

Automation of Work item in ALM using cURL

Ms. Rachana M S¹,

Department of Information Science and Engineering
RV College of Engineering
Mysuru Road
Bengaluru, India

Prof S G Raghavendra Prasad²,

Department of Information Science and Engineering
RV College of Engineering
Mysuru Road
Bengaluru, India

Abstract—The world is moving towards the Automation. Work items are the fundamental mechanism in Rational Team Concert to track and coordinate development tasks and workflows, it represents the work that needs to be done such as tasks or story, one approach to Automate the work item in the RTC ALM is through cURL tool. In this paper, we present the concept of using information from RTC, such as requirement fields in the project area, create work items by posting XML representation to a factory URL. The usage of REST client API is for testing purpose to retrieve the information from the project area in ALM. This approach is more efficient, reduces the time to create the work item rather than using java API's.

Keywords—: Automation, cURL tool, ALM, Rest client API, Testing, RTC;

1. INTRODUCTION

The main use of cURL to be able to interact with OSLC API without using API's of Java , with less time is very effective and ease method to automate the work item , the developer should understand the OSLC working principle , that will help in finding the what API's and technology are used to interact with Server. cURL is a command line tool used for data transferring by writing URL syntax. It supports more protocols which includes HTTP(S), is the protocol used to interact with the REST API of Server. So, cURL will help interacting with the Server directly from a command line interface without using programming language. cURL is free, an open software and tool which is stable that runs and complies under variety of operating systems including Apple iOS, DOS, Linux, Windows. Initial step to download the latest CURL and installing in the machine is done on windows.

In order to do automation the developer should understand and have knowledge about Rational Team concert fundamentals ,the process configuration fundamentals like project area ,Project area defines the process in the ALM , are to be created in the RTC application , Project area is known by running the query on the REST client API , the developer should have access to the project area , the work item fundamentals, Work items help to do a lot of things in RTC ,Work items are available in the project area . Since each project area has its own process, the work item depends on that process and lives within the project area. Creation of work items in the project area are

done by manual approach by filling all the mandatory fields and by creating the work item. cURL tool helps in the automating work item with less short of time by passing the required information through the query. When creating work items it is necessary to provide some basic information. Work items require at least have a type, title, Filed against and summary. It is possible to define which information is needed to be present when saving a work item in the process configuration while automation. The work item's attribute Filed against allows to select and set the work item's category, A work item can have exactly one responsible person, as the Owner.

The web Application tool must authenticate the users who are performing actions, to do this authentication , a scheme called form-based authentication used by JAZZ foundation, the application provides the user name and password in a POST request to the authentication HTTPS URL which will authenticate the user and respond with one or more cookies that allow the application to perform actions on behalf of the user without having to keep retrying the authentication.

The web application tool is designed using MVC 5 architecture , where web page design is done with the mandatory fields , when the user enters the details and submits the web page , The ALM tickets are created , the user can redirect to the ALM page using the work item number where the information is filled by the user in the web page is reflected in the RTC ALM tool.

2. LITERATURE REVIEW

In [1], The paper describes about the implementation of automatic ticketing system in the city of Dhaka. It deals with deploying RFID readers on the bus for the passive tags issued to the users. There's also an implementation of the detection algorithm which controls the entry and exit of passengers. There are 2 tags installed in the bus – one at the front and another at the rear. The RFID reader present at the bus stop reads the tag installed at the rear of the bus and this used to log the arrival and departure times of the bus at the bus stop which helps the transport corporation to monitor the punctuality of the operations

In [2], the ticketing system is based on the precise calculation of the distance travelled by the bus. A device called cyclometer is coupled to the wheels of the bus which works in a way very similar to the hall effect sensor used for measuring the total number of wheel rotations and hence determining the distance travelled. The fare from the user's credit would be withdrawn in accordance with the distance travelled

In [3], An electronic voucher system, which intended to replace paper vouchers by an electronic wristlet was developed by the e-lab, Artesis' research lab. This project has lead to the development of the Tapango system. The NFC technology has been used to create one, universal "wallet" for different events, the system is an attempt to replace paper ticketing services used nowadays. In this paper we provide a valid comparison between electronic and paper ticketing system by means of user feedback, benchmarking and real-life test cases

3. OVERVIEW OF TOOL USED

A. Curl command line tool

To begin with, considering an example of the server <https://host.server.com:1289/ccm/rootservices>, replace <https://host.server.com:1289> with the address the server handling your CCM application. RTC provides some REST API's that can be used to access and manipulate data. It also provides OSLC based APIs to access some of its data this document lists all the root services available from your RTC repository. Initially the developer should get the existing work item in xml file form by performing the GET method sending the query in cURL command.

The following commands are required to create the work item in the ALM

Step 1 : To login to the project area
services set the username
set USER= abc

set the
password set
PWD= abc

set the cookies file by giving the location on the local PC set COOKIES=cookies.txt

Authentication to the ALM
users curl.exe -k -c
%COOKIES%
<https://host.server.com:1289/ccm/authenticated/identity>

curl.exe -k -L -b %COOKIES% -c %COOKIES% -d
username= abc -d password =abc
https://host.server.com:1289/ccm/authenticated/j_security_check

Step 2: To read RTC work item using cURL command

```
curl.exe -k -b %COOKIES% -H "Accept: application/x-  
oslc-cm-change-request+xml"  
https://host.server.com:1289/ccm/resource/itemName/com.ibm.team.workitem.WorkItem/1
```

it will list the information of the work item

1 Step 3: To create RTC work items using

cURL

Do the authentication process in step 1, this step is mandatory.

The read work item from the step 2 command's will result in form of xml file, copy the output xml file to some editor , make some necessary changes in the xml file and run the command to create the work item. Representation of xml file, use a separate file named newtask.xml

```
curl.exe -k -b %COOKIES% -H "Content-Type:  
application/x-oslc-cm-change-request+xml" -H "Accept:  
text/xml" -X POST -d @newtask.xml  
https://host.server.com:1289/ccm/oslc/context/\_TN0swJPU  
EeOnRa9khWwR1A/workitems/task where  
new task is the xml filename,  
_TN0swJPUEeOnRa9khWwR1A represents the project  
area of the ALM. Below Fig 1 is the example for the xml  
file.
```

4. METHODOLOGY

The project is done using c# language using MVC 5 architecture. The MVC model is commonly used for developing modern user interfaces. While programming, the controller handles the user request. Typically, the user uses the view and raises an HTTP request, which will be handled by the controller. The controller processes the request and returns the appropriate view as a response, it consists of where methods such as business logic, the cURL commands with authentication is made run on the batch file, xml file is created using Xnamespace in c# language To create an element or an attribute that is in a namespace, you first declare and initialize an Xnamespace object. The following Fig.2 creates a xml document with one namespace.

```
XNamespace oslc = "http://www.example.com";  
XElement root = new XElement(oslc + "Root", new XAttribute ( XNamespace.Xmlns + "oslc",  
"http://www.example.com"),  
);  
doc.save(xmlFile);
```

Fig. 2 –An example of Xnamespace format to create xml doc.

```
<oslc_cm:ChangeRequest
  xmlns:oslc_cm="http://open-services.net/xmlns/cm/1.0/"
  xmlns:dc="http://purl.org/dc/terms/"
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:calm="http://jazz.net/xmlns/prod/jazz/calm/1.0/"
  xmlns:rtc_cm="http://jazz.net/xmlns/prod/jazz/rtc/cm/1.0/"
  xmlns:oslc_pl="http://open-services.net/ns/pl#"

  <rtc_cm:filedAgainst rdf:resource="https://host.server.com:1289/ccm/resource/itemOid/com.ibm.team.workitem.Category/_UFKkcJPUEe0nRa9khWwR1A"/>
  <oslc_cm:priority <span="" class="hiddenSpellError" pre="priority " data-mce-bogus="1">rdf:resource="https://host.server.com:1289/ccm/oslc/
enumerations/_TN0swJPUEe0nRa9khWwR1A/priority/priority.literal.101"/>
  <oslc_cm:severity <span="" class="hiddenSpellError" pre="severity " data-mce-bogus="1">rdf:resource="https://host.server.com:1289/ccm/oslc/
enumerations/_TN0swJPUEe0nRa9khWwR1A/severity/severity.literal.13"/>
  <dc:title>New PK Task</dc:title>
  <rtc_cm:plannedFor rdf:resource="https://host.server.com:1289/ccm/oslc/iterations/_TPm1c5PUEe0pAbBwyZpuzw"/>
</oslc_cm:ChangeRequest></pre>
</pre>
```

Fig. 1 – An example of Xml file

The xml file is saved in the document and sent as the parameter to execute in the process to create the work item.

The automation of the work item is done through an web application page, where the user interacts with web page, gets authentication from the ALM, fills the input details with validation and thus by creating the ALM ticket automatically with cURL tool.

5. RESULT

The result can be seen from the above fig 3 The ALM tickets are been created successfully and is reflected in the ALM dashboard. In the below Fig. 3, two work items are created, one is the parent story ALM, the other is the child task ALM ticket, the result show here is by running the project through the web application , the result is displayed in the web page.



Fig. 3 – ALM work items created

6. CONCLUSION

The automation of the work item is done by using cURL commands, this approach is very effective and saves time for the developers, whereas using Java APIs, the user has to get the permission from the ALM, to access the work item, authentication itself from the Java API's is a tedious job for the ALM users, Thus using REST client API and cURL method, the automation of the work item is easily done, The ALM work items created are reflected in the ALM dashboard in the queries section.

7. FUTURE WORK

To automate the work item using cURL command line tool POST method is done by creating web application page, In future the update of the work item in the ALM can be done i.e. PUT or PATCH method by passing through the cURL command line.

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