Rational. Focal Point
Release 6.4

IBM

RESTful API Reference Manual

Focal Point RESTful API Overview

The RESTful API for Focal Point uses the HTTP protocol to send and retrieve XML documents. To be able to understand and use the RESTful API, the intended user of this document is assumed to be familiar with the principles for REST and to have knowledge about HTTP, XML and XML Schema.

The RESTful API for Focal Point is a provisional API, not for production use and subject to change at any time.

Setup

All URIs returned by Focal Point are absolute. To create absolute URIs, the Focal Point server must have information about its own server name. This setting is configured in **Application > Login Page > Login or Balancer URL**.

Authentication

All requests to the RESTful API must be authenticated using HTTP Basic Authentication.

Note that user name and password will be sent without any encryption, unless HTTPS is used.

Note that there is no character encoding specified for the user name and password in HTTP Basic Authentication. This means that user names and passwords only can include ASCII characters. It may be possible to use ISO-8859-1 characters if they are correctly encoded by the client.

Character encodings

All XML retrieved from Focal Point will use the UTF-8 character encoding.

For XML sent to Focal Point, the charset of the Content-Type HTTP header will be used if present. Otherwise the encoding specified in the XML prolog will be used, or, if no prolog is present, the default for XML. Note that the used encoding must match any declared encoding.

To avoid confusion, always use UTF-8 when communicating with Focal Point and specify it in both HTTP header and XML prolog.

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About links

All XML representation of the Focal Point resources may contain links to other resources, using the XML element *link*. Link is similar to link found in the Atom format. See http://www.atomenabled.org/developers/syndication/atom-format-spec.php#element.link

Link attributes	**Description**
Mandatory	
href	The URI of the referenced resource
Optional	
rel	The rel attribute can have one of the following attributes: • **alternate** - an alternate representation of the resource, for example a html page • **enclosure -** a related resource which is potentially large in size and might require special handling, for example a binary file • **related –** a related resource. • **self** - the resource itself • **edit-** a reference to a resource that can be edited, which may be the resource itself
title	A human readable title of the link
type	The media (MIME) type of the resource
hreflang	The language of the resource
length	The size of the referenced resource in bytes

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Service document

The service document is the starting point of the RESTful API. The URI for the service document is *<your Focal Point main URL>/<context>/resources/* - for example http://fp.example.com/fp/resources/.

The service document lists all workspaces that the current user has access to. For each workspace, all modules, display views and add views that the user has access to will be listed.

Note: Only users with the access level Workspace Administrators have access to modules.

Each module and view contains an element collection that can be visualized in four different ways in the service document:

Link	Visualization
indexList	A flat list of elements, that only includes the title and URI of each element. If a sort attribute is defined, elements will be sorted accordingly.
indexTree	A tree structure of elements that only includes the title and URI of each element. The title, but not URI of folders that not are displayed will be included.
fullList	A flat list of elements that includes all attribute values for the attributes in the view or module. If a sort attribute is defined, elements will be sorted accordingly.
fullTree	A tree structure of elements that includes all attribute values for attributes in the view or module.

Details and annotations of the XML format for the service document can be found in the XML Schema document. The URI for the schema is found in the *schemaLocation* XML attribute of the service document.

Element collection

An element collection is the contents of a view or module. The URI for an element collection is stated in the service document.

The XML representation of the element collection contains a URI for each individual element in the element collection. The collection may, or may not include attribute values (depending on which link that was chosen from the service document). The collection may be structured as tree or be a flat list (also depending on the link that was chosen from the service document). A single element always contains all attribute values and contains more details than the collection.

The XML format for the element collection is defined by the XML Schema document in the *schemaLocation* XML attribute. The XML Schema is unique for each view and module, and dynamically reflects the attribute setup of the module or view. The schema may change if:

- an attribute is added, removed or changed
- a view definition is changed, or
- a module is renamed

An element can be added to the collection (if the collection is an add view or a module) using POST. The body of the request must contain an XML representation of the element. The XML format that should be used is described by the XML Schema for the collection.

If the collection is an add view, the contents of the view will be the folders that are allowed to be used as parents when a new element is added.

Getting changes

It is possible to filter the element collection by elements that have changed since a specified date. This is done by adding the query parameter *ModifiedSince* to the element collection URI. The value for ModifiedSince should be a date time value. All elements that have attributes that logs history and has changes since ModifiedSince will be included.

The format of ModifiedSince should be an [XML Schema dateTime]() string or a string that can be parsed using one of the following [Java SimpleDateFormat]() patterns:

```
yyyy-MM-dd'T'HH:mm:ss z
yyyy-MM-dd'T'HH:mm z
yyyy-MM-dd
yyyy-MM-dd HH:mm:ss z
yyyy-MM-dd HH:mm z
```

Example:

```
http://fp.example.com/fp/resources/workspaces/3/modules/31/elements/?Modifie
dSince=2009-01-22T12:00:00%2B01:00

http://fp.example.com/fp/resources/workspaces/3/modules/31/elements/?Modifie
dSince=2009-01-22T12:00

http://fp.example.com/fp/resources/workspaces/3/modules/31/elements/?Modifie
dSince=2009-01-22T12:00+GMT%2B01:00
```

Element

The representation of an element contains all attribute values for the element, and all related links to other resources. An element is updated by updating individual attributes in the element, the element cannot be updated itself. Each editable attribute will have an edit link that can be used when updating the attribute value. It can also be used to retrieve the attribute value, but it will be identical to the value in the representation of the element.

The XML format is defined by the XML Schema document found in the *schemaLocation* XML attribute. The XML Schema is unique for each view and module and dynamically reflects the attribute setup of the module or view. The schema may change if:

- an attribute is added, removed or changed
- a view definition is changed, or
- a module is renamed

Attribute

The representation of an attribute contains the value of the attribute. The XML is the same as included in the XML representation for an element, except in the case of a TextList attribute where the single attribute value representation also includes edit links for each text entry in the list.

The XML format is defined by the XML Schema document found in the *schemaLocation* XML attribute. The XML format is similar for all attribute types, but some parts are unique to each attribute configuration. If the attribute configuration is changed, the XML Schema may dynamically change.

An attribute value can be changed using PUT, POST or DELETE.

PUT is used to update the following attribute types: CheckBox, Choice, Date, Float, Integer, Link, LinkList, Matrix, Multichoice, Text, URL, UniqueId.

For attributes of type TextList and File, POST is used to add a text entry or a file, PUT is used to update a text entry or file and DELETE is used to remove a text entry or file.

For a Version attribute, POST is used to increment to the next major version.

The XML format for updating an attribute value is different than the XML representation of the value. For example a Text attribute may have both a text value and an expression but when updating, it can be given either a new text value or an expression. The XML that should be used when updating an attribute is described by the XML Schema document for the attribute.

More information

Contacting IBM Rational Software Support

If the self-help resources have not provided a resolution to your problem, you can contact IBM® Rational® Software Support for assistance in resolving product issues.
Note If you are a heritage Telelogic customer, a single reference site for all support resources is located at http://www.ibm.com/software/rational/support/telelogic/

Prerequisites

To submit your problem to IBM Rational Software Support, you must have an active Passport Advantage® software maintenance agreement. Passport Advantage is the IBM comprehensive software licensing and software maintenance (product upgrades and technical support) offering. You can enroll online in Passport Advantage from http://www.ibm.com/software/lotus/passportadvantage/howtoenroll.html
•To learn more about Passport Advantage, visit the Passport Advantage FAQs at http://www.ibm.com/software/lotus/passportadvantage/brochures_faqs_quickguides.html.
•For further assistance, contact your IBM representative.
To submit your problem online (from the IBM Web site) to IBM Rational Software Support, you must additionally:
•Be a registered user on the IBM Rational Software Support Web site. For details about registering, go to http://www.ibm.com/software/support/.
•Be listed as an authorized caller in the service request tool.

Submitting problems

To submit your problem to IBM Rational Software Support:
1. Determine the business impact of your problem. When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem that you are reporting.

Use the following table to determine the severity level:

Severity	Description
1	The problem has a *critical* business impact: You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.
2	This problem has a *significant* business impact: The program is usable, but it is severely limited.
3	The problem has *some* business impact: The program is usable, but less significant features (not critical to operations) are unavailable.
4	The problem has *minimal* business impact: The problem causes little impact on operations or a reasonable circumvention to the problem was implemented.

2. Describe your problem and gather background information, When describing a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Rational Software Support specialists can help you solve the problem efficiently. To save time, know the answers to these questions:
•What software versions were you running when the problem occurred?
To determine the exact product name and version, use the option applicable to you:
•Start the IBM Installation Manager and select **File** > **View Installed Packages**. Expand a

package group and select a package to see the package name and version number.
•Start your product, and click **Help** > **About** to see the offering name and version number.
•What is your operating system and version number (including any service packs or patches)?
•Do you have logs, traces, and messages that are related to the problem symptoms?
•Can you recreate the problem? If so, what steps do you perform to recreate the problem?
•Did you make any changes to the system? For example, did you make changes to the hardware, operating system, networking software, or other system components?
•Are you currently using a workaround for the problem? If so, be prepared to describe the workaround when you report the problem.

3. Submit your problem to IBM Rational Software Support. You can submit your problem to IBM Rational Software Support in the following ways:
•**Online:** Go to the IBM Rational Software Support Web site at https://www.ibm.com/software/rational/support/ and in the Rational support task navigator, click Open Service Request. Select the electronic problem reporting tool, and open a Problem Management Record (PMR), describing the problem accurately in your own words.
For more information about opening a service request, go to http://www.ibm.com/software/support/help.html
You can also open an online service request using the IBM Support Assistant. For more information, go to http://www.ibm.com/software/support/isa/faq.html.
•**By phone:** For the phone number to call in your country or region, go to the IBM directory of worldwide contacts at http://www.ibm.com/planetwide/ and click the name of your country or geographic region.
Through your IBM Representative: If you cannot access IBM Rational Software Support online or by phone, contact your IBM Representative. If necessary, your IBM Representative can open a service request for you. You can find complete contact information for each country at http://www.ibm.com/planetwide/.

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