

<b>General Information (Origin of Request)</b>		
<input checked="" type="checkbox"/> User Requirements (URD) <input type="checkbox"/> Other User Functional or Technical Documentation (SYS)		
<b>Request raised by:</b> CSD Contact Group (CCG)	<b>Institute:</b> ECB	<b>Date raised:</b> 19/03/2012
<b>Request title:</b> Requirements on test environments to facilitate the segregation of testing activities		<b>Request ref. no:</b> T2S_0339_URD
<b>Request type:</b> Common	<b>Urgency:</b> Normal	
<b>1. Legal/business importance parameter:</b> High	<b>2. Market implementation efforts parameter:</b> High	
<b>3. Operational/Technical risk parameter:</b> High	<b>4. Financial impact parameter:</b> (H, M, L) <i>(to be filled in by 4CB)</i>	
<b>Requestor Category:</b> CSD	<b>Status:</b> Authorised at Steering Level	

#### Description of Request:

The purpose of this change request is to update the business requirements for the T2S testing environments in section 19.4 of the URD ("T2S environments") to reflect the outcome from the User Testing workshops and the User Testing Terms of Reference, thereby deleting user requirements T2S.19.200, T2S.19.320 and T2S.19.350. As agreed between Eurosystem and CSDs and specified in Schedule 3 of the Framework Agreement, user testing requires two additional T2S test environments within the current sizing constraint of 10% production processing capacity and 20% of production storage capacity. Therefore 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. Furthermore during the User Testing Phase, the Eurosystem is to provide support services for specific tests, such as migration and performance tests on up to five weekends per migration wave. In addition, the Eurosystem is to open a test environment with live timing and provide production-like support for four weeks per migration wave.

In order to address the potential need for (1) extending the availability of community test environment owing to critical problems remaining on the production system after the go-live of the final migration wave (cost per week); (2) additional weekends for execution specific tests (cost per weekend) and (3) additional periods with live timing and production-like support (cost per week), the Eurosystem is to provide cost indications if the above listed CSDs and central banks requests materialise.

#### Reason for change / expected benefits / business case:

The CSD Contact Group has requested the Eurosystem to provide two additional test environments for User Testing until the successful go-live in T2S of the final migration wave. The CSDs' representatives in the Project Managers Subgroup (PMSG) confirmed their views that they already expressed in the Subgroup on Testing and Migration (SGTM) that they do not deem it feasible to test T2S in the given timeline using only two test environments. Additional test environments will facilitate the segregation of testing activities (e.g. interoperability testing; migration testing; community testing; and production support during the migration phase), thereby reducing testing conflicts and constraints.

After go-live of static data maintenance in T2S, a permanent T2S test environment (pre-production) will be shared between T2S Actors and the Eurosystem to allow for efficient production support.

**Proposed wording for the URD Change**

The Change Request replaces the whole current section “19.4 T2S Environments”.

The new section 19.4 T2S Environments is:

**Distribution of test environments between the two regions**

<b>Reference ID</b>	T2S.19.290
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The four test environments will run concurrently in the same region. They will share their hardware resources and will be subject to the periodical rotations to the other region.

**Four T2S test environments until the final migration wave**

<b>Reference ID</b>	T2S.19.400
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The Eurosystem shall establish four T2S test environments for the exclusive use of CSDs and central banks for user testing until four weeks after the successful go-live in T2S of the final migration wave i.e.:

- Interoperability test environment
- Migration test environment
- Community test environment
- Pre-production test environment

**Availability of the T2S test environments**

<b>Reference ID</b>	T2S.19.410
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The Eurosystem shall establish the Interoperability, Migration and Community test environments four months prior to the start of CSDs’ and central banks’ functional interoperability testing with T2S to allow for the connectivity set-up and connectivity testing to the test environments under the assumption that each CSD and central bank will set-up and test its connectivity to at least one test environment in the four month period. The Eurosystem will phase in the connectivity set-up and testing of CSDs and central banks to the remaining test environments as required by the test schedule agreed between the Eurosystem, CSDs and central banks.

The Eurosystem will establish the Pre-production test environment for the go-live of the static data maintenance in T2S latest three months before the planned T2S Go-Live.

**Two test environments after final migration wave**

<b>Reference ID</b>	T2S.19.420
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After the go-live of the final migration wave in T2S, the Eurosystem shall support two test environments:

- Interoperability test environment for future release testing (see T2S.19.425);
- Pre-production test environment (see T2S.19.430).

**Permanent Interoperability test environment after final migration wave**

<b>Reference ID</b>	T2S.19.425
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After the go-live of the final migration wave in T2S, the Eurosystem shall provide one permanent test environment (Interoperability test environment) for the CSDs’ and central banks’ functional interoperability testing of T2S software/hardware updates.

**Permanent Pre-production test environment after T2S go-live for dedicated use**

<b>Reference ID</b>	T2S.19.430
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From the go-live of the static data maintenance in T2S, the Eurosystem will dedicate a permanent Pre-production test environment for customer testing. The software and configuration of this test environment shall be as identical to the T2S production environment as possible to allow T2S Actors to test their business applications under production-like conditions.

**Statistical Information**

<b>Reference ID</b>	T2S.19.450
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The Eurosystem shall provide the statistical information module for only two of the four test environments for User Testing and will remain in place after the decommissioning of the two additional test environments.

**Processing Capacity for Test Environments**

<b>Reference ID</b>	T2S.19.460
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The cumulated processing capacity of the four test environments shall be up to 10% of the production capacity.

Description	Metric	Total Processing Volume for all environments (10% of Production Processing Capacity)
Peak night time work load	Messages	1,500,000
	Settlement Instructions	720,000
	Settlement Transactions	390,000
Peak day time daily work load	Messages	600,000
	Settlement Instructions	270,000
	Settlement Transactions	135,000
Night time peak hour work load	Messages	150,000
	Settlement Instructions	72,000
	Settlement Transactions	39,000
Day time peak hour work load (assuming an 12 hour work day)	Messages	60,000
	Settlement Instructions	22,000
	Settlement Transactions	11,000
Maximum U2A browsing requests per hour	HTTP requests	2,500
Maximum A2A queries per hour	Query requests	1,000

**Migration Rehearsals**

<b>Reference ID</b>	T2S.19.470
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The Eurosystem will provide sufficient capacity for CSDs' and central banks' migration rehearsals. Both the Eurosystem, CSDs and central banks' require certainty that a group of CSDs and central banks' of a migration wave can migrate to T2S in the foreseen timeframe of a weekend. The migration weekend dress rehearsal simulates the migration weekend with the full scope of CSDs and central banks data requiring migration to T2S. Therefore, migration weekend dress rehearsals require sufficient capacity to verify and provide assurance to all

actors on the feasibility and timings of the individual activities in the playbook for the migration weekend. Such exercise will be conducted in principle during weekends. Migration weekend rehearsals with a limited set of static and transactional data will be conducted during weekdays. Eurosystem, CSDs and central banks shall agree on scheduling of migration rehearsals in advance.

### Volume Testing

<b>Reference ID</b>	T2S.19.475
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The Eurosystem will provide sufficient capacity for CSDs' and central banks' volume testing. CSDs' and central banks' require certainty that their adapted systems can process the expected production volumes end-to-end with T2S in the foreseen T2S operational day. Therefore, volume testing of specific scenarios with T2S will require sufficient capacity for T2S to allow CSDs' and central banks' to undertake this validation. The Eurosystem, CSDs and central banks shall agree on scheduling of such tests in advance.

### Storage Capacity for Test Environments

<b>Reference ID</b>	T2S.19.480
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The overall storage capacity for four test environments shall be 20% of the storage capacity of the production environment. If required and with sufficient notice in advance, the Eurosystem will reallocate capacity not used by other T2S environments for execution of specific tests.

### Three months of data

<b>Reference ID</b>	T2S.19.490
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The test environments shall store a maximum of three months of transactional data based on the business day testing on the respective test environment.

### Security for Test Environments

<b>Reference ID</b>	T2S.19.500
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The T2S Information Security Requirements shall apply to the test environments as defined in the user requirements (Chapter 18). To achieve and maintain appropriate protection of T2S test assets (see Section 18.4.1), the implementation of the controls in the test environments will be adjusted to the criticality of the test data.

### Operational Management of Test Environments

<b>Reference ID</b>	T2S.19.510
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To the extent possible, the Eurosystem shall use the operational procedures, developed for the production environment, for the test environments in order to validate the effectiveness of the operational procedures and to ensure the practical training of the operational teams of the T2S Operator, CSDs and central banks.

### CSD and Central Bank Connectivity for Test Environments

<b>Reference ID</b>	T2S.19.520
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The Eurosystem shall allow CSDs and central banks to connect to all four test environments using the application-to-application (A2A) and user-to-application (U2A) interfacing.

### DCP Connectivity for Test Environments

<b>Reference ID</b>	T2S.19.525
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The Eurosystem shall allow DCPs to connect to the Community test environment and to the permanent T2S Pre-production test environment.

**Operational Monitoring of Test Environments**

<b>Reference ID</b>	T2S.19.530
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The Eurosystem shall establish and undertake operational monitoring of all test environments.

**Accessibility of Test Environments**

<b>Reference ID</b>	T2S.19.540
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The Eurosystem shall allow CSDs and central banks to access test environments only during the period when the system is open for testing activities (see T2S.19.550, T2S.19.570, T2S.19.600).

**Standard opening hours of Test Environments**

<b>Reference ID</b>	T2S.19.550
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The test environments' standard opening hours are 07:00 and 19:00 CET from Monday to Friday except for 1 January, Catholic/Protestant Easter (Friday and Monday), 1 May, 25 December and 26 December.

**Standard T2S settlement day on Test Environments**

<b>Reference ID</b>	T2S.19.560
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The Eurosystem will schedule all processes of a standard T2S settlement day for a test environment to run between the standard opening hours of test environments (see T2S.19.550).

**Production-like T2S settlement day schedule on Test Environments**

<b>Reference ID</b>	T2S.19.570
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The test systems can be opened with the live timing for a limited period on request of the CSDs and central banks, based on an agreed calendar. The Eurosystem will then schedule all processes of a production-like T2S settlement day schedule for a test environment in the same way as T2S settlement day schedule for production. A test environment will not apply the production-like T2S settlement day schedule on 1 January, Catholic/Protestant Easter, 1 May, 25 December and 26 December and when maintenance or concurrent activities are scheduled.

**Service support hours for the Test Environments**

<b>Reference ID</b>	T2S.19.580
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The Eurosystem shall provide support services for the test environments\* during standard support hours from 7:00 to 19:00 CET from Monday to Friday.

(\* except for 1 January, Catholic/Protestant Easter (Friday and Monday), 1 May, 25 December and 26 December.

**Service support hours for the Test Environments during production-like T2S settlement day schedule**

<b>Reference ID</b>	T2S.19.590
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The Eurosystem will provide the option to operate two types of production-like T2S settlement day schedules:

- A production-like T2S settlement day schedule will not require extended operational and technical support outside the support hours described in T2S.19.580. Consequently, there will be no guaranteed U2A access to T2S during the night-time. If a problem occurs during the night, the T2S Operator will address it at the beginning of the next business day with a possible delay of the start of the settlement day.
- When necessary from the purpose of the testing activity (e.g. verification of the operational readiness of the Eurosystem, CSDs and central banks), the Eurosystem will operate for a limited period of several days the community test environment with the production-like support for the successful execution of User Testing.

**Additional service support**

<b>Reference ID</b>	T2S.19.600
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The Eurosystem shall provide support services for specific tests, such as migration and performance testing, as defined in the User Testing Calendar.

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**Submitted annexes / related documents:**

Schedule 6 of the Framework Agreement may require amendment to reflect potential changes in service level for the test environments.

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**High level description of Impact:**

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**Outcome/Decisions:**

Advisory Group on 28/29 September 2011: The AG endorsed in principle the change request to increase the number of test environments from two to four and requested 4CB prepare a cost assessment by the next AG meeting.

Advisory Group on 18/19 September 2012: 4CB presented their detailed cost assessment of Change Request 339 on the additional test environments. The AG, after having agreed to the CR in principle in September 2011 already, also approved the preliminary cost assessment of the CR subject to the positive review of the CRG and the Steering Level.

CRG meeting of 1-2 October 2012: The current CR scope and the functional/technical detailed assessment were confirmed. The economic assessment will be discussed after further breakdown of cost elements were clarified in a CRG Telco.

CRG Telco of 18 October 2012: The CRG did not reach a conclusion but was of the opinion that it is time to close the matter and in this context, the CRG proposed that the CSG should be sent to the CSG for decision.

CSG of 12-13 November 2012: The CSG took the resolution to approve the Change Request 339.