

# Postal services — Mail aggregates — Creation, processing and tracking

ICS 03.240

National foreword

This Draft for Development is the official English language version of CEN/TS 14441:2004. It is identical with CEN/TS 14441:2004. It supersedes DD CEN/TS 14441:2003 which is withdrawn.

This publication is not to be regarded as a British Standard.

It is being issued in the Draft for Development series of publications and is of a provisional nature because further experience is required in its application before it is converted to a European and hence British Standard. It should be applied on this provisional basis, so that information and experience of its practical application may be obtained.

Comments arising from the use of this Draft for Development are requested so that UK experience can be reported to the European organization responsible for its conversion to a European Standard. A review of this publication will be initiated 2 years after its publication by the European organization so that a decision can be taken on its status at the end of its 3-year life. Notification of the start of the review period will be made in an announcement in the appropriate issue of *Update Standards*.

According to the replies received by the end of the review period, the responsible BSI Committee will decide whether to support the conversion into a European Standard, to extend the life of the Technical Specification or to withdraw it. Comments should be sent in writing to the Secretary of BSI Technical Committee SVS/4, Postal Services, at British Standards House, 389 Chiswick High Road, London W4 4AL, giving the document reference and clause number and proposing, where possible, an appropriate revision of the text.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international publications referred to in this document may be found in the BSI Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

Summary of pages

This document comprises a front cover, an inside front cover, the CEN/TS title page, pages 2 to 46, an inside back cover and a back cover.

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This Draft for Development was published under the authority of the Standards Policy and Strategy Committee on 24 March 2005

Amendments issued since publication

| Amd. No. | Date | Comments |
|----------|------|----------|
|          |      |          |
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© BSI 24 March 2005

ISBN 0 580 45615 3

English version

## Postal services - Mail aggregates - Creation, processing and tracking

Postalische Dienstleistungen - Sammelsendungen -  
Verarbeitung und Nachverfolgung

This Technical Specification (CEN/TS) was approved by CEN on 4 October 2004 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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**Management Centre: rue de Stassart, 36 B-1050 Brussels**

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## Foreword

This document (CEN/TS 14441:2005) has been prepared by Technical Committee CEN/TC 331 "Postal Services", the secretariat of which is held by NEN, in collaboration with the UPU.

NOTE This document has been prepared by experts coming from CEN/TC 331 and the UPU, under the framework of the Memorandum of Understanding between UPU and CEN.

This document (CEN/TS 14441:2005) complements CEN/TS 14631:2004 and UPU<sup>1)</sup> standards M34a and S37. It may be amended only after prior consultation, between CEN/TC 331 and the UPU Standards Board<sup>2)</sup>, in accordance with the Memorandum of Understanding between CEN and the UPU.

The UPU's contribution to the document was made, by the UPU Standards Board and its sub-groups, in accordance with the rules given in Part V of the "General information on UPU standards" (<http://www.upu.int/standards/en/index.html>).

This document represents the second version of the Technical Specification; it supersedes and replaces the first version (CEN/TS 14441:2003) which should no longer be used. The revision was developed to improve alignment with UPU standards developed since the work on the original version was completed. To achieve consistency with UPU standards, the text has been largely restructured and redrafted.

Annex A is informative.

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this CEN Technical Specification: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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1) The Universal Postal Union (UPU) is the specialized institution of the United Nations that regulates the universal postal service. The postal services of its 189 member countries form the largest physical distribution network in the world. Some 5 million postal employees working in over 660 000 post offices all over the world handle an annual total of 425 billion letter-post items in the domestic service and almost 6,7 billion in the international service. Some 4,5 billion parcels are sent by post annually. Keeping pace with the changing communications market, posts are increasingly using new communication and information technologies to move beyond what is traditionally regarded as their core postal business. They are meeting higher customer expectations with an expanded range of products and value-added services.

2) The UPU's Standards Board develops and maintains a growing number of standards to improve the exchange of postal-related information between posts, and promotes the compatibility of UPU and international postal initiatives. It works closely with posts, customers, suppliers and other partners, including various international organizations. The Standards Board ensures that coherent standards are developed in areas such as electronic data interchange (EDI), mail encoding, postal forms and meters. UPU standards are published in accordance with the rules given in Part VII of the General information on UPU standards, which can be freely downloaded from the UPU world-wide web site ([www.upu.int](http://www.upu.int)).

## Introduction

Postal service customers<sup>3)</sup> increasingly require not only the secure, timely delivery of their mail, but to also have information about its processing and control over the time and place of its delivery. Such requirements apply to both domestic or international mail and regardless of how many postal handling organisations are involved in servicing it. The table below lists key customer expectations and suggests how these might be satisfied.

**Table 1 — Customer expectations and how they might be met**

| Customer Expectation                                    | How it might be met                                                                                                                                                                           |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High, improving, quality of service (speed of delivery) | Identification of bottlenecks and procedures that lead to unnecessary delays; modification of processes to eliminate or alleviate these; real-time process monitoring and remedial action     |
| Reliable, consistent service                            | Better process management; integrated processing and information exchange between postal handling organisations                                                                               |
| Low cost                                                | Creation of modules of deliverable mail at the mail finishing stage; improvement of work load planning through pre-advice of mail induction; avoidance of repeated processing                 |
| Tracking of mail                                        | Unique identification of mail items, combined with the collection and correlation of information on the timing of critical events during each item's passage through the mail handling system |
| Personalised service measurement                        | Statistical analysis of tracking information (see above) relating to identified batches of mail / mail sent by or to individual customers                                                     |
| Notification of failures or delays                      | Monitoring of tracking information (see above) to detect abnormal events and delays; reporting of these to the customers concerned                                                            |
| Control over delivery time & place                      | Introduction of new time certain and controlled time services; support for advance notification of delivery, linked to provision of dynamic forwarding services                               |
| High, improving quality of service (damage avoidance)   | Reduction in the number of processing steps and of packaging and repackaging operations                                                                                                       |
| Confident use of third party service providers          | Monitoring of down-stream access and inter service provider handovers                                                                                                                         |
| Individually tailored services                          | Support adaptability through the adoption of common, well defined processes                                                                                                                   |
| Improved in-company handling                            | The use of standard identifiers could facilitate improved handling and direction of mail once it arrives at the addressee's premises                                                          |

Most of these expectations can be met only if individual mail items are tracked, through the mail processing pipeline, by collecting, processing, correlating and statistically analysing information on the timing of critical events during each item's passage through the mail handling system. This requires that individual items carry a unique identifier or, for batch-related services, an identifier of the mail batch to which they belong.

Though a number of systems for the tracking and tracing of individual mail items already exist, these apply, at least internationally, only to special service products such as express, insured and recorded delivery and registered mail.

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3) Note that mail recipients, as well as mailers, are considered to be customers of the postal service. Both are interested in the quality of service provided.

They are not currently applied to normal<sup>4)</sup> letter and parcel mail and do not provide either the mailer or recipient with control over the time and place of delivery.

Emerging customer requirements imply that such systems need to be significantly extended both in terms of their functionality and the range of mail services they cover. In particular, their application to standard letter and parcel mail is expected to become the norm. This requires both the introduction of a global standard for the unique identification of individual mail items and, since much of the processing of such items takes place at the level of mail aggregates, the introduction of aggregate tracking systems and the linking of these to systems for item tracking.

Mail aggregates or, more simply, aggregates are defined in the UPU Standards glossary. They are sets of mail items which have been physically grouped (and often, though not necessarily, constrained to form a single unit) so as to permit common handling. UPU standard M34 deals with their identification; their relationships with other entities, including mail items and receptacles; their characteristics or attributes and the electronic communication of information, about them, between postal handling organisations. This specification complements M34 by addressing related issues, including:

- the association of aggregate identifiers with the physical aggregates to which they relate;
- aggregate creation;
- the processing of aggregates as a unit;
- aggregate tracking;
- aggregate break-up;
- how the above relates to the tracking of individual mail items;
- the implementation of aggregate information exchange and tracking systems through the evolution of existing electronic data exchange systems.

Implementation of the concepts described in the specification is expected both to result in a modern postal service infrastructure capable of addressing the customer requirements described above and to lead to the following benefits for the postal handling organisations involved:

- more competitive, consistent and reliable services;
- enhanced control over the mail pipeline, with improved ability to take timely remedial action in the event of delays and processing errors;
- increased competitiveness, achieved through the ability to offer enhanced services, including individualised value-added information-based services and customer control of delivery timing and location, at low marginal cost;
- operational consistency, achieved through the adoption, by postal handling organisations across the world, of common standards and procedures;
- lower costs, achieved through operational efficiencies resulting from process integration;
- more realistic cost allocation, both internal to individual postal handling organisations, and between them;

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4) "Normal" in this context refers to the large volumes of ordinary letter and parcel mail handled by mail service contractors under their obligation to provide universal services. It is recognised that many private postal service providers do identify and individually track all or most of the letters and parcels which they carry. However, the volumes concerned are generally small and the services are provided at a premium, compared with universal service volumes and prices.

— an improved, more modern, market image.

This specification addresses the above under four main headings:

5. *Mail aggregates; their formation, handling and unforming, containerisation and nesting*: provides an introduction to the concept of mail aggregates, discusses the reasons for their formation, their composition, their handling and, when it is again necessary to process their content, their break-up or unforming. The clause also introduces the fact that aggregates can be hierarchically structured, or nested, and the relationships between aggregates and their eventual physical containers.
6. *Communication of aggregate data to downstream processors*: describes the methods and procedures used for the exchange of information about the formation of aggregates and their composition. These procedures are primarily used by the creator of an aggregate (i.e. the mail handling organisation that formed an aggregate) to send information to the aggregate processing organisation (i.e. mail handling organisation that is required to unform and process the contents of the aggregate). However, they may also be used to provide information to other parties involved in the transportation or intermediate handling of the aggregate, or for such parties to forward information to the aggregate processing organisation.
7. *Aggregate processing and the reporting of events – tracking*: describes the methods and procedures involved in the intermediate handling and unforming of an aggregate and, in particular, the electronic exchange of tracking information. Tracking messages are primarily used, by both intermediate mail handling organisations and the aggregate processing organisation, to advise the aggregate creator of the events to which the aggregate has been subject, their timing and location and the resulting status of the aggregate.
8. *Relationship with tracking systems for items*: specifies how aggregate tracking systems are related to systems for the tracking of related entities, particularly containers (receptacles) and individual items.

The normative text is supported by informative *Annex A*, which describes a number of existing systems for the electronic interchange of aggregate, item and tracking data and discusses how migration to the concepts described in this specification might be achieved.

## 1 Scope

This Technical Specification complements CEN/TS 14631:2004 and UPU standards M34a and S37, which cover the definition of mail aggregates; their relationships with other entities; their identification and attributes and the electronic exchange of aggregate attribute and composition data.

NOTE 1 CEN/TS 14631:2004 is equivalent to UPU standard S37-4; there is no CEN equivalent of UPU standard M34a.

NOTE 2 Though the specification repeats some information from these standards for reasons of readability, a full understanding requires familiarity with the above referenced specifications.

The specification primarily addresses issues not covered in M34a:

- the association of aggregate identifiers with the physical aggregates to which they relate;
- aggregate creation;
- the processing of aggregates as a unit;
- aggregate tracking;
- aggregate break-up;
- how the above relates to the tracking of individual mail items;
- the implementation of aggregate information exchange and tracking systems through the evolution of existing electronic data exchange systems.

The specification is principally concerned with methods and procedures for the communication of process control and tracking information about mail aggregates. It should not be interpreted as specifying or limiting the applications for which such information may be used.

The specification is especially concerned with cross-border mail that is exchanged between postal handling organisations. However, the concepts described are equally applicable to the exchange of mail between different postal handling organisations in the same country and may beneficially be applied to the internal operations of individual mail service contractors and postal handling organisations.

NOTE 3 Individual postal handling organisations could define proprietary approaches for internal use. However, this would almost certainly lead to increased development and maintenance costs for both the organisations themselves and their customers and service providers. It might also be difficult to guarantee that mail aggregates, identified in accordance with the (closed) proprietary system, are segregated from mail aggregates that are exchanged with other postal handling organisations in accordance with the open system described herein.

Many of the examples given in this specification make use of aggregate and other ISO/IEC 15459-compliant identifiers issued under the UPU issuing agency code (IAC), the use of which is subject to registration as an issuer under UPU standard S31. The use of such examples is not intended to pre-empt or prejudice such registration and should not be interpreted as implying that the use of other IACs is not supported.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, or references to a version number, only the edition cited applies. For undated references and where there is no reference to a version number, the latest edition of the referenced document (including any amendments) applies.

### CEN Standards

CEN/TS 14631, *Postal services — Automatic identification of receptacles and containers — Receptacle asset numbering*.

NOTE 1 The version current at the time of approval of this specification, TS 14631:2005 is the CEN equivalent of UPU standard S37-4

## **UPU standards**

UPU *Standards glossary*<sup>5)</sup>

UPU M34, *Mail aggregate attributes and the communication of aggregate information*

UPU M36, *Despatch attributes and the communication of despatch information*

UPU M37, *Postal processing events and event reporting*

NOTE 2 M34, M36 and M37 are multi-part standards, with individual parts being numbered M34a, M34b, etc.

UPU S25, *Data constructs for the communication of information on postal items, batches and receptacles*

UPU S29, *Bar-coded receptacle labels*

UPU S37, *Receptacle asset numbering*

NOTE 3 The version current at the time of approval of this specification, S37-4, is the UPU equivalent of CEN TS 14631:2004.

## **3 Terms and definitions**

For the purposes of this Technical Specification, the terms and definitions given in the UPU Standards glossary and the following apply.

### **3.1**

#### **aggregate creator**

party that creates (forms) an aggregate – see UPU standard M34a

### **3.2**

#### **aggregate processing organisation**

party that breaks-up (unforms) or is intended to unform an aggregate – see UPU standard M34a

### **3.3**

#### **forming**

process by which individual postal items, bundles<sup>6)</sup>, and/or postal receptacles are assembled into mail aggregates

NOTE 1 The purpose of forming is usually to facilitate transportation within or between postal processing facilities, handover between different carriers, and/or to facilitate handling by staff or equipment.

See also **unforming**

### **3.4**

#### **item; mail item; postal item**

indivisible entity in respect of which a mail service contractor accepts an obligation to provide transport, delivery and possibly other postal services

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5) UPU Standards are obtainable from the UPU International Bureau, whose contact details are given in the Bibliography; the UPU Standards glossary is freely accessible on URL <http://www.upu.int>

6) Bundles are defined in the UPU Standards glossary.

NOTE 2 Indivisible relates here to treatment within the postal system: items should be handled and delivered as an integrated unit and not split into components within the postal system.

NOTE 3 Mail items may be qualified according to size, weight, handling or other service characteristics. Examples include letter mail (items), parcel post (items), registered mail (items), etc. Where no such qualification is provided, item should be understood, in the context of this specification, as encompassing any or all types of mail.

**3.5**  
**mail item**  
see item

**3.6**  
**postal item**  
see item

**3.7**  
**unforming**  
process by which a mail aggregate is unpacked into its constituent parts i.e. lower level aggregates and/or individual postal items

NOTE 4 After unforming, some or all of the constituent parts of a mail aggregate can be formed – i.e. grouped together – with other individual postal items and aggregates, into a new mail aggregate.

## 4 Symbols and abbreviations

For the purposes of this Technical Specification, the symbols and abbreviations given in the UPU Standards glossary apply.

## 5 Mail aggregates; their formation, handling and unforming, containerisation and nesting

### 5.1 Aggregate formation, handling and unforming

Mail aggregates are sets or collections of mail items which have temporarily been physically grouped so as to permit common handling. Examples include bundles, mailing submissions, consignments, the content of postal receptacles (mailbags, trays, roller-cages, etc.) and the content of a sorting machine output stacker.

NOTE 1 Formal definitions for many of the terms used in this specification, including the term 'mail aggregate', can be found in the UPU Standards glossary.

Aggregates are assembled, or *formed*, by a specific party, referred to (see M34a) as the aggregate creator. The creator can be any party involved in the creation, submission or processing of the mail contained within the aggregate.

EXAMPLE 1 Mailers and consolidators may create aggregates to take advantage of discounts offered by their mail service contractor; postal handling organisations may create aggregates to achieve processing or transportation economies, or to simplify procedures for control over interchange of mail with other postal handling organisations; the delivery post may create aggregates to simplify and speed up the work of its delivery agents.

The purpose of aggregate formation is to permit handling of the content of the aggregate as a unit, rather than as individual mail items. Since handling requirements depend on both the postal product or service and with position in the mail processing pipeline, the content, or composition, of an aggregate will depend on these two factors. These determine which mail items are eligible for common processing and, thus, the criteria applied in determining whether an item should be placed in a particular aggregate.

**EXAMPLE 2** A mailer wishing to take advantage of pre-sort discounts might need to ensure that submitted mail is organised into separate bundles or trays, each containing mail destined for a particular delivery area. In this case, the primary aggregation criterion will be delivery region, possibly together with weight, size and priority.

**EXAMPLE 3** To reduce costs, a mail service contractor dealing with cross-border mail might choose to ship mail directly to regional processing centres in the delivery country (so-called direct injection). This requires a knowledge of the delivery post's processing infrastructure, with the primary aggregation criterion being the identity of the processing facility that is responsible for the delivery office which serves the item addressee.

**EXAMPLE 4** A delivery post might be required to deliver all the parcels in a multi-parcel shipment at the same time. To simplify this, an aggregate containing all the relevant parcels could be created.

Once formed, the aggregate is handled as a unit. Any type of handling could be involved, including (but not limited to) transportation within and/or between processing facilities, sorting (e.g. using bundle or tray sorters) and/or delivery.

The common handling could encompass many processing steps. For example, an aggregate consisting of a bundle of items to be delivered in the same postcode area might be formed by the mailer or in the origin postal processing facility and might then be subject to multiple transportation and bundle sorting steps before it reaches the delivery office serving the area concerned. There, and only there, will it be broken up (unformed) so that the individual items within it can be delivered to their separate addresses.

The common processing steps could involve transfers of responsibility between two or more different postal handling organisations. Where more than two are involved, the intermediate (transit) organisations are expected to maintain the integrity of the aggregate, handling it as a single unit. The last organisation, referred to as the aggregate processing organisation, then unforms the aggregate, dealing with its individual components.

**EXAMPLE 5** In a closed transit<sup>7)</sup> situation, Finland Post makes up a despatch of aggregates (contained in receptacles) of EPG parcels for delivery in Germany, shipping them as part of a consignment to Pan Nordic Logistics (PNL) in Copenhagen. The latter does not open the receptacles concerned, but onward routes them to Deutsche Post as part of a consignment which might also contain aggregates made up by PNL. Deutsche Post opens the receptacles, unforming the aggregates, and delivers the parcels contained in them.

**NOTE 2** Contrast the above with open transit, in which, because transit items could be mixed with items for local delivery, the transit organisation has to open the receptacles concerned, process the items individually and then form the transit items into new aggregates for onward routing to the delivery post.

## **5.2 Bundling and containerisation**

Aggregates are often constrained to form a physical unit by housing them in a container, such as a tray or roller cage, or by wrapping them, as with bundles. However, this is not an explicit requirement and an aggregate does not necessarily constitute a transport unit<sup>8)</sup>. For example, the content of two or more sorting machine output stackers (which form two distinct aggregates, each with its own associated delivery route) may be combined to form a transport unit (e.g. by packing them in a single tray). Similarly, a consignment could consist of several transport units, but is regarded as an aggregate since it is intended to be handled (transported) as a whole.

**NOTE 1** In contrast, despatches are not regarded as aggregates, since they are not intended to be handled (processed or transported) as units; rather a despatch is a logical grouping of aggregates which is made for administrative, accounting and auditing reasons.

**NOTE 2** Where several aggregates share a single container but are not individually constrained, it will generally not be possible for the recipient of the container to distinguish between the different aggregates contained within it. Hence, the break-up (unforming) of one of the aggregates will almost inevitably imply the unforming of the other(s).

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7) The UPU Standards glossary defines transit entities and facilities and provides a further explanation of the difference between open (transit à découvert) and closed (transit en dépêches closes) transit.

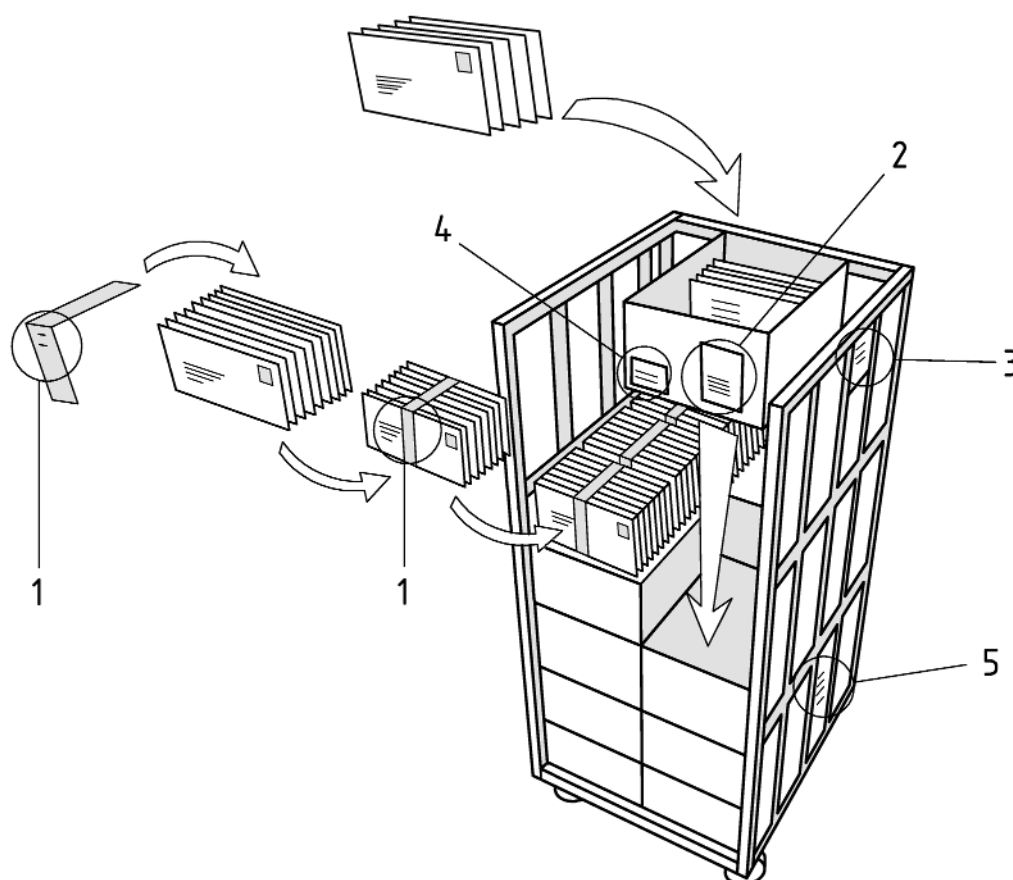
8) Transport units are defined in the UPU Standards glossary.

### 5.3 Aggregate nesting

Though aggregates are defined as collections of mail items, it often happens that the content of several (lower level) aggregates is combined, to form a higher level aggregate, in such a way as to later facilitate breakdown into the lower level components. Such nesting of aggregates may occur at several levels.

EXAMPLE 1 Figure 1 — Mail aggregates assembled in a roller cage, shows a roller cage containing both trays and bundles of individual items. The content of each bundle or tray comprises an aggregate, with the content of the roller cage then forming a higher level aggregate. Roller-cages may in turn be grouped into containers, with several containers constituting a consignment.

NOTE 1 Bundles may be loose or placed in bags but, except in the case of explicit bilateral agreement, should **not** be placed in trays, since these are intended to contain mail that can be directly fed into an item-level sorting system. It is permissible to put several aggregates in a single tray provided that they are not formed into bundles. In such cases, one way of segregating the aggregates is to insert a separator card, containing the bar coded aggregate identifier, in front of the first item in each aggregate.

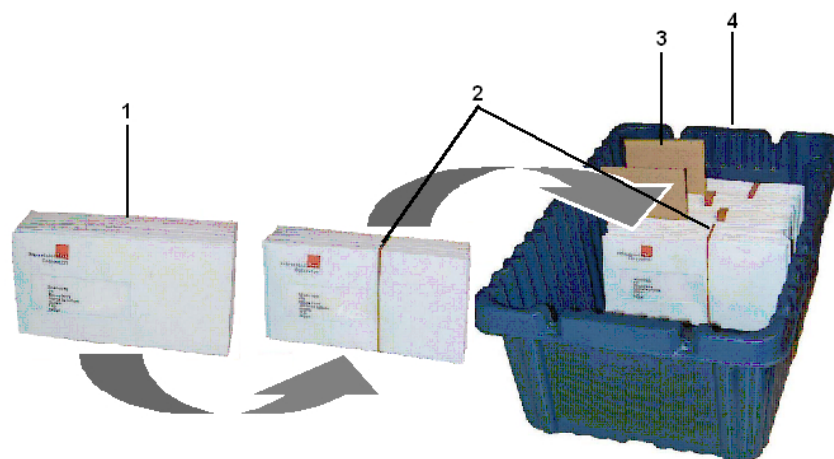


#### Key

- 1 Aggregate (bundle) identifier - removable label
- 2 Aggregate (tray content) identifier - removable label
- 3 Aggregate (cage content) identifier - removable label
- 4 Receptacle (tray) Asset Number - fixed to receptacle
- 5 Receptacle (roller cage) Asset Number - fixed to receptacle

**Figure 1 — Mail aggregates assembled in a roller cage**

EXAMPLE 2 As illustrated in Figure 2 — Aggregate formation for delivery purposes, an aggregate consisting of the set of postal items addressed to a particular delivery point could form part of a higher-level aggregate destined for the same delivery postcode area. This might in turn be just part of a higher level aggregate to be delivered by a particular delivery agent, which in its turn could be part of an even higher level aggregate transported to a particular delivery office.

**Key**

- 1 (Sequenced) mail for a delivery route segment
- 2 Bundle of mail for a delivery route segment
- 3 Separator between bundles for different delivery agents
- 4 Tray of mail for a single delivery office

**Figure 2 — Aggregate formation for delivery purposes**

NOTE 2 The above figure shows bundles in a tray. In this case, this is permissible since the figure is concerned with items that are ready to be delivered – these items need no further processing and the placement of several bundles in a tray will not result in automation problems.

In this hierarchical context, it would be cumbersome and inefficient if aggregate content always had to be specified by reference to the individual items. To avoid this, and to provide for proper specification of the hierarchy, UPU standard M34<sup>9)</sup> supports the concept of aggregate nesting: an aggregate may be specified as containing (up to 999) other, lower-level, aggregates. Each of these may contain up to 999 still lower-level aggregates, and so on. No formal limit is placed on the number of levels supported.

## 6 Communication of aggregate data to downstream processors

### 6.1 Communications model (physical / electronic communication)

Aggregates are formed for many purposes, both internal to the aggregate creator and for transfer to, and handling by, another postal handling organisation. In the case of aggregates that are created, handled and unformed by a single organisation, there is no requirement to communicate aggregate information to a third party. The following therefore applies only in cases in which:

- the aggregate processing organisation is not the aggregate creator, and / or
- one or more transit postal handling organisations are called upon to handle the aggregate between its creation and unforming.

EXAMPLE 1 An aggregate might be formed as a result of a sortation process, transported internally to the sorting facility concerned and unformed by being input to a second sort pass in the same facility (possibly even on the same machine). In such case, no third parties are involved and any requirement for the communication of aggregate information is purely internal to the aggregate creator. In this case, the application or otherwise of the present clause is entirely at the discretion of the aggregate creator.

EXAMPLE 2 In another case, an aggregate might be formed in one processing facility, transported by the aggregate creator's in-house transport service and unformed in another facility that is operated by the same organisation. In this case also, the application or otherwise of the present clause is entirely at the discretion of the aggregate creator.

9) See M34a section 5.

EXAMPLE 3 In the case of an aggregate formed in one processing facility, transported by an independent transport service provider and unformed in another facility that is operated by the aggregate creator, the present clause does apply, since a third party transit postal handling organisation is involved.

EXAMPLE 4 Similarly, the present clause applies to cases in which aggregates are formed in a processing facility operated by one postal handling organisation and unformed in a facility operated by a different organisation, whether or not the transport between the two facilities involves third parties.

For process management and control purposes, postal handling organisations need information about and processing instructions for the mail aggregates which they are called upon to handle, transport and/or break-up and process. The required information, collectively referred to as aggregate attributes, includes handling, transport and delivery instructions for transit postal handling organisations; unforming and processing instructions for the aggregate processing organisation. It may also include information about the content or composition of the aggregate, customs information, invoicing instructions, information about the container(s) in which the aggregate is housed, and so on.

Further details are provided in UPU standard M34a, which provides a specification of all relevant aggregate attributes, documents the relationships between an aggregate and other defined entities, such as items and receptacles, and specifies how these attributes and relationships are encoded in communications about one or more aggregates. It also specifies how certain of the attributes of an aggregate, such as `aggregate.format-of-contents`, `aggregate.handling-class` and `aggregate.sub-class`, are related to or derived from the attributes of the items or lower level aggregates contained within it.

Most aggregate attributes are determined by the aggregate creator either at the time of aggregate creation or shortly before the time at which the aggregate leaves its creator's control. Relevant information needs to be communicated from the aggregate creator to each transit postal handling organisation and to the aggregate processing organisation. It is also possible that the actions of one or more transit postal handling organisations result in some change to the aggregate attributes, information about which might also need to be passed on to the aggregate processing organisation and/or to the further transit organisations involved in ensuring its delivery to the processing organisation.

NOTE 1 The above refers to "relevant information", but does not define how relevance is determined. In practice, what is relevant may depend on the role played by the information recipient. For example, an organisation whose role is limited to transportation is likely only to be concerned with overall attributes of the aggregate, such as its weight, volume and physical marking, whereas the aggregate processing organisation will also need information about its composition. However, there are no absolute rules for this – a transport service provider may need composition information if the content of the aggregate is hazardous, or if it requires special handling to avoid damage. For this reason, UPU standard M34 provides a mechanism for the communication of all aggregate information that is available, but leaves it open to the parties concerned to determine which information to actually communicate in a given case.

Because the information to be communicated could come from different sources and/or might be available for communication at different times, it may be split across multiple messages, each message being a single instance of communication from one party (the sender) and another (the recipient) across a single communications channel.

NOTE 2 An individual message may contain information about more than one aggregate.

UPU standard S27 provides an overall model for such communications. It distinguishes between three possible channels:

- a) data communications across a network;
- b) independent physical transfer: exchange of physical support media containing electronically, magnetically or optically encoded messages, independently of the (in this case) aggregate(s) to which they relate;
- c) direct physical transfer: exchange based on the use of a physical support medium, such as a label, that is attached to or enclosed within (in this case) an aggregate or its container. This means that reception of a message and its presence for data capture necessarily implies reception and presence of the (in this case) aggregate to which it relates. This is of particular relevance to the communication of aggregate identifiers, since it provides (see 6.5) the mechanism whereby an aggregate is physically associated with its identifier and, via this, with information about the aggregate that is communicated electronically.