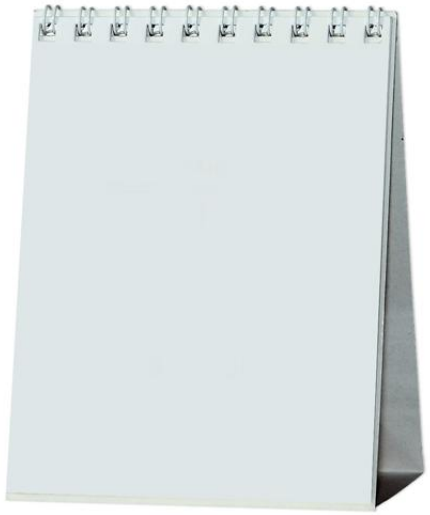
NFCWizard

Create your own SmartPoster in just a few clicks!

Agenda

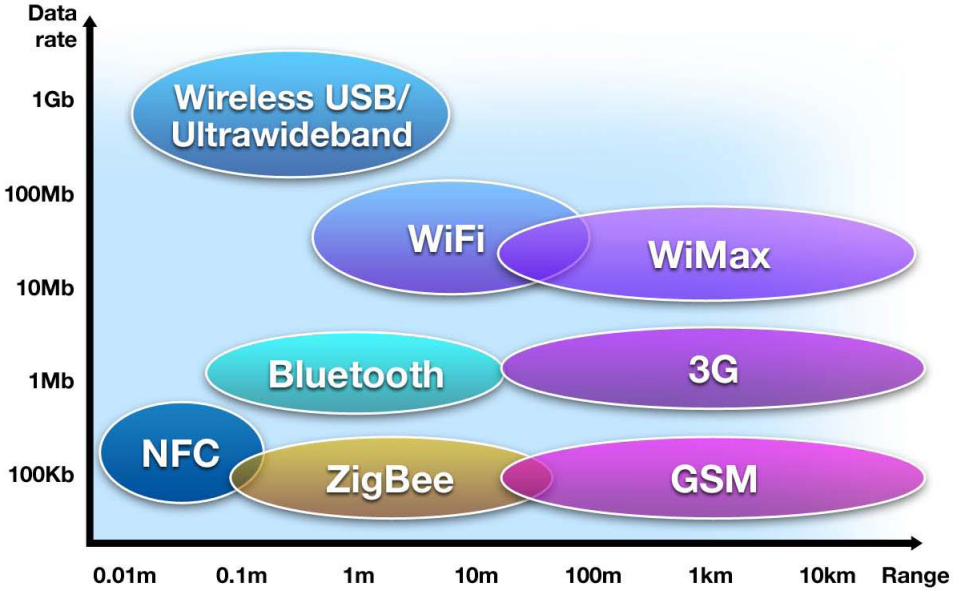
- What is NFC?
- What is a SmartPoster?
- What type of tags can I use?
- What is NFC Wizard?
- Demonstration
- Which reader/encoder works with NFCWizard?



What is NFC?

- **Near Field Communication** (NFC) is a large-scope, multi-purpose 'concept' that aim to federate various technologies enabling interactions between two electronic devices at short distance **(< 10cm)**

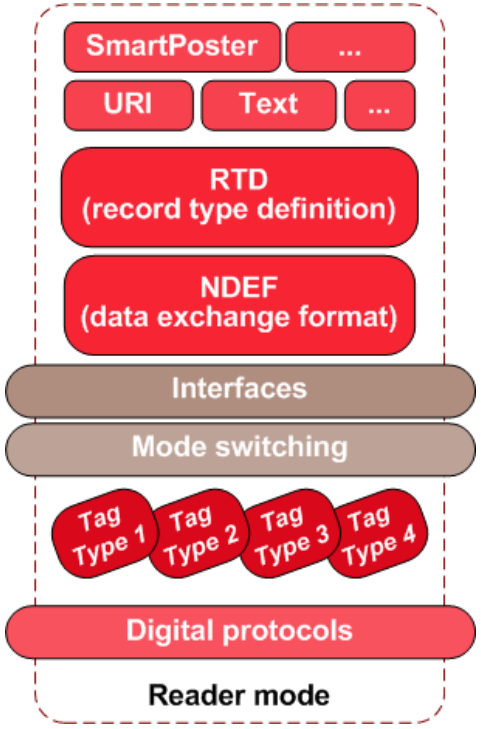
- The name **NFC** used to be closely linked to the ISO 14443 world (RFID communication using inductive coupling at 13.56MHz)



What is NFC? – NFC Tag content

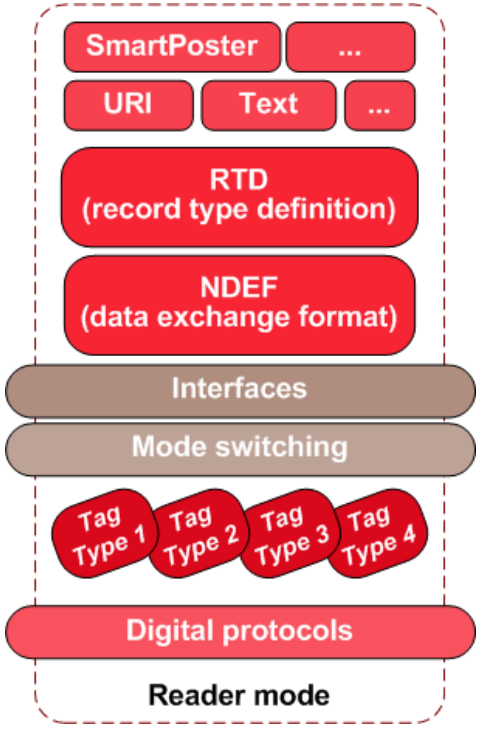
- NDEF : **NFC Data Exchange Format**
- RTD : **Record Type Definition**

- **NFC's NDEF + RTD** architecture defines how an NFC device will recognize and handle data it finds in a tag:
  - Recognize: is this data a NFC-Forum defined message, or just noise? How long is the data? How could I read the data efficiently?
  - Handle: what is the content of this message? Is this data NFC genuine? How should it be displayed to the user? which action should I perform?



What is a SmartPoster?

- **A SmartPoster is a specific kind of NFC Tag**
- It has 2 child records:
  - **URI** (Internet address, email address, phone number + SMS text, etc)
  - **Text** (optional): text to be displayed in a user application
- Typical action to be taken by the NFC device: **prompt** (display the Text), **open** the URI *(web browser or whatever relevant application)*



What is a SmartPoster? - Examples

Examples of SmartPosters' Actions :

- launch a web browser and go to specified URL
- send an SMS or an email message
- start downloading interactive content
- get connected to a Wifi access point

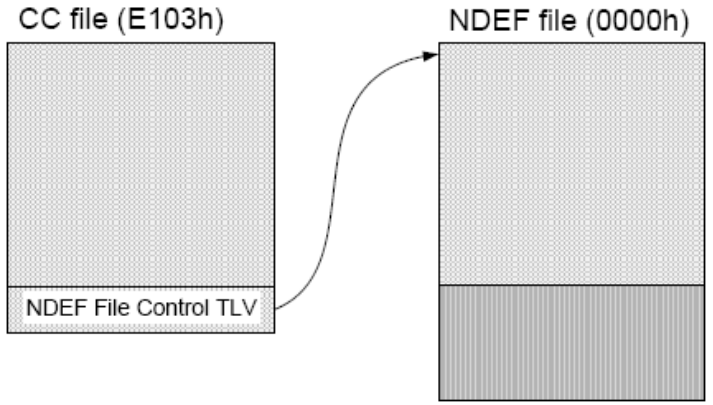
What type of tags can I use?
NFC Type 2 tag

- ISO 14443-A modulation and anti-collision *(up to level 3)*
- Memory structured in 4bytes pages, READ function returns 4 pages, WRITE function updates 1 page
- Optional SECTOR SELECT function if memory > 1 Kb
- No authentication, but memory could be turned read-only (lock)
- Compliant chips: **Mifare UltraLight** (but only 44bytes…) and **Mifare UltraLight C** (140bytes)
- Read **NXP document 130312** for details

What type of tags can I use?
NFC Type 4 tag (to be available soon)

- **Any ISO 7816-4 smart card**
  (on top of ISO 14443 A or B level 4 … or other)
- Compliant chips: **Mifare DESfire**

- Select the NFC-Forum **NFDEF Tag Application**
  `00 A4 04 00 07 D2 76 00 00 85 01 00`
- Select the **Capability container**
  `00 A4 00 00 02 E1 03`
- Read the **CC**
  `00 B0 Offset.Hi Offset.Lo Length`
- Select one of the **NDEF files**
  `00 A4 00 00 02 FileID.Hi FileID.Lo`
- Read the NDEF field
  `00 B0 Offset.Hi Offset.Lo Length`



What is NFCWizard?

NFCWizard is a website that helps you create and read SmartPosters.

NFCWizard uses a small Java applet that runs in your web browser,

that uses your PC/SC contactless smartcard reader ,

to communicate with the NFC Tag to be read or written.

Demonstration : NFCWizard with the Prox'N'Roll

Our PC/SC readers - CSB6 Family

Prox'N'Roll PC/SC

- Contactless Desktop reader
- OEM version available
- attractive design

CSB6 – All in one

- Contactless slot
- Contact slot
- 3 SIM/SAM slots

The CSB6 Family Products are PC/SC **readers/writers for PC**

PC/SC SDK available for free on our website :
http://springcard.com/download/find.php?file=pcsc-sdk

CrazyWriter

- OEM
- Contactless slot
- 2 SIM/SAMs slots

EasyFinger

- Contactless slot
- Contact slot
- Finger Print reader
- 2 SIM/SAM slots (optionnal)

Product scope – CSB6 Family

CSB6 Family products :

- Proximity products (13.56MHz range)
- Support **USB 2.0 full speed** (12Mbps), and fastest smartcard baud rate (**848kbps**)
- Handle **any ISO 14443 (type A, B and B')** and **ISO 15693** compliant smartcards or tags

Supported contactless cards/tags

- **NXP (Philips) : ICODE1, ICODE-SLI, Mifare Classic and UltraLight, Desfire, ProX, SmartMX,**
- **Texas Instrument : TagIT,**
- **ST MicroElectronics : SR176, SRiX, LRI etc**
- **ASK CTS256B and CTS512B,**
- **HID iClass and Inside PicoTag (serial number only),**
- **MultOS or JavaCard T=CL cards,**
- **Calypso transportation cards,**
- **NFC mobile phones or other NFC-capable objects (tag emulation mode)**

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