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Friday, November 2, 2012

PCSC sample in lua

To continue the list of PC/SC wrapper initiated more than two years ago with "[PC/SC sample in different languages](#)" I now present a PC/SC sample in lua.

In a previous blog article "[cardpeek: A tool to read the contents of smartcards](#)" I presented an application using the [lua language](#) to interact with smart cards.

PC/SC access from lua

Cardpeek is a complete application and not a PC/SC wrapper. The cardpeek author implemented only what was needed for the application instead of a general PC/SC wrapper.

The card functions available from lua are:

- connect
- disconnect
- warm_reset
- last_atr
- info
- send
- set_command_interval
- make_file_path

One important missing function is an equivalent of `SCardListReaders()`. The list of available readers and selection of the reader to use is not available from the lua code. The reader selection is done by the cardpeek application using C code directly.

Some work is missing in order to have a complete PC/SC wrapper for lua.

Source code

```
function hex_tostring(data)
    local r = ""
    local i
    for i=0,#data-1 do
        r = r .. string.char(data[i])
    end
    return r
end

if card.connect() then
    card.tree_startup("ATR")

    -- Select applet
    select = bytes.new(8, "00 A4 04 00 0A A0 00 00 00 62 03 01 0C 06 01")
    sw, resp = card.send(select)
    print(string.format("SW: %X", sw))
    print(resp)

    -- Send command
    command = bytes.new(8, "00 00 00 00")
    sw, resp = card.send(command)
    print(string.format("SW: %X", sw))
    print(hex_tostring(resp))

    card.disconnect()
end
```

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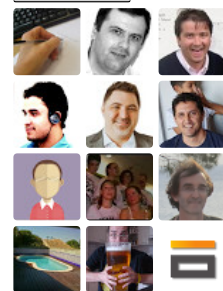
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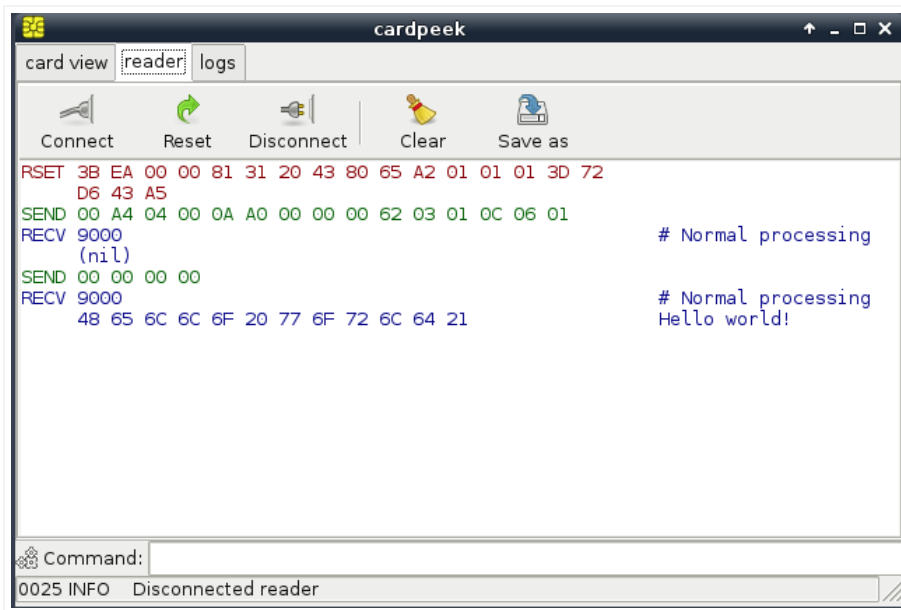
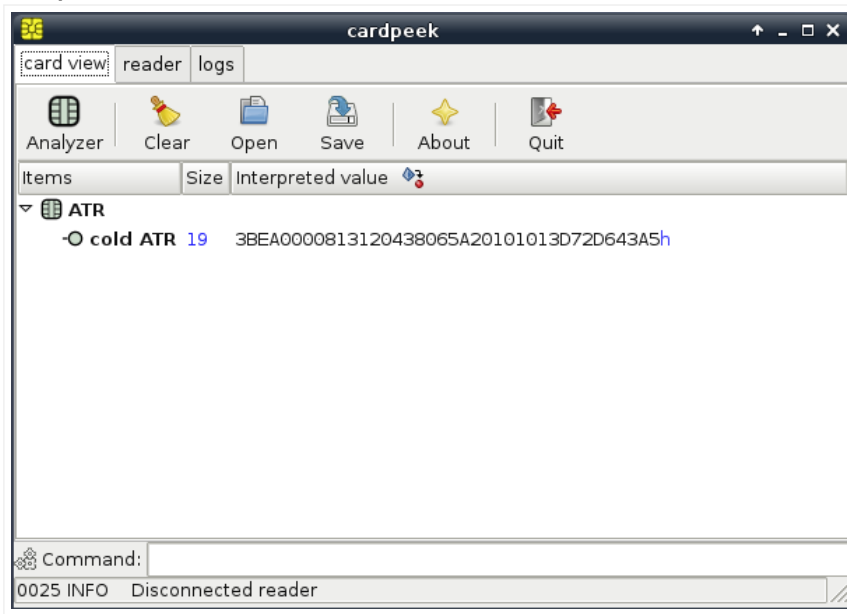
The output is sent to the console using the lua `print()` statement. You could also send the output to cardpeek using `log.print()` instead.

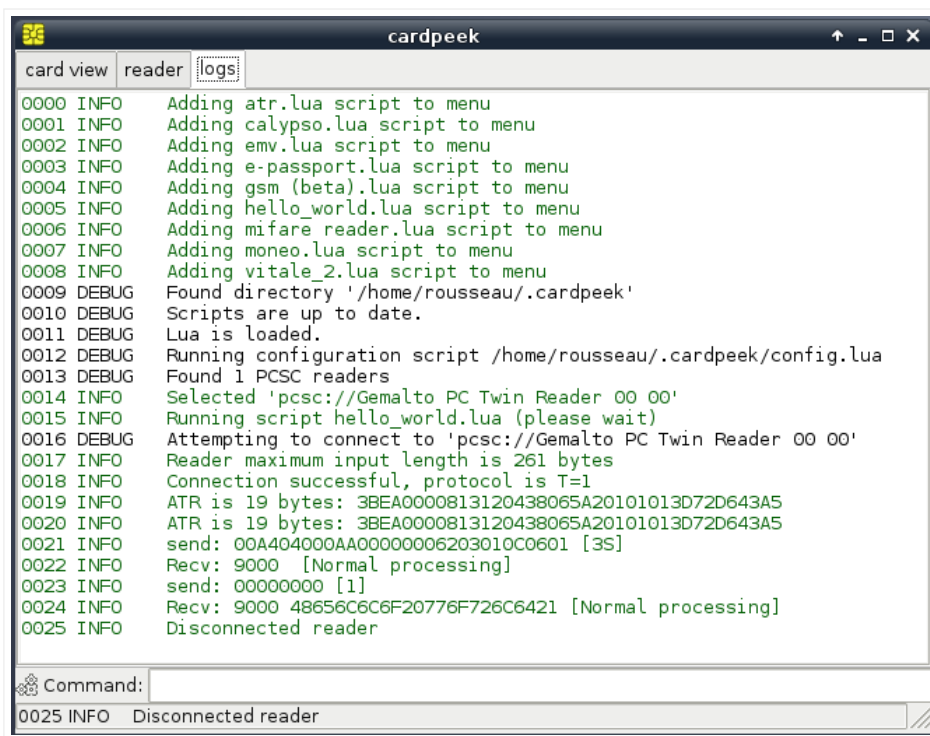
Output

In the console

```
SW: 9000  
  
SW: 9000  
Hello world!
```

In cardpeek





```

cardpeek
card view reader logs
0000 INFO Adding atr.lua script to menu
0001 INFO Adding calypso.lua script to menu
0002 INFO Adding emv.lua script to menu
0003 INFO Adding e-passport.lua script to menu
0004 INFO Adding gsm (beta).lua script to menu
0005 INFO Adding hello_world.lua script to menu
0006 INFO Adding mifare reader.lua script to menu
0007 INFO Adding moneo.lua script to menu
0008 INFO Adding vitale_2.lua script to menu
0009 DEBUG Found directory '/home/rousseau/.cardpeek'
0010 DEBUG Scripts are up to date.
0011 DEBUG Lua is loaded.
0012 DEBUG Running configuration script /home/rousseau/.cardpeek/config.lua
0013 DEBUG Found 1 PCSC readers
0014 INFO Selected 'pcsc://Gemalto PC Twin Reader 00 00'
0015 INFO Running script hello_world.lua (please wait)
0016 DEBUG Attempting to connect to 'pcsc://Gemalto PC Twin Reader 00 00'
0017 INFO Reader maximum input length is 261 bytes
0018 INFO Connection successful, protocol is T=1
0019 INFO ATR is 19 bytes: 3BEA0000813120438065A20101013D72D643A5
0020 INFO ATR is 19 bytes: 3BEA0000813120438065A20101013D72D643A5
0021 INFO send: 00A404000AA00000006203010C0601 [3S]
0022 INFO Recv: 9000 [Normal processing]
0023 INFO send: 00000000 [1]
0024 INFO Recv: 9000 48656C66F20776F726C6421 [Normal processing]
0025 INFO Disconnected reader

Command:
0025 INFO Disconnected reader

```

Conclusion

I reported some improvements for cardpeek ([issues](#) 13, 14, 15 and 16). One month after, the issues are still open and the proposed patches not applied or reviewed. A bad news concerning the state of the cardpeek project :-).

This pseudo-wrapper is the 12th wrapper for PC/SC. What will be the next language?



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