



WAVE ID[®] Mobile Configurator

Version 1.8.1

September 6, 2024

Trust begins here.[™]



www.rfIDEAS.com



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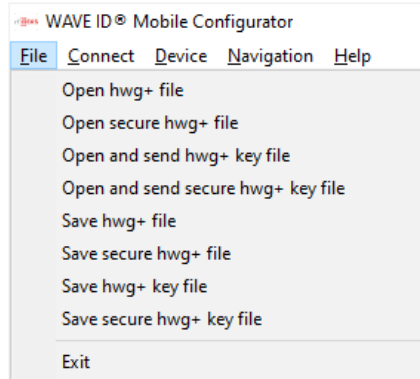
1. Scope

The document covers the functionality of the WAVE ID Mobile Configurator application used in conjunction with WAVE ID BLE Mobile readers.

2. Common Control

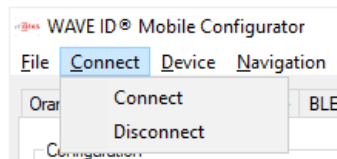
2.1 File Tab

This tab contains options to open hwg+ or secure (CRC checked) hwg+ files (settings), save device data to hwg+ or secure hwg+ files, and open and send as well as save a hwg+ and secure hwg+ key files.



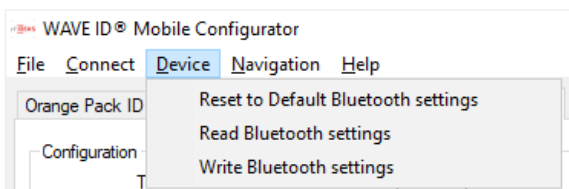
2.2 Connect Tab

This tab contains selections to connect and disconnect from the reader.



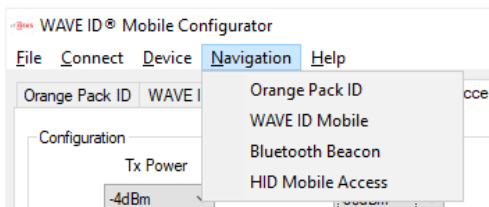
2.3 Device Tab

This tab contains selections to reset to default Bluetooth settings (does not affect non-Bluetooth settings), read Bluetooth settings and write Bluetooth settings.



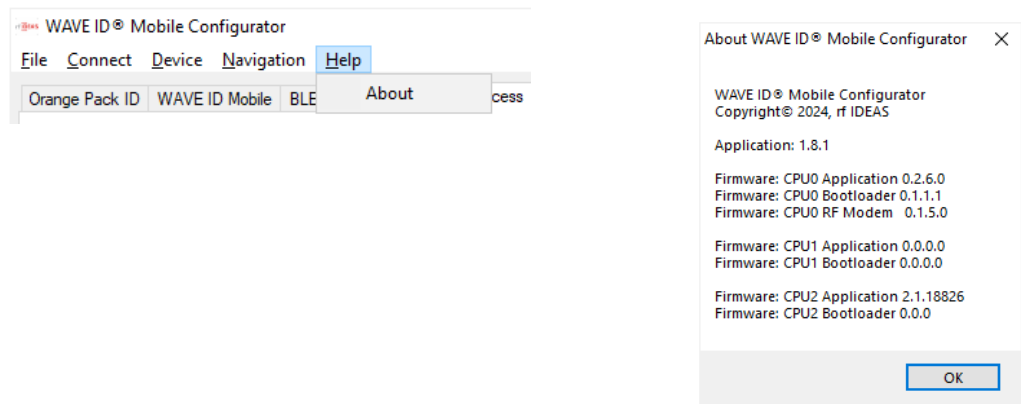
2.4 Navigation Tab

This tab selects between the Orange Pack ID, WAVE ID Mobile, Bluetooth Beacon, and HID Mobile Access tabs.



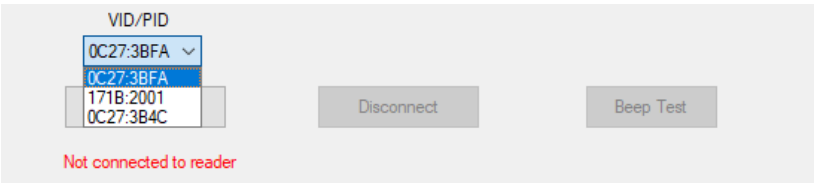
2.5 Help Tab

This tab selects the About box which contains the application version number and firmware version numbers of the three reader microprocessors. CPU0 is the control microprocessor, CPU1 is the radio microprocessor and CPU2 is the Bluetooth microprocessor.



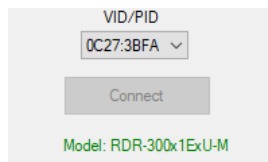
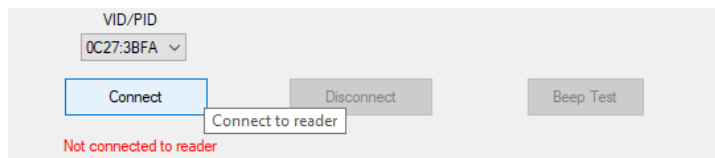
2.6 VID/PID

This drop-down box sets the VID/PID setting. The selected VID/PID must match the VID/PID of the reader, in order to connect to the reader.



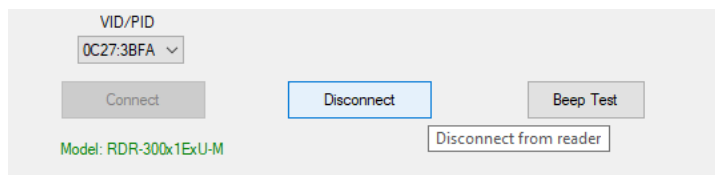
2.7 Connect Button

Connects to the reader. After connecting to the reader, you will see the reader part number in green text.



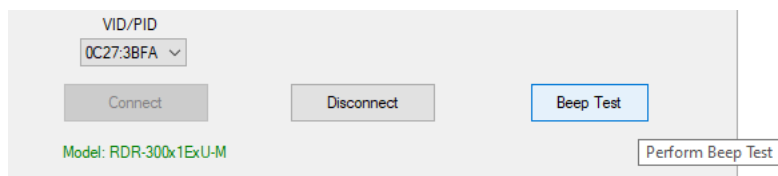
2.8 Disconnect Button

Disconnects from the reader.



2.9 Beep Test Button

If the reader is connected, perform a beep test to verify connection.

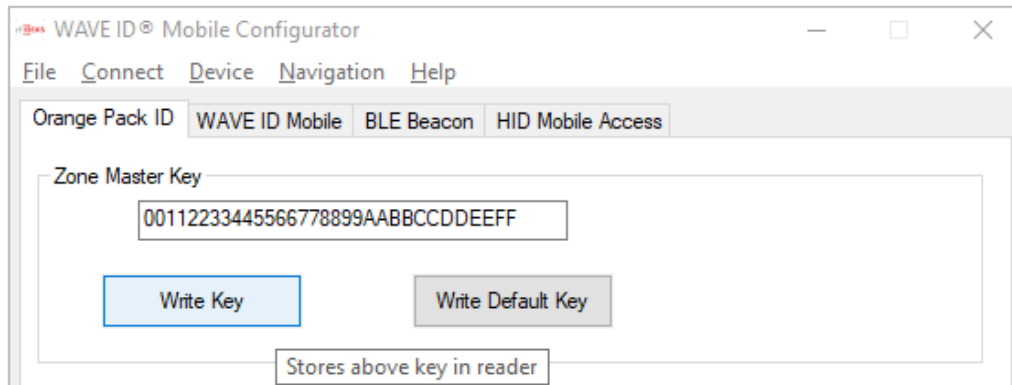


3. Orange Pack ID Tab

3.1 Zone Master Key

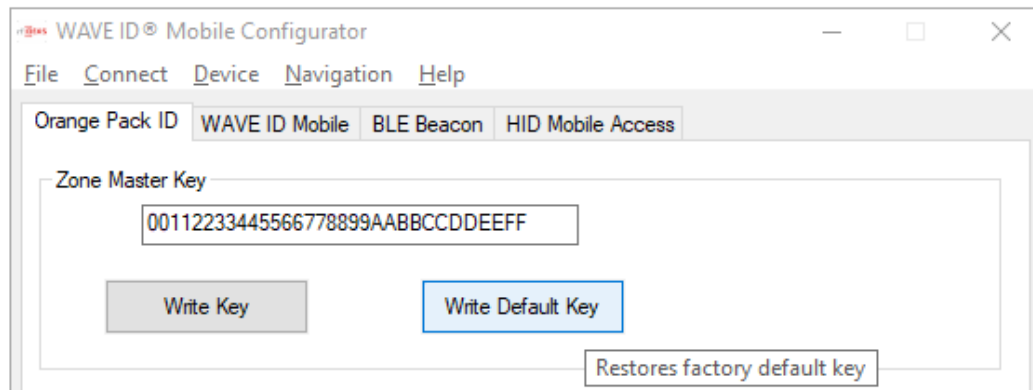
3.1.1 Write Key Button

The Zone Master Key is set by each client to ensure confidentiality during contactless exchanges. This 128-bit AES key will match the value configured when the Pack ID web application is set up. The Write Key button will store the value entered in the edit box above this button.



3.1.2 Write Default Key Button

The Write Default Key button will restore the factory default rf IDEAS Zone Master Key value. The Zone Master Key is unique in that it cannot be read and is unaffected by the other Write Default buttons.



3.2 Configuration

3.2.1 Tx Power

This drop-down box sets the transmit power in the range of -26dBm to +3dBm.

Configuration

Tx Power	Contactless ID	Zone ID	Result Message
0dBm	00000001	0F0F0F0F0F0F	Access valid
3dBm			
2dBm			
1dBm			
0dBm			
-1dBm			
-2dBm			
-3dBm			

Read Config Write Config Write Default Config

3.2.2 Contactless ID

Each Pack ID client is assigned a contactless ID. This edit box allows setting the four-byte contactless ID identifier.

Configuration

Tx Power	Contactless ID	Zone ID	Result Message
0dBm	00000001	0F0F0F0F0F0F	Access valid

Read Config Write Config Write Default Config

3.2.3 Zone ID

Each Pack ID client can administrate zones (groups of readers such as Credential rf IDEAS, Parking or Printing) identified by a zone ID. This edit box allows setting the six-byte zone ID identifier.

Configuration

Tx Power	Contactless ID	Zone ID	Result Message
0dBm	00000001	0F0F0F0F0F0F	Access valid

Read Config Write Config Write Default Config

3.2.4 Result Message

A client can set the message that is displayed on the icon and the mobile device at the end of a BLE exchange. The default value is "Access valid". This edit box allows setting a message up to sixteen characters long.

Configuration

Tx Power	Contactless ID	Zone ID	Result Message
0dBm ▼	00000001	0F0F0F0F0F0F	Access valid
Read Config		Write Config	Write Default Config

3.2.5 Read Config Button

This button reads all Bluetooth configurations from the reader and updates the values displayed by the WAVE ID Mobile Configurator.

Configuration

Tx Power	Contactless ID	Zone ID	Result Message
0dBm ▼	00000001	0F0F0F0F0F0F	Access valid
Read Config	Write Config	Write Default Config	

Reads configuration from reader

3.2.6 Write Config Button

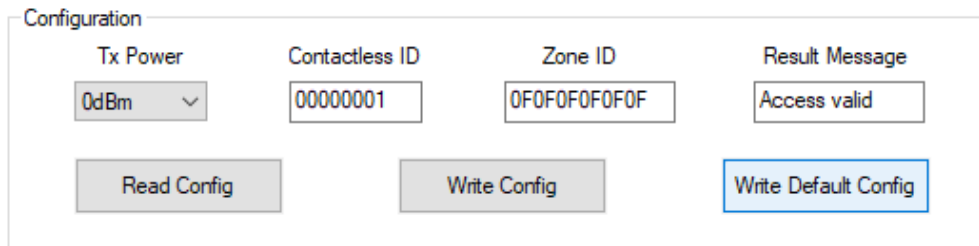
This button writes all Bluetooth configurations from the WAVE ID Mobile Configurator to the reader with the exception of the Zone Master Key.

Configuration

Tx Power	Contactless ID	Zone ID	Result Message
0dBm ▼	00000001	0F0F0F0F0F0F	Access valid
Read Config	Write Config	Write Default Config	

3.2.7 Write Default Config Button

This button writes the factory default Bluetooth configuration to the reader with the exception of the Zone Master Key.



The screenshot shows a configuration window with the following fields and buttons:

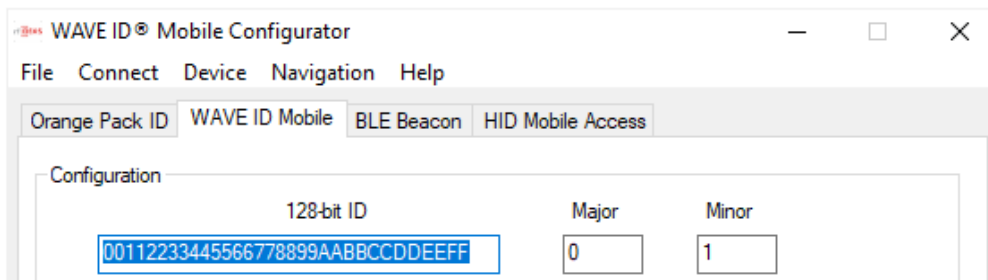
Tx Power	Contactless ID	Zone ID	Result Message
0dBm	00000001	0F0F0F0F0F0F	Access valid

Buttons: Read Config, Write Config, Write Default Config (highlighted with a blue border).

4. WAVE ID Mobile Credential Tab

4.1 128-bit ID

The 128-bit ID is used to identify the reader of a specific client. The 128-bit ID is part of the Bluetooth advertisement and is used by a mobile application to filter the reader of a specific client from other clients using rf IDEAS readers.

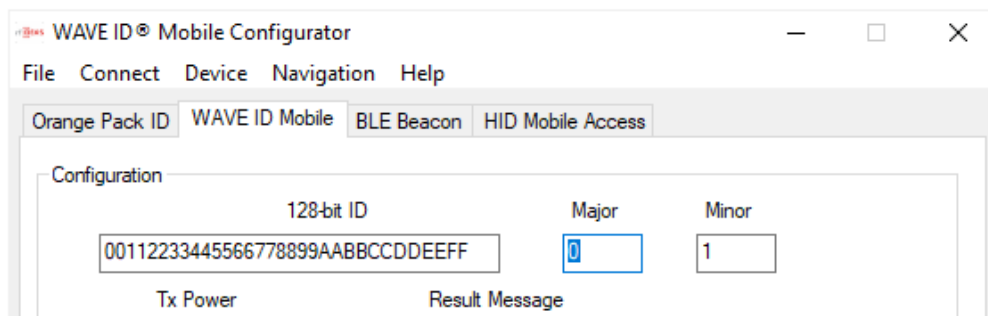


The screenshot shows the WAVE ID Mobile Configurator window with the following configuration:

128-bit ID	Major	Minor
00112233445566778899AABBCCDDEEFF	0	1

4.2 Major

The major number identifies a subset of a clients' readers within a large group, such as printers in a department of a company. This edit box allows setting the one-byte major number.



The screenshot shows the WAVE ID Mobile Configurator window with the following configuration:

128-bit ID	Major	Minor
00112233445566778899AABBCCDDEEFF	0	1

Additional fields visible: Tx Power, Result Message.

4.3 Minor

The minor number identifies a specific client reader, such as a specific printer in a department of a company. This edit box allows setting the one-byte minor number.

The screenshot shows the 'WAVE ID Mobile Configurator' application window. The 'BLE Beacon' tab is selected. Under the 'Configuration' section, the '128-bit ID' is set to '00112233445566778899AABBCCDDEEFF'. The 'Major' number is set to '0', and the 'Minor' number is set to '1'.

4.4 Tx Power

This drop down box sets the transmit power in the range of -26dBm to +3dBm.

This section shows the 'Tx Power' dropdown menu open, displaying options: 0dBm, 3dBm, 2dBm, 1dBm, 0dBm, -1dBm, and -2dBm. The 'Result Message' text box contains 'Access valid'. There is an unchecked checkbox for 'Enable BLE Beacon'. Below these are buttons for 'Write Config' and 'Write Default Config'.

4.5 Result Message

A client can set the message that is displayed on the mobile device at the end of a BLE exchange. The default value is "Access valid". This edit box allows setting a message up to sixteen characters long.

This section shows the 'Tx Power' dropdown menu set to '0dBm'. The 'Result Message' text box contains 'Access valid'. There is an unchecked checkbox for 'Enable BLE Beacon'. Below these are buttons for 'Read Config', 'Write Config', and 'Write Default Config'.

4.6 Read Config Button

This button reads all Bluetooth configurations and updates the values displayed by the WAVE ID Mobile Configurator.

Tx Power 0dBm ▾	Result Message Access valid	<input type="checkbox"/> Enable BLE Beacon
Read Config	Write Config	Write Default Config

4.7 Write Config Button

This button writes all Bluetooth configurations from the WAVE ID Mobile Configurator to the reader with the exception of the Zone Master Key.

Tx Power 0dBm ▾	Result Message Access valid	<input type="checkbox"/> Enable BLE Beacon
Read Config	Write Config	Write Default Config

4.8 Write Default Config Button

This button writes factory default Bluetooth configuration to the reader with the exception of the Zone Master Key.

Tx Power 0dBm ▾	Result Message Access valid	<input type="checkbox"/> Enable BLE Beacon
Read Config	Write Config	Write Default Config

4.9 Enable BLE Beacon

This enables the BLE Beacon functionality of WAVE ID Mobile readers.

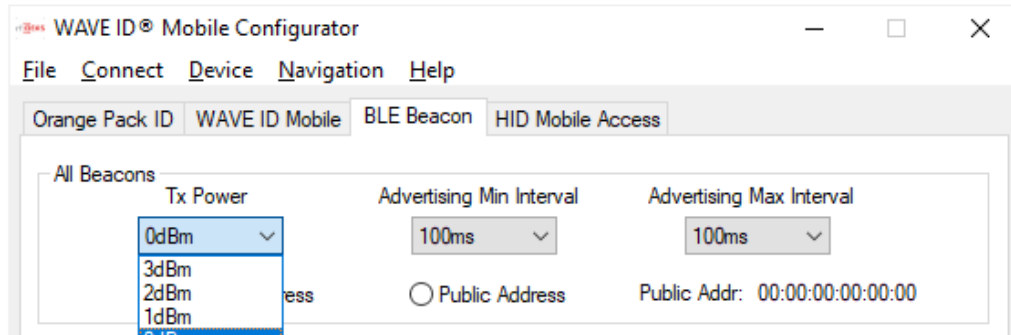
Tx Power 0dBm ▾	Result Message Access valid	<input checked="" type="checkbox"/> Enable BLE Beacon
Read Config	Write Config	Write Default Config

5. BLE Beacon Tab

5.1 All Beacons

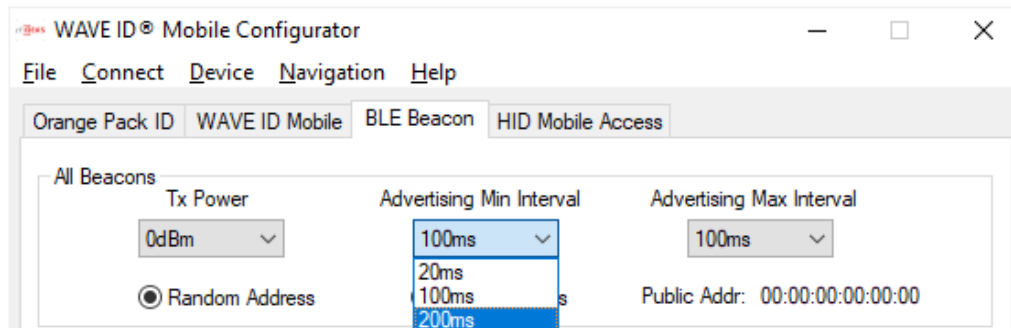
5.1.1 Tx Power

This drop-down box sets the transmit power in the range of -26dBm to +3dBm.



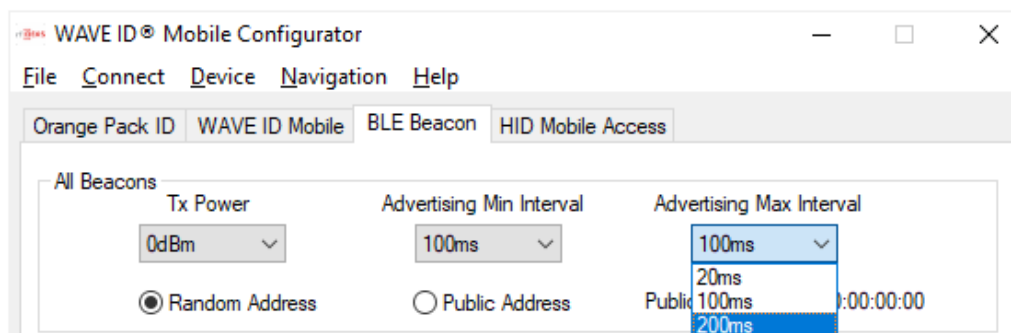
5.1.2 Advertising Min Interval

This drop-down box sets the Advertising Min interval in the range of 20ms to 10 seconds.



5.1.3 Advertising Max Interval

This drop-down box sets the Advertising Max Interval in the range of 20ms to 10 seconds.



5.1.4 Random Address

This selection sets the beacon address to a randomly generated value. This value will be different each time the reader is powered.

All Beacons

Tx Power	Advertising Min Interval	Advertising Max Interval
0dBm	100ms	100ms
<input checked="" type="radio"/> Random Address	<input type="radio"/> Public Address	Public Addr: 00:00:00:00:00:00

5.1.5 Public Address

This selection sets the beacon address to a fixed value assigned at the factory to each Bluetooth reader. Each reader has a different address.

All Beacons

Tx Power	Advertising Min Interval	Advertising Max Interval
0dBm	100ms	100ms
<input type="radio"/> Random Address	<input checked="" type="radio"/> Public Address	Public Addr: 00:00:00:00:00:00

Note: This feature is not available in RDR-30xx1EKU and RDR-30xx2EKU model readers.

5.1.6 Read Config Button

This button reads all Bluetooth configurations from the reader and updates the values displayed by the WAVE ID Mobile Configurator.

Read Config	Write Config	Write Default Config
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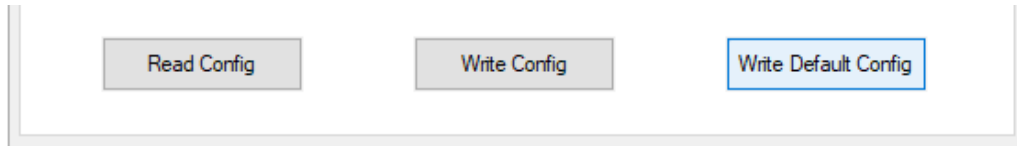
5.1.7 Write Config Button

This button writes all Bluetooth configurations from the WAVE ID Mobile Configurator to the reader with the exception of the Zone Master Key.

Read Config	Write Config	Write Default Config
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5.1.8 Write Default Config Button

This button writes factory default Bluetooth configuration to the reader with the exception of the Zone Master Key.



5.2 iBeacon

5.2.1 128-bit UUID

This edit box allows setting the iBeacon 128-bit UUID that identifies a specific beacon.

Alt Beacon		Mfg ID	Beacon ID	Major	Minor	Mfg Res
<input type="radio"/> Alt Beacon	<input type="text" value="02FF"/>	<input type="text" value="00112233445566778899AABBCCDDEEFF"/>	<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="00"/>	

5.2.2 Major

This edit box allows setting the iBeacon two-byte major number that allows identification of a subset of beacons within a large group.

iBeacon		128-bit UUID	Major	Minor
<input checked="" type="radio"/> iBeacon	<input type="text" value="E2C56DB5DFFB48D2B060D0F5A71096E0"/>	<input type="text" value="0"/>	<input type="text" value="1"/>	

5.2.3 Minor

This edit box allows setting the iBeacon two-byte minor number that allows identification of a specific beacon.

iBeacon		128-bit UUID	Major	Minor
<input checked="" type="radio"/> iBeacon	<input type="text" value="E2C56DB5DFFB48D2B060D0F5A71096E0"/>	<input type="text" value="0"/>	<input type="text" value="1"/>	

5.3 AltBeacon

5.3.1 Mfg ID

This edit box allows setting the two-byte manufacturer's company code from the Bluetooth SIG assigned numbers database. The default value is the Silicon Labs code of 02FF.

Alt Beacon		Mfg ID	Beacon ID	Major	Minor	Mfg Res
<input checked="" type="radio"/> Alt Beacon	<input type="text" value="02FF"/>	<input type="text" value="00112233445566778899AABBCCDDEEFF"/>	<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="00"/>	

5.3.2 Beacon ID

This edit box allows setting the first sixteen bytes of the beacon identifier. The sixteen bytes should be unique to the advertiser's organizational unit.

Alt Beacon		Mfg ID	Beacon ID	Major	Minor	Mfg Res
<input checked="" type="radio"/> Alt Beacon	<input type="text" value="02FF"/>	<input type="text" value="00112233445566778899AABBCCDDEEFF"/>	<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="00"/>	

5.3.3 Major

This edit box allows setting a two-byte major number to identify a subset of beacons within a large group. The major value is bytes seventeen and eighteen of the beacon identifier.

Alt Beacon		Mfg ID	Beacon ID	Major	Minor	Mfg Res
<input checked="" type="radio"/> Alt Beacon	<input type="text" value="02FF"/>	<input type="text" value="00112233445566778899AABBCCDDEEFF"/>	<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="00"/>	

5.3.4 Minor

This edit box allows setting a two-byte minor number to identify a specific beacon. The minor value is bytes nineteen and twenty of the beacon identifier.

Alt Beacon		Mfg ID	Beacon ID	Major	Minor	Mfg Res
<input checked="" type="radio"/> Alt Beacon	<input type="text" value="02FF"/>	<input type="text" value="00112233445566778899AABBCCDDEEFF"/>	<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="00"/>	

5.3.5 Mfg Res

This edit box allows setting the one-byte manufacturing reserved value. This value is defined by the manufacturer for special features.

Alt Beacon		Mfg ID	Beacon ID	Major	Minor	Mfg Res
<input checked="" type="radio"/> Alt Beacon	02FF	00112233445566778899AABBCCDDEEFF	0	1	00	

5.4 Eddystone UID Beacon

5.4.1 Namespace

This edit box allows setting the ten-byte namespace value. The namespace may be used to group a particular set of beacons.

Eddystone UID Beacon		Namespace	Instance
<input checked="" type="radio"/> Eddystone UID	00112233445566778899	000000000001	

5.4.2 Instance

This edit box allows setting a six-byte instance value. The instance may be used to identify individual devices in a group.

Eddystone UID Beacon		Namespace	Instance
<input checked="" type="radio"/> Eddystone UID	00112233445566778899	000000000001	

5.5 Eddystone URL Beacon

The Eddystone-URL frame broadcasts a URL using a compressed encoding format in order to fit more within the limited advertisement packet.

Once decoded, the URL can be used by any client with access to the internet. For example, if an Eddystone-URL beacon were to broadcast the URL <http://www.rfideas.com>, then any client that received this packet could choose to visit that URL. The Eddystone-URL frame forms the backbone of the Physical Web an effort to enable frictionless discovery of web content relating to one's surroundings.

5.5.1 URL Prefix

This drop-down box allows selecting four different URL prefixes. They are: (1) http://www. (2) https://www. (3) http:// and (4) https://.

Eddystone URL Beacon

☒ Eddystone URL

URL Prefix: http://www. ▾

Encoded URL:

5.5.2 Encoded URL

This edit box allows setting the remainder of the URL address after the prefix, such as "rfideas.com".

Eddystone URL Beacon

☒ Eddystone URL

URL Prefix: http://www. ▾

Encoded URL:

6. HID Mobile Access

6.1 Configuration

6.1.1 Tx Power Configuration

This drop-down box sets the transmit power in the range of -30dBm to +4dBm.

WAVE ID® Mobile Configurator

File Connect Device Navigation Help

Orange Pack ID WAVE ID Mobile BLE Beacon HID Mobile Access

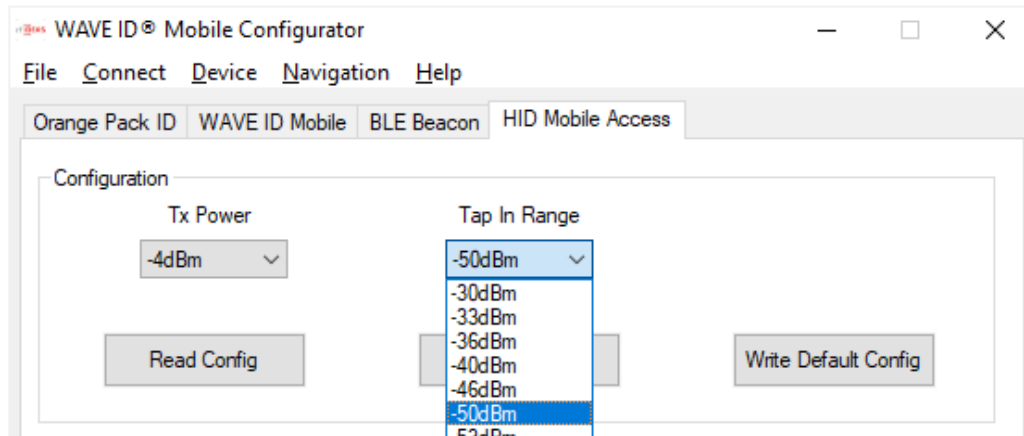
Configuration

Tx Power: -4dBm ▾

Tap In Range: -50dBm ▾

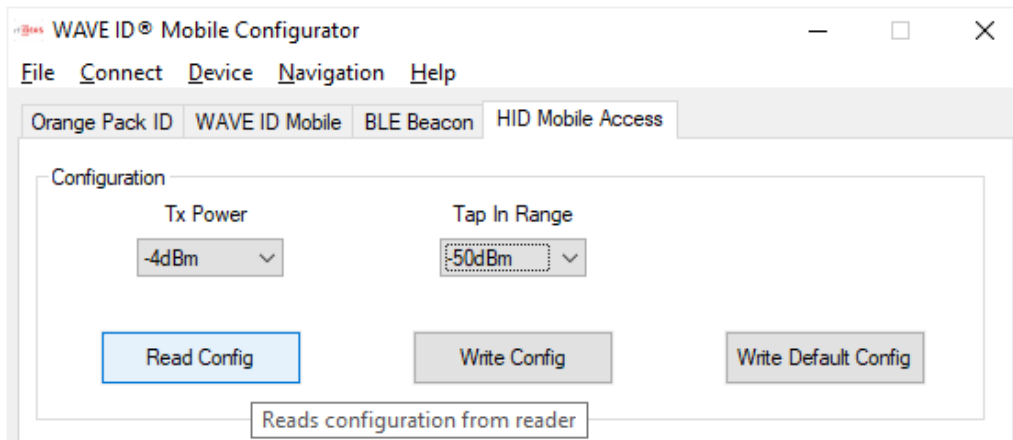
6.1.2 Tap In Range

This drop down box has a range of -30dBm to -63dBm which sets the RSSI threshold to determine the reader's distance to recognize a smartphone running the HID Mobile Access App and transmit its UID.



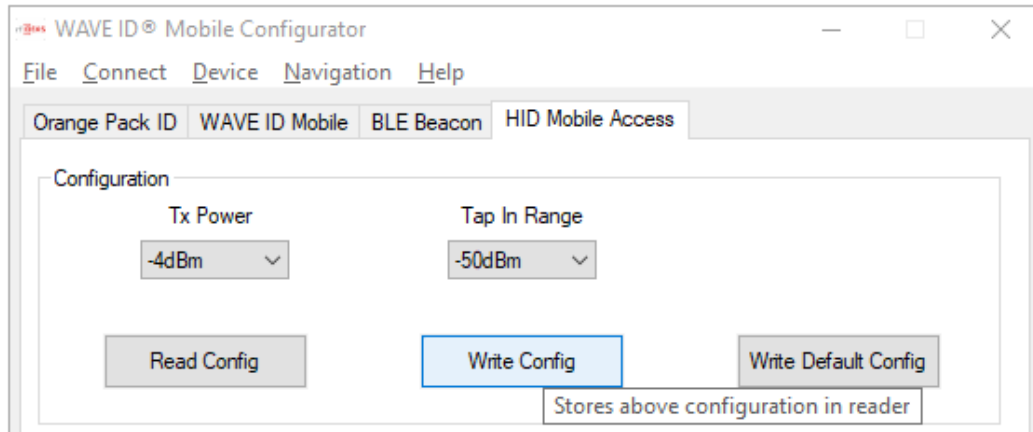
6.1.3 Read Config Button

This button reads the Bluetooth configuration from the reader.



6.1.4 Write Config Button

This button writes the Bluetooth configuration from the WAVE ID Mobile Configurator to the reader.



6.1.5 Write Default Button

This button writes the default Bluetooth configuration to the reader.

