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Peppol Service Provider Operational Guideline on MLS

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Statement of originality

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Revision History

Version	Date	Description of changes
1.0.0	2026-07-02	Initial version

1 Impact Analysis

1.1 Source Documents and Their Relevance

The SPOG on MLS must synthesise operational guidance from the following sources. The table below identifies each source, what it contributes, and the key changes Service Providers need to act on.

#	Document	Relevance to SPOG on MLS
1	**Peppol MLS Specification**	Primary technical specification. Defines MLS message structure, process, rules, code lists. The SPOG operationalises this.
2	**Peppol Network Policy (PNP)**	Introduces **mandatory** MLS policy rules (MLS-1 to MLS-4), timing milestones (M1–M3), and SLR requirements (SLR MLS-1, SLR MLS-2). This is a **new** document – all content is new.
3	**Peppol Business Message Envelope (SBDH)**	Delta from 2.0.1: new chapter 2.6 (MLS Customisation Options), reserved attributes `MLS_TYPE` and `MLS_TO`.
4	**Peppol Reporting – SP Operational Guideline**	Template/model for the SPOG on MLS document format. Also defines the relationship between MLS and TSR/EUSR reporting (MLS exchanges must be counted).
5	**OpenPeppol Service Provider Identification Scheme (SPIS)**	Defines SPIS Main ID, Use Case IDs. MLS uses SPIS scheme `0242` and Use Case ID `MLS`.
6	**Peppol Policy for use of Identifiers (PFUOI)**	Identifier format rules that apply to MLS sender/receiver party IDs.
7	**Peppol AS4 Profile**	Transport layer for MLS messages. Milestones M1/M2 derived from AS4 `MessageInfo/Timestamp`.
8	**Peppol SMP Specification**	C3 must perform SMP lookup for C2's MLS receiving endpoint before sending MLS.
9	**Peppol SML Specification**	SML/DNS discovery is prerequisite for SMP lookup of MLS receiver participant.
10	**Peppol eDelivery Code Lists**	Contains transport profile IDs and Participant Identifier Scheme IDs used in MLS messages.
11	**Message Level Response (MLR)** – predecessor	MLS will replace MLR in the future. Migration/coexistence guidance is needed.

1.2 Key Changes Requiring Service Provider Action

1.2.1 From the Peppol Network Policy (PNP) v1.0.0 – ALL NEW

The PNP is an entirely new document. Every rule is a new obligation:

- **Rule XML-1** – All XML documents (including MLS messages) MUST use UTF-8.

- **Rule MLS-1** – Every SP offering Peppol Dataset Types MUST support sending AND receiving MLS. This is the fundamental mandate – MLS is no longer optional.
- **Rule MLS-2** – SPs MUST register MLS receiving capabilities using SPIS Main ID (`0242:<6-digit-number>`) in their SMP. Additional SPIS IDs with Use Case ID "MLS" MAY be registered.
  - *SP Action:* Register the MLS Document Type Identifier in SMP for at least the SPIS Main ID participant.
  - The exact Document Type ID: `urn:oasis:names:specification:ubl:schema:xsd:ApplicationResponse-2::ApplicationResponse##urn:peppol:edec:mls:1.0::2.1`
- **Rule MLS-3** – Default MLS usage is `FAILURE_ONLY` (only negative). Negative MLS is always mandatory. Positive MLS is optional unless C2 opted in via `MLS_TYPE=ALWAYS_SEND`.
  - *SP Action:* Implement logic to parse `MLS_TYPE` from incoming SBDH and honour it.
- **Rule MLS-4** – MLS MUST be sent as soon as the status is known. No artificial delays. Queue and retry if transmission temporarily fails.
  - *SP Action:* Implement MLS queuing and retry mechanism.
- **Milestone Definitions (M1, M2, M3)** – New timing framework:
  - M1 = AS4 Timestamp of original business document transmission at C2
  - M2 = AS4 Timestamp of MLS message transmission at C3
  - M3 = Reception time of MLS message at C2
- **SLR MLS-1** – 99.5% of MLS messages (for documents <10 MB per Rule PT-1) must have M2−M1 ≤ 20 minutes, measured monthly.
- **SLR MLS-2** – 99.5% of MLS messages (for documents <10 MB per Rule PT-1) must have M3−M1 ≤ 25 minutes, measured monthly.
  - *SP Action:* Instrument systems to record M1/M2/M3 timestamps. Build monitoring/alerting for SLR compliance. Consider that M1 comes from the AS4 message received, not from the SP's own clock.

1.2.2 From the SBDH Specification v2.0.2 – Delta from v2.0.1

Changes in SBDH 2.0.2 specifically for MLS support:

- **New chapter 2.6** – MLS Customisation Options:
  - `MLS_TO` (§2.6.1) – Optional: C2 can specify an alternative participant ID for receiving MLS responses. Must start with C2's SPIS Main ID. C3 MUST validate it correlates to C2's SPID from the AP certificate.
  - `MLS_TYPE` (§2.6.2) – Optional: C2 can request `ALWAYS_SEND` or `FAILURE_ONLY`. Default is defined in PNP (= `FAILURE_ONLY`).

- *SP Action (as C2/sender):* Optionally populate `MLS_TO` and `MLS_TYPE` in outgoing SBDH when needed.
- *SP Action (as C3/receiver):* Parse and honour `MLS_TO` and `MLS_TYPE` from incoming SBDH. Implement fallback logic when `MLS_TO` and/or `MLS_TYPE` is invalid or participant not registered.

- **New reserved attributes** (§2.7.1) – `MLS_TO` and `MLS_TYPE` added to the reserved attributes table. SPs must not use these for other purposes.

1.2.3 From the MLS Specification v1.1.0 – Delta from v1.0.0

Key changes in MLS 1.1.0 compared to 1.0.0:

- **SPIS identifier scheme standardised to** `0242` – All references now consistently use `0242`.
  - *SP Action:* Ensure MLS sender/receiver `EndpointID` uses `schemeID` of `0242`.
- **Rules OP-MLS-04 and OP-MLS-10 removed** – Moved to PNP (now covered by PNP Rule MLS-3).
- **Rule OP-MLS-05 clarified** – "syntactical" correctness for `MLS_TO` validation.
- **Rejection reason list now exhaustive** (section 2.2) – The list of situations under which C3 may reject a document is now closed, not open-ended.
- **Schematron updates** – Case-insensitive participant identifier comparison, enforced `0242` scheme.

1.2.4 Cross-cutting Impacts

Area	Impact	Cross-references
SMP Registration	SPs must register MLS Document Type for their SPIS Main ID participant	[PNP MLS-2], [SMP Spec], [MLS Spec section 9.1]
SML/DNS Discovery	MLS sending requires SML lookup → SMP lookup for C2's MLS endpoint	[SML Spec section 2], [SMP Spec]
AS4 Transmission	MLS messages transmitted via AS4 like any Peppol document. Same PKI requirements	[AS4 Profile], [PKI Spec]
Peppol Reporting	MLS messages ARE Peppol Dataset exchanges and MUST be counted in TSR/EUSR	[Reporting SPOG section 3.1], [Reporting Specs]
Payload Size	SLRs only apply to business documents <10 MB. Measurement per PNP Rule PT-1	[PNP section 3.1]

5-Corner Model	PNP states 5-corner model = combination of 4-corner instances. MLS applies per 4-corner leg	[PNP section 1.3]

2 Introduction

This document (SPOG) provides operational guidance for implementing Message Level Status (MLS) per the MLS Specification and the Peppol Network Policy (PNP).

This is indicative guidance to Peppol Service Providers (SP) and not a normative specification. This implies that changes to this document may be published without member review.

This document does not aim to provide a fully automated resolution mechanism for all possible scenarios. Certain situations arising during message exchange may require direct coordination between the parties involved and must be resolved outside the Peppol Network through bilateral communication.

This document refers to the 4-Corner Model only. The content of this document is applicable to the “5-Corner Model” interpreted as a combination of multiple instances of a 4-Corner Model.

2.1 References

The following standards and specifications are referenced in this document:

- [AS4] Peppol AS4 Profile; https://docs.peppol.eu/edelivery/
- [CodeLists] Peppol eDelivery Code Lists; https://docs.peppol.eu/edelivery/codelists/
- [ebMS3Core] OASIS ebXML Messaging Services 3.0; http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/core/ebms_core-3.0-spec.pdf
- [MLS] Peppol MLS Specification; https://docs.peppol.eu/edelivery/
- [PFUOI] Peppol Policy for use of Identifiers; https://docs.peppol.eu/edelivery/
- [PNP] Peppol Network Policy; https://docs.peppol.eu/edelivery/
- [Reporting] Peppol Reporting Specifications; https://docs.peppol.eu/edelivery/
- [Reporting SPOG] Reporting SP Operational Guideline; https://docs.peppol.eu/edelivery/
- [RFC2119] RFC 2119 “Key words for use in RFCs to Indicate Requirement Levels”; https://datatracker.ietf.org/doc/html/rfc2119

- [SBDH] Peppol Business Message Envelope Specification; https://docs.peppol.eu/edelivery/
- [SML] Peppol SML Specification; https://docs.peppol.eu/edelivery/
- [SMP] Peppol SMP Specification; https://docs.peppol.eu/edelivery/
- [SPIS] Service Provider Identification Scheme; https://docs.peppol.eu/edelivery/

2.2 Relationship to other documents

When it comes to the application of MLS, the MLS Specification is the "what", the PNP is the "must" and this SPOG is the "how".

Rules provided in PNP always override any conflicting guidance in this document.

Note: The MLS specification itself references this document for operation details (see [MLS] sections 1 and 3).

2.3 Terminology

The keywords "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [RFC2119].

3 MLS Overview

The MLS is targeted to be the result of the verification of a Business Document against the Peppol Architectural Framework and operates on the “Messaging Layer” of the Peppol Interoperability Architecture - 3-Layer Model.

3.1 Big Picture

The following image shows a big picture of the Business Document and MLS exchange, the milestones M1, M2 and M3 as well the MLS SLRs from [PNP]:

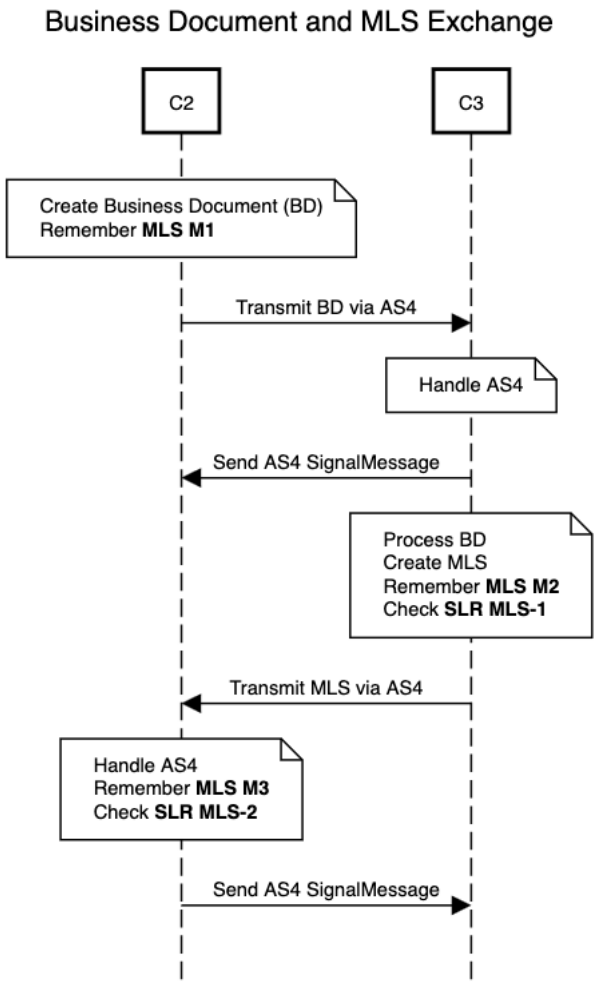

Figure 1: Business Document and MLS exchange overview

The details of the different steps are described below in the document.

3.2 Transition from MLR to MLS

The guideline in this chapter is primarily for the transition period where MLR and MLS are allowed to be exchanged in parallel.

This implies that SPs MAY both send and receive MLR and MLS in parallel. One business document MUST only be responded with either MLR or MLS. If a receiver can handle both MLR and MLS, the usage of MLS MUST have priority. MLR is being phased out since MLS is superseding it. A detailed phase-out plan for MLR is provided.

In the case where C2 wants to receive only negative MLS and C1 has registered MLR receiving capabilities and the exchanged document is to be accepted, an MLR message MAY be sent.

SPs that don't support MLR now don't need to implement it for supporting MLS. MLR and MLS are independent specifications and have no dependencies.

As stated in OP-MLS-03: "An MLS message MUST NOT be sent in response to another MLS or MLR message." – this also applies for MLRs in the sense that an MLR message MUST NOT be sent in response to another MLS or MLR message.

4 Obligations for Service Providers

4.1 SMP Registration

This section explains the details of the SMP registrations (see [SMP]) of MLS receiving capabilities.

4.1.1 Participant Identifiers

MLS registrations MUST only be done using the SPID scheme (see [SPIS]) with the value of `0242`. MLS registrations MUST NOT exist with any different Participant Identifier Scheme.

MLS receiving capabilities using the SPIS Main ID (e.g. `0242:987654`) MUST be registered.

Note: the SPIS Main ID is the 6-digit number that you can also find in your "Seat ID" but without the leading characters but including leading zeroes.

Further MLS receiving capabilities using the SPIS Use Case ID "MLS" MAY be done. However, they MUST all be based on the same SPIS Main ID.

Each MLS SPID SMP registration SHOULD be signed with an SMP certificate using the Seat ID based on said SPID.

Examples for valid optional registrations for an SP with the fictional Main ID of "987654":

- `0242:987654-MLS`
- `0242:987654-MLS.anything1`
- `0242:987654-MLS.svc99`

Examples for invalid optional registrations for an SP are:

- `0208:012345678` – using a Participant Identifier Scheme different from 0242 is forbidden
- `0242:123456` – using a different Main ID is forbidden
- `0242:987654-TEST` – using a Use Case ID different from "MLS" is forbidden

The Participant Identifier MUST refer only to a Service Provider (C2/C3). It is forbidden to register an MLS participant ID for an End User (C1/C4). One of the goals of MLS over MLR was to reduce the amount of necessary SMP registrations.

4.1.2 Document Type Identifier

MLS receiving capabilities MUST use the exact Document Type Identifier `urn:oasis:names:specification:ubl:schema:xsd:ApplicationResponse-2::ApplicationResponse##urn:peppol:edec:mls:1.0::2.1` with the scheme of `busdox-docid-qns`.

Source: MLS specification, section 9.1

4.1.3 Process Identifier

MLS receiving capabilities MUST use the exact Process Identifier `urn:peppol:edec:mls` with the scheme of `cenbii-procid-ubl`.

Source: MLS specification, section 9.1

4.1.4 Considerations on Centralized SMP Offerings

Jurisdictions offering a Centralized SMP solution may consider providing the SPID participants in their SMP solution for their SPs. However, it is to be considered that many – especially international – SPs run their own SMP and therefore have the capability to register their own SPID in their own SMP.

Therefore, the operators of Centralized SMPs

- MAY mandate the registration of the SPID participants for local SPs
- MUST NOT mandate the registration of the SPID participants for foreign SPs

5 MLS Process – Receiving Side (C3)

This chapter focuses on the activities needed by a C3 receiving Access Point.

5.1 Determining the Effective MLS Receiver (using MLS_TO)

This section focuses on how to determine the effective MLS receiver of an incoming message.

Fallback chain for how to the determine the effective MLS receiver Participant ID value:

1. Use `MLS_TO` from SBDH only if

- The field is present (see [SBDH])
- And syntactically valid (see [SPIS])
- And associated to the signing C2 (see [AS4], [SPIS] and below)
- And existing in SMP (see [SMP])
- And registered for MLS document type (see [MLS])

2. Otherwise use `0242:<SPIS Main ID>` where the SPIS Main ID is derived from the Peppol AP Certificate Subject “CN” field (see [SPIS] for details). The Peppol AP Certificate is part of every AS4 transmission as a so called “Binary Security Token”.

C3 MUST verify that the MLS correlates to C2's Main ID from the Peppol AP Certificate. Redirecting MLS messages to a different SP is NOT allowed. Values not matching this requirement are considered invalid and therefore are to be ignored.

5.2 Determining requested MLS usage

This section focuses on how to determine the effective requested MLS usage of an incoming message.

Fallback chain for how to the determine the effective `MLS_TYPE` value:

1. Use `MLS_TYPE` from SBDH only if
   - The field is present (see [SBDH])
   - And syntactically valid (see [MLS])
2. Otherwise use `FAILURE_ONLY` (see [PNP])

If the effective `MLS_TYPE` value is `ALWAYS_SEND` it means C3 MUST send an MLS for every business document received (both positive and negative)

If the effective `MLS_TYPE` value is `FAILURE_ONLY` it means C3 MUST send an MLS only for every business document received that is negative. An MLS for a positive business document MUST NOT be sent.

Note: Some jurisdictions may enforce a specific `MLS_TYPE` value.

5.3 Determining the MLS response code

This section gives an overview of the MLS “overall response code” which determines if a business document got accepted or not.

- `RE` = Rejected. Includes a mandatory description and `LineResponse` details with `StatusReasonCodes` for every line. Response details referring to the same line MUST be grouped accordingly

- The list of possible rejection reasons is exhaustively listed in the MLS specification ([MLS]), section 2.2.1
- If additional rejection reasons are identified, they need to be added to future MLS specification versions and are as such subject to member review

- `AP` = Delivered with confirmation (e.g. API acknowledgement). Do NOT use for email delivery towards C4.
- `AB` = Delivered without confirmation (e.g. email, file drop, SFTP)
  - Use also in case of temporary forwarding issues (see below)

5.3.1 Forwarding is temporarily not possible

From a C3 perspective it may happen, that the forwarding towards C4 is temporarily not possible (for whatever reason). This is no valid reason to reject an inbound message. In this case, the inbound message MUST be accepted with code `AB` (delivered without confirmation), as it foreseeable that the message will be delivered in the future. C3 MUST keep trying to forward the document towards C4.

Note: Rejecting a document in this scenario is not an option, as this would mean a permanent shift of the responsibility back to C2, which is not desirable. Especially, because only one MLS message CAN be delivered per business document.

5.3.2 Rejection Reason “Failure of delivery”

The MLS rejection reason code `FD` for “Failure of delivery” is special. It MUST only be applied in cases where:

- The incoming message is correct according to the Peppol Architectural Framework and
- Permanently cannot be forwarded to C4 and
- Rejection is for non-business reasons.

C3 remains responsible for fixing the underlying issue, even though the responsibility of the business document is passed back to C2.

5.4 MLS Transmission

This chapter deals with the transmission of an MLS from C3 to C2. It is only relevant, if the `MLS_TYPE` allows an MLS to be send (see section 5.2).

As a start C3 MUST perform a full SML/DNS lookup for the effective MLS receiving Participant Identifier (see 5.1), Document Type Identifier (see 4.1.2) and Process Identifier (see 4.1.3).

- If the SMP lookup fails:
    - If the MLS Participant ID differs from the default SPID, it's up to C3 to determine if a queue and retry process is feasible, otherwise fallback to the default SPID.
        - "Fallback to default SPID" is more likely to be able to handle MLS. However, it has the implications that the default SPID may not be able to correlate the MLS properly. So, the default SPID MLS handler needs to be extra careful when correlating inbound MLS messages.
    - If the MLS Participant ID is the default SPID, queue and retry MUST be performed (per the spirit of PNP rule `MLS-4`)

MLS rule `OP-MLS-3` states, that an MLS message MUST NOT be sent in response to another MLS or MLR message.

MLS rule `OP-MLS-12` states, that positive MLS messages MUST NOT be sent before attempting C4 delivery.

The reference point for timing milestone M2 MUST be the first sending attempt.

5.5 Timeout handling

This section applies when the MLS transmission described in section 5.4 does not succeed immediately. Temporary inability to transmit does not exempt C3 from the SLR obligations in [PNP]; C3 must therefore queue and retry MLS messages as required by PNP Rule MLS-4.

When an MLS message cannot be sent immediately, C3 SHOULD log the first transmission attempt. The log record SHOULD contain at minimum:

- The first attempted send date and time using UTC time zone;
- The SBDH `InstanceIdentifier` of the original business document transmission;
- The SBDH `InstanceIdentifier` assigned to the MLS message.

C3 MUST continue retrying until the MLS is successfully transmitted.

If the MLS still cannot be transmitted after 24 hours from the first attempt, C3 SHOULD notify C2's Peppol support. In case no direct contact point of C2 is known, the contact information MAY be taken from the SMP endpoint information of C2's MLS participant identifier; the contact information from the official Peppol.org website MAY be used as

the last resort. Any decision taken beyond the 24-hour window SHOULD be coordinated with C2.

The same queuing and retry logic applies when the SMP lookup (section 5.4, step 1) fails as when the AS4 transmission itself fails.

6 MLS Process – Sending Side (C2)

This chapter describes the responsibilities of the C2 Access Point after it has transmitted a business document and is awaiting an MLS response from C3.

6.1 AS4 Receipt and MLS Sequencing

The synchronous AS4 Receipt and the MLS message operate on different protocol layers and MUST be treated as entirely independent exchanges. The AS4 Receipt is a transport-level acknowledgement that confirms the payload was received by the Access Point and that the responsibility for the message was accepted. The MLS is a message-level status response that reports the outcome of processing that payload. These two responses serve different purposes and MUST NOT be conflated or sequenced in a way that causes one to block the other.

C3 MUST return the AS4 Receipt synchronously as part of the AS4 message exchange, *before* any processing of the business document takes place. The AS4 Receipt confirms receipt of the transmission at the transport level only – it makes no statement about whether the content is valid or whether delivery to C4 will succeed. Delaying or withholding the AS4 Receipt while performing document validation or awaiting a delivery outcome is non-compliant with the Peppol AS4 Profile and will cause timeouts at C2.

The MLS message is sent subsequently, as a separate outbound AS4 transmission from C3 to C2, once the processing outcome is known. Per PNP Rule MLS-4, the MLS MUST be sent as soon as the status is known – but this is independent of, and always after, the synchronous AS4 Receipt. The correct sequence is therefore:

1. C2 sends the business document to C3 via AS4.
2. C3 returns the AS4 Receipt synchronously, confirming transport-level receipt.
3. C3 processes the business document and determines the outcome.
4. C3 sends the MLS as a separate outbound AS4 transmission to C2.

Sending an MLS before returning the AS4 Receipt is non-compliant. Any implementation that delays the AS4 Receipt until after MLS transmission will cause connection timeouts at C2 and violates the layered architecture of the Peppol eDelivery Network.

6.2 Timeout handling

The SLR MLS-2 window (25 minutes from M1 to M3) is a statistical threshold covering 99.5% of qualifying MLS messages per month. C2 SHOULD NOT treat the absence of an MLS within this window as a definitive delivery failure for any individual message, especially because the positive AS4 acknowledgement is the proof that C3 has taken responsibility for the message.

C2 MUST NOT resend the original business document solely because no MLS has been received within the SLR window.

If no MLS is received within 24 hours of the original transmission (and the MLS is requested unconditionally), C2 SHOULD contact C3's Peppol support to investigate. In case no direct contact point of C3 is known, the contact information MAY be taken from the SMP endpoint information of C3's MLS participant identifier; the contact information from the official Peppol.org website MAY be used as the last resort. Any decision taken beyond the 24-hour window SHOULD be coordinated with C3.

C2 SHOULD log non-receipt events for operational monitoring and compliance evidence purposes.

6.3 Exceptional Cases

6.3.1 Unrecognized Correlation ID

In case C2 receives an MLS referring to an SBDH `InstanceIdentifier` it cannot correlate to an outbound transmission; this is an indication of a mis-routed MLS transmission.

If C2 can determine synchronously that the referenced SBDH `InstanceIdentifier` is unknown, it SHOULD return an AS4 Error in the synchronous transport level response. If the determination can only be made asynchronously, C2 SHOULD accept the MLS (returning a positive AS4 Receipt) and then discard it but SHOULD notify C3 via an out-of-band channel to avoid silent black holes.

The scenario described in this section may happen when an SP is using multiple different Participant IDs to receive MLS messages and the MLS sender is falling back to the SPID Main ID due to an unusable `MLS_TO` value. In this scenario, the MLS receiving AP SHOULD also consult with its other AP instances for document correlation before contacting the other SP.

6.3.2 More than one MLS transmission

“Each received business document MUST be responded by zero or one MLS message.” is stated in [MLS] OP-MLS-02.

In case one business document transmission receives – for whatever reason – more than one valid MLS message, it's always the first received valid MLS message that is relevant. Subsequent MLS messages MUST be ignored by C2.

Note: This scenario assumes that duplicate transmissions are already filtered out on transmission level (AS4) separately.

6.3.3 Erroneous MLS handling

If C2 receives an erroneous MLS (e.g. an invalid XML document or an MLS not compliant to the rules), C2 SHOULD contact C3's Peppol support team for investigation. C3 SHOULD correct the message, resend the corrected version and take the necessary measures to avoid this type of errors in the future.

C2 SHOULD log receipt of erroneous MLS for operational monitoring and compliance evidence purposes.

Erroneous MLS messages MUST NOT be rejected on the transport layer (AS4).

Note: This also applies if only addressing information is incorrect, but the MLS message could theoretically be correlated and processed.

Note: Erroneous MLS messages do not count towards the limit imposed in section 6.3.2.

7 Service Level Requirements

This section provides practical implementation guidance for the SLRs defined in [PNP] section 4.3, which shall be read alongside the milestone definitions in [PNP] section 4.2.

7.1 SLR MLS-1 and SLR MLS-2 – Implementation detail

SLR MLS-1 governs the sending side (M1→M2 ≤ 20 minutes) and SLR MLS-2 governs the receiving side (M1→M3 ≤ 25 minutes). Both are measured over a calendar month per Service Provider.

The following details apply to both SLRs:

- Only MLS messages corresponding to business documents with a Payload Size below 10 Megabytes are subject to these SLRs. Payload Size is measured per PNP Rule PT-1: the size of the uncompressed, unencrypted, and unsigned Peppol Business Message Envelope instance in bytes. Per the definition in [PNP], 1 Megabyte equals 1,000,000 bytes (not 1,048,576).
- Threshold is 99.5% of qualifying MLS messages within the monthly measurement period must satisfy the applicable time constraint.

- M1 is extracted from the AS4 message received by C3 – it reflects C2's clock, not C3's. C3 has no control over M1. Clock synchronisation issues at C2 may therefore affect M1 values. Service Providers should be aware of this when interpreting SLR measurements.

If a Service Provider acts as both C2 and C3 (“self-send”), the same milestone definitions apply without exception.

7.2 Timing milestones – practical guidance

M1 is derived from the AS4 `eb:UserMessage/eb:MessageInfo/eb:Timestamp` of the original business document transmission. This value is set by C2 and is part of the AS4 message received by C3. It MUST be expressed in UTC.

M2 is the AS4 `eb:UserMessage/eb:MessageInfo/eb:Timestamp` of the MLS transmission, set by C3 at the moment C3 initiates the AS4 send. M2 is fully under C3's control and MUST also be expressed in UTC.

M3 is the date and time at which C2's Access Point receives the MLS AS4 message. M3 is recorded locally by C2 and SHOULD also be expressed in UTC.

All Peppol AP solutions SHOULD be synchronised via NTP (RFC 5905; or comparable) to ensure timestamp accuracy across M1, M2, and M3.

8 Error Handling and Retry

PNP Rule MLS-4 requires that if MLS transmission is temporarily impossible, the message MUST be queued and retried as soon as conditions permit. No artificial or intentional delays are allowed (see also section 6).

C3 SHOULD implement an exponential backoff algorithm for MLS retries, with an initial delay of no less than 3 minutes between attempts. This avoids overloading a temporarily unavailable C2 endpoint while ensuring timely retransmission. See section 5.5 for details.

If the MLS cannot be successfully transmitted within 24 hours, C3 SHOULD contact C2's Peppol support (see section 5.5). Retry attempts SHOULD continue until the message is successfully delivered or until a mutual agreement with C2 is reached.

If C2's MLS endpoint is confirmed to be permanently unreachable (e.g. the participant identifier has been deregistered from SMP), C3 SHOULD cease further retry attempts, document the failure, and coordinate directly with C2.

C3 SHOULD maintain a log of all failed MLS transmission attempts for audit and compliance purposes. Log records SHOULD include at minimum:

- the first and most recent attempted transmission timestamps (UTC)

- the number of retry attempts
- the SBDH `InstanceIdentifier` of the original business document
- the SBDH `InstanceIdentifier` of the MLS message
- and the reason for failure (e.g. SMP lookup failure, AS4 connection timeout)

9 Relationship to SBDH

Every MLS message is wrapped in a Peppol Business Message Envelope (SBDH) per [SBDH], exactly as any other Peppol Dataset exchange. This section describes how the SBDH fields are populated specifically for MLS messages, where the semantics differ from standard business document exchanges due to the SP-to-SP nature of MLS.

9.1 Sender and Receiver identifiers

The Sender and Receiver party identifiers in the MLS SBDH MUST be SPIS identifiers using scheme `iso6523-actorid-upis` and participant identifier scheme `0242`. The Sender is C3 – the Service Provider sending the MLS. The Receiver is the effective MLS recipient as determined by the `MLS_TO` fallback chain (see section 5.1). End User identifiers MUST NOT be used as Sender or Receiver in an MLS SBDH.

9.2 Document Type Identifier and Process Identifier

The MLS SBDH MUST carry the MLS Document Type Identifier and Process Identifier as defined in [MLS] section 9.1 in the `BusinessScope`. These are fixed values and do not vary between MLS exchanges.

9.3 Country Code

The `COUNTRY_C1` scope in the MLS SBDH MUST contain the ISO 3166-1 Alpha-2 country code of C3 – the Service Provider sending the MLS. This follows the general SBDH principle that `COUNTRY_C1` identifies the business-level sender of the envelope, which in the case of MLS is C3.

9.4 MLS_TYPE and MLS_TO

The SBDH of the original business document MAY carry the `MLS_TYPE` and/or `MLS_TO` customisation scopes as defined in [SBDH]. These are set by C2 in the outgoing business document envelope and are read by C3 to determine the MLS response type and routing. They are not present in the SBDH of the MLS message itself – they are

instructions carried in the triggering business document's envelope. The MLS message SBDH is always a fresh envelope constructed by C3 for the outbound MLS transmission.

9.5 InstanceIdentifier

The SBDH `InstanceIdentifier` of the MLS message MUST be a globally unique UUID generated by C3 for the MLS transmission. It is distinct from the `InstanceIdentifier` of the original business document. The reference back to the original document is carried inside the MLS payload itself (see [MLS] OP-MLS-16), not in the SBDH envelope.

10 Relationship to Peppol Reporting

MLS messages are Peppol Dataset exchanges and MUST be included in Transaction Statistics Reporting (TSR) as specified in [Reporting] and the [Reporting SPOG].

MLS messages MUST NOT be included in End User Statistics Reporting (EUSR). MLS is exclusively a Service Provider-to-Service Provider exchange with no End User participation, making the EUSR framework inapplicable by definition.

The MLS Document Type Identifier (`urn:oasis:names:specification:ubl:schema:xsd:ApplicationResponse-2::ApplicationResponse##urn:peppol:edec:mls:1.0::2.1`) MUST appear in TSR as a distinct Dataset Type.

Note: MLS messages sent by the Peppol Reporting Access Point in response to submitted reports are themselves MLS messages within the meaning of this specification. They MUST be counted as received business documents for reporting purposes the following month.

10.1 Country Codes

TSR captures country codes for each Dataset exchange through the `PerSP-DT-PR-CC` subtotal, which carries a `SenderCountry` and a `ReceiverCountry` key. For normal business documents, this subtotal can only be reported by the receiving SP (C3), because the sending SP (C2) does not know the country of C4. For MLS exchanges the situation is different: both sides have access to all country information needed, because MLS is an SP-to-SP exchange and both parties can determine each other's country from the AP certificate of the counterpart.

The following list defines how `SenderCountry` and `ReceiverCountry` are populated for MLS in each role:

- C3 as sender of the MLS

- `SenderCountry`: C3's own country – set as `COUNTRY_C1` in the MLS SBDH. This MUST be the country code of the entity that signed the Peppol Agreements. The country code MUST NOT be taken from the Seat ID.
- `ReceiverCountry`: explicitly unknown, as for every outbound TSR record

- C2 as receiver of the MLS
  - `SenderCountry`: C3's country – read from `COUNTRY_C1` in the received MLS SBDH
  - `ReceiverCountry`: C2's own country

Note that `SenderCountry` always refers to C3 – the SP that sent the MLS – and `ReceiverCountry` always refers to C2 – the SP that received it. This is consistent with the general TSR principle that `SenderCountry` maps to the `COUNTRY_C1` value in the SBDH and `ReceiverCountry` is determined locally by the receiving party.

Like in normal business document exchanges – where C2 does not know the receiver country code (C4) – the MLS sender MUST NOT store the `ReceiverCountry` for any outgoing MLS transmission.

11 Identifier Usage

The Participant Identifier Scheme for all MLS-related identifiers is `0242` (the SPIS scheme). A different Participant Identifier Scheme MUST NOT be used for MLS sender or receiver identification.

Participant Identifier formats:

- SPIS Main ID (mandatory): `0242:<6-digit-number>`, e.g. `0242:987654`
- SPIS Use Case ID `MLS` (optional, derived from Main ID): `0242:<6-digit-number>-MLS` and further sub-identifiers per [SPIS], e.g. `0242:987654-MLS`, `0242:987654-MLS.svc01`

Participant identifier comparison in MLS messages is case-insensitive, as enforced by Schematron rules `SCH-MLS-09` and `SCH-MLS-14`. The scheme `0242` is enforced by rules `SCH-MLS-11` and `SCH-MLS-16`.