

Title	Digital Traffic Regulation Orders: D-TRO Publication API Interface Control Document for Data Consumers
Author(s)	D-TRO Technical Team
Date	28/10/2024
Version	2.2
Status	Draft
Protective Marking	OFFICIAL

1	Document Control	3
	1.1 Version History	3
	1.2 Document Review	3
	1.3 Approved Versions	3
2	Terms and Abbreviations	4
3	Introduction	5
4	Overview of Data Specification	6
5	Scope of this document	7
6	Target Audience	8
7	Integration Architecture	9
	7.1 Overview (API v1 methods)	9
	7.2 Design Principles	9
8	Assumptions, Constraints, Risks and Dependencies	10
	8.1 Assumptions	10
	8.2 Constraints	10
	8.3 Risks	10
	8.4 Dependencies	10
9	Endpoints available for Data Consumers	11
10	Interface Specification	12
	10.1 Endpoints D-TROs	13
	10.2 Events and Search	22
	10.3 Rules	28
	10.4 Schemas	36

1 Document Control

1.1 Version History

Version	Author	Summary of changes Date	
2.0	PA Consulting	Record Management enhancement for D-TRO submission	01/07/2024
2.1	PA Consulting	Changes in the API endpoints	03/10/2024
2.2	PA Consulting	Adjust the Date Time format to match ISO 8601	28/10/2024

1.2 Document Review

Version	Reviewer(s)	Date
2.0	John Cooper (Department for Transport, Product Owner)	01/07/2024
2.1	John Cooper (Department for Transport, Product Owner)	10/10/2024
2.2	John Cooper (Department for Transport, Product Owner)	28/10/2024

1.3 Approved Versions

Version	Approver(s)	Date
2.0	Department for Transport	01/07/2024
2.1	Department for Transport	10/10/2024
2.2	Department for Transport	28/10/2024

2 Terms and Abbreviations

Term / Abbreviation	Definition
API	Application Programming Interface
CRUD	Create, Read, Update and Delete
CSO	Central Service Operator
DC	Data Consumer
DfT	Department for Transport
DSP	Digital Solution Provider
D-TRO	Digital Traffic Regulation Order
ICD	Interface Control Document
JSON	JavaScript Object Notation
TRA	Traffic Regulation Authority
TRO	Traffic Regulation Order
URI	Uniform Resource Identifier

3 Introduction

As part of its 'Future of Mobility: Urban Strategy', the Department for Transport (DfT) is modernising the regulatory framework for Traffic Regulation Orders (TROs) (Traffic Management Orders in London) made under the Road Traffic Regulation Act 1984.

The Automated Vehicles Act 2024 (section 93) provides statutory instruction for TRAs to provide information on a defined set of TROs, in a specified manner and form, to be provided in accordance with a specified model, standard or set of specifications. These will be the D-TRO Data Specification including the D-TRO Data Model, which are expected to be specified under secondary legislation.

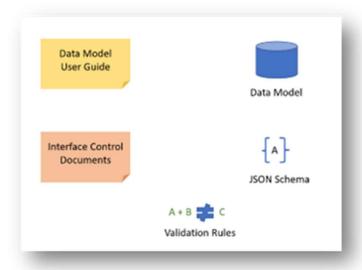
The new regulatory framework will, subject to necessary secondary legislation coming into force, mandate that Traffic Regulation Authorities (TRAs) in England and Wales publish TROs as open data in a standardised and digital format that anyone can access, use and share.

The standardised digital format will be based on the Digital TRO (D-TRO) Data Specification that is described in this and other associated documents. This Data Specification is intended to be a free resource for all. The Data Specification is candidate in nature and may be subject to change without notification.

Taking into account the needs arising from the UK Industrial Strategy and recognising the requirements that will emerge from the deployment of Connected and Automated Vehicles (CAVs), this Data Specification provides a framework for how the data and information relating to TROs can be formed in the future. Availability of such a draft Data Specification, when suitably tested, will support the move towards TROs being easily accessible to the public whether using apps or driving connected vehicles.

4 Overview of Data Specification

This Interface Control Document (ICD) is part of the documents and artefacts that are available in connection to the D-TRO Service:



Documents and artefacts supporting the D-TRO Service

This is in conjunction with the initial Data Specification that has been released for Beta, including the technical user guide which outlines the data modelling concepts defined to help support the definition and exchange of information relating traffic regulations.

All the latest versions of documents and other artefacts of this release are listed in GitHub [https://github.com/department-for-transport-public/D-TRO/issues/1].

5 Scope of this document

This ICD specifies the design of the interface for the D-TRO Consume API. This API enables integration between TRA systems and central D-TRO Service for the purposes of allowing Data Consumers to:

- Retrieve D-TROs held by the D-TRO Service.
- Retrieve history of the D-TROs issued by the TRAs held by the D-TRO Service.
- Search events and record of the existing D-TROs held by the D-TRO Service.
- Retrieve, rules and schemas within the D-TRO Service.

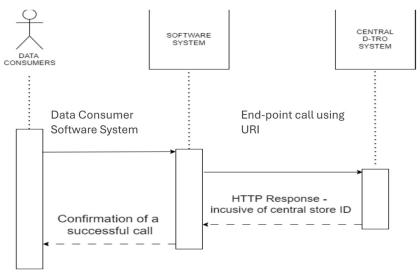
6 Target Audience

The target audience of this document is Data Consumers who have a specific interest and need for D-TRO data. This may include, for example, SatNav and routing data suppliers or mapping applications.

7 Integration Architecture

7.1 Overview (API v1 methods)

The figure below depicts the 'happy path' sequence of interactions between Data Consumers and the D-TRO Service.



Expected API interactions

7.2 Design Principles

When integrating with this interface, the following design patterns and principles should be adopted to ensure that the non-functional characteristics of Data Consumer systems and the D-TRO Service are effectively implemented:

ID	Pattern / Principle	Description
DP01	Guaranteed delivery	Data Consumer systems must adopt an architecture that ensures guaranteed delivery of requests/responses to and from the D-TRO Service.
DP02	Loose coupling	Data Consumer systems must adopt an architecture that is loosely coupled from the D-TRO Service and can detect, respond to, and recover from exceptions where the D-TRO Service is unavailable.
DP03	GOV.UK API technical and data standards	The interface will comply with published GOV.UK API technical and data standards.

8 Assumptions, Constraints, Risks and Dependencies

8.1 Assumptions

ID	Assumption	Impact if not true
A01	Data Consumers will adopt an 'API-first' approach to integrate with the D-TRO API.	No web-based user interface is proposed to allow the retrieving and searching of D-TROs, schema, and rules.

8.2 Constraints

ID	Constraint	
C01	Calls to the D-TRO Consume API will be subject to a quota constraining the number of requests that can be issued per second. Rate limiting values will be captured in future versions of this document.	

8.3 Risks

ID	Risk	Impact	Mitigation
R01	There is a risk that the D-TRO Service is unavailable due to a technical fault or unplanned maintenance. (e.g., to address a critical security vulnerability identified in the underlying technology platform)	The operation of Data Consumer systems that integrates with the D-TRO Service will be correspondingly impacted.	Data Consumers will adopt the design patterns and policies specified in section 7 (see assumptions A01).

8.4 Dependencies

ID	Dependency
D01	Data Consumers will use credentials provided by the CSO to interact with the API.
D02	Data Consumer systems must be securely configured to manage API credentials.
D03	Data Consumer systems must adhere to the design patterns and policies specified in section 7.

9 Endpoints available for Data Consumers

The table below lists the endpoints relevant for this ICD. Additional endpoints for the TRAs/DSPs are documented in **Beta-01-DfT-D-TRO-Publishers-TRA-DSP**.

Ref.	HTTP verb	Endpoints	Name		
	DTROs				
D5	GET	/v1/dtros/{id}	Retrieve a D-TRO by D-TRO ID		
D7	GET	/v1/dtros/sourceHistory/{dtroId}	Retrieve source history based by D-TRO ID		
D8	GET	/v1/dtros/provisionHistory/{dtroId}	Retrieve provisions history by D-TRO ID		
		EVENTS AND	SEARCH		
ES1	POST	/v1/events	Query central data store events (e.g., D-TRO being created, updated, or deleted)		
ES2	POST	/v1/search	Find existing D-TROs that matches the specified criteria		
		RULE	ES .		
R1	GET	/v1/rules/versions	Retrieve available rule versions		
R2	GET	/v1/rules	Retrieve available rules		
R3	GET	/v1/rules/{versions}	Retrieve rule by version		
R4	GET	/v1/rules/{id}	Retrieve rule by ID		
	1	SCHEN			
S1	GET	/v1/schemas/versions	Retrieve available schema versions		
S2	GET	/v1/schemas	Retrieve available schema		
S3	GET	/v1/schemas/{version}	Retrieve schema by version		
S4	GET	/v1/schemas/{id}	Retrieve schema by ID		

Summary of Data Consumer API endpoints

10 Interface Specification

This interface enables integration, via a RESTful API, for Data Consumers for the searching and retrieving of Digital Traffic Regulation Orders.

Overview					
Item	Value				
Name	D-TRO Publication (API)				
Publisher	Department for Transport				
Consumer	Data Consumer				
Interface type	RESTful API SOAP API File transfer. Other (please specify)				
Protocol	☐ HTTP☐ HTTPS – must be HTTPS 1.1 or higher.☐ Other (please specify)				
Test URL	To be published shortly				
Pre-Production URL	To published in a future revision of this document				
Production URL	To published in a future revision of this document				
Security Classification	 UNMARKED ○ OFFICIAL ○ OFFICIAL-SENSITIVE □ SECRET □ TOP SECRET 				
Authentication	Authentication to the application via the API endpoints for all public-facing environments (Third-party test and Production) will be controlled using the OAuth 2.0 framework (in keep with GOV.UK API technical and data standards). In order to obtain the necessary token, the user must either be onboarded as a DSP or cleared by the CSO before being allowed to self-register to use D-TRO via a portal and obtain the authentication token. It should be noted that for Private-Beta, IP restrictions will be in place, only allowing a select few addresses to call D-TRO API endpoints.				
Content type	application/json				
Content encoding	UTF-8				

Overview					
Item	Value				
-	The use of OAuth 2.0 credentials paired with X-Correlation-ID headers will be used to uniquely identify an API invocation for non-repudiation purposes.				

Notes applicable to all methods:

- 1. Dates and times all date and time records shall be expressed in local time using the ISO 8601-1:2019 format (e.g. YYYY-MM-DDTHH:MM:SS).
- 2. Correlation identifier all identifiers shall be expressed using UUID ISO/IEC 11578:1996 specification. The format consists of 32 hexadecimal digits plus 4 hyphens (8-4-4-12).

10.1Endpoints D-TROs

The below methods are provisioned for retrieval of D-TRO records.

The tables below cover the following endpoints specific for D-TROs.

Ref.	Endpoints	Name
D5	/v1/dtros/{id}	Retrieve a D-TRO by D-TRO ID
D7	/v1/dtros/sourceHistory/{dtroId}	Retrieve source history based by D-TRO ID
D8	/v1/dtros/provisionHistory/{dtroId}	Retrieve provisions history by D-TRO ID

Reference	D5					
Item	Value					
GET	/v1/dtros/{id}					
Name	Get a D-TRO by	id				
Description	D-TRO Service,					xisting D-TRO from the
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please					
Input	Header Paramet	ers				
Structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	X-Correlation- ID	string	36	36	Mandatory	UUID formatted string to track the request through the enquiries stack.
	Request Parame	eters				
	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	id	string	36	36	Mandatory	UUID formatted string containing the unique identification of a D-TRO.
Input data	When invoking the	nis endpo	int, the id	paramet	er must contai	n a full UUID
scope	representation. If within the D-TRC					the existing D-TROs
Output data type	☑ JSON ☑ XML ☑ File ☑ Other (please specify)					
Output	Response Paran	neters				
data structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	Data	JSON	-	-	Mandatory	D-TRO retrieved from the D-TRO Service.
Responses						

Reference	D5						
Item	Value						
GET	/v1/dtros/{id}						
Name	Get a D-TRO by id						
Description		his GET method allows Data Consumers to retrieve an existing D-TRO from the					
200 OK	D-TRO Service, based on its unique identification. { "schemaVersion": "3.2.4", "data": { "actionType": "new", "currentTraOwner": 1000, "provision": [{ omitted for brevity (For a full example of D-TRO response please refer to GitHub File Index document at: Beta-01-DfT-D-TRO-001-GitHub File Index.docx) }], "reference": "B2787FE2-AD74-432A-BB32-76FDB065F3E8", "section": "All sections", "traAffected": [1000] "traCreator": 1000, "troName": "The Sample County Council (Prohibition of Waiting, Loading and Stopping) and (on-Street Parking Places) (Civil Enforcement Area) Consolidation Order 2019." }						
404 Not	[{						
Found	"message": "Not	found",					
	"errors": [3fa85f64-5717-4562-b3fc-2c963f66afa6 not found."					
	ן טאו-ט אוווו Id י	51405104-57 17-4502-p510-209051008180 HOL IOUIIQ.					
	3						
Error	HTTP Code	Error Type					
Codes	400	Bad request					
	403	Access denied/forbidden					
	404	Not found					
	405	Method not allowed					
	429	Too many requests					
	500	Internal Server Error					
	502 Bad gateway						
	503 Service unavailable						
	504	Gateway timeout					
	JU 4	Galeway limeout					

Reference	D7					
Item	Value					
GET	/v1/dtros/sourcel	History/{d	ltrold}			
Name	Get the source h	istory of a	a D-TRO	by id		
Description	D-TRO from the					ce history of an existing ification.
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please					
Input	Header Paramet					
Structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	X-Correlation- ID	string	36	36	Mandatory	UUID formatted string to track the request through the enquiries stack.
	Request Parame	ters				
	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	dtrold	string	36	36	Mandatory	UUID formatted string containing the unique identification of a D-TRO.
Input data scope	When invoking this endpoint, the dtrold parameter must contain a full UUID representation. If the unique identifier matches with one of the existing D-TROs within the D-TRO Service, that D-TRO will be retrieved.					
Output data type	☑ JSON ☑ XML ☑ File ☑ Other (please specify)					
Output	Response Paran					
data structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	Data	JSON	-	-	Mandatory	D-TRO retrieved from the D-TRO Service.
Responses						

Reference	D7
Item	Value
GET	/v1/dtros/sourceHistory/{dtroId}
Name	Get the source history of a D-TRO by id
Description	This GET method allows Data Consumers to retrieve source history of an existing
•	D-TRO from the D-TRO Service, based on its unique identification.
200 OK	
	1 }
	1.4

Reference	D7						
Item	Value						
GET	/v1/dtros/sourceHi	story/{dtrold}					
Name		story of a D-TRO by id					
Description	This GET method	allows Data Consumers to retrieve source history of an existing 0-TRO Service, based on its unique identification.					
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."] }						
Error	HTTP Code	Error Type					
Codes	400	Bad request					
	403	Access denied/forbidden					
	404	Not found					
	405	405 Method not allowed					
	429 Too many requests						
	500						
	502	Bad gateway					
	503	Service unavailable					
	504	Gateway timeout					

Reference	D8					
Item	Value					
GET	/v1/dtros/provision	nHistory.	/{dtrold}			
Name	Get the provision	ns history	of a D-TF	२०		
Description	D-TRO from the					ons history of an existing ification.
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please					
Input	Header Paramet					
Structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	X-Correlation- ID	string	36	36	Mandatory	UUID formatted string to track the request through the enquiries stack.
	Request Parame	eters				
	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	dtrold	string	36	36	Mandatory	UUID formatted string containing the unique identification of a D-TRO.
Input data	When invoking the	nis endpo	int, the dt	rold para	meter must co	ntain a full UUID
scope	representation. I within the D-TRO					the existing D-TROs
Output data type	☑ JSON ☑ XML ☑ File ☑ Other (please specify)					
Output	Response Paran					
data structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	Data	JSON	-	-	Mandatory	D-TRO retrieved from the D-TRO Service.
Responses						

```
200 OK
             A textual description of the response containing all versions of the referenced D-
              TRO currently held in the D-TRO Central Service are returned.
                "actionType": "partialRevoke",
                "orderReportingPoint": "ttroTtmoByNotice",
                "provisionDescription": "Prohibition of Waiting",
                "reference": "A3448229-1DFA-48CD-A785-376ACB9F7C56",
                "regulation": [
                     ... omitted for brevity (For full example of D-TRO provision history response,
             please refer to GitHub File Index document at: Beta-01-DfT-D-TRO-001-GitHub File
             Index.docx)
                   "regulatedPlace": [
                     ...omitted for brevity (For full example of D-TRO provision history response,
              please refer to GitHub File Index document at: Beta-01-DfT-D-TRO-001-GitHub File
             Index.docx)
                  }
                ],
             },
                "actionType": "fullRevoke",
                "orderReportingPoint": "ttroTtmoByNotice",
                "provisionDescription": "Prohibition of Waiting",
                "reference": "A3448229-1DFA-48CD-A785-376ACB9F7C56",
                "regulation": [
                     ...omitted for brevity (For full example of D-TRO provision history response,
             please refer to GitHub File Index document at: Beta-01-DfT-D-TRO-001-GitHub File
             Index.docx)
                   "regulatedPlace": [
                     ... omitted for brevity (For full example of D-TRO provision history response,
             please refer to GitHub File Index document at: Beta-01-DfT-D-TRO-001-GitHub File
             Index.docx)
                ],
                "actionType": "new",
                "orderReportingPoint": "ttroTtmoByNotice",
                "provisionDescription": "Prohibition of Waiting",
                "reference": "A3448229-1DFA-48CD-A785-376ACB9F7C56",
                "regulation": [
                     ...omitted for brevity (For full example of D-TRO provision history response,
             please refer to GitHub File Index document at: Beta-01-DfT-D-TRO-001-GitHub File
             Index.docx)
                  "regulatedPlace": [
                     ...omitted for brevity (For full example of D-TRO provision history response,
             please refer to GitHub File Index document at: Beta-01-DfT-D-TRO-001-GitHub File
             Index.docx)
                  }
                ],
```

Reference	D8					
Item	Value					
GET	/v1/dtros/provision	nHistory/{dtroId}				
Name	Get the provisions	history of a D-TRO				
Description		allows Data Consumers retrieve provisions history of an existing 0-TRO Service, based on its unique identification.				
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."]					
Error	HTTP Code	Error Type				
Codes	400	Bad request				
	403	Access denied/forbidden				
	404	Not found				
	405	Method not allowed				
	429	429 Too many requests				
	500	00 Internal Server Error				
	502	Bad gateway				
	503	Service unavailable				
	504	Gateway timeout				

10.2Events and Search

Ref.	Endpoints	Name
ES1	/v1/events	Query central data for stored events
ES2	/v1/search	Find existing D-TROs that matches requested criteria.

Reference	ES1					
Item	Value	Value				
POST	/v1/events					
Name	Query central da deleted).	ata for sto	ored event	s (e.g., D-	TROs being cr	eated, updated, or
Description	This POST metal deleted) on exist					s (created, updated, or
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please specify)					
Input	Header Parame	ters				
Structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	X-Correlation-ID	string	36	36	Mandatory	UUID formatted string to track the request through the enquiries stack.
	Request Param	eters				
	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	data	object	1KB	10MB	Mandatory	A JSON payload describing a D-TRO. Payload should be UTF8 encoded.

Reference	ES1					
Item	Value					
POST	/v1/events	/v1/events				
Name	Query central da deleted).	ta for st	ored ever	nts (e.g., D)-TROs being c	reated, updated, or
Description	This POST meth deleted) on exist					s (created, updated, or
Input data scope	When invoking this endpoint, the request payload must contain a search query object 'page', 'pageSize' and 'since' as mandatory fields and at least one other property of your choice (e.g. traCreator) { "page": 1, "pageSize": 50, "since": "2020-10-07T08:14:41", "traCreator": 0, "currentTraOwner": 0, "troName": "The Sample County Council (Prohibition of Waiting, Loading and Stopping) and (on-Street Parking Places) (Civil Enforcement Area) Consolidation Order 2019.", "regulationType": "string", "vehicleType": "string", "orderReportingPoint": "string", "regulationStart": { "operator": ">= ", "value": "2024-10-07T08:00:00" }, "regulationEnd": { "operator": "<=", "value": "2024-10-08T08:00:00" }					
Output data type	☑ JSON ☑ XML ☑ File ☑ Other (please)			
Output	Response Paran	neters				
data structure	Field Name	Data	Min	Max	Opportunity	Notes
Suuciuie	id	Type string	Sength 36	Sength 36	Mandatory	UUID formatted string containing a D-TRO Service identifier for the newly created D-TRO record.
Responses						
200 OK	{ "events": [], "page": 1, "pageSize": 0, "totalCount": 0 }					

Reference	ES1					
Item	Value					
POST	/v1/events	/v1/events				
Name	Query central data deleted).	a for stored events (e.g., D-TROs being created, updated, or				
Description		od allows Data Consumers to query events (created, updated, or ng D-TROs within the D-TRO Service.				
404 Not Found	{ "message": "Not found", "errors": ["Schema version not found."] }					
400 Bad Request	<pre>{ "errors": { property: ["Unexpected end when deserializing object. Path property."] }, "type": "https://tools.ietf.org/html/rfc7231#section-6.5.1", "title": "One or more validation errors occurred.", "status": 400, "traceld": "00-9f4aa677608b15827106b63502eb806f-ca691cf133c8871d-00"</pre>					
Error	HTTP Code	Error Type				
Codes	400	Bad request				
	403	Access denied/forbidden				
	404	Not found				
	405	Method not allowed				
	429	Too many requests				
	500	Internal Server Error				
	502	Bad gateway				
	503	Service unavailable				
	504	Gateway timeout				

Reference	ES2						
Item	Value						
POST	/v1/search	/v1/search					
Name	Find existing D-TR	Os that ma	atches re	quested c	riteria.		
Description	This POST method criteria within the D			umers to	query D-TROs	that matches certain	
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please sp	▼ XML					
Input	Header Parameters	3					
Structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes	
	X-Correlation-ID	string	36	36	Mandatory	UUID formatted string to track the request through the enquiries stack.	
	Request Parameter	rs	ı	1	l		
	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes	
	data	object	1KB	10MB	Mandatory	An object containing an array of queries to search. Payload should be UTF8 encoded.	

Reference	ES2					
Item	Value					
POST	/v1/search					
Name	Find existing D-TRO	s that m	natches re	quested	criteria.	
Description	This POST method criteria within the D-			umers to	query D-TRO	s that matches certain
Input data scope Output data	When invoking this object 'page' and 'p your choice withing { "queries": [e": "2024 the quer e": "2024 ne": "2024-10 er": 0, ng", ": "string string", Point": ": { =",	e' as mandries array 1-10-07T1 24-10-07T 0-07T12:2 ", string",	datory fiel (e.g. troN 2:22:01", 12:22:01' 2:01",	lds and at leas lame)	ain a search query st one other property of
type	☑ XML☑ File☑ Other (please specify)					
Output data	Response Paramete					
structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	data	JSON array	-	-	Mandatory	Result array
Responses		w j	I	I	I	

Reference	ES2					
Item	Value					
POST	/v1/search	/v1/search				
Name	Find existing D-TROs that matches requested criteria.					
Description	This POST method a criteria within the D-T	llows Data Consumers to query D-TROs that matches certain RO Service.				
200 OK (with content result)	<pre>{ "results": [{ For an example of a D-TRO search, please refer to GitHub File Index document at: <u>Beta-01-DfT-D-TRO-001-GitHub File Index.docx</u>) "vehicleType": ["taxi"], For an example of a D-TRO search, please refer to GitHub File Index document at: <u>Beta-01-DfT-D-TRO-001-GitHub File Index.docx</u>) "page": 1, "pageSize": 1, "totalCount": 1</pre>					
200 OK (with null result)	{ "results": [], "page": 1, "pageSize": 0, "totalCount": 0					
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."]					
Error Codes	HTTP Code	Error Type				
	400	Bad request				
	403	Access denied/forbidden				
	404	Not found				
	405	Method not allowed				
	429	Too many requests				
	500	Internal Server Error				
	502	Bad gateway				
	503	Service unavailable				
	504	Gateway timeout				

10.3Rules

Ref.	Endpoints	Name
R1	/v1/rules/versions	Retrieve available rule versions
R2	/v1/rules	Retrieve available rules
R3	/v1/rules/{versions}	Retrieve rule by version
R4	/v1/rules/{id}	Retrieve rule by id

Reference	R1					
Item	Value					
GET	/v1/rules/version	s				
Name	Get available rul	e version	s ¹			
Description	Service.	d allows	Data Con	sumers to	retrieve rule	versions from the D-TRO
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please					
Input	Header Paramet		_		1	
Structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	X-Correlation- ID	string	36	36	Mandatory	UUID formatted string to track the request through the enquiries stack.
	Request Parame	eters				
	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	-	-	-	-	-	-
Input data scope	-					
Output data type	☑ JSON ☑ XML ☑ File ☑ Other (please specify)					
Output	Response Paran	neters				
data structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	Data	JSON	-	-	Mandatory	Array containing JSON objects

¹ **Rules Template**: Defines logical conditions (rule) that data must satisfy within specific paths (path) of the DTRO. It is used to enforce business rules, validation criteria, or complex data relationships.

Reference	R1					
Item	Value	Value				
GET	/v1/rules/versions					
Name	Get available rule	versions ¹				
Description	This GET method Service.	allows Data Consumers to retrieve rule versions from the D-TRO				
Responses						
200 OK	[{ "schemaVersion": "3.2.4" }					
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."]					
Error	HTTP Code	Error Type				
Codes	400	Bad request				
	403	Access denied/forbidden				
	404	Not found				
	405	Method not allowed				
	429	Too many requests				
	500	Internal Server Error				
	502	Bad gateway				
	503	Service unavailable				
	504	Gateway timeout				

Reference	R2					
Item	Value	Value				
GET	/v1/rules	/v1/rules				
Name	Get availab	le rules				
Description	Service.	nethod allov	vs Data Coi	nsumers to	retrieve rules fro	om the D-TRO
Input data type(s)		lease specif	y)			
Input	Header Pai	rameters				
Structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	X- Correlatio n-ID	string	36	36	Mandatory	UUID formatted string to track the request through the enquiries stack.
	Request Pa	arameters	<u>'</u>	'	,	•
	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	-	-	-	-	-	-
Input data scope	-					
Output data type	☑ JSON ☑ XML ☑ File ☑ Other (please specify)					
Output data						
structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	Data	JSON	-	-	Mandatory	Array containing JSON objects
Responses						

Reference	R2				
Item	Value				
GET	/v1/rules				
Name	Get available rules				
Description		nod allows Data Consumers to retrieve rules from the D-TRO			
Description	Service.	lod allows Data Consumers to retrieve rules from the D-11(O			
200 OK	[1, sage": "weekInMonth instances must be unique.", e": iodApplicableInstanceDayWithinMonthInstancesUnique" ion.regulation.timeValidity.exceptionPeriod.recurringDayWeekMonth bleInstanceOfDayWithinMonth"			
500 Internal	{				
Server Error	"message": "	Internal Server Error",			
	"errors": [
	"An unexpe	cted error occurred."			
	,				
Error Codes	HTTP Code	Error Type			
	400	Bad request			
	403	Access denied/forbidden			
	404	Not found			
	405	Method not allowed			
	429	Too many requests			
	500	Internal Server Error			
	502	Bad gateway			
	503	Service unavailable			
	504	Gateway timeout			
L	,	Care and amount			

Reference	R3					
Item	Value					
GET	1	s/{version}				
Name	Get ava	ailable rule by	version			
Description	Service	This GET method allows Data Consumers to retrieve rule from the D-TRO Service.				
Input data type(s)		er (please spec	cify)			
Input		Parameters				
Structure	Field Nam e	Data Type	Min Length	Max Length	Opportunity	Notes
	X- Corr elatio n-ID	string	36	36	Mandatory	UUID formatted string to track the request through the enquiries stack.
		st Parameters				
	Field Nam e	Data Type	Min Length	Max Length	Opportunity	Notes
	versi on	string	5	5	Mandatory	String representation of rule version
Input data scope	format:	{Major}.{Mino		request par	ameter must be	a string in this
Output data type	☑ JSON ☑ XML ☑ File ☑ Other (please specify)					
Output data	Respor	nse Parameter	s			
structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	Data	JSON	-	-	Mandatory	Array containing JSON objects
Responses						

Reference	R3					
Item	Value					
GET	/v1/rules/{vers	ion}				
Name	Get available i	Get available rule by version				
Description		hod allows Data Consumers to retrieve rule from the D-TRO				
	Service.					
200 OK	{ "schemaVe" "template": {	hemaVersion": "3.2.4", mplate": ["id": 1, "message": "weekInMonth instances must be unique.", "name": ptionPeriodApplicableInstanceDayWithinMonthInstancesUnique" "path": ce.provision.regulation.timeValidity.exceptionPeriod.recurringDayWeekMont od.applicableInstanceOfDayWithinMonth" "rule": { omitted for brevity (For an example of Rule response, please refer to b File Index document at: Beta-01-DfT-D-TRO-001-GitHub File Index.docx)				
500 Internal	{					
Server Error	"message": "	Internal Server Error",				
	"errors": [·				
	"An unexpe	cted error occurred."				
	[]					
	}					
Error Codes	HTTP Code	Error Type				
•	400	Bad request				
	403	Access denied/forbidden Not found				
	405	Method not allowed				
	429					
	500	Too many requests Internal Server Error				
	502					
	503	Bad gateway Service unavailable				
	504	Gateway timeout				

Reference	R4						
Item	Value						
GET	/v1/rules/{id}						
Name	Get av	ailable rule by	unique iden	tifier			
Description	This G Service		ows Data Co	onsumers to	retrieve rule from	n the D-TRO	
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please specify)						
Input	Heade	r Parameters					
Structure	Field Nam e	Data Type	Min Length	Max Length	Opportunity	Notes	
	X- Corre lation -ID	string	36	36	Mandatory	UUID formatted string to track the request through the enquiries stack.	
	Reque	st Parameters					
	Field Nam e	Data Type	Min Length	Max Length	Opportunity	Notes	
	id	string	36	36	Mandatory	UUID formatted string representing the rule to be retrieved.	
Input data scope	When	invoking this e	ndpoint, the	id paramete	er must be string i		
Output data type	☑ JSON ☑ XML ☑ File ☑ Other (please specify)						
Output data		nse Parameter					
structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes	
	Data	JSON	-	-	Mandatory	Array containing JSON objects	
Responses							

Reference	R4						
Item	Value						
GET	/v1/rules/{id}						
Name	Get available rule by unique identifier						
	This GET met Service.	GET method allows Data Consumers to retrieve rule from the D-TRO					
200 OK	{ "schemaVe "template": {	rsion": "3.2.4", ge": "weekInMonth instances must be unique.", iodApplicableInstanceDayWithinMonthInstancesUnique" sion.regulation.timeValidity.exceptionPeriod.recurringDayWeekMont ableInstanceOfDayWithinMonth" ted for brevity (For an example of Rule response, please refer to dex document at: Beta-01-DfT-D-TRO-001-GitHub File Index.docx) ted for brevity (For an example of Rule response, please refer to dex document at: Beta-01-DfT-D-TRO-001-GitHub File Index.docx)					
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."]						
Error Codes	HTTP Code	Error Type					
· —	400	Bad request					
	403	Access denied/forbidden					
	404	Not found					
	405	Method not allowed					
	429	Too many requests					
	500	Internal Server Error					
	502	Bad gateway					
· —	503	Service unavailable					
<u> </u>	504	Gateway timeout					

10.4Schemas

Ref.	Endpoints	Name
S1	/v1/schemas/versions	Retrieve available schema versions
S2	/v1/schemas	Retrieve available schemas
S3	/v1/schemas/{versions}	Retrieve schema by version
S4	/v1/schemas/{id}	Retrieve schema by id

Reference	S1							
Item	Value							
GET	/v1/schemas/ver	sions						
Name	Get available scl	nema ver	sions ²					
Description	TRO Service.	d allows	Data Con	sumers to	retrieve sche	ma versions from the D-		
Input data type(s)	☑ XML☑ File☑ Other (please							
Input	Header Paramet		1					
Structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes		
	X-Correlation- ID	string	36	36	Mandatory	UUID formatted string to track the request through the enquiries stack.		
	Request Parameters							
	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes		
	-	-	-	-	-	-		
Input data scope	-							
Output data type	☑ JSON ☑ XML ☑ File ☑ Other (please specify)							
Output	Response Paran	neters						
data structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes		
	Data	JSON	-	-	Mandatory	Array containing JSON objects		
Responses								

 $^{^2}$ **Schema Template**: Specifies the expected structure, data types, and constraints (type, minimum, maximum, etc.) for each field within the DTRO. It ensures consistency, integrity, and compatibility of data across systems or processes.

Reference	S1				
Item	Value				
GET	/v1/schemas/versi	ons			
Name	Get available sche	ema versions ²			
Description	This GET method TRO Service.	allows Data Consumers to retrieve schema versions from the D-			
200 OK	[
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."]				
Error	HTTP Code	Error Type			
Codes	400	Bad request			
	403	Access denied/forbidden			
	404	Not found			
	405 Method not allowed				
	429	Too many requests			
	500	Internal Server Error			
	502	Bad gateway			
	503	Service unavailable			
	504	Gateway timeout			

Reference	S2						
Item	Value						
GET	/v1/schemas						
Name	1 1	Get available schemas					
Description			ıs Data Co	neumere	to retrieve so	hemas from the D-TRO	
-	Service.	iou allow	75 Dala Cl	Jiisuilleis	s to retrieve sc	nemas nom me D-110	
Input data	☑JSON						
type(s)	⊠ XML						
	☑ File	an annaif	· /\				
Input	☑ Other (pleas Header Param		у)				
Structure	Field Name	Data	Min	Max	Opportunity	Notes	
Ciradiaio	Field Name	Type	Length	Length	Opportunity	Notes	
	X-	string	36	36	Mandatory	UUID formatted string	
	Correlation-	ounig			Managery	to track the request	
	ID					through the enquiries	
						stack.	
	Request Parar	neters	•				
	Field Name	Data	Min	Max	Opportunity	Notes	
		Туре	Length	Length			
	-	-	-	-	-	-	
Input data	-						
scope	T 10011						
Output data	☑ JSON						
type	⊠ XML ⊠ File						
		se snecif	v)				
	☑ Other (please specify)						
Output data			<i>)</i>				
Output data structure	Response Par	ameters	,	Max	Opportunity	Notes	
		ameters Data	Min	Max Length	Opportunity	Notes	
	Response Par	ameters	,	Max Length	Opportunity Mandatory	Notes Array containing JSON	
	Response Par Field Name	ameters Data Type	Min Length		•		
	Response Par Field Name	ameters Data Type	Min Length		•	Array containing JSON	
structure	Response Par Field Name	ameters Data Type	Min Length		•	Array containing JSON	
structure	Response Par Field Name Data	ameters Data Type JSON	Min Length		•	Array containing JSON	
structure	Response Par Field Name Data [{ "schema\)	ameters Data Type JSON /ersion":	Min Length		•	Array containing JSON	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion":	Min Length -	Length -	Mandatory	Array containing JSON objects	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": {	Min Length - "3.2.4",	Length - an exam	Mandatory ple of Schema	Array containing JSON objects response, please refer	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": {	Min Length - "3.2.4",	Length - an exam	Mandatory ple of Schema	Array containing JSON objects	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": {	Min Length - "3.2.4",	Length - an exam	Mandatory ple of Schema	Array containing JSON objects response, please refer	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": { ted for br Index do	Min Length - "3.2.4",	Length - an exam	Mandatory ple of Schema	Array containing JSON objects response, please refer	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": { ted for br Index do	Min Length - "3.2.4",	Length - an exam	Mandatory ple of Schema	Array containing JSON objects response, please refer	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": { ted for br Index do	Min Length - "3.2.4",	Length - an exam	Mandatory ple of Schema	Array containing JSON objects response, please refer	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": { ted for br Index do : true	Min Length - "3.2.4", revity (For	Length - an exam	Mandatory ple of Schema	Array containing JSON objects response, please refer	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": { ted for br Index do : true /ersion": ": {	Min Length - "3.2.4", revity (For cument at	an exam	Mandatory ple of Schema -DfT-D-TRO-0	Array containing JSON objects a response, please refer 001-GitHub File	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": { ted for br Index do : true /ersion": ": {	Min Length - "3.2.4", evity (For cument at	an exam Beta-01	Mandatory ple of Schema -DfT-D-TRO-0	Array containing JSON objects a response, please refer 001-GitHub File	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": { ted for br Index do : true /ersion": ": {	Min Length - "3.2.4", evity (For cument at	an exam Beta-01	Mandatory ple of Schema -DfT-D-TRO-0	Array containing JSON objects a response, please refer 001-GitHub File	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": { ted for br Index do : true /ersion": ": {	Min Length - "3.2.4", evity (For cument at	an exam Beta-01	Mandatory ple of Schema -DfT-D-TRO-0	Array containing JSON objects a response, please refer 001-GitHub File	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": { ted for br Index do : true /ersion": ": {	Min Length - "3.2.4", evity (For cument at	an exam Beta-01	Mandatory ple of Schema -DfT-D-TRO-0	Array containing JSON objects a response, please refer 001-GitHub File	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": { ted for br Index do : true /ersion": ": {	Min Length - "3.2.4", evity (For cument at	an exam Beta-01	Mandatory ple of Schema -DfT-D-TRO-0	Array containing JSON objects a response, please refer 001-GitHub File	
structure	Response Par Field Name Data [ameters Data Type JSON /ersion": ": { ted for br Index do : true /ersion": ": {	Min Length - "3.2.4", evity (For cument at	an exam Beta-01	Mandatory ple of Schema -DfT-D-TRO-0	Array containing JSON objects a response, please refer 001-GitHub File	

D (00				
Reference	S2				
Item	Value				
GET	/v1/schemas				
Name	Get available so	hemas			
Description	This GET methor Service.	od allows Data Consumers to retrieve schemas from the D-TRO			
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."]				
Error Codes	HTTP Code	Error Type			
	400	Bad request			
	403	Access denied/forbidden			
	404	Not found			
	405	Method not allowed			
	429 Too many requests				
	500	Internal Server Error			
	502	Bad gateway			
	503	Service unavailable			
	504	Gateway timeout			

Reference	S3						
Item	Value						
GET	/v1/schemas/{version}						
Name	Get available schema by version						
Description	This GET method allows Data Consumers to retrieve schema from the D-TRO						
Description	Service.	illiou allo	WS Dala (Jonsume	is to retrieve s		
Input data	☑ JSON						
type(s)	⊠ XML						
	☑ File						
1 101 1	☑ Other (plea		ity)				
Input Structure	Header Para		N 41		10 1 11	I N .	
	Field Name	Data	Min	Max	Opportunity	Notes	
	V	Type	Length	Length	Mondotom	LILID forms att a di atvis a	
	X- Correlation-	string	36	36	Mandatory	UUID formatted string to track the request	
	ID					through the enquiries	
						stack.	
	Request Para	ameters		1	<u> </u>	otdok.	
	Field Name	Data	Min	Max	Opportunity	Notes	
		Type	Length	Length	,,		
	version	string	5	5	Mandatory	String representation of	
						schema version	
Input data scope	When invokir format: {Majo	•		e request	: parameter mi	ust be string in this	
Output data	☑ JSON	ı y. Şivili ioi	j. li alciij.				
type	⊠ XML						
3,60	ĭ File						
	☑ Other (plea	ase spec	ify)				
Output data	Response Pa	arameter	S				
structure	Field Name	Data	Min	Max	Opportunity	Notes	
	D 1	Туре	Length	Length	N4 1 1	A	
	Data	JSON	-	-	Mandatory	Array containing JSON objects	
200 OK	{	1					
	"schemaV	ersion": "	3.2.4",				
	"template"						
	"type": "						
	"\$defs":	•	., ,_				
	omitted for brevity (For an example of Schema response, please refer						
	to GitHub File Index document at: Beta-01-DfT-D-TRO-001-GitHub File						
	Index.docx)						
	}, "oneOf": [
		-	orevity (Fo	r an exar	nple of Schem	a response, please refer	
			• •		•	-001-GitHub File	
	Index.docx)						
],	.a". "h#	0://ican ==	homa ar	n/droft/2020 44	Nachama"	
					g/draft/2020-12 odel JSON sch		
	•				Juei Jouin Sci	icilia ,	
	"additionalProperties": true						
	},						
	}, "isActive":	true					

Reference	S3				
Item	Value				
GET	/v1/schemas/{v	version}			
Name	Get available s	schema by version			
Description	This GET meth Service.	nod allows Data Consumers to retrieve schema from the D-TRO			
Responses					
500 Internal Server Error	"errors": [Internal Server Error", cted error occurred."			
Error Codes	HTTP Code	Error Type			
	400	Bad request			
	403	Access denied/forbidden			
	404	Not found			
	405	Method not allowed			
	429	Too many requests			
	500	Internal Server Error			
	502	Bad gateway			
	503	Service unavailable			
	504	Gateway timeout			

Reference	S4								
Item	Value								
GET	/v1/schemas/{	id}							
Name	Get available		•						
Description	Service.	hod allow	s Data Co	onsumers	to retrieve sc	hema from the D-TRO			
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please specify)								
Input	Header Param				1				
Structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes			
	X- Correlation- ID	string	36	36	Mandatory	UUID formatted string to track the request through the enquiries stack.			
	Request Parai	Request Parameters							
	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes			
	id	string	36	36	Mandatory	UUID formatted string representation of schema unique identifier.			
Input data scope	When invoking format.	this end	point, the	request p	parameter mus	st be string in UUID			
Output data type	☑ JSON ☑ XML ☑ File ☑ Other (please specify)								
Output data	Response Par	ameters							
structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes			
	Data	JŚON	-	-	Mandatory	Array containing JSON objects			

Reference	S4					
Item	Value					
GET	/v1/schemas/{id}					
Name	Get available schema by unique identifier.					
Description	This GET method allows Data Consumers to retrieve schema from the D-TRO Service.					
200 OK	"schemaVers "template": { "type": "obj "\$defs": { omitte to GitHub File In Index.docx) }, "oneOf": [omitte to GitHub File In Index.docx)], "sschema": "description	d for brevity (For an example of Schema response, please refer dex document at: Beta-01-DfT-D-TRO-001-GitHub File d for brevity (For an example of Schema response, please refer dex document at: Beta-01-DfT-D-TRO-001-GitHub File "https://json-schema.org/draft/2020-12/schema", "": "DTRO v3.2.4 data model JSON schema", Properties": true				
Responses						
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."] }					
Error Codes	HTTP Code	Error Type				
	400	Bad request				
	403	Access denied/forbidden				
	404	Not found				
	405	Method not allowed				
	429	Too many requests				
	500	Internal Server Error				
	502	Bad gateway				
	503	Service unavailable				
	504	Gateway timeout				