EUROPEAN CENTRAL BANK

EUROSYSTEM

fT2S CHANGE REQUEST FORM			
General Information (Origin of Request) ☐ User Requirements (URD) or GUI Business Functionality Document (BFD) ☒ Other User Functional or Technical Documentation (SYS)			
Request raised by: 4CB	**Institute:** 4CB		**Date raised:** 28/05/2021
Request title: Technical enhancement of the EAC environment to support migration and volume testing activities of CSDs joining T2S			**Request No.:** T2S 0767 SYS
Request type: Common	**Classification:** Scope Enhancement		**Urgency:** Fast-track[1]
1. Legal/business importance parameter: Medium[2]		**2. Market implementation efforts parameter:** Low[3]	
3. Operational/Technical risk parameter: Low[4]		**4. Financial impact parameter:** Very high[5]	
Requestor Category: 4CB		**Status:** Proposed for a release	

Reason for change and expected benefits/business motivation:

A series of tests are to be considered by each migrating CSD to T2S in order to ensure a smooth migration and stable operations in T2S:

- Multiple iterations of migration weekend rehearsals with full volumes;
- Volume testing.

Unlike previous T2S CSDs who joined T2S through one of the migration waves, CSDs onboarding to T2S cannot rely on dedicated test environments[6] for migration testing [i.e. MIG1 and MIG2], as these environments been decommissioned in Q4 2017 as per T2S governance decision.

The test environments currently available to the T2S Actors are:

- Interoperability (EAC): dedicated to functional testing by CSDs and CBs, and therefore it is configured and sized to support only limited volumes[7];

- Pre-Production (UTEST): dedicated to Community Testing by CSDs, CBs, and their participants. The software and configuration of this test environment is as identical to the T2S Production environment as possible to allow T2S Actors to test their business applications under Production-like conditions.

In accordance with the T2S Framework Agreement, the T2S test environments have a substantially lower capacity compared to the Production environment (10% of the long-term capacity model for the system capacity ceiling of the Production environment). The test environments have the potential to be brought up to 100% Production CPU to cover specific testing needs, upon a request from – and in agreement with – the T2S Actors. However this operation is only effective for the Pre-Production environment, which is configured and sized to exploit such additional capacity. Increasing CPU alone is not sufficient to make the Interoperability environment capable of supporting Production-like volumes.

In its ad-hoc meeting of 7 May 2021, the CSG requested to initiate the changes to upgrade the EAC environment from its current sizing and configuration into a Pre-Production one, thus making it capable of supporting migration dress rehearsals and volume tests with full Production volumes with the appropriate increase in CPU (capacity).

[1] Fast-tracking is requested because CR-767 is considered a pre-requisite for the start of Euroclear Finland migration rehearsal activities, i.e. to be implemented by Release 6.2

[2] Legal/business importance parameter was set to Medium because of the relevance of this Change Request for the onboarding of new joiners to T2S.

[3] Market implementation effort parameter was set to Low because no adaptations are needed on the part of the T2S users.

[4] Operational/technical risk parameter was set to Low because the CR does not affect T2S functionality, and won't introduce changes in the Production environment

[5] Low < 100k EUR < Low-Medium < 200k EUR < Medium < 400k EUR < High < 700k EUR < Very high.

[6] Environments MIG1 and MIG2 were established with CR-0339 "Requirements on test environments to facilitate the segregation of testing activities", which prescribed that *"[…] during the User Testing, T2S will offer a total of four test environments for the testing activities of T2S Actors and for production support during the migration phase. The Eurosystem will decommission two of the four test environments four weeks after the successful go-live of the final migration wave."*

[7] As prescribed by the User Testing Framework: *"EAC is, unless otherwise agreed by the PMG, only foreseen for functional testing, i.e. of T2S as such or of CSDs and NCBs internal systems interacting with T2S. – EAC is not to be used for volume testing. […]"*

Additionally, the usage of EAC environment with Production capacity could be further leveraged when exploring additional business cases such as stress testing, performance testing, and other high-volume test activities involving the T2S community.

In preparation for these upcoming scenarios, triggering the increase in CPU on a short notice – although possible from a technical point of view – is not the most cost-efficient solution. It is recommended to explore a more long-term solution, relying on a yearly allotment of days to be spent whenever needed, in order to negotiate overall more advantageous conditions with the CPU provider.

The T2S Service Desk will provide the usual level of support envisaged for the test environments, with the exception of the MWDRs when continuous Production-like support will be provided until the end of the test. Potential additional cost for the operational support will be estimated during the detailed assessment phase.

This Change Request includes:

(A) One-off changes to align the technical configuration and sizing of the EAC environment to the Pre-Production one;

(B) A fixed yearly allotment of Production-like capacity days (i.e. days when the full set of CPU processors is made available as in Production) to support high-volume test activities such as migration and volume testing for new joiners.

Description of requested change:

In order to make the EAC configuration as close as possible to the Production one and support the execution of the tests, interventions in the following areas will be necessary.

(A) One-off changes

Hardware purchases:

- Physical resources (exhaustive)
  - Upgrade of real memory
  - Upgrade of coupling facility (processors)
  - Upgrade of disk storage subsystem

Human effort:

- Effort to update system and subsystem configurations to exploit the additional physical resources

(B) Fixed yearly allotment of Production-like capacity days (running cost)

- 25 calendar days/year

The days would be allocated for use by the T2S community on a yearly basis. They would be used to support different high-volume scenarios in the EAC environment such as:

- Migration and volume testing for new joiners;
- Stress/performance testing;
- Volume testing requests raised by the T2S Actors.

In case more days are required by the T2S community, they would be provided by 4CB at no additional cost; likewise if part of the allotment is not consumed at the end of the year, it would not be reimbursed.

The number of days allocated to this extent would be re-evaluated on a regular basis (e.g. every three years), based on the most updated view of the testing needs of the T2S community.

This change will entail the need for the relevant T2S technical groups to update the following T2S documents:

- *T2S Framework Agreement* (Schedule 3 – User Testing);

- *User Testing Framework.*

Submitted annexes / related documents:

Outcome/Decisions:

*****CRG on 18 June 2021: the CRG agreed to recommend CR-767 for authorisation by the T2S Steering Level, following a fast-track approach.
* AMI-SeCo on 28 June 2021: the AMI-SeCo agreed with the CRG recommendation of CR-767 for authorisation by the T2S Steering Level.
*CSG on 28 June 2021: the CSG agreed to authorise CR-767.
* NECSG on 28 June 2021: the NECSG agreed to authorise CR-767.
* PMG on 2 July 2021: the PMG agreed to launch the detailed assessment of CR-767 in view of scoping in R6.0
*MIB on 14 July 2021: the MIB agreed to authorise CR-767.
* CRG on 06 October 2021: the CRG agreed to recommend CR-767 for authorisation by the T2S Steering Level
* OMG on 06 October 2021: the OMG agreed to recommend CR-767 for authorisation by the T2S Steering Level
* PMG on 07 October 2021: the PMG agreed to recommend CR-767 for authorisation by the T2S Steering Level

Documentation to be updated:

Detailed assessment:

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 June 2022)*		**Common Reference Data Management** *(from R6.0 June 2022)*	
	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 June 2022)		Short term statistical information
	Legal archiving (until June 2022)		Legal archiving (from R6.0)
			Data Warehouse (from R6.0)

Information *(until June 2022 containing reference data)*		**CRDM business interface** *(from 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 R6.0)
	Scheduling (until June 2022)		Business Day Management (from R6.0)
			Business Day Management business interface (from R6.0)
	Billing (until June 2022)		Billing (from R6.0)
			Billing business interface (from R6.0)
	Operational Monitoring		Operational and Business Monitoring
	MOP Contingency Templates		

Impact on major documentation		
Document	**Chapter**	**Change**
Impacted GFS chapter		
Impacted UDFS chapter		
Additional deliveries for Message Specification (UDFS, MyStandards, MOP contingency templates)		
UHB		
External training materials		

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

The CR has no functional impact. The planned 25 days per year will be split between migration weekends and volume tests during the week.
In addition, minor modifications of parameters might be necessary.

Main cost drivers:

- Development costs:
  - Infrastructure investments in hardware in order to change CPU model
- Running costs:
  - Support for the testing activities (migration weekends and the Volume tests during the week) to be carried out in the environment described in the Change Request
  - Increase of real memory per each region for enhancing the coupling facility and Storage enhancement
  - Support for clean up activities after above testing activities

Impact on other TARGET Services and projects

No impact on Target2, CSLD, ECMS or TIPS

Summary of project risk

None

Security analysis

No adverse effect has been identified during security assessment

27 September 2021

Cost assessment on Change Requests

T2S-767-SYS – Technical enhancement of the EAC environment to support migration and volume testing			
One-off	Assessment costs* - Preliminary - Detailed	 2,000.00 10,000.00	 Euro Euro
One-off	Development costs	612,347.45	Euro
Annual	Operational costs - Maintenance costs - Running costs	 1,621.02 1,261,605.49	 Euro Euro

*The relevant assessment costs will be charged regardless of whether the CR is implemented (Cf. T2S Framework Agreement, Schedule 7, par. 5.2.3).