

ERATOSTHENES

SECURE MANAGEMENT OF IOT DEVICES LIFECYCLE THROUGH IDENTITIES, TRUST AND DISTRIBUTED LEDGERS

WORKSHOP 1

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PILOT 3 – DISPOSABLE IDS IN INDUSTRY 4.0

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IoT in Industry 4.0

- The IIoT market size was valued at \$115 billion in 2016, and is projected to reach at \$197 billion by 2023
- Across all industries
- Benefits
 - Automation
 - Optimization
 - Control
 - Maintenance
 - Real time

Current Problems

- Static Identifiers (IDs)
- Identifiers are stored in centralized database
- Identifiers are permanent
- Cluttered device management
- Insecure onboarding and bootstrapping mechanisms
- IDs are random strings

Disposable ID

- created as unique IDs for an assigned process or communication
- can be limited on the way and lifetime of usage;
- have a cryptographic child relation to certain entity / asset ID
- is built on quantum safe cryptographic methods; (e) can be revoke
- at any time by parent ID owner
- can't be cloned or faked by cryptographic mechanisms
- can be processed on distributed networks
- compliant to GDPR and European Self Sovereign ID strategy.

Use cases

- Secured identification mechanism for
 - IoT devices in a manufacturing plant
 - Retrofitting sensors at production floor
 - ECUs in cars
 - Sensors in food logistic trucks
- Distributed Disposable ID service
- Trust and permission service

Requirements

Req Id	Description
P3_FR_01	Trusted information exchange with CERT/CSIRTs for vulnerabilities reporting in industry 4.0 devices
P3_FR_04	Identify and register devices based on cryptographic fingerprinting
P3_FR_05	Allow to exclude devices from the communication network by revocation
P3_FR_06	Sender/ Receiver Devices should be able to identify using an SSI approach
P3_FR_09	Onboard memory unit protection
P3_NFR_01	Improve device management by automated on boarding and assigning of unique IDs
P3_NFR_12	Avoid single point of failure in industry 4.0 IoT networks
P3_FR_07	Trust improvement of DIDs (storage/recovery/reputation) in DLT through PoI and smart contracts implementation
P3_OR_01	DWG APIs and service components will be provided under open-source license (Apache 2.0 / BSD license)

Thank you for your attention!

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