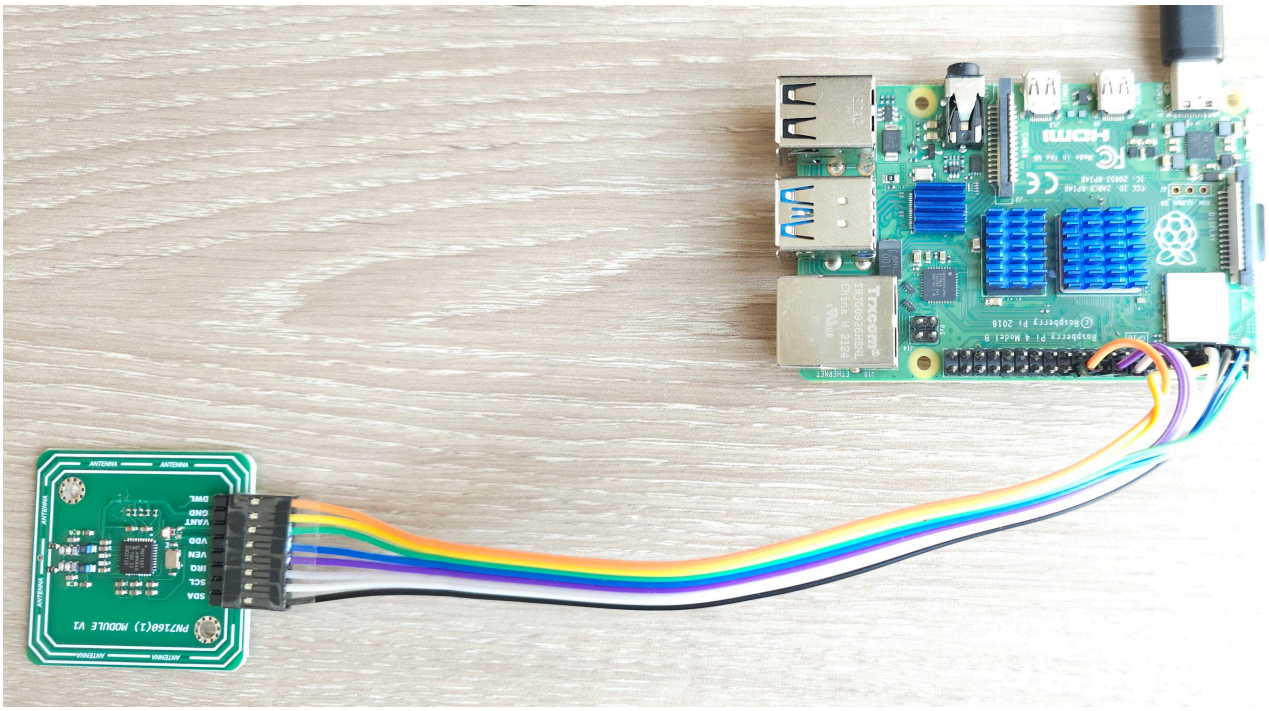
TESTING GUIDE

ELECHOUSE PN7160 board quick start guide

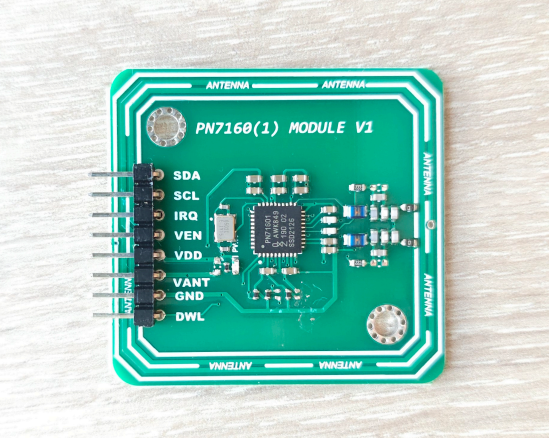
This guide is based on NXP AN12991

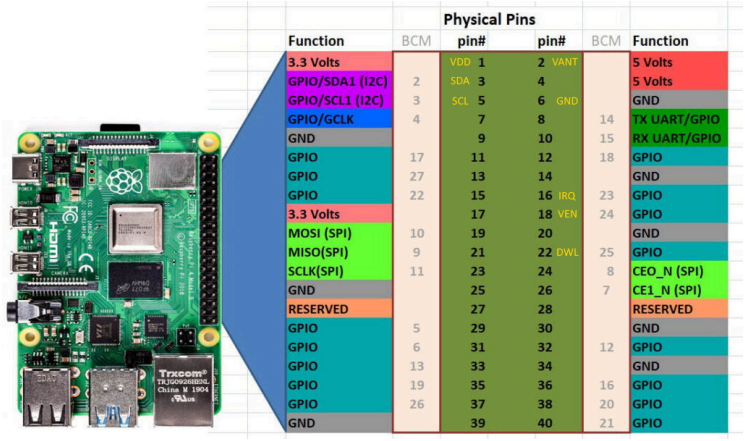


3.1 Required items

• Raspberry Pi [1] running raspbian distribution.

3.2 Hardware setup





Connection

PN7160 --------Raspberry PI 4
SDA #3 SDA
SCL #5 SCL
IRQ #16 GPIO23
VEN #18 GPIO24
VDD #1 3.3V PWR
VANT #2 OR #4 5V PWR
GND #6 GND
DWL #22

3.3 Software setup

Use Raspbian (https://www.raspberrypi.org/software/operating-systems/). Guidelines to set up Linux environment on raspberry pi can be found here: https://www.raspberrypi.org/documentation/installation/installing-images/).

Below is the step-by-step procedure run from the Raspberry Pi to add software support for PN7160:

3.3.1 Enable I²C interface

1. Run command:

```
sudo raspi-config
```

2. Use the down arrow to select "`Interface Options`"
3. Arrow down to "`P5 I2C`"
4. Select "`yes`" when it asks you to enable I2C
5. Use the right arrow to select the `<Finish>` button

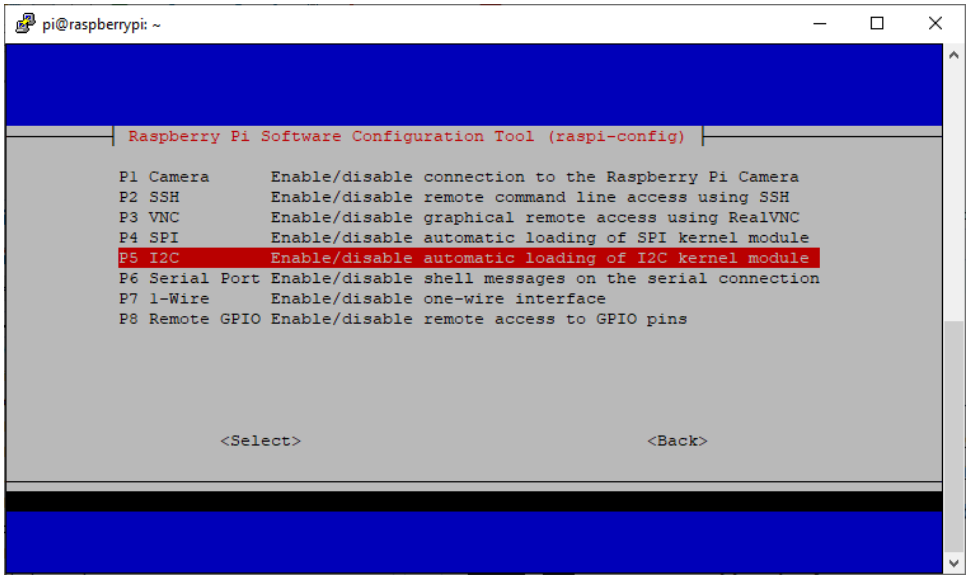


Figure 6. Enabling I²C interface on raspian

To verify the I²C interface is enabled, enter the following command `ls /dev/i2c*`.

The Pi should respond with "`/dev/i2c-1`" which represents the user-mode I²C interface to which is connected the PN7160.

3.3.3 Install necessary tools

Execute the command:

```
sudo apt-get install autoconf automake libtool git
```

3.3.4 Clone Linux libnfc-nci library repository

Execute the command:

```
git clone https://github.com/NXPNFCLinux/linux_libnfc-nci.git -b NCI2.0_PN7160
```

3.3.5 Configure the library

Execute the commands:

```
cd linux_libnfc-nci
./bootstrap
./configure
```

3.3.6 Set the library to map I²C interface (only for OM27160A1EVK)

Edit `linux_libnfc-nci/conf/libnfc-nxp.conf` file to update `NXP_TRANSPORT` and `NXP_NFC_DEV_NODE` settings as shown below:

```
################################################################################
# TRANSPORT Type
# 0x00 - I2C /SPI for noraml nxpnfc driver
# 0x01 - Not Used, kept to align with Android code
# 0x02 - ALT_I2C
# 0x03 - ALT_SPI
```

```
NXP_TRANSPORT=0x02

################################################################################
# NXP HW Device Node information
NXP_NFC_DEV_NODE="/dev/i2c-1"
```

3.3.8 Build and install the library

Execute the commands:

```
make
sudo make install
export LD_LIBRARY_PATH=/usr/local/lib
```

To make this last setting permanent, run the following command:

```
echo "export LD_LIBRARY_PATH=/usr/local/lib" >> .bashrc
```

3.3.9 Run the demo application (built and installed together with the library during previous step)

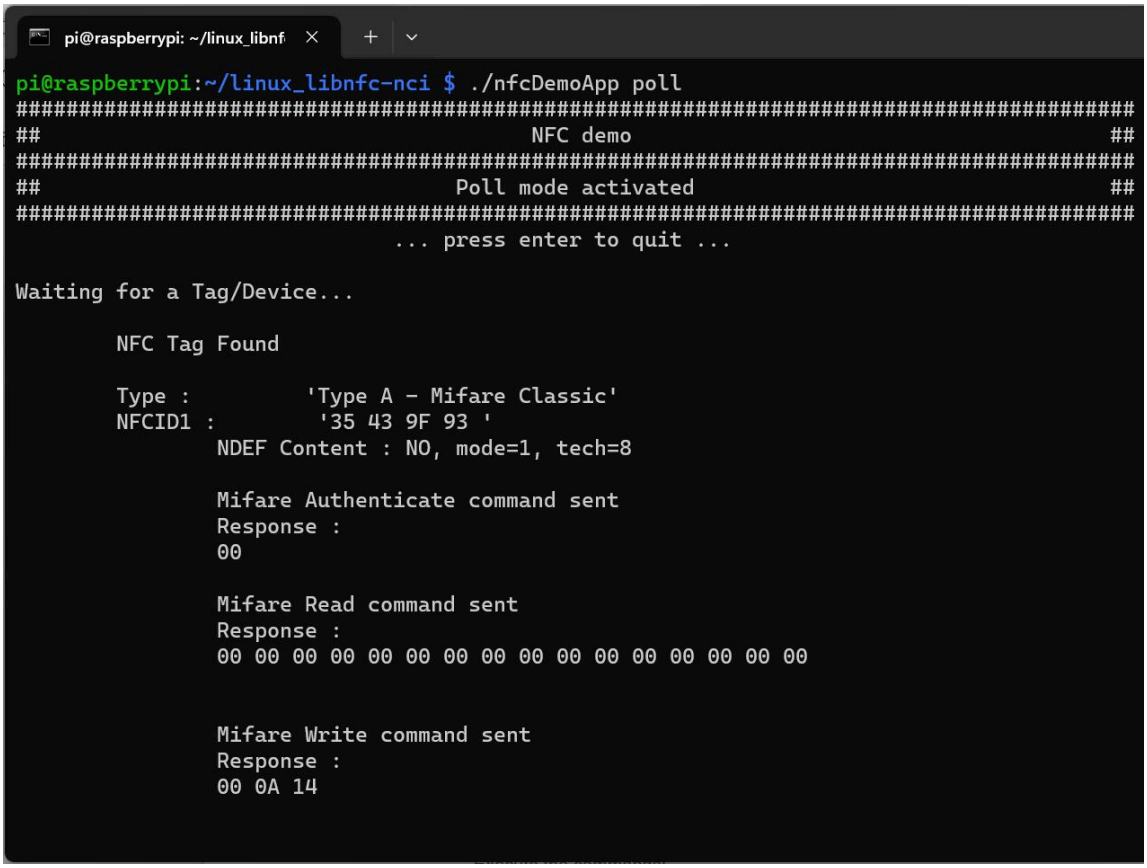
To simply display all data collected from remote NFC device (Peer, reader/writer or card), run the demo application in "poll mode" executing the command:

```
nfcDemoApp poll
```

For more details about the demo application modes execute command:

```
nfcDemoApp --help
```

For more detailed information about the demo application, but also for additional example applications, please refer to [2].


pi@raspberrypi: ~/linux_libnf
pi@raspberrypi:~/linux_libnfc-nci $ ./nfcDemoApp poll
NFC demo
Poll mode activated
... press enter to quit ...
Waiting for a Tag/Device...
NFC Tag Found
Type : 'Type A - Mifare Classic'
NFCID1 : '35 43 9F 93 '
NDEF Content : NO, mode=1, tech=8
Mifare Authenticate command sent
Response :
00
Mifare Read command sent
Response :
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Mifare Write command sent
Response :
00 0A 14