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Recommendation Z.334

SUBSCRIBER ADMINISTRATION

1. *General*

This Recommendation has been developed in accordance with the methodology defined in Recommendations Z.332 and Z.333.

The main part of this Recommendation deals with the model of the subscriber Administration. A glossary of the terms used is also included. The list of functions to be controlled by means of MML is contained in Annex A. For each of these functions one or more MML functions can be derived and each of them can be described using the metalanguage defined in Recommendation Z.333 in order to detail the relevant information structure.

Annex B contains a list of MML functions and the information structure diagrams associated to each of them to be used as guidelines.

2 *Introduction*

The scope of this Recommendation is the operational aspect of the functional area of subscriber administration.

It has been recognized that subscriber Administration is related to various administrative procedures, belonging to other functional areas, which have to be carried out prior to or in functional relationship to the jobs to be controlled by MML.

Such administrative procedures are Administration dependent with different degrees of data processing support.

They can be considered as the administrative environment.

3 Subscriber administration model

3.1 *Introduction*

The model is applicable to subscribers to whom normal telephone services (POTS: Plan of Telephone Services) are offered.

For the representation of the model the metalanguage defined in Recommendation Z.333 has been used.

For the purposes of this Recommendation subscribers have been divided into the following two classes (see Figures B-1/Z.334, B-2/Z.334 and B-3/Z.334 :

— single-line subscribers, comprising single-party and multi-party lines;

— multi-line subscribers, comprising PBX (without direct inward dialling), PABX (with direct inward dialling) and subscriber line groups.

Both single-line and multi-line subscribers are embedded in an administrative environment. This environment may comprise all data relevant for administering the various types of subscribers. Examples for such data are addresses of subscribers and subscribers' features. The administrative environment aspects are not considered in detail in this model.

3.2 *Description of model*

3.2.1 *General*

Subscribers are distinguished by the data describing the way in which they are connected to and managed by the public exchange, including data related to the associated hardware equipment in the exchange. Examples are two party lines, ordinary subscriber lines, PABXs multi-party lines.

From the Administration view every subscriber falls into one of the two main types identified in the model, single- or multi-line subscribers. Due to the different association of information entities needed for the representation of these two main types, two different sets of MML functions are felt to be appropriate. The relevant information entities defined in the model are described in the following sections.

3.2.2 *Line characteristics*

Line characteristics are described by their attributes which may include information about class of line, kind of signalling, attenuation equalization, traffic directions, etc.

3.2.3 *Line group characteristics*

Line group characteristics are described by their attributes which may include information about kind of signalling, class of line, traffic directions etc., associated to all lines forming the group.

3.2.4 *Facility characteristics*

Facility characteristics are described by their attributes. They include all information about supplementary services which can be assigned to a given subscriber. Examples are abbreviated dialling, do not disturb service, wake-up service, charging information like normal charging or free of charge.

There are attributes which can only be controlled by the Administration while others are primarily controlled by the subscribers themselves. However, it has been recognized that in the latter case these attributes can also be controlled by the Administration.

3.2.5 *Restriction characteristics*

Restriction characteristics include information which indicate the limitations on the regular operational mode, e.g., traffic restrictions for originating calls.

3.2.6 *Monitoring characteristics*

Monitoring characteristics are related to particular monitoring actions, which are carried out by the system. The monitoring actions are mainly of a temporary nature and comprise subscriber Administration functions carried out to obtain data related to calls. Examples are malicious call tracing and charging observation. Monitoring actions are activated on subscriber's or Administration's request and are described by their attributes, e.g. duration of monitoring, starting time.

3.2.7 *Single-line subscriber identity*

Single-line subscriber identity allows the unambiguous identification of a single-line subscriber, normally by its directory number.

3.2.8 *Multi-line subscriber identity*

Multi-line subscriber identity allows the unambiguous identification of a multi-line subscriber, normally by its directory numbers.

3.2.9 *Equipment identity*

Equipment identity allows the unambiguous identification of the device to which a subscriber line is connected.

3.2.10 *Line number*

A line number allows the unambiguous identification of a line within a line group.

3.2.11 *Associated directory number*

An associated directory number may be entered for lines that are members of a multi-line subscriber and that need to have associated with them a directory number other than the multi-line subscriber identity. Examples include the night service number for a member of a PBX or the directory number of a directly dialable member of a multi-line hunt group.

3.2.12 *State*

The state of a subscriber line identifies the current operational mode in an unique way. It may be possible to interrogate the state of a subscriber line.

4 *Glossary of terms*

single-line subscriber line

A line between a public exchange and a subscriber set.

multi-line subscriber line

A line between a public exchange and a P(A)BX or a line between a public exchange and a subscriber set belonging to a subscriber line group.

line group

A line group is a group of lines of a multi-line subscriber with some common line characteristics, e.g. incoming, outgoing, bothway.

subscriber line group

A group of line groups which are recognized and managed by a public exchange as a logical group.

ANNEX A

(to Recommendation Z.334)

List of
system functions to be controlled |
by MML and list of jobs

A.1 *List of functions to be controlled by MML*

1) administering subscriber lines and related data;

2) tracing malicious calls;

3) retrieving subscriber charging information;

4) observing subscriber charging.

A.2 *List of jobs*

A.2.1 *General*

The jobs considered hereafter can be performed either at the exchange level or at Operation and Maintenance Centre (OMC) level, or both.

The description of each job should include the following general characteristics.

— The operator is supposed to input all data relevant for the job to be performed.

— The system is supposed to check the input data for formal correctness and logical plausibility and to output an error message in the case of syntax/semantic errors and incomplete insertions, and to prompt for further input.

— The system should update the data in its database according to the requirements of the performed job, e.g. to store, to delete data in its database.

A.2.2 *List of jobs*

A.2.2.1 *To create a single-line subscriber*

— The purpose of the job is to define an association between an equipment identity, subscriber identity, line, facility, restriction and monitoring characteristics.

— The complexity of the job is medium.

— The frequency of the job is high. In local exchanges the job is expected to be one of the most frequent.

— The job is performed at the request of the subscriber, in accordance with the availability of required equipment, directory numbers, etc.

A.2.2.2 *To create a multi-line subscriber , a new line group of a multi-line subscriber, or a new line of a multi-line subscriber*

— The purpose of the job is to create a multi-line subscriber, a new line group of a multi-line subscriber, or a new line of a multi-line subscriber, and to define an association between multi-line subscriber identity, line group identity, line numbers, equipment identities, line, facility, restriction and monitoring characteristics.

— The complexity of the job is medium.

— The frequency of the job is low.

— The job is performed at the request of the subscriber, in accordance with the availability of required equipment, directory numbers, etc.

A.2.2.3 *To change single-line subscriber related data*

— The purpose of this job is to change single-line subscriber related data, i.e. the line and/or facility and/or the restriction and/or the monitoring characteristics.

— The complexity of the job depends on the number of the changes and assignments.

— The frequency of the job is medium.

— The job is performed at the request of the subscriber or of the Administration.

A.2.2.4 *To change multi-line subscriber related data*

— The purpose of the job is to change multi-line subscriber related data, i.e. the facility and/or line and/or restriction and/or monitoring characteristics and/or associated directory number.

— The complexity of the job depends on the number of the changes and assignments.

— The frequency of the job is low;

— The job is performed at the request of the subscriber or of the Administration.

A.2.2.5 *To delete a single-line subscriber*

— The purpose of the job is to delete all data, i.e., equipment identity, subscriber identity and characteristics, related to a certain single-line subscriber.

— The complexity of the job is low depending on system checks.

— The frequency of the job is medium.

— The job is performed on request of the subscriber or of the Administration.

A.2.2.6 *To delete a multi-line subscriber, line groups of a multi-line subscriber, or lines of a multi-line subscriber*

— The purpose of the job is to delete a multi-line subscriber, line groups of a multi-line subscriber or lines of a multi-line subscriber.

— The compexity of the job is medium depending on system checks.

— The frequency of the job is low.

— The job is performed at the request of the subscriber or of the Administration.

A.2.2.7 *To interrogate single-line or multi-line subscriber related data*

— The purpose of the job is to interrogate single-line or multi-line subscriber, line related data, according to selection criteria, e.g. single-line/multi-line subscriber identity, all charge free lines.

— The system is supposed to display the desired data on an output device at the operator’s request.

— The complexity of the job is low.

— The frequency of the job is high when the selection criterion is subscriber identity and low when other selection criteria are used.

— The job is performed at the request of the Administration.

A.2.2.8 *To retrieve charging information for a single-line or a multi-line subscriber*

— The purpose of the job is to retrieve charging information for a single-line or a multi-line subscriber in case of the pulse metering.

— The system is supposed to provide subscribers’ charging information on an output device at the operators’ request.

— The complexity of the job is low.

— The frequency of the job is low.

— The job is performed for administrative reasons.

A.2.2.9 *To block/unblock a single-line subscriber*

— The purpose of the job is to make a single-line subscriber unavailable/available to traffic.

— The system is supposed to block/unblock a single-line subscriber to originating and/or terminating traffic.

— The compexity of the job is low.

— The frequency of the job is medium.

— The job is performed for administrative reasons.

A.2.2.10 *To block/unblock a multi-line subscriber*

— The purpose of the job is to make a multi-line subscriber, line groups of a multi-line subscriber or lines of a multi-line subscriber unavailable/available to traffic.

— The system is supposed to block/unblock a multi-line subscriber, line groups of a multi-line subscriber or lines of a multi-line subscriber to originating and/or terminating traffic.

— The complexity of the job is low.

— The frequency of the job is low.

— The job is performed for administrative reasons.

A.2.2.11 *To activate/deactivate malicious all tracing for a single-line or a multi-line subscriber*

— The purpose of the job is to enable/disable malicious call tracing for a single-line subscriber, a multi-line subscriber, or line groups of a multi-line subscriber.

— The system is supposed to collect the malicious call tracing data, to store it and to display it on operator's request.

— The complexity of the job is low.

— The frequency of the job is low.

— The job is performed at the request of the subscriber.

A.2.2.12 *To activate/deactivate a single-line or a multi-line subscriber*

— The purpose of the job is to put into or to take out of service a single-line subscriber, a multi-line subscriber, line groups of a multi-line subscriber or lines of a multi-line subscriber previously defined in the system. The activation function may be implied in the corresponding creation function.

— The complexity of the job is low.

— The frequency of the job is high.

— The job is performed at the request of the subscriber.

A.2.2.13 *To activate/deactivate single-line or multi-line subscriber charging observation*

— The purpose of the job is to start/stop charging observation for a single-line or multi-line subscriber for a stated duration.

— The system is supposed to collect the charging information data, to store it and to output it on operator's request.

— The complexity of the job is low.

— The frequency of the job is low.

— The job is performed at the request of the Administration.

ANNEX B

(to Recommendation Z.334)

Guidelines for the list of MML functions and *associated information structure diagrams*

B.1 *Introduction*

This annex contains guidelines for the list of MML functions and associated information structure diagrams related to the subscriber administration model defined in this Recommendation Z.334, § 3.

B.2 *List of MML functions*

The list contains possible MML functions for subscriber administration.

This list is not mandatory or complete. It may vary according to administrative needs, telecommunication network levels, regulatory needs, etc.

1) *Creation*

— create a single-line subscriber;

— create a multi-line subscriber, a new line group of a multi-line subscriber, or a new line of a multi-line subscriber.

2) *Change*

— change single-line subscriber related data;

— change multi-line subscriber related data.

3) *Deletion*

— delete a single-line subscriber;

— delete a multi-line subscriber, line groups of a multi-line subscriber or lines of a multi-line subscriber.

4) *Interrogation*

— interrogate single- or multi-line subscriber related data.

5) *Retrieval*

— retrieve charging information for a single-line or a multi-line subscriber.

6) *Block/unblock*

— block/unblock a single-line subscriber;

— block/unblock a multi-line subscriber.

7) *Activation/deactivation*

— activate/deactivate malicious call tracing for a single-line subscriber;

— activate/deactivate malicious call tracing for a multi-line subscriber;

— activate/deactivate single-line subscriber charging observation;

— activate/deactivate multi-line subscriber charging observation;

— activate/deactivate a single-line subscriber;

— activate/deactivate a multi-line subscriber.

B.3 *Information structure diagrams*

The information structure entities needed for the MML functions listed in § B.2 are reported in this section by means of diagrams representing each MML function information structure (Figures from B-4/Z.334 to B-23/Z.334). They are not intended to constrain in any way the enhancement of these functions in the light of technological advances or special Administrations or regulatory requirements.

The metalanguage used is described in Recommendation Z.333. In accordance with the model for single-line types (Figure B-2/Z.334) and multi-line types (Figure B-3/Z.334), the characteristics of the distinct line types can be divided into characteristics assigned lines/group of lines and characteristics assigned to subscribers. Examples for the first case are line attenuation, kind of signalling, and for the latter case abbreviated dialling, wake-up service, restrictions of the regular operation mode, etc.

In respect of these two classes of characteristics a function may require a division into two sub-functions or not, depending on system implementations and administrative needs.

Figures B-5/Z.334 to B-6/Z.334 provide an example of how this division can be accomplished, whereas the function ‘‘create a single-line subscriber’’ is depicted in Figure B-4/Z.334. For all the after functions this division is not covered in this annex.

Figure B-1/Z.334, p.1

Figure B-2/Z.334, p.2

Figure B-3/Z.334 (feuillet 1 sur 2), p.3

Figure B-3/Z.334 (feuillet 2 sur 2), p.4

Figure B-4/Z.334, p.5

Figure B-5/Z.334, p.6

Figure B-6/Z.334, p.7

Figure B-7/Z.334 (feuillet 1 sur 2), p.8

Figure B-7/Z.334 (feuillet 2 sur 2), p.9

Figure B-8/Z.334, p.10

Figure B-9/Z.334 (feuillet 1 sur 2), p.11

Figure B-9/Z.334 (feuillet 2 sur 2), p.12

Figure B-10/Z.334, p.13

Figure B-11/Z.334, p.14

Figure B-12/Z.334, p.15

Figure B-13/Z.334, p.16

Figure B-14/Z.334, p.17

Figure B-15/Z.334, p.18

Figure B-16/Z.334, p.19

Figure B-17/Z.334, p.20

Figure B-18/Z.334, p.21

Figure B-19/Z.334, p.22

Figure B-20/Z.334, p.23

Figure B-21/Z.334, p.24

Figure B-22/Z.334, p.25

Figure B-23/Z.334, p.26