



# MULTOS Case Study

## The Newest Weapon in Defense: StepNexus & MULTOS Powered Smart Card

*Card delivers premium security, personnel safety along with cost savings and convenience*

In August 2005, just 17 months after beginning the program, Turkish Armed Forces (TAF) announced it was deploying a multi-application smart card based on dual interface MULTOS technology for issuance to all servicemen and their families. In what could be one of the most aggressive rollouts in smartcard history, TAF will distribute two million smartcards within 12 months.

TAF is the second largest armed force in the 26 nation NATO Alliance.



"We are issuing, on average, 6,000 cards each day," said Lieutenant Commander Devrim Rehber. "If we could handle the physical demands of bringing more people in for processing faster, we would. We believe strongly in the benefits of the card."

The first cards feature five key applications with room to grow:

- e-Purse** – Turkish bases will be cashless, requiring a card for use at shops
- Biometrics** – fingerprints of active duty personnel are stored and retrieved easily
- Physical Access Control** – controls access of personnel to secure areas based on need and rank
- Public Key Infrastructure** – controls logical access control, plus digital signature
- Personal Healthcare Data** – storing basic healthcare data reduces risk and costs

The TAF smartcard implementation utilizes many of the strengths of the MULTOS smartcard platform, including its unprecedented levels of security and the unsurpassed flexibility to upgrade or add extra applications without replacing the card. StepNexus is working closely with partner, Keycorp who combines MULTOS technology with its PKI security application and specially customized ID and health applications.

To maximize security further, TAF has implemented and operates its own independent MULTOS Key Management Authority to maintain total sovereignty over production of chips and keys that enable chip activation and content loading. TAF also maintains central management of lost or stolen and blacklisted cards.

### Impetus for Change

Much like any organization, TAF was looking for ways to improve the way it operates each day and resolve on-going operational challenges.

Biometric and access control issues needed to be resolved based on very few examples of fraudulent military ID cards. Enlisted personnel occasionally faced problems crossing borders due to a lack of rank and name information in English on the old military ID cards. Separate cards were also issued to meet NATO and Geneva Convention requirements. The new cards answered all those needs, and more.

"Our chief of staff is a very smart man, a visionary. He has a broad vision about the future and that is why, after acting on his orders to use smart cards, we have this program in place. He is the real reason we are where we are at today," said Lt Commander Rehber.

Astutely, TAF identified the areas or applications it wanted to focus on streamlining. It let those applications, versus technology, drive need and identify the best platform for the military.

"During the decision making process, we thought about the pros and cons of each platform. The number one issue was security, interoperability, flexibility and trust. MULTOS met or exceeded our needs across the board" said Devrim.

### Security of Cards

Powering a card with as many applications as TAF has proven the unsurpassed security provided by MULTOS. But TAF took a number of other precautions as well. Each card supports PKI, storing an X509 certificate, which is used to verify cardholder access to military networks.

Plus a physical access control application to secure access to restricted areas on base. Since access to secure areas is determined by rank and role there are seven different card designs.



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E-signature and email encryption for all military messages is also provided with each card and offers one of the most important parts of enhanced security in the TAF's move to a cashless, paperless society.

Each card clearly names and uses symbols to identify the military service of each person.

Other features include:

- Guilloches
- Ultraviolet fluorescent ink
- Optically Variable Ink
- ID information in English and Turkish
- Transparent film protects information and prevents counterfeiting
- TKO after application on card Transparent kinegram overlay
- Nano- and micro-text
- Rainbow print
- Color print photo

## Eliminating Cash

TAF recognized the huge costs behind dealing with currency on base and set as its goal, creation of a cashless environment. Personnel are paid electronically to a bank of their choice and each member of the military personally determines the amount of lira stored on their ID card. They can add lira to their card via bank transfer, credit / debit card or ATM. So, what was the response to this change by a characteristically conservative military? One word: Wow!

"Personnel are very happy with their new ID cards, and once they begin to use the e-purse application, they are even more happy with it," said Devrim. "They only need to carry one card to perform so many tasks."

The e-Purse application is supplied by Oyak Bank, a leading Turkish financial institution providing financial and pension management services to the Turkish Military. The application is based on the open EMV (Europay, MasterCard Visa) standard, using MasterCard's M/Chip payment function configured as "Pre-Authorized Debit." This allows the card to be used in standard EMV payment terminals, and transactions can be processed using standard EMV networks. The difference to a standard EMV "Chip & PIN" transaction being that the cardholder must "Pre-Authorize" a balance for spending on the card, meaning that it functions as if it were an e-Purse.



"This is an advantage and a benefit for the people to have, and it's nice to have. I don't carry any purse other than smart card," said Devrim.

Beyond the convenience factor, the e-Purse application simplifies central accounting at military facilities. Central management of inventory and sales point statistics are available quickly and reduce opportunities for fraud and increase safety of personnel.

## Electronic Health Records on a Card

With each ID card, there are several medical functions performed. The card is used to verify eligibility to healthcare and it also contains basic health information about the holder. Information contained on the card includes results of an individual's medical exam, prescription information and most importantly, allergy information.

"Our goal is to have card readers in the battlefield to assist our medical personnel who are working with a patient that is either unconscious or unable to respond to questions," said Devrim. "Once we have most of our cards issued and build out more infrastructure in our healthcare centers, we will address this critical battlefield need."



During peace time one of the most important benefits for TAF is determining medical supply needs. Having a central health data storage card also reduces the need for costly duplicate tests and ineffective services.

## Future Applications

TAF will be looking at adding other applications in the future. Possible new applications include additional biometric information and use of e-Purse outside of military bases. Ultimately off-base use will be determined by the security track record of MULTOS and TAF officials. When asked who will make the decision for off-base use, the response was clear. "That decision belongs only to us," said Devrim.

