

rf IDEAS WAVE ID Mobile Configurator Installation Guide

Contents

[1 WAVE ID Mobile Configurator](#)

[2 Product Information](#)

[2.1 1. Common Control](#)

[2.2 2. Orange Pack ID Tab](#)

[2.3 Documents / Resources](#)

[2.3.1 References](#)

WAVE ID Mobile Configurator

Product Information

The WAVE ID Mobile Configurator application is used in conjunction with the WAVE ID Mobile reader. It provides functionality for configuring various settings related to the reader's Bluetooth capabilities and Pack ID features.

1. Common Control

- **File Tab:** Allows opening and saving device data, as well as managing key files.
- **Connect Tab:** Provides options to connect and disconnect from the reader.
- **Device Tab:** Allows resetting Bluetooth settings, reading current settings, and writing new settings.
- **Navigation Tab:** Selects different tabs for configuring Orange Pack ID, Mobile Credential, Bluetooth Beacon, and Mobile Access.
- **Help Tab:** Provides information about the application version and firmware version numbers of the reader's microprocessors.
- **VID/PID:** Sets the VID/PID setting.
- **Connect Button:** Connects to the reader.
- **Disconnect Button:** Disconnects from the reader.
- **Beep Test Button:** Performs a beep test to verify connection.

2. Orange Pack ID Tab

- **Zone Master Key:** A 128-bit AES key used for ensuring confidentiality during contactless exchanges.
 - **Write Key Button:** Stores the value entered in the edit box above this button as the Zone Master Key.
 - **Write Default Key Button:** Restores the factory default Zone Master Key value.
- **Configuration:**
 - **Tx Power:** Sets the transmit power in the range of -26dBm to +3dBm.
 - **Contactless ID:** Sets the four-byte contactless ID identifier for the Pack ID client.
 - **Zone ID:** Sets the six-byte zone ID identifier for the Pack ID client's administrated zones.
 - **Result Message:** Sets the message displayed on the icon and mobile device at the end of a BLE exchange.
 - **Read Config Button:** Reads all Bluetooth configurations from the reader and updates the displayed values.
 - **Write Config Button:** Writes all Bluetooth configurations from the WAVE ID Mobile Configurator to the reader (except for the Zone Master Key).
 - **Write Default Config Button:** Writes the factory default Bluetooth configuration to the reader (except for the Zone Master Key).



WAVE ID®
Mobile Configurator

Revision: 1.5
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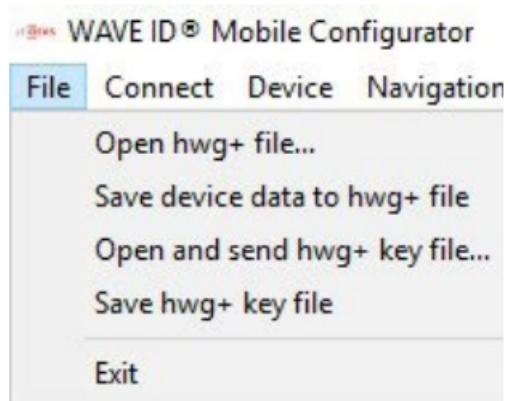


The document covers the functionality of the WAVE ID Mobile Configurator application used in conjunction with the WAVE ID Mobile reader.

2. Common Control

2.1 File Tab

This tab contains selection to open hwg+ files, save device data to hwg+ files, open and send as well as save a hwg+ key file, and exit the application.



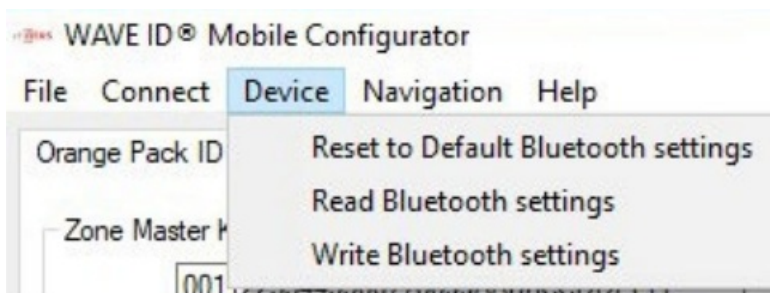
2.2 Connect Tab

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



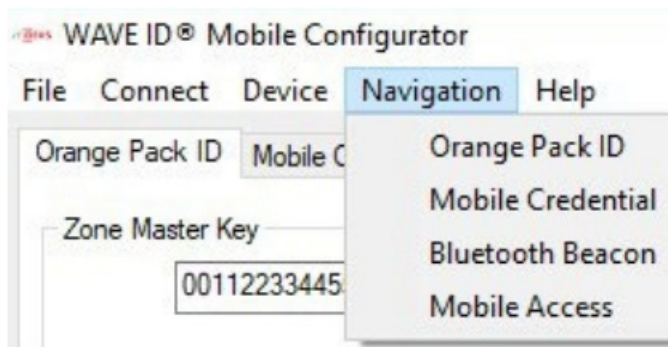
2.3 Device Tab

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



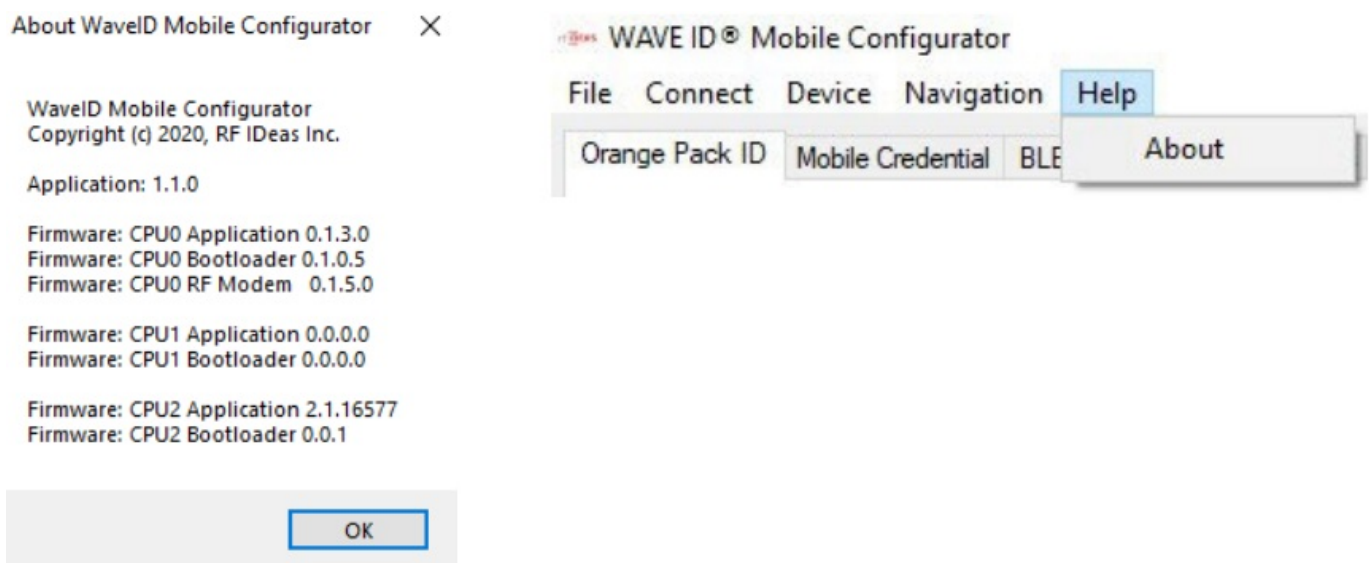
2.4 Navigation Tab

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



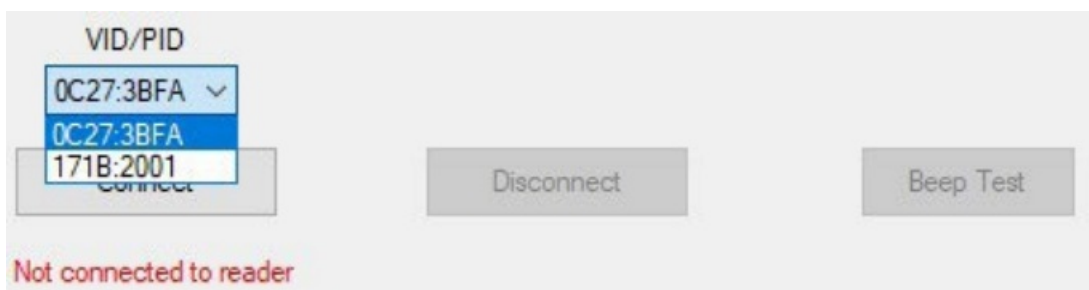
2.5 Help Tab

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



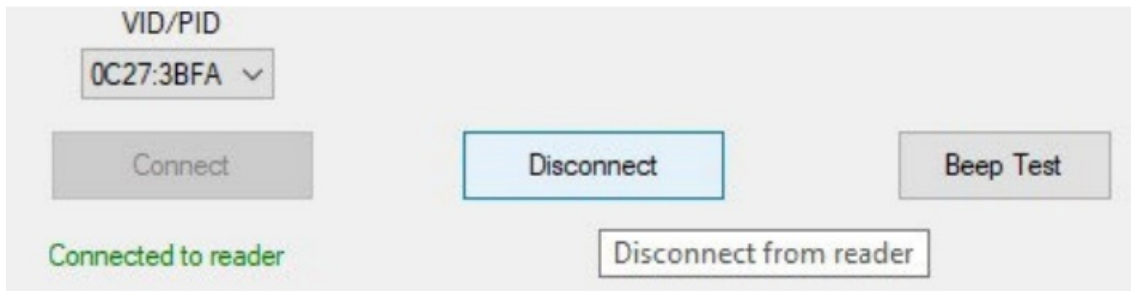
2.7 Connect Button

Connects to the reader.



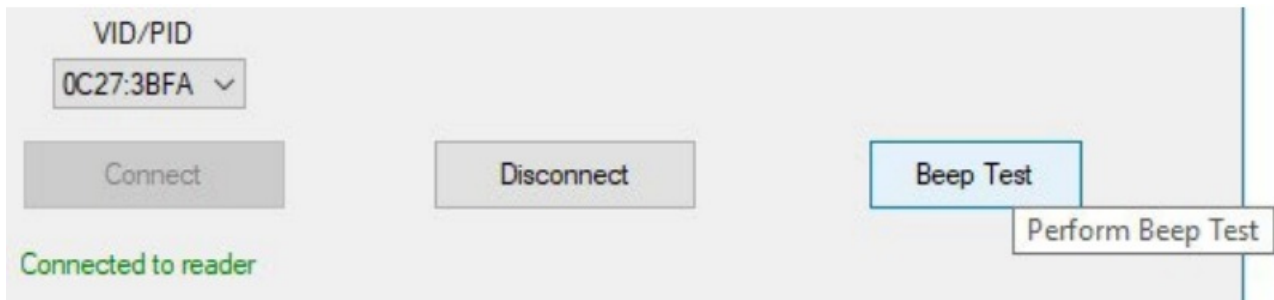
2.8 Disconnect Button

Disconnects from the reader.

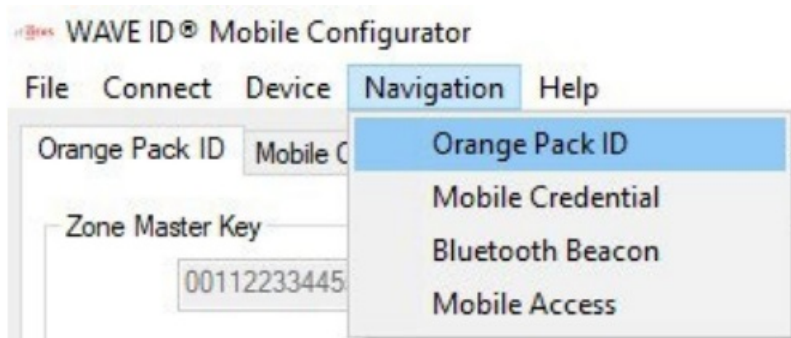


2.9 Beep Test Button

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.

The screenshot shows a web application interface with a tabbed menu at the top containing 'Orange Pack ID', 'Mobile Credential', 'BLE Beacon', and 'Mobile Access'. The 'Orange Pack ID' tab is selected. Below the tabs, there is a section titled 'Zone Master Key'. Inside this section, there is a text input field containing the hexadecimal value '00112233445566778899AABBCCDDEEFF'. Below the input field, there are two buttons: 'Write Key' (highlighted in blue) and 'Write Default Key' (greyed out). A callout box with an arrow pointing to the 'Write Key' button contains the text 'Stores above key in reader'.

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.

This screenshot is similar to the previous one, showing the 'Zone Master Key' configuration. The 'Write Key' button is now greyed out, and the 'Write Default Key' button is highlighted in blue. A callout box with an arrow pointing to the 'Write Default Key' button contains the text 'Restores factory default key'.

3.2 Configuration

3.2.1 Tx Power

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

The screenshot shows a 'Configuration' section with four main fields: 'Tx Power', 'Contactless ID', 'Zone ID', and 'Result Message'. The 'Tx Power' field is a dropdown menu with '0dBm' selected and highlighted in blue. Below the dropdown, a list of other power levels is visible: '3dBm', '2dBm', '1dBm', and '-26dBm'. The 'Contactless ID' field contains the value '00000001'. The 'Zone ID' field contains the value '010203040506'. The 'Result Message' field contains the text 'Access valid'. Below these fields, there are three buttons: 'Write Config' (highlighted in blue), 'Write Default Config' (greyed out), and a partially visible 'fig' button (greyed out).

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	010203040506	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	010203040506	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	010203040506	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	010203040506	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.

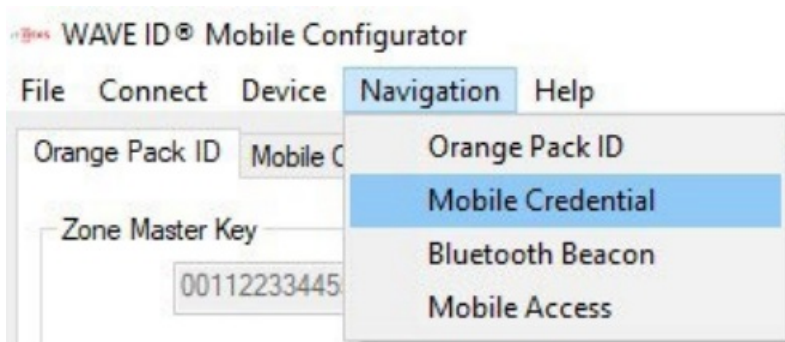
The screenshot shows the 'Configuration' section of the WAVE ID Mobile Configurator. It contains four input fields: 'Tx Power' (set to '0dBm'), 'Contactless ID' (set to '00000001'), 'Zone ID' (set to '010203040506'), and 'Result Message' (set to 'Access valid'). Below these fields are three buttons: 'Read Config', 'Write Config' (highlighted in blue), and 'Write Default Config'. A tooltip at the bottom right states 'Stores above configuration in reader'.

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 the 'Configuration' section of the WAVE ID Mobile Configurator. It contains four input fields: 'Tx Power' (set to '0dBm'), 'Contactless ID' (set to '00000001'), 'Zone ID' (set to '010203040506'), and 'Result Message' (set to 'Access valid'). Below these fields are three buttons: 'Read Config', 'Write Config', and 'Write Default Config' (highlighted in blue). A tooltip at the bottom right states 'Restores factory'.

4. 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.

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.

Configuration

128-bit ID	Major	Minor
00112233445566778899AABBCCDDEEFF	0	1

4.3 Minor

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

Configuration

128-bit ID	Major	Minor
00112233445566778899AABBCCDDEEFF	0	1

4.4 Tx Power

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

Configuration

128-bit ID	Major	Minor
00112233445566778899AABBCCDDEEFF	0	1

Tx Power	Result Message
0dBm	Access valid

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.

Tx Power	Result Message
0dBm	Access valid

4.6 Read Config Button

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

The screenshot shows the WAVE ID Mobile Configurator interface. At the top left, there is a 'Tx Power' dropdown menu set to '0dBm'. To its right is a 'Result Message' text box containing 'Access valid'. Below these, there are three buttons: 'Read Config' (highlighted with a blue border), 'Write Config', and '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.

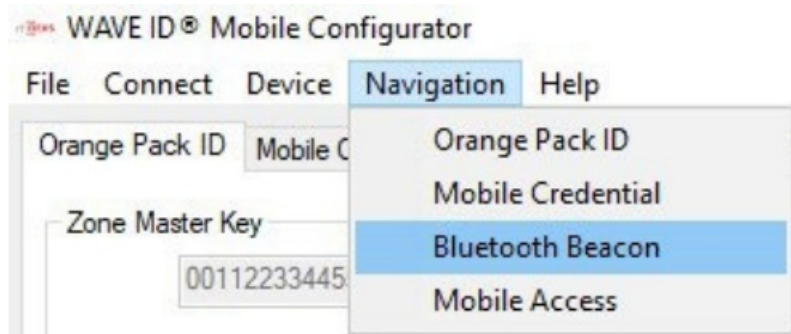
The screenshot shows the WAVE ID Mobile Configurator interface. At the top left, there is a 'Tx Power' dropdown menu set to '0dBm'. To its right is a 'Result Message' text box containing 'Access valid'. Below these, there are three buttons: 'Read Config', 'Write Config' (highlighted with a blue border), and '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.

The screenshot shows the WAVE ID Mobile Configurator interface. At the top left, there is a 'Tx Power' dropdown menu set to '0dBm'. To its right is a 'Result Message' text box containing 'Access valid'. Below these, there are three buttons: 'Read Config', 'Write Config', and 'Write Default Config' (highlighted with a blue border).

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.

The screenshot shows the 'BLE Beacon' tab in a configuration interface. Under the 'All Beacons' section, there are three main settings: 'Tx Power' with a dropdown menu showing '0dBm', '3dBm', '2dBm', and '1dBm'; 'Advertising Min Interval' with a dropdown menu showing '100ms'; and 'Advertising Max Interval' with a dropdown menu showing '200ms'. Below these, there is a radio button for 'Public Address' and a text field for 'Public Addr' showing '00:00:00:00:00:00'.

5.1.2 Advertising Min Interval

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

This screenshot is similar to the previous one, but the 'Advertising Min Interval' dropdown menu is open, showing options: '100ms', '20ms', '100ms', and '200ms'. The 'Random Address' radio button is selected, and the 'Public Addr' field shows '00:00:00:00:00:00'.

5.1.3 Advertising Max Interval

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

This screenshot shows the 'Advertising Max Interval' dropdown menu open, displaying options: '200ms', '20ms', '100ms', and '200ms'. The 'Random Address' radio button is selected, and the 'Public Addr' field shows '00:00:00:00:00:00'.

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.

This screenshot shows the 'Random Address' radio button selected. The 'Advertising Min Interval' is set to '100ms' and the 'Advertising Max Interval' is set to '200ms'. The 'Public Addr' field shows '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	200ms
<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.

Read Config	Write Config	Write Default Config
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5.2 iBeacon

5.2.1 128-bit UUID

This edit box allows setting the iBeacon 128-bit UUID that identifies 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"/>

5.2.2 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.

AltBeacon	Mfg ID	Beacon ID	Major	Minor	Mfg Res
<input checked="" type="radio"/> AltBeacon	<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.

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



The screenshot shows the 'Eddystone URL Beacon' interface. On the left, there is a radio button labeled 'Eddystone URL' which is selected. To its right is a dropdown menu labeled 'URL Prefix'. The dropdown is open, showing four options: 'http://www.', 'http://www.', 'https://www.', and 'https://'. The first two options are highlighted in blue. To the right of the dropdown is a text input field labeled 'Encoded URL' containing the text 'rfideas.com'.

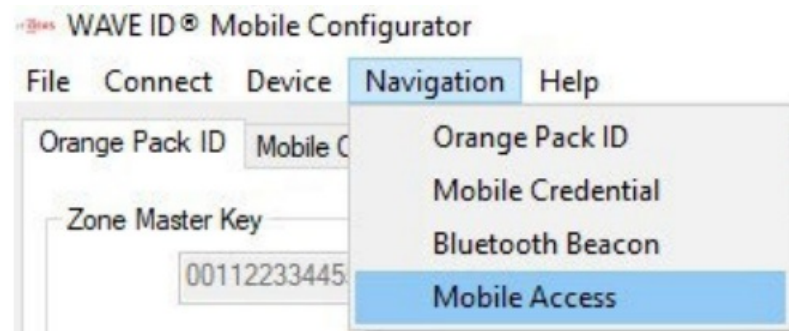
5.5.2 Encoded URL

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



The screenshot shows the 'Eddystone URL Beacon' interface. On the left, there is a radio button labeled 'Eddystone URL' which is selected. To its right is a dropdown menu labeled 'URL Prefix' showing 'http://www.'. To the right of the dropdown is a text input field labeled 'Encoded URL' containing the text 'rfideas.com'.

6. Mobile Access



The screenshot shows the 'WAVE ID Mobile Configurator' interface. At the top, there is a menu bar with 'File', 'Connect', 'Device', 'Navigation', and 'Help'. The 'Navigation' menu is open, showing a list of options: 'Orange Pack ID', 'Mobile Credential', 'Bluetooth Beacon', and 'Mobile Access'. The 'Mobile Access' option is highlighted in blue. Below the menu bar, there are input fields for 'Orange Pack ID', 'Mobile C', 'Zone Master Key', and a text box containing '00112233445'.

6.1 Configuration

6.1.1 Tx Power Configuration

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

Orange Pack ID	Mobile Credential	BLE Beacon	Mobile Access
Configuration			
Tx Power		Tap In Range	
<div>-4dBm</div> <div>4dBm</div> <div>0dBm</div> <div>-4dBm</div>		<div>-50dBm</div>	
Write Config		Write Default Config	

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.

Orange Pack ID	Mobile Credential	BLE Beacon	Mobile Access
Configuration			
Tx Power		Tap In Range	
<div>0dBm</div>		<div>-30dBm</div> <div>-30dBm</div> <div>-33dBm</div>	

6.1.3 Read Config Button

This button reads the Bluetooth configuration from the reader.

Configuration		
Tx Power	Tap In Range	
<div>-4dBm</div>	<div>-50dBm</div>	
Read Config	Write Config	Write Default Config
Reads configuration from reader		

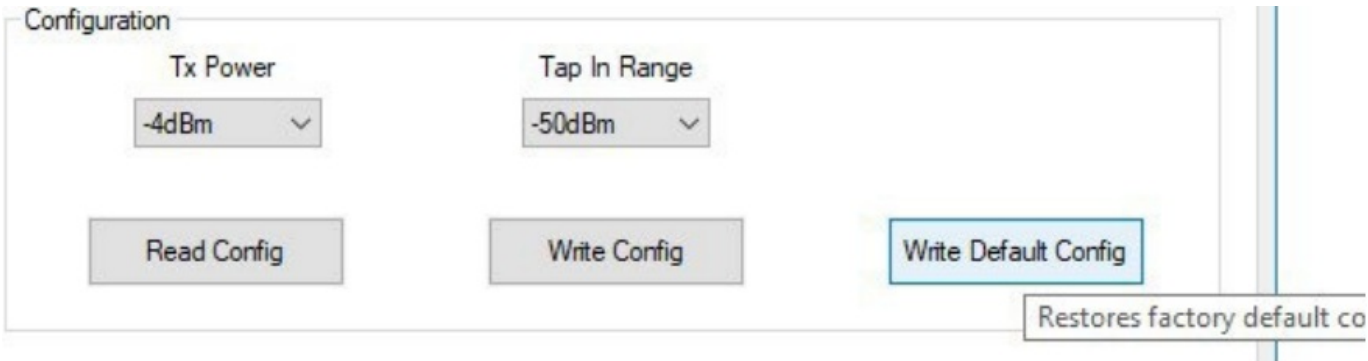
6.1.4 Write Config Button

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

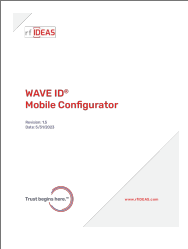
Configuration		
Tx Power	Tap In Range	
<div>-4dBm</div>	<div>-50dBm</div>	
Read Config	Write Config	Write Default Config
Stores above configuration in reader		

6.1.5 Write Default Button

This button writes the default Bluetooth configuration to the reader.



Documents / Resources

	<p>rf IDEAS WAVE ID Mobile Configurator [pdf] Installation Guide</p> <p>WAVE ID Mobile Configurator, ID Mobile Configurator, Mobile Configurator, Configurator</p>
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References

-  [Homepage | rf IDEAS](#)