https://www.halvorsen.blog

RFID Desktop Reader NEO 2

Hans-Petter Halvorsen

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Hardware Overview

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Desktop Reader NEO 2

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High Frequency (HF) 13.56MHz RFID Reader from iDTRONIC

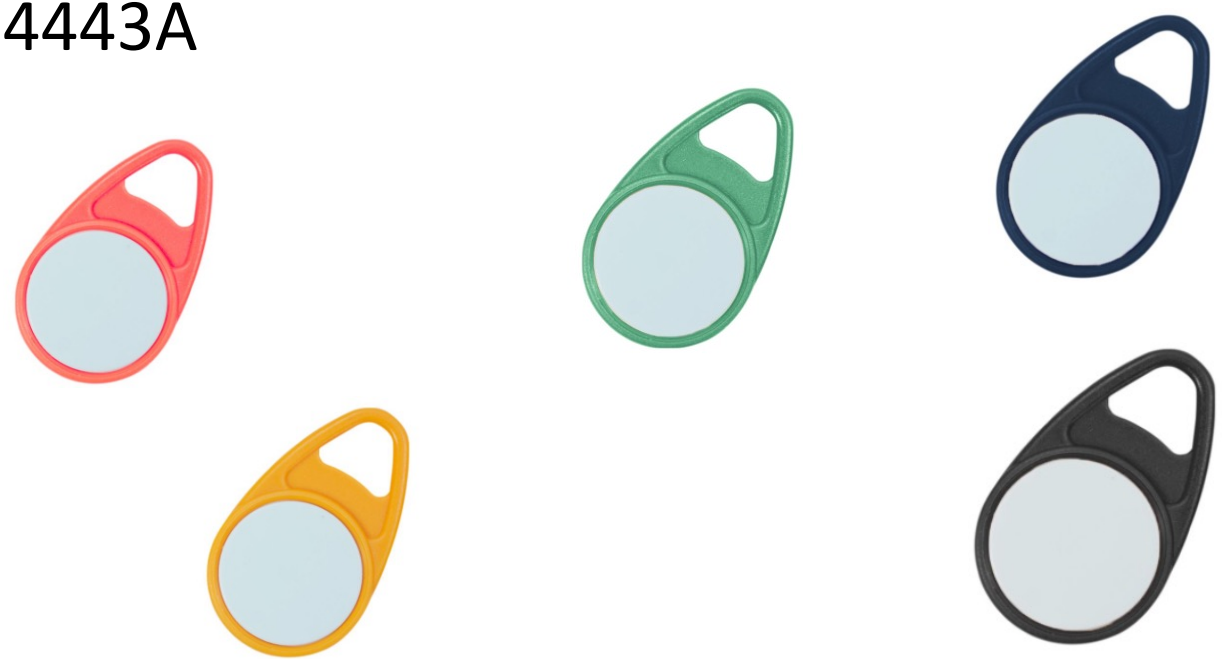
The RFID Reader supports most HF (13.56MHz) on the market, like MIFARE Classic, etc.

The RFID Reader can be used out of the box – Just open, e.g., a. empty MS Word document or similar. Then put a RFID Tag on top of the RFID Reader and the UID will be written to your screen

https://en.idtronic-rfid.com/rfid-readers/rfid-hf-readers/desktop-reader-neo-2/

MIFARE Classic 1K (ISO 14443A) Tags

ISO 14443A



https://www.elfadistrelec.no/en/rfid-tag-hf-red-13-56mhz-nxp-mifare-idtronic-kf-mfs50-rd/p/30182163?trackQuery=RFID&pos=30&origPos=30&origPageSize=50&track=true

Test of Device

HID Mode - Human Interface Device

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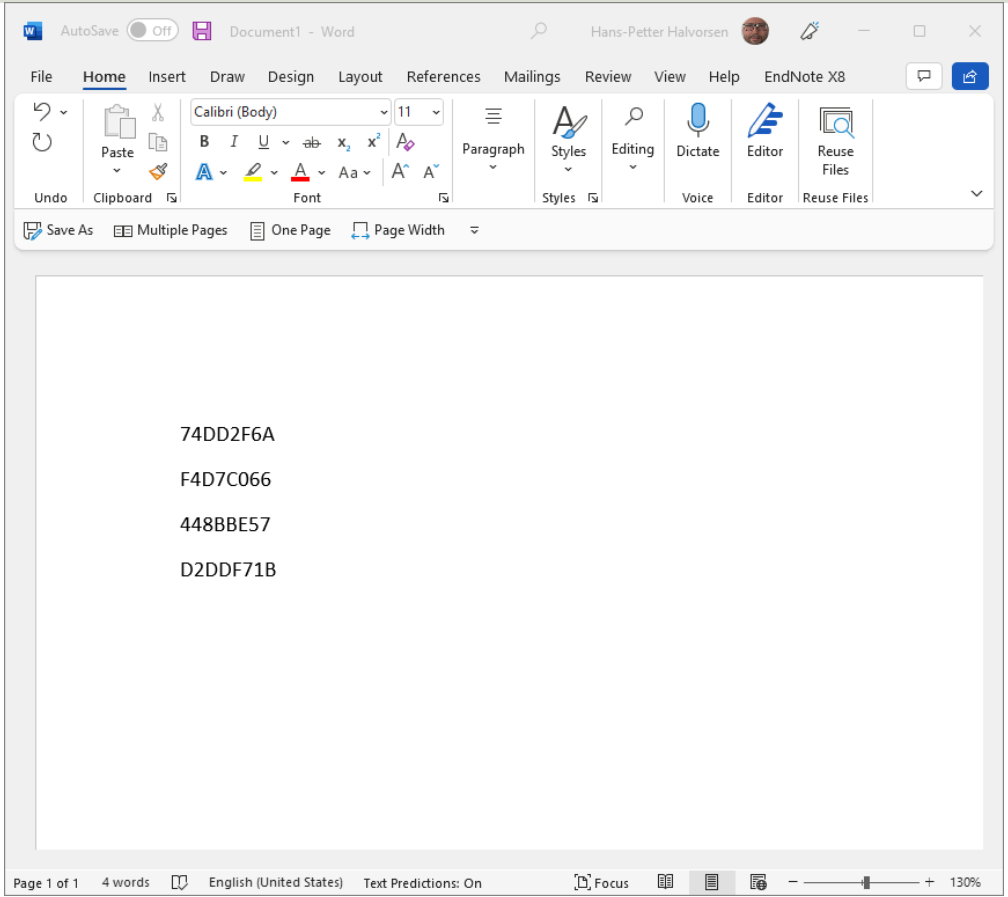
Testing



- Plug in the RFID Reader into your PC
- Open MS Word, Notepad, etc.
- Put a RFID Tag on top of the Reader
- Observe that the unique Tag UID is written into MS Word

Visual Studio/C# Example

HID Mode

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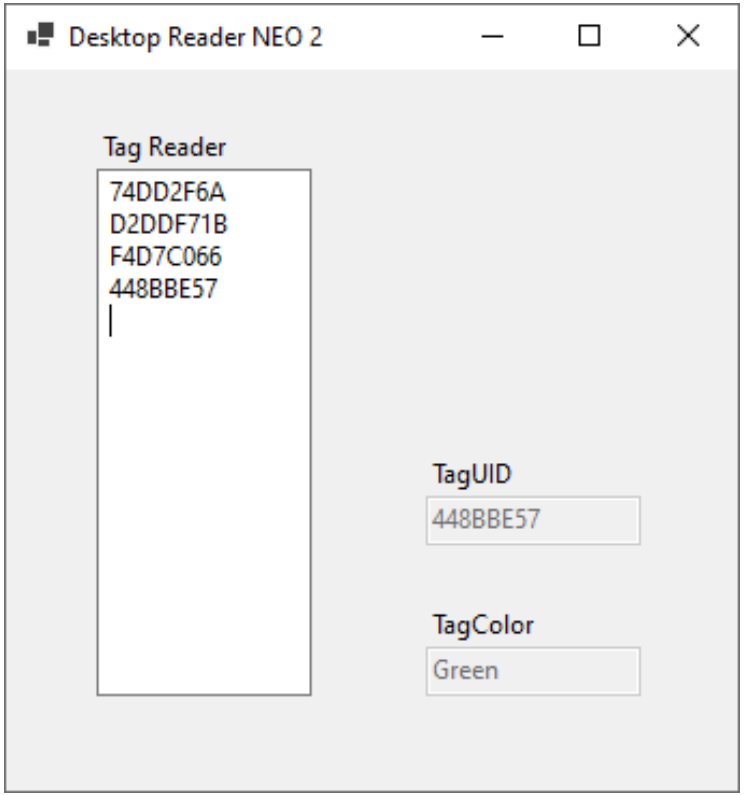
Desktop Application



```
private void txtRfidReader_TextChanged(object sender, EventArgs e)
{
        string textRead = txtRfidReader.Text;
        string color = "";

        if (textRead.Length > 9)
        {
                string tagUid = textRead.Substring(textRead.Length - 10, 8);

                if (tagUid == "448BBE57")
                                color = "Green";
                else if (tagUid == "74DD2F6A")
                                color = "Red";
                else if (tagUid == "F4D7C066")
                                color = "Blue";
                else if (tagUid == "D2DDF71B")
                                color = "Yellow";

                txtRfidUid.Text = tagUid;
                txtColor.Text = color;
                txtRfidReader.Focus();
        }
}
```

LabVIEW Example HID Mode

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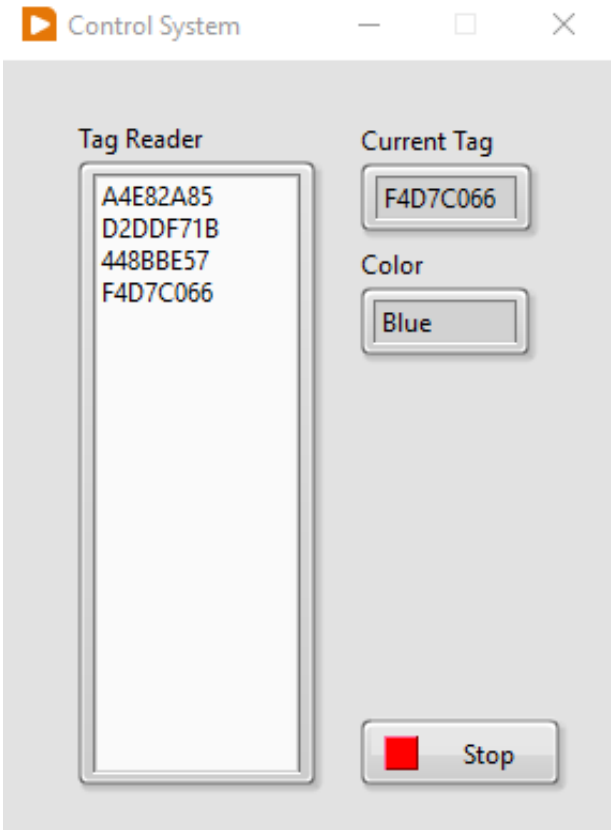
Desktop Application



Note! For Advanced Users!

Configuration

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Configuration

Note!!

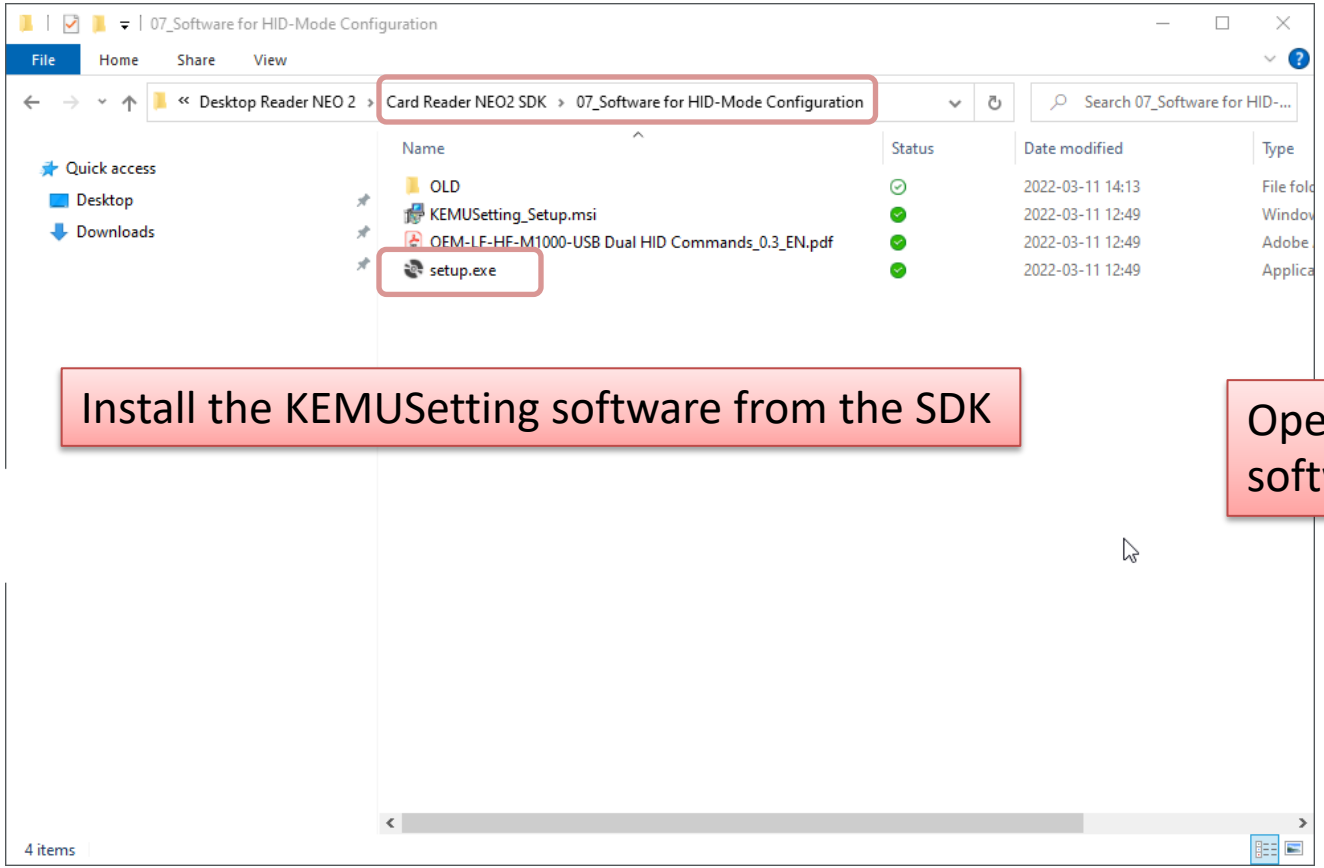
- The hardware is normally ready to use from the factory in so-called HID Mode (which is recommended)
- So, you normally don’t need to do any configurations
- So, you can go directly to to the Examples

Operating Modes

You can switch between 2 different Modes

- **HID** - Human Interface Device
  - The HID mode is a **Keyboard Emulation Mode**
  - It automatically reads the UID for the RFID you put on the Reader in the active Textbox (e.g., in an Application) or Document (e.g., Word)
  - No Code is necessary to read the RFID Tag UID
- **VCP** – Virtual COM Port
  - It is designed for IoT applications
  - The VCP mode has a complete read and write access
  - You need to use a Serial Port Software or Develop Serial Port Communication using a Programming Language like C#, LabVIEW, Python, etc.

KEMUSetting Software



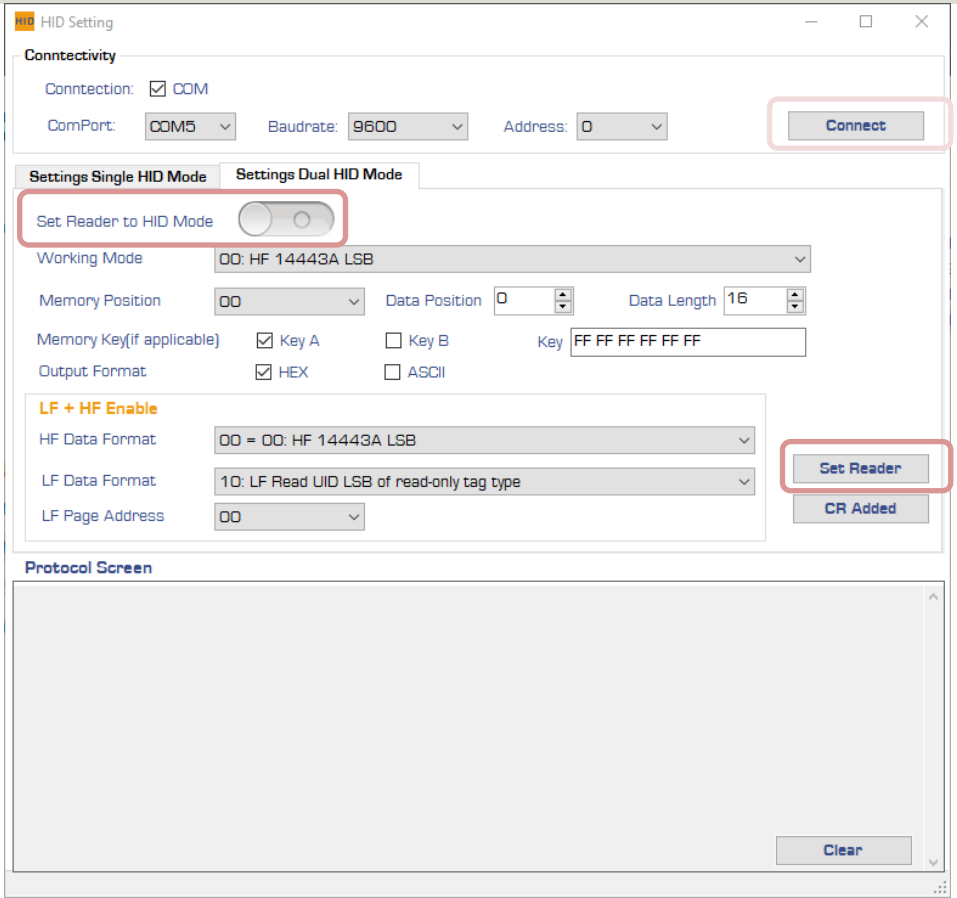
Install the KEMUSetting software from the SDK

Open the KEMUSetting software from your Desktop

Set Operating Mode

- You can switch between the 2 modes with the “KEMU Setting” Software.
- Please select the tab “**Settings Dual HID Mode**”.
- Important: In the software there is a slide switch, with which you can switch between the working modes, but it doesn’t update in real time, so it doesn’t show you the working mode which the reader is operating at the time!
- To store the current setting into the RFID device, click on “**Set Reader**”.

Set Operating Mode



Desktop Reader NEO 2

- https://en.idtronic-rfid.com/rfid-readers/rfid-hf-readers/desktop-reader-neo-2/
- https://www.elfadistrelec.no/en/desktop-rfid-reader-13-56mhz-usb-200ma-idtronic-dt-neo2-hf/p/30241934?q=RFID&pos=19&origPos=19&origPageSize=50&track=true

Note! For Advanced Users!

VCP Mode

VCP – Virtual COM Port

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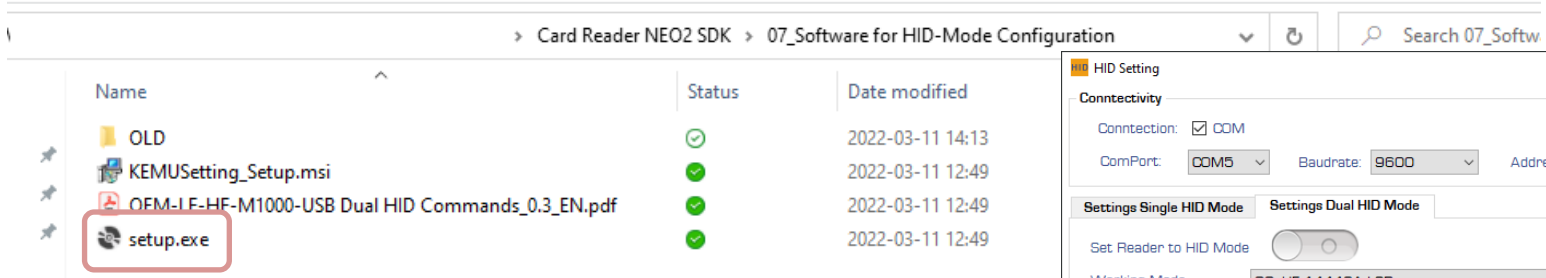
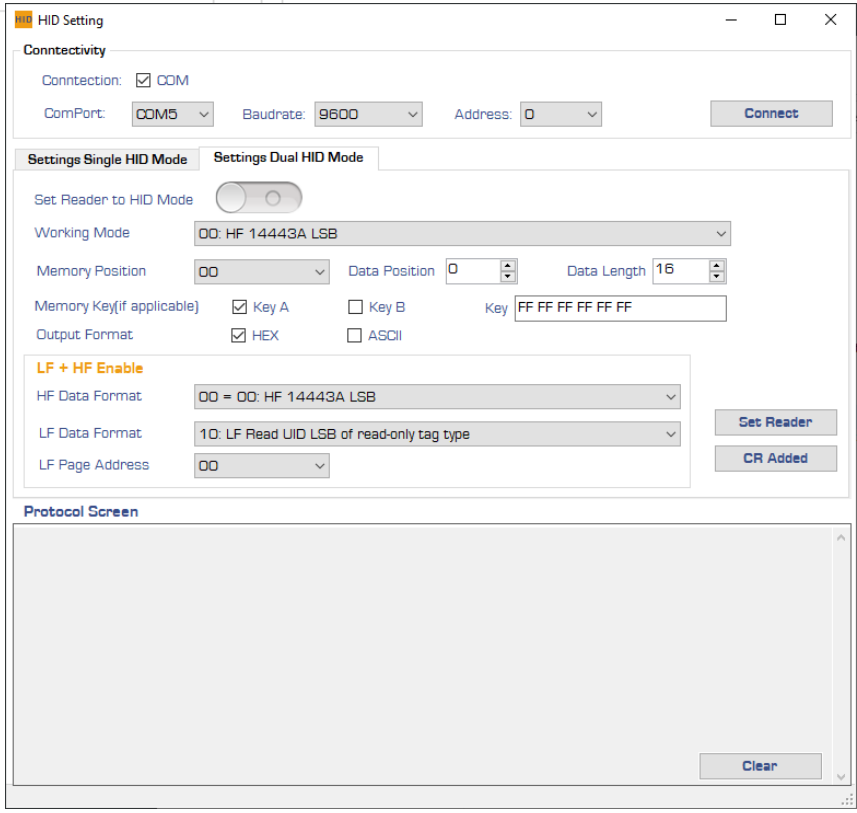
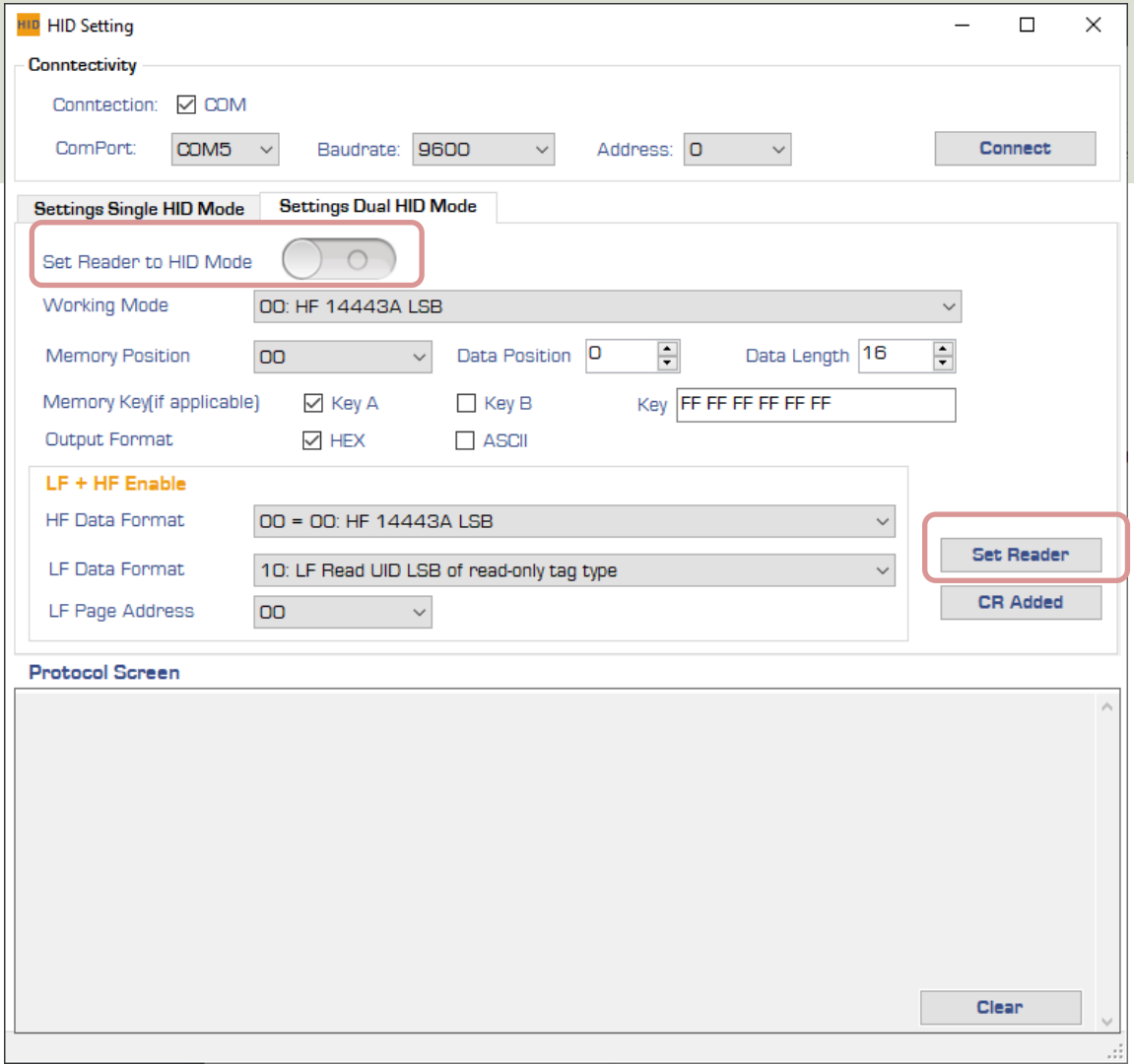
HID/VCP Mode Configuration

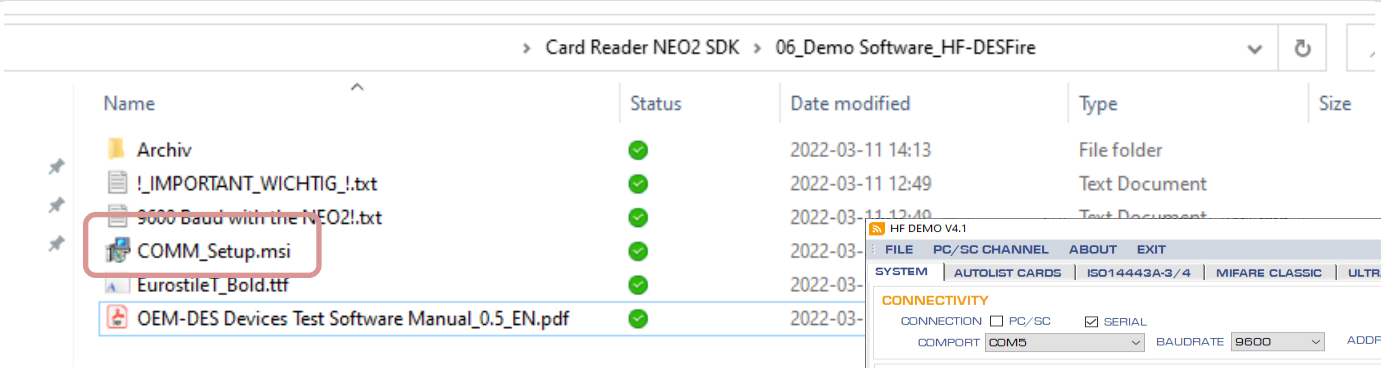


Install the “KEMUSetting” Tool which is located in the Card Reader NEO2 SDK

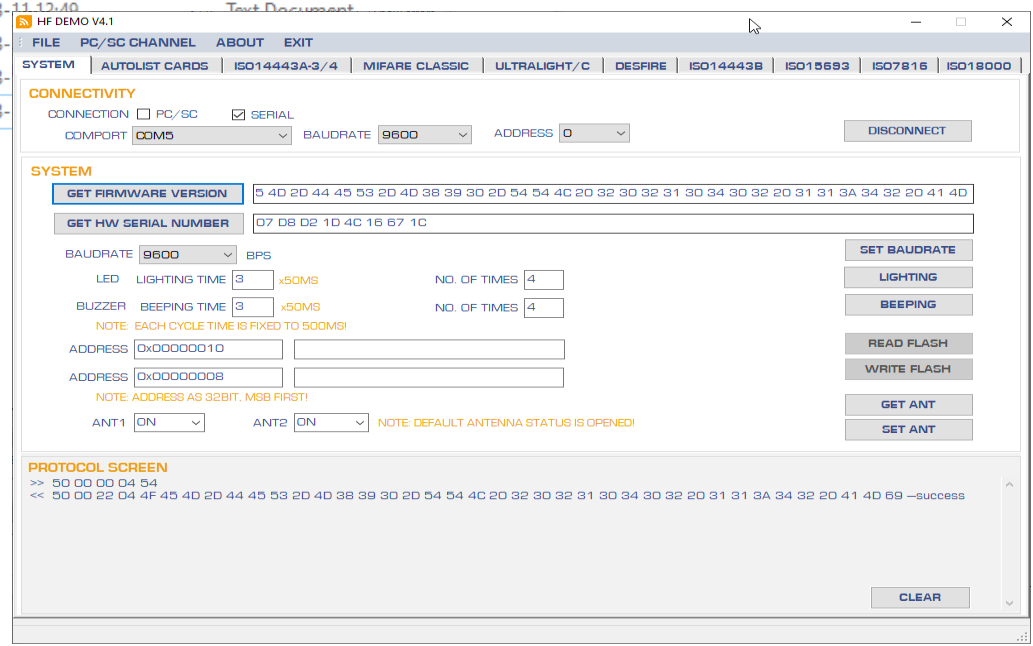



HID Setting
Conntectivity
Conntection:
COM
ComPort:
COM5
Baudrate:
9600
Address:
0
Connect
Settings Single HID Mode
Settings Dual HID Mode
Set Reader to HID Mode
Working Mode
00: HF 14443A LSB
Memory Position
00
Data Position
0
Data Length
16
Memory Key(if applicable)
Key A
Key B
Key
FF FF FF FF FF FF
Output Format
HEX
ASCII
LF + HF Enable
HF Data Format
00 = 00: HF 14443A LSB
LF Data Format
10: LF Read UID LSB of read-only tag type
LF Page Address
00
Set Reader
CR Added
Protocol Screen
Clear

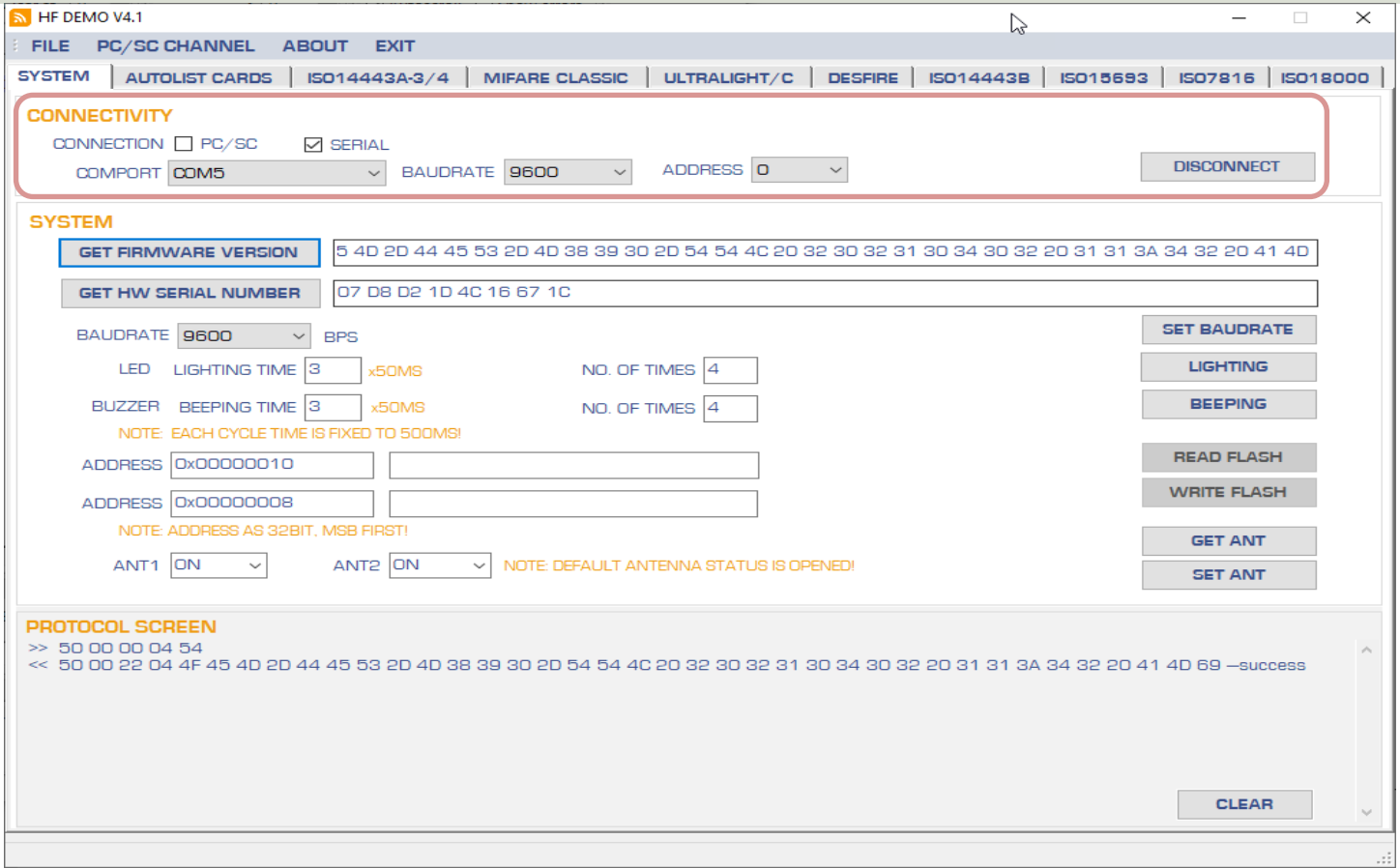
HF DEMO Software



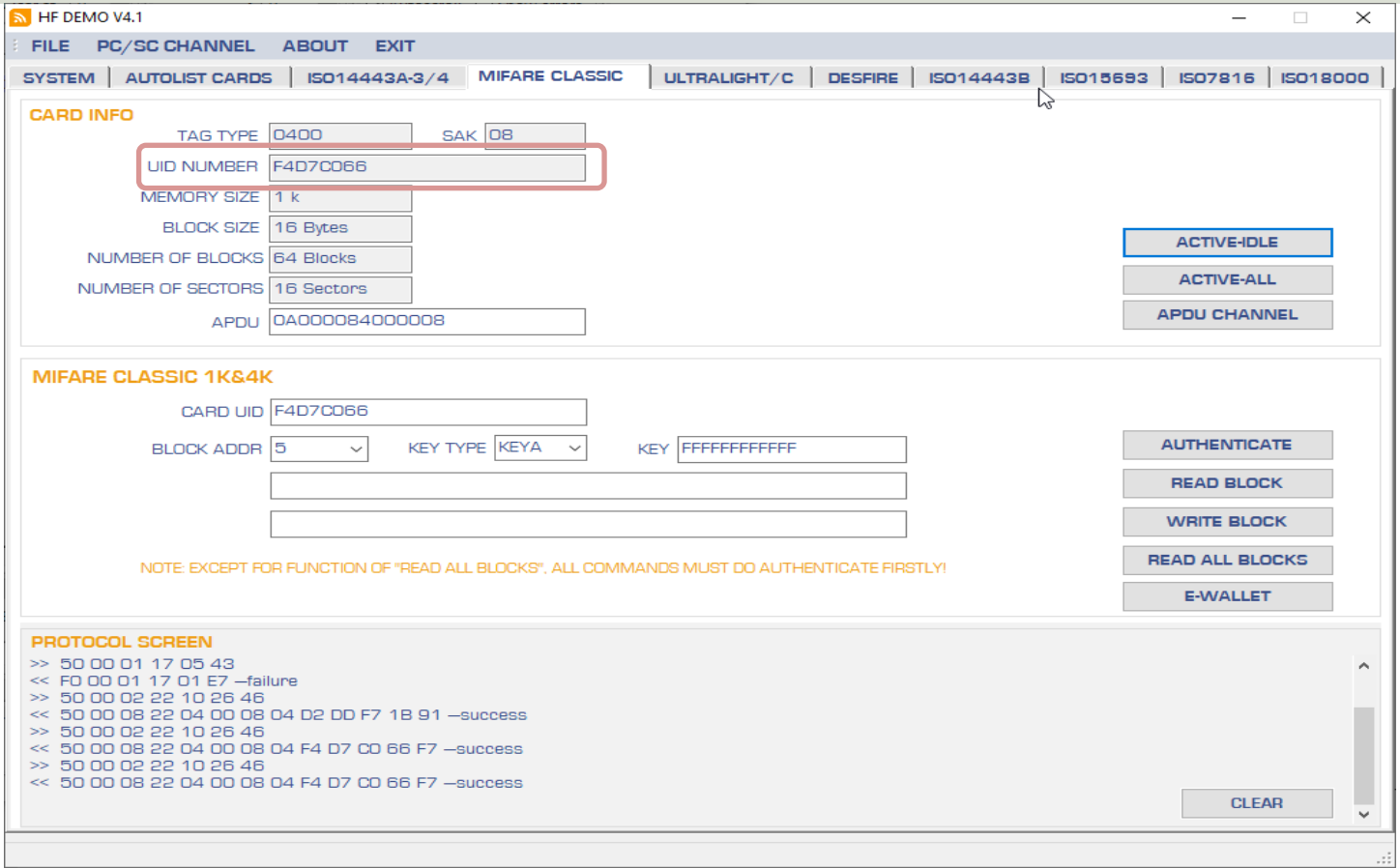
Install the “HF Demo” Tool which is located in the Card Reader NEO2 SDK



Connect and Get Firmware



Read Tag Information

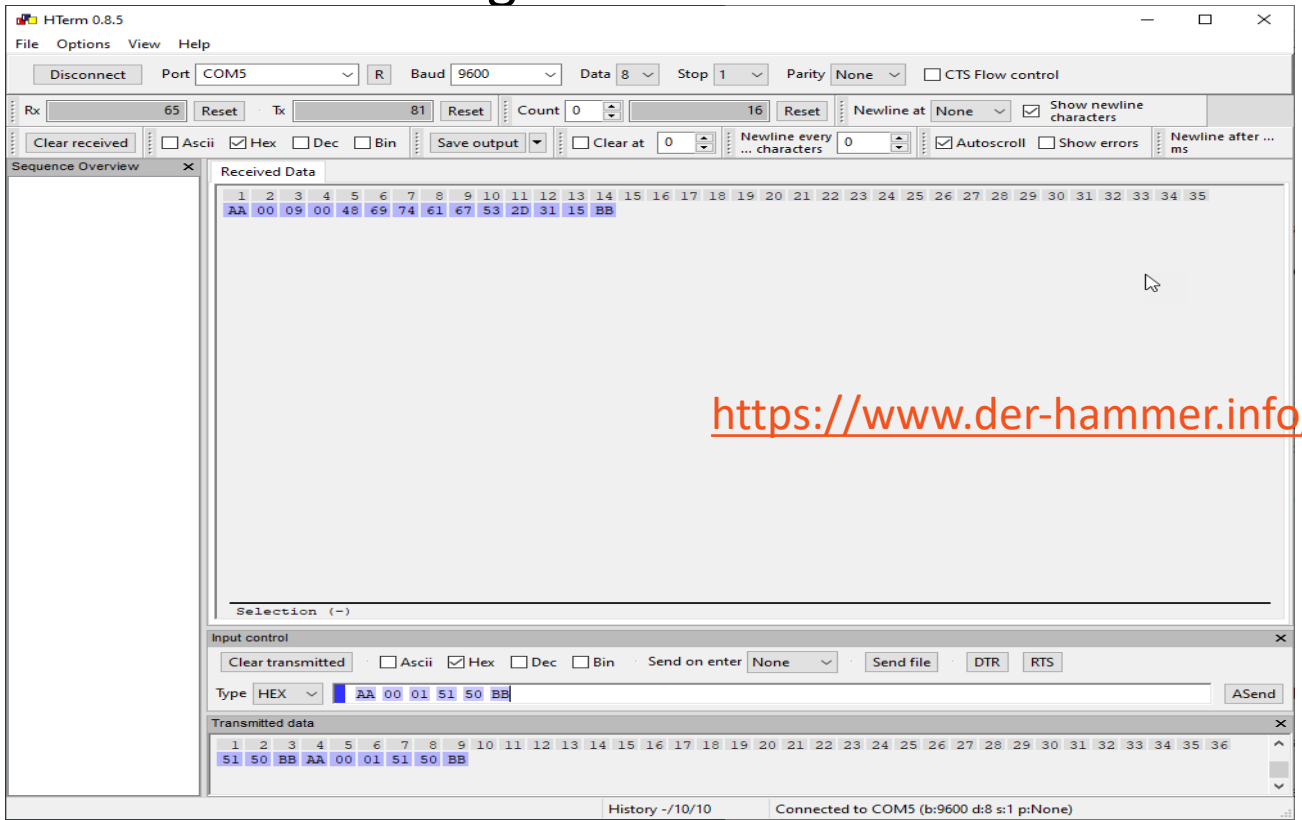


Virtual COM Port Settings

- Baudrate: 9600
- Data bits: 8
- Parity: No parity
- Start bit: 1
- Stop bit: 1

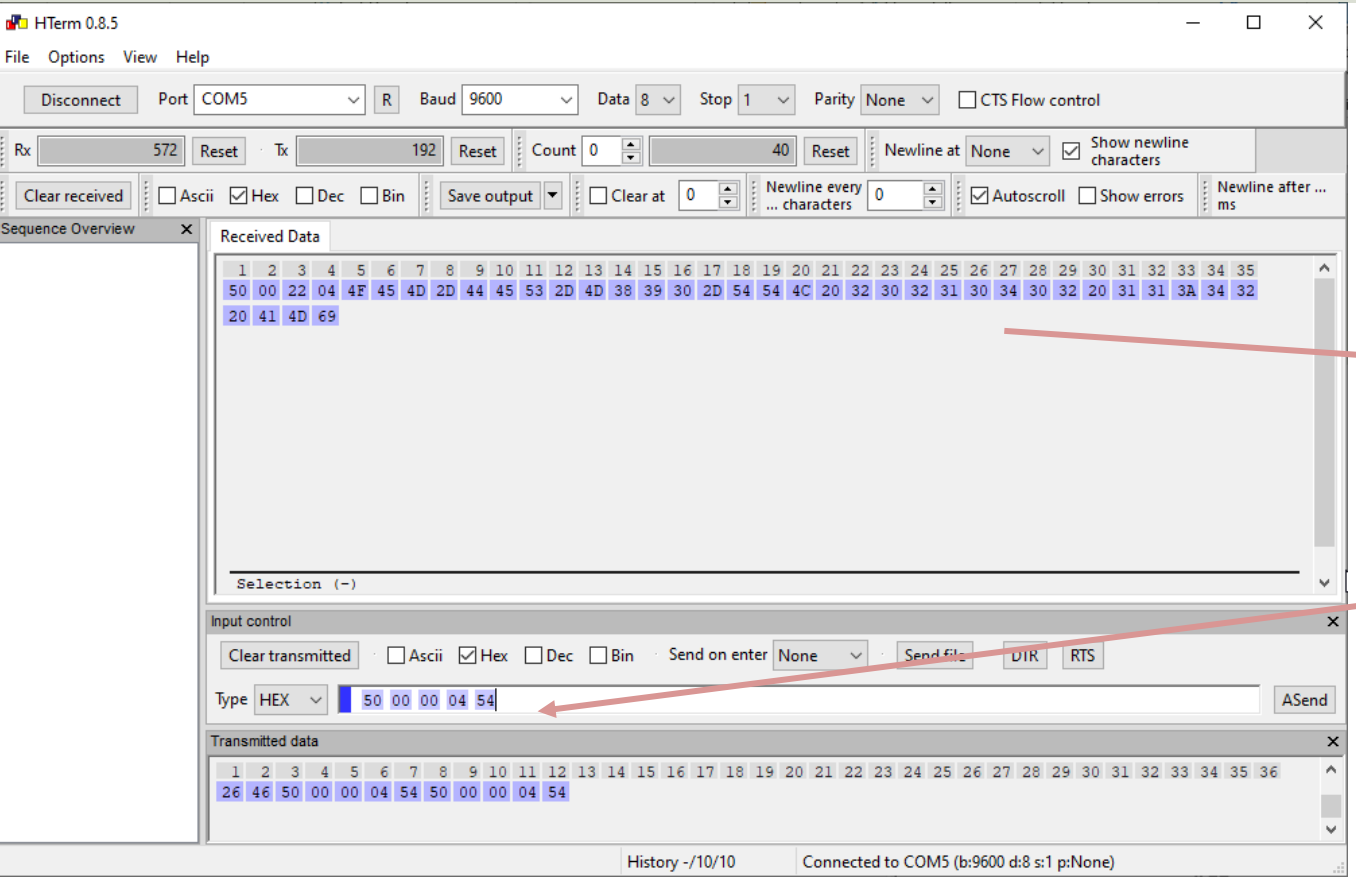
HTerm

Serial Terminal Program for communication with RFID Reader



https://www.der-hammer.info/pages/terminal.html

Get Firmware Version



Response from the RFID Reader

Enter “**50 00 00 04 54**” and hit Enter

Example Tags

ISO 14443A/MIFARE Classic 1K

UID = 448BBE57

UID = 74DD2F6A

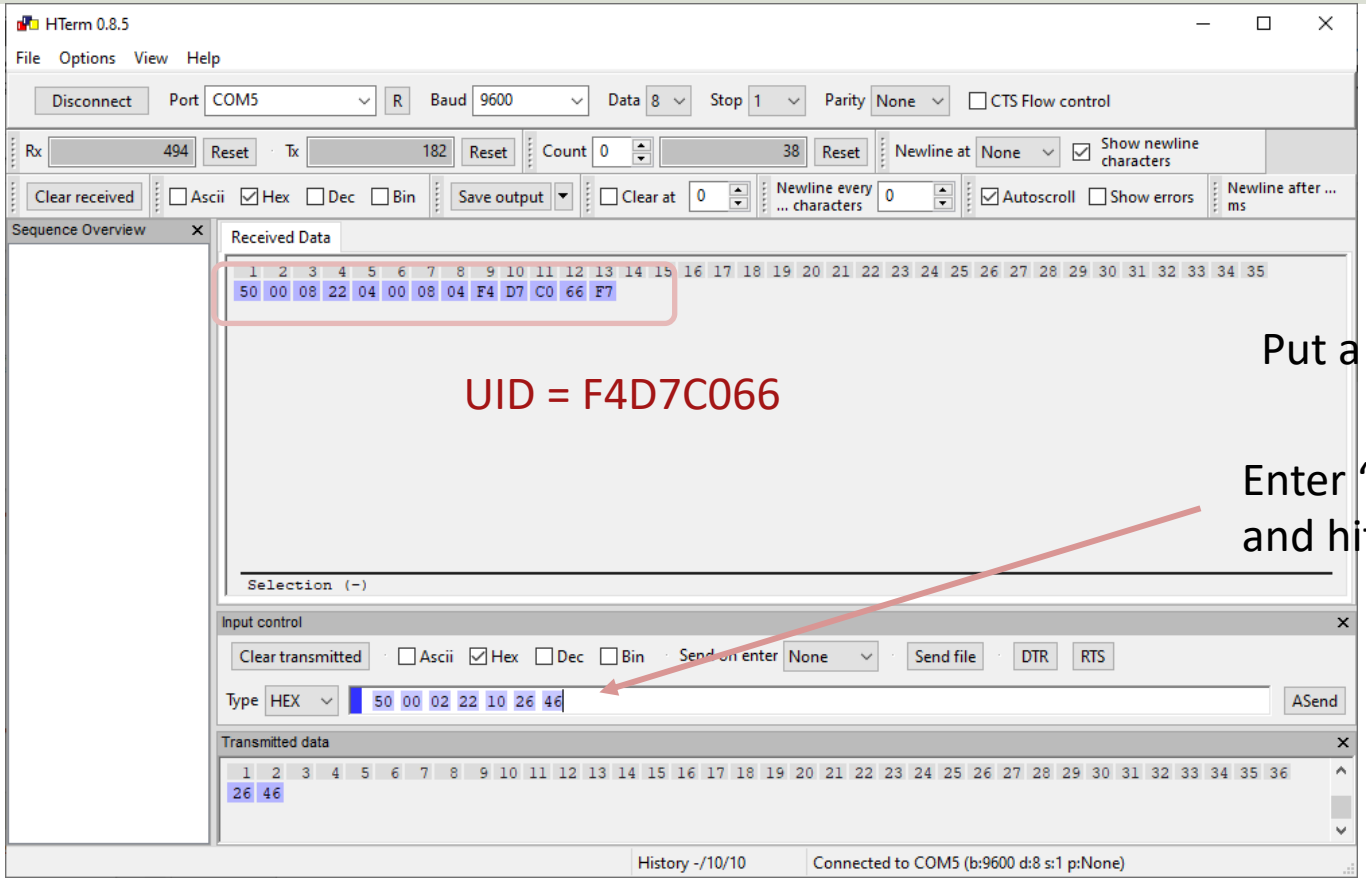
UID = F4D7C066

UID = D2DDF71B

https://www.elfadistrelec.no/en/rfid-tag-hf-red-13-56mhz-nxp-mifare-idtronic-kf-mfs50-rd/p/30182163?trackQuery=RFID&pos=30&origPos=30&origPageSize=50&track=true

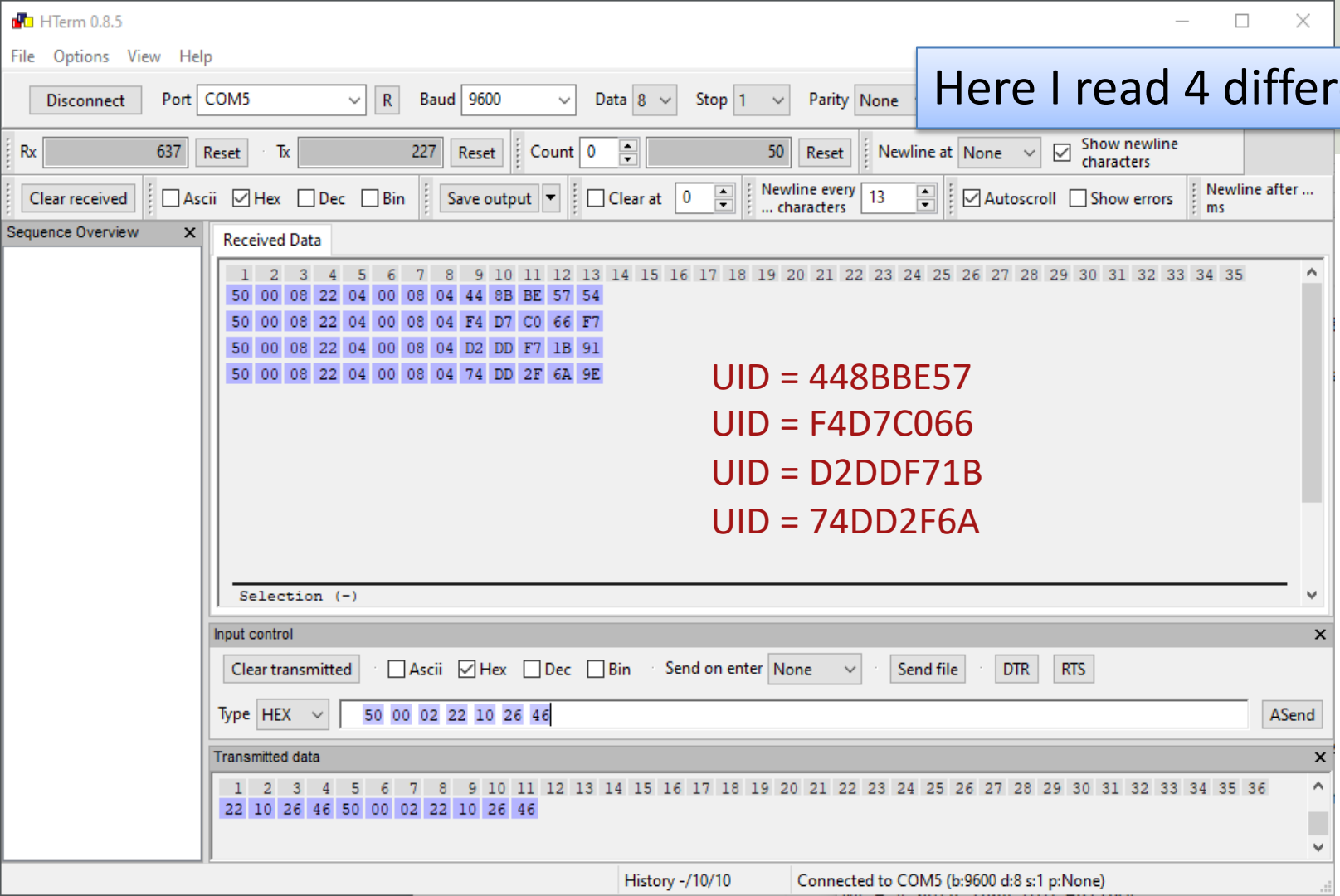
Get UID

50 00 02 22 10 26 46



Put a RFID Tag on the Reader

Enter “**50 00 02 22 10 26 46**” and hit Enter



Here I read 4 different Tags

Resources

- https://en.wikipedia.org/wiki/Barcode
- https://en.wikipedia.org/wiki/Radio-frequency_identification
- https://www.atlasrfidstore.com/rfid-beginners-guide/
- https://no.rs-online.com/web/p/rf-modules/1262181/
- https://eccel.co.uk/product/oem-micode-usb/

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