TARGET Instant Payment Settlement
Mobile Proxy Look-up Service Requirements

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TABLE OF CONTENTS

INTRODUCTION

The aim of this document is to provide a detailed description of a Mobile Proxy Look-up (MPL) service that implements the functionality described in the Change Request TIPS-0002-URD (TARGET Instant Payment Settlement (TIPS) adoption of a Mobile Proxy Lookup Service).

More into detail, section §.1 provides a general overview of the MPS service and a high-level description of its functionalities.

The following sections, from §.2 to §.6, provide a detailed list of requirements, classified according to the following categories:

- functional requirements,
- non-functional requirements,
- operational requirements,
- information security and cyber-resilience requirements,
- data protection requirements.

**TARGET Instant Payments
Settlement
Mobile Proxy Look-up Service
Requirements**

EUROPEAN CENTRAL BANK
EUROSYSTEM

1. MPL SERVICE DESCRIPTION

The MPL service shall be available to Payment Service Providers participating in TIPS, i.e. TIPS Participants and Reachable Parties[1]. Any TIPS Participant or Reachable Party having access to the MPL service is defined as a MPL Actor.

The MPL service shall enable MPL Actors, receiving from their customers the request to execute an instant payment in favour of a beneficiary identified with a proxy (e.g. a mobile number), to retrieve from a central MPL repository the corresponding beneficiary IBAN:
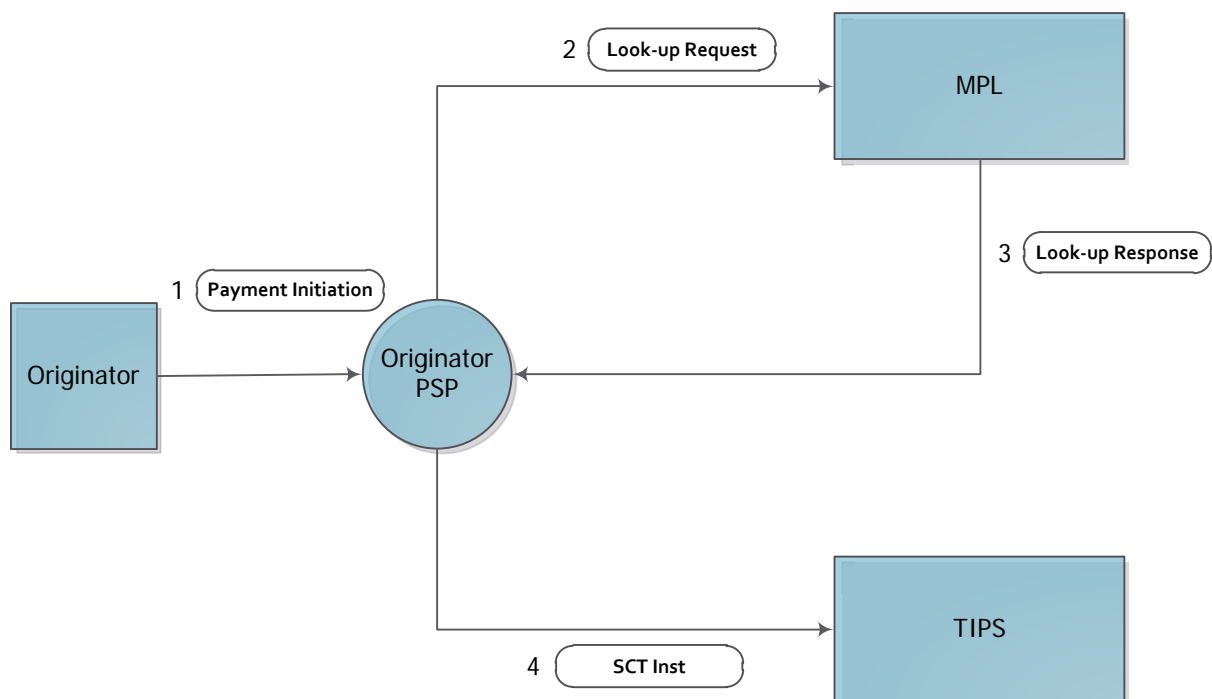
As shown in the diagram, these are the steps to be performed in order to transform a payment initiation request sent from an end-user (Originator) to its bank (Originator PSP) into an instant payment that can be settled by TIPS:

1. The Originator sends to the Originator PSP a request that includes the proxy of the Originator and the proxy of the Beneficiary. Starting from the proxy of the Originator, the Originator PSP identifies the relevant Originator BIC and Originator IBAN.

2. Starting from the proxy of the Beneficiary, the Originator PSP submits a Look-up Request to MPL.

3. MPL returns to the Originator PSP a Look-up Response that includes the relevant Beneficiary IBAN. Starting from the Beneficiary IBAN, the Originator PSP identifies the relevant Beneficiary BIC.

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[1] This includes Instructing Parties, i.e. as it is allowed in TIPS, a TIPS Participant and a Reachable Party may authorize a third party to act as an Instructing Party on their behalf, i.e. to access the MPL service on their behalf.

4. The Originator PSP instructs TIPS with the Instant Payment transaction built by using the BICs and the IBANs of the Originator and of the Beneficiary previously identified.

In order to allow MPL Actors mapping a beneficiary proxy into the corresponding IBAN as described above, the MPL service shall implement the following functionalities:

- management of access rights,

- set-up and maintenance of proxy-IBAN mapping information,

- real-time access to proxy-IBAN mapping information,

- tools for contingency scenarios.

The following sections provide a detailed list of requirements for the above listed functionalities. As far as the functionalities for real-time access to proxy-IBAN mapping information are concerned (see sections 0 and 2.5), the specified requirements are in line with the interoperability framework, the operational rules and the implementation guidelines established in the context of the *Joint Initiative pan-European Mobile P2P Interoperability* of the *Berlin Group*.

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2. FUNCTIONAL REQUIREMENTS

2.1. ACCESS TO THE SERVICE

2.1.1. MPL Actors

ID	MPL.FN.01.010
Name	MPL Actors
Requirement	The MPL service shall be available to TIPS Participants and Reachable Parties. From a technical connectivity viewpoint, TIPS Participants and Reachable Parties may access themselves to the MPL service or may delegate a third party (i.e. an Instructing Party) for this. Any entity accessing the MPL service is generally named MPL Actor.

2.1.2. Authentication and authorisation

ID	MPL.FN.01.020
Name	User authentication
Requirement	MPL shall implement the same user authentication process as TIPS (see TIPS.UR.08.010)

ID	MPL.FN.01.030
Name	User authorisation
Requirement	MPL shall implement the same user authorisation process as TIPS (see TIPS.UR.08.020)

2.2. DATA STRUCTURE

2.2.1. Proxies

ID	MPL.FN.02.010
Name	Proxy types
Requirement	MPL shall allow the usage of mobile numbers as single type of proxy for IBANs. MPL shall be potentially open to the future implementation of additional types of proxies for IBANs (e.g. e-mail addresses, social network IDs, business IDs).

ID	MPL.FN.02.020
Name	Mobile number
Requirement	Each mobile number shall be identified by its MSISDN (Mobile Station International Subscriber Directory Number).

2.2.2. Proxy-IBAN Mapping Table

ID	MPL.FN.02.030
Name	Proxy-IBAN Mapping Table
Requirement	The Proxy-IBAN Mapping Table shall include all correspondences established by each MPL Actor between proxies and IBANs. Each element of the mapping table shall include the following attributes: • Proxy (Alias data type) • IBAN (unique identification of the account) • Account Owner (name of the owner of the account, optional) • Registration Timestamp (date and time by when the element was created or last updated) • MPL Actor BIC (BIC of the MPL Actor which uploaded the element of the mapping table) • Valid From Date and Time (date and time from which the element is valid) • Valid To Date and Time (date and time until which the element is valid) Within the Proxy-IBAN Mapping Table, each Proxy may be linked to one and only one IBAN at any given point in time, whereas each IBAN may be linked to one or multiple proxies at any given point in time.

2.2.3. Data types

ID	MPL.FN.02.040
Name	Alias data type
Requirement	The Alias data type shall be used to specify values for proxies. It shall include the following data attributes: • Type (type of alias, always equal to "MSDN") • Identification (alias identifier, i.e. mobile number)

ID	MPL.FN.02.050
Name	Amount data type
Requirement	The Amount data type shall be used to specify transaction amounts. It shall include the following data attributes: • Amount (value of the transaction) • Currency (ISO 4217 currency code)

ID	MPL.FN.02.060
Name	Scheme data type
Requirement	The Scheme data type shall be used to specify the name of the Originator or Receiver scheme. It shall include the following data attributes: • Name (name of the scheme) • Organisation Identification (unique identification of the scheme)

ID	MPL.FN.02.070
Name	Creditor Account data type
Requirement	The Creditor Account data type shall be used to specify the creditor account number, in case it does not equal the beneficiary account number. It shall include the following data attributes: • Scheme Account (true/false) • IBAN (always equal to "IBAN" plus the unique identification of the account)

ID	MPL.FN.02.080
Name	Response data type
Requirement	The Response data type shall be used to specify the result corresponding to a given request. It shall include the following data attributes: • Result (true/false, indicates whether or not a given proxy could

	be match to an IBAN)
	• Result Details (not present in positive responses, optional in negative responses)

2.3. MPL REPOSITORY MAINTENANCE

ID	MPL.FN.03.010
Name	MPL Repository Maintenance Request
Requirement	The MPL service shall enable MPL Actors to setup and maintain the Proxy-IBAN Mapping Table in the MPL repository by means of single A2A maintenance requests.

ID	MPL.FN.03.020
Name	Maintenance Request Type
Requirement	The MPL service shall support the following types of Maintenance Requests: • Create Element • Update Element • Delete Element

ID	MPL.FN.03.030
Name	Create Element Request
Requirement	Each Create Element Request shall include the following data attributes: • Transaction Type (always equal to "MaintenanceRequest") • Transaction Identification (unique transaction identifier) • Creation Date Time (timestamp of the request) • Maintenance Request Type (always equal to "CreateElement") • Proxy (Alias data type) • IBAN (unique identification of the account) • Account Owner (name of the owner of the account, optional) • Valid From Date and Time

- Valid To Date and Time (optional)

ID	MPL.FN.03.040
Name	Update Element Request
Requirement	Each Update Element Request shall include the following data attributes: • Transaction Type (always equal to "MaintenanceRequest") • Transaction Identification (unique transaction identifier) • Creation Date Time (timestamp of the request) • Maintenance Request Type (always equal to "UpdateElement") • Proxy (Alias data type) • IBAN (unique identification of the account, optional) • Account Owner (name of the owner of the account, optional) • Valid From Date and Time (optional) • Valid To Date and Time (optional)

ID	MPL.FN.03.050
Name	Delete Element Request
Requirement	Each Delete Element Request shall include the following data attributes: • Transaction Type (always equal to "MaintenanceRequest") • Transaction Identification (unique transaction identifier) • Creation Date Time (timestamp of the request) • Maintenance Request Type (always equal to "DeleteElement") • Proxy (Alias data type)

ID	MPL.FN.03.060
Name	Maintenance Request validation
Requirement	Each Maintenance Request shall undergo the following validations: • authentication • authorisation

- data attributes check

Each Maintenance Request passing all validations is processed by MPL, whereas each Maintenance Request failing at least one validation is rejected.

ID	MPL.FN.03.070
Name	Create Element Request processing
Requirement	Each Create Element Request shall result in the creation of one single element of the Proxy-IBAN Mapping Table.

ID	MPL.FN.03.080
Name	Update Element Request processing
Requirement	Each Update Element Request shall result in the update of one single element of the Proxy-IBAN Mapping Table.

ID	MPL.FN.03.090
Name	Delete Element Request processing
Requirement	Each Delete Element Request shall result in the deletion of one single element of the Proxy-IBAN Mapping Table.

ID	MPL.FN.03.100
Name	Maintenance Response
Requirement	MPL shall answer any Maintenance Request by a given MPL Actor by returning a Maintenance Response to the same MPL Actor. Each Maintenance Response related to a validated Maintenance Request shall include the Proxy value of the created/updated/deleted element of the Proxy-IBAN Mapping Table. Each Maintenance Response related to a rejected Maintenance Request shall include a specific error code indicating the reason for the

rejection.

Each Maintenance Response shall include the following data attributes:

- Transaction Type (always equal to "MaintenanceResponse")
- Transaction Identification (identifier of the related request)
- Registered (true/false)
- Reason Code (in case Registered is false)
- Registration Timestamp (in case Registered is true)

ID	MPL.FN.03.110
Name	MPL Repository Maintenance Report
Requirement	MPL shall provide each MPL Actor with a daily report including a statement of all the maintenance requests that the same MPL Actor registered in the last calendar day.
	MPL shall send the MPL Repository Maintenance Report only to MPL Actors that subscribed for it.
	MPL starts generating the required reports shortly after midnight and send them overnight to the relevant recipients as soon as they are available.
	Each MPL Repository Maintenance Report shall include the following data attributes:

- Transaction Type (always equal to "RepositoryMaintenanceReport")
- Transaction Identification (unique transaction identifier)
- Creation Date Time (timestamp of the report)
- Items Number (number of items included in the report)

plus a list of items corresponding to the maintenance requests that the recipient MPL Actor registered in the last calendar day. Each item of the list shall include the following data attributes:

- Transaction Identification (identifier of the related maintenance request)
- Registration Timestamp (timestamp of the maintenance request registration)
- Proxy (Alias data type)

plus a list of sub-items corresponding to the attributes that were impacted by the maintenance request. Each sub-item of the list shall

include the following attributes:

- Attribute (name of the attribute)
- Before Value (attribute value before the maintenance request, null in case of creation of elements)
- After Value (attribute value after the maintenance request, null in case of deletion of elements)

2.4. LOOK-UP

ID	MPL.FN.04.010
Name	Look-up Request
Requirement	MPL shall allow any MPL Actor sending a Look-up Request in order to get the IBAN that corresponds to a given proxy. Each Look-up Request shall include the following data attributes: • Transaction Type (always equal to "LookupRequest") • Transaction Identification (unique transaction identifier) • Creation Date Time (timestamp of the request) • Alias Beneficiary (Alias data type) • Alias Originator (Alias data type, optional) • Originator Scheme (for possible future use) • Receiver Scheme (for possible future use) • Transaction Amount (Amount data type, optional)

ID	MPL.FN.04.020
Name	Look-up Request validation
Requirement	Each Look-up Request shall undergo the following validations: • authentication • authorisation • data attributes check Each Look-up Request passing all validations is processed by MPL, whereas each Look-up Request failing at least one validation is rejected.

ID	MPL.FN.04.030
Name	Look-up Request processing

Requirement	Each Look-up Request shall either retrieve one single element of the Proxy-IBAN Mapping Table (successful request) or find no matching element (unsuccessful request).

ID	MPL.FN.04.040
Name	Look-up Response
Requirement	MPL shall answer any Look-up Request by a given MPL Actor by returning a Look-up Response to the same MPL Actor.
	Each Look-up Response related to a successful Look-up Request shall include all the data attributes of the retrieved element of the Proxy-IBAN Mapping Table.
	Each Look-up Response related to an unsuccessful Look-up Request shall include a specific error code indicating that no matching element was found.
	Each Look-up Response related to a rejected Look-up Request shall include a specific error code indicating the reason for the rejection.
	Each Look-up Response shall include the following data attributes:
	• Transaction Type (always equal to "LookupResponse")
	• Transaction Identification (identifier of the related request)
	• Response (Response data type)
	• Originator Scheme (for possible future use)
	• Receiver Scheme (for possible future use)
	• Creditor Account (Creditor Account data type)
	• Beneficiary Name (optional)
	• Payment Notification Path (for possible future use)
	• Preference Indicator (for possible future use)
	• Registration Timestamp (date and time by when the element was created or last updated)

2.5. REACHABILITY CHECK

ID	MPL.FN.05.010
Name	Reachability Check Request
Requirement	MPL shall allow any MPL Actor sending a Reachability Check Request in order to check whether a given proxy is stored in the MPL repository.
	Each Reachability Check Request shall include the following data

attributes:

- Transaction Type (always equal to "ReachabilityCheckRequest")
- Transaction Identification (unique transaction identifier)
- Creation Date Time (timestamp of the request)
- Alias Beneficiary (Alias data type)
- Alias Originator (Alias data type, optional)
- Originator Scheme (for possible future use)

ID	MPL.FN.05.020
Name	Reachability Check Request validation
Requirement	Each Reachability Check Request shall undergo the following validations: • authentication • authorisation • data attributes check Each Reachability Check Request passing all validations is processed by MPL, whereas each Reachability Check Request failing at least one validation is rejected.

ID	MPL.FN.05.030
Name	Reachability Check Request processing
Requirement	Each Reachability Check Request shall return a Boolean indicator set to true in case the given proxy is stored in the MPL repository (successful request) and to false otherwise (unsuccessful request).

ID	MPL.FN.05.040
Name	Reachability Check Response
Requirement	MPL shall answer any Reachability Check Request by a given MPL Actor by returning a Reachability Check Response to the same MPL Actor. Each Reachability Check Response related to a valid Reachability Check Request shall return Boolean indicator specifying whether the given proxy is stored in the MPL repository. Each Reachability Check Response related to a rejected Reachability

Check Request shall include a specific error code indicating the reason for the rejection.

Each Look-up Response shall include the following data attributes:

- Transaction Type (always equal to "ReachabilityCheckRequest")
- Transaction Identification (unique transaction identifier)
- Response (Response data type)
- Originator Scheme (for possible future use)
- Receiver Scheme (for possible future use)

3. OPERATIONAL REQUIREMENTS

3.1. CONTINGENCY OPERATIONS

3.1.1. Contingency change

ID	MPL.OP.01.030
Name	Contingency change
Requirement	MPL shall allow the MPL Operator performing via GUI a contingency change of any element of the Proxy-IBAN Mapping Table, upon request of the responsible MPL Actor. MPL shall allow the following types of change: • creation of a new element, • update of any attribute of an existing element, • deletion of an existing element.

3.1.2. Contingency snapshot

ID	MPL.OP.01.010
Name	Contingency snapshot
Requirement	MPL shall allow the MPL Operator performing a contingency snapshot of all the elements of the Proxy-IBAN Mapping Table (full snapshot) as of a given timestamp.

3.1.3. Contingency restore

ID	MPL.OP.01.010
Name	Contingency restore
Requirement	MPL shall allow the MPL Operator performing a contingency restore of a previously taken snapshot. A contingency restore operation shall result in replacing all the elements of the Proxy-IBAN Mapping Table with the elements contained in the snapshot. MPL shall not be available for the time needed to perform the restore of a previously taken snapshot.

3.2. INFORMATION LOGGING

ID	MPL.OP.02.010

Name	Audit trail
Requirement	MPL shall keep an audit trail of all the setup and maintenance activities performed by the users while making use of the service. Look-up Requests and Reachability Check Requests shall not be subject to audit trail.

ID	**MPL.OP.02.020**
Name	Archiving
Requirement	MPL shall archive on a daily basis all the changes performed on the Proxy-IBAN Mapping Table and all the audit trail records. MPL shall retain • all the audit trail records for a period of three months and • all changes performed on the Proxy-IBAN Mapping Table for a period of ten years.

4. NON-FUNCTIONAL REQUIREMENTS

4.1. NETWORK CONNECTIVITY

ID	MPL.NF.01.010
Name	Network connectivity
Requirement	MPL shall allow MPL Actors using the same network connectivity solution available for TIPS.

4.2. VOLUMES AND PERFORMANCE

ID	MPL.NF.02.010
Name	Incoming requests throughput
Requirement	MPL shall be able to process up to an average number of 500 incoming (Look-up or Reachability Check) requests per second, with a peak of up to 2,000 incoming requests per second.

ID	MPL.NF.02.020
Name	Incoming requests response time
Requirement	MPL shall ensure processing 99% of the incoming (Look-up or Reachability Check) requests within 1 second.

ID	MPL.NF.02.030
Name	Scalability
Requirement	MPL shall scale up to handle, with the same processing time, a doubling of the incoming (Look-up or Reachability Check) requests peak throughput in one year.

4.3. SERVICE AVAILABILITY

ID	MPL.NF.03.010
Name	Real-time requests availability
Requirement	MPL shall be available for processing of incoming (Look-up or Reachability Check) requests 24 hours every day of the year (24/7/365).

ID	MPL.NF.03.020
Name	Unplanned downtime
Requirement	MPL unplanned downtime, calculated on a quarterly basis, shall not exceed 2.16 hours, equivalent to an availability of 99.9%.

ID	MPL.NF.03.030
Name	Planned downtime
Requirement	MPL planned downtime may be envisaged in order to manage some exceptional changes that require stopping temporarily the service (e.g. restore of a snapshot).

4.4. BUSINESS CONTINUITY

ID	MPL.NF.04.010
Name	Recovery Point Objective
Requirement	MPL shall ensure a recovery point objective value of zero.

ID	MPL.NF.04.020
Name	Recovery Time Objective
Requirement	MPL shall ensure a recovery time objective of 15 minutes.

5. INFORMATION SECURITY AND CYBER-RESILIENCE REQUIREMENTS

ID	MPL.SC.05.010
Name	Security requirements and controls
Requirement	MPL shall comply with Market Infrastructure Security requirements and controls.

ID	MPL.SC.05.020
Name	Cyber-resilience requirements
Requirement	MPL shall comply with Market Infrastructure Cyber-resilience requirements (MISRC).

6. DATA PROTECTION REQUIREMENTS

6.1. SNAPSHOT

ID	MPL.SC.01.010
Name	Snapshot
Requirement	In order to ensure logical data integrity, MPL shall take into a Snapshot File a daily snapshot of the Proxy-IBAN Mapping Table stored in the MPL repository. The snapshot taken on day D shall include the full content of the Proxy-Mapping Table as of day D-1.

ID	MPL.SC.01.020
Name	Snapshot File structure
Requirement	The Snapshot File shall be named according to a pre-defined naming convention. The Snapshot File shall include a header containing the total numer of records included in the file. Each record included in the Snapshot File shall include all the following data attributes: • Record Identification (identifier of the record) • Proxy (Alias data type) • IBAN (unique identification of the account) • Account Owner (name of the owner of the account, optional) • Registration Timestamp (date and time by when the element was created or last updated) • MPL Actor BIC (BIC of the MPL Actor which uploaded the element of the mapping table) • Valid From Date and Time • Valid To Date and Time (optional)