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**