TECHNICAL DOCUMENT

Transport Protocol Specification XML – Extensible Markup Language TESSy

Version 2.8

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ECDC TECHNICAL DOCUMENT

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Version 2.8

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Version history

Version:	Change:
2.2	DateUsedForStatistics was changed to minOccurs="0". Optional when Status is "Delete".
2.3	Format YYYY-Qq added to incomplete date.
2.4	dateUsedForStatistics and reportingCountry not required when status = DELETE. XML file header changed. batchId in XSD deprecated. Replaced by web service method argument. Definition of batchId changed. Reference added to the “Web Service Technical Documentation”.
2.5	Added new enumeration for tag action called REPLACELIMITREPORTTYPE
2.6	Clarified on week definition.
2.7	Added description of the complex data type in chapter 3. Implementation of complex fields modified in chapter 4 and in appendix. Corrected examples covering repeatable fields in chapter 4. fieldName maxLength changed to 60.
2.8	Language revised.

Purpose

The purpose of this document is to describe the data transport format and the procedure for reporting infectious disease surveillance data to ECDC using TESSy.

Audience

This document is targeted at data providers of TESSy that are responsible for data upload, that is, mainly data managers in the national surveillance institutes of the EU Member States and the EEA countries.

Another target audience is stakeholders that wish to start using machine-to-machine communication with TESSy by using the TESSy web service interface.

1 Introduction

This document describes the format of the transport protocol for data submission to the TESSy system.

The document is divided into three sections:

- an introductory section giving an overview of the system,
- a technical section specifying the format, and
- an information flow description section.

For more information, see the *Documentation Structure* section at the end of this chapter.

1.1 Background

The European Centre for Disease Prevention and Control (ECDC) was established in May 2005. The founding document establishes that ECDC shall provide a technical platform for data collection in Europe.

Prior to the establishment of ECDC, there were 17 Dedicated Surveillance Networks (DSNs) that collected data on a variety of diseases. All Member States submitted data individually to every DSN, using different file specifications, requiring a huge effort from the Member States. On the other hand, all DSNs had to provide a system for data collection, validation and analysis.

The European Surveillance System (TESSy) is a highly flexible metadata-driven system for collection, validation, cleaning, analysis and dissemination of data. The key aims are data analysis and outputs for public health action. All EU member states (27) and EEA countries (3) will report available data on infectious diseases (49), as described in decision No 2119/98/EC, to the system. Apart from routine surveillance, TESSy will also replace the data collection for the present DSNs to provide European experts with a one-stop shop for European surveillance data.

1.2 Glossary / Definitions

Batch	Contains a file with the information to report (*Reporting Periods* and *Records*) to the system. A batch is first uploaded by a user, who can later choose to approve or reject the batch. A batch in *TESSy CSV* consists of one file that contains the *Records*, while a batch in *TESSy XML* consists of one file that containing both *Records* and *Reporting periods*. Synonyms: Report, batch, Data file.
Batch identifier	Only needed when using the TESSy web service. It is an internal reference for each organisation to use in order to identify uploaded batches.
Coded Value List	Describes name and purpose of a list of Coded Values. The values of a field in a Record Type can be restricted to the entries in a Coded Value List. Example: The Coded Value List *Sex* has the entries *male, female, unknown*; the field *Administrative Gender* is restricted to values in the list *Sex*. Synonyms: Value Set, Lookup List
Coded Value	An entry in a coded value list. Each coded value has a code (usually a mnemonic) and descriptions. Examples: *('M', 'male'), ('NL', 'The Netherlands')*. Synonyms: Lookup, Code
CSV	Comma-separated values — A file format where the data are transmitted in plain text (one line per *Record*) and the values are separated by ',' as a separation character.
Data source	The origin data source, usually the national surveillance system, that the provider queries to extract data to report to TESSy. Synonyms: Surveillance System
Data warehouse	A separate database, on which all reports and queries are based.
Error	A severe validation failure, which causes the batch to be automatically rejected. Synonyms: Validation failure, Validation result.
Field	A *Record* is composed out of fields. Each field has a name, a type and a description. Currently supported types are Numeric, Text, Date, IncompleteDate, CodedValue and Complex (field containing fields in a tree structure). A field in a *Record* contains information passed to TESSy.

	A field can be required (must be supplied) and/or repeatable (can list more than one value). Synonym: Variable
Metadata	Defines TESSy data structures and contains: *RecordTypes, Fields, Coded Value Lists* and *Coded Values* etc. The metadata also contains all validation rules. To achieve maximum flexibility TESSy is very much metadata-driven, that is, new Record Types can be added, Fields can be added, changed or removed without programming effort.
Metadata set	A snapshot of the *Metadata* at a specific moment in time. The metadata set is named with a positive integer. When reporting to the system, the provider can use a metadata set number to identify which *RecordTypeVersions* are used as default (the latest record type version at the time of the snapshot).
Mnemonic	A short but meaningful alphanumeric code representing a *Coded Value*, given in the data file for a *Field*. Synonyms: Code.
Record Type	Describes the structure of the data to be transmitted, usually a case report for a specific disease. It has a name, a list of Fields and a set of constraints (for example, *DateOfBirth < DateOfOnsetOfDisease*). Example: *SalmonellosisCase*. Synonym: Questionnaire, Form
Record Type Version	A positive integer representing the version of the *RecordType*. Different versions may contain different fields, validation rules, required fields etc. When submitting data, it is very important to indicate which record type version the provider intends to use. This can be indicated in two ways: either using a *Metadata Set* (for the whole batch) or specifying the record type version field (individual *Record Type*). If record type version is specified, it overrides the *Metadata Set*.
Record	An information item with a specified *Record Type* entered to TESSy, usually a case report or an aggregate entry.
Remark	Used in the validation process to indicate an unlikely value or an unlikely combination of values. Example: A five year old boy notified as homosexual. Synonyms: Improbable data, Advice to change.
Reporting Period	Describes the intended availability of data on a *Subject* in a specified time frame for a *Data Source*. This information is important to distinguish reporting of zero cases of a disease from not reporting this disease at all during the specified time.
Role	All users in TESSy are associated with one or more roles, which define what the user is authorised to do and which data the user is allowed to see. There are many roles defined, divided into three main categories: Provider (user is allowed to upload data), Approver (user is allowed to approve an uploaded batch) and Reader (user is allowed to download data and view data in reports).
Subject	Abstract term to specify what kind of information is stored in a *Record Type*, usually a disease. For example when sending data on Salmonellosis cases, the subject is Salmonellosis. Synonyms: Disease.
TESSy CSV	A short term for the format specified in the document *Transport Protocol Specification, CSV – Comma Separated Value, TESSy.*
TESSy Storage	The set of databases where surveillance data are stored at ECDC.
TESSy XML	A short term for the format specified in the document *Transport Protocol Specification, XML – Extensible Markup Language, TESSy*.
User	A user of TESSy (external or ECDC internal). Can be a data provider and/or a data consumer. Each user in TESSy is associated with one or more *Roles*, specifying what the user is allowed to do or see. Synonyms: Login
Warning	A minor validation issue. The user who approves the batch decides whether to keep or change the issue. A warning can often set one or more *Fields* to unknown as data cleaning. Synonyms: Validation warning, Validation result.
Web Service	A standard protocol for machine-to-machine communication. TESSy provides a Web Service-based interface to upload data. For more information, see the document *Web Service Technical Documentation*. Synonyms: Machine-to-machine connection.

Wrapper	A small piece of software responsible for the communication between the national surveillance system database and TESSy. The national system relies on the wrapper for upload, fetching validation results and approval. The wrapper does not have to be external software, but can be included within the national surveillance system depending on the national setup.
XML	EXtensible Markup Language — A data transport format in which the data are structured hierarchically.

1.3 Operation principles

The current version of TESSy supports upload of batches containing surveillance data. This upload can be done either manually, by using a secure web-based user interface, or automatically, by using an encrypted Web Service (machine-to-machine communication).

Data submission to TESSy is done according to the following steps:

1. The batch (one or more data files, depending on the format) is uploaded to the server.
2. The data is validated in the background. If the data contains severe errors, the batch is automatically rejected.
3. The validation result can be checked by the provider, who can choose to approve (confirm) or reject the batch.
4. After approval, the data are made available for analysis, reports etc.

1.4 Data validation

All data uploaded to TESSy is automatically validated to ensure quality. TESSy provides three levels of validation in order to ensure the data quality for European surveillance data: Errors, Warnings and Remarks. For more information, see the glossary. An error will automatically reject the batch, while a warning or a remark can be approved or rejected by the user. Before approval, the system will list all errors, warnings and remarks to the user.

1. **Validation of the readability of the batch.** Does the file comply with the specified format? Can the information be parsed?
   - Error: Any invalidation generates an error, for example, if the file is binary, if a CSV file has the wrong delimiter or if a XML file does not comply with the XML Schema.
2. **Validation of the data contents of the batch.** Are all fields supplied valid? Are any required fields missing? Are all repeatable fields valid?
   - Error: Some fields must be supplied by default, for example, record id, record type and data source. The severity for the rest of the fields is set in the metadata. If a field has the highest severity (error) and the field is required or not repeatable, an error is raised if the field does not validate.
   - Warning: Any validation failure with the medium severity (warning) for a field or combination of fields, for example, a required field is missing or an unrecognised coded value, an invalid date, an integer out of range etc.
   - Remark: An unlikely combination of fields, for example, a 4-year-old boy homosexually infected with HIV.

There are several types of validations:

Data Type:	TESSy checks the contents of each field whether it has the expected data type. A numeric field, for instance, must only contain a number; a date field must be formatted according to the ISO standard etc.
Required field:	A record is checked if all required fields are provided.
Repeating:	If a field that is not allowed to be repeated occurs more than once, this is generates a validation failure.
Range:	Numeric fields and dates can be checked against a given range, for example, the age must be less or equal to 120. A range violation usually results in setting the field to 'unknown' and the marking of this record with an error message during validation.
Coded Value:	If a field of type Coded Value contains a value that is not in the respective Coded Value List, this usually results in the setting of the field to 'unknown' and the tagging of the record.
Cross-field:	Some fields depend on each other, that is, the date of onset of disease must be previous to the date of death, a Salmonella phage type is only valid for certain serovars etc. This usually results in setting the less stable date to 'unknown' and tagging of the record.

1.5 Case-based and aggregated data reporting

Since not all countries are able to provide case-based surveillance data, both case-based and aggregated-based data is supported by TESSy. We therefore avoid referring to 'cases' and instead used the more abstract term 'record'. As currently the main focus of TESSy is the collection of case reports, the term will frequently been read as 'case report'.

1.6 Support

ECDC offers support to Member States and TESSy users in several ways:

- Support — Support for TESSy data preparation, upload and viewing is available via the ECDC helpdesk. The helpdesk helps the users regarding access and errors in the system, and with any data-specific answers. The helpdesk is available from 9am to 4.30pm CET (Stockholm time).
- Contact: **TESSy helpdesk:** tessy@ecdc.europa.eu**; +46 (0)8 5860 1601**
- User trainings — To help users adjust to reporting data to TESSy, certain assistance and training will be available. Contact tessy@ecdc.europa.eu for details.

1.7 Document structure

This document is divided into three sections:

- Introduction, with an overview and a glossary, followed by some TESSy concepts.
- Technical, beginning with the variable definitions and the XML format specification.
- Frequently asked questions and troubleshooting.

The Appendix contains the XML schema and some example files.

2 Concepts

This section explains some of the base concepts used by TESSy. Understanding these concepts is vital for successful submission of data.

2.1 Batch identification

When using the TESSy web service each batch must have an identifier that is unique for the sending organisation. The batch identifier is an incremental positive integer (starting at 1) that is given by the web service client. TESSy enforces that each batch identifier given by the web service client is unique and greater than all previously used batch identifiers (see below), otherwise the batch is automatically rejected.

batchId > max(previously used batchId:s)

2.2 Reporting periods

The Reporting Period specifies the period of time which a certain subject has been under surveillance and reported to the system. The dates in the Reporting Period refer to the *Date used for statistics* in the records. For more information, see see Section 2.5.

Reporting period information is important in order to distinguish the reporting of zero cases of a disease from that of no reporting at all during the specified period. If applicable, a reporting period should be specified for each combination of subject and data source in a batch upload.

The reporting period must be present for each respective disease (subject) and surveillance system (data source). The end of the reporting period is usually the previous month. There is a possibility to also specify a start date, which is used, for example, when replacing data.

During data upload, the provider must supply any update in reporting periods compared to the last submission. When using the XML format, the Reporting Period information should be provided in the file, while when using the CSV format the Reporting Period should be edited in the user interface.

For example: The batch to be sent contains Salmonellosis cases for June 2007. The data from January 2006 until May 2007 has been sent to the system previously. Then the Reporting Period has to be updated from '2006-01-01 until 2007-05-31' to '2006-01-01 until 2007-06-30'.

2.3 Metadata versioning

As new pathogens emerge frequently, laboratory testing has evolved and interventions have adapted, all of which require new and specific information. This emphasises a need for system functionality in order to add or remove variables to report, to classify them as more or less important, to allow some parties to report more specialised information and to maintain backward compatibility. These requirements are covered by a non-static metadata. The metadata defines TESSy data structures and contains: RecordTypes, Fields, Coded Value Lists and Coded Values etc. The metadata also contains all validation rules.

Metadata versioning is used to take snapshots of the metadata and label them for usage. ECDC frequently publishes any changes of the metadata by taking snapshots and labelling them with a metadata set. When supplying data to TESSy, the provider needs to indicate which snapshot of the metadata they intend to use. This is usually done in the following way:

1. The provider gives the metadata set (version of the snapshot) for the whole batch. During validation, TESSy uses this to look up which record type versions are intended as default. For CSV, the metadata set is specified in the user interface. For XML, the metadata set is specified in the file.
2. For each record type, the provider can choose to override the default record type version (given by the metadata set). They do this by giving a record type version – during web upload of a CSV file and in the XML file itself, if using the XML transport protocol.

2.4 Data source

Every piece of data that is inputted into TESSy must be labelled with the originating data source. By data source, it is usually meant the surveillance system from which the data originates. Each organisation has a list of surveillance systems to choose from and users from that organisation can use a web interface to add/remove data sources or update existing ones.

This labelling is very important for data comparability. Each surveillance system has different features, which clearly identify what issues to take into account when comparing data at EU level.

2.5 Date used for statistics

A key aim of TESSy is that the numbers in the output match the official numbers of all Member States that provide data to the system. Each Member State has its own definition of which date, such as, date of onset, date of diagnosis, date of report, to use as reference for when a case should be counted. This is why TESSy introduces a generic date, date used for statistics, that must be used by each Member State individually to indicate which date is used.

The date used for statistics is a required field that generates an error if missing, which implies that the batch is automatically rejected. The date defines to which year, month and day a case is counted in standard reports. Furthermore, this date has to be within the date range indicated in the reporting period.

2.6 Updating and deleting records

When updating or deleting records in TESSy, the previous state of the record is still available. All changes to the data are marked with a timestamp. Using this technique ensures that we can always track the changes that have been made. Normally reports and downloads only represent the current state of the database. It is possible in some reports and download functions to request the data as it was in a certain point in time.

2.7 Replacing data by periods

An alternative to the above described 'Updating and deleting records', is to work on all data within a specified period. A provider can replace all records within a specified period with a new batch. The principle of replacing is equivalent to first deleting the information and then uploading a new batch with the replacement data.

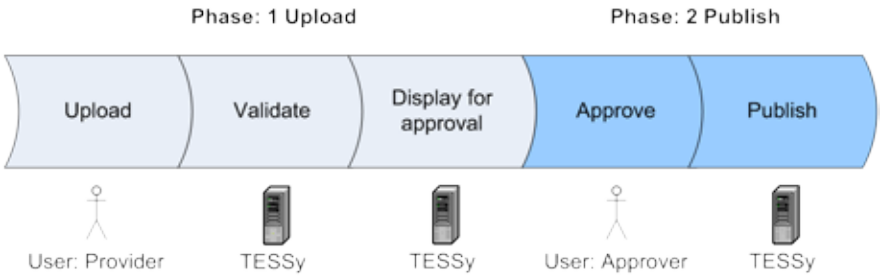
Note: when replacing a period, all current records with DateUsedForStatistics within the period for the record type and data source (surveillance system) are marked as invalid.

2.8 Data flow

The data flow can be divided into two phases:

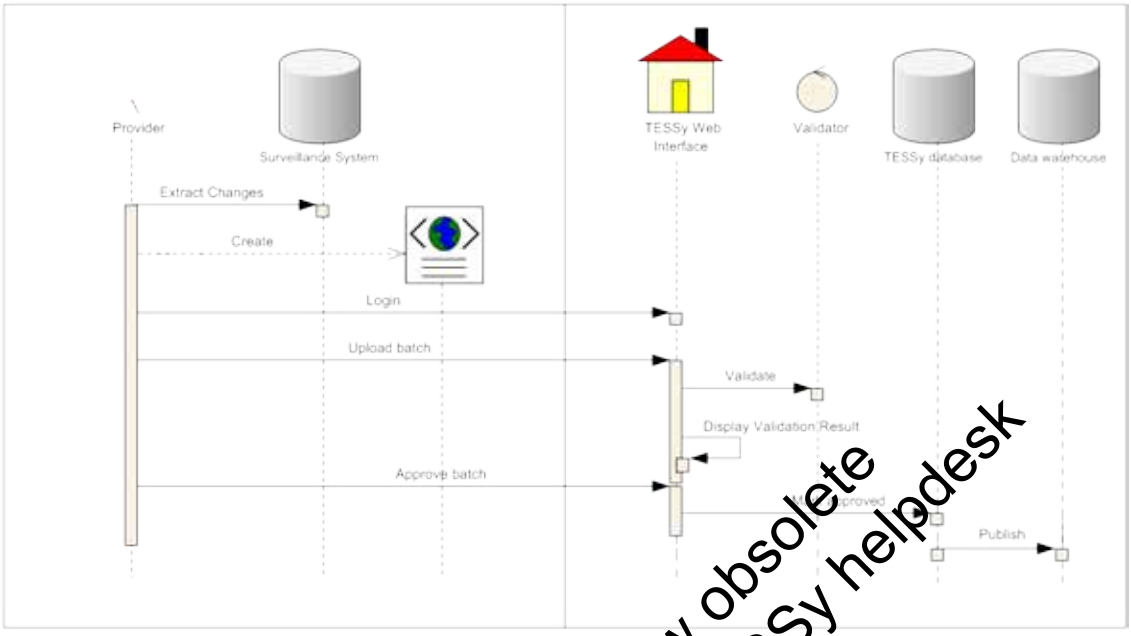
1. A batch is uploaded and TESSy validates its contents. The validation result is listed to the provider and can be revised later.
2. The provider reviews the validation results and chooses to approve or reject the batch. If the batch is approved, then the information is pushed to the data warehouse and is available for reports and queries.

Figure 1 Conceptual data flow when uploading data to TESSy



2.8.1 Web-based data upload

Figure 2 Overview of the TESSy upload process



The following steps are to be performed by the provider:

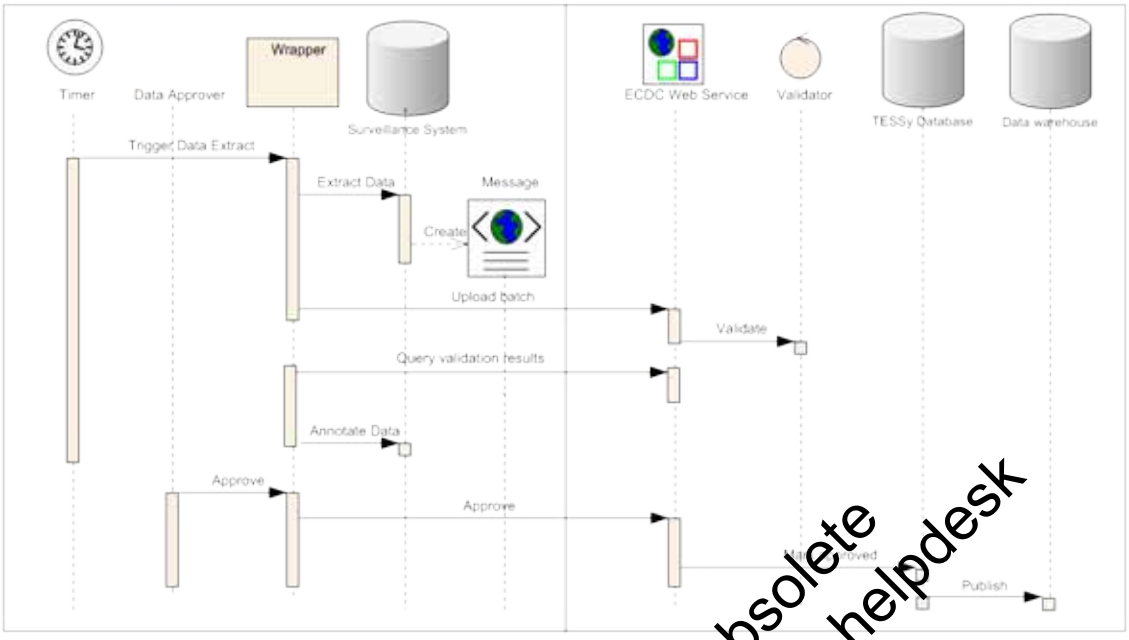
1. The user extracts the requested information from the national surveillance system (database) and creates data transport file according to one of the supported format specifications. The provider can specify a metadata set during upload to define which fields are reported for each record type and subject (disease).
2. The provider logs into the TESSy web interface to upload the file(s) as a batch. In the upload process, the user is asked to update the reporting periods for the diseases to upload. After uploading, the user is redirected to the 'Review Uploads' page.
3. After the batch has been uploaded, TESSy validates the batch content in the background. If any errors are found, the batch is automatically rejected.
4. After validation, the status of the batch changes to 'Validated' and the user may view the validation result.
5. If the batch has not been automatically rejected, the user finds two buttons on the validation result page: one to approve the batch and one to reject the batch. If the user chooses to reject it, the batch is marked invalid and must be uploaded to the system again from step 2. If the user chooses to approve it, the batch is marked as approved.
6. The batch is transferred into the data warehouse in order to be accessible to all users for reports and queries.

2.8.2 Web service data exchange

A Web Service interface is available for direct machine communication with TESSy. A Web Service is a standard protocol for machine-to-machine communication that is designed for interoperability and thus does not force any of the communicating parties to use a specific programming language.

For more information, see the document *Web Service Technical Documentation*.

Figure 3 Overview of the TESSy data exchange by Web Service



1. The provider has a special application (the Wrapper) that is able to extract data from the national surveillance system (database). Triggered by a Timer (or scheduler), this application extracts data that have been changed since the last data submission and creates a transport file according to the TESSy XML format specification. Note: only the TESSy XML format is supported for Web Service upload.
2. The Wrapper invokes the TESSy Web Service to upload the batch and get a receipt in return.
3. TESSy validates the submitted batch. If any errors are found, the batch is automatically rejected.
4. The Wrapper queries the validation results method (Web Service call) until the validation results are successfully returned. These can be used to annotate data in the surveillance system, for example, a case record can be marked as 'submitted to ECDC' or the rule violations of a record can be stored.
5. Approval of the data can be done in two ways:
    a. using the TESSy web interface, or
    b. house the approval process in the national surveillance system (database). Display the validation results and let a user approve the batch. The Wrapper can then use an approved batch method (Web Service call) to pass on the result to TESSy.
6. The batch is transferred into the data warehouse in order to be accessible to all users for reports and queries.

3 Variable coding

The current version of TESSy supports the following data types:

String	A sequence of alphanumeric characters of arbitrary length (if not specified otherwise)
Date	An ISO 8601 date in the format CCYY-MM-DD
Incomplete Date	An ISO 8601 date in the format CCYY-MM-DD or CCYY or CCYY-MM or CCYY-Www (Possible formats can be restricted within the definition of the field)
Numeric	A numeric value
Coded Value	An item from an enumerated list of allowed values
Complex	A field that is composed of two or more sub-fields, for instance a period with a start date and an end date

3.1 String

String (or text) fields are sequences of alphanumeric characters of arbitrary length[1] Since the data transfer files are encoded in Unicode, special characters can be used. For string fields a maximum length can be defined.

In the TESSy CSV format, line breaks and commas are not allowed.

3.2 Date

Date formats in TESSy follow the ISO standard ISO 8601:1988 (E) for date and time specifications. This corresponds to the European standard EN 28601. For dates this is CCYY-MM-DD with CCYY the four digit year, MM a two digit month (with leading zero if less than 10) and DD the two digit day of month, for example 2007-01-17 for 17 January 2007. TESSy requires the hyphens (the ISO standard allows dropping of the hyphens).

TESSy does not support the week & day notation YYYYWww-D to address a single day nor any Julian date specification, that is, CCYY-JJJ, example 2007-234.

3.3 Incomplete date

For some date fields the exact day has to be given. For others it might be sufficient to submit 'incomplete information', for example only the week or the month. Those fields have the data type Incomplete Date. ISO 8601 has a specification for time with reduced precision, but TESSy only supports parts of this.

The following is supported as input to TESSy:

CCYY	represents the period of the specified year. Example: 2004
CCYY-MM	represents the period of the month specified. Example: 2006-11
CCYY-Www	represents the period of the week specified. Example: 2005-W23
CCYY-Qq	represents the period of the quarter specified. Example: 2005-Q3
CCYY-MM-DD	represents a complete date. Example: 2007-11-23

Note: week incomplete date format[2]: The week number should be calculated according to ISO 8601(1988), European Norm EN 28601 (1992). Meaning that week 01 is the week that contains 4 January, or in other words - the week that contains the first Thursday of the year.

[1] For technical reasons the maximum number of characters is actually 4 000.

[2] See http://en.wikipedia.org/wiki/ISO_8601#Week_dates for more information.

There are mutually equivalent descriptions of week 01:

- the week with the year's first Thursday in it (the formal ISO definition);
- the week with 4 January in it;
- the first week with the majority (four or more) of its days in the starting year; and
- the week starting with the Monday in the period 29 December–4 January.

The week number can be described by counting the Thursdays: week 12 contains the 12th Thursday of the year.

The ISO week-numbering year starts on the first day (Monday) of week 01 and ends on the Sunday before the new ISO year (hence without overlap or gap). It consists of 52 or 53 full weeks. The ISO week-numbering year number deviates from the number of the calendar year (Gregorian year) on a Friday, Saturday, and Sunday, or a Saturday and Sunday, or just a Sunday, at the start of the calendar year (which are at the end of the previous ISO week-numbering year) and a Monday, Tuesday and Wednesday, or a Monday and Tuesday, or just a Monday, at the end of the calendar year (which are in week 01 of the next ISO week-numbering year). For Thursdays, the ISO week-numbering year number is always equal to the calendar year number.

Examples:

2008-12-29 is written '2009-W01'
2010-01-03 is written '2009-W53'

3.4 Numeric

Numbers are coded as integers. For a numeric field a range rule can be specified, that is, the value must not be less than a specified minimum, more than a specified maximum, or both.

3.5 Coded values

Coded values are items from a predefined list. Most fields in the core set of variables for routine surveillance have the data type Coded Value. For data exchange with TESSy generally a short but meaningful code (mnemonic) is used. Examples for lists of coded values are the countries defined in ISO 3166-1 or sex defined in ISO 5218.

3.6 Complex

Complex fields are used to report dependent information in a hierarchical structure. A complex field contains one or more subfields of any type.

The complex data type introduces the possibility for relational data structures in TESSy, for example, a travel-associated Legionnaires' disease case has one or more travel records or that an intensive care unit has many patients.

A complex field is a grouped placeholder for one or more other fields. A record type contains a list of fields, where one or more fields may be of type complex. Each complex field contains, in turn, its own list of fields.

Example:

Consider the record type for a travel-associated Legionnaires' disease case, LEGITRAVEL, containing "normal" fields for the case, such as Age, Gender, DateOfOnset ,like any other case based record type. Since the record type is used for travel associated cases there is also a need to collect the travel history of the case, which is implemented as a complex field, TravelRecord. This complex field contain its own set of fields like the accommodation name and type as well as the date of arrival and departure.

LEGITRAVEL

+ Age (Numeric)
+ Gender (Coded Value)
+ DateOfOnset (Date)
+ TravelRecord (Complex – can be repeated if more than one travel record)
    + AccomName (Text)
    + AccomType (Coded Value)
    + DateOfArrival (Date)
    + DateOfDeparture (Date)

By using this structure, each case reported can contain an individual number of travel records depending on the travel history of the case.

4 TESSy XML specification

This section specifies the TESSy transport file format when using XML (eXtensible Markup Language). It describes the format structure and fields. The format is defined by an XML Schema (see Appendix A).

4.1 XML header

In order for TESSy to recognise a valid TESSy XML file, the XML header must be written like this (the file must start like this):

```
<?xml version="1.0" encoding="utf-8"?>
<TESSyDataUpload xmlns="http://tessy.ecdc.europa.eu/schemas/TESSyDataUploadV2"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://tessy.ecdc.europa.eu/schemas/TESSyDataUploadV2
http://tessy.ecdc.europa.eu/schemas/TESSyDataUploadV2.xsd">
```

This XML header informs external XML editors which XML Schema TESSy uses, which enables the XML editor to validate the file accordingly.

4.2 Cases sensitivity

Note that the XML format is case insensitive, for example, 'GR' is the same as 'gr' or 'Gr'. Coded Values are usually written in upper case.

Note: tag names are case sensitive as they are validated against the XML schema.

4.3 Case-based reporting (individual data) vs. aggregated reporting

There is no practical difference between case-based reporting and aggregated reporting in XML format. The record type defines whether case-based or aggregated data are provided.

Note: the recordId is required for case-based reporting, while it is optional for aggregated reporting.

4.4 Empty fields vs. left out fields

A record is composed of fields and in XML these are represented by a field name – field value pair indicating which field is being reported and its value. If requested information is missing, not applicable or unknown, this can be indicated in several ways:

- By giving an empty fieldValue: the value is assumed to be unknown.
- By giving UNK as fieldValue: the value is treated as unknown.
- By leaving the element out: this indicates that the field is not applicable, which might generate an error or a warning, depending on the validation rules for the field.

4.5 Key elements of the XML schema

An XML schema is a description of a type of XML document, typically expressed in terms of constraints on the structure and content of documents of that type, above and beyond the basic syntax constraints imposed by XML itself. An XML schema provides a view of the document type at a relatively high level of abstraction.

The current version of the XML schema as of this document is listed in Appendix A.

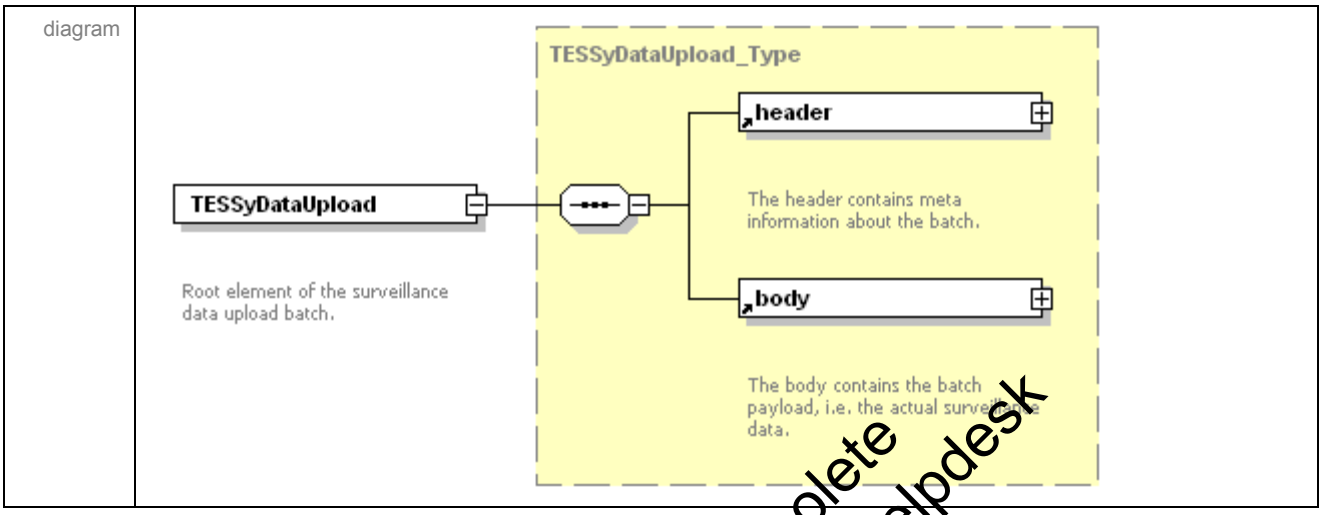
4.5.1 How to read the diagrams

The schematic presentation of the schema as used in this document uses several visual elements:

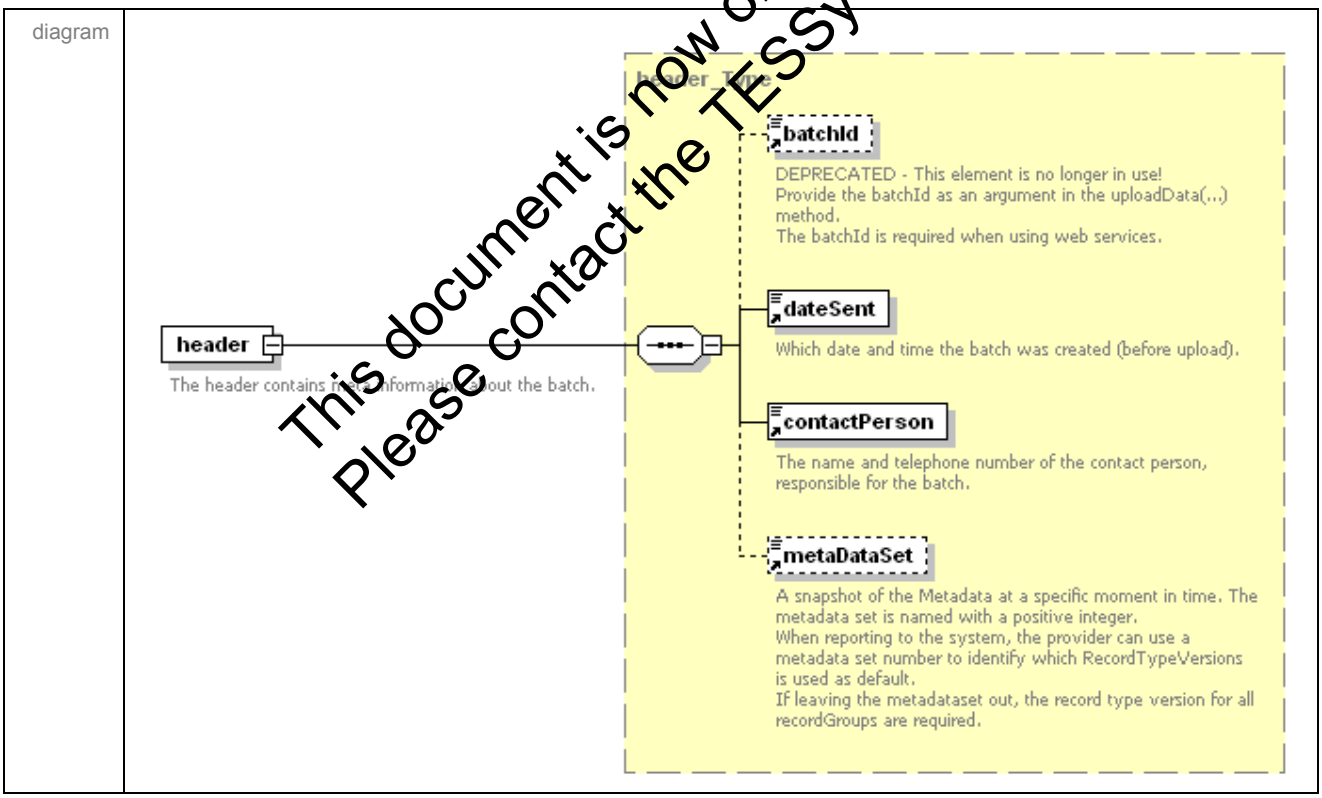
- **Box:** this is a XML data element, which contains data or other elements.
- **Box with dotted line:** data element that is conditional (can be left out).
- **Plus sign:** indicates that the element contains other elements.
- **Cardinality like 1..∞:** Indicates the minimum and maximum number of occurrences of an element. If not

indicated, the maximum is always 1. The minimum can be derived from the solid or dotted line in which the element box is represented.

4.5.2 complexType TESSyDataUpload_Type



4.5.3 element header

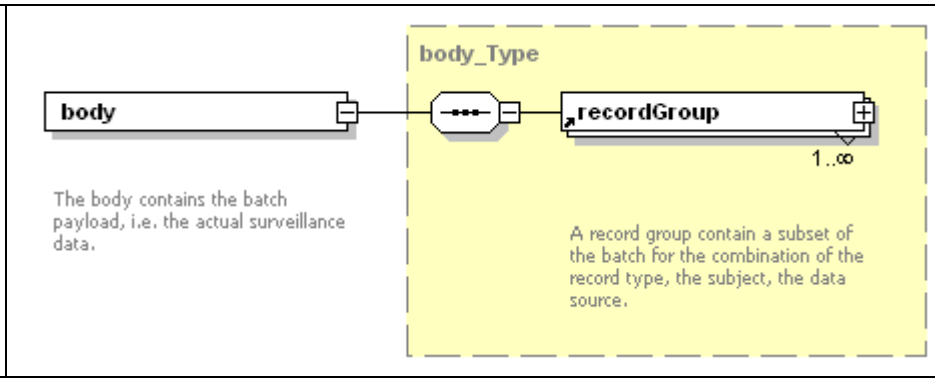


Example: An example header for Malta

```
<header>
    <dateSent>2007-07-10T13:55:50</dateSent>
    <contactPerson>John Smith, +356 1230312</contactPerson>
    <metaDataSet>11</metaDataSet>
</header>
```

4.5.4 element body

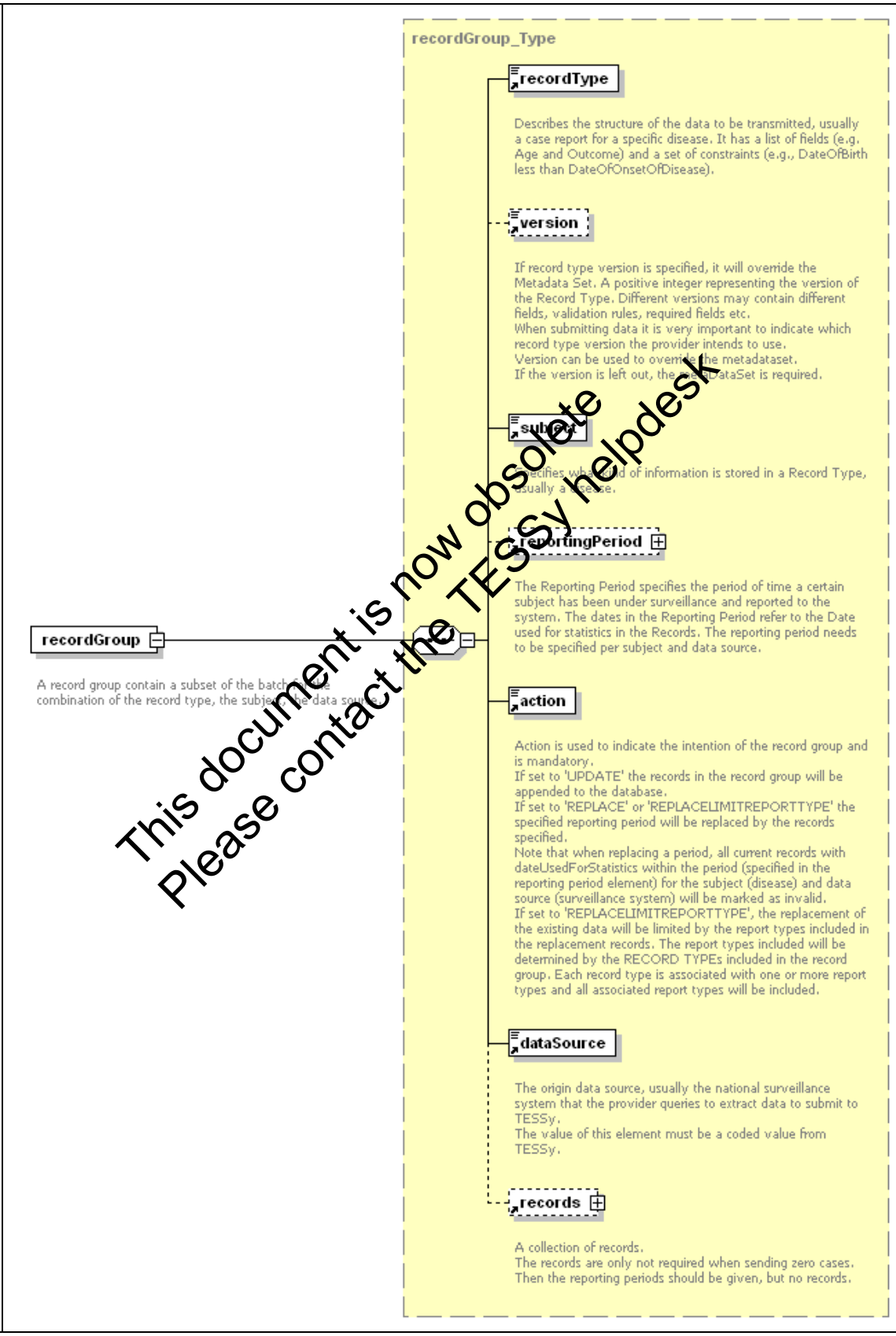
diagram



For each combination of record type, subject and data source, a recordGroup is added.

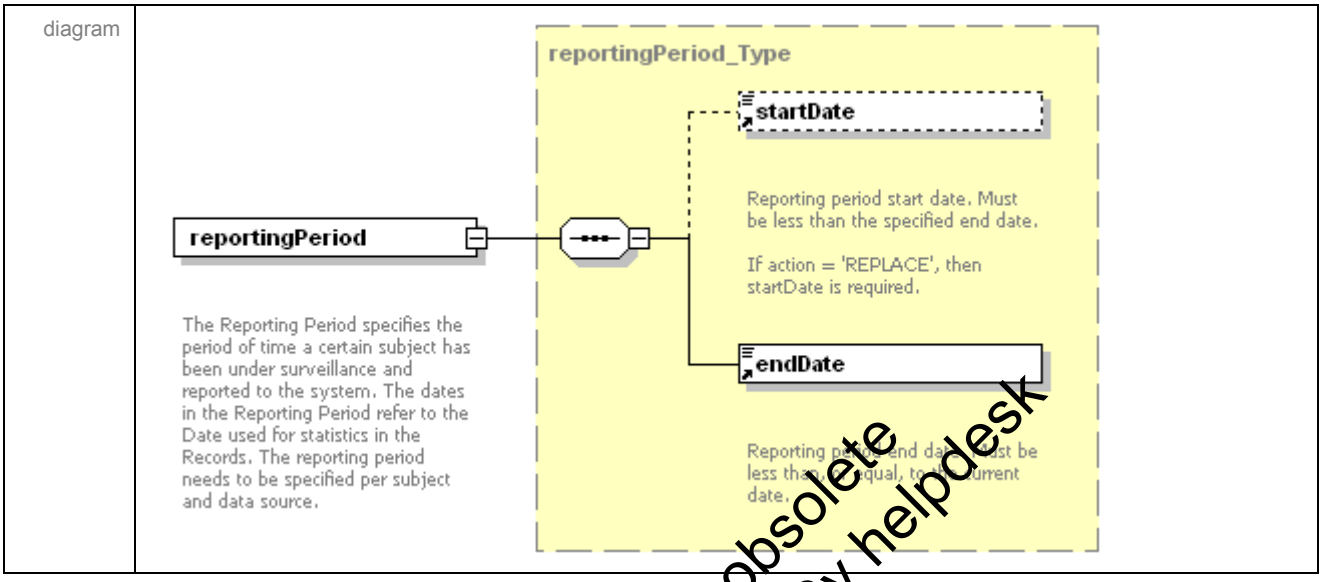
4.5.5 element recordGroup

diagram



The records element is optional. When reporting zero cases for a disease in a specific period, it suffices to update the report period without sending records.

4.5.6 element reportingPeriod



When replacing data (action = 'REPLACE' or action = 'REPLACEMITREPORTTYPE) both startDate and endDate are required because they describe the selection of data that needs to be replaced.

General rules regarding reportingPeriod:

- The first time data is sent to TESSy, a startDate and endDate are required for each {subject, data source} combination.
- If a reporting period exists for a combination of subject and data source, it is sufficient to send only an endDate to indicate the new end of period over which new data is sent in. The startDate is then assumed to be kept the same as previously indicated. This is considered the most common use case.
- ReportingPeriods may not be reduced, that is, it is not possible to send an update of reportingPeriod that have a startDate later than a previously sent startDate or an endDate that is before a previously sent endDate. This can only be done by contacting Helpdesk.
- It is possible to have multiple reporting periods on the same subject/data source combination. This can only be done by contacting Helpdesk.
- Violation of rules regarding reporting period always result in an error (the whole batch is rejected).

Example: Specifying a reporting period for Malaria and Hepatitis B

```
<recordGroup>
  <recordType>MALA</recordType>
  <version>4</version>
  <subject>MALA</subject>
  <reportingPeriod>
   <startDate>2006-01-01</startDate>
   <endDate>2006-12-31</endDate>
  </reportingPeriod>
  <action>REPLACE</action>
  <dataSource>MT-DISEASE_SURVEILLANCE</dataSource>
  <records>
  ...
  </records>
<recordGroup>
<recordGroup>
  <recordType>HEPB</recordType>
  <subject>HEPB</subject>
  <reportingPeriod>
   <endDate>2006-12-31</endDate>
  </reportingPeriod>
  <action>UPDATE</action>
  <dataSource>MT-DISEASE_SURVEILLANCE</dataSource>
```

```
  <records>
  ...
  </records>
<recordGroup>
```

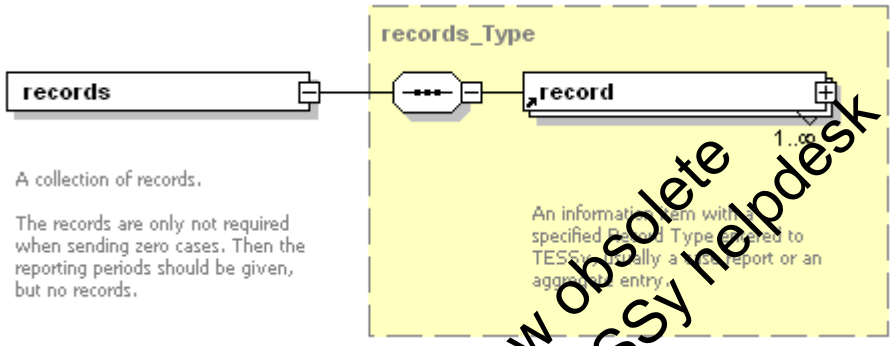
Note 1: In the first recordGroup action is set to REPLACE, which implies that startDate is required.

Note 2: In the second recordGroup action is to UPDATE, which implies that startDate is optional. If left out, it is assumed to be the existing start date.

Note 3: The second recordGroup does not specify the version for the record type, which implies that the metaDataSet is required (not displayed in this example).

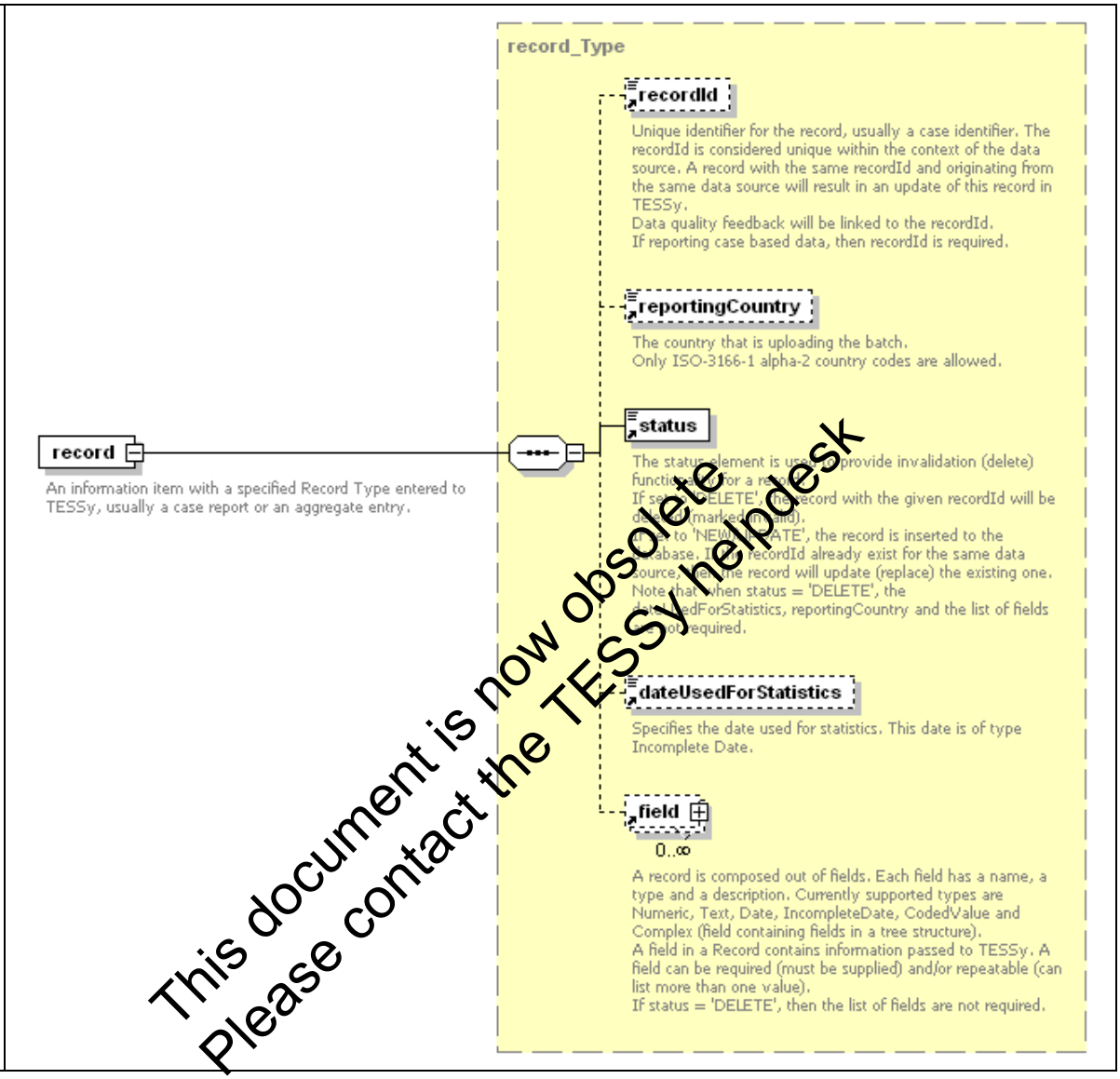
4.5.7 element records

diagram



4.5.8 element record

diagram



Example: Reporting a case of Campylobacter

```
<record>
    <recordId>02638430</recordId>
    <reportingCountry>MT</reportingCountry>
    <status>NEW/UPDATE</status>
    <dateUsedForStatistics>2005-11-05</dateUsedForStatistics>
    <field>
        <fieldName>Age</fieldName>
        <fieldValue>44</fieldValue>
    </field>
    <field>
        <fieldName>Gender</fieldName>
        <fieldValue>M</fieldValue>
    </field>
    <field>
        <fieldName>Classification</fieldName>
        <fieldValue>CONF</fieldValue>
    </field>
    <field>
        <fieldName>DateOfNotification</fieldName>
        <fieldValue>2006-01-06</fieldValue>
```

```
    </field>
    <field>
        <fieldName>Imported</fieldName>
        <fieldValue>N</fieldValue>
    </field>
    <field>
        <fieldName>SpeciesCAMP</fieldName>
        <fieldValue>JEJ</fieldValue>
    </field>
</record>
```

Example: Reporting a case of Malaria

```
<record>
   <recordId>GRELO4048</recordid>
   <reportingCountry>GR</reportingCountry>
   <status>NEW/UPDATE</status>
   <dateUsedForStatistics>2005-11-05</dateUsedForStatistics>
   <field><fieldName>Age</fieldName><fieldValue>46</fieldValue></field>
   <field><fieldName>Gender</fieldName><fieldValue>M</fieldValue></field>
   <field><fieldName>DateOfNotification</fieldName><fieldValue>2005-11-05</fieldValue></field>
   <field><fieldName>Classification</fieldName><fieldValue>CONF</fieldValue></field>
   <field><fieldName>ProbableCountryOfInfection</fieldName><fieldValue>PK</fieldValue></field>
   <field><fieldName>Travel</fieldName><fieldValue>IN</fieldValue></field>
   <field><fieldName>SpeciesMALA</fieldName><fieldValue>FAL</fieldValue></field>
</record>
```

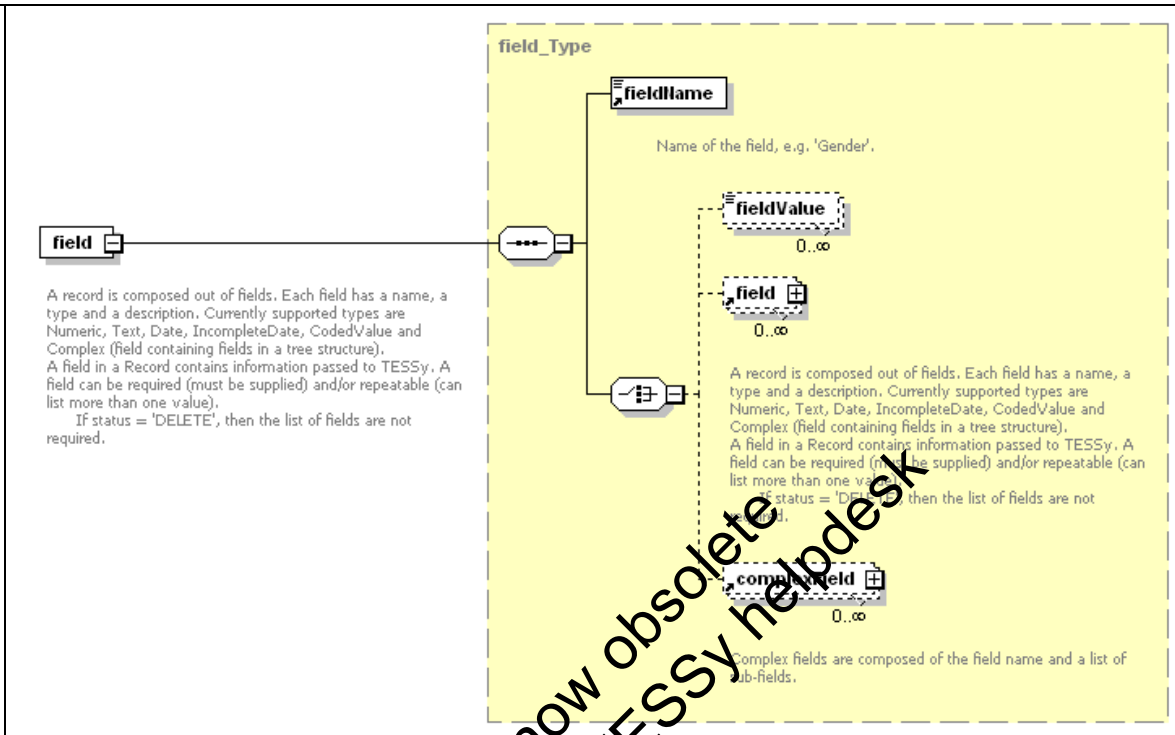
Example: Deleting the case of Malaria (same as in the previous example)

```
<recordGroup>
  <recordType>MALA</recordType>
  <subject>MALA</subject>
  <action>ADD/UPDATE</action>
  <dataSource>GR-ENTERNET</dataSource>
  <records>
     ...
     <record>
        <recordId>GRELO4048</recordId>
        <status>DELETE</status>
     </record>
     ...
  </records>
<recordGroup>
```

Note 1: Since status='DELETE', dateUsedForStatistics, reportingCountry and the list of fields are not required.

4.5.9 element field

diagram



Example: An illustration of a complex field (TravelHistory) that also is repeatable

```
<field><fieldName>Age</fieldName><fieldValue>46</fieldValue></field>
<field><fieldName>Gender</fieldName><fieldValue>M</fieldValue></field>
<field>
    <fieldName>TravelRecord</fieldName>
    <complexField>
        <field>
           <fieldName>AccomodationName</fieldName>
           <fieldValue>Bellavue, Casablanca</fieldValue>
        </field>
        <field><fieldName>ProbableCountryOfInfection</fieldName><fieldValue>MA</fieldValue></field>
        <field><fieldName>DateArrival</fieldName><fieldValue>2006-02-17</fieldValue></field>
        <field><fieldName>DateDeparture</fieldName><fieldValue>2006-02-23</fieldValue></field>
    </complexField>
    <complexField>
        <field>
           <fieldName>AccomodationName</fieldName>
           <fieldValue>Bellavista, Casablanca</fieldValue>
        </field>
        <field><fieldName>ProbableCountryOfInfection</fieldName><fieldValue>MA</fieldValue></field>
        <field><fieldName>DateArrival</fieldName><fieldValue>2006-02-23</fieldValue></field>
        <field><fieldName>DateDeparture</fieldName><fieldValue>2006-02-26</fieldValue></field>
    </complexField>
</field>
```

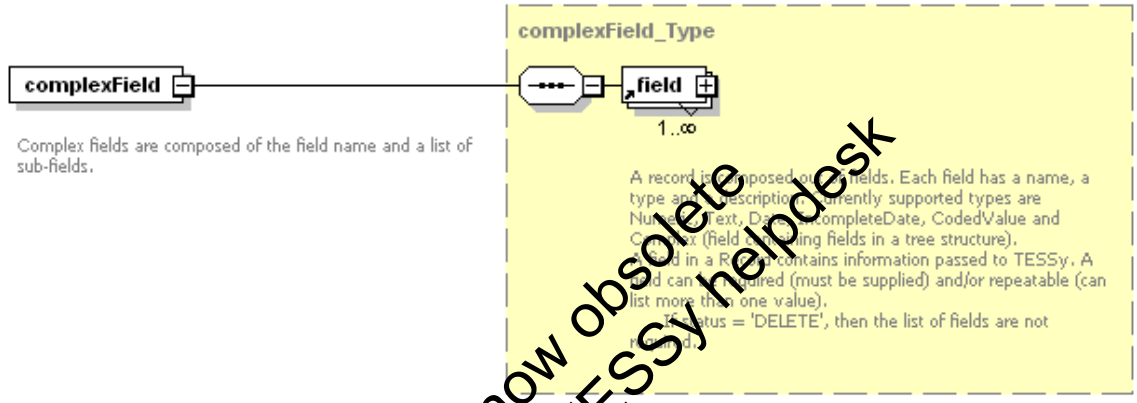
Note 1: This example shows how complex fields can be coded. It is based upon the idea of transmitting details on a travel history for a case of travel-associated Legionnaires' disease. The field `TravelRecord` is complex and thus repeatable and composed from the subfields `AccomodationName`, `ProbableCountryOfInfection`, `DateArrival` and `DateDeparture`.

Example: An illustration of a repeatable field (ProbableCountryOfInfection)

```
<field><fieldName>Age</fieldName><fieldValue>46</fieldValue></field>
<field><fieldName>Gender</fieldName><fieldValue>M</fieldValue></field>
<field>
    <fieldName>ProbableCountryOfInfection</fieldName>
    <fieldValue>MA</fieldValue>
    <fieldValue>IT</fieldValue>
</field>
<field><fieldName>Imported</fieldName><fieldValue>Y</fieldValue></field>
```

4.5.10 complexField field

diagram



5 Frequently asked questions and troubleshooting

This section contains some of the commonly asked questions, some common scenarios, and how to solve them.

5.1 Frequently asked questions

5.1.1 How do I report zero cases of a disease?

The problem with case-based reporting is that it is hard to distinguish between no reports and zero reports. Thus, reporting periods are used (see Section 2.2).

To report zero cases of a disease, include the specified period in the reporting period for the given subject (disease) and data source (surveillance system). Then TESSy knows that the provider has reported data, butsince no data were supplied, TESSy know that zero cases have been reported.

Data transfer to TESSy can be done in one of two ways: they can be uploaded manually, via a secure web interface, or fully automated, using a machine-to-machine (Web Service) interface. Data submission by e-mail, the method of data transfer that has been the standard in many surveillance networks, is not supported by TESSy. The reasons for this are related to the complexities posed by authorisation (using digital signatures), automatic data validation and an inability to give direct feedback.

5.2 Troubleshooting

During data upload, there are multiple scenarios in which something goes wrong. This section summarises the main issues that can be expected and the recommended actions to the user.

5.2.1 Can not see 'Upload data'

The user might not be authorised to perform the requested action. The menu item 'Upload data' or one of its submenu items is missing.

Contact helpdesk to learn how to update your access rights.

5.2.2 Can not approve data

The user might not be authorised to perform the requested action. There are no buttons to approve or reject a batch in status validated.

Contact helpdesk to learn how to update your access rights.

5.2.3 Errors in the reporting periods

The user can update the existing reporting periods in one of two ways:

1. Update the periods manually in the web interface (only applicable for the TESSy CSV format).
2. Include the reporting periods in the data file (only applicable for the TESSy XML format).

Any reduction of a reporting period generates an error. The reporting periods are only allowed to grow (the user can of course choose not to update the periods and thus keep the existing periods).

Change the reporting periods so that the reporting periods are not shortened. If a reporting period for any reason needs to be shortened, please contact helpdesk.

5.2.4 The batch is automatically rejected

If any severe error is found in the validation, the batch is automatically rejected. The details of the errors found can be listed in the 'Validation result' page.

Fix the cause of the error and resubmit the batch.

5.2.5 System Errors

This is a group of errors that cannot be solved by the user and are displayed to the user via an error screen.

Always contact helpdesk.

Appendix A: XML schema

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://tessy.ecdc.europa.eu/schemas/TESSyDataUploadV2"
targetNamespace="http://tessy.ecdc.europa.eu/schemas/TESSyDataUploadV2"
elementFormDefault="qualified" attributeFormDefault="unqualified">
    <!-- Element Definitions -->
    <xs:element name="TESSyDataUpload" type="TESSyDataUpload_Type">
        <xs:annotation>
            <xs:documentation>
                Root element of the surveillance data upload batch.
            </xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="header" type="header_Type">
        <xs:annotation>
            <xs:documentation>
                The header contains meta information about the batch.
            </xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="body" type="body_Type">
        <xs:annotation>
            <xs:documentation>
                The body contains the batch payload, i.e. the actual surveillance data.
            </xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="batchId">
        <xs:annotation>
            <xs:documentation>
                DEPRECATED - This element is no longer in use!
                Provide the batchId as an argument in the uploadData(...) method.
                The batchId is required when using web services.
            </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:unsignedInt"/>
        </xs:simpleType>
    </xs:element>
    <xs:element name="dateSent" type="xs:dateTime">
        <xs:annotation>
            <xs:documentation>
                Which date and time the batch was created (before upload).
            </xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="contactPerson">
        <xs:annotation>
            <xs:documentation>
                The name and telephone number of the contact person, responsible for the batch.
            </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="255"/>
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="metaDataSet">
        <xs:annotation>
            <xs:documentation>
                A snapshot of the Metadata at a specific moment in time. The metadata set is
                named with a positive integer. When reporting to the system, the provider can
                use a metadata set number to identify which RecordTypeVersions is used as default.
                If leaving the metadataset out, the record type version for all recordGroups are
                required.
            </xs:documentation>
```

```
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:unsignedInt"/>
        </xs:simpleType>
    </xs:element>
    <xs:element name="recordGroup" type="recordGroup_Type">
        <xs:annotation>
            <xs:documentation>
                A record group contains a subset of the batch for the combination of the record type,
                the subject, the data source.
            </xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="recordType">
        <xs:annotation>
            <xs:documentation>
                Describes the structure of the data to be transmitted, usually a case report for a
                specific disease. It has a list of fields (for example, Age and Outcome) and a
                set of constraints (for example, DateOfBirth less than DateOfOnsetOfDisease).

            </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="30"/>
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="version">
        <xs:annotation>
            <xs:documentation>
                If record type version is specified it overrides the Metadata Set. A positive
                integer representing the version of the Record Type. Different versions may contain
                different fields, validation rules, required fields etc.
                When submitting data it is very important to indicate which record type version the
                provider intends to use. Version can be used to override the metadataset.
                If the version is left out, the metadataSet is required.
            </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:unsignedInt"/>
        </xs:simpleType>
    </xs:element>
    <xs:element name="subject">
        <xs:annotation>
            <xs:documentation>
                Specifies what kind of information is stored in a Record Type, usually a disease.
            </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="50"/>
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="reportingPeriod" type="reportingPeriod_Type">
        <xs:annotation>
            <xs:documentation>
                The Reporting Period specifies the period of time a certain subject has been under
                surveillance and reported to the system. The dates in the Reporting Period refer to
                the Date used for statistics in the Records. The reporting period needs to be
                specified per subject and data source.
            </xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="startDate" type="xs:date">
        <xs:annotation>
            <xs:documentation>
                Reporting period start date. Must be less than the specified end date.
                If action = 'REPLACE', then startDate is required.
            </xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="endDate" type="xs:date">
```

```
    <xs:annotation>
        <xs:documentation>
            Reporting period end date. Must be less than, or equal, to the current date.
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="action" default="update">
    <xs:annotation>
        <xs:documentation>
            Action is used to indicate the intention of the record group and is mandatory.
            If set to 'UPDATE' the records in the record group are appended to the database.
            If set to 'REPLACE' or 'REPLACELIMITREPORTTYPE' the specified reporting period is
            replaced by the records specified.
            Note: when replacing a period, all current records with dateUsedForStatistics within
            the period (specified in the reporting period element) for the subject (disease) and
            data source (surveillance system) will be marked as invalid.
            If set to 'REPLACELIMITREPORTTYPE', the replacement of the existing data is limited
            by the report types included in the replacement records. The report types included
            are determined by the RECORD TYPEs included in the record group. Each record type is
            associated with one or more report types and all associated report types are
            included.
        </xs:documentation>
    </xs:annotation>
    <xs:simpleType>
        <xs:restriction base="xs:string">
            <xs:maxLength value="30"/>
            <xs:enumeration value="update"/>
            <xs:enumeration value="replace"/>
            <xs:enumeration value="replacelimitreporttype"/>
            <xs:enumeration value="UPDATE"/>
            <xs:enumeration value="REPLACE"/>
            <xs:enumeration value="REPLACELIMITREPORTTYPE"/>
        </xs:restriction>
    </xs:simpleType>
</xs:element>
<xs:element name="records" type="records_Type">
    <xs:annotation>
        <xs:documentation>
            A collection of records.
            The records are only not required when sending zero cases. Then the reporting periods
            should be given, but no records.
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="dataSource">
    <xs:annotation>
        <xs:documentation>
            The origin data source, usually the national surveillance system that the provider
            queries to extract data to submit to TESSy.
            The value of this element must be a coded value from TESSy.
        </xs:documentation>
    </xs:annotation>
    <xs:simpleType>
        <xs:restriction base="xs:string">
            <xs:maxLength value="50"/>
        </xs:restriction>
    </xs:simpleType>
</xs:element>
<xs:element name="record" type="record_Type">
    <xs:annotation>
        <xs:documentation>
            An information item with a specified Record Type entered in TESSy, usually a case
            report or an aggregate entry.
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="recordId">
    <xs:annotation>
        <xs:documentation>
            Unique identifier for the record, usually a case identifier. The recordId is
            considered unique within the context of the data source. A record with the same
            recordId and originating from the same data source results in an update of this
            record in TESSy.
            Data quality feedback will be linked to the recordId.
```

```
                If reporting case based data, then recordId is required.
            </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="80"/>
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="reportingCountry">
        <xs:annotation>
            <xs:documentation>
                The country that is uploading the batch.
                Only ISO-3166-1 alpha-2 country codes are allowed.
            </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="2"/>
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="dateUsedForStatistics" type="xs:string">
        <xs:annotation>
            <xs:documentation>
                Specifies the date used for statistics. This date is of type Incomplete Date.
            </xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="status">
        <xs:annotation>
            <xs:documentation>
                                The status element is used to provide invalidation (delete)
                functionality for a record. If set to 'DELETE', the record with the given recordId is
                deleted (marked invalid).
                If set to 'NEW/UPDATE', the record is inserted to the database. If the recordId
                already exist for the same data source, then the record updates (replace) the
                existing one.
                Note that when status is 'DELETE', the dateUsedForStatistics, reportingCountry and the
list of fields are not required.
            </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="30"/>
                <xs:enumeration value="new/update"/>
                <xs:enumeration value="delete"/>
                <xs:enumeration value="NEW/UPDATE"/>
                <xs:enumeration value="DELETE"/>
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="field" type="field_Type">
        <xs:annotation>
            <xs:documentation>
                A record is composed out of fields. Each field has a name, a type and a description.
                Currently supported types are Numeric, Text, Date, IncompleteDate, CodedValue and
                Complex (field containing fields in a tree structure).
                A field in a Record contains information passed to TESSy. A field can be required
                (must be supplied) and/or repeatable (can list more than one value).
                If status = 'DELETE', then the list of fields are not required.
            </xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="fieldName">
        <xs:annotation>
            <xs:documentation>
                Name of the field, for example, 'Gender'.
            </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="60"/>
            </xs:restriction>
```

```
    </xs:simpleType>
</xs:element>
<!-- Complex _Type Definitions -->
<xs:complexType name="TESSyDataUpload_Type">
    <xs:sequence>
        <xs:element ref="header"/>
        <xs:element ref="body"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="header_Type">
    <xs:sequence>
        <xs:element ref="batchId" minOccurs="0"/>
        <xs:element ref="dateSent"/>
        <xs:element ref="contactPerson"/>
        <xs:element ref="metaDataSet" minOccurs="0"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="body_Type">
    <xs:sequence>
        <xs:element ref="recordGroup" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="recordGroup_Type">
    <xs:sequence>
        <xs:element ref="recordType"/>
        <xs:element ref="version" minOccurs="0"/>
        <xs:element ref="subject"/>
        <xs:element ref="reportingPeriod" minOccurs="0"/>
        <xs:element ref="action"/>
        <xs:element ref="dataSource"/>
        <xs:element ref="records" minOccurs="0"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="records_Type">
    <xs:sequence>
        <xs:element ref="record" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="record_Type">
    <xs:sequence>
        <xs:element ref="recordId" minOccurs="0"/>
        <xs:element ref="reportingCountry" minOccurs="0"/>
        <xs:element ref="status"/>
        <xs:element ref="dateUsedForStatistics" minOccurs="0"/>
        <xs:element ref="field" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="complexField_Type">
    <xs:annotation>
        <xs:documentation>
            Complex fields are composed of the field name and a list of sub-fields.
        </xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element ref="field" minOccurs="1" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="complexField" type="complexField_Type">
    <xs:annotation>
        <xs:documentation>
            Complex fields are composed of the field name and a list of sub-fields.
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:complexType name="field_Type">
    <xs:annotation>
        <xs:documentation>
            Simple fields are combinations of a field name and the respective value.
            Complex fields are composed of the field name and a list of sub-fields.
        </xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element ref="fieldName"/>
            <xs:choice>
```

```
                <xs:element name="fieldValue" type="xs:string" minOccurs="0"
                    maxOccurs="unbounded"/>
                <xs:element ref="field" minOccurs="0" maxOccurs="unbounded"/>
                <xs:element ref="complexField" minOccurs="0" maxOccurs="unbounded"/>
            </xs:choice>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="reportingPeriod_Type">
        <xs:sequence>
            <xs:element ref="startDate" minOccurs="0"/>
            <xs:element ref="endDate"/>
        </xs:sequence>
    </xs:complexType>
</xs:schema>
```

Appendix B: Example files

Case-based reporting

```
<?xml version="1.0" encoding="utf-8"?>
<TESSyDataUpload xmlns="http://tessy.ecdc.europa.eu/schemas/TESSyDataUploadV2"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://tessy.ecdc.europa.eu/schemas/TESSyDataUploadV2
http://tessy.ecdc.europa.eu/schemas/TESSyDataUploadV2.xsd">
  <header>
        <dateSent>2007-07-10T13:55:50</dateSent>
        <contactPerson>Paul Smith, +357 4938321</contactPerson>
        <metaDataSet>5</metaDataSet>
  </header>
  <body>
        <recordGroup>
          <recordType>CAMP</recordType>
          <subject>CAMP</subject>
          <reportingPeriod>
                <startDate>2006-01-01</startDate>
                <endDate>2006-12-31</endDate>
          </reportingPeriod>
          <action>UPDATE</action>
          <dataSource>MT-DISEASE_SURVEILLANCE</dataSource>
          <records>
                <record>
                  <recordId>01038430</recordId>
                  <reportingCountry>MT</reportingCountry>
                  <status>NEW/UPDATE</status>
                  <dateUsedForStatistics>2006-01-04</dateUsedForStatistics>
                  <field>
                        <fieldName>Age</fieldName>
                        <fieldValue>2</fieldValue>
                  </field>
                  <field>
                        <fieldName>Gender</fieldName>
                        <fieldValue>M</fieldValue>
                  </field>
                  <field>
                        <fieldName>Classification</fieldName>
                        <fieldValue>CONF</fieldValue>
                  </field>
                  <field>
                        <fieldName>DateOfNotification</fieldName>
                        <fieldValue>2006-01-04</fieldValue>
                  </field>
                  <field>
                        <fieldName>Imported</fieldName>
                        <fieldValue>N</fieldValue>
                  </field>
                  <field>
                        <fieldName>SpeciesCAMP</fieldName>
                        <fieldValue>JEJ</fieldValue>
                  </field>
                  <field>
                        <fieldName>TravelRecord</fieldName>
                        <complexField>
                              <field>
                                    <fieldName>ProbableCountryOfInfection</fieldName>
                                    <fieldValue>SE</fieldValue>
                              </field>
                              <field>
                                    <fieldName>AccommType</fieldName>
                                    <fieldValue>Grand Hotel</fieldValue>
                              </field>
                              <field>
                                    <fieldName>ArrivalDate</fieldName>
                                    <fieldValue>2009-03-07</fieldValue>
```

```
                </field>
                <field>
                        <fieldName>ArrivalDateEst</fieldName>
                        <fieldValue>Y</fieldValue>
                </field>
                <field>
                        <fieldName>DepartDate</fieldName>
                        <fieldValue>2009-03-10</fieldValue>
                </field>
                <field>
                        <fieldName>DepartDateEst</fieldName>
                        <fieldValue>Y</fieldValue>
                </field>
        </complexField>
        <complexField>
                <field>
                        <fieldName>ProbableCountryOfInfection</fieldName>
                        <fieldValue>AR</fieldValue>
                </field>
                <field>
                        <fieldName>AccommType</fieldName>
                        <fieldValue>HOTEL</fieldValue>
                </field>
                <field>
                        <fieldName>ArrivalDate</fieldName>
                        <fieldValue>2009-03-10</fieldValue>
                </field>
                <field>
                        <fieldName>ArrivalDateEst</fieldName>
                        <fieldValue>Y</fieldValue>
                </field>
                <field>
                        <fieldName>DepartDate</fieldName>
                        <fieldValue>2009-03-20</fieldValue>
                </field>
                <field>
                        <fieldName>DepartDateEst</fieldName>
                        <fieldValue>Y</fieldValue>
                </field>
        </complexField>
  </field>
</record>
<record>
  <recordId>02638430</recordId>
  <reportingCountry>IT</reportingCountry>
  <status>NEW/UPDATE</status>
  <dateUsedForStatistics>2006-01-06</dateUsedForStatistics>
  <field>
        <fieldName>Age</fieldName>
        <fieldValue>44</fieldValue>
  </field>
  <field>
        <fieldName>Gender</fieldName>
        <fieldValue>M</fieldValue>
  </field>
  <field>
        <fieldName>Classification</fieldName>
        <fieldValue>CONF</fieldValue>
  </field>
  <field>
        <fieldName>DateOfNotification</fieldName>
        <fieldValue>2006-01-06</fieldValue>
  </field>
  <field>
        <fieldName>Imported</fieldName>
        <fieldValue>N</fieldValue>
  </field>
  <field>
        <fieldName>SpeciesCAMP</fieldName>
        <fieldValue>JEJ</fieldValue>
  </field>
  <field>
        <fieldName>TravelRecord</fieldName>
        <complexField>
```

```
                        <field>
                               <fieldName>ProbableCountryOfInfection</fieldName>
                               <fieldValue>SE</fieldValue>
                        </field>
                        <field>
                               <fieldName>AccommType</fieldName>
                               <fieldValue>Grand Hotel</fieldValue>
                        </field>
                        <field>
                               <fieldName>ArrivalDate</fieldName>
                               <fieldValue>2009-03-07</fieldValue>
                        </field>
                        <field>
                               <fieldName>ArrivalDateEst</fieldName>
                               <fieldValue>Y</fieldValue>
                        </field>
                        <field>
                               <fieldName>DepartDate</fieldName>
                               <fieldValue>2009-03-10</fieldValue>
                        </field>
                        <field>
                               <fieldName>DepartDateEst</fieldName>
                               <fieldValue>Y</fieldValue>
                        </field>
                  </complexField>
            </field>
          </record>
    </records>
</recordGroup>
<recordGroup>
    <recordType>SALM</recordType>
    <version>3</version>
    <subject>SALM</subject>
    <reportingPeriod>
          <endDate>2006-12-01</endDate>
    </reportingPeriod>
    <action>UPDATE</action>
    <dataSource>MT-DISEASE_SURVEILLANCE</dataSource>
    <records>
          <record>
            <recordId>831384[illegible]</recordId>
            <reportingCountry>MT</reportingCountry>
            <status>NEW/UPDATE</status>
            <dateUsedForStatistics>2006-12-18</dateUsedForStatistics>
            <field>
                  <fieldName>Age</fieldName>
                  <fieldValue>1</fieldValue>
            </field>
            <field>
                  <fieldName>Gender</fieldName>
                  <fieldValue>F</fieldValue>
            </field>
            <field>
                  <fieldName>Classification</fieldName>
                  <fieldValue>CONF</fieldValue>
            </field>
            <field>
                  <fieldName>DateOfNotification</fieldName>
                  <fieldValue>2006-12-18</fieldValue>
            </field>
            <field>
                  <fieldName>Imported</fieldName>
                  <fieldValue>N</fieldValue>
            </field>
            <field>
                  <fieldName>SerovarSALM</fieldName>
                  <fieldValue>Typhimurium</fieldValue>
            </field>
          </record>
          <record>
            <recordId>83338430</recordId>
            <reportingCountry>MT</reportingCountry>
            <status>NEW/UPDATE</status>
            <dateUsedForStatistics>2006-12-21</dateUsedForStatistics>
```

```
                <field>
                      <fieldName>Age</fieldName>
                      <fieldValue>9</fieldValue>
                </field>
                <field>
                      <fieldName>Gender</fieldName>
                      <fieldValue>M</fieldValue>
                </field>
                <field>
                      <fieldName>Classification</fieldName>
                      <fieldValue>CONF</fieldValue>
                </field>
                <field>
                      <fieldName>DateOfNotification</fieldName>
                      <fieldValue>2006-12-21</fieldValue>
                </field>
                <field>
                      <fieldName>Imported</fieldName>
                      <fieldValue>N</fieldValue>
                </field>
                <field>
                      <fieldName>SerovarSALM</fieldName>
                      <fieldValue>Enteritidis</fieldValue>
                </field>
              </record>
        </records>
      </recordGroup>
  </body>
</TESSyDataUpload>
```

Aggregated reporting

```
<?xml version="1.0" encoding="utf-8"?>
<TESSyDataUpload xmlns="http://tessy.ecdc.europa.eu/schemas/TESSyDataUploadV2"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://tessy.ecdc.europa.eu/schemas/TESSyDataUploadV2
http://tessy.ecdc.europa.eu/schemas/TESSyDataUploadV2.xsd">
<header>
		<dateSent>2007-07-10T14:04:13</dateSent>
		<contactPerson>Stanislav Purek, +4822 384728</contactPerson>
		<metaDataSet>6</metaDataSet>
	</header>
	<body>
		<recordGroup>
			<recordType>AGGR</recordType>
			<version>4</version>
			<subject>SALM</subject>
			<reportingPeriod>
				<startDate>2006-01-01</startDate>
				<endDate>2006-12-31</endDate>
			</reportingPeriod>
			<action>REPLACE</action>
			<dataSource>PL-DISEASE_SURVEILLANCE</dataSource>
			<records>
				<record>
					<reportingCountry>PL</reportingCountry>
					<status>NEW/UPDATE</status>
					<dateUsedForStatistics>2006-12</dateUsedForStatistics>
					<field>
						<fieldName>AgeClass</fieldName>
						<fieldValue>0</fieldValue>
					</field>
					<field>
						<fieldName>Gender</fieldName>
						<fieldValue>U</fieldValue>
					</field>
					<field>
						<fieldName>Startdate</fieldName>
						<fieldValue>2006-01-01</fieldValue>
					</field>
					<field>
						<fieldName>Enddate</fieldName>
						<fieldValue>2006-12-31</fieldValue>
					</field>
					<field>
						<fieldName>Classification</fieldName>
						<fieldValue>CONF</fieldValue>
					</field>
					<field>
						<fieldName>SerovarSALM</fieldName>
						<fieldValue>Brandenburg</fieldValue>
					</field>
					<field>
						<fieldName>NumberOfCases</fieldName>
						<fieldValue>1</fieldValue>
					</field>
				</record>
				<record>
					<reportingCountry>PL</reportingCountry>
					<status>NEW/UPDATE</status>
					<dateUsedForStatistics>2006-12</dateUsedForStatistics>
					<field>
						<fieldName>AgeClass</fieldName>
						<fieldValue>0</fieldValue>
					</field>
					<field>
						<fieldName>Gender</fieldName>
						<fieldValue>U</fieldValue>
					</field>
					<field>
						<fieldName>Startdate</fieldName>
						<fieldValue>2006-01-01</fieldValue>
```

```
		</field>
		<field>
			<fieldName>Enddate</fieldName>
			<fieldValue>2006-12-31</fieldValue>
		</field>
		<field>
			<fieldName>Classification</fieldName>
			<fieldValue>CONF</fieldValue>
		</field>
		<field>
			<fieldName>SerovarSALM</fieldName>
			<fieldValue>Enteritidis</fieldValue>
		</field>
		<field>
			<fieldName>NumberOfCases</fieldName>
			<fieldValue>58</fieldValue>
		</field>
	</record>
	<record>
		<reportingCountry>PL</reportingCountry>
		<status>NEW/UPDATE</status>
		<dateUsedForStatistics>2006-12</dateUsedForStatistics>
		<field>
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		</field>
		<field>
			<fieldName>Gender</fieldName>
			<fieldValue>U</fieldValue>
		</field>
		<field>
			<fieldName>Startdate</fieldName>
			<fieldValue>2006-01-01</fieldValue>
		</field>
		<field>
			<fieldName>Enddate</fieldName>
			<fieldValue>2006-12-31</fieldValue>
		</field>
		<field>
			<fieldName>Classification</fieldName>
			<fieldValue>CONF</fieldValue>
		</field>
		<field>
			<fieldName>SerovarSALM</fieldName>
			<fieldValue>Hadar</fieldValue>
		</field>
		<field>
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			<fieldValue>1</fieldValue>
		</field>
	</record>
	<record>
		<reportingCountry>PL</reportingCountry>
		<status>NEW/UPDATE</status>
		<dateUsedForStatistics>2006-12</dateUsedForStatistics>
		<field>
			<fieldName>AgeClass</fieldName>
			<fieldValue>0</fieldValue>
		</field>
		<field>
			<fieldName>Gender</fieldName>
			<fieldValue>U</fieldValue>
		</field>
		<field>
			<fieldName>Startdate</fieldName>
			<fieldValue>2006-01-01</fieldValue>
		</field>
		<field>
			<fieldName>Enddate</fieldName>
			<fieldValue>2006-12-31</fieldValue>
		</field>
		<field>
			<fieldName>Classification</fieldName>
			<fieldValue>CONF</fieldValue>
```

```
		</field>
		<field>
			<fieldName>SerovarSALM</fieldName>
			<fieldValue>Infantis</fieldValue>
		</field>
		<field>
			<fieldName>NumberOfCases</fieldName>
			<fieldValue>4</fieldValue>
		</field>
	</record>
	<record>
		<reportingCountry>PL</reportingCountry>
		<status>NEW/UPDATE</status>
		<dateUsedForStatistics>2006-12</dateUsedForStatistics>
		<field>
			<fieldName>AgeClass</fieldName>
			<fieldValue>1</fieldValue>
		</field>
		<field>
			<fieldName>Gender</fieldName>
			<fieldValue>U</fieldValue>
		</field>
		<field>
			<fieldName>Startdate</fieldName>
			<fieldValue>2006-01-01</fieldValue>
		</field>
		<field>
			<fieldName>Enddate</fieldName>
			<fieldValue>2006-12-31</fieldValue>
		</field>
		<field>
			<fieldName>Classification</fieldName>
			<fieldValue>CONF</fieldValue>
		</field>
		<field>
			<fieldName>SerovarSALM</fieldName>
			<fieldValue>Colindale</fieldValue>
		</field>
		<field>
			<fieldName>NumberOfCases</fieldName>
			<fieldValue>1</fieldValue>
		</field>
	</record>
	<record>
		<reportingCountry>PL</reportingCountry>
		<status>NEW/UPDATE</status>
		<dateUsedForStatistics>2006-12</dateUsedForStatistics>
		<field>
			<fieldName>AgeClass</fieldName>
			<fieldValue>1</fieldValue>
		</field>
		<field>
			<fieldName>Gender</fieldName>
			<fieldValue>U</fieldValue>
		</field>
		<field>
			<fieldName>Startdate</fieldName>
			<fieldValue>2006-01-01</fieldValue>
		</field>
		<field>
			<fieldName>Enddate</fieldName>
			<fieldValue>2006-12-31</fieldValue>
		</field>
		<field>
			<fieldName>Classification</fieldName>
			<fieldValue>CONF</fieldValue>
		</field>
		<field>
			<fieldName>SerovarSALM</fieldName>
			<fieldValue>Enteritidis</fieldValue>
		</field>
		<field>
			<fieldName>NumberOfCases</fieldName>
			<fieldValue>61</fieldValue>
```

```
                        </field>
                    </record>
                    <record>
                        <reportingCountry>PL</reportingCountry>
                        <status>NEW/UPDATE</status>
                        <dateUsedForStatistics>2006-12</dateUsedForStatistics>
                        <field>
                            <fieldName>AgeClass</fieldName>
                            <fieldValue>1</fieldValue>
                        </field>
                        <field>
                            <fieldName>Gender</fieldName>
                            <fieldValue>U</fieldValue>
                        </field>
                        <field>
                            <fieldName>Startdate</fieldName>
                            <fieldValue>2006-01-01</fieldValue>
                        </field>
                        <field>
                            <fieldName>Enddate</fieldName>
                            <fieldValue>2006-12-31</fieldValue>
                        </field>
                        <field>
                            <fieldName>Classification</fieldName>
                            <fieldValue>CONF</fieldValue>
                        </field>
                        <field>
                            <fieldName>SerovarSALM</fieldName>
                            <fieldValue>Hadar</fieldValue>
                        </field>
                        <field>
                            <fieldName>NumberOfCases</fieldName>
                            <fieldValue>2</fieldValue>
                        </field>
                    </record>
                    <record>
                        <reportingCountry>PL</reportingCountry>
                        <status>NEW/UPDATE</status>
                        <dateUsedForStatistics>2006-12</dateUsedForStatistics>
                        <field>
                            <fieldName>AgeClass</fieldName>
                            <fieldValue>1</fieldValue>
                        </field>
                        <field>
                            <fieldName>Gender</fieldName>
                            <fieldValue>U</fieldValue>
                        </field>
                        <field>
                            <fieldName>Startdate</fieldName>
                            <fieldValue>2006-01-01</fieldValue>
                        </field>
                        <field>
                            <fieldName>Enddate</fieldName>
                            <fieldValue>2006-12-31</fieldValue>
                        </field>
                        <field>
                            <fieldName>Classification</fieldName>
                            <fieldValue>CONF</fieldValue>
                        </field>
                        <field>
                            <fieldName>SerovarSALM</fieldName>
                            <fieldValue>Infantis</fieldValue>
                        </field>
                        <field>
                            <fieldName>NumberOfCases</fieldName>
                            <fieldValue>4</fieldValue>
                        </field>
                    </record>
                </records>
            </recordGroup>
        </body>
</TESSyDataUpload>
```