



Secure Biometric Devices

Expression of Interest (EoI)

- Listing of MOSIP compliant devices.
- Participation in establishment of MOSIP Experience Center
- Device procurement for MOSIP driven technology pilots.

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1. Introduction & Background

Modular Open Source Identity Platform (MOSIP) is an ambitious project of the International Institute of Information Technology Bangalore (IIIT-B). It is funded by the Bill and Melinda Gates Foundation, Omidyar Network and Tata Trust. The project aims at providing key components, modules, and functionalities in open source to help governments and agencies across the globe build a robust, scalable and secure platform for foundational identity.

More information on MOSIP can be found here: www.mosip.io

Objective

The objective of this document is to seek Expression of Interest (EoI) from various Device Providers to participate in the following exercises.

1. Listing of MOSIP compliant devices.
2. Participation in establishment of MOSIP Experience Center.
3. Device procurement for MOSIP driven technology pilots.

This document elaborates above points, roadmap and timelines.

Target Audience

This document is intended for Device Providers - an entity that manufactures or imports the devices in their name. This entity should have legal rights to obtain an organization level digital certificate from the respective authority or government where MOSIP is being deployed.

This document assumes that the readers are familiar with MOSIP registration and authentication services. Please see the references section for links to the latest documentation.



2. Objective 1: Listing of MOSIP Compliant Devices

MOSIP is a digital public good intended to provide the right starting point for countries/organisations in enabling digital identity for its residents/users. MOSIP is designed to be adopted, in a configurable way, by making certain choices on biometrics capture for ascertaining quality of capture, uniqueness, performing deduplication and authentication. The commercial ecosystem is well-placed to service these needs.

MOSIP is currently being adopted by Governments of Morocco and Philippines, with many such implementations on the horizon.

Through this document, we call all device providers to demonstrate compliance with the MOSIP platform.

With this compliance, you can :

- a. Expect MOSIP-compliant products/solutions to be taken to various projects globally with no or minimal changes; achieve repeatability.
- b. Increase visibility of your readiness to service requests based on MOSIP, through listing of compliance by MOSIP.
- c. Qualify for potential opportunities which may require such compliance.



3. Objective 2: Participation in Establishment of MOSIP Experience Centre

MOSIP experience centre will help upcoming MOSIP Adopters to have hands-on experience with devices and technologies before they actually proceed with full fledged deployments. MOSIP Experience Centre will be hosted and maintained by IIITB, Bangalore. All devices and technology providers who are integrated with MOSIP can demonstrate their products here.

IIITB is planning to inaugurate the experience centre by July 2020. Through this EoI MOSIP is seeking interest from Secure Biometric device* providers to participate in an evaluation exercise and later to demonstrate the devices, during the inauguration event of the Experience Centre.

*A Secure Biometric device could be an L1 or L2 device - explained further below.



4. Objective 3: Device Procurement for MOSIP Driven Technology Pilots

There is growing interest seen globally to validate MOSIP as a viable solution for a set of use cases. Over the next 18 to 24 months MOSIP would be conducting various technology pilots and case studies for this purpose. MOSIP is planning to procure a limited quantity of devices for the deployment in various pilots across the globe .

Through this EoI, MOSIP is seeking interest from Secure Biometric device providers to prove their compliance through a technical evaluation and get selected for the procurement by IIITB. Procured devices may be used in various implementations and pilots including those in progress giving the device providers an opportunity to participate.



5. Device Categories in Scope

The [MOSIP device specification](#) (see references section below) provides compliance guidelines for devices to work with MOSIP. The compliance is based on device capability, trust and communication protocols. A MOSIP compliant device would follow the standards established in this document. This EoI specifically targets Secure Biometric devices which fall under L1 and L2 compliance levels mentioned in the specification.

Device Capability:

The MOSIP compliant device is expected to perform the following:

- Should have the ability to collect one or more biometric
- Should have the ability to sign the biometric image or template.
- Should have the ability to protect against injection of biometric

Please refer to MDS specifications for more details

Device Compliance Levels Considered for EoI:

L1 - A device can obtain L1 certification when it's built in a secure facility with one of the certified Foundational Trust Module (FTM).

L2 - A device can obtain L2 certification when its built in a secure facility with one of the certified FTM with tamper responsiveness. Also the device should be capable of demonstrating tamper responsiveness during its entire life time.

*Please read the MOSIP Device Specs for Foundational Device Trust Module requirements.

Device Categories under the scope of this Eol:

Any device providers having the following 5 categories of devices can respond to the Eol with appropriate details.

Category	Type of Device	Compliance Level	Usage
C1	Single Fingerprint Scanner	L1	Authentication
C2	Single Iris Scanner	L1	Authentication
C3	Full Face Camera	L1	Authentication
C4	Slap Fingerprint Scanner, Dual Iris Scanner or Full Face Camera	L1	Registration
C5	All L2 Compliant Devices	L2	Registration /Authentication



6. Base Specifications for Devices

Following section details about the base specifications accepted by MOSIP. Please refer to the MDS specifications for more details.

Fingerprint Capture

Factor	Registration Devices	Authentication Devices
Minimum Resolution	> 500 native dpi. Bare minimum recommended. Higher densities are preferred	> 500 native dpi. Bare minimum recommended. Higher densities are preferred
Extractor Quality	MINEX compliance Number of Minutiae generated by extractor to be in conformance to ISO Specification. Tested for at least 12 Minutiae points generated under test conditions	MINEX compliance Number of Minutiae generated by extractor to be in conformance to ISO Specification. Tested for at least 12 Minutiae points generated under test conditions

FRR **	< 2% FRR in respective country	< 2% FRR in respective country
FAR **	0.01%	0.01%
DPI	500 *	500
Image Specification	ISO 19794-4	ISO 19794-4
ESD	>= 8kv	>= 8kv
EMC compliance	FCC class A or equivalent	FCC class A or equivalent
Operating Temperature **	0 - 50 C	-30 -to 50 C
Liveness detection***	As per IEEE 2790	As per IEEE 2790
Preview	> 3 FPS Jpeg lossless frames with NFIQ 2 score superimposed	None
Image Format	JPEG 2000 lossless	JPEG2000 lossless
Quality Score	NFIQ 2	NFIQ 1

* Sufficiency to be validated for registration

** MOSIP adapters can change this if needed

*** MOSIP adapters to decide on the availability of this feature

IRIS Capture

Refer ISO 19796-6:2011 Part 6 Specifications.

Factor	Registration Devices	Authentication Devices
Rotation angle	Before compression, the Iris image will have to be pre-processed to calculate rotation angle. Refer section 6.3.1 of ISO 19794-6 for rotation angle calculation for rectilinear images.	
Rotation Uncertainty	Refer ISO 19794-6	

Minimum Diameter	As per ISO 19794-6:2011 medium and higher quality images are only acceptable. Hence for this Standard, minimum acceptable Iris diameter will be 150 pixels	Same
Margin	50% left and right of Iris diameter 25% top and bottom of Iris diameter	
Color	The iris images shall be captured and stored in grey scale with pixel depth of 8 bits/pixel.	
Illumination	The eye should be illuminated using infrared or any other source that could produce high quality grayscale image.	
Image Format	JPEG 2000 lossless	JPEG 2000 lossless
Aspect Ratio	1:1	
Image Quality	76-100 IREXII - IQCE	76-100 IREXII - IQCE
Operation Temperature *	-30 C to +50 C	-30 C to +50 C
EMC compliance	FCC Class A or equivalent	FCC Class A or equivalent
Preview	> 3 FPS Jpeg lossless frames with quality score superimposed	Not Applicable
Image Specification	ISO 19794-6	ISO 19794-6
ISO Format	K3	K7

* MOSIP adopters to decide and finalize

Face Capture

Refer ISO 19794-5:2011

Factor	Registration Devices	Authentication Devices
Minimum Resolution	1080 Pixels at 2.8 mm with 110 degree view	1080 Pixels at 2.8 mm
Skin Tone	All	All
Operation Temperature*	-30 C to +50 C	-30 C to +50 C
EMC compliance	FCC Class A or equivalent	FCC Class A or equivalent
Image Specification	ISO/IEC 19794 - 5	ISO/IEC 19794 - 5
Exception Image Specification	Full Frontal with FACE features, two palms next to the face, waist up photo. 6X4 mm	N/A
Image quality	ICAO - Full frontal image, +/- 5 degrees rotation, 24 bit RGB, white background, 35 mm width, 45 mm height	
Image format	JPEG 2000 lossless	JPEG 2000 lossless

7. Deliverable by Device Provider

The responders to the Eol shall deliver the following in a time-bound manner. A separate exercise will be conducted by the MOSIP team to assist with the technical guidance for the delivery of the following once the Eol is accepted.

#	Deliverable
1	Device/Hardware (this could be a prototype device as well, built using an FTM)
2	MOSIP Device Service as per the specification document (can support Windows or Android Operating Systems)
3	Management Server/Management Client Functionalities

Separate guidelines will be published to those who are selected for the exercise.

8. Timelines for the Eol and Roadmap

#	Activity	Tentative Timeline
1	EOI published	16th March 2020
2	Last date for accepting responses	30th March 2020
3	Shortlisting based on specifications	30th March 2020
4	Last date for Submission of <i>Deliverable</i> (See section 7 above)	15th May 2020
5	Completion of compliance tests along with MOSIP team	15th June 2020
5	Listing devices on the MOSIP website as MOSIP compliant devices	15th June 2020
6	MOSIP Experience Centre Launch (with devices)	1st July 2020
7	Issuance of Purchase Orders	1st July 2020



9. References

1. MOSIP Homepage (<https://www.mosip.io/>)
2. MDS Specifications (<https://bit.ly/38ojbee>)



Annexure 1: EoI Response Format

#	Particular	Response
1	Device Provider Org Name	
2	Contact Details (Name, Number and Email)	
3	Number of Device Models Participating in EoI	
4	<i>Make and Model of the Device (1)*</i>	
5	<i>Category of the Device (1) - See Section 5 above</i>	
6	<i>Readiness stage of the Device (1) (Prototype / Production Ready)</i>	
7	<i>FTM used in Device (1) - exact part number and Make</i>	

**Repeat 4,5,6 & 7 if there are more than one device models participating*

You may email your responses to sanjith@mosip.io before 30th March 2020