Communication standards for interoperability and recommended practices for transactions with internationally transferred mitigation outcomes

Questions and answers

This document contains questions received from Parties on the communication standards for interoperability and transactions with ITMOs (hereunder "the standards") developed by the secretariat in accordance with decision 6/CMA.4, para. 32, and the related answers.

I. Scope and mandate related questions

Q1.1 (Added 27 March 2025): Why isn't there a single communication standard for all registries?

Decision 6/CMA.4, para. 32, requests the secretariat to develop, publish and periodically update, for participating Parties opting to apply the guidance referred to in annex I, chapter I.B. Consequently, it is possible for Parties to interoperate without using the standards. Note that when participating Parties registries interoperate, they should do so in accordance with decision 6/CMA.4, annex I, chapter I.B, i.e., by mitigating data consistency risks, including through communication of data about the transfer and reconciliation procedures within and between registries, and by ensuring non-repudiation. These requirements apply to interoperating registries whether they apply the standards or not.

Q1.2 (Added 27 March 2025): Why isn't there a single interoperability hub linking all registries?

See response above. The CMA decisions do not contemplate setting up a single interoperability hub linking all registries. It is up to each "group" of registries to arrange how they interoperate (see figure 2 in the standards for an example). Therefore, there is no "single" interoperability hub component linking all registries.

Q1.3 (Added 27 March 2025): Is a reference design and/or implementation of a registry in the scope of this work?

The scope of the work on the communication standards is limited to the standards, including the supporting API and operational procedures. A reference design and/or reference implementation of a registry adhering to the standards is not in scope.

Parties may wish to note para. 54 of decision -/CMA.6 (Baku decision on Article 6.2), which provides for capacity-building on registry infrastructure. The activities performed in that context are outside of the scope of the communication standards and the Article 6 RSA Forum.

Q1.4 (Added 28 March 2025): Is the pull and view interface available only to Parties that opt to apply the standards?

To access the pull and view interface, a registry must first authenticate with the interoperability hub. Once authenticated, the registry will be able to pull and view data (i.e. ITMO holdings, transactions, account details) for which it is authorised (e.g. the registry's, or the registry's Party's holdings and accounts, transactions that they proposed, transactions for which they are the receiving registry).

For Parties that do not opt to apply the standards, thus, not interoperate with the hub other than authenticate their registry, there will be minimal data to pull and view.

Q1.5 (Added 25 March 2026): Why do the standards recommend a ITMO unique identifier that is different to decision 6/CMA.4 annex I, paragraph 5?

The standards are proposing the ITMO unique identifier be kept to a minimum number of attributes that are immutable, while guaranteeing uniqueness of the ITMO. These are

- the originating Party registry Id, and
- the serial number range, consisting of a first Id, and a last Id.

The other attributes will continue to be tracked as the ITMO's attributes.

The list of elements from the decisions: cooperative approach id, originating Party registry id, first transferring Party id, serial number, and vintage, cannot correctly be implemented as a "unique identifier", as not all these elements are available throughout the lifetime of an ITMO, may be subject to change in either format, or value.

For example, regarding the cooperative approach ID:

- There are ITMOs that do not have a cooperative approach. For example, ITMOs that originate from Article 6.4ERs.
- Currently cooperative approach IDs have the format "CAnnnn". There is already recognition that this is too restrictive (i.e. there will be more than 9999 cooperative approaches), and it has been suggested the format change to "CAnnnnnn". This would mean ITMOs will have differently formatted unique identifiers, or the unique identifier of existing ITMOs will need to change, if the cooperative approach ID is included.

Further, best practice for "unique identifiers" (aka primary keys) is to keep them as short as possible, while maintaining uniqueness and immutability.

That is why the standards propose the originating Party registry id, with the first id, and last id as the "unique identifier/primary key", with the cooperative approach id, first transferring Party id, vintage as mandatory attributes of the unit, out of the unique identifier.

Q1.6 (Added 30 March 2026): Is the "first transferring Party" the Party that owns the "originating Party registry"?

The first transferring Party, in accordance with decision 4/CMA.6, paragraphs 11–12, is the Party that authorized the mitigation outcome. The originating Party registry is the registry that registers authorized mitigation outcomes with the interoperability hub and assigns the serial number range (i.e. first and last IDs) for the registered blocks.

Under the standards, authorized mitigation outcomes cannot be internationally transferred prior to registration. Accordingly, the Party that authorizes the units (i.e. the first transferring Party) will use its registry to register them. In such cases, the first transferring Party is also the Party that owns the originating Party registry.

However, where the Article 6.4 mechanism registry registers the authorized mitigation outcomes, the originating Party registry will be the mechanism registry, with the registry Id "XMR01" (where "XMR" represents the ISO 3166-1 alpha-3 user-assigned code reserved

for the mechanism registry). The mechanism registry is operated by the secretariat rather than by the Party that authorized the mitigation outcomes.

Q1.7 (Added 30 March 2026): There seem to be no decisions that mandate a hub component that validates transactions. Why do the standards include transaction validations?

While the decisions do not explicitly mandate validations, or a hub component, the mandate was to develop standards and recommended practices … for interoperability and transactions … to mitigate data consistency risks and ensure non-repudiation.

Our analysis concluded that standards utilising a hub-based pattern of interoperability was the most effective way to deliver the above. This included the validation of transactions so that invalid transactions that would put data consistency at risk may be flagged or terminated.

Q1.8 (Added 31 March 2026): What is the reasoning for "Configurable" validations?

Configurable validations, described in Annex III of the standards, are a set of common validations that, if not implemented in the hub, SHOULD be implemented in each registry. They have been implemented in the hub to remove the implementation burden from registries. Registries MAY configure their registry record in the hub switch individual validations to "off", if they wish to use their own version of the validation, or if they wish the transaction to proceed, despite the validation failing.

Note that this is a registry by registry, validation by validation configuration – one registry's configuration does not impact another registry's configuration; one validation's configuration does not impact another validation's configuration.

Note that even if the registry switches the validation "off", and the transaction proceeds, the hub will record that the validation has failed and warn registries participating in the transaction that the validation has failed. This provides information for registries to determine whether they wish to terminate the transaction themselves.

II. Technical questions

Q2.1 (Added 27 March 2025): How is the uniqueness of ITMOs guaranteed if a Party has multiple registries?

The standards propose that the unique ITMO identifier consist of the originating Party registry identifier, concatenated with the serial numbers of the first and last ITMOs.

This way, the originating Party registry, that registers the authorized mitigation outcomes (that will become ITMOs on first transfer), can ensure the block delimited by the first and last serial numbers do not overlap any blocks it previously registered, thus are unique.

ITMOs registered by other registries, even of the same Party will not clash, as the ITMO identifier contains the unique registry identifier, not just the Party identifier.

For example, if CHE has two registries: CHE01 and CHE02,

- CHE01 can register a block of 1000 authorized mitigation outcomes, with the unique identifier of
  - Originating Party registry Id = CHE01
  - First Id = 1
  - Last Id = 1000
- CHE02 can register a block of 2000 authorized mitigation outcomes, with the unique identifier of
  - Originating Party registry Id = CHE02
  - First Id = 1

- Last Id = 2000
- The registry identifier portion of the authorized mitigation outcomes identifier keeps the units unique

The interoperability hub can validate the uniqueness of the authorized mitigation outcomes when an originating Party registry proposes a transaction to register authorized mitigation outcomes.

Q2.2 (Added 15 April 2025): How are the AEF tables produced given that the ITMO attributes in Annex I appear to be missing some elements required in the AEF tables?

The AEF tables are produced by calling API operations provided by the CARP.

Since the authorization identifier and authorization version are part of the ITMO, these provide traceability to the detailed information contained in the authorization, as stored in the CARP. This detailed information is, in turn, used to produce the AEF tables.

Q2.3 (Added 15 April 2025): How are cancellations for OMGE tracked? How are contributions to the Adaptation Fund tracked?

Cancellations for OMGE and contributions to the Adaptation Fund are tracked via Accounts Ids and Account Types.

For example, cancellations for OMGE pursuant to decision 2/CMA.3, annex, para. 39, are transactions with a destination account with Account Type "Voluntary Cancellation of ITMOs not counted towards NDC or OIMP, for OMGE".

Contributions to the Adaptation Fund are transactions with a destination account in the Art. 6.4 mechanism registry with designated Account Identifier, or identifier range for contributions to the Adaptation Fund (Account Type = Holding Account).

Q2.4 (Added 16 April 2025): Can a Party have a Pending account?

Pending accounts, if they are needed, are treated as 100 Holding accounts – they should have the account type 100 Holding accounts.

A Party's registry should have its own validation rules for those specific accounts they need to implement "Pending" accounts.

Q2.5 (Added 16 April 2025): Why are transfers between registries limited to accounts with the account type: 100 Holding Account?

This simplifies the communication standards for interoperability by ensuring registries, accounts, and transactions are treated confidentially.

Once transferred to a 100 Holding account, a registry may use internal transactions to move ITMOs to other account types without the involvement of other Parties.

Q2.6 (Added 31 March 2026): What are the ISO-3166-1 alpha-3 codes used to represent the European Union and the Article 6.4 mechanism registry when a Party code is required?

The standards will exceptionally reserve the following ISO 3166-1 alpha-3 user-assigned codes:

- XEU for the European Union, and
- XMR for the Article 6.4 mechanism registry