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LONG-TERM RELEASES: Types, Levels, and Details

Ramesh Narayanan

Chief Technical Officer, MOSIP





MOSIP periodically releases versions of the platform, tagged with version numbers. These versioned releases fall into many types.

01 DEVELOPER RELEASES

- Interim releases, not marked as stable
- Can be used for experimentation, integration testing, and small pilots
- No active support for these versions. Adopters are expected to move to the next available stable release

02 STABLE RELEASES

- Fully tested releases
- Offers incremental capabilities and fixes over previous stable releases.
- Ready for adoption by anyone looking for a cutting-edge version.
- Support for these releases is typically time limited and the expectation is that the adopter will upgrade to an LTS version or the next stable release. Support for this reaches sunset as newer stable releases are made available.

03 LTS VERSION

- Stable release
- Signifies the culmination of a roadmap for that version and is marked as the LTS version.
- LTS versions get patch releases and minor and major updates.



LEVELS OF of Support





01 ACTIVE SUPPORT

This is the highest and best level of support. This is only offered on the latest LTS version, and select latest stable release versions.

02 ESSENTIAL SUPPORT

This support as the name suggest is limited to essential fixes such as security and selected functional and non-functional enhancements. This is offered on the previous LTS version during the upgrade window.

03 NON SUPPORTED

This is the lowest level of support and only critical security fixes will be made. No functional and non-functional releases or non-critical security releases will be made. This only applies to LTS versions that are out of support.

04 END OF LIFE

Any release version that is marked as End of Life will not receive any updates.





SUPPORTED FOR A MINIMUM OF 5 YEARS

Asymmetric Amoeba (1.2.0 LTS) was released in February 2022 and will be supported at minimum till February 2027

WHAT HAPPENS AFTER FEBRUARY 2027?

Scenario 1: A new LTS version is released

MOSIP plans to release version 2.X LTS in February 2025. Active Support for Asymmetric Amoeba will be available during an upgrade window of 2 years. Between Feb 2025 – Feb 2027 both LTS versions will be supported. After Feb 2027 only the newer LTS version will get active support. Support for Asymmetric Amoeba will be downgraded.

From February 2027 the most actively supported release will be version 2.X LTS

Scenario 2: No new LTS version is released

Active support for Asymmetric Amoeba will be extended

- Support will be available for migration to next LTS version for two years
- Adopter inputs and experiences will be factored to fine tune this duration









LTS Releases offer:

- 01 Completely implemented roadmap features
- **02** Frozen API and Data formats
- 03 Tooling, add-ons and extensions
- 04 Compatible components and solutions in the marketplace
- **05** Compliance and certification programs

06 Active support

- Proactive security updates
- Patches for bugs
- Periodical cumulative updates of functional, non functional fixes and patches
- Support for ecosystem partners for integration and implementation
- Additional support to adopting countries under MOU for versions under active support
 - L3 support to adopting countries
 - Training and capacity building
 - Technical advisory on ID and use case implementations



1.2.0 LTS – Asymmetric Amoeba

MOSIP'S CURRENT LONG TERM SUPPORT RELEASE – V 1.2.0





ASYMMETRIC AMOEBA IS BEST FOR BOTH: New Adopters | Existing Adopters

01 NEW ADOPTERS

- Full set of features and tools through pilot
- Country-wide rollouts, with assurance of long-term support
- Assured updates

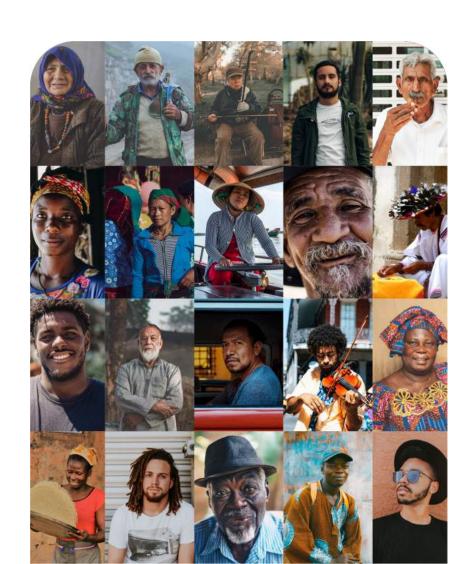
02 EXISTING ADOPTERS ON PRE-LTS STABLE VERSIONS

- Access to full feature set, latest tools, and add-on modules
- Access to the best tier of support
- Access to periodic updates and fixes
- Ability to utilise the upgrade window to avoid falling into unsupported mode





ASYMMETRIC AMOEBA What's New – Features & Fixes



01 FUNCTIONAL BENEFITS

- New Admin UI with robust APIs
- New Partner Management Portal UI with robust APIs
- New Resident Portal with robust APIs

02 OTHER BENEFITS

- Enhanced security
- Finer Documentation
- Enhanced mechanism to evaluate performance
- Improved service level performance
- Standalone stages of registration processing







TOOLS AND ADD ONS

- Anonymous profiling to cater to the analytic needs
- Improved reporting for better forecasting & efficient decision-making
- V3 Deployment Architecture
- Dockerised test automation









COMPLIANCE TOOL KIT

ANDROID REGCLIENT







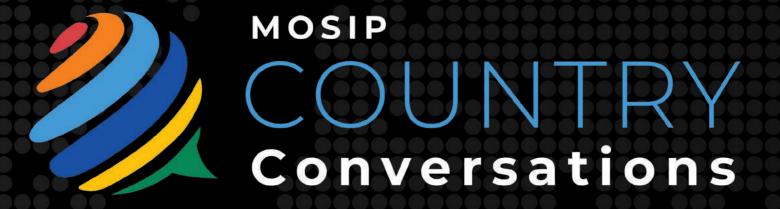
OpenG2P

COMPLIANCE TOOL KIT





ANDROID REGCLIENT



UPGRADING TO ASYMMETRIC AMOEBA



HOW TO UPGRADE Standard Procedure for LTS Migration

- O1 Discussing migration and communication strategies (relying parties, Stakeholders etc.)
- 02 Prioritising a list of issues that must be fixed before migration
- **03 Understanding and analysing**, in detail, latest changes and customised features
- **04 Identifying** sequencing of components and infra to be migrated
- O5 Discussing ways and means to automate specific stepsO6 Migrating using upgrade scripts- DB, template, config, seed data etc.
- Phased migration: sandbox, staging, production
- **07 Hardening** security
- 08 Marking off checklist template items



CHALLENGES AND IMPACT Time & effort required to migrate

Time and effort involvement will depend on customisation needs

WITHOUT CUSTOMISATION: 2-3 months

- Time to deploy V3: 2 weeks
- Time to execute upgrade scripts: 2-3 weeks
- Time taken to test/certify:
 - 2 days for environment sanity using test rig automation
 - 3-4 weeks for full blown testing for all the modules





MIGRATION SUPPORT Before, during & after LTS migration

Before: Availability of upgrade scripts

During: Cater to customisation needs and discuss backup and restore strategy

After: Support with end-to-end testing

MIGRATION PLANNING AND EXECUTION

Parameters that define the success of migration

- Functionality coverage
- Successful execution of integration and automation testing

GOING DIGITAL WITH MOSIP MOSIP for Use Cases

Ramesh Narayanan (CTO, MOSIP)



THE MOSIP Solution

MOSIP ENVISIONS A DIGITAL FUTURE THAT IS

INTEROPERABLE

INCLUSIVE

TRUSTED

ID-Led development and transformation User centric perspective Standards driven solutions Modular and reusable infrastructure





BENEFICIARY MANAGEMENT AND **BENEFITS DELIVERY**









Devices

Government Services

Government Databases

Partners/Relying Party

Authentication | eKYC | Digital | Print | e-Signet

Trust Network

THE MOSIP ECOSYSTEM



Devices



- Authentication devices play a vital role in EKYC.
- Non personal secure authentication devices can authenticate anyone.
- Ability to plug and play the device in e-signet.
- Supports Iris & fingerprint.
- Integration libraries are readily available.
- Best usage of these devices are in assisted situations & cyber cafe based usage.
- Connectivity is a must for this solution to work
- Protection levels of these devices are good and are recommended for Kiosk.
- Ensure liveness detection to protect against fake/gummy fingerprints
- Based on secure biometric standard
- Uses PKI to identify the device
- Device providers are approved and managed in the Partner Management Portal
- Ability to hotlist a device/provider





- Any entity that is allowed to collect data from MOSIP is a partner/relying party.
- All partners are verified using PKI & onboarded in MOSIP PMS module.
- To seed data from MOSIP to other government systems can be achieved using this same solutions.
- Paper work of partners are expected to be out of MOSIP system.
- Entities that need eKYC or authentication to onboard their users can use this service.
- Partners are expected to buy or find business model to use the authentication devices.

Partners are trusted entities and are classified as:

- Authentication partners (yes/no)
- KYC partners (user information)
- MISP partners (regulatory bodies with control to policy)
- Print partners (digital/physical)



THE MOSIP ECOSYSTEM

Policy



- All data sent out of MOSIP is regulated using policy including MOSIP's own authentication layer.
- Regulatory bodies can manage their partners & control policy using MISP license.
- To seed data from MOSIP to other government systems can be achieved using this same solutions.
- Policy is a powerful way to control who gets what data.
- Policy can be used to meet your regulatory data protection & privacy needs.
- Transparent policies can help manage trust around users data.

Policies can be controlled for:

- Authentication partners (yes/no)
- Masked data (xxx-123)
- Pin encrypted data
- Merging multiple fields (fname + Iname)
- Restricting biometrics
- Extracting/Converting biometrics
- Restricting fields to provide limited information like just Year in DOB.



PARTNERS & RELYING PARTIES An Overview

01 PRINT PARTNERS

- These are relying parties that can be used to print or issue a digital wallet to store the credentials.
- Some of the government database's can seed information from here. For example: Voters Database, Social benefit registries, Bank account mapping.
- User consent is obtained on registration/update.

02 REGULATED PARTNERS

- These are regulated entities in the country. Need not be just government organisations. Examples: Bank, telecom industries.
- Regulated and controlled using policies.

03 UNREGULATED RELYING PARTIES

- Restrict them to just Auth. This enables startup ecosystems to flourish with more trusted user base.
- Enables better and innovative service delivery with less risk of data leak.





Signed QR: Cryptographically signed. Free from fake or tampered card creation.

Photo: Machine-readable, tamper-evident photo. Helps in local face authentication.

Reading the open standard based QR code & authenticating the individual can be used as a mechanism to enable offline & user controlled access to his/her data.

Libraries available in MOSIP to read this QR and understand the data.

Risks: Service signup without users consent if face is not validated.

AUTHENTICALTION AND eKYC in MOSIP Stack





MOSIP

- Authentication API
- Yes / No, KYC
- Selective Disclosure
- Partner specific policy
- -Tokenisation support
- UIN/VID based auth
- Partner management
- Credential issue
- Print credential protocol

Signet

- Single sign on credentials
- User consented share
- Complete authentication on Inji wallet
- KYC and Selective Profile sharing
- Partner specific policy
- ClientID for partners



- Digitally signed credentials
- Offline sharing
- Selfie
- authentication
- Decentralised verification
- Decentralised KYC

PHYSICAL CARD

- ID for service enrolment
- ID for proof of delivery
- ID linkage for sectoral applications
- ID seeding for registries
- QR code presentation and consumption of ID

MOSIP USE CASES Harnessing the power Digital ID

Sanjay Jain (Chairperson, Technology Committee, MOSIP)





Through:

- ID-led development and transformation
- User-centric perspective
- Standards-driven solutions
- Modular and reusable infrastructure





IDENTITY VERIFICATION, LOGIN & CONSENTED DATA SHARING

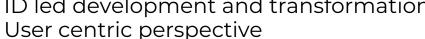


BENEFICIARY
MANAGEMENT AND
BENEFITS DELIVERY









- Standards driven solutions
- Modular and reusable infrastructure

A BORDERLESS ECONOMY: Social mobility | Easy cross-border commerce | Global transformation

FINANCIAL INCLUSION

Banking the unbanked | Credit Access

HEALTHCARE DELIVERY

Targeted vaccination | Childbirth | Medical Records

DEPARTMENTAL IDS

Taxes | Organisation Registries | Driving License et al.

BENEFITS DELIVERY

Direct benefit transfer | Unemployment Cash or Kind Subsidies | Schemes

SOCIAL REGISTRIES

Benefits Registries | Employment Registries

EMERGENCY RELIEF

Pandemics | Natural Disasters

CIVIL REGISTRIES

Birth & Death Registry | Family Registry | Marriage

PRIVATE SECTOR

Banking, Insurance et al | Digital Payments Service Delivery





01 IDENTITY USE CASES

- ID Proof
- KYC
- Proof of life and presence assurance
- Online, offline and decentralized identity verification

02 SERVICE DELIVERY USE CASES

- Single sign on credentials
- Link ID to sectoral applications Health, Education, Agriculture
- Link ID to key registries SPR, Voter, Tax
- Enable private sector usage

03 BENEFITS DELIVERY USE CASES

- Beneficiary enrolment to schemes
- Payments
- Proof of delivery for other benefits Food, Clothes, Medicine





BENEFICIARY
MANAGEMENT AND
BENEFITS DELIVERY





ID PROOF

Resham Chugani

Product Manager, MOSIP

TYPES OF CREDENTIALS

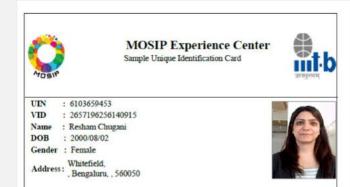
PHYSICAL: Paper



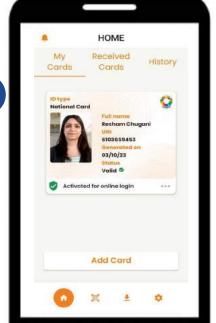
PHYSICAL: PVC Card







This is a sample UIN Card. It is not a legally binding document of any sort and not valid outside the MOSIP Experience Center.



DIGITAL: QR (PDF)

www.mosip.io







PROOF OF LIFE & PRESENCE ASSURANCE

Resham Chugani

Product Manager, MOSIP



BIOMETRIC AUTHENTICATION

01 Liveness detection

02 Transactional context bound

03 Timestamped







ID VERIFICATION MODES

Resham Chugani

Product Manager, MOSIP

ID VERIFICATION modes





- 01 Online API
- **02** Online IDP Service
- 03 QR Code offline/online
- 04 Decentralised biometric authentication:
 - Selfie
 - 3rd Party Verification



INTEGRATION WITH INJI

Monobikash Das

Technical Architect, MOSIP



INJI

A secure, trusted and inclusive mobile wallet & authenticator, that can be used by residents to securely download, store and share Verifiable Credentials

01. Residents:

Generate Verifiable Credential (VC) by either using a UIN or a VID

02. Relying Parties:

Receive VC and verify residents, to provide services, through peer-to-peer sharing mechanism

03. QR code scanning & Offline face authentication

04. BLE sharing protocol

05. e-Signet integration to access digital services

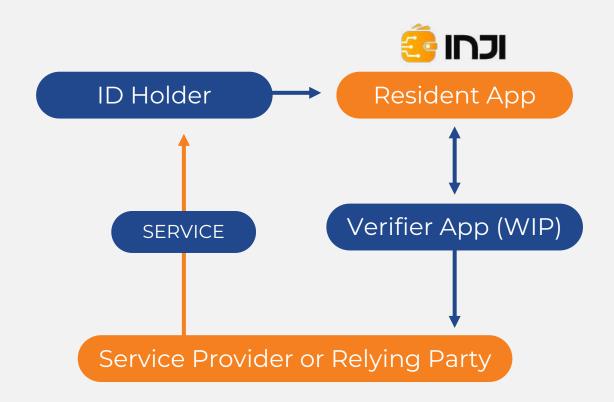
06. Upcoming:

USSD Support, OpenID standard – issuance, OWF architecture





CREDENTIAL SHARING and Authentication Process







E-KYC

Anusha Sunkada

Technical Architect, MOSIP



TYPES OF ID AUTHENTICATION And the authentication process

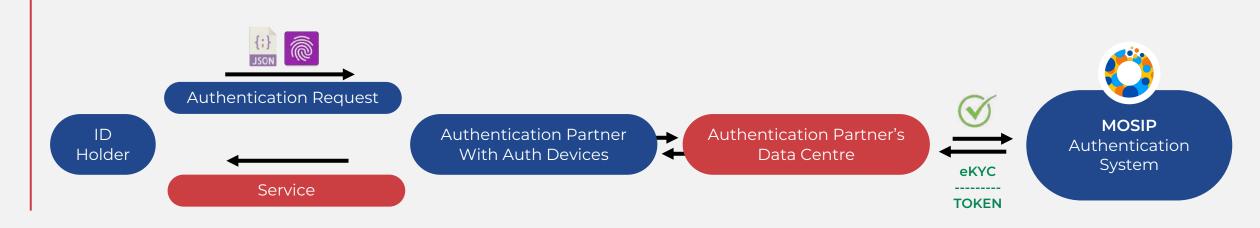
Authentication using multiple modalities like biometrics, OTP and demographics

e-KYC based authentication to share selective non-biometrics attributes

Policy driven selective sharing of digitally signed and encrypted data

Tokenisation: Partner Specific User Token, Policy Driven User Token and Random Tokens

AUTHENTICATION PROCESS





ONE ID

Vishwanath V

Technical Architect, MOSIP



e-SIGNET

A simple yet **powerful mechanism** for end users to **identify** themselves, to **avail online services**, and **share** profile information



- Login with **trusted ID**
- Support for multiple authentication factors
- **03 Friction less** inclusion of new authentication factors
- Easy integration with relying parties
- Collection of user consent
- Avoids unwanted profiling
- Provides multiple assurance levels
- Integration with **Digital Wallets**



LOGIN WITH MOSIP ON

Beneficiary/Health/Pension/Any Service-Based Portal

RELYING PARTY

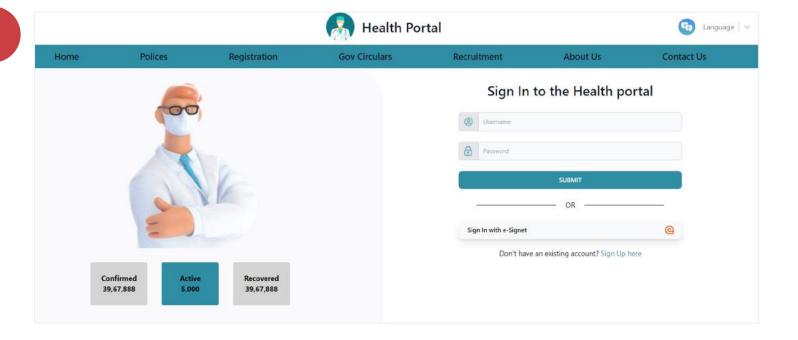
Demo health portal

VERIFICATION ADD-ONS



IDENTITY ISSUER







Enabling Public and Private Sector Usage

Rounak Nayak

Product Manager, MOSIP

PUBLIC SECTOR Usage

AGRICULTURAL SUBSIDIES

- Fertiliser
- Farm Equipment
- Seeds
- Farmer Education

EMERGENCY RELIEF SUBSIDIES

- Flood
- Fire
- Quake
- Pandemic

SOCIAL BENEFITS

- Old-Age Schemes
- Pregnancy & Child Development
- Education Allowance
- Employment



PRIVATE SECTOR Usage

FINANCIAL INSTITUTIONS

- Retail Banking
- Mobile Money
- Insurance

OTHER INSTITUTIONS

- Airports
- Telecom
- Cab Services
- Hospitality
- Healthcare
- Education



Linking & Seeding to Other Registries

Rounak Nayak

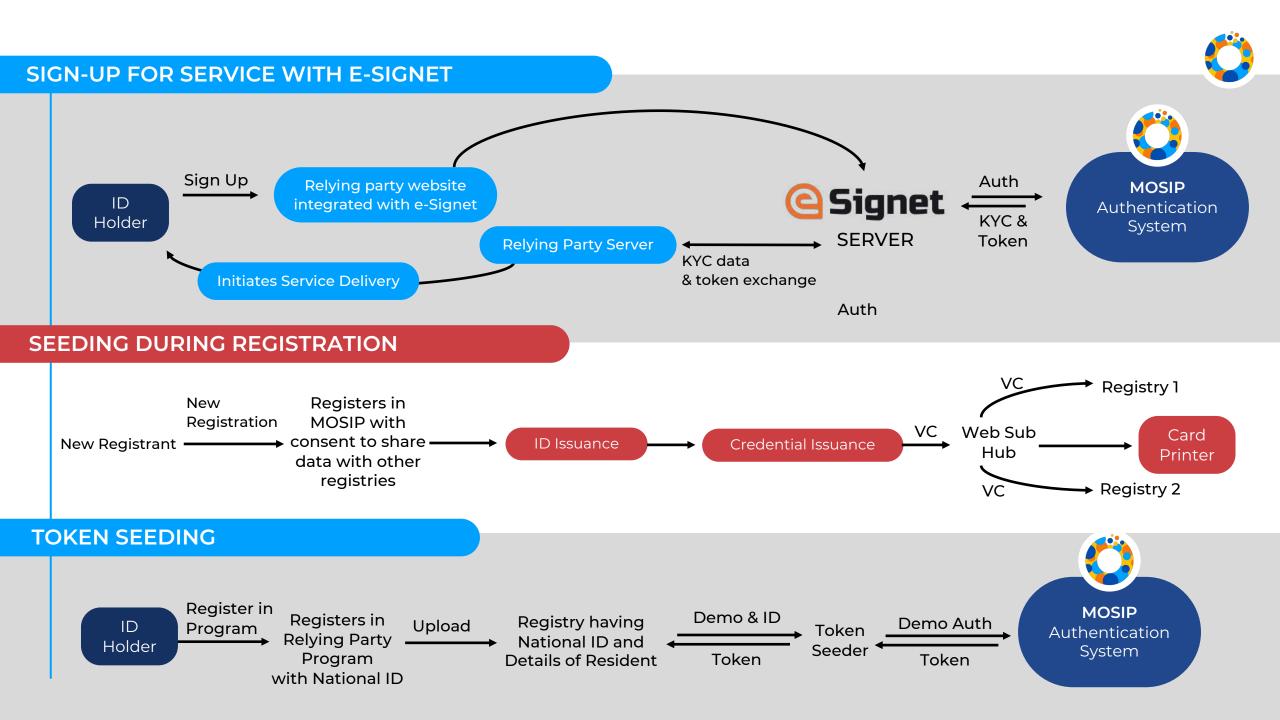
Product Manager, MOSIP

REGISTERIES

Ö

- Social Protection Registry
- Voter Registry
- Family Registry
- Passport
- Driving Licence
- Vaccination Database







OpenG2P

Puneet Joshi

CTO, OpenG2P

INTRODUCING 01 Beneficiary Registration

OpenG2P 02 Program Enrolment

03 Payments

O4 Proof of Delivery







Social Benefits Delivery

from Government to Person

OpenG2P was set up with the vision to accelerate:

- Social Protection
- Financial Inclusion
- Digital Development



- OpenG2P is an open-source benefits registry and delivery platform
- A platform that delivers benefits from Government to Person
- Allows the digitising and automating of processes
- Enables inclusive and efficient delivery of benefits
- Is an important component of a country's digital public infrastructure
- Supported by not-for-profit organisations

























Guiding Principles

OpenG2P is...



TRANSPARENT by being open-source, vendor neutral, and open to community contributions and feedback

INCLUSIVE through human-centric design that leaves no one behind

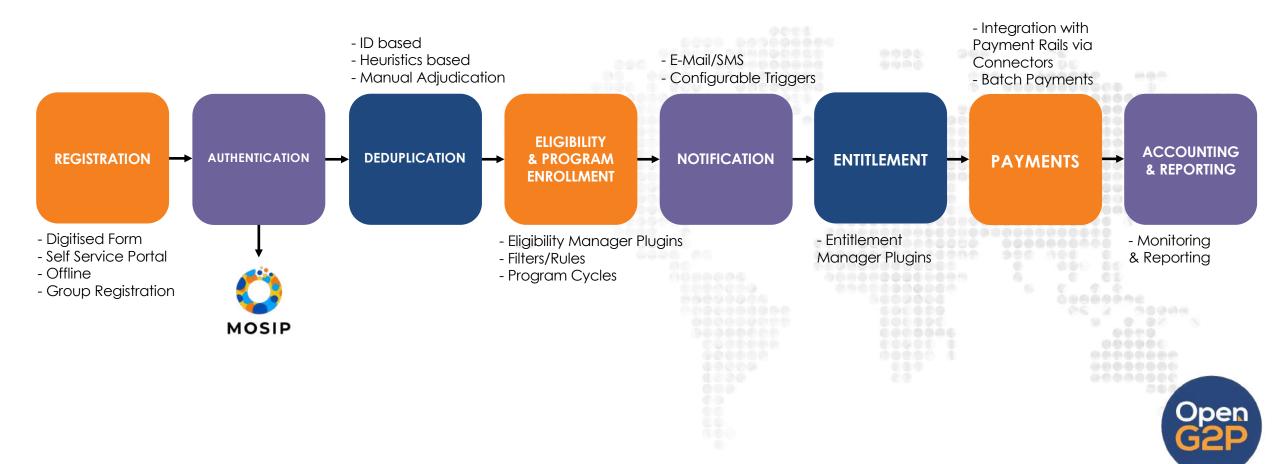
SUSTAINABLE by being cost- and time-efficient and cognisant of existing efforts





The Social Protection

Delivery Chain



OpenG2P and MOSIP

Points of Integration



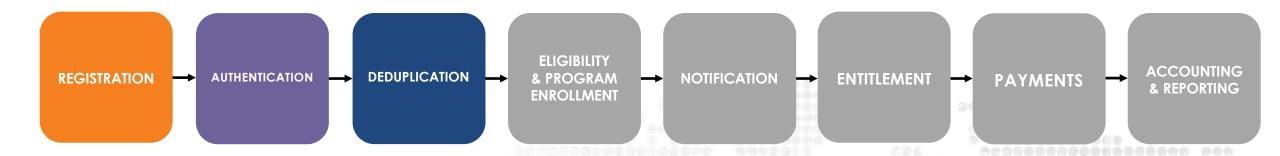
INTEROPERABLE & INCLUSIVE

- Beneficiary registration and offline authentication of digital signature
- Deduplication
- Authentication during delivery of service
- "Login with MOSIP" on OpenG2P beneficiary portal



Offline Registration

Assisted registration using tablet

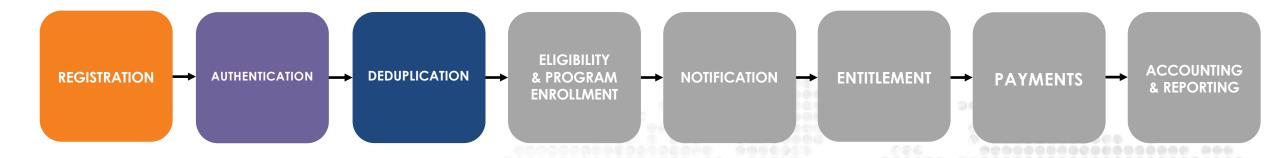


- Digitised form
- Individual & Group registration
- During registration: QR code scanning with offline authentication using MOSIP ID
- Registry
 - Online authentication (with tokenisation in the backend) using MOSIP ID
 - Deduplication: ID based, Heuristics based
 - Manual Adjudication



Online Registration

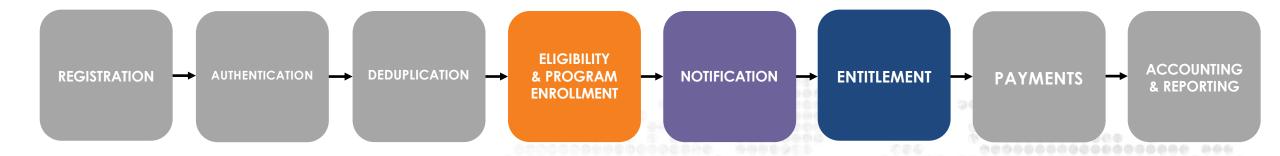
Registration of registrant through Beneficiary Portal



- Self registration on beneficiary portal
- Login using e-Signet MOSIP ID
 Online authentication with tokenisation
- Apply for programs & track status



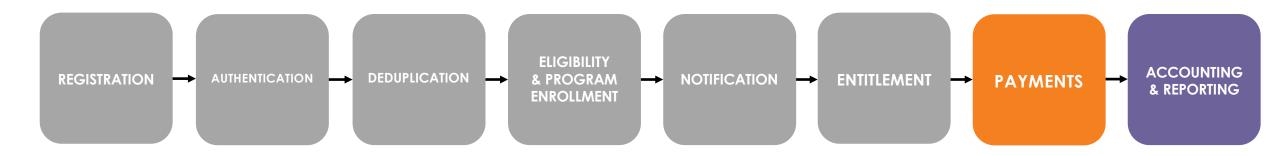
Program Enrolment



- Eligibility manager plugins
- Filters/Rules
- Program cycles
- Notifications
 - E-Mail/SMS
 - Configurable triggers



Payment Disbursement & Proof of Delivery



- Integration with payment rails via connectors
- Batch payments
- Authentication at point of delivery using MOSIP ID
- Basic monitoring & reporting



Cash Transfer

Reference Integration via Mojaloop





Reporting

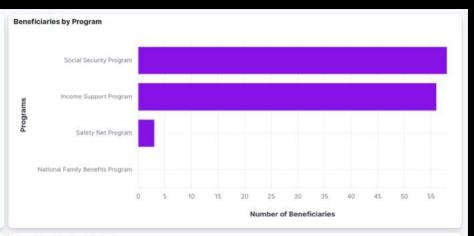
Dashboard



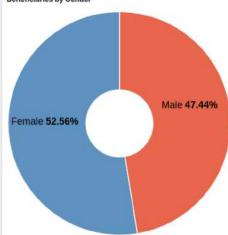
234

Beneficiaries

117

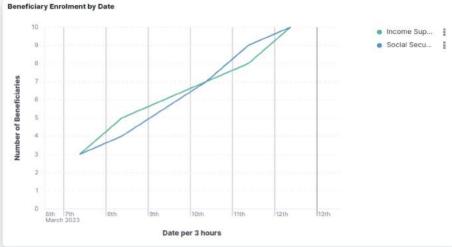


Beneficiaries by Gender



Total Disbursement (USD)

270





OpenG2P

Roadmap

- O1 Self service portal
- **02** Proof of delivery
- 03 Benefits delivery in kind
- 04 Voucher based benefits delivery
- **05** Grievance Redress Mechanism (GRM)



Coordinates

For more about OpenG2P:

Website | openg2p.org

Code | github.com/openg2p

Documentation | docs.openg2p.org



THE MOSIP Roadmap

Ramesh Narayanan (CTO, MOSIP)

Prof S Rajagopalan (President, MOSIP)



THE MOSIP Solution

MOSIP ENVISIONS A DIGITAL FUTURE THAT IS

INTEROPERABLE

INCLUSIVE

TRUSTED

ID-Led development and transformation User centric perspective Standards driven solutions Modular and reusable infrastructure



MANAGEMENT AND BENEFITS DELIVERY



Principle-Driven Development



01

USER CENTRIC

- Inclusion
- Access
- Privacy

02

MANAGEABLE

- Secure
- Observable
- Scalable

03

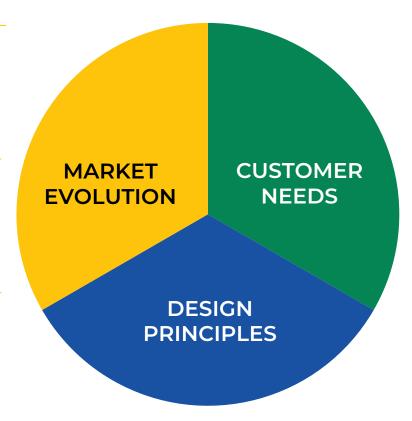
STANDARDS-BASED

- Choice
- Interoperability
- Evolvable

04

SUSTAINABLE

- Open Source
- Commodity
- Reusable



PLATFORM ROADMAP (2023 & 2024)





ON THE LTS RELEASE:

Resident Portal

Android Registration Client

Realtime ID Issuance

Enhanced Identifier Support

More Automation in testing and deployment

Functional, security & performance fixes



Token APIs in OIDC

Consent registry and management

Verifiable Credentials issuance

Multi-Issuer support

JS Client

WebAuthN support



e-Signet based VC issuance flow

Verifier library and application

Security framework

e-Sign support

Documents support

Cloud wallet with USSD client

OpenG2P

Self service portal

Proof of delivery

Benefits delivery in kind

Voucher based benefits delivery

Grievance Redress Mechanism (GRM)

PLATFORM ROADMAP (2023 & 2024)



RESEARCH

Applying quantum ready cryptography

Use of synthetic data for testing, analysis and benchmarking

Usage of voice biometrics

Trust networks

Quality of biometrics

STANDARDS

Biometrics standards for devices, SDK, ABIS

Standards for issuing credentials, wallet onboarding, sharing and querying

StandardiSed QR codes

Global ID standards for KYC and other cases

CAPACITY

Internship programmes

Joint academic projects

Courses on digital transformation

Digital Experience Centres at other locations

MOSIP STACK

OpenG2P Phase II

OpenCRVS Phase II

GovStack, G2PConnect, DCI readiness for interoperability

Payments and Data share integrations

WHAT COUNTRIES CAN Achieve Together

Ramesh Narayanan (CTO, MOSIP)

Prof S Rajagopalan (President, MOSIP)



JOINT INITIATIVES For Sustainable Progress



01 Leverage respective efforts for common progress

02 Promote interoperability through open standards

03 Improve usage through harmonisation of processes and policies

04 Exchange know-how to improve capacity



PROPOSED initiatives



and ABIS

Global usage of ID: Issue once & use everywhere

- Assurance process on trustworthiness of ID
- Shared schemas for common use such as KYC, Travel, ID Proof, Proof of Residence
- Managing access to relying parties



PROPOSED initiatives



- Evaluate, learn and make suitable choices
- Improve effectiveness through refinement and new innovations



- Define common criteria for systems and hardware
- Define playbooks for support, integration, and upgrades



Thank You!

Homepage: www.mosip.io

Source Code: https://github.com/mosip

Documentation: docs.mosip.io

Community: community.mosip.io

