

# Nuntius



**RELEASE 1.0**  
**USER'S GUIDE**

## 1.0 OVERVIEW

Nuntius is a program for the direct communication between computers (on heterogeneous platforms, also), by sending messages and files through a chat. Communication are made through USB or RS-232 cables. This program is born to be used in conjunction with LoRa devices (Long Range), who is a physical proprietary radio communication technique based on spread spectrum modulation. By using these devices, is possible to communicate wireless with other users (who owns LoRa devices also) at kilometers of distance. This can be useful in several cases:

- To communicate in emergency situations, if an Internet connection normally available is out of service
- To communicate in zones not covered by the mobile network
- For private communications, avoiding the Internet's dangers

Communication with LoRa devices is often slow, but Nuntius is born to give an alternative connection, not necessarily at high performance, in situations where the more used communication technologies doesn't work.

A secondary use of this program is as terminal program, to an hardware device or another computer for debugging purposes.

## 1.1 RELEASE NOTES

Nuntius is released as freeware and can be distributed in every non-commercial form.

**THIS SOFTWARE IS PROVIDED "AS IS", WITH NO EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES INCLUDING BUT NOT LIMITED TO THE LOSS OF DATA, OR PROFITS; USER USES IT AT HIS OWN RISK. ANY FORM OF REVERSE-ENGINEERING OF THE PROGRAM IS PROHIBITED.**

## 1.2 AI STATEMENT

Every part who constitutes this software and its documentation has been created without the help of generative artificial intelligence systems.

Is forbidden to use this software or its documentation, in any part who constitutes them, to train generative artificial intelligence models.

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## 1.2 SYSTEM REQUIREMENTS

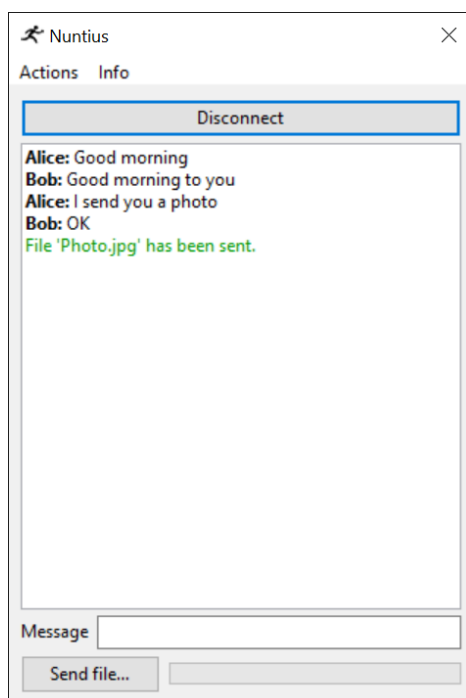
Nuntius version contained in this archive is intended for the use on Windows operating system (XP or better), 32-bit or 64-bit.

## 1.3 INSTALLATION AND EXECUTION

To install program, it's sufficient to unpack archive in any directory. To uninstall program, its folder must be deleted. Nuntius must be installed on all computers involved in a communication, so is mandatory to install it on each of them, taking the correct version from the official page (see "Links" section later in the document), if heterogeneous platforms are involved.

## 2. PROGRAM USE

Launch Nuntius on both computers involved into communication. This is program's main window, with a platform-specific GUI style that will vary depending on the platform, during a normal use:

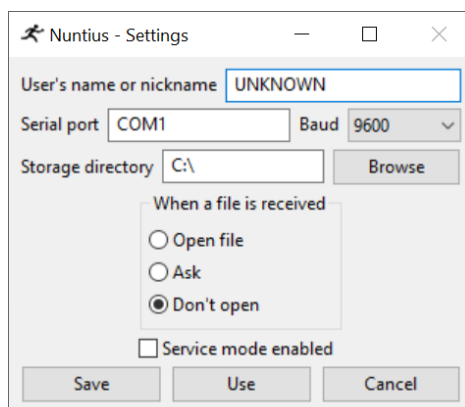


At first use, is mandatory to setup communication parameters. Look at next paragraph if more informations are needed, go to paragraph 2.2 if the communication is already been configured.

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## 2.1 Software configuration

Select "Open settings" option from menu "Actions". The control panel shown in next picture will appear:



These are the parameters:

- **User's name or nickname:** The name that user wants to have in the chat, who is shown in bold style before the messages. **NOTE: Nuntius don't verify user's identity.**
- **Serial port:** The name of the serial port to be used for communication.
- **Baud:** The baud speed to be adopted.
- **Storage directory:** The directory where the incoming files must be stored.
- **When a file is received:** The action to take when an arriving file is completely transferred, to be chosen between these 3:
  - **Open file:** The file is opened automatically, using the default application for that file type;
  - **Ask:** The computer asks if file must be opened or no, every time;
  - **Don't open:** No action is taken.
- **Service mode enabled:** When active, this options removes the nickname from the messages sent to the other user and blocks the "Send file..." button. In this mode, Nuntius act as a pure terminal program and is possible to send commands to an hardware attached to the USB / serial port without unwanted characters. Receiving files and messages with nickname is still possible.

When finished, user can decide what to do with the settings changed:

- **Save:** Changes made are used and saved in a configuration file stored in the same program directory. When Nuntius will be restarted, that settings will be restored.
- **Use:** Changes made are used only for the current session.
- **Cancel:** Discard current changes.

To start communication, press button "Connect". If settings made are correct, a confirm message will appear and its caption will become "Disconnect". To disconnect, press the same button.

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## 2.2 Sending text messages

To send a message to the other user, type it in the textbox "Message" and press RETURN. Message will appear on the chat, labeled with the name/username previously chosen into "Settings".

### NOTES:

1. **Messages are sent without encryption.**
2. **Program will not inform the sender if the message has been received or no.**
3. **Messages are limited in length to 140 characters.**

## 2.3 Sending files

To send a file to the other user, press button "Send file...", then select it from your file system. After selection, transfer will start. A progress bar will inform both user to the state of transmission. At the end of transmission, a confirm message (wrote in green) will appear on both sides ("File [...] has been sent." on sender side, "File [...] has been received." on receiver side). When transfer is finished, program can open file immediately if desired (optionally). This behavior can be changed into settings (look at paragraph "2.1 - Software configuration"). **NOTE: Files are sent without encryption.** If there are confidential informations involved in a file transfer, cryptography use is advised.

## 2.4 Other options

To clear completely the sent and received messages, select "Clear chat" option under "Actions" menu.

To read main info about the program, select "About Nuntius..." option under "Info" menu.

To quit program when finished, select "Quit" option under "Actions" menu (or, alternatively click on close gadget).

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### 3.0 Use cases

Nuntius works essentially by communicating on RS-232 ports. Every hardware setup who make it work is a manner to create serial ports to communicate with the external world, with various technologies.

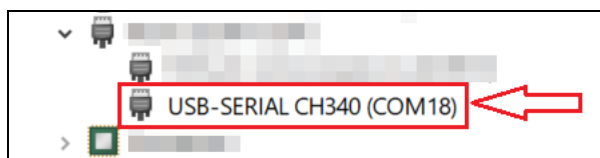
Use is not limited at the cases shown in next paragraphs, many other uses can be found by thinking solutions for proper needs.

#### 3.1 Direct cable communication

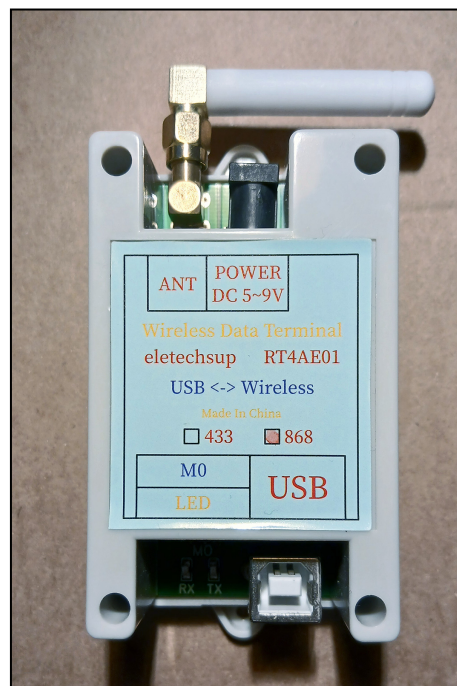
Nuntius can be used with a null-modem cable between two computers, or with a USB / serial cable between a computer and an hardware device. With this setup Nuntius act as a terminal program to communicate directly with an hardware, or sometimes computers (e.g. for debugging).

#### 3.2 Communication with LoRa devices

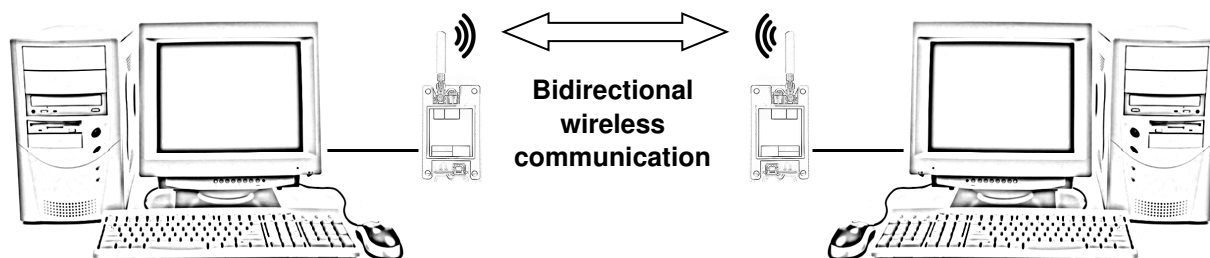
An example of communication with LoRa is described here. The connection has been made with two devices RT4AE01 working at 868 MHz frequency, connected to computers with USB cables on Windows systems. Devices has been detected as USB-Serial CH340 adapters. Entering in Windows device management, was possible to see which COM port was assigned to them (COM18):



Devices RT4AE01 has factory settings (for serial communication) 9600 baud, no parity, 8 data bit, 1 stop bit. Then, Nuntius speed communication has been set to 9600 baud (the other parameters are the same). This configuration is already good for an immediate use.



This schema show the setup made:



Advanced users can change settings to adapt communication to proper needs. Device RT4AE01 configuration is made with AT commands. By sending command strings to the device, it can be queried to know its settings or is possible to change them. Is mandatory to establish a connection with the device before, then the commands must be sent as strings through chat. **Set Nuntius option "Service mode enabled" before, otherwise isn't possible to send AT commands to the device!** The first string to be sent to talk with the device is "AT+ENABLE=1". When finished, string "AT+ENABLE=0" must be sent to the device. In the following table are shown the most common commands used. For each parameter or action, two columns are reported, "QUERY" and "SET": QUERY is used to know the value of a parameter, SET is used to change the value of a parameter, or to take the corresponding action if isn't a parameter.

PARAMETER / ACTION	QUERY	SET
Enable / disable configuration	[Don't apply]	AT+ENABLE=x (0 or 1)
Device ID	AT+ID?	AT+ID=xxx (from 0 to 254)
Working channels / frequency	AT+FREQ?	AT+FREQ=xxx (from 0 to 254)
Baud rate	AT+BAUD?	AT+BAUD=x (from 0 to 7 - values table is reported next)
Factory reset	[Don't apply]	AT+RESET
Repower	[Don't apply]	AT+REPOWER

For the baud speed in the set command "AT+BAUD=x", possible values for "x" are these:

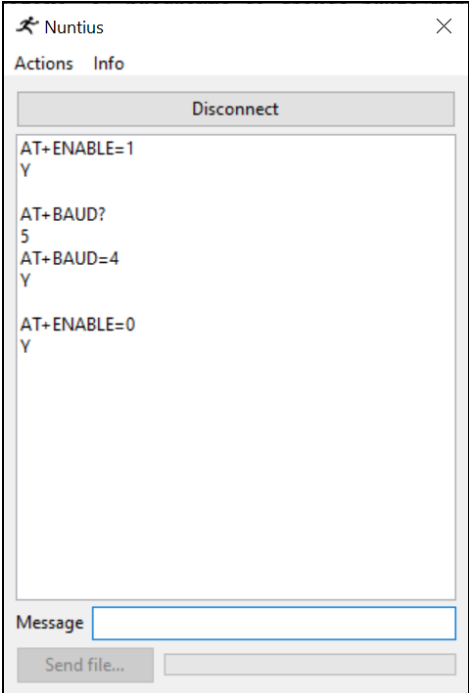
VALUE	BAUD SPEED
0	1200
1	2400
2	4800
3	9600
4	19200
5	38400
6	57600
7	115200

**The baud speed set on Nuntius must be the same speed who has been set on the devices.**

Factory reset is used to restore the factory settings (9600 baud, no parity, 8 data bit, 1 stop bit). Repower restarts the device, this can be useful after changed the settings. For every QUERY command, parameter is returned on the chat. For every SET command, device can answer in three modes:

- **"Y"**: command received and executed correctly.
  - **"N"**: command received, but failed in its execution. E.g. a wrong parameter has been given.
  - **Nothing at all**: command not received. Possible causes:
    - Device not connected, because a wrong baud speed has been adopted by Nuntius.
    - Command's syntax is wrong, please check if "Service mode enabled" option is checked if you are using Nuntius to configure device.
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An example of configuration is shown.

	<p><b>AT+ENABLE=1 :</b> Start the device configuration. This command must be sent in the first three minutes after connection. The device responds "Y". If it doesn't respond, the baud speed chosen is wrong or too much time is passed from connection.</p> <p><b>AT+BAUD? :</b> Query device for baud speed. The device responds "5". In the baud speed table seen before, value "5" means "38400 baud".</p> <p><b>AT+BAUD=4 :</b> Set baud speed to value "4" (19200 baud). The device responds "Y".</p> <p><b>AT+ENABLE=0 :</b> Exit from device configuration. The device responds "Y".</p>
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Please look at device's manual (look at "Links" section) for further informations not provided in this paragraph.

### 3.3 HISTORY RELEASES

#### 1.0 VERSION:

- Serial port communication support
- Send text messages
- Send files
- Open received file automatically if needed
- Clear chat
- Settings can be saved



## 3.4 LINKS

Nuntius official page:

<https://www.dl-corner.it/software.aspx?quale=10>

LoRa on Wikipedia:

<https://en.wikipedia.org/wiki/LoRa>

Eletechsup RT4AE01 Wireless Transceiver Module User Manual:

<https://manuals.plus/ae/1005004715236425>

## 3.5 ABOUT THE PROGRAM

Nuntius is a program written in Hollywood language. It's name is the latin translation of the word "Messenger".

## 3.6 ABOUT THE AUTHOR

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