

Will my PIV Smart Card Chip be Getting Smaller?

The chip on your Federal Government PIV, CAC, or TWIC Card may soon look like your bank card.

Why it matters:

- Over 5 million federal government employees and contractors carry Personal Identity Verification (PIV) cards, Common Access Cards (CAC), or Transportation Worker Identification Credentials (TWIC): They have become trusted as the secure identity credential to access computers and buildings.
- The chip may soon change to look more like today's small bank card chips.
- PIV cardholders will want to understand the difference; is this card less secure and can it potentially compromise my identity?

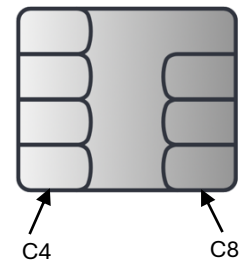
Over the few years, you are likely to see a smaller chip on your PIV, CAC, or TWIC card, similar like today's personal bank cards. This is in fact no different from the larger chips you have been accustomed to.

How smart cards are designed

Remember, when you look at a smart card, you are not seeing the chip. What you are seeing are the contact pads that connect the reader to the tiny silicon chip that is embedded within the card's plastic. This chip and pad assembly is called the "module."

When smart cards were designed in the 1980s, it was anticipated that eight-contact pads would be needed, so eight pads were designed, with two being reserved for later application-specific use. The market and uses evolved but these anticipated uses did not emerge and have so far not been necessary for basic card functions such as banking, data storage, and identity.

Government-issued PIV cards are specified by NIST based on the FIPS 201-3 standard, relying on the ISO Standard 7816-2 where the dimension, location, and use of the chip contact pads are designated. While there were originally eight "contact pads," only six were defined in ISO-7816-2; pads C4 and C8 which were for application-specific use cases were not defined.



8-Pad Module



C4 Removed C8 Removed

6-Pad Module

As a result, the PIV card has always functioned as a six-pad card with Pads 4 and 8 never being connected. Per NIST, "for interoperability's sake it is unlikely that will change." This seems to be a safe bet, considering the U.S. government has millions of contact PIV cards and readers in daily use.

The takeaway:

The smart card industry is producing hundreds of millions of smart cards annually and the cost to produce one with six-pads is probably a few pennies less than an eight-pad module. There are two other reasons to favor a six-pad card; (1) by reducing the size there is more surface for printing and (2) the fewer pads reduces the electronic attack surface.

Given the relative production volume, it is likely that six-pad cards will sooner or later end up in the PIV supply chain.

If and when they do, keep in mind that a PIV, CAC, or TWIC card with a six-pad module offers the same security technology, meeting the same ISO and NIST standards.

Comments are encouraged by email to tcorder@idfactors.com