

1. BDM functional scope

The BDM component itself will set up for each Service the daily event schedule at the beginning of each business day and manage the interactions with components that require information on the daily events (similarly to the current implementation of T2S Scheduling).

In addition, the Operator will be able to intervene on the current business day schedule of a given Service and perform real-time updates, for example by inserting new events.

T2S and BDM will be connected in the following ways:

- BDM will use CRDM (previously T2S SDMG) reference data for the daily loading of the new business day schedule for T2S at each business date change. This will include, of course, the loading of the T2S business day as it is currently handled by the Scheduling module.
- BDM will send Event triggers to T2S when the conditions for starting an Event are met by addressing the relevant T2S component. In addition, BDM will modify the T2S System Status whenever applicable. All of this will replicate the behaviour of T2S Scheduling in triggering internal T2S processes.
- BDM will send Status triggers to the T2S Interface domain to signal changes in the status of the T2S Settlement day.
- As a consequence of the previous point, T2S components will send responses (when required by the specific business process) to BDM in order to confirm the correct execution of a specific business process and the closure of the related Event. Again, this is the exact process that is already in place between T2S modules.
- BDM will receive and respond to queries on the T2S calendar, system status and current business day events, in line with the current Scheduling implementation.
- BDM will offer the T2S Operator a set of functionalities to manage and modify the current T2S business day schedule at run-time, as is the case with T2S Scheduling.

All of the above points illustrate the fact that BDM will fulfil the same functions as T2S Scheduling does today. As a result the above-mentioned links between T2S and BDM are not expected to introduce any new issue for T2S. In fact, the internal processes that are currently managed by the Scheduling module will continue functioning in the same way, with the only difference that they will be fully carried out by the new BDM component and will be adapted to the enhanced reference data.

The main innovation of BDM is that it will support the same types of interactions, beyond T2S, also for new Services and Components (e.g. CLM and RTGS). However, the unavailability of a Service different from T2S would neither cause any side-effect on the interaction between T2S and BDM nor any delay on the business day of T2S. This is ensured by defining for which Service/component a particular event is relevant, as detailed below.

While BDM events may be defined per service/component, the potential operational impact of possible existence of synchronization points between T2S and (for instance) T2 would be the same way as today, with T2S and TARGET2 operating with two different scheduling applications.

To fulfil its functions the BDM component will use data configured in CRDM (analogous the way T2S Scheduling uses data configured/used in SDMG today).

2. Design and implementation approach

The design and the implementation of Scheduling functions into BDM functions follows the steps listed hereunder, which are envisaged with the wider CRDM scope in mind and applied, for the purpose of this CR, to the BDM case alone:

- high-level functional gap analysis
- technical implementation analysis
- backlog setup
- specifications, development and test

High-level functional gap analysis

For each function required by BDM, the following high-level functional gap analysis was performed:

- Identification of the candidate *as-is* function in T2S Scheduling.
- Definition of corresponding *to-be* function (based on BDM requirements).
- Assessment of the functional gap between the *as-is* and the *to-be* function (in terms of attributes, relationships, business rules, etc.)

Technical implementation analysis

For each reference data function put through the high-level functional gap analysis, a technical implementation analysis classified the function into one of the following implementation approaches:

- Reuse: the *as-is* function can be fully reused to get to the *to-be* function (no software change is needed).
- Integration: the *as-is* function has to be enhanced to get to the *to-be* function.

- New development: the *to-be* function has to be developed from scratch.

Overall scenario

BDM is built as an enhancement of T2S Scheduling, partially overlapping with the current Scheduling application perimeter but centralizing these functions to common components. BDM functions result from adaptations to the existing T2S design.

Description of requested change:

Specific data related to the daily schedule loaded in the Scheduling module will be affected:

Area	Data	Type of Impact
Scheduling Configuration	Closing Day Event Type Operating Day Type	Integration (Direct Change) ¹
Business Day Management	Daily Schedule data	Integration (Direct Change)

The following sections describe into detail the type of impact and any potential implication on the concerned T2S Actors.

Scheduling Configuration

The main improvement from T2S Scheduling to BDM is the introduction of a “Service” dimension to allow the single central Business Day Management common component to manage Service-specific calendar and event data that will in turn be the basis for Service-specific business day plans.

This will require the enhancement of the CRDM data model with additional “Service” attributes to segregate the Event Type, Operating Day Type and Closing Day objects for each Service/component. This is described in a separate CR for CRDM. On Business Day Management level, the internal information flows and GUI screens used by Actors to access this data will be developed and adapted accordingly; i.e. the dynamic data currently loaded by Scheduling (and by BDM in the future) to populate the daily schedule for a particular day will be adjusted for integration with the new structure.

Moreover, enhanced management functions will be developed for the Operator, in order to provide additional flexibility in managing different business day schedules as well as the list of events for the current business day at run-time.

Business Day Management

The improvement introduced at reference data level (i.e. the introduction of a “Service” attribute, as described in separate CR “CRDM for T2-T2S Consolidation”) will be put in place for management of the Event and System Status data governing the current business day schedule in T2S (and other Services). This will lead at each change of business date to the definition of multiple business day schedules (one per Service) which can be filtered by using the Service attribute. This will in turn allow to make data related to other Services not visible in T2S, thus minimizing impact on T2S Actors.

In addition, the delay functionality outlined above will be introduced, leading to the possibility of setting a predefined delay between predecessor and successor events. This functionality may be implemented in T2S configurations if required at operational level. The BDM GUI screens will be enhanced compared to their T2S counterparts to display this data.

Operator-only functions and GUI screens for the management of business day data will be enhanced to accommodate the new attributes.

DAILY SCHEDULE DATA

Type of Impact	Integration (Direct Change)
-----------------------	------------------------------------

¹ This impact refers to CRDM and is described in CR-0721.

Impact on the software	A new Service attribute will allow distinguishing current business day Events and System Status data by Service. This attribute will be incorporated in the internal flows exchanged between BDM and other T2S modules. The links between Events will be enriched with a "Delay" attribute that will allow to set a predefined delay between predecessor and successor events. The new versions of the Calendar and Diary queries, along with the related XML messages and GUI screens, will be adapted to use the new Service attribute.
Impact on the data	Daily Schedule and System Status data will be loaded with an additional "Service" attribute. Daily Schedule data will also include an additional "Delay" attribute.
Concerned T2S Actors	<i>All</i>
Implications for T2S Actors	The new BDM Daily Schedule interfaces, based on the T2S ones, will be adapted to use the "Delay" and "Service" attributes. The A2A messages for performing Calendar and Diary queries will be enhanced with the "Service" attribute.

BDM Screens and messages

A set of GUI screens and messages will be developed to cover the centralized BDM functionalities.

The following screens will be implemented in BDM:

- Daily Schedules – Search/List Screen
- Daily Schedule – New/Edit Screen (only relevant for the Operator)
- Calendar Screen

The following messages will be implemented in BDM:

- camt.018 – GetBusinessDayInformation
- camt.019 – ReturnBusinessDayInformation

Submitted annexes / related documents:

The following annexes includes a detailed comparison between the T2S camt.018/camt.019 (coming from CR713) and the respective BDM usage guidelines, showing all changes foreseen.

- See file entitled *camt.018_T2SCR713_BDM_Comparison* for camt.018;
- See file entitled *camt.019_T2SCR713_BDM_Comparison* for camt.019.

Proposed wording for the Change request:

The above listed changes can be summarized in the following points:

- Inclusion of specific amendments to T2S internal database views in order to ensure that non-T2S data is not used by T2S modules;
- Enhancement of the management functions at the disposal of the T2S Operator to ensure a more flexible and responsive management of the business day schedules for all Services/components;
- Implementation of the new BDM functionalities.

Some changes to elements of the BDM business interface (specifically to the consolidated XML schemas) will be relevant for T2S users once T2S migrates to the BDM business interface with CR-0707.

BDM will only support camt.018/camt.019 messages for queries (Calendar query, Diary query, Status of the Settlement day query), with a single schema valid BDM for all services.

The following list describes the major changes applied to each message respect to the CR713 T2S version. A complete description is present in the submitted annexes:

- camt.018
 - *Message Identification*, extended to max 35 characters. NONREF value could be used, since the message identification is present in the BAH. T2S user could fill it with 16x identifiers, accordantly with T2S requirements: BDM will manage them accordantly.

- *Issuer*, removed to reflect the fact that BDM supports different services;
- *Market Infrastructure Identification*, introduced to reflect the fact that BDM supports different services: the query should specifies the service to which it refers.
- camt.019
 - *Message Identification/Original Business Query Message Identification*, extended to max 35 characters. NONREF value is used for Message Identification, since it is already is present in the BAH. BDM fills them with 16x identifiers, accordantly with T2S requirements.
 - *Market Infrastructure Identification – Proprietary*, introduced to reflect the fact that BDM supports different services: the query answer reports the service to which it refers.
 - *Market Infrastructure Identification – Code*, removed.
 - *System Status*, amended to include all the status of the supported services;
 - *Issuer*, removed to reflect the fact that BDM supports different services;

BDM Usage guideline are present in the MyStandards CoCo T2-Subgroup.

High level description of Impact:

The Business Day Management common component will be enriched with additional functions to manage business days and calendars for multiple Services in the T2-T2S Consolidation framework. Given the nature of BDM as an enhancement of the T2S Scheduling module the changes will coexist in the same application. In any case, no impact on T2S users is foreseen due to the internal communication format between BDM and other T2S modules remaining unchanged, as well as the T2S interface being unaffected.

Some changes to elements of the BDM business interface (specifically to the consolidated XML schemas) will be relevant for T2S users once T2S migrates to the BDM business interface with CR-0707.

Outcome/Decisions:

- * CRG on the 20 March 2019: The CRG has agreed to launch the preliminary assessment of CR-698.
- * CRG on the 3 September 2019: The CRG agreed to recommend the CR for authorisation by the T2S Steering Level
- * PMG on the 15 October 2019: The PMG proposed the allocation of the CR for R4.2.
- * AMI-SeCo on 16 October 2019: The AMI-SeCo agreed with the recommendation of the CRG.
- * CSG on 25 October 2019: The CSG authorised the CR for allocation to a T2S release.
- * NECSG on 28 October 2019: The NECSG authorised the CR for allocation to a T2S release.
- * MIB on 8 November 2019: The MIB authorised CR-698.
- * CRG on 22 January 2020: The CRG took note of the results of the detailed assessment and agreed to recommend the implementation of CR-698 in R4.2 to the PMG.
- * PMG on 23 January 2020: The PMG agreed to recommend the CR for approval by the T2S Steering Level and on its inclusion in R4.2.
- * OMG on 30 January 2020: The OMG completed the operational assessment of the CR.
- * MIB on 13 February 2020: The MIB approved the inclusion of CR-698 in the scope of T2S Release 4.2 without discussion.

Preliminary assessment:

- **Impacted modules:** Scheduling
- **Release:** 4.2
- **Findings:**

No specific findings.

- **Open issues/ questions to be clarified by the originator:**

None

EUROSYSTEM ANALYSIS – GENERAL INFORMATION			
T2S Specific Components		Common Components	
LCMM			
	Instructions validation		
	Status management		
	Instruction matching		
	Instructions maintenance		
	Penalty Mechanism		
Settlement			
	Standardisation and preparation to settlement		
	Night-time Settlement		
	Daytime Recycling and optimisation		
	Daytime Validation, provisioning & booking		
	Auto-collateralisation		
Liquidity Management			
	Outbound Information Management		
	NCB Business Procedures		
	Liquidity Operations		
T2S Interface (as of June 2022 without Static Data Management, Communication for SDMG, Scheduler, Billing)			
	Communication		
	Outbound Processing		
	Inbound Processing		
Static Data Management (until Nov 2021)		Common Reference Data Management (from PROD R5.2 Nov 2021)	
	Party data management		Party data management
	Securities data management		Securities data management
	Cash account data management		Cash account data management
	Securities account data management		Securities account data management
	Rules and parameters data management		Rules and parameters data management
Statistics and archive		Statistics and archive	
	Statistical information (until Nov 2021)		Short term statistical information
	Legal archiving (until Nov 2021)		Legal archiving (from PROD R5.2)
			Data Warehouse (from PROD R5.2)
Information (until June 2022 containing reference data)		CRDM business interface (from PROD R6.0 June 2022)	
	Report management		Report management
	Query management		Query management
			Communication
			Outbound Processing
			Inbound Processing
Operational Services			
	Data Migration (T2S DMT)		Data Migration (CRDM DMT, from PROD R5.2)
X	Scheduling (until Nov 2021)	X	Business Day Management (from PROD R5.2)
		X	Business Day Management business interface (from PROD R6.0)
	Billing (until June 2022)		Billing (from PROD R5.2)
			Billing business interface (from PROD R6.0)
	Operational Monitoring		Operational and Business Monitoring

Impact on major documentation			
Document	Chapter	Change	
Impacted GFS chapter			
Impacted UDFS chapter			
Additional deliveries for Message Specification			
UHB			
Other documentations			
Links with other requests			
Links	Reference	Title	
OVERVIEW OF THE IMPACT OF THE REQUEST ON THE T2S SYSTEM AND ON THE PROJECT			
Summary of functional, development, infrastructure and migration impacts			
<p>The Scheduling module will be enhanced into the Business Day Management common component. No impact is expected on T2S side. T2S interfaces will not access the new data, and internal T2S communications will remain unchanged. In line with this, no change to the T2S scope-defining documentation is foreseen.</p>			
Summary of project risk			
Security analysis			
No adverse effect has been identified during security assessment.			