

# DaonEngine



## Key Benefits

### DaonEngine

- Increased Security:**  
 Strongly authenticating users with an industry proven, standards-based platform brings robust security to today's business problems for border control, access control, credentialing, and regulatory compliance
- Reduced Costs:**  
 Reduce development and ownership costs using a COTS-based flexible platform that eliminates the need to build a system from scratch
- Reduced Risk:**  
 Leverage decades of experience using a platform that has proven itself in real-world problems
- Vendor Flexible:**  
 Build on a platform that allows the right technology to be deployed at the right cost

*DaonEngine is a scalable and flexible component of an enterprise human identity management solution for organizations that require strong identity authentication. As the **authoritative identity source** DaonEngine delivers the functions of secure storage, searching, match coordination, and multi-biometric fusion through a true services-oriented architecture. Building a solution on the DaonEngine platform eliminates the requirement to focus on backend identity functions which reduces the need for extensive biometric experience while providing a firm foundation for growth and expansion. DaonEngine is used in a variety of solutions including civil identification programs, border control programs, expedited traveler programs, and enterprise credentialing systems.*

## Introduction

DaonEngine is unique in that it provides a market proven enterprise solution to increase security, reduce risk, and reduce deployment costs. Specifically the DaonEngine **Flexible Searching and Matching** infrastructure delivers a comprehensive range of identification and authentication features allowing any combination of descriptors to be used to authenticate a human identity. **Policy-Based Management** drives the operation and functioning of the DaonEngine by defining the conditions for storage, searching, and matching of the human identity. Being truly **Enterprise Aware**, DaonEngine functions are delivered through a services oriented architecture that easily integrates with business process management tools and systems management software. Recognizing identities are wrapped with privacy and security, a robust **Secure Architecture** protects incoming identity data, data at rest, and data in transit between system components.

## Flexible Searching and Matching

DaonEngine offers a comprehensive range of identification and authentication features. As infrastructure software any combination of biometric modes (e.g., fingerprint, face, eye, palm, etc) can be combined together or with any combination of factors (e.g., PIN, password, RFID chip) to authenticate a human identity. Likewise any combination may be used to identify, or search for an unknown person within small or very large population sets.

## Vendor Independence

DaonEngine operates with no preference for specific technology. Its deployment architecture is designed to use any algorithm, any device, any token or credential. It provides a uniform management structure across multiple identity mechanisms including biometrics (finger, face, and eye), smart cards, tokens, RFIDs, travel documents, PINs and passwords. Within a solution this flexibility allows an organization to add or change identity descriptors throughout a system lifecycle creating an environment for technology competition which helps keep long-term ownership costs down.

## Authentication Flexibility

DaonEngine enables mixed mode authentication or the ability to mix different techniques to find an individual. Enabled through its extensive policy architecture it enables a solution to combine authentication techniques for the desired result. For example, a password may be combined with a biometric to strongly authenticate a user. Likewise, a fingerprint may be combined with an iris match to provide high confidence a user has been properly identified within a high security environment.

## Multi-modal Fusion

DaonEngine delivers true multi-modal fusion or the ability to combine the results of different searches into a single result. In some high security applications or particularly large populations it may be necessary to mathematically combine the results of multiple searches into a single, meaningful result. Again, the DaonEngine has no preference for technology and supports out of the box industry accepted fusion algorithms while delivering a framework for any new algorithm to be inserted.

## Feature Summary

### DaonEngine

- **Flexible Searching and Matching** infrastructure delivers a comprehensive range of identification and authentication features allowing any combination of descriptors to be used to search and match a human identity
- **Policy-Based Management** drives the operation and functioning of the DaonEngine by defining the conditions for storage, searching, and matching of the human identity
- **Enterprise Aware**, DaonEngine functions are delivered through a services oriented architecture that easily integrates with business process management tools and systems management software
- **Secure Architecture** of DaonEngine protects identity data it contains or any identity data that is being sent to it or moving between its components using widely accepted standards-based technology

### Domains

DaonEngine provides an ability to segment a population into smaller groups. Using this feature a person can be a member of one or more groups and searches can be directed at an individual group in lieu of the entire population if necessary.

### Policy-Based Management

DaonEngine uses policies to control its configuration and operation. Policies determine how a particular user is to be enrolled and what group they are to be enrolled in. Furthermore, policies are used to control the search and match functions, namely how strict or how loose the matching process should be given the application needs. For high security applications policies will be set to tightly control the match and possibly even control how many matches, by biometric, are required to produce a confident, positive result. For other applications the policy may be less restrictive in order to provide a rapid result with reasonable confidence.

### New Biometric Support

Adding support for a new match technology to a DaonEngine is as simple as enabling a new interface or "SnapIn". Policies in the DaonEngine control how the SnapIn is to be used so when an identification or verification request is sent to the DaonEngine for that technology, the DaonEngine will search and utilize the SnapIn to satisfy that matching request. Daon supplies numerous commercially available SnapIn products.

### Policy-Based Searches

DaonEngine performs all searches within the context of an authentication policy. These policies control how a search is performed and can be used to specify how the searches are to be achieved and to what level of confidence they should be achieved. This policy-based approach allows different policies to be specified for different applications, depending on the security requirements of the applications. The policies address what biometrics, level of accuracy, and type of fusion is acceptable to authenticate.

### Dynamic Policy-Based Profiles

In certain security applications it may be necessary to control the search policies in real-time – tighten the controls or loosen the controls. DaonEngine supports the dynamic application of security policies to meet various risk profiles. This ensures DaonEngine can deliver consistent security across all touch points.

### Enterprise Aware

DaonEngine delivers enterprise level capability to meet the demands of the most mission critical identity management solutions in the world. Independently verified as superior in terms of performance, scalability and availability, DaonEngine provides features for rapid integration to enterprise architectures and best-of-breed availability and scalability.

### Service Oriented Architecture (SOA)

DaonEngine is built to meet enterprise service-oriented architectures and integrate smoothly with business process management products. Communication to and from the DaonEngine can be done via SOAP-based web services, the native DaonEngine programming interface, or with a variety of other means including a Java Message Service listener.

### Systems Management Interface

As a platform component of an enterprise system the DaonEngine can be instrumented to a systems management tool. Using SNMP standards a systems management tool can receive information such as status and alerts from components of the DaonEngine as well control those components for peak efficiency.

### Highly Available and Scalable Deployments

DaonEngine was designed to meet the most rigorous demands of scalability, throughput and availability. It can be deployed in a wide range of redundancy configurations. Traditional, vertical scalability or the ability to increase the capacity of existing hardware or software by adding resources, such as the addition of a processor within a server is supported for all elements. Additionally, horizontal scalability or the addition of multiple instances so that they work together as a single, logical unit is available.

**Related Daon Products**

**SnapIns** enable the specific searching and matching features of the DaonEngine to vendor specific systems and algorithms for 1:1, 1:Few and 1:Many searches. SnapIns are available as products for fingerprint, face, eye, palm, and DNA representing more than 50 algorithms and AFIS systems.

**DaonEnroll** is a workstation application to capture the characteristics of a person during an enrollment process and that are subsequently searched and matched using the DaonEngine.

**Daon Enrollment Manager** combines process orchestration and user interfaces to define and deliver the steps surrounding an enrollment process such as pre-registration, administration, and approval.

**Daon Management Application** allows an instance of DaonEngine to be instrumented to SNMP aware systems management tools.

**Daon Analytics** is a biometric statistical analysis product to perform online and offline performance and optimization analyses of a DaonEngine enabled biometric system.

**Secure Architecture**

As Daon manages and stores sensitive authentication data, the security of that data becomes paramount to prevent theft or disclosure of the private elements of the data—and protect not only the sensitive biometric data, but also the privacy and identities of the people enrolled within the system. This includes not only the data stored within the DaonEngine, but also data collected for authentication and data in movement throughout the solution.

**Comprehensive encryption key management**

DaonEngine supports the ability to use a Hardware Security Module (HSM) to achieve the highest levels of security available. The HSM is used for all cryptography operations within the DaonEngine. Alternatively, DaonEngine can utilize a Software Security Module (SSM) as a lower cost alternative to manage cryptographic operations.

**Encryption of data**

DaonEngine utilizes a variety of techniques to protect the data it stores. Rather than relying on one single technique DaonEngine takes a layered approach applying multiple security layers. This process is transparent to the user of DaonEngine but provides customers who base their system on the DaonEngine platform the confidence it has the best available security in place.

**Managed Communication**

All messages between applications and the DaonEngine are digitally signed and guaranteed for uniqueness. Furthermore only authorized users or applications can take advantage of DaonEngine services. This gives users of the DaonEngine an additional level of confidence that a DaonEngine installation is secured from external threats.

**Flexible Platform**

Built on a J2EE 'run anywhere' platform, the DaonEngine component-based and standards-based architecture allows it to support a wide variety of systems with small to very large populations.

**Multi-Platform Software Development Kit**

The DaonEngine native programming interface delivers Java or .NET, and XML SDK libraries to tightly integrate the DaonEngine platform into a solution set.

**Operating System and Database Platforms**

DaonEngine operates primarily on Microsoft Windows® platforms and optionally on UNIX platforms. It utilizes a J2EE Application Server such as Oracle Applications Server or Tomcat and requires a database such as Oracle or Microsoft SQL Server.

