International Journal of Management, IT & Engineering
Vol. 7 Issue 11, November 2017,
ISSN: 2249-0558 Impact Factor: 7.119
Journal Homepage: http://www.ijmra.us, Email: editorijmie@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gage as well as in Cabell's Directories of Publishing Opportunities, U.S.A

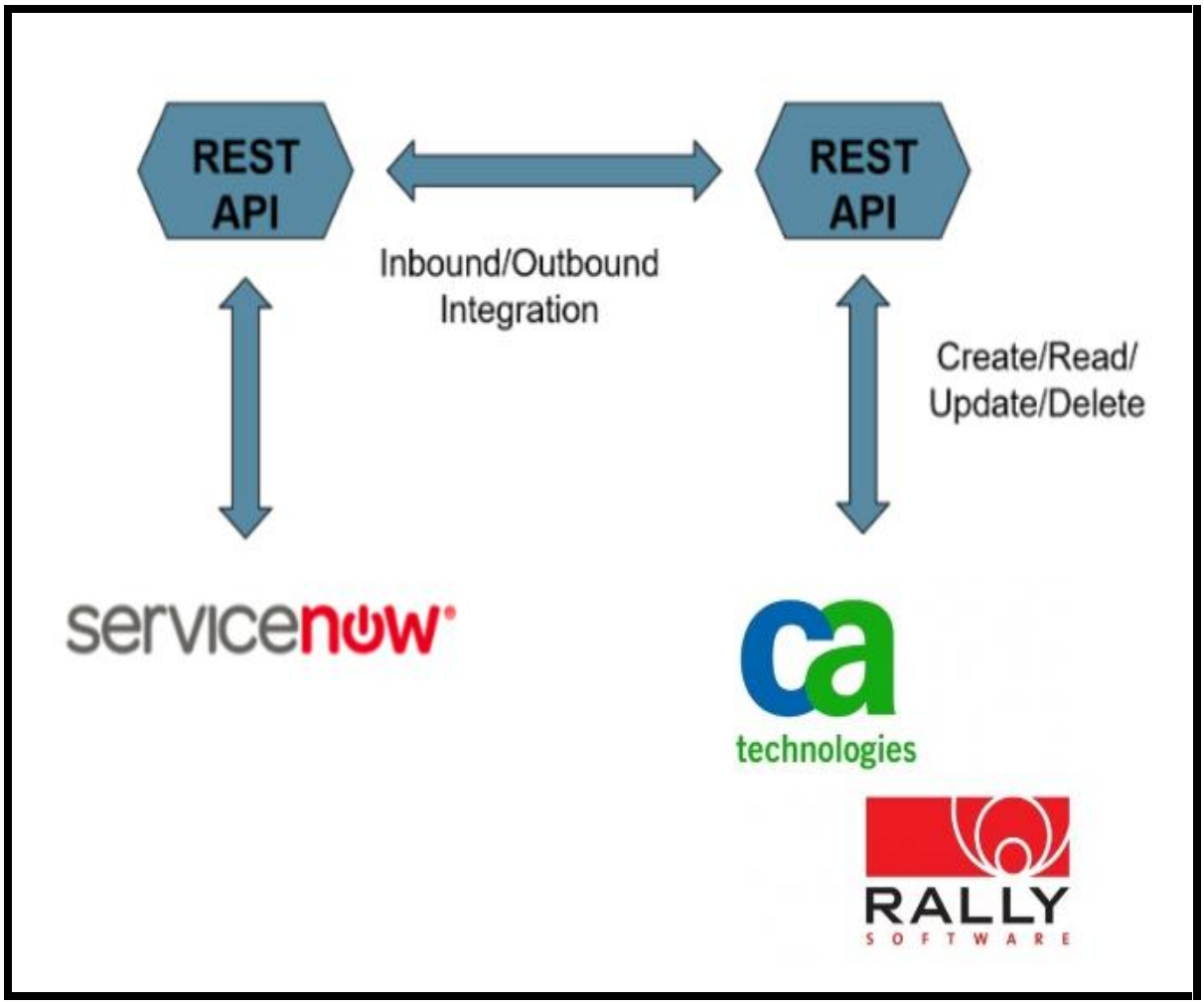
SERVICE-NOW ←→ CA AGILE CENTRAL (RALLY) INTEGRATION DOCUMENT

Sriram Nandiraju (Ram) *

Introduction: The objective is to allow the creation of the User Story from a SNOW RITM to be automated so that transferring the data is not a manual and time-consuming process. This also will allow users to receive updates more frequently as updates to the User Story occur as the work notes within SNOW will reflect the same.

Below is the high-level architecture of the integration between Service-Now and Rally.

* Principal Software Developer in Sabre Corporation. He has 14 years of experience in IT and has worked in multiple technologies.


REST API
REST API
Inbound/Outbound Integration
Create/Read/ Update/Delete
servicenow
ca technologies
RALLY SOFTWARE

This document is divided into 6 sections.

1. Rally Configuration (click here)
2. Service-Now configuration (click here)
3. Demo (click here)
4. Known Issues (click here)
5. Scope for enhancement (click here)
6. Research Items (click here)

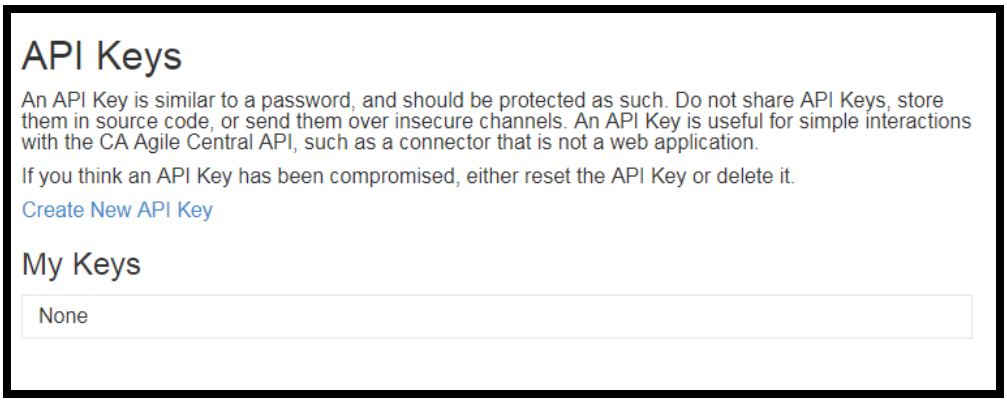
Rally Configuration

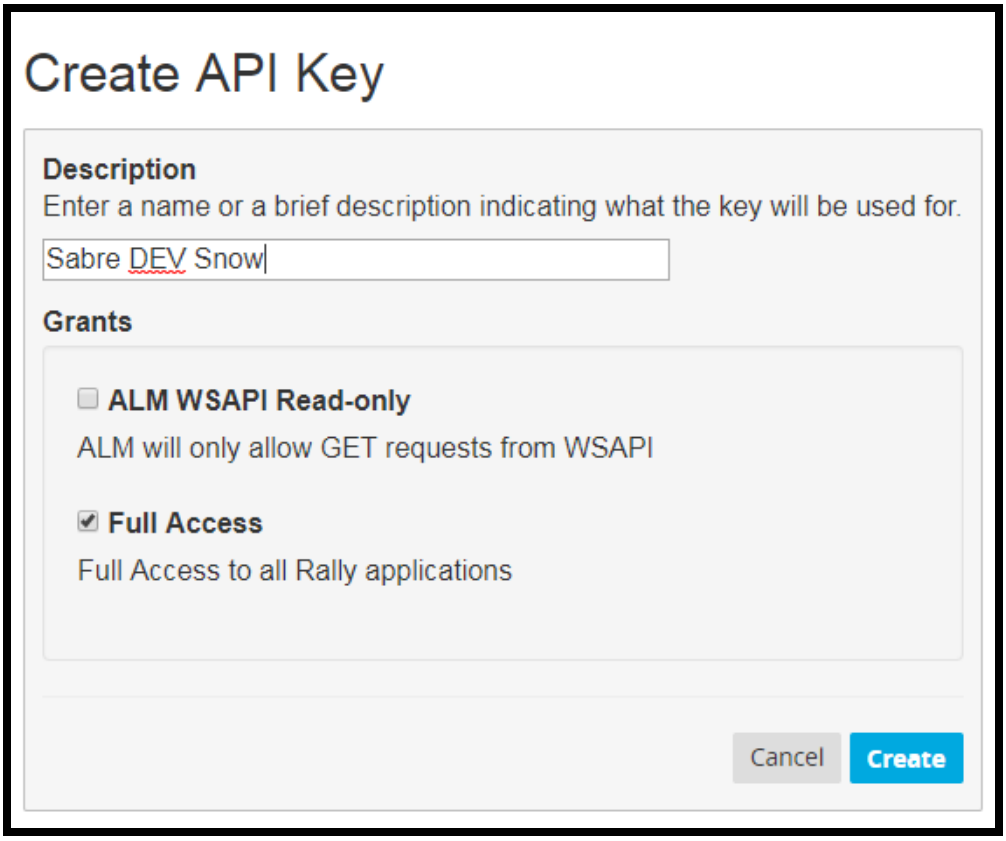
Rally Webhooks: They allow you to create rules in CA Agile Central that send information to an external server when the rule triggers.

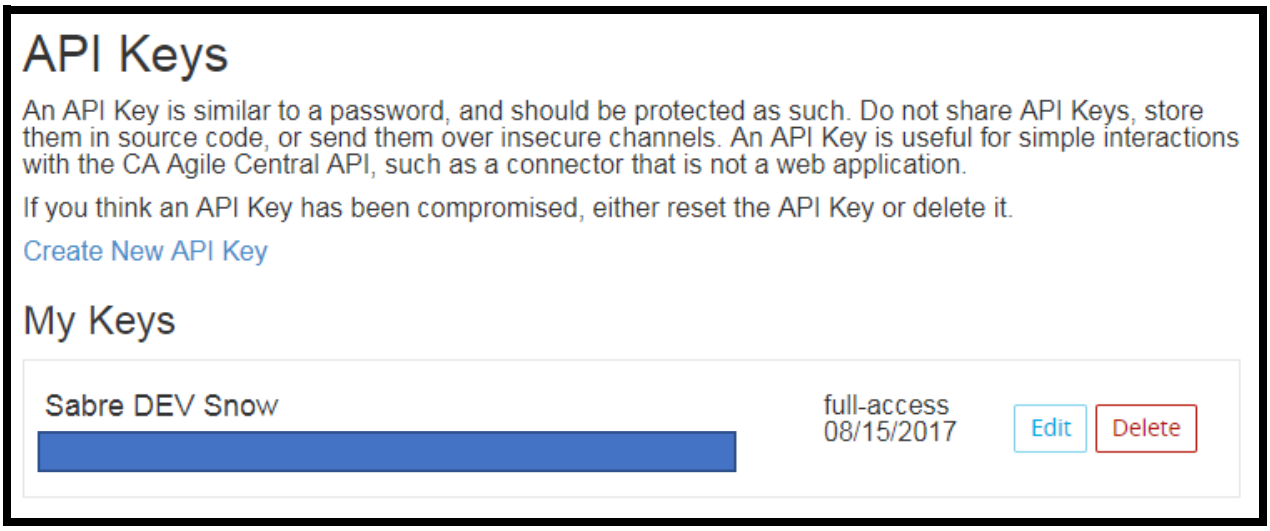
Some useful applications of webhooks include:

- Receive an update when a single artifact changes
- Receive updates when any artifact changes in your subscription

Rally Webhooks Authentication: All requests to the webhooks API must be authenticated, proving that the request comes from a user with a valid and active CA Agile Central account.
Create An API Key, which you can create here.







The ZSESSIONID cookie returned when you log in to CA Agile Central.

Then, when making requests to the webhooks API, pass the key as the ZSESSIONID cookie.

The method for doing this will depend on the programming language and HTTP library that you use. Here is an example of a raw HTTP request, showing how to authenticate.

```
POST https://rally1.rallydev.com/apps/pigeon/api/v2/webhook
HTTP/1.1
Host: rally1.rallydev.com
Cookie: ZSESSIONID=blahblahblah
```

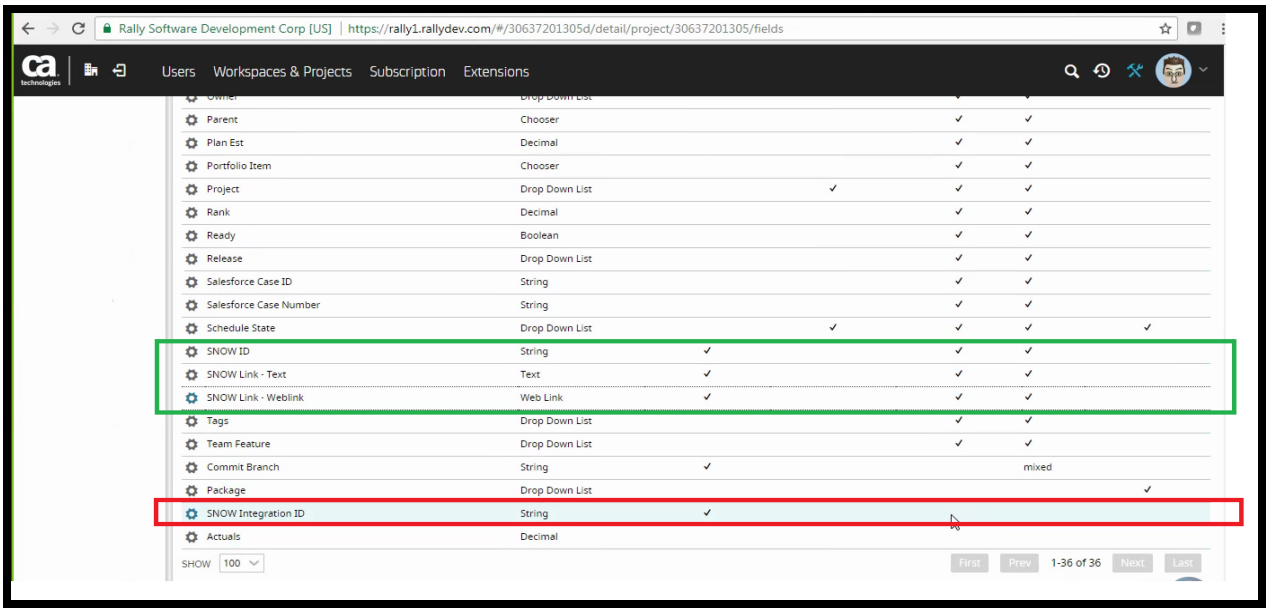
Custom Attributes in Rally: The below custom fields/attributes should be created in Rally.

c_SNOWID	
Required	false
Type	string
Max Length	256
Sortable	true
Explicit Fetch	false
Query Expression Operators	=, !=, >, <, >=, <=, contains, !contains

c_SNOWIntegrationID	
Required	false
Type	string
Max Length	256
Sortable	true
Explicit Fetch	false
Query Expression Operators	=, !=, >, <, >=, <=, contains, !contains

c_SNOWLinkText	
Required	false
Type	string
Max Length	32,768
Sortable	true
Explicit Fetch	false
Query Expression Operators	contains, !contains

c_SNOWLinkWeblink	
Required	false
One-To-One Relationship	WebLink, which has a LinkID field and a DisplayString field.
Sortable	true
Explicit Fetch	false
Query Expression Operators	This attribute cannot be used in queries.



Configuring the Rally Webhook: Inorder to configure the webhook, we need to know the

- fields/attributes on which the webhook gets triggered
- projects which it should monitor

In this exercise, we will configure the webhook on the User Stories in Rally. Hence go to the URL https://rally1.rallydev.com/slm/webservice/v2.0/TypeDefinition?fetch=Attributes
Search for "_refObjectName": "Hierarchical Requirement"


```
{
        "_rallyAPIMajor": "2",
        "_rallyAPIMinor": "0",
        "_ref":
        "https://rally1.rallydev.com/slm/webservice/v2.0/typedefinition/30637201358",
        "_refObjectUUID": "b973c120-9226-4fab-a4ff-4cf92514339a",
        "_objectVersion": "1",
        "_refObjectName": "Hierarchical Requirement",
        "Attributes": {
        "_rallyAPIMajor": "2",
        "_rallyAPIMinor": "0",
        "_ref":
        "https://rally1.rallydev.com/slm/webservice/v2.0/TypeDefinition/30637201358/Attributes",
        "_type": "AttributeDefinition",
        "Count": 72
},
"_type": "TypeDefinition"
},
```


NOTE: The data in the highlighted URL is shown in paginated size of 20.
https://rally1.rallydev.com/slm/webservice/v2.0/TypeDefinition/30637201358/Attributes?start=60

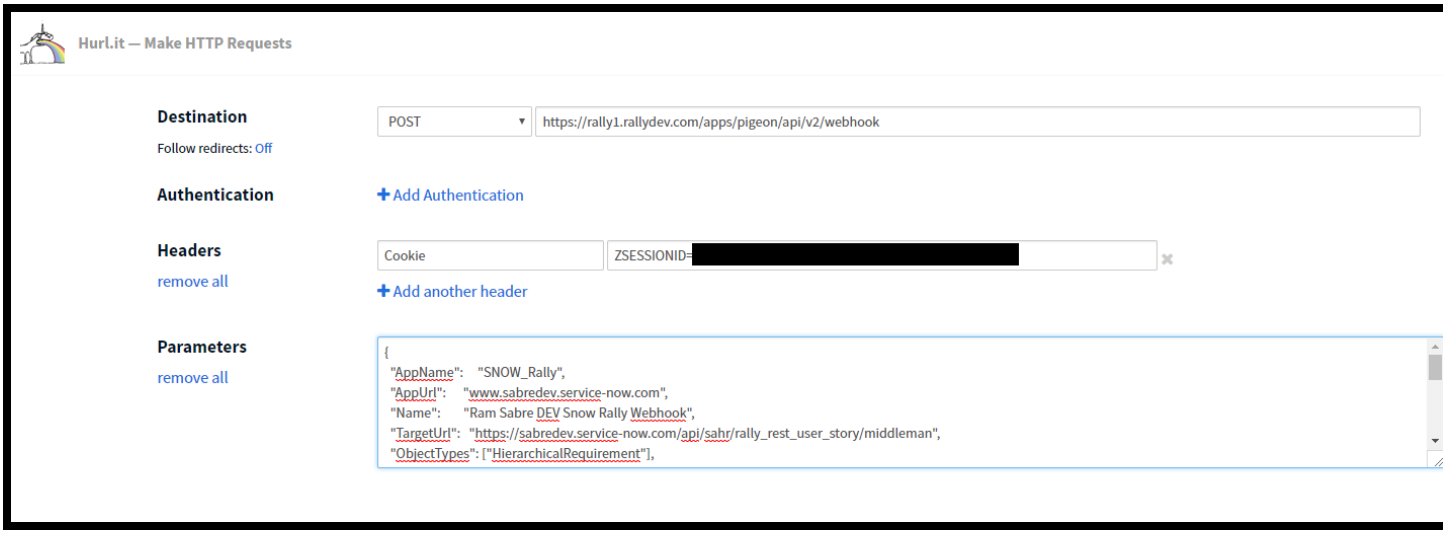
```
{
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/attributedefinition/142854949796",
"_refObjectUUID": "e172ce22-9ec8-4b65-9595-08eb1665b90c",
"_objectVersion": "1",
"_refObjectName": "SNOW Integration ID",
"CreationDate": "2017-08-10T14:41:34.658Z",
"_CreatedAt": "Aug 10",
"ObjectID": 142854949796,
"ObjectUUID": "e172ce22-9ec8-4b65-9595-08eb1665b90c",
"VersionId": "1",
"Subscription": {},
"Workspace": {
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/workspace/30637201215",
"_refObjectUUID": "ee5948bb-365c-4869-bcbf-4c5237e4a3e4",
"_refObjectName": "Integration Workspace",
"_type": "Workspace"
},
"AllowedQueryOperators": {},
"AllowedValueType": null,
"AllowedValues": {},
"AttributeType": "STRING",
"Constrained": false,
"Custom": true,
"DetailedType": null,
"ElementName": "c_SNOWIntegrationID",
"Filterable": true,
"Hidden": true,
"Hideable": true,
"MaxFractionalDigits": 0,
"MaxLength": 256,
"Name": "SNOW Integration ID",
"Note": null,
"Owned": true,
"ReadOnly": false,
"RealAttributeType": "STRING",
"Required": false,
"Sortable": true,
"SystemRequired": false,
"Type": "string",
"TypeDefinition": {
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/typedefinition/30637201358",
"_refObjectUUID": "b973c120-9226-4fab-a4ff-4cf92514339a",
"_refObjectName": "Hierarchical Requirement",
"_type": "TypeDefinition"
},
"VisibleOnlyToAdmins": false,
"_type": "AttributeDefinition"
}
```


We want to configure this webhook on the SNOW Dawgs project

https://rally1.rallydev.com/slm/webservice/v2.0/project?workspace=https://rally1.rallydev.com/slm/webservice/v2.0/workspace/30637201215&query=&start=1&pagesize=70


```
{
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/project/140242043552",
"_refObjectUUID": "d9172927-d540-4885-9cc9-c275b3c48aa8",
"_refObjectName": "SNOW Dawgs",
"_type": "Project"
},
```


Rally Webhook creation: Below is the Rest web service request for creating the Rally Webhook.



The below webhook definition is going to look at any user story in Snow Dawgs project which
has a non-null value in the field/attribute SNOW Integration ID


```
{
  "AppName":      "SNOW_Rally",
  "AppUrl":       "www.sabredev.service-now.com",
  "Name":         "Ram Sabre DEV Snow Rally Webhook",
  "TargetUrl":    "https://sabredev.service-
now.com/api/sahr/rally_rest_user_story/middleman",
  "ObjectTypes": ["HierarchicalRequirement"],
  "Expressions": [
    {
      "AttributeID":    "e172ce22-9ec8-4b65-9595-08eb1665b90c",
      "Operator":       "has"
    },
    {
      "AttributeName": "project",
```

```
      "Operator":      "=",
      "Value":         "d9172927-d540-4885-9cc9-c275b3c48aa8"
    }
  ]
}
```

Emphasis was given to focus on using an Attribute's ID instead of its Name. The ID is guaranteed to match using only the intended Attribute, whereas the Name is less precise. If, for example, a new Attribute named "SNOW Integration ID" were added to another object in the model, the webhook could begin to match changes that you did not intend.

Also, using AttributeID guarantees that expressions will continue to work correctly even if an attribute get renamed, as can happen for custom attributes.

You can find Attribute IDs by examining TypeDefinitions and AttributeDefinitions defined in the WSAPI Object Model.

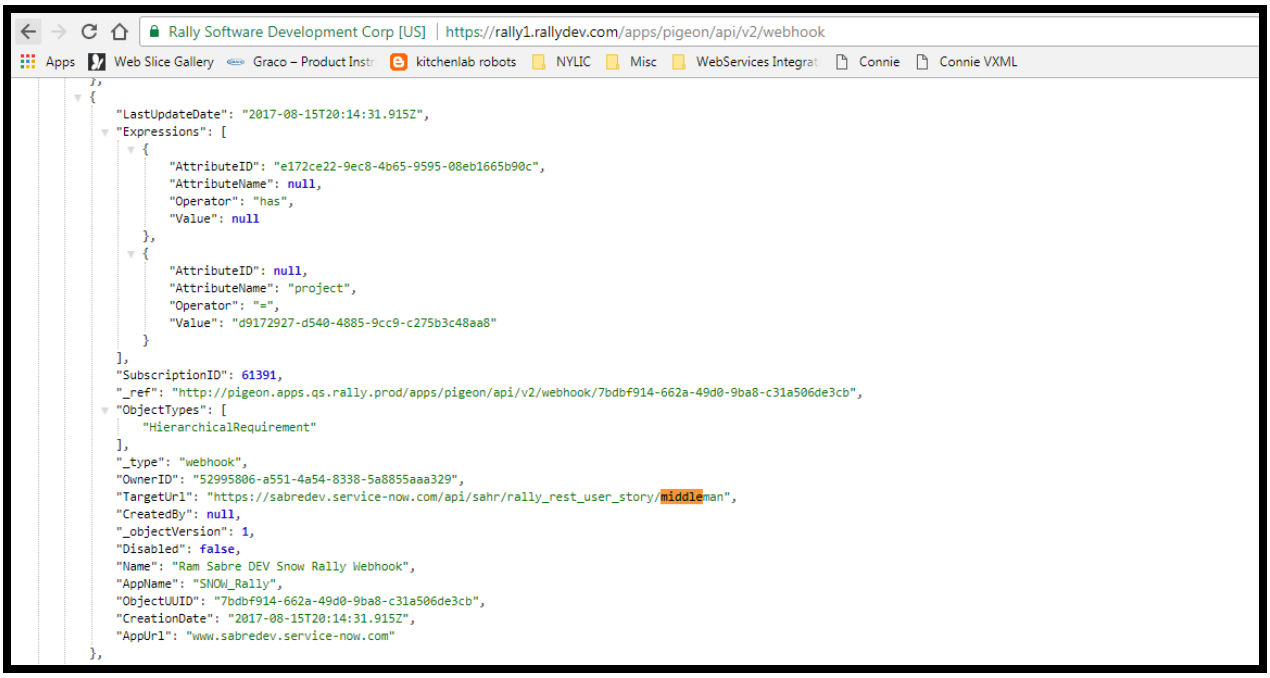
Below is the response from Rally after the successful creation of the webhook.


```
HEADERS

Cache-Control: no-store,max-age=0,must-revalidate
Cf-Ray: 38eed218be0f2432-IAD
Connection: keep-alive
Content-Encoding: gzip
Content-Type: application/json
Date: Tue, 15 Aug 2017 20:14:31 GMT
Server: cloudflare-nginx
Service: pigeon
Set-Cookie: __cfduid=blahblahblah; expires=Wed, 15-Aug-18 20:14:31 GMT; path=/; domain=.rallydev.com; HttpOnly
Strict-Transport-Security: max-age=31536000; includeSubDomains; preload;
Transfer-Encoding: chunked
BODY view raw

{
"LastUpdateDate": "2017-08-15T20:14:31.915Z",
"Expressions": [
{
"AttributeID": "e172ce22-9ec8-4b65-9595-08eb1665b90c",
"AttributeName": null,
"Operator": "has",
"Value": null
},
{
"AttributeID": null,
"AttributeName": "project",
"Operator": "=",
"Value": "d9172927-d540-4885-9cc9-c275b3c48aa8"
}
],
"SubscriptionID": 61391,
"_ref": "http://pigeon.apps.qs.rally.prod/apps/pigeon/api/v2/webhook/7bdbf914-662a-49d0-9ba8-c31a506de3cb",
"ObjectTypes": [
"HierarchicalRequirement"
],
"_type": "webhook",
"OwnerID": "52995806-a551-4a54-8338-5a8855aaa329",
"TargetUrl": "https://sabredev.service-now.com/api/sahr/rally_rest_user_story/middleman",
"CreatedBy": null,
```

```
"_objectVersion": 1,
"Disabled": false,
"Name": "Ram Sabre DEV Snow Rally Webhook",
"AppName": "SNOW_Rally",
"ObjectUUID": "7bdbf914-662a-49d0-9ba8-c31a506de3cb",
"CreationDate": "2017-08-15T20:14:31.915Z",
"AppUrl": "www.sabredev.service-now.com"
}
```

We can query for the list of all the configured webhooks in Rally by hitting the URL https://rally1.rallydev.com/apps/pigeon/api/v2/webhook

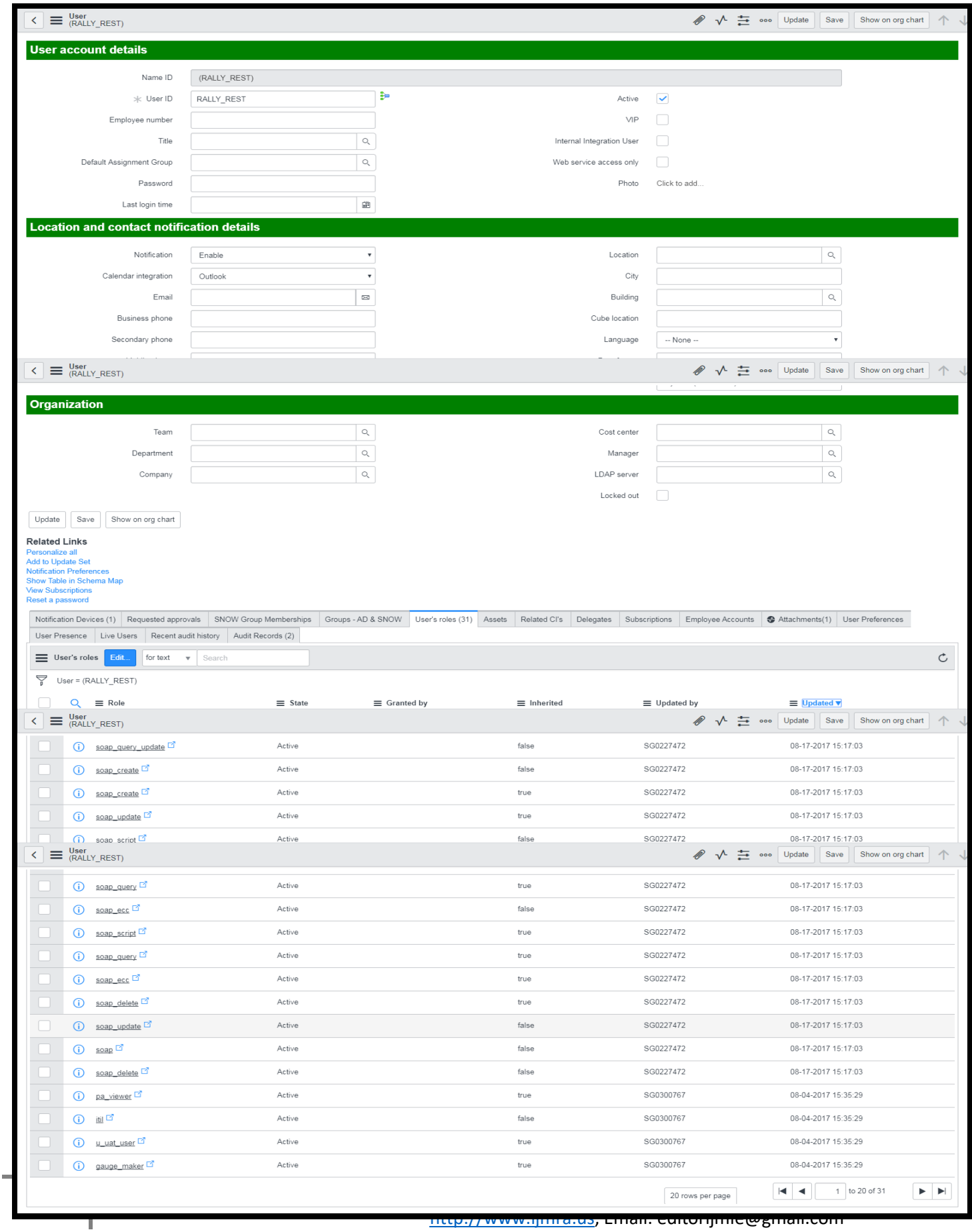
The ObjectUUID is listed below with 7bdbf914-662a-49d0-9ba8-c31a506de3cb which is what we have received in the Rally web service response post the successful creation of the Rally Webhook.



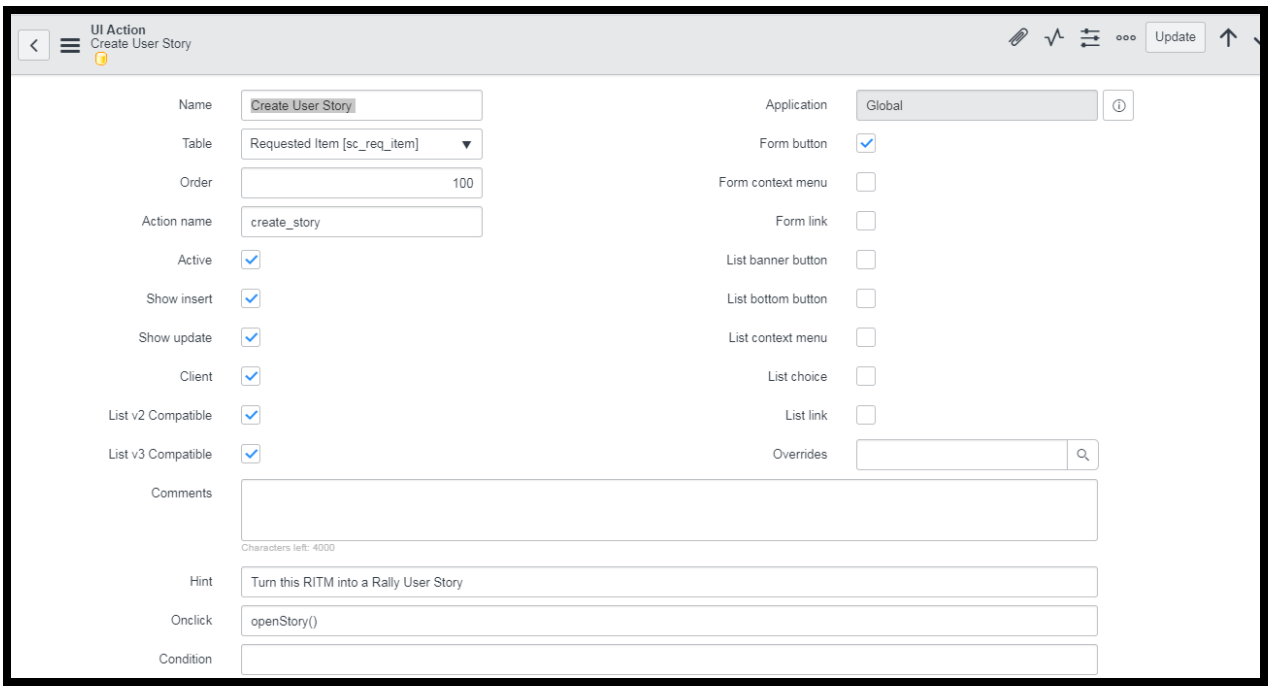
Service-Now Configuration

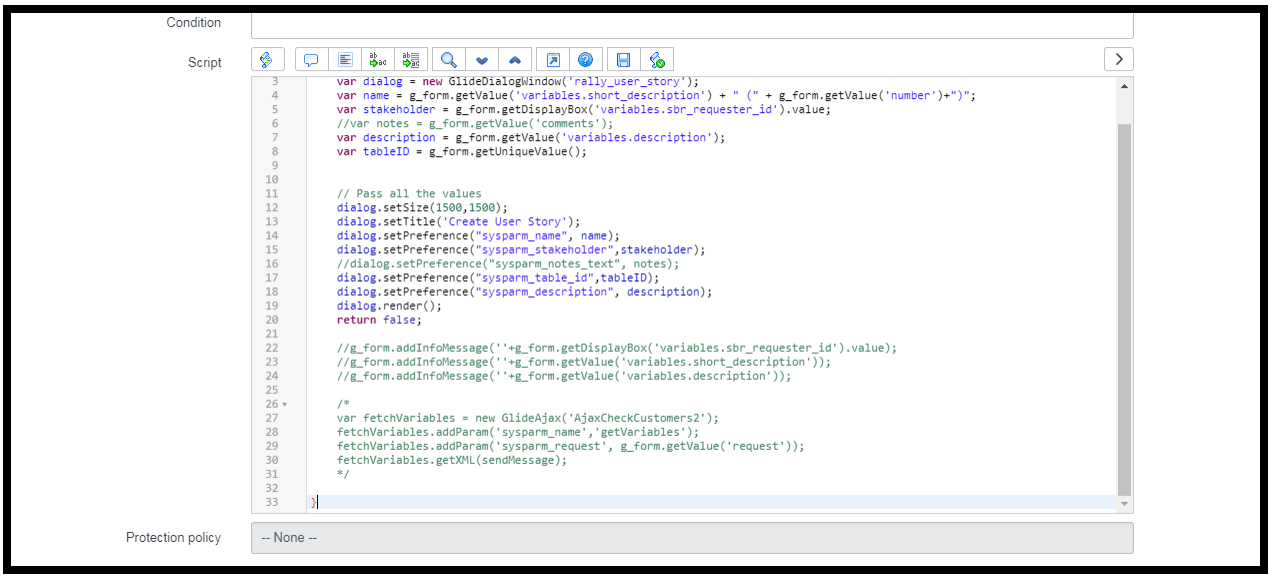
The following configuration needs to be done within Service-now

1. Create USERID with SOAP user rights for Adding attachments into Service-Now
2. UI Action – Create User Story: This UI action calls the UI page and passes variables from the RITM
3. UI Page – rally_user_story: This contains all the script in the processing script section that makes the calls to Rally through REST for creating a user story
4. Style Sheet – Rally Integration Style: Contains the style for the UI Page
5. Scripted REST API – Rally REST API: This updates SNOW RITM based on information changing in Rally


User
(RALLY_REST)
Update
Save
Show on org chart
User account details
Name ID
(RALLY_REST)
User ID
RALLY_REST
Active
Employee number
VIP
Title
Internal Integration User
Default Assignment Group
Web service access only
Password
Photo
Click to add...
Last login time
Location and contact notification details
Notification
Enable
Location
Calendar integration
Outlook
City
Email
Building
Business phone
Cube location
Secondary phone
Language
-- None --
Organization
Team
Cost center
Department
Manager
Company
LDAP server
Locked out
Related Links
Personalize all
Add to Update Set
Notification Preferences
Show Table in Schema Map
View Subscriptions
Reset a password
Notification Devices (1)
Requested approvals
SNOW Group Memberships
Groups - AD & SNOW
User's roles (31)
Assets
Related CI's
Delegates
Subscriptions
Employee Accounts
Attachments(1)
User Preferences
User Presence
Live Users
Recent audit history
Audit Records (2)
User's roles
Edit...
for text
Search
User = (RALLY_REST)
Role
State
Granted by
Inherited
Updated by
Updated
soap_query_update Active false SG0227472 08-17-2017 15:17:03
soap_create Active false SG0227472 08-17-2017 15:17:03
soap_create Active true SG0227472 08-17-2017 15:17:03
soap_update Active true SG0227472 08-17-2017 15:17:03
soap_script Active false SG0227472 08-17-2017 15:17:03
soap_query Active true SG0227472 08-17-2017 15:17:03
soap_ecc Active false SG0227472 08-17-2017 15:17:03
soap_script Active true SG0227472 08-17-2017 15:17:03
soap_query Active true SG0227472 08-17-2017 15:17:03
soap_ecc Active true SG0227472 08-17-2017 15:17:03
soap_delete Active true SG0227472 08-17-2017 15:17:03
soap_update Active false SG0227472 08-17-2017 15:17:03
soap Active false SG0227472 08-17-2017 15:17:03
soap_delete Active false SG0227472 08-17-2017 15:17:03
pa_viewer Active true SG0300767 08-04-2017 15:35:29
itil Active false SG0300767 08-04-2017 15:35:29
u_uat_user Active true SG0300767 08-04-2017 15:35:29
gauge_maker Active true SG0300767 08-04-2017 15:35:29
20 rows per page
1
to 20 of 31

UI Action – Create User Story: This UI action calls the ui page and passes variables from the RITM

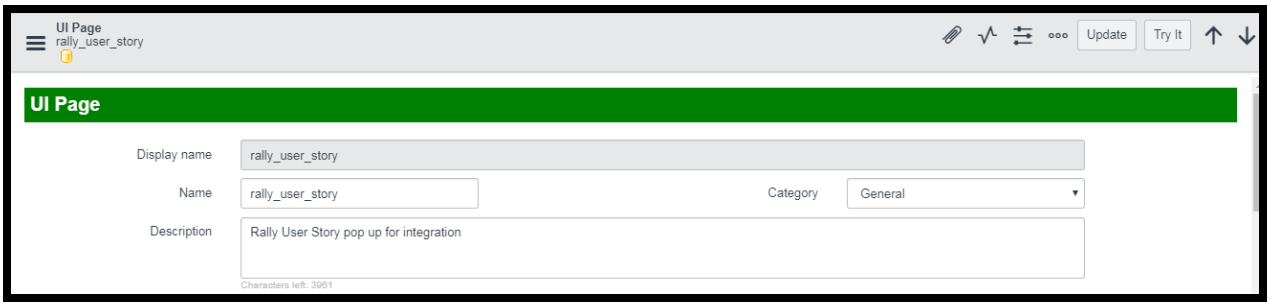


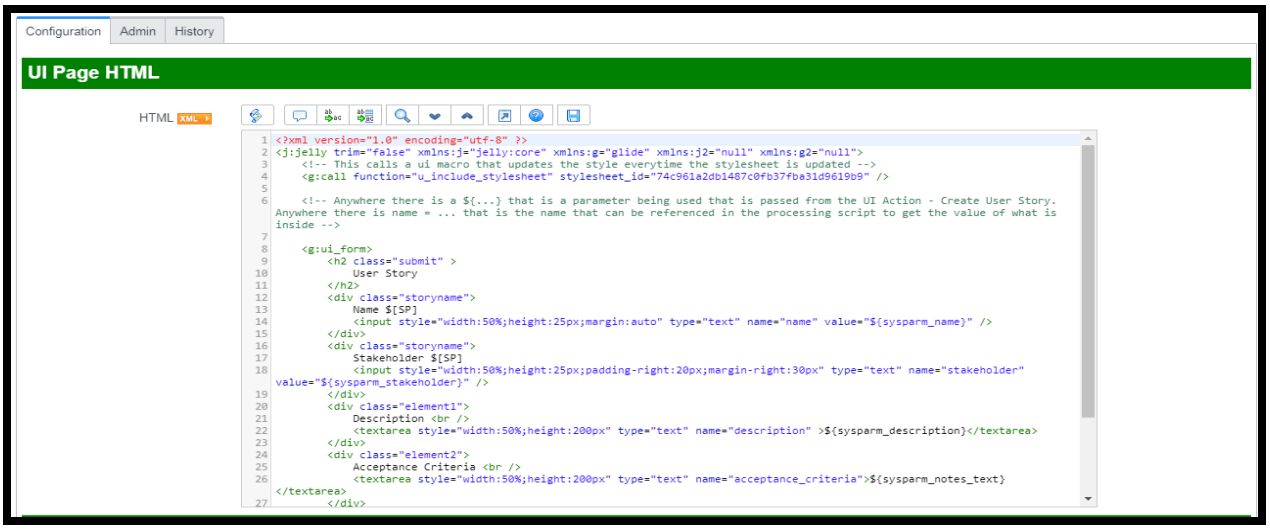



```
function openStory() {
        // Get all the values that need to be passed to the ui page - rally_user_story
        var dialog = new GlideDialogWindow('rally_user_story');
        var name = g_form.getValue('variables.short_description') + " (" + g_form.getValue('number')+")";
        var stakeholder = g_form.getDisplayBox('variables.sbr_requester_id').value;
        //var notes = g_form.getValue('comments');
        var description = g_form.getValue('variables.description');
        var tableID = g_form.getUniqueValue();
```

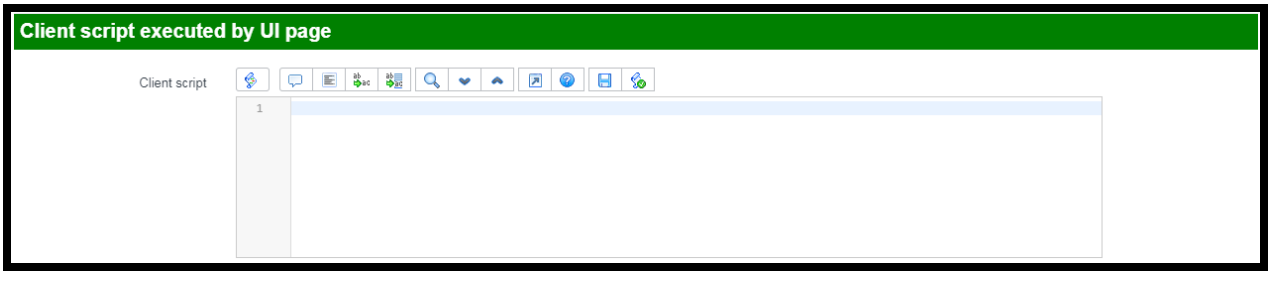
```
        // Pass all the values
        dialog.setSize(1500,1500);
        dialog.setTitle('Create User Story');
        dialog.setPreference("sysparm_name", name);
        dialog.setPreference("sysparm_stakeholder",stakeholder);
        //dialog.setPreference("sysparm_notes_text", notes);
        dialog.setPreference("sysparm_table_id",tableID);
        dialog.setPreference("sysparm_description", description);
        dialog.render();
        return false;

        //g_form.addInfoMessage(''+g_form.getDisplayBox('variables.sbr_requester_id').value);
        //g_form.addInfoMessage(''+g_form.getValue('variables.short_description'));
        //g_form.addInfoMessage(''+g_form.getValue('variables.description'));

        /*
        var fetchVariables = new GlideAjax('AjaxCheckCustomers2');
        fetchVariables.addParam('sysparm_name','getVariables');
        fetchVariables.addParam('sysparm_request', g_form.getValue('request'));
        fetchVariables.getXML(sendMessage);
        */

}
```

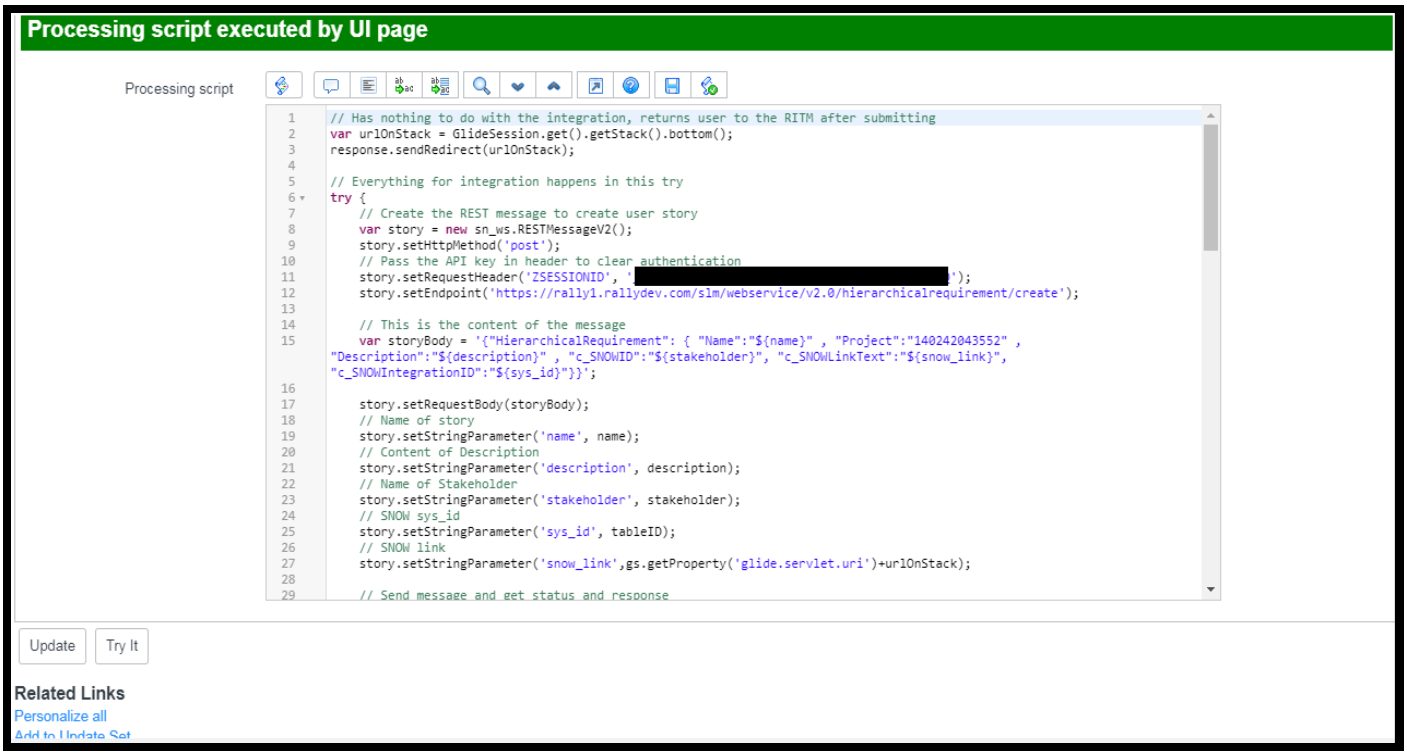
UI Page – rally_user_story: This contains all of the script in the processing script section that actually makes the calls to Rally through REST for creating a user story





```
<?xml version="1.0" encoding="utf-8" ?>
<j:jelly trim="false" xmlns:j="jelly:core" xmlns:g="glide" xmlns:j2="null" xmlns:g2="null">
	<!-- This calls a ui macro that updates the style everytime the stylesheet is updated -->
	<g:call function="u_include_stylesheet" stylesheet_id="74c961a2db1487c0fb37fba31d9619b9" />

	<!-- Anywhere there is a ${...} that is a parameter being used that is passed from the UI Action - Create User Story.
		Anywhere there is name = ... that is the name that can be referenced in the processing script to get the value of what is inside -->

	<g:ui_form>
		<h2 class="submit" >
			User Story
		</h2>
		<div class="storyname">
			Name $[SP]
			<input style="width:50%;height:25px;margin:auto" type="text" name="name" value="${sysparm_name}" />
		</div>
		<div class="storyname">
			Stakeholder $[SP]
			<input style="width:50%;height:25px;padding-right:20px;margin-right:30px" type="text" name="stakeholder" value="${sysparm_stakeholder}" />
		</div>
		<div class="element1">
			Description <br />
			<textarea style="width:50%;height:200px" type="text" name="description" >${sysparm_description}</textarea>
		</div>
		<div class="element2">
			Acceptance Criteria <br />
			<textarea style="width:50%;height:200px" type="text" name="acceptance_criteria">${sysparm_notes_text}</textarea>
		</div>
		<div class="submit">
		 <g:dialog_buttons_ok_cancel ok="return true" />
		</div>
		<!-- Secretely pass the sys_id of the RITM -->
		<input type="hidden" name="tableID" value="${sysparm_table_id}" />

	</g:ui_form>
</j:jelly>
```



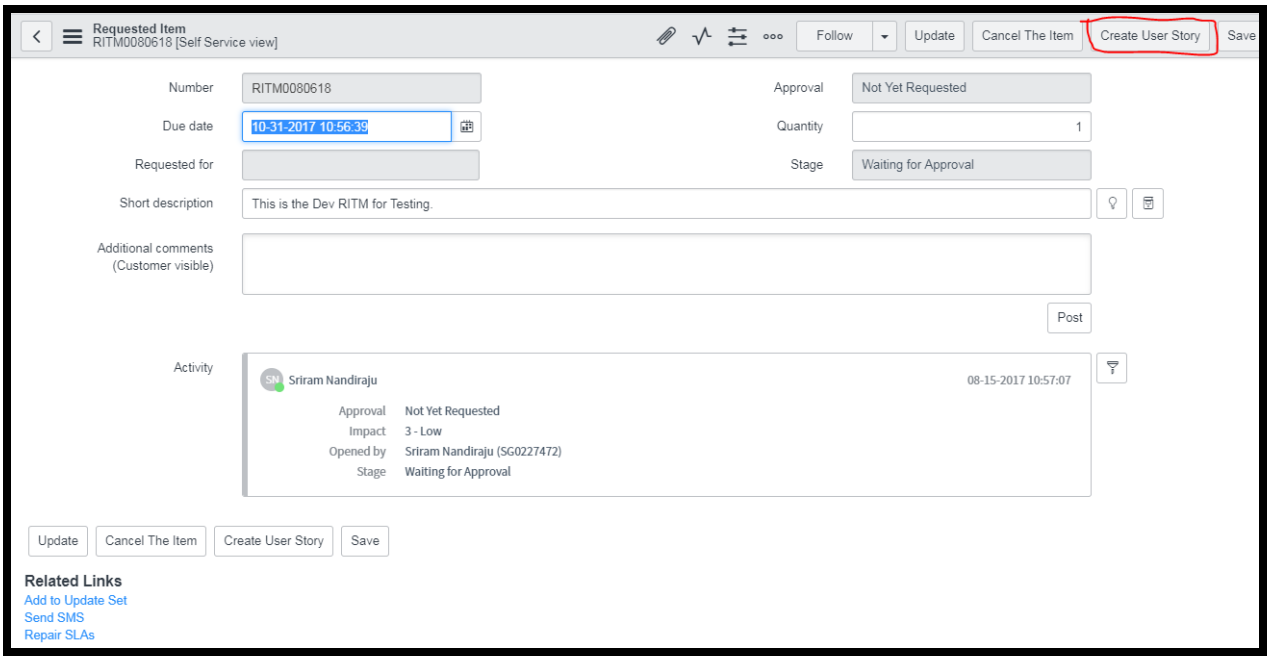


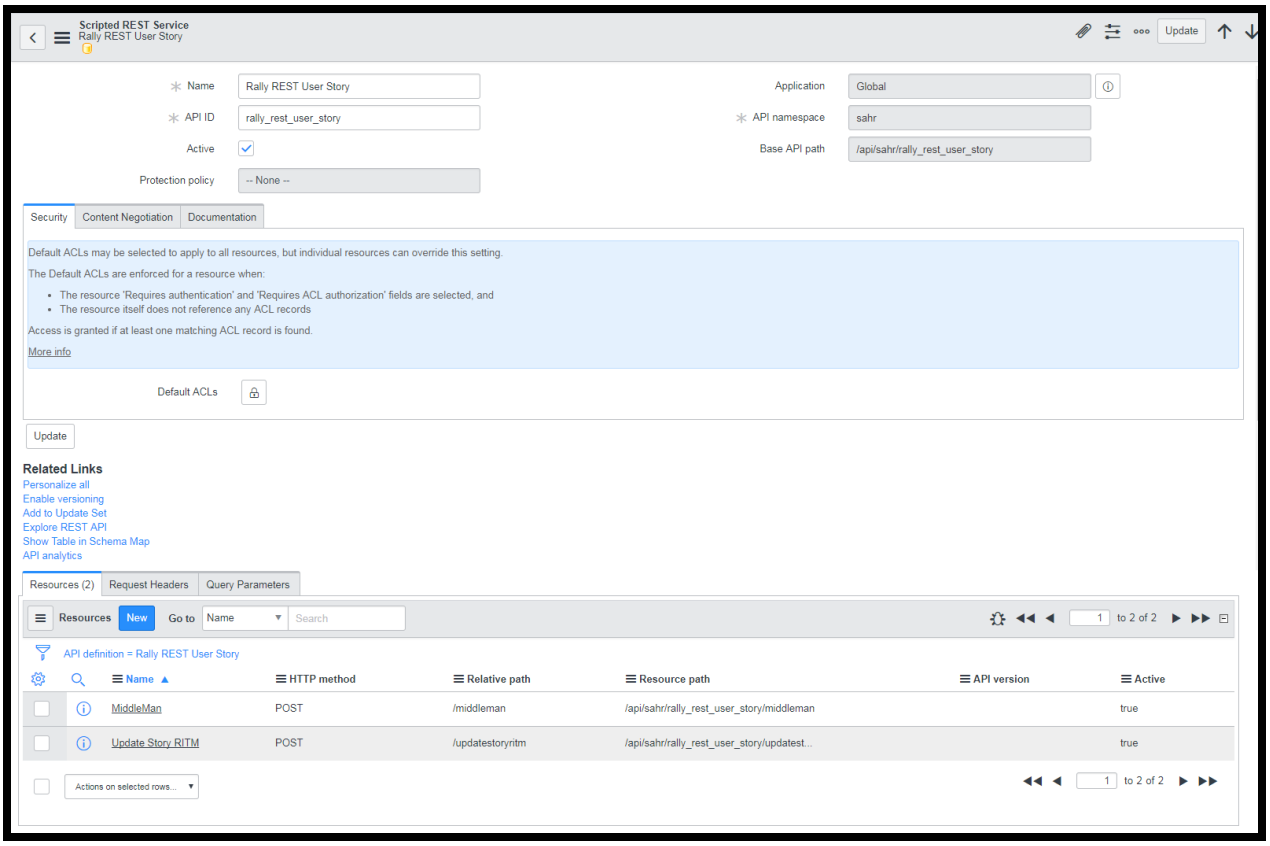

```
// Has nothing to do with the integration, returns user to the RITM after submitting
var urlOnStack = GlideSession.get().getStack().bottom();
response.sendRedirect(urlOnStack);

// Everything for integration happens in this try
try {
		// Create the REST message to create user story
		var story = new sn_ws.RESTMessageV2();
		story.setHttpMethod('post');
		// Pass the API key in header to clear authentication
		story.setRequestHeader('ZSESSIONID', '_blahblahblah);
		story.setEndpoint('https://rally1.rallydev.com/slm/webservice/v2.0/hierarchicalrequirement/create');

		// This is the content of the message
		var storyBody = '{"HierarchicalRequirement": { "Name":"${name}" , "Project":"140242043552" ,
"Description":"${description}" , "c_SNOWID":"${stakeholder}", "c_SNOWLinkText":"${snow_link}",
"c_SNOWIntegrationID":"${sys_id}"}}';

		story.setRequestBody(storyBody);
		// Name of story
		story.setStringParameter('name', name);
		// Content of Description
		story.setStringParameter('description', description);
		// Name of Stakeholder
		story.setStringParameter('stakeholder', stakeholder);
		// SNOW sys_id
		story.setStringParameter('sys_id', tableID);
		// SNOW link
		story.setStringParameter('snow_link',gs.getProperty('glide.servlet.uri')+urlOnStack);

		// Send message and get status and response
		var response = story.execute();
```

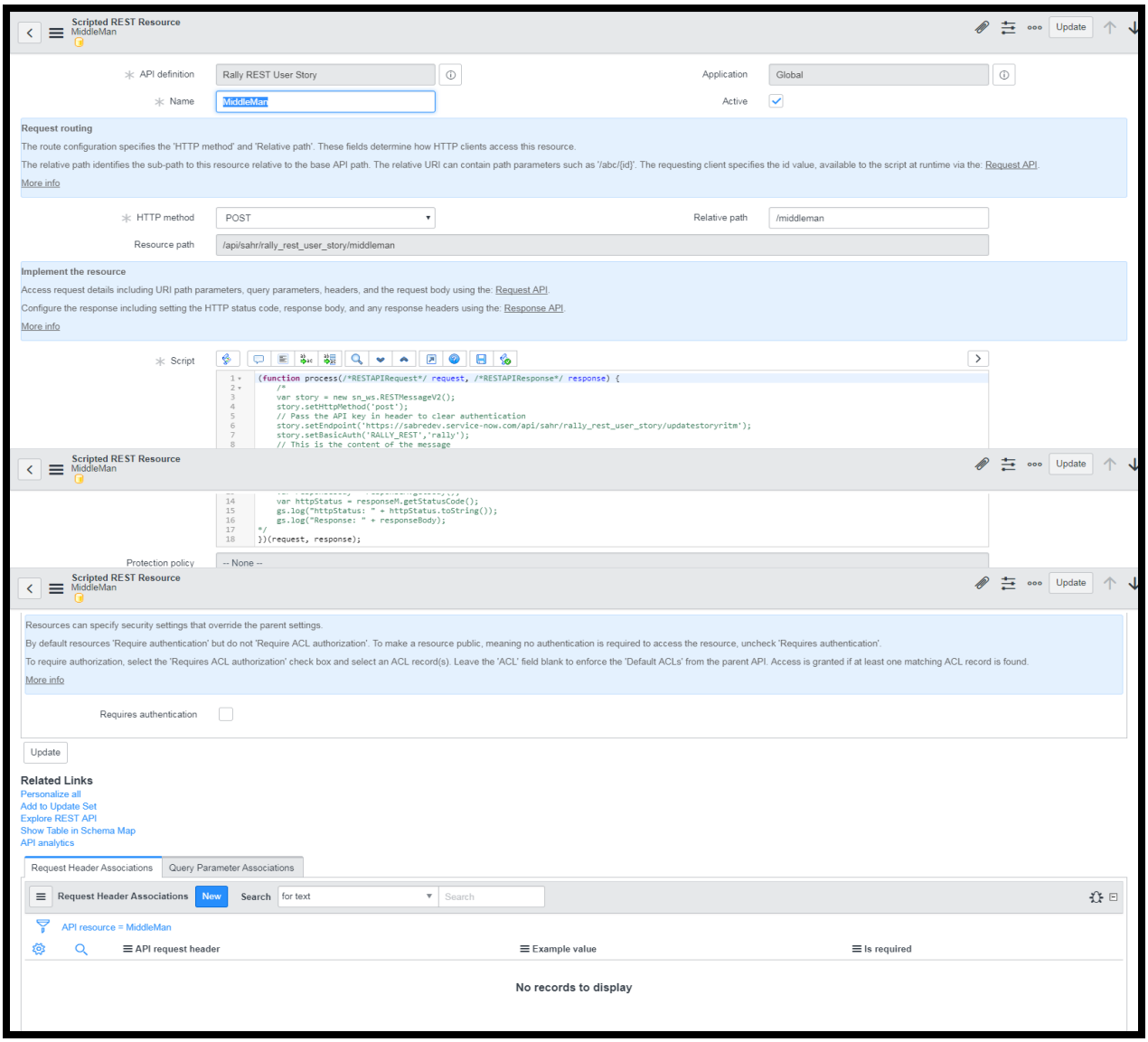
```
var responseBody = response.getBody();
var httpStatus = response.getStatusCode();
gs.log("httpStatus: " + httpStatus.toString());
gs.log("Response: " + responseBody);

// This finds the reference url of the newly created object
var startIndex = responseBody.search('"_ref": "');
var endIndex = responseBody.search('", "_refObjectUUID"');
var artifactID = responseBody.substring(startIndex+9,endIndex);
gs.log(artifactID);


// This determines if there are any attachments for this RITM
var target = new GlideRecord('sys_attachment');
target.addQuery('table_sys_id', tableID);
target.query();
var base64Data;
// This encodes the attachment into base64 binary so that it can be turned into attachment content by Rally
while(target.next()) {
        var fileName = target.file_name;
        var sa = new GlideSysAttachment();
        var binData = sa.getBytes(target);
        base64Data = GlideStringUtil.base64Encode(binData);
        // This is the REST message that creates the actual attachment content
        var attachmentContentMessage = new sn_ws.RESTMessageV2();
        attachmentContentMessage.setRequestHeader('ZSESSIONID', '_blahblahblah);

attachmentContentMessage.setEndpoint('https://rally1.rallydev.com/slm/webservice/v2.0/attachmentcontent/creat
e');
        attachmentContentMessage.setHttpMethod('put');

        var attachContent = '{"AttachmentContent":{"Content":"${content}"}}';
        attachmentContentMessage.setRequestBody(attachContent);
        attachmentContentMessage.setStringParameter('content', base64Data);

        var response = attachmentContentMessage.execute();
        responseBody = response.getBody();
        httpStatus = response.getStatusCode();
        gs.log("httpStatusss: " + httpStatus.toString());
        gs.log("ResponseBody: " + responseBody);

        // Get the reference of the attachmentContent
        startIndex = responseBody.search('"_ref": "');
        endIndex = responseBody.search('", "_refObjectUUID"');
        var contentID = responseBody.substring(startIndex+9,endIndex);
        gs.log(contentID);

        // This message sends the actual attachment to User Story
        var attachment = new sn_ws.RESTMessageV2();
        attachment.setRequestHeader('ZSESSIONID', '_blahblahblah);
        attachment.setEndpoint('https://rally1.rallydev.com/slm/webservice/v2.0/attachment/create');
        attachment.setHttpMethod('post');

        var body = '{"Attachment":{"Content":"${contentID}", "Artifact":"${artifactID}", "Name" : "${file_name}",
"ContentType" : "application/octet-stream"}}';
        attachment.setRequestBody(body);
        attachment.setStringParameter('contentID', contentID);
        attachment.setStringParameter('artifactID', artifactID);
```

```
                attachment.setStringParameter('file_name', fileName);

                var response = attachment.execute();
                responseBody = response.getBody();
                httpStatus = response.getStatusCode();
                gs.log("httpStatus: " + httpStatus.toString());
                gs.log("Response: " + responseBody);
                startIndex = responseBody.search('"_refObjectUUID": "');
                endIndex = responseBody.search('", "_objectVersion"');
                var rallySysID = responseBody.substring(startIndex+19,endIndex);
                gs.log(rallySysID);
                // set the rally sys id of the attachment in servicenow to its objectID
                target.u_rally_sys_id=rallySysID;
                target.insert();
        }

}
catch(ex) {
        var message = ex.getMessage();
}
```

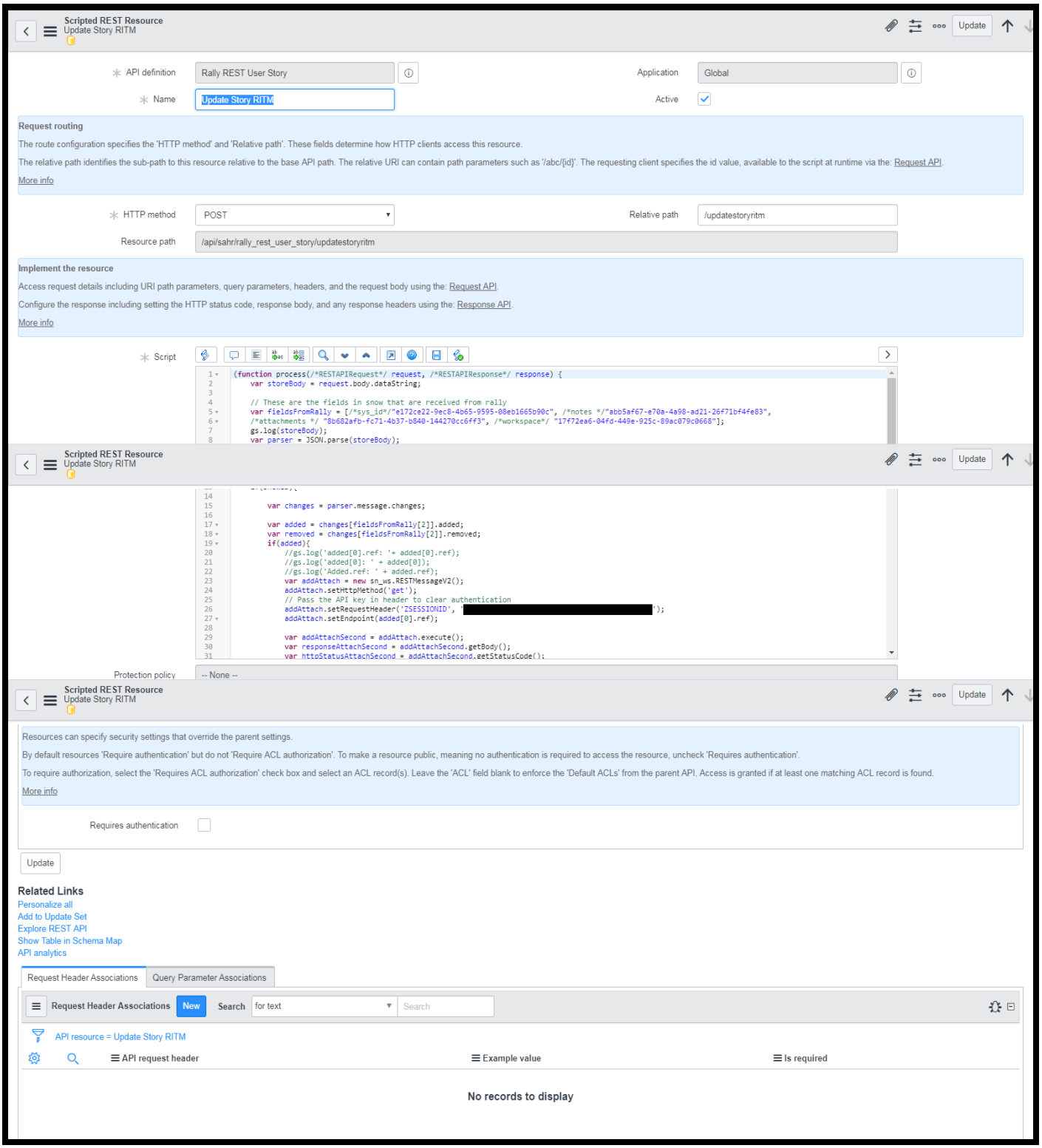
Create New “Requested Item”








```
(function process(/*RESTAPIRequest*/ request, /*RESTAPIResponse*/ response) {
        /*
        var story = new sn_ws.RESTMessageV2();
        story.setHttpMethod('post');
        // Pass the API key in header to clear authentication
        story.setEndpoint('https://sabredev.service-now.com/api/sahr/rally_rest_user_story/updatestoryritm');
        story.setBasicAuth('RALLY_REST','rally');
        // This is the content of the message
        var storyBody = request.body.dataString;

        // Send message and get status and response
        var responseM = story.execute();
        var responseBody = responseM.getBody();
        var httpStatus = responseM.getStatusCode();
        gs.log("httpStatus: " + httpStatus.toString());
        gs.log("Response: " + responseBody);
*/
})(request, response);
```



The Rally Rest POST request payload contains the UUID for c_SNOWIntegrationID

```
"17f72ea6-04fd-449e-925c-89ac079c0668":{
  "value":{
    "name":"Integration Workspace",
```

```
        "ref":"https://rally1.rallydev.com/slm/webservice/v2.x/workspace/ee5948bb-365c-4869-bcbf-4c5237e4a3e4",
        "detail_link":"https://rally1.rallydev.com/slm/#/detail/workspace/30637201215",
        "id":"ee5948bb-365c-4869-bcbf-4c5237e4a3e4",
        "object_type":"Workspace"
      },
      "type":"Workspace",
      "name":"Workspace",
      "display_name":"Workspace",
      "ref":null
    },
    "e172ce22-9ec8-4b65-9595-08eb1665b90c":{
      "value":"57752e07db64070075dd9837db9619c8",
      "type":"String",
      "name":"c_SNOWIntegrationID",
      "display_name":"SNOW Integration ID",
      "ref":null
    },
```


https://rally1.rallydev.com/slm/webservice/v2.0/TypeDefinition/30637201358/Attributes?start=40


```
{
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/attributedefinition/-10502",
"_refObjectUUID": "abb5af67-e70a-4a98-ad21-26f71bf4fe83",
"_objectVersion": "1",
"_refObjectName": "Notes",
"CreationDate": "2006-02-11T12:29:05.000Z",
"_CreatedAt": "Feb 11, 2006",
"ObjectID": -10502,
"ObjectUUID": "abb5af67-e70a-4a98-ad21-26f71bf4fe83",
"VersionId": "1",
"Subscription": null,
"Workspace": null,
"AllowedQueryOperators": {
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/AttributeDefinition/-10502/AllowedQueryOperators",
"_type": "AllowedQueryOperator",
"Count": 2
},
"AllowedValueType": null,
"AllowedValues": {
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/AttributeDefinition/-10502/AllowedValues",
"_type": "AllowedAttributeValue",
"Count": 0
},
"AttributeType": "TEXT",
"Constrained": false,
"Custom": false,
"DetailedType": null,
"ElementName": "Notes",
"Filterable": true,
```

```
"Hidden": false,
"Hideable": true,
"MaxFractionalDigits": -1,
"MaxLength": 32768,
"Name": "Notes",
"Note": "Artifact notes, which is a rich-text field.",
"Owned": true,
"ReadOnly": false,
"RealAttributeType": "TEXT",
"Required": false,
"Sortable": true,
"SystemRequired": false,
"Type": "string",
"TypeDefinition": {
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/typedefinition/-51004",
"_refObjectUUID": "d52bf519-e9b8-440d-b653-a8a41f9b93b8",
"_refObjectName": "Artifact",
"_type": "TypeDefinition"
},
"VisibleOnlyToAdmins": false,
"_type": "AttributeDefinition"
},
```


https://rally1.rallydev.com/slm/webservice/v2.0/TypeDefinition/30637201358/Attributes?start=20


```
{
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/attributedefinition/-17500",
"_refObjectUUID": "17f72ea6-04fd-449e-925c-89ac079c0668",
"_objectVersion": "1",
"_refObjectName": "Workspace",
"CreationDate": "2006-02-11T12:29:05.000Z",
"_CreatedAt": "Feb 11, 2006",
"ObjectID": -17500,
"ObjectUUID": "17f72ea6-04fd-449e-925c-89ac079c0668",
"VersionId": "1",
"Subscription": null,
"Workspace": null,
"AllowedQueryOperators": {
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/AttributeDefinition/-17500/AllowedQueryOperators",
"_type": "AllowedQueryOperator",
"Count": 0
},
"AllowedValueType": {
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/typedefinition/27154375654",
"_refObjectUUID": "686004a9-5ca1-43bb-aa85-687ba59f6179",
"_refObjectName": "Workspace",
"_type": "TypeDefinition"
```

```
},
"AllowedValues": {
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/AttributeDefinition/-17500/AllowedValues",
"_type": "AllowedAttributeValue",
"Count": 0
},
"AttributeType": "OBJECT",
"Constrained": false,
"Custom": false,
"DetailedType": null,
"ElementName": "Workspace",
"Filterable": false,
"Hidden": false,
"Hideable": true,
"MaxFractionalDigits": -1,
"MaxLength": -1,
"Name": "Workspace",
"Note": "A reference to the workspace an object is associated with.  This field can only be set during object creation.",
"Owned": false,
"ReadOnly": false,
"RealAttributeType": "OBJECT",
"Required": false,
"Sortable": false,
"SystemRequired": false,
"Type": "Workspace",
"TypeDefinition": {
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/typedefinition/-51003",
"_refObjectUUID": "f6e082b8-df17-43a5-b972-1df1549f217f",
"_refObjectName": "Workspace Domain Object",
"_type": "TypeDefinition"
},
"VisibleOnlyToAdmins": false,
"_type": "AttributeDefinition"
},
```


https://rally1.rallydev.com/slm/webservice/v2.0/TypeDefinition/30637201358/Attributes?start=30


```
{
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/attributedefinition/-11006",
"_refObjectUUID": "8b682afb-fc71-4b37-b840-144270cc6ff3",
"_objectVersion": "1",
"_refObjectName": "Attachments",
"CreationDate": "2006-02-11T12:29:05.000Z",
"_CreatedAt": "Feb 11, 2006",
"ObjectID": -11006,
"ObjectUUID": "8b682afb-fc71-4b37-b840-144270cc6ff3",
"VersionId": "1",
"Subscription": null,
"Workspace": null,
"AllowedQueryOperators": {
```

```
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/AttributeDefinition/-11006/AllowedQueryOperators",
"_type": "AllowedQueryOperator",
"Count": 4
},
"AllowedValueType": {
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/typedefinition/27154375539",
"_refObjectUUID": "c85b1559-ef7f-4bd8-acb5-fd1f33e472a1",
"_refObjectName": "Attachment",
"_type": "TypeDefinition"
},
"AllowedValues": {
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/AttributeDefinition/-11006/AllowedValues",
"_type": "AllowedAttributeValue",
"Count": 0
},
"AttributeType": "COLLECTION",
"Constrained": false,
"Custom": false,
"DetailedType": null,
"ElementName": "Attachments",
"Filterable": true,
"Hidden": false,
"Hideable": true,
"MaxFractionalDigits": -1,
"MaxLength": -1,
"Name": "Attachments",
"Note": "Attachments associated with this requirement",
"Owned": false,
"ReadOnly": false,
"RealAttributeType": "COLLECTION",
"Required": false,
"Sortable": false,
"SystemRequired": false,
"Type": "RequirementAttachmentsType",
"TypeDefinition": {
"_rallyAPIMajor": "2",
"_rallyAPIMinor": "0",
"_ref": "https://rally1.rallydev.com/slm/webservice/v2.0/typedefinition/-51005",
"_refObjectUUID": "f17aa5b1-9974-47a6-9d5c-71a20694608d",
"_refObjectName": "Requirement",
"_type": "TypeDefinition"
},
"VisibleOnlyToAdmins": false,
"_type": "AttributeDefinition"
},
```

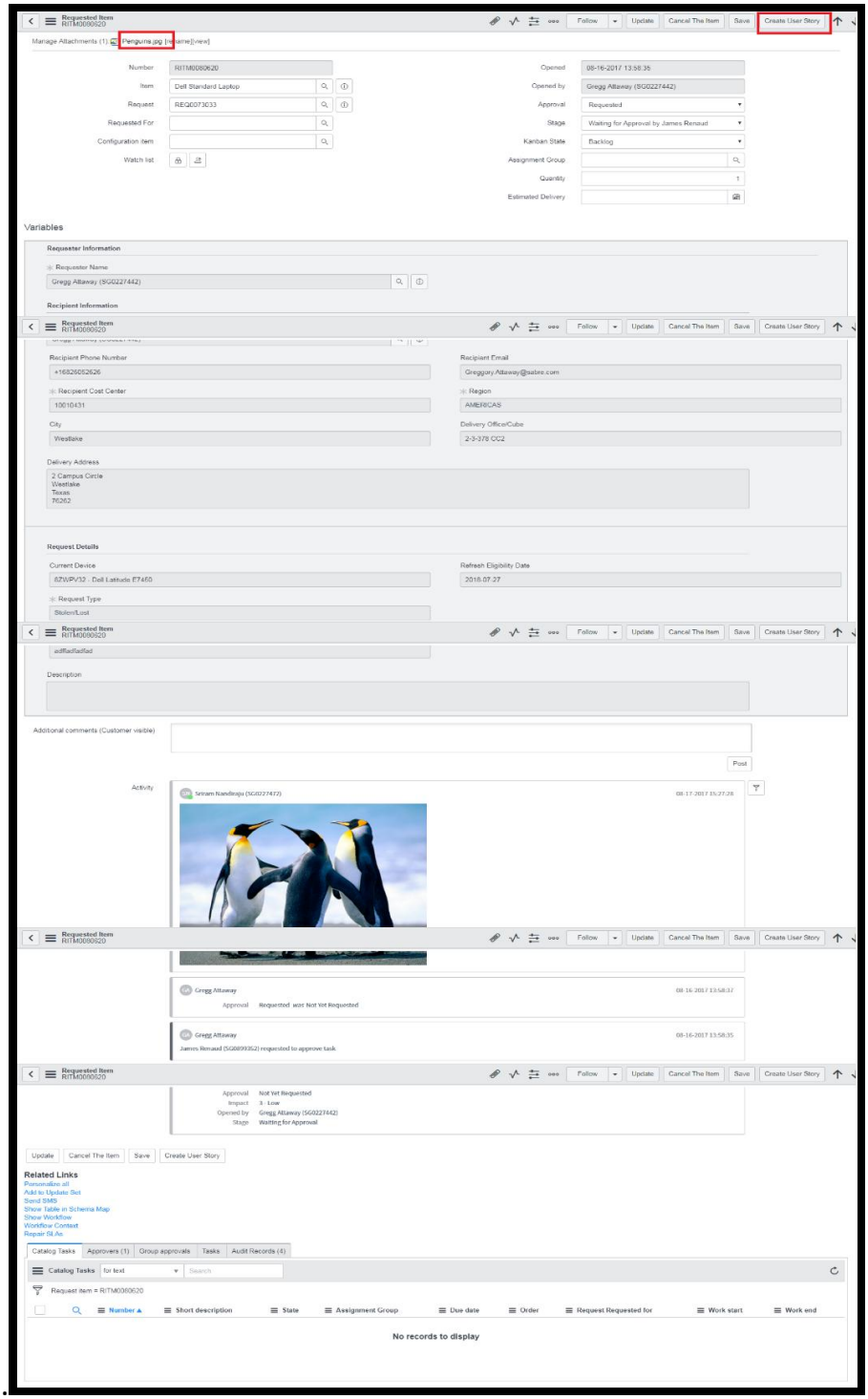
Scripted Rest API code logic:

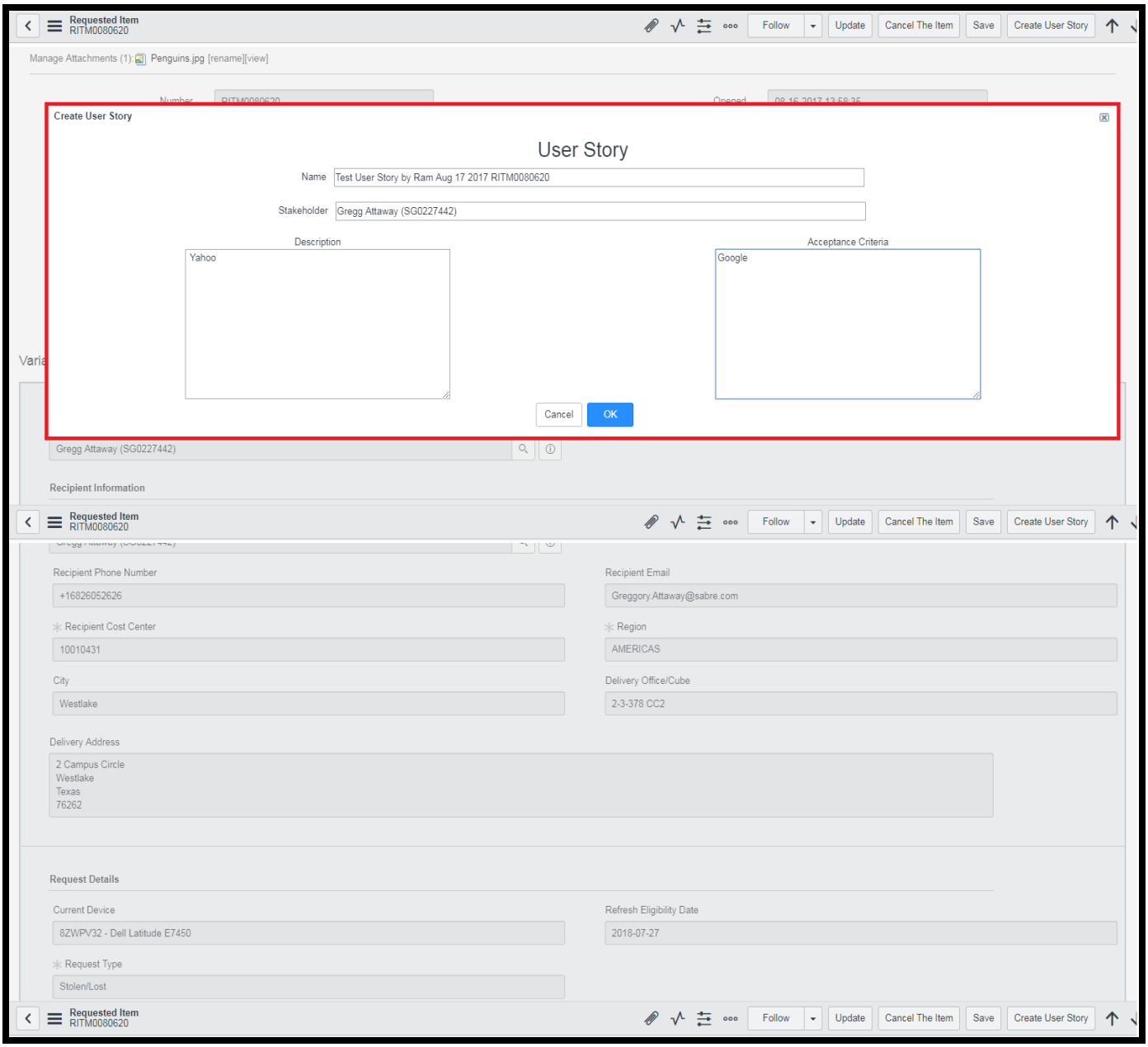
```
(function process(/*RESTAPIRequest*/ request, /*RESTAPIResponse*/ response) {
	var storeBody = request.body.dataString;

	// These are the fields in snow that are received from rally
	var fieldsFromRally = [/*sys_id*/"e172ce22-9ec8-4b65-9595-08eb1665b90c", /*notes */"abb5af67-e70a-4a98-
ad21-26f71bf4fe83",
	/*attachments */ "8b682afb-fc71-4b37-b840-144270cc6ff3", /*workspace*/ "17f72ea6-04fd-449e-925c-
89ac079c0668"];
	gs.log(storeBody);
	var parser = JSON.parse(storeBody);
	gs.log("TESTING WEBHOOKS");

	var snowID = parser.message.state[fieldsFromRally[0]].value;

	if(snowID){

		var changes = parser.message.changes;

		var added = changes[fieldsFromRally[2]].added;
		var removed = changes[fieldsFromRally[2]].removed;
		if(added){
			//gs.log('added[0].ref: '+ added[0].ref);
			//gs.log('added[0]: ' + added[0]);
			//gs.log('Added.ref: ' + added.ref);
			var addAttach = new sn_ws.RESTMessageV2();
			addAttach.setHttpMethod('get');
			// Pass the API key in header to clear authentication
			addAttach.setRequestHeader('ZSESSIONID', '_blahblahblah);
			addAttach.setEndpoint(added[0].ref);

			var addAttachSecond = addAttach.execute();
			var responseAttachSecond = addAttachSecond.getBody();
			var httpStatusAttachSecond = addAttachSecond.getStatusCode();
			//gs.log("httpStatusAttachSecond: " + httpStatusAttachSecond.toString());
			//gs.log("responseAttachSecond: " + responseAttachSecond);

			var getAttachContent = JSON.parse(responseAttachSecond);

			var attachContentURL = getAttachContent.Attachment.Content._ref;
			var contentType = getAttachContent.Attachment.ContentType;
			var fileName = getAttachContent.Attachment.Name;

			//gs.log('Attach Content URL: ' + attachContentURL);

			var addDecode = new sn_ws.RESTMessageV2();
			addDecode.setHttpMethod('get');
			// Pass the API key in header to clear authentication
			addDecode.setRequestHeader('ZSESSIONID', '_blahblahblah);
			addDecode.setEndpoint(attachContentURL);

			var addDecodeValue = addDecode.execute();
			var decodedResponse = addDecodeValue.getBody();
			var decodedStatus = addDecodeValue.getStatusCode();
			//gs.log("decodedStatus: " + decodedStatus.toString());
			//gs.log("decodedResponse: " + decodedResponse);
```

```
                                var getDecode = JSON.parse(decodedResponse);
                                if(!(getDecode.AttachmentContent.Errors)){
                                        var decodedContent = getDecode.AttachmentContent.Content;

                                        var requestBodyString ='<soapenv:Envelope
xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:ecc="http://www.service-
now.com/ecc_queue"><soapenv:Header
/><soapenv:Body><ecc:insert><agent>AttachmentCreator</agent><topic>AttachmentCreator</topic><name>'+fileName +
':' + contentType + '</name><source>sc_req_item:' + snowID + '</source><payload>' + decodedContent +
'</payload></ecc:insert></soapenv:Body></soapenv:Envelope>';
                                        //gs.log('STR1: ' + str1);

                                        // Here is where attachment Creator would go
                                        var s = new sn_ws.SOAPMessageV2(); //create an empty SOAP message
                                        s.setBasicAuth('userid','password');
                                        s.setSOAPAction('http://www.service-now.com/ecc_queue/insert'); //set the SOAP
action to perform
                                        s.setEndpoint('https://sabredev.service-now.com/ecc_queue.do?SOAP'); //set the
web service provider endpoint
                                        s.setRequestBody(requestBodyString);

                                        gs.log('RequestBody: ' + s.getRequestBody());

                                        var attachresponse = s.execute();
                                        var xmldoc = new XMLDocument(attachresponse.getBody());
                                        gs.log(xmldoc);
                                }
                        }
                        else if(removed){
                                var rallyID = removed.id;
                                //gs.log("Made it into removed if");
                                var attachment = new GlideRecord('sys_attachment');
                                attachment.addQuery('table_sys_id', snowID);
                                attachment.addQuery('u_rally_attachment_sys_id', rallyID);
                                attachment.query();
                                if(attachment.next()){
                                        attachment.deleteRecord();
                                }
                        }
                        var notes = parser.message.state["abb5af67-e70a-4a98-ad21-26f71bf4fe83"].value;
                        gs.log('Notes: ' + notes);
                        gs.log("SNOWID Not NULL");
                        gs.log('sys_id: ' + snowID);
                        var gr = new GlideRecord('sc_req_item');
                        gr.addQuery('sys_id', snowID);
                        gr.query();
                        if(gr.next()){
                                gr.comments = notes;
                                gr.update();
                        }

                }

})(request, response);
```

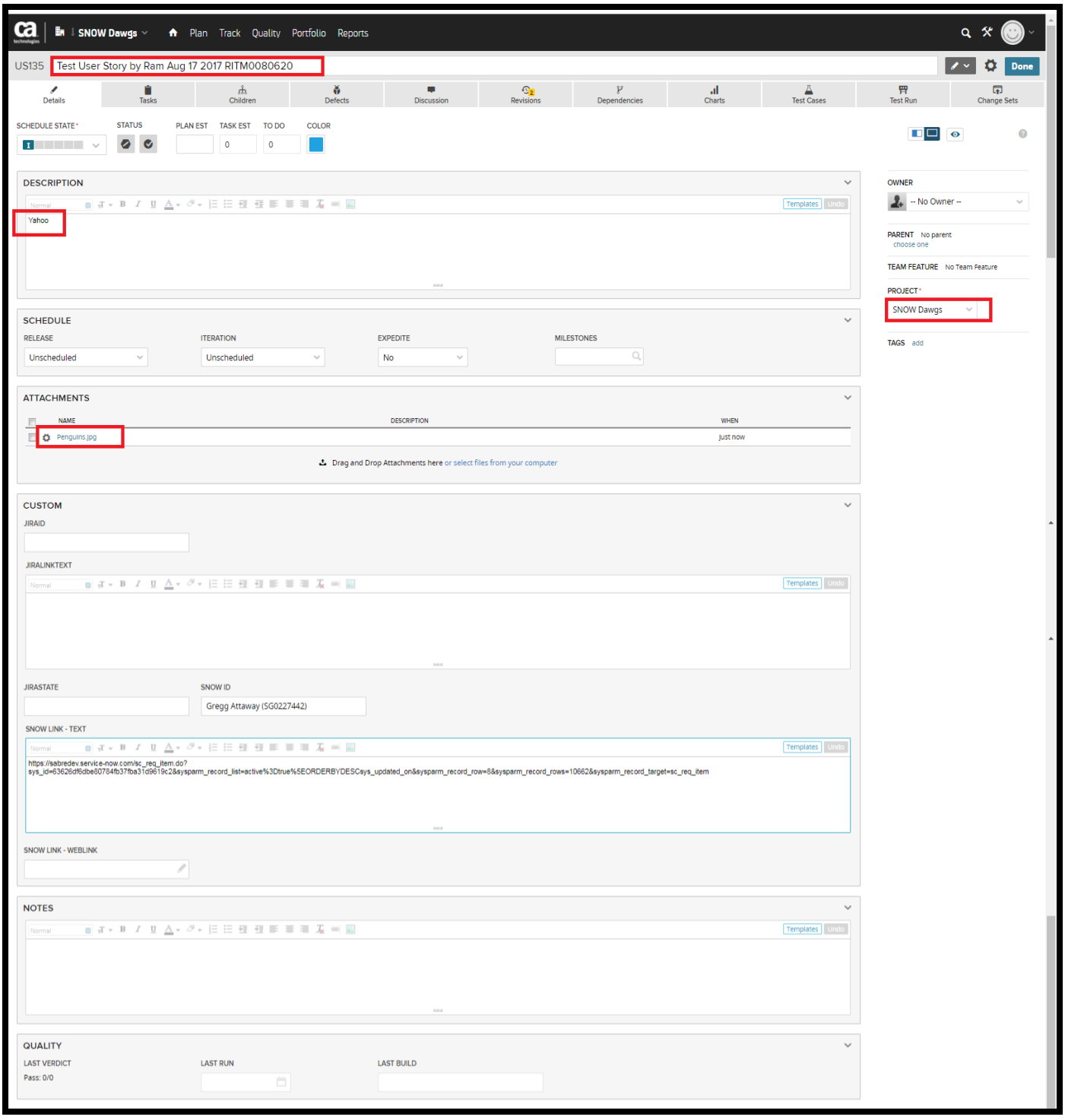
DEMO

In this demo, we will start with a RITM in Service-Now. Please note the name of the attachment 'Penguins.jpg'. We shall invoke the UI Action by clicking on the button "Create user Story".

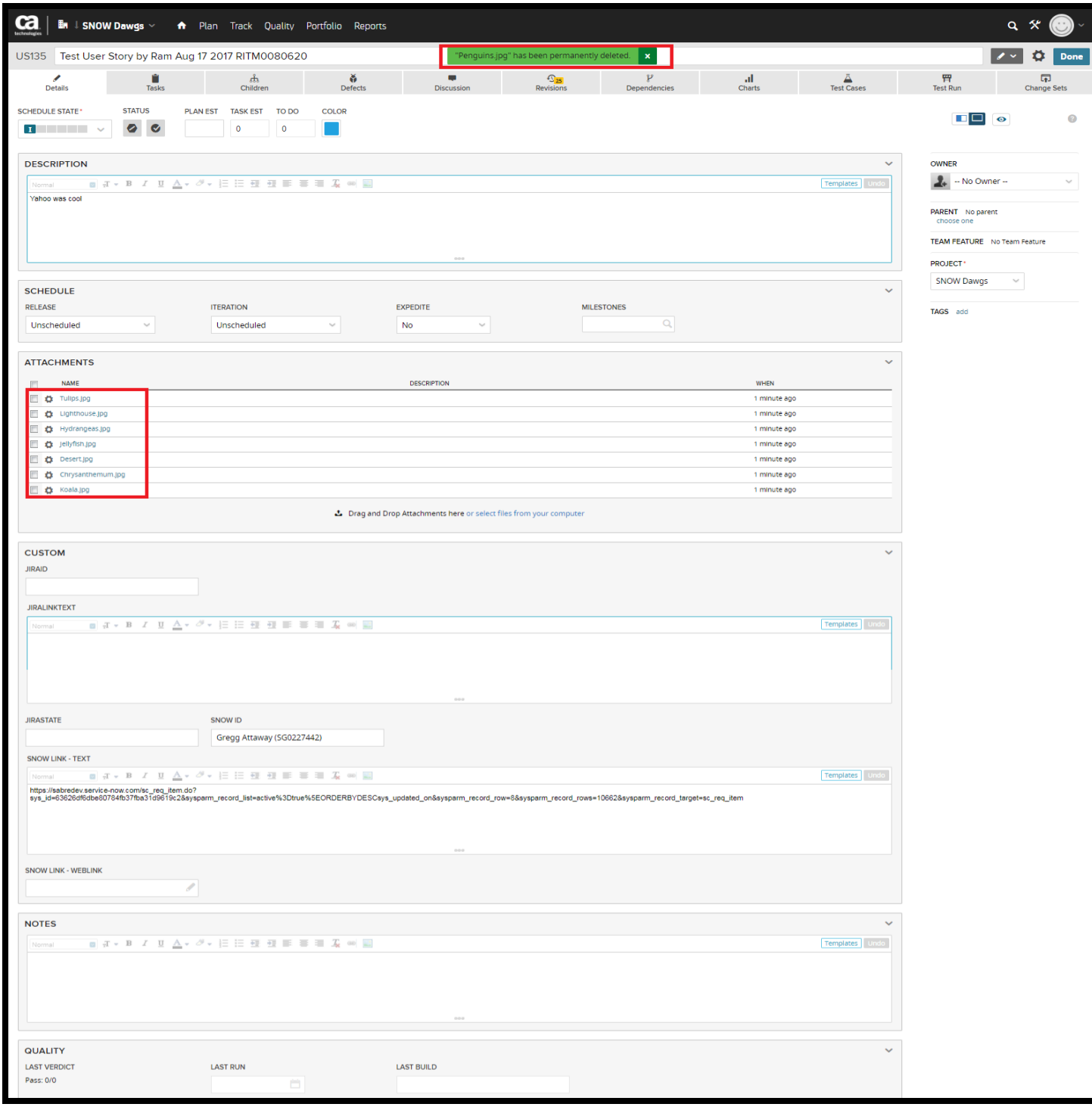



Requested Item
RITM0080620
Follow
Update
Cancel The Item
Save
Create User Story
Manage Attachments (1): Penguins.jpg [rename][view]
Create User Story
User Story
Name
Test User Story by Ram Aug 17 2017 RITM0080620
Stakeholder
Gregg Attaway (SG0227442)
Description
Yahoo
Acceptance Criteria
Google
Cancel
OK
Gregg Attaway (SG0227442)
Recipient Information
Recipient Phone Number
+16826052626
Recipient Email
Greggory.Attaway@sabre.com
Recipient Cost Center
10010431
Region
AMERICAS
City
Westlake
Delivery Office/Cube
2-3-378 CC2
Delivery Address
2 Campus Circle
Westlake
Texas
76262
Request Details
Current Device
8ZWPV32 - Dell Latitude E7450
Refresh Eligibility Date
2018-07-27
Request Type
Stolen/Lost

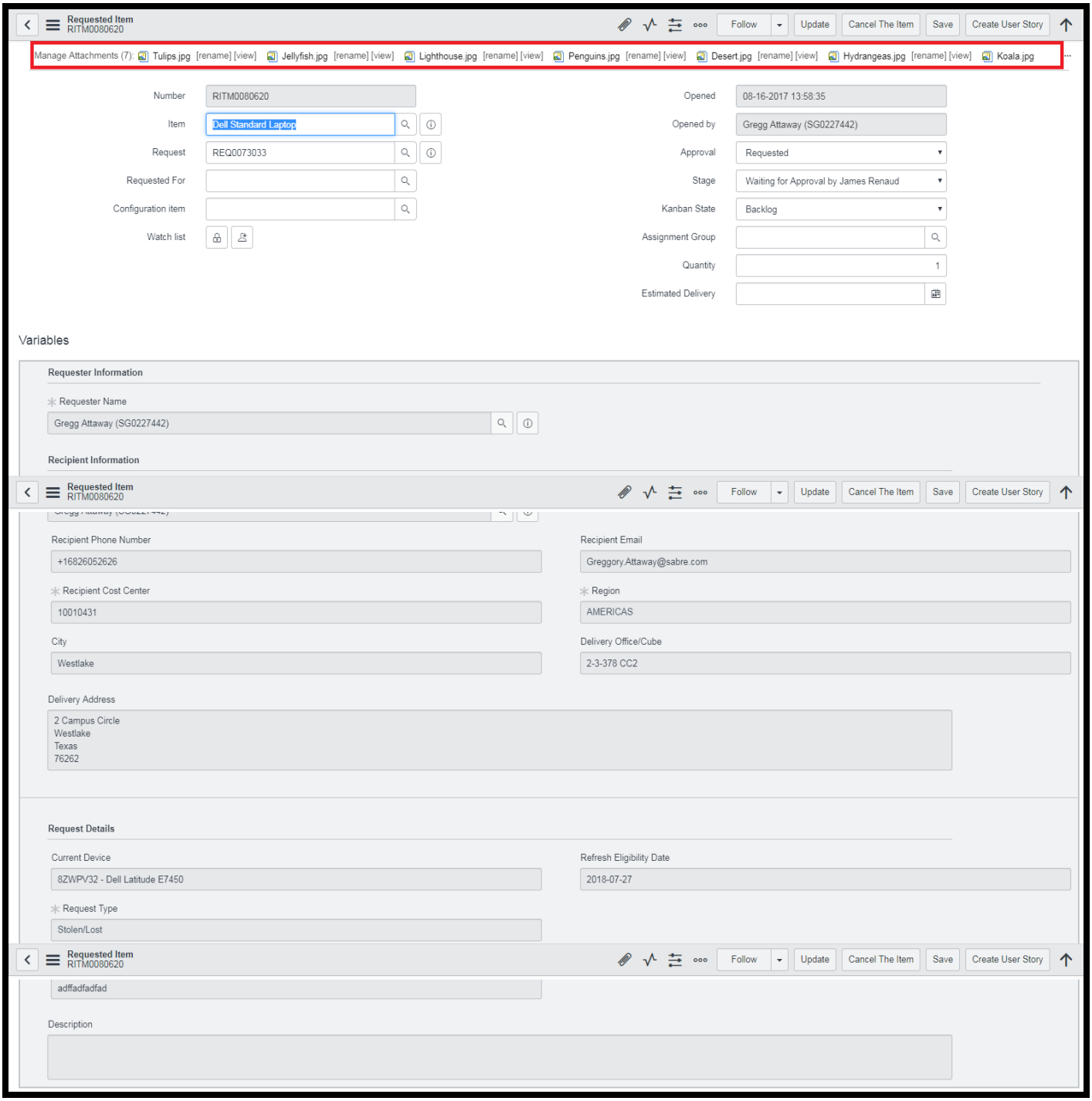
User Story is successfully created in Rally in “SNOW Dawgs” project. The attachment also got created successfully.



Make some changes in Rally user story.
Add few attachments
Delete Penguins.jpg



The attachments show up in Service-Now.



Known Issues: Below are few of the known issues.

1. When the user makes changes to the form in Rally it does populate in SNOW under comments but it says that the user who made the comments was Guest
2. Duplicate Content (When the same attachment has been used previously) is not accepted by Rally and does not create an attachment on the item.
    a. Workaround: Put the attachment on the story manually
3. Hard coded values – UUIDs and Projects will need to be consistent and updated as needed.

Scope for Enhancement:

1. Deciding how to handle selecting the project, whether attached to assignment or not.
2. Deciding how to handle attachments, whether to make the changes always go both ways.

Research Items:

1. Do Rally webhooks have any rules on how many times they can be called in a certain time period?

2. Is there any way to customize the payload of a webhook? At this point, the webhook is POSTing all the data items tied to the object in Rally in response to a change in just one single data item within the object in Rally. From a Service-Now integration standpoint, we don't really need to know all the data items. All we need to know is what changed, what the old and new values are!

3. Is there any way to find the UUID of custom made fields? Like a dictionary or query?

4. Whenever we try to create AttachmentContent with content that is the same as previous content it does not let us.

5. Is there a way within rally to monitor webhooks and see when they fire and are called? Like a log system?

THE END