



EPC Tag Data Standard (TDS) 2.2
EPC Tag Data Translation Standard (TDT) 2.2
Draft updates for public review
WR 24-120

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Changes from TDS 2.1 carried forward into 2.2

- Added support for AIs (7241), (7242), (8030), (4330), (4331), (4332), (4333), (7011)
- Update to correct minor errors and errata TDS 2.0
- Updated URI grammar in sections 12 and 13
- Clarified use of ISO/IEC 20248 DigSig, using GS1 AI (8030), in section 17
- Updated section 9.2, including Figure 9-1 and Table 9-2, to reflect encoding of ISO/IEC 20248 DigSig in User Memory.
- Updated section 9.3, Figure 9-2 and Table 9-3 to reflect the Read User Memory (RUM) indicator specified in Gen2v3
- Updated Table 9-4 to reflect Gen2v3 assignments to bits 214h-217h of XPC
- Updated section 16 to reflect mandatory serialisation of TID specified in Gen2v3
- Additionally, the *Packed Objects ID Table for Data Format 9* in Section F.2 has been supplemented with an external, normative artefact in CSV format

Changes to TDS 2.2

Differences from TDS 2.1 (fully backward-compatible)

- Various adjustments to align with TDT 2.2
- Correction of minor errata
- Changed encoding method names to allow for leading zeros:
 - "Fixed-Bit-Length Integer" (§ 14.5.2) -> "Fixed-Bit-Length Numeric String"
 - "Variable-length integer" (§ 14.5.6.1) -> "Variable Length Numeric string"
 - "Variable-length integer without encoding indicator" (§ 14.5.13)
-> "Variable-Length Numeric String without encoding indicator"
- Added new encoding methods:
 - "Optional minus sign in 1 bit" (§ 14.5.14)
 - "Sequence indicator" (§ 14.5.15)

Changes to TDS 2.2

Differences from TDS 2.1 (fully backward-compatible)

- § 15.3 / Table F (GS1 AI details/formats for use in +AIDC data) and Appendix F (Packed objects ID Table) adds 12 new GS1 AIs
- (7041) UN/CEFACT freight unit type
- (716) NHRN – Italy AIC
- (7250) Date of birth
- (7251) Date and time of birth
- (7252) Biological sex
- (7253) Family name of person:
- (7254) Given name of person
- (7255) Name suffix of person
- (7256) Full name of person
- (7257) Address of person
- (7258) Baby birth sequence indicator
- (7259) Baby of family name

Changes from TDT 2.1 carried forward into 2.2

- Updated TDT artefacts "TDT_TableF.json" and "TDT_TableF.xml" to align with Table F in TDS 2.1 (February 2024), as follows:
 - Entry for AI 37 is corrected from "f":4, "g":8 to "g":4, "h":8, as was already the case for AI 30, to fix incorrect column lettering
 - Entries for AIs 3900-3909 is corrected from "f":4, "g":15 to "g":4, "h":15, to fix incorrect column lettering
- Entries for AIs 4330-4333, 7011, 7241-7242 and 8030 are added to provide support for these new AIs, which are new in GenSpecs v 24.0
- Introduced GS1_AI_JSON input/output format for Tag Data Translation as a less ambiguous alternative to GS1_ELEMENT_STRING

Changes to TDT 2.2

Differences from TDT 2.0 (fully backward-compatible)

- Updated TDT_TableF.json and TDT_TableF.xml to support all new GS1 AIs in GenSpecs v25: (7041), (716), (7250)-(7259)
- Errata fixes for some missing/incorrect details for GS1 AIs (20), (242), (30), (3100)-(3695), (37), (3900)-(3953), (402), (421)-(426), (4309), (7004), (7030)-(7039), (8001), (8005), (8011)
- Added new parameter `aiSequence` within `option` to indicate which GS1 AIs are encoded within the EPC identifier when using that option.
 - Used for pre-processing the input when the input format is `GS1_AI_JSON` or `GS1_DIGITAL_LINK`, to ensure that the regular expression pattern provided within the TDT definition file can match

Changes to TDT 2.2

Differences from TDT 2.0 (fully backward-compatible)

- Added new parameter `gs1DigitalLinkKeyQualifiers` within level for `GS1_DIGITAL_LINK` only to indicate the permitted sequential order of GS1 AIs that may appear in the URI path info after the primary ID key
 - Used for post-processing the `GS1_DIGITAL_LINK` output, to ensure that those GS1 AIs that should be expressed in the URI path info do so, in correct sequence
- Updated UML class diagram and validation files to support these new parameters.
- New section 3.4.1 provides details about pre-/post-processing input/output values, for correct handling of GS1 AIs appearing in the GS1 DL URI path
- All TDT definition files now provide the length parameter within the field of each `BINARY` level for easier access after conversion from binary
 - previously only shown for corresponding field within the `TAG_ENCODING` level

GS1 TDS/TDT 2.2 **beta** Encoder/Decoder

<https://gs1.github.io/TDT/2.2.0-draft/demo/>

- Demo web interface implementation of TDS/TDT 2.2 drafts
 - uses the machine-readable TDT 2.2 draft artefacts
 - to support GSMP public review of these draft GS1 standards
- GS1 public GitHub repository at <https://github.com/gs1/TDT>
- README page at <https://gs1.github.io/TDT/>
- Artefact files at <https://github.com/gs1/TDT/tree/main/2.2.0-draft>

GS1 TDS/TDT 2.2 **beta** Encoder/Decoder

<https://gs1.github.io/TDT/2.2.0-draft/demo/>

- Open-source JavaScript encoder/decoder library with Web interface
- Leverages brand new TDT translation files
- Supports all new (TDS 2.x) and old (TDS 1.x) EPC schemes
- Supports encoding of optional +AIDC data after new EPC schemes
- Input/output format auto-detection, including:
 - GS1 Element String, GS1 Digital Link, EPC Binary, EPC Hex
 - Auto determination of GCP Length for TDS 1.x (partitioned) schemes
 - Determination of optimal encoding method for variable-length alphanumeric fields (e.g., for Serial Number, Lot/Batch number, etc.)