# DigitalPersona™
# Software Development Kit
# Platinum Edition 1.2.0

DigitalPersona's Platinum Software Development Kit (SDK) enables developers to add the power of fingerprint authentication security to their networked applications. This powerful, multi-layered toolkit provides a set of DCOM objects that enable developers to access all the functionalities of the system in a very flexible way. The toolkit includes the Device, the Engine, the High Level Functions and the User Database. The toolkit's Security Layer is completely transparent to the application developer. The Toolkit uses PKI based on X.509 certificates both to set up trust relationships among client to server in the domain and to ensure data integrity.

## Device

The Device component provides both physical device and Plug-and-Play management functions. It supports security features such as the use of a challenge-response protocol to avoid playback attack when communicating with a remote server. Secure images produced by the sensor are only decrypted on a secure server.

## Engine

The Engine component provides the basic functionality of feature extraction, matching, and registration of the fingerprint.

Feature Extraction

The Feature Extraction component collects the defining characteristics of fingerprints and organizes them into a template.

The DigitalPersona Fingerprint Feature Extraction component implements a minutiae-based algorithm that accepts grayscale images with a minimum of 250dpi and 16 gray levels. Extracted templates are completely hardware independent. Compressed templates are signed and encrypted prior to export.

Matching

The Matching component compares a registered template to the one provided by the user to ensure authentication. The algorithm is rotation invariant. DigitalPersona quotes a False Accept Rate of 0.01% for a False Reject Rate of 1.4%. The matching component generates the registration templates, combining features found in several fingerprint images of the same finger.

## User Database

The User Database contains user information including fingerprint templates. User Records are system objects that can be securely exported. An implementation of a persistent storage is also provided.

## High Level Functions

The toolkit provides a high level interface to the Device and to the Engine. The various functions (including Enroll, Verify, and others) require the services of several components. Individual components can be instantiated on different network nodes for maximum flexibility and security. The Interface is usable from C++ and all other scripting languages including Visual Basic.

The User Interface is designed as a separate object for extreme flexibility. The User Interface components are all ActiveX components. Developers that do not want to use the User Interface that is provided can develop and use their own instead.

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