OMNIKEY® READERS AND MIFAREPREFERRED

APPLICATION NOTE

PLT-03460, Rev. A.0

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Revision History

Date	Description	Revision
December 2017	Initial release.	A.0

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1 Introduction

Some cards that operate to ISO/IEC 14443-4 standard do not work as expected on certain OMNIKEY® readers. This is due to the activation remaining on ISO/IEC 14443-3 if `mifarePreferred` is enabled.

1.1 Affected readers

- OMNIKEY 5022
- OMNIKEY 5023
- OMNIKEY 5122
- OMNIKEY 5422
- OMNIKEY 5122 DUAL

1.2 Issue description

There is no definitive method for detecting MIFARE presence in certain cards. According to NXP's *MIFARE Type Identification Procedure Application Note* (AN10833):

"Never use ATQA to identify a chip or to extract UID size. Follow the ISO/IEC 14443-3 card activation sequence.....based on SAK. ATQA can be collided and misleading."

However, using Select Acknowledge (SAK) alone is not a reliable method of identification as cards with or without MIFARE may have the same SAK. Processor cards with the following parameters end their protocol activation on ISO14443A-4 and are therefore not affected by this issue:

ATQA	SAK
0x0344	0x20
0x0048	0x20
0x0044	0x20

All other processor cards end their protocol activation on ISO14443A-3, so they are not fully initialized and are not able to communicate properly.

1.3 Recommended workaround

For cards which operate to the ISO/IEC 14443-4 standard and do not support MIFARE, it is recommended to disable `mifarePreferred` (enabled by default in OMNIKEY readers).

1. Send Disable `mifarePreferred` APDU:

   FF 70 07 6B 0B A2 09 A1 07 A4 05 A2 03 84 01 00 00

2. Send `applySettings` APDU to apply the change to the reader:

   FF 70 07 6B 08 A2 06 A1 04 A9 02 80 00 00

See the *OMNIKEY 5022 Software Developer Guide* (PLT-03092) or the *OMNIKEY 5422 Software Developer Guide* (PLT-03296) for further details on APDU.

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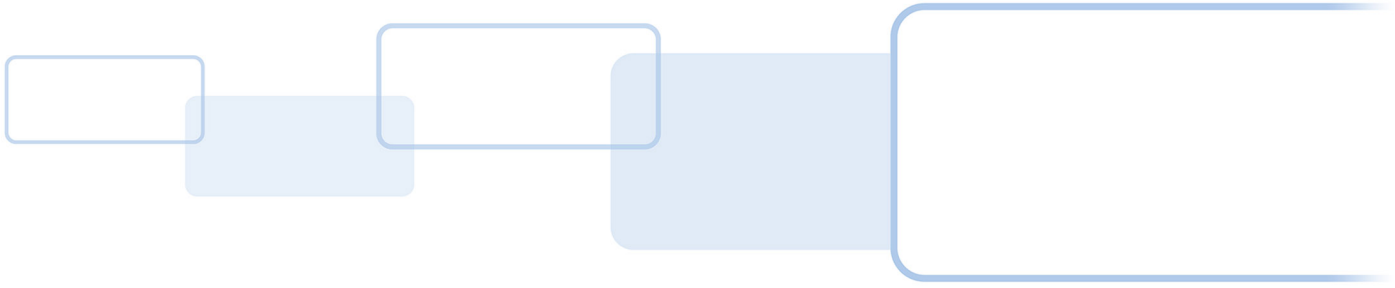

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