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target services

Billing Common Component

User Detailed Functional Specifications

Author	4CB
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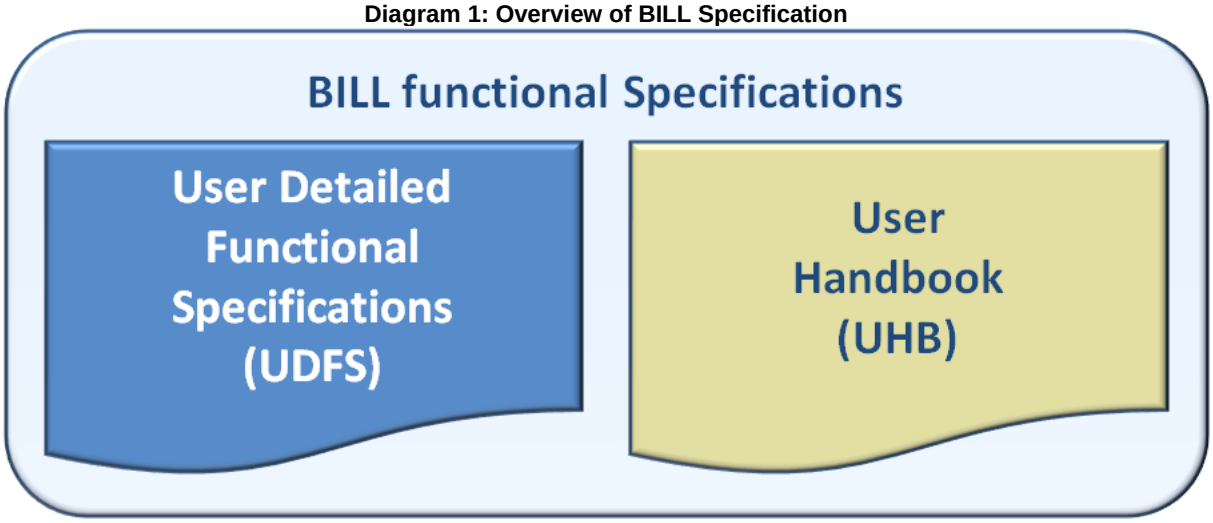
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1 Introduction

The User Detailed Functional Specifications (UDFS) of the Billing (BILL) common component are part of the documentation of all the TARGET services.

This document describes all the features of BILL and BILL Actors' interactions with it, focusing on Application-to-Application communication; it is intended to guide BILL Actors to the proper understanding of the common component and to offer all the information needed for the implementation of software interfaces on their side. Together with BILL UHB, its aim is to give a complete overview of the interaction with BILL.

Diagram 1: Overview of BILL Specification



The UDFS focus on the provision of information to BILL Actors to design and build the interface of their business applications with the Billing common component (A2A and Data Migration Tool), while the UHB describes the Graphical User Interface (GUI) screens in detail.

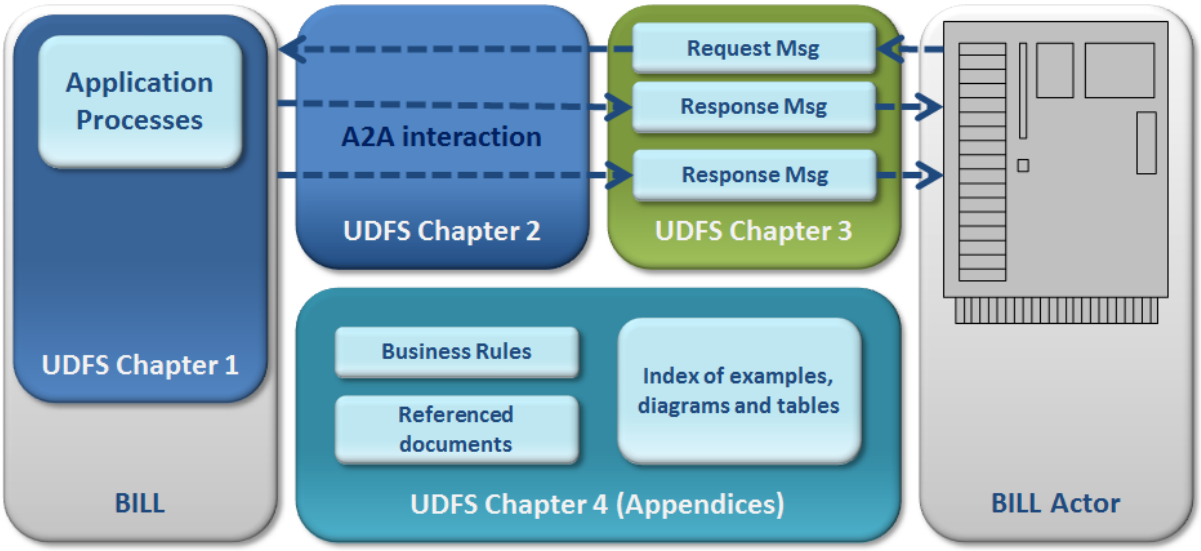
The UDFS provide information to:

- Business analysts of the BILL Actors, who find in the UDFS a description of the application processes and the information flows between their own business applications and BILL;
- Developers, who find in the UDFS the necessary information to design and build the interface of the BILL Actors' business applications with BILL.

The UDFS is a self-contained document, structured along 4 different but complementary chapters.

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DIAGRAM 2: SCOPE OF UDFS CHAPTERS



Chapter 1: General features of BILL

UDFS Chapter 3 provides concise and descriptive information on BILL behaviour as it is seen from a BILL Actor standpoint. The background information provided in Chapter 1 on the BILL internal behaviour facilitates the understanding of Chapters 4, 5 and 0 (in particular to understand the interactions described in Chapter 4).

Information provided in Chapter 3 on the BILL processes is user-oriented and does not include detailed descriptions of the internal BILL processes. It neither provides descriptions of the internal behaviour of BILL Actors interacting with BILL: it is not the purpose of the UDFS to predicate the business conduct of BILL users.

Chapter 4: Dialogue between BILL and BILL Actors

Chapter 4 of the UDFS provides a description of the dialogue between BILL Actors and BILL through the Application-to-Application (A2A) channel. Consistently with the approach of Chapter 1, UDFS Chapter 4 does not enter into any description of the behaviour of Actors' systems interacting with BILL.

Chapter 5: Catalogue of messages

Chapter 5 of the UDFS provides a detailed description of the messages to be used to run Application-to-Application communication with BILL. It describes the entire set of messages which are processed by BILL, i.e. which can be exchanged between BILL and the business application of a BILL Actor directly connected to BILL. The following information is provided:

- Description of the XML structure with mandatory/optional fields, validation rules and purpose of each field in the context of BILL;
- Possible usages of the message in the context of BILL, including when relevant specific rules for the population of the message fields for a given usage;
- Business rules applicable for message processing.

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This Chapter includes links to a set of files available on the MyStandards message documentation website provided by Swift.

The objective of the chapter is to allow the reader to find all the necessary information related to messaging needed to establish a functioning system of Application-to-Application communication towards BILL.

Chapter 0: Appendices

The UDFS appendices provides information on the BILL business rules applying to incoming messages, with the respective messages and error codes associated. Moreover the index of diagrams and tables referenced in the document are reported for readers' convenience.

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2 Reader's guide

The UDFS document is available for the whole community of BILL Actors: in order to ensure the same level of information for all of them, information relevant for CBs, connected CB participants and CSDs is contained in one single book of UDFS.

Nevertheless, different readers may have different needs and priorities. For instance, "business" readers interested mainly in organisational issues may not wish to enter into the full details of each and every message description, while technical readers involved in the specification of technical interfaces may not be interested in the thorough description of the processes that are leading to the sending of a given message. Not every reader wants to read the entire UDFS, or even wants to follow the same reading plan.

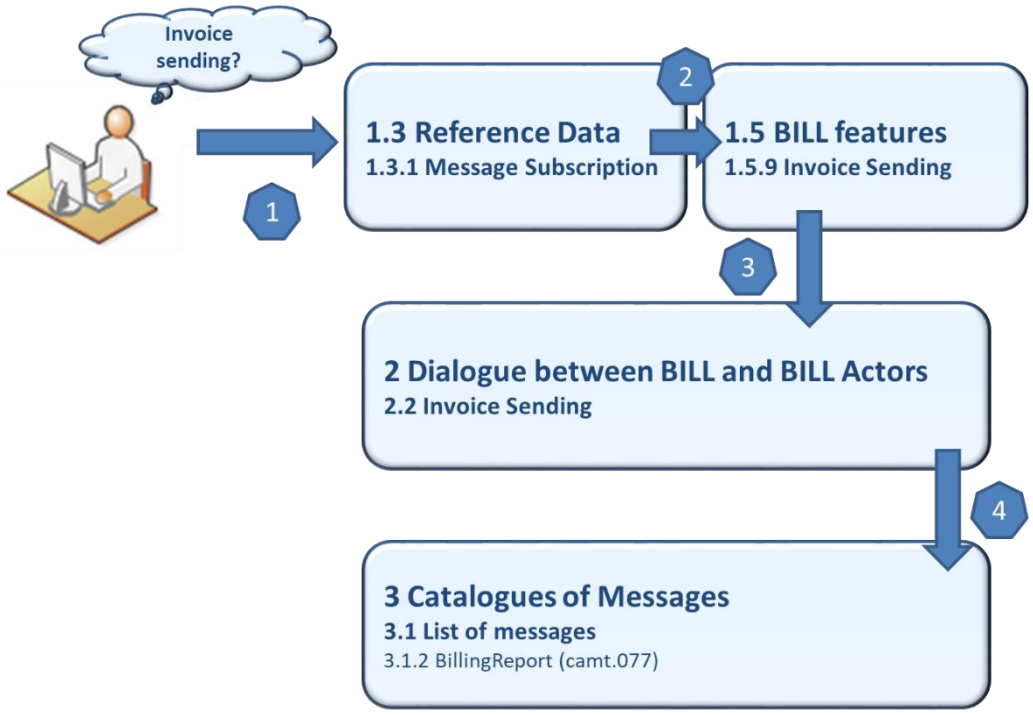
All readers, whether "business" or "technical", are suggested to read the following UDFS sections, which are providing a background to the understanding of any other UDFS section:

- 3.1 Introduction to BILL, which is a summary providing the basis for the understanding of the main BILL concepts.
- 3.3 Reference Data, which provides the basis for data organisation in BILL.

"Business Oriented" perspective

The business reader may be interested in the way information is structured in the UDFS. This reader may want to follow the reading plan described below to find information about the invoice sending in BILL:

DIAGRAM 3: BILL BUSINESS ORIENTED READING PLAN



- 1 The business reader finds in section 3.3.1 Message subscription a general description of configuration of Message Subscription needed for the receiving of invoices.

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- 2 The business reader can jump to section 3.5.10 where they find the high-level description of the BILL process related to invoice sending.
- 3 From this point, they may jump to section 4 Dialogue between BILL and BILL Actors to find a description of the Invoice sending process which can be carried out via A2A.
- 4 Should the reader need to enter into further details, they may access through a hyperlink section 5.1.2 BillingReport (camt.077) to find the detailed description of the message used to send invoices from BILL towards the Actors.

"Technical oriented" perspective

For a technical reader, it is more likely that the reading plans would start either:

- From Chapter 4 Dialogue between BILL and BILL Actors, when a complete overview of the possible A2A dialogue with BILL is required, e.g. when structuring the interface of a BILL Actor.
- From Chapter 5 Catalogue of messages, when a detailed description of the content of a given A2A message is needed, e.g. when specifying the details of the interface of BILL.

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3 General features of BILL

3.1 Introduction to BILL

The Billing common component (BILL) provides the functionalities for the aggregation of the daily billable items, its enrichment into invoice data and the centralised creation and management of invoices for all the TARGET services.

The involved actors and their relevant activities are:

- The Operator monitors the correct functioning of BILL and is responsible for the invoice creation and sending and, in exceptional circumstances, for the cancellation of the invoices;
- The ECB actor manages the invoices to be issued to the CSDs and CBs – including the possibilities to insert manual corrections at System Entity level and querying the invoices via U2A at System Entity level;
- The CSDs actor receives via A2A their invoice data and invoices and can access BILL via U2A in order to view and/or download their invoices in PDF format;
- The CB actor can:
    - optionally receive consumption messages;
    - receive its own invoices via A2A;
    - access the system and query invoice data of its participants via U2A and manage manual corrections for the participants' invoices;
    - access the system and view/download the created invoices (its own as System Entity and the ones of its participants) in PDF format;
    - optionally configure direct invoicing (i.e. managing of participant invoice inside BILL, see 1.3.3 Invoice Configuration);
    - optionally configure direct debiting (i.e. automatic sending of a debit liquidity transfer for the amount of the invoice) for the payments of its participants' invoices.
- Each CB participant (Payment Bank or Ancillary System) can, if configured by the relevant CB, receive its invoices via A2A and receive a direct debit on its account in order to pay the fees. They can, moreover, access BILL via U2A to query their invoices.

BILL creates a separate invoice for each service.

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3.2 Access to BILL

3.2.1 Connectivity

BILL supports the connectivity of BILL Actors as follows:

- communication between software applications via XML messages (A2A mode);
- online screen-based activities performed by BILL Actors (U2A mode).

For the A2A communication, ISO 20022 is the single standard, for both inbound and outbound communication. Messages exchanged between BILL and BILL Actors are based on XML technology and comply with the ISO 20022 standards on messages and the formats and specifications defined in BILL.

U2A connectivity to BILL will be handled through the ESMIG Portal. Please refer to the ESMIG documentation for more details.

3.2.2 Access rights

Access rights for BILL are configured within the Common Reference Data Management (CRDM) component. For additional information please refer to the CRDM UDFS.

3.2.3 Graphical User Interface

BILL Actors granted with the appropriate privileges can communicate with BILL in U2A mode via a web-based graphical user interface (GUI).

The following BILL functionalities are available in U2A mode:

Table 1 - BILL U2A Functions

Function	Actor
Query Invoice Data	Operator, ECB, CBs, CSDs
Query Invoice Data (itemised)	Operator, ECB, CBs, CSDs
Query Manual Correction	Operator, ECB, CBs
Insert Manual Correction	Operator, ECB, CBs
Query Invoices	Operator, ECB, CBs, CSDs, Payment Banks, Ancillary Systems

Detailed description of the BILL graphical user interface is provided into the BILL User Handbook.

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3.3 Reference Data

This section provides a description of all the reference data objects stored in CRDM and used by BILL.

3.3.1 Message subscription

Central Banks can configure, for themselves and for CB participants they are responsible for, the message subscription for receiving the invoice from BILL.

If deemed necessary, Central Banks can decide to hand over the control to their CB participants by granting them the privilege for message subscription configuration.

For configuration details and examples, please refer to CRDM UDFS Document related section.

3.3.2 Billing Configuration

To allow the correct running of the entire billing process, the Operator is in charge to set up a dedicated billing configuration in CRDM for each TARGET service, which takes into consideration the fundamental parameters at the base of the billing process.

3.3.2.1 Tariffs

Each CB could assign a Participant under their responsibility to one of the tariffs foreseen by the pricing policy of the relevant service, as described in the section 3.3.3.1 Invoice configuration.

3.3.2.2 Service items

Depending on the TARGET service pricing structure, the Operator is in charge to configure service items and its fees in CRDM, which are then used by BILL during its process.

Service items must belong to one of these following categories:

- Settlement Services;
- Account Management Services;
- Information Services;
- BICM - Bilateral Collateral Management;
- TPCM - Triparty Collateral Management;
- OTHE - Other.

Each service item, represented by a specific code, is assigned to a fee. The fee can be of a different type , allowing to have a single price or a price dependent on a Tariff or bands of prices for the same

service item. Each service item can have more than one price (with a precision of four digits after the decimal separator) configured, according to the fee type and the validity periods; the prices of the same service item cannot have an overlapping validity period – in a specific period of time, the fee for a service item must be unique. The prices configured for the service items must be applied in a specific billing period. Since the validity period of a fee can vary within a billing period (e.g. a service item's fee ends on 15/01/2022 and the new one begins on 16/01/2022 – within the billing period January 2022), if a service item has two prices valid within the same billing period, the one with the most recent validity period is considered (in the previous example, the one starting from 16/01/2022 is taken into consideration).

Fees can be classified into different types and sub-types:

- Fixed fees – a flat rate is applied irrespective of the consumption performed by the party to be charged:

    - Fixed independent fees: the amount is a total value applied in the month.

DIAGRAM 4: FIXED INDEPENDENT FEE EXAMPLE

Service Item

Service	Category	Code	Name
T2	Account Management	COD1	ExampleFixedIndip

Fee Schedule

Service Item Code	Type	Price	Tariff	Computation	Valid From	Valid To
COD1	Fixed Independent	100€	N/A	N/A	01/01/2021	30/06/2021

    - *Fixed fees dependent on tariff*: the service item price is dependent on a tariff. The party to be charged must have been configured with one of the tariffs, and the price applied to the service item depends on the assigned tariff.

DIAGRAM 5: FIXED FEE DEPENDENT ON TARIFF EXAMPLE

Service Item

Service	Category	Code	Name
T2	Account Management	COD2	ExampleFixedTariff

Fee Schedule

Service Item Code	Type	Price	Tariff	Computation	Valid From	Valid To
COD2	Fixed on Tariff	100€	Tariff A	N/A	01/01/2021	30/06/2021
COD2	Fixed on Tariff	200€	Tariff B	N/A	01/01/2021	30/06/2021

    - *Fixed fees dependent on parameter:* the service item price is configured with different bands of amounts: a fixed price is configured for each band. The band to be applied

depends on a parameter manually assigned by the CB in CRDM to the party to be charged (e.g. value of transactions executed by a participant in the previous year).

DIAGRAM 6: FIXED FEE DEPENDENT ON PARAMETER EXAMPLE

Service Item

Service	Category	Code	Name
T2	Account Management	COD3	ExampleFixedParam

Fee Schedule

Service Item Code	Type	Price	Tariff	Computation	Valid From	Valid To
COD3	Fixed on Parameter	N/A	N/A	N/A	01/01/2021	30/06/2021

Fee Band – COD3

BandId	Band Price	From	To
1	10€	50,000.00	100,000.99
2	20€	100,000.01	150,000.99
3	30€	150,001.00	

- *Fixed fees dependent on tariff and parameter:* the service item price is configured with different set of bands of amounts, based on the existing tariffs which foresee it. The set of band to be applied depends on the tariff assigned to the party to be charged, while the single band of the set to be applied depends on a parameter manually assigned to the same party by the CB in CRDM (e.g. value of transactions executed by a participant in the previous year).

DIAGRAM 7: FIXED FEE DEPENDENT ON A TARIFF AND PARAMETER EXAMPLE

Service Item

Service	Category	Code	Name
T2	Settlement	COD4	ExampleFixedTariffParm

Fee Schedule

Service Item Code	Type	Price	Tariff	Computation	Valid From	Valid To
COD4	Fixed on Tariff and Parameter	N/A	Tariff A	N/A	01/01/2021	30/06/2021
COD4	Fixed on Tariff and Parameter	N/A	Tariff B	N/A	01/01/2021	30/06/2021

Fee Band – COD4 – Tariff A

BandId	Band Price	From	To
1	100€	60,000.00	70,000.99
2	150€	70,000.01	90,000.99
3	200€	90,001.00	100,000.99
3	500€	100,000.01	

Fee Band – COD4 – Tariff B

BandId	Band Price	From	To
1	90€	60,000.00	70,000.99
2	120€	70,000.01	80,000.99
3	150€	80,001.00	

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- Variable fees - the price is defined per item depending on the consumption in the given billing period. The variable fees can be classified into different sub-types:

    - *Variable independent fees*: the final amount to be charged for a service item is a multiplication of the consumption in the billing period and the unit price;

DIAGRAM 8: VARIABLE INDEPENDENT FEE EXAMPLE

Service Item

Service	Category	Code	Name
T2	Information	COD5	VariableIndepExample

Fee Schedule

Service Item Code	Type	Price	Tariff	Computation	Valid From	Valid To
COD5	variable Independent	0.0500€	N/A	Multiplication	01/01/2021	30/06/2021

    - *Variable fees dependent on tariff*: the service item unit price is dependent on a tariffs. The party to be charged must have been configured with one of the tariff, and the price applied to the service item depends on the tariff assigned.

DIAGRAM 9: VARIABLE FEE DEPENDENT ON TARIFF EXAMPLE

Service Item

Service	Category	Code	Name
T2	Account Management	COD6	ExampleVariableTariff

Fee Schedule

Service Item Code	Type	Price	Tariff	Computation	Valid From	Valid To
COD6	Variable on Tariff	2.000€	Tariff A	Multiplication	01/01/2021	30/06/2021
COD6	Variable on Tariff	1.800€	Tariff B	Multiplication	01/01/2021	30/06/2021

    - *Variable fees dependent on band*: the service item price is configured with different bands of amounts; a unit price is configured for each band. The band to be applied depends on the underlying volume of the respective billable item measured for the party to be charged in the current billing period. The calculation method (multiplication or digressive structure) depends on the nature of the billable item described in the service pricing policy;

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DIAGRAM 10: VARIABLE FEE DEPENDENT ON BAND EXAMPLE

Service Item

Service	Category	Code	Name
T2	Account Management	COD7	ExampleVariableBand

Fee Schedule

Service Item Code	Type	Price	Tariff	Computation	Valid From	Valid To
COD7	Variable on Band	N/A	N/A	Multiplication	01/01/2021	30/06/2021

Fee Band – COD7

BandId	Band Price	From	To
1	0.0050€	0	100
2	0.0040€	101	200
3	0.0020€	201	500
3	0.0020€	501	

- *Variable fees dependent on tariff and band:* the service item price is configured with different set of bands of unit prices, based on the existing tariffs which foresee it. The set of band to be applied depends to the tariff configured for the party to be charged, while the single band of the set to be applied depends on the underlying volume of the respective billable item in the current billing period measured for the party to be charged. The calculation method (multiplication, digressive/cumulative or prorating (Billing Group) structure) depends on the nature of the billable item described in the service pricing policy;

DIAGRAM 11: VARIABLE FEE DEPENDENT ON A TARIFF AND BAND EXAMPLE

Service Item

Service	Category	Code	Name
T2	Settlement	COD8	ExampleVarTariffBand

Fee Schedule

Service Item Code	Type	Price	Tariff	Computation	Valid From	Valid To
COD8	Variable on Tariff and Band	N/A	Tariff A	Cumulative	01/01/2021	30/06/2021
COD8	Variable on Tariff and Band	N/A	Tariff B	Cumulative	01/01/2021	30/06/2021

Fee Band – COD8 – Tariff A

BandId	Band Price	From	To
1	0.0050€	0	1,000
2	0.0040€	1,001	2,000
3	0.0030€	2,001	50,000
3	0.0020€	50,001	

Fee Band – COD4 – Tariff B

BandId	Band Price	From	To
1	0.0040€	0	1,000
2	0.0030€	1,001	2,000
3	0.0020€	2,001	50,000
3	0.0010€	50,001	

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For all fee types, prices are denominated in Euro. Furthermore, each CB can choose a VAT rate to be applied for each service item, as described in the section 3.3.3.1 Invoice configuration.

3.3.2.3 TARGET Services Service Items

The Excel file “TARGET Services Service Item List” attached to the BILL UDFS provides an exhaustive list of service items for all TARGET Services (T2S, TIPS, T2 and ECMS) to which a charge may apply, i.e. not all of the listed service items are subject to pricing. In addition, the file includes information on each service item’s counting and charging as well as further information. Detailed information about the prices for each service item is part of a separate pricing list (the TARGET Services Pricing Guide) and is not included in this file.

3.3.3 Invoice Configuration

3.3.3.1 Invoice configuration

While the Billing configuration allows to set parameters always valid within a Service, the Invoice Configuration allows to set specific party parameters to be used during the billing process. Invoice configuration is always service specific: the same party could have different Invoice configurations, based on the relevant services.

The set of configurable parameters varies according to the role of the configurator: CBs are in charge of performing the configuration for themselves and for all their participants, while the ECB should perform the configuration for itself (setting parameters to be used during the System Entity invoice generation) and set the tariff assigned to each System Entity for the System Entity own usage (if any).

In detail:

- ECB:
  - Invoice Address (reported in the System Entity Invoices as sender address);
  - Statements about means of payments and legal mentions;
  - VAT ID of the CBs;
  - For each System Entity Invoice configuration, the tariff assigned to the System Entity for the System Entity’s own usage. The switch (between one tariff and another) would be taken into account only from the following invoice data generation process. For Invoice Configurations linked to T2 Service, the tariff must be specified.
- CB:
  - CB Invoice configuration:
    - option to receive the consumption message;
    - option for direct invoicing of its participants (i.e. managing of participant invoice inside BILL, including the direct sending of xml invoice from BILL to participant and the PDF participant invoice generation);

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- parameter value (used in the computation of service items based on fixed fees dependent on parameter or fixed fees dependent on parameter and band);
- CB Invoice Address (reported in the System Entity Invoices as receiver address and into Participant Invoices as sender address);
- Statements about means of payments and legal mentions (valid for the entire CB community).
- RTGS CB Account to be priced with “RTGS Core Pricing Scheme – Option B” ownership fee. This parameter is used only for Invoice Configuration of T2 Service in case the CB opts for Tariff “Option B”.

- Invoice configuration for each of its participants:
  - tariff assigned to the participant (if any). For Invoice Configurations linked to T2 Service, the tariff must be specified. Switching between options is permitted monthly: the switch between the two options would be taken into account from the following month onwards;
  - participant parameter value (used in the computation of service items based on fixed fees dependent on parameter or fixed fees dependent on parameter and a band);
  - option to be tax exempt participant (not subject to VAT);
  - Participant Invoice Address (reported in the Participant Invoices as receiver address);
  - Participant VAT ID;
  - option to use an invoice template without VAT for the participant invoice;
  - direct debit participant configuration, with the option to direct charging, the specific cash account to be credited, the cash account to be debited (which should be an existing main cash account (MCA) in CRDM, not necessarily under the CB scope).
  - RTGS DCA to be priced with “RTGS Core Pricing Scheme – Option B” ownership fee. This parameter is used only for Invoice Configuration of T2 Service in case the participant opts for Tariff “Option B”.

The Operator can configure (i) for CBs at System Entity level, the logo and the VAT ID of the CB to be reported in all the Participant invoices (if opted for direct invoicing), (ii) for CSDs at System Entity level, the VAT ID of the CSD to be reported in the System Entity Invoices.

Moreover, the Operator can configure the title of the invoice and of the request for payment (invoice for tax exempt Participants) - per Service, CB and template - to be reported in all the Participant invoices; this configuration is useful in order to customise the title in the local language. If no title is configured, a standard title (“Invoice”) is applied.

In order to limit the impact on CSDs, no invoice configuration is required: relevant information will be obtained by the already existing party CRDM data.

The Operator configures also the logo of the ECB to be reported in the CBs and CSDs invoices.

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3.3.3.2 VAT

Each CB can configure a catalogue of up to 5 VAT rates for each Service and assign each rate to a set of service items, so that, BILL applies them during the invoice creation process for the participants not declared as tax exempt. Zero VAT is the one applied as default. CBs maintain a VAT rate (potentially zero) for each service item.

VAT are not applied to CSD and CB System Entity Invoices, but only to Participant Invoices, if properly configured by the relevant CB.

3.3.3.3 Billing Group

The CBs can create and maintain the Billing Groups for their participants. A Billing Group is a group of participants, possibly participating in different Central Banks, grouped around a Group Leader for billing purposes: the RTGS payment orders executed by all participants in a Billing Group are considered as an aggregated volume of items when computing the transaction fees in a digressive way. A CB is responsible for creating a group for its Group Leader. Central banks can add or remove their payment banks to/from a Billing Group, even if the Billing Groups has been created by another CB.

3.4 Dynamic data

This section describes the dynamic data model of BILL. It contains all the data concerning consumption data and invoice data. Furthermore, it also includes dynamic data related to invoice, manual correction and direct debit.

The following sections describe the conceptual data model of the different BILL dynamic data components, i.e.:

- consumption data
- invoice data
- manual correction
- invoice
- direct debit

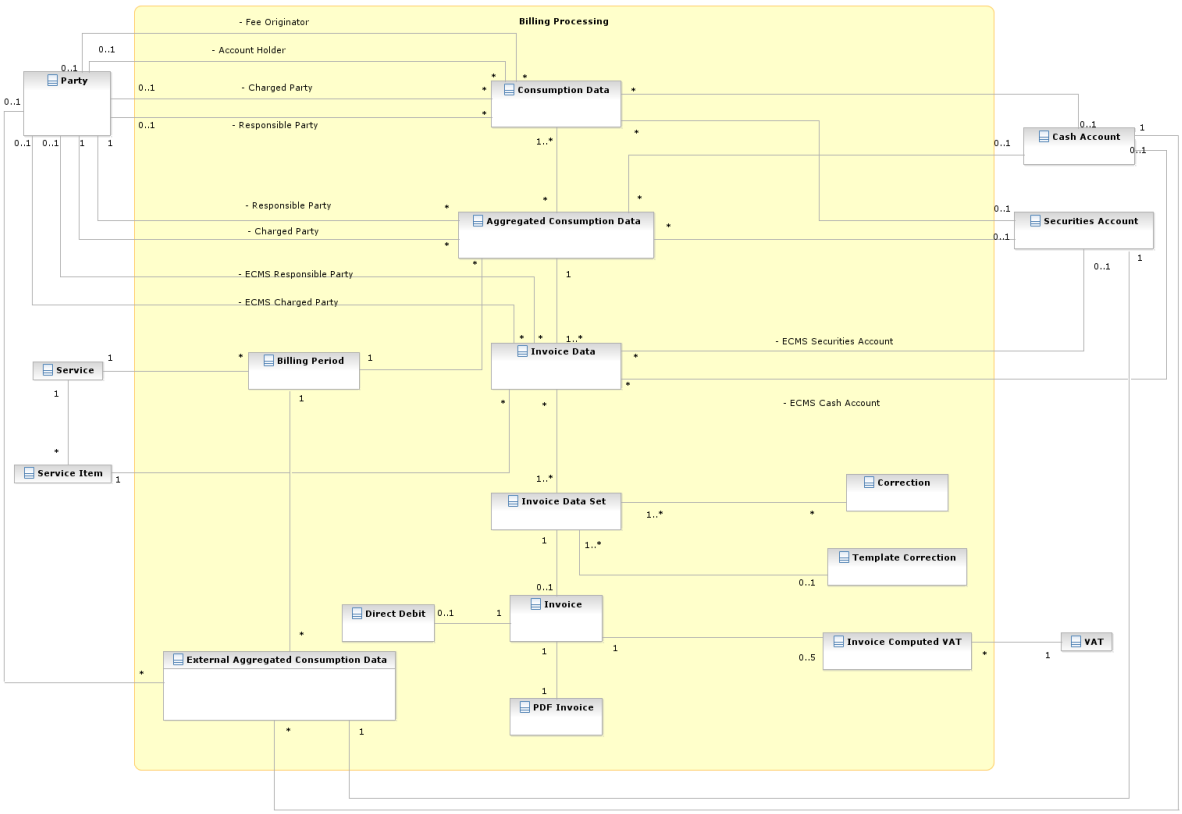


FIGURE 1 - BILL DYNAMIC DATA MODEL

3.4.1 Consumption data

Daily Consumption data, sent by the relevant services and common components and aggregated by BILL, are managed into Consumption data entities. The output of the monthly aggregation process for consumption data is stored and managed by the Aggregated Consumption data entity.

3.4.2 External Aggregated Consumption Data

In addition to Daily Consumption data, sent by the relevant services and common components, BILL gives the chance to manage also consumption performed outside the Billing TARGET Services process. This kind of consumption must be inserted manually by the user and it is stored and managed by the External Aggregated Consumption Data entity.

3.4.3 Invoice data

The monthly invoice data generation process stores Invoice data into the Invoice Data entity, as well as the invoice data received from ECMS.

3.4.4 Manual correction

Manual correction to a set of Invoice data are stored in the Correction entity, while a dedicated entity has been created to store template corrections: this allows to delete and regenerate an invoice based on a set of invoice data without the loss of the related manual corrections.

3.4.5 Invoice

Invoices are calculated on the basis of the Invoice data and the manual corrections included in the relative invoice data set, taking into consideration also VAT rates configured by CBs and assigned to service items. Invoices are also stored in PDF format.

3.4.6 Direct debit

Direct Debit instance (if any) related to a Participant invoice is managed by the Direct Debit entity.

3.5 BILL features

3.5.1 Concept

The Billing common component (BILL) provides the functionalities for the aggregation of the daily billable items, their enrichment into invoice data and the centralised creation and management of invoices for all the TARGET Services.

BILL will be accessible in U2A mode (for all functions) and in A2A mode (for a subset of functions). The A2A channel allows CSD, CB and their participants to send queries of cumulative or itemised billing data and receive invoice, cancellation invoice and consumption messages.

The A2A channel doesn't allow the customer to perform the following U2A functionality:

- correct invoice manually;
- download PDF invoice;
- query for audit trail and revisions.

3.5.2 Overview of Billing process

BILL requires as input a daily gathering of the billable items (see 3.5.4 Daily consumption data). Each service, service component and common component identifies the respective billable items and communicates them to BILL .

The daily communication of the billable items has a twofold purpose:

- gathering all the information on the usage of the services, service component and common components and on the billable events related to the participants; these pieces of information (billable items) are the basis for the invoice data calculation;
- enriching the billable items with information valuable for the invoice creation (e.g. party to be charged).

The daily gathering and enriching allows BILL to generate invoices on flexible billing periods in case of need and under exceptional circumstances.

In addition to daily gathering BILL takes as input also monthly gathering of billable items, some services, service components and common components identify specific billable items and communicate them to BILL once per per month. This kind of billable items are sent already aggregated on monthly basis but they still need to be enriched.by BILL. This is the case for example for TIPS billable items of ACMS category.

On the basis of all the enriched data, at the end of the monthly billing period, BILL aggregates the billable items into consumption data.

The generated consumption data are, then, enriched with the relevant prices on the basis of the service items configured in CRDM.

The service items are assigned a unit price to be applied in a specific billing period.

The consumption data can be packed into messages and sent to the relevant CBs if they have opted for receiving it (see 3.5.7 Sending of BILL consumption message). This functionality is available for the CBs only: CSDs are not allowed to opt for the reception of the consumption message.

The consumption data in the billing period, enriched with the charged amounts and aggregated per service, billing period, party to be charged, System Entity of the party to be charged and service item are called invoice data (see 3.5.6 Invoice data).

The invoice data are the foundation of the monthly invoice and they are stored and frozen after their creation. If needed, e.g. in case of an error in the unit price, the Operator can regenerate the invoice data.

In exceptional cases, the Operator can exceptionally rerun the process of generation of the consumption data. In this case, also the invoice data are generated again.

Before the creation of the invoices, the invoice data can be complemented with additional service items inserted as manual corrections for both CBs and CB Participants (see 3.5.8 Manual correction). The fees of the additional service items can be positive or negative.

On the invoice creation date, the invoices are created on the basis of the invoice data and the related manual correction (see 3.5.9 Invoice creation):

- Invoices for System Entities (CBs and CSDs), including a cumulative overview of fees for the participants within its community of a given service and its own fees for the usage of a given service, issued by the ECB. T2S CSD invoices are System Entity only;
- Invoices for CB participants (for CB who opted for sending the invoices to their Participants in the CRDM Invoice configuration), comprising of the fees of an individual participant of a given service, issued by their System Entity.

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Each invoice is assigned a unique number and stored as PDF file. These PDF Invoice files can be, depending on the proper authorisation and data visibility, retrieved by the Operator, ECB users, CB users, CB Participant users and CSD users.

Additionally, if properly configured, the party to be charged can receive the invoices via A2A message (see 3.5.10 Invoice sending).

If the party to be charged is a CB Participant and its responsible CB has configured it for direct debiting, BILL creates a direct debit message to debit the account of the CB Participant (see 3.5.11 Direct Debiting). The accounts involved in the direct debiting must be properly configured in CRDM, otherwise the direct debiting is not generated and the Operator is alerted.

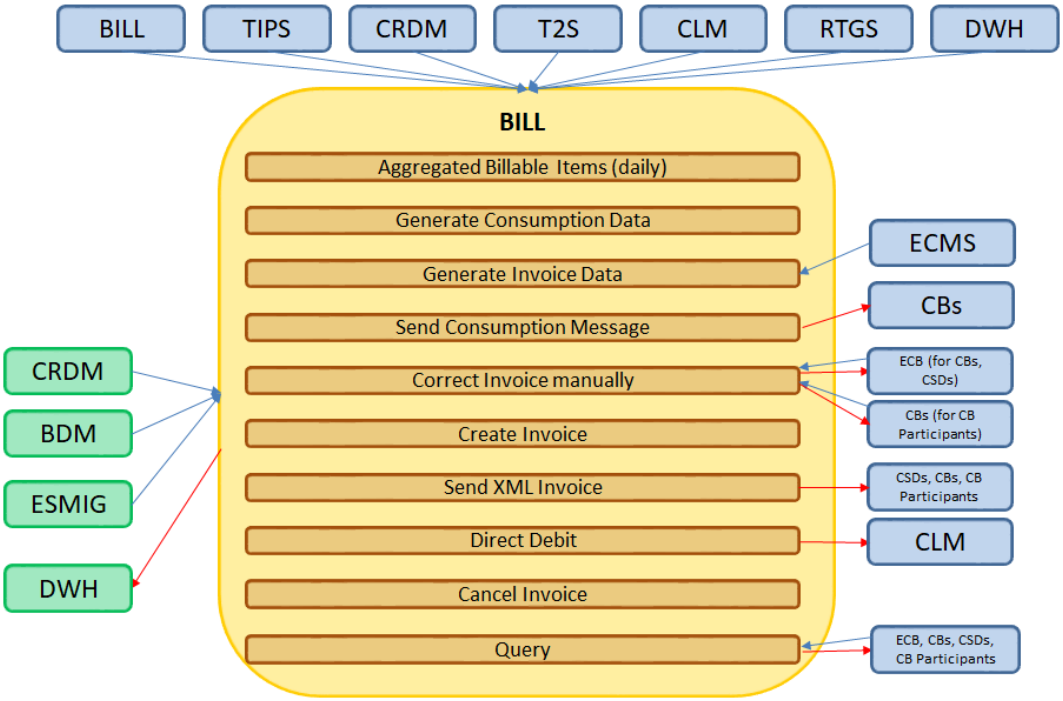
In exceptional circumstances, the Operator can request the cancellation of an invoice (see 3.5.12 Invoice cancellation). The cancelled invoice remains stored in the BILL repository and its unique number cannot be used again. After invoice cancellation, a new invoice for the same service, party and billing period can be generated.

The following diagram shows a conceptual overview of BILL and its interactions with the other TARGET services.

On top (blue items) the services/components providing billable items are depicted. On the left (green items) the diagram shows the common components providing to/receiving from BILL data for informational purposes. On the right are the stakeholders interacting with BILL, plus CLM receiving direct debit messages. A special mention to ECMS: this service provides the invoice data monthly to BILL for the creation of the invoice – amounts already calculated on ECMS side.

The following sub-sections detail the single steps further.

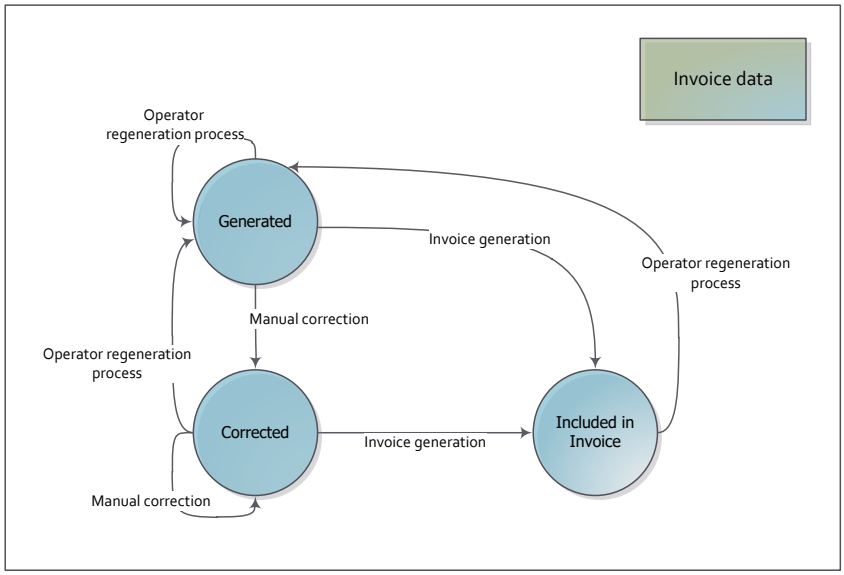
DIAGRAM 12: BILL OVERVIEW



3.5.3 Invoice data and invoice lifecycle

The following diagram shows the possible statuses of invoice data.

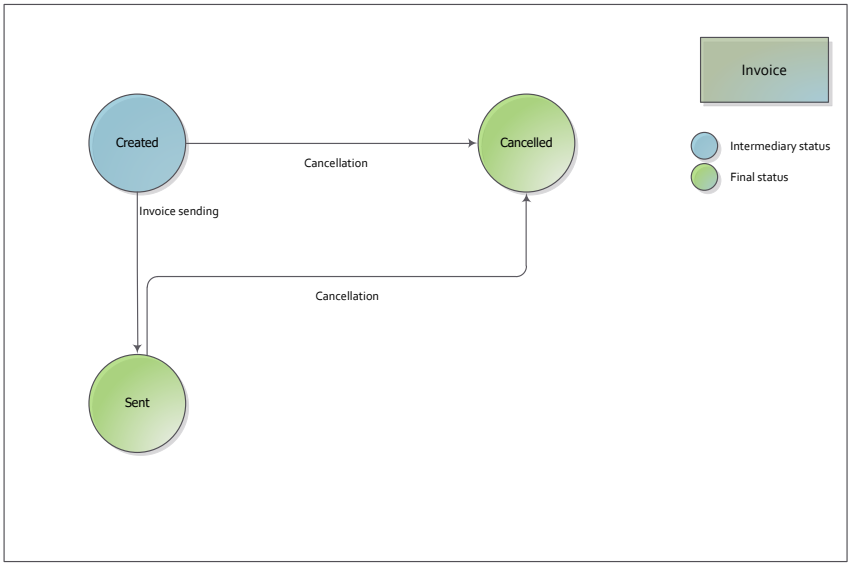
DIAGRAM 13: INVOICE DATA TRANSITION



After the monthly aggregation of consumption data and the calculation of the monthly aggregated amounts, invoice data are stored in the *Generated* status. ECMS data are directly loaded into this status. The start of the manual correction timeframe allows the ECB to perform manual corrections to System Entity invoices (which could be propagated to Participant invoices), and to CBs to perform manual corrections on participant invoices, to complement the invoice data with additional service items and information that, then, will be used for the creation of the Invoice: the set of invoice data subject to a correction takes the *Corrected* status. The invoice generation process lead to the *Included in Invoice* status for the invoice data set considered in the invoice. In case of need and under exceptional circumstances, invoice data could be regenerated by the Operator after the adjustment of consumption data, requiring to perform again manual corrections, if any. This applies to invoice data regardless of the specific state, having as an effect to bring back the Invoice data to the initial status *Generated*. The ECMS invoice data can be cancelled and reimported until it is part of a non-cancelled invoice.

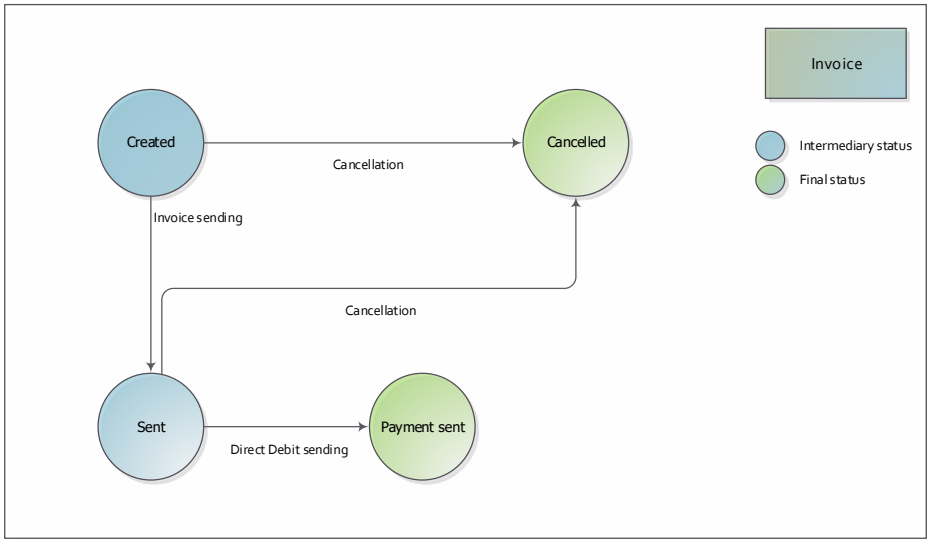
The following diagram shows the possible statuses of an invoice.

DIAGRAM 14: INVOICE TRANSITION FOR SYSTEM ENTITIES AND PARTICIPANT WITHOUT DIRECT DEBIT



The triggering of the Create Invoice functionality allows the creation and the storing of an invoice in the *Created* status, for all System Entity and Participant invoices. The sending of invoice process allows the sending of an xml camt.077 message and makes the PDF invoice available in the BILL GUI: the invoice changes its status to *Sent*. This is the final status for System Entity invoice and for Participant invoices with no Direct Debit foreseen or configured. The Operator can cancel invoices either in status *Created* or *Sent*, leading to the final status *Cancelled.*

DIAGRAM 15: INVOICE TRANSITION FOR PARTICIPANT WITH DIRECT DEBIT



The sending of a Direct Debit for a Participant invoice lead the invoice to the status *Payment sent*, independently to the result of the settlement status of the Direct Debit in CLM

3.5.4 Daily consumption data

BILL foresees a gathering of the billable items on a daily and/or a monthly basis. Each Service[1] and Common Component identifies the respective billable items and communicates them to BILL after the completion of its processing for a given business day and/or one time permonth.

The gathering received by BILL always includes at least:

- a billable item code that allows BILL to identify the item and, then, to identify the proper service item to be applied;
- grouping classification for billable items (e.g. settlement, information, account management);
- the Service/Common Component the billable items stem from;
- the business date which the billable items refer to;
- account of the underlying transaction (if applicable);
- party originating each billable item;
- party to be charged for each billable item;
- total count of the billable items;
- System Entity (CB/CSD) of the party to be charged;
- currency (if applicable).

The aggregation and enrichment phase is triggered by BILL after the reception of the data from the above mentioned services and components. During this phase, BILL enriches it with additional information stemming from CRDM, necessary for the correct execution of the further BILL process steps, and it performs a daily aggregation if needed.

The gathering of data and the aggregation of data for each service or component must be executed independently so that any delay or error on one service/component does not affect the management of the data/invoices of the others. The process on Common Components could have an impact on the overall process, since Common Components information is relevant for the overall computation. Furthermore, closed/deleted CRDM entities (e.g. parties, accounts) are taken into consideration in the enrichment phase, if needed.

Through an operational procedure and in exceptional circumstances, the Operator is allowed to adjust consumption data.

3.5.5 External Aggregated Consumption Data

In addition to the daily consumption data received by Services/Service Components, BILL is able to process also consumptions performed outside the Billing Process and manually inserted by BILL users via BILL GUI: External Aggregated Consumption Data.

Due to their nature of external data not recorded inside TARGET Billing Process, External Aggregated Consumption Data for a given billing period BP*a* are available only after BP*a* ending, so it is possible to consider them only in the billing process of the next billing period (BP*a+1*).

[1] ECMS calculates the invoice data internally and participate in the billing process only from the invoice data generation phase on.

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This means that during the current billing period BP*x* it is possible to insert External Aggregated Consumption Data related to a party and a specified service item only for the previous billing period BP*x-1.*

External Aggregated Data of a service item inserted for a billing period represents the aggregated quantity of this service item for the whole period. It is not possible to have a daily data nor to have more than one active External Aggregated Data for the same service, service item and party inserted for a specified billing period.

Considering that External Aggregated Consumption Data can represent only existing service items already configured in CRDM for the related TARGET Service (not custom ones as allowed by the Manual Correction functionality), for service items of category Account Management Service and Settlment Service it must be defined also an account to be used by BILL for aggregation purpose.

3.5.6 Invoice data

In the first business day of the month BILL triggers the generation of the consumption data and subsequently of the invoice data for the previous month. The consumption and invoice data generation triggered by default is always related to the whole previous month: in exceptional circumstances deviations could be inserted by the Operator to define shorter periods.

These constraints remain valid when creating the consumption and invoice data:

- for each service and party (CSD, CB, CB Participant), there can be at maximum one valid set of consumption and invoice data in a billing period and different billing periods cannot overlap;
- billing periods can never span over more than a month or overlap each other.

The consumption and invoice data generation is performed in two sub-steps.

In the first sub-step the gathered billable items are aggregated into consumption data by service, System Entity of party to be charged, party to be charged and billing period. Eventual External Aggregated Consumption Data related to the previous billing period are taken into account during this aggregation step.

In the second sub-step BILL enriches the consumption data with the pricing information of the service items configured in CRDM and valid in the given billing period.

The fees can be differentiated into different types and sub-types:

- **fixed fees** – the standing charge is applied irrespective of the consumption performed by the party to be charged. It can be differentiated depending on the calculation applied:
    - **fixed independent fee**: the amount is a total value applied in the month.

      As an example:
        - the Service Item identified with code ‘COD1’ has a fixed independent fee with unit price 100.00 EUR;
        - in the billing period the party to be charged Px has a consumption for Service Item COD1 of 280 billable items;
        - the invoice data related to COD1 to be charged to Px is equal to 100.00 EUR. It is worth mentioning that, in such scenario, the charge is independent from

the exact consumption measured for Service Item COD1 during the billing period.

- **fixed fee dependent on a tariff**: the service item price is dependent on possible optional tariff. The party to be charged shall be assigned one of the options.

  As an example:

  - the Service Item identified with code COD2 is based on tariff and it envisages two tariffs (Tariff A with price 200.00 EUR and Tariff B with price 180.00 EUR);
  - the party to be charged Px has been assigned by the responsible Central Bank with Tariff B in CRDM;
  - in the billing period the party to be charged Px has a consumption for Service Item COD2 of 20 billable items;
  - the invoice data related to COD2 to be charged to Px is 180.00 EUR.

- **fixed fee dependent on parameter**: the service item price is configured with different bands of amounts. The band to be applied depends on a parameter manually assigned by the CB in CRDM to the party to be charged.

  As an example:

  - the Service Item identified with code COD3 is fixed based on a parameter which e.g. depends on the traffic measured the previous year;
  - the party to be charged Px has been assigned by the responsible Central Bank with a parameter value of 125,550 in CRDM;
  - in the billing period the party to be charged Px has a consumption for Service Item COD3 of 15,000 billable items;
  - the invoice data related to COD3 to be charged to Px is 20.00 EUR; the price corresponds to the price associated with Band 2, selected by means of the parameter value, i.e. 125,550.

- **fixed fee dependent on tariff and parameter:** the service item price is configured with different set of bands of amounts, classified into tariffs. Additionally, once the tarff has been assigned by the responsible CB, the band to be applied depends on a parameter manually assigned to the party to be charged by the CB.

  As an example:

  - the Service Item identified with code COD4 is fixed based on a parameter which e.g. depends on the traffic measured the previous year;
  - the party to be charged Px has been assigned by the responsible Central Bank with a parameter value of 75,000 in CRDM;
  - the party to be charged Px has been assigned by the responsible Central Bank with Tariff A in CRDM;
  - in the billing period the party to be charged Px has a consumption for Service Item COD4 of 200 billable items;

- the invoice data related to COD4 to be charged to Px is 150.00 EUR; the price corresponds to the price associated with Tariff A and Band 2, selected by means of the parameter value, i.e. 75,000.

- **variable fees** - the price is defined per item depending on the consumption in the given billing period. The fee can be differentiated into different types and sub-types:
  - **variable independent fee:** the final amount to be charged for a service item is a multiplication of the consumption in the billing period and the price;

    As an example:
    - the Service Item identified with code COD5 has a variable independent fee with unit price 0.05 EUR;
    - in the billing period the party to be charged Px has a consumption for Service Item COD5 of 34,902 billable items;
    - the invoice data related to COD5 to be charged to Px is equal to (0.05 x 34,902) = 1,745.10 EUR.
  - **variable fee dependent on a tariff**: the service item unit price is dependent on a tariff. The party to be charged must have configured one of the tariffs, and the price applied to the service item depends on the assigned tariff.

    As an example:
    - the Service Item identified with code COD6 has a variable fee dependent on a tariff (Tariff A has a price of 2.00 EUR whereas Tariff B has a price of 1.80 EUR);
    - the party to be charged Px has been assigned by the responsible Central Bank with Tariff A in CRDM;
    - in the billing period the party to be charged Px has a consumption for Service Item COD6 of 12,000 billable items;
    - the invoice data related to COD6 to be charged to Px is equal to (2.00x12,000) = 24,000.00 EUR.
  - **variable fee dependent on band**: the service item price is configured with different bands of amounts. A unit price is configured for each band. The final amount to be charged is the sum of the consumptions of the party to be charged in the billing period falling in each band and multiplied for the unit price assigned to the band.

    As an example:
    - the Service item identified with code COD7 has four bands:
      - from 0 to 100 with unit price 0.005 EUR,
      - from 101 to 200 with unit price 0.004 EUR
      - from 201 to 500 with unit price 0.003 EUR
      - from 501 onward with unit price 0.002 EUR;
    - in the billing period the party to be charged Px has a consumption for Service Item COD7 of 450 billable items;

- the invoice data related to COD7 to be charged to Px is the sum of (100x0.005) + (100x0.004) + (250x0.003) = 1.65 EUR.

- **variable fee dependent on tariff and band**: the service item price is configured with different set of bands of unit prices, basing on the existing tariffs which foresee it.

  Example 1: digressive/cumulative computation method

  - the Service Item identified with code COD8 has two tariffs, each one having four bands:

    Tariff A

    - from 0 to 1,000 with unit price 0.005 EUR,
    - from 1,001 to 2,000 with unit price 0.004 EUR
    - from 2,001 to 50,000 with unit price 0.003 EUR
    - from 50,001 onward with unit price 0.002 EUR;

    Tariff B

    - from 0 to 1,000 with unit price 0.004 EUR,
    - from 1,001 to 2,000 with unit price 0.003 EUR
    - from 2,001 to 50,000 with unit price 0.002 EUR
    - from 50,001 onward with unit price 0.001 EUR;
  - the party to be charged Px has been assigned by the responsible Central Bank with Tariff B in CRDM;
  - in the billing period the party to be charged Px has a consumption for Service Item COD8 of 1,780 billable items;
  - the invoice data related to COD8 to be charged to Px is the sum of (1,000x0.004) + (780x0.003) = 6.34 EUR.

  Example 2: prorating computation method

  - the Service Item identified with code COD8 has exactly the same configuration mentioned in the Example1, but in this case the computation method is prorating since the service item is referred to a Billing Group.

    The Billing Group Bx is composed by the following Parties:

    - Px (responsible Central Bank CBx) - assigned with Tariff A, with a consumption for Service Item COD8 of 1,200 billable items in the billing period;
    - Py (responsible Central Bank CBx) - Billing Group Leader, assigned with Tariff B, with a consumption for Service Item COD8 of 2,000 billable items in the billing period;
    - Pz (responsible Central Bank CBz) - assigned with Tariff B, with a consumption for Service Item COD8 of 3,000 billable items in the billing period.

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- the invoice data related to COD8 to be charged to Px is due to the prorating computation respect to the entire volume of the Billing Group Bx, the tariff applied to the Billing Group Leader (B) and the consumption of the party Px:
  - (1,200+2,000+3,000)= 6,200Total Billing Group volume
  - Total amount related to the Billing Group Bx = (1,000x0.004) + (1,000x0.003) + (4,200x0.002)= 15.4EUR
  - Amount to be charged to Px= (15.4/6,2000)*1,200 = 2.98 EUR

Due to the Px participation to a Billing Group, then an ad-hoc note will be included in the PDF, specifying that the invoice/request for payment contains at least one service item for which the prorating is applied.

All data used during each step of the computation is based on the precision to the 5th decimal place (the 6th decimal is rounded by defect (0-4) or by excess (5-9)). The rounding to the 2nd decimal digit foreseen by EUR is performed only during the visualization phase (PDF, Screen, camt.077).

The service items are assigned a price to be applied in a specific billing period. Each service item can have more than one price configured with different validity periods; the prices of the same service item cannot have an overlapping validity period. If a service item has more than one price valid within the same billing period, the one with the most recent validity period is taken for the creation of the invoice data.

When creating the invoice data, BILL aggregates all the consumption data for the parties including the billable items related to service items with a price of zero.

As a general approach, the aggregation of the invoice data has two levels of details:

- cumulative billing data: aggregated information - for a specified period - for each service item;
- itemised billing data: billing data information on party and account level - for a specified period - for each service item.

The invoice data is the baseline to produce the invoices for a given billing period. The invoice data are stored and cannot be amended, unless the Operator performs the invoice data regeneration. It is not possible to regenerate invoice data if the related invoices have been created and are valid (not cancelled).

The list of billable items and the related service items are subject to the definition of the pricing schemes and will be described in a later version of the UDFS. For each service item the relevant fee is always denominated in Euro.

3.5.7 Sending of BILL consumption message

If configured in the Invoice Configuration in CRDM, Central Banks can opt to receive a consumption file for each Service, which can be used as raw data for the CBs' internal billing processes. A consumption

message contains aggregated consumption data by service, party to be charged and billing period, regarding the set of chargeable items used by the CB and its Participants.

The consumption message includes the following list of attributes:

- service;
- BIC of the relevant CB;
- billing period;
- billable item code;
- billable item category
- cash account (if relevant);
- party to be charged;
- total number of the billable item.

Prices are not included. The data structure is standardised for all settlement services and common components.

In case a CB opts in or opts out for the consumption message of a specific service, the changes are valid only from the following billing period on.

The consumption message is sent in push mode based on the message subscription and routing configuration set up for the CB for the camt.077 message. In case there are no consumption data for the relevant CB and for its entire community, the consumption message is not sent out. In case the computation of monthly consumption data of a billing period is recalculated/regenerated due to the operational procedure under exceptional circumstances, BILL could re-send the consumption message to the respective CBs.

3.5.8 Manual correction

After the creation of the invoice data and before the expiration of the manual correction timeframe, defined in CRDM for the related service (i.e. manual correction period), BILL allows the insertion of additional service items on top of already calculated invoice data, through the U2A mode. However, details on how to apply manual corrections are described in the UHB.

This process involves:

- the ECB actor that can manually correct the invoice data of CSDs, CBs and CB Participants. When inserting a manual correction in a System Entity invoice, the ECB can specify if that correction impacts also specific Participant(s). In this case, the relevant Participant(s) invoice(s) is/are impacted. The ECB is allowed to perform changes on the System Entity invoices only until the CBs are eligible to start the correction of Participant invoices.
- the CB actors that can manually correct the invoice data of their Participants. Corrections performed on CB Participants invoice data do not affect the CB invoice data.

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The manual correction step can be performed on invoice data related to a service, a Party and a given billing period. The manual correction is allowed only if the relevant invoice has not been created yet, or if it has been already cancelled.

During the manual correction step, the involved responsible actor can identify the invoice data by service, System Entity, party to be charged and billing period. Once the relevant invoice data has been selected, the responsible actor can insert additional service items specifying:

- the party to be charged;
- the category and the type of fee to apply;
- the consumption, the percentage or the fixed amount to be applied.

When inserting the service items, the actors can use the ones already available in CRDM for the service or insert new ones on their own, along with a description. In case a new service item is inserted, it should differ from any registered service item code stored in CRDM for the related service and it will be valid only within the invoice that is being created.

If an existing service item is inserted in a manual correction, BILL applies the VAT configured for the respective service item. In case of a free text manual correction, the user inserting it must specify the VAT rate to be applied, if any – otherwise 0 is considered.

The values, percentages or amounts of the additional service items can be either positive or negative.

The ECB and each CB could insert an additional free text as a manual correction which will then be included in the footer of the PDF invoice.

3.5.9 Invoice creation

The invoice creation step is triggered as soon as the invoice creation timeframe is reached for the relevant service. Under specific circumstances, the step can be triggered manually by the Operator. Two different levels of invoices are created by BILL:

- invoices for System Entities (CBs and CSDs), including a cumulative overview of fees for the participants within its community of a given service and its own fees for the usage of a given service, issued by the ECB;
- invoices for CB participants, comprising of the fees of an individual participant of a given service, issued by their System Entity.

If a CB has opted to invoice its participants outside BILL, no participant invoice shall be created for participants of this System Entity. CSD invoices are System Entity only.

BILL creates invoices for each service and for each Party to be charged: the usage of common components will be charged through the above invoices (except for ECMS). The invoice is computed on the basis of the invoice data and the manual corrections, taking into consideration also VAT rates configured by CBs and assigned to service items.

The invoice creation process foresees that:

- each calculated invoice is enriched with header information (e.g. a unique invoice number – unique and sequential for Service and Country-, the information on sender and receiver, the relevant billing period);
- BILL assigns the invoice a due date on the basis of the invoice creation date, the T2 calendar and due date offsets (System Entity and Participant) specified as a number of business days and defined in CRDM;
- in case the invoice is issued to participants of a CB with a non-EUR currency, BILL translates on the fly all amounts and prices in the destination currency;
- the calculated invoices are stored as PDF document.

Only one valid invoice for each service and Party to be charged over a specific billing period can exist.

BILL generates a unique, unambiguous invoice number for each created invoice. The generated invoice number has a pattern that allows identifying the service and the Country the invoice is issued for. The Country and Service are be identified in the first digits of the invoice number, such that invoice numbers within a country and service are increasing by increments of one, as for the following 35 digit pattern:

CCCSSXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

CCC: country code, in the form of the numeric num-3 code described in the ISO 3166-1:2020. Due to the fact that the ECB is not included in the standard, then the code 001 will be used.
SS: Relevant TARGET Service, as for the following table:

SS value	Service
01	TIPS
02	T2S
03	T2
04	ECMS

XXXXXXXXXXXXXXXXXXXXXXXXXXXXX: unique and sequential number for Country and Service, starting from 0000000000000000000000000001

Some examples:
380030000000000000000000000000001 for IT T2, 380010000000000000000000000000001 for IT TIPS, 380040000000000000000000000000001 for IT ECMS
276030000000000000000000000000001 for DE T2, 276010000000000000000000000000001 for DE TIPS, etc.

Since CSDs are not lined to any Country for definition, the Country will not be considered in the invoice number pattern with the removal of the country code and the enlargement of numeric part to 33 digit.

SSXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

In case two or more System Entities are configured for a specific Country (each of which refers to a different currency), then the same pattern will be applied: for a specific billing period, each of them will receive an invoice referred to the common country with increment of the sequence number.

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The duly authorised customers can access the invoices, depending on their datascope:

- via A2A query, in order to retrieve invoice data and possible manual corrections: both cumulative billing data (aggregated) and itemised billing data (detailed);
- via U2A, in order to retrieve the invoice generated in PDF format. In this case, ECB users can access all System Entity invoices, CB users can access its own Invoice and the ones of Participants under their default datascope, Participants can access their own Invoices. A CB can download all PDF invoices it has issued for a given service/billing period. Additional details are described in the UHB.

3.5.9.1 Invoice template

The PDF invoices are created on the basis of templates that have a standard structure based on:

- Invoice header:
  - Invoice number;
  - Billing period;
  - Service;
  - Invoice date and due date;
  - Name, address of invoice issuer;
  - Logo of the invoice issuer;
  - VAT ID of the invoice issuer;
  - name, address and VAT ID of invoice recipient;
  - Title (possibly different for Invoice/Request for Payment)
- The list of the applied service items on the basis of the invoice data, with the indication of line number, service item code, description (label), service item code, VAT rate (if any and only for participant invoices), quantity, unit price and total amount;
- The list of additional service items (manual corrections);
- Subtotal per VAT rates (if any);
- Subtotal per without tax and the total tax amount;
- Grand total;
- A footer containing textual remarks and notes:
  - legal mentions and means of payment (including values for the MCA to be debited by Direct Debit for participant invoices (if configured) and the due date);
  - free text;
  - a note which specifies if the invoice/request for payment contains at least one service item for which the prorating is applied due to the participation to a Billing Group

The ECB and each CB actor can customise the template by adding the legal mentions, the free text and the means of payment, setting these values (common for all invoices issued for a service) in their CRDM Invoice Configuration. In addition, the free text in the footer can be customised for each participant invoice using the manual correction BILL functionality. Finally, the ECB and CBs can request the Operator to memorise a logo that is, then, used respectively for the CBs invoices at System Entity level and for the Participants invoices – each participant invoice shows the logo linked to its CB.

If properly configured by the relevant CB, a different template can be used for the PDF in case of participants which are tax exempt, removing any mention to VAT with the classification of the document as “request for payment” related to a “reference period”.

For CSD, no additional CRDM configuration is required, but address and any other invoice data are extracted from the already existing Party data.

Even if present in the invoice data, the PDF invoice does not report service items whose amount is 0.

Within the PDF invoice, the reported amounts for each service item are rounded to the second decimal digit. However, the total amount of the invoice is based on the unrounded figures of the underlying service items and therefore the sum of the underlying service items (rounded to two decimal digits) may not match with the total amount of the invoice (rounded to two decimal digits).

Whenever reported in the pdf, the currency symbol is the EUR (€) except for the invoices of non-EUR CB participants with translated prices and amounts where the currency symbol is set according to currency configured for the CB.

Please find below, an example of the template of the PDF for the System Entity Invoices (for CSDs and CBs) and the CB participant invoice and an example of the System Entity Invoice for a TARGET Service (T2S).

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Creation date DD/MM/YY

INVOICE ISSUER NAME

INVOICER RECIPIENT NAME
Address

VAT ID: XXX

Reference number: Invoice number
Service: T2S/T2_R/TIPS/ECMS
Billing Period: DD/MM/YYYY – DD/MM/YYYY
Due Date: DD/MM/YYYY

Line	Label	Service Item Code	Quantity	Unit Price	Total Amount (in €)
1	**Service Category Name**				
2	Service Item Name	XXXX	XXXX	XX.XXXX	XX.XX
3	Service Item Name	XXXX	XXXX	XX.XXXX	XX.XX
4	Service Item Name	XXXX	XXXX	XX.XXXX	XX.XX
5	Service Item Name	XXXX	XXXX	XX.XXXX	XX.XX
6	Service Item Name	XXXX	XXXX	XX.XXXX	XX.XX
7	.....				
8	Service Item Name	XXXX	XXXX	XX.XXXX	XX.XX
9	**Service Category Name**				
10	Service Item Name	XXXX	XXXX	XX.XXXX	XX.XX
11	Service Item Name	XXXX	XXXX	XX.XXXX	XX.XX
12	Service Item Name	XXXX	XXXX	XX.XXXX	XX.XX
13	**Service Category Name**				
14	Service Item Name	XXXX	XXXX	XX.XXXX	XX.XX
15	Service Item Name	XXXX	XXXX	XX.XXXX	XX.XX
16	Service Item Name	XXXX	XXXX	XX.XXXX	XX.XX
17	Subtotal				XX.XX

Line		Total Amount (in €)
18	Grand Total	XX.XX

Means of payment
Legal comments
Footer

FIGURE 2 - TEMPLATE OF A SYSTEM ENTITY PDF INVOICE

Invoice CB

Creation date DD/MM/YY

INVOICE ISSUER NAME

INVOICER RECIPIENT NAME
Address

VAT ID: XXX

VAT ID: XXX

Reference number: Invoice number
Service: T2S/T2_R/TIPS/ECMS
Billing Period: DD/MM/YYYY – DD/MM/YYYY
Due Date: DD/MM/YYYY

Line	Label	Service Item Code	VAT Rate	Quantity	Unit Price	Total Amount (in €)
1	**Service Category Name**					
2	Service Item Name	XXXX	XX.XX%	XXXX	X.XXXX	XX.XX
3	Service Item Name	XXXX	XX.XX%	XXXX	X.XXXX	XX.XX
4	Service Item Name	XXXX	XX.XX%	XXXX	X.XXXX	XX.XX
5	Service Item Name	XXXX	XX.XX%	XXXX	X.XXXX	XX.XX
6	**Service Category Name**					
7	Service Item Name	XXXX	XX.XX%	XXXX		XX.XX
8		XXXX		XXXX	X.XXXX	XX.XX
9		XXXX		XXXX	X.XXXX	XX.XX
10		XXXX		XXXX	X.XXXX	XX.XX
11		XXXX		XXXX	X.XXXX	XX.XX
12	Service Item Name	XXXX	XX.XX%	XXXX	X.XXXX	XX.XX
13	Service Item Name	XXXX	XX.XX%	XXXX	X.XXXX	XX.XX
14	Subtotal					XX.XX

Line	Label	Amount subject to VAT	Total Amount (in €)
15	VAT0 (XX.XX%)	XX.XX	XX.XX
16	VAT1 (XX.XX%)	XX.XX	XX.XX
17	VAT2 (XX.XX%)	XX.XX	XX.XX

Line		Total Amount (in €)
18	Total Without VAT	XX.XX
19	Total VAT	XX.XX
20	Grand Total	XX.XX

Means of payment
Legal comments
Footer

FIGURE 3 - TEMPLATE OF A CB PARTICIPANT PDF INVOICE

2023-12-12

ECB T2S
Main 123
EC - 3210 Frankfurt

CSD 2
Hungary 2
HU - 2 Hungary Hungary
Hungary

VAT ID: 0123456789

Reference number: 02000000000000000000000000000002590
Service: T2S
Billing Period: 2023-11-27 - 2023-11-30
Due Date: 2023-12-14

Line	Label	Service Item Code	Quantity	Unit Price	Total Amount (in €)
1	**Settlement Services**				
2	Delivery versus Payment matched	0001	6	0.0100	0.06
3	Delivery versus Payment (DVP) full	0002	3	0.0200	0.06
4	Delivery versus Payment full (daytime)	0004	1	0.0400	0.04
5	Free of Payment matched	0020	17	0.2000	3.40
6	Free of Payment (FOP) full	0021	18	0.2100	3.78
7	Free of Payment full (daytime)	0023	2	0.2300	0.46
8	Fail on intended settlement day	0080	64	0.8000	51.20
9	Cancellation	0083	53	0.8300	43.99
10	Settlement Modification Hold/ Release	0086	3	0.8600	2.58
11	Intra-Position movements	0090	13	0.9000	11.70
12	Auto collateralisation service with CB	0096	8	0.9600	7.68
13	**Information Services**				
14	Transmission (inbound)	0110	54	1.1000	59.40
15	Transmission (outbound)	0111	867	1.1100	962.37
16	Messages bundled into a file (outbound)	0116	4	1.1600	4.64
17	Subtotal				1,151.36

Line		Total Amount (in €)
18	Grand Total	1,151.36

Means of payment
Legal comments
Footer

FIGURE 4 - EXAMPLE OF A SYSTEM ENTITY PDF INVOICE

3.5.10 Invoice sending

After the invoice creation, BILL sends it to the relevant recipient in A2A (party configured in order to receive the invoice) and it makes the PDF available in U2A.

BILL, by default, sends one invoice per System Entity (CBs and CSDs) per Service via push mode in Application-to-Application mode (A2A) using the BillingReport (camt.077) (55) message to the party technical address of the relevant CB or CSD and makes available for downloading a PDF version of the invoice in the BILL GUI. In case there is no consumption for the relevant Party and for the related Service Billing period, resulting in an invoice with a total amount equal to zero not depending from the rounding applied, then the BillingReport (camt.077) and the PDF will not be sent/generated.

BILL generates the invoices of the CB participants. Furthermore, CBs are allowed to opt for the direct invoicing to their Participants: in this case, all invoices charged by CBs to their CB participants are sent out directly to each Participant. Each CB can then download the invoices related to their participants in the BILL GUI.

For participants of a CB with a non-EUR currency BILL generates both PDF and BillingReport camt.077 INVC with all amounts and prices in the destination currency translated on the fly from the original amount in EUR.

3.5.11 Direct Debiting

Central Banks can configure the automatic sending of Direct Debit (DD) for the charging of the invoices sent to their Participants for each service.

Billing creates DD orders on the invoice due date and submits them to CLM, to debit the participant predefined account for debits and credit the predefined account for credits, as configured in CRDM.

For CB Participants of a non-EUR currency CB, the Direct Debit message (pacs.010) created by BILL for each Participant under the CB scope has the following features:

- The Interbank Settlment Amount currency has currency attribute equal to the non-EUR currency and value equal to the amount to be charged translated on the fly in the destination currency from EUR
- Settlement date is equal to the calculated due date. If the due date is a closing date for the non-EUR currency calendar, the settlement date is set to the earliest following business date in which the non-EUR currency is opened for the settlement of Direct Debit in CLM (The due date in the invoice still remains the one related to the EUR calendar)

Direct Debit for non-EUR currencies will always be sent by BILL to CLM, meaning that it is not possible to send a Direct Debit to any other RTGS.

.

The invoice number is referenced in the payload of the message to help involved actors identifying the transactions related to Billing in their records.

The account to be debited must be an existing MCA (not necessarily under the CB scope) denominated in euro, while the account to be credited must be any account eligible to be credited by Direct Debit in CLM.

CSDs and CBs invoices are not charged by means of DD. If a DD is rejected during EoD due to lack of liquidity , no further direct debit is automatically created by BILL and the respective CB shall follow-up with the participant bilaterally.

3.5.12 Invoice cancellation

The ECB (for CBs and CSDs) and CBs (for their participants) can request the Operator to cancel a previously generated invoice. The invoice cancellation can be executed on the latest created invoices – it is not possible to cancel an invoice related to the billing period x if BILL has already created invoice data for the billing period x+1.

The invoice cancellation consists in marking the current invoice as cancelled; the related PDF is stored with specific information in the header of the file (“invoice cancelled”).

When an invoice is cancelled, it is possible to regenerate the relevant invoice data or to add manual corrections to the already existing invoice data.

The invoice can, then, be generated again.

Upon invoice cancellation, the relevant CSD or CB is informed about the cancellation. The PDF version of the cancelled invoice is stored in BILL and the relevant actor can download it.

In case the invoice is cancelled before generating the Direct Debit, BILL does not proceed with the Direct Debit execution.

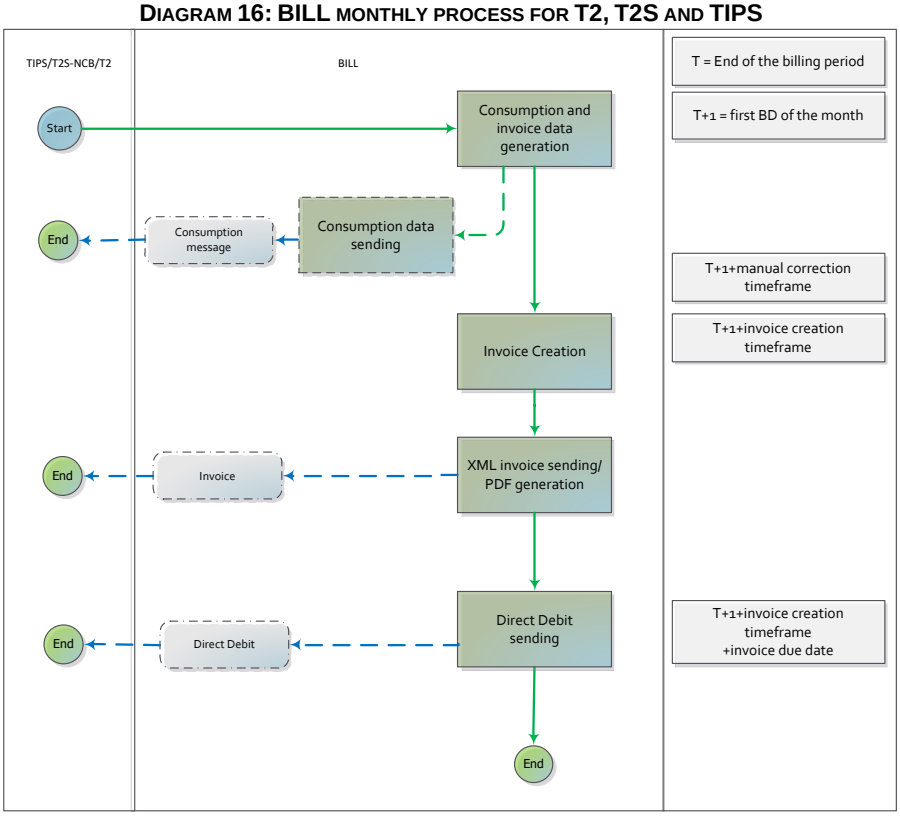
If the Direct Debit has been already produced and settled, the invoice cancellation is not allowed.

3.5.13 Standard Timeline

While the daily aggregation of billable Items is performed by BILL after the end of each business day of the relevant Service and the gathering of monthly billable items (e.g. TIPS billable items of the ACMS category) is performed by BILL only once a month (the last business day of the month) , the billing monthly process is composed by different steps based on triggers that allow the billing process to progress. A trigger is the initial point of an action, automatic (i.e. event or a specific moment in time managed by the software) or manual (triggered by an the operator): each process step shall be manually launched by the operator or scheduled separately for each service, for all relevant System Entities together.

The following diagram shows the monthly billing steps valid for all Services except for ECMS, whose process is be described subsequently in this section.

DIAGRAM 16: BILL MONTHLY PROCESS FOR T2, T2S AND TIPS



The billing process is executed separately for each Service, so that that any delay or error on one Service does not affect the management of the data/invoices of the others. The process on common components has an effect on the overall process, since common components information is relevant for the overall computation.

In the first business date of the month, after the completion of daily aggregation of the last business day of the billing period and after the receipt of the monthly billable items (e.g. TIPS already monthly aggregated billable items of ACMS category), in case it is foreseen at the end of the billing period , an event triggers the monthly *Consumption and invoice data generation* step.

Immediately after the completion of the invoice data generation, the consumption message is sent out for System Entities which opted for it in the Billing Configuration.

When Invoice data have been generated successfully, ECB and CBs could perform manual corrections on invoice data in delta-mode, introducing changes by adding entries to existing invoice data (no “direct manipulation” of invoice data is allowed).

The *Invoice Creation* step is triggered after the expiring of the invoice creation timeframe set up by the Operator for each Service (computed starting from the creation of the invoice date), allowing BILL to generate all System Entity and Participant Invoices. Immediately after the invoice creation, the camt.077 Invoice message is sent out for System entities and Participant who subscribed it.

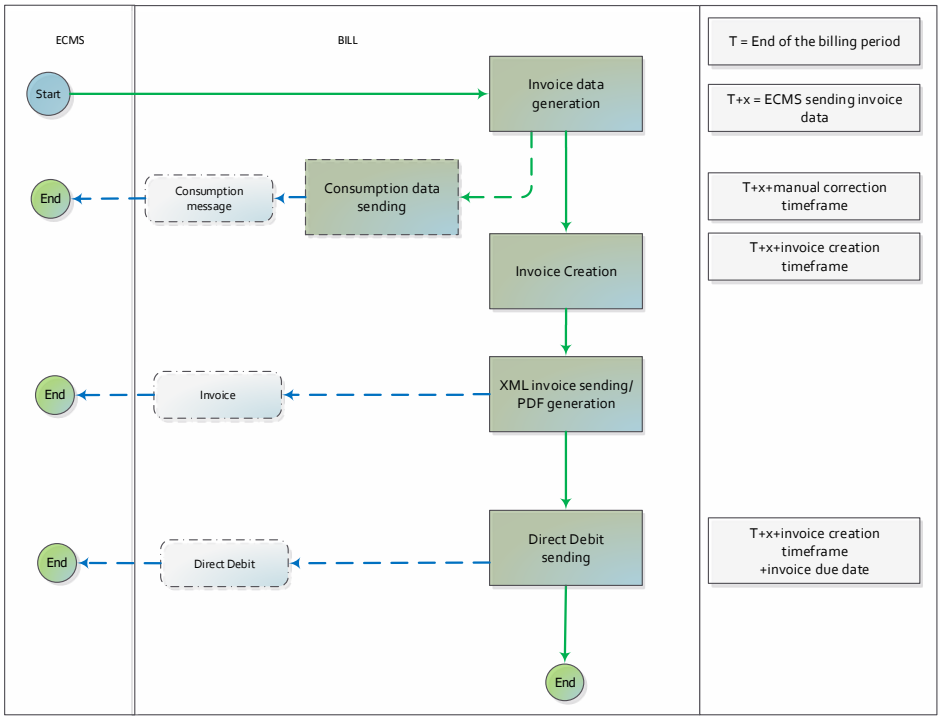
The *Direct Debit sending* step is triggered when the due date is reached, allowing BILL to send Direct Debit to CLM in order to settle participant invoices (belonging to Participant for which the direct debit has been properly configured by the respective CB). The due date is derived starting from invoice date and adding the invoice due date parameter set up by the Operator for each Service.

For ECMS, billing cycle is the entire calendar month (no intra-month invoice allowed, as requested by ECMS) and the billing process starts with the reception of already calculated invoice data from ECMS,

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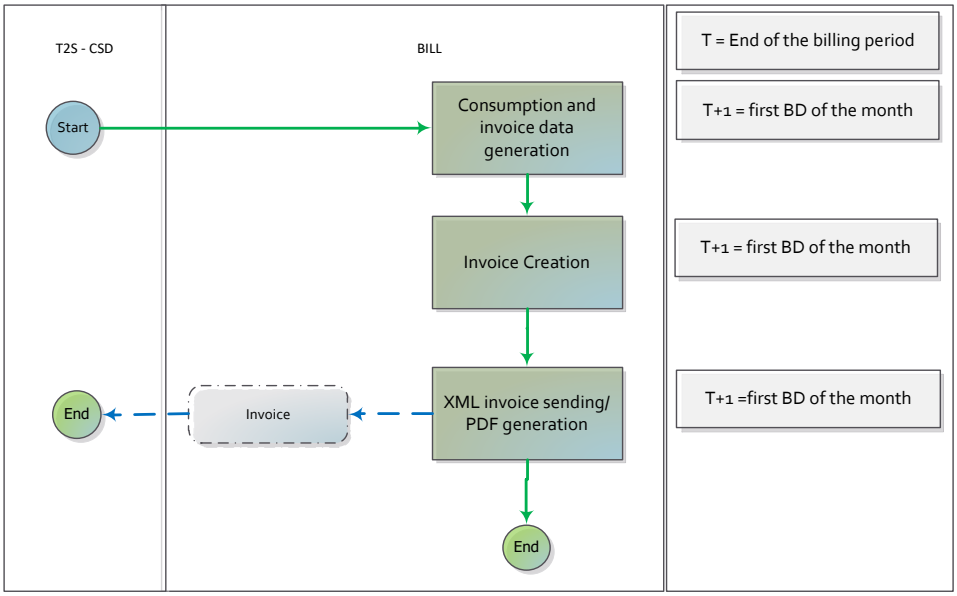
as described in the figure below. No difference for all the other billing steps, which are executed as described before for T2S, T2 and TIPS Services.

DIAGRAM 17: BILL MONTHLY PROCESS FOR ECMS



The billing process CSDs configured in T2S is peculiar: no consumption message and direct debit are sent and there are not CSDs Participants invoices managed in BILL. As a consequence, CSDs are not allowed to enter manual corrections. All steps of the billing process are completed in sequence (no timeframe to consider), with the completion of the entire process in the very first business day after the end day of the billing period on which the billing process is focusing.

DIAGRAM 18: BILL MONTHLY PROCESS FOR CSDS



3.6 Operations and support

3.6.1 Data configuration

The Operator is responsible for defining and maintaining a number of rules and parameters for the configuration used by BILL and stored in CRDM. The following table includes the exhaustive list of system parameters valid for all Parties under the TARGET service in which they are defined:

Parameter name	Description
Manual correction timeframe	The starting moment useful to perform manual corrections (expressed in days and counted starting from the first business day of the next billing period); It should be less than or equal to the invoice creation timeframe, allowing the insertion of manual correction only until the invoices are created.
Invoice creation timeframe	The moment when the invoices will be created (expressed in days and counted starting from the first business day of the billing period);
System Entity invoice due date	Due date for System Entity invoice
Participant invoice due date	Due date for Participant invoice
Tariffs	Core pricing tariffs are defined and assigned to service items based on the pricing policy.

Furthermore, the Operator is responsible for creating and maintaining dedicated lists of service items in each service and related fees.

The Operator has available tools and operational procedures to allow the adjustment of consumption data, the regeneration of invoice data (for ECMS, the cancellation of the invoice data received from ECMS and the loading of new data), the cancellation and regeneration of invoices not yet paid: in

particular, it could manually trigger each BILL process step. In exceptional circumstances, the Operator shall extract and load ECB invoice manual corrections in bulk.

3.6.2 Business and operations monitoring

The Business and operations monitoring integrates information coming from different sources in order to monitor the business and operational status of BILL, to detect possible problems in real-time or to proactively recognise a possible deterioration of performance and to provide up-to-date information for crisis management scenarios.

Business and operations monitoring gives the Operator the possibility to perform a real-time supervision of BILL in terms of:

- Performance;
- Transactions transit and response times;
- Volumes and values exchanged;
- Actors activity on the system;
- Hardware and software problems.

The goal is to allow an early detection of possible anomalies through the continuous comparison of reported data with standard patterns. Besides that, the data can be used to improve the component's behaviour or its usage through a better understanding of the relevant dynamics.

The Business and operations monitoring application process extracts, merges and organizes the data in forms of tables, grids and graphs to ensure both the depth of the underlying information and its prompt usability.

In order to exclude any even remote impact on the component's performances, the Business and operations monitoring application makes use of a different set of data which are replicated from the original ones.

The Operator is also provided with a tool for the detection in real-time of functional or operational problems, called Technical Monitoring. It allows for the detection of hardware and software problems via real-time monitoring of the technical components involved in the processing, including the network connections.

Business and operations monitoring interfaces are available in U2A mode only.

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4 Dialogue between BILL and BILL Actors

This chapter describes the interactions between an actor involved in billing and the Billing common component in the form of universal use cases.

4.1 A2A query process

This section covers the standard situation of a CSD, Central Bank or CB Participant interacting with the Billing common component, sending a query through the A2A channel.

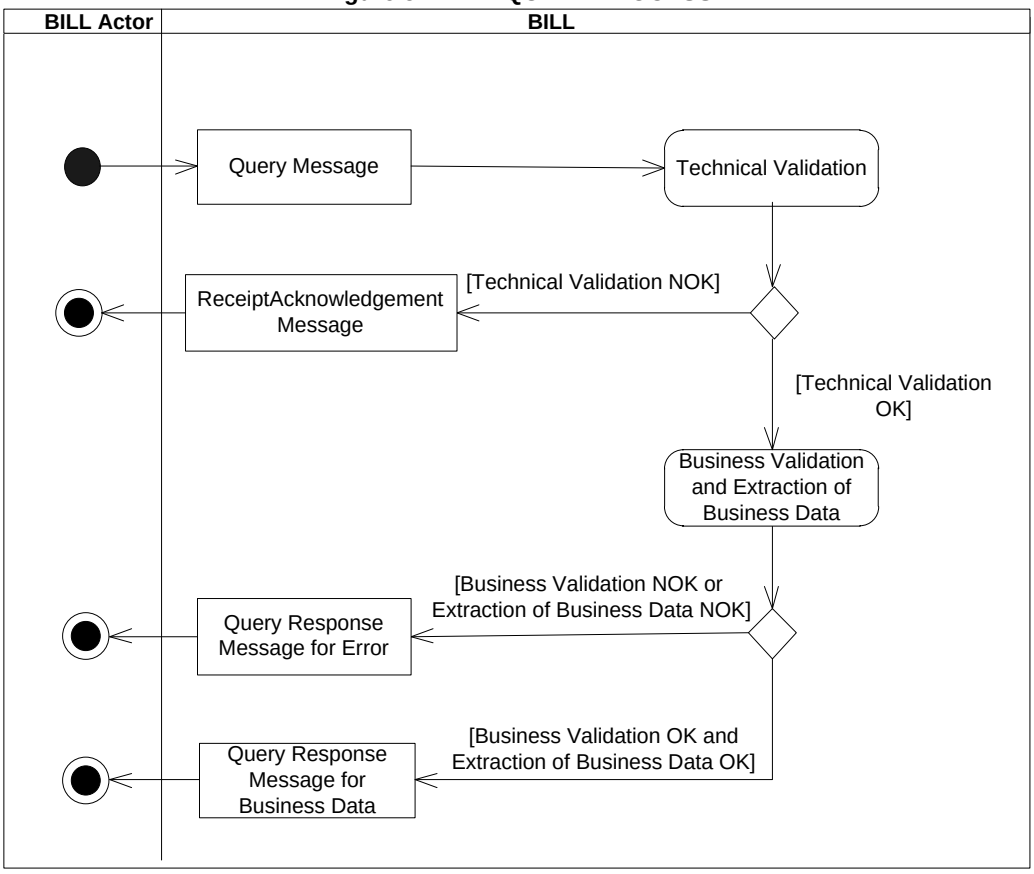
The billing query can be described as a common message flow that applies to every business scenario.

Upon the sending of a query instructed with an input message, a related query response message or a technical validation error message is returned.

4.1.1 BILL query message processing steps

The following diagram details all the processing steps for the billing data query:

Figure 5 - BILL QUERY PROCESS



Technical Validation

The query message is technically validated. This may result in:

- [Technical Validation NOK] A ReceiptAcknowledgement (admi.007) message is sent by BILL to the sender of the originating query. No further steps are required and the process ends.
- [Technical Validation OK] Next process step is executed.

Business Validation and Extraction of the Business Data

The query message is validated by BILL against the access rights of the BILL Actor and against different business rules. After a successful business validation the extraction of the requested business data is triggered. Depending on the query message, the necessary business data are extracted from the respective data stores. This may result in:

- **[Business Validation OK and Extraction of the Business Data OK]** A Query Response Message for the business data including the requested business data is sent back to the requesting BILL Actor, i.e. either the found data sets or a notification that the extraction returned a zero result.
- **[Business Validation NOK or Extraction of the Business Data NOK]** A Query Response message for the Error is sent back to the requesting BILL Actor indicating the error(s) which occurred.

The messages used in the interaction change depending on the query to be performed.

In the following table, for every object, the query and query response messages are defined.

TABLE 1 - BILL QUERY MESSAGES

OBJECT	QUERY REQUEST MESSAGE	QUERY RESPONSE MESSAGE FOR ERROR	QUERY RESPONSE MESSAGE FOR BUSINESS DATA
Invoice	BillingReportRequest (camt.076)	BillingReport (camt.077)	BillingReport (camt.077)

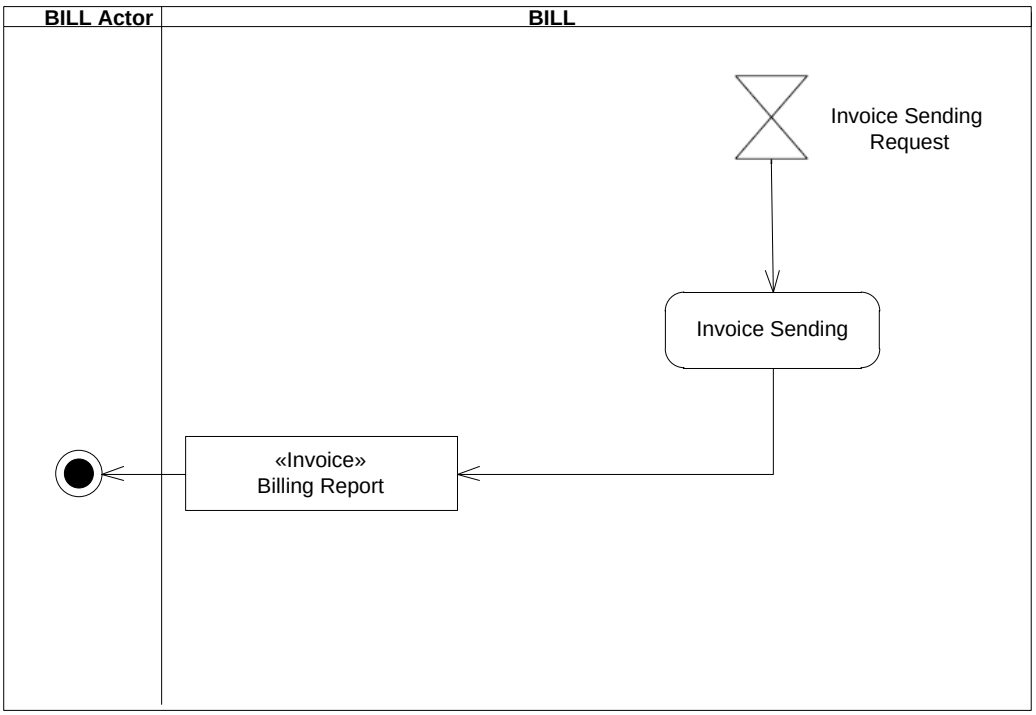
4.2 A2A Send Invoice

This section describes the outbound message resulting from the sending of an invoice in BILL.

4.2.1 BILL send invoice message processing steps

The following diagram details all the processing steps in respect of invoice sending:

FIGURE 6 - BILL SEND INVOICE PROCESS



Invoice Sending

On request, BILL sends to the authorised actor a BillingReport (camt.077) message containing the invoice.

The invoice sending request is triggered after the invoice creation.

TABLE 2 - BILL INVOICE MESSAGE

MESSAGE DESCRIPTION / USAGE	MESSAGE
Billing Report / “Invoice”	BillingReport (camt.077)

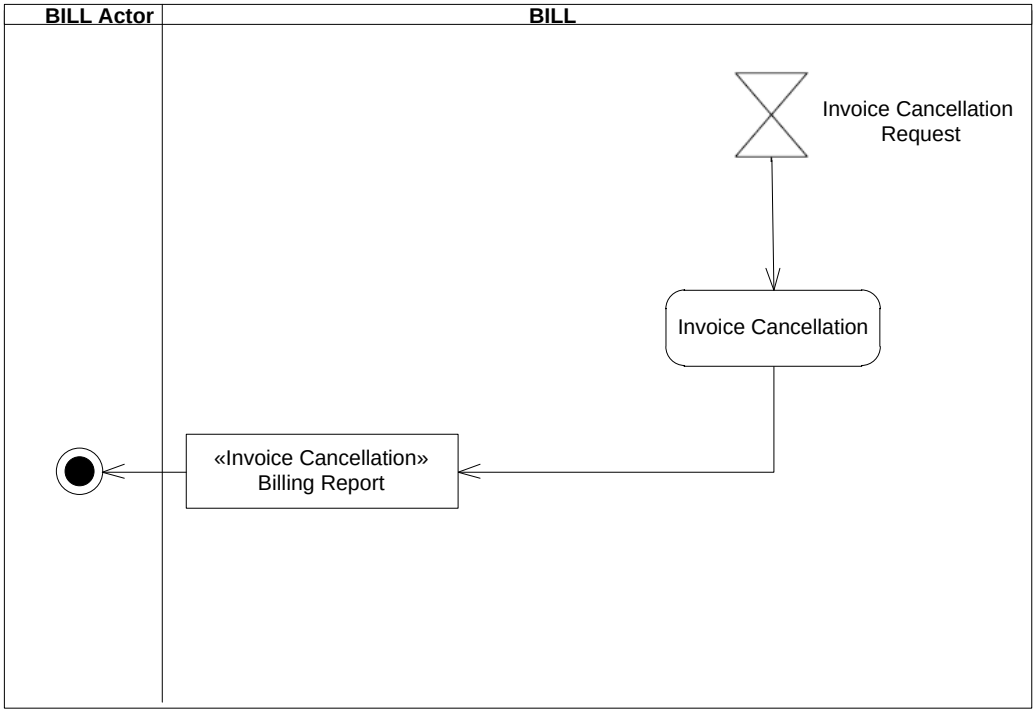
4.3 A2A Send Invoice cancellation process

This section describes the outbound message resulting from the processing of an invoice cancellation request BILL.

4.3.1 BILL send invoice cancellation message processing steps

The following diagram details all the processing steps in respect of invoice cancellation:

Figure 7 - BILL SEND INVOICE CANCELLATION PROCESS



Invoice Cancellation

On request, BILL sends to the authorised actor a BillingReport (camt.077) message containing the invoice cancellation data. The Operator can trigger the request to cancel a previously generated invoice upon an ECB (for CBs and CSDs) or CBs (for their participants) request.

TABLE 3 - BILL INVOICE CANCELLATION MESSAGE

MESSAGE DESCRIPTION / USAGE	MESSAGE
Billing Report / “InvoiceCancellation”	BillingReport (camt.077)

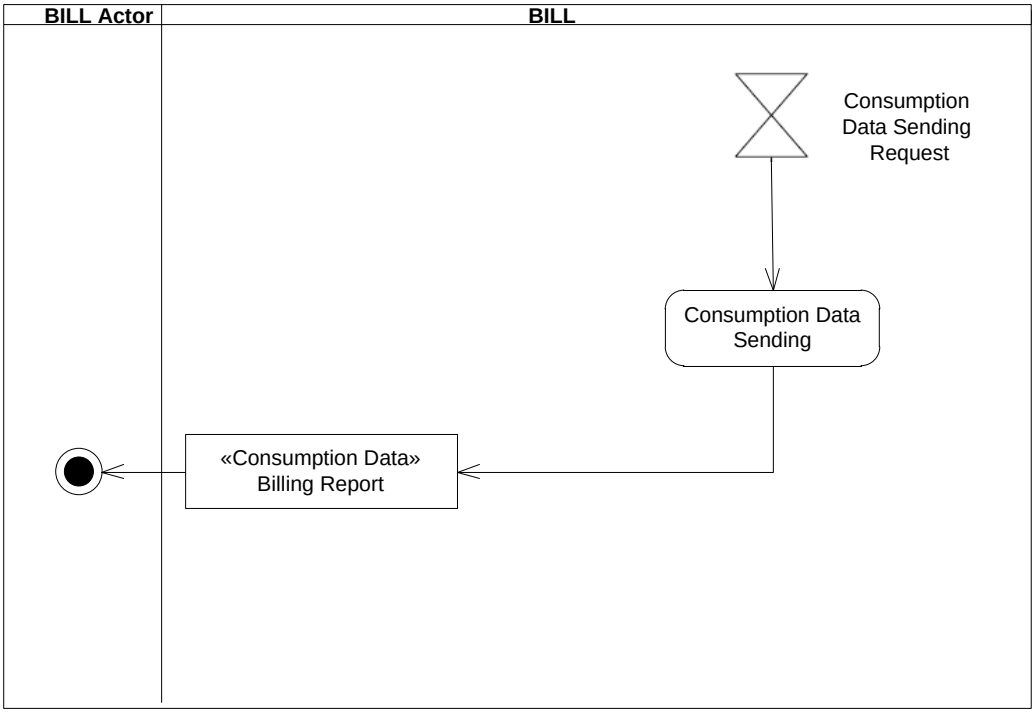
4.4 A2A Send Consumption Data

This section describes the outbound message resulting from the sending of the consumption data in BILL.

4.4.1 BILL send consumption data message processing steps

The following diagram details all the processing steps in respect of consumption data sending:

FIGURE 8 - BILL SEND CONSUMPTION DATA PROCESS



Consumption Data Sending

On request, BILL sends to the authorised actor a BillingReport (camt.077) message containing the consumption data.

The consumption data sending request is triggered after the consumption data creation.

TABLE 4 - BILL CONSUMPTION DATA MESSAGE

MESSAGE DESCRIPTION / USAGE	MESSAGE
Billing Report / “Consumption Data”	BillingReport (camt.077)

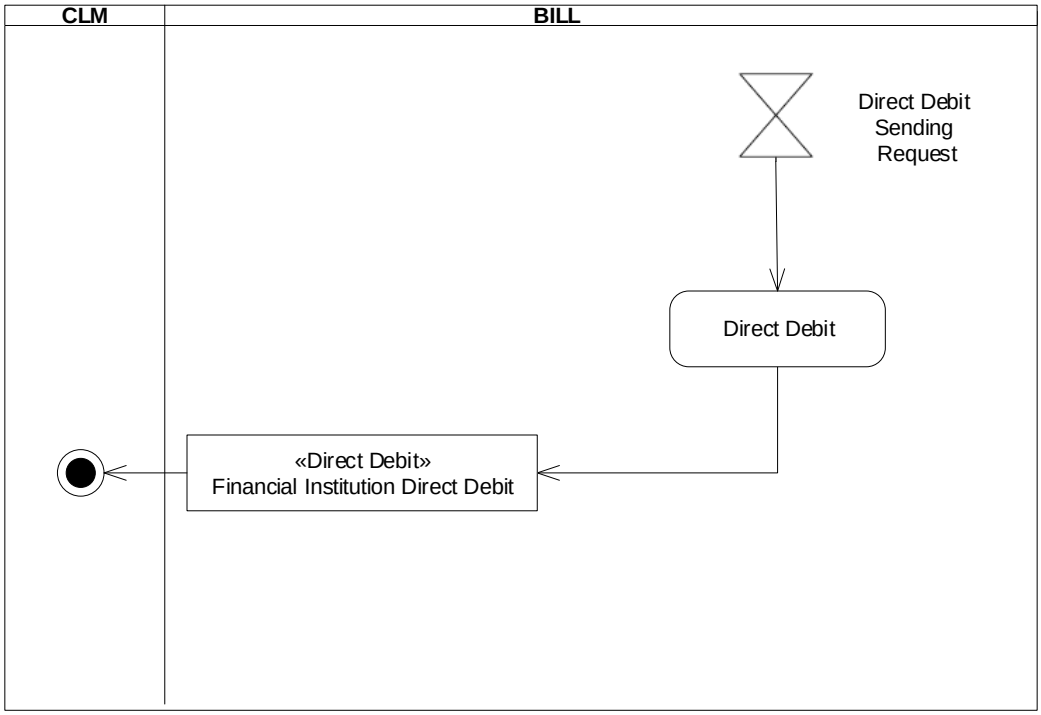
4.5 A2A Send Direct Debit to CLM

This section describes the outbound message resulting from the sending of the direct debit in BILL.

4.5.1 BILL sends direct debit message processing steps

The following diagram details all the processing steps in respect of direct debit sending:

FIGURE 9 - BILL SEND DIRECT DEBIT PROCESS



Direct Debit Sending

On request, BILL sends to CLM a FinancialInstitutionDirectDebit (pacs.010) message containing the direct debit.

The direct debit sending request is triggered when the due date in the Participant invoice is reached, after the send invoice process.

Detailed information about FinancialInstitutionDirectDebit message can be found in the related section of the CLM UDFS [CLM – User Detailed Functional Specification].

5 Catalogue of messages

5.1 List of messages

Regarding the use of namespace prefixes, BILL does not encourage but accepts and processes valid inbound messages containing those.

However, when sending outbound messages, BILL does not re-use nor add namespace prefixes.

5.1.1 BillingReportRequest (camt.076)

5.1.1.1 Overview and scope of the message

This chapter illustrates the BillingReportRequest message.

The message is sent to make the following types of queries:

- Cumulative Billing Data Query;
- Itemised Billing Data Query.

Their usages are described below, in the chapter “The message in business context”.

In response to the BillingReportRequest (camt.076) message, a BillingReport (camt.077) message containing information on requested items, or a business error report is sent.

5.1.1.2 Schema

Outline of the schema

The BillingReport message is composed of the following message building blocks:

MessageHeader

This block is mandatory. It contains the message identification (“NONREF” value can be used, since it is already contained in the business application header) as well as the kind of billing data to be returned.

SearchCriteria

It contains the Search Criteria used to define the criteria to extract the billing data. All selected search criteria are applied simultaneously

References/links

The schema and the related documentation in XSD/EXCEL/PDF format as well as the message examples are provided within the MyStandards repository under the following link:

https://www.swift.com/mystandards/CoCo/camt.076.001.01

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Business rules applicable to the schema

MESSAGE ITEM	BUSINESS RULES
Identification Document/BllgRptReq/MsgHdr/ReqTp/Prtry/Id	IIMP088
Search Criteria Document/BllgRptReq/SchCrit	IIMP153
BillingIdentification Document/BllgRptReq/SchCrit/BllgId	IIMP088 QMPC089
FromDate Document/BllgRptReq/SchCrit/BllgPrd/FrDt	QMPC088 QMPC016 QMPC015 IIMP088
ToDate Document/BllgRptReq/SchCrit/BllgPrd/ToDt	QMPC088 QMPC015 IIMP088
Responsible Party Identification Document/BllgRptReq/SchCrit/RspnsblPtyId/Id/AnyBIC	QMPC048 IIMP088
Party Identification Document/BllgRptReq/SchCrit/PtyId/Id/AnyBIC	QMPC032 IIMP0106
Identification Document/BllgRptReq/SchCrit/AcctId/CshAcctId/Othr/Id	QMPC031

5.1.1.3 The message in business context

Usage Case: Cumulative Billing Data Query

This query type enables the sender to request the billing data of an invoice, which consists of the aggregated information for a specified period for each service item, according to the access rights. The query result represents only the cumulative business data and not an official invoice.

The following fields can be used to restrict the query further:

- Billing Invoice Identifier (optional);
- Billing Period (optional);
- Responsible Party BIC (BIC of the CSD or BIC of the CB) (optional);
- Participant BIC (optional);

If no search criteria are selected then available information according to the requestor´s data scope are returned.

Specific message requirements

MESSAGE ITEM	UTILISATION
Identification Document/BllgRptReq/MsgHdr/ReqTp/Prtry/Id	“CUMU”
BillingIdentification Document/BllgRptReq/SchCrit/BllgId	Billing Identifier of a related invoice
Service Document/BllgRptReq/SchCrit/Svc/SysId/MktInfrstrctrId/Prtry	Service for which the invoice is requested
FromDate Document/BllgRptReq/SchCrit/BllgPrd/FrDt	Start date of the billing period
ToDate Document/BllgRptReq/SchCrit/BllgPrd/ToDt	End date of the billing period
Responsible Party Identification Document/BllgRptReq/SchCrit/RspnsblPtyId/Id/AnyBIC	If used, billed CSD/CB BIC
Party Identification Document/BllgRptReq/SchCrit/PtyId/Id/AnyBIC	If used, BIC of the Participant

Usage Case example: CumulativeBillingDataQuery_example.xml

In this example a CB (BITAITRRXXX) sends a CumulativeBillingDataQuery (CUMU), using the Billing invoice identifier BILLINGIDABC00001 and billing period 2019-01-01 to 2019-01-31 as search criteria.

Usage Case: Itemised Billing Data Query

This query type enables the sender to request itemised billing data information on account or party level according to the access rights.

The following fields can be used to restrict the query further:

- Billing ID (optional):
- Billing Period (optional);
- Responsible Party BIC (BIC of the CSD or BIC of the CB) (optional);
- Participant BIC (optional);
- Cash account number/ securities account number (optional).

If none of these search criteria is selected then the available information according to the requestor’s data scope are returned. If the Billing period is not stated, the billing data for the last months is made available, based on the Billing component retention period.

Specific message requirements

MESSAGE ITEM	UTILISATION
Identification Document/BllgRptReq/MsgHdr/ReqTp/Prtry/Id	“ITEM”
BillingIdentification Document/BllgRptReq/SchCrit/BllgId	Billing ID of a related invoice

MESSAGE ITEM	UTILISATION
Service Document/BllgRptReq/SchCrit/Svc/SysId/MktInfrstrctrId/Prtry	Service for which the invoice is requested
FromDate Document/BllgRptReq/SchCrit/BllgPrd/FrDt	Start date of the billing period
ToDate Document/BllgRptReq/SchCrit/BllgPrd/ToDt	End date of the billing period
Responsible Party Identification Document/BllgRptReq/SchCrit/RspnsblPtyId/Id/AnyBIC	If used, Billed CSD/CB BIC
Party Identification Document/BllgRptReq/SchCrit/PtyId/Id/AnyBIC	BIC of the Participant
Identification Document/BllgRptReq/SchCrit/AcctId/SctiesAcctId/Id	If used, Securities Account Number
Identification Document/BllgRptReq/SchCrit/AcctId/CshAcctId/Othr/Id	If used, Cash Account Number

Usage Case example: ItemisedBillingDataQuery_example.xml

In this example a CB (BITAITRRXXX) sends an ItemisedBillingDataQuery (ITEM) using the billing ID BILLINGID000001, billing period 2019-01-01 to 2019-01-31 as search criteria.

5.1.2 BillingReport (camt.077)

5.1.2.1 Overview and scope of the message

This chapter illustrates the BillingReport message.

The BillingReport is sent by the Billing common component to provide with :

- the official invoice
- status of a previously sent cancellation of the latest valid invoice
- consumption data message
- response to a user query containing information backing the actual valid invoice.

The Billing common component sends the BillingReport message in push mode (consumption message, invoice and invoice cancellation) or as response to the BillingReportRequest (camt.076) message, containing information on requested items (cumulative or itemised billing data) or business error reports. An authorized user can query for his Invoice Data by using the Billing Reference (Billing ID) as a distinct search criterion. The detailed status of the returned query data is not reflected in the BillingReport message.

This message is sent in the following message usages:

- Cumulative Billing Data Query Response;

- Itemised Billing Data Query Response;
- Invoice;
- Invoice Cancellation;
- Consumption.

These usages are described below, in the chapter “The message in business context”.

5.1.2.2 Schema

Outline of the schema

The BillingReport message is composed of the following message building blocks:

MessageHeader

This block is mandatory and it contains a set of elements to identify the billing report message (“NONREF” value can be used, since it is already contained in the business application header) and in case of query response or error response the message identification of the BillingReportRequest (camt.076) the BillingReport is related to.

BillingReportOrErrorChoice

It contains either the Invoice, or the aggregated consumption data or the billing information related to the requested data (cumulative or itemised) or the cancellation report of an invoice or the information related to the operational error.

References/links

The schema and the related documentation in XSD/EXCEL/PDF format as well as the message examples are provided within the MyStandards repository under the following link:

https://www.swift.com/mystandards/CoCo/camt.077.001.01

Business rules applicable to the schema

Not applicable (outgoing message).

5.1.2.3 The message in business context

Usage Case: Cumulative Billing Data Query Response

This message usage returns the cumulative billing data which matches the specified selection parameter of the query message on the level of the requesting Party or returns the error code and error information in the case the query request failed.

Specific message requirements

MESSAGE ITEM	UTILISATION
Identification Document/BllgRpt/MsgHdr/ReqTp/Prtry/Id	"CUMU"
MessageIdentification Document/BllgRpt/MsgHdr/OrgnlBizQry/MsgId	Reference of the query message (camt.076 with

MESSAGE ITEM	UTILISATION
	request type "CUMU")
Name Docu ment/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/Nm	Invoicing Party name
StreetName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/StrtNm	Street name
BuildingNumber Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/BldgNb	Building number
PostCode Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/PstCd	Post code
TownName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/TwnNm	Town name
CountrySubDivision Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/CtrySubDvsn	Country Subdivision
Country Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/Ctry	Country
PhoneNumber Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/CtctDtls/PhneNb	PhoneNumber
EmailAddress Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/CtctDtls/EmailAdr	Email address
Name Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/Nm	Invoicee Party name
StreetName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/StrtNm	Street name
BuildingNumber Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/BldgNb	Building number
PostCode Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/PstCd	Post code
TownName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/TwnNm	Town name
CountrySubDivision Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/CtrySubDvsn	Country Subdivision
Country Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/Ctry	Country
Service Document/BllgRpt/BllgRptOrErr/BllgRpt/Svc/SysId/MktInfrstrctrId/Prtry	Service for which the invoice is requested
InvoiceDate Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcDt	Creation date of the invoice. “9999-12-31” if requested data span over different invoices.
BillingIdentification Document/BllgRpt/BllgRptOrErr/BllgRpt/BllgId	Invoice reference number. “NONREF” if requested data span over different invoices.

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MESSAGE ITEM	UTILISATION
FromDate Document/BllgRpt/BllgRptOrErr/BllgRpt/BllgPrd/FrDt	Start date of the billing period of the invoice. If requested data span over different invoices it is the start date of the first billing period retrieved.
ToDate Document/BllgRpt/BllgRptOrErr/BllgRpt/BllgPrd/ToDt	End date of the billing period of the invoice. If requested data span over different invoices it is the end date of the last billing period retrieved.
Responsible Party Identification Document/BllgRpt/BllgRptOrErr/BllgRpt/RspnsblPtyId/Id/AnyBIC	If selected BIC of the billed CSD/CB
PartyIdentification Document/BllgRpt/BllgRptOrErr/BllgRpt/PtyId/Id/AnyBIC	If the selected BIC is a CB participant
Tax Rate Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/Tax/Rate	Tax Rate
Tax Description Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/Tax/Desc	Description of the tax applied
Taxable Amount Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/Tax/TaxblAmt	Taxable amount
Tax Amount Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/Tax/Amt	Tax Amount
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/TtlInvcAmt/Amt	Total Amount of the invoice
Due Date Document/BllgRpt/ BllgRptOrErr/BllgRpt/InvcTtls/PmtDueDt	Payment due date
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/TtlInvcAmt/Amt	Total amount per each service category
ServiceCategory Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcCtgy/Cd	Service category
ItemType Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/ItmTp	Classification for the service items
ItemDescription Document/BllgRpt/ BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/Desc	Item Description
Quantity Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/Qty	Total number of units per service item. For service items with digressive calculation

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MESSAGE ITEM	UTILISATION
	method, the total quantity is reported (no band splitting).
UnitPrice Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/UnitPric	Price per unit for the specified service item. For service items with digressive calculation method, the unit price is not reported.
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/TtlInvcAmt/Amt	Total amount for the specified item type. For service items with digressive calculation method, the total amount is reported (no band splitting).
ItemType Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCrrctn/ItmTp	Classification for the additional service items for correction
ItemDescription Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCrrctn/Desc	Correction items Description
Credit Debit Indicator Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCrrctn/CdtDbtInd	Specifies whether the correction is a debit or credit.
Quantity Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCrrctn/Qty	Total number of units per correction service item
UnitPrice Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCrrctn/UnitPric	Price per unit for the specified correction service item
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCrrctn/TtlInvcAmt/Amt	Total amount for the specified correction item type

Usage Case example: CumulativeBillingDataQueryResponse _example.xml

In this example the Cumulative Billing Data Query Response with billing ID BILLINGIDABC00001 and business data is sent to the requesting CB BITAITRRXXX.

Specific message requirements in case of error

MESSAGE ITEM	UTILISATION
Identification Document/BllgRpt/MsgHdr/ReqTp/Prtry/Id	"CUMU"
MessageIdentification Document/BllgRpt/MsgHdr/OrgnlBizQry/MsgId	Reference of the query message (camt.076 with request type "CUMU")
Proprietary Document/BllgRpt/BllgRptOrErr/OprlErr/Err/Prtry	Specific error code
Description Document/BllgRpt/BllgRptOrErr/OprlErr/Desc	Textual description in addition to the reported specific error code

Usage Case example: CumulativeBillingDataQueryResponse_Error_example.xml

In this example the Cumulative Billing Data Query Response with error information referring to the cumulative billing data query with ID CUMULBILLDATQRY is sent to the requesting party. It informs about the failure of the Cumulative Billing Data Report because the requested data is not available.

Usage Case: Itemised Billing Data Query Response

This message usage returns the Itemised Billing Data which match the specified selection parameter of the query message on the level of Billed Customer or Account ID or returns the error code and error information in case the query request failed. Returned Itemised Billing Data are detailed/grouped at level of Account ID for service categories ACMS and SETT and at level of Billed Customer for service category INSV.

In a marginal scenario, related to RTGS Ancillary System Pricing Scheme Transaction fee, the message could return Itemised Billing Data with augmented datascope, e.g. it reports accounts outside of the datascope of the requestor.

Indeed, when a transaction charged to the Ancillary System does not involve an account owned by Ancillary System, the account owned by the counterpart of the transaction is reported as item binded to the fee. If the counterpart of the transaction is in a different system entity of the AS, this results in an augmented datascope.

Specific message requirements

MESSAGE ITEM	UTILISATION
Identification Document/BllgRpt/MsgHdr/ReqTp/Prtry/Id	"ITEM"
MessageIdentification Document/BllgRpt/MsgHdr/OrgnlBizQry/MsgId	Reference of the query message (camt.076 with request type "ITEM")
Name Docu ment/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/Nm	Invoicing Party name
StreetName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/StrtNm	Street name

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MESSAGE ITEM	UTILISATION
BuildingNumber Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/BldgNb	Building number
PostCode Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/PstCd	Post code
TownName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/TwnNm	Town name
CountrySubDivision Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/CtrySubDvsn	Country Subdivision
Country Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/Ctry	Country
PhoneNumber Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/CtctDtls/PhneNb	PhoneNumber
EmailAddress Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/CtctDtls/EmailAdr	Email address
Name Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/Nm	Invoicee Party name
StreetName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/StrtNm	Street name
BuildingNumber Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/BldgNb	Building number
PostCode Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/PstCd	Post code
TownName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/TwnNm	Town name
CountrySubDivision Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/CtrySubDvsn	Country Subdivision
Country Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/Ctry	Country
Service Document/BllgRpt/BllgRptOrErr/BllgRpt/Svc/SysId/MktInfrstrctrId/Prtry	Service for which the invoice is requested
InvoiceDate Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcDt	Creation date of the invoice. “9999-12-31” if requested data span over different invoices.
BillingIdentification Document/BllgRpt/BllgRptOrErr/BllgRpt/BllgId	Invoice reference number. “NONREF” if requested data span over different invoices.
FromDate Document/BllgRpt/BllgRptOrErr/BllgRpt/BllgPrd/FrDt	Start date of the billing period of the invoice. If requested data span over different invoices it is the start date of the first billing period retrieved.
ToDate Document/BllgRpt/BllgRptOrErr/BllgRpt/BllgPrd/ToDt	End date of the billing period of the invoice. If requested data span over different invoices it is the end date of the last billing period retrieved.

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MESSAGE ITEM	UTILISATION
Responsible Party Identification Document/BllgRpt/BllgRptOrErr/BllgRpt/RspnsblPtyId/Id/AnyBIC	If selected BIC of the billed CSD/CB
PartyIdentification Document/BllgRpt/BllgRptOrErr/BllgRpt/PtyId/Id/AnyBIC	If the selected BIC is a CB participant
Tax Rate Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/Tax/Rate	Tax Rate
Tax Description Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/Tax/Desc	Description of the tax applied
Taxable Amount Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/Tax/TaxblAmt	Taxable amount
Tax Amount Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/Tax/Amt	Tax Amount
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/TtlInvcAmt/Amt	Total Amount of the invoice
Identification Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/AcctId/SctiesAcctId/Id	Securities account number the reported service category totals and service item totals are related to
Identification Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/AcctId/CshAcctId/Othr/Id	Cash account number the reported service category totals and service item totals are related to
BilledCustomerIdentification Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/BlldCstmrId/Id/AnyBIC	BIC of the customer the reported service category totals and service item totals are related to
Due Date Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/PmtDueDt	Payment due date
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/TtlInvcAmt/Amt	Total amount per each service category
ServiceCategory Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcCtgy/Cd	Service category
ItemType Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/ItmTp	Classification for the service items
ItemDescription Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/Desc	Item Description
Quantity Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/Qty	Total number of units per service item. For service items with digressive calculation method, the total quantity is reported (no band splitting).
UnitPrice Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/UnitPric	Price per unit for the specified service item. For service items with digressive calculation method, the unit price is not reported.
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/TtlInvcAmt/Amt	Total amount for the specified item type.

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MESSAGE ITEM	UTILISATION
	For service items with digressive calculation method, the total amount is reported (no band splitting).
ItemType Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCr/ItmTp	Classification for the additional service items for correction
ItemDescription Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCr/Desc	Correction items Description
Credit Debit Indicator Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCrrctn/CdtDbtInd	Specifies whether the correction is a debit or credit.
Quantity Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCr/Qty	Total number of units per correction service item
UnitPrice Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCr/UnitPric	Price per unit for the specified correction service item
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCr/TtlInvcAmt/Amt	Total amount for the specified correction item type

Usage Case example: ItemisedBillingDataQueryResponse_example.xml

In this example the Itemised Billing Data Query Response with billing ID BILLINGID000001 and request type code “ITEM” and business data is sent to the requesting party CB BITAITRRXXX.

Specific message requirements in case of error

MESSAGE ITEM	UTILISATION
Identification Document/BllgRpt/MsgHdr/ReqTp/Prtry/Id	"ITEM"
MessageIdentification Document/BllgRpt/MsgHdr/OrgnlBizQry/MsgId	Reference of the query mes-sage (camt.076 with request type "ITEM")
Proprietary Document/BllgRpt/BllgRptOrErr/OprlErr/Err/Prtry	Specific error code
Description Document/BllgRpt/BllgRptOrErr/OprlErr/Desc	Textual description in addition to the reported specific error code

Usage Case example: ItemisedBillingDataQueryResponse_Error_example.xml

In this example the Itemised Billing Data Query Response with error information referring to the itemised billing data query with ID ITEMBILLDATQRY is sent to the requesting party. It informs about the failure of the Cumulative Billing Data Query because the requested billing ID is not known.

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Usage Case: Invoice

This message usage provides customer with the legal invoice.

Specific message requirements

MESSAGE ITEM	UTILISATION
Identification Document/BllgRpt/MsgHdr/ReqTp/Prtry/Id	"INVC"
Name Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/Nm	Invoicing Party name
StreetName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/StrtNm	Street name
BuildingNumber Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/BldgNb	Building number
PostCode Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/PstCd	Post code
TownName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/TwnNm	Town name
CountrySubDivision Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/CtrySubDvsn	Country Subdivision
Country Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/Ctry	Country
PhoneNumber Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/CtctDtls/PhneNb	PhoneNumber
EmailAddress Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/CtctDtls/EmailAdr	Email address
Name Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/Nm	Invoicee Party name
StreetName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/StrtNm	Street name
BuildingNumber Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/BldgNb	Building number
PostCode Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/PstCd	Post code
TownName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/TwnNm	Town name
CountrySubDivision Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/CtrySubDvsn	Country Subdivision
Country Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/Ctry	Country
Invoice Legal Statement Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/InvcLglStmt	Statement regarding the legal validity of the invoice message.
PaymentMethod Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/PmtMtd	Payment method in code or in a proprietary free text
Service Document/BllgRpt/BllgRptOrErr/BllgRpt/Svc/SysId/MktInfrstrctrId/Prtry	Service for which the invoice is requested

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MESSAGE ITEM	UTILISATION
InvoiceDate Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcDt	Creation date of the invoice
BillingIdentification Document/BllgRpt/BllgRptOrErr/BllgRpt/BllgId	Unambiguous reference number of the invoice (in voice number)
FromDate Document/BllgRpt/BllgRptOrErr/BllgRpt/BllgPrd/FrDt	Start date of the billing period of the invoice
ToDate Document/BllgRpt/BllgRptOrErr/BllgRpt/BllgPrd/ToDt	End date of the billing period of the invoice
Responsible Party Identification Document/BllgRpt/BllgRptOrErr/BllgRpt/RspnsblPtyId/Id/AnyBIC	if selected BIC of the billed CSD/CB
PartyIdentification Document/BllgRpt/BllgRptOrErr/BllgRpt/PtyId/Id/AnyBIC	If the selected BIC is a CB participant
Tax Rate Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/Tax/Rate	Tax Rate
Tax Description Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/Tax/Desc	Description of the tax applied
Taxable Amount Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/Tax/TaxblAmt	Taxable amount
Tax Amount Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/Tax/Amt	Tax Amount
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/TtlInvcAmt/Amt	Total Amount of the invoice
Due Date Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/PmtDueDt	Payment due date
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/TtlInvcAmt/Amt	Total amount per each service category
ServiceCategory Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcCtgy/Cd	Service category
ItemType Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/ItmTp	Classification for the service items
ItemDescription Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/Desc	Item Description
Quantity Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/Qty	Total number of units per service item. For service items with digressive calculation method, the total quantity is reported (no band splitting).
UnitPrice Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/UnitPric	Price per unit for the specified

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MESSAGE ITEM	UTILISATION
	service item. For service items with digressive calculation method, the unit price is not reported.
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/TtlInvcAmt/Amt	Total amount for the specified item type. For service items with digressive calculation method, the total amount is reported (no band splitting).
ItemType Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCr/ItmTp	Classification for the additional service items for correction
ItemDescription Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCrrctn/Desc	Correction items Description
Credit Debit Indicator Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCrrctn/CdtDbtInd	Specifies whether the correction is a debit or credit.
Quantity Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCrrctn/Q	Total number of units per correction service item
UnitPrice Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCrrctn/UnitPric	Price per unit for the specified correction service item
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmCrrctn/TtlInvcAmt/Amt	Total amount for the specified correction item type

Usage Case example: Invoice_example.xml

In this example the Invoice with billing ID BILLINGID00002 is sent to the Participant UNCRITMMXXX of the CB BITAITRRXXX.

Usage Case: InvoiceCancellation

This message usage provides customer with the cancellation report.

Specific message requirements

MESSAGE ITEM	UTILISATION
Identification Document/BllgRpt/MsgHdr/ReqTp/Prtry/Id	"CANC"

MESSAGE ITEM	UTILISATION
Name Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcr/Nm	Invoicing Party name
StreetName Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcr/PstlAdr/StrtNm	Street name
BuildingNumber Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcr/PstlAdr/BldgNb	Building number
PostCode Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcr/PstlAdr/PstCd	Post code
TownName Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcr/PstlAdr/TwnNm	Town name
CountrySubDivision Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcr/PstlAdr/CtrySubDvsn	Country Subdivision
Country Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcr/PstlAdr/Ctry	Country
PhoneNumber Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcr/CtctDtls/PhneNb	Phone Number
EmailAddress Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcr/CtctDtls/EmailAdr	Email address
Name Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcee/Nm	Invoicee Party name
StreetName Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcee/PstlAdr/StrtNm	Street name
BuildingNumber Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcee/PstlAdr/PstCd	Building number
PostCode Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcee/PstlAdr/PstCd	Post code
TownName Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcee/PstlAdr/TwnNm	Town name
CountrySubDivision Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcee/PstlAdr/CtrySubDvsn	Country Subdivision
Country Document/BllgRpt/BllgRptOrErr/CxlRpt/RgltryData/Invcee/PstlAdr/Ctry	Country
Service Document/BllgRpt/BllgRptOrErr/CxlRpt/Svc/SysId/MktInfrstrctrId/Prtry	Service for which the invoice is requested
InvoiceDate Document/BllgRpt/BllgRptOrErr/CxlRpt/InvcDt	Creation date of the Invoice which has been cancelled
BillingIdentification Document/BllgRpt/BllgRptOrErr/CxlRpt/BllgId	Unambiguous reference number of the invoice (in voice number) which has been cancelled
FromDate Document/BllgRpt/BllgRptOrErr/CxlRpt/BllgPrd/FrDt	Start date of the billing peri od of the invoice which has been cancelled

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MESSAGE ITEM	UTILISATION
ToDate Document/BllgRpt/BllgRptOrErr/CxlRpt/BllgPrd/ToDt	End date of the billing period of the invoice which has been cancelled
Proprietary Document/BllgRpt/BllgRptOrErr/CxlRpt/CxlRsn/Prtry	Cancellation reason

Usage Case example: *InvoiceCancellation*_example.xml

In this example the Invoice Cancellation is informing about the successful cancellation of the invoice with billing ID BILLINGID00002.

Usage Case: ConsumptionData

This message usage provides customer with the aggregated consumption data.

Specific message requirements

MESSAGE ITEM	UTILISATION
Identification Document/BllgRpt/MsgHdr/ReqTp/Prtry/Id	"CONS"
Name Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/Nm	Invoicing Party name
StreetName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/StrtNm	Street name
BuildingNumber Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/BldgNb	Building number
PostCode Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/PstCd	Post code
TownName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/TwnNm	Town name
CountrySubDivision Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/CtrySubDvsn	Country Subdivision
Country Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/PstlAdr/Ctry	Country
PhoneNumber Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/CtctDtls/PhneNb	PhoneNumber
EmailAddress Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcr/CtctDtls/EmailAdr	Email address
Name Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/Nm	Invoicee Party name
StreetName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/StrtNm	Street name
BuildingNumber Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/BldgNb	Building number
PostCode Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/PstCd	Post code
TownName Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/TwnNm	Town name
CountrySubDivision Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/CtrySubDvsn	Country Subdivision

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MESSAGE ITEM	UTILISATION
Country Document/BllgRpt/BllgRptOrErr/BllgRpt/RgltryData/Invcee/PstlAdr/Ctry	Country
Service Document/BllgRpt/BllgRptOrErr/BllgRpt/Svc/SysId/MktInfrstrctrId/Prtry	Service for which the consumption data is provided
InvoiceDate Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcDt	Creation date of the billing report
BillingIdentification Document/BllgRpt/BllgRptOrErr/BllgRpt/BllgId	Unambiguous reference number of the billing report
FromDate Document/BllgRpt/BllgRptOrErr/BllgRpt/BllgPrd/FrDt	Start date of the billing period
ToDate Document/BllgRpt/BllgRptOrErr/BllgRpt/BllgPrd/ToDt	End date of the billing period
Responsible Party Identification Document/BllgRpt/BllgRptOrErr/BllgRpt/RspnsblPtyId/Id/AnyBIC	BIC of the CB
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/TtlInvcAmt/Amt	Fixed value 0
Payment Due Date Document/BllgRpt/BllgRptOrErr/BllgRpt/InvcTtls/PmtDueDt	Fixed value “9999-12-31”
CashAccountIdentification Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/AcctId/CshAcctId	Unique identification of the cash account belonging to the billed customer
BilledCustomerIdentification Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/BlldCstmrId/Id/AnyBIC	BIC of the CB Participant to be charged
ServiceCategory Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcCtgy/Cd	Service category
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/TtlInvcAmt/Amt	Fixed value 0
ItemType Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/ItmTp	Classification for the service items
ItemDescription Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/Desc	Item Description
Quantity Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/Qty	Total number of units per service item
TotalInvoiceAmount Document/BllgRpt/BllgRptOrErr/BllgRpt/SvcCtgyTtls/SvcItmTtls/TtlInvcAmt/	Fixed value 0

Usage Case example: *ConsumptionData_example*.xml

In this example the Consumption Data with ID AGGCONSDATAID00001 is sent to the CB BITAITRRXXX.

5.1.3 BusinessApplicationHeader (head.001)

5.1.3.1 Overview and scope of the message

The BusinessApplicationHeader message (BAH) facilitates the message processing as it stores the information necessary for the processing at one central place. Without BAH this information would be either inside the message instance or in the “GroupHeader” (or equivalent) of the ISO 20022 message. A uniform appearance (structure) of relevant information in the BAH improves the routing of the message once it arrives at the addressee’s interface.

An ISO 20022 Message together with its Business Application Header forms a Business Message.

The ReceiptAcknowledgement is in general sent without BAH.

5.1.3.2 Schema

Outline of the schema

The BusinessApplicationHeader message is composed of the following message building blocks:

From

This building block is mandatory. It contains the sending MessagingEndpoint that has created the Business Message for the receiving MessagingEndpoint that processes the Business Message.

To

This building block is mandatory. It contains the MessagingEndpoint designated by the sending MessagingEndpoint to be the recipient who ultimately processes the Business Message

BusinessMessageIdentifier

This building block is mandatory. It unambiguously identifies the Business Message to the MessagingEndpoint that has created the Business Message.

In all cases, this value is in place of any Message Id value which may be provided within the business message of the payload.

CreationDate

This building block is mandatory. It contains the date and time when this message (header) was created.

CopyDuplicate

This building block is optional. It indicates whether the message is a copy, a duplicate or a copy of a duplicate of a previously sent ISO 20022 message.

PossibleDuplicate

This building block is optional. It contains the MessageIdentifier that defines the message. It must contain a valid ISO 20022 MessageIdentifier supported by BILL.

Priority

This building block is optional. It provides a relative indication of the processing precedence of the message over a (set of) Business Messages with assigned priorities.

Signature

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This building block is optional. It contains the digital signature of the Business Entity authorised to sign this Business Message.

Related

This building block is optional. It specifies the Business Application Header of the Business Message to which this Business Message relates.

References/links

The schema and the related documentation in XSD/EXCEL/PDF format as well as the message examples are provided within the MyStandards repository under the following link:

https://www.swift.com/mystandards/CoCo/head.001.001.04

Business rules applicable to the schema

MESSAGE ITEM	BUSINESS RULES
BusinessApplicationHeader Document/AppHdr	ICSA004 IICP001 IICP002 ICSA005 IIMP097 IIMP098 IIMP099 IIMP066 IIMS001 IIMS002
BICFI Document/AppHdr/Fr/FIId/FinInstnId/BICFI	IIMP120
MemberIdentification Document/AppHdr/Fr/FIId/FinInstnId/ClrSysMmbId/MmbId	ICSA002 ICSA003 ICSA012 ICSA013 ICSA009
Identification Document/AppHdr/Fr/FIId/FinInstnId/Othr/Id	IIMP120
BusinessMessageIdentifier Document/AppHdr/BizMsgIdr	ICSA009
MessageDefinitionIdentifier Document/AppHdr/MsgDefIdr	IIMP089
Signature Document/AppHdr/Sgntr/	ICSA011

5.1.3.3 The message in business context

The BAH includes the following main information:

- document routing (e.g. sender, receiver, information about the message);
- document identification (e.g. MessageDefinitionIdentifier, creation date and time);

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- document processing information (e.g. sender, service, COPY, possible duplicate).

Usage Case example: *head.001_IncomingMessage_example.xml*

In this example the BAH is used for an incoming message. It is sent from a CB (“NCBPARTYBIC”). The BAH is filled with the corresponding digital signature.

5.1.4 ReceiptAcknowledgement (admi.007)

This chapter illustrates the ReceiptAcknowledgement message.

The ReceiptAcknowledgement message is sent by BILL to the sender of a previous inbound. It is used to inform the sender that their previously sent message has been rejected and is not processed further. BILL generates this message after a negative validation process.

The ReceiptAcknowledgement is sent by BILL without BAH.

5.1.4.1 Schema

Outline of the schema

The ReceiptAcknowledgement message is composed of the following message building blocks:

MessageIdentification

This building block is mandatory and it contains the message identification (“NONREF” value is used)

RelatedReference

This building block is mandatory and non-repetitive. It provides a reference of the request message to which this ReceiptAcknowledgement message is responding.

Report

This building block is mandatory and repetitive. Each block contains the Message identification of the request message and information related to a single validation issue.

RequestHandling

This building block is mandatory. It gives the status of the request. It may contain:

- status code;
- description.

References/links

The schema and the related documentation in XSD/EXCEL/PDF format as well as the message examples are provided within the MyStandards repository under the following link:

https://www.swift.com/mystandards/CoCo/admi.007.001.01

Business rules applicable to the schema

Not applicable (outgoing message).

5.1.4.2 The message in business context

Usage Case: Negative Receipt Acknowledgement (file or message)

In this usage case, the recipient is being informed that a message previously received by BILL does not comply with the message technical rules and is not processable in BILL.

Specific message content

MESSAGE ITEM	UTILISATION
Related Reference Document/RctAck/Rpt/RltdRef/Ref	Copy of BAH BizMSgIdr of incoming message If the BAH BizMsgIdr of the incoming message cannot be identified, this field will contain “NONREF”.
Status Code Document/RctAck/Rpt/ReqHdlg/StsCd	Status Code specifiing the error.
Description Document/RctAck/Rpt/ReqHdlg/Desc	Description of the status

Usage Case example: *admi.007SchemaValidationExample_example.xml*

In this example describe a rejection due to the fact that the format of one field of the input message does not comply with the XSD schema.

Usage Case: Query Queuing Information

The ReceiptAcknowledgement message is used to inform about the queuing of a query due maintenance window.

Specific message content

MESSAGE ITEM	UTILISATION
Related Reference Document/RctAck/Rpt/RltdRef/Ref	Copy of BAH BizMSgIdr of incoming message If the BAH BizMsgIdr of the incoming message cannot be identified, this field will contain “NONREF”.
Status Code Document/RctAck/Rpt/ReqHdlg/StsCd	Status code "I001"
Description Document/RctAck/Rpt/ReqHdlg/Desc	Description of the status: “The Query is queued due to maintenance window”

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Usage Case example: *admi.007QueryQueuing_example.xml*

In this example a Receipt Acknowledgement “Query Queuing Information” message to the corresponding party is sent, because the Maintenance window is running and the query has to be queued.

6 Appendices

6.1 Business Rules

Rule Id	Description	Inbound message	Outbound message	Reason Code	Error Text
IIMP088	For the user query 'Cumulative Billing Data Query ('CUMU')' the following search criteria are allowed: - BillingID - BillingPeriod - Responsible Party - Party Identification	camt.076	camt.077	I048	While referring to the query 'Cumulative Billing Data Query ('CUMU')', the selected search criteria are invalid.
IIMP0106	For the user query 'Cumulative Billing Data Query ('CUMU')' in case of use of the Party Identification search criterion, also the Responsible Party should be filled.	camt.076	camt.077	I0xx	While referring to the query 'Cumulative Billing Data Query ('CUMU')', the selected search criteria are invalid.
IIMP153	For Cumulative ('CUMU') and Itemised ('ITEM') Billing Data Query, in case multiple search criteria blocks are used, then these blocks must contain homogeneous search criteria items respect to the Party, the Securities Account and the Cash Account ones.	camt.076	camt.077	I080	The selected search criteria are not homogeneous between the search criteria blocks.
QMPC088	The BillingPeriod Date cannot be a date in the future nor the current business day.	camt.076	camt.077	Q088	The Billing Period Date must be a date before the current business day.
QMPC089	In case a BillingID is specified, it has to be known.	camt.076	camt.077	Q089	The specified BillingID is not known.
QMPC015	In case the Date is stated as a range, the Date From has to be before or equal to the Date To.	camt.076	camt.077	Q014	The Date From is after the Date To.
QMPC016	The Date From must not be older than 3 calendar months.	camt.076	camt.077	Q015	The Date From is older than 3 calendar months.
QMPC048	In case a Responsible Party BIC is specified, it has to be known.	camt.076	camt.077	Q059	The specified Parent BIC is not known.
QMPC032	In case a Party Identification BIC is specified, it has to be known.	camt.076	camt.077	Q040	The specified Party BIC is not known.
QMPC031	In case a Cash Account Number is specified, it has to be known	camt.076	camt.077	Q030	The specified Cash Account Number is not known.
ICSA002	The System User sending the inbound A2A communication has to be known in CRDM.	head.001	admi.007	I008	The System User is not known in CRDM.
ICSA003	The System User sending the inbound A2A communication must not be locked.	head.001	admi.007	I009	The System User is blocked due to lockout.
ICSA004	The Technical Sending User (Party Technical Address) which was used for sending the inbound A2A communication has to be known in CRDM.	head.001	admi.007	I018	The Technical Sending User is not known for CRDM.

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Rule Id	Description	Inbound message	Outbound message	Reason Code	Error Text
ICSA005	The Technical Sending User (Party Technical Address) of the inbound A2A communication has to be known for the used Network Service.	head.001	admi.007	I019	The Technical Sending User is not known for the used Network Service.
ICSA009	The Business Application Header tags which are necessary for authentication processing must be valid according to the XML schema.	head.001	admi.007	I070	At least one BAH tag for authentication is not valid. //Dynamic error including element name.//
ICSA011	The Business Sending User has to be known in CRDM.	head.001	admi.007	I072	The Business Sending User is not known in CRDM.
ICSA012	Technical Sending User is allowed to send for the Business Sending Party.	head.001	admi.007	I073	Technical Sending User is not allowed to send for the Business Sending Party.
ICSA013	Business Sending User is allowed to send for the system user reference.	head.001	admi.007	I075	Business Sending User is not allowed to send for the system user reference.
IICP001	A System User must have the appropriate privilege to be authorised for an intended request. The check only includes generic authorisation for the requested action on system level. The check for the data scope including object level is processed in the backend modules.	head.001	respective outbound business message for received inbound message except for the messages which are explicitly listed	I007	The System User is not authorised to initiate such request due to missing privilege.
IICP002	It is only allowed to initiate requests in A2A mode, if the required privilege is assigned to the System User with four eyes option = 'False'. A request in U2A mode can be initiated independent from the four eyes option usage.	head.001	respective outbound business message for received inbound message except for the messages which are explicitly listed	I010	It is not allowed to initiate A2A requests in four eyes mode.
IIMP066	It is not possible to process elements, which are only filled with blanks, CR/LFs and/or tabs.	head.001	respective outbound business message for received inbound message except for the messages which are explicitly listed	I064	Content of element //tag name// is only filled with blanks, CR/LFs and/or tabs.
IIMP069	BILL does not process any copies of messages.	head.001	respective outbound business message for received inbound message except for the messages which are explicitly listed	I065	The usage of the Copy Duplicate Indicator with Code Copy is not possible.
IIMP089	A message definition identifier of the BAH is equal to the message type in namespace.	head.001	respective outbound business message for linked received	I049	The message definition identifier of the BAH is not equal to the message type in namespace.

Rule Id	Description	Inbound message	Outbound message	Reason Code	Error Text
			inbound message except for the messages which are explicitly listed based on namespace definition		
IIMP097	In order to ensure correct processing, it is only possible to send instructing requests (e.g. Static Data updates or settlement instructions) via a store and forward network service.	head.001	respective outbound business message for received inbound message except for the messages which are explicitly listed	I066	The instructing request has to be sent via store and forward network service.
IIMP098	In order to ensure correct processing, it is only possible to send query requests via a real-time network service.	head.001	respective outbound business message for received inbound message except for the messages which are explicitly listed	I067	The query request has to be sent via real-time network service.
IIMP099	In order to ensure correct processing, it is only possible to send instructing requests within a functional file (multi-message).	head.001	respective outbound business message for received inbound message except for the messages which are explicitly listed	I068	In order to ensure correct processing, it is only possible to send instructing requests within a functional file (multi-message).
IIMP120	In an incoming message, Services BIC cannot be informed in the BIC and Parent BIC simultaneously within the 'From' block.	head.001	respective outbound business message for received inbound message except for the messages which are explicitly listed	I069	Services are not allowed as Instructing Party
IIMS001	A message type has to be supported by BILL.	head.001	admi.007	I005	The received single message type is not known in BILL.
ICQ001	If a query has to be queued due to maintenance window, then the real-time communication has to be finalised and the query response will be sent out after successful execution	any query message	admi.007	I001	The Query is queued due to maintenance window.
IIMS002	A message structure is valid according to the schema defined for a message.	any message	admi.007	I006	The message is not valid. //Dynamic error including element name.//

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6.4 Annex I - Service Items List

In the annex **Service Item List** is reported the comprehensive list of service items managed by BILL.

Service items are split into dedicated tables for each TARGET Service (T2,T2S,TIPS,ECMS) containing also utility information.

Each tables contains the following columns:

- **Service Item Name**: service item name as reported in CRDM configuration
- **Service Item Code**: service item code as reported in CRDM configuration and in camt.077 messages
- **Service Category**: service category of service item (as described in 1.3.2.2)
- **Fee trigger**: event triggerig service item occurrence complemented with other information on the fee
- **Party to be charged**: party to which service item fee is ascribed
    - **Party/Account to be charged**: in T2S service pricing policy, some service item fees are related to the account insted of the party
- **Fee type**: fee type of service item, it determines fee calculation (as described in 1.3.2.2)

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- **Fee applicable to party type**: type of the party who can be charged for service item fee (some service items are specific for certain party types)
- **Notes**