

Title	Digital Traffic Regulation Orders: D-TRO Publication API Interface Control Document for Data Consumers
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1 Document Control

1.1 Version History

Version	Author	Summary of changes	Date
2.0	Gabriel Popescu (PA Consulting)	Record Management enhancement for D-TRO submission	01/07/2024

1.2 Document Review

Version	Reviewer(s)	Date
2.0	John Cooper (Department for Transport, Product Owner)	

1.3 Approved Versions

Version	Approver(s)	Date
2.0	Department for Transport	

2 Terms and Abbreviations

Term / Abbreviation	Definition
API	Application Programming Interface
CRUD	Create, Read, Update and Delete
D-TRO	Digital Traffic Regulation Order
DC	Data Consumer
DfT	Department for Transport
DSP	Digital Solution Provider
ICD	Interface Control Document
JSON	JavaScript Object Notation
MVP	Minimum Viable Product
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 (clause 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:

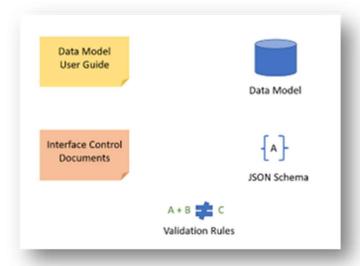


Figure 1 – Documents and artefacts supporting the D-TRO Service

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 [#38].

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.

For Data Consumers, there is a second ICD document.

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)

Figure 2 below depicts the 'happy path' sequence of interactions between Data Consumers and the D-TRO Service.

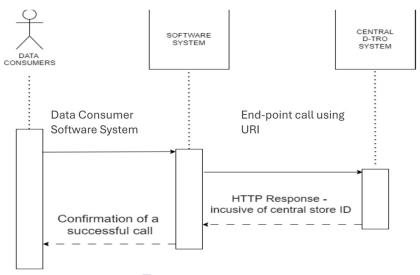


Figure 2 Expected API interactions

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
	, 100 di il pilo il	mipaot ii not ti ao

A01	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.
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8.2 Constraints

I	D	Constraint
C		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

Table 1 document 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
		DTRO	S

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	:S
R1	GET	/v1/rules/versions	Retrieve available rule template versions
R2	GET	/v1/rules	Retrieve available rule templates
R3	GET	/v1/rules/{versions}	Retrieve rule template by version
R4	GET	/v1/rules/{id}	Retrieve rule template by ID
		SCHEM	MAS
S1	GET	/v1/schemas/versions	Retrieve available schema template versions
S2	GET	/v1/schemas	Retrieve available schema templates.
S3	GET	/v1/schemas/{version}	Retrieve schema template by version
S4	GET	/v1/schemas/{id}	Retrieve schema template by ID

Table 1 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 with a TRA 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 UTC using the ISO 8601-1:2019 extended format (e.g. YYYY-MM-DDTHH:MM:SSZ).
- 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	This GET method allows Data Consumers to retrieve an existing D-TRO from the					
Boochpaon	D-TRO Service, based on its unique identification.					
Input data	☑ JSON					
type(s)	⊠ XML					
	坚 File					
	☑ Other (please					
Input	Header Paramet					1
Structure	Field Name	Data	Min	Max	Opportunity	Notes
	V Completion	Type	Length	Length	Manalatami	LILID forms of the district of
	X-Correlation- ID	string	36	36	Mandatory	UUID formatted string
	טו					to track the request through the enquiries
						stack.
	Request Parame	eters				otaon.
	Field Name	Data	Min	Max	Opportunity	Notes
	Tiola Hallio	Type	Length	Length	opportanity	
	id	string	36	36	Mandatory	UUID formatted string
					_	containing the unique
						identification of a D-
				1		TRO.
	110				<u> </u>	
Input data	When invoking t					n a full UUID
Input data scope	representation. I	f the unic	ue identif	ier match	es with one of	
scope	representation. I within the D-TR0	f the unic	ue identif	ier match	es with one of	n a full UUID
Scope	representation. I within the D-TR0 ☑ JSON	f the unic	ue identif	ier match	es with one of	n a full UUID
scope	representation. I within the D-TR0	f the unic	ue identif	ier match	es with one of	n a full UUID
Scope	representation. I within the D-TR0 ☑ JSON ☑ XML	f the unic O Service	ue identif	ier match	es with one of	n a full UUID
Output data type Output	representation. I within the D-TR0 ☑ JSON ☑ XML ☑ File	f the unic D Service specify)	ue identif	ier match	es with one of	n a full UUID
Output data type Output data	representation. I within the D-TR0 ☑ JSON ☑ XML ☑ File ☑ Other (please	f the unic D Service specify)	ue identif , that D-T	ier match RO will b	es with one of	n a full UUID
Output data type Output	representation. I within the D-TR0 ☑ JSON ☑ XML ☑ File ☑ Other (please Response Parar Field Name	f the unice Service specify) neters Data Type	ue identif , that D-T	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes
Output data type Output data	representation. I within the D-TRO ☑ JSON ☑ XML ☑ File ☑ Other (please Response Parar	f the unic O Service specify) neters	ue identif , that D-T	ier match RO will b	es with one of e retrieved.	n a full UUID the existing D-TROs Notes D-TRO retrieved from
Output data type Output data structure	representation. I within the D-TR0 ☑ JSON ☑ XML ☑ File ☑ Other (please Response Parar Field Name	f the unice Service specify) neters Data Type	ue identif , that D-T	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes
Output data type Output data structure Responses	representation. I within the D-TR0 ☑ JSON ☑ XML ☑ File ☑ Other (please Response Parar Field Name	f the unice Service specify) neters Data Type	ue identif , that D-T	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes D-TRO retrieved from
Output data type Output data structure	representation. I within the D-TRO JSON XML File Other (please Response Parar Field Name Data	specify) neters Data Type JSON	we identif , that D-T Min Length -	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes D-TRO retrieved from
Output data type Output data structure Responses	representation. I within the D-TRO JSON XML File Other (please Response Parar Field Name Data { "schemaVersi	specify) neters Data Type JSON	we identif , that D-T Min Length -	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes D-TRO retrieved from
Output data type Output data structure Responses	representation. I within the D-TRO I JSON I XML I File I Other (please Response Parar Field Name Data { "schemaVersi" data": {	specify) neters Data Type JSON	we identif , that D-T Min Length -	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes D-TRO retrieved from
Output data type Output data structure Responses	representation. I within the D-TRO JSON XML File Other (please Response Parar Field Name Data { "schemaVersi "data": { "source": {	specify) neters Data Type JSON	we identif , that D-T Min Length -	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes D-TRO retrieved from
Output data type Output data structure Responses	representation. I within the D-TRO I JSON I XML I File I Other (please Response Parar Field Name Data { "schemaVersi" data": {	specify) neters Data Type JSON	we identif , that D-T Min Length -	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes D-TRO retrieved from
Output data type Output data structure Responses	representation. I within the D-TRO JSON XML File Other (please Response Parar Field Name Data { "schemaVers" "data": { "source": { "provision": {	specify) meters Data Type JSON ion": "3.2	Min Length	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes D-TRO retrieved from
Output data type Output data structure Responses	representation. I within the D-TRO JSON XML File Other (please Response Parar Field Name Data { "schemaVersi "data": { "source": {	specify) meters Data Type JSON ion": "3.2	Min Length	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes D-TRO retrieved from
Output data type Output data structure Responses	representation. I within the D-TRO JSON XML File Other (please Response Parar Field Name Data { "schemaVersi "data": { "source": { "provision": { "regulate { "regulate {	specify) meters Data Type JSON ion": "3.2	Min Length	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes D-TRO retrieved from
Output data type Output data structure Responses	representation. I within the D-TRO JSON XML File Other (please Response Parar Field Name Data { "schemaVers" "data": { "source": { "provision": {	specify) meters Data Type JSON ion": "3.2	Min Length	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes D-TRO retrieved from
Output data type Output data structure Responses	representation. I within the D-TRO JSON XML File Other (please Response Parar Field Name Data { "schemaVersi "data": { "source": { "provision": { "regulate { "regulate {	specify) meters Data Type JSON ion": "3.2	Min Length	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes D-TRO retrieved from
Output data type Output data structure Responses	representation. I within the D-TRO JSON XML File Other (please Response Parar Field Name Data { "schemaVersi "data": { "source": { "provision": { "regulate { "regulate {	specify) meters Data Type JSON ion": "3.2	Min Length	ier match RO will b	es with one of e retrieved. Opportunity	n a full UUID the existing D-TROs Notes D-TRO retrieved from

Reference	D5					
Item	Value					
GET	/v1/dtros/{id}					
Name	Get a D-TRO by ic	d				
Description		allows Data Consumers to retrieve an existing D-TRO from the ased on its unique identification.				
404 Not Found	{ "message": "Not found", "errors": ["D-TRO with id 3fa85f64-5717-4562-b3fc-2c963f66afa6 not found."]					
Other 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	D7					
Item	Value					
GET	/v1/dtros/sourceHistory/{dtroId}					
Name	Get the source history of a D-TRO by id					
	This GET method allows Data Consumers to retrieve source history of an existing					
Description	D-TRO from the					
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please specify)					
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
	dtrold	string	36	36	Mandatory	UUID formatted string containing the unique identification of a D-TRO.
Input data	When invoking t	nis endpo	oint, the dt	rold para	meter must co	ontain 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 Parar	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						
200 OK	[
500 Internal Server Error	The state of the					

Reference	D7					
Item	Value					
GET	/v1/dtros/sourceHi	story/{dtroId}				
Name	Get the source his	tory 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.				
Other 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	D8					
Item	Value					
GET	/v1/dtros/provisionHistory/{dtroId}					
Name	Get the provisions history of a D-TRO id					
	·					
Description	D-TRO from the	This GET method allows Data Consumers retrieve provisions history of an existing D-TRO from the D-TRO Service, based on its unique identification.				
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please specify)					
Input	Header Paramet	ers				
Structure	Field Name	Data	Min	Max	Opportunity	Notes
	X-Correlation- ID	Type string	Length 36	Length 36	Mandatory	UUID formatted string to track the request through the enquiries
						stack.
	Request Parame	eters				ı
	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		f the unic	que identif	ier match	es with one of	ontain a full UUID the existing D-TROs
Output data type	☑ JSON ☑ XML ☑ File ☑ Other (please		,	-		
Output	Response Parar					
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	[

Reference	D8					
Item	Value					
GET	/v1/dtros/provision	nHistory/{dtroId}				
Name	Get the provisions	history of a D-TRO id				
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."]					
Other error	HTTP Code	Error Type				
codes	400	Bad request				
	403	Access denied/forbidden				
	404	Not found				
	405	Method not allowed				
	Too many requests					
	500	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	ES1						
Item	Value							
POST	/v1/events							
Name	Query central da deleted).	ata for sto	red events	s (e.g., D-	TROs being cr	eated, updated, or		
Description	deleted) on exis					s (created, updated, or		
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please							
Input	Header Parame			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.		
	ta	int	4	5	Mandatory	The TRA SWA code that events are search for		
	Request Param	eters						
	Field Name	Data	Min	Max	Opportunity	Notes		
	data	Type object	Length 1KB	Length 10MB	Mandatory	A JSON payload describing a D-TRO.		
						Payload should be UTF8 encoded.		
Input data scope	When invoking tobject.	this endpo	oint, the re	quest pay	load must con	tain a search query		

Reference	ES1								
Item	Value								
POST	/v1/events								
Name	Query central da deleted).			, ,	_	reated, updated, or			
Description						s (created, updated, or			
Output data type		▼ XML							
Output	Response Paran	neters							
data structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes			
	id	string	36	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 }								
404 Not Found	{ "message": "No "errors": ["Schema vers] }								
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>								
Other error	HTTP Code Error Type								
codes	400		equest						
	403	_		/forbidden	1				
	404	Not fe		, ioi biddeli					
}	405		od not alle	nwed					
	429								
-			many requ						
	500		nal Server	□11.OL					
	502		gateway	·					
	503		ce unavai						
	504	Gate	way timed	out					

Reference	ES2							
Item	Value							
POST	/v1/search							
Name	Find existing D-	TROs tha	t matches	s request	ed criteria.			
Description						ROs that matches		
ı	certain criteria v				, ,			
Input data	☑ JSON							
type(s)	⊠ XML							
	☑ File	o cnocify)						
Input Structure	☑ Other (please Header Parame							
input otractare	Field Name	Data	Min	Max	Opportunity	Notes		
	Tiola Hamo	Type	Length	Length	Opportunity	140.00		
	X-Correlation-	string	36	36	Mandatory	UUID formatted		
	ID				-	string to track the		
						request through the		
	4 -	! 4	4	_	N4 - 4	enquiries stack.		
	l ta	int	4	5	Mandatory	The TRA SWA code that query search is		
						for		
	Request Param	eters				101		
	Field Name	Data	Min	Max	Opportunity	Notes		
		Туре	Length	Length	''			
	data	object	1KB	10MB	Mandatory	An object containing		
						an array of queries		
						to search. Payload should be UTF8		
						encoded.		
Input data	When invoking	this endpo	oint, the re	equest pa	yload must co	ontain a search query		
scope	object.	•	•		•	. ,		
	{							
	"queries": [
	{ "traCreator"	. 1585						
	"regulationS							
	"operator":							
	"value": "2		IT06:18:1	6.458Z"				
	},							
	"regulationE							
	"operator": "value": "2		IT06:19:1	6 4597"				
	value . 2	024-07-04	100.10.1	0.4302				
	}							
],							
	"page": 1,							
	pageSize": 50)						
Output data	} E1 SON							
Output data type	☑ JSON ☑ XML							
iype	☑ ∧IVIL ☑ File							
		e specify)						
	☑ Other (please specify)							

Reference	ES2							
Item	Value							
POST	/v1/search							
Name	Find existing D-	ΓROs th	at matche	s reques	ted criteria.			
Description						ROs that matches		
•	certain criteria w				, ,			
Output data	Response Parar	neters						
structure	Field Name	Data	Min	Max	Opportunity	Notes		
		Type	Length	Length	•			
	data	JSON	-	-	Mandatory	Result array		
		array						
Responses								
200 OK	{							
	"results": [
	\omitted for bre	witv						
	"vehicleType	•						
	"taxi"	[
],							
	omitted for bre	evity.						
	"page": 1,							
	"pageSize": 1,							
	"totalCount": 1							
200 OK	}							
200 OK	। "results": [],							
	"page": 1,							
	"pageSize": 0,							
	"totalCount": 0							
	}							
500	{							
Internal	"message": "Int	ternal Se	erver Erro	r",				
Server Error	"errors": [
	"An unexpecte	ea error	occurred.					
	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \							
Other error	HTTP Code	Error	Tyne					
codes	400	_	equest					
	403		ss denied/	forbidder	1			
•	404	Not fo						
•	405		od not allo	wed				
	429		nany requ					
	500		al Server					
	502		jateway					
	503		ce unavai					
	504 Gateway timeout							

10.3Rules

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

Reference	R1							
Item	Value							
GET	/v1/rules/version	S						
Name	Get available rul	e templat	e version	s ¹				
Description	the D-TRO Servi		Data Con	sumers to	retrieve rule	template versions from		
Input data type(s)	IX XMLIX FileIX 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		
	-	-	-	-	-	-		
Input data scope	-							
Output data type	☑ JSON ☑ XML ☑ File ☑ Other (please							
Output	Response Paran			1				
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					
GET	/v1/rules/versions					
Name	Get available rule	template versions¹				
Description	This GET method the D-TRO Service	allows Data Consumers to retrieve rule template versions from e.				
Responses						
200 OK	[n": "3.2.0"				
500 Internal Server Error	"errors": [rnal Server Error", error occurred."				
Other 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						
GET	/v1/rules						
Name	Get available rul	e templat	tes				
Description				sumers to	retrieve rule	templates from the D-	
•	TRO Service. ☑ JSON	a anowo	Bata Con		o round vo raid		
Input data type(s)	☑ XML☑ File☑ Other (please						
Input	Header Paramet	ers					
Structure	Field Name	Data	Min	Max	Opportunity	Notes	
		Туре	Length	Length			
	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						
data structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes	
	Data	JSON	-	-	Mandatory	Array containing JSON objects	
Responses							
200 OK	Data JSON Mandatory Array containing JSON						

Reference	R2						
Item	Value						
GET	/v1/rules						
Name	Get available rule	templates					
Description		allows Data Consumers to retrieve rule templates from the D-					
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."]						
Other 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	R3							
Item	Value	Value						
GET	/v1/rules/{version}							
Name	Get available rul	-	te by vers	ion				
Description					retrieve rule	template from the D-TRO		
	Service.					·		
Input data	☑ JSON							
type(s)	⊠ XML							
	▼ File Other (please)	anacifu)						
Input	☑ Other (please Header Paramet							
Structure	Field Name	Data	Min	Max	Opportunity	Notes		
	Tiola Hamo	Type	Length	Length	Opportunity	140100		
	X-Correlation-	string	36	36	Mandatory	UUID formatted string		
	ID	J				to track the request		
						through the enquiries		
						stack.		
	Request Parame		1.0			N		
	Field Name	Data	Min	Max	Opportunity	Notes		
	version	Type string	Length 5	Length 5	Mandatory	String representation of		
	VOISION	String			Mandatory	rule version		
Input data			oint, the re	quest pa	rameter must	be a string in this format:		
scope	{Major}.{Minor}.{	Patch}.						
Output	☑ JSON							
data type	☑ XML ☑ File							
	☑ Other (please	specify)						
Output	Response Parar							
data	Field Name	Data	Min	Max	Opportunity	Notes		
structure		Туре	Length	Length				
	Data	JSON	-	-	Mandatory	Array containing JSON		
Doononooo						objects		
Responses	1							
200 OK	│ { │ "schemaVersi	on": "3 2	Ο"					
	"template": [011 . 0.2	.0 ,					
	{							
	omitted for bre	vity.						
	"rule": {							
	"in": [
	1 ",	/ar": "sol	Irce currer	ntTra∩wn	er"			
	},	"var": "source.currentTraOwner"						
	[
	"5	service_c	lata": "swa	a_codes"				
	}							
	, J							
	}							
	1 '							
	}							

Reference	R3						
Item	Value						
GET	/v1/rules/{version}						
Name	Get available rule	template by version					
Description	This GET method Service.	allows Data Consumers to retrieve rule template from the D-TRO					
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."]						
Other 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	00 Internal Server Error					
	502	Bad gateway					
	503	Service unavailable					
	504	Gateway timeout					

Reference	R4						
Item	Value						
GET	/v1/rules/{id}						
Name	Get available rul	e templat	te by unia	ue identif	ier		
Description		•	, ,			template from the D-TRO	
	Service.						
Input data	☑ JSON						
type(s)	⊠ XML						
	☑ File	:					
Input	☑ Other (please Header Paramet)						
Input Structure	Field Name	Data	Min	Max	Opportunity	Notes	
Otractare	rieiu ivailie	Type	Length	Length	Opportunity	Notes	
	X-Correlation-	string	36	36	Mandatory	UUID formatted string	
	ID	oug			, manages, y	to track the request	
						through the enquiries	
						stack.	
	Request Parame	eters					
	Field Name	Data	Min	Max	Opportunity	Notes	
	id	Type	Length 36	Length 36	Mandatan	UUID formatted string	
	Id	string	30	30	Mandatory	representing the rule to	
						be retrieved.	
Input data	When invoking the	nis endpo	oint, the id	paramet	er must be str	ing in UUID format.	
scope							
Output	☑ JSON						
data type	⊠ XML						
	I FileI Other (please	enecify)					
Output	Response Paran						
data	Field Name	Data	Min	Max	Opportunity	Notes	
structure	Tiola Hame	Type	Length	Length		110100	
•	Data	JSON	-	-	Mandatory	Array containing JSON	
						objects	
Responses							
200 OK	[" "0 0	0.11				
	"schemaVersi	on": "3.2.	.0",				
	"template": [
	ι omitted for bre	vitv.					
	"rule": {	,					
	"in": [
	{						
	"var": "source.currentTraOwner" },						
	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	service d	lata": "swa	a codes"			
	} `	. 5. 1.50_u		00000			
] ,						
	}						
	}						
	,						
	}						

Reference	R4					
Item	Value					
GET	/v1/rules/{id}					
Name	• • •	template by unique identifier				
Description		This GET method allows Data Consumers to retrieve rule template from the D-TRO				
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."]					
Other 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				

10.4Schemas

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

Reference	S1	S1				
Item	Value					
GET	/v1/schemas/versions					
Name	Get available schema template versions ²					
Description	from the D-TRO	This GET method allows Data Consumers to retrieve schema template versions from the D-TRO Service.				
Input data type(s)	IX XMLIX FileIX 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 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 Parameters					
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/versions				
Name	Get available schema template versions ²				
Description	This GET method allows Data Consumers to retrieve schema template versions from the D-TRO Service.				
200 OK	<pre>[</pre>				
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."]				
Other 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	Get available schema templates						
Description				sumers to	retrieve sche	ma templates from the D-	
'	TRO Service.					•	
Input data	☑ JSON						
type(s)	⊠ XML						
	▼ File Other (please)	anacifu)					
Input	☑ Other (please specify) Header Parameters						
Structure	Field Name	Data	Min	Max	Opportunity	Notes	
Structure	Field Name	Type	Length	Length	Opportunity	Notes	
	X-Correlation-	string	36	36	Mandatory	UUID formatted string	
	ID	ounig			Managery	to track the request	
						through the enquiries	
						stack.	
	Request Parame	eters					
	Field Name	Data	Min	Max	Opportunity	Notes	
		Туре	Length	Length			
	-	-	-	-	-	-	
Input data scope	-						
Output	☑ JSON						
data type	⋈ XML						
	ĭ File						
	☑ Other (please						
Output data		Response Parameters					
structure	Field Name	Data Type	Min	Max	Opportunity	Notes	
ou dotai o	Data	JSON	Length -	Length -	Mandatory	Array containing JSON	
	Data	30011		-	Mandator y	objects	
Responses		1		l		0.0,000.0	
200 OK	[
	[{						
	"schemaVe	ersion": "3	3.2.0",				
	"template":						
	"type": "c						
	"\$defs": -	•	£ ;				
	omitted for brevity.						
	}, oneOf":	ſ					
	omitted for brevity.						
],						
		a": "https	://json-sch	nema.org/	/draft/2020-12	/schema",	
) data mo	del JSON sch	ema",	
		alProper	ties": true				
	},						
	"isActive": t	rue					
	1						
I	l J						

Reference	S2						
Item	Value	Value					
GET	/v1/schemas						
Name	Get available sche	ema templates					
Description	This GET method TRO Service.	allows Data Consumers to retrieve schema templates from the D-					
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."]						
Other 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	S3					
Item	Value					
GET	/v1/schemas/{version}					
Name	Get available schema template by version					
Description	This GET method allows Data Consumers to retrieve schema template from the D-					
	TRO Service.					
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please specify)					
la a ut	☑ Other (please specify) Header Parameters					
Input Structure			N Alice	Max	O :- : :- : : : : : : : : : : : : : :	Natas
Structure	Field Name	Data	Min	Max	Opportunity	Notes
	X-Correlation-	Type string	Length 36	Length 36	Mandatory	UUID formatted string
	ID		30	30	ivialidatory	to track the request through the enquiries stack.
	Request Parame		I	I	1 -	
	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	version	string	5	5	Mandatory	String representation of schema version
Input data scope	When invoking t {Major}.{Minor}.{	•	oint, the re	equest pa	rameter must	be string in this format:
data type	⊠ XML □ File □ Other (please Response Parar					
Output data	•		N 4:	N.4	O	NI-4
structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	Data	JSON	-	-	Mandatory	Array containing JSON objects
200 OK	Data JSON Mandatory Array containing JSON					

Reference	S3					
Item	Value	Value				
GET	/v1/schemas/{version}					
Name	Get available sche	Get available schema template by version				
Description	This GET method TRO Service.	allows Data Consumers to retrieve schema template from the D-				
Responses						
500 Internal Server Error	{ "message": "Internal Server Error", "errors": ["An unexpected error occurred."]					
Other 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	S4					
Item	Value					
GET	/v1/schemas/{id}					
Name	Get available schema template by unique identifier.					
Description	This GET method allows Data Consumers to retrieve schema template from the D-					
	TRO Service.	TRO Service.				
Input data	☑ JSON					
type(s)	⊠ XML					
	☑ File	: c -\				
Innut	☑ Other (please specify) Header Parameters					
Input Structure	Field Name	Data	Min	Max	Opportunity	Notes
Structure	Field Name	Туре	Length	Max Length	Opportunity	Notes
•	X-Correlation-	string	36	36	Mandatory	UUID formatted string
	ID	Sung	30	30	Wandatory	to track the request
						through the enquiries
						stack.
	Request Parame	eters				
	Field Name	Data	Min	Max	Opportunity	Notes
		Туре	Length	Length		
	id	string	36	36	Mandatory	UUID formatted string
						representation of schema unique
						identifier.
Input data	When invoking t	his endpo	int the re	equest pa	rameter must	be string in UUID format.
scope	Trinoir miroiming t	ine enapt	J, a	, quoot pu	iamotor maor	
Output	☑ JSON					
data type	■ XML					
	⊠ File					
Outrout	☑ Other (please					
Output data	Response Parar		N 4:	N.4	O	Mata
structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
	Data	JSON	-	-	Mandatory	Array containing JSON
						objects
200 OK	{					•
200 OK	"schemaVersi	on": "3.2	.0",			•
200 OK	"schemaVersi "template": {		.0",		<u>, </u>	•
200 OK	"schemaVersi "template": { "type": "obj		.0",		•	
200 OK	"schemaVersi "template": { "type": "obj "\$defs": {	ect",			•	
200 OK	"schemaVersi "template": { "type": "obj "\$defs": { omitte				•	•
200 OK	"schemaVersi" "template": { "type": "obju "\$defs": { omitte },	ect",			<u>, </u>	•
200 OK	"schemaVersi "template": { "type": "objection	ect", d for brev			•	
200 OK	"schemaVersi "template": { "type": "objection": { omitte }, "oneOf": [],	ect", d for brev	vity. or brevity.			objects
200 OK	"schemaVersi "template": { "type": "objection of the content o	ect", d for brev omitted for the second the	vity. or brevity. son-scher	na.org/dr	aft/2020-12/sc	objects chema",
200 OK	"schemaVersi "template": { "type": "objection of the content o	ect", d for brev omitted f "https://j n": "DTRO	vity. or brevity. son-scher) v3.2.0 d	na.org/dr		objects chema",
200 OK	"schemaVersi "template": { "type": "objection": {	ect", d for brev omitted f "https://j n": "DTRO	vity. or brevity. son-scher) v3.2.0 d	na.org/dr	aft/2020-12/sc	objects chema",
200 OK	"schemaVersi "template": { "type": "objection"	ect", d for brev omitted for the state of th	vity. or brevity. son-scher) v3.2.0 d	na.org/dr	aft/2020-12/sc	objects chema",
200 OK	"schemaVersi "template": { "type": "objection of the second of the s	ect", d for brev omitted for the state of th	vity. or brevity. son-scher) v3.2.0 d	na.org/dr	aft/2020-12/sc	objects chema",
200 OK	"schemaVersi "template": { "type": "objection"	ect", d for brev omitted for the state of th	vity. or brevity. son-scher) v3.2.0 d	na.org/dr	aft/2020-12/sc	objects chema",

Reference	S4					
Item	Value					
GET	/v1/schemas/{id}					
Name	Get available sche	ema template by unique identifier.				
Description	This GET method TRO Service.	This GET method allows Data Consumers to retrieve schema template from the D-TRO Service.				
Responses						
500 Internal Server Error	"errors": [rnal Server Error", error occurred."				
Other 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				