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IEEE Standard for Biometric Open Protocol

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IEEE Standard for Biometric Open Protocol

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of the
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Abstract: Identity assertion, role gathering, multilevel access control, assurance, and auditing are provided by the Biometric Open Protocol Standard (BOPS). The BOPS implementation includes software running on a client device (smartphone or mobile device), a trusted BOPS server, and an intrusion detection system. The BOPS implementation allows pluggable components to replace existing components' functionality, accepting integration into current operating environments in a short period of time. The BOPS implementation provides continuous protection to the resources and assurance of the placement and viability of adjudication and other key features. Accountability is the mechanism that proves a service-level guarantee of security. The BOPS implementation allows the systems to meet security needs by using the application programming interface. The BOPS implementation need not know whether the underlying system is a relational database management system or a search engine. The BOPS implementation functionality offers a "point-and-cut" mechanism to add the appropriate security to the production systems as well as to the systems in development. The architecture is language neutral, allowing Representational State Transfer (REST), JavaScript Object Notation (JSON), and Secure Sockets Layer (SSL) or Transport Layer Security to provide the communication interface. The architecture is built on the servlet specification, open SSLs, Java, JSON, REST, and an open persistent store. All tools adhere to open standards, allowing maximum interoperability.

Keywords: admin console, application, BOPS admin, BOPS cluster, BOPS server, BOPS IDS, client device IDS, Jena Rules, IDS cluster, IEEE 2410™, liveness, original site admin, site admin, trusted adjudicated data, user, user device

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Introduction

This introduction is not part of IEEE Std 2410™-2015, IEEE Standard for Biometric Open Protocol.

Convenience drives consumers toward the biometrics-based access management solutions, say studies from Ericsson, PayPal, IBM®, and Microsoft®.

According to the Ericsson study "Your body is the new password," 52% of smartphone users want to use their fingerprints instead of a password, a further 61% want to use fingerprints to unlock their phones, and 48% want to use eye recognition.

The study conducted by PayPal says that consumers approve biometrics for access management. In terms of readiness to switch from traditional password protection to the new technology, 53% of the surveyed population would be comfortable replacing passwords with fingerprints, and 45% would choose a "retinal scan," which is presumably an iris scan (the misplaced terminology points to the lack of consumer education).

IBM Fellow and Speech Chief Technology Officer David Nahamoo states that, over the next five years, your unique biological identity and biometric data—facial definitions, iris scans, voice files, even your DNA—will become the key to safeguarding your personal identity and information and will replace the current user-ID-and-password system.

A Microsoft Research-funded study titled "The Quest to Replace Passwords: A Framework for Comparative Evaluation of Web Authentication Schemes," concluded that the vast password-replacement transition should conform to the following criteria: nothing to carry, efficient to use, and easy recovery from a loss. The Microsoft study goes as far as concluding that such criteria could be achieved mostly through the biometric schemes.

Biometric technologies provide consumers with a long-awaited convenience to securely enter cyberspace on the front end. The Biometric Open Protocol Standard (BOPS), developed by Hoyos Labs, protects digital assets and digital identities on the backend.

BOPS is a biometrics-agnostic standard that opens an application programming interface for registered developers. Entering as a game-changer, BOPS communication architecture enables two-way Secure Sockets Layer or Transport Layer Security connection over the encryption mechanism to the server, which employs an intrusion detection system (IDS). The IDS is an external system responsible for blacklisting devices that are violating the replay portion of this specification.

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IEEE Standard for Biometric Open Protocol

1. Overview

1.1 Scope

The Biometric Open Protocol Standard (BOPS) provides identity assertion, role gathering, multilevel access control, assurance, and auditing. The BOPS implementation includes software running on a client device (e.g., smartphone or mobile device), a trusted BOPS Server, and an intrusion detection system (IDS). The BOPS implementation allows pluggable components to replace existing components' functionality, accepting integration into the current operating environments in a short period of time. The BOPS implementation adheres to the principle of continuous protection in adjudicating access to resources. Accountability is the mechanism that proves a service-level guarantee of security. The BOPS implementation allows the systems to meet security needs by using the application programming interface (API). The BOPS implementation need not know whether the underlying system is a relational database management system (RDBMS) or a search engine. The BOPS implementation functionality offers a "point-and-cut" mechanism to add the appropriate security to the production systems as well as to the systems in development.

1.2 Purpose

This standard provides a biometric-agnostic, multilevel security protocol.