Lua Module Quick Start (M4223)

If wanting to use module to complete an Ethernet connection refer to M4223-USER data sheet: M400-629

Specifications

- Ethernet and USB Port
- Embedded Linux Operating system
- Web Interface
- Lua 5.1.5
- LUA Multiplexer (multiple connections to a single R400 device)
- 400MHz 32bit ARM9 processor
- 64 MB SDRAM, 64 MB Flash

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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 R400 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/lualib_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.

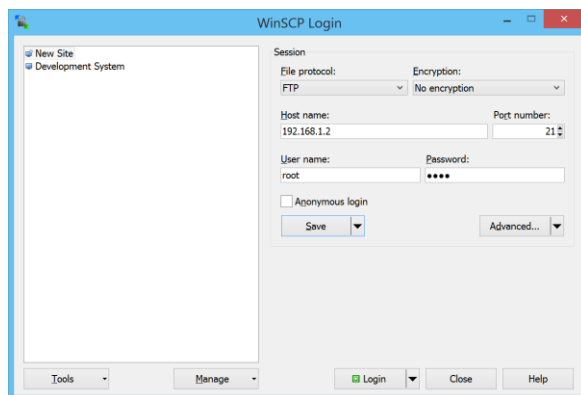## 1. Connect M4223 to R420 or R423

- 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

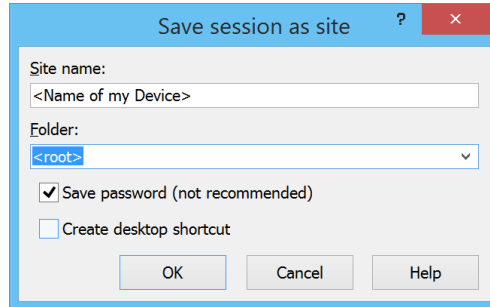## 2. Verify Module Connection on the Indicator and establish its IP address

- 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).
  - 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).
  - Use the "." on the alpha numeric keypad to scroll through the IP address if it is more than 9 characters.
  - 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 (https://www.rinstrum.com/all-downloads/)
  - Text editor (Notepad++)
  - FTP client (winSCP)
  - Terminal interface (PuTTY)
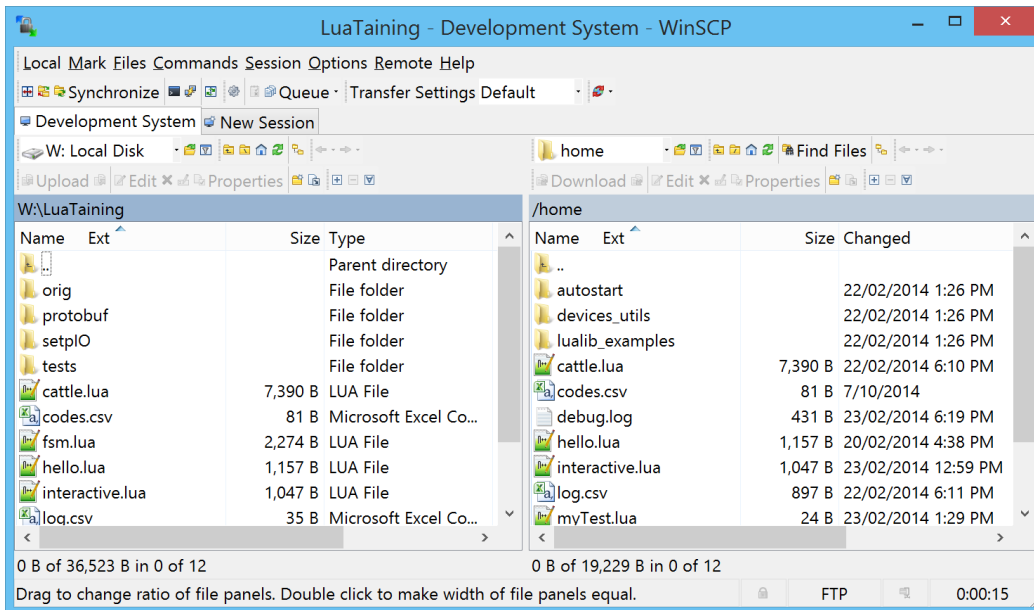
b) Connect to the Module with FTP (winSCP)

Click on New Site, select FTP and enter the IP address of your instrument. Username is **root** and the password should be **root** if M4223. If M4223-USER password must be generated by using rinLIVE. Call local office to receive login credentials if necessary.
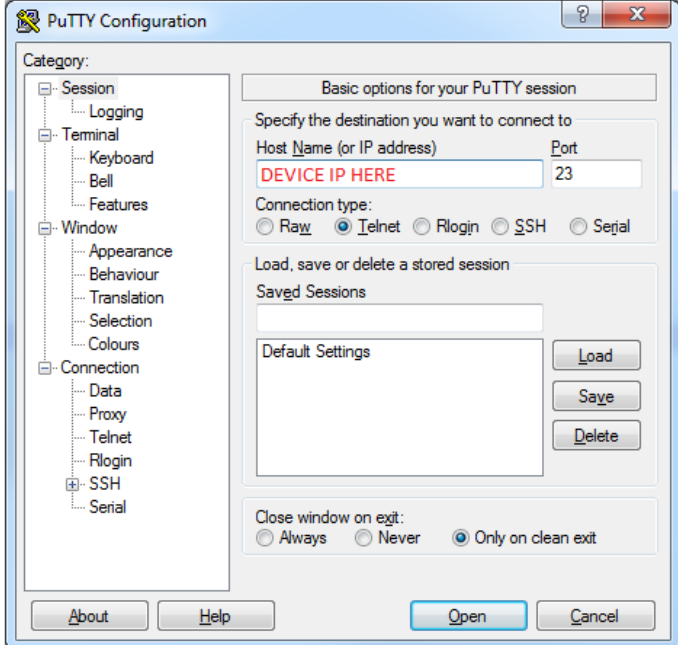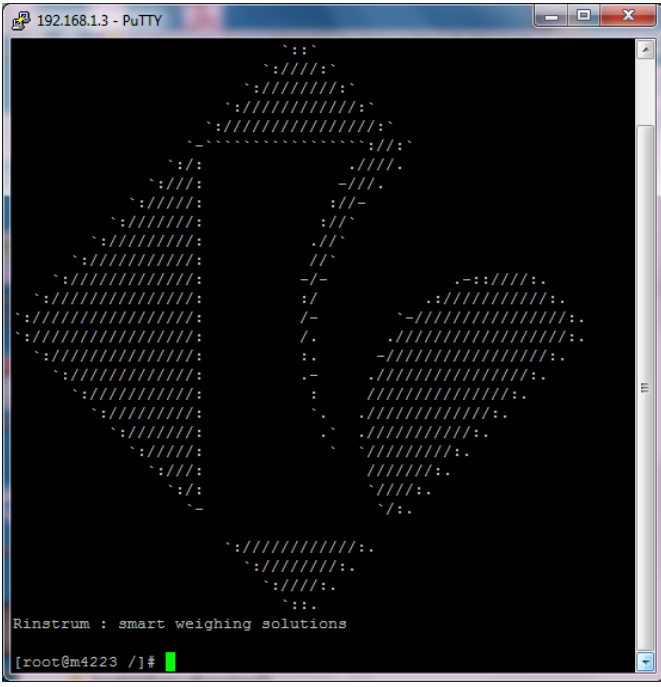
Save settings for later use using a convenient name.

Now you can navigate to the location of your application files on the PC (left pane) and to the location of your application files on the M4223 (right pane). Synchronise by simply dragging the files in the direction you want them to go.

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 received from above.
Password generated by using rinLIVE if M4223-USER

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 lualib_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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