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Rational Focal Point RESTful API

The RESTful API for IBM® Rational® Focal Point™ uses HTTP to send and retrieve XML documents. To understand and use the RESTful API, you must be familiar with the REST principles and with HTTP, XML, and the XML Schema.

You can refer to the REST API examples to learn how to use the APIs for Rational Focal Point. The examples are in Java source files that can be compiled and run.

The RESTful API examples are available in Rational Focal Point install directory\apiexamples\RESTAPIExample.zip. An administrator having access to the application server on which Rational Focal Point is installed can provide you with the example package. For more information about the source files and the process to compile the code, see the readme file in the example package.

Setup

The URIs that Rational Focal Point returns are absolute. To create absolute URIs, the Rational Focal Point server must have information about its own server name. To configure this setting, click **Application > Login Page > Login or Balancer URL**.

Authentication

The requests to the RESTful API must be authenticated by using HTTP basic authentication. Unless you use HTTPS, the user name and password are sent without encryption. In HTTP basic authentication, character encoding is not specified for user names and passwords. User names and passwords can include ASCII characters only. You might be able to use ISO-8859-1 characters if the client correctly encodes the characters.

Character encoding

All XML that is retrieved from Rational Focal Point uses UTF-8 character encoding. For XML that is sent to Rational Focal Point, the charset of the Content-Type HTTP header is used, if present. Otherwise, the encoding that is specified in the XML prolog is used. If no prolog is present, the default for XML is used. The used encoding must match any declared encoding. To avoid confusion, use UTF-8 when you communicate with Rational Focal Point and specify UTF-8 in both the HTTP header and XML prolog.

Links

All XML representations of Rational Focal Point resources can link to other resources by using the XML element link. That link is similar to link found in the Atom format. For more information, 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: aalternate : An alternate representation of the resource. Example: an HTML page enclosure : A related resource that might be large and require special handling. Example: a binary file rrelated : A related resource sself : The resource itself edit : A reference to a resource that can be edited, which might 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

Service documents

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

The service document lists the workspaces that the current user can access. For each workspace, the modules, display views, and add views that the user can access are listed.

Note: Only workspace administrators can access modules.

Each module and view contains an element collection. You can view the element collection in four ways in the service document:

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

For details and annotations of the XML format for the service document, see the XML Schema document. The URI for the schema is in the *schemaLocation* XML attribute of the service document.

Element collections

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 element in the element collection. Depending on the link that was chosen in the service document, the collection might include attribute values and might be structured as tree or a flat list. A single element 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 might change in the

following situations:

- An attribute is added, removed, or changed
- A view definition is changed
- A module is renamed

If a collection is an add view or a module, you can add an element to the collection by using POST. The body of the request must contain an XML representation of the element. The XML format to use is in the XML Schema for the collection.

If the collection is an add view, the contents of the view are the folders that can be parents when a new element is added.

Note: RESTful APIs ignore the filters that are applied in views. All the elements of a view are displayed.

Changed elements

You can filter the element collection to display only elements that have changed since a specified date. To filter a collection, add the ModifiedSince query parameter to the URI of the element collection. The value for ModifiedSince is a datetime value. All elements that have attributes that log history and that have changed since the date that the ModifiedSince value indicates are included.

The format of the ModifiedSince parameter must be an [XML Schema dateTime](#) string or a string that can be parsed by 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/?
ModifiedSince=2009-01-22T12:00:00%2B01:00
```

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

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

Elements

The representation of an element contains all attribute values for the element and all related links to other resources. An element is updated when individual attributes in the element change; the element cannot be updated as a whole. Each editable attribute has an **edit** link that you can click to update the attribute value. You can also use the link to retrieve the attribute value, but that value is identical to the value in the representation of the element.

The XML format 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 might change in one of the following situations:

- An attribute is added, removed, or changed
- A view definition is changed
- A module is renamed

Attributes

The representation of an attribute contains the value of the attribute. The XML is the same as the XML included in the XML representation for an element, except in the case of a TextList attribute. In that case, 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 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 might change dynamically.

You can change an attribute value by using PUT, POST, or DELETE:

- Use PUT to update the following attribute types: CheckBox, Choice, Date, Float, Integer, Link, LinkList, Matrix, Multichoice, Text, Time Grid, URL, and UniqueId.
- For TextList and File attributes, use POST to add a text entry or a file, use PUT to update a text entry or file, and use DELETE to remove a text entry or file.
- For a Version attribute, use POST to increment to the next major version.

The XML format to update an attribute value is different than the XML representation of the value. For example, a Text attribute might have both a text value and an expression, but when the attribute is updated, it can be given either a new text value or an expression. When you update an attribute, use the XML that is described by the XML Schema document for the attribute.

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