2015
Technical Identification Trainings

Customer Application Support
Business Unit Identification
Customer Trainings

Contents

General Information

General

Technical Identification Trainings are held in Europe, USA and Asia. All are in English language. We provide a good mixture of theoretical basics and practical exercises for system-design and application engineers in the identification business.

Personal Notebook Computers with administration rights are recommended but not absolutely required.

Please contact the appropriate contact person for seminar fees, payment procedures and location details.

Registration

A REGISTRATION FORM (available on page 24 or http://www.nxp.com/products/identification_and_security/) should be sent to your local NXP Sales Contact at least two weeks in advance. Registration is done by incoming order.

The registration becomes valid after written confirmation by NXP Semiconductors Austria GmbH and requires a signed NDA – NON DISCLOSURE AGREEMENT.

Fee & Payment

NXP charges a regionally fee per training day and person. Refreshments, lunch, full documentation and SW / libraries are included.

Please contact the appropriate contact person for seminar fees, payment procedures and location details.

Local Contacts

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Contents

Course ID: I1

Contactless Proximity Reader Training

I1 Contactless Proximity Reader training introduces the principles of NFC, EMVCo and ISO/IEC 14443 reader design. It introduces the CLRC663 and includes a workshop session. A basic electrical engineering knowledge is required.

Audience

- Contactless reader designer
- Technical engineers
- Hardware and Software designer

Prerequisites

- Electrical engineering know how
- Laptop with WIN 2000, XP or WIN7 for the workshop session (administration rights required!)

Duration:

09:00 – 17:00

Dates:

http://www.nxp.com/products/related/customer-training.html

Course Contents

Introduction
Introduction to contactless reader products

Overview NXP Contactless reader products
Reader design concept and comparison SLRC610, MFRC630, MFRC631, CLCLRC663, PN512

Technical introduction CL RC663 family
Features and Functionality
Relevant register settings
Tools and support

Use of CLRC663 evaluation tool (workshop)
Installation of SW and drivers
Use of the CLRC6663 evaluation board and SW to evaluate different Contactless cards
Test signals

Introduction into EMVCo, ISO/IEC 14443 & NFC
ISO/IEC 14443 parts 1, 2, 3 and 4
NFC-Forum Specifications (analog layer)
EMVCo Specification (analog layer)
RF interface and Card Activation Sequence

Introduction of NFC Magnetic Antenna Systems
Theory and 13.56MHz communication principle
Antenna principle & Transformer Principle
Optimum antenna size

Reader Antenna Matching
„Directly Matched" Antenna Design
RF-Amplifier for EMVCo and PN512, NFC Antenna Topologies
Antenna design for CL RC663

Contents

Course ID: I2

Contactless Proximity Reader Antenna Training

This Training introduces into the practical basics of 13.56MHz contactless reader antennas. It describes the practical impact on NFC antenna design, and shows how to build and tune an NFC reader antenna. It includes an antenna tuning and mesurement workshop session. Basic electro technical knowl- edge and knowledge about the ISO/IEC 14443 and reader system (i.e. the contents of I1) is required.

Audience

- Contactless reader designer
- Technical engineers
- Hardware designer

Prerequisites

- Knowledge of the contents of I1
- Electrical engineering (analog) know how
- Laptop with WIN 2000, XP or WIN7 for the work-shop session (administration rights required!)

Course Contents

Proximity Antenna Q-Factor analysis
Bandwidth requirements of EMVCo, NFC, ISO/IEC 14443 & ISO/IEC 15693
Relevant parameters for Q-Factor

Environmental Influences
Metal environment and impact
Ferrite shielding
EMC behavior & EMC-related design

Reader Antenna Matching
Example of a „Directly Matched" Antenna Design
Antenna design for CL RC663

Reader Antenna measurements
Measurements according to NFC, EMVCo & ISO/IEC 14443
Field strength & Pulse shape measurements
Load Modulation Amplitude: Dynamic range & Sensitivity
Test and debugging (Test signals, noise immunity, etc.)

Workshop (> 3h) (Building up an antenna)
Antenna Coil Measurement
Matching calculation & simulation
Tuning & Analog optimization
Field strength & Pulse shape measurement

There is also the possibility for participants to bring an own reader antenna for tuning, measurements and further discussions.

Duration:
09:00 – 17:00

Dates:
http://www.nxp.com/products/related/customer-training.html

Contents

Course ID: L1

NFC/ Reader Library Training

L1 NFC/ Reader Library Training introduces the NFC Library for NXPs Contactless Proximity Reader ICs. This trainings module will show how to use the NFC Library for the PN512 and CLRC663 with a workshop session. A basic Software engineering knowledge is required.

Audience

- Technical engineers
- Software designer

Prerequisites

- Software engineering know how
- Pre-installed and activated latest LPCXpresso version
- Laptop with WIN7 for the work- shop session (administration rights required)

Course Contents

Introduction
Introduction to contactless system
Overview MIFARE product portfolio
NFC Forum tag platform overview
NFC Reader product portfolio
µC Product overview

Support Material
Documentation
Reader Library
Development Boards and samples

NFC Introduction
Modes of operation
Setting up the communication
Communication modes
Standards and Specifications

Introduction to the NFC/ Reader Library
NFC/ Reader Library versions
Structure and initialization
Using the Library (BAL, HAL, PAL, AL, Common layer)

Hands on Workshop
Setting up the environment
Use of the SW to evaluate different Contactless cards
Debug session

Duration:
09:00 – 17:00

Dates:
http://www.nxp.com/products/related/customer-training.html

Contents

Course ID: R1

RFID in New Segments/ Applications

Technical Introduction to the World of RFID Application´s

Audience

- RFID development engineers,
- Technical oriented managers

Prerequisites

- RF basics
- Basic technical knowledge

Course Contents

Product family
- ICODE
- NTAG
- UCODE

Application Overview
Successful applications
New RFID applications

New Applications/ Segments

Retail - Fashion
Application overview
NXP products for Retail application
Benefits of RFID in Retail
System overview
Performance requirements
Usable features and their benefits

Brand Protection
Application overview
Performance requirements
Possible NXP products
Usable features and their benefits

Consumer Interactive Marketing
Application overview
Performance requirements
Possible NXP products
Features and their benefits

Others (Gaming, Document tracking, Animal ID, Libaray...)
Application overview
Possible NXP products
Benefits of RFID
Features and their benefits

All features will be explained in hands-on session and application demos.

Duration:
09:00 – 17:00

Dates:
http://www.nxp.com/products/related/customer-training.html

Contents

Course ID: R2

RFID technical Training

2nd part of the World of RFID Application

Audience

- RFID development engineers
- Technical oriented managers,
- Antenna designers

Prerequisites

- RF basics
- Basic technical knowledge

Course Contents

Standard & Protocols:

EPC global (UHF & HF)
Overview
Air interface protocol states & anticollision
Memory structure
Commands
Differences HF & UHF

ISO18000-3
Overview
Air interface protocol states & anticollision
Memory structure
Commands
Differences ISO18000-3 vs. EPC Global HF

ISO14443
Overwie
Commands

Product overview

Product types
Overview on the NXP RFID product & delivery types

Assembly guidelines
Tips & hints for using NXP IC´s
Wafer handling
EMV measurement
EMV protection recommendations

Antenna design

UHF antenna
UHF antenna design basics

HF antenna
HF antenna design basics
Antenna design´s for document tracking and gaming applications

Duration:

09:00 – 17:00

Dates:

http://www.nxp.com/products/related/customer-training.html

Contents

Course ID: R3

RFID in Electronics

Audience

- RFID development engineers
- Technical oriented managers,
- RFID project managers

Prerequisites

- RF basics
- Basic technical knowledge

Course Contents

Introduction
Product & application overview
RFID Fundamentals

NXP Product family for Electronics
- NTAG 21xF
- NTAG I2C
- **UCODE G2iL / G2iM+**
- **UCODE I2C**

Electronics segment
Application overview
New NXP products for electronics application
Benefits of RFID in electronics
System overview
Performance requirements

UCODE I2C
Features
Communication protocol

NTAG Field detection
Function of the NTAG field detection pin
What is needed?
Impact on the antenna design

NTAG I2C
Features
Communication protocol

UCODE PCB antenna
PCB antenna structure
Antenna simulation tool

NTAG PCB antenna
PCB antenna structure
Antenna design guide

All features will be explained in hands-on sessions and application demos.

Duration:
09:00 – 17:00

Dates:
http://www.nxp.com/products/related/customer-training.html

Contents

MIFARE module overview

M1.1: MIFARE Introduction (Duration: 1,5 hours)	• Products portfolio and positioning • Introduction to MIFARE Applications	• Introduction to MIFAREdiscover, SW tool to explore MIFARE products
M1.2: Standards/Specifications (Duration: 1,5 hours)	• List of standards/specifications related to MIFARE products and applications	• In depth of ISO/IEC 14443
M1.3: MIFARE Classic (Duration: 2 hours)	• Features & Functionalities • Workshop using MIFAREdiscover	• UID handling in MIFARE Classic • Enhancement of system security for MIFARE Classic
M1.4: MIFARE Ultralight (Duration: 2 hours)	• MIFARE Ultralight evolutions (Ultralight C, Ultralight EV1) • Features & Functionalities • Workshop using MIFAREdiscover	• Design hints for smart paper ticketing with MIFARE Ultralight EV1 & C
M2: MIFARE Plus (Duration: 1day)	• MIFARE plus positioning • Features & Functionalities • Workshop on solution development	• Optimization of security and transaction time using MIFARE Plus • System design and security using MIFARE Plus
M3: MIFARE DESFire (Duration: 1 day)	• MIFARE DESFire positioning • Features & Functionalities of MIFARE DESFire EV1	• System design and security using MIFARE DESFire EV1 • Workshop on solution development using MIFARE DESFire EV1
M4: MIFARE SAM AV2 (Duration: 1day)	• MIFARE SAM AV2 positioning and benefits • Features & Functionalities	• Workshop on usages of MIFARE SAM AV2 for MIFARE products • Design hints of using MIFARE SAM AV2
M5: MIFARE in Mobile (Duration: 1day)	• Evolution and eco system • M4M 2.1 • Remote mgt. workshop using eSE	• Walk through standard and specification e.g. NFC, SWP, HCI • MIFARE SDK • Developing apps using MIFARE SDK

Contents

Course ID: M1

MIFARE Day 1

M1.1 MIFARE Introduction / M1.2 MIFARE Related Standards
M1.3 MIFARE Classic / M1.4 MIFARE Ultralight

The M1 MIFARE introduction training introduces the technical basics of the complete MIFARE product family with a focus on MIFARE Ultralight, MIFARE Ultralight C and MIFARE Classic. It introduces the basics of symmetrical crypto and a secure contactless system design. Basic technical knowledge is required.

Audience

- Technical managers
- Sales engineers
- Business Development managers
- MIFARE solution developers

Prerequisites

- Basic technical knowledge of smart card and its applications
- Laptop WIN 2000, XP or WIN7 for the workshop session (administration rights required!)
- Watching the MIFARE Introduction video from www.mifare.net
- Knowledge of basic cryptography e.g. TDES, AES, CMAC, CRC for M1.3 and M1.4

This course includes the MIFARE Workshop Package! (Details on page 16)

Duration:
09:00 – 17:00

Dates:
http://www.nxp.com/products/related/customer-training.html

Course Contents

M-1.1 MIFARE Introduction

Introduction
Welcome to MIFARE World
Introduction to MIFARE systems

MIFARE Product Portfolio and positioning
Positioning of all MIFARE products
(including MIFARE implementations on SmartMX/SmartMX2)
MIFARE from 3rd party manufactures (Licensees)

MIFARE Applications
Success stories and challenges
MIFARE application architectures and requirements

M-1.2 MIFARE Standards / Specifications

List of Standards / Specifications in this field

In depth of ISO/IEC 14443
Designing an interoperables system
MIFARE certification

M-1.3 MIFARE Classic

MIFARE Classic Functionalities
MIFARE Classic 1k/4k (EV1)

UID Handling
Different UID types (UID, RID, ONUID, FNUID) in MIFARE Classic

Workshop
MIFARE Classic workshop using MIFAREdiscover

MIFARE System Security
Security enhancement for MIFARE Classic system
Migration to higher secure products

M-1.4 MIFARE Ultralight

MIFARE Ultralight Functionalities
MIFARE Ultralight, MIFARE Ultraligh EV1, MIFARE Ultralight C

Workshop
Personalization of MIFARE Ultralight EV1, C and validation

Smart paper ticket design hints
design hints for coils and applicatons

Contents

Course ID: M2

MIFARE Plus Training

This one day training presents the technical detail of MIFARE Plus with the hints for optimum usages. It includes practical workshop sessions and application specific hands-on.

Audience

- MIFARE System designer
- MIFARE solution developers

Prerequisites

- Knowledge of M1.1 and M1.2
- Watching MIFARE Plus Introduction video from www.mifare.net
- Knowledge of basic cryptography e.g. TDES, AES, CMAC, CRC

Recommendations

At least a 'quick going through' of MIFARE Plus data sheet

This course includes the MIFARE Workshop Package! (Details on page 16)

Duration:

09:00 – 17:00

Dates:

http://www.nxp.com/products/related/customer-training.html

Course Contents

MIFARE Plus Introduction
MIFARE Plus evolutions and positioning
MIFARE Plus implementation on SmartMX2 and licensing
MIFARE Plus and convergence
MIFARE Plus Support Package and ordering information

Software and Hardware Installation
Pegoda (RD710), MIFAREdiscover,

MIFARE Plus Architecture
Communication protocol
Memory mapping 1KB, 2KB and 4KB
Security Level concept

MIFARE Plus Security Level 0 (SL0)
MIFARE Plus SL0 functionalities
Workshop: Pre-personalization at MIFARE Plus SL0

MIFARE Plus Security Level 1 (SL1)
Compatibility to MIFARE Classic 1K/4K
Additional security and commands
Workshop: Switching to MIFARE Plus SL2 or SL3

MIFARE Plus Security Level 2 (SL2)
AES and secure use of MIFARE Crypto
Additional security and commands
Workshop: switching to MIFARE Plus in SL3

MIFARE Plus Security Level 3 (SL3)
MIFARE Plus SL3 functionalities
MIFARE Plus SL3 secure protocols and options
Workshop: MIFARE Plus SL3
Optimization of security and transaction in SL3
Example migration (MIFARE Classic to MIFARE Plus SL3) scenario

Additional Features in MIFARE Plus
Originality check
Virtual Card Architecture
Proximity Check
Introduction to MIFARE SAM AV2 for MIFARE Plus

Contents

Course ID: M3

MIFARE DESFire Training

This one day training presents the features of MIFARE DESFire EV1 with the hints for optimum usages. It includes practical workshop sessions and application specific hands-on for solution developers.

Audience

- MIFARE System designers
- MIFARE Solution developers

Prerequisites

- Knowledge of M1.1 and M1.2
- Watching the MIFARE DESFire Introducton video from www.mifare.net
- Knowledge of basic cryptography e.g. TDES, AES, CMAC, CRC

Recommendations

At least a quick 'going through' of the product data sheet.

This course includes the MIFARE Workshop Package! (Details on page 16)

Duration:

09:00 – 17:00

Dates:

http://www.nxp.com/products/related/customer-training.html

Course Contents

Introduction
Welcome and team Introduction
Proximity system architecture
MIFARE DESFire EV1 introduction and positioning
MIFARE DESFire Evolution
MIFARE DESFire Implementation and convergence
MIFARE DESFire applications

Software and Hardware Installation
RD710, MIFAREDiscover

MIFARE DESFire EV1 Architecture
Memory, PICC Level, Configuration,
Keys Application Level, Delegated Application,
Application sharing, KeySettings, Multiple Key Sets
KeySet Rolling, Multiple Access Rights, Different Files.

MIFARE DESFire EV1 Commands
Quick going through all the commands and purposes
Use of native and ISO/IEC 7816 modes,
Workshop: Practicing commands

MIFARE DESFire EV1 Cryptography and Secure Messaging
Different crypto options, Authentication, Confidentiality
Transaction MAC
HW and SW security

Workshop
Personalization and validation of Applications using
MIFARE DESFire EV1 (AFC and Access control)
Creation of delegated application
Application sharing Rolling of key set Transaction MAC handling.

MIFARE DESFire EV1 – Additional Security and design hints
Design Considerations for optimum security, transaction time and interoperability
Product Support Package

MIFARE DESFire EV2
An overview of new features

Contents

Course ID: M4

MIFARE SAM Training

This one day training presents the features of MIFARE SAM AV2 with the hints for optimum usages. It includes practical workshop sessions and application specific hands-on.

Audience

- MIFARE System designer
- MIFARE Solution developers

Prerequisites

- Participation of M2 and/or M3 training
- Watching MIFARE SAM AV2 Introduction video from www.mifare.net
- Knowledge of basic cryptography e.g. TDES, AED, CMAC, CRC, RSA

Recommendations

At least a 'quick going through' of the MIFARE SAM AV2 short data sheet available at www.nxp.com

This course includes the MIFARE Workshop Package! (Details on page 16)

Duration:

09:00 – 17:00

Dates:

http://www.nxp.com/products/related/customer-training.html

Course Contents

MIFARE SAM Introduction
Welcome and Introduction
MIFARE SAM evolutions
MIFARE SAM AV2 Positioning and Feature overview
MIFARE SAM AV2 operative modes
SAM communication interfaces (ISO/IEC 7816 and I2C)
HW/SW tools installation and introduction
Workshop: Switching MIFARE SAM AV2 to AV2 mode

MIFARE SAM AV2 Architecture
Features and Functionalities, 4-logical channels
Secure Key storage, key types and configuration
Key usages counters, Key versioning and diversification

MIFARE SAM AV2 Host Communication and Personalization
MIFARE SAM AV2 commands
Secure host communication, SAM personalization.
Key management, usages of PKI from MIFARE SAM AV2
Workshop: Personalization of MIFARE SAM AV2

MIFARE SAM AV2 & MIFARE DESFire
Principles of using MIFARE SAM AV2 for MIFARE DESFire EV1/EV2
Configuration of key entries for MIFARE DESFire EV1/EV2
Workshop: Personalization and validation of MIFARE DESFire EV1/EV2 using MIFARE SAM AV2
Use of MIFARE SAM AV2 for MIFARE Ultralight C authentication

MIFARE SAM AV2 & MIFARE Plus
Principles of using MIFARE SAM AV2 for MIFARE Plus
Configuration of key entries for MIFARE Plus
Workshop: Personalization and validation of MIFARE Plus using MIFARE SAM AV2

X –functionalities
Design of X-interface, Advantages of using X-functionalities
Workshop: Use of MIFARE SAM AV2 in X-interface for MIFARE DESFire EV1/EV2 and MIFARE Plus.

Contents

Course ID: M5

MIFARE in Mobile Training

This one day training presents different aspects and scenarios of MIFARE in Mobile. It gives a clear picture on full eco system and basic technologies. It includes practical application workshops.

Audience

- MIFARE System designer
- Technical managers and engineers
- Application developers

Prerequisites

- Participation of M1.1 and M1.2 training
- **Basic** knowledge on GLOBALPLATFORM
- Basic knowledge on NFC
- Knowledge of basic cryptography e.g. TDES, AES, CMAC, CRC
- Participants should bring his own android device (android version 4.1 or higher) for M-5.3 module.

Recommendations

At least a 'quick going through' of the documents provided at http://mifare4mobile.org/ (the ones may be relevant to your role).

This course includes the MIFARE Workshop Package! (Details on page 16)

Duration:

09:00 – 17:00 (may be adapted to 08:00 – 16:00)

Dates:

http://www.nxp.com/products/related/customer-training.html

Course Contents

M-5.1 Introduction and Standards walk through

Introduction to MIFAREinMobile NFC and MIFARE
Different modes of NFC
Options for card emulation
MIFARE4Mobile evolution and eco system
Phone architecture and different components for MIFARE
Different interfaces and communication layers
GLOBALPLATFORM for MIFARE4Mobile

SW Installations and Introduction
MIFAREdiscover
JCShell
PN65T development board

M-5.2 MIFARE4Mobile

M4M 2.1 System architecture and components
Remote provisioning and management
Wallet management
Multiple virtual cards
Use cases and scenarios

Workshop:
MIFARE4Mobile Remote provisioning and demo application
Virtual cards and real card
Interoperability and certification
Legacy systems and considerations.
Product Support Package for MIFARE4Mobile

M-5.3 MIFARE SDK

Basic Android programming
MIFARE SDK architecture and features
SW Installation
Android SDK
MIFARE SDK
Eclipse

Workshop:
Setting-up development environment
Apps development using MIFARE SDK
Product Support Package for MIFARE SDK

Contents

MIFARE Workshop Package

Content of MIFARE Workshop Package:

Pegoda Evaluation Kit MF EV710

- RD710 (Pegoda), NXP's contactless evaluation reader.
- 1 pc MIFARE 4KB
- 1 pc MIFARE Ultralight C
- 1 pc MIFARE Plus S
- CD Technical documentation and software

Additional ID-1 size sample cards (related to the training module)
e.g. MIFARE DESFire EV1 and / or MIFARE SAM AV2

The evaluation tools and software in CD or USB stick.

Documents:

Public and confidential datasheets and application notes
Secured documents must be requested separately

The participants are required to bring their own laptops with Windows operating system (XP/7) and administration right.

Contents

JCOP module overview

J1: JCOP Introduction
(Duration: 1 day)

- Products portfolio
- JCOP specific features
- Roadmap
- Java Card and GlobalPlatform
- Tools
- Smart card security

J2: JCOP Administration
(Duration: 1 day)

- JCShell Standalone
- GlobalPlatform
- Content management
- Pre-personalisation
- Secure messaging
- Business models

J3: JCOP Applet Development
(Duration: 1day)

- JCOP Tools
- Applet optimization
- Java Card crypto
- Java Card development
- specific features
- Memory and atomicity

J4: JCOP eGovernment Solutions
(Duration: 1/2 day)

- ICAO introduction
- JCOP pre-personalisation
- Applet personalisation
- Product portfolio

J5: JCOP Banking Smart Card Solutions
(Duration: 1/2 day)

- EMV introduction
- NXP's M/Chip management
- VSDC and PayPass M/Chip
- Product portfolio

J6: JCOP Embedded Secure Elements
(Duration: 1day)

- PN65x overview
- Certification process
- EMV Mobile
- MIFARE for Mobile
- Trust Provisioning
- NXP applets personalization
- MasterCard Mobile PayPass
- Product portfolio

Contents

Course ID: J1

JCOP Introduction

Abstract

JCOP product introduction includes important concepts about Java Card and GlobalPlatform, as well as basics about card management, applet development, smart card I/O and security. The training concludes with a JCOP Tools introduction.

Prerequisites

- Smart card basics

Course Contents

JCOP concepts
Java Card
GlobalPlatform
JCOP specific features
pre-personalization

Java Card development
object oriented programming
Java Card applet structure
smartcard communication

GlobalPlatform
CardManager, Security Domain
secure channels
content management
life cycles

JCOP specific features for public transport (MIFARE emulations)
eGov (SecureBox, BAC/SAC, EAC, ECC, FIPS)
mobile (eSE for NFC support)
banking
industry specific extensions

JCOP security concept
countermeasures
Java Card security concept
evaluation

JCOP Tools introduction
JCOP Tools for development & administration

Roadmap
JCOP platform
standard Java Card Applications

Duration:
09:00 - 17:00

Dates:
http://www.nxp.com/products/related/customer-training.html

Contents

Course ID: J2

JCOP Administration

This module starts with the introduction and installation of JCShell. The emphasis will be on the open standard GlobalPlatform, covering CardManager functionality, secure messaging, loading & installation of Java Card applets and privileges.

Prerequisites

- Knowledge of J-1 contents
- Notebook (Windows or Mac or Linux)

Course Contents

JCShell Standalone
introduction & installation
command set
plugin architecture
scripting

Pre-personalization
scope and principles
APDU interface

GlobalPlatform
smartcard infrastructure
card architecture
APDU & API interface

Card and content management
CardManager
secure channel protocols
life cycle
loading and installation

JCOP specific GlobalPlatform features
supported options & limitations

GlobalPlatform advanced
Supplementary Security Domain
extradition
Data Authentication Pattern
Delegated Management

Duration:
09:00 - 17:00

Dates:
http://www.nxp.com/products/related/customer-training.html

Contents

Course ID: J3

JCOP Development

Abstract

This module covers Java Card applet development with JCOP Tools. Most of the time is dedicated to practical exercises and discussion of source code.

Prerequisites

- module J-1 (recommended)
- GlobalPlatform basics
- Java programming skills at Intermediate level
- notebook (Windows or Mac or Linux)

Course Contents

JCP Tools
Introduction & installation

Java Card Introduction
package, class, applet
development flow
Java Card dpecifications

Java Card essentials
applet structure
APDU processing
memory handling
atomicity & transaction mechanism

Java Card crypto
crypto and security package
on-card key generation

JCOP specific Java Card features
BAC, EAC, SAC support
MIFARE Classic and DESFire emulations
ISO 14443 static and random UID
EDC protected array
industry specific extensions
supported options & limitations

Java Card advanced
library and Shareable Interface Object
extended length APDU
applet security and performance recommendations
ISO7816 file system
GlobalPlatform API

Duration:
09:00 - 17:00

Dates:
http://www.nxp.com/products/related/customer-training.html

Contents

Course ID: J4

JCOP eGovernment Solutions

Abstract

Module J-4 is dedicated to e-government applications available in NXP portfolio. The training is focused on specific pre-personalization, instantiation and personalization of eGov applet offering.

Prerequisites

- module J-1 (required)
- module J-2 (recommended)
- ICAO knowledge (recommended)

Course Contents

Introduction
ICAO specification
Security features
LDS file structure

EIntroduction
ICAO specification
security features
LDS file structure

E-government application
introduction
applet presentation

Preparation
JCOP pre-personalization
privacy
FIPS
configuration for ICAO compliance
cryptovision ePassletsuite pre-perso

Personalization
mutual authentication
APDU commands
personalization data
cryptovision perso tool

Contactless performance

Demonstration

Duration:
09:00 - 13:00

Dates:
http://www.nxp.com/products/related/customer-training.html

Contents

Course ID: J5

JCOP Banking Smart Card Solutions

Abstract

Banking solutions module covers introduction into EMV, Visa's VSDC and in detail NXP's MasterCard PayPass M/Chip management.

Prerequisites

- module J-1 (required)
- EMV basics (recommended)

Course Contents

Introduction
EMV specifications
MasterCard and Visa payment systems

JCOP banking solutions
IC & module
JCOP platform
applets

Preparation
JCOP pre-personalisation
EMV requirements
applet instantiation

Personalization
secure messaging
APDU commands

Contactless Performance
Visa & Mastercard requirements

Demonstration

Duration:
14:00 - 18:00

Dates:
http://www.nxp.com/products/related/customer-training.html

Contents

Course ID: J6

JCOP Embedded Secure Elements

Abstract

Module J-6 is dedicated to NXP's portfolio of JCOP for mobile application use cases. Starting with an introduction into the PN65x solution, participants will gain details about NXP's applet architecture, required steps for pre-personalization, and how to instantiate and personalize applets. The training finishes with an overview on important steps for certification of mobile devices.

Audience

- System Architects
- System Engineers

Prerequisites

- module J-1 (required)
- module J-2 and N-2 (recommended)

Course Contents

Prerequisite
module J-1 (required)
module J-2 and N-2 (recommended)

Introduction
product portfolio
PN65x architecture

Applets for Mobile Devices
applet architecture
EMV Mobile
Visa Mobile Payment Application
Mobile MasterCard PayPass M/Chip Applet
MIFARE4Mobile

Trust Provisioning
introduction
NXP's TP Services
JCOP pre-personalization
custom JCOP configuration

Certification
overview of certification process
required activities and contacts to payment providers

Demonstration

Duration:
09:00 - 17:00

Dates:
http://www.nxp.com/products/related/customer-training.html

Contents

Registration form

Please fill out and send to your local NXP Semiconductors contact (see page 3)

First name	Telephone number
Last name	Fax number
Company	E-mail
Address	VAT No (for EU customers only):
City	Your professional backround : (Technical, Marketing, Sales, Business Development etc)
ZIP Code / Country	

Training module

- ☐ I1 - Contactless Proximity Reader Training
- ☐ I2 - Contactless Proximity Reader Antenna Training
- ☐ L1 - NFC/ Reader Library Training
- ☐ R1 - RFID in New Segments/ Applications
- ☐ R2 - RFID technical Training
- ☐ R3 - RFID in Electronics
- ☐ M1 - MIFARE Day 1
- ☐ M2 - MIFARE Plus Training
- ☐ M3 - MIFARE DESFire Training
- ☐ M4 - MIFARE SAM Training
- ☐ M5 - MIFARE in Mobile Training
- ☐ J1 - JCOP Introduction
- ☐ J2 - JCOP Administration
- ☐ J3 - JCOP Development
- ☐ J4 - JCOP eGovernment Solutions
- ☐ J5 - JCOP Banking Smart Card Solutions
- ☐ J6 - JCOP Embedded Secure Elements

Date and Place of Course:

*For JCOP registrations

Please specify what
applications you are interested in:

Please note:

By signing the declaration your registration is binding and the costs will be charged. NXP Semiconductors reserves the right to cancel a course. Please note dates are subject to change at any time. Should you require to cancel your attendance at any time prior to the first day of the course: a) You can substitute another person, b) You can use course credit for a future course. Registrations permitted until two weeks prior to the course start date. Courses normally are held from 9:00 am to 5:00 pm. NXP Semiconductors will not reimburse travel costs that have been paid in advance. You will receive final confirmation approx. 2 weeks before the start of the training. Your registration will be confirmed via e-mail to the address provided above. For information on training fees and for trainings 'on demand' please contact your local NXP Semiconductors training officer (see page 4). Your invoice will be sent after completion of the training. Payment is accepted via Bank Transfer. Refreshments, lunch and full documentation are included in the fees.

Official Company Stamp