Mapping FIX Repository Contents to ASN.1
Document Overview
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Summary of the "Table of Contents" of the document

Clause 4 – General provisions

- Structure of an ASN.1 schema generated from the Repository
  - Multiple ASN.1 modules, each containing definitions mapped from:
    - FIX messages, FIX components
    - FIX datatypes, certain FIX fields
  - ASN.1 module naming rules, tagging mode

- Name generation rules
  - Names of ASN.1 types, sequence components, enumerators, etc.
  - Conflict resolution rules

- Top-level mapping rule
  - *"Do what clause 5 says, **then** do what clause 6 says, generating ASN.1 type assignments **in the exact order** specified in those clauses"*

Clause 5 – Mapping of FIX datatypes

5.1 Datatypes explicitly defined via `<datatype>` elements

- Generates one or more ASN.1 type assignments for each `<datatype>` element in the Repository

5.2 Datatypes implicitly defined via `<field>` elements

- Generates one or more ASN.1 type assignments for each `<field>` element that has either an enumeration or a "union datatype" (or both)

5.3 Datatype mapping to ASN.1 types

- Rules for the mapping of a FIX datatype to an ASN.1 type

5.4 Supporting ASN.1 types

- A set of predefined ASN.1 types individually included in the generated schema (only once) as needed
- Examples:
    - a `Decimal` type with a certain default exponent
    - a `UTCTimeStamp` type with a certain time unit and reference epoch

5.5 Datatype mapping summary

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Clause 6 – Mapping of FIX messages

- Generates an ASN.1 type assignment for each `<message>` element in the Repository
  - Each FIX message generates a `SEQUENCE` type assignment
  - Each `<fieldRef>` or `<componentRef>` within the `<message>` generates a component of the `SEQUENCE`

Clause 7 – Mapping of a FIX component

- Generates one or more ASN.1 type assignments for an individual `<component>` element
  - Only for a FIX component that is used in at least one of the FIX messages being mapped to ASN.1
- An ordinary FIX component generates a `SEQUENCE` type assignment
- A FIX component consisting of a repeating group generates two type assignments:
  - A `SEQUENCE` (defining the type of one occurrence)
  - A `SEQUENCE OF` (defining the list of the occurrences)
- In both cases, each `<fieldRef>` or `<componentRef>` within the `<component>` generates a component of the `SEQUENCE`