Weightless
Configuration Tool
User Manual

Revision History

Revision Code	Date	Description	Comments
1.0.0	Aug 16 2017	Firmware 1.0.0	Initial Draft
1.0.5	Sept 22 2017	Firmware 1.0.5	Added Test Modes
1.0.7	Nov 10 2017	Firmware 1.0.7	Added Unicast Downlinks
1.0.8	Jan 8 2018	Firmware 1.0.8	
1.0.9	March 22 2018	Firmware 1.0.9	Added BS_TX_PWR
1.0.9	April 09 2018	Firmware 1.0.9	Added Frequency Scan Changed implementation of Multicast Groups

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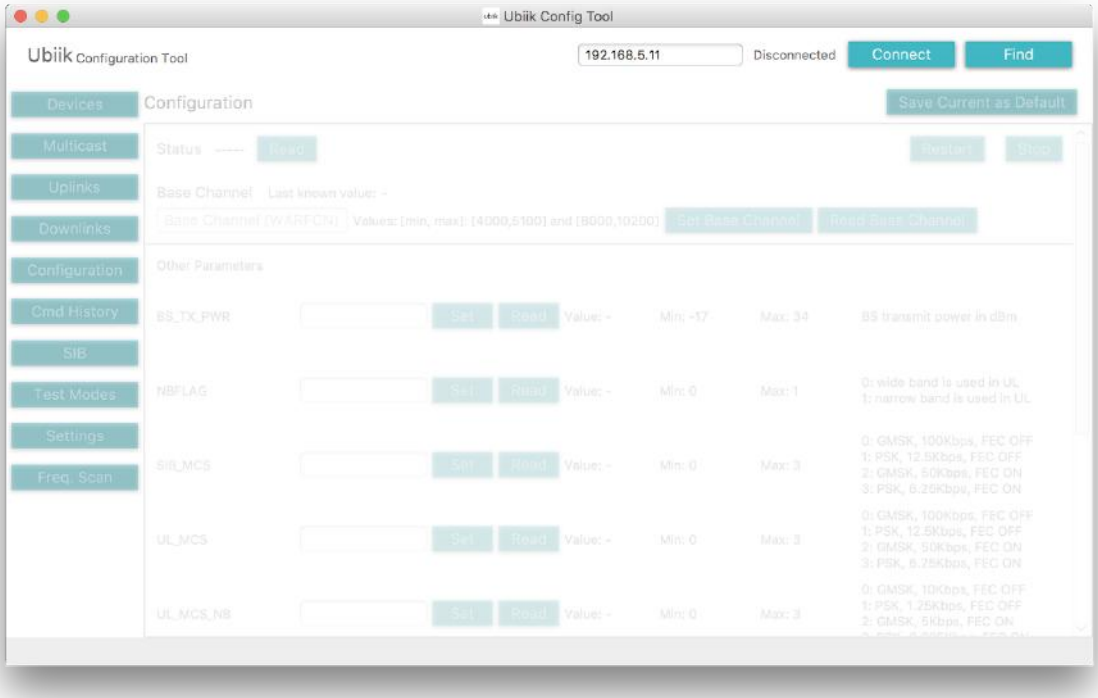
How to run

In order to run the application first download and install Java Runtime Environment 8 (Official download) or Java Runtime Environment 9 (Official download)
After registering your Base Station, Download the Configuration Tool from https://wpkit.ubiik.com/analytics/downloads/

The application is contained in a JAR file. You can launch it by double clicking on the file or by typing the following in a terminal:
java -jar Config-Tool-v1_0_9_XX.jar
Where *XX* is your current version

If you choose to use OpenJDK, you also need to install OpenJFX.
In Linux you can install with aptitude:
apt-get install openjfx

Once the application has been launched, you will see the following screen



Connect to your Base Station

Before being able to connect to your Base Station you must register it on Ubiik's website (https://wpkit.ubiik.com) and connect it to the internet. Please see *Weightless SDK: Getting Started* document.

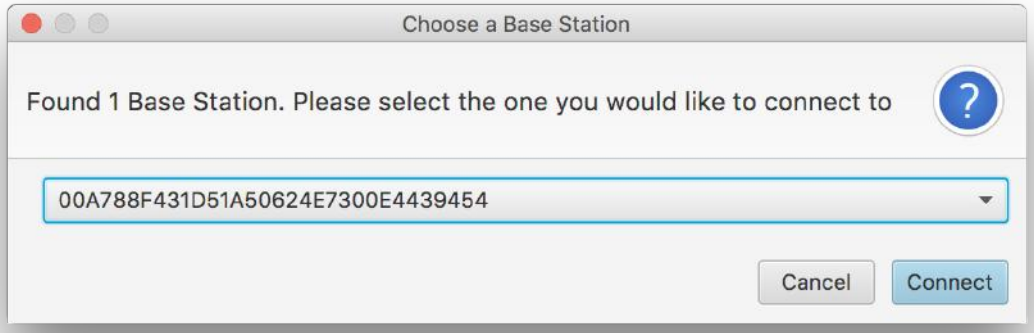
Connect using a Static IP address

If you connect your Base Station directly to your computer, you can connect to the tool using the address *192.168.5.11*. It is necessary that your ethernet interface is set up to have a static IP address *192.168.5.X* with *X* different than *11* and with network mask *255.255.255.0*

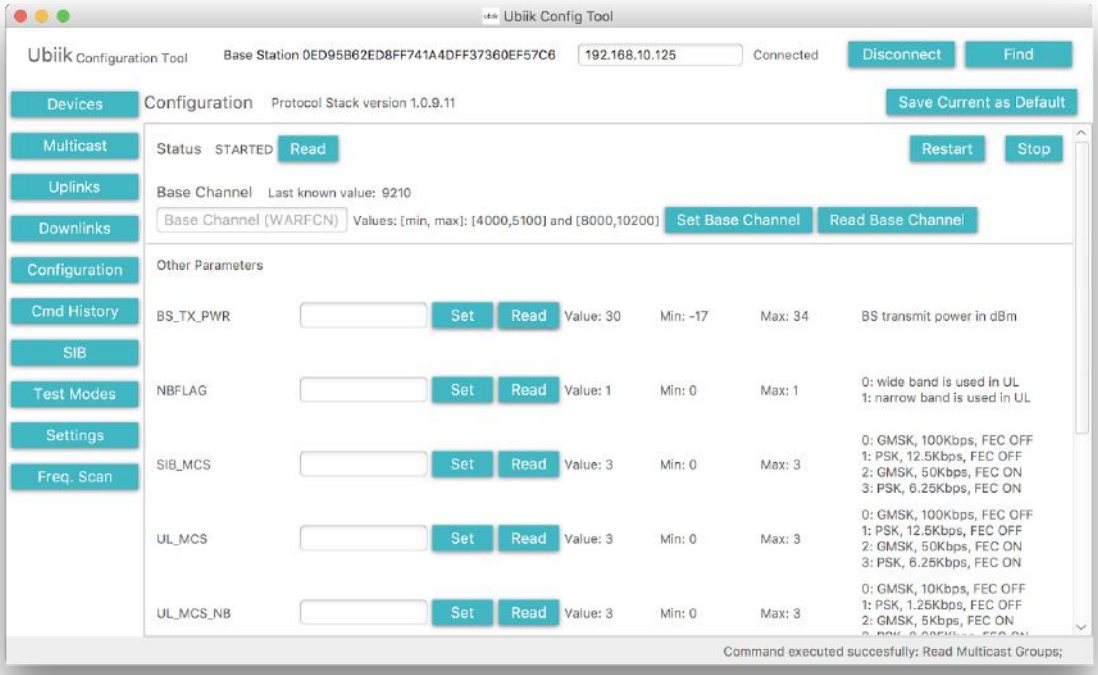
If you connect it to a router, the Base Station is configured to obtain an IP address using DHCP. If you know this address, you can use it to connect directly to the Base Station.
In any of these cases, type the IP address and press **Connect.**

Find in your local network

If you connected the Base Station to a router in your local network but you don't know it's IP address, press **Find** to locate it.
After a few seconds, a Dialog message will be displayed from where you can choose which Base Station to connect to. Select your Base Station and press **Connect**.



After connecting, the left menu will become unlocked.



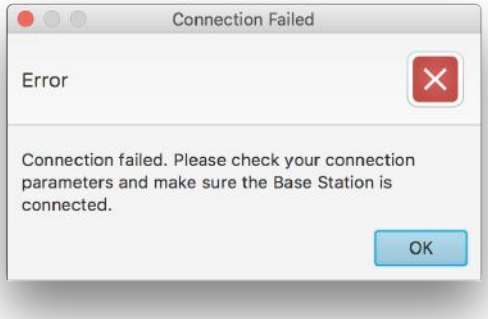
Status bar

The bottom status bar displays the current connection status:

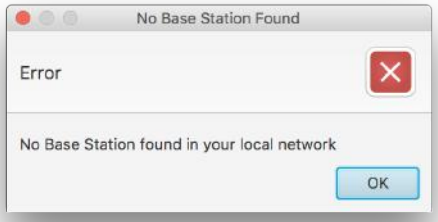
or the latest sent commands / received responses:

Troubleshooting

If connection fails, make sure that you have followed the registration steps.
Make sure that the Base Station is online and properly connected to your router / PC.

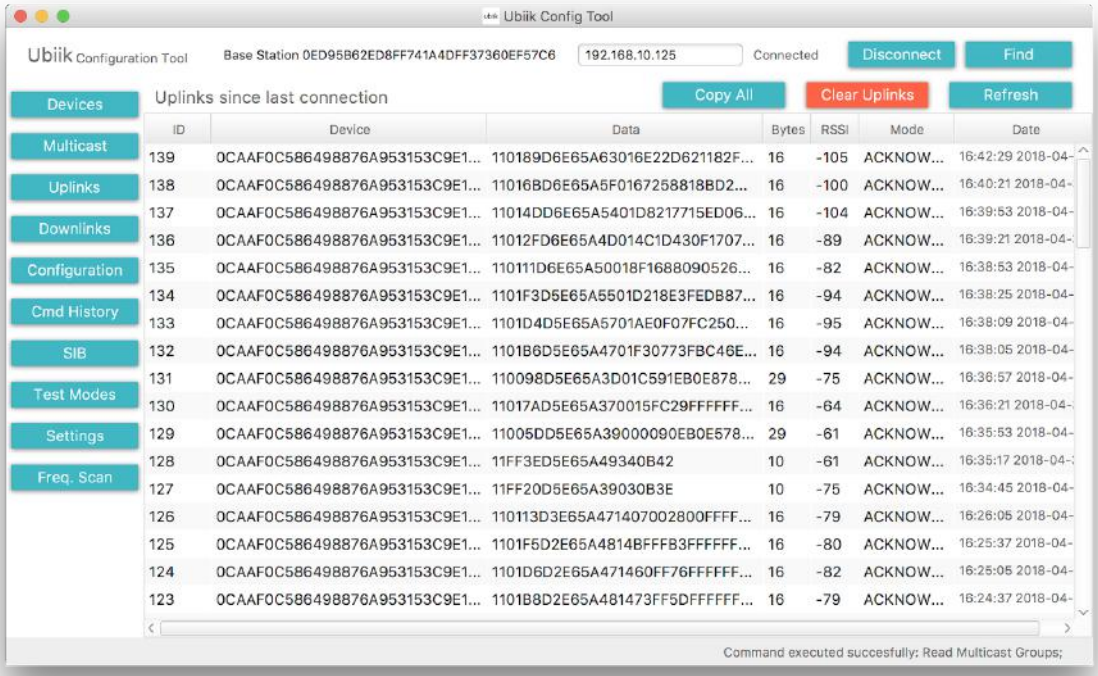


If no base station was found using the *Find* feature, please make sure that your router has the DHCP option enabled.


No Base Station Found
Error
No Base Station found in your local network
OK

Uplinks

This screen shows a live list of the latest uplinks received from the Base Station (starting from the moment of connection). Data and device IDs are displayed in Hexadecimal.



Columns Description

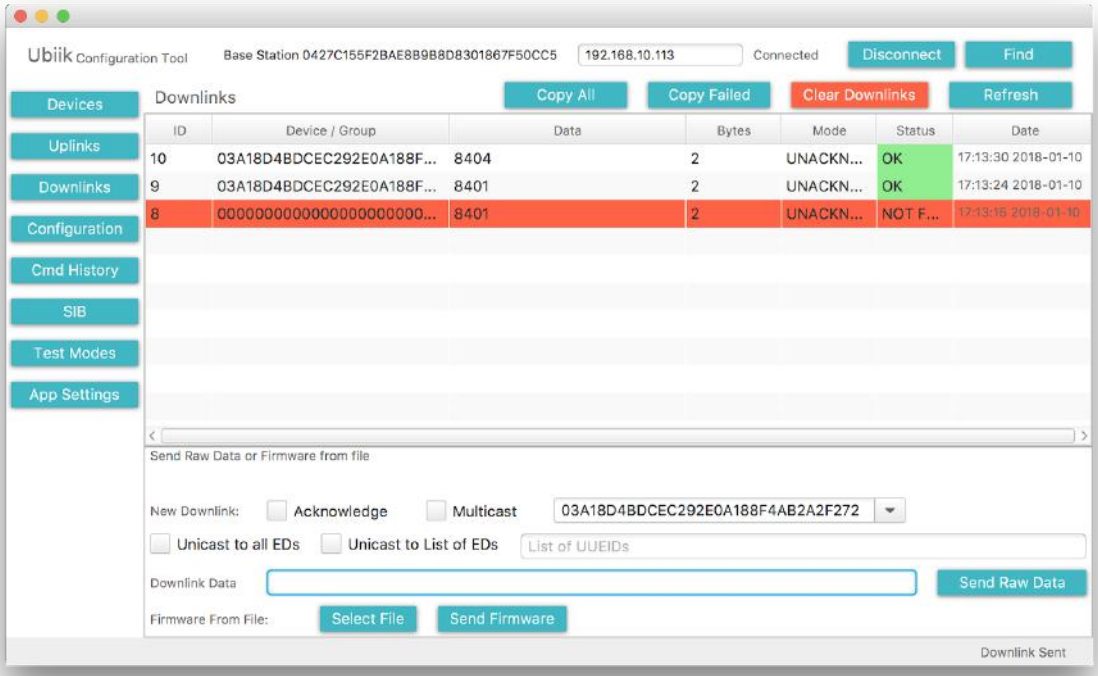
- ID: Identifier of the Uplink, as reported from the Protocol Stack
- Device: Device UUEID (HEX)
- Data: Uplink Data (HEX)
- Bytes: Number of bytes received in the uplink's payload
- RSSI: Uplink RSSI
- Mode: Acknowledged or Unacknowledged
- Date: Date and time at which the uplink was sent

Actions available:

- Copy All: Copies to the clipboard all the uplinks currently displayed
- Clear Uplinks: Clears the uplinks stored in the application
- Refresh: Refreshes the list of uplinks. This is useful when the refresh period has been set to a large value or if automatic refresh has been deactivated

Downlinks

This screen allows you to send downlinks and displays a live list of the latest downlinks sent to the Base Station (starting from the moment of connection). Data and device IDs are displayed in Hexadecimal. Multicast Groups IDs are displayed as integers.



Columns Description

- ID: Identifier of the Downlink, starting from 0 and restarted every time the application starts.
- Device/Group: Device UUEID (HEX) or Multicast Group ID (Integer)
- Data: Downlink Data (HEX)
- Bytes: Number of bytes sent in the payload
- Mode: Acknowledged or Unacknowledged
- Status: Status reported by the Protocol Stack. Empty value means that the Protocol Stack has not responded yet. *OK* means the downlink has been sent successfully. Other values mean an error happened.
- Date: Date and time at which the dowlink was sent

Actions available:

- Copy All: Copies to the clipboard all the downlinks currently displayed
- Copy Failed: Copies to the clipboard all the downlinks whose status is not empty or *OK*
- Clear Downlinks: Clears the downlinks stored in the application
- Refresh: Refreshes the list of downlinks. This is useful when the refresh period has been set to a large value or if automatic refresh has been deactivated

Send a Downlink

Target

Single End Device

From here, you can send Downlinks to a specific End Device or to a multicast group.
To send a downlink to a specific End Device, keep the checkbox *Multicast* unchecked, select an End Device ID.

Multicast Group

To send a downlink to a Multicast Group, check the checkbox *Multicast*, and select an existing Multicast Group ID.

Unicast to a List of End Devices

If this option is selected, an individual downlink will be sent to every device listed in the input field.
This way, downlinks can be sent to End Devices not registered in the application. If that is the case, they will be marked in red in the downlinks list.

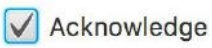
If you send a dowlink to an End Device which is not in the list of End Devices, the whole row will be marked in red.

Unicast to all End Devices

If this option is selected, an individual downlink will be sent to every device listed in the application.

Acknowledged or Unacknowledged Mode

Check the checkbox *Acknowledge* if you want to send the Downlink in Acknowledged mode, or leave it unchecked if you want to send it in unacknowledged mode (this does not apply to Firmware).



Send Raw Data

After selecting the target and Acknowledged/Unacknowledged, type your raw data as a valid HEX String into the Downlink Data field and press **Send Raw Data.** The Downlink will be sent using the options explained above.

Send Firmware

After selecting the target, press **Select File** and choose a firmware file of up to 256 KB. Then, press **Send Firmware** to send the Firmware as a downlink it to the End Device / Multicast Group as explained above.

Configuration

In this view you can send different types of commands to the Base Station, either to *read* or to *set* status. When the application connects to the base station, it will read the current values of the parameters that can be set from here.

When you send a command, you will not receive an immediate response as this depends on how long it takes the Base Station to process it. However, if the communication with the Base Station fails, the error will be reported immediately.

You can see in the status bar when a command has been sent and a response has been received.

All channels are set and reported in WARFCN (Weightless Channel Number in 100s of khz)

It is important to note that the Configuration Tool is not constantly synchronized with the Base Station. This means that if any of the following values are changed using Ubiik Cloud, or another instance of the Config Tool, the values you see will not be refreshed until you manually *Read* it again.

Save Current as Default

Saves the current Base Station Configuration as default. It will be used in the next boot up.

Status

Here you can see the status of the Protocol Stack, if it is running or not.

Read Status

To read the status, click on *Read* and wait a few seconds to get the result.

Restart

To restart the Protocol Stack, click on *Restart*. This will cause the application to disconnect. After 30 seconds you will be able to re connect.

Stop

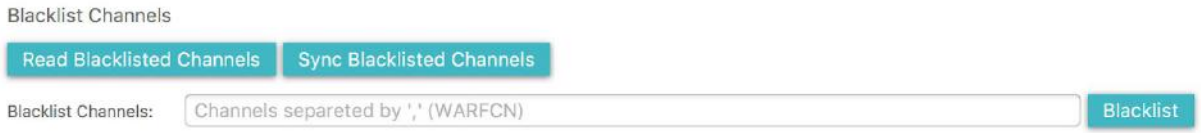
To stop the Protocol Stack, click on *Stop*.

Base Channel

The Base Channel is the channel (WARFCN) used by the Base Station to transmit and receive.

Every time you read or set the Base Channel and the application receives a response, the *Last known value* will be updated.
Setting the Base Channel will cause the Base Station to restart. All End Devices connected must also be restarted and set to the new channel.
To set the base channel, type a value between *MIN* and *MAX* and press *Set Base Channel*.
To read the current base channel, press *Read Base Channel.*

Blacklist Channels



Read Blacklisted Channels

This feature overrides the Blacklisted Channels in the Config Tool with the Blacklisted Channels in the Base Station

Sync Blacklisted Channels

This feature overrides the Blacklisted Channels in the Base Station with the Blacklisted Channels in the Config Tool

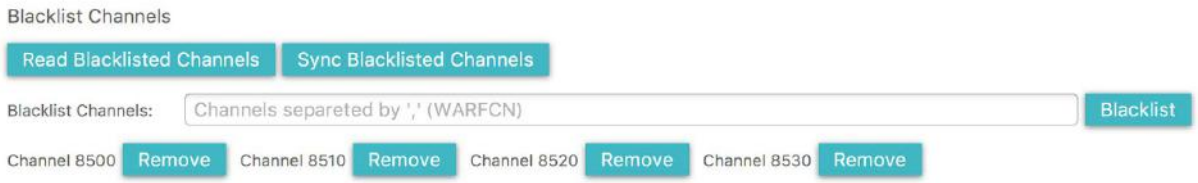
Blacklist Channels

To blacklist one or more channels, type channel numbers (WARFCN) separated by ‘,’ and press **Blacklist**. This will add additional blacklisted channels to the existing channels.

Remove Blacklisted Channels

To remove blacklisted channels, press **Remove** to the right of the channel you want to remove.

After performing any of these operations and receiving a successful response the list of blacklisted channels will be updated.



Other Parameters

For each command in this list, you can read the current value by clicking on *Read.* After reading, the label *Value* will be updated with the received value.
You can set a new value by typing it in the corresponding input and pressing the corresponding *Send* button. If the command is successful, the label *Value* will be updated with the selected value.

Base Station Transmit Power

BS_TX_PWR sets the Base Station Transmit Power within -17 and 34 dbm.

Narrowband

NBFLAG sets to use *wide band* with a 0 and *narrow band* with a 1.

MCS

To change DL MCS setting, type in the value of *SIB_MCS* and press *Set.* The available settings are 0, 1, 2 and 3 (GMSK 100kbps, BPSK 12.5kbps, GMSK 50kbps with FEC, BPSK 6.25kbps with FEC respectively). In addition, the MCS setting in ED should be changed with

the corresponding value as well. To set the MCS value in ED, please check the User Manual of EVB GUI for details. The MCS setting mapping in the Base Station and End Device is

	SIB_MCS in Config Tool configuration view	End Device
GMSK, 100Kbps, FEC OFF	0	0
PSK, 12.5Kbps, FEC	1	2
GMSK, 50Kbps, FEC ON	2	6
PSK, 6.25Kbps, FEC ON	3	8

To change UL MCS setting, type in the value of *UL_MCS_NB* and press *Set* if *NBFLAG* is set to 1; type in the value of *UL_MCS* and press *Set* if *NBFLAG* is set to 0. The available settings for *UL_MCS_NB* are 0, 1, 2 and 3 (GMSK 10kbps, BPSK 1.25kbps, GMSK 5kbps with FEC, BPSK 0.625kbps with FEC), while the available settings for *UL_MCS* are same with *SIB_MCS*.

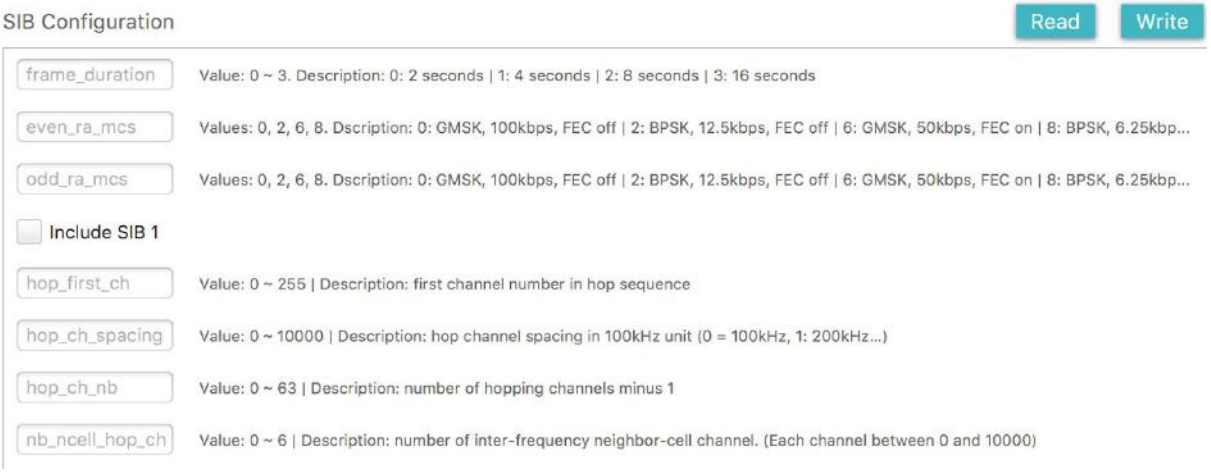
Please Note: If your end device(s) are already successfully connected to your base station, then changing the MCS value of UL & DL using the config tool will automatically configure your end device(s). The configuration will be sent through resource allocation slots.

You must use the LILY GUI to manually set MCS setting for your end device(s) to match the base station's *SIB_MCS* setting in order for the system to work properly under any of the following circumstances:

1） the end device(s) have NOT yet been connected to the base station
2） the end device(s) have been reset
3） SIB Configuration needs to be changed along with the SIB_MCS

SIB Configuration

In this view you can see and change the System Information Block.



To see the current SIB status, click on *Read* and wait for the values to be refreshed.

To change the SIB configuration, type in the values of each field and press *Write.* If you don't want to change the frequency hopping configuration, leave the checkbox *Include SIB 1* unchecked.

The *SIB 0* carries the information on the MCS used for the *Resource Allocation (RA)* packets, which are received by the End Devices every frame to allocate resources to each device. These Resource Allocation packets can use a configurable MCS. The available settings are 0, 2, 6 and 8 (GMSK 100kbps, BPSK 12.5kbps, GMSK 50kbps with FEC, BPSK 6.25kbps with FEC). There are 4 *Downlink RA* and 8 *Uplink RA* packets. The MCS of odd- and even-numbered *RA* can be different.

Frequency Hopping

To enable frequency hopping, check the checkbox *Include SIB 1*. Then select values for the following fields:

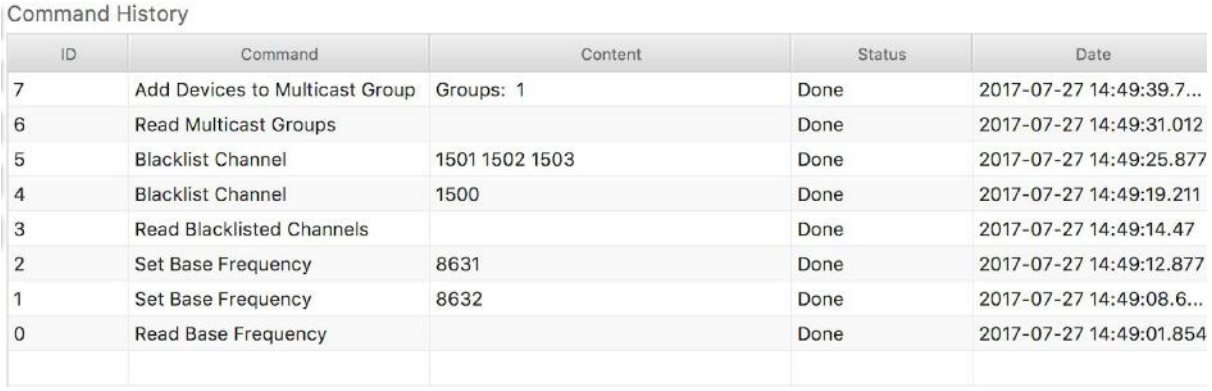
- Hop_first_ch: WARFCN of the first channel for hopping
- Hop_ch_spacing: Spacing between each hopping channel minus 1, in WARFCN (100kHz) steps
- Hop_ch_nb: Number of channels to hop on minus 1 (from 0 to 63)

For example, when operating under ARIB T108 channels 33 to 38 (922.4MHz to 923.4MHz), the configuration would be:
Hop_first_ch = 9224 (i.e. 922.4MHz)
Hop_ch_spacing = 1 (i.e. 200kHz)
Hop_ch_nb = 5 (i.e. 6 channels 922.4MHz 922.6MHz 922.8MHz 923.0MHz, 923.2MHz, 923.4MHz)

The settings are only applied after clicking on ***Write*** button. The changes would be applied on -the-fly without the need to reconnect the End Devices. It can take up to 16 frames (1 minute) to be applied.

Command History

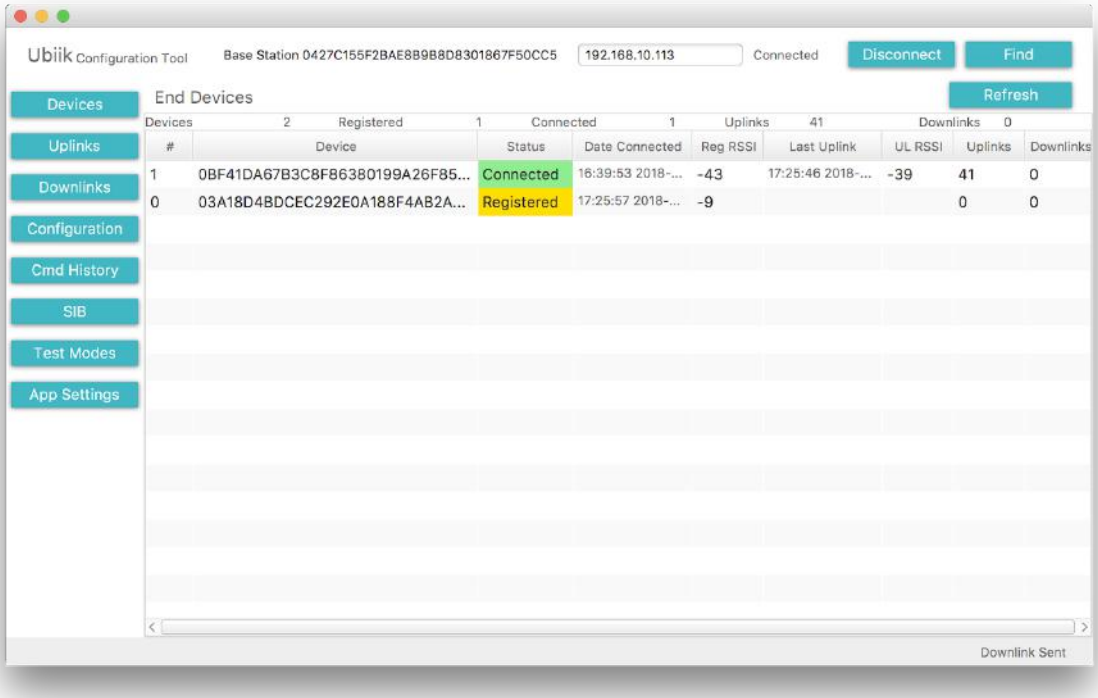
This view displays a list of the latest commands sent to the Base Station from this tool. Here you can see the status of each command (*Done* or *No Response*).


Command History

ID	Command	Content	Status	Date
7	Add Devices to Multicast Group	Groups: 1	Done	2017-07-27 14:49:39.7...
6	Read Multicast Groups		Done	2017-07-27 14:49:31.012
5	Blacklist Channel	1501 1502 1503	Done	2017-07-27 14:49:25.877
4	Blacklist Channel	1500	Done	2017-07-27 14:49:19.211
3	Read Blacklisted Channels		Done	2017-07-27 14:49:14.47
2	Set Base Frequency	8631	Done	2017-07-27 14:49:12.877
1	Set Base Frequency	8632	Done	2017-07-27 14:49:08.6...
0	Read Base Frequency		Done	2017-07-27 14:49:01.854

Devices

This view shows a list of devices that have registered, connected or pushed uplinks to the Base Station. When the application connects to the Base Station, it will receive a list of devices with their current status, registration RSSI, last activity and number of uplinks sent. Click on a device's row to see a more detailed view of it.



Columns Description

- #: Index in the application (automatically assigned by application unless devices are imported into application)
- Device: Device UUEID (HEX) or name if defined (see *Import Devices Names*)
- Status:
    - Connected: ready to send uplinks and receive downlinks
    - Registered in the process of connecting. Not ready to send uplinks and receive downlinks yet
    - Disconnected: the device had previously connected and disconnected while the application was running
    - Unknown: the device was imported manually from a list of devices or a Multicast Group but has never joined the network
    - Inactive: The device has no reported activity in the last *X* seconds, where *X* can be defined in the *Settings* view
- Date Connected: Date and time at which the device connected to the Base Station
- Reg RSSI: Registration RSSI
- Last Activity: Date and Time of the latest activity (uplink or status report) since the base station started
- UL RSSI: Uplink RSSI of the latest uplink

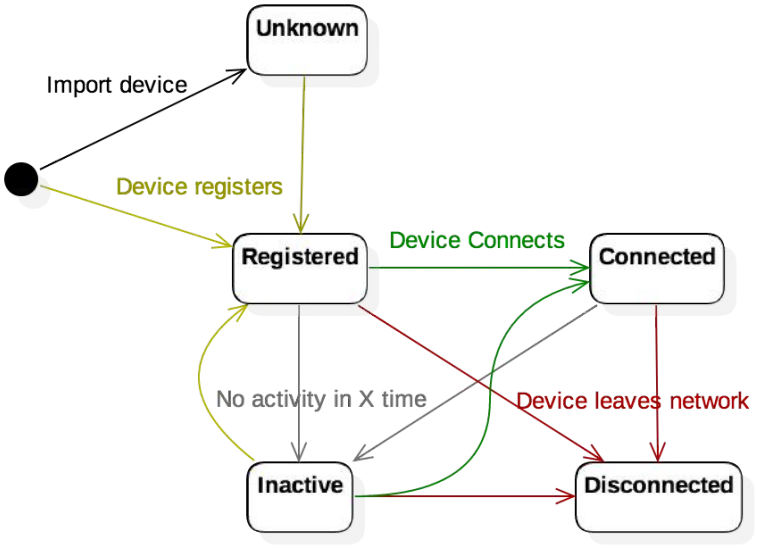
- Uplinks: number of uplinks received since the base station started
- Downlinks: number of downlinks sent since this application connected to the base station

Actions available:

- Refresh: Refreshes the list of devices. This is useful when the refresh period has been set to a large value or if automatic refresh has been deactivated

Device Status

A device can have one of the following status in the Protocol Stack: *Registered, Connected, Disconnected*. The application receives those status from the Protocol Stack but can also display *Unknown* and *Inactive* as mentioned before.
The State diagram is as follows:



Device Detail View

Scheduled Transfers

Scheduled Transfers allow the End Device to only monitor the resource allocation information in specific frames.

Schedule transfer can have 2 states: *Set* or *Release*.

To read the current state, press **Read.** Wait a few seconds to get a response from the Base Station.

Set

To change the state to *Set*, select the option *Set*, type a value for *Interval* and *Window* and press **Send.**
Interval and Window are number of frames and must always be:
$2 \leq Interval \leq 1024$
$Interval \geq Window$

Release

To change the state to *Release*, select the option *Release* and press **Send**

Import devices names and indexes

When the application starts, it looks for the file *ed_names.csv* in the current directory. If the file exists, it takes the pairs uueid-name and loads all these devices. Instead of displaying its UUEID the application will display the name associated.

Also, the *Index in the Application* will be taken from the position in the file (starting from 0). This means that if the file is loaded, the indexes [0, 10) (10 exclusive) will be saved for the 10 devices in the file and automatically assigned indexes will start from 10.

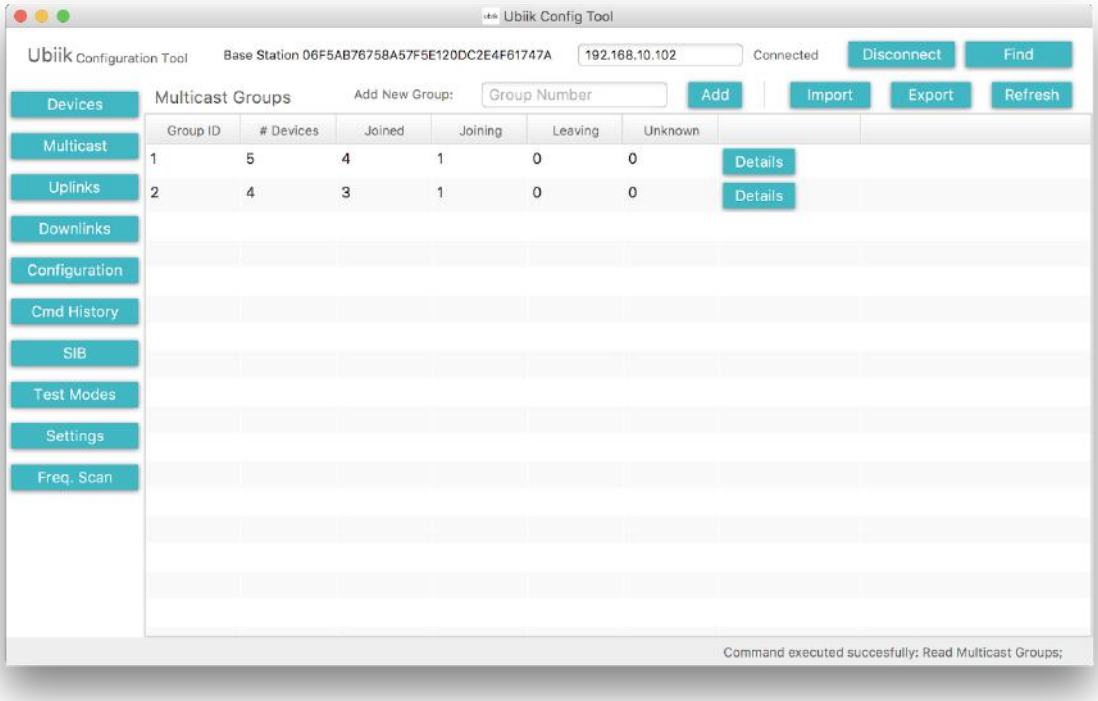
The file must be a valid CSV text file with the format:
uuid,name
00000000000000000000000000000001,Device 1
00000000000000000000000000000002,Device 2
00000000000000000000000000000003,Device 3

Multicast

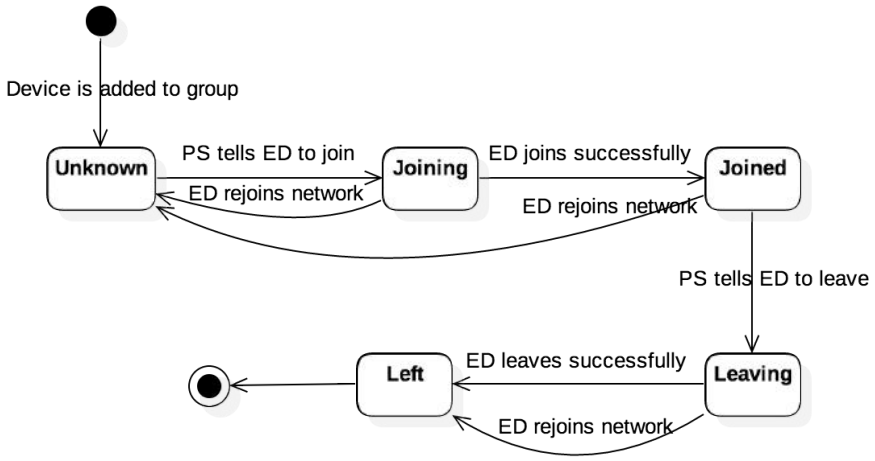
The *Multicast* view shows the list of existing multicast groups, the number of devices each group contains and the number of devices in each status.

The application reads the multicast groups when it connects to the base station and then updates the status of the groups and devices in a group based on notifications received from the base station.

When a command to add or remove is sent, changes won't be displayed instantly, they are reflected on the UI when the protocol reports a change
After performing any of these operations and receiving a successful response the list of Multicast Groups will be updated.



Status in group



State Diagram for End Device in Multicast Group

- Unknown: A command to add this device has been sent to the Protocol Stack but the device is currently unreachable (disconnected, unresponsive or in the process of connecting)
- Joining: Protocol Stack has asked device to join a multicast group
- Joined: Device has successfully joined the multicast group as requested by the Protocol Stack
- Leaving: Protocol Stack has asked device to leave a multicast group
- Left: Device has successfully left the multicast group as requested by the Protocol Stack

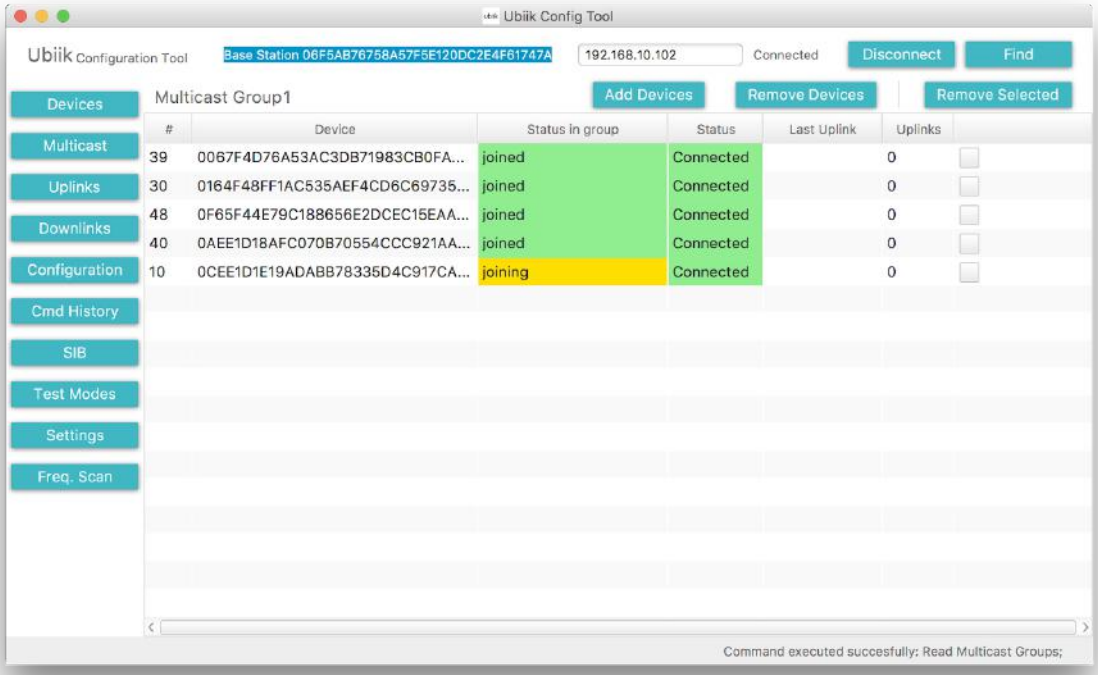
You will not see “left” in the list because as soon as this status is received, it will be removed from the list

Create Group

To create a new Multicast Group, type a Multicast Group Number in the relevant input field and press **Add**.

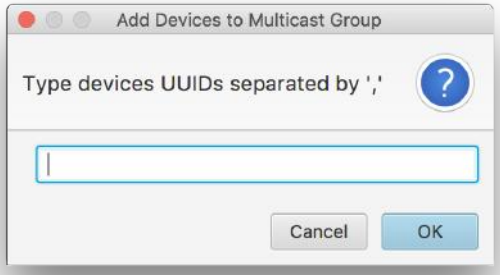
After adding a group, click on *Details* next to the group to access the Multicast Group Page. If you select an invalid group number, the input field border will become red.

It’s important to notice that no actual command will be sent to the Base Station until End devices are added to the multicast group so the group only exist in UI. If you disconnect from the base station and reconnect, all empty groups will be no longer displayed.



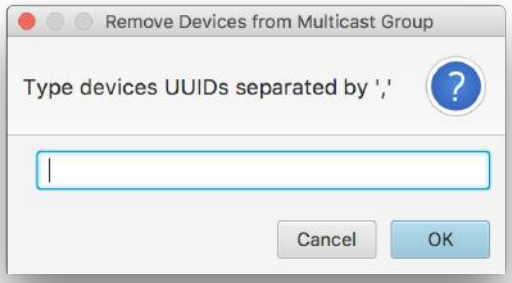
Add Devices to a group

To add devices to a Multicast Group, press **Add Devices**.
Then, type the 32 HEX character UUID of each device you want to add, separated by ‘,’.
Press **OK**



Remove devices from a group

To remove devices from a Multicast Group, press **Remove Devices** next to the respective Multicast Group.



Then, type the 32 HEX character UUID of each device you want to remove, separated by *‘,’*.
Press **OK**
Alternatively, select all devices you want to remove by checking the checkbox in the device’s row and then press **Remove selected devices**.

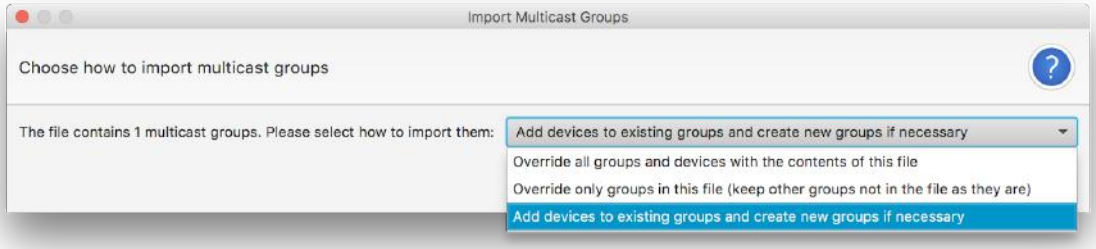
The base station considers an empty group as removed, so as mentioned before, if you disconnect from the base station and reconnect, all empty groups will be no longer displayed.

Import

Multicast groups can be imported from a JSON file with the following format:

```
{
	"groups": [
		{
		"id": 1,
		"devices":["00000000000000000000000000000000", ...]
		},
		{
		"id": 2,
		"devices":["00000000000000000000000000000022", ...]
		}
	]
}
```

To import a file, from the Multicast Groups view, click on *Import*, select a file you created (or exported previously from this tool) and then select from the dialog displayed how you would like to perform the import.



There are 3 options

1. Override all groups and devices with the contents of the file: The application will tell the Protocol Stack to set the multicast groups to the ones contained in the file
2. Override only groups in this file (keep other groups not in the file as they are): The application will tell the protocol stack to override only the groups contained in the file, leaving all other groups unmodified.
3. Add devices to existing groups and create new groups if necessary: The application tells the Protocol Stack to add devices to existing multicast groups and add devices if necessary.

Export

This feature exports all existing groups using the file format mentioned in *Import*. This file can be used to import groups in a further session.

Test Modes

Test Modes allow you to test Downlink and Uplink PHY independently. Weightless Protocol Stack is stopped during test modes, and no networking activity is supported in test modes. These tests are useful for checking the Downlink or Uplink coverage.

The following Test Modes are available:

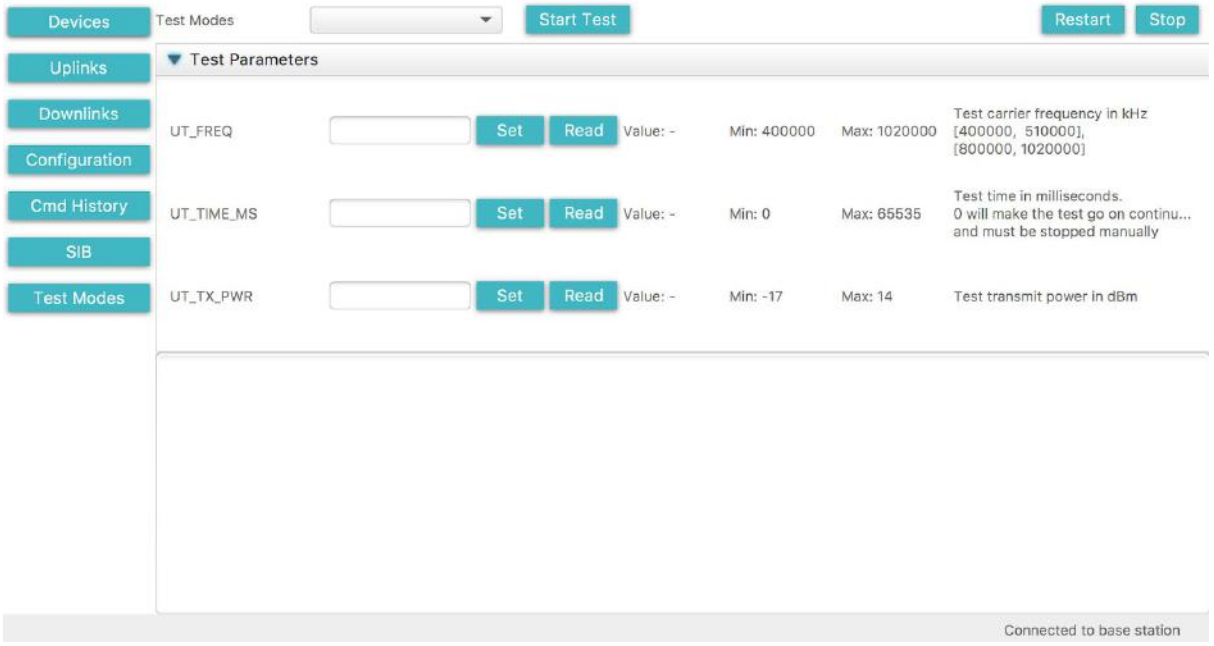
1. Rx BPSK 12.5kbps
2. Rx BPSK 6.25kbps
3. Rx BPSK 1.25kbps
4. Rx BPSK 0.625kbps
5. Rx GFSK 100kbps
6. Rx GFSK 50kbps
7. Rx GFSK 10kbps
8. Rx GFSK 5kbps
9. Tx CW
10. Tx mcs all

Test 1~8 are Uplink test modes. Packet format is predetermined and works with ED Uplink test modes.
Test 9 will transmit CW signal
Test 10 is Downlink test mode. Packet format is predetermined and cycles through all four Downlink MCSs: 100kbps, 50kbps, 12.5kbps and 6.25kbps.

The ED side AT command corresponding to each BS test mode is listed in the following table:

BS Test Mode	ED AT command
Rx BPSK 12.5kbps	AT+RFCMD=2,[npacket],[warfcn],2,12,[interpacket ms] (e.g. AT+RFCMD=2,100,8631,2,12,200 ： ED will transmit 100 packets with MCS set to 12.5kbps BPSK at 863.1MHz, interpacket gap is 200ms)
Rx BPSK 6.25kbps	AT+RFCMD=2,[npacket],[warfcn],8,12,[interpacket ms]
Rx BPSK 1.25kbps	AT+RFCMD=2,[npacket],[warfcn],5,12,[interpacket ms]
Rx BPSK 0.625kbps	AT+RFCMD=2,[npacket],[warfcn],11,12,[interpacket ms]
Rx GFSK 100kbps	AT+RFCMD=2,[npacket],[warfcn],0,12,[interpacket ms]
Rx GFSK 50kbps	AT+RFCMD=2,[npacket],[warfcn],6,12,[interpacket ms]
Rx GFSK 10kbps	AT+RFCMD=2,[npacket],[warfcn],3,12,[interpacket ms]
Rx GFSK 5kbps	AT+RFCMD=2,[npacket],[warfcn],9,12,[interpacket ms]
Tx mcs all	AT+RFCMD=ber,0 (DL 100kbps test)
Tx mcs all	AT+RFCMD=ber,6 (DL 50kbps test)
Tx mcs all	AT+RFCMD=ber,2 (DL 12.5kbps test)
Tx mcs all	AT+RFCMD=ber,8 (DL 6.25kbps test)

Click on Test Modes on the left menu to see the Test Modes Screen.



Test Parameters

A few parameters can be set for Test Modes. Parameters must be set individually before starting a Test Mode.

1. UT_FREQ: Frequency in Khz. Allowed values are those in the ranges [400000, 507000] and [800000, 1020000]
2. UT_TIME_MS: Time to run the test (in milliseconds). 0 to run continuously and one needs to click on Stop to stop the test.
3. UT_TX_PWR: Transmit power in dBm

Start a Test Mode

Before starting a test mode, make sure you have stopped protocol stack on both ED and BS.
To stop protocol stack on ED:

1) Type AT command : AT+as=0,
2) Click Reset Button

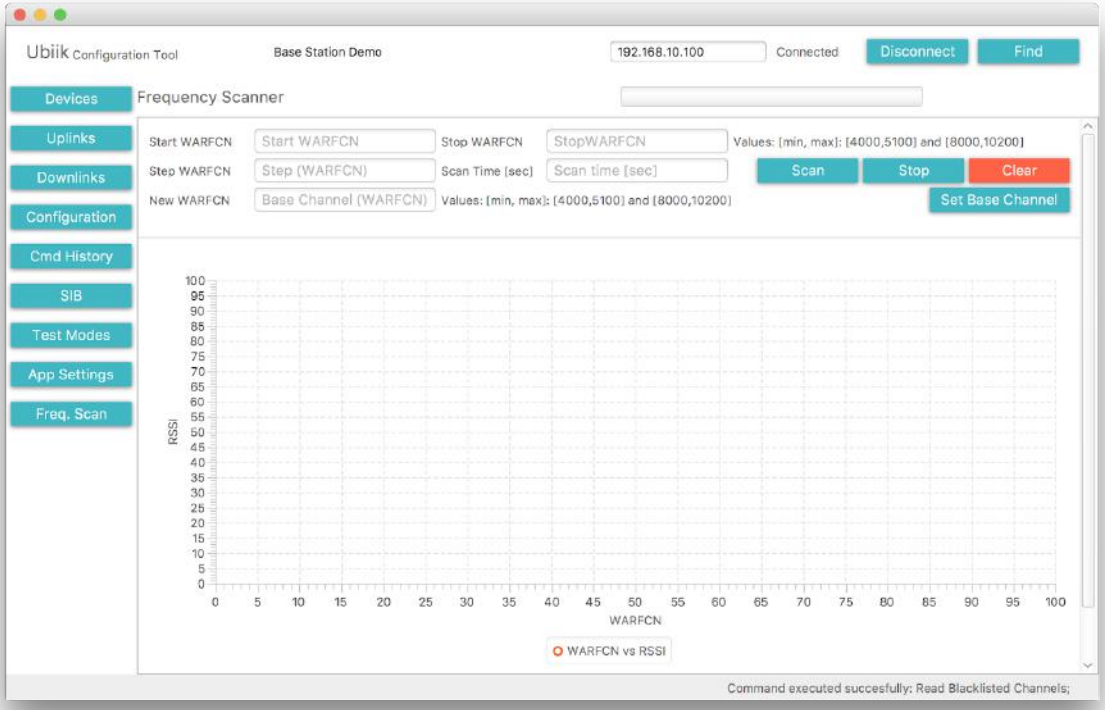
To stop protocol stack on BS: click on Stop

For DL tests, it is recommended to start the RX test mode on ED first, then start the TX test mode on BS with ut_time_ms set to number of packets*400, and check the ED received packets at the end of BS transmission.
For UL tests, it is recommended to start the RX test mode on BS first, then start the TX test mode on ED, and check the BS received packets at the end of ED transmission.

To start a Test Mode on Base Station, select the Test Mode you would like to start and click on *Start Test.*
When you start a Test Mode, the current running status of the Base Station will be interrupted.
To Stop a test mode, click on *Stop;* to restart normal operation of the Base Station, click on *Restart.* These two have the same effect as explained in Status

Frequency Scan

The Frequency Scan feature lets you analyze your environment to find the optimal WARFCN value to use. It can be accessed by clicking on *Freq. Scan* on the left menu.



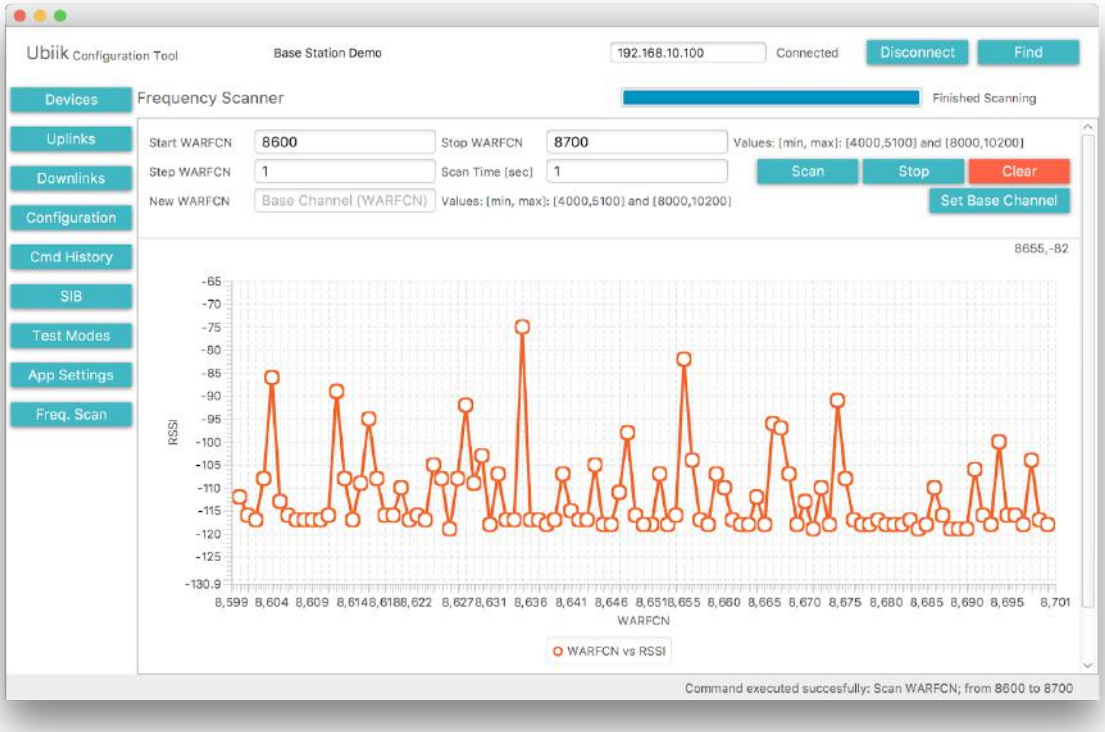
To start a scan, type the WARFCN start and stop values, the step at which you want to scan and the time to scan every channel (in seconds, only integers allowed). If any of these values is incorrect, the border of the input fields will turn red. Press *Scan* to start scanning. If you want to cancel the frequency, press *Stop*.

Starting a frequency scan will stop the normal execution of the base station and after finished, it must be restarted from the *Configuration* screen. It is important to note that restarting the Protocol Stack or starting a Test Mode will cause the frequency scan to stop.

While running, the Protocol Stack will send results periodically which will be displayed in a chart and a progress bar will be updated. You can hover the markers on the line to see the WARFCN and RSSI values of that sample.

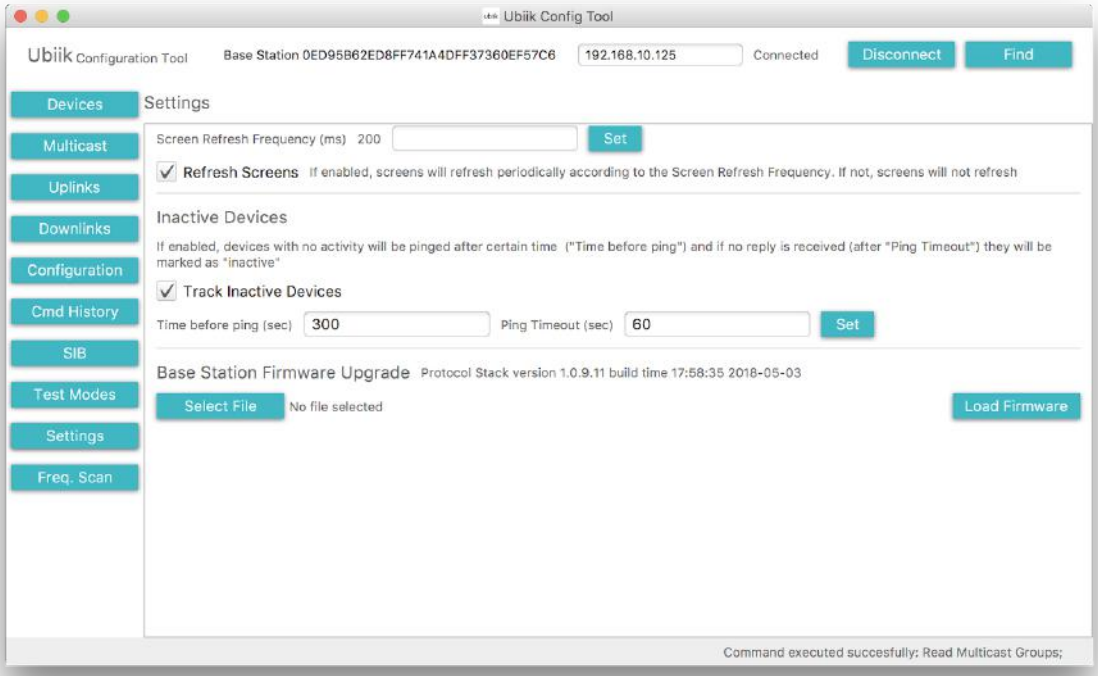
If you want to set the WARFCN based on the results displayed in the chart, you can click on a marker and the *New WARFCN* input will be populated. Click on *Set Base Channel* to set the new WARFCN.

Press *Clear* to remove the results displayed in the screen.


Ubiik Configuration Tool
Base Station Demo
192.168.10.100
Connected
Disconnect
Find
Devices
Frequency Scanner
Finished Scanning
Uplinks
Downlinks
Configuration
Cmd History
SIB
Test Modes
App Settings
Freq. Scan
Start WARFCN
8600
Stop WARFCN
8700
Values: [min, max]: [4000,5100] and [8000,10200]
Step WARFCN
1
Scan Time [sec]
1
Scan
Stop
Clear
New WARFCN
Base Channel (WARFCN)
Values: [min, max]: [4000,5100] and [8000,10200]
Set Base Channel
8655,-82
RSSI
-65
-70
-75
-80
-85
-90
-95
-100
-105
-110
-115
-120
-125
-130.9
8,599 8,604 8,609 8,6148,6188,622 8,6278,631 8,636 8,641 8,646 8,6518,655 8,660 8,665 8,670 8,675 8,680 8,685 8,690 8,695 8,701
WARFCN
WARFCN vs RSSI
Command executed succesfully: Scan WARFCN; from 8600 to 8700

Application Settings

This view allows to edit settings for the application and to load new firmware into the base station.



Screen Refresh Frequency

All views refresh automatically by default every 200ms. You can change the refresh frequency or disable it.
If you choose to disable refreshing, you can refresh the views by clicking the button *Refresh* in each view.

Inactive Devices

By default, the application will try to detect if a device is *inactive.* Inactive is not a state reported by the protocol stack but calculated by the application.
If *Track Inactive Devices* is enabled, devices with no activity will be pinged after certain time (*Time before ping*) and if no reply is received (after *Ping Timeout*) they will be marked as *inactive*.
Time before ping refers to the time after which if no activity (uplink or End Device status received) has been received from an End Device, a *ping* will be sent.
Ping Timeout refers to the time to wait for an activity from the End Device after a *ping* has been sent before marking the device as *Inactive*.

Firmware Upgrade

To load new firmware into the Base Station, first you must get an official firmware file distributed by Ubiik.
Once you have the file on the same computer running the *Config Tool*, click on *Select File* and choose the firmware file.
If you try to load an older version of the firmware you will receive a warning (firmware files previous to 1.0.9 are considered invalid)
Click *Load* to load the firmware file and wait for a dialog to pop up with the result of the process. If everything is OK, you will receive a success message. After this, the new firmware is not running yet. You must power off and power on your Base Station for it to load the firmware that has just been loaded.