RC1682-SIG-DK Demonstration Kit Quick Start

Introduction

The SIGFOX Ready™ Demonstration Kit from Radiocrafts is designed to make it easy for the user to evaluate the module, develop an application and build prototypes. Bundled with the Demonstration Kit is the RCTools-SIG PC software, to be used together with the Demo Boards.

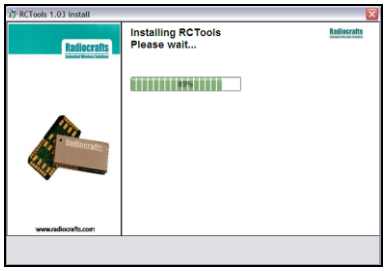
How to get started

Please follow this guideline to ensure that the USB driver is properly installed on your computer **before** you connect the Demo Board to the PC.

Step 1. Download the latest version of RCTools-SIG from www.radiocrafts.com

Step 2. Install the RCTools as described in the RCTools Installation Guide.

- The USB Driver is automatically installed together with RCTools.



Step 3. Connect the Demo Boards to the PC after installing the RCTools-SIG PC software.

- Connect the antenna or connect to your test equipment.

Step 4. You are now ready to use the Demo Board.

- Radiocrafts offer a powerful RCTools-SIG PC suite, but any terminal program using COM ports can also be used. Visit www.radiocrafts.com to download relevant documents.

How to register the device in the SIGFOX back-end system

Each Demonstration Kit is delivered with Platinum level SIGFOX subscription, which allows up to 140 uplink messages, and up to 4 downlink messages per day, for 1 year after the activation date. Roaming is also included so that the Radiocrafts Demonstration Kits can be used in every place in Europe where a SIGFOX network is available.

To be able to register the Demonstration Kit in the back-end system of SIGFOX, the ID and PAC number have to be available. Each Demonstration Kit has the ID and PAC stored in configuration memory; and this information is also available on the label on each Demonstration Board.

Procedure to register and use the SIGFOX Platinum subscription:

Step 1. Read ID and PAC numbers.

- Read it from the label of the Demonstration Board:
  - The format is the following:
    - ID: [ID1_LSB, ID2, ID3, ID4_MSB]
    - PAC: [PAC8_MSB, PAC7, … , PAC1_LSB]

Example
ID: 01020304 *PAC: 0F0E0D0C0B0A0908*

- Or read the configuration memory:
  - Go to configuration mode.
  - Use command '9' to read the ID and PAC codes:
    - Enter configuration mode. Verify the prompt sent by the module.
    - Send 0x39 (ASCII '9' character).
    - The reply of 13 bytes (4 bytes ID, 8 bytes PAC, 1 byte Prompt) will have the following format:
      [ID1_LSB, ID2, ID3, ID4_MSB, PAC8_MSB, PAC7, … , PAC1_LSB, '>']
    - The last '>' prompt confirms that the module is ready to receive the next command.

Example
Request: 39 *Reply: 01 02 03 04 0F 0E 0D 0C 0B 0A 09 08 '>'*

Step 2. Request an account in the SIGFOX backend system.

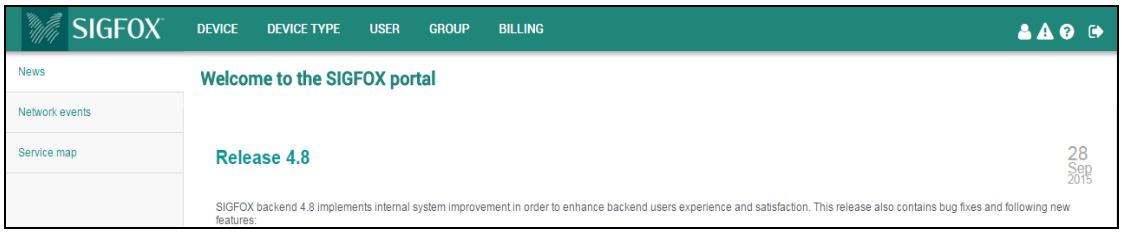
- Contact SIGFOX for activation of subscription via subscribe@sigfox.com with
  - Name of the company,
  - Contact person's name and email address to create the account onto SIGFOX back-end,
  - ID and PAC numbers of the Demonstration Kit to be activated with the format of:
    - ID: [ID4_MSB, ID3, ID2, ID1_LSB]
    - PAC: [PAC8_MSB, PAC7, … , PAC1_LSB]
    - *NOTE: The ID is sent with MSB first.*

Example
ID: *04030201* *PAC:* *0F0E0D0C0B0A0908*

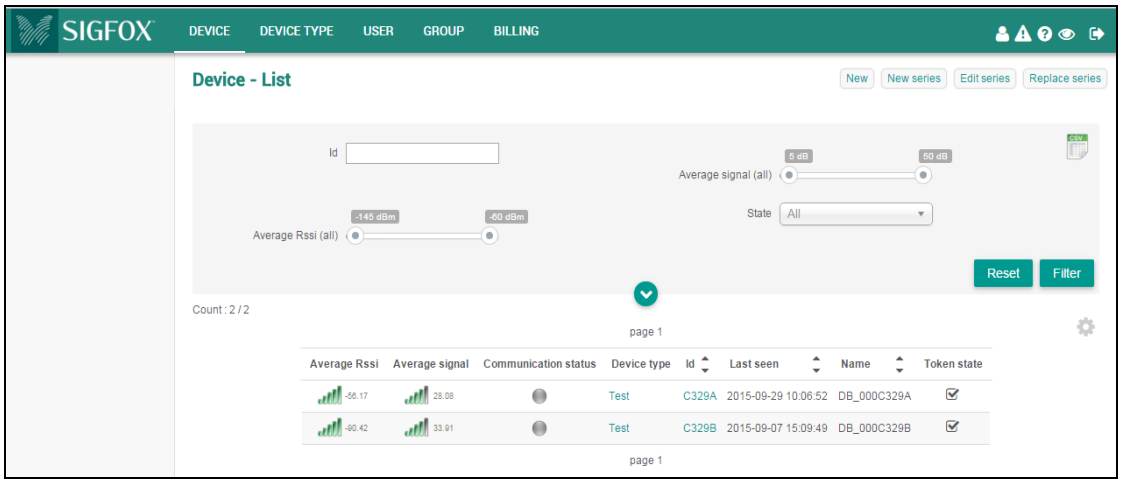
- The SIGFOX sales team will acknowledge receipt of the activation request and will explain what the next step is.
    - SIGFOX will set up your account within 48 hours following the subscription request.

Step 3. Register the device in the backend system.

- Go to the SIGFOX back-end system: http://backend.sigfox.com.
- Sign in with your account.

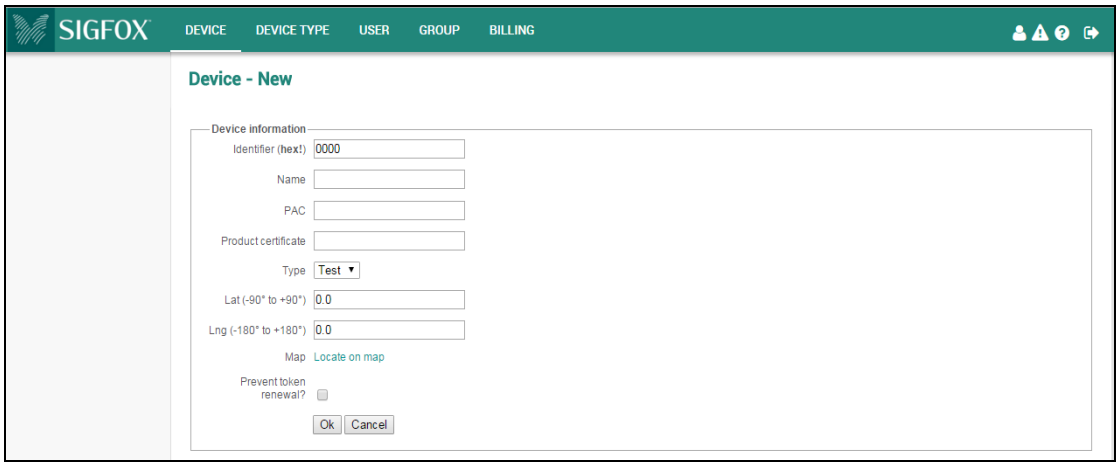


Step 4. Select DEVICE page in the menu bar.



Step 5. Click on 'New' button in the top-right corner.

- Select your group.



Step 6. Edit the given fields.

- Name, Identifier, PAC and Product Certificate fields are mandatory.
  - The Name can be selected by the customer to identify the device.
  - The Identifier is unique and delivered with the Demonstration Kit.
    - Format: [ID4_MSB, ID3, ID2, ID1_LSB]
    - *NOTE: The bytes are in opposite order than they are stored in the memory/displayed on the label.*

Example
Identifier: 04030201

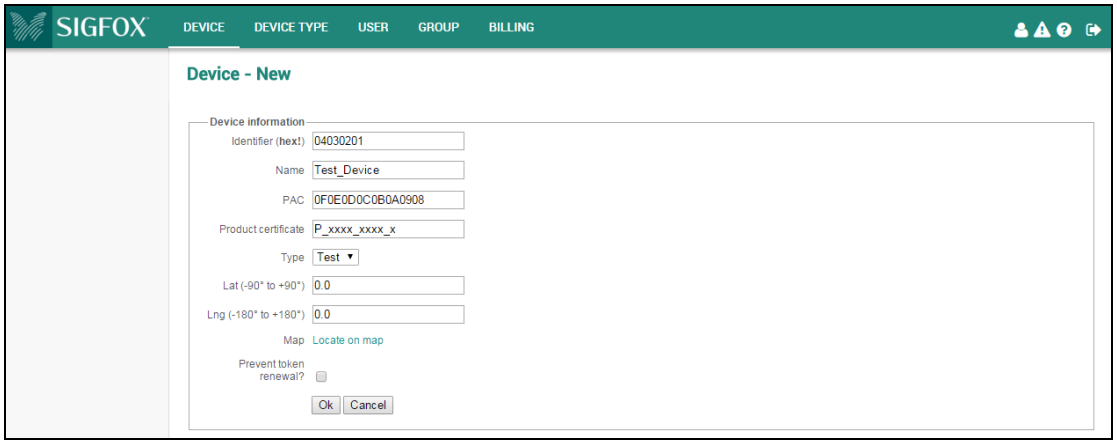
  - PAC is unique and delivered with the Demonstration Kit.
    - Format: [PAC8_MSB, PAC7, … , PAC1_LSB]
    - *NOTE: The bytes are in the same order as they are stored in the memory/displayed on the label.*

Example
PAC: 0F0E0D0C0B0A0908

  - The Product Certificate belongs to the revision of product:

Product Name	Rev.	Product Description	Freq.	Product Certificate	Date of certification
RC1682-SIG	1.00	Radio module.	ETSI	M_0013_B3F9_01	2015-08-24
RC1682-SIG-DK	1.00	Demonstration kit based on RC1682-SIG module.	ETSI	P_002D_8803_01	2015-10-19

- Click OK. The device is now added to your account.

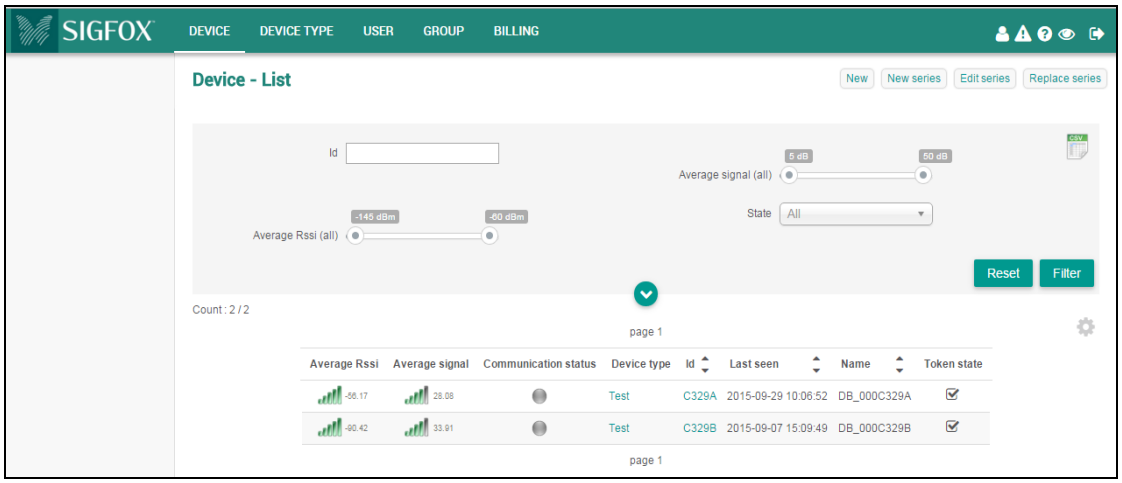

SIGFOX
DEVICE
DEVICE TYPE
USER
GROUP
BILLING
Device - New
Device information
Identifier (hex!)
04030201
Name
Test_Device
PAC
0F0E0D0C0B0A0908
Product certificate
P_xxxx_xxxx_x
Type
Test
Lat (-90° to +90°)
0.0
Lng (-180° to +180°)
0.0
Map
Locate on map
Prevent token renewal?
Ok
Cancel

How to receive packets in the SIGFOX back-end system

Step 1. Go to the SIGFOX back-end web interface.

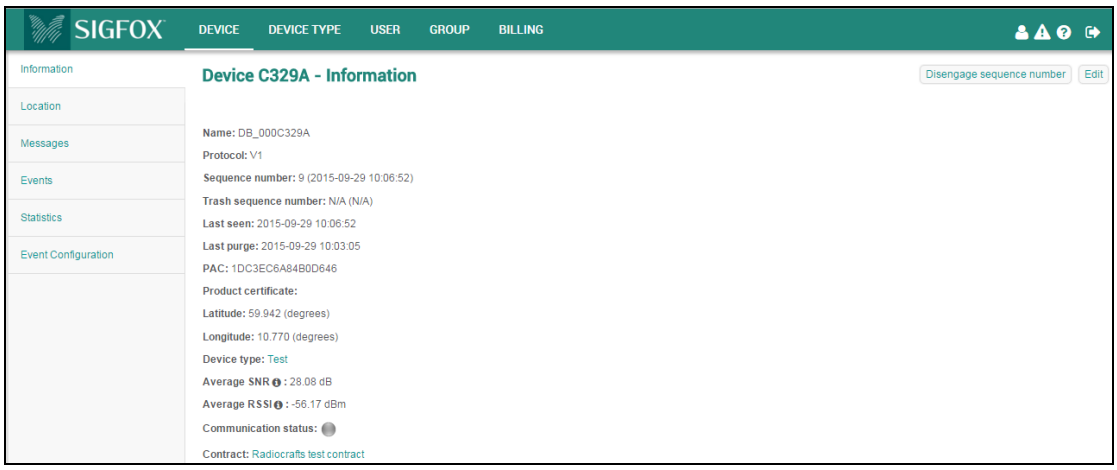
- Go to the SIGFOX back-end system: http://backend.sigfox.com.
- Sign in with your account.

Step 2. Select 'DEVICE' page. All the registered devices will be listed here.



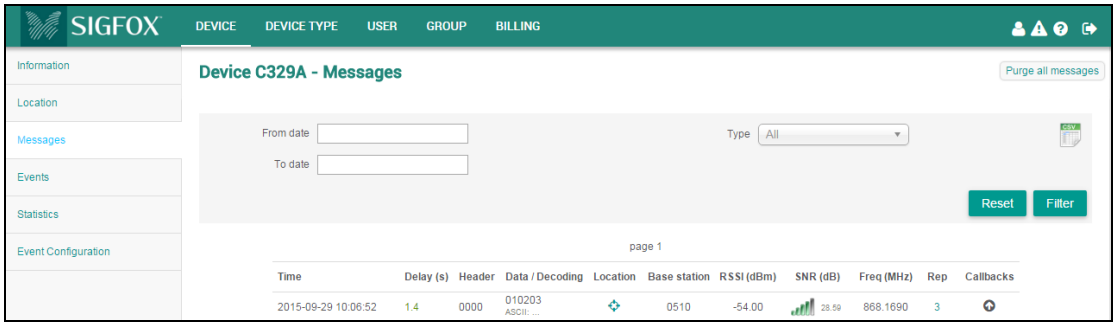
Step 3. Select the device of interest

- Click on the 'ID' of the device of interest. A new menu will open.
- Disengage sequence number by pressing the button in the top-right corner.



Step 4. Open the messages window.

- Click on ‘MESSAGES’ option. A new window will open.
- Press the ‘Purge all messages’ button in the top-right corner if you want to clear the window.

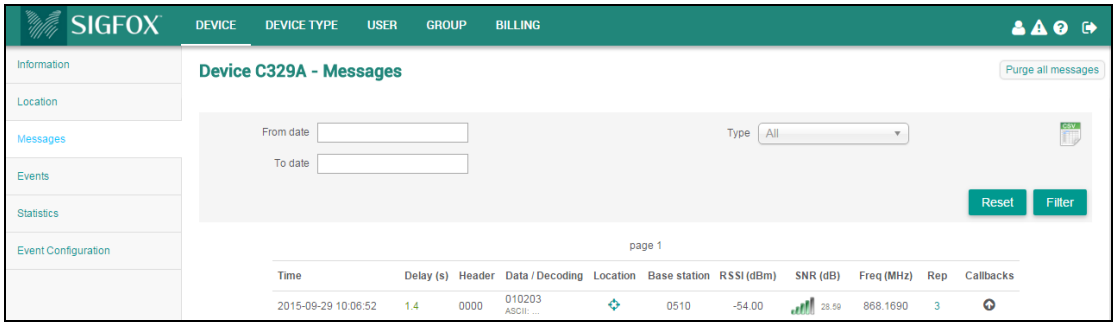


Step 5. Send a packet through UART to the Demonstration Board.

- Open a terminal window with the default 19200 bps, 8N1 settings.
- Send a packet to the module through UART. It must start with a length byte and can be followed by up to 12 bytes of payload.

Step 6. Receive a packet.

- The received packets will appear with a couple of second delay in the ‘MESSAGES’ window in the back-end system.



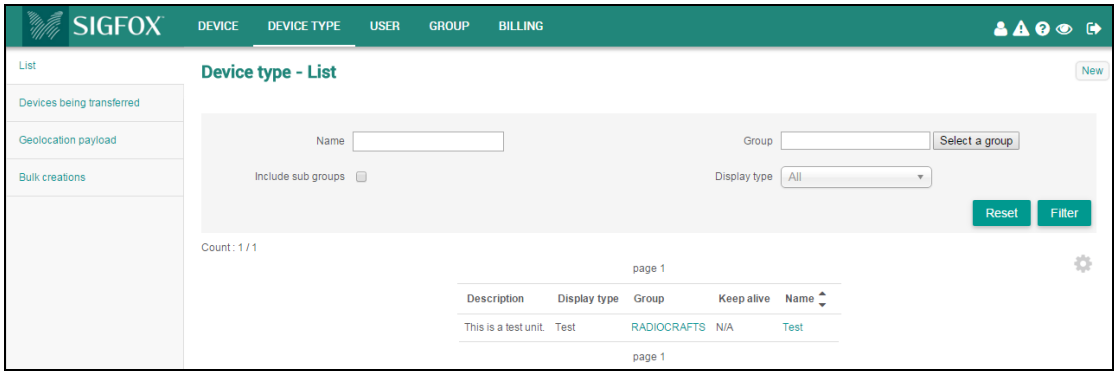
How to configure two way communication

Step 1. Configure your module to use Uplink & Downlink mode.

- Step into configuration mode
  - Use F command to configure the mode in volatile memory
    - Send [‘F’, 0x01] to enable Uplink & Downlink mode.
    - Send [‘F’, 0x00] to enable Only uplink mode.
  - Use the M command to change the mode in non-volatile memory.
    - Send [‘M’, 0x3B, 0x01, 0xFF] to enable Uplink & Downlink mode.
    - Send [‘M’, 0x3B, 0x00, 0xFF] to enable Only uplink mode.

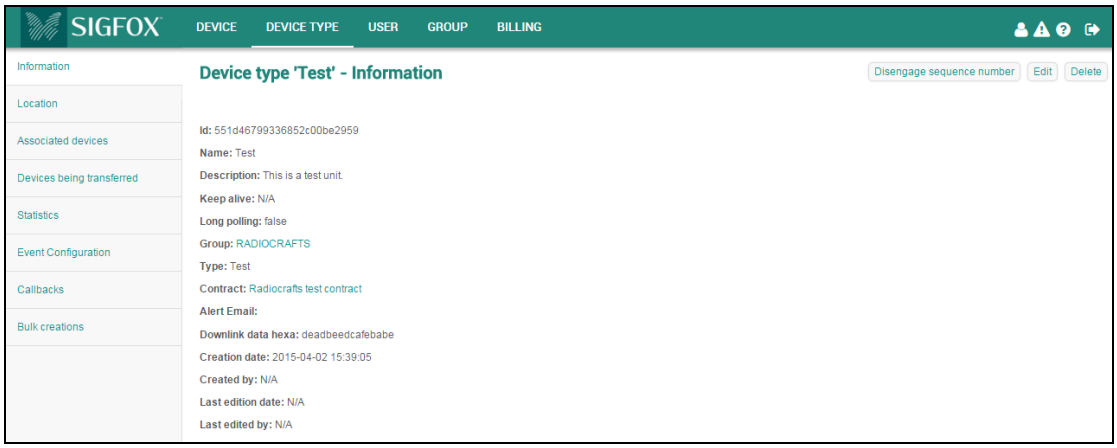
Step 2. Configure the downlink message content.

- Go to device type window

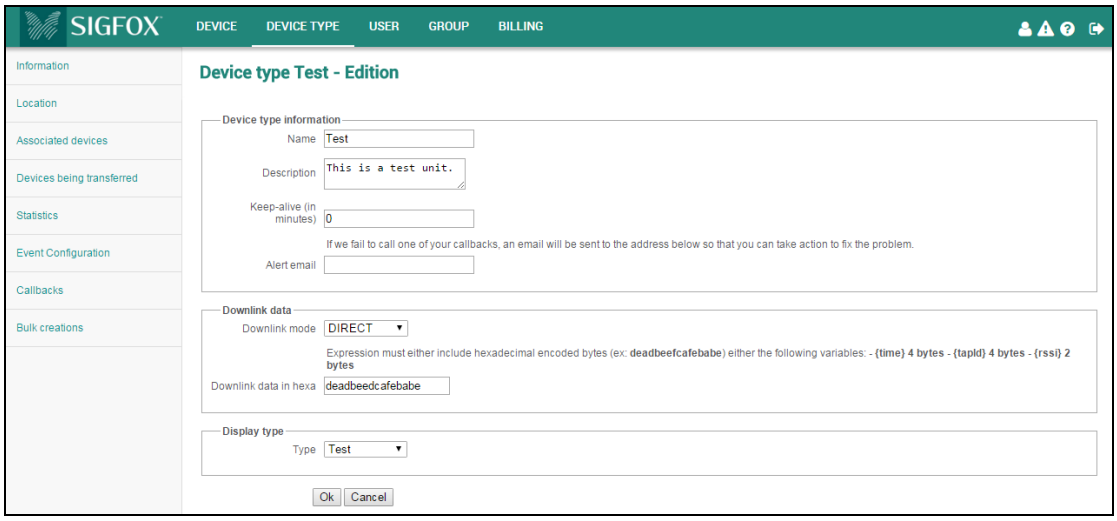


Step 3. Click on the Name of the selected device type.

- Last column in the example called ‘Test’.



Step 4. Click on the Edit button in the top-right corner.



Step 5. Edit the Downlink data in hexadecimal entry as the payload of reply.

Step 6. Send any packet in Uplink & Downlink mode from the module.

- The network will automatically recognise the mode and will reply to the packet with the predefined reply.
- The payload of reply will be sent on UART after reception.

Related Documents on www.radiocrafts.com

On the Radiocrafts website you will find more documentation on the product:

- Module Data Sheet / User Manual (Module RF and embedded firmware description)
- RCxxxxDK-USB User Manual (Description of your Demonstration Board hardware)
- RCTools installation guide (Install/uninstall description)
- RCTools User Manuals (Description of the RCTools PC applications for your module)

Please visit the product page for the selected module to download all relevant documents.

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