How to use a serial terminal

The serial terminal is an essential tool in a developer's life, just like the multimeter and the scope are essential to a hardware electronics engineer.

With a serial terminal one can send data from an embedded system to a computer in a simple way (only two wires). This is mainly used for log and debug purposes.

Here is how to use some of the most famous serial terminals.

I. Identify the device for the serial communication

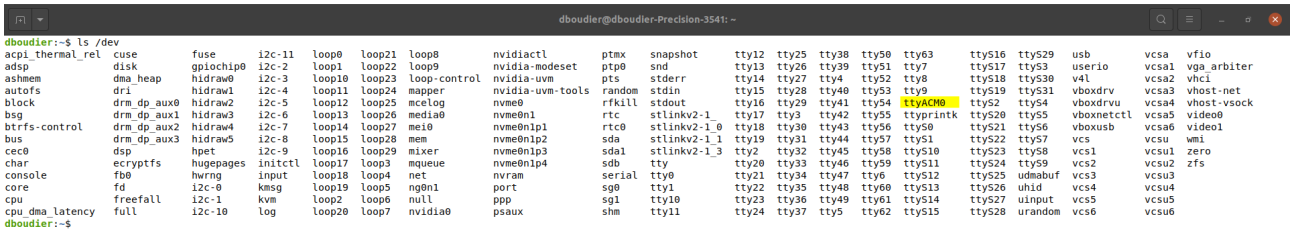
Before using a serial terminal, we must find out the name of the connected device.

I.1. Linux users

Start a Linux shell: `Ctrl+Alt+T`

First, before plugging in the device: `ls /dev`

After having plugged the device in: `ls /dev`



The device name should appear on the second display, but not on the first one.

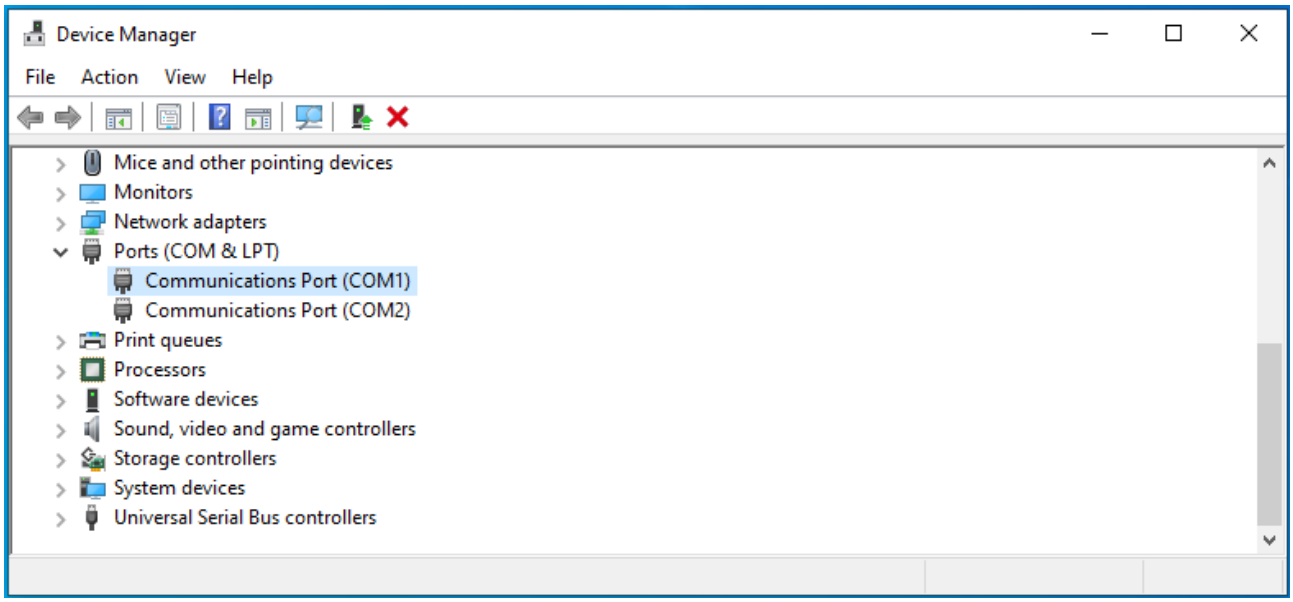
The full device name is usually `dev/ttyACM0` or `/dev/ttyUSB0`.

I.2. Windows users

Open the `Gestionnaire de périphériques` / `Device Manager`.

Observe the devices in `Ports (COM & LPT)`.

Unplug and plug the device to make sure of its name.



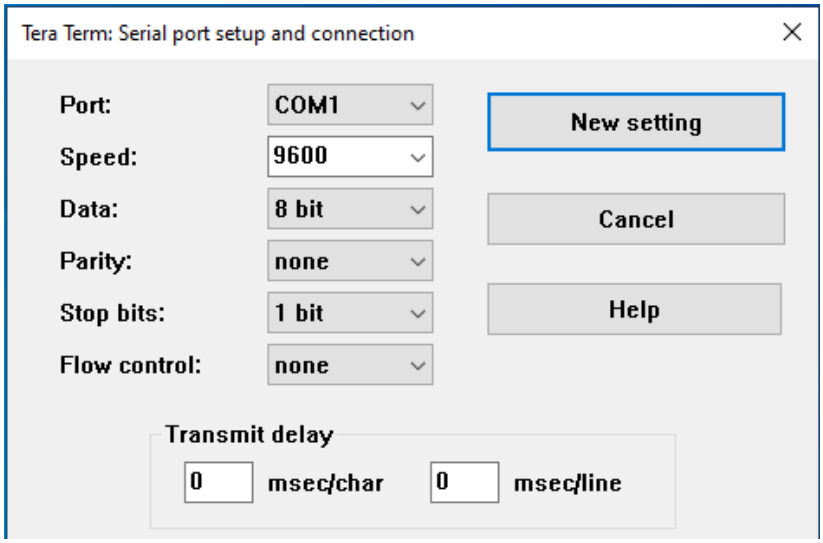
II. Tera Term (Windows)

Launch Tera Term

At Tera Term's startup, select the device's com port.

Serial communication parameters

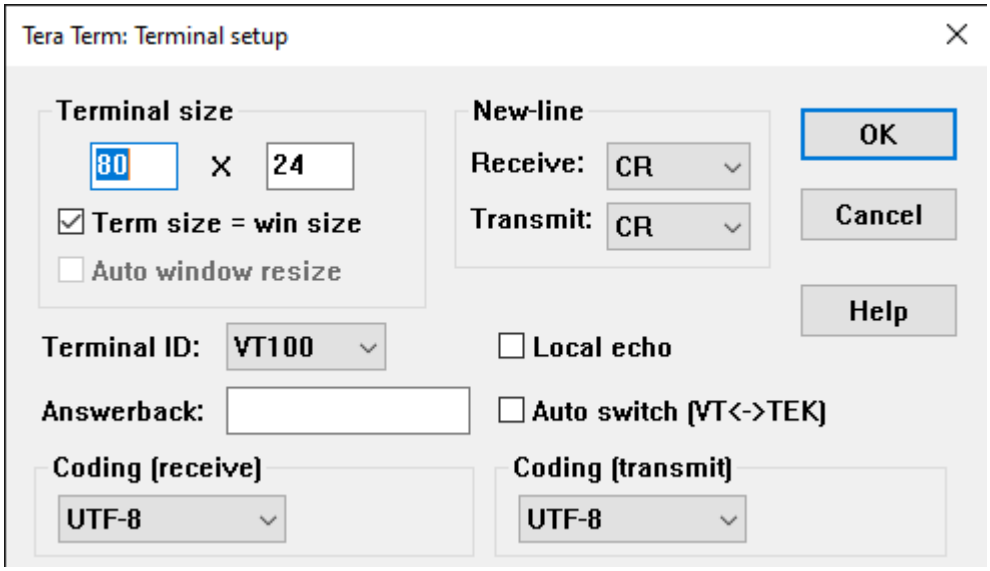
`Setup` → `Serial port…`



If you observe line feed or carriage return problems

`Setup` → `Terminal…`

Change the parameters `Receive` and `Transmit` to `CR+LF` or `Auto`.

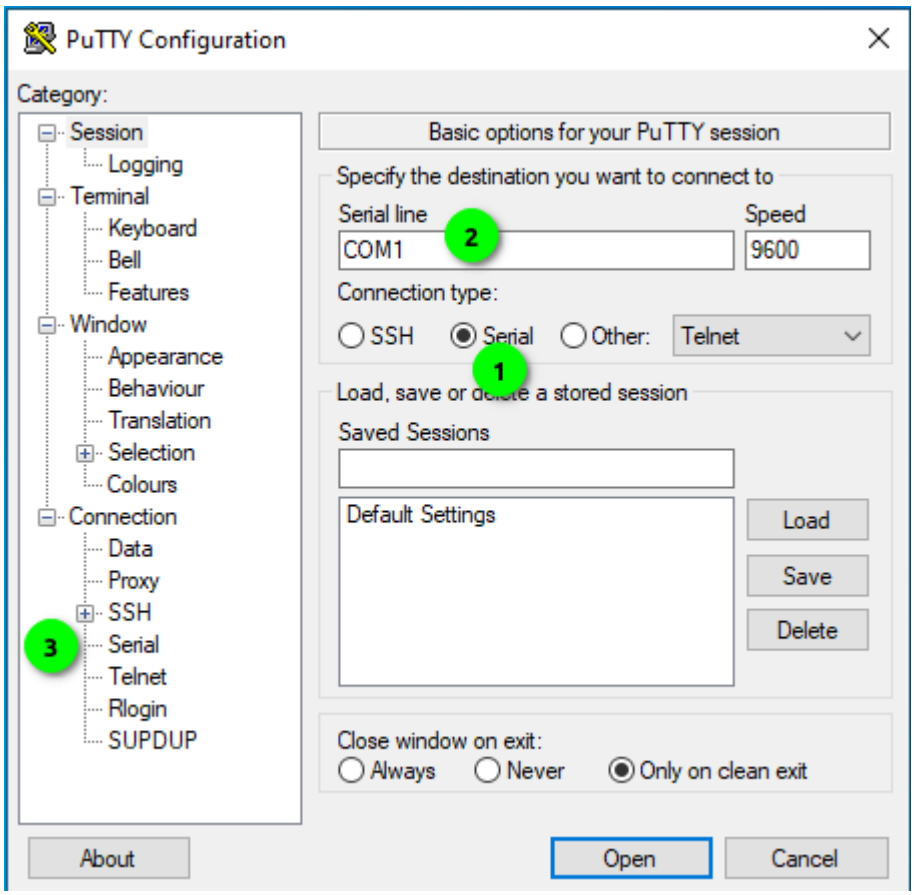


III. PuTTY (Windows / Unix)

Launch PuTTY

In the window, click on `Serial` (1), then fill in the COM port name (2).

DO NOT CLICK ON "Open".



Serial communication parameters

Click on `Connection` → `Serial` (3)

Fill in the communication parameters and click on `Open`.

If you observe line feed or carriage return problems

Right-click on the PuTTY's title bar

→ `Change Settings…` → `Terminal` → `Implicit LF in every CR` → `Apply`

The serial communication parameters are accessible through this menu:

Right-click on the title bar → `Change Settings…` → `Connection` → `Serial`

IV. GTKTerm (Linux)

Install GTKTerm

From a Linux terminal (Ctrl+Alt+T), with the root privileges:

```
sudo apt-get install gtkterm
```

Launch GTKTerm

From a Linux terminal: `gtkterm`

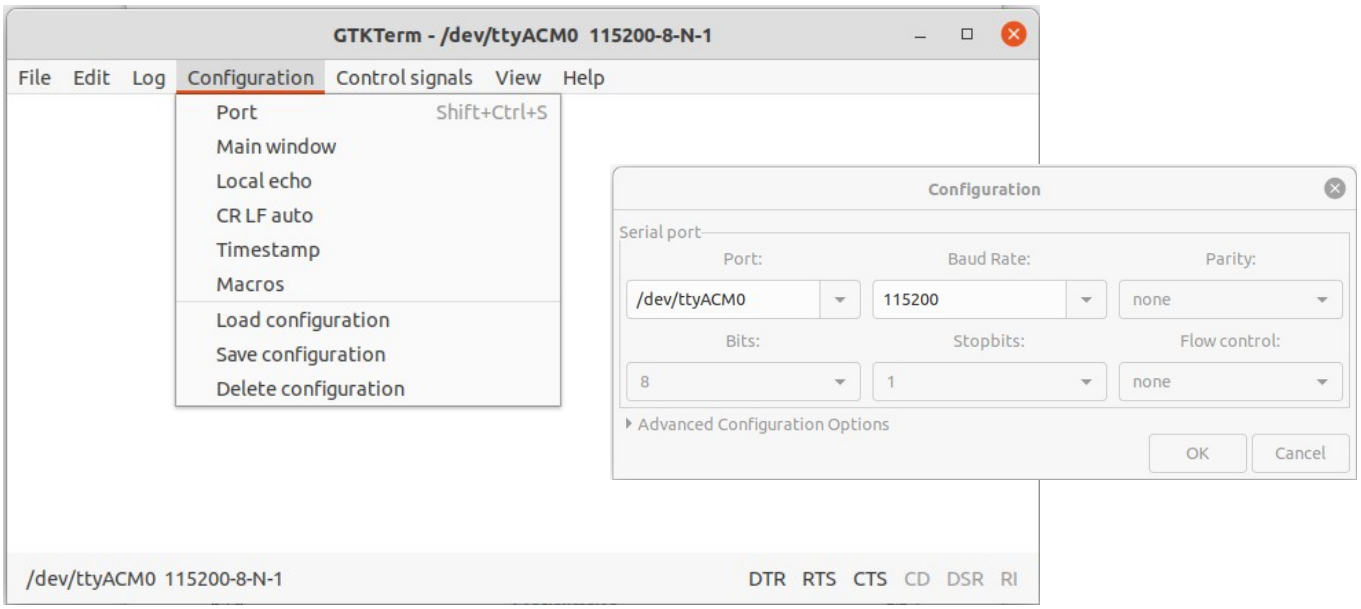
From the graphical interface: `Applications` → `gtkterm`

Serial communication parameters

The device name must have been determined first.

`Configuration` → `Port`

Fill in the device name (Port) and the communication parameters (*Baudrate, Parity, Bits, Stopits, Flow control*). Advanced parameters will not be set.



If you observe line feed or carriage return problems

`Configuration` → `CR LF auto` (Carriage Return + Line Feed = '\r' + '\n').

V. MINICOM (CONSOLE LINUX)

Install minicom

From a Linux terminal (Ctrl+Alt+T), with the root privileges:

`sudo apt-get install minicom`

Launch minicom

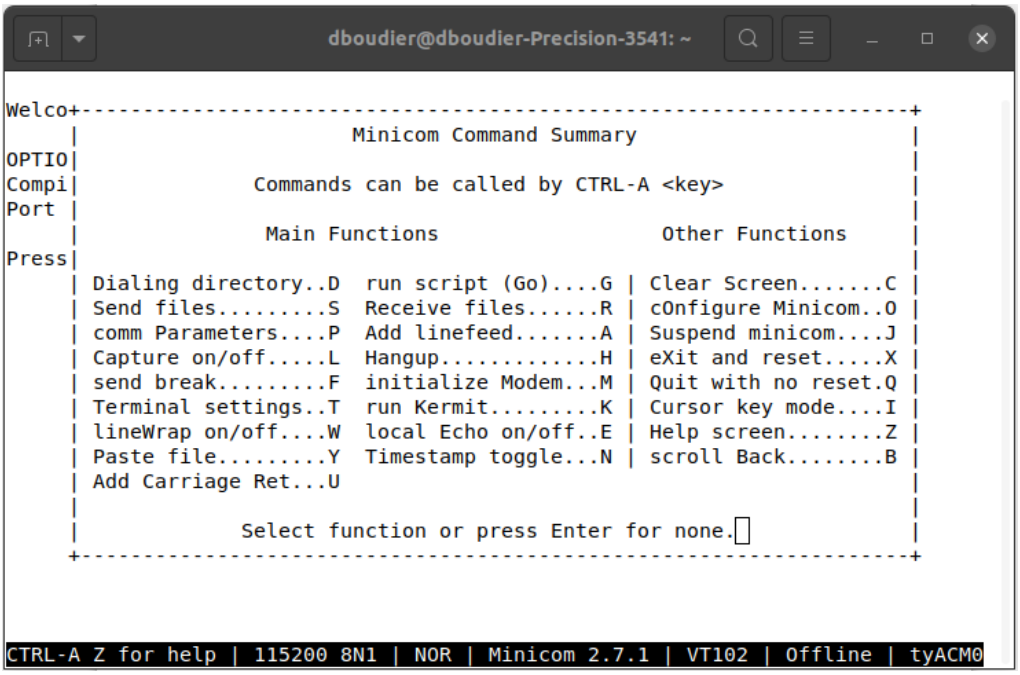
The device name must have been identified first: `/dev/tty____`.

From a Linux terminal: `minicom -D /dev/tty____`

Accessing the menus

Press `Ctrl+'A'`, then release all keys, then press `'Z'`.

The user interface only uses the keyboard (no mouse).



Serial communication parameters

Press `Ctrl+'A'`, then release, then press `'O' (cOnfigure Minicom)`.

`Serial port setup` → Press the keys according to the parameters to set.

`'Enter'` to quit, then `'Exit'`.

If you observe line feed or carriage return problems

Press `Ctrl+'A'`, release, then `'A' (Add linefeed)` or `'U' (Add Carriage Return)`.