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Introduction

This guide provides information about RFID Wedge features and configuration.

**IMPORTANT:** If you have a problem with your equipment, contact Zebra Global Customer Support for your region. Contact information is available at: [http://www.zebra.com/support](http://www.zebra.com/support).

**NOTE:** Screens and windows pictured in this guide are samples and can differ from actual screens.

Configurations

This guide covers the following configurations:

- MC3330R - Android O or newer
- MC3390R - Android O or newer

Chapter Descriptions

Topics covered in this guide are as follows:

- **RFID Wedge Overview** provides an overview of RFID Wedge features.
- **RFID Profile Configuration** provides information on the configuration of RFID profile in Data Wedge application.
- **RFID Wedge API** introduces the RFID Wedge Application Programming Interface (API).
- **Appendix, RFID Wedge Demo** introduces the RWDemo application as a demo application.

Notational Conventions

The following conventions are used in this document:

- "RFID" refers to the radio-frequency identification.
- "Device" refers to all configurations of the Zebra MC33X0R.
- **Bold** text is used to highlight the following:
  - Dialog box, window and screen names
• Drop-down list and list box names
• Check box and radio button names
• Icons on a screen
• Key names on a keypad
• Button names on a screen.
• Bullets (•) indicate:
  • Action items
  • Lists of alternatives
  • Lists of required steps that are not necessarily sequential.
• Sequential lists (e.g., 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 graphic icons are used throughout the documentation set. These icons and their associated meanings are described below.

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.

Related Documents and Software

The following documents provide more information about RFID.
• RFID Reader Software Interface, p/n 72E-131718-xx.
• RFID Input on Zebra Techdocs, go to: http://techdocs.zebra.com/datawedge/7-4/guide/input/rfid/.
• RFID Software Trigger on Zebra Techdocs, go to: http://techdocs.zebra.com/datawedge/7-4/guide/api/softrfidtrigger/.
• Set Config on Zebra Techdocs, go to: http://techdocs.zebra.com/datawedge/7-4/guide/api/setconfig/.
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Introduction

This chapter provides the overview of radio-frequency identification (RFID) for Data Wedge.

Data Wedge

Data Wedge is an application that provides the capability on a device to acquire data from various input sources (such as barcode scanner, MSR, RFID, voice, and serial port), properly format the data and transmit the data to the right output application. Every Zebra Android device has the Data Wedge application.

For more information about the latest version of Data Wedge, go to: http://techdocs.zebra.com/.

RFID for Data Wedge Overview

Radio-frequency identification (RFID) is one of the input sources to Data Wedge. RFID for Data Wedge feature is only available for RFID enabled devices, such as MC3300R devices. This feature supports RFID data capture configuration and routing to any applications on a device. Figure 1 illustrates the overview of RFID for Data Wedge application. The orange box represents the RFID features.

Figure 1  RFID for Data Wedge Overview
RFID Profile Configuration

Introduction

This chapter describes the configuration of RFID profile in the Data Wedge application.

NOTE: Screens and windows pictured in this guide are samples and can differ from actual screens.

Create RFID Profile in Data Wedge

Data Wedge works on the concept of profiles. Create a RFID profile in the Data Wedge application and configure the following profile settings:

- RFID data acquisition method
- RFID reader
- The manipulation of RFID data
- The output target application(s).

To create a RFID profile in the Data Wedge application:

1. On the device Menu screen, locate and tap the DataWedge icon.

Figure 2  Menu Screen
2. On the DataWedge Profiles screen, tap the More Options menu at the top right corner of the screen. Then, select New Profile.

Figure 3  DataWedge Profiles Screen

More Options menu

3. Enter a new profile name for RFID Wedge and select OK. The profile name RfidProfile is an example, as shown in Figure 4.

Figure 4  New Profile Name
4. The profile created for RFID Wedge in step 3 appears in the DataWedge Profiles screen (Figure 5). To configure the settings for RFID Wedge, see RFID Wedge Profile Configuration.

![Figure 5 DataWedge Profiles Screen](image)

**RFID Wedge Profile Configuration**

- **NOTE:** RFIDManager and 123RFID apps that are included in RFID devices are grey listed by Data Wedge which means you cannot associate the mentioned apps to Data Wedge profile.

- **NOTE:** Co-existence behavior of RFID SDK and RFIDWedge apps.
  - You can have a RFID app developed using RFID SDK and then create a RFID Wedge profile as well.
  - It is possible that both RFID Wedge and SDK app can contend to connect to RFID Reader. In this scenario RFID service gives precedence to SDK application.

Select the profile that is created for RFID Wedge on the DataWedge Profiles screen. The RFID Wedge Profile screen displays current profile settings which include:

- **Enabled:** Tap the check box to activate/deactivate RFID reading in the current profile. A check in the box indicates to the profile is activated.

- **Reader selection:** Displays the serial number of the RFID Reader that is currently connected with the device. User can select the desired RFID reader. Tap Reader selection then select the desired reader in the list.

- **NOTE:** The reader list displays only readers that are connected to the device.

- **Hardware Trigger:** Tap the check box to activate/deactivate the hardware trigger to activate RFID reading. The default setting for RFID trigger is software trigger. If this feature is enabled, set the Trigger Mode in Configure Reader Settings screen. See Figure 7 on page 15.

- **Configure reader settings:** Select this to configure RFID reader settings. See Configure Reader Settings for more details.
Configure Reader Settings

Configurations Parameters

Configure reader settings provides options for configuration parameters, pre filters, and post filters. Select Configure reader settings on the RFID Wedge Profile screen to configure RFID reader settings (see Figure 7 on page 15).

Configurations parameters screen displays reader current settings which include:

- **Filter duplicate tags**: Device displays data read once only instead of duplicating the same data from multiple readings. Tap the check box to enable/disable this feature.
- **Tag read duration**: Set the amount of time (in millisecond) for events to propagate to the application. If the trigger is released before the timeout elapses, data is returned to the application upon trigger release. The data returned to the application is limited to the capacity of the Android bundle payload and any data read beyond that capacity is discarded.
- **Antenna transmit power**: Set the amount of signal power to be transmitted by the RFID reader. The higher the value, the further it is able to read the RFID tag. The range is 5 to 30 dBm.
- **Session**: To configure the read session, select one of the following options:
  
  NOTE: Refer to EPC UHF Gen2 Air Interface Protocol Standard for details.
  
  - **Session 0**: Based on EPC UHF Gen2 Air Interface Protocol Standard Specification.
  - **Session 1** (default): Based on EPC UHF Gen2 Air Interface Protocol Standard Specification.
  - **Session 2**: Based on EPC UHF Gen2 Air Interface Protocol Standard Specification.
  - **Session 3**: Based on EPC UHF Gen2 Air Interface Protocol Standard Specification.
RFID Profile Configuration

- **Memory bank**: Configure the memory bank to read data. The integrated circuit (IC) on some tags have different bit allocations between the memory banks to allow for more user memory or a longer electronic product code (EPC) number. Refer to the tag specifications to determine the memory bank type needed. The memory bank includes the following options:
  - **None (default)**: No memory bank to read.
  - **EPC**: Store the EPC code with a minimum of 96 bits of memory.
  - **User**: Has extended memory to store more information with various sizes, ranging from 512 bits and up to 8K of memory. This can be used for additional data that is not suitable or does not fit into the EPC memory, such as temperature or expiration date.
  - **TID (tag identification)**: Store the unique tag identifier from the manufacturer, which typically cannot be changed.
- **Trigger mode**: Select the mode to activate the RFID reader. The trigger mode includes the following options:
  - **Immediate (default)**: Tag reading takes place based on when the trigger is pressed.
  - **Continuous**: Continually reads tags after pressing the trigger once. Press the trigger again to terminate tag reading.
- **Feedback**: To configure audio or visual feedback from an RFID tag read, the options include:
  - **Beeper**: Audio feedback.
  - **LED**: Visual feedback.
- **Dynamic power**: Tap at the check box to enable/disable **Dynamic Power Optimization (DPO)** in the reader. Enabling DPO enhances battery life during inventory operations.
- **Link profile**: Displays the current selection and includes a drop-down list of available link profiles as reported by the RFID reader.

**Figure 7**  Configurations Parameters Screen
Pre filters

Pre filters screen displays reader current pre filter settings which include (see Figure 8):

- **Enable pre filters**: Tap at the check box to enable/disable pre filter.
- **Memory Bank**: Memory Bank setting for pre filters, the available options include EPC, TID and USER. See Memory bank on page 15.
- **Offset**: The offset in the memory bank is specified in words.
- **Action**:
  - INV A NOT INV B or ASRT_SL_NOT_DSRT_SL
  - INV A or ASRT SL
  - NOT INV B or NOT DSRT SL
  - INV A2BB2A NOT INV A or NEG SL NOT ASRT SL
  - INV B NOT INV A or DSRT SL NOT ASRT SL
  - INV B or DSRT SL
  - NOT INV A or NOT ASRT SL
  - NOT INV A2BB2A or NOT NEG SL
- **Target**:
  - SESSION S0
  - SESSION S1
  - SESSION S2
  - SESSION S3
  - SL FLAG

![Figure 8 Pre Filters and Post Filters Screen](image-url)
Post filters

Post filters screen displays reader current post filter settings which include (see Figure 8 on page 16):

- **Enable post filters**: Tap at the check box to enable/disable post filter.
- **Number of Tags to be read**: Limit number of RFID tags to be read.
- **RSSI**: To select close or far range tags, the range of setting is 0 to -100.

RFID Wedge Key Mapping

The hardware trigger needs to be mapped to RFID for RFID reading. By default, none of the physical buttons are mapped to trigger RFID Wedge.

Select from the physical buttons for RFID Wedge trigger mapping. There are two methods.

**Method 1:**

1. Select **Setting** from the **More Option** menu (see Figure 3 on page 12).
2. Select **Key Programmer**.
3. Remap **Grip Trigger** or the **SCAN** to **SYMBOL_TRIGGER_6**.

**Method 2** is by using **StageNow**. Based on the customer requirement, barcode can be generated to configure map setting.
RFID Wedge API

Introduction

RFID Wedge Application Programming Interface (API) allows users to create, edit and delete RFID Wedge related profile configurations through Android intents. It is an extension to Data Wedge API support.

RFID Wedge API Support

RFID Wedge API support includes:

- **SOFT_SCAN_TRIGGER**: To start, stop or toggle a software RFID trigger.

- **SET_CONFIG**: To create, update or replace a Data Wedge Profile and its settings, and can configure multiple options with a single intent action.

- **GET_CONFIG**: To get the PARAM_LIST settings in the RFID Profile, returns as a set of value pairs or a Plug-in config bundle.
[Introduction]

RFID Wedge (RW) Demo is an application that allows users to demonstrate RFID data capturing using the RFID feature in Data Wedge. This application is pre-installed on Zebra RFID enabled devices. Refer to RWDemo Application on Zebra Techdocs at: https://techdocs.zebra.com/datawedge/7-4/guide/input/RFID/ for more details.

RWDemo supports the following features:

- Erase the Data Window
- Profile configurations such as:
  - Fastest Read
  - Cycle Count
  - Dense Reader
  - Optimal battery
  - Balanced Performance

[Figure 9] RWDemo
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