

GATEWAY TO RESEARCH API 2

Version: 1.6
Published: 12/08/2016

EXECUTIVE SUMMARY

This document contains a technical summary of the GTR-2 API released GtR.

GTR-2 API accesses the data in a form that is independent from the current User Interface. It can provide a response in JSON and XML dataformats.

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BEFORE USING THE API

The GtR APIs provide access to all the data available in the GtR Portal, which is available under the Open Government License. We expect users of the APIs to follow web etiquette and not to flood the service with requests and make it inoperable for other users. We would like users of the API to respect this freedom in a similar way that Search engines respect the sites they index and moderate the requests they make in any particular time window.

VERSIONING

When making a request to the GTR-2 API you can specify the version that you want to use in the request 'Accept' header. If you do not specify a specific version and use the standard '*application/json*' or '*application/xml*' header, the API will default to the oldest supported version. NOTE: AN ACCEPT HEADER MUST BE DEFINED.

The request header to accept version 5 of the GtR-2 API in JSON format is as follows:

Accept: application/vnd.rcuk.gtr.json-v5

The request header to accept version 5 of the GtR-2 API in XML format is as follows:

Accept: application/vnd.rcuk.gtr.xml-v5

As of writing, the current version is V5. Versions 1 and 4 are still available for backward compatibility.

XML NAMESPACES

There are a number of XML Schemas defined for the API:

FILE	DESCRIPTION	NAMESPACE	PREFIX
gtr2.v1.xsd	Common API definitions	http://gtr.rcuk.ac.uk/gtr/api	gtr
gtr2.organisation.v1.xsd	Organisation definitions	http://gtr.rcuk.ac.uk/gtr/api/organisation	gtr-org
gtr2.person.v1.xsd	Person definitions	http://gtr.rcuk.ac.uk/gtr/api/person	gtr-per
gtr2.project.v1.xsd	Project definitions	http://gtr.rcuk.ac.uk/gtr/api/project	gtr-proj
gtr2.project.outcome.v1.xsd	Project Outcome definitions	http://gtr.rcuk.ac.uk/gtr/api/outcome	gtr-pout
gtr2.fund.v1.xsd	Fund definitions	http://gtr.rcuk.ac.uk/gtr/api/fund	gtr-fun

Additions to the schema will result in a new version being issued, increasing the V(n) value in the file name. The version of schema in use correlates directly with the version specified in the HTTP Accept header of the client request.

Each schema document is available to download by following the namespace URL. Again, use of the correct Accept header (XML one only) will allow you to download the appropriate version.

HOW TO USE THE API

For those of you who know how to use APIs you can delve right in and go to <http://gtr.rcuk.ac.uk/gtr/api/examples> where you will find a listing of each of the available endpoints, with example usage.

All requests are HTTP GET.

The available endpoints are (check the examples endpoint for an up-to-date listing):

DESCRIPTION OF RESOURCE ENDPOINTS	RESPONSE TYPE (FROM XMLSCHEMA)	URL
Retrieve examples of all endpoints	gtr:endpointConfig	http://gtr.rcuk.ac.uk/gtr/api/examples
Retrieve resource configuration (where <resource> is funds, projects, persons, keyfindings, spinouts etc).	gtr:resourceConfig	<a href="http://gtr.rcuk.ac.uk/gtr/api/configs/<resource>">http://gtr.rcuk.ac.uk/gtr/api/configs/<resource>
Retrieve/Query all Funds	gtr-fun:funds	http://gtr.rcuk.ac.uk/gtr/api/funds
Retrieve a specific Fund by its ID	gtr-fun:fund	<a href="http://gtr.rcuk.ac.uk/gtr/api/funds/<id>">http://gtr.rcuk.ac.uk/gtr/api/funds/<id>
Retrieve all Funds for a Project ID	gtr-fun:funds	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/funds">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/funds
Retrieve all Funds for an Organisation ID	gtr-fun:funds	<a href="http://gtr.rcuk.ac.uk/gtr/api/organisations/<id>/funds">http://gtr.rcuk.ac.uk/gtr/api/organisations/<id>/funds
Retrieve/Query all Organisations	gtr-org:organisations	http://gtr.rcuk.ac.uk/gtr/api/organisations
Retrieve a specific Organisation by its ID	gtr-org:organisation	<a href="http://gtr.rcuk.ac.uk/gtr/api/organisations/<id>">http://gtr.rcuk.ac.uk/gtr/api/organisations/<id>
Retrieve all Organisations for a Project ID	gtr-org:organisations	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/organisations">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/organisations
Retrieve all Organisations	gtr-org:organisations	<a href="http://gtr.rcuk.ac.uk/gtr/api/persons/<id>/organisations">http://gtr.rcuk.ac.uk/gtr/api/persons/<id>/organisations

for an Person ID		
Retrieve/Query all Outcomes	gtr-pout:outcomes	http://gtr.rcuk.ac.uk/gtr/api/outcomes
Retrieve/Query all Key Finding	gtr-pout:keyFindings	http://gtr.rcuk.ac.uk/gtr/api/outcomes/keyfindings
Retrieve a specific Key Finding by ID	gtr-pout:keyFinding	<a href="http://gtr.rcuk.ac.uk/gtr/api/outcomes/keyfindings/<id>">http://gtr.rcuk.ac.uk/gtr/api/outcomes/keyfindings/<id>
Retrieve/Query all Impact Summaries	gtr-pout:impactSummaries	http://gtr.rcuk.ac.uk/gtr/api/outcomes/impactsummaries
Retrieve a specific Impact Summary by ID	gtr-pout:impactSummary	<a href="http://gtr.rcuk.ac.uk/gtr/api/outcomes/impactsummaries/<id>">http://gtr.rcuk.ac.uk/gtr/api/outcomes/impactsummaries/<id>
Retrieve/Query all Publications	gtr-pout:publications	http://gtr.rcuk.ac.uk/gtr/api/outcomes/publications
Retrieve a specific Publication by ID	gtr-pout:publication	<a href="http://gtr.rcuk.ac.uk/gtr/api/outcomes/publications_/<id>">http://gtr.rcuk.ac.uk/gtr/api/outcomes/publications_/<id>
Retrieve/Query all Collaborations	gtr-pout:collaborations	http://gtr.rcuk.ac.uk/gtr/api/outcomes/collaborations
Retrieve a specific Collaboration by ID	gtr-pout:collaboration	<a href="http://gtr.rcuk.ac.uk/gtr/api/outcomes/collaborations_/<id>">http://gtr.rcuk.ac.uk/gtr/api/outcomes/collaborations_/<id>
Retrieve/Query all Intellectual Property	gtr-pout:intellectualproperties	http://gtr.rcuk.ac.uk/gtr/api/outcomes/intellectualproperties
Retrieve a specific Intellectual Property by ID	gtr-pout:intellectualproperty	<a href="http://gtr.rcuk.ac.uk/gtr/api/outcomes/intellectualproperties/<id>">http://gtr.rcuk.ac.uk/gtr/api/outcomes/intellectualproperties/<id>
Retrieve/Query all Policy Influences	gtr-pout:policyInfluences	http://gtr.rcuk.ac.uk/gtr/api/outcomes/policyinfluences
Retrieve a specific Policy Influence by ID	gtr-pout:policyInfluence	<a href="http://gtr.rcuk.ac.uk/gtr/api/outcomes/policyinfluences/<id>">http://gtr.rcuk.ac.uk/gtr/api/outcomes/policyinfluences/<id>
Retrieve/Query all Product Interventions	gtr-pout:products	http://gtr.rcuk.ac.uk/gtr/api/outcomes/products
Retrieve a	gtr-pout:product	<a href="http://gtr.rcuk.ac.uk/gtr/api/outcomes/products/<id>">http://gtr.rcuk.ac.uk/gtr/api/outcomes/products/<id>

specific Product Intervention by ID		
Retrieve/Query all Research Materials	gtr-pout:researchmaterials	http://gtr.rcuk.ac.uk/gtr/api/outcomes/researchmaterials
Retrieve a specific Research Material by ID	gtr-pout:researchmaterial	<a href="http://gtr.rcuk.ac.uk/gtr/api/outcomes/researchmaterials/<id>">http://gtr.rcuk.ac.uk/gtr/api/outcomes/researchmaterials/<id>
Retrieve/Query all Spin Outs	gtr-pout:spinouts	http://gtr.rcuk.ac.uk/gtr/api/outcomes/spinouts
Retrieve a specific Spin Out by ID	gtr-pout:spinout	<a href="http://gtr.rcuk.ac.uk/gtr/api/outcomes/spinouts/<id>">http://gtr.rcuk.ac.uk/gtr/api/outcomes/spinouts/<id>
Retrieve/Query all Further Fundings	gtr-pout:furtherfundings	http://gtr.rcuk.ac.uk/gtr/api/outcomes/furtherfundings
Retrieve a specific Further Funding by ID	gtr-pout:furtherfunding	<a href="http://gtr.rcuk.ac.uk/gtr/api/outcomes/furtherfundings/<id>">http://gtr.rcuk.ac.uk/gtr/api/outcomes/furtherfundings/<id>
Retrieve/Query all Exploitations	gtr-pout:exploitations	http://gtr.rcuk.ac.uk/gtr/api/outcomes/exploitations
Retrieve a specific Exploitation by ID	gtr-pout:exploitation	<a href="http://gtr.rcuk.ac.uk/gtr/api/outcomes/exploitations/<id>">http://gtr.rcuk.ac.uk/gtr/api/outcomes/exploitations/<id>
Retrieve/Query all Disseminations	gtr-pout:disseminations	http://gtr.rcuk.ac.uk/gtr/api/outcomes/disseminations
Retrieve a specific Dissemination by ID	gtr-pout:dissemination	<a href="http://gtr.rcuk.ac.uk/gtr/api/outcomes/disseminations/<id>">http://gtr.rcuk.ac.uk/gtr/api/outcomes/disseminations/<id>
Retrieve/Query all Other Research	gtr-pout:otherResearchItems	http://gtr.rcuk.ac.uk/gtr/api/outcomes/otherresearchitems
Retrieve a specific Other Research by ID	gtr-pout:otherResearchItem	<a href="http://gtr.rcuk.ac.uk/gtr/api/outcomes/otherresearchitems/<id>">http://gtr.rcuk.ac.uk/gtr/api/outcomes/otherresearchitems/<id>
Retrieve/Query all Persons	gtr-per:persons	http://gtr.rcuk.ac.uk/gtr/api/persons
Retrieve a specific Person by ID	gtr-per:person	<a href="http://gtr.rcuk.ac.uk/gtr/api/persons/<id>">http://gtr.rcuk.ac.uk/gtr/api/persons/<id>

Retrieve all Persons for a Project ID	gtr-per:persons	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/persons">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/persons
Retrieve all Persons for an Organisation ID	gtr-per:persons	<a href="http://gtr.rcuk.ac.uk/gtr/api/organisations/<id>/persons">http://gtr.rcuk.ac.uk/gtr/api/organisations/<id>/persons
Retrieve/Query all Projects	gtr-proj:projects	http://gtr.rcuk.ac.uk/gtr/api/projects
Retrieve a specific Project by ID	gtr-proj:project	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>
Retrieve all Projects for a Person ID	gtr-proj:projects	<a href="http://gtr.rcuk.ac.uk/gtr/api/persons/<id>/projects">http://gtr.rcuk.ac.uk/gtr/api/persons/<id>/projects
Retrieve all Projects for an Organisation ID	gtr-proj:projects	<a href="http://gtr.rcuk.ac.uk/gtr/api/organisations/<id>/projects">http://gtr.rcuk.ac.uk/gtr/api/organisations/<id>/projects
Retrieve all Outcomes for a Project ID	gtr-pout:outcomes	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes
Retrieve all Key Findings for a Project ID	gtr-pout:keyFindings	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/keyfindings">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/keyfindings
Retrieve all Impact Summaries for a Project ID	gtr-pout:impactSummaries	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/impactsummaries">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/impactsummaries
Retrieve all Publications for a Project ID	gtr-pout:publications	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/publications">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/publications
Retrieve all Collaborations for a Project ID	gtr-pout:collaborations	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/collaborations">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/collaborations
Retrieve all Intellectual Properties for a Project ID	gtr-pout:intellectualProperties	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/intellectualproperties">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/intellectualproperties
Retrieve all Further Funding for a Project ID	gtr-pout:furtherFundings	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/furtherFundings">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/furtherFundings
Retrieve all Policy Influences for a Project ID	gtr-pout:policyInfluences	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/policyinfluences">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/policyinfluences

Retrieve all Product Interventions for a Project ID	gtr-pout: products	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/products">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/products
Retrieve all Research Materials for a Project ID	gtr-pout:researchMaterials	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/researchmaterials">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/researchmaterials
Retrieve all Spin Outs for a Project ID	gtr-pout: spinOuts	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/spinouts">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/spinouts
Retrieve all Exploitations for a Project ID	gtr-pout:exploitations	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/exploitations">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/exploitations
Retrieve all Disseminations for a Project ID	gtr-pout:disseminations	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/disseminations">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/disseminations
Retrieve all Other Research Items for a Project ID	gtr-pout:otherresearchitems	<a href="http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/otherresearchitems">http://gtr.rcuk.ac.uk/gtr/api/projects/<id>/outcomes/otherresearchitems

CONFIGS

The 'configs' endpoint provides information on the URL parameters and the searchable/sortable fields available for a specific endpoint.

For example, the configuration for the 'projects' endpoint can be obtained by issuing a GET request to <http://gtr.rcuk.ac.uk/gtr/api/configs/projects>.

```

<parameters>
  <parameter>
    <value>q</value>
    <description>Query term, q=search_term</description>
  </parameter>
  ...
</parameters>
<fields>
  <field>
    <code>pro.id</code>
    <description>Grant Reference</description>
    <searchable>true</searchable>
    <sortable>>false</sortable>
    <searchedByDefault>true</searchedByDefault>
  </field>
  ...
</fields>

```


HOW PAGINATION WORKS FOR BULK RESOURCES

Endpoints that return documents that are of the 'bulk' type provide information regarding the record and page count.

```
<xs:complexType name="bulk" abstract="true">
  <xs:annotation>
    <xs:documentation xml:lang="en"> Abstract bulk collection of a resource
  </xs:documentation>
</xs:annotation>
  <xs:sequence>
    <xs:element name="links" type="gtr:links" minOccurs="0"/>
    <xs:element name="ext" minOccurs="0" type="gtr:ext"/>
  </xs:sequence>
  <xs:attribute name="page" type="xs:int" use="required"/>
  <xs:attribute name="size" type="xs:int" use="required"/>
  <xs:attribute name="totalPages" type="xs:int" use="required"/>
  <xs:attribute name="totalSize" type="xs:int" use="required"/>
</xs:complexType>
```

This will enable you to page through the endpoint results by increasing the required page number. Exceeding the number of pages available will result in a HTTP response code of 404.

Page size will default to 20, but can be specified by using the size parameter with a value from 10 to 100.

LINK RELATIONS

Most resources will contain links to related resources. A link is defined in the XML Schema as follows:

```
<xs:complexType name="link">
  <xs:annotation>
    <xs:documentation xml:lang="en"> A link to a resource. A relationship (rel) must be
      specified in order to define the relationship that the link represents.
    </xs:documentation>
  </xs:annotation>
  <xs:attribute name="href" type="xs:string" use="required"/>
  <xs:attribute name="rel" type="xs:string" use="required"/>
  <xs:attribute name="start" type="xs:dateTime" use="optional"/>
  <xs:attribute name="end" type="xs:dateTime" use="optional"/>
  <xs:anyAttribute processContents="lax"/>
</xs:complexType>
```

The following table defines the possible 'rel' constants.

RESOURCE	RELATIONSHIP VALUE	DESCRIPTION
persons	PI_PER	The linked person is the Principal Investigator.
persons	COI_PER	The linked person is the Co-Investigator.

persons	PM_PER	The linked person is a Project Manager
persons	FELLOW_PER	The linked person is a Fellow
persons	EMPLOYEE	The linked person is an Employee
persons	ORCID_ID	The link to the person's ORCID id details
organisations	EMPLOYED	The linked organisation is the employer
organisations	LEAD_ORG	The linked organisation is the Lead Research Organisation
organisations	COLLAB_ORG	The linked organisation is a Collaborating Organisation
organisations	FELLOW_ORG	The linked organisation is a Fellow Organisation
organisations	COFUND_ORG	The linked organisation is a Co-Funder
organisations	PP_ORG	The linked organisation is a Project Partner
organisations	FUNDER	The linked organisation is a Funder
outcomes	KEY_FINDING	The linked outcome is a Key Finding
outcomes	COLLABORATION	The linked outcome is a Collaboration
outcomes	DISSEMINATION	The linked outcome is a Dissemination
outcomes	EXPLOITATION	The linked outcome is an Exploitation
outcomes	FURTHER_FUNDING	The linked outcome is a Further Funding
outcomes	IMPACT_SUMMARY	The linked outcome is an Impact Summary
outcomes	IP	The linked outcome is an Intellectual Property
outcomes	POLICY	The linked outcome is a Policy Influence
outcomes	PRODUCT	The linked outcome is a Product Intervention
outcomes	RESEARCH_MATERIAL	The linked outcome is a Research Material
outcomes	SPIN_OUT	The linked outcome is a Spin Out
outcomes	OTHER_RESEARCH_ITEMS	The linked outcome is an Other Research Item
outcomes	PUBLICATION	The linked outcome is a Publication
funds	FUND	The linked Fund
projects	PROJECT	The linked Project

COMMUNICATION OF CHANGES

The versioning of the interface should help to isolate you from changes to the interface. We will broadcast new versions via the GtR category on the RCUK blog (<http://blogs.rcuk.ac.uk/category/gtr/>) and will set up a mailing list in due course.