



**March 2025**  
**Manilla, Philippines**

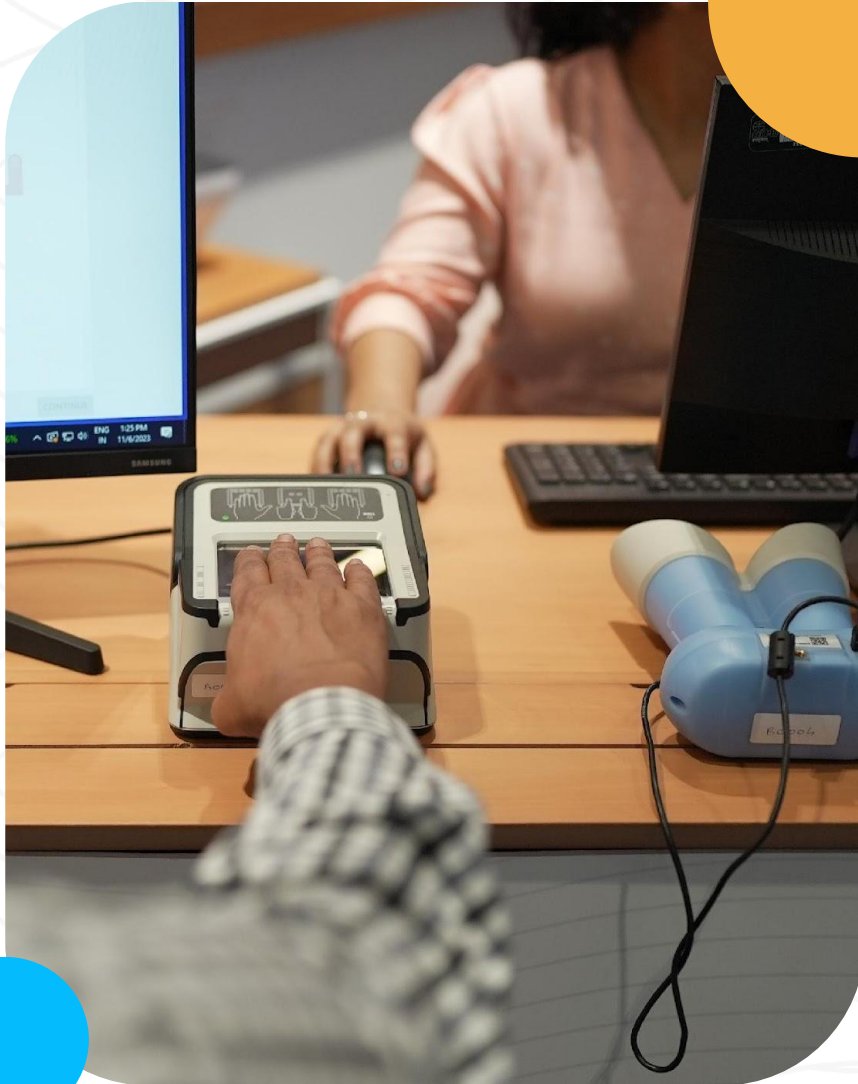


**MOSIP**

**MACP:**  
The “*How To*” Workshop

**Dr. Ted Dunstone (Biometix)**  
**Sanjith Sundaram ( MOSIP)**





“Biometrics is a **unique, accurate, easy-to-use and non-transferable** way to identify a person.”

“Biometrics is like a **non-changeable password**; once lost, it's lost forever.”

# Three Key Areas

**Enrolment** of  
Good Quality  
Biometrics

01

**Uniqueness  
Assurance** based  
on biometrics – for ID  
Generation

02

Biometric **Identity  
Verification** for  
Service Delivery

03





# Biometric Collection



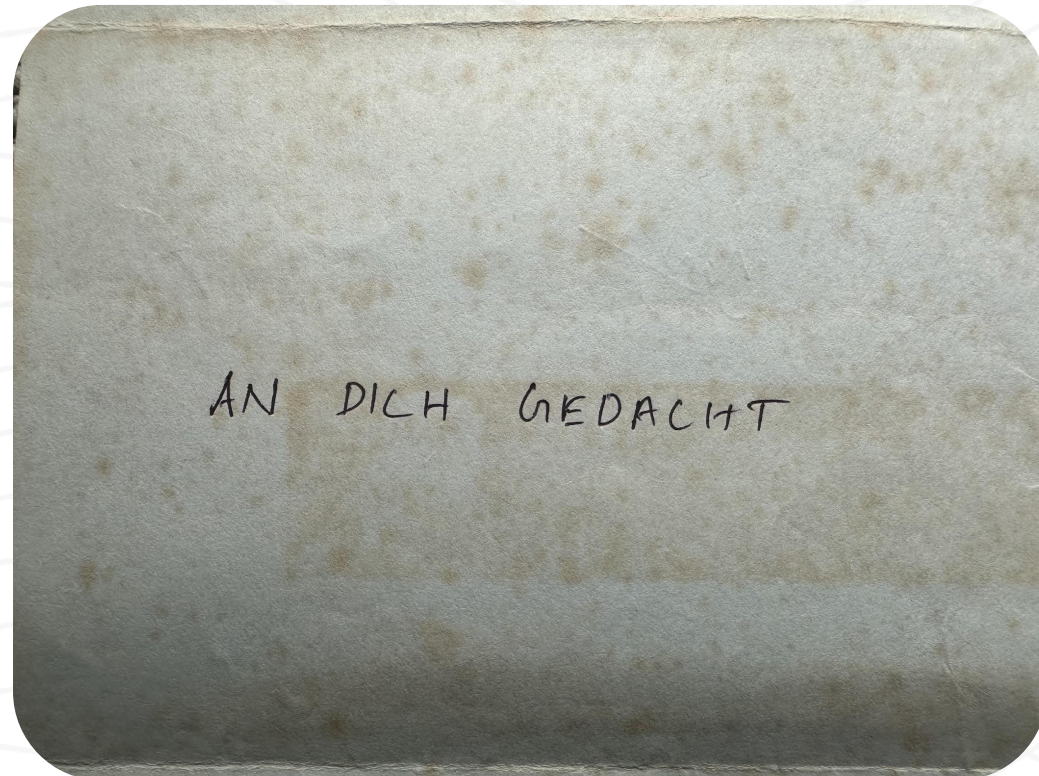
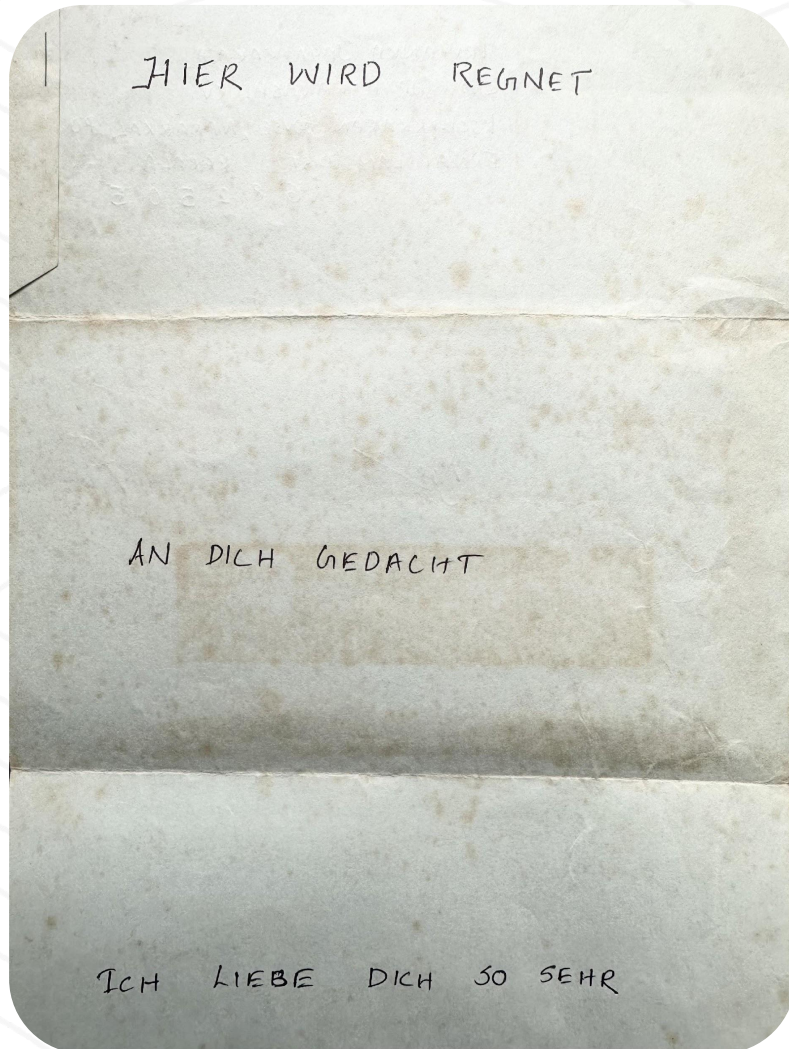


# The Number Lock

Symmetric Encryption



# Love Is in the Key





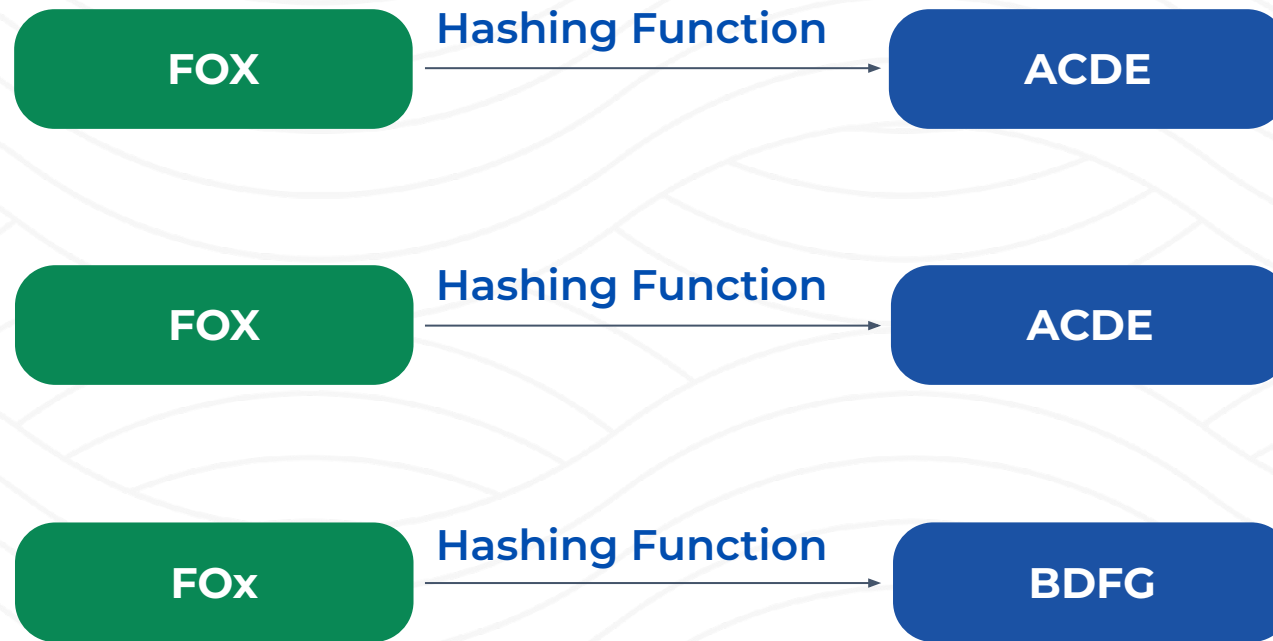
# The Padlock

## Asymmetric Encryption



# Hashing

## For data integrity



# Digital Signature

Authentication

Non-Repudiation

Integrity



PRIVATE KEY

*Sanjish*

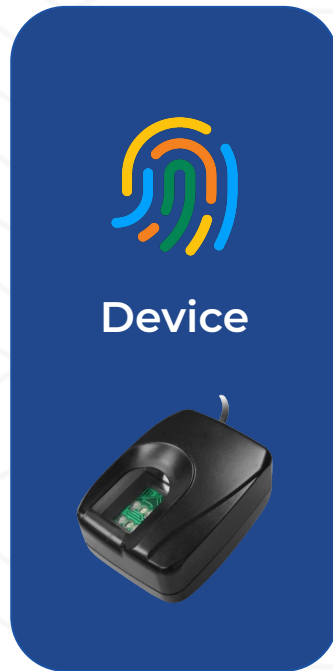
Specimen Signature



PUBLIC KEY



# Capture → ID System

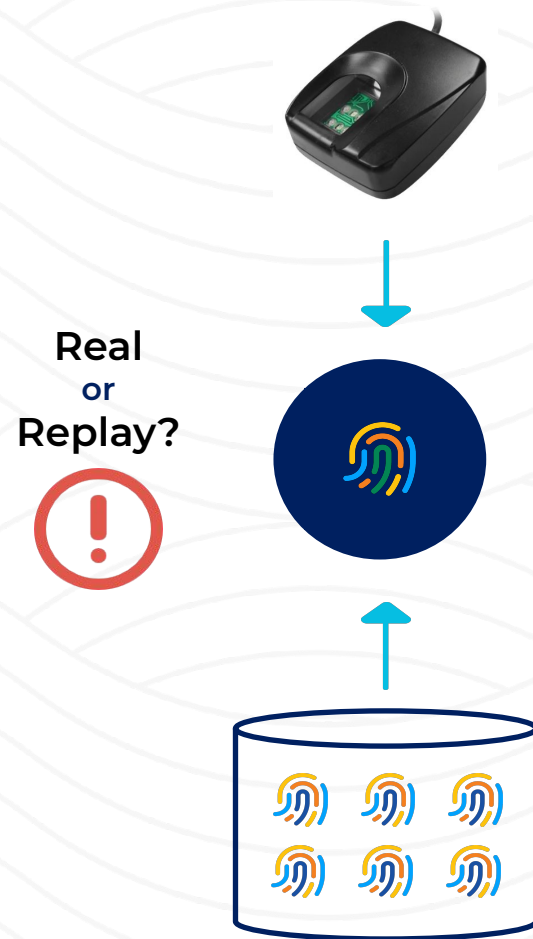


Hash + Encrypt + Digitally Sign

- 01.** Encrypt Using Random Session Key – 123
- 02.** Encrypt the key using ID System's Public Key



# Is that Sufficient?



**01**

Is it a replay of biometrics? Scalable Attack!

**02**

Is it a certified biometric device used?

**03**

How to talk to the device in a standard way?

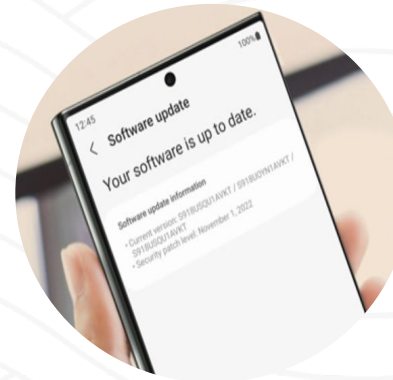
# Secure Biometric Interface

## SBI Service

Qualified Capture Environment ensuring no external biometrics are injected

## Managed Devices

Central Server Managing the SBI and Cryptography



Just like your phone!



# Secure Biometric Interface (SBI) Standard



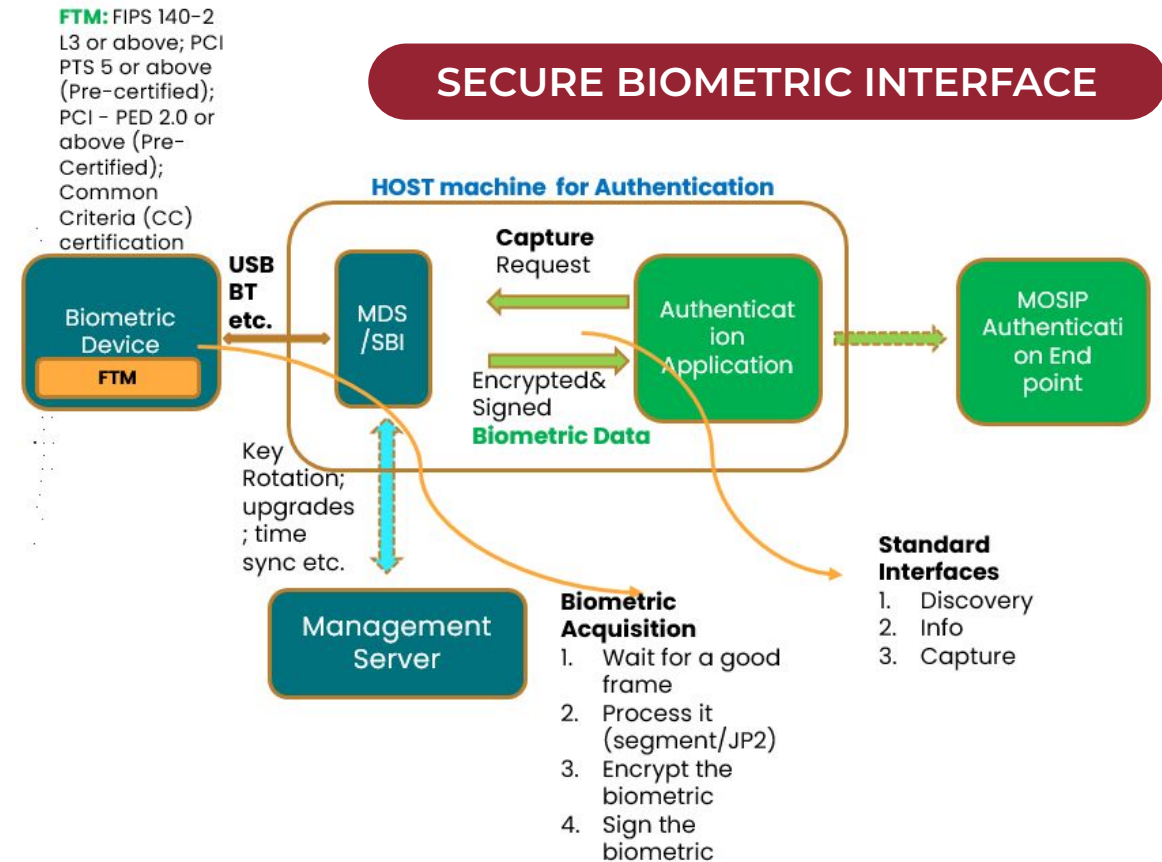
- Biometric Replay/Injection
- Cryptographic Traceability
- Standardised interfaces
- Purpose driven capture

## SBI 1.0

- Host based security
- For controlled environments

## SBI 2.0

- Hardware based (FTM) security
- For uncontrolled environments



Managed Devices

Remote Upgrades

Secure Provisioning

Secure Boot

Time Sync

Key Rotations

Trusted Apps

Forward upgrades



# Certification Requirements

Adopters need “assurance” on the biometric products. Certification infrastructure needs special focus

## 01 Interfaces

- Standardised interfaces
- Biometric replay/injection
- Cryptographic traceability
- Inclusive data model
- Purpose driven capture
- Works across web 2.0 protocols

## 02 Image Quality

- Good quality biometrics
- Quality over the lifetime (wear and tear)
- Inclusiveness

## 03 Hardware

- Security
- Touch/Touchless
- Environmental
- Robustness
- Safety/Health

## 04 Other Requirements

- Liveness/Presentation Attack Detection

## Challenges



**Different Technologies**



**New Biometric Modalities**



**On-field Performance**



**Interoperability**

**+ Lack of Standards**

Availability of advanced labs

Efforts required for new labs

Challenges with single channel certification



# Initiatives



A framework that provides **standardised assessment criteria** and **standard operating procedures** to test devices or solutions against these criteria.

Enable the establishment of standardised **MOSIP biometric device certification** programmes which are capable of providing independent certifications to MOSIP users through empaneled labs.

# MOSIP Experience Centre





# MACP

## Framework Documentation

| Documentation              | Purpose                                                                                                                                                                                                          |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Certification Framework    | Basic framework document with guidelines on: <ul style="list-style-type: none"><li>• Lab</li><li>• Test Planning</li><li>• Test Results and Reporting</li></ul>                                                  |
| Device Profiles            | Covers Testing Criteria & Pass Criteria<br>Device specific testing profiles. <ul style="list-style-type: none"><li>• Fingerprint</li><li>• Iris</li><li>• Face</li></ul>                                         |
| Lab Qualification Criteria | Describes who can get empaneled as a testing lab under this framework. <ul style="list-style-type: none"><li>• ISO/IEC 17025 or relevant national body such as NIST NVLAP</li><li>• Other requirements</li></ul> |

Credits to the Lab, Biometric Working Group, community and countries

Documentation available at

<https://github.com/mosip/biometric-certification-framework/tree/master/docs>.



# Lab Onboarding Status

(SBI 1.0)

| Lab Details                                                                                                                                                                         | Status                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| <br><b>BixeLab</b><br><a href="https://bixelab.com/">https://bixelab.com/</a>                      | Onboarding <b>Complete</b>              |
|  <b>ingenium</b><br><a href="https://ingeniumbiometrics.com/">https://ingeniumbiometrics.com/</a> | Technical onboarding <b>In Progress</b> |



# MOSIP

**For media queries write to:** [communications@mosip.io](mailto:communications@mosip.io)

**MOSIP Website:** [www.mosip.io](http://www.mosip.io)

**MOSIP Source Code:** [github.com/mosip](https://github.com/mosip)

**MOSIP Documentation:** [docs.mosip.io](https://docs.mosip.io)

**MOSIP Community:** [community.mosip.io](https://community.mosip.io)