


```

bInterfaceClass      11 Chip/SmartCard
bInterfaceSubClass   0
bInterfaceProtocol   0
iInterface           0
** UNRECOGNIZED:    36 21 00 01 00 07 03 00 00 00 c0 12 00 00 40 1f 00 00 04 00 2a 00 00 e7 4
Endpoint Descriptor:
  bLength             7
  bDescriptorType     5
  bEndpointAddress    0x83 EP 3 IN
  bmAttributes        3
    Transfer Type     Interrupt
    Synch Type        None
    Usage Type        Data
  wMaxPacketSize      0x0008 1x 8 bytes
  bInterval           24
Endpoint Descriptor:
  bLength             7
  bDescriptorType     5
  bEndpointAddress    0x84 EP 4 IN
  bmAttributes        2
    Transfer Type     Bulk
    Synch Type        None
    Usage Type        Data
  wMaxPacketSize      0x0040 1x 64 bytes
  bInterval           0
Endpoint Descriptor:
  bLength             7
  bDescriptorType     5
  bEndpointAddress    0x05 EP 5 OUT
  bmAttributes        2
    Transfer Type     Bulk
    Synch Type        None
    Usage Type        Data
  wMaxPacketSize      0x0040 1x 64 bytes
  bInterval           0
Device Status:       0x0000
                    (Bus Powered)

```

PCSC

Install

```
dpavlin@klin:~$ sudo apt-get install pcsc-omnikey pcsc-tools
```

Usage

read RFID card in reader's range...

```

dpavlin@klin:~$ pcsc_scan
PC/SC device scanner
V 1.4.16 (c) 2001-2009, Ludovic Rousseau <ludovic.rousseau@free.fr>
Compiled with PC/SC lite version: 1.5.5
Scanning present readers...
0: OMNIKEY CardMan 5x21 00 00
1: OMNIKEY CardMan 5x21 00 01

```

Mon Jan 18 13:59:04 2010

```

Reader 0: OMNIKEY CardMan 5x21 00 00
Card state: Card removed,

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Reader 1: OMNIKEY CardMan 5x21 00 01
Card state: Card removed,

Mon Jan 18 13:59:08 2010
Reader 1: OMNIKEY CardMan 5x21 00 01
Card state: Card inserted, Shared Mode,
ATR: 3B 8F 80 01 80 4F 0C A0 00 00 03 06 0B 00 14 00 00 00 00 77

ATR: 3B 8F 80 01 80 4F 0C A0 00 00 03 06 0B 00 14 00 00 00 00 77
+ TS = 3B --> Direct Convention
+ T0 = 8F, Y(1): 1000, K: 15 (historical bytes)
TD(1) = 80 --> Y(i+1) = 1000, Protocol T = 0
-----
TD(2) = 01 --> Y(i+1) = 0000, Protocol T = 1
-----
+ Historical bytes: 80 4F 0C A0 00 00 03 06 0B 00 14 00 00 00 00
Category indicator byte: 80 (compact TLV data object)
Tag: 4, len: F (initial access data)
Initial access data: 0C A0 00 00 03 06 0B 00 14 00 00 00 00
+ TCK = 77 (correct checksum)

Possibly identified card (using /usr/share/pcsc/smartcard_list.txt):
3B 8F 80 01 80 4F 0C A0 00 00 03 06 0B 00 14 00 00 00 00 77
Philips ICode
RFID - ISO 15693 - Philips Semiconductors

Mon Jan 18 13:59:11 2010
Reader 1: OMNIKEY CardMan 5x21 00 01
Card state: Card removed,

```

librfid

- <http://openmrtid.org/projects/librfid/>

build from source

```

# build dependency
dpavlin@klin:/rest/cvs/librfid$ sudo apt-get install libusb-dev

# checkout source
dpavlin@klin:/rest/cvs$ svn co https://svn.gnumonks.org/trunk/librfid/
dpavlin@klin:/rest/cvs$ cd librfid/
dpavlin@klin:/rest/cvs/librfid$ ./autogen.sh

# build
dpavlin@klin:/rest/cvs/librfid$ ./configure --enable-ccid
dpavlin@klin:/rest/cvs/librfid$ make

```

test

```

# test
dpavlin@klin:/rest/cvs/librfid$ sudo ./utils/librfid-tool -s
lt-librfid-tool - (C) 2005-2008 by Harald Welte

```

This program is Free Software and has ABSOLUTELY NO WARRANTY

```
initializing librfid
opening reader handle OpenPCD, CM5x21
No OpenPCD found
scanning for RFID token...
Layer 2 success (ISO 15693): eb 6e 77 1f 00 01 04 e0
```

read tag

```
dpavlin@klin:/rest/cvs/librfid$ sudo ./utils/librfid-tool -r -1
lt-librfid-tool - (C) 2005-2008 by Harald Welte
This program is Free Software and has ABSOLUTELY NO WARRANTY
```

```
initializing librfid
opening reader handle OpenPCD, CM5x21
No OpenPCD found
Layer2 init ok
Layer 2 success (ISO 15693)[8]: ' eb 6e 77 1f 00 01 04 e0'
block[ 0:00]sec:0x8 data(4): 04 11 00 01
block[ 1:01]sec:0x8 data(4): 31 33 30 32
block[ 2:02]sec:0x8 data(4): 30 32 39 37
block[ 3:03]sec:0x8 data(4): 31 30 00 00
block[ 4:04]sec:0x8 data(4): 00 00 00 00
block[ 5:05]sec:0x8 data(4): 00 00 00 00
block[ 6:06]sec:0x8 data(4): 00 00 00 00
block[ 7:07]sec:0x8 data(4): 00 00 00 00
block[ 8:08]sec:0x8 data(4): 00 00 00 00
block[ 9:09]sec:0x8 data(4): 00 00 00 00
block[ 10:0a]sec:0x8 data(4): 00 00 00 00
block[ 11:0b]sec:0x8 data(4): 00 00 00 00
block[ 12:0c]sec:0x8 data(4): 00 00 00 00
block[ 13:0d]sec:0x8 data(4): 00 00 00 00
block[ 14:0e]sec:0x8 data(4): 00 00 00 00
block[ 15:0f]sec:0x8 data(4): 00 00 00 00
block[ 16:10]sec:0x8 data(4): 00 00 00 00
block[ 17:11]sec:0x8 data(4): 00 00 00 00
block[ 18:12]sec:0x8 data(4): 00 00 00 00
block[ 19:13]sec:0x8 data(4): 00 00 00 00
block[ 20:14]sec:0x8 data(4): 00 00 00 00
block[ 21:15]sec:0x8 data(4): 00 00 00 00
block[ 22:16]sec:0x8 data(4): 00 00 00 00
block[ 23:17]sec:0x8 data(4): 00 00 00 00
block[ 24:18]sec:0x8 data(4): 00 00 00 00
block[ 25:19]sec:0x8 data(4): 00 00 00 00
block[ 26:1a]sec:0x8 data(4): 00 00 00 00
block[ 27:1b]sec:0x8 data(4): 57 5f 4f 4b
no data(read_block(28)>> -1)
```