Vehicle Identity Standard

Mobility Open Blockchain Initiative
VID Working Group
Version 1.0

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TABLE OF CONTENTS

Working Group Representation IV
Foreword VI
Introduction VII
1 Scope 1
2 Terms, Acronyms, and Definitions 2
3 General System Description 5
3.1 System Overview 5
3.2 System Security and Identity 6
3.3 Key Management and Key Rotation Concepts 8
3.4 Addressing and Uniform Resource Identifiers 9
4 Certificate Data Format 10
4.1 Unique Vehicle Identifier (UVI) 10
4.2 Vehicle Birth Certificate (VBC) 11
4.3 Enum and Time Definitions 13
4.4 Entity Certificate 13
4.5 Revocation Certificate 14
5 Certificate API 15
5.1 Overview 15
5.2 Relationship Verification and Certificate Access 16
5.2.1 Common Relationships APIs 18
5.2.2 Role 4 to Role 4, 3, 2 API 19
5.2.3 Role 3 to Role 4 API 20
5.2.4 Role 3 to Creation and/or Revocation of Certificate, 4, 2 API 20
5.2.5 Role 2 to Self API 23
5.2.6 Role 1 to Role 4, 3, 2 API 23
6 Entities 24
6.1 Overview 24
6.2 Entity Structure 25
7 System Requirements 26
7.1 Overview 26
7.2 Distributed Virtual Machine (DVM) 27

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Working Group Representation

Mobility Open Blockchain Initiative
Vehicle Identity Working Group

The issuance of the Vehicle Identity (VID) Standard as a formal Mobility Open Blockchain Initiative (MOBI) standard was conducted by MOBI and its members.

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Foreword

MOBI (Mobility Open Blockchain Initiative) is a global smart mobility consortium established to accelerate the adoption of blockchain, distributed ledger, and related technologies in the mobility industry through the creation and promotion of standards.

The work of preparing standards is carried out through MOBI working groups. Each member of the consortium interested in a subject for which a working group has been established has the right to be represented and participate in that working group. Mobility providers, technology companies, governments, and NGOs, in liaison with MOBI, take part in this work.

The procedures used to develop this document and those intended for its further maintenance are described in the working group charter. In particular, the different approval criteria needed for the different types of MOBI documents should be noted. Approvals of MOBI Steering Committee and Board of Directors are obtained upon the final document release. Attention is drawn to the possibility that some of the elements of this document may be the subject of intellectual rights. A 60 day review period in accordance with MOBI IPLR policy is provided to MOBI community to disclose any and all IP matters pertaining to this standard. MOBI shall not be held responsible for identifying any or all such rights. Details of any IP rights identified during the development of the document will be in the Introduction upon public release of this standard.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

The working group responsible for this document is the Vehicle Identity Working group.

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Introduction

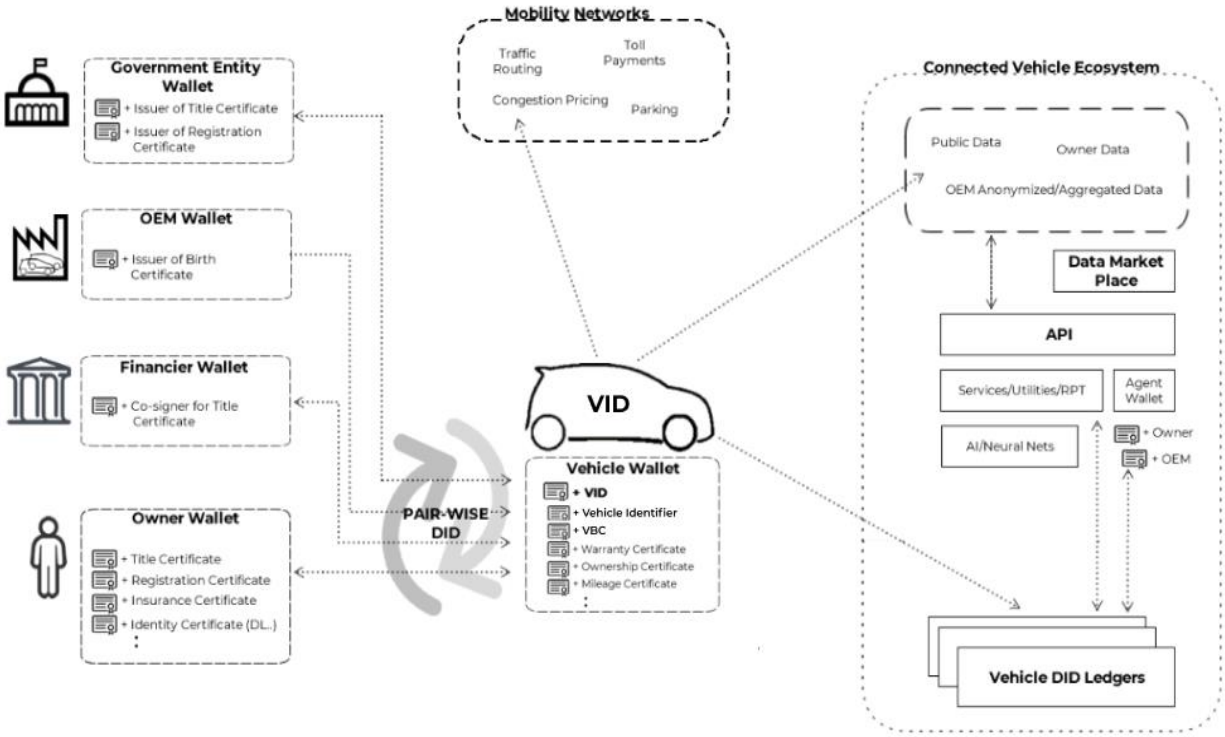

Fig 1. A DLT-based Connected Vehicle Platform

This document specifies the first standard for Vehicle Identity (VID), which represents the principal digital foundation of future mobility. The Vehicle Identification Number (VIN), a current vehicle identity system, is inefficient for the digitization of many mobility use-cases such as maintenance history, usage-based insurance, microtransactions, and, ultimately, the existence of a vehicle's digital twin. The complete VID and its immutable data can be employed by connected and future autonomous vehicles, and the IoT infrastructure that will support them. The VID is defined as an authoritative form of identity that can be cryptographically verified.

Figure 1 shows a high-level architecture and a potential ecosystem of the distributed ledger network for the connected vehicle. At the center of this network is a vehicle with its associated Vehicle Identity (VID). The vehicle has a securely-stored electronic wallet (data-store) that contains digital certificates for things such as vehicle identity, ownership, warranties, and mileage. At the birth event, the VID consists of the vehicle birth certificate (VBC) and is indexed by a unique vehicle identifier (UVI). The left-hand

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side of Figure 1 shows (from bottom to top): the owner, lien-holder, the manufacturer (OEM), as well as government entities, e.g., Department of Motor Vehicles (DMV), that may also have wallets with their own digital certificates and unambiguously specify, their relationship with the vehicle. The VID allows the vehicle to identify itself to mobility networks (Figure 1 – Top Center) that provide services such as toll payments, parking, congestion pricing, etc. The VID may also be used to access vehicle data that may be stored on each OEM's network (right side of Figure 1). The advantage compared to current solutions is that the source and provenance of the data can be ensured through distributed ledger technology. The owner of the data may even choose to participate in a data marketplace, monetizing the vehicle data they choose to make available.

In contrast to a centralized architecture where each organization or entity would maintain a different view of the same vehicle, the decentralized architecture from Figure 1 offers an alternative where sharing and regulating vehicle data, as well as vehicle communication with infrastructure, are made possible. This greatly simplifies the complex, single entity systems. This VID standard is designed to ensure that the data can be securely stored on a decentralized infrastructure with permissioned entity access. This allows mobility providers to verify identities, credentials, and associated metadata, enabling vehicles to be securely connected with infrastructure, consumers, and to store digital currency; ultimately, enabling secure transactions with the external world.

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MOBI standards are available to all MOBI members. If you are not part of the MOBI community and would like to become a member, accessing standards, along with other benefits dealing with the future of mobility, please fill out our membership inquiry form. If you have any questions, please email vid@dlt.mobi.