GATEWAY TO RESEARCH (GTR) API'S

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EXECUTIVE SUMMARY

This document contains a technical summary of the APIs available in the GTR Beta release of March 2013. More API's will be added and the functioning of existing API's will change over time and readers are asked to check the GtR web portal to ensure they are working from the most current version.

At the time of writing, the GtR project provided two APIs.GtRAPI and CERIF. Both produce outputs in XML and JSON formats. The GtRAPI is the same API that is used by the web portal and there is a direct correlation between the visible information on the web portal screens and the output from the API. The CERIF API produces XML output using the CERIF schema, provides access to all[1] the data currently held in the GtR Database and is stored in a highly structured format.   Although JSON output for the CERIF API is available we would advise people to only use the XML interface.

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[1] Currently, as at March 2013, Journal titles are not available in the CERIF API due to data quality issues.

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API COMMON FEATURES

In this section we detail some of the common elements between the APIS, such as available parameters that can be used against some resources and how pagination within result sets.

GUIDANCE AND ETIQUETTE

The GtR is built on the premise that the data will be made freely available and as such is not keen to introduce API throttling. The GtR is therefore running on the same basis with which websites allow external search engines to crawl their sites.   We expect those building applications to extract data to follow the basic rules that apply to search engines, especially those commonly described as a "politeness policy" (see http://en.wikipedia.org/wiki/Web_crawler).

REQUEST PARAMETERS SUMMARY

Both APIs utilise some or all of the request parameters below as part of the URL.

The following request summary provides details and examples:

Request Parameter & Defaults	Description	Example
term *No default – mandatory parameter.*	Only used with the Search Resource. The term or phrase to be searched for. Search terms must be URL encoded (UTF-8). For more about search terms and the search engine vocabulary see About Searching.	To search for the phrase: "Oxford University" encoded term=%22Oxford%20University%22
fetchSize *Default: 25 – not mandatory.*	Only used on paged requests. Can have a value from 25 to 100. See How PaginatIon Works.	fetchSize=50
page *Default: 1 – not mandatory.*	Only used on paged requests. Which page of the current paged result set to fetch. See How PaginatIon Works.	page=2
selectedSortOrder *Default: DESC – not mandatory.* *GTRAPI Only*	Can have the value ASC or DESC. See How PaginatIon Works.	selectedSortOrder=ASC

Request Parameter & Defaults	Description	Example
SelectedSortField *No default – not mandatory.* *GTRAPI Only*	Value depends on the Resource utilised. Initial request to the Resource will include a listing of sortable fields in the response. See How Pagination Works.	selectedSortField=<x> Where <x> is a field provided in the gtr:sortableFields list from the initial response.
selectedFacets *No default – not mandatory.* *GTRAPI Only*	Only used with the Search Resource. Comma separated list of facet Ids that are to be applied to the Search.	selectedFacets=123,456

HOW PAGINATION WORKS

Paginated resources will be limited to 25 items by default. You can specify further pages with the page parameter. You can also set a custom page size up to 100 with the fetchSize parameter. For example:

http://gtr.rcuk.ac.uk/search/person?term=paul&page=1&fetchSize=25

The pagination details are contained within three HTTP response headers:

1. **Link Header**. (As defined by RFC 5988: http://tools.ietf.org/html/rfc5988).

   For the search above the link header value is shown below:

   ```
   <http://gtr.rcuk.ac.uk:80/search/person?term=paul&page=1&fetchSize=25&selectedSor
   tableField=Relevance&selectedSortOrder=DESC&selectedFacets=>; rel=first,
   <http://gtr.rcuk.ac.uk:80/search/person?term=paul&page=30&fetchSize=25&selectedSo
   rtableField=Relevance&selectedSortOrder=DESC&selectedFacets=>; rel=last,
   <http://gtr.rcuk.ac.uk:80/search/person?term=paul&page=2&fetchSize=25&selectedSor
   tableField=Relevance&selectedSortOrder=DESC&selectedFacets=>; rel=next
   ```

   The possible rel values are:
   a. **next**: Shows the URL of the next page of results.
   b. **last**: Shows the URL of the last page of results.
   c. **first**: Shows the URL of the first page of results.
   d. **prev**: Shows the URL of the previous page of results.

   If no 'next' or 'previous' relationship exists, then these will be omitted from the Link header. The 'first' and 'last' relationships will always be present for paged requests that return an HTTP 200.

2. **Link-Pages**. An integer defining the total number of pages: Link-Pages. At the time of writing the above search returns the integer: 30

3. **Link-Records**. An integer defining the total number of records: Link-Records : At the time of writing the above search returns the integer: 734

GTRAPI

GTRAPI OVERVIEW

Refer to the GtRAPI XML Schema for details on Response Entities detailed below.

The GtRAPI exposes the following Resources:

GtR Resource	Description	Details
search	Search projects, publications, people or organisations with a specific search term.	GtR Search Resource
organisation	Retrieve all organisations or a specific organisation by its identifier.	Organisation Resource
person	Retrieve all people or a specific person by their identifier.	Person Resource
project	Retrieve all projects or a specific project by its identifier.	Project Resource
publication	Retrieve all publications or a specific publication by its identifier.	Publication Resource

GTR SEARCH RESOURCE

The Search Resource can search through the four GTR Resource Entities. These are Project, Person, Publication and Organisation.

The base URL for the search interfaces follows the following standard:

> http://host:port/search/{resource entity}

where the resource entity is one of the following:

> project
> person
> publication
> organisation

**PLEASE NOTE:** the service is case sensitive so all resources must be in lowercase.

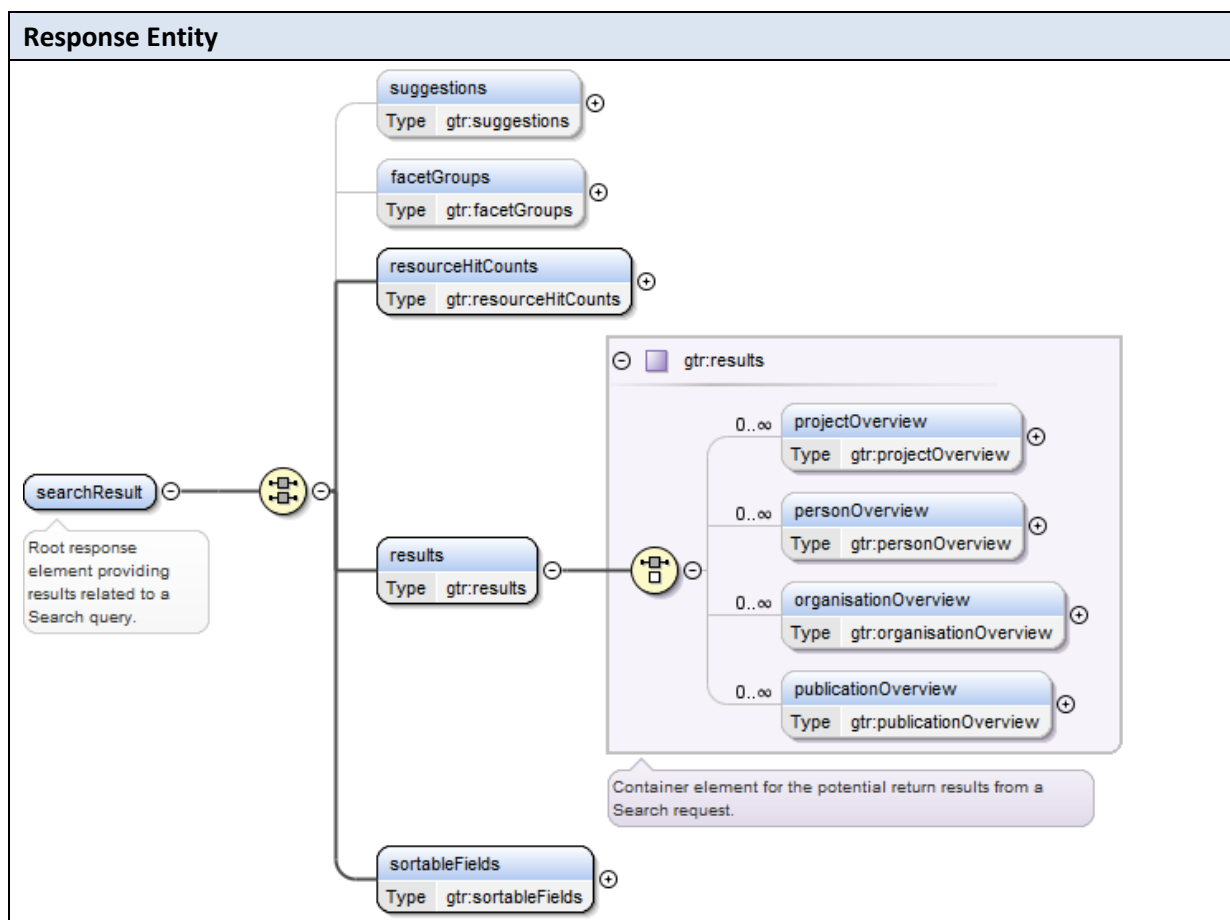| Search Projects	
Description	Search all projects for a specific term
Paged?	YES
URL can be viewed in Web Portal?	YES
Base URL	http://host:port/search/project
HTTP Method	GET
Request Parameters	term [mandatory] fetchSize page selectedSortOrder selectedSortField selectedFacets See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/search/project?term=mouse&page=2&fetchSize=25&selectedSortField=Relevance&selectedSortOrder=DESC&selectedFacets=197913564
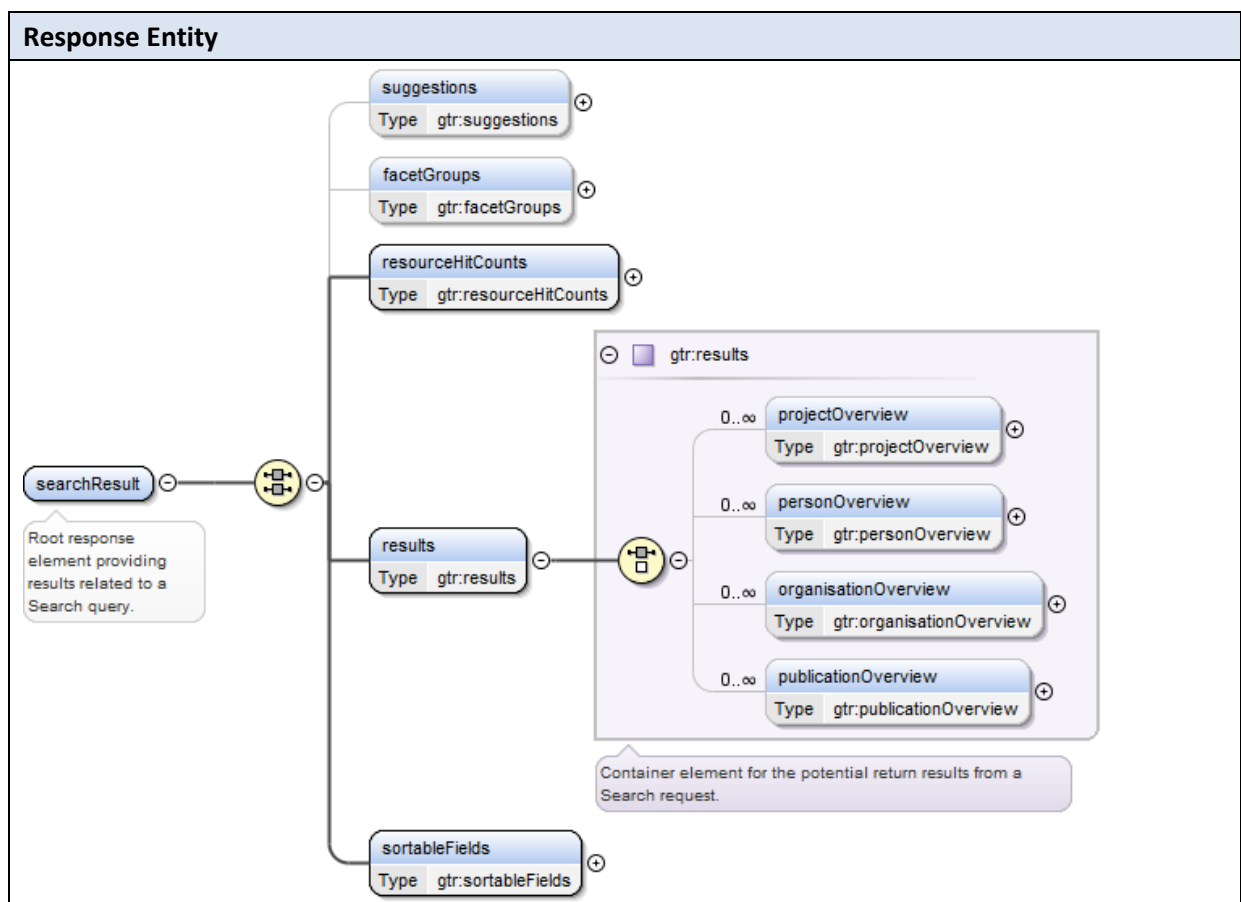
Response Entity

Important: The gtr:project response elements contained within gtr:publicationOverview will only have the following elements/attributes populated:

- url
- gtr:id
- gtr:title
- gtr:fund

Search Person	
Description	Search all people for a specific term
Paged?	YES
URL can be viewed in Web Portal?	YES
Base URL	http://host:port/search/person
HTTP Method	GET
Request Parameters	term [mandatory] fetchSize page selectedSortOrder selectedSortField selectedFacets See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/search/person?term=mouse&selectedFacets=291811661&page=1&fetchSize=25&selectedSortableField=cfpersname.sortFamilyNames&selectedSortOrder=DESC

Response Entity
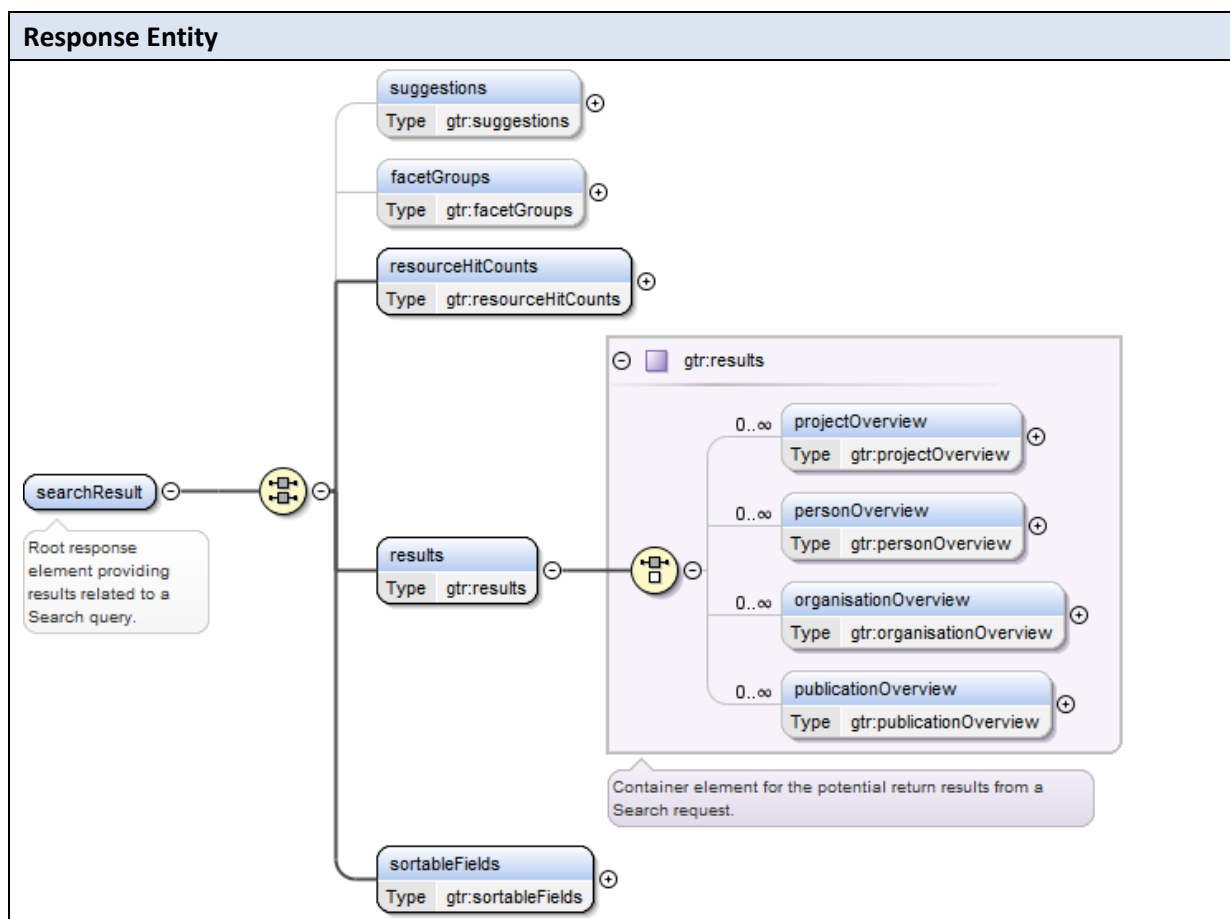
Search Publications	
Description	Search all publications for a specific term
Paged?	YES
URL can be viewed in Web Portal?	YES
Base URL	http://host:port/search/publication
HTTP Method	GET
Request Parameters	term [mandatory] fetchSize page See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/search/publication?term=mouse&page=2&fetchSize=25

Response Entity

| Search Organisation	
Description	Search all organisations for a specific term
Paged?	YES
URL can be viewed in Web Portal?	YES
Base URL	http://host:port/search/organisation
HTTP Method	GET
Request Parameters	term fetchSize page See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/search/organisation?term=london&page=2&fetchSize=25

Response Entity
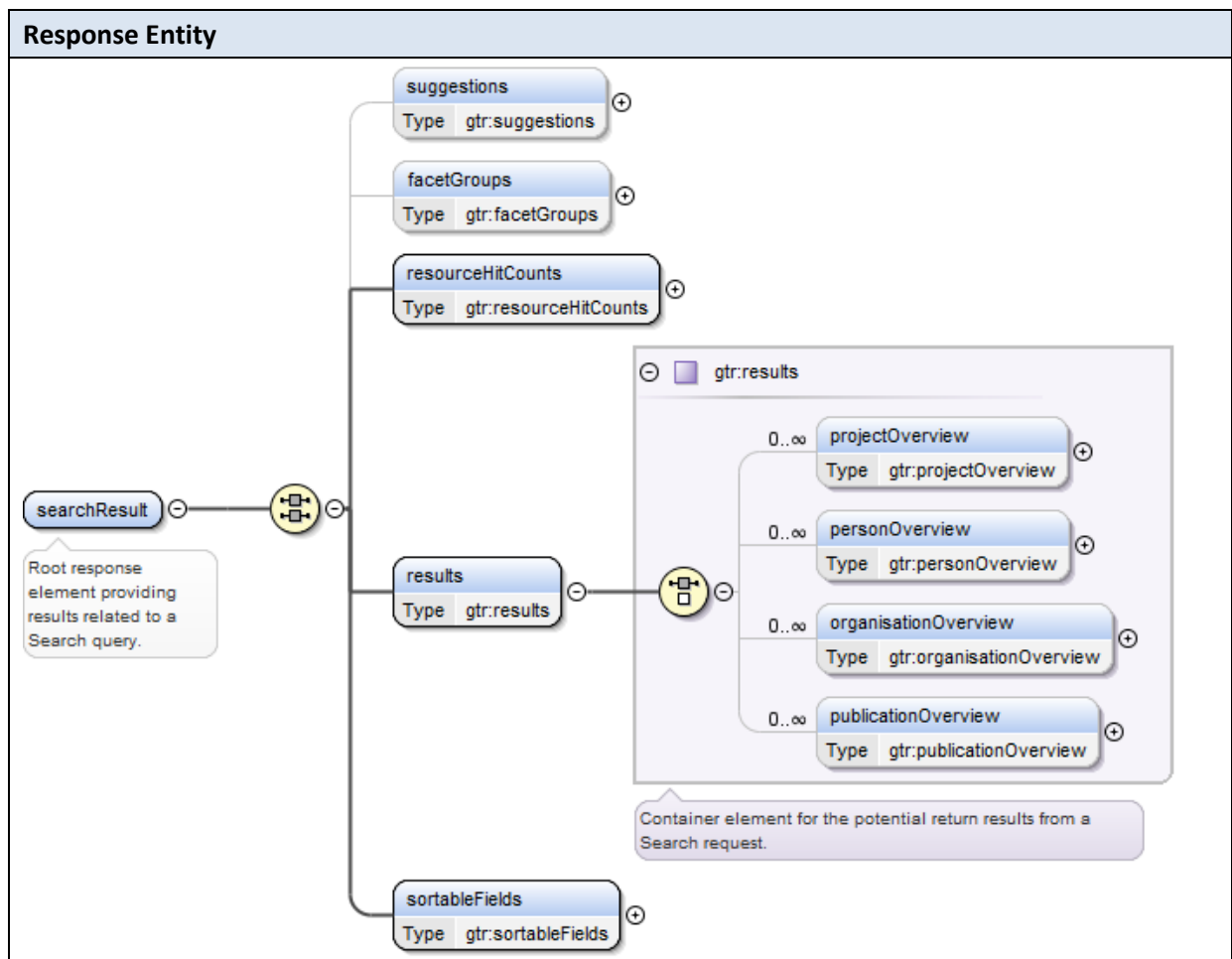
PROJECT RESOURCE

The Project Resource allows you to fetch a specific project by id, or a paged listing of all projects.

| Project By ID	
Description	Retrieve a project by its ID
Paged?	NO
URL can be viewed in Web Portal?	YES
Base URL	http://host:port/project/<id>
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/project/2306FD29-B224-4863-8235-425BBAE2739F

Response Entity
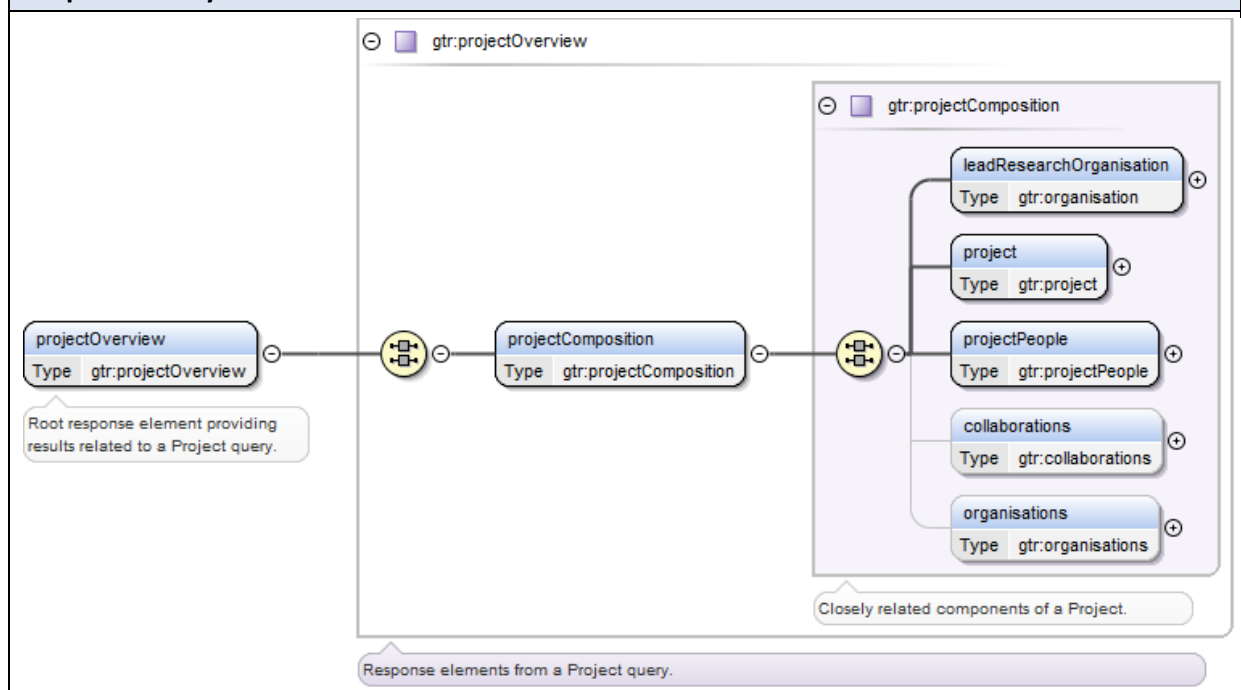
Project Listing	
Description	Retrieve all projects
Paged?	YES
URL can be viewed in Web Portal?	NO
Base URL	http://host:port/project
HTTP Method	GET
Request Parameters	fetchSize page See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/project?page=2&fetchSize=25

Response Entity
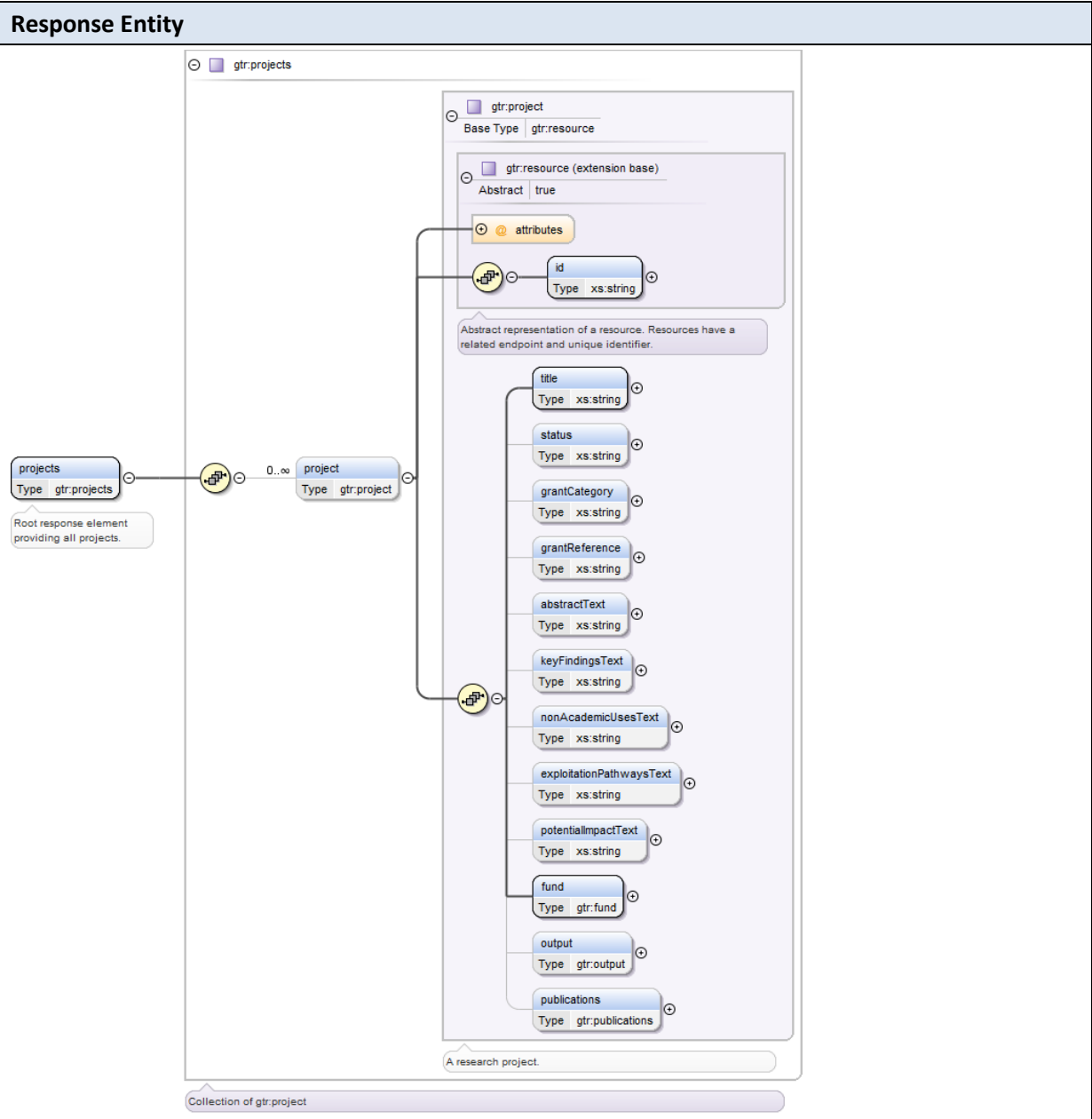
PERSON RESOURCE

The Person Resource allows you to fetch a specific person by id, or a paged listing of all people.

| Person By ID	
Description	Retrieve a person by their ID
Paged?	NO
URL can be viewed in Web Portal?	YES
Base URL	http://host:port/person/<id>
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/person/C6B1D294-A103-4819-BD4F-2985BCE1D895
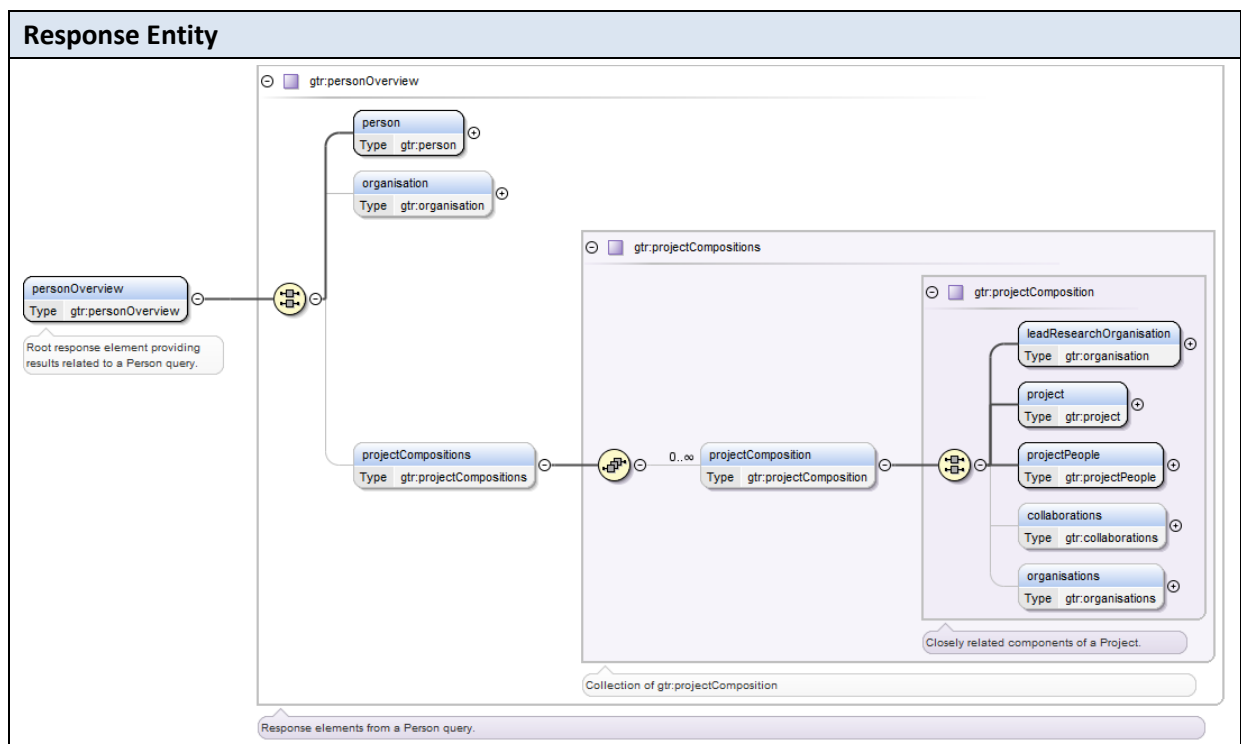
Response Entity

Important: The `gtr:project` response elements contained within `gtr:publicationOverview` will only have the following elements/attributes populated:
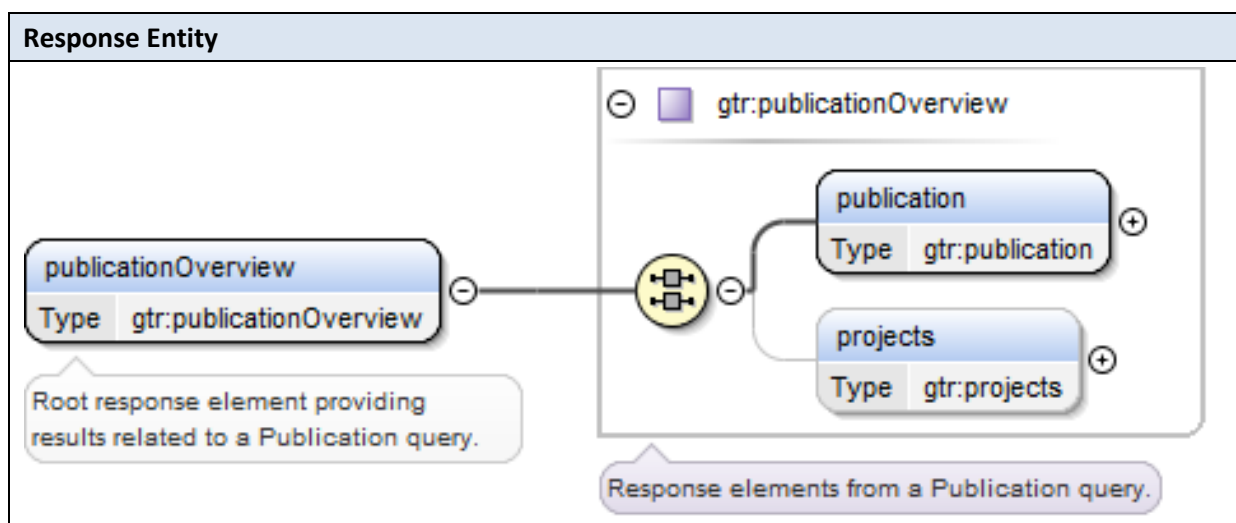
- url
- gtr:id
- gtr:title
- gtr:fund

Person Listing	
Description	Retrieve all people
Paged?	YES
URL can be viewed in Web Portal?	NO
Base URL	http://host:port/person
HTTP Method	GET
Request Parameters	fetchSize page See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/person?page=2&fetchSize=25

Response Entity
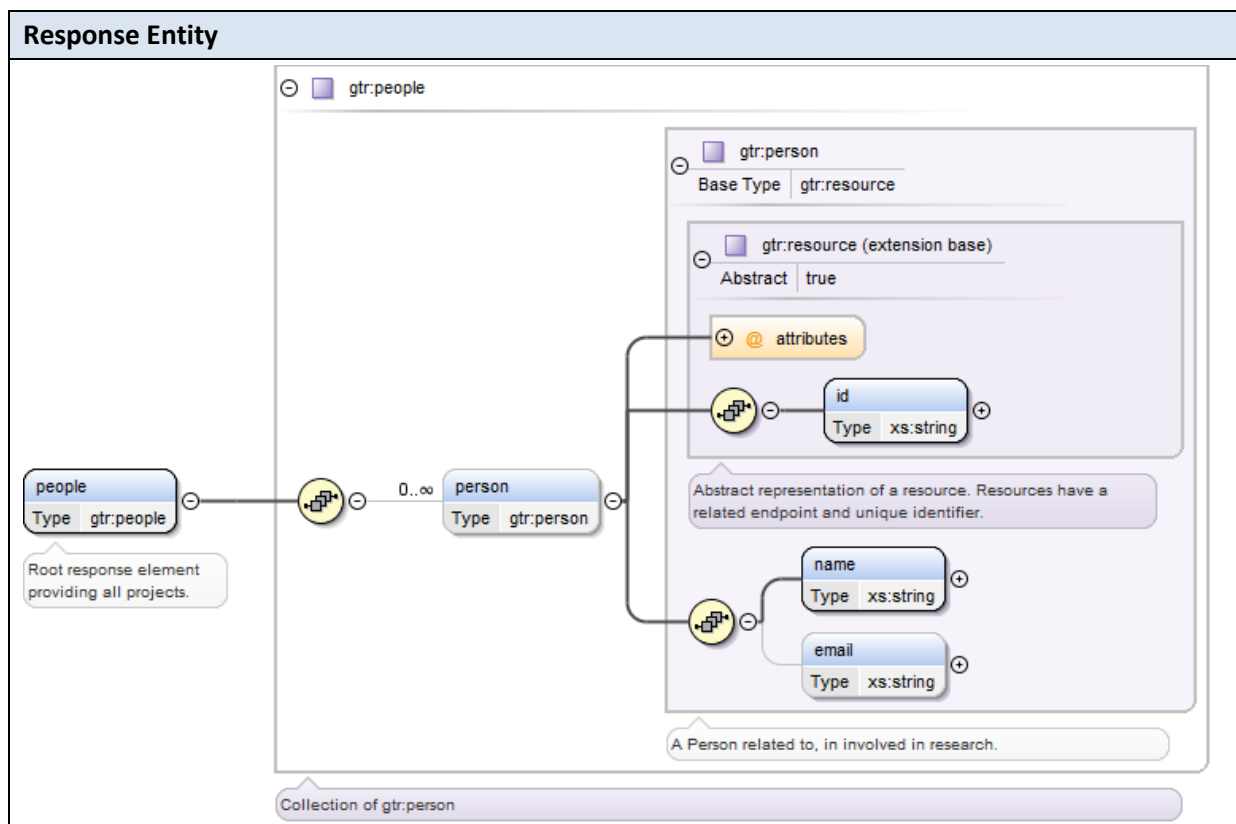
PUBLICATION RESOURCE

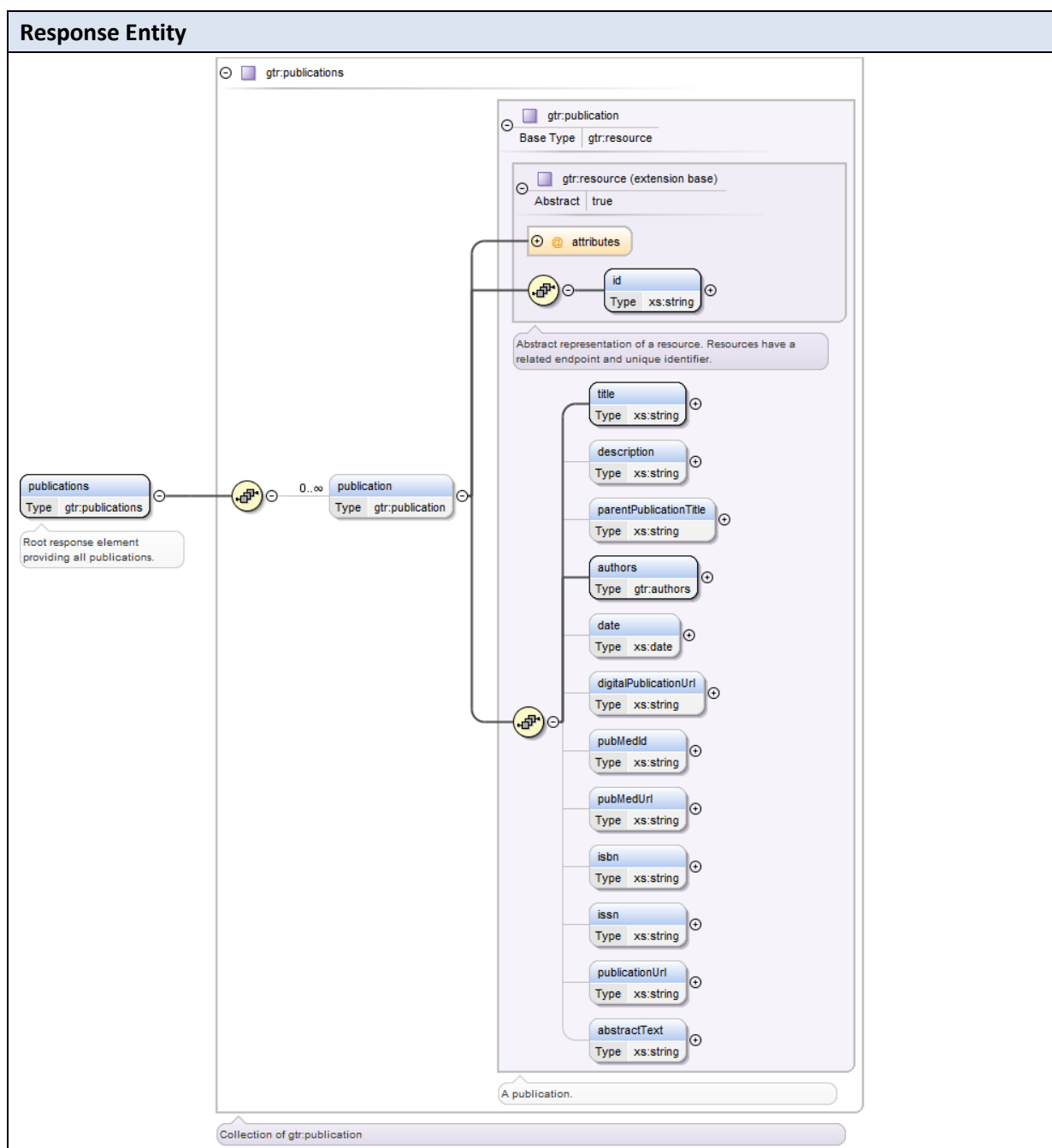The Publication Resource allows you to fetch a specific publication by id, or a paged listing of all publications.

Publication By ID	
Description	Retrieve a publication by its ID
Paged?	NO
URL can be viewed in Web Portal?	YES
Base URL	http://host:port/publication/<id>
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/publication/21B244B7-6C82-4F92-9DFC-577C1E7831A8

Response Entity

Important: The `gtr:project` response elements contained within `gtr:publicationOverview` will only have the following elements/attributes populated:

- url
- gtr:id
- gtr:title
- gtr:fund

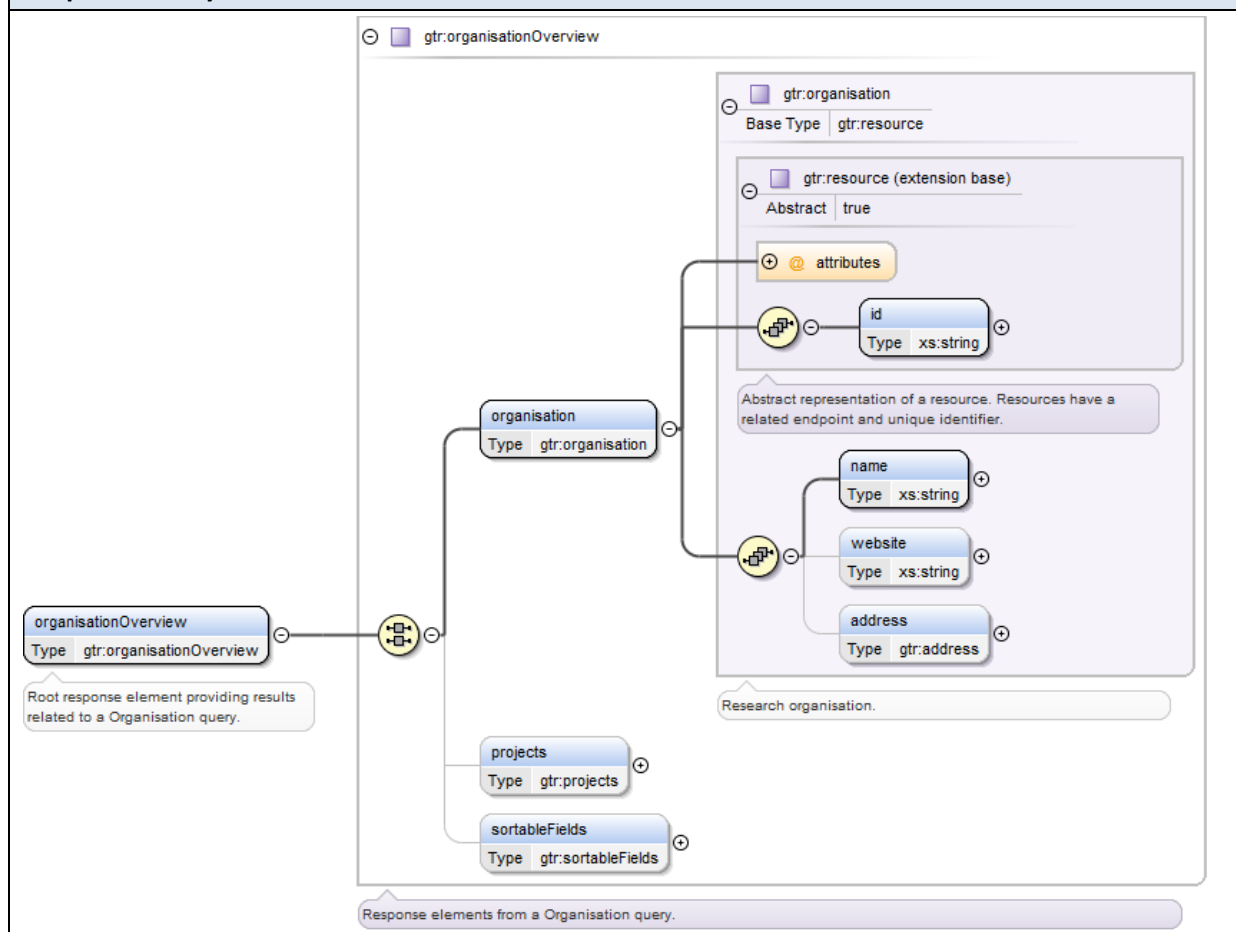| Publication Listing	
Description	Retrieve all publications
Paged?	YES
URL can be viewed in Web Portal?	NO
Base URL	http://host:port/publication
HTTP Method	GET
Request Parameters	fetchSize page See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/publication?page=2&fetchSize=25

Response Entity

ORGANISATION RESOURCE

The Organisation Resource allows you to fetch a specific organisation by id, or a paged listing of all organisations.

| Organisation By ID	
Description	Retrieve a organisation by its ID
Paged?	NO
URL can be viewed in Web Portal?	YES
Base URL	http://host:port/organisation/<id>
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/organisation/60B2CFB3-C524-4206-84CC-3DB33E270D29

Response Entity

Important: The gtr:project response elements contained within gtr:publicationOverview will only have the following elements/attributes populated:

- url
- gtr:id
- gtr:title
- gtr:fund

Organisation Listing	
Description	Retrieve all organisations
Paged?	YES
URL can be viewed in Web Portal?	NO
Base URL	http://host:port/publication
HTTP Method	GET
Request Parameters	fetchSize page See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/organisation?page=2&fetchSize=25

Response Entity
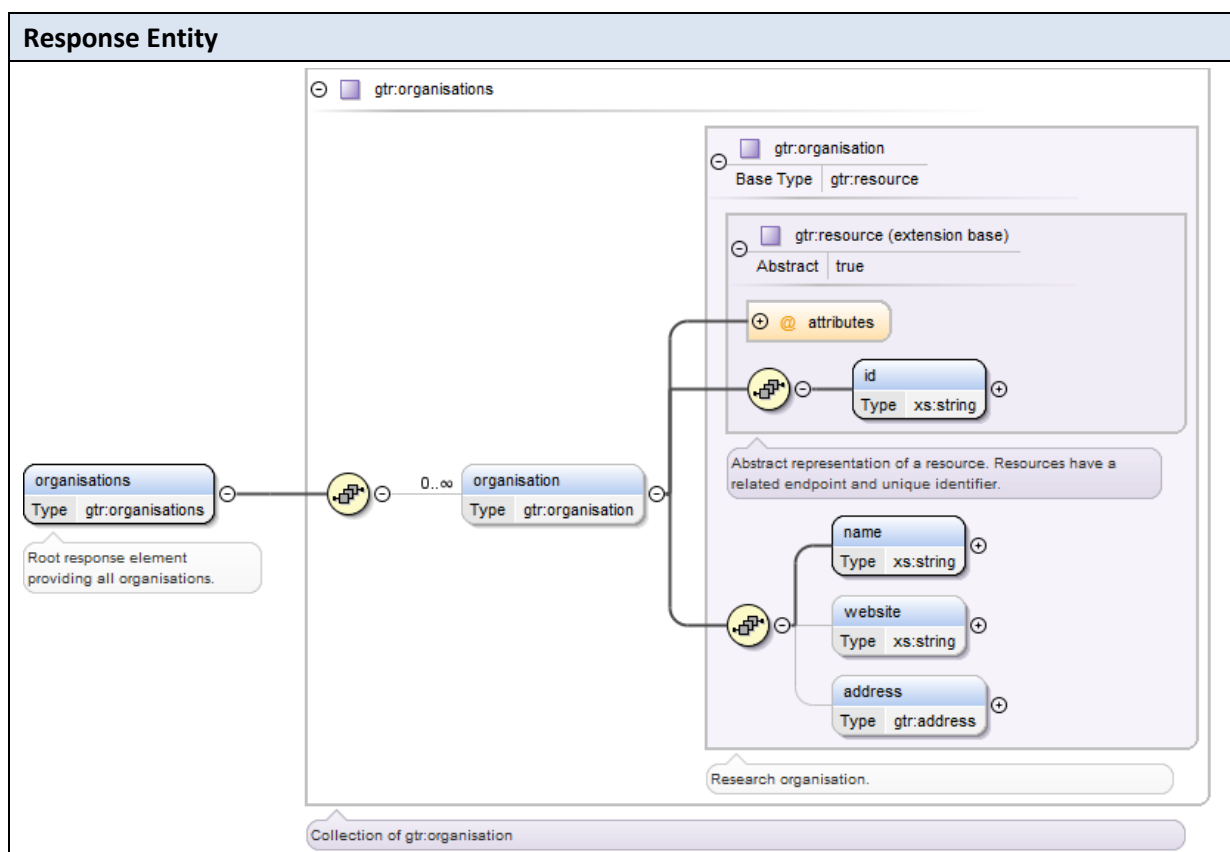
CERIF API

CERIF API OVERVIEW

Refer to the CERIF XML Schema for details on Response Entities details below.

The CERIF API exposes the following Resources:

CERIF Resource	Description	Request Details
search	Search the CfProj, CfResPubl, CfPers or CfOrgUnit entities with a specific search term.	Cerif Search Resource
cfclass	Retrieve all classifications or a specific classification by its identifier.	CfClass Resource
cfclassscheme	Retrieve all classification schemes or a specific classification scheme by its identifier.	CfClassScheme Resource
cffund	Retrieve a specific CfFund entity by its identifier.	CfFund Resource
cfmeas	Retrieve a specific CfMeas entity by its identifier.	CfMeas Resource
cforgunit	Retrieve all CfOrgUnit entities or a specific CfOrgUnit entity by its identifier.	CfOrgUnit Resource
cfpaddr	Retrieve a specific CfPAddr entity by its identifier.	CfPAddr Resource
cfpers	Retrieve all CfPers entities or a specific CfPers entity by its identifie.	CfPers Resource
cfproj	Retrieve all CfProj entities or a specific CfProj entity by its identifier.	CfProj Resource
cfrespat	Retrieve a specific CfResPat entity by its identifier.	CfResPat Resource
cfresprod	Retrieve a specific CfResProd entity by its identifier.	CfResProd Resource
cfrespubl	Retrieve all CfResPubl entities or a specific CfResPubl entity by its identifier.	CfResPubl Resource

CERIF SEARCH RESOURCE

The CERIF Search Resource can search through 4 CERIF Resource Entities: CfProj, CfPers, CfResPubl and CfOrgUnit.

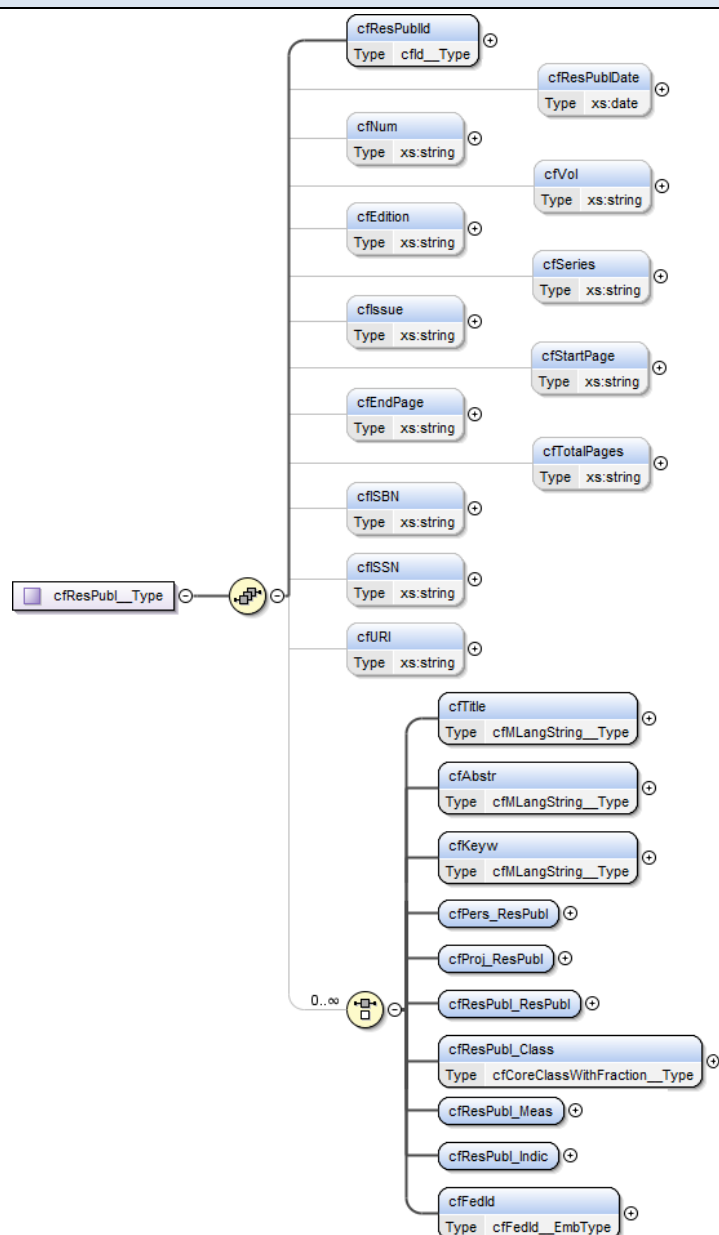| Search CfProj	
Description	Search all projects for a specific term
Paged?	YES
Base URL	http://host:port/cerif/search/cfproj
HTTP Method	GET
Request Parameters	term [mandatory] fetchSize page selectedSortOrder selectedSortField See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/cerif/search/cfproj?term=mouse&page=2&fetchSize=25&selectedSortField=Relevance&selectedSortOrder=DESC

Response Entity
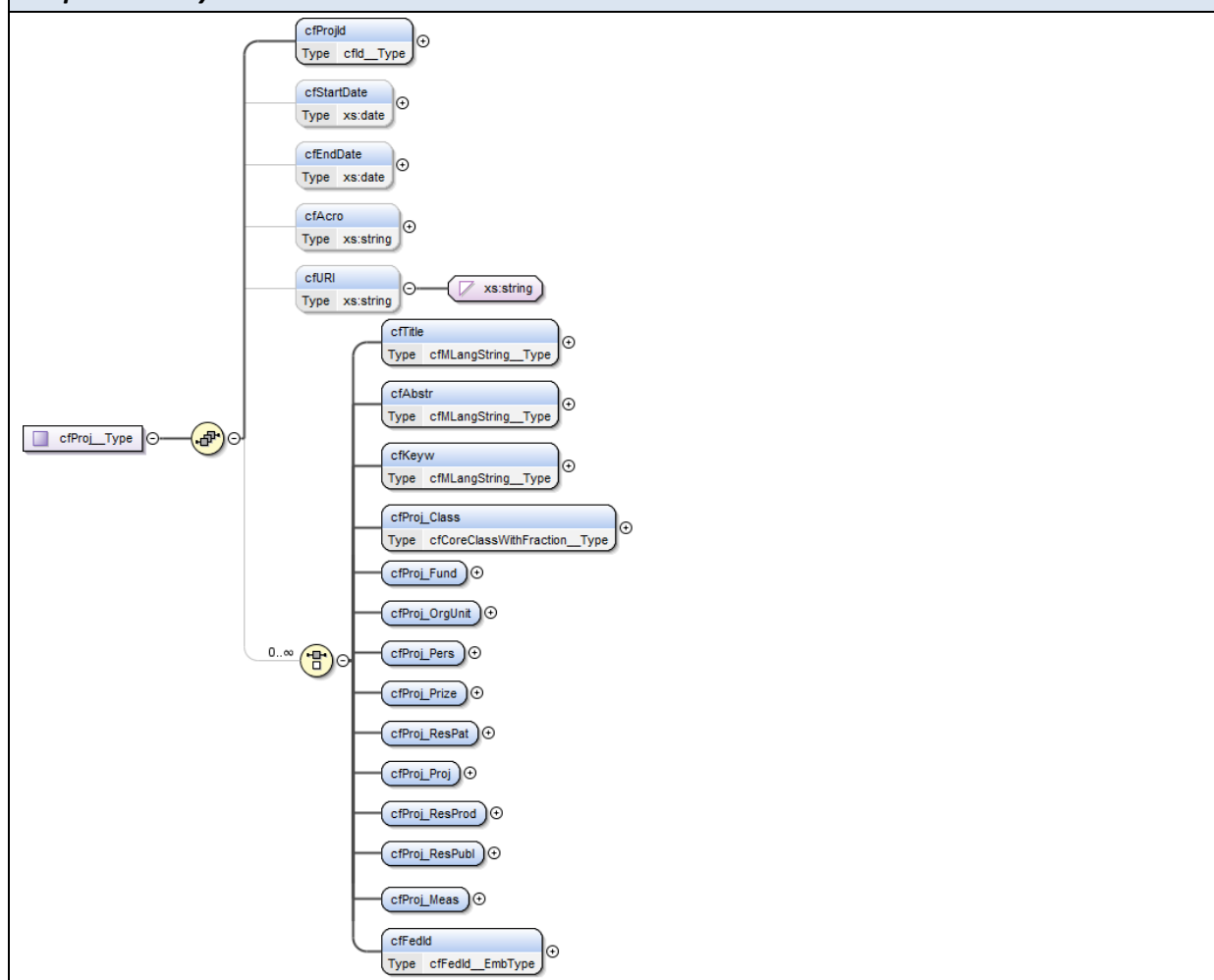
Search CfPers	
Description	Search all people for a specific term
Paged?	YES
Base URL	http://host:port/cerif/search/cfpers
HTTP Method	GET
Request Parameters	term fetchSize page See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/cerif/search/cfpers?term=mouse&page=2&fetchSize=25

Response Entity
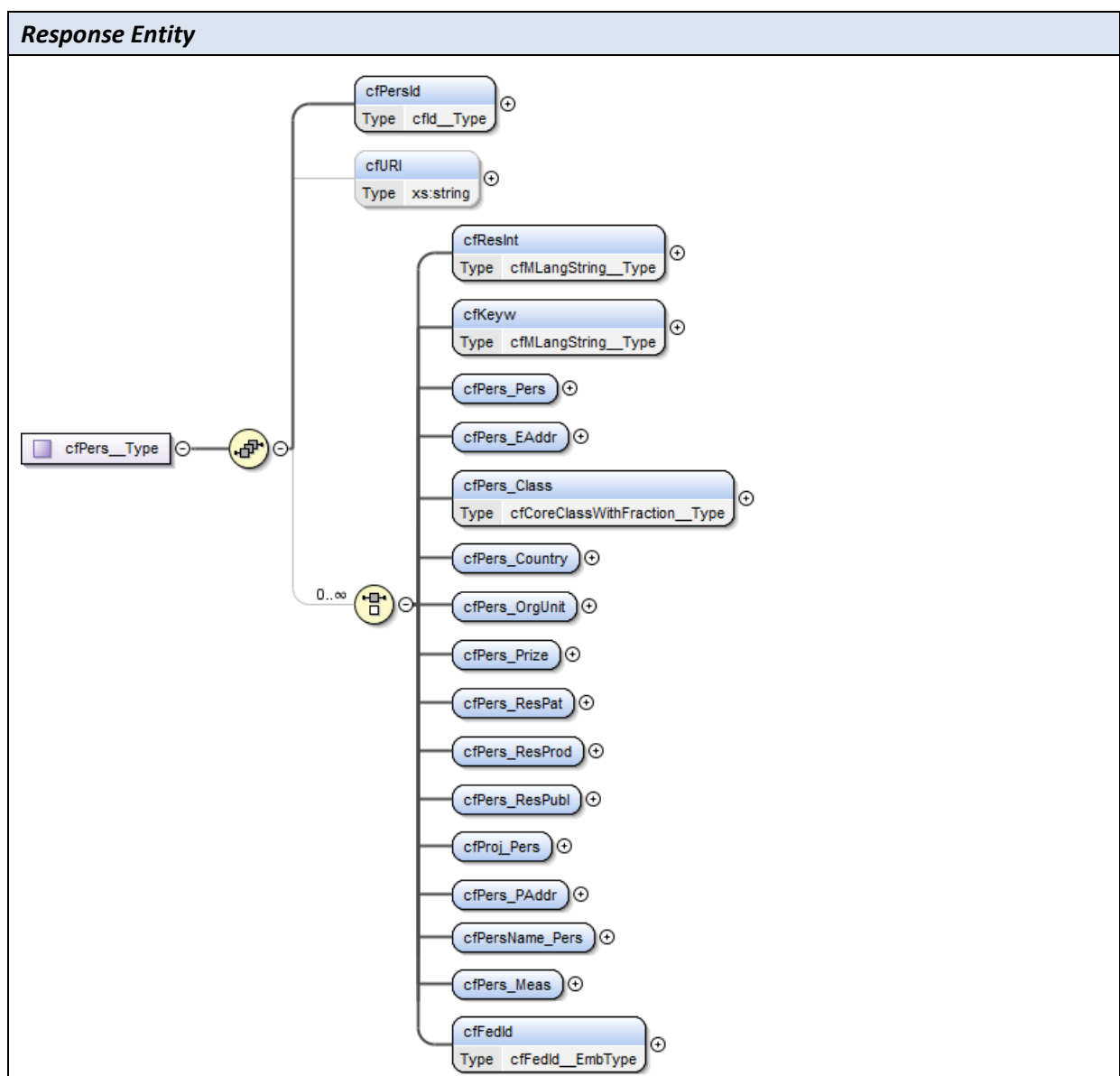
| Search CfResPubl	
Description	Search all publications for a specific term
Paged?	YES
Base URL	http://host:port/cerif/search/cfrespubl
HTTP Method	GET
Request Parameters	term fetchSize page See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/cerif/search/cfrespubl?term=mouse&page=2&fetchSize=25

Response Entity

| Search CfOrgUnit	
Description	Search all organisations for a specific term
Paged?	YES
Base URL	http://host:port/cerif/search/cforgunit
HTTP Method	GET
Request Parameters	term fetchSize page See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/cerif/search/cforgunit?term=mouse&page=2&fetchSize=25

Response Entity
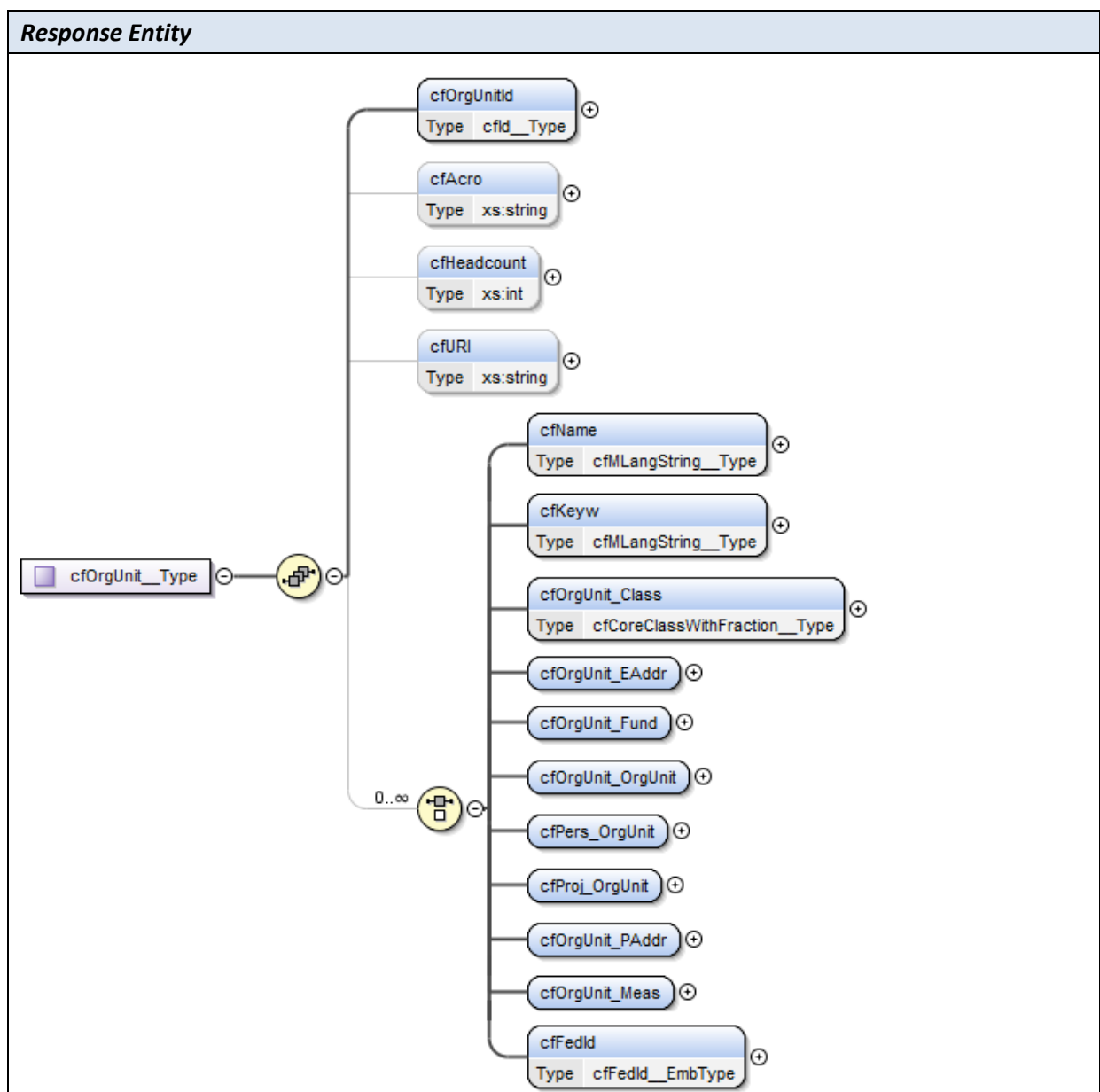
The CfProj Resource allows you to fetch a specific CfProj by id, or a paged listing of all CfProj.

CfProj By ID	
Description	Retrieve a project by its ID
Paged?	NO
Base URL	http://host:port/cerif/cfproj/<id>
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/cerif/cfproj/2306FD29-B224-4863-8235-425BBAE2739F

Response Entity
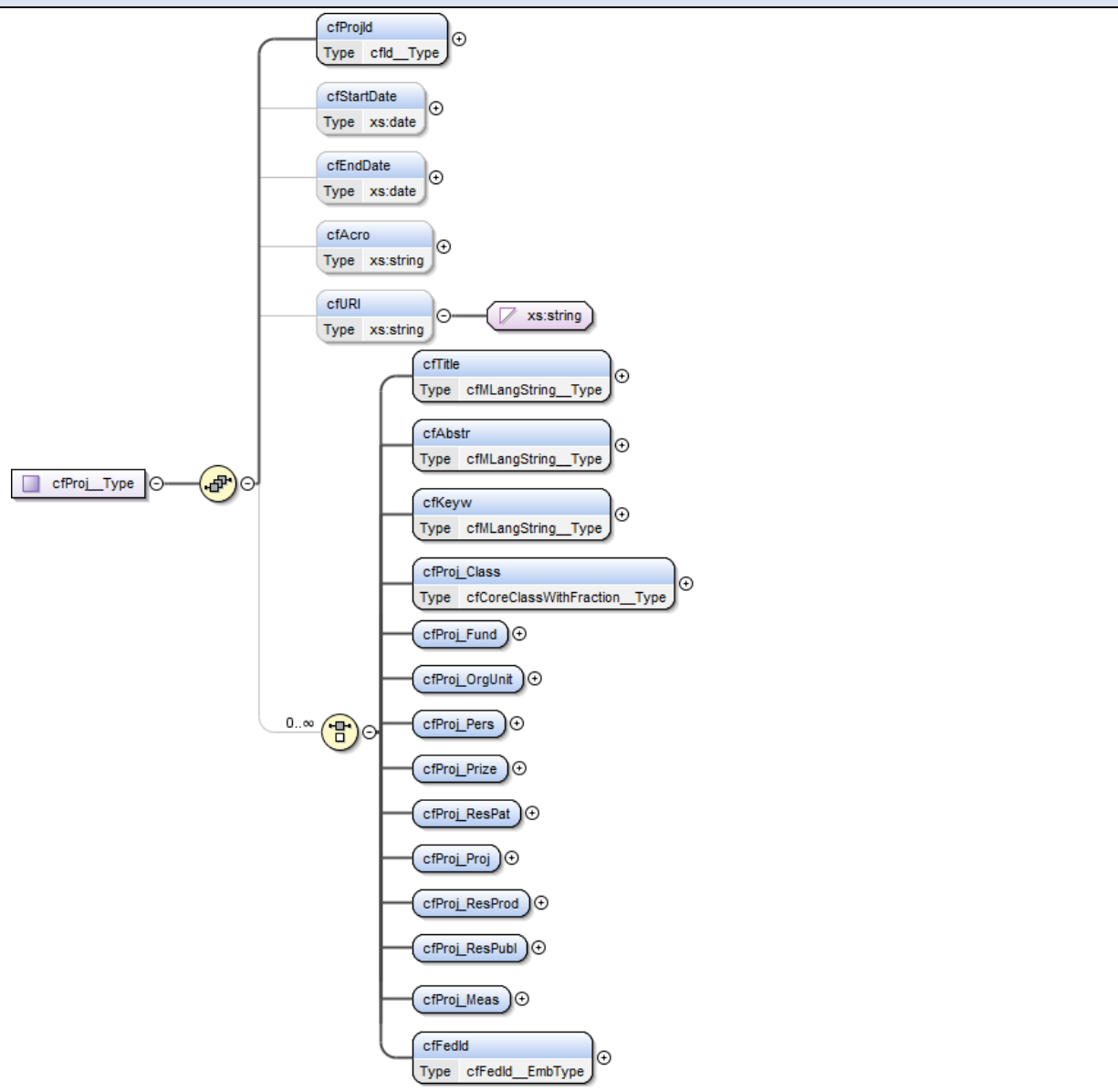
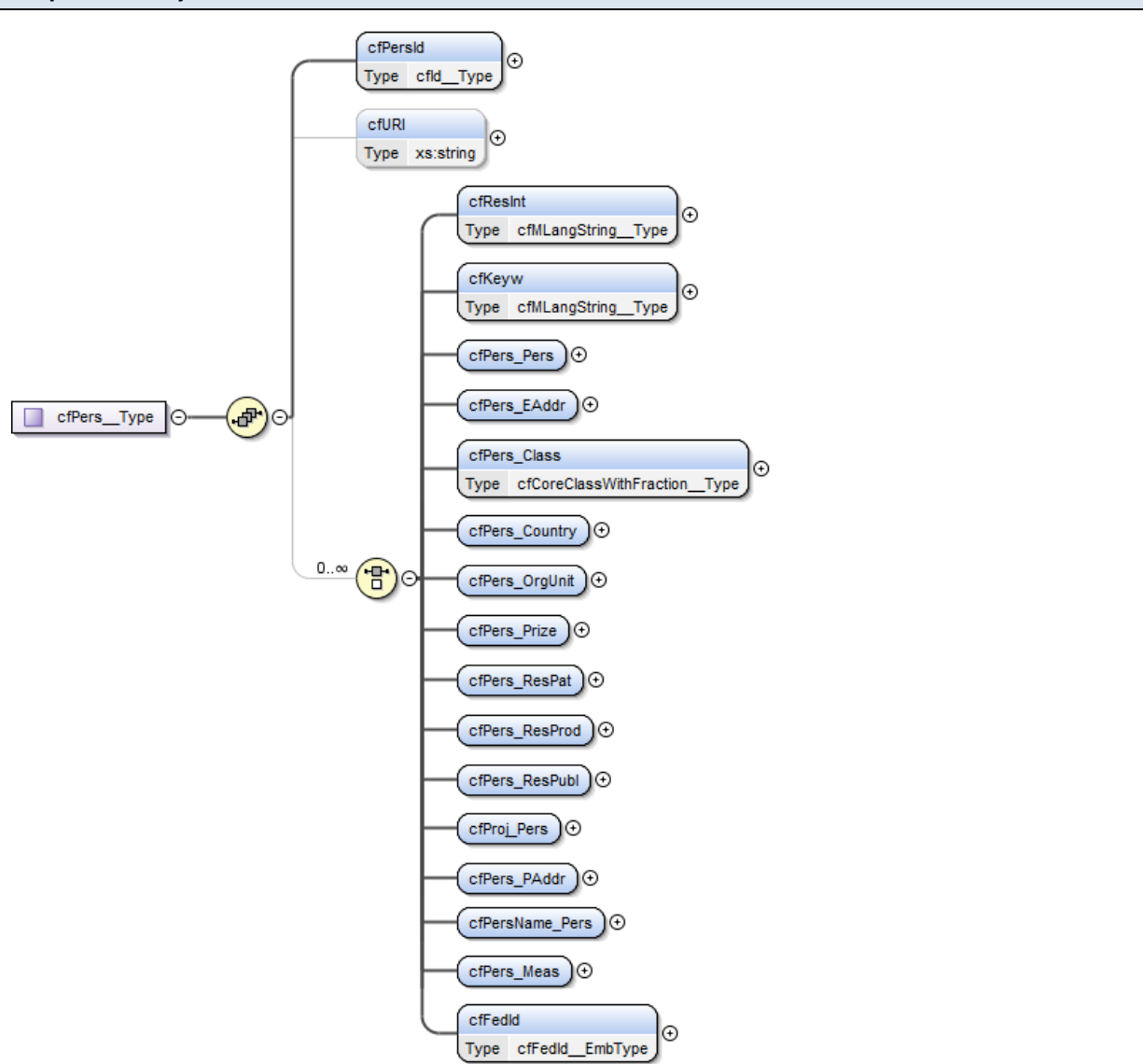| CfProj Listing	
Description	Retrieve all projects
Paged?	YES
Base URL	http://host:port/cerif/cfproj
HTTP Method	GET
Request Parameters	fetchSize page See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/cerif/cfproj?page=2&fetchSize=25

Response Entity
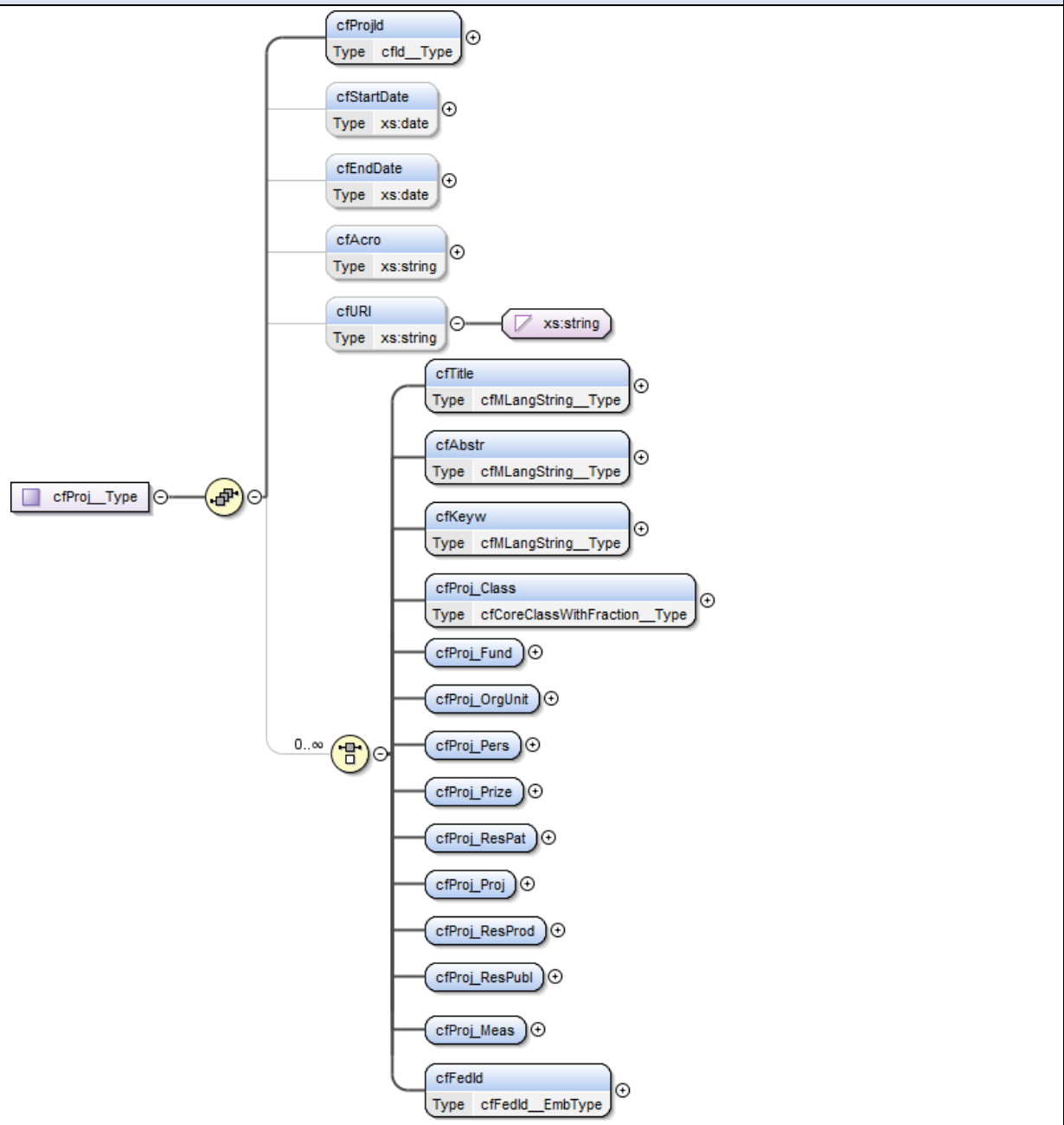
CFPERS RESOURCE

The CfPers Resource allows you to fetch a specific CfPers by id, or a paged listing of all CfPers.

CfPers By ID	
Description	Retrieve a person by their ID
Paged?	NO
Base URL	http://host:port/cerif/cfpers/<id>
HTTP Method	GET
Sub Entities	cerif:cfPers_OrgUnit cerif:cfProj_Pers cerif:cfPersName_Pers
Example	http://gtr.rcuk.ac.uk/cerif/cfpers/4F786DD5-36BE-40D5-9152-B090E3D12F90

Response Entity

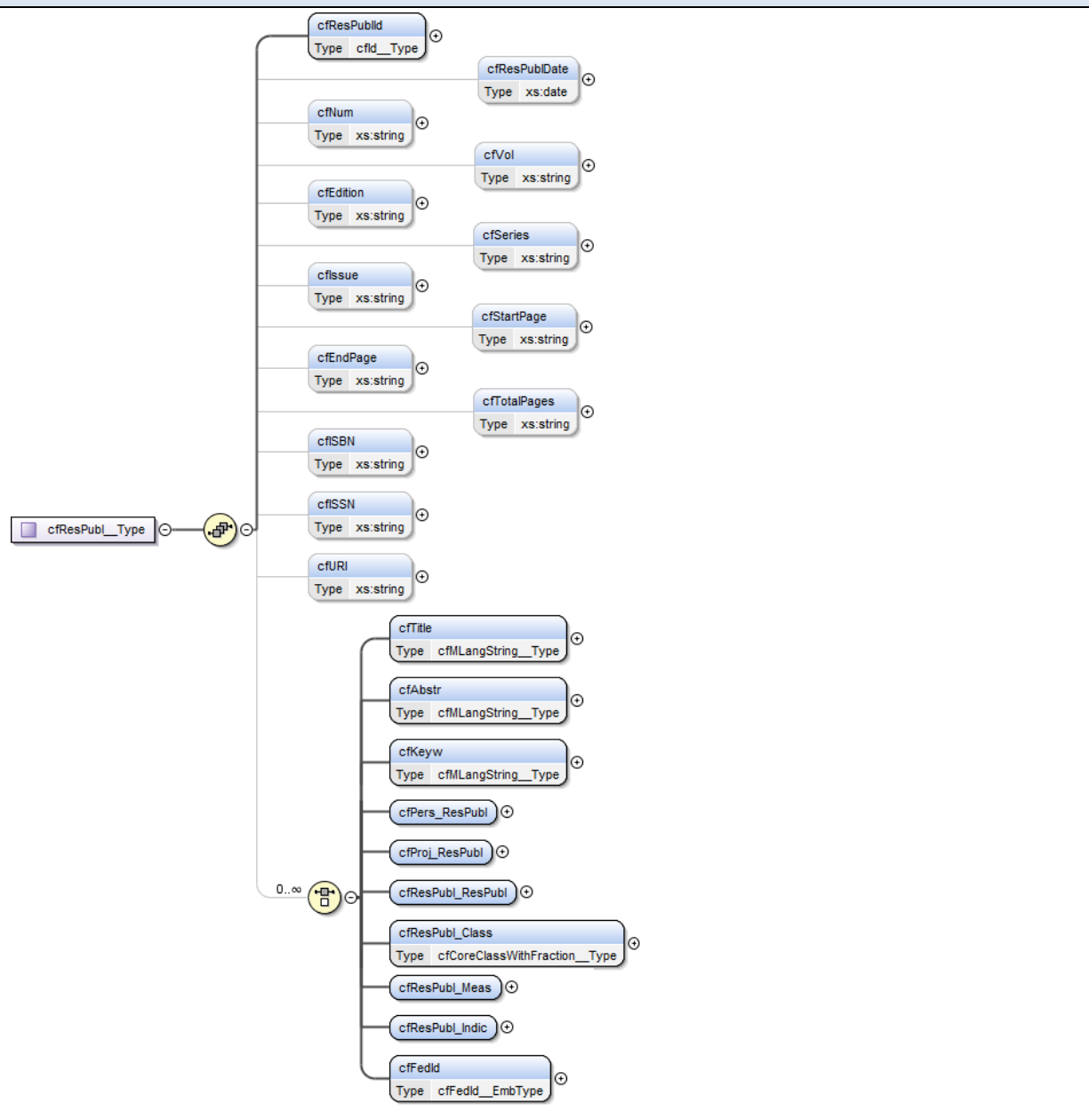| CfPers Listing	
Description	Retrieve all people
Paged?	YES
Base URL	http://host:port/cerif/cfpers
HTTP Method	GET
Request Parameters	fetchSize page selectedSortOrder selectedSortField See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/cerif/search/cfpers?term=mouse&selectedFacets=&fetchSize=25&page=1&selectedSortableField=Relevance&selectedSortOrder=DESC

Response Entity
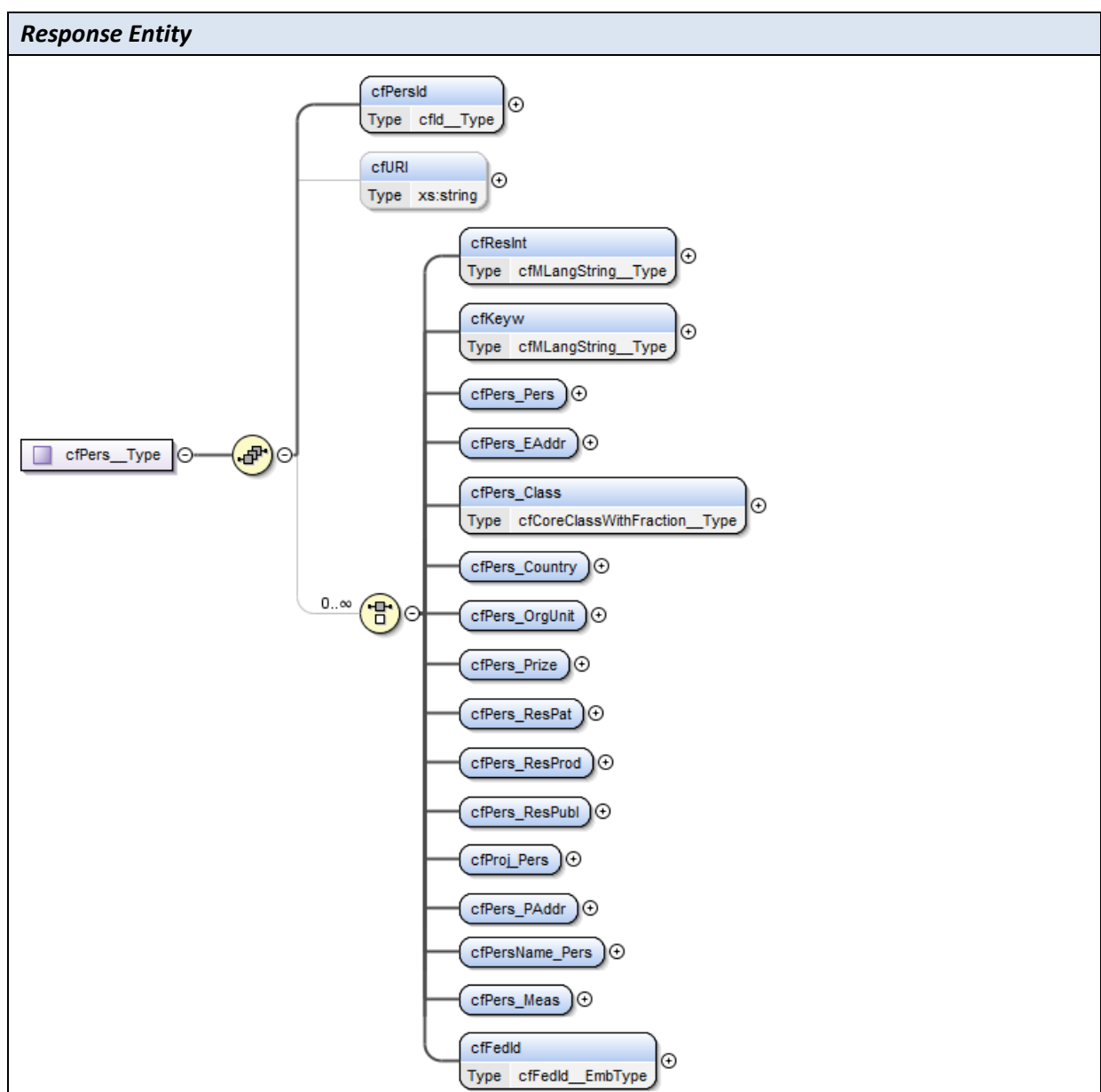
CFRESPUBL RESOURCE

The CfResPubl Resource allows you to fetch a specific CfResPubl by id, or a paged listing of all CfResPubl.

CfResPubl By ID	
Description	Retrieve a publication by its ID
Paged?	NO
Base URL	http://host:port/cerif/cfrespubl/<id>
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/cerif/cfrespubl/210362B4-5E53-4D66-968C-FDD754ED2144

Response Entity

CfResPubl Listing	
Description	Retrieve all publications
Paged?	YES
Base URL	http://host:port/cerif/cfrespubl
HTTP Method	GET
Request Parameters	fetchSize
	page
	See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/cerif/cfrespubl?page=2&fetchSize=25

Response Entity
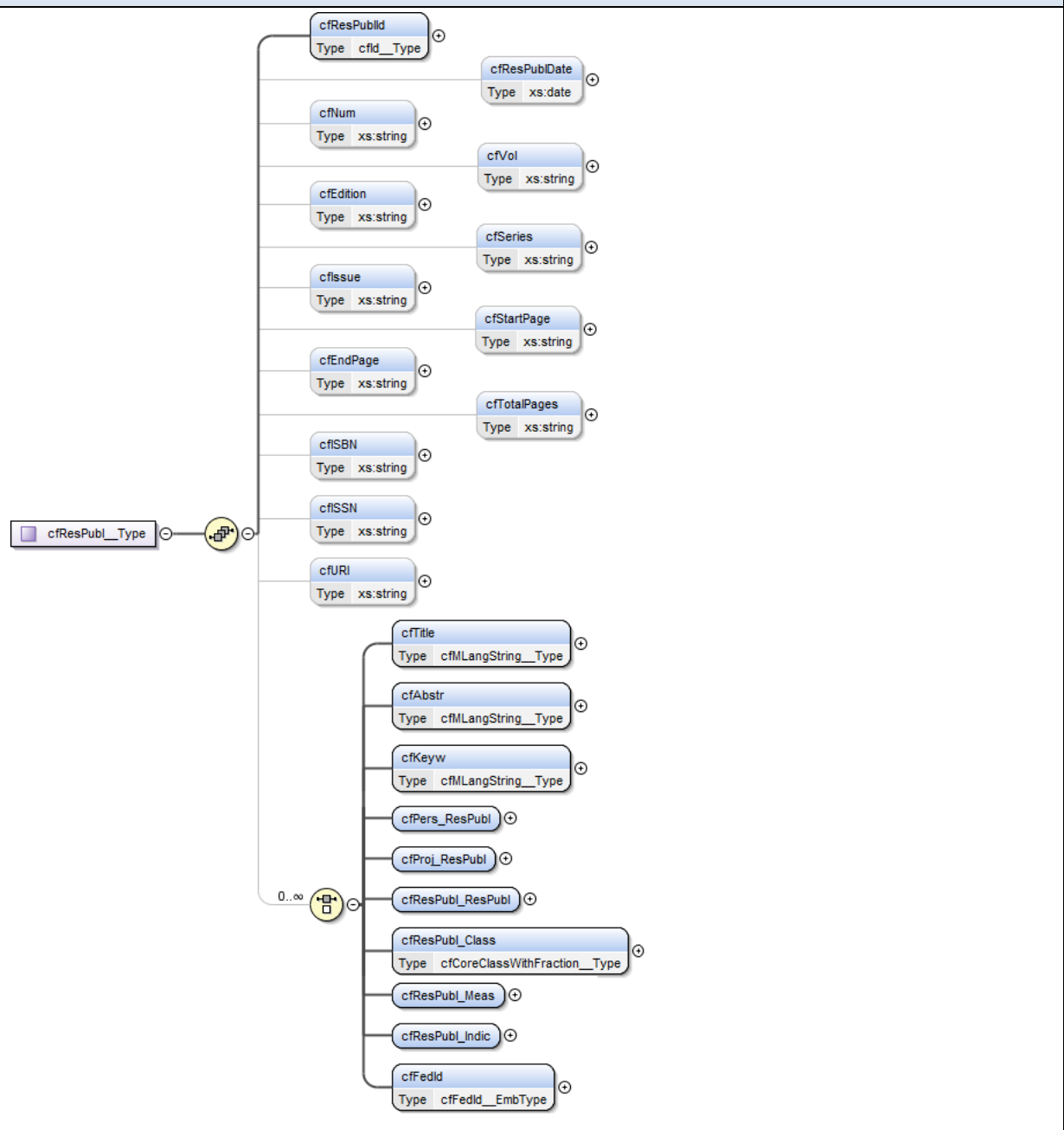
CFORGUNIT RESOURCE

The CfOrgUnit Resource and associated resources allows you to fetch a specific CfOrgUnit by id, or a paged listing of all CfOrgUnit.

CfOrgUnit By ID	
Description	Retrieve a organisation by its ID
Paged?	NO
Base URL	http://host:port/cerif/cforgunit/<id>
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/cerif/cforgunit/46387D84-F71E-4B7D-8C7D-9C288F113510

Response Entity
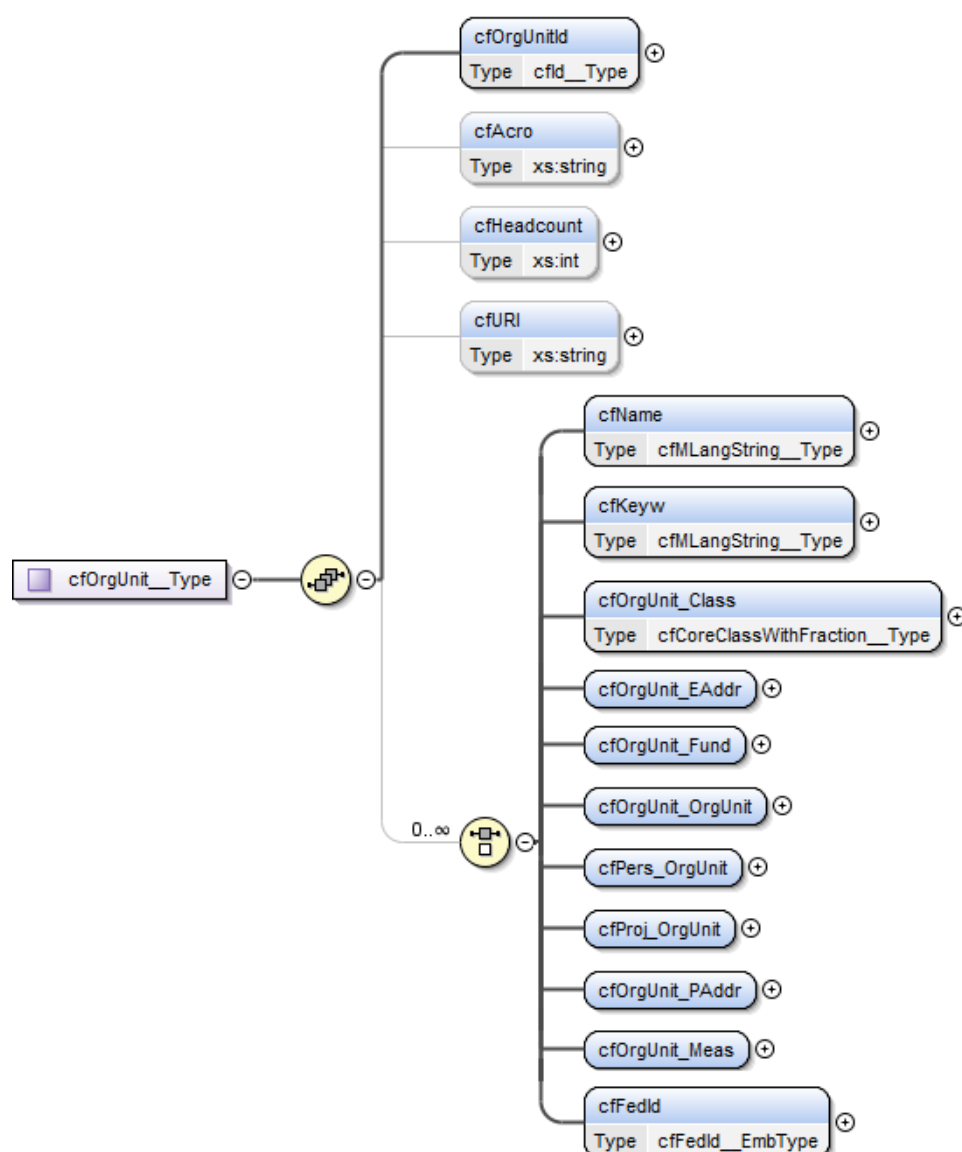
All CfFund for a CfOrgUnit By ID	
Description	Retrieve all funds for an organisation (Note for GtR you can use this as a route from the Funder to all the project they fund via Grants, Studentships or fellowships)
Paged?	NO
Base URL	http://host:port/cerif/cforgunit/<id>/cffund
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/cerif/cforgunit/1291772D-DFCE-493A-AEE7-24F7EEAFE0E9/cffund

Response Entity

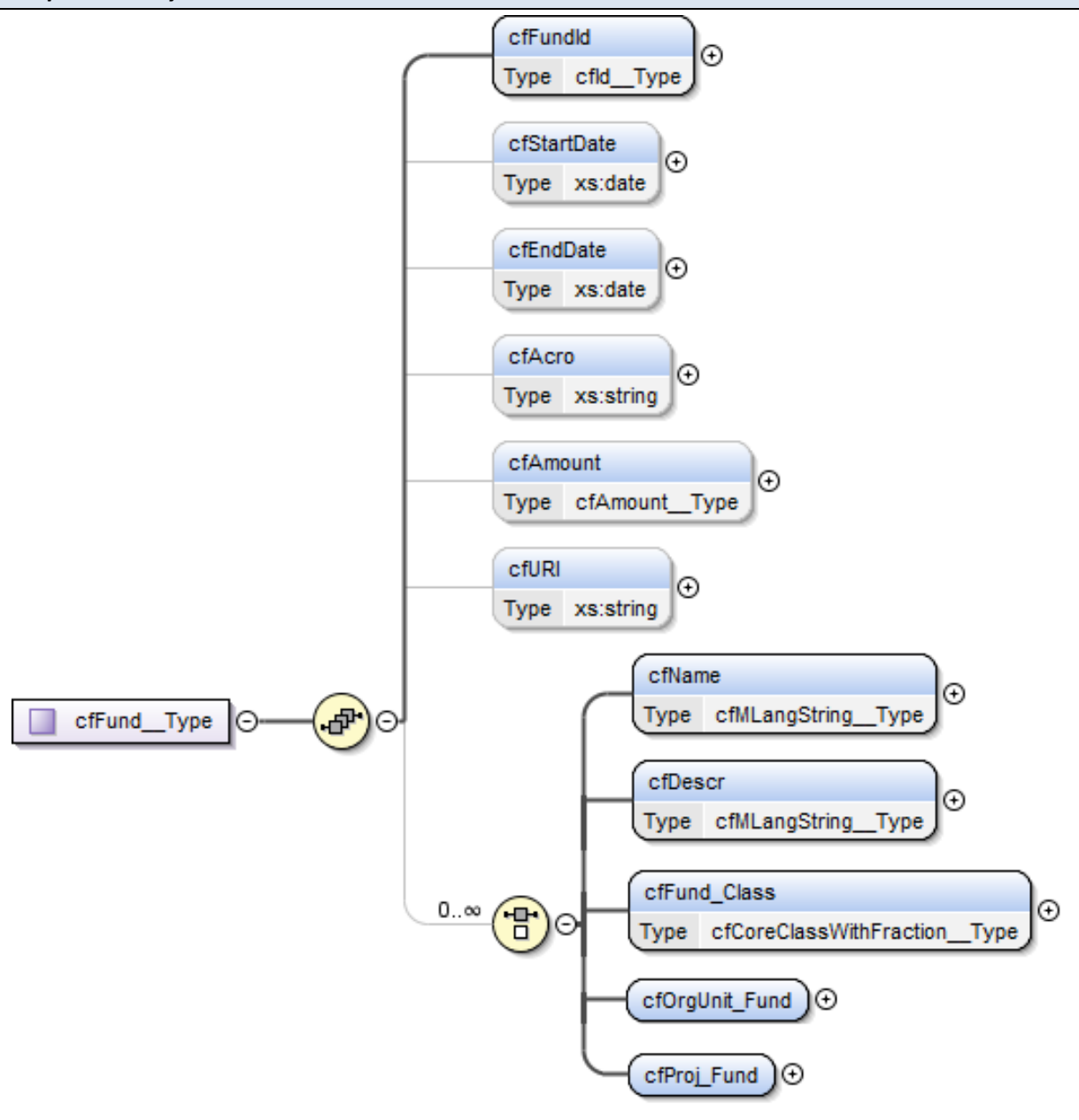| All CfProj for a CfOrgUnit By ID	
Description	Retrieve all projects for an organisation (In GtR you would use this to find out all the Projects for which an Organisation has a direct relationship)
Paged?	NO
Base URL	`http://host:port/cerif/cforgunit/<id>/cfproj`
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/cerif/cforgunit/46387D84-F71E-4B7D-8C7D-9C288F113510/cfproj

Response Entity
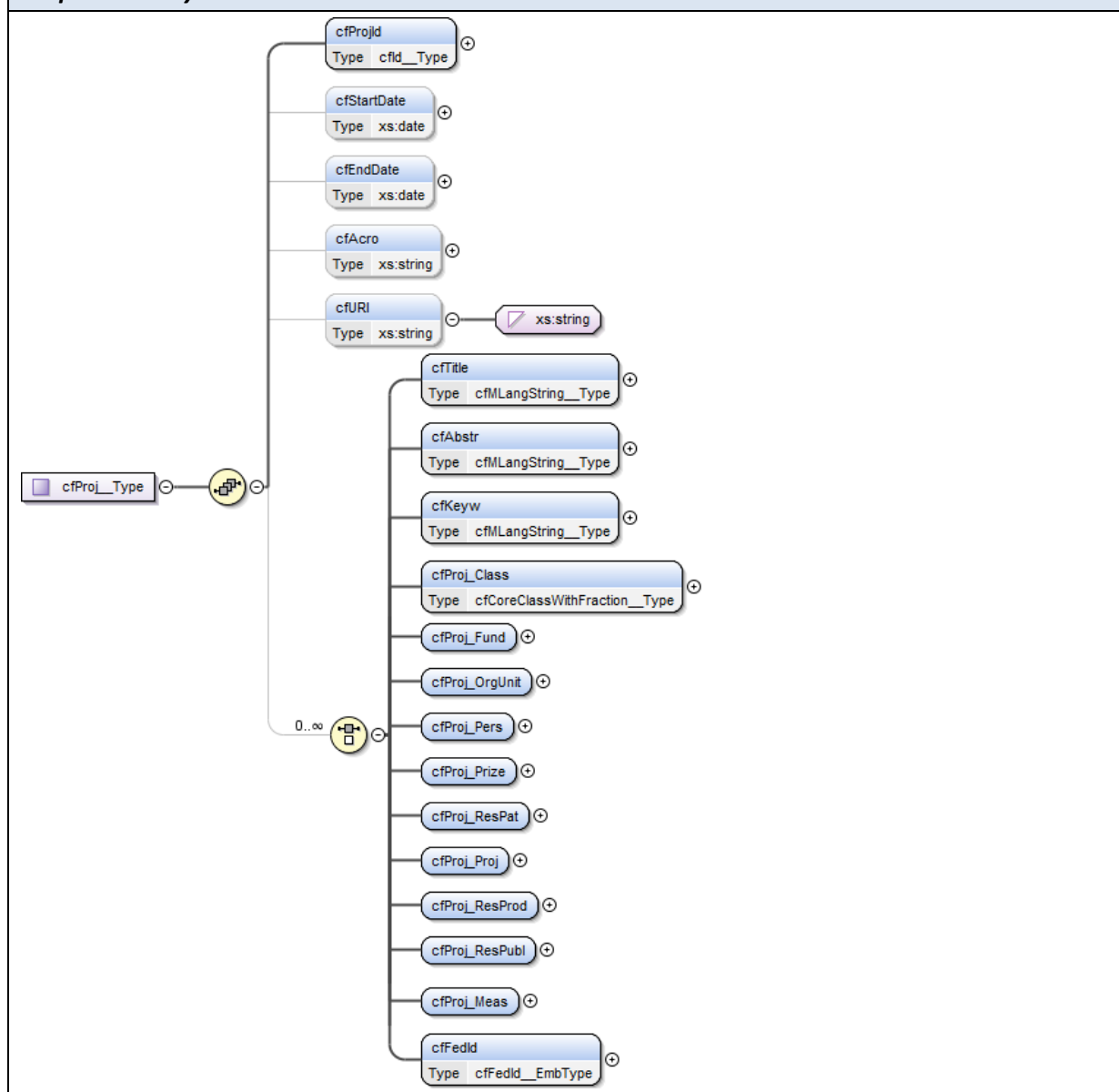
CfOrgUnit Listing	
Description	Retrieve all organisations
Paged?	YES
Base URL	http://host:port/cerif/cforgunit
HTTP Method	GET
Request Parameters	fetchSize page See Request Parameters Summary.
Example	http://gtr.rcuk.ac.uk/cerif/cforgunit?page=2&fetchSize=25

Response Entity
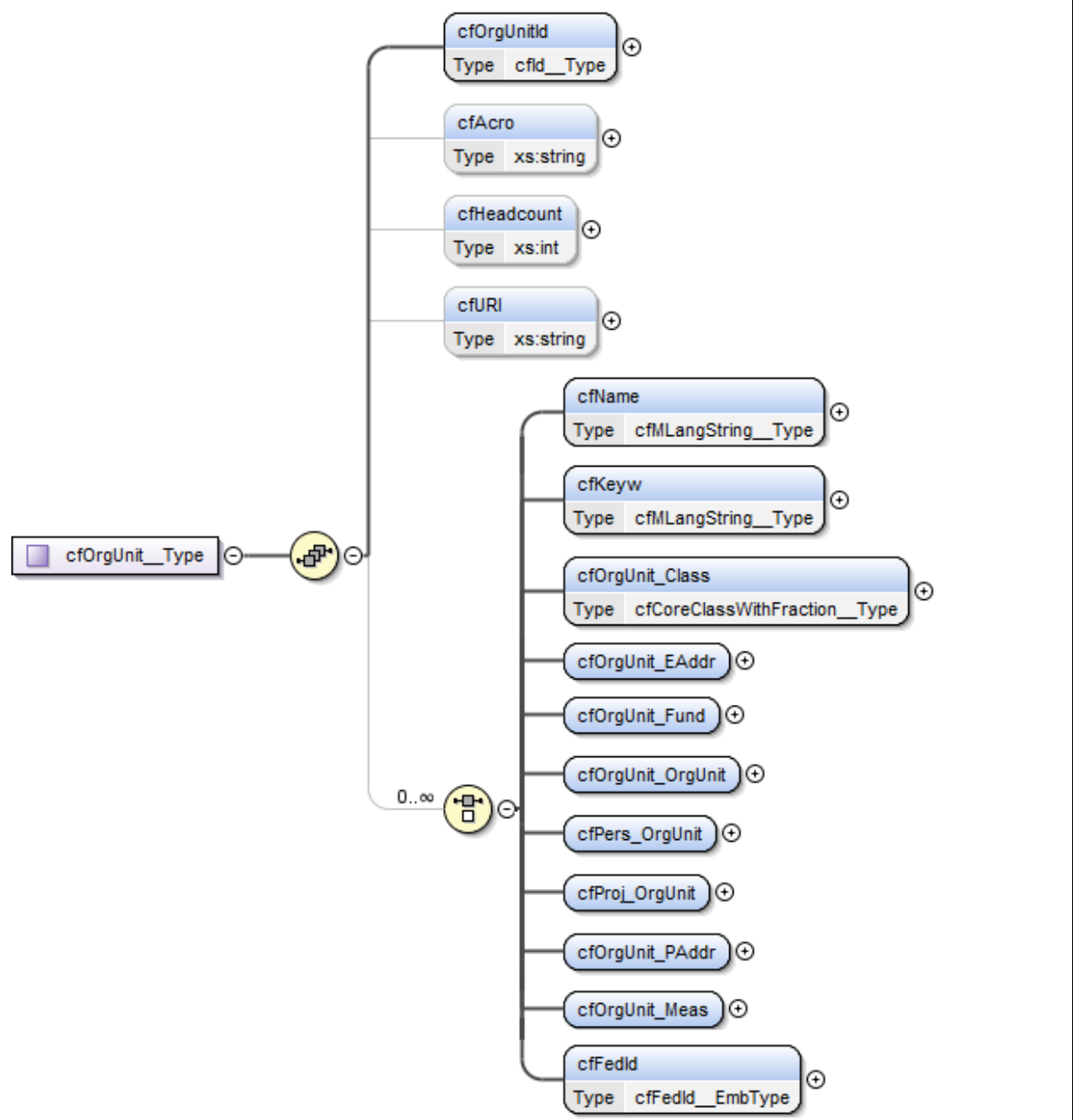
CFCLASSSCHEME RESOURCE

The CfClassScheme Resource allows you to fetch a specific CfClassScheme by id, or all CfClassScheme.

CfClassScheme By ID	
Description	Retrieve a class scheme by its ID
Paged?	NO
Base URL	http://host:port/cerif/cfcassscheme/<id>
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/cerif/cfclassscheme/25D7298A-9B7C-492F-A3BF-30813BC4F88A

Response Entity

CfClassScheme Listing	
Description	Retrieve all class schemes
Paged?	NO
Base URL	http://host:port/cerif/cfclassscheme
HTTP Method	GET
Response Entity	cerif:CERIF/cerif:CfClassScheme
Sub Entities	cerif:cfClass
Example	http://gtr.rcuk.ac.uk/cerif/cfclassscheme

Response Entity

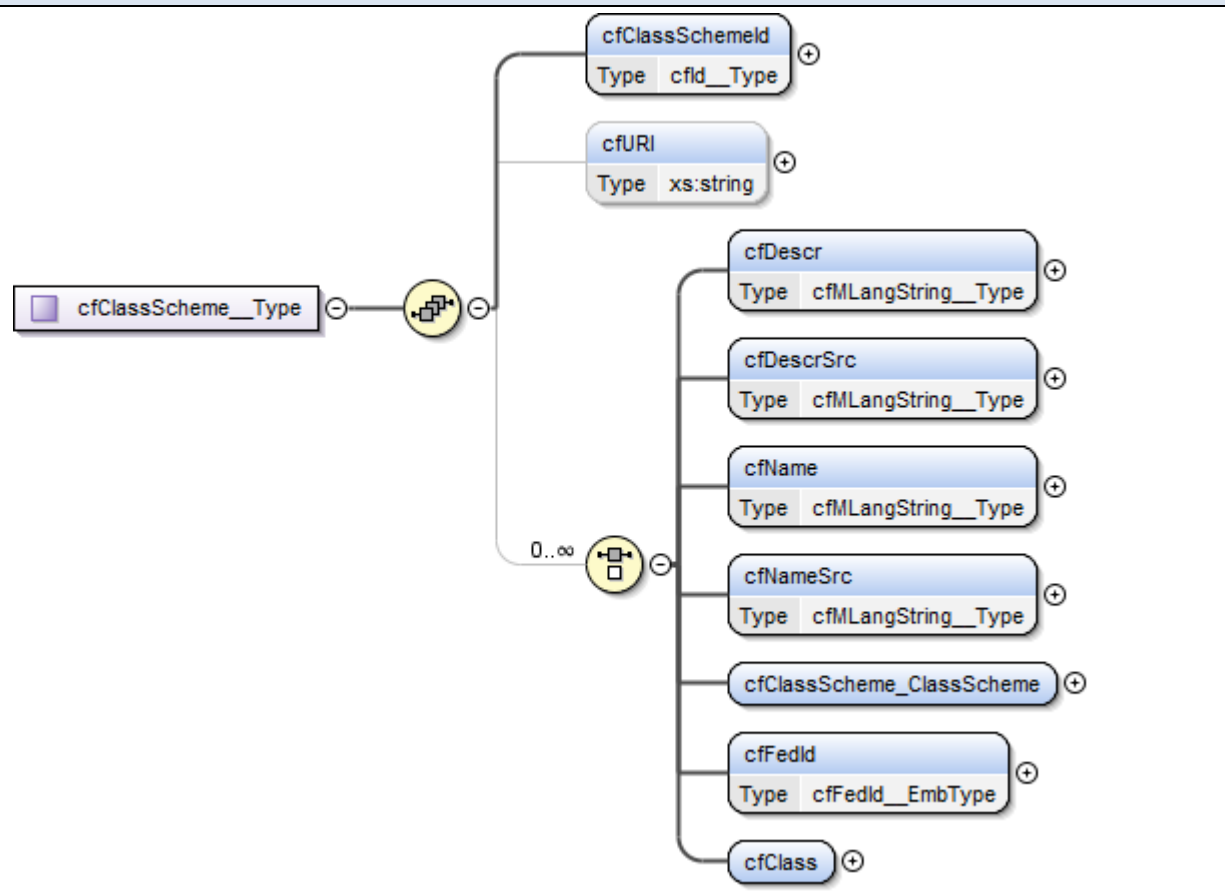## CFCLASS RESOURCE

The CfClass Resource allows you to fetch a specific CfClass by id, or all CfClass.

CfClass By ID	
Description	Retrieve a class scheme by its ID
Paged?	NO
Base URL	http://host:port/cerif/cfclass/<scheme_id>/<class_id>
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/cerif/cfclass/25D7298A-9B7C-492F-A3BF-30813BC4F88A/376E06B2-2D1E-494E-A11F-0040A00ECDC9
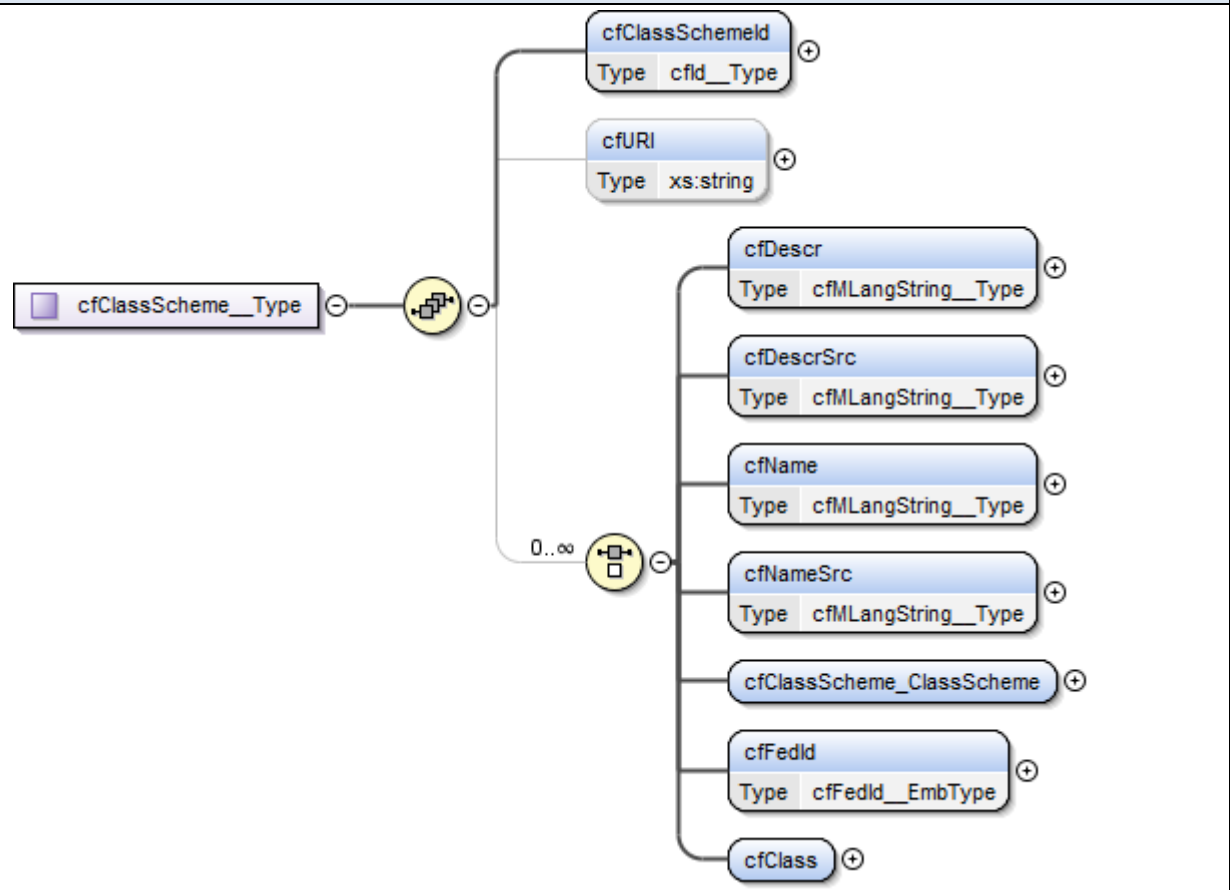
Response Entity

CfClass Listing

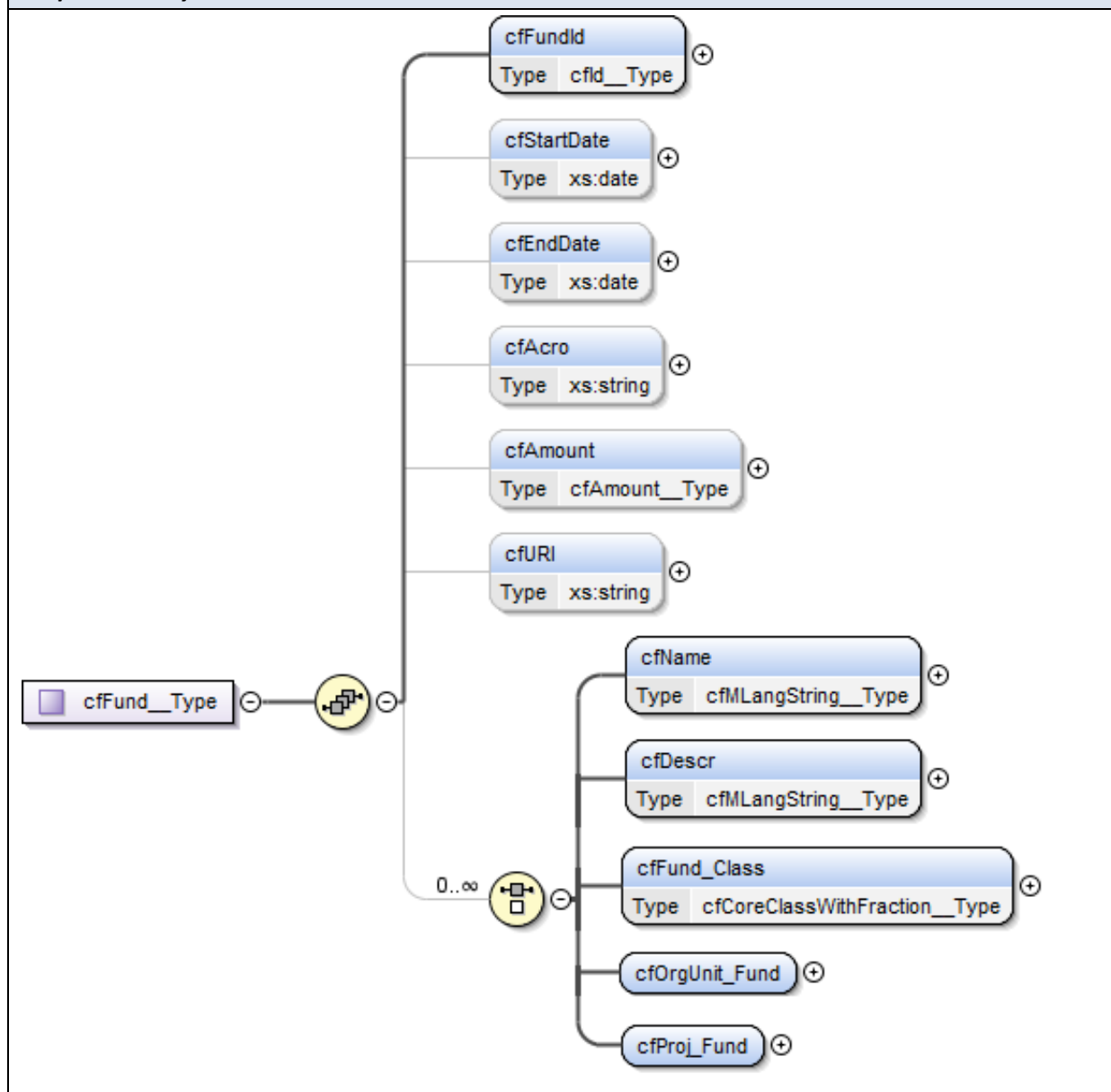|	
Description	Retrieve all class schemes
Paged?	NO
Base URL	http://host:port/cerif/cfclass
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/cerif/cfclass

Response Entity
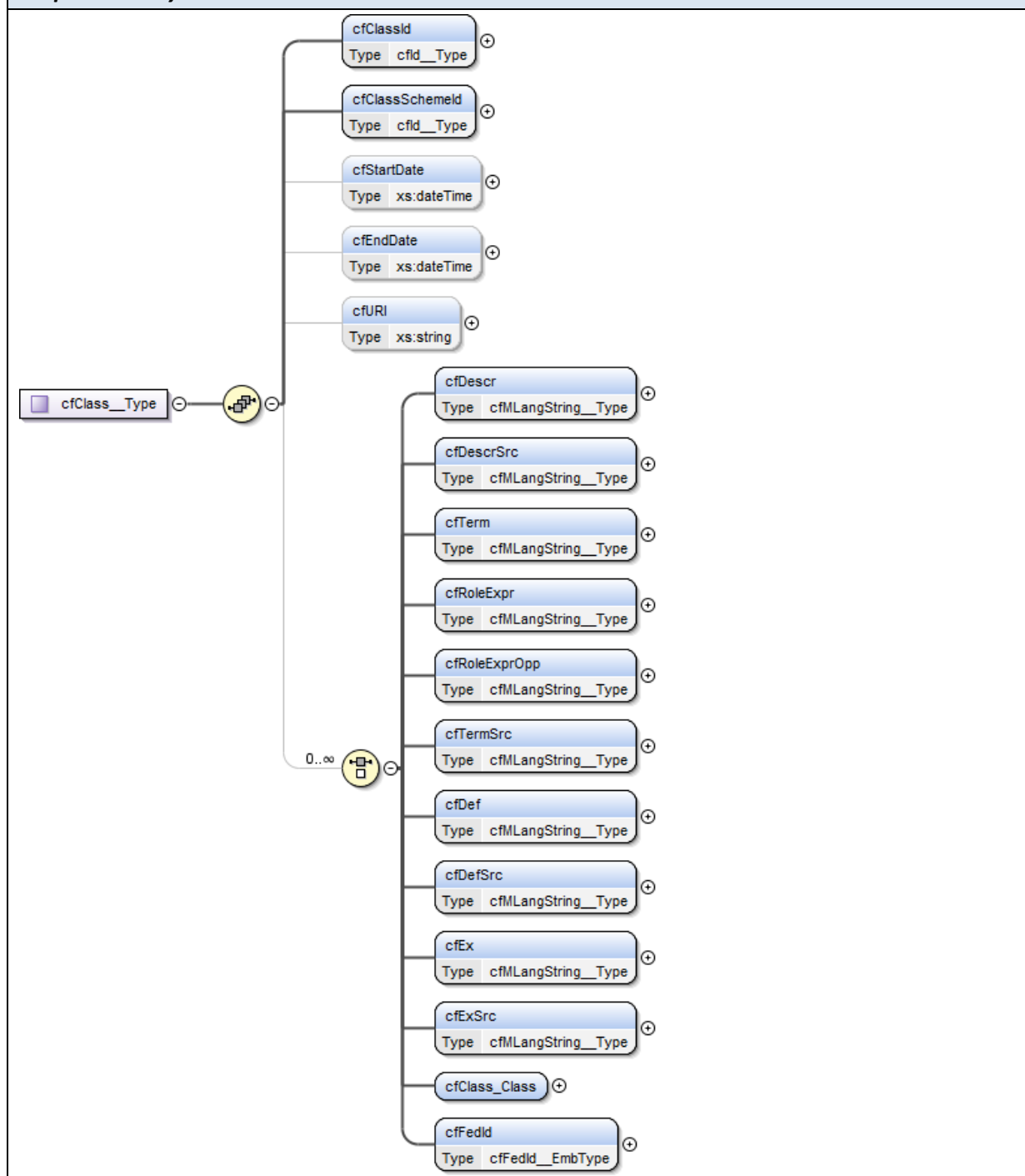
CFFUND RESOURCE

The CfFund Resource allows you to fetch a specific CfFund by id.

CfFund By ID	
Description	Retrieve a fund by its ID
Paged?	NO
Base URL	http://host:port/cerif/cffund/<id>
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/cerif/cffund/0DB56D1C-37A2-413E-B9A4-59619E0946D7

Response Entity

The CfMeas Resource allows you to fetch a specific CfMeas by id.

CfMeas By ID	
Description	Retrieve a measure by its ID
Paged?	NO
Base URL	http://host:port/cerif/cfmeas/<id>
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/cerif/cfmeas/E66625CD-0C95-44F2-8DE4-F82C98CB85E3

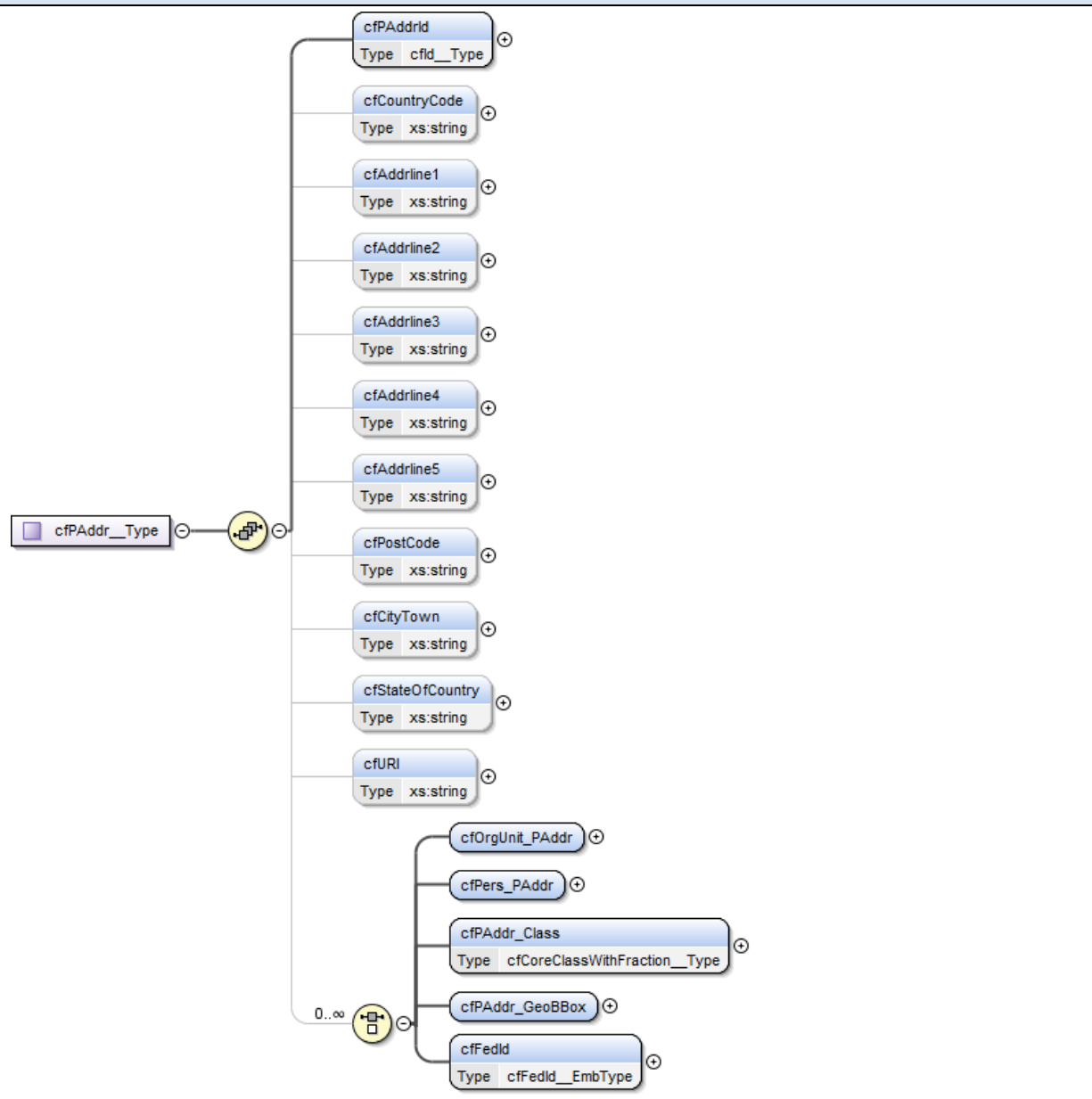*Response Entity*
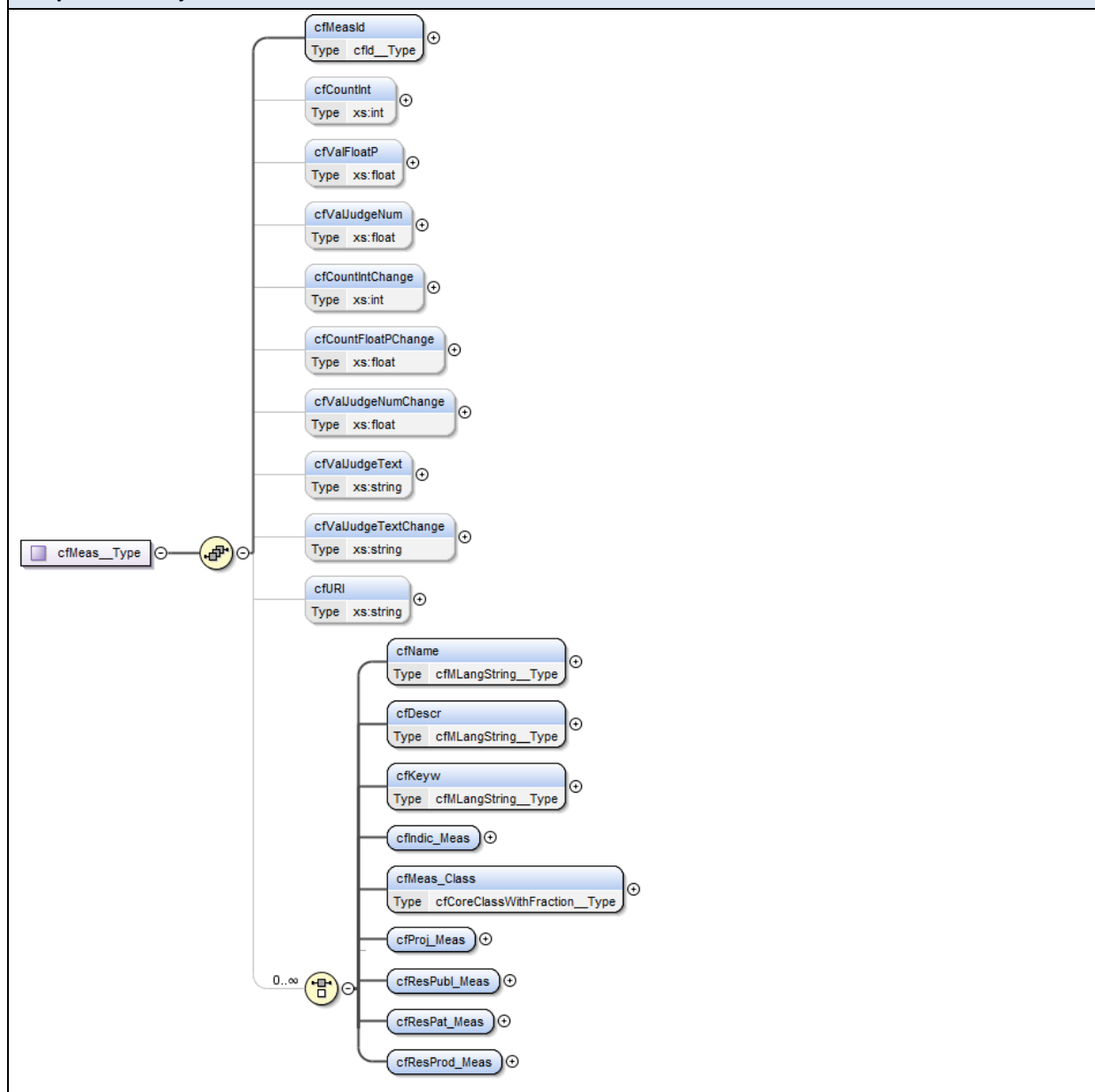
CFPADDR RESOURCE

The CfPAddr Resource allows you to fetch a specific CfPAddr by id.

CfPAddr By ID	
Description	Retrieve a physical address by its ID
Paged?	NO
Base URL	http://host:port/cerif/cfpaddr/<id>
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/cerif/cfpaddr/001D03EE-97BD-4E74-8577-38293386BF84

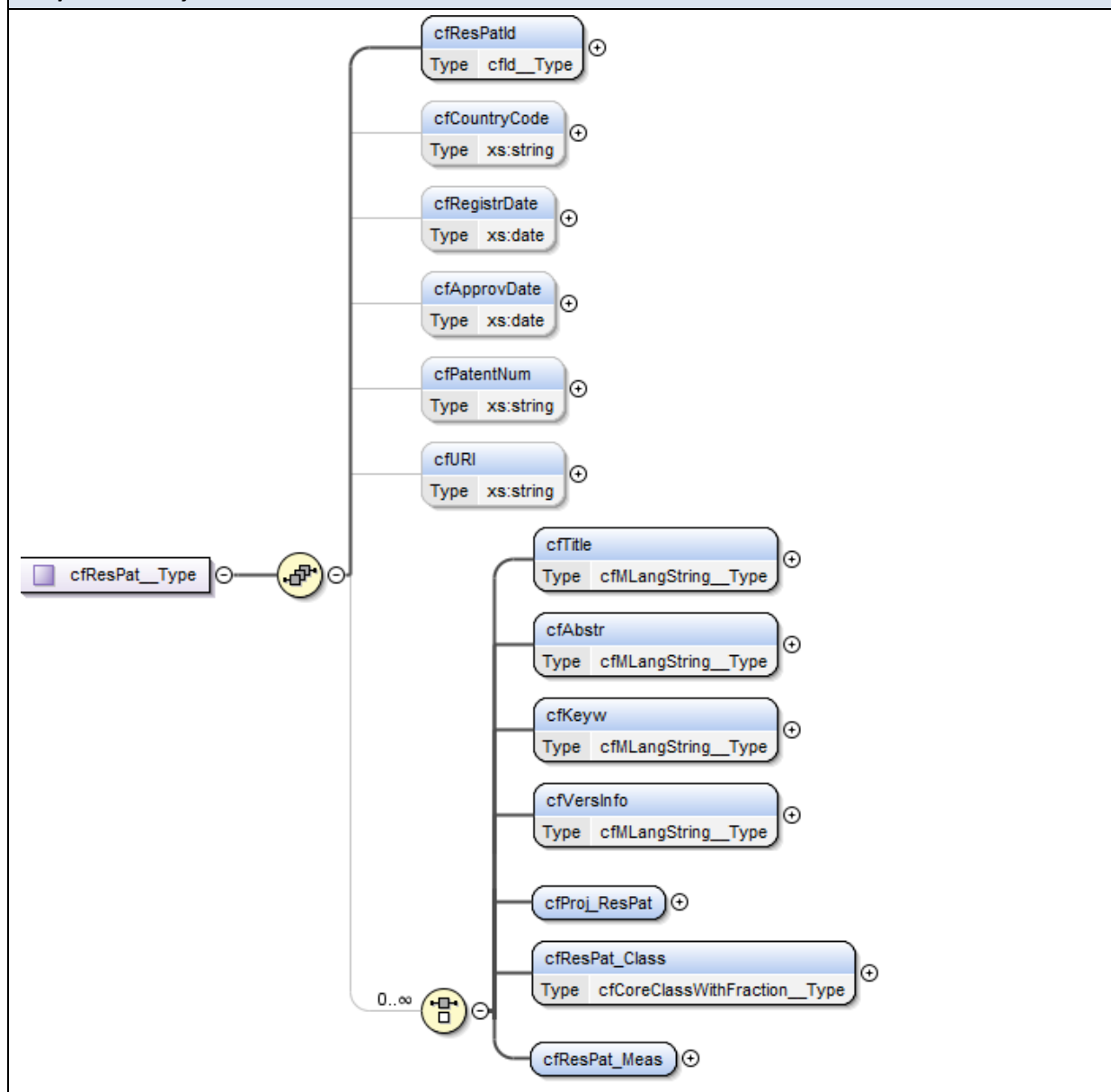| *Response Entity* |
|---|

CFRESPAT RESOURCE

The CfResPat Resource allows you to fetch a specific CfResPat by id.

CfResPat By ID	
Description	Retrieve a patent by its ID
Paged?	NO
Base URL	http://host:port/cerif/cfrespat/<id>
HTTP Method	GET
Example	http://gtr.rcuk.ac.uk/cerif/cfrespat/010066CE-3372-4D03-BEC8-9BEE1BC8BB75

Response Entity

CFRESPROD RESOURCE

The CfResProd Resource allows you to fetch a specific CfResProd by id.

CfResProd By ID	
Description	Retrieve a product by its ID
Paged?	NO
Base URL	http://host:port/cerif/cfresprod/<id>
HTTP Method	GET
Response Entity	cerif:CERIF/cerif:CfResProf
Sub Entities	cerif:cfOrgUnit_ResProd
	cerif:cfPers_ResProd
	cerif:cfProj_ResProd
	cerif:cfResProd_Meas
Example	http://gtr.rcuk.ac.uk/cerif/cfresprod/0046B665-56BC-4E78-8224-B651D2D0C4EA

Response Entity
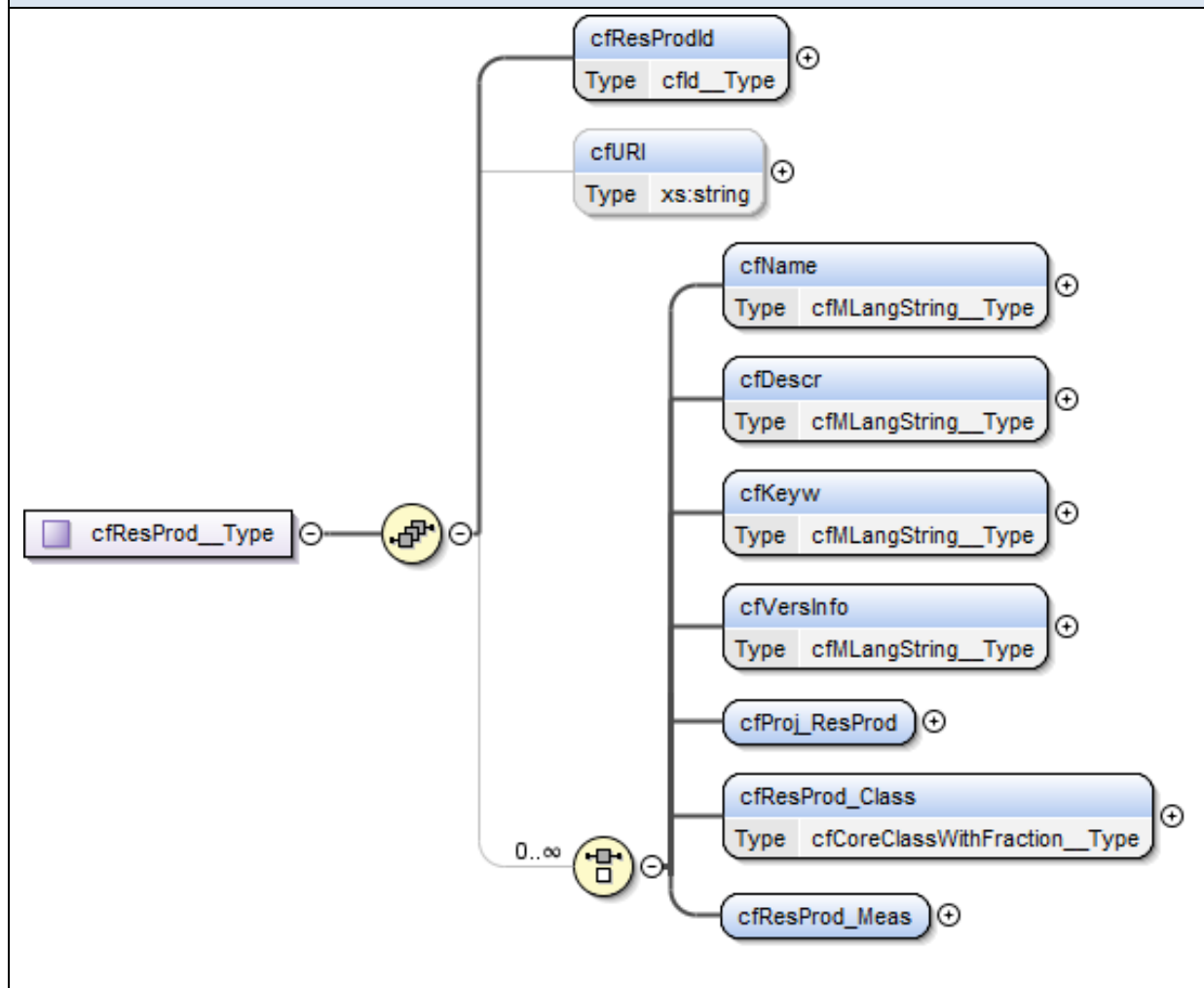
FAILURE SCENARIOS

Any requests that fail due to client or server errors will return a HTTP Status Code relevant to the type of error encountered.

The following errors are returned by the GtR application:

Code	Meaning	Description
400	Bad Request	The client provided invalid data or parameters
404	Not Found	The requested resource does not exist
500	Internal Server Error	An unexpected error has occurred on the server

Other HTTP Status Codes maybe returned, but are not specifically in use by the GtR application.

Response Entity

failure

Standard response when a failure is detected handling the request

message
Type xs:string
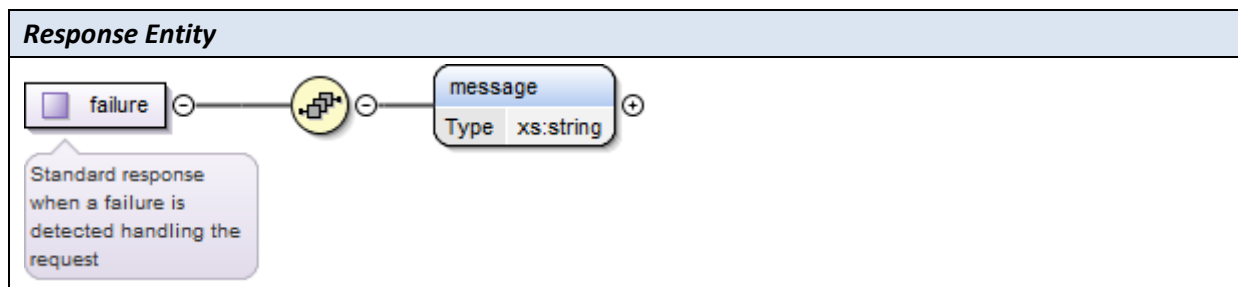
ABOUT SEARCHING

SEARCHING OVERVIEW

In this topic you can find out about how Search Terms work to help with custom searches and some help understanding how searching operates.

A Search term is a query that can be single or multiple words or phrases that may use operators (e.g. Wild Cards, Boolean Operators etc.) to perform simple or complex searches.

The Lucene tool is used to provide information retrieval services from the GtR database. Lucene enables complex searches known as queries.

For more information see http://en.wikipedia.org/wiki/Lucene or http://lucene.apache.org/ or download a PDF from http://lucene.apache.org/core/old_versioned_docs/versions/2_9_1/queryparsersyntax.pdf.

SEARCH TERMS IN A NUTSHELL

The following table provides a summary of Lucene syntax and indicates which are implemented:

Term	Description	Example Search	Returns
Term	A single word. Not case sensitive.	Test	All documents containing test or "Test" or "TEST" or TeST" etc.
Phrase	A set of terms. Not case sensitive.	test blood	All documents with "test" or "TEST" containing "blood" or "BlOod" etc..
Quoted Phrase	A phrase enclosed with speech marks to indicate matching a phrase rather than the individual terms.	"Blood Test"	All documents containing the two words together
Case	Lucene is not case sensitive except Boolean terms (UPPER CASE). Not case sensitive.	N/A	N/A
Wildcards * or ?	? Single character wildcard	T?nt	All documents containing "Tent", "tint", "TNT" etc.
	* Multiple character wildcard	T*nt	All document containing "Tent", "tint", "TNT", "taint", "taunt", "talent" etc.
	Note: You cannot use * or ? as the first character of a search.		
Field Searches	Not currently supported in GtR.	N/A	N/A

Term	Description	Example Search	Returns
Fuzzy Search~	Performs a likeness search for a single term.(Levenshtein Distance, or Edit Distance). For example, **"term"~"<similarity>** where "term" is the search string and (optional) similarity is a number between 0 and 1. The default value is 0.5 and the higher the number the nearer the returned items will be to the search term. See http://en.wikipedia.org/wiki/Fuzzy_search.	Test~0.8	Documents containing one or more words quite similar to "test".
		Test~0.1	Documents containing one or more words quite similar to "test" but less similar to "test" than 0.8.
Proximity Search~	Looks for terms within a certain number of words from each other. For example, "test blood" ~10 returns any instances of test and blood within 10 words of each other in a document.	"test blood"~10	Documents with "test" and "blood" within 10 words of each other.
Range Search	Not currently supported in GtR.	N/A	N/A
Boosting Terms^	You can provide a weighted relevance factor to a term or phrase using the caret character ^. The higher the boost value the more relevant the term or phrase is. Values are from greater than zero e.g. 0.1, 1, 10.	"test blood"^3 "test sugar"^0.5.	Documents related to "test blood" or "test sugar" with "test blood" matches given a higher priority.
Boolean	These perform logic operations. **Note**: Words are capitalised.		
	OR: returns documents where either terms/phrase exist. (OR is the default)	Test OR research	Returns documents containing either "test" or "research".
	AND: returns documents where both terms exist	Test AND "Blood Sugar"	Documents that contain both "test" and either "blood" or "sugar".
	NOT: excludes documents that contain the specified term/phrase.	"test AND blood" NOT "test AND sugar"	Documents that contain "test" and "blood" but does not return documents that contain "test" AND "sugar".
	+: returns documents that contain this term or phrase	+test blood	Returns all documents with test and these documents may contain blood.
	-: excludes documents that contain this term or	"blood test" -	Returns documents

Term	Description	Example Search	Returns
	phrase.	"sugar test"	that contain "blood test" but not "sugar test".
Grouping	You can use parentheses to enclose terms or phrases	(blood or sugar or insulin) AND test	Returns documents that must contain results and either blood or sugar or insulin.
Field Grouping	Not currently supported in GtR.	N/A	N/A
Escape Characters	These are used to include special characters such as + - && || ! ( ) { } [ ] ^ " ~ * ? : \ in search terms and phrases.	If you wish to search for the phrase (A+B):C use \(A\+B\)\:C	Returns documents containing "(A+B):C"