

ISO 20022 and Settlement Messaging: Matched Pairs in Financial Infrastructure

A rejected payment instruction produces a reason code and a reconciliation task, and nothing in the message layer records what declining cost the party that declined. Between supervised institutions that gap is filled by rulebooks, supervision, and relationships worth preserving. Between autonomous agents that have never transacted and share no intermediary, it is simply open: refusal is free and fast. Chapter 6 of U.S. Provisional Application No. 64/117,812 discloses settlement effected by recognizing a matched pair of signed governed observations within declared proximity windows, finality attaching upon recognition and admission of the pair, and a party's refusal emitted as an observation that meters that party's own authorization to bind settlements, without anyone adjudicating whether the refusal was well founded.

1. A refusal that costs the refusing party nothing

A payment instruction arrives and the receiving side declines it. A rejection goes back carrying a coded reason, the sending side reconciles, and the instruction is repaired or abandoned. Nothing in that sequence changes what the declining party may do next. The decline is a row in a report.

Between supervised institutions the missing consequence comes from outside the message flow: scheme rulebooks, supervisory attention, and a relationship worth keeping. Those fillers work because counterparties are few, enrolled, and known in advance.

Put autonomous agents on both ends and those conditions weaken. Two firms' agents may settle terms with no staff in the loop, and an agent may transact with a service it will never meet again. Refusal there is free: an agent declines at machine rate and stands exactly where it stood.

Being refused should not darken a record either. If a counterparty could load the other side's record by opening disputes or never answering, silence becomes the cheapest attack on an agent.

So the design question is not whether each refusal was correct. Merit cannot be adjudicated at machine volume, and any system that tried would need an adjudicator, the very intermediary the arrangement works without. What matters is what refusing costs the refuser, in its own state. Financial messaging is where to look, because where it stops is where the conduct question begins.

2. What ISO 20022 standardizes, and where it stops

ISO 20022 is, as publicly documented, an international standard for financial messaging. It does not fix a single message format. It supplies a methodology built on a business model and a central dictionary of reusable data components, from which message definitions are derived and expressed in a syntax such as XML. Those definitions are grouped by business area, payments and securities among them. The dictionary and its change process are maintained under ISO through a registration authority.

Party and address information is structured instead of packed into free-text lines, and remittance information can travel with the payment in a form a receiving system can parse against an invoice. End-to-end references identify one transaction consistently along a chain of institutions, and status and return message types let a receiving party report acceptance, rejection, or return with coded reasons, as publicly described. Market infrastructures in a number of jurisdictions have moved high-value payment systems onto it, as publicly reported.

The standard's boundary is a matter of scope. ISO 20022 standardizes what parties say to each other and how that content is structured; it does not itself move value. Settlement finality, on the public account, is a property of the system underneath the messages: its operating rules, its settlement asset, the participation agreements, and the applicable law.

Nor, in its public materials, does the standard take a position on what a participant's pattern of rejections means for that participant. Reason codes say why one instruction was not accepted; whether a party that returns instructions frequently keeps the same access or standing is scheme governance and supervision.

Neither boundary is a shortcoming. A messaging standard that also tried to be a finality regime and a conduct regime would have to take positions on national law and on the commercial standing of participants, questions that belong elsewhere. The space left open is where inter-agent conduct has to live.

3. Settlement that is the pair itself

Chapter 6 of U.S. Provisional Application No. 64/117,812 occupies that layer by moving finality into the pair rather than under it.

The unit is a **governed observation**: a signed structure carrying an authority credential field, a continuity hash field encoding identity continuity of the emitting party, spatial and temporal reference fields, a time-to-live field, a payload field, and an observation lineage field carrying a cryptographic integrity attestation over its contents. Emission is complete upon emission, so no acknowledgment, handshake, delivery confirmation, or registration with a central authority conditions it.

A **matched pair** is a first governed observation representing an offer, tender, claim, demand, or commitment, and a second from the other party representing an acceptance, counter-tender, acknowledgment, refusal, or fulfillment, the two recognized by a pairing rule within one or more of a spatial proximity window and a temporal proximity window, the rule requiring spatial coincidence, temporal coincidence, or both as the governing policy object declares. Where the parties operate without physical co-location, the spatial window admits a scope-partition form satisfied by a non-empty intersection of the scope-partition identifiers the two observations declare. The pair binds into a settlement record comprising both signed observations, a cryptographic binding over both, and an attestation of the window within which the pair was recognized, so a downstream consumer can verify it from the record alone. Settlement occurs upon recognition and admission of the pair, and finality attaches at that moment.

Three negative conditions do the structural work. No third-party intermediary participates: no clearing party, payment processor, platform adjudicator, or escrow party is required for the pair to settle. No centralized consensus is computed, no quorum or ledger commit conditioning settlement. And no pre-negotiated session state exists, so a party that has never encountered its counterparty may still form a pair, consent being expressed per transaction by the paired observations themselves.

With enrollment removed, identity is carried by **continuity**. The continuity hash field holds a successor hash field, being the emitting party's dynamic agent hash at emission, and a continuity vector field of normalized projections of that party's operational state.

A received observation is accepted on continuity only where both conditions hold conjunctively: the per-step distance against its predecessor does not exceed a declared per-step ceiling, and a trust-slope consistency measure computed from that vector field and no other is not less than a declared acceptance threshold. Failure of either is a failed continuity validation.

Refusal is where the conduct layer becomes explicit. A party declining to complete a pairing emits the refusal as a **refusal observation**, itself a governed observation bearing that party's authority credential and referencing the observation refused, paired with the offer it refuses. Emission is metered by a refusal meter carried in the refusing party's own memory field, against that party's own settlement-binding authorization. The meter applies without any determination of whether the refusal was well founded, no adjudication of the merits being performed by any party as a condition of it. It increments once per emission by a refusal increment declared in the governing policy object, accumulating over a declared window. Responsive to the meter satisfying the declared bound, that party's settlement-binding authorization is written from a granting state to a withheld state, whereupon it binds no further settlements, its capacity to observe, to produce determinations, and to emit further refusal observations being preserved.

Just as important is what increments nothing. A dispute record initiated, a resolution rendered by a dispute-resolution authority, non-convergence after the declared round count, a rejection for want of a partition intersection, a held orphan observation, a timeout, and a failed fulfillment each increment no refusal meter of either party and are adverse to neither, so a meter cannot be loaded by initiating disputes or protracting a negotiation.

Admission itself runs through a settlement admissibility evaluator, producing exactly one outcome from admit, gate, defer, solicit, reject, and escalate over an evidential weight combining authority, continuity, freshness, and corroboration factors under

declared coefficients. An observation whose match has not arrived is held as an orphan in a deferral queue under a declared deferral-expiration parameter; while held it settles nothing, binds no party, and increments no meter of either party.

4. Convergent shape, divergent location of consequence

The convergence is real. Both architectures treat a transaction as two counterposed statements bound together and evaluated as a unit. Instruction and status report, instruction and return, request and response: in shape, those are matched pairs. Chapter 6 should read as familiar territory to anyone who has worked on payment flows.

The divergences follow from different problems.

- **Where finality lives.** In financial messaging, on the public account, finality comes from the system beneath the messages and from law. In Chapter 6 it attaches upon recognition and admission of the pair, the settlement record being verifiable from itself.
- **What supplies identity.** Institutional messaging rests on enrolled identifiers and scheme membership established before any transaction. Chapter 6 establishes identity by continuity, which is what lets two parties with no prior relationship pair.
- **What a refusal is.** A rejection with a reason code is a report about an instruction. A refusal observation is an act of the refusing party that pairs with the offer, is appended to each party's settlement lineage, and meters the refuser's own settlement-binding authorization.
- **Where the record sits.** Institutional reconciliation is assembled across institutions and infrastructure. In Chapter 6 each party appends its own settlement-lineage entry and can reconstruct its transaction history without recourse to the counterparty or to any registry.

- **What consequence is denominated in.** The faculty metered is refusal; the faculty spent is the authorization to bind settlements. When the meter satisfies its declared bound, that authorization is withheld while the party's capacity to observe, to produce determinations, and to emit further refusals is preserved.

None of this is a criticism of the standard. A standard spanning many institutions and legal systems rightly leaves finality, enrollment, and conduct consequences outside the message. An architecture for agents that may never have met has to put them somewhere, and Chapter 6 puts them in the pair.

5. Running the instruction layer and the conduct layer together

The picture is layered, not competitive. Suppose a treasury agent at one firm and a supplier's agent at another negotiate terms. That negotiation is a sequence of counter-observations, admitted per round through the admissibility evaluator and bounded by a round count declared in the governing policy object; non-convergence is a failure of the timeout class, adverse to neither side. Once terms are agreed, the instruction to move money is expressed in the institutional standard and travels through the infrastructure that settles value under its own rules.

The Chapter 6 layer settles the conduct state around that instruction: whether the authorization gate transitions for the enumerated action class, whether the persistence designation of a counterparty identity record is promoted or demoted, whether a settlement-binding authorization moves. An authorization escrow record can place such an authorization under dual-lock escrow, so completion of the pair releases it to the named releasee and failure returns it to the party that placed it, no authorization being created, destroyed, or transferred by the failed pairing.

Two behaviors sit close to institutional practice. A settled pair can be challenged only through a credentialed dispute procedure, routed to whichever dispute-resolution procedure the governing policy object declares, and no step of that procedure

increments any refusal meter of either party. Demotion of a counterparty record is effected only as a matched pair, so a unilateral demotion effects nothing while the bilateral demotion record persists: what is forgotten is the record content, not the fact of the consented forgetting.

What the layer does not do:

- No money moves through it, and it supplies no legal settlement finality. It displaces no payment system's operating rules or governing law, performs no sanctions screening and no know-your-customer check, and relieves no supervised participant of any regulatory obligation.
- Payment content is out of scope. Structured remittance data, address models, purpose codes, and reason code lists are the standard's work.
- Nothing in it adjudicates merit, and a withheld settlement-binding authorization is not a finding. Reliance bounding works the same way: on reading a provisional marker upon a counterparty's execution record, a party narrows the scope object governing admissible dispatch and disclosure toward that party, under declared bounds and without any determination of the merits of the underlying deviation.
- Nor does it guarantee that both sides reach the same outcome on one pair. Where the parties resolve different policy objects, each applies its own, so one side may admit what the other gates or defers. Arranging compatible policy objects is governance work the mechanism does not do.

The two layers answer different questions about one transaction: what was instructed and how the obligation is discharged, and what the parties' conduct cost them in their own records.

6. Disclosure Scope

The mechanisms described are disclosed in U.S. Provisional Application No. 64/117,812, principally Chapter 6, "Matched-Pair Settlement": the governed observation, the matched pair and the pairing rule, the three negative conditions, identity by continuity, the settlement-lineage entry, metered non-acceptance, orphan observations and deferred pairing, escrow and escrow depth, bilateral demotion, reliance bounding upon provisional markers, chained settlement, composite admissibility with graduated outcomes, and credentialed dispute resolution. Subject matter in that chapter originates in U.S. Provisional Application No. 64/049,409.

References to ISO 20022 are to public materials and are used for comparison only; no relationship, endorsement, or infringement is asserted.

This article is published to establish public, timestamped prior art for applying this architecture to settlement between autonomous agents. It describes pending applications. Nothing here asserts that any product, service, standard, or organization infringes anything, and nothing states that a license is required.

Governed Matched-Pair Settlement

[All 49 steps → \(/inventive-steps\)](#)

[\(/governed-settlement\)](#)

Two agents settle on matched signed observations, by continuity, with no clearer.

Provisional application

PRIMARY TECHNICAL DISCLOSURE

- [Matched-Pair Settlement Between Agents: Bilateral Closure Without a Clearer \(/articles/governed-settlement/matched-pair-settlement-without-a-clearer\)](#)

SECONDARY TECHNICAL

- [The Derived-Artifact Provenance Chain and Chain-Head Identifier \(/articles/governed-settlement/derived-artifact-provenance-chain\)](/articles/governed-settlement/derived-artifact-provenance-chain)
- [Provenance Withdrawal and the Provenance-Withdrawn Attribute \(/articles/governed-settlement/provenance-withdrawal\)](/articles/governed-settlement/provenance-withdrawal)
- [Matched-Pair-Gated Corpus Contribution \(/articles/governed-settlement/matched-pair-gated-corpus-contribution\)](/articles/governed-settlement/matched-pair-gated-corpus-contribution)
- [Partition-Scoped Escrow Release Gated on Intersection Non-Emptiness \(/articles/governed-settlement/partition-scoped-escrow-release\)](/articles/governed-settlement/partition-scoped-escrow-release)
- [The First-Encounter Settled Pair and Promotion to the Persistent Tier \(/articles/governed-settlement/first-encounter-settled-pair\)](/articles/governed-settlement/first-encounter-settled-pair)

APPLICATIONS · GENERAL

- [B2B Agent Commerce: Bilateral Settlement Without a Clearing House \(/articles/governed-settlement/b2b-agent-commerce-settlement\)](/articles/governed-settlement/b2b-agent-commerce-settlement)
- [Supply Chain Handoffs: Settling a Transfer on Matched Observations \(/articles/governed-settlement/supply-chain-agent-handoffs\)](/articles/governed-settlement/supply-chain-agent-handoffs)

APPLICATIONS · SPECIFIC

- [ISO 20022 and Settlement Messaging: Matched Pairs in Financial Infrastructure \(/articles/governed-settlement/iso-20022-settlement-messaging\)](/articles/governed-settlement/iso-20022-settlement-messaging)

TERMINOLOGY

- [governed observation \(/glossary#governed-observation\)](/glossary#governed-observation)
- [matched pair \(/glossary#matched-pair\)](/glossary#matched-pair)
- [scope partition \(/glossary#scope-partition\)](/glossary#scope-partition)

[Governed Matched-Pair Settlement overview → \(/governed-settlement\)](/governed-settlement)