

## Change Request form

General Information (Origin of Request)		
<input type="checkbox"/> User Requirements Document (URD) <input checked="" type="checkbox"/> Other User Functional or Technical Documentation (SYS) <input type="checkbox"/> Other TIPS Documentation (OTD) <i>(to be filled in by CoG)</i>		
<b>Request raised by:</b> 4CB	<b>Date raised:</b> 30/09/2019	
<b>Request title:</b> Intraday change synchronization between TIPS and CRDM	<b>Name of Central Bank:</b> 4CB	<b>Request ref. no:</b> TIPS 0021 SYS
Categorisation of changes		
<b>1. Functional/technical importance parameter:</b> Medium	<b>4. Legal importance parameter:</b> Low	
<b>2. Operational importance parameter:</b> Medium	<b>5. Financial importance parameter:</b> Medium	
<b>3. Stakeholder importance parameter:</b> Medium		
<b>Status:</b> Allocated to a release		

### Description of requested change:

TIPS receives data from the Common Reference Data Management (CRDM) component on a daily basis. Due to the desynchronization between the two applications and TIPS's 24/7 operations, certain data management operations of a time-sensitive nature are available in TIPS's local reference data management as well as in CRDM. These operations are:

- Blocking/unblocking a TIPS Participant;
- Blocking/unblocking a TIPS Account;
- Blocking/unblocking a TIPS CMB;
- Modifying the limit for a TIPS CMB.

Currently, these operations can be performed only on local reference data side (i.e. within TIPS) directly, while on the CRDM side it is only possible to set the initial limit for a TIPS CMB (this data is only used as the initial value for the opening of the CMB in TIPS, and any subsequent update performed on CRDM side is ignored by TIPS). Similarly, restrictions applied to Participants, TIPS Accounts and CMBs on CRDM side are not propagated to TIPS.

This CR aims at introducing an intraday synchronization mechanism in order to allow the same availability of these functions on CRDM side, in line with its service time.

### Reason for change and expected benefits/business motivation:

The availability of blocking/unblocking and limit update functions on both common (CRDM) and local (TIPS) reference data management side requires a synchronization mechanism to avoid inconsistent

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data on either side. Changes performed on CRDM side should have immediate effect in TIPS, but changes performed in TIPS cannot be propagated back to CRDM. This requires additional application logic in order to ensure that data stays consistent on either side, but also assumes (based on requirement SHRD.UR.CRDM.PROP.000.050) that the user performing changes in TIPS is responsible for making the same changes in CRDM, which are then propagated to all subscribing services, possibly including TIPS itself. This approach also implies that changes made in TIPS local reference data should take precedence over changes propagated from CRDM; therefore if the data are not aligned, changes in CRDM for specific attributes should be prevented.

This new approach introduces some limitations on possible data operations in CRDM.

- Restrictions may only be applied and removed with immediate validity, since TIPS has no corresponding concept of validity period for blocking/unblocking parties and accounts.
- Similarly, Limits have a Valid From attribute and several Limits may be created for the same Cash Account in CRDM, but only one value per TIPS CMB is possible in TIPS, without a validity period. To avoid inconsistencies (e.g. TIPS having to distinguish between changes to the current Limit and a future one), Limits should only allow changes with immediate validity, and consequently only one active Limit per TIPS CMB should exist, and it should not be possible to set the Valid From for a TIPS CMB Limit to a future value.

New business rules in CRDM should be added to ensure the above conditions.

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### Submitted annexes / related documents:

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### Proposed wording update to the documentation to address the requested change:

#### **TIPS UDFS v2.1.1 section 1.6.3 Common Reference Data Management**

[...]

As far as TIPS is concerned, as anticipated in 1.5.1 “General concepts” and in 1.5.4 “Reference data management”, all reference data setup and maintenance operations – other than the immediate changes in the local reference data management – are performed in the CRDM and reference data are then propagated from the CRDM to TIPS either asynchronously on a daily basis or, for specific operations corresponding to the immediate changes available in TIPS (blocking/unblocking of participants, accounts, or CMBs and updates of CMB limits) with immediate effect. The dialogue between CRDM and TIPS envisages three ~~two~~ types of interactions:

1. Daily propagation: this is the main interaction between CRDM and TIPS. Every CRDM opening day, an ad hoc event triggers the propagation of all TIPS reference data from CRDM to TIPS. The event takes place at 17:00 CET, so to ensure a smooth and complete reference data propagation before TIPS receives the notification that a new business day is starting. The set of reference data that TIPS receives on business day T includes all the active data on the mentioned business date. If an item, propagated on date T, contains a validity date in the future (e.g. T+2), TIPS acquires it during the daily propagation but the item will be available in TIPS only when the validity date is reached.

2. Contingency propagation: in case of contingency the TIPS Operator may trigger an ad hoc Daily propagation from CRDM to TIPS. The contingency propagation is a daily propagation triggered intraday if an immediate change of a set of data (not manageable directly into TIPS) must be performed. In this case, the following steps happen:

- a. All the data eligible for the daily propagation and valid at the moment of the contingency propagation are propagated;
- b. The daily propagation is performed as scheduled and includes all the active data on the relevant business date.

3. Immediate propagation: specific operations, corresponding to the immediate reference data changes available from the TIPS interface, can be carried out in CRDM with immediate effect also in TIPS. If the related attributes are modified directly in TIPS (for example, while CRDM is unavailable) the values in CRDM and TIPS may differ. In such a scenario, it is necessary to restore the alignment between CRDM and TIPS by performing the same change(s) in CRDM as well. While the values are not aligned, changes to the relevant attribute(s) may only be carried out in TIPS until the CRDM values are set to the same values. During this time, any other operation on the differing values on CRDM side will be rejected. Once the values are aligned on CRDM side, it will once again be possible to carry out any change from CRDM.

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The possible CRDM changes triggering immediate propagation in TIPS are:

- o Blocking/unblocking of a participant:
- o Blocking/unblocking of an account or CMB:
- o Update of a CMB limit (and adjustment of the related headroom).

The following diagram shows a conceptual overview of the daily propagation interactions between CRDM and TIPS.

### **TIPS UHB v2.1.1 section 1.2.2 Common Reference Data Management**

[...]

As the CRDM component is available 5 days a week, 22 hours a day, the possibility to setup and maintain reference data for TIPS is only available during that time window. The data is propagated to TIPS asynchronously, on a daily basis at 17h00 CET, shortly before the business day change of TARGET2. Specific changes corresponding to the immediate reference data changes available in TIPS (blocking/unblocking of participants, accounts or CMBs and updates of CMB limits) are propagated to TIPS with immediate effect.

### **TIPS UHB v2.1.1 section 4.2.1 Participant Blocking**

[...]

Blocking/Unblocking status is also available, ~~with non-immediate effect~~, in the CRDM; any change that is propagated from the CRDM to TIPS does not overwrite these values if they have been changed within TIPS via an immediate change. In such a scenario, the value in CRDM must first be aligned to the one in TIPS; following this alignment, any update becomes again possible from CRDM.

### **TIPS UHB v2.1.1 section 4.2.2 Account Blocking**

[...]

Blocking/Unblocking status is also available, ~~with non-immediate effect~~, in the CRDM; any change that is propagated from the CRDM to TIPS does not overwrite these values if they have been changed within TIPS via an immediate change. In such a scenario, the value in CRDM must first be aligned to the one in TIPS; following this alignment, any update becomes again possible from CRDM.

### **TIPS UHB v2.1.1 section 4.2.3 CMB Blocking**

[...]

Blocking/Unblocking status is also available, ~~with non-immediate effect~~, in the CRDM; any change that is propagated from the CRDM to TIPS does not overwrite these values if they have been changed within TIPS via an immediate change. In such a scenario, the value in CRDM must first be aligned to the one in TIPS; following this alignment, any update becomes again possible from CRDM.

### **TIPS UHB v2.1.1 section 4.3 Limit management**

The limit is the maximum amount of liquidity available for a CMB. It is the sum of the utilisation (amount of cash used for that CMB) and the headroom (amount of cash still available for that CMB). It can be modified at all times directly in TIPS. Limit management functions are also available, ~~with non-immediate effect~~, in the CRDM.

### **TIPS UHB v2.1.1 section 4.3.1 CMB limit modification**

Limit update is also available, ~~with non-immediate effect~~, in the CRDM.

### **CRDM-TIPS UDFS v2.0.0 section 1.4.2 Overview**

The Common Reference Data Management common component executes immediately all reference data maintenance instructions. However, the related reference data changes become effective in TIPS in a deferred way, by means of a daily reference data propagation process. The process takes place every business day at 17:00 CET, so to ensure a smooth and complete reference data propagation before TIPS receives the notification that a new business day is starting (see also section 1.5.4 of TIPS UDFS for more information). Specific changes corresponding to the immediate reference data changes available in TIPS (blocking/unblocking of participants, accounts or CMBs and updates of CMB limits) are propagated to TIPS with immediate effect.

### **CRDM-TIPS UDFS v2.0.0 section 1.5.3 TARGET Instant Payments Settlement**

Data set up in CRDM is propagated to TIPS on a regular basis, typically once a day, at a preset time before the change of business date. If needed, participants can request an ad-hoc propagation to be run at different times of day. There is no technical limit on the number of times a data propagation can run during a given business date.

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Specific changes corresponding to the immediate reference data changes available in TIPS (blocking/unblocking of participants, accounts or CMBs and updates of CMB limits) are propagated to TIPS with immediate effect.

No data propagation flow exists from TIPS to CRDM; data modified in TIPS does not influence the existing data in CRDM. If certain attributes are modified directly in TIPS (for example, while CRDM is unavailable) the values in CRDM and TIPS may differ. In such a scenario, it is necessary to restore the alignment between CRDM and TIPS by performing the same change(s) in CRDM as well. While the values are not aligned, changes to the relevant attribute(s) may only be carried out in TIPS until the CRDM values are set to the same values. During this time, any other operation on the differing values on CRDM side will be rejected. Once the values are aligned on CRDM side, it will once again be possible to carry out any change from CRDM.

### **CRDM-TIPS UDFS v2.0.0 section 1.7.2 Data propagation between CRDM and TIPS**

Removal of entire section

### **CRDM-TIPS UDFS v2.0.0 section 4.1 Business Rules**

Inclusion of new business rules preventing changes to Account/Party blocking status and CMB limit from CRDM when values in CRDM and TIPS are not aligned.

Inclusion of new business rules to prevent non-immediate restrictions with effect on TIPS.

Inclusion of new business rules to prevent the existence of more than one Limit on a TIPS CMB or the existence of a future-dated Limit on a TIPS CMB.

### **CRDM-TIPS UHB v2.1.1 section 2.3.1.2 Party – Details Screen**

### **CRDM-TIPS UHB v2.1.1 section 2.3.1.2 Party – New/Edit Screen**

Introduction of additional fields to show the current blocking status (for debit and credit) of the Party in TIPS (only if the Party has an active Party-Service Link to TIPS).

### **CRDM-TIPS UHB v2.1.1 section 2.3.2.2 Limit – New/Edit Screen**

Introduction of additional field to show the current CMB limit value of the CMB in TIPS (for TIPS CMBs).

### **CRDM-TIPS UHB v2.1.1 section 2.3.2.4 Cash Account – Details Screen**

### **CRDM-TIPS UHB v2.1.1 section 2.3.2.5 Cash Account – New/Edit Screen**

Introduction of additional fields to show the current blocking status (for debit and credit) of the Cash Account in TIPS (for TIPS Accounts and TIPS CMBs).

### **CRDM-TIPS UHB v2.1.1 section 4.3 List of References for Error Messages**

Inclusion of new business rules preventing changes to Account/Party blocking status and CMB limit from CRDM when values in CRDM and TIPS are not aligned.

Inclusion of new business rules to prevent non-immediate restrictions with effect on TIPS.

Inclusion of new business rules to prevent the existence of more than one Limit on a TIPS CMB or a future-dated Limit on a TIPS CMB.

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### **High level description of Impact:**

TIPS will be enhanced to be able to receive the intraday data change notifications from CRDM.

Changes performed in CRDM to Limit amounts and Party/Cash Account restrictions relevant for TIPS will be propagated and applied with immediate effect in TIPS itself.

Since it is also possible to modify the related attributes in TIPS local reference data, there may be situations where the CRDM and TIPS values for the same attribute are not aligned. In such a scenario, the only possible operation on CRDM side would be to re-align the CRDM value to the one present in TIPS. Once this action is performed, it will once again be possible to perform any change from CRDM as well.

In order to improve the usability of this feature, the CRDM GUI Details and Edit screens for Limit, Party and Cash Account will retrieve and display the current TIPS values for the attributes that can be modified on both sides. This will be implemented only when Parties with a link to TIPS, TIPS Accounts or TIPS CMBs are displayed.

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The maintenance of Party and Cash account restrictions and Limit data on CRDM side, regardless of the respective values in TIPS, will only be available in U2A mode.

Additional business rules will be introduced in CRDM to ensure that:

- Party/Cash Account Restrictions can only be applied and removed with immediate effect;
- Each TIPS CMB has no more than one Limit and it cannot have a future Valid From date.

Possible technical error scenarios caused by the immediate data propagation will be treated by TIPS raising internal monitoring alarms to the TIPS Operator.

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**Outcome/Decisions:**

L3 analysis - General Information	
Impact on TIPS	
<b>Business Interface</b>	
<b>X</b>	A2A Interface
	U2A Interface

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<b>Settlement Engine</b>	
	Payment Transaction
	Liquidity Transfer
	Recall
<b>Queries and Reports</b>	
	Queries
	Reports
<b>Other functions</b>	
X	Local Reference Data Management
	Statistics
	Complex Queries and Reports
	Mobile Proxy Look-up
<b>Common Components</b>	
	ESMIG
X	CRDM (U2A, A2A, Backend)
	Archiving
	Billing
	DMT
<b>Operational Tools</b>	
	SLA Reporting
	TMS
	Technical Monitoring
	Change Management
	Capacity Management
<b>Infrastructure request</b>	
X	Application components impacted

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	Application components not impacted	
<b>Operational activities</b>		
	Business activities impacted	
	Technical activities impacted	
<b>New functionalities</b>		
<b>Impact on documentation</b>		
<b>Document</b>	<b>Chapter</b>	<b>Change</b>
TIPS UDFS	1.6.3 Common Reference Data Management	Description of immediate propagation to TIPS
TIPS UHB	1.2.2 Common Reference Data Management 4.2.1 Participant Blocking 4.2.2 Account Blocking 4.2.3 CMB Blocking 4.3 Limit management 4.3.1 CMB limit modification	Description of immediate propagation to TIPS  Description of alignment mechanism between CRDM and TIPS
CRDM-TIPS UDFS	1.4.2 Overview 1.5.3 TARGET Instant Payments Settlement 1.7.2 Data propagation between CRDM and TIPS 4.1 Business Rules	Description of immediate propagation to TIPS  Description of alignment mechanism between CRDM and TIPS  Removal of limitation related to immediate data propagation  Introduction of new business rules
CRDM-TIPS UHB	2.3.1.2 Party – Details Screen 2.3.1.2 Party – New/Edit Screen 2.3.2.2 Limit – New/Edit Screen	Inclusion of additional fields to show attribute values in TIPS  Introduction of new business rules

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	2.3.2.4 Cash Account – Details Screen 2.3.2.5 Cash Account – New/Edit Screen 4.3 List of References for Error Messages	
Training documentation		
Other documents		

Overview of the impact of the request on TIPS (L2 view)
Summary of functional, development, infrastructure, operational, and security impacts
<p><u>Summary of functional impact:</u></p> <p>TIPS will be enhanced to be able to receive the intraday data change notifications from CRDM. Changes performed in CRDM to Limit amounts and Party/Cash Account restrictions relevant for TIPS will be propagated and applied with immediate effect in TIPS itself.</p> <p>In order to improve the usability of this feature, the CRDM GUI Details and Edit screens for Limit, Party and Cash Account will retrieve and display the current TIPS values for the attributes that can be modified on both sides. This will be implemented only when Parties with a link to TIPS, TIPS Accounts or TIPS CMBs are displayed.</p> <p>If data is not aligned on CRDM and TIPS side, specific CRDM business rules will prevent any changes on CRDM side.</p> <p>Additional business rules will be introduced in CRDM to ensure that:</p> <ol style="list-style-type: none"> <li>1. Party/Cash Account Restrictions can only be applied and removed with immediate effect;</li> <li>2. Each TIPS CMB has no more than one Limit and it cannot have a future Valid From date.</li> <li>3. Maintenance requests involving TIPS Party/Cash Account restriction or Limit data sent via A2A channel will be rejected in any case.</li> <li>4. Maintenance requests involving TIPS Party/Cash Account restriction or Limit data sent via U2A channel will only be allowed if the corresponding values in TIPS are aligned, or if the requests aim at aligning them.</li> <li>5. Possible technical error scenarios caused by the immediate data propagation will be treated by TIPS raising internal monitoring alarms to the TIPS Operator.</li> </ol> <p><u>Summary of application development impact:</u></p> <p><b>CRDM backend</b></p>

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**A new component in CRDM-Backend** will collect and aggregate notifications of change of relevant objects and items (Party, Cash Account, Limits linked to TIPS).

Such notifications, including detailed information changed, will be forwarded to TIPS-Router.

**TIPS-Router** will transform such messages into standard TIPS operations, as it were sent by TIPS-GUI or TIPS-A2A interface.

**TIPS-Router** will store such operations and will submit them to the TIPS-Settlement Core.

Additionally, **CRDM-TIPS GUI** will query TIPS-Router to show the current statuses (as stored in TIPS) of Account and CMB and current values of CBM Limits. Then the CRDM-TIPS GUI will enforce the alignment of data between CRDM and TIPS, making possible to will prevent any changes on CRDM side if data are into alignment, unless the request aims at aligning them.

**CRDM-Backend** will implement the new business rule as described in the Functional analysis.

**CRDM-A2A** will prevent updates of blocking/unblocking flags and limits.

### Summary of infrastructure impact:

Implementation of new MQ channels.

### Summary of operational impact:

No operational impact

### Summary of security impact:

See Change Request analysis