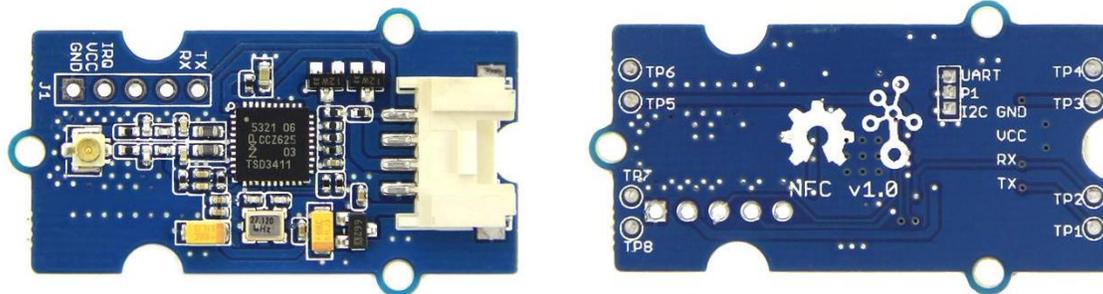


## Grove - NFC



Near Field Communication (NFC) is a set of short-range wireless technologies. It is behind daily applications such as access control system and mobile payment system. Grove NFC features a highly integrated transceiver module PN532 which handles contactless communication at 13.56MHz. You can read and write a 13.56MHz tag with this module or implement point to point data exchange with two NFCs. Grove NFC is designed to use I2C or UART communication protocols, and UART is the default mode. In addition, we assign an independent PCB antenna which can easily stretch out of any enclosure you use, leaving more room for you to design the exterior of your project.

### Version

Version	Data	Change
Grove NFC V1.0	December 11,2015	initial
Grove NFC V1.1	August 31,2016	Add TP2/TP3 Pad on the back of the PCB, to switch the I2C and UART

### Specifications

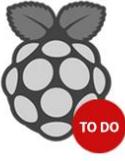
- Working Voltage: 3.3V
- Working Current:
  - Static Mode: 73mA
  - Write/Read Mode: 83mA
- Support host interface: I2C, UART(default).
- Serve for contactless communication at 13.56MHz.

- Support ISO14443 Type A and Type B protocols.
- Max operating distance for detecting NFC tags is 28mm depending on current antenna size.
- Support P2P communication.
- Dimensions: 25.43mm x 20.35mm

**Tip**

More details about Grove modules please refer to [Grove System](#)

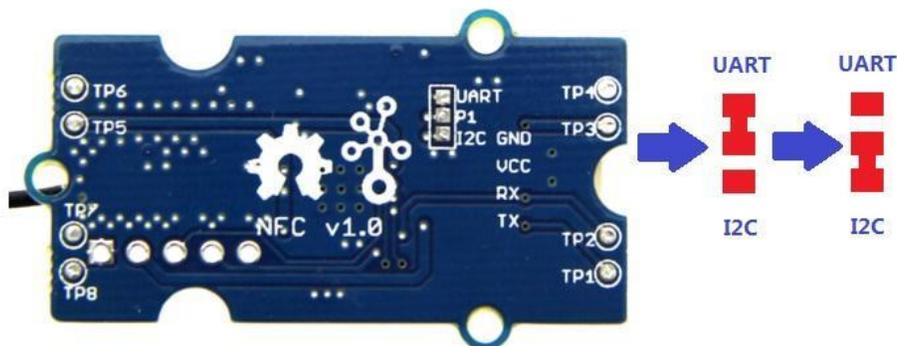
**Platforms Supported**

Arduino	Raspberry Pi	BeagleBone	Wio	LinkIt ONE
				

**Caution**

The platforms mentioned above as supported is/are an indication of the module's software or theoretical compatibility. We only provide software library or code examples for Arduino platform in most cases. It is not possible to provide software library / demo code for all possible MCU platforms. Hence, users have to write their own software library.

**Hardware overview**



The default setting is UART, if you need to change it into I2C, then you should do some soldering at first.

Cut following connections:

- TP1 to UART
- TP2 to RX
- TP3 to TX

Solder following connections:

- TP1 to I2C
- TP2 to SCL
- TP3 to SDA

## Getting Started

### Note

If this is the first time you work with Arduino, we strongly recommend you to see [Getting Started with Arduino](#) before the start.

The Grove - NFC supports I2C and UART, if you use Seeeduno V4.2 or(Arduino UNO), we suggest you to use I2C. If you use Seeeduno Lite(Arduino Leonardo) or Seeeduno Mega(Arduino Mega) we suggest you to use UART.

## Play with Seeeduno V4.2

### Hardware

### Materials required

Seeeduno V4.2	Base Shield	Grove - NFC	NFC Tags
			

### Note

**1** Please choose 13.5MHZ, ISO14443 NFC Tags, or the Grove - NFC module may can not read the tag.

**2** Please plug the USB cable gently, otherwise you may damage the port. Please use the USB cable with 4 wires inside, the 2 wires cable can't transfer data. If you are not sure about the wire you have, you can click [here](#) to buy

**3** Each Grove module comes with a Grove cable when you buy. In case you lose the Grove cable, you can click [here](#) to buy.

**4** For this demo, you can work without the baseshild, for the Seeeduino V4.2 has a on-board Grove I2C connector.

- **Step 1.** Connect Grove - NFC to port **I2C** of Grove-Base Shield.
- **Step 2.** Plug Grove - Base Shield into Seeeduino V4.2.
- **Step 3.** Connect Seeeduino V4.2 to PC via a USB cable

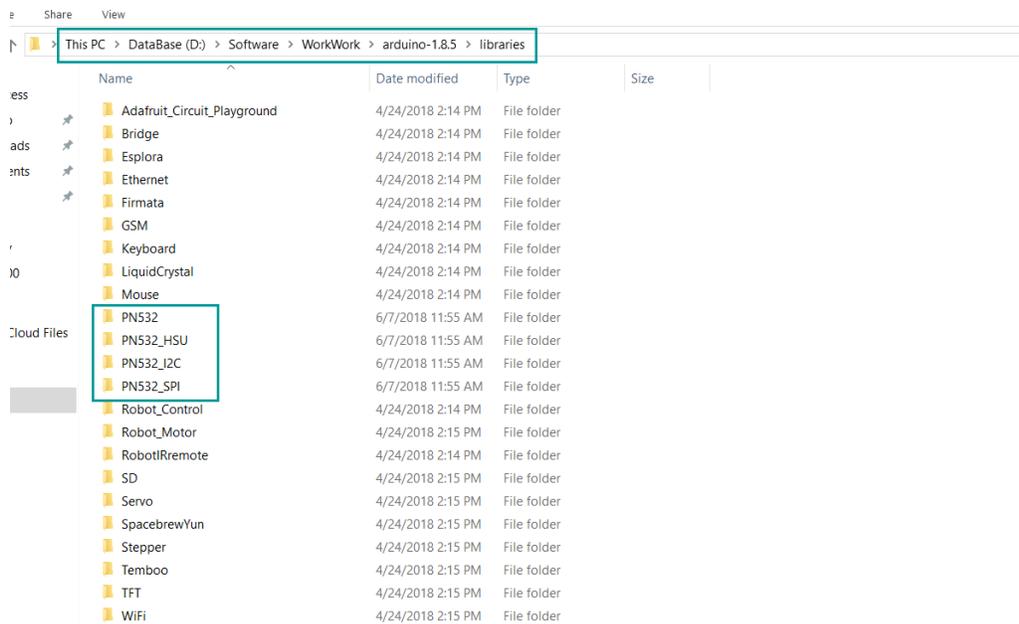
If you are using Arduino UNO you can connect the signal as below.

Arduino/Arduino Mega	Grove - NFC
SCL	RX
SDA	TX
GND	GND
5V	VCC

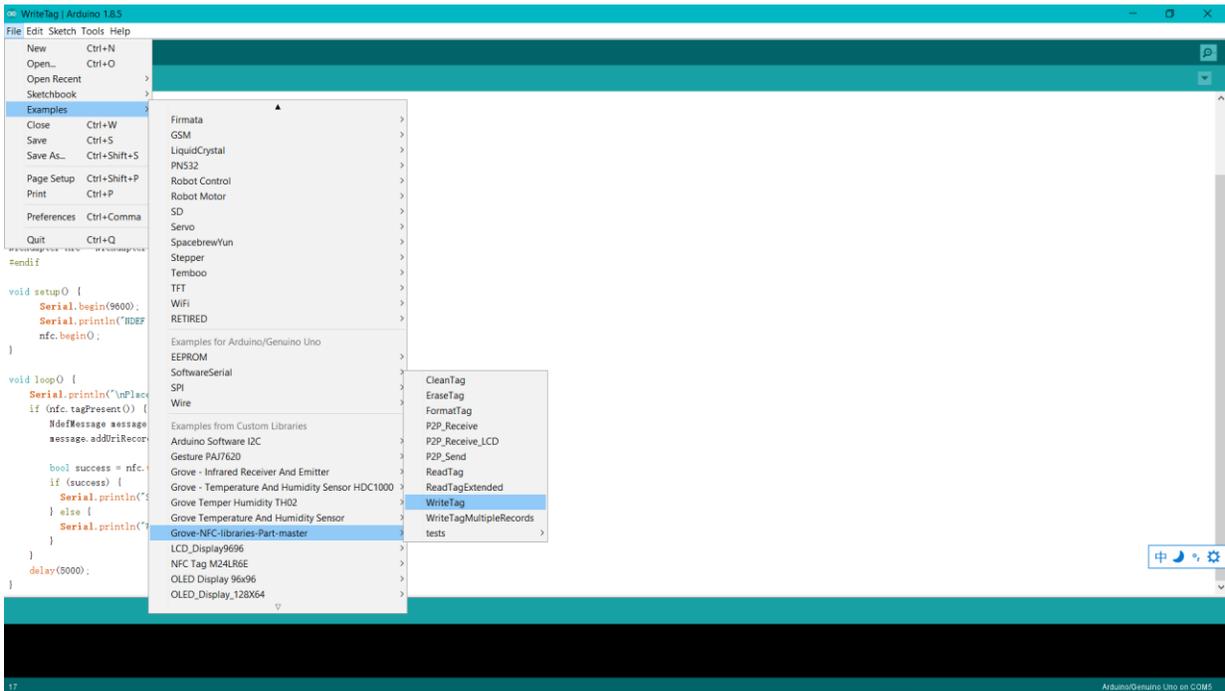
## Software

### Write the Tag

- **Step 1.** Download **PN532 library**. Extract the PN532.ZIP file and copy the 4 folders(PN532, PN532\_SPI, PN532\_I2C and PN532\_HSU) into Arduino's libraries folder.(For example in my computer the library is located in *D:\Software\WorkWork\arduino-1.8.5\libraries*)



- **Step 2.** Download [Grove-NFC-libraries-Part](#).
- **Step 3.** Refer to [How to install library](#) to install **Grove-NFC-libraries-Part** library for Arduino.
- **Step 4.** Open “WriteTag” code via the path: **File** → **Examples** → **Grove-NFC-libraries-Part-master** → **WriteTag**.



- **Step 5.** Upload the code. If you do not know how to upload the code, please check [How to upload code](#).
- **Step 6.** Open the **Serial Monitor** of Arduino IDE by click **Tool-> Serial Monitor**. Or tap the **Ctrl + Shift + M** key at the same time. Set the baud Rate **9600**
- **Step 7.** Use the Grove - NFC to get close to an NFC Tag. If everything goes well, you will get the following information.

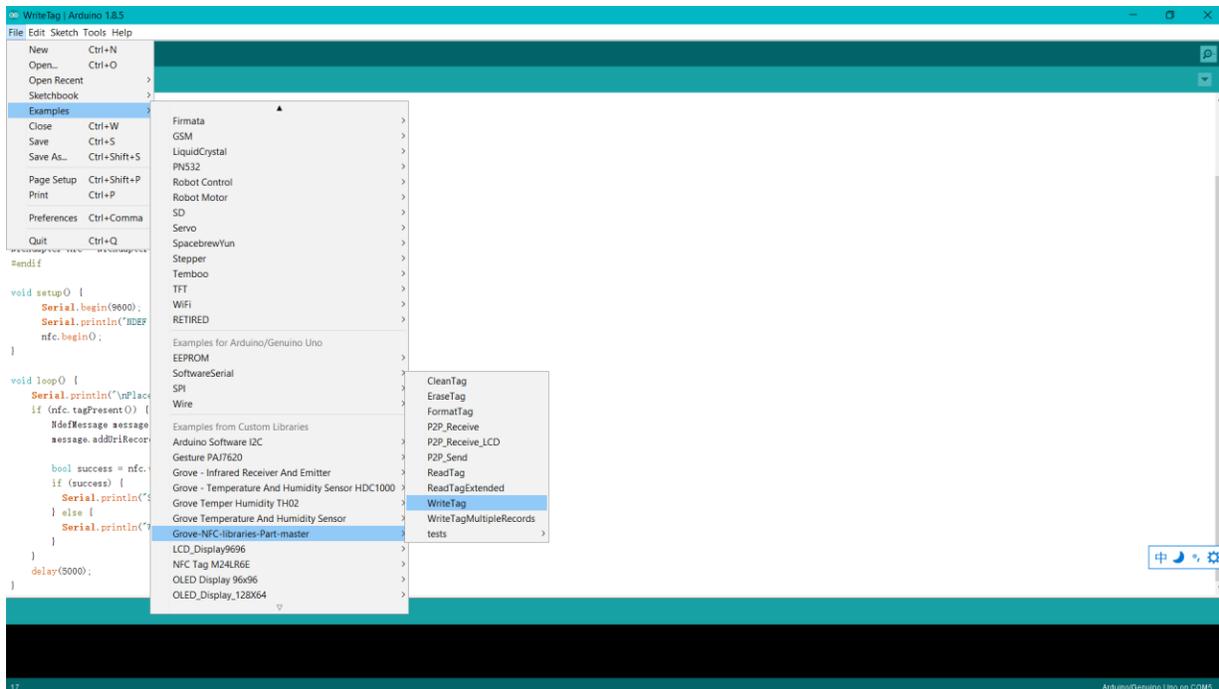
```

1NDEF Writer
2Scan NFC tag
3
4Write successfully

```

## Read the Tag

- **Step 1.** Open “ReadTag” code via the path: **File** → **Examples** → **Grove-NFC-libraries-Part-master** → **ReadTag**.



- **Step 2.** Upload the code. If you do not know how to upload the code, please check [How to upload code](#).
- **Step 3.** Open the **Serial Monitor** of Arduino IDE by click **Tool-> Serial Monitor**. Or tap the **Ctrl + Shift + M** key at the same time. Set the baud Rate **9600**
- **Step 4.** Use the Grove - NFC to get close to an NFC Tag. If everything goes well, you will get the NFC Tag information in the Serial Monitor.

## Play with Seeeduno Lite

### Hardware

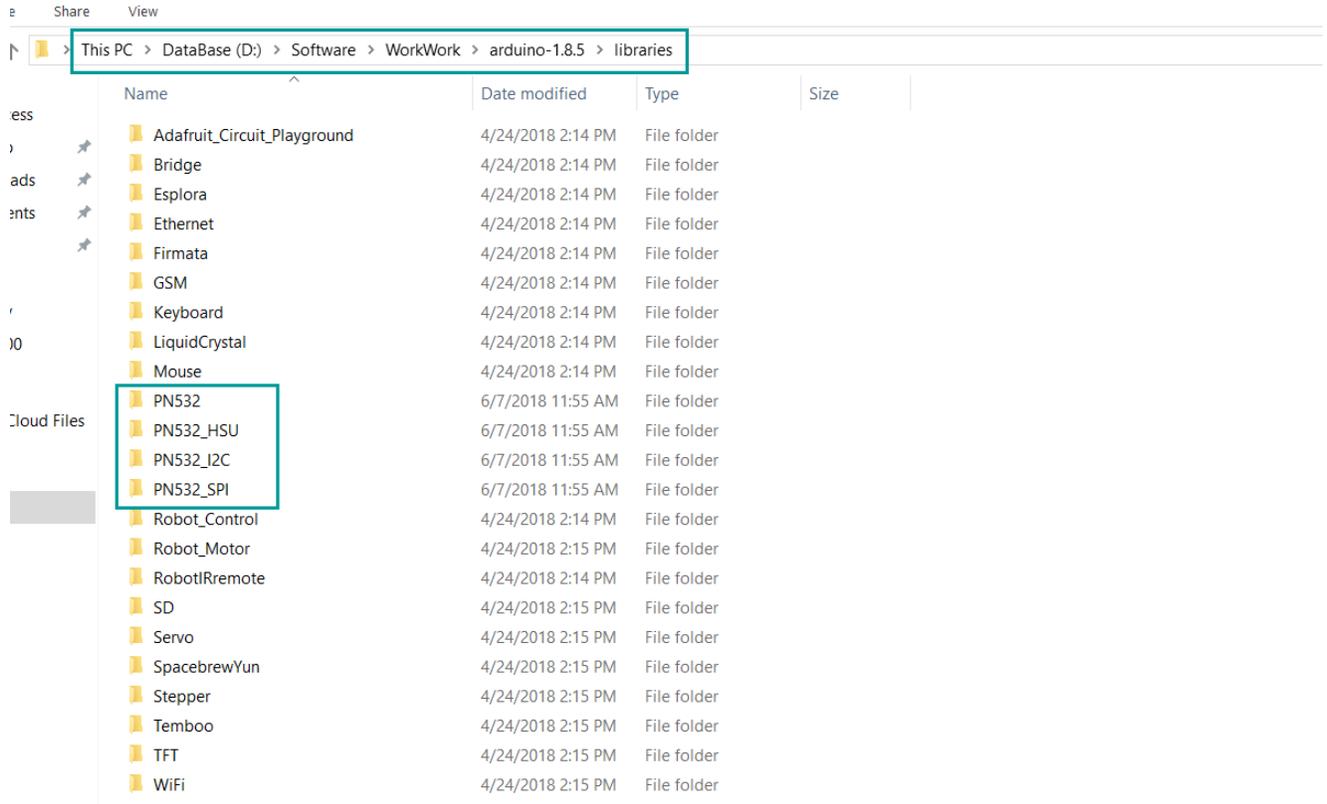
### Materials required

Seeeduno Lite	Base Shield	Grove - NFC	NFC Tags
			

- **Step 1.** Connect Grove - NFC to port **UART** of Grove-Base Shield.
- **Step 2.** Plug Grove - Base Shield into Seeeduno Lite.
- **Step 3.** Connect Seeeduno Lite to PC via a USB cable

## Software

- **Step 1.** Download [PN532 library](#). Extract the PN532.ZIP file and copy the 4 folders(PN532, PN532\_SPI, PN532\_I2C and PN532\_HSU) into Arduino's libraries folder.(For example in my computer the library located in *D:\Software\WorkWork\arduino-1.8.5\libraries*)



- **Step 2.** Download [Grove-NFC-libraries-Part](#).
- **Step 3.** Refer to [How to install library](#) to install **Grove-NFC-libraries-Part** library for Arduino.
- **Step 4.** Restart Arduino IDE , Copy the following code into your Arduino IDE

```
1#include "PN532_HSU.h"
2#include "PN532.h"
3#include "NfcAdapter.h"
4
5PN532_HSU interface(Serial1);
6NfcAdapter nfc = NfcAdapter(interface);
7
8void setup(void) {
9  Serial.begin(115200);
10  Serial.println("NDEF Reader");
11  nfc.begin();
12}
13
14void loop(void) {
15  Serial.println("\nScan a NFC tag\n");
16  if (nfc.tagPresent())
```

```
17 {
18   NfcTag tag = nfc.read();
19   tag.print();
20 }
21 delay(5000);
22}
```

- **Step 5.** Upload the demo. If you do not know how to upload the code, please check [How to upload code](#).
- **Step 6.** Open the **Serial Monitor** of Arduino IDE by click **Tool-> Serial Monitor**. Or tap the **Ctrl + Shift + M** key at the same time. Set the baud Rate **9600**
- **Step 7.** Use the Grove - NFC to get close to an NFC Tag. If everything goes well, you will get the NFC Tag information in the Serial Monitor.

## Resources

- **[Zip]** [Grove - NFC v1.0 EAGLE \(schematic and board\) files](#)
- **[Zip]** [Grove - NFC v1.1 EAGLE \(schematic and board\) files](#)
- **[PDF]** [PN532 Datasheet PDF](#)

## Project

**Particle Photon + Grove NFC + Grove LCD via I2C** Use Particle Photon to read UID of a NFC Card and display on LCD, all with I2C.

## Tech Support

Please submit any technical issue into our [forum](#) or drop mail to [techsupport@seeed.cc](mailto:techsupport@seeed.cc).