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target services

Business Day Management

User Detailed Functional Specifications

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Table of Contents

1 Introduction 5

2 Reader's guide 9

3 General features of BDM 11

3.1 Introduction to Business Day Management 11
3.1.1 Calendar 12
3.1.2 Business Day Plan 13
3.2 Access to BDM 14
3.2.1 Connectivity 14
3.2.2 Access rights 15
3.2.3 Graphical user interface 15
3.2.4 Security 15
3.2.4.1 Confidentiality 16
3.2.4.2 Integrity 16
3.2.4.3 Monitoring 16
3.2.4.4 Availability 16
3.2.4.5 Auditability 16
3.3 BDM Features 17
3.3.1 Concept 17
3.3.2 Calendar management process 17
3.3.2.1 Overview 17
3.3.2.2 Calendar maintenance process 18
3.3.3 Settlement Day management 19
3.3.3.1 Overview 19
3.3.3.2 Event type maintenance process 21
3.3.3.3 Chain of Events maintenance process 21
3.3.3.4 Operating day type maintenance process 21
3.3.3.5 Event scheduling process 22
3.3.3.6 Event maintenance process 25
3.4 Operations and support 30
3.4.1 Calendar management 30
3.4.2 Settlement day management 30
4.1 Introduction 31
4.1.1 A2A BDM query process 31
4.1.1.1 Query process 31
4.1.1.2 Query processing steps 31

5 Catalogue of Messages 34

5.1 List of messages 34

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5.1.1 GetBusinessDayInformation(camt.018) 34
5.1.1.1 Overview and scope of the message 34
5.1.1.2 Schema 34
5.1.1.3 The message in business context 35
5.1.2 ReturnBusinessDayInformation(camt.019) 37
5.1.2.1 Overview and scope of the message 37
5.1.2.2 Schema 37
5.1.2.3 The message in business context 38
5.1.3 BusinessApplicationHeader (head.001) 40
5.1.3.1 Overview and scope of the message 40
5.1.3.2 Schema 41
5.1.3.3 The message in business context 42
5.1.4 ReceiptAcknowledgement (admi.007) 43
5.1.4.1 Schema 43
5.1.4.2 The message in business context 44
6 Appendices 46
6.1 Business Rules and Error Codes 46

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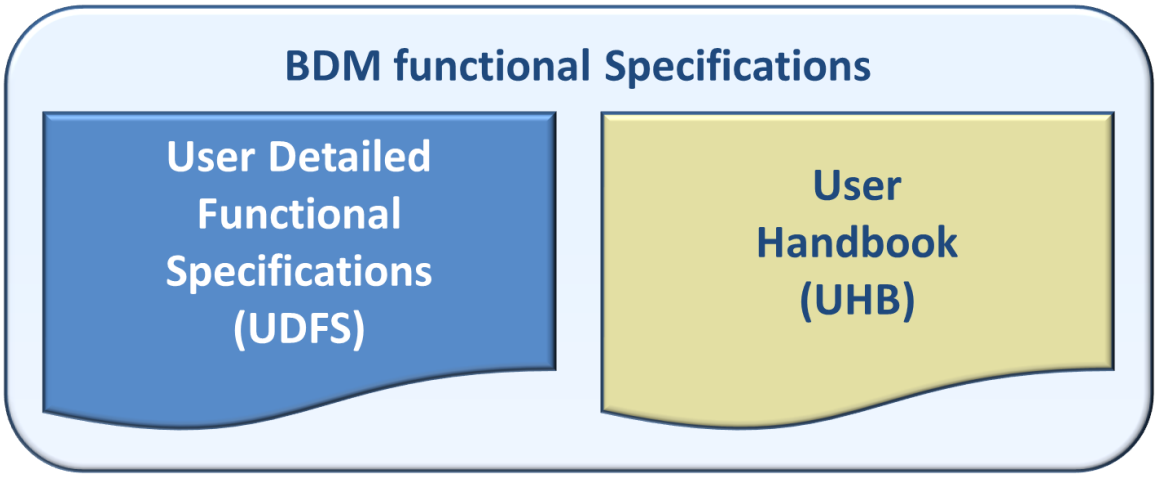
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1 Introduction

The User Detailed Functional Specifications (UDFS) of the Business Day Management (BDM) common component are part of the component's functional specifications. The diagram below presents an overview of all the documents foreseen to allow BDM Actors to understand how requirements described in the User Requirements Document (URD) for the Business Day Management common component are implemented.

DIAGRAM 1 - OVERVIEW OF BDM SPECIFICATIONS



The UDFS focus on the provision of information to BDM Actors to design and build the interface of their business applications with the Business Day Management common component (A2A), while the UHB describes the Graphical User Interface (GUI) screens in detail.

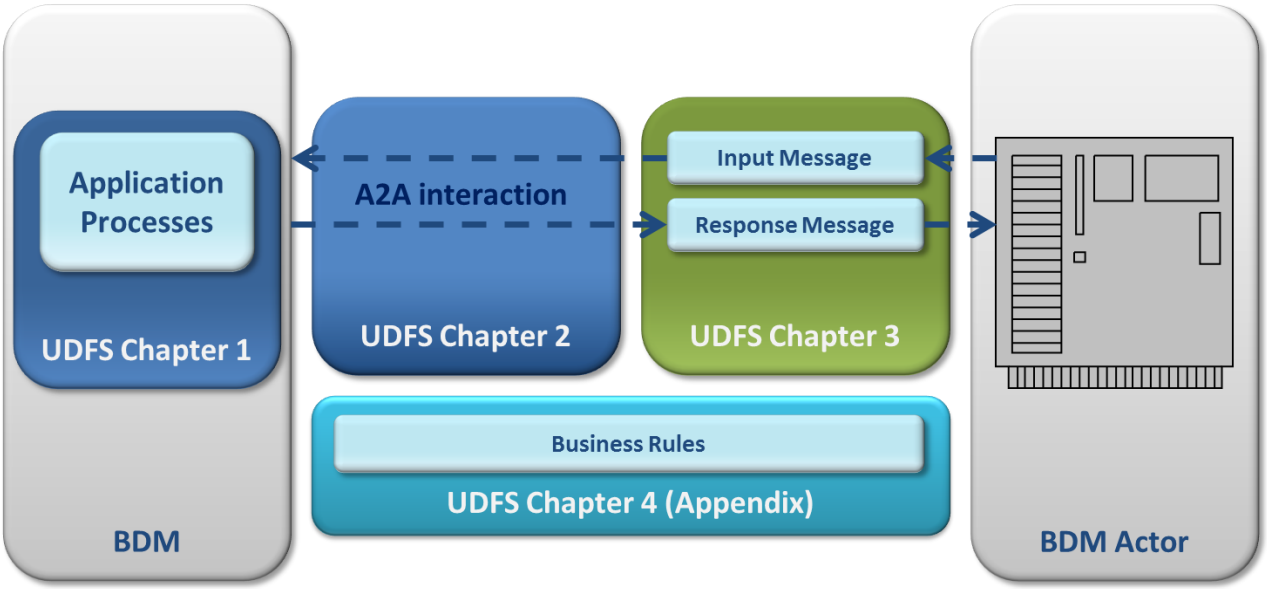
The UDFS provide information to:

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

The UDFS is a self-contained document, structured along four different but complementary Chapters.

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DIAGRAM 2 - SCOPE OF UDFS CHAPTERS



Chapter 1: General features of the Business Day Management

UDFS chapter 1 provides concise and descriptive information on the Business Day Management component behaviour as it is seen from a BDM Actor point of view. The background information provided in Chapter 1 on the BDM internal behaviour facilitates the understanding of Chapters 2 and 3 (in particular to understand the information flows described in Chapter 2).

Information provided in Chapter 1 on the BDM application processes is user-oriented and does not include detailed descriptions of the internal BDM processes. It neither provides descriptions of the internal behaviour of BDM Actors interacting with BDM: it is not the purpose of the UDFS to predicate the business conduct of BDM users.

The following table presents the scope and user objective for each section of UDFS Chapter 1:

TABLE 1 - STRUCTURE OF UDFS CHAPTER 1

SECTION	SCOPE	USER OBJECTIVE
3.1 Introduction to Business Day Management	Overall presentation of the BDM business functionalities	To understand the general behaviour of BDM.
3.2 Access to BDM	BDM Interface	To understand the main principles for the exchange of information between BDM and BDM Actors.
3.3 BDM Features	Business Day Management	To understand the management of Business Day data.

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SECTION	SCOPE	USER OBJECTIVE
3.4 Operations and support	Operational aspects and actions to be performed by the BDM Operator	To understand the features supporting operational activities and the actions the BDM Operator can perform for BDM configuration and BDM operations monitoring.

Chapter 2: Dialogue between BDM and BDM Actors

Chapter 2 of the UDFS provides a formalised description of the dialogue between BDM users and BDM through the Application-to-Application (A2A) channel, which allows BDM Actors to interact with BDM. The objective of this Chapter is to describe the behaviour of BDM regarding the interactions with BDM Actors, i.e. when sending/receiving messages to/from the latter. Consistently with the approach of Chapter 1, UDFS Chapter 2 does not enter into any description of the behaviour of Actors' systems interacting with BDM.

Chapter 2 has one sub-section describing the dialogue between BDM and a BDM Actor to cover the scenario of a query on the business day data.

Chapter 3: Catalogue of messages

Chapter 3 of the UDFS provides a detailed description of the messages to be used to run application-to-application communication with BDM. It describes the entire set of messages which are processed by BDM, i.e. which can be exchanged between BDM and the business application of a BDM Actor directly connected to BDM. 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 BDM;
- Possible usages of the message in the context of BDM, including when relevant specific rules for the population of the message fields for a given usage;
- Business rules applicable for message processing.

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 between BDM and its users.

Information in Chapter 3 results from the customization of the enriched ISO 20022 schemas for the specific purpose of BDM.

Chapter 3 of the UDFS groups the descriptions of messages according to the classification of the ISO 20022 message repository:

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TABLE 2 - STRUCTURE OF UDFS CHAPTER 3

CATEGORY OF MESSAGE	PREFIX
Business Day data query	camt
Headers	head

Chapter 4: Appendix

The UDFS appendix provides information on the BDM business rules applying to incoming messages, with the respective messages and error codes associated.

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2 Reader's guide

The UDFS document is available for the whole community of BDM Actors: in order to ensure the same level of information for all BDM Actors, information relevant for CBs and directly connected Payment Banks and Ancillary Systems is contained in one single book of UDFS.

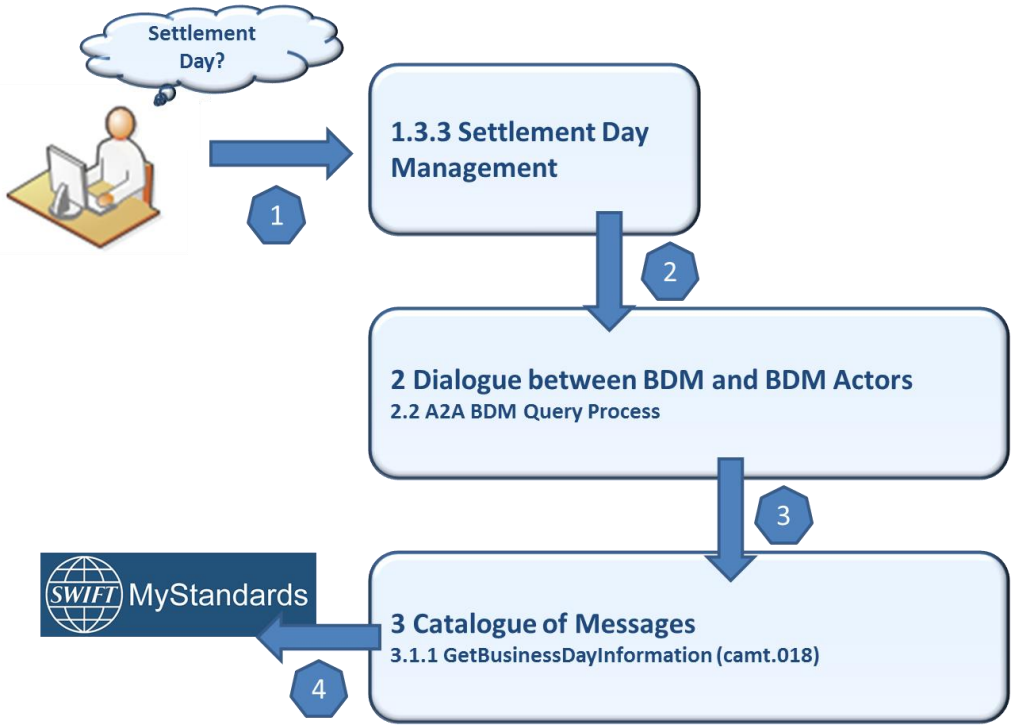
Nevertheless, different readers may have different needs and priorities. For instance, "business" readers interested mainly in organisational issues may not wish to enter into the full details of each and every message description, while technical readers involved in the specification of technical interfaces to BDM may not be interested in the thorough description of the BDM application 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.

However, all readers, whether "business" or "technical", may find it useful to read the section 3.1 Introduction to Business Day Management, which provides a background to the understanding of all other UDFS sections

"Business Oriented" perspective

The business reader may be interested in the way information is structured in the UDFS. This user may want to follow the reading plan described below to find information about the operations that can be performed, for example, on a Service' status in BDM:

EXAMPLE 1 - "SETTLEMENT DAY MANAGEMENT" READING PLAN



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- 1 The business reader finds in section 3.3.3 Settlement Day management general description of the settlement day management process specifying the different attributes that make up the services' status in BDM.
- From this point, they may jump to section 4.1.1 A2A BDM query process 2 to find a description of the query process which can be carried out via A2A.
- Should the reader need to enter into further details, they may access through a hyperlink section 0
- GetBusinessDayInformation(camt.018) 3 to find the detailed description of the message used in the query process.
- From this point, they may continue through another hyperlink to the schema description available on the MyStandards website to find all the details regarding a particular field of the message. 4

"Technical oriented" perspective

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

- From Chapter 2 "Dialogue between BDM and BDM Actors", when a complete overview of the possible A2A dialogue with CRDM is required, e.g. when structuring the interface of a BDM Actor directly connected to BDM.
- From Chapter 3 "Catalogue of Messages", when a detailed description of the content of a given BDM A2A message is needed, e.g. when specifying the details of the interface of a BDM Actor directly connected to BDM.

Due to the nature of BDM as a Common Component for the configuration of reference data used in multiple Services/components, the information presented in this document is applicable to all such Services/components. The following Services/components interact with BDM for the management of the calendar and business day schedule:

- TARGET2-Securities (T2S)
- T2 Central Liquidity Management (CLM)
- T2 RTGS

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3 General features of BDM

The present chapter, after a short introduction of the Business Day Management (BDM) common component, describes all the features it provides. Section 3.1 introduces the basic principles of BDM covering the different categories of information managed by the common component. Section 3.1.1 describes the features of the Service-specific Calendar, such as Service-specific Operating Days and Closing Days, and the different types of available maintenance operations. Finally, section 3.1.2 describes BDM functionalities for managing Service-specific Business Day Plans.

3.1 Introduction to Business Day Management

In the Common Reference Data Management it is possible to define, for each relevant Service or component, Operating Day Types as default sets of events with specific planned execution times, predecessor dependencies, and specific processes to be activated for each event.

At Business Date Change, the proper Operating Day Type is loaded from the Common Reference Data Management (CRDM) to the BDM common component; this allows the automatic generation of the current business day schedule (Scheduler List) for each Service or component upon Start of Day.

BDM manages the Scheduler Lists generated starting from the CRDM data (See section 3.3.3 Settlement Day management).

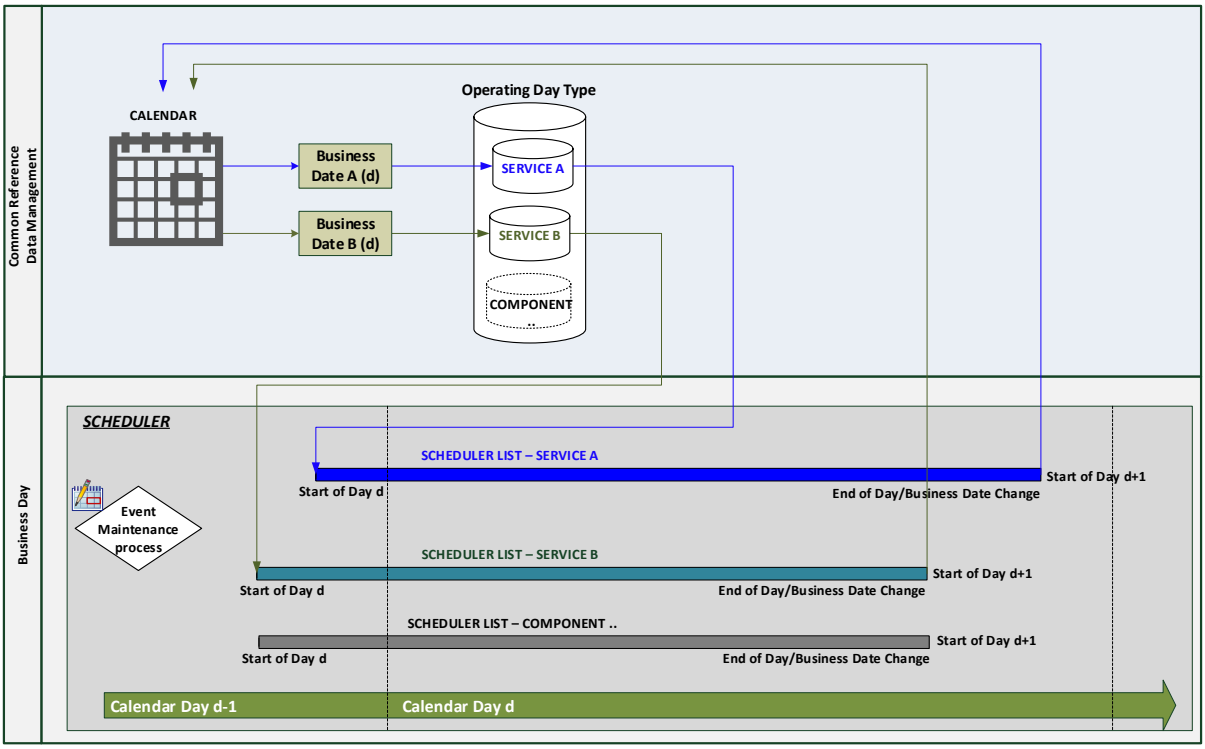
For each Service or component, Calendar data includes the opening days (with specific Operating Day Types) and closing days that can optionally be defined as currency-based. The maintenance of Operating Day Type and Calendar elements is performed in the Common Reference Data Management common component.

Modifications to the Operating Day Type structure are made effective after being loaded in the Scheduler List.

The following diagram shows the interactions between the Common Reference Data Management and the Business Day Management common components.

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DIAGRAM 3 - BUSINESS DAY MANAGEMENT



3.1.1 Calendar

The Calendar defines each Service's opening and closing days. These are defined by the Operator as CRDM objects.

Closing days may also be currency-specific. A currency-specific closing day defines a day in which the system is still open, but it is not possible to settle cash in that currency. Currency-specific closing days are defined by the Operator following the opening days of the relevant Service.

See section 3.3.2.2 Calendar for more details on the business concepts behind the management of the Calendar.

The Operator maintains a Service-specific operating day calendar by currency, which includes the opening days and closing days for all settlement currencies.

For example:

Two services A and B allow settlement in Euro and DKK central bank money. The closing days for the two Services can be defined independently as shown in the table below. Furthermore, it is possible to define currency-specific closing days for an individual Service, meaning that the Service will be open for business on that date but will not handle the specified currency.

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EXAMPLE 2 - CLOSING DAYS IN 2020

SERVICE	CURRENCY CODE	CLOSING DAY
A	**ALL**	**01-Jan**
A	**EUR**	**12-Apr**
A	**EUR**	**25-Apr**
A	**ALL**	**25-Dec**
A	**ALL**	**26-Dec**
B	**ALL**	**01-Jan**
B	**DKK**	**12-Apr**
B	**ALL**	**25-Dec**
B	**ALL**	**26-Dec**

In general, Services are open from Monday to Friday every week. At the start of a Business Day, the Service moves to the next Business Day according to the above calendar. At the end of a Friday Business Day (or the last Service-specific operating day of the week), the Service moves to the next Monday (or the next Service-specific operating day of next week) as Business Day.

3.1.2 Business Day Plan

The Service-specific Business Day Plan is defined as a series of events. Each event corresponds to a process or cut-off which is triggered within the Service at a specified time and, optionally, following the completion of a set of prior events.

The Operator defines Operating Day Types as sets of default event schedules for each business date. These are loaded automatically when the Service reaches the relevant business date. The set of events loaded in BDM for a specific Service is identified as the Scheduler List for that Service.

The Operator can manually intervene on each Scheduler List at run-time by inserting new events, changing the scheduled time for one or more events, or closing events so that they are not executed.

In exceptional situations, it is possible to define certain events to be valid only for specific currencies.

For more details see section 3.3.3 Settlement Day management.

Service-specific schedule (Scheduler List)

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The Service-specific schedule, or Scheduler List, is under the control of the Operator, for the insertion of any new events, or the change and/or deletion of existing events. By default, the Operator has the necessary privileges to perform temporary or permanent changes to the Service-specific schedule.

BDM manages the transition between the various periods as an event. For each such event, BDM manages a planned time, a revised time and an effective time:

- The planned time corresponds to the standard schedule applied by default by BDM. The Operator can update this planned time in case of a permanent change in the regular schedule;
- The revised time is the foreseen time for the current Business Day, which usually coincides with the planned time except when a delay has occurred. In contingency situations, the Operator updates the revised time while the planned time remains unchanged;
- The effective time is the time of the actual occurrence of the event during the current Business Day.

BDM foresees the maintenance of individual Service-specific settlement currency dependent cut-offs and events. There is no Service-specific schedule of a Business Day defined per currency in BDM, but distinct individual cut-offs and events per currency are defined.

The Operator has the ability to modify cut-offs and events within a settlement day. This can be done independently for a specific settlement currency, in exceptional circumstances or contingency situations, based on a request from the relevant dependent external Services (eg. RTGS, CLM, CMS). This exceptional procedure is to be defined at operational level. These currency dependent cut-offs and events are specific events within the BDM daily schedule that do not refer to Service-specific centralised processes such as the start of day and end of day.

It is furthermore possible to define predecessor/successor relationships between multiple events. Within the same Service, BDM controls the execution of the processes so that the start of a process depends on:

- The possible predecessor processes are completed, and
- The related event's revised time is reached.

In other words, BDM ensures that a specific process cannot start until the completion of the predecessor processes (if any are defined) and until the event's scheduled time is reached.While it is possible for the Operator to make changes to the current business day schedule at run-time in contingency situations, the predecessor-successor relationships remain valid even when the sequence of events is altered: in other words, a successor event will have to wait for its predecessor to be completed even if the latter is moved past it in terms of scheduled time.

3.2 Access to BDM

3.2.1 Connectivity

BDM supports the connectivity of BDM Actors as follows:

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

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

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

3.2.2 Access rights

Access rights for BDM 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

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

The following BDM functionalities are available in U2A mode:

TABLE 3 - BDM U2A FUNCTIONS

Function	Actor
Calendar Query	All
Daily Schedule Query	All

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

3.2.4 Security

This section aims at describing the main processes performed by BDM in terms of security principles applied to ensure to BDM users that they can securely exchange information with BDM.

Secure means that the following security conditions are met:

- Confidentiality: Ensuring that information is accessible only to authenticated and authorised BDM Actors;
- Integrity: Safeguarding the accuracy and completeness of information;
- Monitoring: Detecting operational and technical problems and recording appropriate information for crisis management scenarios and future investigations;
- Availability: Ensuring that authorised users have access to information and associated assets when required;
- Auditability: Ensuring the possibility to establish whether a system is functioning properly and that it has worked properly.

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3.2.4.1 Confidentiality

The confidentiality of data in BDM is ensured by the possibility to grant specific access rights for any given set of data, as detailed in section 3.2.2. In conjunction with mechanisms of authentication[1] and authorisation applying to all requests received by BDM in both A2A and U2A mode, this guarantees that each BDM Actor's data is treated confidentially and is not accessible to non-authorized BDM Actors.

3.2.4.2 Integrity

Within BDM, various business validations ensure the integrity of information. If a business validation fails, BDM has a concept of Error handling in place. The requested action is not processed and BDM provides the user with detailed information regarding the nature of the error via A2A or U2A.

In U2A mode, BDM offers users in addition the possibility to further ensure the integrity of data, data requests and communications via usage of a dual authorisation concept, the Four-Eyes-Principle. If this option is chosen for a specified set of BDM operations, a second independent verification and confirmation is required before an operation becomes active in BDM. If, for example, a critical set of Reference Data should be modified and the person requesting the change is only allowed to do so under the Four-Eyes Principle, then a second person of the same Party has to confirm the correctness of the request. Otherwise, the requested Reference Data change is not implemented.

3.2.4.3 Monitoring

BDM operational monitoring provides tools to the BDM Operator for the detection in real-time of functional or operational problems.

Technical monitoring 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.

In addition, the monitoring provides the BDM Operator with an overview of the message flows in BDM.

3.2.4.4 Availability

The overall availability of the BDM services is ensured by the infrastructure design. The technical environment for the BDM core system follows a "two regions/four sites" approach to ensure availability throughout the widest possible range of system failures.

3.2.4.5 Auditability

BDM provides an audit trail with which it is possible e.g. to reconstruct who updated which data when. In order to ensure sustainability, BDM archives all data by storing for a harmonised period of ten years all inbound and outbound messages (except queries) in their original format.

1 Authentication means determining whether someone or something (function, component...) is who or what it is declared to be

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3.3 BDM Features

3.3.1 Concept

The BDM common component allows duly authorised users (i.e. Operator users) to select specific Operating Day configurations and maintain the current Business Day data objects. BDM objects specify reference data for the Services.

The BDM common component is in charge of activating specific processes when a configured event is triggered.

The Operator can trigger Business Day Management business processes according to their own specific access rights, i.e. using the functions and maintaining the current business day data objects they have been granted.

The Operator is responsible for Calendar configuration tasks and for the management of current business day for configured Services.

The present chapter describes the possible scenarios in which the BDM common component is activated.

3.3.2 Calendar management process

Duly authorised users manage common reference data in CRDM by creating and maintaining common reference data objects. A common reference data object is a set of logically related, self-consistent information. Parties and Cash Accounts are examples of common reference data objects.

The Operator is able to manage the Calendar for each Service or component by creating, updating and deleting Closing Days as CRDM objects. Closing Days can also be defined by currency based on the opening day calendars of the individual Central Banks.

The Calendar defines the days on which a Service or component is open, as well as possible currency-specific closing days. BDM provides a single harmonised timeframe for different Services, but – in line with the Service-specific and multi-currency approaches – allows for the existence of closing days by Service and by currency (i.e. days on which there is no cash settlement in said currency).

This section focuses on the tools at the disposal of the Operator for the management of the Calendar.

3.3.2.1 Overview

BDM works with Service-specific internal business dates, which are updated automatically by BDM at each Service-specific Start of Day. In general, the Service-specific business date corresponds to the current calendar date or, after the Business Date Change process at Start of Day, to the next available opening date for the Service.

The Operator can manage the Calendar by defining closing days. These items are defined by the Operator as CRDM objects, linked to the relevant date, and stored in the database. The Operator can create, update and delete closing days.

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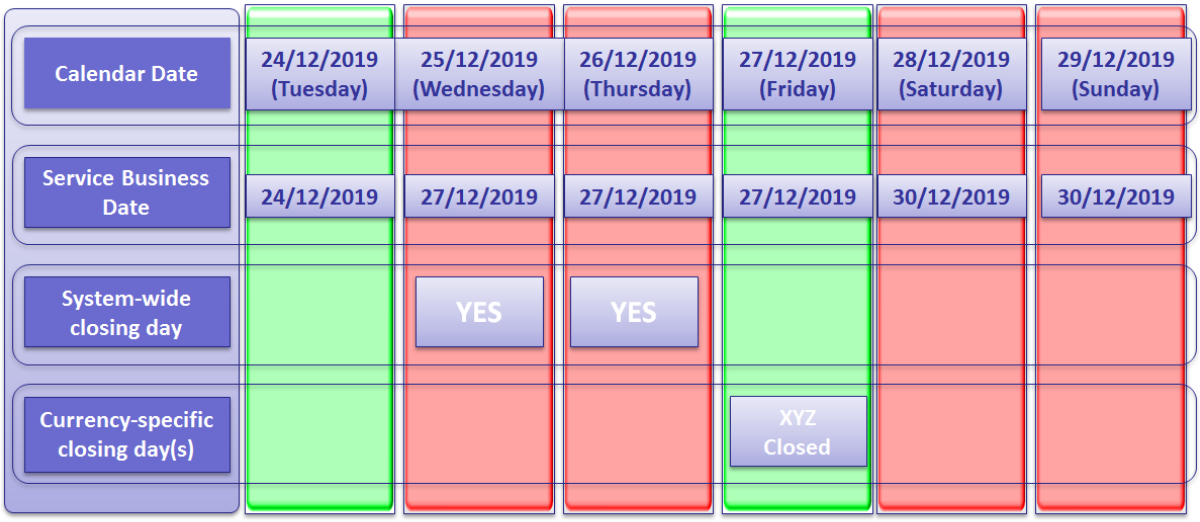
Closing days can be defined by currency or for all currencies. A closing day defined for all currencies, or "Service-wide" closing day, determines a day on which a specific Service is not open for business. Closing days by currency are defined according to the opening days of the relevant Service, and determine days on which a specified currency is not allowed to settle.

3.3.2.2 Calendar maintenance process

In general, a Service is open for operating from Monday to Friday. The Service-specific business date is based on automatic updates calculated daily by the system which ignore Saturdays, Sundays and Service-wide closing days.

Both Service-wide and currency-specific closing days are managed by the Operator. Both types of closing days are created, updated and deleted as any other CRDM object.

DIAGRAM 4 - CALENDAR



RED boxes represent days on which the Service is not open for settlement.

By taking as an example a generic Service's Calendar, December 25th and 26th are defined as Service-wide closing days. As a result, upon End of Day on December 24th, the business date is automatically set to the first available date, i.e. December 27th. December 28th and 29th are respectively a Saturday and a Sunday, so they are automatically skipped with no need of being defined as closing days. As a result, the Service remains closed for operating on December 25th, 26th, 28th and 29th. Supposing December 27th is a national holiday for a specific country, the latter date is defined as a currency-specific closing day for the hypothetical currency XYZ, which means that on that date the Service is open for operations but it is not possible to settle cash transactions in currency XYZ.

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3.3.3 Settlement Day management

3.3.3.1 Overview

The Service-specific Settlement Day is made up of a series of scheduled events. These events define the various processing steps and cut-offs which are to be carried out during the Service's operation. Usually, an event corresponds to an internal Service process which is to be carried out at a scheduled time.

The Operator prepares the default event schedule for each Business Day in CRDM by grouping events with specific planned execution times and predecessor dependencies, and linking them to the relevant business date. The default schedule for each Service-specific business day is loaded automatically by BDM upon each Service-specific business date change.

Using BDM functions, the Operator is able to perform the following manual interventions on the current Service-specific business day schedules at run-time in exceptional situations:

- Inserting a new event;
- Changing the scheduled time for one or more events;
- Removing one or more events which have not yet been triggered;
- Closing one or more events before their completion, resulting in BDM skipping those events.

The event schedule for the Service-specific current business day is visible to all Services' users, but modifications can only be performed by the Operator.

Once the Service-specific business date is set, BDM then searches for the relevant Service-specific operating day type and loads the new day's event schedule for the Service based on the events contained in the Operating Day Type.

Each event is categorized into a Service-specific event type. Service-specific Event Types are registered in CRDM. A Service-specific Event Type identifies the basic set of information necessary to define an event before it is inserted in a time schedule; specifically, what kind of internal process or cut-off it should trigger, whether it can be defined as currency-specific, and other parameters relevant to the single instance. The definition of a Service-specific Event Type as "currency-specific" leaves the possibility, e.g. intended for contingency situations, to differentiate between occurrences af the same Event Type of the same Service in the same business day schedule for different currencies (See section Event maintenance process).

Service-specific Event Types may also be defined as currency-specific, meaning that the related scheduled events only apply to individual settlement currencies in the Service. In addition, the Operator can change, in exceptional circumstances, the scheduled times for certain events of the current business day only for a specific currency, based on a request from the relevant Central Bank. For more details, see the section Event maintenance process below, and see the Calendar section.

For any given business date, the Operator is able to define a Service-specific operating day type which encompasses the default set of events which are loaded for that business date. Specifically, the Service-specific operating day type is a collection of Service-specific event types characterized by the relevant details which define their position in the daily schedule. These details are:

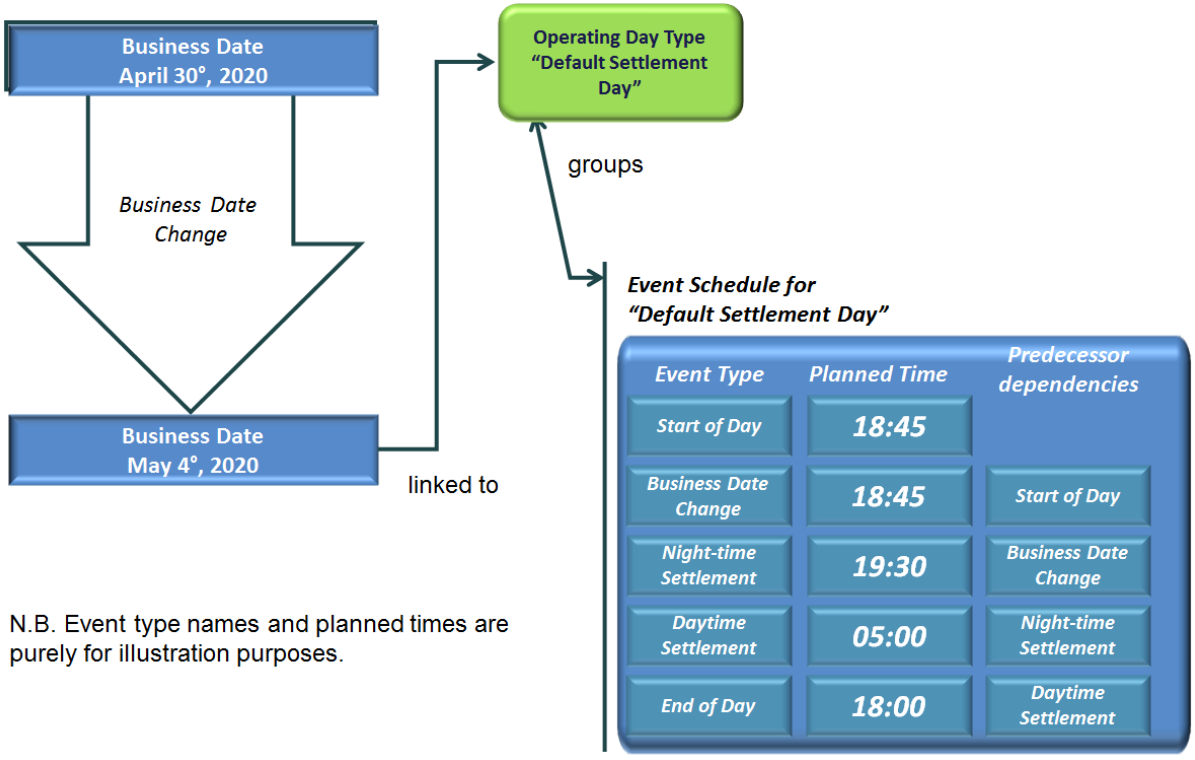
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- The event's scheduled time
- The event's mutual dependencies with other events of the same business day schedule.

These two characteristics are defined by the Operator when creating the schedule for each Service-specific Operating Day Type.

The example below illustrates the relationships between the business date, the operating day type and the default business day schedule. Once the new business date is set, the system searches for the relevant operating day type, which contains the default schedule (i.e. collection of events with the relevant planned time and dependencies). The event schedule for the new business day is subsequently set up according to the default data.

DIAGRAM 5 - OPERATING DAY TYPE



N.B. Event type names and planned times are purely for illustration purposes.

In this example, the event "Night-time settlement" has a predecessor dependency with "Business Date Change", meaning that "Night-time settlement" cannot be triggered unless "Business Date Change" is complete. Similarly, "Business Date Change" is scheduled for 18:45 but so is its predecessor "Start of Day".

Therefore "Business Date Change" is triggered as soon as Start of Day is complete. For details refer to section 3.3.3.5 Event scheduling process below.

The Service's Business Date Change process is triggered via an event in the business day schedule. Since there are no predefined constraints on how events may be scheduled and/or managed during a

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specific business day, one implication of this aspect is that each Service's Business Date can in fact be made independent from the calendar date.

The following sections describe different processes involved in the Service-specific Settlement Day Management, specifically:

- "Event type maintenance process" refers to the definition of standard Event Types, i.e. the basic elements that make up each business day schedule;
- "Chain of Events maintenance process" refers to the definition of Chains of events, i.e. standard groups of events inside an Operating Day Type which can be replanned or deactivated dynamically with a single maintenance operation;
- "Operating day type maintenance process" refers to the definition of Operating Day Types, i.e. groups of Events which define the schedule for each business day;
- "Event scheduling process" describes how the system manages the schedule for the current business day;
- "Event maintenance process" describes the interventions the Operator can perform at run-time on the current business day schedule in abnormal (emergency) situations.

3.3.3.2 Event type maintenance process

As stated above, Service-specific Event Types are maintained by the Operator in the database. The Operator is allowed to create, update and delete Service-specific Event Types for later use in preparing the default schedules for each Service-specific Operating Day Type.

Service-specific Event Types may also be defined as currency-specific, meaning that the related scheduled events only apply to individual operating currencies in the Service. In addition, the Operator can change, in exceptional circumstances, the scheduled times for certain events of the current business day only for a specific currency, based on a request from the relevant Central Bank. For more details, see the section Event maintenance process below, and see section Calendar.

Service-specific Event Types which are not previously defined as currency-specific cannot be treated in this way. For example, key deadlines such as End of Day or Start of Day are always kept harmonised at Service level, ensuring that there always is a common Service schedule for all currencies and participants.

3.3.3.3 Chain of Events maintenance process

The Operator is allowed to replan and deactivate a chain of events dynamically in the current business day schedule of a specific Service (Scheduler List). Replannings and deactivations can be performed by the Operator with single maintenance operations via GUI.

3.3.3.4 Operating day type maintenance process

The Operator manages Operating Day Types as CRDM objects. See CRDM UDFS for more details.

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Each Service has its own Operating Day Type for each business date, which allows the automatic generation of the Scheduler List upon Start of Day.

Modifications to the Operating Day Type structure may only be made effective on future dates; for the management of intra-day modifications, the Operator relies on the Event maintenance process described below.

3.3.3.5 Event scheduling process

The schedule for each business day is generated by BDM via Business Day Change process at each Start of Day. This automatic process draws from the reference data previously set up by the Operator, i.e. the Operating day type for the new business date and all related scheduled events.

The schedule is created by taking into account the events' scheduled times and the various possible dependencies between them.

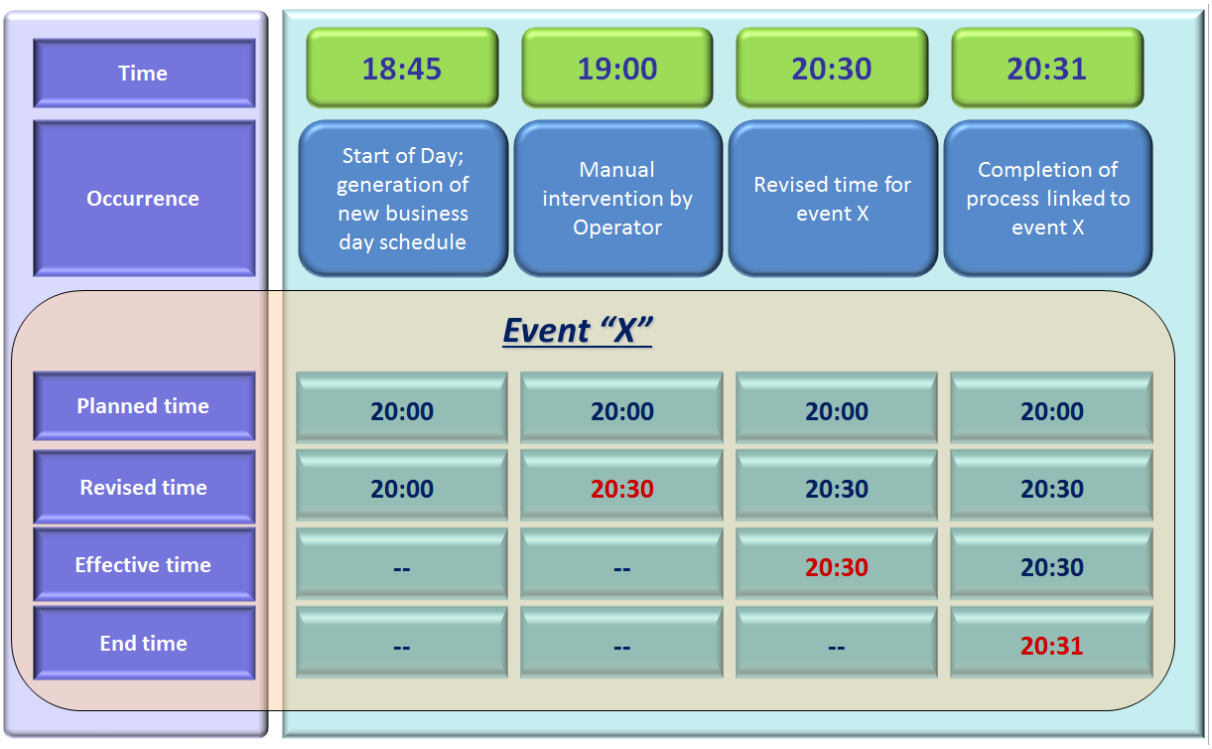
Regarding the scheduled time, each planned event in the current business day schedule is detailed according to the following timestamps:

- The planned time corresponds to the standard schedule applied by default by BDM for a specific Service for every operating day. The Operator can update this planned time in case of a permanent change in the regular schedule;
- The revised time is the foreseen time for the current business day, which usually coincides with the planned time except when a delay has occurred. In contingency situations, the Operator updates the revised time while the planned time remains unchanged;
- The effective (start) time is the time of the actual occurrence of the event during the current operating day.
- The end time is the time at which the BDM registers the successful processing of an event. An event marked with an end time is considered "complete". For example, an event representing a cut-off is considered "passed" once the end time is set. This is also relevant in the management of predecessor constraints: when dealing with a dependency between a predecessor event A and a successor event B, a necessary condition for triggering B is that A is complete; in other words, that A has an end time. See also example below.

The example below illustrates the moments in which the various timestamps are registered for a theoretical event "X".

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DIAGRAM 6 - EVENT TIMESTAMPS

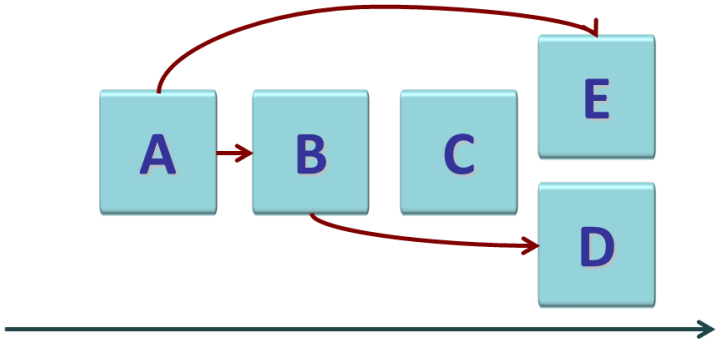


The following diagram illustrates the concept of Event dependencies. It shows five events, each with its own planned times and predecessor dependencies. Specifically, in the example, A is a predecessor to B and E and B is a predecessor to D. The diagram shows the events setup as well as a graphical representation of the predecessor dependencies (depicted as red arrows) with the events represented in chronological order by planned time.

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DIAGRAM 7 - EVENT DEPENDENCIES (A)

Event Type	Planned Time	Predecessors	Effective Time	End Time
A	16:15	none		
B	16:30	A		
C	16:45	none		
D	17:00	B		
E	17:00	A		



Event A is triggered at 16:15, but there is a problem in the internal processing which causes a one-hour delay. Without any intervention by the Operator , this results in the following:

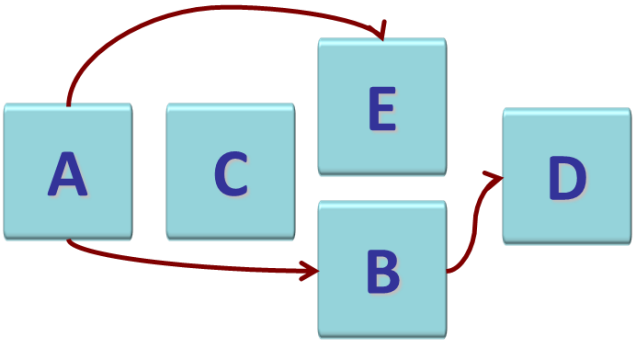
- Event A is triggered at 16:15.
- At 16:30, Event B cannot be triggered as Event A is not yet completed.
- At 16:45, Event C is triggered and completed normally as it has no predecessor dependencies.
- At 17:00, Events D and E cannot be triggered as their respective predecessors B and A are not yet completed (with B yet to be started);
- At 17:15, the problem is solved and Event A is completed. Upon completion of A, Events B and E are triggered and completed. Upon completion of B, the same happens for D (which therefore is executed after E despite having the same scheduled time).

The following diagram shows how the above list affects the effective and end timestamps for each event, as well as the sequence the events are actually triggered in. The actual sequence of events is represented below.

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DIAGRAM 8 - EVENT DEPENDENCIES (B)

Event Type	Planned Time	Predecessors	Effective Time	End Time
A	16:15	none	16:15	17:15
B	16:30	A	17:15	17:16
C	16:45	none	16:45	16:45
D	17:00	B	17:16	17:17
E	17:00	A	17:15	17:16



3.3.3.6 Event maintenance process

In normal operating conditions, each event is triggered upon reaching its planned or revised time and, if applicable, once all predecessor events have been successfully completed.

In addition, the Operator has at its disposal several options to modify the current business day event schedule. The possible interventions are listed below, and are generally intended for use in contingency situations:

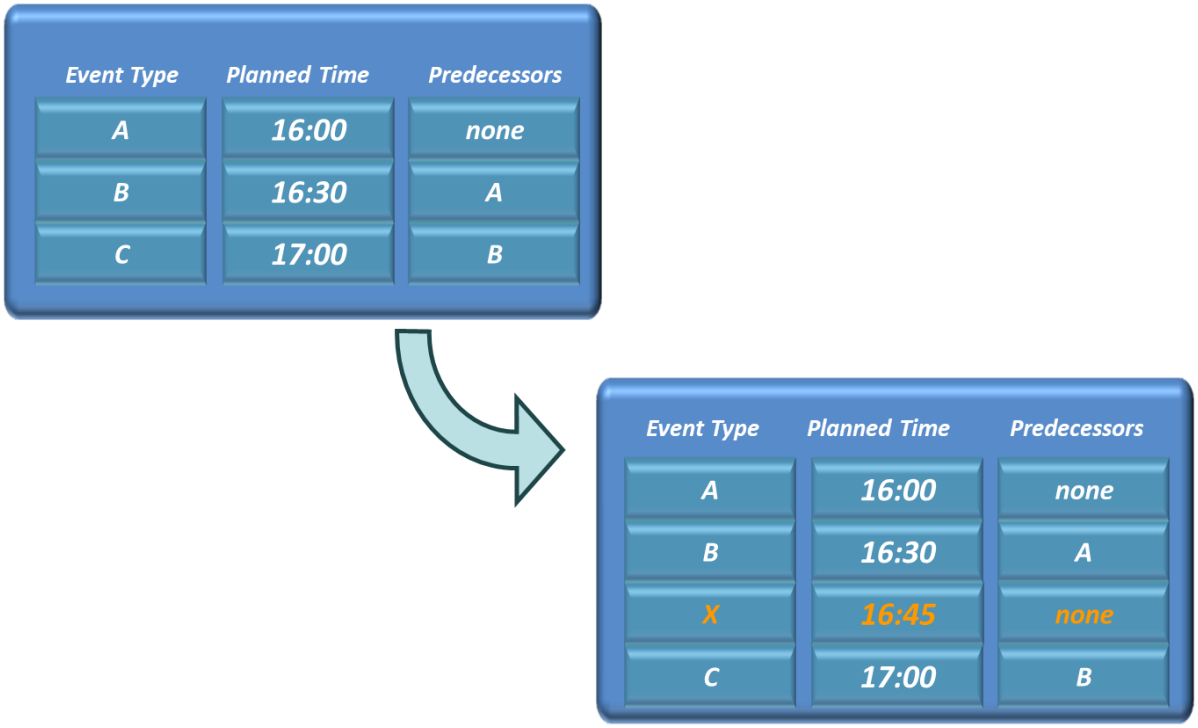
- Insert a new event instance in the current business day schedule
- Change the revised time for one event which has not yet been triggered
- Change the revised time for several events which have not yet been triggered[2]
- Force completion of an event
- Force completion of a chain of events

[2] It is possible to time-shift an entire portion of the business day schedule (i.e. one event and all others that come after it), a single chain of events or a subset of events identified by the same event currency.

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An event may be inserted in the current business day schedule by specifying an existing Event type with a planned time, which must be greater than the current time (in other words, events cannot be scheduled in the past). In the following example, the Operator inserts an Event X at 16:45.

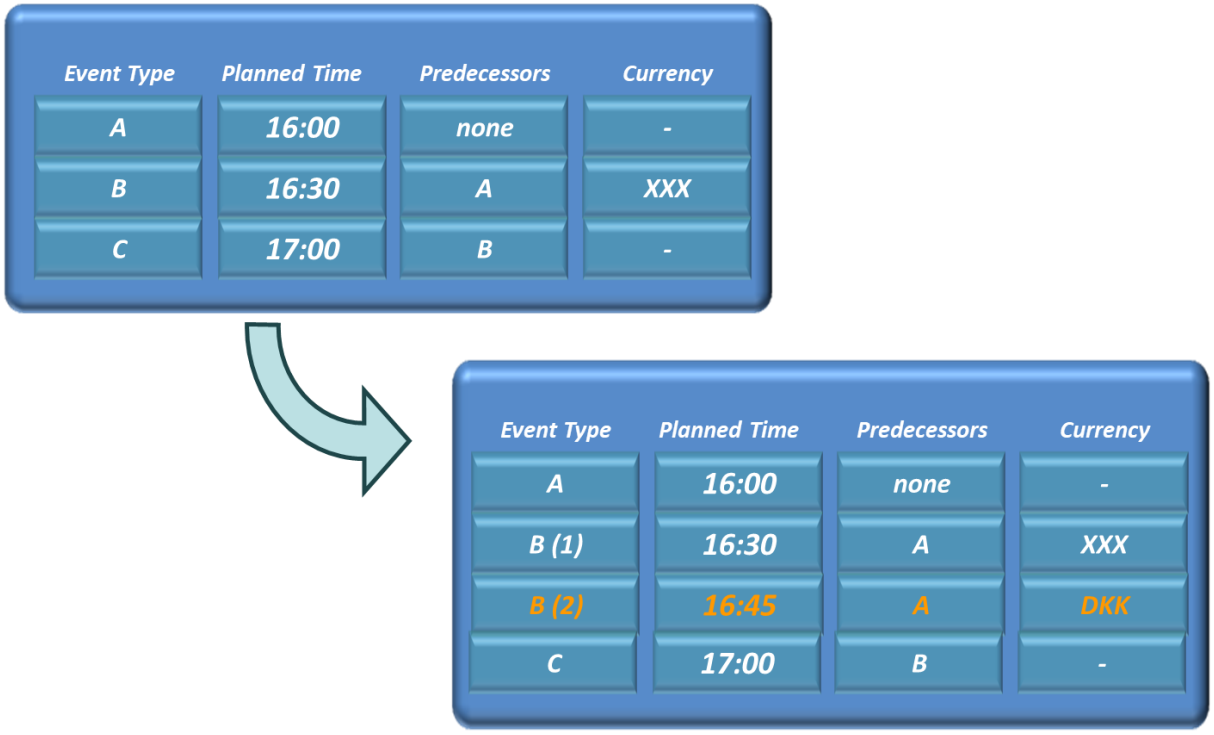
DIAGRAM 9 - EVENT INSERTION



It is furthermore possible to insert a new event by defining it for a specific currency, following a request from the relevant central bank. This can only be done on events of an Event Type which allows this option; for instance, on specific events that are not related to centralised Service deadlines (See section 3.3.3.2 Event type maintenance process for further details). In the following example, the Operator splits Event B for DKK and for all other currencies by inserting it again at 16:45.

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DIAGRAM 10 - EVENT INSERTION(CURRENCY SPECIFIC)



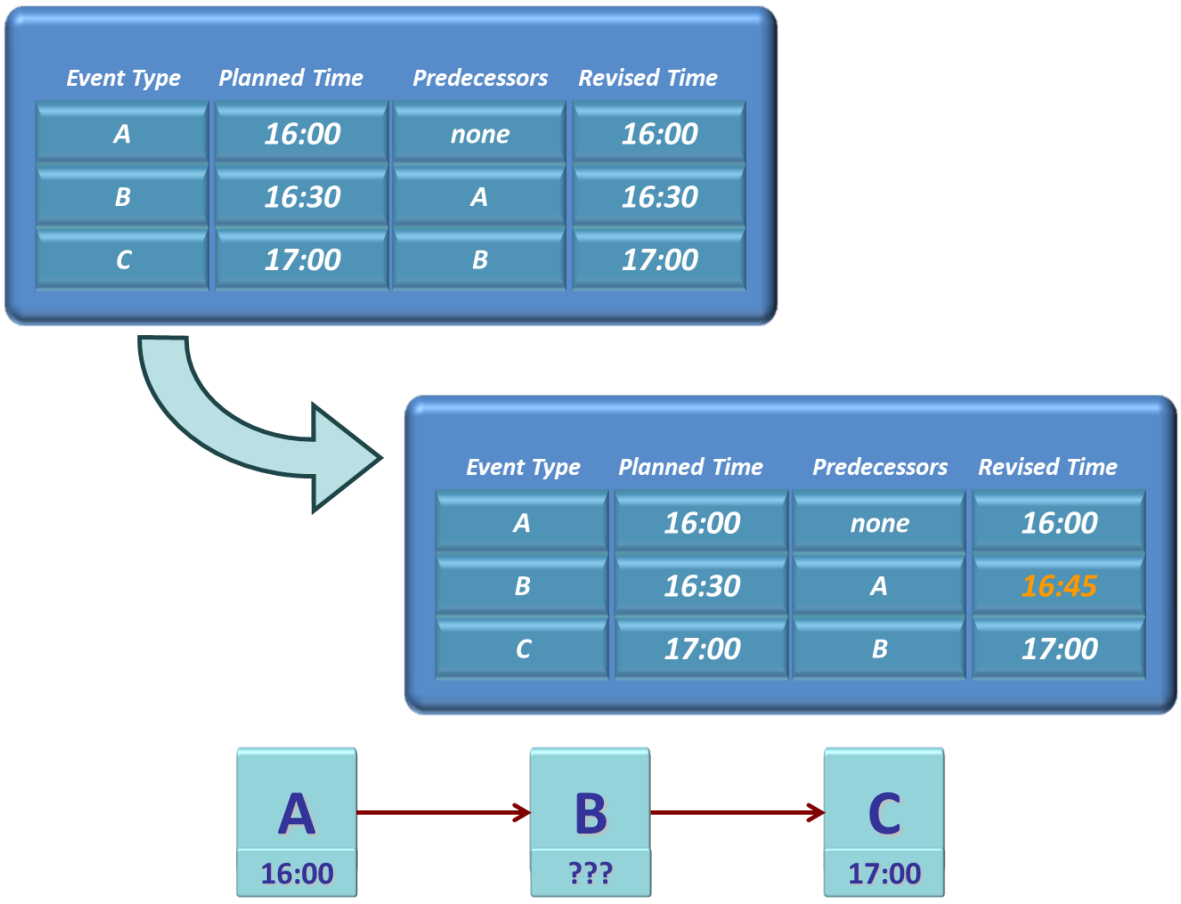
In the example above, B is scheduled twice, once for "all" currencies (code XXX) and once for Danish Krone alone. In order to reach this situation, the Operator only needs to insert a new event specifically for DKK. Upon reaching the event with currency code "XXX", BDM acknowledges the existence of another event 3 of the same type with a different currency code (DKK) in the system and automatically applies the "XXX" event for all currencies except DKK.

The procedure described above is applicable only in emergency situations, and only on events in the current business day schedule (i.e. one cannot plan to have currency-specific events in future dates).

An event which is already in the current day schedule may undergo a change in its scheduled time due to particular requirements, e.g. in emergency situations. Such a change may only be performed on events which have not yet been triggered. If the Operator changes the scheduled time for a specific event, the new planned time is registered as "revised time" (see above). The change is valid only for the current business day. The change in planned time may not violate the existing predecessor constraints; a single event may not be moved past another event of which it is a predecessor. In the following example the Operator changes the time for Event B to 16:45; due to predecessor dependencies, the revised time for B can only be moved between 16:01 and 16:59.

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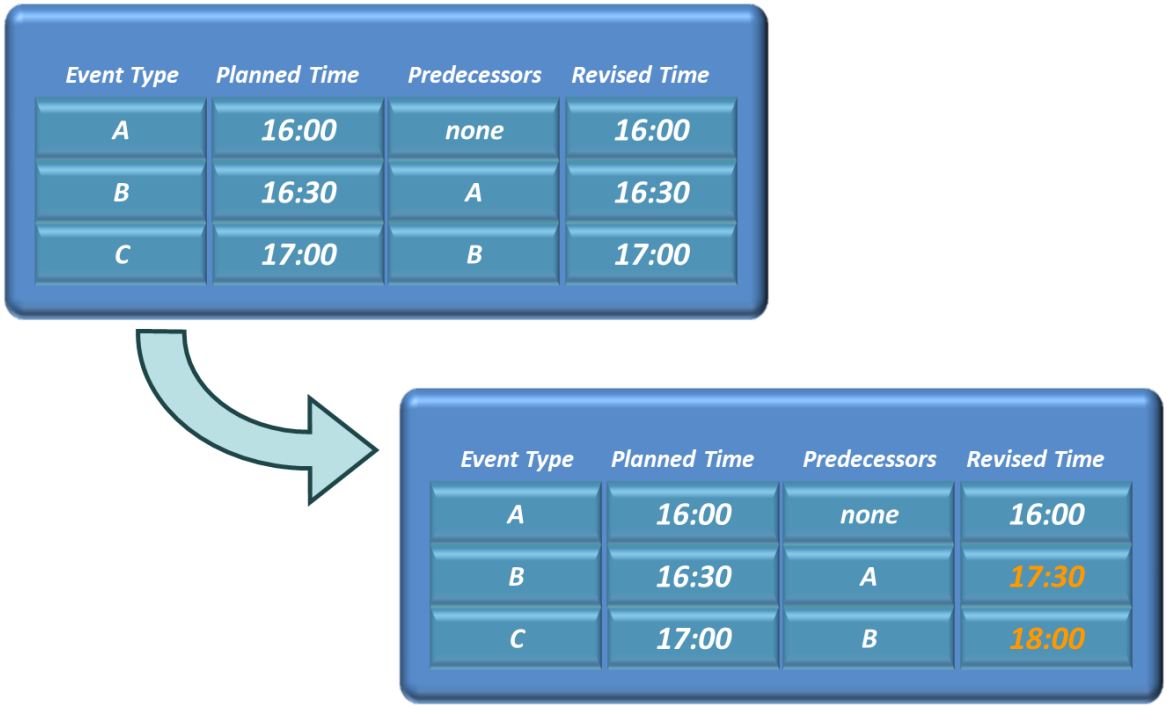
DIAGRAM 11 - EVENT TIME CHANGE (A)



If necessary, an entire string of events can be moved, introducing an equal variation for an event and all the events that follow it. The string of event can be identified as part of the same Chain of Events, as subset of currency dependent events, or as subset of events for wich the planned time is grather than the selected event. In the following example the Operator changes the time for B and all subsequent events by introducing a 1-hour delay:

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DIAGRAM 12 - EVENT TIME CHANGE (B)



Forcing completion of an event means that the event is automatically "completed" by setting the Effective Time and End Time to the current system time. If the event is already started (and therefore has already a value for Effective Time) only the End Time is filled in. The result is that BDM ignores the result of the related process, which has to be monitored by the Operator. This action may be performed on any event which is not yet completed. The same action can be performed on a chain of events.

For example, the scenario described in can be reused. An event A starts at 16:15 as planned, but an internal problem causes a long delay. At 17:01, with A still running, it is agreed that events A and D are no longer necessary for the current business day. Therefore the Operator forces completion of A and D, resulting in the following timestamps being applied:

DIAGRAM 13 - EVENT FORCED COMPLETION

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Event Type	Planned Time	Predecessors	Effective Time	End Time
A	16:15	none	16:15	17:01
B	16:30	A	17:01	17:02
C	16:45	none	16:45	16:45
D	17:00	B	17:01	17:01
E	17:00	A	17:01	17:02

3.4 Operations and support

3.4.1 Calendar management

The BDM Operator is able to manage the Calendars for the different Services/components by creating, updating and deleting Closing Days as reference data objects. Closing Days can also be defined by currency based on the opening day calendars of the individual Central Banks.

3.4.2 Settlement day management

The BDM Operator also prepares the default event schedule for each business day by grouping events with specific planned execution times and predecessor dependencies, and linking them to the relevant business date.

Finally, the BDM operator is able to perform the following manual interventions at run-time on the current business day schedule:

- Inserting a new event;
- Changing the scheduled time for one or more events;
- Removing one or more events which have not yet been triggered;
- Closing one or more events before their completion, resulting in BDM skipping those events.

For information on the business concepts behind the management of the calendar and settlement day, see sections 3.3.2 Calendar management process and 3.3.3 Settlement Day management respectively.

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4.1 Introduction

This chapter contains two main subsections describing interactions between a generic BDM Actor and BDM in the form of universal use cases.

4.1.1 A2A BDM query process

This use case covers the standard situation of BDM Actor sending a query in A2A.

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

4.1.1.1 Query process

The BDM data query process can be described as a common message flow that applies to every business scenario which allows to retrieve information on Business Days.

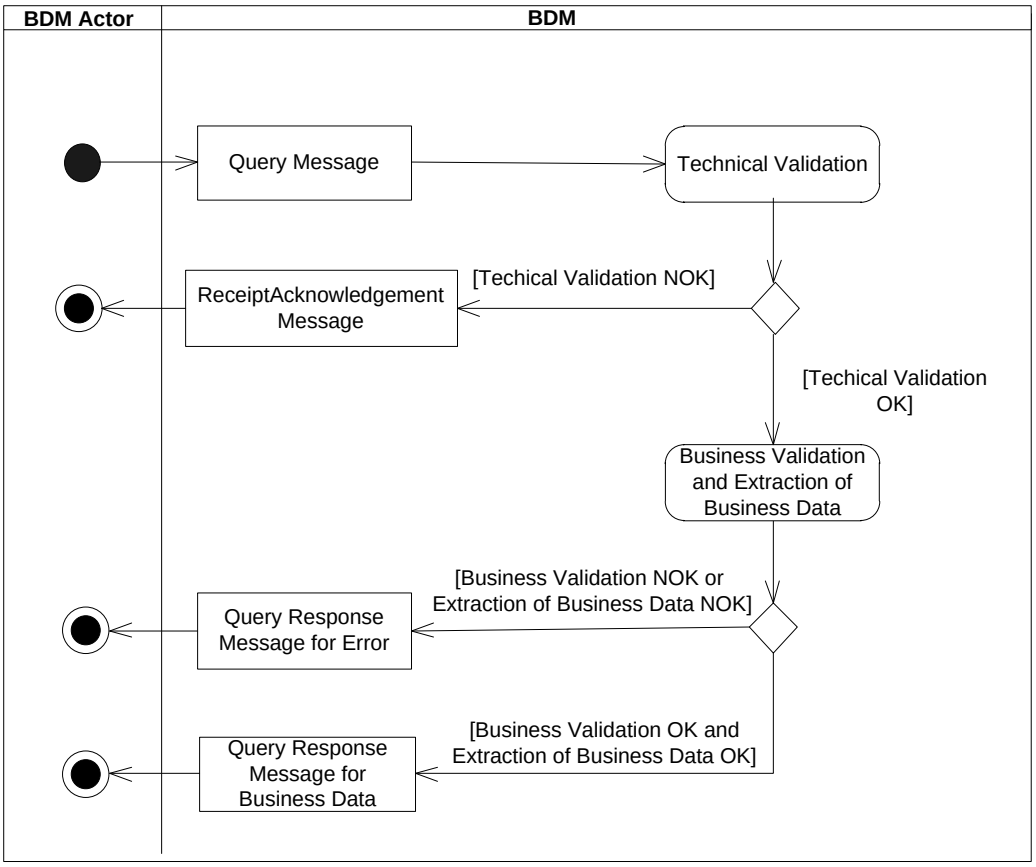
Upon the sending of a request instructed with an input message, a related response message or a technical validation error message is returned.

4.1.1.2 Query processing steps

The following diagram details all the processing steps:

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DIAGRAM 14 - BDM DATA QUERY PROCESS



Technical Validation

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

- **[Technical Validation NOK]** A ReceiptAcknowledgement (admi.007) message is sent by BDM to the sender of the originating input message. 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 BDM against the access rights of the BDM 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 Business Data including requested business data is sent back to the requesting BDM 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 Error is sent back to the requesting BDM Actor indicating the error(s) which occurred.

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

In the following table the query and query response messages are defined.

TABLE 4 - BDM DATA QUERY MESSAGES

QUERY REQUEST MESSAGE	QUERY RESPONSE MESSAGE FOR ERROR	QUERY RESPONSE MESSAGE FOR BUSINESS DATA
GetBusinessDayInformation(camt.018)	ReturnBusinessDayInformation(camt.019)	ReturnBusinessDayInformation(camt.019)

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5 Catalogue of Messages

5.1 List of messages

Note: the annotations in the MyStandards repository represent the links between the xml fields and the respective data model attributes.

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

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

5.1.1 GetBusinessDayInformation(camt.018)

5.1.1.1 Overview and scope of the message

This chapter illustrates the GetBusinessDayInformation message.

The GetBusinessDayInformation message is used to request calendar-related information.

This message is sent to BDM to make the following types of queries:

- Calendar query;
- Diary query;
- Status of the Settlement day query.

These query types are described in the section "The message in business context".

In response to the GetBusinessDayInformation message, BDM sends a camt.019 message containing information on requested items or a business error.

5.1.1.2 Schema

Outline of the schema

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

MessageHeader

This building block is mandatory and it contains the message identification (“NONREF” value can be used). It also contains the type of the query requested.

BusinessDayInformationQueryDefinition

This building block is mandatory and non-repetitive. It contains detailed information related to the calendar or diary entities to be queried such as service, date, currency, event type and closure period.

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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.018.001.05

Business rules applicable to the schema

MESSAGE ITEM	BUSINESS RULES
SystemDate Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/SysDt	IIMP116 IIMP117 IIMP118
SystemCurrency Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/SysCcy	IIMP116 IIMP117 IIMP118
Identification Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/EvtTp/Prtry/Id	OSAC003 IIMP116 IIMP117 IIMP118
FromDateTime Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/ClsrPrd/DtTmRg/FrDtTm	IIMP116 IIMP117 IIMP118
ToDateTime Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/ClsrPrd/DtTmRg/ToDtTm	IIMP116 IIMP117 IIMP118

5.1.1.3 The message in business context

Usage Case: Calendar Query

This query type enables the sender to request information about a specific calendar days for a specific currency and service.

Specific message requirements

MESSAGE ITEM	UTILISATION
Identification Document/GetBizDayInf/MsgHdr/ReqTp/Prtry/Id	Fixed value "CALE"
Service Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/SysId/MktInfrstrctrId/Prtry	Service for which the query is requested
SystemCurrency Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/SysCcy	Currency

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MESSAGE ITEM	UTILISATION
FromDateTime Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/ClsrPrd/DtTmRg/FrDtTm	Start date for the closure period
ToDateTime Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/ClsrPrd/DtTmRg/ToDtTm	End date for the closure period

Usage case example: *CalendarQuery_example.xml*

In this example a CB (NCBAXXYYAAA) requests the calendar information for closure period for T2S service starting from 2020-01-01 and ending on 2020-01-31 concerning EUR currency.

Usage Case: Diary Query

This query type enables the sender to request information about the events for a business day of a specific service.

Specific message requirements

MESSAGE ITEM	UTILISATION
Identification Document/GetBizDayInf/MsgHdr/ReqTp/Prtry/Id	Fixed value "DIAR"
SystemDate Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/SysDt	Business date
Service Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/SysId/MktInfrstrctrId/Prtry	Service for which the query is requested
SystemCurrency Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/SysCcy	Currency
Identification Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/EvtTp/Prtry/Id	Event code. Service related events could be found in the service related UDFS.

Usage case example: *DiaryQuery_example.xml*

In this example a CB (NCBAXXYYAAA) requests information about all of the events for business day 2020-01-01 for T2S service.

Usage Case: Status of the Settlement day Query

This query type enables the sender to request current status of settlement day for a specific service.

Specific message requirements

MESSAGE ITEM	UTILISATION
Identification Document/GetBizDayInf/MsgHdr/ReqTp/Prtry/Id	Fixed value "STAT"

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MESSAGE ITEM	UTILISATION
SystemDate Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/SysDt	Must match current business date
Service Document/GetBizDayInf/BizDayInfQryDef/Crit/NewCrit/SchCrit/SysId/MktInfrstrctrId/Prtry	Service for which the query is requested

Usage case example: *StatusoftheSettlementdayQuery_example.xml*

In this example, assuming current business date is 2020-01-01, a CB (NCBAXXYYAAA) requests information about the current system status for T2S service.

5.1.2 ReturnBusinessDayInformation(camt.019)

5.1.2.1 Overview and scope of the message

This chapter illustrates the ReturnBusinessDayInformation message.

The ReturnBusinessDayInformation message is sent by BDM to provide with requested calendar information.

This message is sent by BDM in the following message usages:

- Calendar Response;
- Diary Response;
- Status of the Settlement Day Response;

These message usages are described in the section "The message in business context".

This message is sent in response GetBusinessDayInformation(camt.018) message.

5.1.2.2 Schema

Outline of the schema

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

MessageHeader

This building block is mandatory and it contains the message identification ("NONREF" value can be used).

ReportOrError

This building block is mandatory and non repetitive. It contains the information matching the search criteria of the related query or an error indication.

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It includes sections such as service, business date and for each event scheduled time of the event, updated scheduled time of the event, actual start time of the event, actual end time of the event, description of the event type and the event type code according to the query performed.

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.019.001.07

Business rules applicable to the schema

Not applicable (outgoing message).

5.1.2.3 The message in business context

Usage Case: Calendar Response

This message usage provides the sender with requested information about a specific calendar day for a specific currency and service

Specific message content

MESSAGE ITEM	UTILISATION
Service Document/RtrBizDayInf/RptOrErr/BizRpt/SysId/MktInfrstrctrId/Prtry	Service for which the query is requested
SystemDate Document/RtrBizDayInf/RptOrErr/BizRpt/BizDayOrErr/BizDayInf/SysDt/Dt	Business date queried
SystemCurrency /Document/RtrBizDayInf/RptOrErr/BizRpt/BizDayOrErr/BizDayInf/SysInfPerCcy/SysCcy	Currency
Code Document/RtrBizDayInf/RptOrErr/BizRpt/BizDayOrErr/BizDayInf/SysInfPerCcy/ClsrInf/Rsn/Cd	Reason why the system is closed for the specified currency.

The returned business data in case of an error response is listed below:

MESSAGE ITEM	UTILISATION
Proprietary Document/RtrBizDayInf/RptOrErr/OprlErr/Err/Prtry	Specific error code
Description Document/RtrBizDayInf/RptOrErr/OprlErr/Desc	Textual description in addition to the reported specific error code

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Usage case example: *CalendarResponse_example.xml*

In this example a CB (NCBAXXYYAAA) receives the closure information for 2020-10-01 and EUR currency for T2S. which has been closed due to a Bank Holiday.

Usage Case: Diary Response

This message usage provides the sender with information about the events for a business day of a specific service.

Specific message content

MESSAGE ITEM	UTILISATION
Service Document/RtrBizDayInf/RptOrErr/BizRpt/SysId/MktInfrstrctrId/Prtry	Service for which the query is requested
SystemDate Document/RtrBizDayInf/RptOrErr/BizRpt/BizDayOrErr/BizDayInf/SysDt/Dt	Business date queried
SystemCurrency /Document/RtrBizDayInf/RptOrErr/BizRpt/BizDayOrErr/BizDayInf/SysInfPerCcy/SysCcy	Currency
Identification Document/RtrBizDayInf/RptOrErr/BizRpt/BizDayOrErr/BizDayInf/SysInfPerCcy/Evt/Tp/Prtry/Id	Code identifying the event described. Service related events could be found in the service related UDFS.
ScheduledTime Document/RtrBizDayInf/RptOrErr/BizRpt/BizDayOrErr/BizDayInf/SysInfPerCcy/Evt/SchdldTm	Scheduled time for the event
EffectiveTime Document/RtrBizDayInf/RptOrErr/BizRpt/BizDayOrErr/BizDayInf/SysInfPerCcy/Evt/FctvTm	Effective time for the event
StartTime Document/RtrBizDayInf/RptOrErr/BizRpt/BizDayOrErr/BizDayInf/SysInfPerCcy/Evt/StartTm	Actual start time for the event
EndTime Document/RtrBizDayInf/RptOrErr/BizRpt/BizDayOrErr/BizDayInf/SysInfPerCcy/Evt/EndTm	Actual end time for the event

The returned business data in case of an error response is listed below:

MESSAGE ITEM	UTILISATION
Proprietary Document/RtrBizDayInf/RptOrErr/OprlErr/Err/Prtry	Specific error code
Description Document/RtrBizDayInf/RptOrErr/OprlErr/Desc	Textual description in addition to the reported specific error code

Usage case example: *DiaryResponse_example.xml*

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In this example a CB ("NCBAXXYYAAA") receives information about the events occurred for business day 2020-01-01 linked to EUR currency for T2S.

The Start-of-Day was scheduled at 7:00 a.m. but started 5 minutes later and lasted 6 seconds.

The End-of-Day, initially foreseen at 18:00, was delayed at 18:15 but started at 18:20 lasting one minute.

Usage Case: Status of the Settlement day Query

This message usage provides the sender with the current status of the settlement day for a specific service.

Specific message content

MESSAGE ITEM	UTILISATION
Service Document/RtrBizDayInf/RptOrErr/BizRpt/SysId/MktInfrstrctrId/Prtry	Service for which the query is requested
SystemDate Document/RtrBizDayInf/RptOrErr/BizRpt/BizDayOrErr/BizDayInf/SysDt/Dt	Business date queried
Identification Document/RtrBizDayInf/RptOrErr/BizRpt/BizDayOrErr/BizDayInf/SysSts/Sts/Prtry/Id	Status of the system
ValidityTime Document/RtrBizDayInf/RptOrErr/BizRpt/BizDayOrErr/BizDayInf/SysSts/VldtyTm	Time in which the current status became effective

The returned business data in case of an error response is listed below:

MESSAGE ITEM	UTILISATION
Proprietary Document/RtrBizDayInf/RptOrErr/OprlErr/Err/Prtry	Specific error code
Description Document/RtrBizDayInf/RptOrErr/OprlErr/Desc	Textual description in addition to the reported specific error code

Usage case example: *StatusoftheSettlementdayResponse_example.xml*

In this example, assuming current business date is 2020-01-01, a CB ("NCBAXXYYAAA") is reported that the current status of T2S is "RTMS" (Real-time settlement) starting from 7:05.

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

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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.

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 CRDM.

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

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.

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

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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 ("BITAITRRXXX"). 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 BDM 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. BDM generates this message after a negative validation process.

The ReceiptAcknowledgement is in sent by BDM 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

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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 BDM does not comply with the message technical rules and is not processable in BDM.

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 imput 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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MESSAGE ITEM	UTILISATION

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.

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6 Appendices

6.1 Business Rules and Error Codes

Rule Id	Description	Inbound message	Outbound message	Reason Code	Error Text
IIMP116	For the user query 'Calendar Query (CALE)' the following search criteria are allowed: - Closure period; - Currency.	camt.018	camt.019	REJT	While referring to the query 'Calendar Query (CALE)', the selected search criteria are invalid.
IIMP117	For the user query 'Diary Query (DIAR)' the following search criteria are allowed: - Business date; - Currency; - Event code.	camt.018	camt.019	REJT	While referring to the query 'Diary Query (DIAR)', the selected search criteria are invalid.
IIMP118	For the user query 'Status of settlement day query (STAT)' the following search criteron only is allowed: - Business date	camt.018	camt.019	REJT	While referring to the query Status of settlement day query (STAT)', the selected search criteria are invalid.
OSAC003	The Event Type specified in a request for access to the business day schedule must be an existing event in the daily plan.	camt.018	camt.019	REJT	Invalid Event Type
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	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
	communication has to be known in CRDM.				
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.

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Rule Id	Description	Inbound message	Outbound message	Reason Code	Error Text
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	CRDM 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 inbound message except for the messages which are explicitly listed based on namespace definition	I049	The message definition identifier of the BAH is not equal to the message type in namespace.
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	I067	The query request has to be sent via real-time network service.

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Rule Id	Description	Inbound message	Outbound message	Reason Code	Error Text
			the messages which are explicitly listed		
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 BDM.	head.001	admi.007	I005	The received single message type is not known in BDM .
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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