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EUROSYSTEM

Trigger Solution
Onboarding Guide

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Versions

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2.0	All	Update for continuation of the Trials and Experiments	19/11/25	Deutsche Bundesbank

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Abbreviations

Abbreviation	Long form
A2A	Application to Application
API	Application Programming Interface
CeBM	Central Bank Money
DLT	Distributed Ledger Technology
PROD	Production environment of T2
RTGS	Real-time gross settlement component of T2 for the settlement of individual payments and ancillary system transactions.
RTGS DCA	Dedicated Cash Account in the RTGS component of T2
T2	TARGET Service for the settlement of wholesale payments (RTGS component) and the liquidity management (CLM component).
TARGET	**T**rans-European **A**utomated **R**eal-time **G**ross **E**xpress **T**ransfer System
U2A	User to Application
UTEST	User testing environment of T2

How to read this document

This document is relevant for all parties that are interested in technically connecting to the Trigger Solution.

Chapter 1 gives a brief overview on the Trigger Solution. Additionally, it explains who is allowed to connect to the Trigger Solution.

Chapter 2 explains in detail the steps that have to be done to start working with the Trigger Solution. It clarifies the onboarding process as a whole, which documents are needed and where they have to be sent to (chapter 2.1). In addition, it provides information about the registration for the Trigger Solution, e.g. where to submit the registration form (chapter 2.2). For those, who are not participating in the Trigger Solution with their own node, but who would like to use the connection via API, chapter 2.3 provides details about the registration in the Bundesbank Extra-Net. Chapter 2.4 clarifies the prerequisites in TARGET that are necessary for a successful end-to-end settlement of a payment processed via the Trigger Solution.

Chapter 3 provides information on what needs to be done in terms of testing after the registration but before the start of the Experiments and Trials.
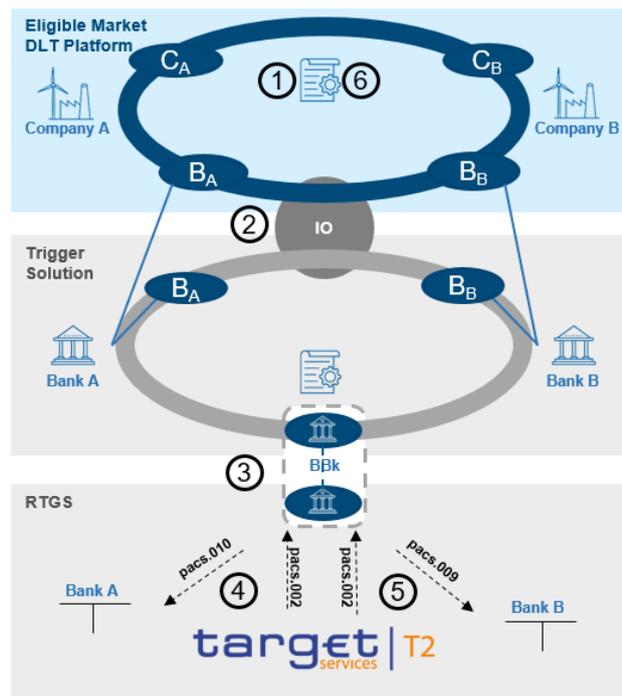
1   General information

1.1   What is the Trigger Solution?

The Trigger Solution provided by Deutsche Bundesbank (Solution Provider) is one of the technical solutions for the purpose of conducting Experiments and Trials[1] with Eligible Market Participants and Eligible Market DLT Operators during the Eurosystem exploratory work for ntw CeBM settlement (new technologies for wholesale Central Bank money settlement) in 2024 and its temporary continuation as published via [ECB press release](#) in July 2025. It allows the settlement of DLT-based wholesale financial transactions in CeBM using the existing TARGET service T2.

The Trigger Solution consists of a DLT infrastructure developed and operated by Deutsche Bundesbank which acts as technical bridge between the RTGS component of T2 and Eligible Market DLT Platforms.

The below picture gives an overview of the interactions between the Trigger Solution and the Eligible Market DLT Platforms as well as the interaction between the Trigger Solution and TARGET.

① Buyer and Seller agree on the exchange of Eligible Assets against EUR in an external Eligible Market DLT Platform.

② According to the Interoperability Mechanism, a Payment Instruction will be created through a smart contract in the Trigger Solution.

③ Deutsche Bundesbank converts the Payment Instruction in the Trigger Solution into ISO20022 messages and submits them via ESMIG to T2/RTGS.

④ A direct debit is sent via the Network Service Provider (NSP) to T2 in order to debit the payer bank's RTGS DCA and credit an interim account of Deutsche Bundesbank. Information on the successful or failed settlement will be sent to the Trigger Solution.

⑤ A credit transfer is sent via the Network Service Provider to T2 in order to debit the interim account of Deutsche Bundesbank and credit the payee bank's RTGS DCA. Information on the successful or failed settlement will be sent to the Trigger Solution.

⑥ The status of the Payment Instruction is transferred to the Eligible Market DLT Platform, where the assets are finally transferred.

Further details regarding the process can be found in the "Process Description Document".

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[1] The Experiments will be conducted in the user testing environment of T2 (UTEST). The Trials will be conducted in the T2 production environment.

1.2   Who are the participants?

The following actors are allowed to participate in the Trigger Solution:

- Eligible Market Participants according to the Eurosystem definition[2].
- Eligible Market DLT Operators according to the Eurosystem definition[3]

In general, there is no technical connection between the Eligible Market DLT Platform and the Trigger Solution: It is the Eligible Market Participant that creates the payment instruction in the Trigger Solution (see step 2 in part 1.1). Thus, it is only the Eligible Market Participant that has a technical connection to the Trigger Solution.

However, it is also possible that the payment instruction (see step 2 in part 1.1) is created by a third party. This third party can be any other actor that is allowed to participate in the Trigger Solution, i.e. another Eligible Market Participant or an Eligible Market DLT Operator. If an Eligible Market DLT Operator acts as third party for a participant in the Trigger Solution, this Eligible Market DLT Operator needs to be technically connected to the Trigger Solution.

Thus, to sum up, an Eligible Market DLT Operator can interact either passively with the Trigger Solution without any technical connection to the Trigger Solution or in an active role as third party which requires a technical connection to the Trigger Solution. Eligible Market DLT Operators without any technical connection to the Trigger Solution do not have to run through the technical onboarding process. However, each Eligible Market DLT Operator is provided by Deutsche Bundesbank with a code. This allows to clearly identify from which Eligible DLT Market Platform the business transaction to be processed via the Trigger Solution stems from (see chapter 1.3).

In Eligible Market DLT Platforms, Eligible Market Participants as well as companies might – depending on the decision of the Eligible Market DLT Operator – participate.

In case an actor is active in Eligible Market DLT Platforms and it is not (allowed to be) part of the Trigger Solution, there needs to be a legal agreement between that actor and the respective participant in the Trigger Solution. Bundesbank as Solution Provider for the Trigger Solution is not verifying the existence of such an agreement. This needs to be ensured by the participants in the Trigger Solution and the participants on the respective Eligible Market DLT Platform.

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[2] Eligible Market Participant means any entity with access to TARGET, within the meaning of Article 4 and Article 7, Annex 1 Part I of the TARGET Guideline

[3] Eligible Market DLT Operator means (i) CSDs, authorised under the CSDR, operating a Securities Settlement System based on DLT / operating a DLT platform (including CSDs subject to a derogation of the contractual and regulatory framework of T2S), (ii) operators of a DLT settlement system or a DLT trading and settlement system as authorised under the DLT Pilot Regime Regulation (Regulation 2022/858), and (iii) Investment firms and market operators and other licensed financial institutions operating a DLT platform, as duly licensed under the national law transposing MiFID II or under other relevant national legal frameworks subject to assessment.

1.3 How to identify Eligible Market DLT Operators in the Trigger Solution?

Each Eligible Market DLT Operator is provided by Deutsche Bundesbank with a code. This code allows to clearly identify from which Eligible DLT Market Platform the business transaction to be processed via the Trigger Solution stems from. It will be part of the Correlation ID, which is a mandatory attribute of the payment instruction; concretely the first three characters (for further details on the Correlation ID see Trigger Solution Process Description chapter 2 step1).

After a Market DLT Operator has been considered eligible by the Eurosystem and this information is formally forwarded to Deutsche Bundesbank as Solution Provider, the Deutsche Bundesbank will provide the respective code to the Eligible Market DLT Operator.

2   Onboarding

2.1   Process

In general, the onboarding process includes the following steps:

1. The registration for the Trigger Solution,
2. (if relevant) The registration for Bundesbank ExtraNet, and
3. Provision of necessary information to the responsible Central Bank regarding the static data in TARGET.

The registration for the Trigger Solution will be done via the local Central Bank where (i) the Eligible Market Participant holds its RTGS DCA with or (ii) in the country where the Eligible Market DLT Operator (if participating in the Trigger Solution in an active role as third party) is located, by submitting the respective registration form for the Trigger Solution. The local Central Bank will forward the necessary registration form to the Bundesbank as Solution Provider for further processing.

[Please note that an Eligible Market DLT Operator only has to submit a registration form if participating in the Trigger Solution in an active role as third party and thus with a technical connection to the Trigger Solution. An Eligible Market DLT Operator that does not act as third party in the Trigger Solution consequently does not have a technical connection to the Trigger Solution, and does not need to submit a registration form.]

The onboarding process depends on the way, the participants will connect to the Trigger Solution. In general, the following options exist:

- Connection via the API as non-peer user. Participants communicate
  - either in U2A mode via a Graphical User Interface provided by Deutsche Bundesbank or
  - in A2A mode.
- Connection as peer user operating an own Hyperledger Fabric node and using the own software implementation.

Technical details for the connection with the Trigger Solution via API or via an own node are described in the document Trigger Solution Onboarding Guide – Technical Annex.

Those actors participating via the API have to connect and communicate via Bundesbank ExtraNet. Further information regarding the Bundesbank ExtraNet is provided in chapter 2.3.

All technical documentation that is necessary in order to connect to and interact with the Trigger Solution (e.g. API file, chaincode) will be provided in the restricted service area "Trigger Solution" on Deutsche Bundesbank's website. Access to this restricted service area will be granted on request of the interested participant after having formally expressed interest at their local Central Bank by submitting the registration form.

The necessary information regarding the static data in TARGET (in particular the direct debit mandate) need to be provided to the Central Bank the RTGS DCA to be used is held with. Further information can be found in chapter 2.4.

2.2 Registration for the Trigger Solution

The Trigger Solution Registration Form will be provided on request of the interested participant to triggersolution@bundesbank.de.

The interested participant will submit the completed Registration Form to the local CB where (i) the Eligible Market Participant holds its RTGS DCA with or (ii) in the country where the Eligible Market DLT Operator (if participating in the Trigger Solution in an active role as third party) is located.

Those interested participants, that do not use their own RTGS DCA (i.e. Eligible Market Participants when acting as third party) or do not have an own RTGS DCA (i.e. Eligible Market DLT Operators in an active role as third party) have to contact the Deutsche Bundesbank as Solution Provider (triggersolution@bundesbank.de) before the submission of the registration form to enquire an ID for identifying the registering third party in the Trigger Solution. This ID is needed to be able to complete the registration form.

The form has to be submitted regardless of the way the participant wants to connect to the Trigger Solution (via an own node or the API).

The completed form is to be duly signed by the participant and sent to their responsible local Central Bank who performs the necessary checks (i.e. eligibility and signature check). Before submitting the duly signed (paper-based) version of the registration form to the local Central Bank the interested participants have the opportunity to send the pre-filled registration form for consistency checks to triggersolution@bundesbank.de .

If the Eligible Market Participant holds its RTGS DCA with Deutsche Bundesbank, the form needs to be signed by persons that are allowed to sign for the RTGS DCA. If the Eligible Market DLT Operator is located in Germany, the form needs to be signed by persons authorised according to the commercial register (Handelsregister). The procedural aspects how the verification will be conducted will be shared in the context of the onboarding process. If the RTGS DCA is held with another local Central Bank and the Eligible Market DLT Operator is not located in Germany, the respective rules of the local Central Bank apply. The Central Bank that received the form from the participant will forward it to the Deutsche Bundesbank as Solution Provider for further processing.

2.3 Registration for Bundesbank ExtraNet for API users

The ExtraNet is the Bundesbank's e-business platform. All participants that are connecting to the Trigger Solution via API (A2A und U2A) need to register for the ExtraNet to ensure a secure communication.

A registration for Bundesbank ExtraNet is necessary for the Experiments and Trials.

For testing (in advance of Experiments and Trials) as well as for Experiments the ExtraNet test environment will be used, while Trials will be conducted via the ExtraNet production environment.

For **testing** (in advance of Experiments and Trials) and if you participate in the **Experiments** please use the following link for the initial registration / first registration in the ExtraNet test environment: https://extranet-t.bundesbank.de/bsvpub/register1.do?fv=TRIGGER

If you participate in the **Trials** please use the following link for the initial registration / new registration in the ExtraNet production environment: https://extranet.bundesbank.de/bsvpub/register1.do?fv=TRIGGER[4].

In case you want to participate in both, Experiments and Trials, you need to use both links and register twice.

The following description and screenshots are valid for both registrations (Experiments and Trials).

When you enter the above mentioned links please first copy the link, change the language to English (in the upper right corner of the screen) and enter the link again in your browser. Then you will reach the following English website[5]:

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[4] In order to manage your profile data or define a new password, please use https://extranet-t.bundesbank.de/bsvpriv/ (Tests and Experiments) and https://extranet.bundesbank.de/bsvpriv/ (Trials). You can login with your already existing User-ID and password.

[5] This screenshot contains the relevant roles for the Eligible Market Participants and the Eligible Market DLT Operators. There will be a separate monitoring role for Central Banks only.

Please enter all the mandatory data (marked with a *) of your institution (as specified in the Trigger Solution registration form – see chapter 2.2). Bundesbank offers either the access to the Trigger Solution in two-eyes or four-eyes mode[6]. In case you want to register an application (A2A) please choose "Access to Trigger Solution in two-eyes mode". Please choose the relevant mode also if registering a person (U2A). Then press "Continue". The last option "User Manager TRIGGER" is not necessarily relevant for the registration of participants. It can be used to gain an overview which users of an institution have already registered within the ExtraNet for the Trigger Solution.

Please enter your personal information (mandatory fields are marked with a *). Please use for the address (street, house number etc.) the details of your institution related to your place of work. In case of connecting in A2A mode, please enter the details of the responsible contact person. Please mark the field "Participation in the simplified password resetting procedure" with "Yes" and click "Register user". On the next page the entered data need to be confirmed and the registration needs to be completed by clicking "Complete registration". Within this step it is also possible to enter the data of another user for the same institute.

After confirmation of the data and completing the registration the following screen is shown:

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[6] The two-eyes and four-eyes mode is relevant for the authorisation of a payment instruction. If you choose two-eyes mode one user is sufficient to authorise the payment instruction. In case of four-eyes mode two different users of the same participant need to authorise the payment instruction.

Please download and safe the provided PDF form containing the User-ID, print it, sign it by duly authorised persons and send the form via mail order to Deutsche Bundesbank, Trigger Solution (Z 14), Postfach 10 06 02, 60006 Frankfurt am Main and via e-mail to triggersolution@bundes-bank.de. Deutsche Bundesbank will then check your registration and will provide the password to the registered e-mail address (the sender of this e-mail is extranet@bundesbank.de).

Even if you already use ExtraNet communication with Bundesbank for other purposes, you need a new initial registration for Trigger Solution as described above.

2.4   Prerequisites in TARGET

In general no new RTGS DCA needs to be opened. The already existing account can be used for the settlement of transactions processed via the Trigger Solution. If the participant wishes to separate the liquidity to be used for the Experiments and Trials a new RTGS DCA can be opened with the local Central Bank. The already existing procedures for the opening of a new account in TARGET apply.[7]

In order to allow Deutsche Bundesbank as the Solution Provider for the Trigger Solution to debit the RTGS DCA of the payer bank, a direct debit mandate in favour of MARKDEFFTRI needs to be captured in the CRDM component of TARGET (Common Reference Data Management). This is to be requested by the interested participant via the TARGET registration form provided to the Central Bank the RTGS DCA is held with.

The following information needs to be provided for the Experiments (in T2 UTEST) as well as for the Trials (in T2 PROD):

Field in the TARGET registration form	Content
Payee Parent BIC	MARKDEFFXXX
Payee Party BIC	MARKDEFFTRI

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[7] For further details please refer to TARGET SERVICES REGISTRATION AND ONBOARDING GUIDE (europa.eu)

From Cash Account Number	The account number of the RTGS DCA to be debited
Payee Reference	Trigger Solution
Maximum amount per counterparty	to be defined by the Account Holder to be debited
Maximum amount per payment	to be defined by the Account Holder to be debited

The completed form needs to be sent to the Central Bank the RTGS DCA is held with. This Central Bank will inform the Deutsche Bundesbank of the captured Direct Debit Mandate.

3 Prerequisites for the start of Experiments and Trials

Before the participants can start with any Experiments or Trials the following two steps have to be successfully passed:

1) Successful onboarding process, which includes:

- the successful registration for the Trigger Solution,
- optionally the registration for the ExtraNet of Deutsche Bundesbank and
- the set-up of all necessary static data updates in TARGET (at least the direct debit mandate is mandatory)

2) Successfully passing the mandatory test cases according to the testing phases foreseen by the Eurosystem

- Test cases have to be performed in the test environment of the Trigger Solution that leads to settlement on the RTGS DCAs held in the T2 UTEST environment.
- With the successful execution of the test cases, it shall be ensured that the connection to the Trigger Solution is properly established and that an end-to-end transaction can be conducted.

The mandatory test cases are the minimum set of test cases to be performed by all participants. Additional tests depending on type of participation in Experiments and/or Trials are optional.

3.1 Mandatory test cases and testing conditions for the testing phases

Trials and Experiments are preceded by a mandatory testing phase which has to be performed by all Market Participants and Third Parties regardless of whether they had already participated in the Eurosystem exploratory work in 2024. The test cases described in this chapter shall be performed by the participants.

3.1.1 Mandatory testing (Rehearsal testing interaction with T2)

Aim of this testing phase:

- Ensure that the necessary connections can be established between Eligible Market DLTs Platforms and corresponding market participants and Trigger Solution to conduct trials or experiments.
- This phase includes Eligible Market DLT platforms and their market participants as well as Deutsche Bundesbank implementing all required steps to use the interoperability mechanisms proposed, and Eligible Market Participants being onboarded on the Trigger Solution.
- The necessary configurations (e.g. participants accessing the Trigger Solution through nodes or API and ensuring the necessary static data setup in T2) will have to be completed prior to the beginning of these tests.
- Rehearsing a full end-to-end process
- Further testing activities may depend on the respective business cases

Mandatory test cases during this testing phase:

Precondition:

- Successful connection to Trigger Solution Test environment
- Successful static data setup in T2-UTEST, e.g. direct debit mandate

Test data that could be used:

- As payer bank, use your own Account BIC of the RTGS DCA used in the UTEST (in order to ensure that the approval step can be executed)
- As receiver bank, one of the following mock-BICs of Deutsche Bundesbank for testing the Trigger Solution could be used: ZYRPDEFFXXX, ZYRODEFFXXX or ZYBODEFFXXX
- Further details, how the payment instruction should be filled, can be found in the "Trigger Solution Process Description Document"

Test cases (considering the interoperability mechanism used):

Test case	Expected result (to be proved via screen-shot)
Create, approve and submit a payment in-struction (where applicable in 4-eyes mode)	Payment Instruction has the status "Com-pleted"
In case of using HTLC: Use the Transfer func-tion	Payment Instruction has the status "HTLC ready"
Check bookings on RTGS DCAs in UTEST re-sulting from the execution of a payment in-struction in the Trigger Solution.	The account owner of the RTGS DCA debited via the direct debit, should either query the cash postings in U2A or A2A mode

Provide evidence about the successful execution of the test cases:

- Testing results need to be provided to triggersolution@bundesbank.de (Screenshots from Trigger Solution and T2)

3.1.2   Migration phase

This phase is only relevant for participants that want to conduct trials.

Aim of this phase:

- Set-up of necessary connectivity and static data prior to trials in the production environ-ment of Trigger Solution and T2

Precondition for entering this phase:

- Successful completion of the mandatory testing
- Successful static data setup in T2-PROD, e.g. direct debit mandate.

Provide evidence about the successful connectivity to the Trigger Solution Production environ-ment.

- Evidence needs to be provided to triggersolution@bundesbank.de (Screenshots)
    - API U2A: Screenshot of the Dashboard screen

    - API A2A: Screenshot of a successful API request to the "Welcome" API endpoint. The API request can be performed using tools such as Postman or terminal with curl command line. The following API response should be part of the screenshot: "Welcome to Trigger Solution External APIs"

    - Node: Participants can run the peer command "peer channel list" to check if their peer node has successfully joined the channel. Please send to us a screenshot

- Additionally, we recommend performing a penny test in the Trigger Solution Production environment after the successful execution of this phase. This penny test needs to be performed in close cooperation with Deutsche Bundesbank.