TRANSPORTATION WORKER IDENTIFICATION CREDENTIAL

TWIC® TECHNICAL ADVISORY

TA-2024-TWIC002-V2

Next Generation (NEXGEN) TWIC Card Issuance

The Transportation Worker Identification Credential (TWIC) will begin issuance of a Next Generation, TWIC. NEXGEN features a new faster smart card chip (IC) and updated surface printing. This Technical Advisory provides a summary of the differences between the new NEXGEN TWIC (which will start to be issued July 8 to all TWIC card applicants), 2024, and the current Legacy TWIC.

Note the legacy TWIC cards already in use will not be replaced and will remain valid in the field for up to 5 years from the inception of issuance of the Next Generation TWIC card. Legacy TWIC cards will be valid until the middle of 2029.

INTRODUCTION

There is no previous technical advisory concerning the subject of this document.

BACKGROUND AND DEFINITION

The TWIC card is being technically refreshed for a new electronic chip, card plastics and printing, and electronic information called Card data model. The next generation TWIC preserves backwards compatibility to the greatest extent permissible. Besides having a modification of its front printing in 2018, the legacy TWIC card has remained essentially unchanged from 2012 when a new electronic chip was then selected.

PROBLEM STATEMENT

The legacy TWIC card has reached the end of life and is no longer available for purchase in the marketplace.

DESCRIPTION OF NEW OR UNIQUE PROCESS

Refer to the Appendix for a more detailed summary of changes made to a NEXGEN TWIC card from the perspective of a currently issued legacy TWIC

USE OF NEW OR UNIQUE PROCESS

To comply with current NIST standards for digital signatures, a NEXGEN TWIC personalization data is signed using a Secure Hashing Algorithm (SHA 256) Message Digest.

The TWIC card application Identifier (AID) is changed from an “01” in the last byte to a “03”. Following the partial AID application SELECT method described in the TWIC card specification allows a TWIC application selection from any generation of TWIC card without issues. A TWIC reader can examine the Response to the SELECT command to obtain additional information as was previously supported.

To enable all TWIC functions without requiring use of the PIV application, or the PIV PIN, the NEXGEN TWIC card has a few additional data objects.

The back of the card has been modified, and the magnetic stripe which initially was used to get the TWIC Privacy Key (called TPK) has been deprecated. A barcode per PDF 417 format compliant with the American Association of Motor Vehicle Administrators (AAMVA) 2020 standard (as used on U.S. Driving Licenses) appears on the back of the card and in addition to containing the TPK, this two-dimensional barcode also contains additional biographic information regarding the cardholder.

A NEXGEN TWIC card supports unmanaged storage known as electronic stickers ("e-stickers") where data can be written as well as read. TSA does not use or control e-sticker information except for four specific e-Stickers under the update/writing control of TSA.

DESIGN FEATURES OF NEW OR UNIQUE PROCESS

The next generation TWIC card users will benefit from the significantly faster state-of-the-art smart card electronics used with the latest in cryptographic libraries, will reduce the time required for each TWIC card holder to validate the card and improve the throughput rate at port entry points. A new smart card operating system known as V8 hosts an expanded data model for the TWIC card application while preserving a PIV card application for backward compatibility.

The next generation TWIC card supports all data required by the TWIC card specification within the TWIC card application thereby freeing a TWIC reader from accessing the PIV card application to obtain certain data and functionality. The enciphered facial image and a TWIC card application card authentication certificate functionality are supported (where these elements formerly used the PIV card application for these features) with no need to present a PIN.

COMMENTS

No additional comments are provided for this Version 1 release.

SUBJECT REFERENCES

The next generation TWIC card and data model is defined in a TSA specification available upon request.

It consists of four documents:

- Part 1 – General description of TWIC credential in use by the maritime industry
- Part 2 – TWIC card application data model, TWIC card application and card edge behavior during normal operation
- Part 3 – TWIC reader requirements
- Part 4 – TWIC registration and TWIC card use by a PACS

KEYWORDS

NEXGEN TWIC

Smart Card

STANDARD DETAILS

NIST SP 800-73-5:2023: Interfaces for Personal Identity Verification Part 1 – *PIV Card Application Namespace, Data Model and Representation*

NIST SP 800-87 R2: Codes for Identification of Federal and Federally-Assisted Organizations

NIST SP 800-157B R1: Guideline for Using Cryptographic Standards in the Federal Government: Cryptographic Mechanisms

ISO/IEC 14443-1:2018 Part 1: Physical characteristic

ISO/IEC 14443-2:2020 Part 2: Radio frequency power and signal interface

ISO/IEC 14443-3:2018 Part 3: Initialization and anticollision

ISO/IEC 14443-4:2018 Part 4: Transmission protocol

ISO/IEC 7816-1:2011 *Part 1: Cards with contacts—Physical characteristics*

ISO/IEC 7816-2:2007 *Part 2: Cards with contacts—Dimensions and location of the contacts*

ISO/IEC 7816-4:2020 *Part 4: Organization, security and commands for interchange*

ISO/IEC 7810:2003 Identification Cards – Physical Characteristics

AAMVA 2020 DL/ID Card Design Standard

SPECIFICATIONS OR SPECIAL PROVISIONS

No additional specifications or special provisions are provided in this first release.

SUPERSEDES DATE

This technical advisory has no supersede date.

OBTAIN MORE INFORMATION

For additional information please send an email to the Transportation Security Administration (TSA) support at the following email address: twic-technology@tsa.dhs.gov

END

APPENDIX – Summary of Changes for NEXGEN TWIC

TWIC Application ID (AID)

A NEXGEN TWIC card has been changed to distinguish it from the previously issued TWIC card.

The new AID for this generation card is:

A0 00 00 03 67 20 00 00 01 01 03

where

v- Registered ID -v v- Proprietary Extension -v

A0 00 00 03 67 20 00 00 01 01 03

To access any TWIC card application, as per specification, one uses the ISO/IEC 7816-4 command SELECT via Partial AID as follows:

CLAss	INStruction	P1	P2	Lc	v- Command Data -v	Le
00	A4	04	00	09	**A0 00 00 03 67 20 00 00 01**	00

The full AID will be present in the response to this SELECT command which is a '61' application information template. For this card, the '01 03' will be appended to the partial AID select bytes detailed above to form the full AID of A0 00 00 03 67 20 00 00 01 **01 03.**

Enhanced NEXGEN TWIC Data Model

A NEXGEN TWIC card extends the use of the TWIC Privacy Key (TPK) by enciphering the facial image and printed information. Accessing the TPK is unchanged from the previous generation of TWIC card applications.

A NEXGEN TWIC card application now supports cryptography. Specifically, the card authentication certificate (and associated private key) is directly available in the TWIC card application.

A NEXGEN TWIC card application no longer depends upon the PIV card application resident in the card for any data or cryptographic functionality. The PIV card application does remain and is still personalized for TWIC for the purpose of supporting PIV only solutions wanting to use a TWIC card.

Enhanced TWIC card application data model

A NEXGEN TWIC card application extends the data model by now using the TWIC Privacy Key (TPK) to decipher the enciphered facial image and printed information personalized on a NEXGEN TWIC card.

A TWIC resident card authentication certificate, private key and functionality are now supported.

The NEXGEN TWIC data model is defined as follows though some containers are currently not populated:

TWIC Card Application **Legacy = A0 00 00 03 67 20 00 00 01 01 01** **NEXGEN = A0 00 00 03 67 20 00 00 01 01 03** **Data Object Name**	**Container ID**	**TLV DO Tag**	**Get Data ISO or PIV (4)**	**Access Rule for Contact**	**Access rule for Contactless**	**Legacy**	**NEXGEN**
X.509 Certificate for Card Authentication	0x0500	5FC101	PIV	Always	Always	N	Y
Cardholder Unique Identifier (CHUID)	0x3000	5FC102	PIV	Always	Always	Y	Y
Unsigned Cardholder Unique Identifier	0x3002	5FC104	PIV	Always	Always	Y	Y
Discovery Data Object	0x6050	7E	ISO	Always	Always	N	Y
TWIC Administrative Key	N/A	9B0C	N/A	Never	Never	Y	Y
Card Authentication Private Key (RSA 2048)	N/A	9E07	N/A	Never	Never	N	Y
Cardholder Personal Information (TPK encrypted) unused at present	0x6011	DFC001	PIV	Always	Always	N	O
Cardholder handwritten signature (TPK encrypted) unused at present	0x6012	DFC002	PIV	Always	Always	N	O
TWIC Privacy Key (TPK) container	0x2001	DFC101	PIV	Always	Never	Y	Y
Cardholder Fingerprints (TPK encrypted)	0x2003	DFC103	PIV	Always	Always	Y	Y
Cardholder Facial Image (TPK Encrypted)	0x6030	DFC108	PIV	Always	Always	N	Y
Printed Information (TPK encrypted)	0x3001	DFC109	PIV	Always	Always	N	Y
Security Data Object	0x9000	DFC10F	PIV	Always	Always	Y	Y
Cardholder Iris Image (TPK encrypted) unused at present	0x1015	DFC121	PIV	Always	Always	N	O
E-Stickers # 1 to 10 (free read & write)	N/A	E1 to EA	ISO	Always	Always	N	O
TSA controlled E-Stickers (Issuer write controlled)	N/A	FA to FD	ISO	Always	Always	N	O

New back of TWIC card appearance

The back of a NEXGEN TWIC card now contains TWO barcodes: The one-dimensional barcode and a two-dimensional barcode with the TPK and other information added per the AAMVA 2020 Standard.

The picture below is a representation of barcode placement and subject to change.