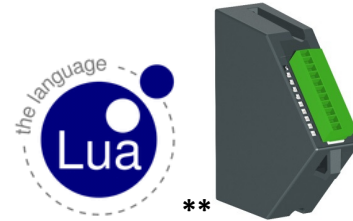## Lua Module Quick Start (M4223)

Specifications

- Ethernet and USB Port
- Embedded Linux Operating system
- Web Interface
- Lua 5.1.5
- LUA Multiplexer (for multiple connections to a single R400 device)
- 64 MB SDRAM, 64 MB Flash
- Requires Lua enabled firmware in the R400 indicator
- It is recommended that developers use the Rinstrum 8 I/O tester accessory (**A10058**) to assist application development.

Rinstrum Documents - available from www.rinstrum.com or USB memory stick (A10030)

- Rinstrum Application Package and API Reference (L001-503)
- Rinstrum Environment Setup (L001-506)
- Rinstrum Lua Reference Manual (L001-600)
- Rinstrum Linux Commands (L001-602)
- Rinstrum Lua Commands (L001-603)

External References

- Online Lua tutorials http://lua-users.org/wiki/TutorialDirectory
- Online Lua reference manual http://www.lua.org/pil/contents.html

Connect and Setup

This document will step you through the connection of an M4223 to an R420 or R423 indicator, setup of the developing environment and running the "hello world" Lua program that is stored on the module. As the M4223 runs a Linux operating system you will need some basic Linux commands (L001-603) to navigate the files on the module.

Lua Scripts: The Lua module has example scripts in the */home/examples* directory showing how various functions work with different parts of the R400 indicator. The */home/myprojects* directory contains a myApp script that is an excellent launch point for testing and modifying your own scripts. It is recommended that you keep your scripts in the */home/myprojects* directory as a convention.

1. Connect M4223 to R420 or R423

- Disconnect power to the indicator
- Plug the M4223 into the back of the indicator and tighten the screws to secure the module.
- Plug an Ethernet cable into the M4223 to connect to your local network (the module is shipped expecting to receive an IP address from your local network DHCP, see Reference Manual for static IP address setup, this is simply configured in the R400 indicator)
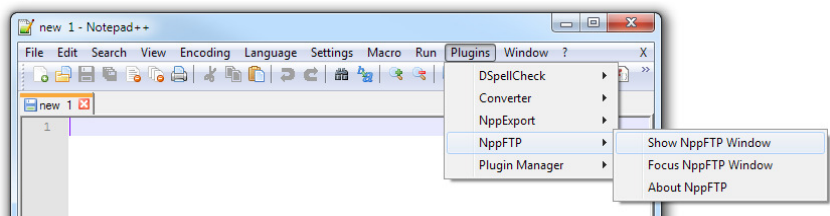- Turn on indicator

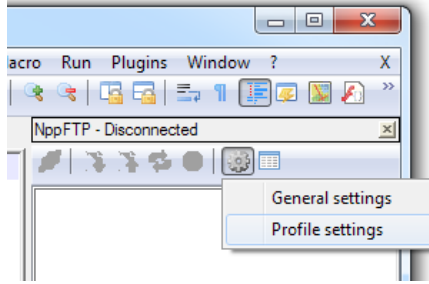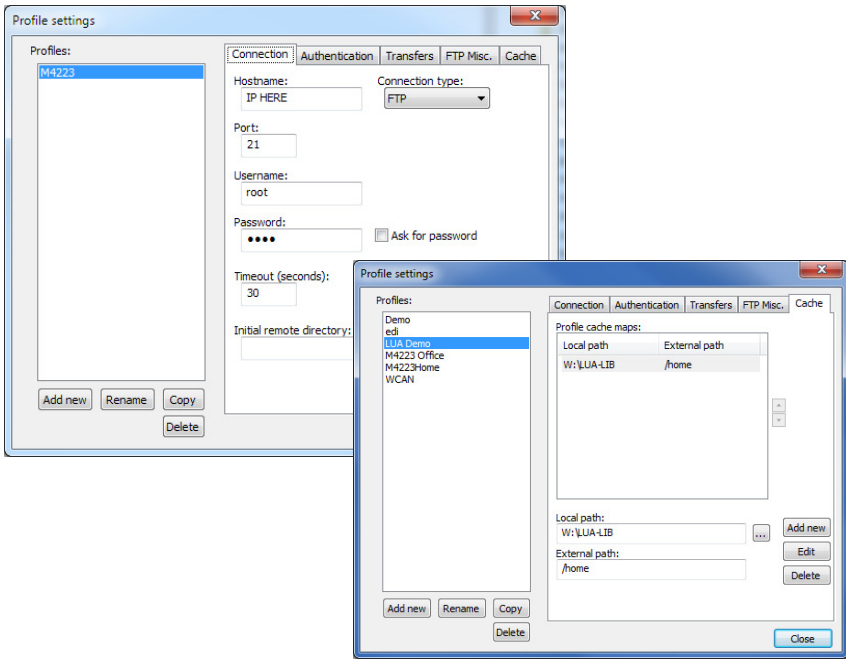## 2. Verify Module Connection on the Indicator and establish its IP address

- Bring up the Acc (Accessory) menu by holding the 0 key on the alpha numeric keypad.
- Use the arrow keys to navigate until TYPE displays M4223
- Press the +/- key until STATUS is shown (should be OK).
  - o If the STATUS displayed is ETH.ERR this indicates the M4223 is not talking to the R400 properly. Check that the M4223 is correctly plugged into the back of the device, turn the device off, wait 10 seconds, and then turn it back on.
- Press +/- once more so the IP is displayed (referred to as <IP> from here).
  - o Use the "." on the alpha numeric keypad to scroll through the IP address if it is more than 9 characters.
  - o If the IP does not change from 0.0.0.0 within at least a minute after start-up, this indicates the module is not getting an IP address. This may be because the Ethernet cable is not plugged in properly, or the network is not configured properly.

3. Windows Environment Setup on your PC

- a) Run Installer: Run .exe file L001-506 to install
  - o Text editor (Notepad++ with the NppFTP plugin) and
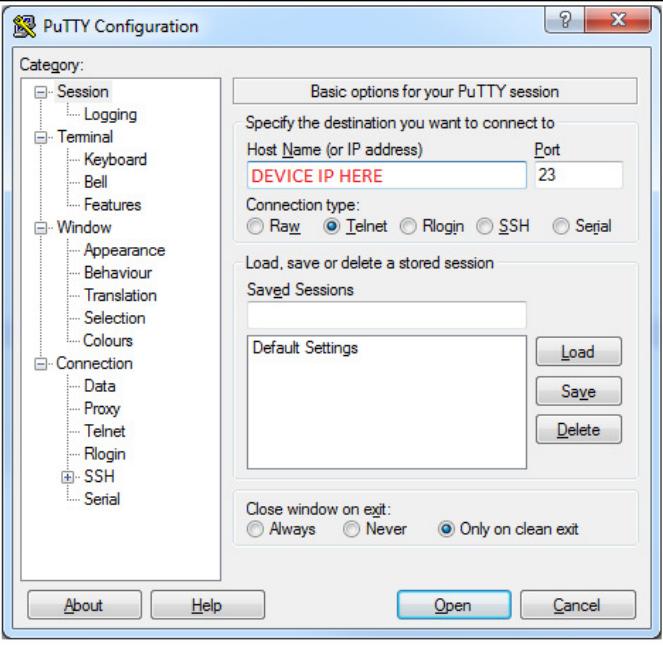 - o Terminal interface (PuTTY)
- b) Setup Text Editor - Notepad++ Setup

Install Notepad++'s NppFTP plugin (for easy editing of files stored on the M4223.)	

Configure profile for M4223 - select **Profile Settings**	
Connection Tab: Once the profile window is open, press 'Add new' and name the device 'M4223', or similar. Add Username and Password to allow for autoconnect. (Default root/root) **Cache Tab:** By nominating a directory on your PC as a cache location, you control where the editor stores a local copy of the files you are editing (the primary copy is still on the M4223). Specify */home* as the external path. **Close to save setup**	
Connect Click on the connection button to form a connection to the M4223 module.	

Files can now be navigated to in the side bar and opened in Notepad++ by double clicking on them.
When they are saved, they will be written back to the module (and to your cache location on the PC).

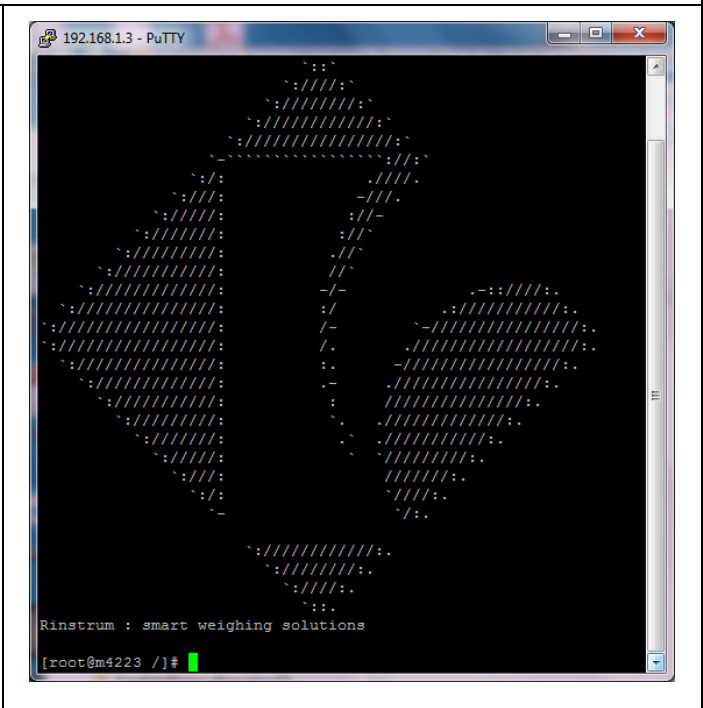### c) Log In to the Module using remote Terminal Interface (PuTTY)

Open a connection to the module

Windows
- Open PuTTY
- Select 'Telnet'
- Enter <IP>, leave port as 23
- Press 'Open'

Linux
- Open a terminal
- Type: telnet <IP>

Enter the username and password
Default username/password: **root/root**

You are now remotely connected to the M4223 module that is running a Linux operating system.
***Rinstrum Linux Commands (L001-603)** is a simple set of Linux commands*
(cd to change directory and ls to list files for example)

The hello world program is stored in the **home/examples** directory on the M4223 (note Linux is case sensitive and you can use the tab key to auto complete commands):

cd /home

cd examples

lua hello.lua *(to run program)*

hello world should display on the R400

indicator screen along with the weight

press a key on the indicator to finish

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