



iMETOS NBloT Troubleshoot guide & FAQ

Pessl Instruments, GmbH

Version 1.0, 05-2018

Content

1. PURPOSE	2
2. REQUIREMENTS.....	2
3. COMMUNICATION	3
3.1. EXAMPLE OF A SUCCESSFUL AUTOMATIC COMMUNICATION	3
3.2. FAQ.....	3
<i>I have a SIM card. What is next?</i>	3
<i>Where does the station send the data?.....</i>	4
<i>No data for my station is visible on the FieldClimate platform.</i>	4
<i>How to check the network availability?</i>	5
4. DOCUMENT REVISIONS.....	6

1. Purpose

This document includes the most known issues with the iMetosNBloT and advises how to solve them and answers to frequently asked questions.

If the guide is not sufficient with solving your issue, contact your distributor for more help.

If you are a distributor, please open a support ticket in the ticketing system.

2. Requirements

In order to be able to set parameters and to do troubleshooting, you need:

- uMetosNBloT Rev 2.0
- USB-to-serial cable
- PC and TeraTerm terminal application
- Battery

How to connect the iMetosNBloT to the PC is described in the uMetosNBloT - Communication Terminal v1.00.pdf manual.

3. Communication

3.1. Example of a successful automatic communication

```
NB-IoT module power: ON
Starting up... waiting... done.
AT
OK

AT+CFUN=1
OK

AT+COPS=1,2,"28602"
OK

AT+CEREG?+CEREG: 0,2
OK

AT+CEREG?+CEREG: 0,2
OK

AT+CEREG?+CEREG: 0,1
OK

>> Registration time = 6 sec.
>> Registered: home network

AT+NSOCR="DGRAM",17,1992,00
OK

AT+NSOST=0,"91.114.24.20",1992,36,"E56D000101C8008D000000240110030001010000
00070001E7181E000200000600030000"0,36
OK

AT+NSORF=0,1000,"91.114.24.20",1992,23,"C12C1A0020030101170811002513022C010
38403040100",0
OK

AT+NSOCL=0
OK

AT+CFUN=0
OK

NB-IoT module power: SLEEP
```

3.2. FAQ

I have a SIM card. What is next?

1. You need to get the MCC and MNC code of the network provider, that provided you the SIM card.
2. You need to enter this MCC+MNC value in the menu (option P - Setup NB IoT module parameters) of the iMETOS LoRa station via TeraTerm.

3. Insert the SIM card in the SIM card holder. More info available in uMetosNBloT - SIM card installation v1.00.pdf manual.

Where does the station send the data?

The iMETOS LoRa sends the data to the IP and PORT of the receiver – server. This values are displayed in `L - Print NBloT module info` menu option.

The current default values fro sending the data to the Pessl Instruments FC platform needs to be:

```
IP address: 91.114.24.20
Remote port: 1992
```

The iMETOS LoRa uses the UDP protocol for transmitting the data.

No data for my station is visible on the FieldClimate platform.

The easiest way to make sure, the station sends the data successfully to the PI server is with checking the communication process with TeraTerm and comparing it to the example of the successful communication.

Usual reasons for no data delivery are:

- the NBloT network expects a different parameters (SCRAMBLING, APN, ...),
- wrong MCC+MNC code,
- not functional SIM card,
- registration timeout,
- no network coverage.

NBloT network parameters:

Each NBloT network provider can have a different settings in order to connect the IoT device to their network. In most cases, it is the `CR_0354_0338_SCRAMBLING`, `CR_0859_SI_AVOID` and APN value.

Usually, the `CR_0354_0338_SCRAMBLING` needs to be set to TRUE.

To check the values, you need to enter the bridge mode in the menu (option `M - NBloT module bridge mode`) and execute command `at+nconfig?`. The module will return back:

```
+NCONFIG: "AUTOCONNECT", "FALSE"
+NCONFIG: "CR_0354_0338_SCRAMBLING", "FALSE"
+NCONFIG: "CR_0859_SI_AVOID", "TRUE"
+NCONFIG: "COMBINE_ATTACH", "FALSE"
+NCONFIG: "CELL_RESELECTION", "FALSE"
+NCONFIG: "ENABLE_BIP", "FALSE"
```

To set the `CR_0354_0338_SCRAMBLING` to TRUE, you need to execute command `at+nconfig="CR_0354_0338_SCRAMBLING", "TRUE"` and the module will respond with OK.

The same applies for the `CR_0859_SI_AVOID` parameter. To set the parameter to true execute command `at+nconfig="CR_0859_SI_AVOID", "TRUE"`.

After this is set, execute the command `at+nconfig?` again and check the returned values.

NBloT network providers sometimes require the APN set up.

To check the APN value, you need to execute command `at+cgdcont?` In the bridge mode. The result should be similar to this `+CGDCONT: 0, "IP", , , , 0, 0, , , , , 1` which indicates, there is no APN value set.

To set the APN value, you need to execute command `at+cgdcont=1, "IP", "APN_name"` where the `APN_name` needs to be the APN name that the NBloT network provider provides to you.

Registration timeout:

The iMETOS LoRa is checking the status, if it is connected to the network with executing the `at+cereg?` command. It checks the status every 2 seconds for maximum period of **80 seconds**. If the device is not registered on the network in this time, it exits the communication process.

When the registration is successful, you will see similat output like this in the TeraTerm:

```
AT+CEREG?+CEREG: 0,1  
OK
```

```
>> Registration time = 6 sec.  
>> Registered: home network
```

This message is displayed when the station is in automatic communication mode. You will not see this message when you are in Bridge mode.

How to check the network availability?

If the device registers on the network successfully, then the network is available.

If the device does not register, you need to check with the NBloT network operator the status of the network – if it is available in your area and what settings needs to be used (and compare them with the settings on your device – mentioned in point above).

4. Document revisions

VERSION	MODIFICATIONS
1.00	- First release of the document.