

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	PA Consulting	Record Management enhancement for D-TRO submission	01/07/2024
2.1	PA Consulting	Changes in the API endpoints	03/10/2024

# 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

# 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 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.

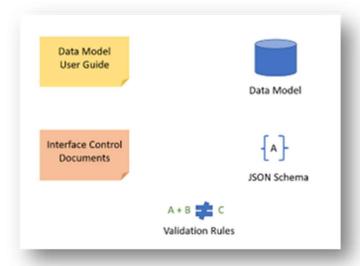
The new regulatory framework will, subject to necessary secondary legislation coming into force, mandate that Traffic Regulation Authorities (TRAs) in England and Wales publish TROs as open data in a standardised and digital format that anyone can access, use and share.

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.

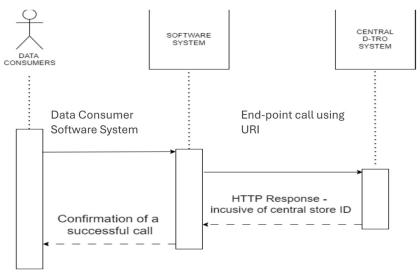
# 6 Target Audience

 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	<ul><li>☐ HTTP</li><li>☐ HTTPS – must be HTTPS 1.1 or higher.</li><li>☐ Other (please specify)</li></ul>					
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	<ul> <li>UNMARKED</li> <li>○ OFFICIAL</li> <li>○ OFFICIAL-SENSITIVE</li> <li>□ SECRET</li> <li>□ TOP SECRET</li> </ul>					
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).
- 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)	☑ XML ☑ File ☑ Other (please	☑ JSON ☑ XML					
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	
	id	string	36	36	Mandatory	UUID formatted string containing the unique identification of a D-TRO.	
Input data scope	When invoking this endpoint, the id 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	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}	/v1/dtros/{id}					
Name	Get a D-TRO by id						
Description		allows Data Consumers to retrieve an existing D-TRO from the					
2 3 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							
200 OK	D-TRO Service, based on its unique identification.  {     "schemaVersion": "3.2.3",     "data": {         "Source": {             "actionType": "new",             "currentTraOwner": 1000,             "provision": [{						
404 Not	{						
Found	"message": "Not	found",					
	"errors": [	3fa85f64-5717-4562-b3fc-2c963f66afa6 not found."					
		51405104-57 17-4502-0510-209051008180 HUL HUHIU.					
	}						
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/sourcel	History/{d	ltrold}			
Name	Get the source h	istory of	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	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 the	nis endpo	int, the dt	rold para	meter must co	ontain a full UUID
scope	representation. It within the D-TRC					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						

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	istory//dtrold\					
Name		, , ,					
		story of a D-TRO by id					
Description		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	500 Internal Server Error					
	502	Bad gateway					
	503	Service unavailable					
	504	Gateway timeout					

Reference	D8					
Item	Value					
GET	/v1/dtros/provision	/v1/dtros/provisionHistory/{dtroId}				
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					
	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					
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					
Name		ta for st	tored ever	nts (e.g., D	-TROs being c	reated, updated, or
Description						s (created, updated, or
Input data scope	deleted) on existing D-TROs within the D-TRO Service.  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 (i.e. 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": ">         "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					
data structure	Field Name	Data	Min	Max	Opportunity	Notes
Structure	id	Type string	Sength 36	Length 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	Value				
POST	/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	{     "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"					
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	ES2				
Item	Value					
POST	/v1/search					
Name	Find existing D-TRO	Os that ma	atches re	quested c	riteria.	
Description		This POST method allows Data Consumers to query D-TROs that matches certain criteria within the D-TRO Service.				
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please specify)					
Input	Header Parameters					
Structure	Field Name	Data Type	Min Length	Max Length	Opportunity	Notes

Reference	ES2						
Item	Value						
POST	/v1/search						
Name	Find existing D-TR	Os that m	atches re	guested c	criteria		
Description				•		that matches certain	
Description	criteria within the D				query D-11103	that matches certain	
	X-Correlation-ID	string	36	36	Mandatory	UUID formatted string to track the request through the enquiries stack.	
	ta	int	4	5	Mandatory	The entry in the D- TRO User Code List that query search is for	
	Request Paramete	rs					
	Field Name	Data	Min	Max	Opportunity	Notes	
	data	Type object	1KB	Length 10MB	Mandatory	An object containing an array of queries to search. Payload should be UTF8 encoded.	
Input data scope	object 'page' and '  your choice withing {   "queries": [	an array of queries to search. Payload should be UTF8 encoded.  When invoking this endpoint, the request payload must contain a search query object 'page' and 'pageSize' as mandatory fields and at least one other property of your choice withing the queries array (i.e. troName)  {     "queries": [					

Reference	ES2					
Item	Value					
POST	/v1/search					
Name	Find existing D-TRC	)s that n	natches re	nuested	criteria	
						a that matches cortain
Description	criteria within the D-			umers to	query D-1RO	s that matches certain
Output data	☑ JSON					
type	⊠ XML					
	☑ File	- o: <b>f</b> ()				
Output data	☑ Other (please spe					
Output data structure	Response Paramete		D 41		0 1 "	N
Siluciule	Field Name	Data	Min	Max	Opportunity	Notes
	data	Type	Length	Length	Mondoton	Docult array
	data	JSON	-	-	Mandatory	Result array
Doononoo		array				
Responses						
200 OK	{ "requite": [					
(with content	"results": [					
result)	For an example of a	D_TRO	search r	oleace ref	er to CitHub E	ile Index document at:
resuit)	Beta-01-DfT-D-TRC					ile ilidex document at.
	"vehicleType": [	001 01	ti ido i ilo	maox.aox	<u> </u>	
	"taxi"					
	],					
		D-TRO	search, p	olease ref	er to GitHub F	ile Index document at:
	Beta-01-DfT-D-TRC					
	"page": 1,				,	
	"pageSize": 1,					
	"totalCount": 1					
	}					
200 OK	{					
(with null	"results": [],					
result)	"page": 1,					
	"pageSize": 0,					
	"totalCount": 0					
500	1					
Internal	{     "message": "Intern	al Sanza	r Error"			
Server	"errors": [	ai Jei Ve	i LIIUI ,			
Error	"An unexpected e	error occ	urred "			
2.101		,,,,,,,	arrou.			
	}					
Error Codes	HTTP Code	Error	Type			
	400		equest			
	403		ss denied	/forbidder	า	
	404	Not fo				
	405	Metho	od not allo	wed		
	429	Too n	nany requ	ests		
	500		al Server			
	502	Bad o	gateway			
	503		ce unavai	lable		
	504	Gate	way timeo	ut		
			_			

# 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	Value					
GET	/v1/rules/version	s					
Name	Get available rul	e version	s <sup>1</sup>				
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	

<sup>&</sup>lt;sup>1</sup> **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 <sup>1</sup>				
Description	This GET method Service.	allows Data Consumers to retrieve rule versions from the D-TRO				
Responses	0011100.					
200 OK	[ {     "schemaVersion }	n": "3.2.3"				
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					
GET	/v1/rules					
Name	Get availab	le rules				
Description		nethod allow	s Data Cor	sumers to	retrieve rules fro	m the D-TRO
	Service.					
Input data	☑ JSON					
type(s)	⊠ XML ⊠ File					
		lease specif	<i>(</i> /)			
Input	Header Pa		y <i>)</i>			
Structure	Field	Data Type	Min	Max	Opportunity	Notes
	Name	7	Length	Length	- FF	
	X-	string	36	36	Mandatory	UUID formatted
	Correlatio					string to track the
	n-ID					request through
						the enquiries stack.
	Request Pa	arameters				Stack.
	Field	Data Type	Min	Max	Opportunity	Notes
	Name	, , , , , , , , , , , , , , , , , , ,	Length	Length		
	-	-	-	-	-	-
Input data	-					
scope	T 100N					
Output data	☑ JSON ☒ XML					
type	☑ ∧IVIL   ☑ File					
	☑ Other (please specify)					
Output data	Response Parameters					
structure	Field	Data	Min	Max	Opportunity	Notes
	Name	Туре	Length	Length		
	Data	JSON	-	-	Mandatory	Array containing JSON objects
Responses					1	,

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-111C			
200 OK	[	I, sage": "weekInMonth instances must be unique.", e": odApplicableInstanceDayWithinMonthInstancesUnique" ": ion.regulation.timeValidity.exceptionPeriod.recurringDayWeekMonth bleInstanceOfDayWithinMonth"			
500 Internal	{				
Server Error	"message": "	nternal Server Error",			
	"errors": [				
	"An unexpe	cted error occurred."			
	, ]				
Error Codes	HTTP Code	Error Type			
LITOI COUES	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			
	I OOT	Oatoway timoout			

Reference	R3						
Item	Value						
GET		s/{version}					
Name	Get ava	Get available rule by version					
Description	Service	<del>)</del> .	ows Data Co	onsumers to	retrieve rule fror	n the D-TRO	
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		
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":         {	rsion": "3.2.3",  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		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				

Reference	R4						
Item	Value						
GET	/v1/rules/{id}						
Name	Get available rule by unique identifier						
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	ue					
GET	/v1/rules/{id}						
Name	Get available	vailable rule by unique identifier					
Description		T method allows Data Consumers to retrieve rule from the D-TRO					
'	Service.						
200 OK	{     "schemaVe":	"schemaVersion": "3.2.3", "template": [					
500 Internal	{						
Server Error	"message": "	Internal Server Error",					
	"errors": [						
	"An unexpe	cted error occurred."					
	]						
Error Codes	HTTP Code	Error Typo					
LITOI COUES	400	Error Type  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 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	/v1/schemas/versions						
Name	Get available scl	nema ver	sions <sup>2</sup>					
Description	TRO Service.	This GET method allows Data Consumers to retrieve schema versions from the D-TRO Service.						
Input data type(s)	☑ JSON ☑ XML ☑ File ☑ Other (please specify)							
Input	Header Paramet			1	T -			
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								

 $<sup>^2</sup>$  **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 sche	ema versions <sup>2</sup>				
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	Get available schemas						
Description	This GET method allows Data Consumers to retrieve schemas from the D-TRO						
2 ccci.pt.cri	Service.						
Input data	☑ JSON						
type(s)	<b>⊠</b> XML						
	⊠ File						
In a cont	☑ Other (pleas		y)				
Input Structure	Header Param		N A:	NA	0	NI-4	
Structure	Field Name	Data	Min	Max	Opportunity	Notes	
	X-	Type string	Length 36	Length 36	Mandatory	UUID formatted string	
	Correlation-	Sung	30	30	Manuatory	to track the request	
	ID					through the enquiries	
						stack.	
	Request Parar	neters		·			
	Field Name	Data	Min	Max	Opportunity	Notes	
		Type	Length	Length			
	-	-	-	-	-	-	
Input data	-						
Scope Output data	☑ JSON						
type	⊠ XML						
type	⊠ File						
	☑ Other (pleas	se specif	y)				
Output data	Response Par	ameters	•				
structure	Field Name	Data	Min Length	Max	Opportunity	Notes	
	Data	Type	_	Length	Mandatory	Array containing ISON	
	Data	JSON	-	-	Mandatory	Array containing JSON objects	
Responses	Data		-	-	Mandatory	Array containing JSON objects	
Responses 200 OK			-	-	Mandatory		
	Data		-	-	Mandatory		
	[	JSON /ersion":	-	-	Mandatory		
	[ { "schema\ "template	JSON /ersion": ": {	"3.2.3",	-		objects	
	[ {     "schema\     "template    omitt	JSON /ersion": ": { ted for br	"3.2.3", evity (For	an exam	ple of Schema	objects response, please refer	
	[	JSON /ersion": ": { ted for br	"3.2.3", evity (For	an exam	ple of Schema	objects	
	[	JSON /ersion": ": { ted for br	"3.2.3", evity (For	an exam	ple of Schema	objects response, please refer	
•	[	/ersion": ": { ted for br	"3.2.3", evity (For	an exam	ple of Schema	objects response, please refer	
	[	/ersion": ": { ted for br	"3.2.3", evity (For	an exam	ple of Schema	objects response, please refer	
	[	/ersion": ": { ted for br Index do	"3.2.3", evity (For cument at	an exam	ple of Schema	objects response, please refer	
	[	/ersion": ": { ted for br Index do : true /ersion":	"3.2.3", evity (For cument at	an exam	ple of Schema	objects response, please refer	
	[	/ersion": ": { ted for br Index do true /ersion": ": {	"3.2.3", evity (For cument at	an exam :: <u>Beta-01</u>	ple of Schema -DfT-D-TRO-0	objects  response, please refer 001-GitHub File	
	[	/ersion": ": { ted for br Index do true  /ersion": ": { ted for br	"3.2.3", evity (For cument at	an exam :: <u>Beta-01</u>	ple of Schema -DfT-D-TRO-0	objects  response, please refer 001-GitHub File  response, please refer	
	[	/ersion": ": { ted for br Index do true  /ersion": ": { ted for br	"3.2.3", evity (For cument at	an exam :: <u>Beta-01</u>	ple of Schema -DfT-D-TRO-0	objects  response, please refer 001-GitHub File	
	[	/ersion": ": { ted for br Index do  : true  /ersion": ": { ted for br Index do	"3.2.3", evity (For cument at	an exam :: <u>Beta-01</u>	ple of Schema -DfT-D-TRO-0	objects  response, please refer 001-GitHub File  response, please refer	
	[	/ersion": ": { ted for br Index do  : true  /ersion": ": { ted for br Index do	"3.2.3", evity (For cument at	an exam :: <u>Beta-01</u>	ple of Schema -DfT-D-TRO-0	objects  response, please refer 001-GitHub File  response, please refer	
•	[	/ersion": ": { ted for br Index do  : true  /ersion": ": { ted for br Index do	"3.2.3", evity (For cument at	an exam :: <u>Beta-01</u>	ple of Schema -DfT-D-TRO-0	objects  response, please refer 001-GitHub File  response, please refer	

Reference	S2					
Item	Value					
GET	/v1/schemas					
Name	Get available so	hemas				
Description	This GET metho 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				

53					
·					
This GET method allows Data Consumers to retrieve schema from the D-TRO Service.					
<ul><li>☑ XML</li><li>☑ File</li><li>☑ Other (please specify)</li></ul>					
Header Para	meters				
Field Name	Data	Min	Max	Opportunity	Notes
		Length	Length		
Correlation- ID	string	36	36	Mandatory	UUID formatted string to track the request through the enquiries stack.
	ameters				
Field Name	Data Type	Min Length	Max Length	Opportunity	Notes
version	string	5	5	Mandatory	String representation of schema version
	•	•	e request	parameter m	ust be string in this
☑ XML ☑ File ☑ Other (plea					
			N4	0 1 "	N. (
Field Name				Opportunity	Notes
Data	JSON	-	-	Mandatory	Array containing JSON
Data JSON   -   Mandatory   Array containing JSON objects  {     "schemaVersion": "3.2.3",     "template": {         "type": "object",         "\$defs": {					
	Get available This GET me Service.  JSON XML File Other (plea Header Para Field Name  X- Correlation-ID  Request Para Field Name  version  When invoking format: {Major JSON XML File Other (plea Response Para Field Name  Data  {  "schemave "template":  "type": "  "\$defs": om to GitHub File Index.docx)	Value  /v1/schemas/{version} Get available schema This GET method allo Service.  ☑ JSON ☑ XML ☑ File ☑ Other (please specent of the specent	Value	Value  /v1/schemas/{version}  Get available schema by version  This GET method allows Data Consumer Service.  ☑ JSON ② XML ② File ② Other (please specify)  Header Parameters  Field Name Data Min Max Length  X- Correlation-ID  Request Parameters  Field Name Data Min Max Length  Version String 36 36  When invoking this endpoint, the request format: {Major}.{Minor}.{Patch}.  ☑ JSON ② XML ② File ② Other (please specify)  Response Parameters  Field Name Data Min Max Length  ☑ JSON ② XML ② File ② Other (please specify)  Response Parameters  Field Name Data Min Max Length  ☐ JSON ② XML ③ File ③ Other (please specify)  Response Parameters  Field Name Data Min Max Length  ☐ JSON  {   "schemaVersion": "3.2.3",  "template": {  "type": "object",  "\$defs": { omitted for brevity (For an exarto GitHub File Index document at: Beta-Olindex.docx)	Value  /v1/schemas/{version}  Get available schema by version  This GET method allows Data Consumers to retrieve s Service.  ☑ JSON ☑ XML ☑ File ☑ Other (please specify)  Header Parameters  Field Name Data Min Length  X- Correlation-ID  Request Parameters  Field Name Data Min Max Opportunity  Length Length  Version string 5 5 Mandatory  When invoking this endpoint, the request parameter methormat: {Major}.{Minor}.{Patch}. ☑ JSON ☑ XML ☑ File ☑ Other (please specify)  Response Parameters  Field Name Data Min Length ☑ JSON ☑ XML ☑ File ☑ Other (please specify)  Response Parameters  Field Name Data Min Length □ JSON Mandatory   {  "schemaVersion": "3.2.3",  "template": {  "type": "object",  "\$defs": { omitted for brevity (For an example of Schem to GitHub File Index document at: Beta-01-DfT-D-TRO Index.docx)

Reference	S3					
Item	Value					
GET	/v1/schemas/{	version}				
Name	,	schema by version				
Description		This GET method 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	Get available schema by unique identifier.						
Description	This GET meth Service.	This GET method allows Data Consumers to retrieve schema 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 Parar	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	JSON	-	-	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: <a href="Beta-01-DfT-D-TRO-001-GitHub File">Beta-01-DfT-D-TRO-001-GitHub File</a> d for brevity (For an example of Schema response, please refer dex document at: <a href="Beta-01-DfT-D-TRO-001-GitHub File">Beta-01-DfT-D-TRO-001-GitHub File</a> "https://json-schema.org/draft/2020-12/schema",  "": "DTRO v3.2.3 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				