D-TRO Up-versioning Strategy and Approach

1 Introduction

This paper can be written for the D-TRO Advisory Group and wider D-TRO technical community. It details the process undertaken to bring older data submitted to the D-TRO Service in line with the latest supported live Data Specification version.

2 Strategy

Our aim is to ensure data is compliant with the latest supported live Data Specification version. This is important to maintain consistency, integrity, and reliability across applications and systems that rely on the updated Specification. Without compliance, legacy data may cause errors, prevent access to new features, or compromise security and interoperability.

As we up-version the supported versions of the Data Specification, and deprecate older versions, we will seek to undertake actions to ensure that all live records relate to one of the currently supported Data Specification versions. This brings the benefit that data consumers only need to be able to consume records for the currently supported versions of the Data Specification, not all legacy depreciated versions. In order to achieve this, DfT will:

- Prepare actions centrally to up-version records, where it is practical to do so
- Update D-TRO records in a manner that will not change the semantic content of submitted records
- Consult with stakeholders before making changes

For this initial and future up-versioning of records, DfT will seek to undertake required changes centrally, following stakeholder consultation. However, there may be some occasions when actions are required by data suppliers. These will be appropriately communicated.

3 Future Up-versioning Approach

As the D-TRO Data Specification evolves over time there will inevitably be changes made which render previously submitted records non-compliant when tested against newer versions. An approach will be agreed on as to how these records will be treated and the default values which will be used to convey the fact that this record has been up-versioned.

The table below displays the default values that will be used for each type of issue that may arise when a record needs be up-versioned due to schema changes. This is based on a review of the files within the D-TRO Service conducted in August 2025, outlined in detail in the Appendix. Once records have been up-versioned they may be edited by the relevant data owner at any time to reflect more accurate information.

Issue type	Solution
[*x*] is a required property (string)	"**Not Supplied" will be used in place of a realistic value
[*x*] is a required property (numeric)	"-1" will be used in place of a realistic value
[*x*] is not one of *'enum list values'*	"**Not Supplied" will be used in place of a realistic value, and the appropriate additional enumeration value added to the correct list

Appendix: Investigation into Records Failing Validation

At the time of investigation, August 2025, 18,185 records were present in the D-TRO Service production database. Of these, 12,921 were found to be non-compliant with schema version 3.4.1. The table below shows a breakdown of the number of non-compliant data records that were submitted under each previous schema version.

High-level investigation into the reasons for failure revealed that 7 distinct discrepancies and error types could account for 99.5% of the records that are non-compliant to version 3.4.1. These discrepancies and error types were investigated individually with a proposal put forward in order to remedy each one.

Schema Version	Number of Records failing validation (vs schema 3.4.1)
3.2.3	798
3.2.4	1,095
3.3.0	11,027
3.3.1	1
3.4.0	0

Individual Errors & Proposals

StatementDescription

7,738 of the records non-compliant to version 3.4.1 failed validation against schema 3.4.1 due to missing a field called 'StatementDescription', accounting for approximately 60% of all failing records. 'StatementDescription' became a newly introduced field with the introduction of schema version 3.4.0 and remains so in subsequent schema versions. Of these 7,738 records non-compliant to version 3.4.1, all but one was submitted under schema 3.3.0 with the other being submitted under schema 3.3.1.

'StatementDescription' is described as a "statement of the overall nature of the prohibition, regulation or restriction imposed" and must be of type 'string' and have a minimum length 1.

Approach:

Add a placeholder string to each record non-compliant to version 3.4.1 denoting the fact that this was added during the up-versioning process. The placeholder string is proposed to be "**Not Supplied".

RegulatedPlaceType

1,393 of the records non-compliant to version 3.4.1 failed validation against schema 3.4.1 due to missing a field called 'RegulatedPlaceType', accounting for approximately 11% of all failing records. 'RegulatedPlaceType' was introduced as a required field in schema version 3.3.0 and remains so in all subsequent versions. 780 of the records non-compliant to version 3.4.1 throwing this discrepancy type were submitted under schema 3.2.3 with 613 being submitted under schema 3.2.4.

'RegulatedPlaceType' is described as a field that "indicates the nature of RegulatedPlace - location of the Regulation or Diversion Route" and must contain one of a predetermined set of values, these being 'diversionRoute' and 'regulationLocation'. Prior to schema version 3.3.0 the concept of a 'diversionRoute'

did not exist and therefore all D-TRO records regulatedPlace entries related to the location of regulations.

Approach:

Due to the fact that the concept of a 'diversionRoute' did not exist in D-TRO records before schema version 3.3.0 it is safe to assume all of the records non-compliant to version 3.4.1 in this case can be filled with 'regulationLocation' due to the fact they were all submitted while schema versions 3.2.3 and 3.2.4 were in place.

UniqueStreetReferenceNumber

2,995, roughly 23%, of the records non-compliant to version 3.4.1 returned discrepancy type due to the fact that the USRN (UniqueStreetReferenceNumber) is stored in the wrong data type. All 2,995 of these records were submitted under schema 3.3.0, which lacked strict enough schema enforcement to correct the errors.

Approach:

This is a change that can be rectified by simply changing the data types of the usrn (UniqueStreetReferenceNumber) to the data type array. This change can be made in place as there is no risk of data being lost or changed.

LinearType

2,917 of the records non-compliant to version 3.4.1 failed validation against schema 3.4.1 due to missing a field called 'LinearType', accounting for approximately 23% of all failing records. 'LinearType' has been a required field for some time but to poor schema enforcement some errors were allowed to exist in the database. All 2,995 of these records were submitted under schema 3.3.0.

'LinearType' is described as a "List of representations derived from a linear location" and must contain one of a predetermined set of values, these being 'linear' and 'representingZone'.

Approach:

Add a placeholder string to each failing record denoting the fact that this was added during the up-versioning process. The placeholder string is proposed to be "**Not Supplied". This placeholder string will also need to be added to the list of acceptable values in the schema to ensure ongoing compliance.

RegulationType

617 of the records non-compliant to version 3.4.1 failed validation against schema 3.4.1 due to being found to have incorrect values for a field called 'RegulationType', accounting for approximately 5% of all failing records. 'RegulationType' has a predetermined list of values that are acceptable. This list has changed over time with new items added and some items removed. Of the 617 non-compliant records 10 were submitted under schema version 3.2.3, 459 were submitted under version 3.2.4 and 146 were submitted under version 3.3.0.

The records non-compliant to version 3.4.1 can be broken down into two subcategories, instances where is clear the error is the result of a typo (where it is clear which of the acceptable values the user intended to input) and errors (where it is not clear which of the acceptable values is correct of the record).

Approach:

In the cases where it is clear the user inputting the data has made a typo the record should be updated with the correct value (e.g. 'kerbsidePemitParkingPlace' should be changed to 'kerbsidePermitParkingPlace'). In cases where it is not clear which of the

acceptable values the user meant to input a prefix of '**Erroneous Record' should be added. This placeholder string will also need to be added to the list of acceptable values in the schema to ensure ongoing compliance. In these cases, it may also be sensible to approach the DSP so as to give them the opportunity to update their record with an acceptable value.

UniqueStreetReferenceNumber

114, roughly 1%, of the records non-compliant to version 3.4.1 returned errors due to the fact that the usrn (UniqueStreetReferenceNumber) field was missing entirely. All of these 114 records were submitted under schema version 3.3.0.

Approach:

The D-TRO user guide states that "If no relevant USRN is available, the "externalReference" and "uniqueStreetReferenceNumber" objects shall not be supplied". Due to this, in cases where no USRN is supplied the externalReference field can simply be removed in order to make the record schema compliant.

Description

195 of the records non-compliant to version 3.4.1 failed validation against schema 3.4.1 due to being found to be missing a field called 'description', accounting for approximately 2% of all failing records. 'Description' became a newly required field with the introduction of schema version 3.4.0 and remains so in subsequent schema versions. All of these 195 records were submitted under schema version 3.3.0.

'Description' is described as a "Free text description of the regulated place" and must be of type 'string' and have a minimum length 1.

Approach:

Add a placeholder string to each failing record denoting the fact that this was added during the up-versioning process. The placeholder string is proposed to be "**Not Supplied".

Miscellaneous Errors

Other errors also exist which account for the remaining ~0.5% of records non-compliant to version 3.4.1. A record-by-record approach will be taken in order to ensure compliance with schema version 3.4.1, with bespoke solutions required for each individual case.