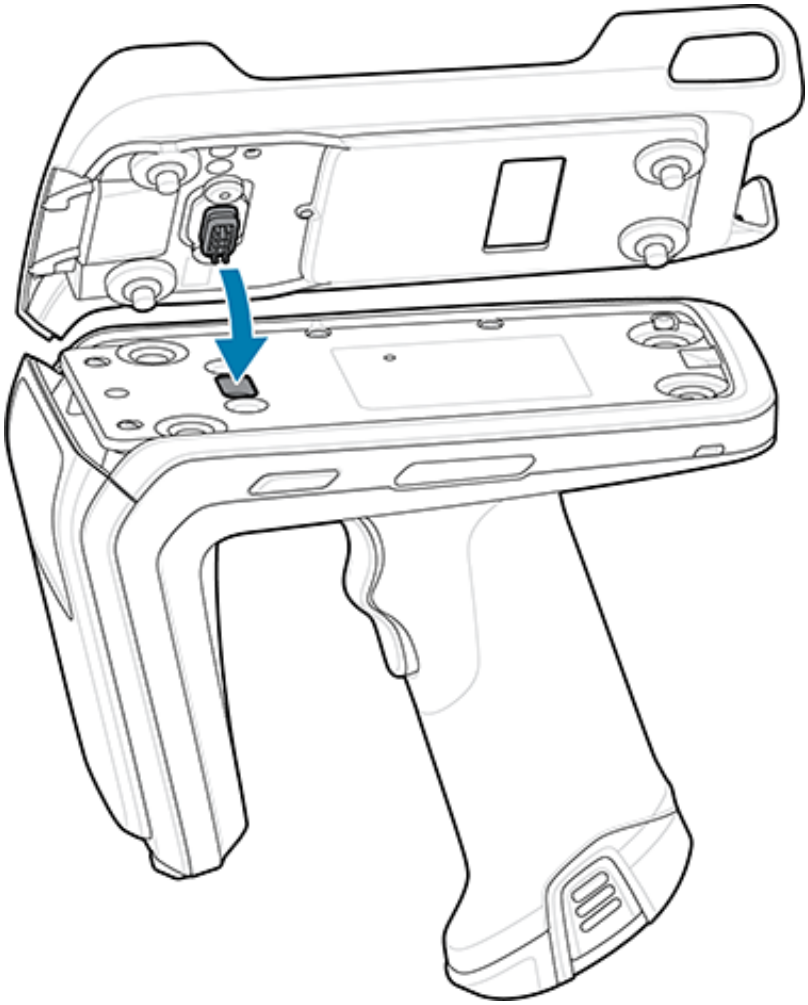
To install the adaptor:

1. Remove the cover of the sled by pulling up on the lip.

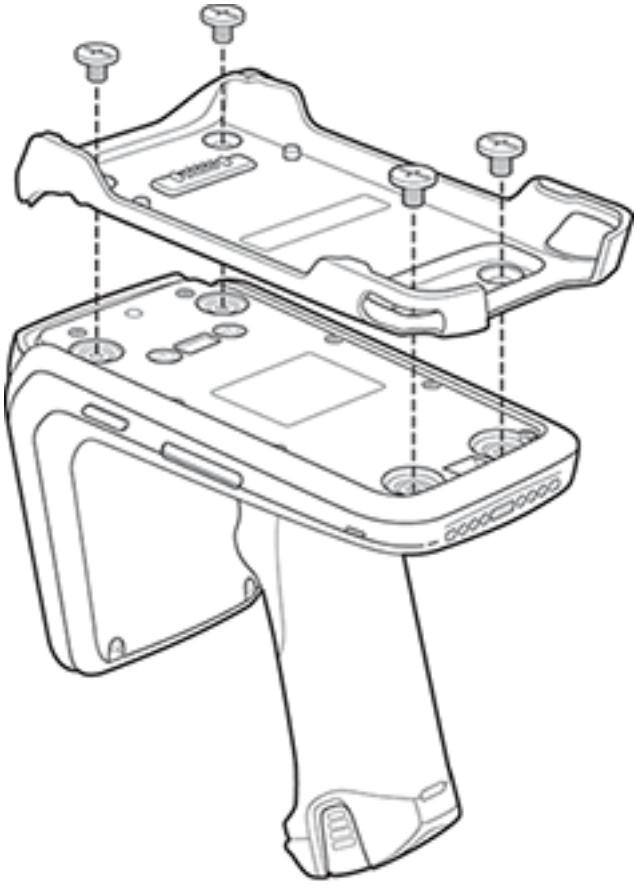


2. Ensure that the pogo pins are aligned and insert the adaptor into the sled.

NOTE: When installing the adaptor, use caution and ensure that the pogo pins are lined up directly prior to insertion into the sled.



3. Secure the adaptor onto the RFD40 by fastening the four coin screws into the sled.



Device Installation

To secure a mobile computer to the RFD40 sled, place the top of the device fully forward into the RFD40 sled adaptor and push down on the bottom of the mobile computer.

NOTE: Refer to the installation visual aid on the adaptor to view the correct device orientation for installation. For additional installation information, scan the QR code on the label to view the installation video.

NOTE: Use caution while installing the mobile computer into the adaptor, and do not collide with the eConnex Communication Port.

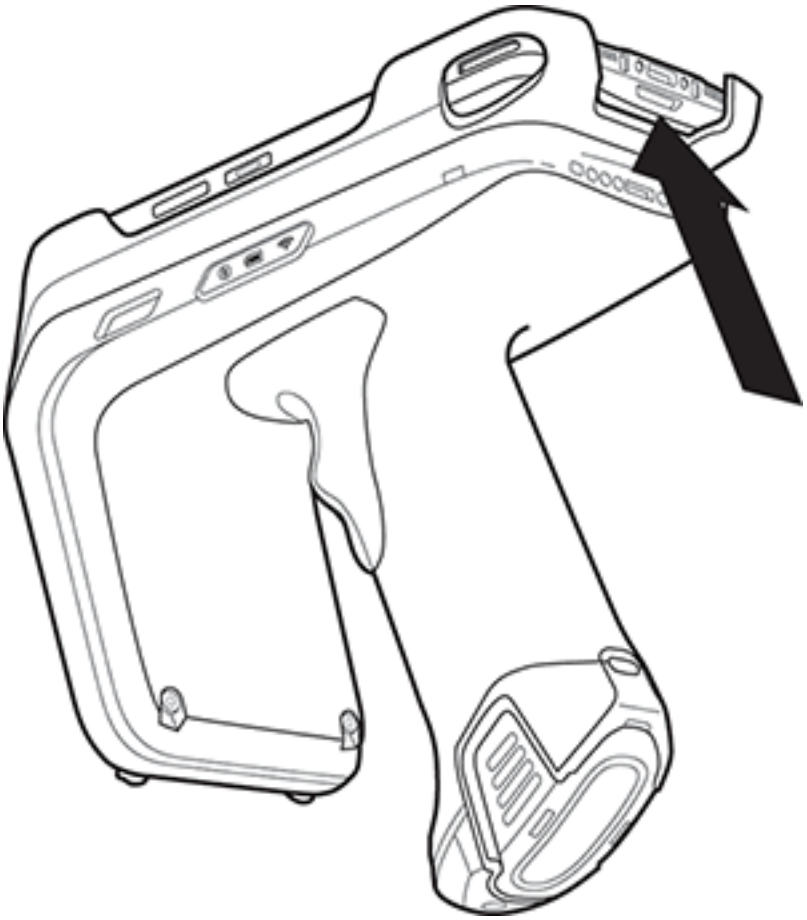
Figure 1 Device Insertion

NOTE: The insertion method varies from device to device. Please refer to the adaptor label for the proper insertion method.

Device Removal

To remove the mobile computer from the RFD40 sled, firmly hold the sled handle and lift the device off of the sled adaptor.

Figure 2 Device Removal

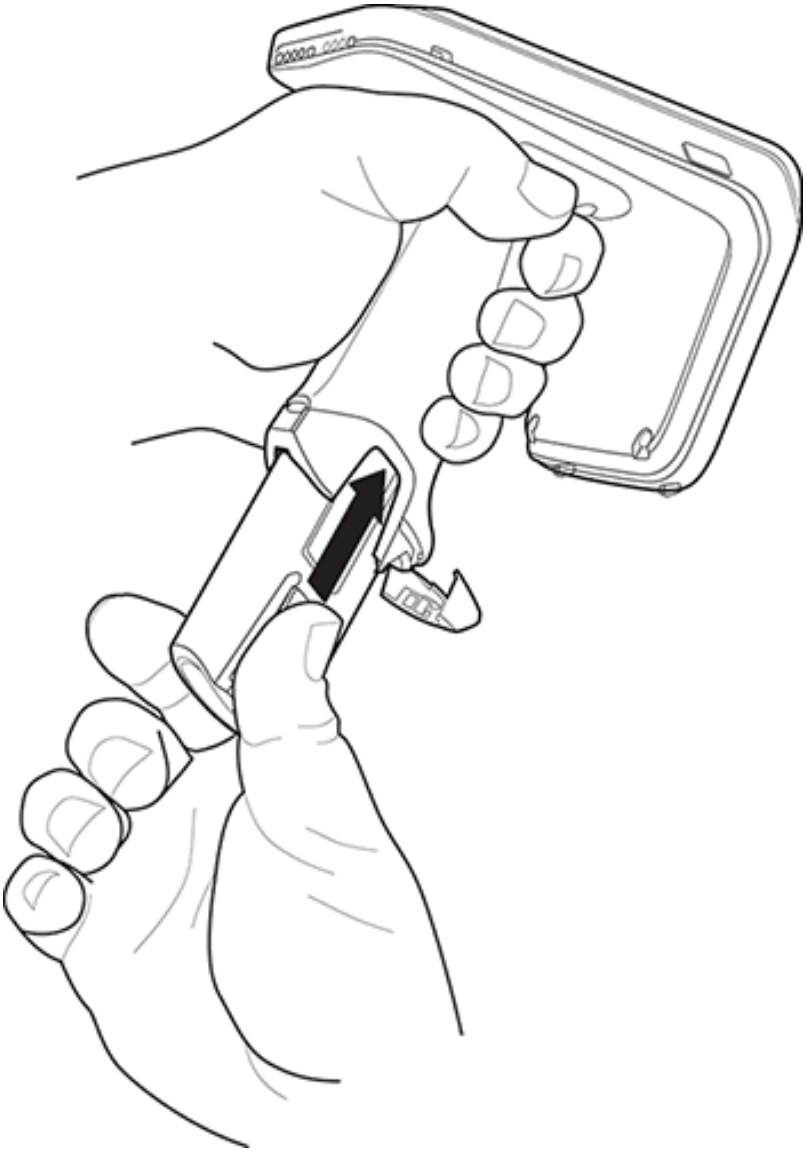


Battery Replacement

The following section outlines the procedure for replacing the battery in the RFD40.

To install the battery:

Figure 3 Battery Insertion

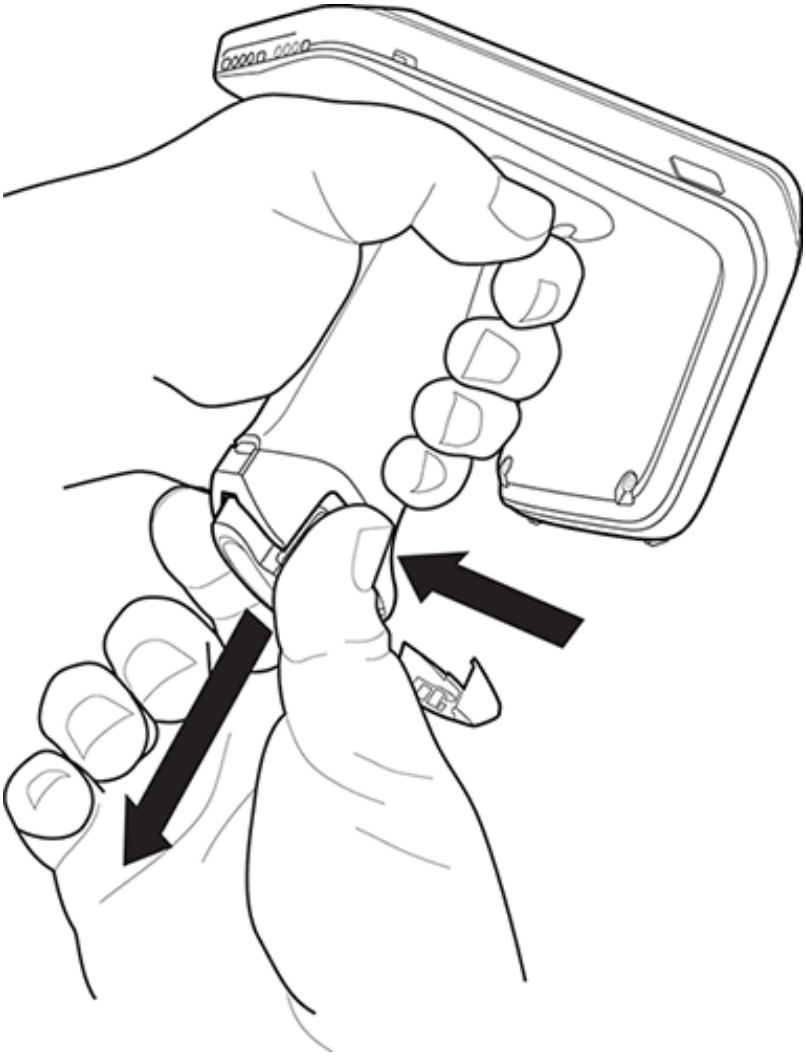


1. Align the battery with the notch facing the back of the device
2. Slide the battery into the handle of the device.
3. Snap the battery into the place.

Battery Removal

To remove the battery:

Figure 4 Battery Removal



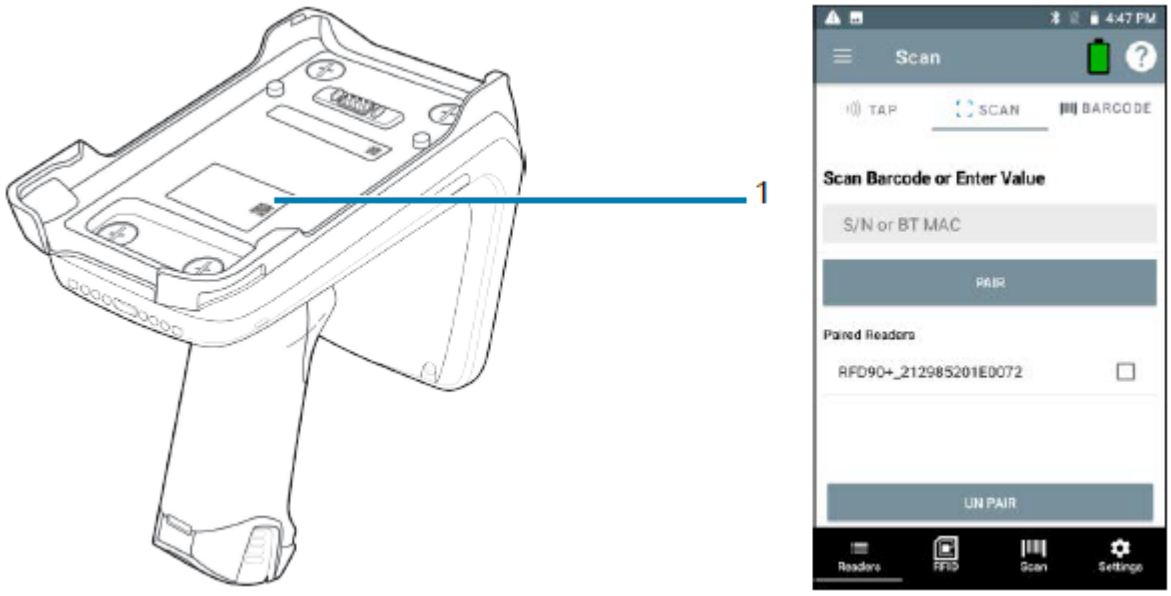
1. Pinch the clips on the battery to unlock.
2. Slide downwards to remove the battery from the device.

Pairing the Sled with a Mobile Computer

Pair the sled with a mobile computer by connecting directly with the communication port, scanning the barcode on the device, or by using the NFC feature on the RFD40 to activate NFC Bluetooth pairing and facilitate Bluetooth communication between the sled and the mobile computer.

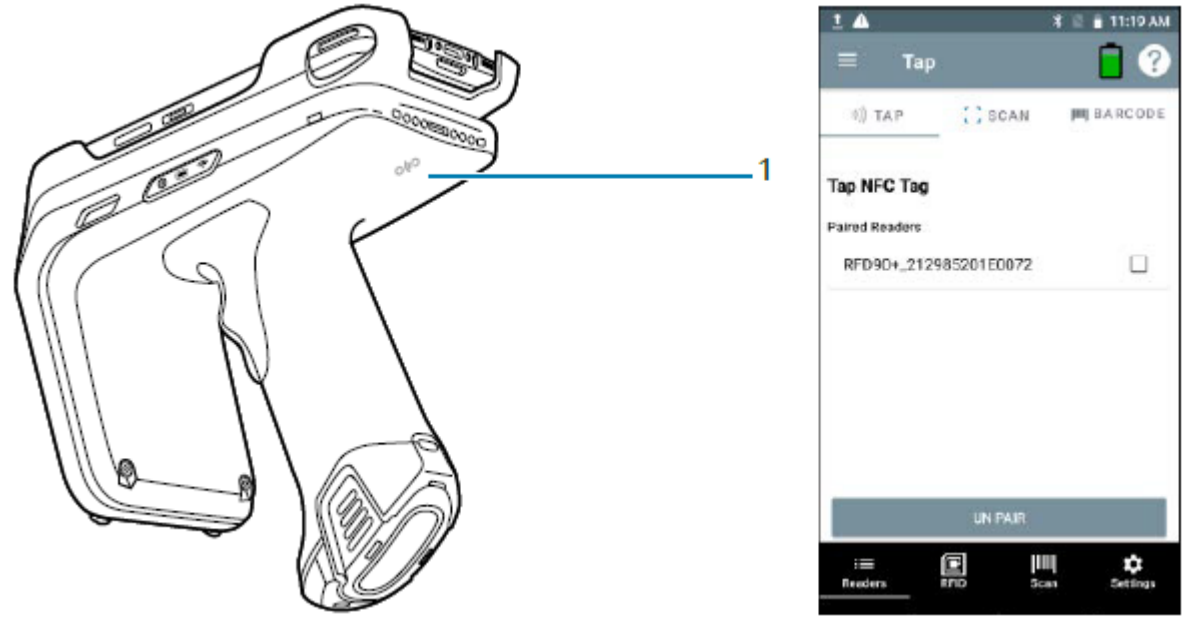
- To connect via scan, scan the code on the sled using the mobile computer to obtain the Bluetooth MAC address to pair the device to the sled.

Figure 5 Scan Bluetooth MAC Address



- To connect via NFC, align the NFC area behind the handle of the sled with the NFC area on the back of the mobile computer to pair.

Figure 6 Scan NFC Area to Pair Device



Once the sled has paired with a mobile computer, the sled recognizes the device going forward and automatically connects using the 123RFID Mobile or 123RFID Desktop Reader Discovery feature.

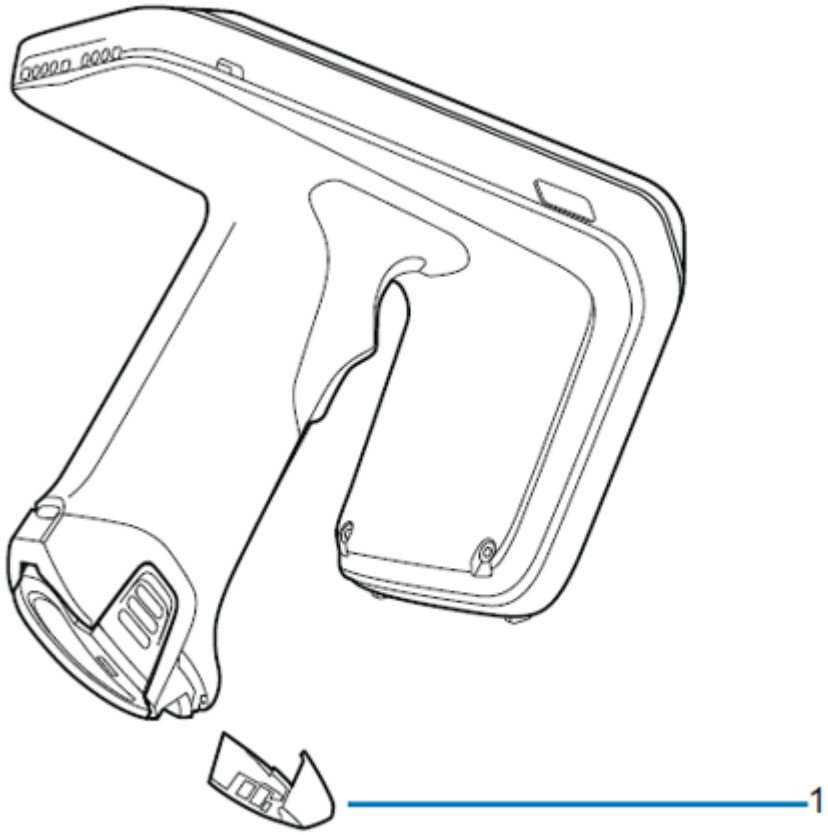
Disconnect Bluetooth Devices From RFD40 Using Parameter Barcode

Users can disconnect a terminal/phone from an RFD40 sled by scanning the barcode provided below.

Using the Rubber Locking Foot

The RFD40 comes with a standard rubber foot on the bottom of the sled. An optional locking foot that is used in place of the standard locking foot and secures the battery of the sled is available as a purchasable accessory. For a full list of accessories that can be used with the RFD40 RFID Premium or RFD40-M Premium Plus Sled, refer to the product-specific Technical Accessory Guide available at: zebra.com/support.

Figure 7 Rubber Locking Foot



1	Rubber Locking Foot

Charging

Before using the RFD40 for the first time, fully charge the battery by placing it in the charging cradle until the LED Power/Charging indicator turns solid green. The RFD40 RFID sled and mobile computer may be charged in the charging cradle individually or attached together.

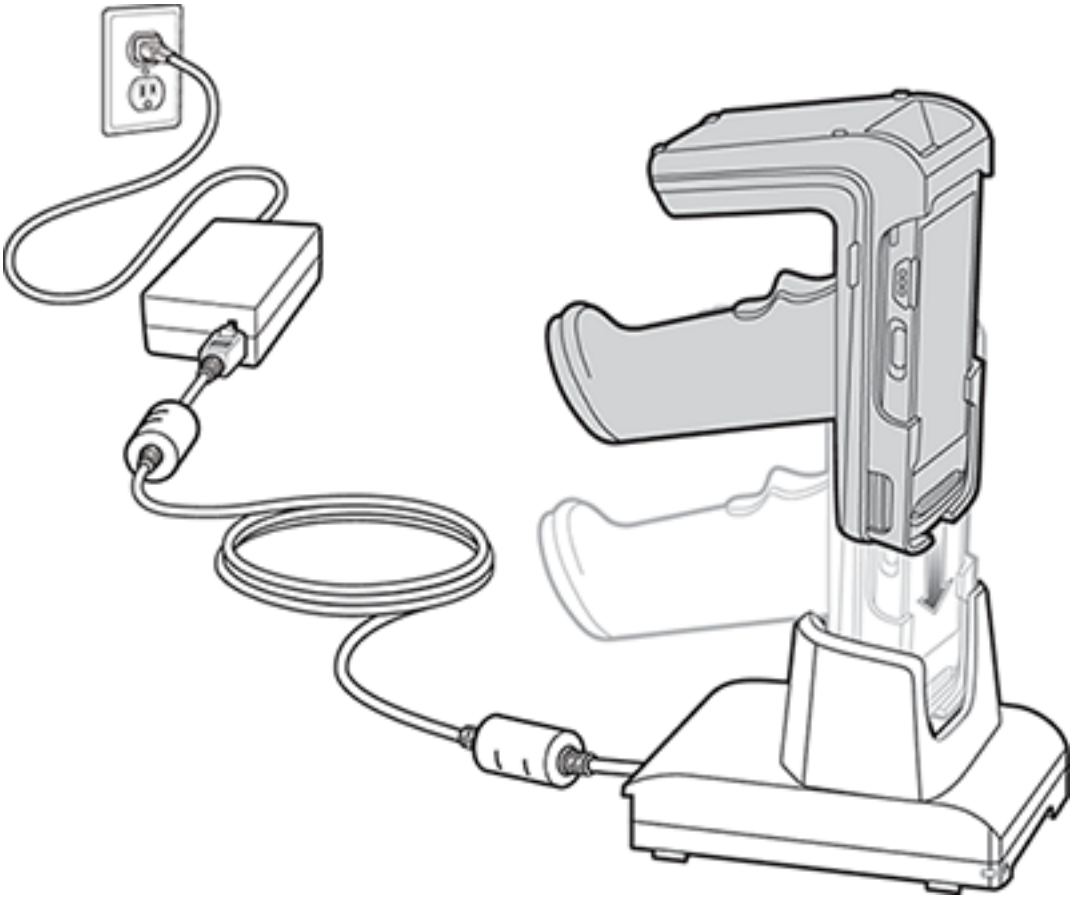
When an RFD40 RFID sled is removed from a charging cradle, it is automatically powered on. If a reader is not used for a duration of thirty minutes, the reader enters Off mode.

NOTE: The Charge Terminal parameter must be enabled to charge the mobile computer.

NOTE: A 12V power supply must be connected to the power jack when charging the sled using the cable cup accessory.

NOTE: The cradle does not charge the mobile computer if the battery is completely depleted or if it is not powered on.

Figure 8 Single-Slot Charging Cradle



Charging using the eConnex Interface

The mobile computer can be charged using the eConnex interface when connected to the sled. Before attempting to charge a mobile computer using the eConnex interface, verify that the mobile computer is compatible with pass-through charging by viewing the Technical Accessory Guide available at zebra.com/support.

NOTE: The cradle does not charge the device if the battery is completely depleted or if it is not powered on.

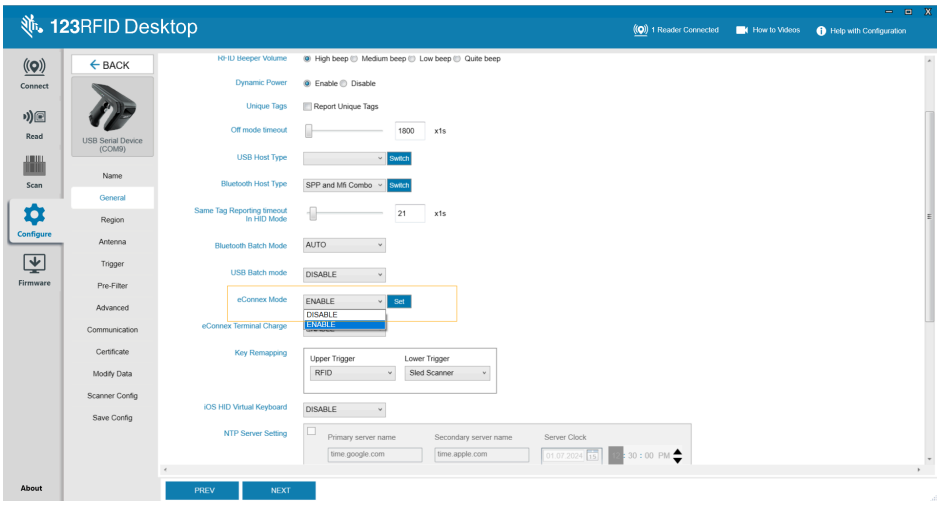
NOTE: The Charge Terminal parameter must be enabled to charge the mobile computer.

NOTE: A 12V power supply must be connected to the power jack when charging the sled using the cable cup accessory.

Option to Enable/Disable eConnex

Users have the option to enable or disable the eConnex port. This allows the use of the EMC Terminal with either the eConnex adapter for a wired connection or with Bluetooth for a wireless connection, making it easier to share RFD40 sleds between users.

By default, the RFD40's factory settings enabled the eConnex connectivity. The eConnex port can be disabled by using the 123RFID utility, as shown below.



Users can still use the triggers on the RFD40 to operate the terminal's scanner, even when the sled is docked in an eConnex adapter while using a Bluetooth connection.

UI Indicators

The sled presents multiple forms of feedback to inform the user of various device states. The sled provides LED definitions for decode and battery status as well as beeper indications to indicate battery charge progress.

LED Definitions

The sled provides user feedback in the form of LED indications for decode, battery, Bluetooth, and Wi-Fi states.

Decode LED Definitions

The following table outlines the context in which decode LED feedback is provided and the indication that is presented for a given device state.

NOTE: The LED indicators on the sled differ from the LED indicators on the mobile computer being used with the sled.

Table 1 Decode LED Indicators

Condition	Indication
Barcode Decode	Solid Green
Scan Error	Solid Red for two seconds.
RFID Decode	Solid Green
RFID Error	Solid Red for two seconds.
Read Error	Solid Red

Battery LED Definitions

The following table outlines the context in which battery LED feedback is provided and the indication that is presented for a given device state.

Table 2 Battery LED Definitions While Charging

Conditions	Indications
Charging	Amber (Blinking)
Battery Level Over 50%	Solid Green
Battery Level Over 20%	Solid Amber
Battery Level Under 10%	Solid Red
Battery Level Under 5% (entering Low Power Mode)	No LED
Suspend/Low Power Mode	No LED
Fully Charged	Solid Green
Charging Error	Amber (Fast Blinking)

Bluetooth LED Definitions

The following table outlines the context in which Bluetooth LED feedback is provided and the indication that is presented for a given device state.

Table 3 Bluetooth LED Definitions

Condition	Indication
Off	Off
On/Not Connected	Off
Discoverable	LED Blinking
Reconnect/Pairing in Process	LED Fast Blinking
Paired/Connected	Solid Blue
Out of Range	Off

Wi-Fi LED Definitions

The following table outlines the context in which Wi-Fi LED feedback is provided and the indication that is presented for a given device state.

Table 4 Wi-Fi LED Definitions

Condition	Indication
Connecting	Green (Blinking)
Connected	Green (Stays On)
Transmission Error/Out of Range	Red (Stays On)

Beeper Indications

The sled provides user feedback in the form of beeper tones for decode, battery, Bluetooth, and Wi-Fi states.

Decode Beeper Indications

The following table outlines the context in which beeper feedback is provided and the indication that is presented for a specific decode event

Table 5 Decode Beeper Indications

Condition	Tone
Good Barcode Decode	Short high beep
Decode Transmission Error	Four long low beeps
Good RFID Decode	Short medium tone
RFID Error	Four long low beeps
Error Message (Other)	No beep
Sled Memory Full (Batch Mode)	Long tones for 5 seconds

Battery Beeper Indications

The following table outlines the context in which decode LED feedback is provided and the indication that is presented for a given device state.

Table 6 Battery Beeper Indications

Condition	Tone
Battery Level Over 50%	No beep
Battery Level Over 20%	No beep
Battery Level Under 10%	No beep
Battery Level Under 5% (entering Low Power Mode)	One beep
Suspend/Low Power Mode	Low/medium/high beeps
Fully Charged	One beep
Charging Error	Three beeps

Bluetooth Beeper Indications

The following table outlines the context in which beeper feedback is provided and the indication that is presented for a specific Bluetooth state.

Table 7 Bluetooth Beeper Indications

Condition	Tone
Off	No beep
On/Not Connected	No beep
Discoverable	No beep
Reconnect/Pairing in Process	No beep
Paired/Connected	Short Low/High beep

Wi-Fi Beeper Indications

The following table outlines the context in which beeper feedback is provided and the indication that is presented for specific Wi-Fi states.

Table 8 Wi-Fi Beeper Indications

Condition	Tone
On/Not Connected	No beep
On/Pairing in Process	No beep
On/Connected	Short/Low/High beep
Out of Range	Short/High/Low beep
Pairing Error	No beep
Off	No beep

Trigger Mapping Modes

The following table outlines the supported modes that can be mapped to the upper or lower trigger of the RFID sled.

Access Trigger Mapping using 123RFID Mobile from the Settings menu. For additional information, visit zebra.com/123RFID.

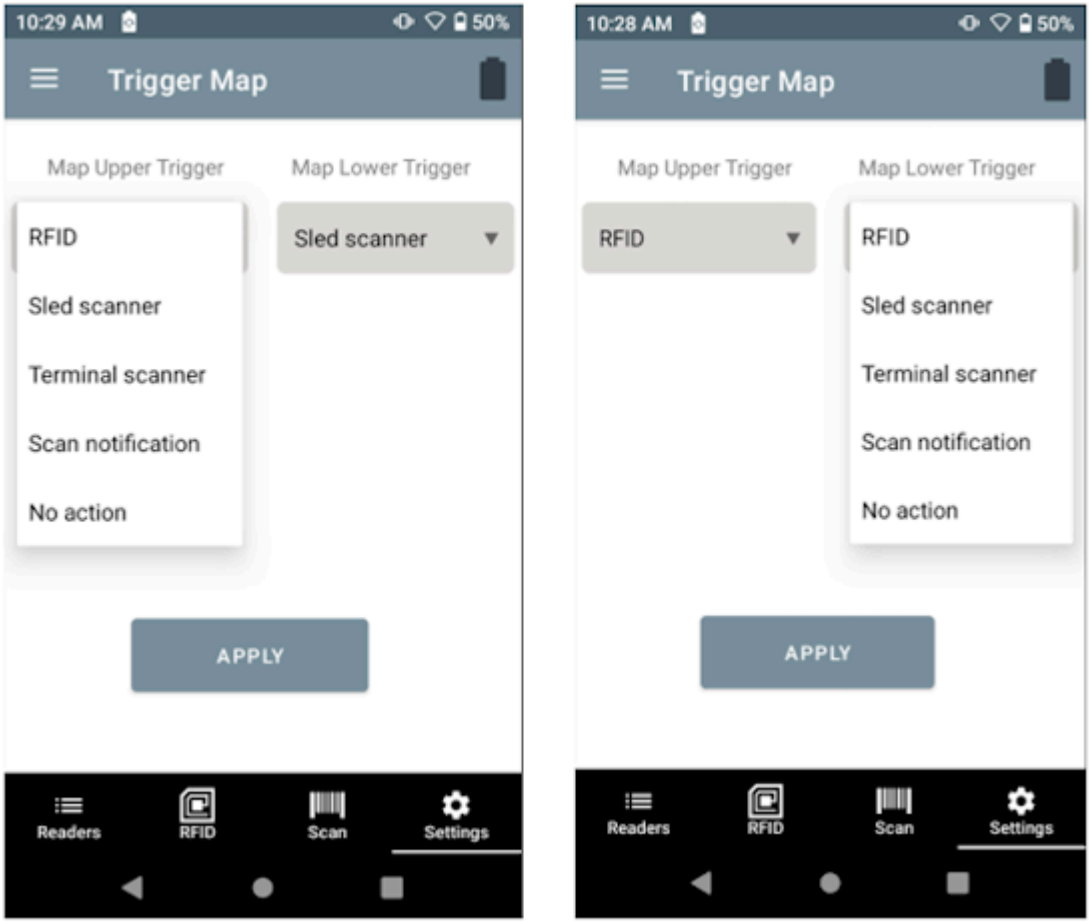


Table 9 Mappable Trigger Modes

Condition	Description
RFID Start/Stop	Start and stop RFID decode operations.
Sled Scanner	Barcode decode from the sled.
Terminal Scanner	Barcode decode from the mobile computer. Feature support is determined by the mobile computer being used with the sled.
Scan Notification	Scan trigger press notification.
No Action	No action when the trigger is pressed.

Wireless and Connectivity Functionality

The RFD40 Premium and Premium+ sleds integrated Wi-Fi 6 capability allows for easy over-the-air (OTA) device management, while Bluetooth 5.3 and NFC tap-to-pair make it easier to connect to current and future Zebra mobile computers and third-party smartphones.

Wi-Fi Overview

The RFD40 Premium and Premium+ sleds have advanced Wi-Fi 6 connectivity, supporting a range of IEEE protocols including 802.11ax/ac/a/b/g/n, and IPv4 compatibility. This ensures efficient wireless performance that is suitable for high-demand environments.

Data Rates

- 5 GHz Band - Achieves PHY data rates up to 1.2 Gbps, providing high-speed connectivity for demanding applications.
- 2.4 GHz Band - Supports PHY data rates up to 458 Mbps, ensuring reliable performance in various operational settings.

Security Protocols

WARNING: Users are responsible for configuring Wi-Fi security modes on RFD40 devices for their own individual security requirements. To ensure compliance with the cybersecurity requirements of the EU Radio Equipment Directive (RED) Article 3.3 (d), use secure settings such as **WPA3 Standard**, **WPA3_Personal_SAE**, or **WPA3_Enterprise_GCMP_256_SUITEB_192** to protect against security threats. Improper configuration may lead to vulnerabilities, and the manufacturer is not liable for any resulting damages or breaches.

For more information about the implications of the EU Radio Equipment Directive (RED) for the RFD40/90, refer to the RFD40 Product Reference Guide.

NOTE: Recommended Security Mode: General recommendation for wireless security is to use the WPA3 Standard.

- For **Personal Networks**, the preferred security mode is **WPA3_Personal_SAE**.
- For **Enterprise-Grade Networks**, the preferred security mode is **WPA3_Enterprise_GCMP_256_SUITEB_192**, which offers the highest level of security.

RFD40 supports WPA2/WPA3 Personal and WPA2/WPA3 Enterprise security modes.

The following table outlines the supported protocols.

Protocol	Description	Support
WPA2_Personal_CCMP	• Uses the CCMP-128 AES Encryption with PSK. • Hashing Algorithm used is HMAC-SHA1. • 802.11w for WPA2 Personal is supported.	Supported
WPA3_Personal_SAE	• Uses the CCMP-128 AES Encryption with PSK (SAE). • Hashing Algorithm used is HMAC-SHA256.	Supported
WPA2_Enterprise_CCMP	• Uses the CCMP-128 AES Encryption with PMK derived from the EAP Authentication exchange with RADIUS server. • Hashing Algorithm used is HMAC-SHA1. • Protected Management Frames (PMF) are optional.	Supported
WPA3_Enterprise_CCMP	• Uses the CCMP-128 AES Encryption with PMK derived from the EAP Authentication exchange with RADIUS server. • Hashing Algorithm used is HMAC-SHA256. • Protected Management Frames (PMF) are mandatory.	Supported
WPA3_Enterprise_GCMP_256_SHA256	• Uses the GCMP-256 AES Encryption with PMK derived from the EAP Authentication exchange with RADIUS server. • Hashing Algorithm used is HMAC-SHA256. • Protected Management Frames (PMF) are mandatory.	Supported

Protocol	Description	Support
WPA3_Enterprise_GCMP_256_SUITEB_192	• Uses the GCMP-256 AES Encryption with PMK derived from the EAP Authentication exchange with RADIUS server. • Hashing Algorithm used is HMAC-SHA384 • Protected Management Frames (PMF) are mandatory.	Supported

These specifications emphasize the sled's capabilities to deliver high-speed, secure wireless connectivity, making them ideal for modern IoT and enterprise applications.

As a headless device, these sleds use the 123RFID companion applications or applications developed with the Zebra RFID SDK to configure Wi-Fi settings. These applications offer a set of options to manage connectivity.

Refer to Wi-Fi Configuration in the 123RFID Desktop user guide for more details.

Bluetooth Overview

The RFD40 Premium and Premium+ sleds include Bluetooth 5.3 and offer enhanced connectivity, efficiency, and durability. Key features include a high tag read rate, a wider read range, increased battery capacity, and support for various Zebra mobile computers. Bluetooth 5.3 allows for easy pairing with Zebra mobile computers and third-party devices.

Different Bluetooth security features are offered in these sleds as per NIST.SP.800-121r2.pdf.

- Low Bluetooth Security (default) - The low security setting is designed for ease of connection with most devices and minimal user interaction. It uses the Just Works secure and simple pairing method with no Man-in-the-Middle (MITM) protection. It provides level 2 security (as per the Guide to Bluetooth Security).
- Medium Bluetooth Security - The medium security setting requires a passkey for the initial connection to pair the scanner to the remote host unless using NFC Out-of-Band (OOB). It uses the Passkey Entry secure and simple pairing method with MITM protection, which provides level 3 security (as per the Guide to Bluetooth Security).
- High Bluetooth Security - The high security setting requires Secure Connections (AES-128) between the sled (with scanner) and the remote host. A passkey must be scanned in unless using NFC OOB. It provides level 4 security (as per the Guide to Bluetooth Security).

Mobile Device Management Overview

This section provides information about the supported Mobile Device Management (MDM) partners.

The RFD40 Premium and Premium+ sleds are designed to enhance Internet of Things (IoT) connectivity by leveraging the Message Queuing Telemetry Transport (MQTT) protocol, accessed through a predefined set of Application Programming Interfaces (API). This setup enables seamless integration with various IoT solutions, optimizing both device and data management processes. The connectivity provided by these devices supports real-time data exchange, efficient monitoring, and streamlined operations within the IoT ecosystems.

The partners involved in these IoT solutions are:

- 42Gears - 42gears.com

- SOTI - soti.net

Performing a Factory Default Reset on the Sled

The below function can be performed using a USB cable, cable cup or USB single slot cradles with a PC:

1. Disconnect and remove the battery and power sources from the sled.
2. Connect the sled to a power source using a USB cable, cable cup, or cradle. Observe the flashing battery LED.
3. Press and hold the upper trigger immediately within 5 seconds of connecting the sled to the power source. Insert the battery into the device within 30 seconds of connecting the sled to the power source.
4. Listen for the confirmation beep indicating that the factory default reset is about to begin and release the trigger.

The sled reboots with a factory reset default configuration.

Performing a Factory Reset By Scanning a Barcode

1. Pull the trigger to scan the Restore Defaults barcode:

2. Allow the sled to reboot.

The default factory settings are in place when the sled powers back on.

See Also

Factory Reset
Saving an Online Configuration