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# Introduction

The HCR-4 product connections are USB, UART, Ethernet, SmartCard and MSR. The UART controls the smartcard and MSR. If the UART stops working, so should the SmartCard and MSR.

## Contact Info

Chris Muller

Office: (562) 546-6392

Mobile: (949) 294-0225

e-mail: Christian.muller@magtek.com

## Main FCC Test

The code running the test is on the host laptop. This code is in:

C:\Projects\HCR4\python\modules

The test can be ran by double clicking the “fcc-hcr4” script. This opens a command prompt and begins to attach to COM4 (the USBtoSerial connector) to obtain communication between the host and the HCR4 device. Once established the host collects the device IP address which is used to ping the device. Each successful ping results in an Ethernet Count increment.

The UART test simply reads the current directory and if it receives data back it increments the UART Count.

The USB test reads the HCR-4 bus vendorId and ProductId, to verify the correct device is available and increments the USB count.

The SmartCard reads the ATR and verifies the card is there to increment the SmartCard count.

The tamper counters are summed and compared to 0 to increment the tamper counter. This requires the tampers to be triggered.

The RTC is printed each time. This should remain 0, and only have a value, if a tamper occurs.

# User Defines

The fcc-hcr4.py file has user defines.

##############USER DEFINED######################################################

##Overwrite Log location

my\_path = '..\\fcc\_log\\'

my\_name = 'fcc\_test'

tamper\_flag = '0' #0-OFF, f-tamper 0,1,2,3 active, 3f-All Tampers Active and triggered

##############USER DEFINED###############################################

The log destinations can stay.

You may want to modify which tampers will actively reboot the system if they occur.

## Disable All TAMPERS

fcc-hcr4.py file has user defines.

##############USER DEFINED###############################################

…

tamper\_flag = '0'

##############USER DEFINED###############################################

## Enable All TAMPERS

fcc-hcr4.py file has user defines.

##############USER DEFINED###############################################

…

tamper\_flag = '3f'

##############USER DEFINED###############################################

## Serial Port

This shouldn’t change for the laptop, but here just for clarity. Laptop should be always COM4. I connect the USB to serial cable into the top connector, to the right and the keyboard.

##################################################

#USER/Machine SPECIFIC, change UART to MATCH YOURS!!!!

port = 'COM4'

path = '..\log\\'

brk = '\\'

log\_name = 'check\_card\_log'

##################################################

# Setup

The setup is the HCR-4 device connected to the laptop. Various test require either a python script, or the TeraTerminal (located at C:\Projects\HCR4\python\modules\UsbToSerial).

## Laptop connections are:

* USB to Ethernet Dongle: Back/Top USB connector
* USB to serial cable: Right of keyboard/Top USB Connector
* USB: Right of keyboard/Bottom USB Connector
* Needle Nose plyers: Used to remove the power/serial cable if needed.

## Tests

### FCC Test

This is the basic USB, UART, Ethernet, SmartCard test.

It is run with C:\Projects\HCR4\python\modules\fcc-hcr4

### MSR Test

This verifies the MSR card reading. This is run through TeraTerm.

It is run with C:\Projects\HCR4\python\modules\UsbToSerial

Connecting to terminal, hit enter.

If freshly reboot, then after boot up completes and password is requests type “root” without quotes (“”). This is automatically done by the FCC script, so if reboot didn’t occur, you should be already passed this step. Once root:

/opt/maxim-ic/basic/examples/msr

At this point the MSR should be armed. Pull out the card quickly and it should read:

0 d 5 B 4 4 4 4 4 4 6 5 3 4 2 9 5 6 9 4 ^ P U B L I C / J O H N ^ 0 9 0 1 2 0 1 1 0 0 0 0 0 0 3 5 9 0 0 0 0 0 0 4 4 4 4 4 4 6 5 3 4 2 9 5 6 9 4 = 0 9 0 1 2 0 1 1 0 0 0 0 3 5 9

This indicates the MSR is working. Once the test is complete hit “CNTR-C” and verify the test is no longer running by seeing the command prompt “[root@jibe-eek examples]#”