International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

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SERIES M: TELECOMMUNICATION MANAGEMENT, INCLUDING TMN AND NETWORK MAINTENANCE

Designations and information exchange

Formalization of orders for service management among operators

ITU-T Recommendation M.1405

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ITU-T Recommendation M.1405

Formalization of orders for service management among operators

Summary

ITU-T Recommendation M.1405 defines orders and additional information intended primarily for human-to-human communication between various operators, i.e., network operators or service providers.

The orders contain data for designations of interconnections and other information about services that are required to be communicated between operators.

This Recommendation extends ITU-T Rec. M.1402 and ensures use of M.1402 in orders among operators.

This Recommendation is developed in order to facilitate computerized interoperation between telecommunication operators.

As the data defined in this Recommendation are designed for human usage, they are independent of the functions in which they are used. Hence, the data may be applied in any functions, e.g., in customer requests, call centres, billing, service platforms, etc.

Source

ITU-T Recommendation M.1405 was approved on 6 August 2007 by ITU-T Study Group 4 (2005-2008) under the ITU-T Recommendation A.8 procedure.

Keywords

Data definitions, designations, domestic, interconnection, international, messages, operator, orders, terminology, X interface.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure e.g. interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at http://www.itu.int/ITU-T/ipr/.

CONTENTS

Introduction

This Recommendation defines order designations and additional information intended primarily for human-to-human communication between various operators, i.e., network operators or service providers within the context of an external terminology schema in end user terminology.

The area of interest is the communication of orders between operators about network interconnections and telecommunication services. The objects of communication are telecommunication services and network resources.

This Recommendation focuses on human needs for stable and recognizable data formats independently of the media they are communicated over. Therefore, in order to support the human-to-human communication, the formats defined in this Recommendation are required to be provided at the corresponding human-to-computer interfaces, as well. Hence, this Recommendation defines the formats of data at human-to-computer interfaces, but does not define the data communication formats for interfaces between computer systems, such as at the TMN X interface or non-TMN computer interfaces. However, it must be possible to automatically map the human-to-computer formats to the computer-to-computer formats and vice versa. The details of this mapping are for further study.

Use of this Recommendation inside national jurisdictions will be the result of bilateral negotiation between the operators and/or national regulatory activity. Although compliance with all ITU-T Recommendations is voluntary, special mention is made for ITU-T Rec. M.1405 due to the sensitivity of designations for interconnection from a regulatory and legal standpoint. This extension greatly increases the number of routes and nodes to be identified, and in this way extends the name spaces to be provided.

This Recommendation defines orders and additional information to be exchanged between two operators. While it defines order and message identification, it does not define data on the status or processing of these orders or messages. In that regard, this Recommendation can be considered as an adaptation or extension of ICT industry standards, e.g., OASIS UBL. ICT industry standards for such data may impose additional requirements on human-to-computer interfaces.

The definition of information is common for the functions it supports.

This Recommendation aims at supporting communication among service providers and network operators, but may also support communication between brokers, retailers, customers and installation providers.

This Recommendation aims at defining designations of orders and additional information for service personnel, technicians and file support personnel at their terminals supporting the services and network, and serves as design information for developers of operational support systems.

ITU-T Recommendation M.1405

Formalization of orders for service management among operators

1 Scope

The area of interest is the communication of orders between operators about telecommunication services and network interconnections. The contents of the orders are defined in other Recommendations.

The focus of this Recommendation is on end user terminology as defined in an external terminology schema and which puts requirements on other schemata and implementations.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T M.1400] ITU-T Recommendation M.1400 (2006), *Designations for interconnections among operators' networks*.

[ITU-T M.1401] ITU-T Recommendation M.1401 (2006), *Formalization of interconnection designations among operators' telecommunication networks*.

[ITU-T M.1402] ITU-T Recommendation M.1402 (2007), *Formalization of data for service management*.

[ITU-T M.1403] ITU-T Recommendation M.1403 (2007), *Formalization of generic orders.*

[ISO 3166-1] ISO 3166-1:2006, *Codes for the representation of names of countries and their subdivisions – Part 1: Country codes*.

3 Definitions

This Recommendation is comprised of structured definitions in the context of an external terminology schema graph.

This Recommendation uses all definitions in [ITU-T M.1402], provides an additional order structure to these definitions, and provides correspondences between the two structures.

4 Abbreviations

This Recommendation uses abbreviations defined in [ITU-T M.1401] and [ITU-T M.1402].

5 Conventions

Figure 1 shows boxes containing object class labels to indicate object classes. Lines supported with a reversed arrowhead indicate subordinate object classes. Lines with two-way arrows indicate references between object classes. A dashed one-way arrow with an S at the arrowhead indicates a schema reference and is here used to state instance-class correspondences between Messages. " ‘& " states recursively superior node, while "(" states subordinate node. Hence, the used expression states a schema reference from any to any Message. Ellipses are used to indicate any data structure.

The text that follows Figure 1 includes a label and explanation for each class in the schema. A class can be an object class, an attribute class, or a reference class. The level of each class is depicted in the text by indentations (5 mm) of the class label, supported with dashes, where the number of indentations and dashes indicates the level of a given class within the schema. Therefore, each class label has a given indentation based on the Figure 1 schema graph.

Labels of data items that are subordinate to or referenced from a given object class are presented in the following sequence:

1) alphabetized object class attributes;
2) alphabetized object class references; and
3) alphabetized object classes that are contained within the given object class at the next lower level.

Textual definitions and explanations of object classes, attributes and references are provided in paragraphs that are adjusted 5 mm further to the right of their respective labels.

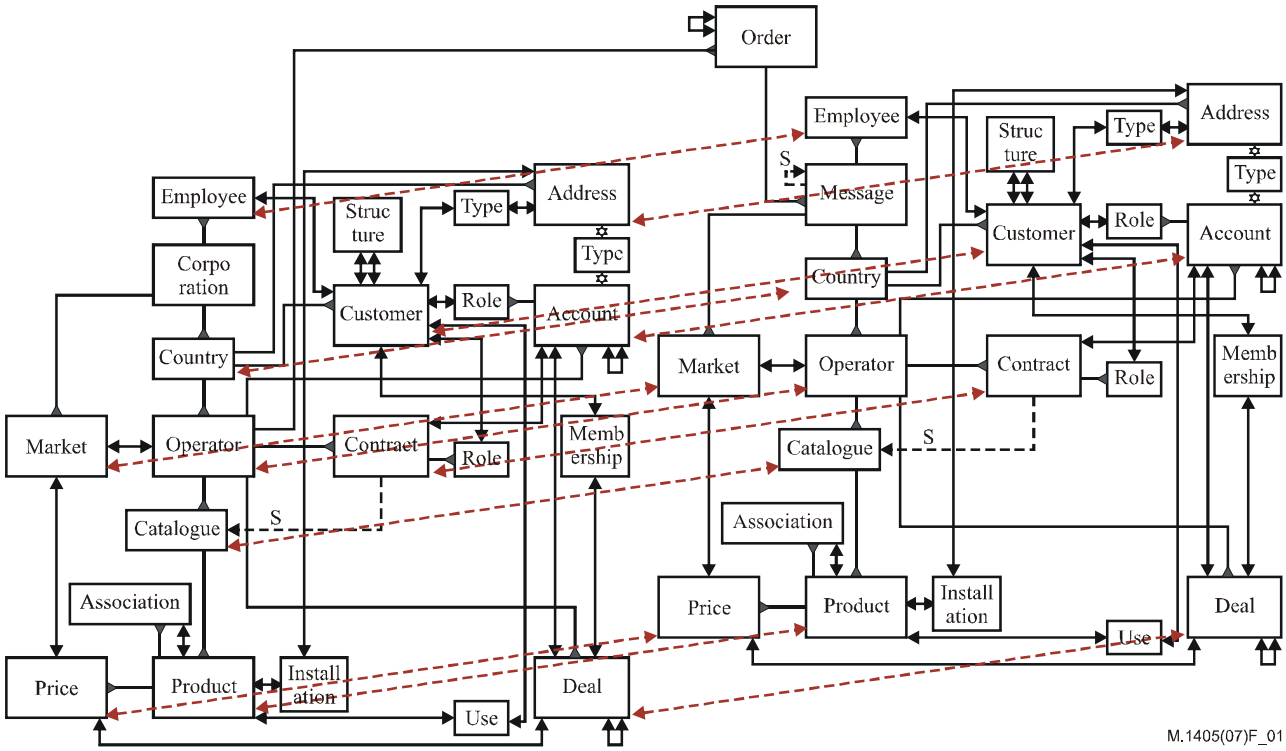
Object class labels are underlined; attribute group and attribute labels are not underlined. Object class references are written in blue, italics and underlined.

The formalism used in this Recommendation is introduced in Appendix III of [ITU-T M.1401].

Data attributes shall consist of sequences of characters, each character being either alphabetic (A-Z) or numeric (0-9). Additional requirements for symbols are explicitly stated in format requirements for specific attributes. It is recommended that alphabetic characters be represented with upper-case letters unless stated otherwise.

Brown dotted lines indicate references between the main register part and the order register part. Brown textual references indicate references between the main register part and the order register part.

6 External terminology schema



NOTE – The left-hand part is identical to [ITU-T M.1402]. Except for Order and Message and their references, the right-hand part is a copy of the same. The brown arrows show the correspondences.

Figure 1 – External terminology schema graph, depicting object classes (boxes), containment (reversed arrowheads) and references (two-way arrows)

Corporation

- Country

  See [ITU-T M.1401].

- - *Country*

    See [ITU-T M.1401].

- - CC

    See [ITU-T M.1401].

- - Name

    See [ITU-T M.1401].

- - Address

- - - *Address*

- - - *Installation*

- - - *Type*

- - - *Type*

- Customer
  - *Customer*
  - KID
  - Name
  - Business role
  - Customer status
  - Importance
  - *Employee*
  - *Membership*
  - *Role*
  - *Role*
  - *Subordinate structure*
  - *Superior structure*
  - *Type*
  - *Use*
- Operator

  See [ITU-T M.1401].
  - *Operator*

    See [ITU-T M.1401].
  - ICC

    See [ITU-T M.1401].
  - LID
  - Billing system
  - Rating system
  - Account
    - *Account*
    - Account number
    - Payment form
    - Role
      - Category
        - Type
        - Update
      - *Customer*
    - *Address type*
    - *Contract*
    - *Deal*
    - *Subordinate account*
    - *Superior account*
  - Catalogue
    - *Catalogue*
    - Product

- *Product*
- Identifier
- Type
- Number
- Association
- Type
- *Contained product*
- *Installation*
- *Superior association*
- Price
- *Price*
- *Deal*
- *Market*
- *Use*
- *Market*
- Contract
- *Contract*
- Contract number
- Amount
- Prepaid amount
- Prepaid date
- Spent amount
- Internet address
- *Account*
- Role
- Category
- Type
- Update
- *Customer*
- *S <> '& ((Country (Provider (Catalogue*
- Deal
- *Deal*
- *Account*
- *Membership*
- *Price*
- Order

  See [ITU-T M.1403].
- Number

  See [ITU-T M.1403].
- *Derived order*

  See [ITU-T M.1403].

- *Served order*
  See [ITU-T M.1403].
- Message
  See [ITU-T M.1403].
- Type
  See [ITU-T M.1403].
- *S <> '& (((Order (Message*
  See [ITU-T M.1403].
- Country
- *Country*
- CC
- Name
- Address
- *Address*
- *Installation*
- *Type*
- *Type*
- Customer
- *Customer*
- KID
- Name
- Business role
- Customer status
- Importance
- *Employee*
- *Membership*
- *Role*
- *Role*
- *Subordinate structure*
- *Superior structure*
- *Type*
- *Use*
- Operator
- *Operator*
- ICC
- LID
- Billing system
- Rating system
- Account
- *Account*
- Account number

- Payment form
- Role
  - Category
    - Type
    - Update
  - *Customer*
- *Address type*
- *Contract*
- *Deal*
- *Subordinate account*
- *Superior account*
- Catalogue
  - *Catalogue*
- Product
  - *Product*
  - Identifier
    - Type
    - Number
  - Association
    - Type
    - *Contained product*
  - *Installation*
  - *Superior association*
- Price
  - *Price*
  - *Deal*
  - *Market*
  - *Use*
- *Market*
- Contract
  - *Contract*
  - Contract number
  - Amount
    - Prepaid amount
    - Prepaid date
    - Spent amount
  - Internet address
  - *Account*
  - Role
    - Category
      - Type

- Update
- *Customer*
- *S <> '& ((Country (Provider (Catalogue*
- Deal
- *Deal*
- *Account*
- *Membership*
- *Price*
- Employee
- *Employee*
- Employee number
- *Customer*
- Installation
- Change
- State
- Time interval
- *Installation address*
- *Product*
- Market
- *Market*
- *Operator*
- *Price*
- Membership
- Category
- Type
- Update
- *Customer*
- *Deal*
- Structure
- Type
- *Subordinate customer*
- *Superior customer*
- Type
- Type
- *Address*
- *Customer*
- Type
- Type
- *Account*
- *Address*
- Use

- Category
- Date
- Type
- Update
- *Customer*
- *Product*
- Employee
- *Employee*
- Employee number
- *Customer*
- Installation
- Change
- State
- Time interval
- *Installation address*
- *Product*
- Market
- *Market*
- *Operator*
- *Price*
- Membership
- Category
- Type
- Update
- *Customer*
- *Deal*
- Structure
- Type
- *Subordinate customer*
- *Superior customer*
- Type
- Type
- *Address*
- *Customer*
- Type
- Type
- *Account*
- *Address*
- Use
- Category
- Date

- Type
- Update
- *Customer*
- *Product*

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