INCITS: JTC 1/SC 37 Standards to Support Biometric Technology Adopted by ICAO for Machine Readable Travel Documents

Background

With the 2011 publication of the sixth edition of International Civil Aviation Organization (ICAO) Document 9303 Part 1, *Machine Readable Travel Documents (MRTD)*, ICAO has advanced passport technology to a new level of travel document security, data integrity, and identity management. These specifications are a culmination of the work that began with ICAO's first request for information (RFI) issued in 1995. The RFI asked vendors to focus on three areas of focus: physical security features, biometrics, and data storage media. Emphasis was placed on the latter two because a higher level of storage capacity was required in order to allow for the storage of biometric information on passports.

Problem

Immediately after the tragedies of September 11, 2001, the virtues of biometrics were debated by many. In response, a significant amount of research and development, testing, and education was launched for biometric applications within border control and identity management. The need to achieve one-to-one verification for linking a passport to its rightful owner led ICAO toward biometrics as a goal, where it could be used as a vital tool in combination with other technologies for global interoperability of e-passport specifications.

Approach

To facilitate the goal of global interoperability, ICAO Document 9303 leveraged standards developed by International Organization for Standardization/International Electrotechnical Commission Joint Technical Committee 1/Subcommittee 37, *Biometrics,* (ISO/IEC JTC 1/SC 37). Data formats covering biometrics for face, finger, and iris images were published in ISO/IEC 19794, *Information Technology - Biometric data interchange formats*, and a logical data structure (LDS) instantiation in ISO/IEC 19785, *Information Technology - Common Biometric Exchange Formats Framework (CBEFF)*, was used as a definition to contain the data. These standards supported ICAO's selection of facial recognition as the globally interoperable biometric for machine-assisted identity confirmation for MRTD, with the option to incorporate specifications for finger and iris images as well.

Outcome

More than fifteen years later, deployment of e-passports, considered to be the most secure in the world, is well underway. ICAO estimates that as of December 2012 there were 430 million e-passports in existence, issued by 108 nations using the JTC 1/SC37 standards. The adoption of biometric standards significantly impacted the use of biometrics for MRTD in the countries represented within ICAO. To date, this program is the largest application of biometric standards worldwide. This program serves as a model for effective collaboration and cooperation between industry through subcommittees of ISO/IEC JTC 1 and the governments of the world through ICAO.