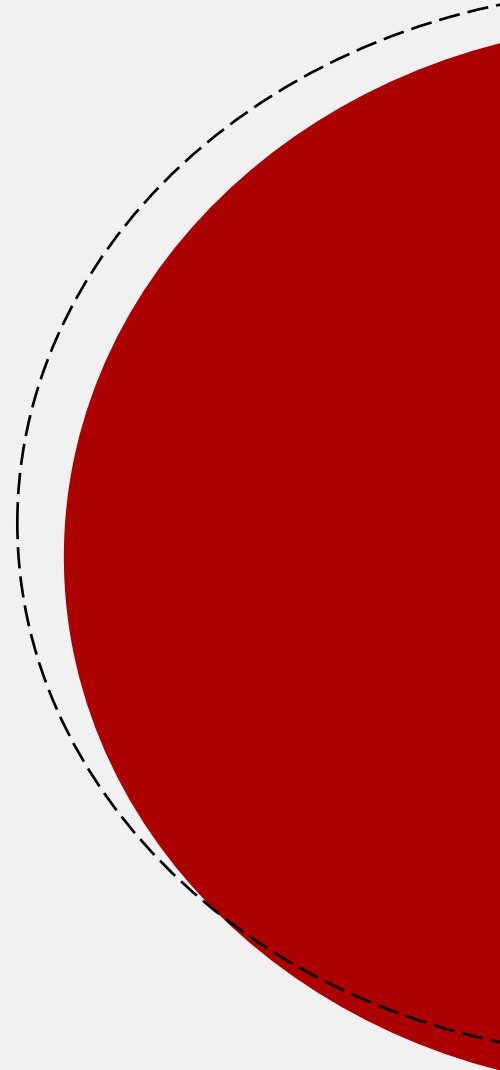


BROCHURE

IriMaster

Advanced Iris Recognition
Middleware Server Software



Template Generation
Template Matching
Quality Assessment

about

Superior Iris Identification

Features

- **Iris Recognition:** Provide functions for enrollment, verification, identification, and de-duplication utilizing IriTech's state-of-the-art iris recognition algorithms.
- **Middleware Component:** Support transactions and secure data exchange using SSL, WS-Security, WS-Secure Conversation, WS-Security Policy to ensure the data integrity and confidentiality of data between client and server.
- **Security Infrastructure:** Secures the data exchange between server and IriTech's cameras to ensure devicelevel encryption using PKI security infrastructure for tamper-proofing.
- **Interoperability:** Web Service API supports scalable, secure, service-oriented architecture (SOA) to enable different clients (written in Java, .NET or Web application) and platforms (can be deployed on Windows or Linux).

(※ Specifications to change without notice)

Why IRITECH?

IriTech, Inc. is one of very few iris providers who owns all in-house proprietary technologies vital for deploying any scalable end-to-end iris ecosystem. With more than 20 years of experience in iris recognition technology and top-ranked NIST¹⁾-proven algorithms, IriTech has been trusted by many prestigious clients. Our systems have been deployed in multiple and multisector large scale projects ranging from governments to corporates due to its exceptional performance in tough environment. IriTech is proud to be the partner of choice, leading the iris biometrics technology.

¹⁾ National Institute of Standards and Technology

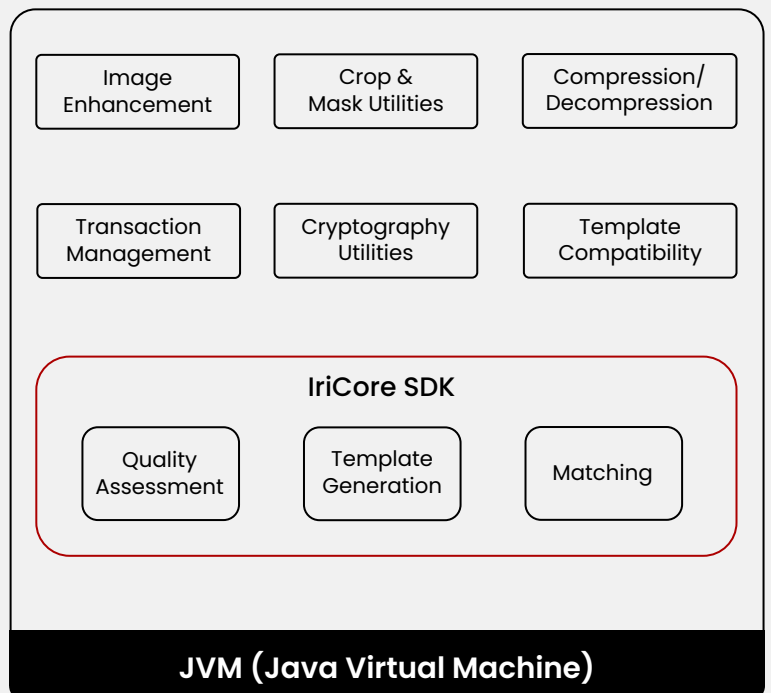
Overview



IriMaster is IriTech's state-of-the-art middleware server software that provides a complete set of iris recognition related functions (enroll, verify, identify, de-duplicate). IriMaster is designed to make integration into a legacy enterprise infrastructure easily and to meet the challenges of large-scale biometric identification systems, such as national ID programs, customs and border protection immigration systems, and access control systems. Additional features include enhanced security and the ability to handle compressed records.

IriMaster consists of various IriTech's accurate iris segmentation and fast matching algorithms based on the variable multi-sector analysis world-wide patent. IriMaster also consists of image quality assessment algorithms to perform the analysis of image quality. IriTech's highly-acclaimed iris recognition technology has been examined and proven in many systems and evaluated by prestigious organizations such as NIST (National Institute of Standards and Technology)

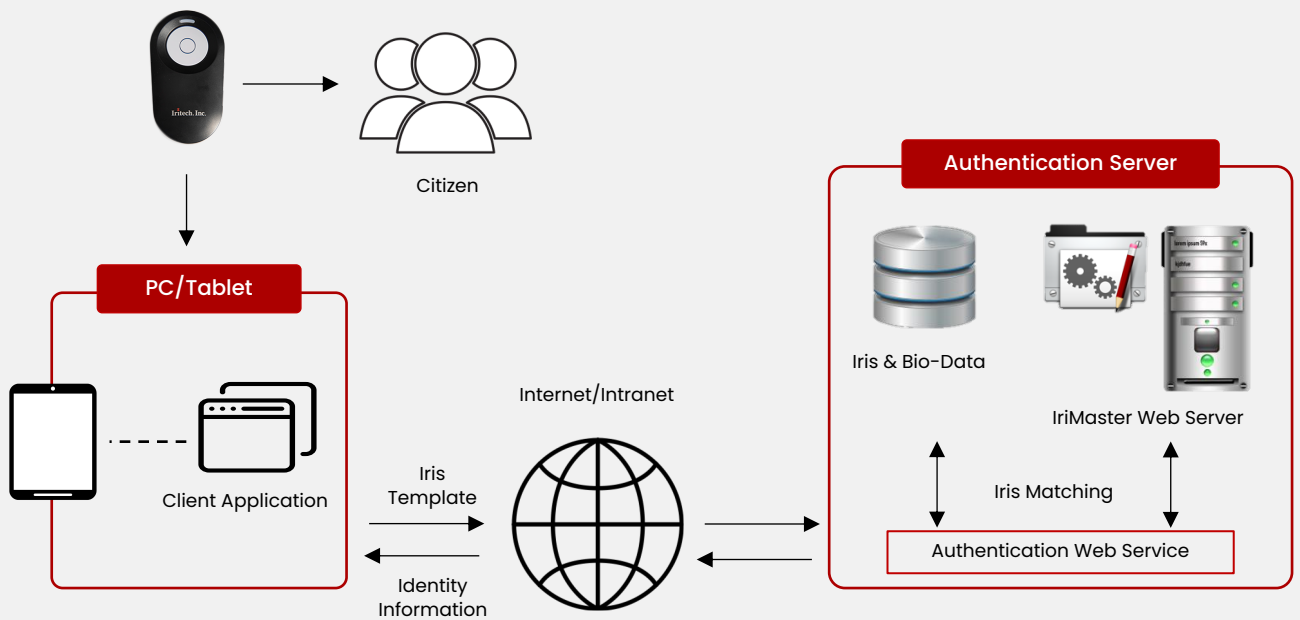
Software Architecture



Product Highlights ➤

IriMaster is deployed as a iris recognition web service built on top of IriTech's world-class iris biometrics technology to provide iris recognition and identity management for online and mobile applications. It has been acutely designed to enable customers to easily develop or incorporate into their existing server components, business service modules and/or end-user applications. IriMaster is highly portable, adaptable, and scalable. It can offer a tremendous potential to accelerate deployment of more efficient and cost-effective identity solutions for a wide range of applications.

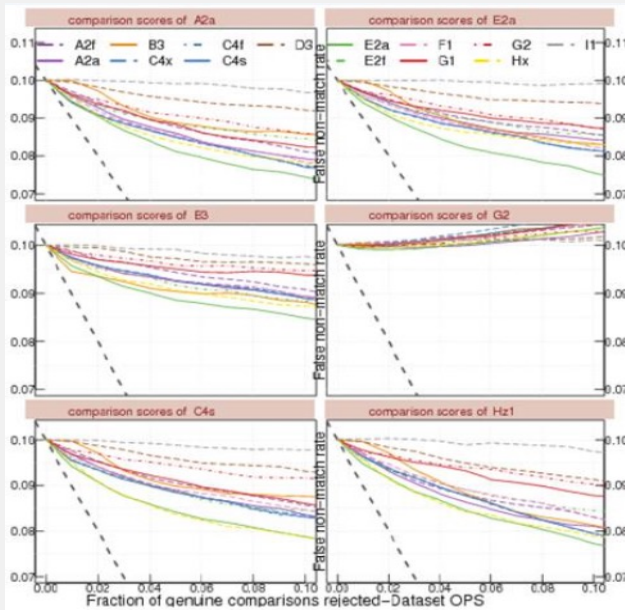
☰ On-the-move Scenario



Characteristics	Description
High Availability	Utilizing the clustering features of application servers and hardware redundancy allows services to be stopped and replaced automatically in case of hardware failure.
Scalability	IriMaster is a server-side software designed to scale from small size system operating on single PC to large scale systems running on several distributed servers. The growth of databases and system load can be easily handled by load balancers and additional hardware.
High Performance	Utilizing the fast and accurate matching algorithm together with smart indexing to search huge databases in a timely manner.
Image Handling	Handle all kinds of images in different formats including raw images, bitmap images (BMP), compressed images (JPEG, JPEG2000, PNG, etc.)
Standard Compatibility	Be compatible with all ISO standards, including ISO 19794-6 (2005, 2010). K2, K3 and K7 image format supported
Cost Effectiveness	Provide a flexible pay-as-you-go pricing model that scales with number of templates handled by the IriMaster or the number of clients connecting to the IriMaster.

Accurate Image Quality Assessment Algorithms

Performs a quality check for iris images which is important for enrollment, verification, identification or de-duplication. IriTech's image quality assessment algorithm has been proven as the most accurate ones in IREX II.



Why quality assessment important?

- During image acquisition, it can be used for real-time selection of the best image out of streaming video. It also provides feedback to improve quality of image capture
- During enrollment and identification, it can help reject unqualified images and provide actionable feedbacks to improve the accuracy.
- High correlation of quality score with matching accuracy helps reduce error rates

FNMR vs. quality rejection rate. "E2a [IriTech] is the best performer, followed by Hx and F1." [IREX II Report, Fig. 13, page 56]

Metric		Metric	
1	Scalar overall quality	10	Margin
2	Gray level spread	11	Sharpness (defocus)
3	Iris radius	12	Motion blur
4	Pupil iris ratio	13	Signal to noise ratio
5	Usable iris area	14	Magnification
6	Iris-sclera contrast	15	Head rotation
7	Iris-pupil contrast	16	Gaze angle
8	Iris sclera boundary shape	17	Interlace
9	Iris pupil boundary shape	32-64	Vendor-defined metrics

Full support of IQCE (IREX II) Quality Metrics + Self-defined Metrics

Available APIs

Iris Enrollment	Performs enrollment of an iris image by extracting template from iris image and store it into the SDK gallery.
Iris Identification (1:N)	Performs a one-to-many comparison of the given template/image with the enrolled iris templates in the SDK gallery to identify the individuals that are most likely represented by the given template/image.
Iris Verification (1:1)	Performs a one-to-one comparison of the given template/image with the stored biometric templates in order to verify that the individual is the person he or she claims to be
Iris De-duplication	Similar to identification, but it determines the first one among the biometrics database matching with the captured iris image
Image Quality Evaluation	Evaluate the iris image quality and assign a scalar quality score to various quality metric from ISO/IQCE

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