

WHY YOU WILL SOON SEE 100'S OF NEW NFC APPLICATIONS

HOW IOS11 AND NXP CAN BOOST YOUR BUSINESS

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PUBLIC



SECURE CONNECTIONS
FOR A SMARTER WORLD



Agenda

- The NFC journey including iOS 11 release
- Key NFC use cases with smartphones
- NXP NFC portfolio
- NFC Forum tag certifications
- New NXP support tools for iOS and MacOS

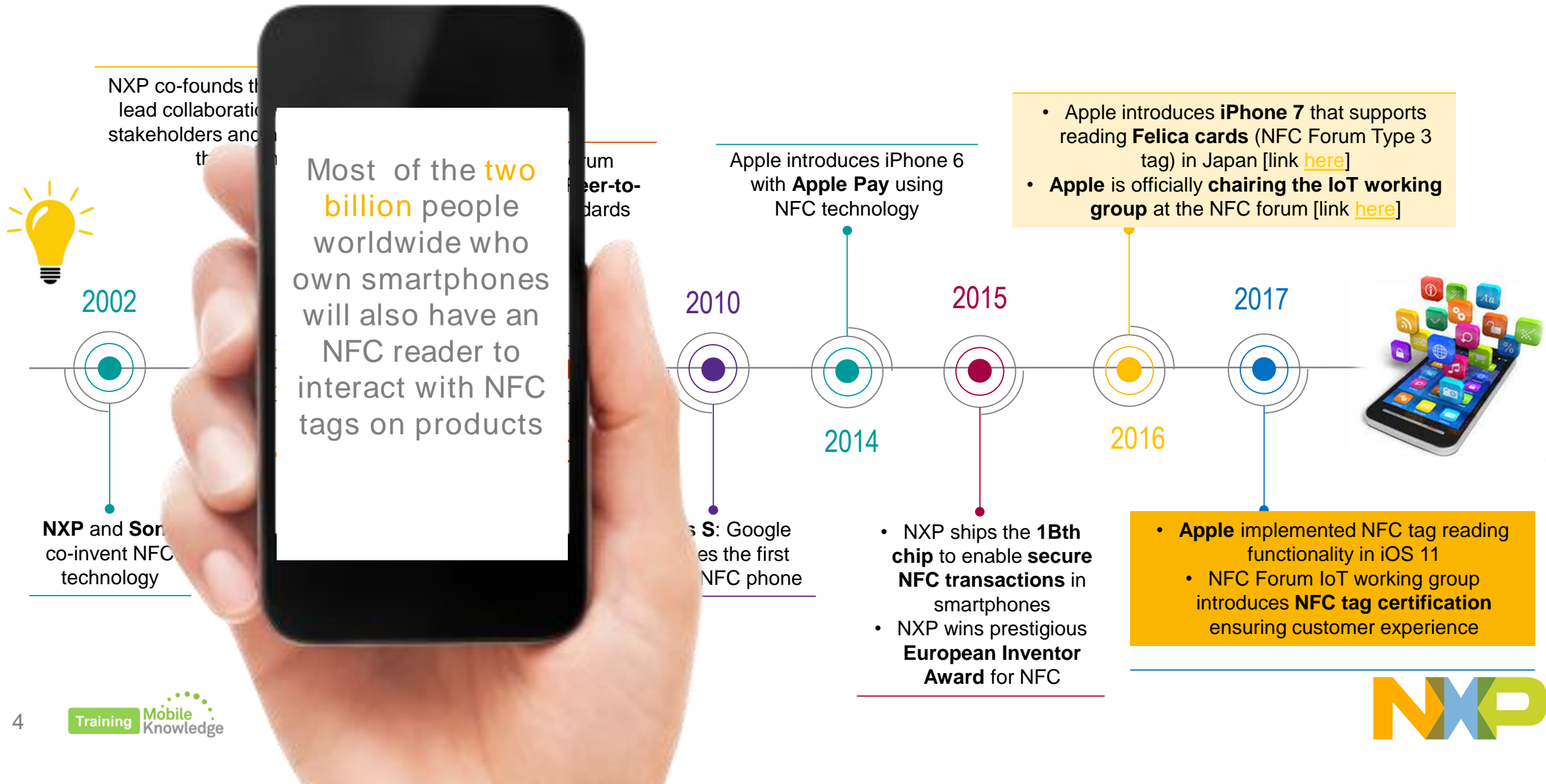


The NFC Journey

(including iOS 11 release)



The evolution of NFC including Apple's journey



Apple iOS 11 release

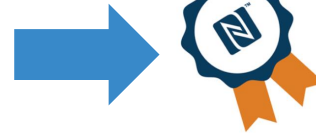
Apple iOS 11 NFC release announcement

- New iOS 11 supports reading NDEF messages.
- All NFC Forum tags type will be supported (1 to 5).
- Reading of NFC tags can be done from an App on the phone

Supported devices

- All models from iPhone 7 onwards.

Supported NFC products



NFC Forum Tag Certifications
for 12 of our ICs




NFC capabilities for both iOS 11 and Android

Apple iOS 11 NFC specifics

- NFC reader mode is only active within an App.
- NFC Tag polling can only last 60s.
- NFC tags initialization needs to be done by dedicated NFC reader.

Android NFC specifics

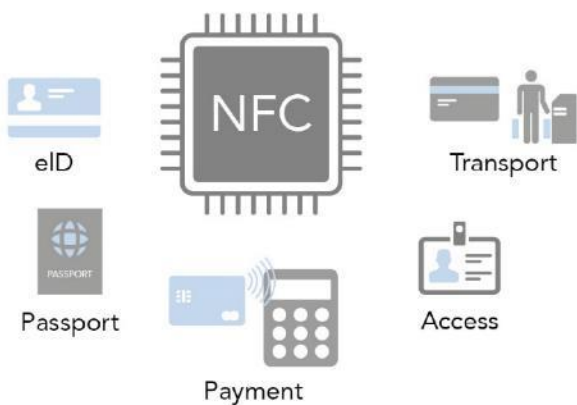
- Constant NFC polling when NFC is ON.
- Full NFC Forum command support plus access to lower level API command.

	 iOS	 Android
Read NDEF	Via App	Via App / Built-in
Non-NDEF data handling	Not in iOS 11	Via App
Write NDEF	Not in iOS 11	Via App
Energy harvesting / Field detection	Via App	Yes

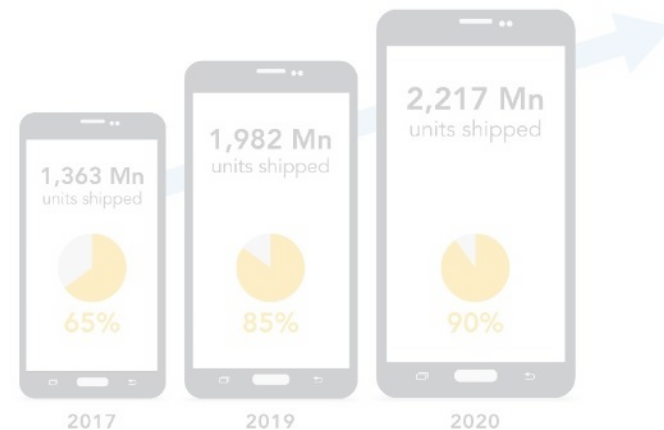
Key NFC use cases with smartphones

NFC brings secure connectivity to the IoT world

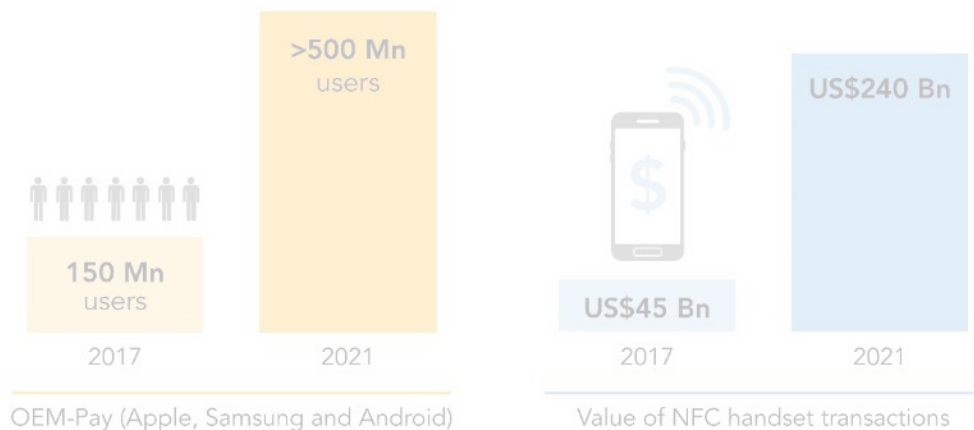
Essential technology powering trusted contactless applications



Ubiquitous NFC reader phones: annual shipments 2.2 Bn by 2020



500 Mn people using NFC phones to make a purchase by 2021



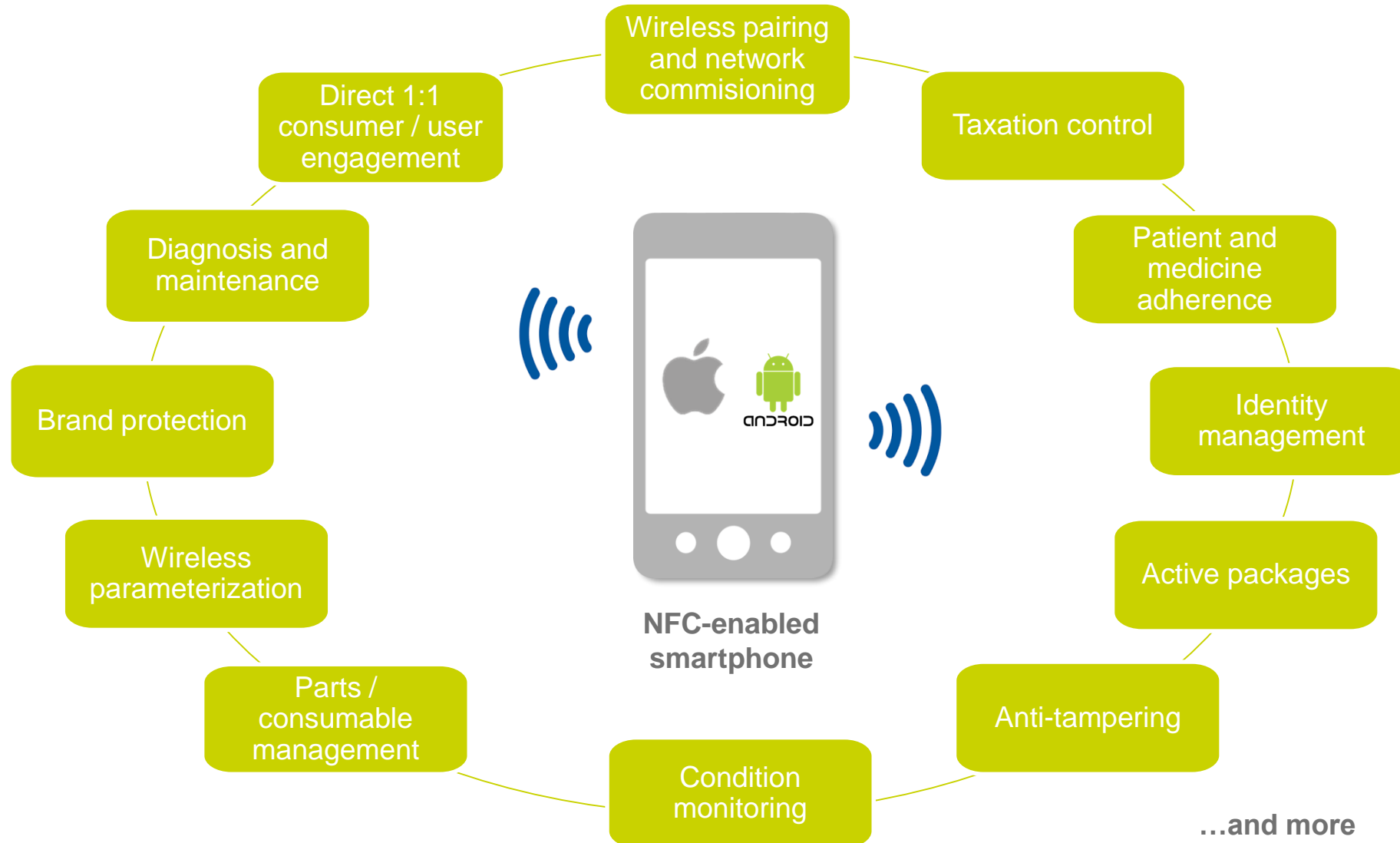
Potential for connected products and packaging: 1.2 trillion units by 2021



interested in objects being web connected for services



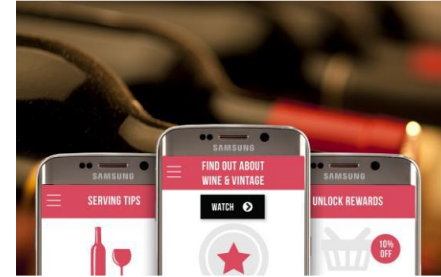
Hundreds of new NFC applications



NFC as the IoT enabler for your products

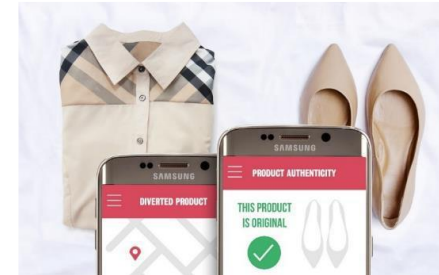
Direct 1:1 consumer / user engagement

- Enhance brand value and build loyalty – via pre- and post-sales engagement
- Brand storytelling, reviews/ratings, contests and promotions, usage guide, product registration, social communities, customer care, exclusive brand experiences, gamification, loyalty programs, ecommerce, use-by-dates and much more ...
- Patient coaching: hints for use of drugs, reminders for pill taking / exercises.



Brand protection

- Product authentication (product genuinely) against counterfeits
- Channel authentication against grey markets
- Pedigree



Parts / consumable management

- Identification and authentication of genuine replacement parts.
- Automated transfer of settings
- Customer notification



NFC as the IoT enabler for your products

Anti-tampering

- Tamper evidence
- Opening detection for pre-/post-sales communication

Identity management

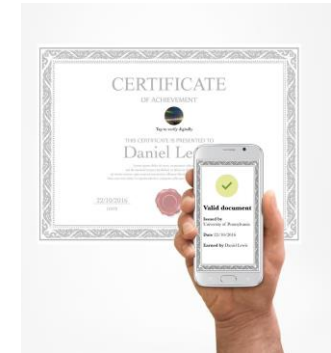
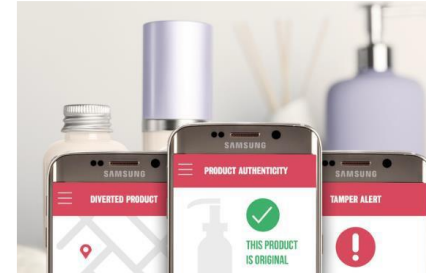
- Document authentication
- Two-factor authentication
- Proof-of visitor presence
- Access control

Taxation control

- Tax stamp labels for excisable goods

Patient and medicine adherence

- Medicine usage: Smart blisters, Smart pill bottles
- Device usage: Diabetes pens, glucose meters, Inhalers



NFC as the IoT enabler for your products

Active packages

- Smart containers (e.g. how long has it been open, light exposure, temperature, dynamic expiry date, usage guidance and quality assurance)
- Fill level detection (e.g. IV bags, flacon)

Condition monitoring

- Temperature monitoring: Cold chain, perishable goods, product state feedback
- Product handling monitoring (e.g. shock, vibration, tilting, orientation)

Wireless parameterization, diagnosis and maintenance

- Product personalization, Wireless display / human machine interface, Zero power configuration
- Wireless troubleshooting, Wireless software update, Cable replacement, device-to-device communication

Wireless pairing and network commissioning

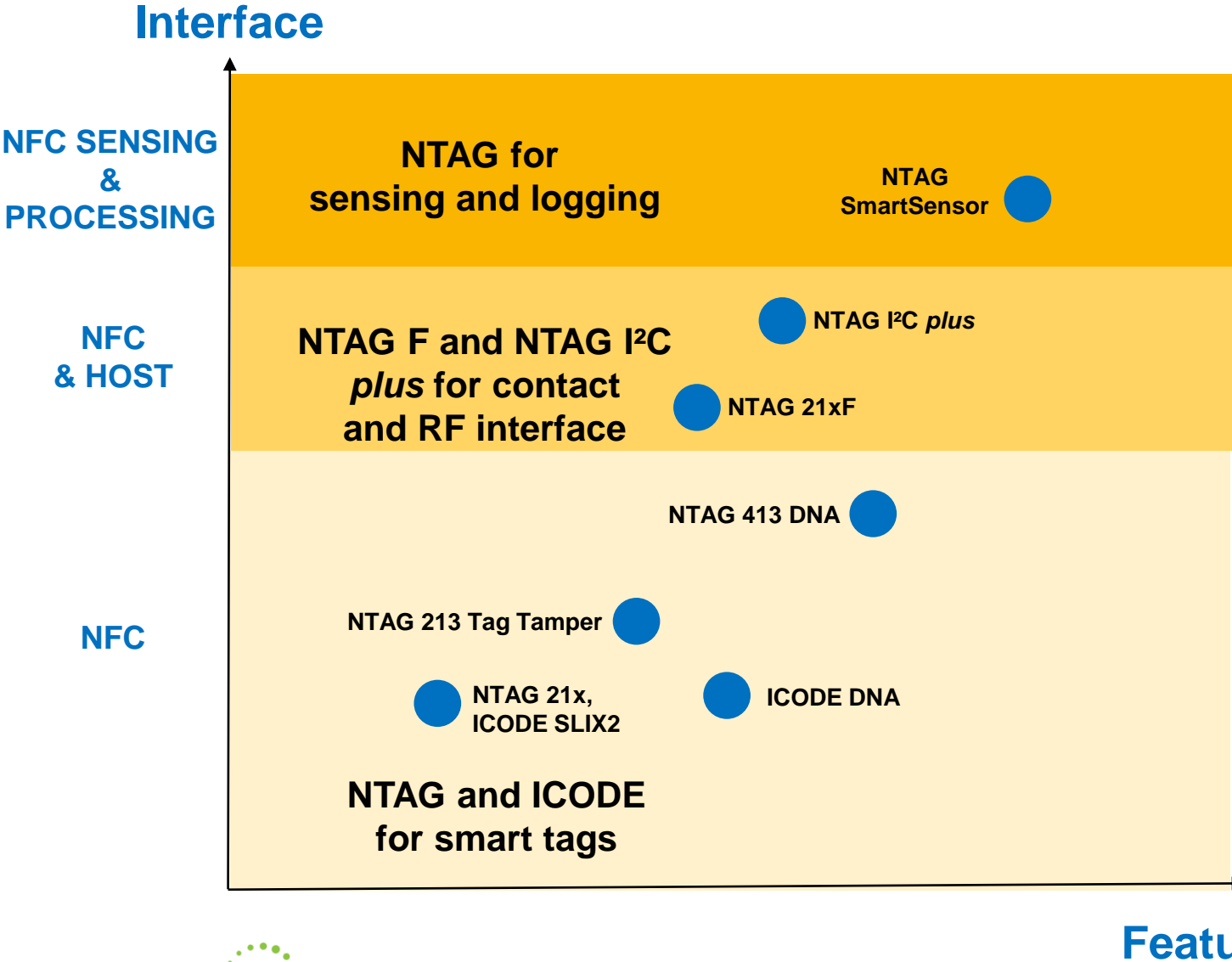
- Bluetooth pairing, WiFi pairing, Home automation commissioning



NXP NFC portfolio



Best in class NFC portfolio



NTAG SmartSensor



Semi-passive tags for sensing and logging devices with dynamic NDEF message configuration and readout

NTAG I2C plus



Connected tags with energy harvesting and dual interfaces for embedded electronics

NTAG & ICODE



Passive tags for consumer engagement, brand protection, tamper evidence, configuration and authentication of consumables, etc

ICODE for traceability combined with consumer engagement

NTAG & ICODE - Embed NDEF messages into smart products

Giving products a voice!

NFC tag



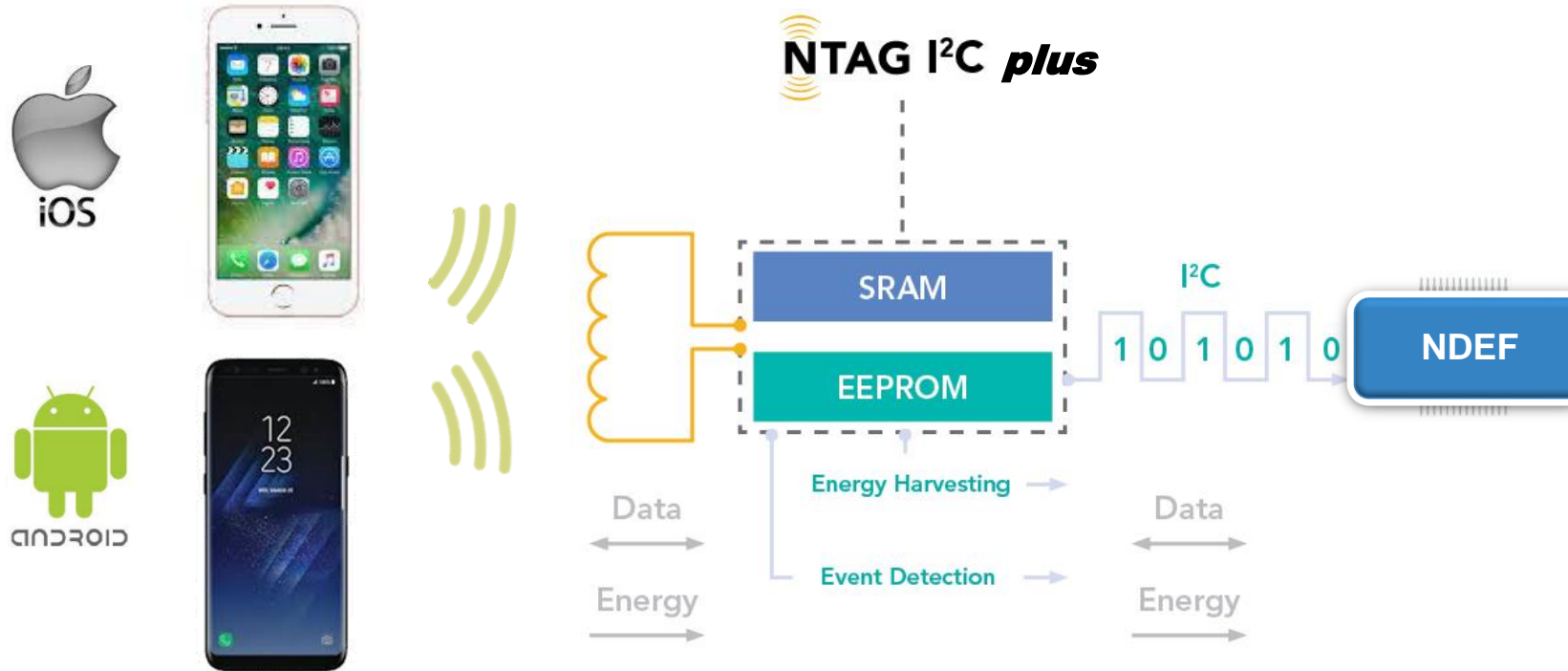
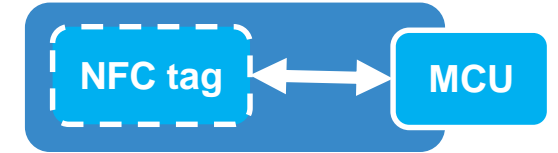
- NFC tag and label IC based on **ISO14443** and **ISO15693** standards.
- NFC Forum tag **types 2,4 and 5**.
- Dedicated special features (**NFC counter and mirror**, **UID mirror**)
- **Tamper** detection evidence (tamper message mirror)
- **SUN** (Secure Unique NFC) message verification (SUN mirror)
- **NDEF message reading** from user memory
- **Special security mechanisms** (PWD protection, tag and mutual authentication, encrypted communication).
- **Originality signature** based on ECC cryptography.

Applications

Proximity retail marketing, on-product and on-package information sharing, product and channel authentication, document authentication, parts configuration & much more

*Full feature availability depending on the OS.

NTAG I²C *plus*: Your entryway to NFC



- **Tap and go** connectivity to just about any electronic device.
- **Energy harvesting** to power external devices from the NFC field (up to 15 mW).
- **Pass-through** mode using 64-byte SRAM up to 40 kbps.
- **Password protection** of 32-bits.
- **Originality Signature** based on ECC cryptography.
- **NDEF message reading** from EEPROM or SRAM possible with iPhones.

Applications

Smart home, consumer applications, multimedia devices, healthcare, smart meters, industrial automation, appliances, IoT nodes, fitness equipment, healthcare

NTAG SmartSensor:

Generate collected data into NDEF message



- **Single chip** for creating **semi-passive** sensing NFC solutions (tags)
- Combines **NFC** smartphone connectivity with autonomous **sensing**, data **processing** and **logging**.
- Communicates via **NDEF-formatted** data and can be read by iOS and Android
- **Flexible and autonomous**: open ARM Cortex M0+, large non-volatile memory
- **Easy to apply**: just add a battery and an NFC antenna

Applications

Smart packaging, Smart logistics, Process control, Animal tagging, Patient and medicine dosage adherence, Personal healthcare, drug delivery

*Full feature availability depending on the OS.



New NFC Forum Tag Certifications



About the NFC Forum tag certification program

Objective:

- NFC Forum's comprehensive certification program ensures consistency and sets the foundation for interoperability.
- The program applies to all tag types specified by the NFC Forum to deliver a consistent, satisfying user experience.
- Manufacturers can test and verify the performance of all key components of the NFC eco-system: handsets, NFC tags, and readers with NFC Forum Certification testing



NFC Forum Tag Certifications with the following ICs

- NTAG 210μ (T2T)
- NTAG 213 (T2T)
- NTAG 213 Tag Tamper (T2T)
- NTAG 215 (T2T)
- NTAG 216 (T2T)
- ICODE SLIX 2 (T5T)
- NTAG 413 DNA (T4T)
- NTAG 213F (T2T)
- NTAG 216F (T2T)
- NTAG I²C plus (T2T)
- NTAG SmartSensor NHS3100 (T2T)
- NTAG SmartSensor NHS3152 (T2T)



<http://bit.ly/NFCFCertified>

<https://nfc-forum.org/wp-content/uploads/2017/08/NFC-Certified-Logo-Usage-Guidelines-2017-08-1.pdf>

How do you benefit from certified tags?



Interoperability

Ensure reliable operation in the NFC ecosystem.
Ensure NFC enabled products are fully interoperable.
Secure investment in the technology



Quality assurance

Confirm that tags conform with NFC Forum specifications, which are the most broadly supported tags in the industry. Tag manufacturers can inherit the test results, and therefore save time and money on their certification testing



Product differentiation

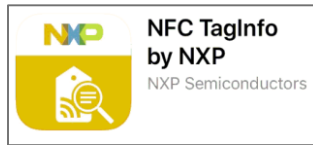
Differentiate your tags from non-certified products and attract customers who prefer to purchase certified tags in order to make tag integrations more seamless

New NXP support tools for iOS and MacOS



NFC TagInfo by NXP

A mobile app that supports all types of NFC Forum tag types and displays the NDEF message.



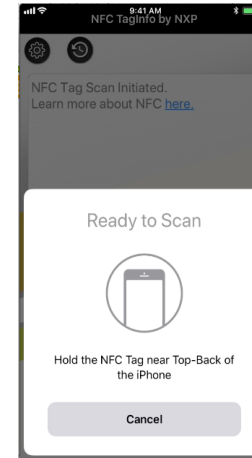
Available for download
in AppStore!

The app can complete the NFC record action, such as opening a web browser, initiating a call, sending an email or launching the map with geo-locations.

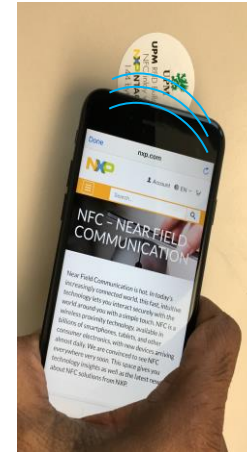
NFC resources:

https://www.nxp.com/products/identification-and-security/nfc:MC_71110#resources

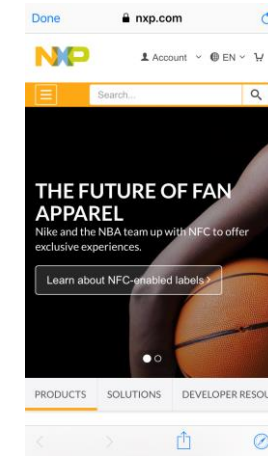
* NFC TagInfo by NXP is also available for Android



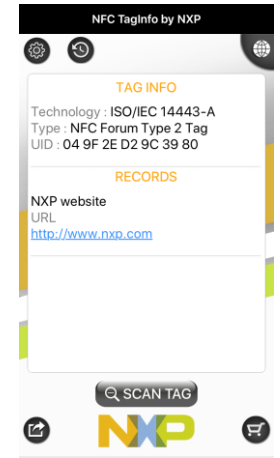
Ready to scan



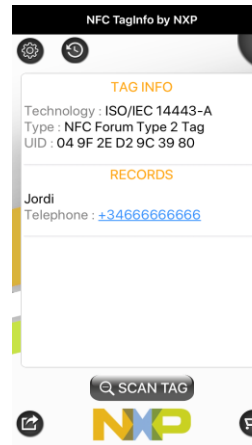
Tap with tag



URL record



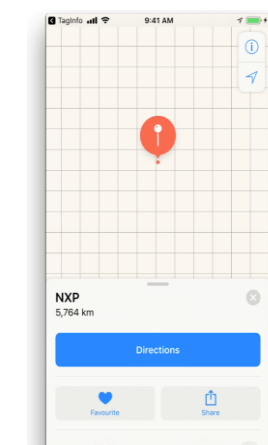
URL record details



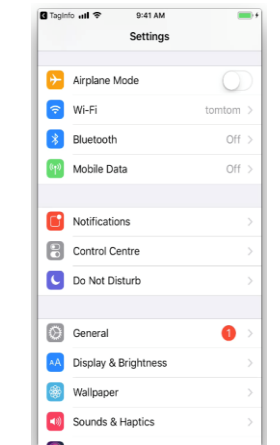
Phone record details



Business card record



Map record



WiFi record

NXP TagXplorer – PC/MAC based NFC tag reader-writer tool

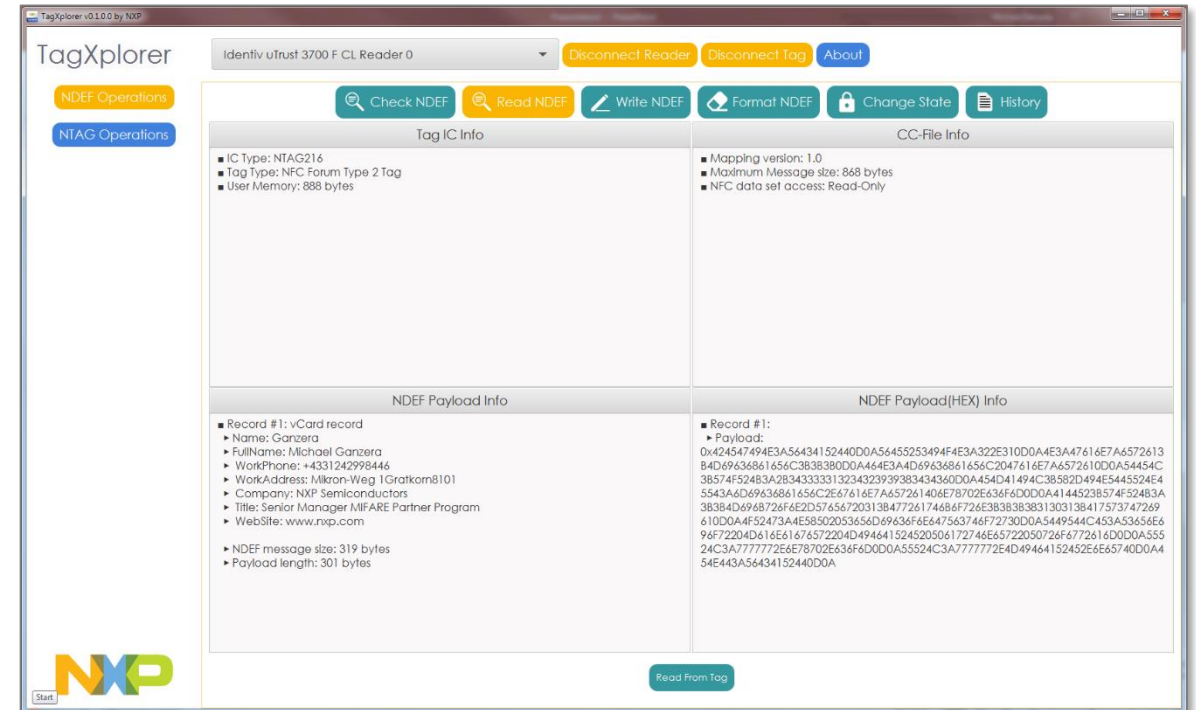
A software tool based on Java runtime environment, for programming NFC tags – write NDEF messages on NFC tags for iOS use

Your NFC tool for MAC, Windows and Linux



Available for download at [NXP website](http://www.nxp.com/NFC)

A PC/SC reader is the interface between tool and tag (easily accessible from the open market)



Can be downloaded from <http://www.nxp.com/NFC>

* NFC TagWriter by NXP can also be used for the same purpose in Android devices

TapLinX - your library to develop applications in MacOS

TapLinX

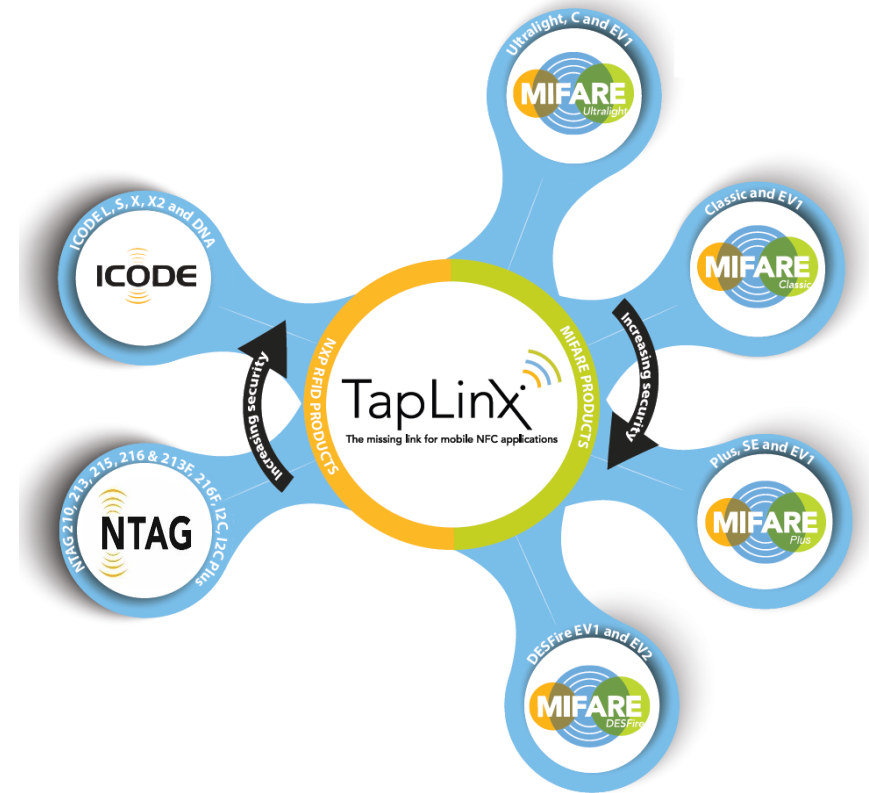


Designed to ease the development of NFC based applications
for standard JRE machines.

Allows developers open access to all hardware features of NXP's NFC chip
portfolio including NTAG and ICODE products.

Any secure key storage, e.g. HSM, SAM, Spongy Castle.

Structure-based compact API - ensuring better
usability of SDK in app development.



More info in www.mifare.net

** Prerelease version available under NDA.

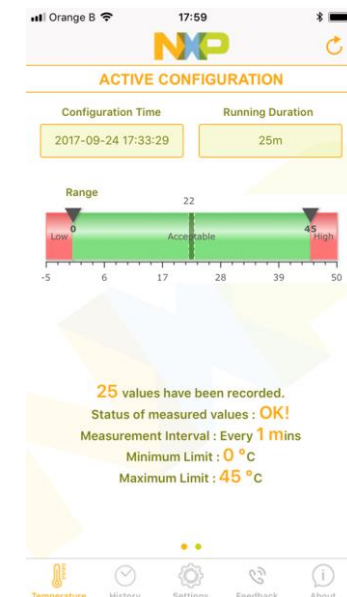
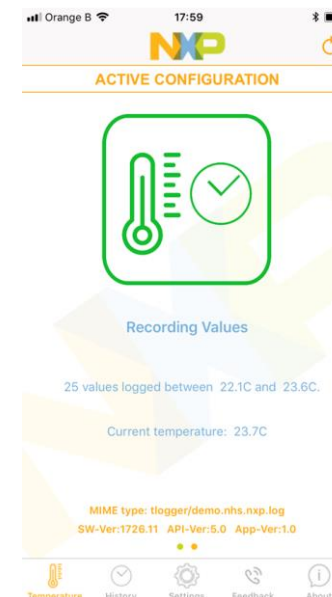
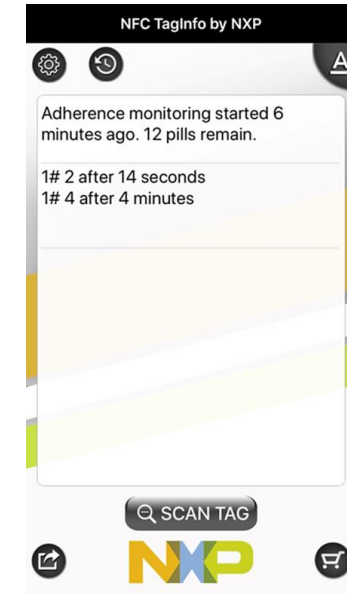
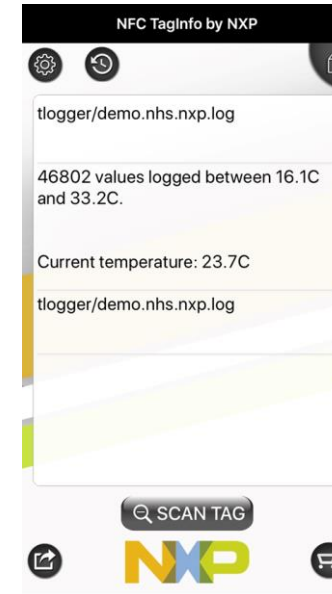
*** Optimized version for Android available

NTAG SmartSensor development tools

- Available in AppStore:
 - NFC TagInfo
 - iPhone NHS3100 temperature logger APP for status readout
- iOS and MacOS SDK support*
 - LPCXpresso on macOS
 - MacOS NHS3100 temperature logger APP for configuration, start/stop and readout**
 - MacOS therapy adherence APP for start/stop**
 - Example code for firmware, NHS31XX APP source code for iPhone and for macOS

* Available end of October

** Require an external NFC reader



NFC starter packs



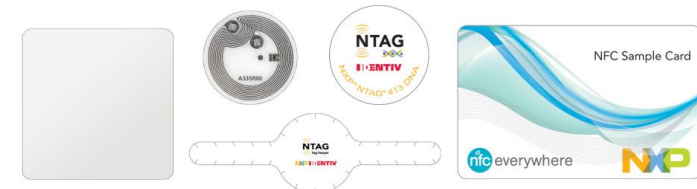
NXP App developer NFC tag starter kits

- Commercial sampling kits including NXP NFC Forum Type 2/4/5 NTAG and ICODE tag ICs.
- Compatible with Android and iOS 11 devices.
- Available on partners' worldwide distribution channel
- The kits are available from:
 - Identiv (via TX Systems and SCM PC Card)
 - Lab-ID (via Farnell)
 - LUX-Ident (via Digikey)
 - Smartrac (via Future Electronics and Atlas RFID)



NFC Tag Starter Kit

Identiv's NFC Tag Starter Kit includes 25 (five of each type) near field communication (NFC) tags with NXP NFC Forum Type 2/4/5 NTAG® and ICODE® tag ICs, compatible with Android® and Apple® iOS 11 devices, plus an optional uTrust 3700 F smart card reader.



Wrap up & Q&A

NXP is the market leader of NFC and IoT technologies

Maximizing the iOS NFC potential with NXP

With Apple's recent launch of iOS 11, almost two billion people worldwide who own smartphones will also have an NFC reader to interact with NFC tags.

Key facts about NXP:

- NXP co-invented NFC.
- NXP has the broadest portfolio of NFC tags, reader ICs and support tools.
- NXP has been the first vendor to receive NFC Forum Tag certification for its NFC tag ICs.



NFC reader mode in iOS 11

- **Which Apple products are supported?**
 - iPhone 7/ iPhone 7 Plus and its successor products.
- **Which NFC modes are supported by iOS 11?**
 - Today, only reading of NDEF formatted NFC tags.
- **NFC Tag reader mode limitations**
 - Tag reading is limited to tags containing NDEF formatted data.
- **Which tags are supported?**
 - NFC Forum Type 1,2,3,4,5 Tags



Software development in Android and iOS

Embedded software for MCUs

JCOP, Java Card operating Systems

Hardware design and development

Digital, analog, sensor acquisition, power management

Wireless communications WiFi, ZigBee, Bluetooth, BLE

Contactless antenna RF design, evaluation and testing

MIFARE® product-based applications

End-to-end systems, readers and card-related designs

EMVco applications

Readers, cards, design for test compliancy (including PCI)

Secure Element management

GlobalPlatform compliant backend solutions

Secure services provisioning OTA, TSM services



We help companies leverage the mobile
and contactless revolution



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Why you will soon see 100's of new NFC applications

Jordi Jofre (Speaker)

Angela Gemio (Host)

Thank you for your kind attention!

Please remember to fill out our **evaluation survey** (pop-up)

Check your email for **material download** and on-demand **video** addresses

Please check NXP and MobileKnowledge websites for **upcoming webinars** and **training sessions**

<http://www.nxp.com/support/classroom-training-events:CLASSROOM-TRAINING-EVENTS>

www.themobileknowledge.com/content/knowledge-catalog-0

