DIN EN ISO 24014-1:2021-04 (E)

Public transport - Interoperable fare management system - Part 1: Architecture (ISO 24014-1:2021); English version EN ISO 24014-1:2021

Contents

Page

Foreword ... **vi**

Introduction ... **vii**

1 Scope ... **1**

2 Normative references ... **2**

3 Terms and definitions ... **2**

4 Abbreviated terms ... **6**

5 Requirements ... **6**

6 System environment for IFMS ... **7**
6.1 General ... 7
6.2 Mobility platforms ... 7

7 Conceptual framework for IFMS ... **7**
7.1 General ... 7
7.2 Description of IFM roles and external roles ... 8
7.3 Basic framework of the generic IFM functional model ... 12

8 Use case description for the IFM functional model ... **13**
8.1 Description of IFM-roles and external roles ... 13
8.2 Define set of rules ... 14
8.2.1 General ... 14
8.2.2 Define set of rules for Customer accounts ... 14
8.2.3 Define set of rules for media ... 14
8.2.4 Define set of rules for ID services ... 15
8.2.5 Define set of rules for payment services ... 15
8.3 Certification ... 15
8.3.1 General ... 15
8.3.2 Certification of organizations ... 16
8.3.3 Certification of components ... 16
8.3.4 Certification of media ... 16
8.3.5 Certification of ID services ... 16
8.3.6 Certification of payment services ... 17
8.3.7 Certification of application specifications and templates ... 17
8.3.8 Certification of product specifications and templates ... 17
8.4 Interaction with external objects ... 18
8.4.1 General ... 18
8.4.2 Interaction with external media ... 18
8.4.3 Interaction with external applications ... 19
8.4.4 Interaction with external ID services ... 20
8.4.5 Interaction with external payment services ... 21
8.5 Registration ... 22
8.5.1 General ... 22
8.5.2 Registration of organizations ... 22
8.5.3 Registration of components ... 22
8.5.4 Registration of ID services ... 22
8.5.5 Registration of customer accounts ... 23
8.5.6 Registration of payment services ... 24
8.5.7 Registration of media ... 24

8.5.8 Registration of customer media ... 24
8.5.9 Registration of application templates ... 25
8.5.10 Registration of applications ... 25
8.5.11 Registration of product templates ... 25
8.5.12 Registration of products ... 25
8.6 Managing ID services ... 26
8.6.1 General ... 26
8.6.2 Enrolment and update of Customer ID data via an application form ... 26
8.6.3 Enrolment and update of Customer ID data via an external ID service ... 27
8.6.4 Update of Customer ID data via an online account ... 27
8.6.5 Re-use of incumbent Customer ID data ... 28
8.6.6 Management and maintenance of Customer ID data ... 28
8.6.7 Providing the ID service to IFMS internal and external organizations ... 29
8.7 Management of customer accounts ... 29
8.7.1 General ... 29
8.7.2 Secure login to customer online accounts ... 30
8.7.3 Connect/disconnect customer media to/from the customer online account ... 30
8.7.4 Transfer of products between connected customer media ... 31
8.7.5 Connect system generated account with a customer account ... 32
8.7.6 Termination of customer accounts ... 32
8.8 Management of customer media ... 33
8.8.1 General ... 33
8.8.2 Provisioning of media ... 33
8.8.3 Termination of customer media ... 34
8.9 Management of applications ... 35
8.9.1 General ... 35
8.9.2 Dissemination of application templates ... 35
8.9.3 Acquisition of applications ... 36
8.9.4 Termination of application templates ... 36
8.9.5 Termination of applications ... 37
8.10 Management of products ... 38
8.10.1 Dissemination of product templates ... 38
8.10.2 Termination of product templates ... 39
8.10.3 Management of action lists ... 40
8.10.4 Acquisition of products ... 40
8.10.5 Modification of product parameters ... 40
8.10.6 Termination of products ... 41
8.10.7 Use and inspection of products ... 41
8.10.8 Collection of data ... 42
8.10.9 Forwarding data ... 43
8.10.10 Generation and distribution of clearing reports ... 43
8.11 Security management ... 44
8.11.1 General ... 44
8.11.2 Monitoring of IFM processes and IFM data life cycle ... 44
8.11.3 Management of IFM security keys ... 45
8.11.4 Management of security lists ... 45
8.12 Customer Service management (optional) ... 48
9 System interface identification ... 48
10 Identification ... 48
10.1 General ... 48
10.2 Numbering scheme ... 48
10.3 Prerequisites ... 49
10.3.1 There is one Registrar within the IFMS. ... 49
10.3.2 All objects, e.g. templates and components, have an owner who is one of the actors in the IFMS. ... 49
10.3.3 The identification of the application and product shall be as short and compact as possible due to the minimization of the transaction time between the customer medium and the MAD. ... 49

11 Security in IFMSs **49**
11.1 General 49
11.2 Protection of the interests of the public 49
11.3 Assets to be protected 50
11.4 General IFM security requirements 50
Annex A (informative) **Mobility Platform – German example** **52**
Annex B (informative) **Pay-As-You-Go (PAYG) roles and relationships in an IFMS** **57**
Annex C (informative) **Mobility ID service example** **63**
Annex D (informative) **Examples of IFMS implementations** **73**
Annex E (informative) **Media centric management and back-office centric management** **79**
Bibliography **81**