



Europe
03. Mar 09 (Graz) / 06. Oct 09 (Graz)

Asia
15. Jun 09 (Singapore) / 26. May 09 (Shanghai)

USA
On demand

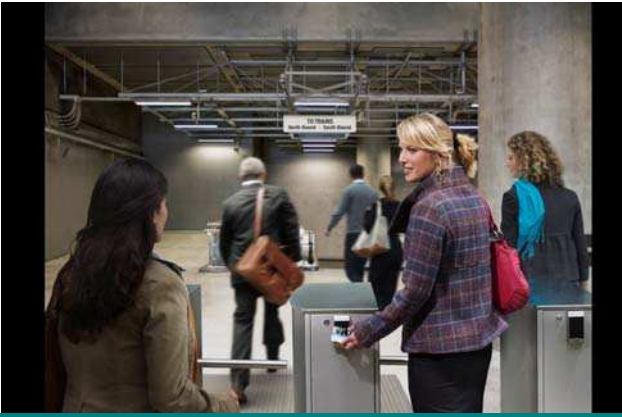
M-1 MIFARE Introduction Training

The M1 MIFARE introduction training introduces the *technical basics of the complete MIFARE product family*. It introduces the basics of symmetrical crypto and a secure contactless system design. **Basic technical knowledge is required.**

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| Audience | New technical engineers Technical oriented managers Business Development people Disti FAE |
| Prerequisites | Basic technical knowledge Laptop with WIN 2000 or XP for the workshop session (administration rights required!) |
| Overview and positioning of all MIFARE products | Welcome Introduction into contactless systems Positioning of all MIFARE products |
| Introduction into | MIFARE Ultralight MIFARE Ultralight C MIFARE Mini, 1K, 4K MIFARE Plus MIFARE DESFire MIFARE DESFire EV1 MIFARE Reader ICs MIFARE SAMs |
| Introduction and use of MIFARE evaluation tools (workshop) | Installation of SW and drivers Use of the SW to evaluate different MIFARE cards |
| Introduction into ISO/IEC 14443 | ISO/IEC 14443 parts 1,2,3 and 4 ISO/IEC 14443 Amendments and Revision RF interface and Card Activation Sequence PICC Selection |
| Introduction into security | Basic principles Confidentiality and Authenticity Cryptography, algorithms and secrets Threats and attacks |
| Introduction into basics of symmetrical crypto (DES & AES) | DES and Triple DES 2KTDES and 3KTDES AES Chaining modes: CBC |

Duration: 09:00 – 17:00

The MIFARE Workshop Package 1, (see page nr. 19) will be distributed to the participants.



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M-2 MIFARE Plus and MIFARE Ultralight C System Training

The MIFARE System Training shows *the technical details of MIFARE Plus and MIFARE Ultralight/ Ultralight C*. It includes a practical workshop session for both devices.

A basic electrical engineering knowledge and knowledge about the ISO/IEC 14443, and about basics of symmetrical crypto (DES & AES) is required (i.e. the contents of M1).

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| Audience | MIFARE System designer Technical engineers Software designer |
| Prerequisites | Knowledge of the contents of M1 Electrical engineering know how Laptop with WIN 2000 or XP for the workshop session (administration rights required!) |
| Positioning of MIFARE Ultralight, Ultralight C, Plus | Welcome Positioning of all MIFARE products How do MIFARE Ultralight C and Plus fit into ISO/IEC 14443 |
| Details of MIFARE Plus | Features and Functionality Memory mapping Security Levels 0, 1, 2 and 3 Level 0: Personalization Level 1: Compatibility to MIFARE 1K/4K Level 2: AES and secure use of MIFARE Crypto Level 3: Use of AES and T=CL protocol Additional features Migration concept MIFARE Classic to MIFARE Plus |
| Use of MIFARE Plus (workshop) | Install SW and drivers Use of the SW to evaluate MIFARE Plus Create an example application on the MIFARE Plus |
| Details of MIFARE Ultralight and UltralightC | Features and Functionality Memory mapping 3DES Crypto Authentication Lock bits and Counter |
| Use of MIFARE Ultralight C (workshop) | Use of the SW to evaluate MIFARE Ultralight C Create an example application on the MIFARE Ultralight C |
| Security features and hints | Security features of the MIFARE Plus Authentication and Session Key generation Encryption and MAC Introduction into MIFARE SAM AV2 |

Duration: 09:00 – 17:00

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M-3 MIFARE DESFire EV1 System Training

The MIFARE DESFire EV1 System Training presents the technical detail of MIFARE DESFire and MIFARE DESFire EV1. It includes practical workshop sessions and application specific exercises.

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| Audience | MIFARE DESFire EV1 System designer Technical engineers Software designer |
| Prerequisites | Laptop with WIN 2000 or XP for the workshop session (administration rights required!) |
| Recommendations | Knowledge of M-1 Preliminary knowledge on crypto basic: DES, AES, MAC, CMAC, CRC At least a 'quick going through' the product data sheet |
| MIFARE DESFire EV1 Positioning | Welcome and Introduction Positioning of all MIFARE products with important features Compliance of MIFARE DESFire EV1 to ISO/IEC 14443 |
| Installation of Software/demo | HW/SW installation Introduction to the tools |
| MIFARE DESFire EV1 Architecture | Features and Functionalities Memory organizations Application and File structures Communication and Access Rights |
| MIFARE DESFire EV1 Commands | All supported commands Different types of APDU (Native, Wrapped and Standard ISO/IEC 7816-4) Transaction summary and time estimation Practicing commands |
| MIFARE DESFire EV1 Crypto | Refreshing required crypto basic Detail crypto know how for MIFARE DESFire EV1 Authentication, Confidentiality and data Integrity Key Management |
| MIFARE DESFire EV1 Workshop | Different applications (specially Access control and AFC) Personalization and validation with MIFARE DESFire EV1 |
| Security Measures and Design Hints | Different possible attacks and protection already in MIFARE DESFire EV1 Hardwar Security Features Hints for enhancing the security level |
| Migration to MIFARE DESFire EV1 | From MIFARE Classic to MIFARE DESFire EV1 Compatibility between MIFARE DESFire and MIFARE DESFire EV1 |
| Support and ordering Information | Summary and Discussion MIFARE DESFire EV1 Support Package (PSP) |

Duration: 09:00 – 17:00

The MIFARE Workshop Package 1, (see page nr. 19) will be distributed to the participants.



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M-4 MIFARE SAM AV1 System Training

The MIFARE SAM AV1 System Training presents the technical detail of MIFARE SAM and MIFARE SAM AV1. It includes practical workshop sessions and application specific exercises.

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| Audience | MIFARE (MIFARE DESFire, MIFARE DESFire EV1, MIFARE Classic, MIFARE Plus) System designer Technical engineers, Software designer |
| Prerequisites | M-3 MIFARE DESFire EV1 System Training Laptop with WIN 2000 or XP for the workshop session (administration rights required!) |
| Recommendations | Knowledge of M-1 Preliminary knowledge on crypto basic: DES, AES, MAC, CMAC, CRC At least a 'quick going through' the product data sheet |
| MIFARE SAM Positioning | Welcome and Introduction, SAM why and how? Positioning of all MIFARE SAM with important features Compliance of MIFARE SAM AV1 to ISO/IEC 7816 Compatibility between MIFARE SAM and MIFARE SAM AV1 |
| Installation of Software/demo | HW/SW installation Introduction to the tools |
| MIFARE SAM AV1 Architecture | Features and Functionalities, 4-logical channels Secure Key storage and configuration Key usages counters, Key versioning and diversification |
| MIFARE SAM AV1 for MIFARE DESFire EV1 | Detail to work with MIFARE DESFire EV1 Personalization of MIFARE SAM AV1, Personalization and validation of MIFARE DESFire EV1 with MIFARE SAM AV1 |
| MIFARE SAM AV1 Workshop | Personalization and validation for MIFARE DESFire AV1 Key Management |
| MIFARE SAM AV1 for MIFARE Classic and MIFARE Ultralight C | Configuration and usages of keys for MIFARE Classic and MIFARE Ultralight C. (Knowledge of M-2 required) |
| X –functionalities | Detail of X-functionalities, Advantages of using X functionalities Introduction to CL RX852 (SAM integrated Contactless reader IC) |
| MIFARE SAM AV2 | Extended features of MIFARE SAM AV2 MIFARE Plus with MIFARE SAM AV2 |
| Security Measures and Design Hints | Hints and recommendations Higher level of Security |
| Supports and ordering Information | Summary and discussion MIFARE SAM AV1 support package (PSP) |

Duration: 09:00 – 17:00

The MIFARE SAM Workshop Package 2, (see page nr. 19) will be distributed to the participants.