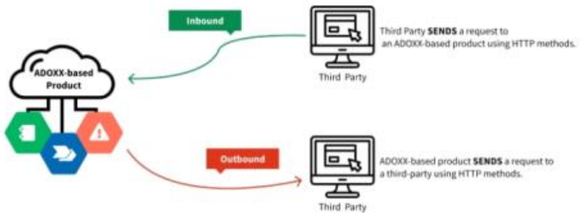
# Integration in servicenow

29 May 2023 20:25

Integration : HTTP-based web services allow diverse applications to talk to each other. ServiceNow supports both inbound (provider) and outbound (consumer) web services.
2 types :
I can send to them(outbound)
they can send to me(Inbound)

Inbound and outbound :

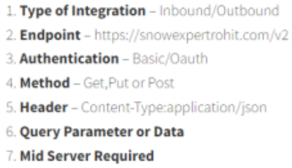
Example :


Inbound
Third Party SENDS a request to an ADOXX-based product using HTTP methods.
Third Party
ADOXX-based Product
Outbound
ADOXX-based product SENDS a request to a third-party using HTTP methods.
Third Party

**Service account :**
***3e7a10H9oK$**
**integration.admin**

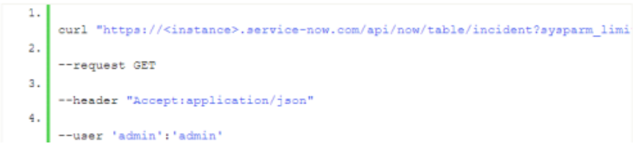
[https://dev63991.service-now.com/api/707171/rest_integrationtraining](https://dev63991.service-now.com/api/707171/rest_integrationtraining)

To integrate any system we need at :



1. **Type of Integration** – Inbound/Outbound
2. **Endpoint** – https://snowexpertrohit.com/v2
3. **Authentication** – Basic/Oauth
4. **Method** – Get,Put or Post
5. **Header** – Content-Type:application/json
6. **Query Parameter or Data**
7. **Mid Server Required**

Example :



```
curl "https://<instance>.service-now.com/api/now/table/incident?sysparm_limi
--request GET
--header "Accept:application/json"
--user 'admin':'admin'
```

Integration testing tools :

1. SOAP UI
2. Postman
3. REST API Explorer

*** servicenow has the OOTB ability to create an endpoint with the help of "REST API Explorer"***
Note : Even though you can do CRUD, things is from REST API Explorer too as same as like POSTMAN

Inbound Integration :

Various ways we can achieve Inbound Integration, below are methods you can use to integrate Inbound Integration-

Table API Web Service - REST
Direct web services - SOAP
Import Set Web Service - SOAP
Import Set API - REST
Scripted Web Services - SOAP
Scripted Web Services - REST
JSONv2 web service

soap vs REST :

SOAP :
SOAP is a standard protocol that was first designed so that applications built with different languages and on different platforms could communicate. Because it is a protocol, it imposes built-in rules that increase its complexity and overhead, which can lead to longer page load times.

REST :
REST is a set of architectural principles attuned to the needs of lightweight web services and mobile applications. When a request for data is sent to a REST API, it's usually done through hypertext transfer protocol (commonly referred to as HTTP). Once a request is received, APIs designed for REST (called RESTful APIs or RESTful web services) can return messages in a variety of formats: HTML, XML, plain text, and JSON. JSON (JavaScript object notation) is favored as a message format because it can be read by any programming language (despite the name), is human- and machine-readable, and is lightweight. In this way, RESTful APIs are more flexible and can be easier to set up.

TABLE API Web services - REST :
REST (REpresentational State Transfer) is a simple stateless architecture that provides standards between computer systems on the web, making it easier for them to communicate with each other.

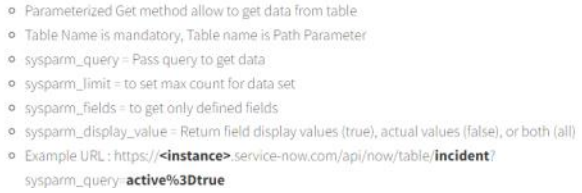
important notes for table API :

1. Table API doesn't validation Mandatory and other validation
2. You can use the HEAD methods in place of GET methods to return a response without a response body
3. You cannot pass multiple records in POST, PUT, and PATCH operations. If you do, only the first record is processed, the rest are ignored.
4. You cannot use POST, PUT, and PATCH to insert or update records into a Database view, as Database views are read-only.

Supported HTTP request methods Support for Table API:

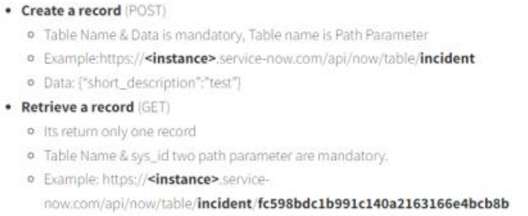
Retrieve records from a table (GET) :
https://dev63991.service-now.com/api/now/table/incident?sysparm_query=active=true
see the postman collection :::SNOW-Learning:::

sysparm_query = you can filter the table and copy the query
sysparm_limit = if it is "1" it will show one record
sysparm_fields = based on the fields which you entered it will show only those fields
sysparm_display_value = if true shows "display value" if it All it shows "Display value and sys_id".



- Parameterized Get method allow to get data from table
- Table Name is mandatory, Table name is Path Parameter
- sysparm_query = Pass query to get data
- sysparm_limit = to set max count for data set
- sysparm_fields = to get only defined fields
- sysparm_display_value = Return field display values (true), actual values (false), or both (all)
- Example URL : https://**<instance>**.service-now.com/api/now/table/**incident**?sysparm_query=**active%3Dtrue**

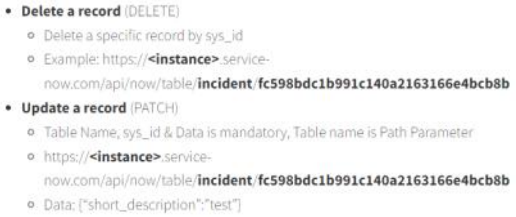
Create and Retrive Data :



- **Create a record** (POST)
  - Table Name & Data is mandatory, Table name is Path Parameter
  - Example:https://**<instance>**.service-now.com/api/now/table/**incident**
  - Data: {"short_description":"test"}
- **Retrieve a record** (GET)
  - Its return only one record
  - Table Name & sys_id two path parameter are mandatory.
  - Example: https://**<instance>**.service-now.com/api/now/table/**incident**/**fc598bdc1b991c140a2163166e4bcb8b**

***note : for retrive data/record you cannot use sysparm_query, sysparm_limit it is for many records in the postman code remove the cookie header in code*********

Delete and patch a record :



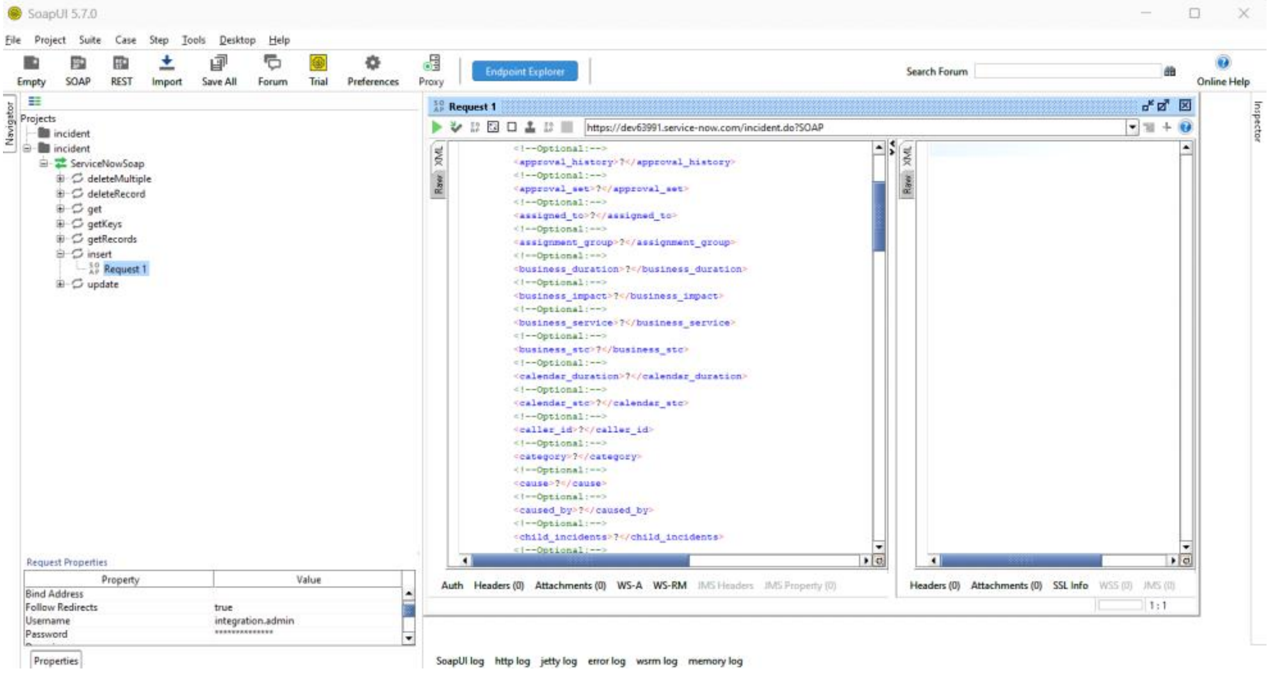
- **Delete a record** (DELETE)
  - Delete a specific record by sys_id
  - Example: https://**<instance>**.service-now.com/api/now/table/**incident**/**fc598bdc1b991c140a2163166e4bcb8b**
- **Update a record** (PATCH)
  - Table Name, sys_id & Data is mandatory, Table name is Path Parameter
  - https://**<instance>**.service-now.com/api/now/table/**incident**/**fc598bdc1b991c140a2163166e4bcb8b**
  - Data: {"short_description":"test"}

--------------------------------------------------------------------------------------------

Direct web services - SOAP :
A direct web service is available for any table in the system if the correct access control list is configured.

*** For SOAP API required service account must have ***SOAP Role***
The supported format of the incoming message is document style literal XML SOAP documents

Example URL: https://<instance name>.service-now.com/incident.do?WSDL



SoapUI 5.7.0
File Project Suite Case Step Tools Desktop Help
Empty SOAP REST Import Save All Forum Trial Preferences Proxy
Endpoint Explorer
Search Forum
Online Help
Navigator
Projects
incident
incident
ServiceNowSoap
deleteMultiple
deleteRecord
get
getKeys
getRecords
insert
Request 1
update
Request 1
XML
Raw
Auth Headers (0) Attachments (0) WS-A WS-RM JMS Headers JMS Property (0)
Headers (0) Attachments (0) SSL Info WSS (0) JMS (0)
1 : 1
Properties
SoapUI log http log jetty log error log wsrm log memory log
Inspector

https://dev63991.service-now.com/incident.do?SOAP

```
<!--Optional:-->
<approval_history>?</approval_history>
<!--Optional:-->
<approval_set>?</approval_set>
<!--Optional:-->
<assigned_to>?</assigned_to>
<!--Optional:-->
<assignment_group>?</assignment_group>
<!--Optional:-->
<business_duration>?</business_duration>
<!--Optional:-->
<business_impact>?</business_impact>
<!--Optional:-->
<business_service>?</business_service>
<!--Optional:-->
<business_stc>?</business_stc>
<!--Optional:-->
<calendar_duration>?</calendar_duration>
<!--Optional:-->
<calendar_stc>?</calendar_stc>
<!--Optional:-->
<caller_id>?</caller_id>
<!--Optional:-->
<category>?</category>
<!--Optional:-->
<cause>?</cause>
<!--Optional:-->
<caused_by>?</caused_by>
<!--Optional:-->
<child_incidents>?</child_incidents>
<!--Optional:-->
```

Request Properties

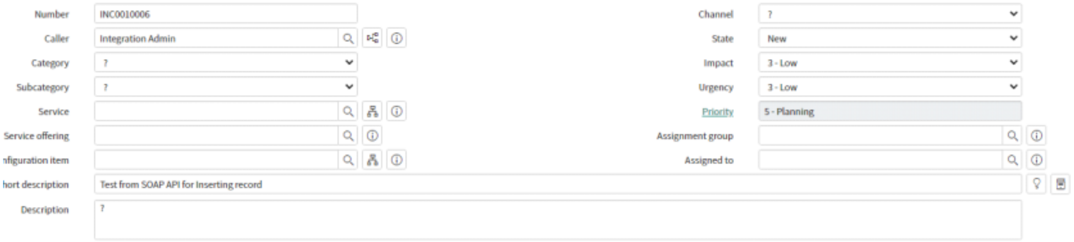
| Property | Value |
|---|---|
| Bind Address | |
| Follow Redirects | true |
| Username | integration.admin |
| Password | ************** |

For each method you have default request if you click that based on the table which you selected from the servicenow it will populate all the fields in that table and if you want to configure this method "Insert" then in below you can see the "Request properties", in that need to update our "service account user name(user_id) and password"

When you hit the sends button :
It will throw an error in the SOAP API because, the defualt value for all the fields is "?", so when this is setted on Assignment group and assigned to it will throw an error on business rule.

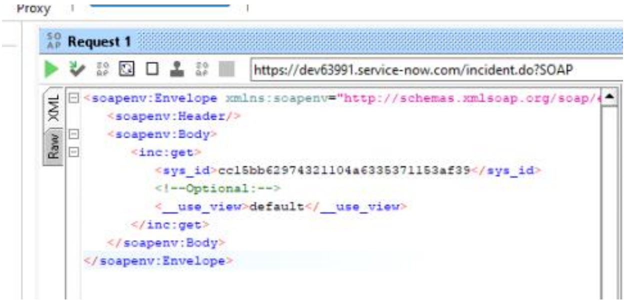
Note : Whenver you try to insert record from the soap api, try to fill all the details or else it will be like this.

See the below example



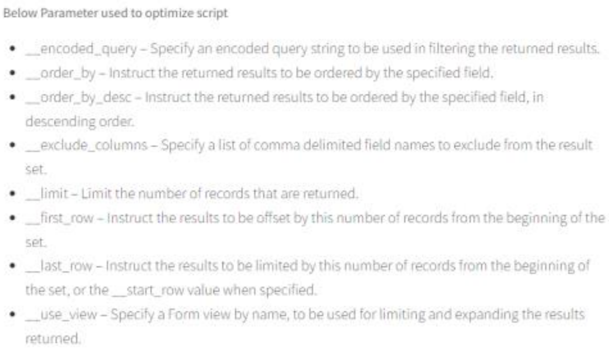
| | | | |
|---|---|---|---|
| Number | INC0010006 | Channel | ? |
| Caller | Integration Admin | State | New |
| Category | ? | Impact | 3 - Low |
| Subcategory | ? | Urgency | 3 - Low |
| Service | | Priority | 5 - Planning |
| Service offering | | Assignment group | |
| nfiguration item | | Assigned to | |
| hort description | Test from SOAP API for Inserting record | | |
| Description | ? | | |

Note :
Here the sys_id is the mandatory field and use_view is an optional field, this is how the mandatory and optional field looks like?



https://dev63991.service-now.com/incident.do?SOAP

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/
   <soapenv:Header/>
   <soapenv:Body>
      <inc:get>
         <sys_id>cc15bb62974321104a6335371153af39</sys_id>
         <!--Optional:-->
         <__use_view>default</__use_view>
      </inc:get>
   </soapenv:Body>
</soapenv:Envelope>
```



Below Parameter used to optimize script

- __encoded_query – Specify an encoded query string to be used in filtering the returned results.
- __order_by – Instruct the returned results to be ordered by the specified field.
- __order_by_desc – Instruct the returned results to be ordered by the specified field, in descending order.
- __exclude_columns – Specify a list of comma delimited field names to exclude from the result set.
- __limit – Limit the number of records that are returned.
- __first_row – Instruct the results to be offset by this number of records from the beginning of the set.
- __last_row – Instruct the results to be limited by this number of records from the beginning of the set, or the __start_row value when specified.
- __use_view – Specify a Form view by name, to be used for limiting and expanding the results returned.

Import set web services - SOAP :

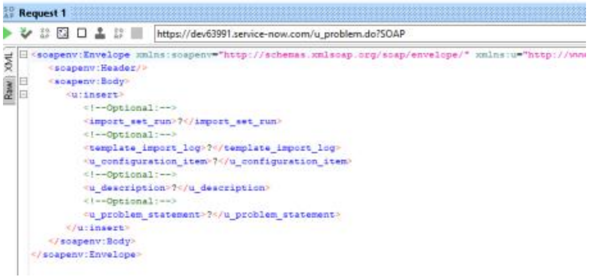
creating our own import set web api, fn -> web services -> inbound -> create new -> after creating it will ask you to create a transform map -> create transform map -> you will be routed to all web services field

while you importing the ENDPOINT which is generated from the change request web services in the SOAP you will get a lot of errors

How to overcome this issue?

create one more web services inbound -> for problem -> don’t check "copy fields from target table"

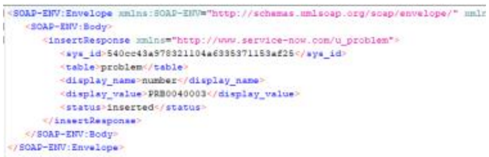
If you want to make the field as mandatory in the source table(import set table) on the particular field ->config dictionary -> check mandatory



https://dev63991.service-now.com/u_problem.do?SOAP

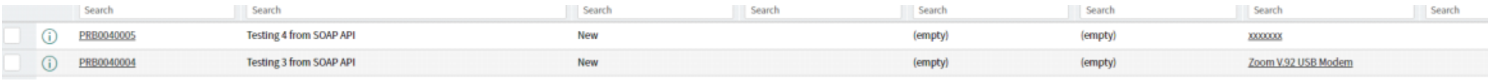
```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:u="http://www
   <soapenv:Header/>
   <soapenv:Body>
      <u:insert>
         <!--Optional:-->
         <import_set_run>?</import_set_run>
         <!--Optional:-->
         <template_import_log>?</template_import_log>
         <u_configuration_item>?</u_configuration_item>
         <!--Optional:-->
         <u_description>?</u_description>
         <!--Optional:-->
         <u_problem_statement>?</u_problem_statement>
      </u:insert>
   </soapenv:Body>
</soapenv:Envelope>
```

even its cmdb_ci field is mandatory but still its creating the record,



```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlr
   <SOAP-ENV:Body>
      <insertResponse xmlns="http://www.service-now.com/u_problem">
         <sys_id>540cc43a978321104a6335371153af25</sys_id>
         <table>problem</table>
         <display_name>number</display_name>
         <display_value>PRB0040003</display_value>
         <status>inserted</status>
      </insertResponse>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

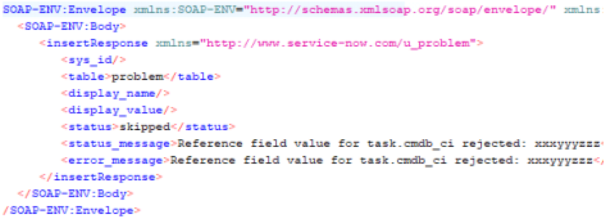
if you give the ci namme as "xxxxxxx" even the record is not present in the system still it will update



| | | Search | Search | Search | Search | Search | Search | Search | Search |
|---|---|---|---|---|---|---|---|---|---|
| □ | ⓘ | PRB0040005 | Testing 4 from SOAP API | New | | (empty) | (empty) | xxxxxxx | |
| □ | ⓘ | PRB0040004 | Testing 3 from SOAP API | New | | (empty) | (empty) | Zoom V.92 USB Modem | |

How we can valida/restrict this field?

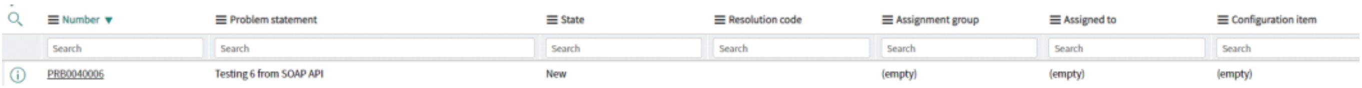
open the particular table transform map and click the run script************
If you open the particular source field for validation set "choice action = reject" so it wont update so that status will be skipped and it will populate the error message



```
SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns
  <SOAP-ENV:Body>
    <insertResponse xmlns="http://www.service-now.com/u_problem">
      <sys_id/>
      <table>problem</table>
      <display_name/>
      <display_value/>
      <status>skipped</status>
      <status_message>Reference field value for task.cmdb_ci rejected: xxxyyyzzz
      <error_message>Reference field value for task.cmdb_ci rejected: xxxyyyzzz<,
    </insertResponse>
  </SOAP-ENV:Body>
/SOAP-ENV:Envelope>
```

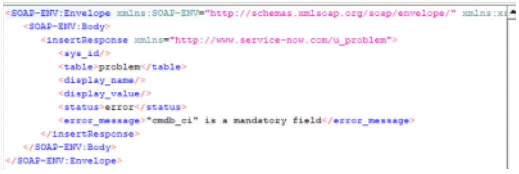
if "choice action = ignore"
it will create record but it wont update the particular field

incase if "choice action = reject", but you are not passing any value under the cmdb_ci field it will create the record as cmdb_ci = (empty)



|  | ☰ Number ▼ | ☰ Problem statement | ☰ State | ☰ Resolution code | ☰ Assignment group | ☰ Assigned to | ☰ Configuration item |
|---|---|---|---|---|---|---|---|
|  | Search | Search | Search | Search | Search | Search | Search |
| ⓘ | PRB0040006 | Testing 6 from SOAP API | New |  | (empty) | (empty) | (empty) |

incase if target table and source table has the same mandatory field, you can select option from transform map table :: enforce mandatory field = only mapped field

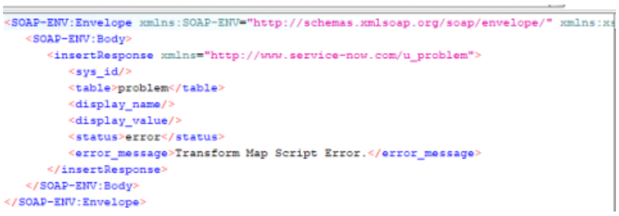


```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:x
  <SOAP-ENV:Body>
    <insertResponse xmlns="http://www.service-now.com/u_problem">
      <sys_id/>
      <table>problem</table>
      <display_name/>
      <display_value/>
      <status>error</status>
      <error_message>"cmdb_ci" is a mandatory field</error_message>
    </insertResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

other case :
If you want to validate the field on the source table, then you can write a script inside the source table

```
(function transformRow(source, target, map, log, isUpdate) {

    // Add your code here
    var ps = source.u_problem_statement;
    if(ps.startsWith('Soap message') == true || ps.startsWith('soap message') == true){
        //do nothing
    } else {
        error = true;
        source.sys_row_error = "Problem Statement should starts only with Soap or soap";
        source.sys_import_state_comment = source.sys_row_error;
    }

})(source, target, map, log, action==="update");
```

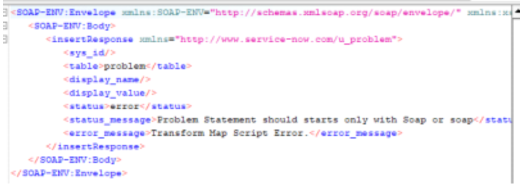
error :



```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:x
  <SOAP-ENV:Body>
    <insertResponse xmlns="http://www.service-now.com/u_problem">
      <sys_id/>
      <table>problem</table>
      <display_name/>
      <display_value/>
      <status>error</status>
      <error_message>Transform Map Script Error.</error_message>
    </insertResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

if you see this error message it is not that much clear what exactly the error so for that you need to populate the error in import set rows.comment field

add this line to above code : source.sys_import_state_comment = source.sys_row_error;



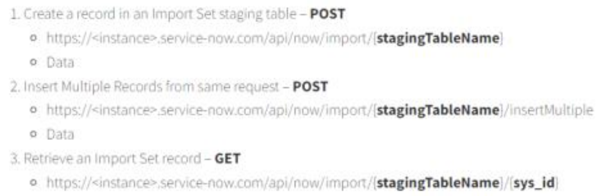
```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:x
  <SOAP-ENV:Body>
    <insertResponse xmlns="http://www.service-now.com/u_problem">
      <sys_id/>
      <table>problem</table>
      <display_name/>
      <display_value/>
      <status>error</status>
      <status_message>Problem Statement should starts only with Soap or soap</statu
      <error_message>Transform Map Script Error.</error_message>
    </insertResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

----------------------------------------------------------
Import set API - REST:

Using Rest message also we pass data from import set to target table.
We can put all kind of validation that we have put using SOAP message.

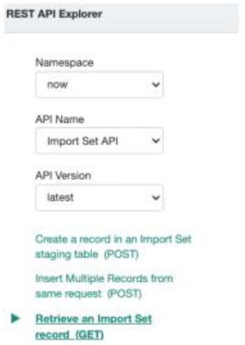
Both SOAP & REST works similar method. Both the method data first store to import set then using transform map from import set to target table.

We can put all kind of data validation in our transform map, transform map is the medium to move to from staging table to the arget table.



1. Create a record in an Import Set staging table – **POST**
   - https://<instance>.service-now.com/api/now/import/{**stagingTableName**}
   - Data
2. Insert Multiple Records from same request – **POST**
   - https://<instance>.service-now.com/api/now/import/{**stagingTableName**}/insertMultiple
   - Data
3. Retrieve an Import Set record – **GET**
   - https://<instance>.service-now.com/api/now/import/{**stagingTableName**}/{**sys_id**}

All the method quickly available in REST API Explorar:



**REST API Explorer**

Namespace: now

API Name: Import Set API

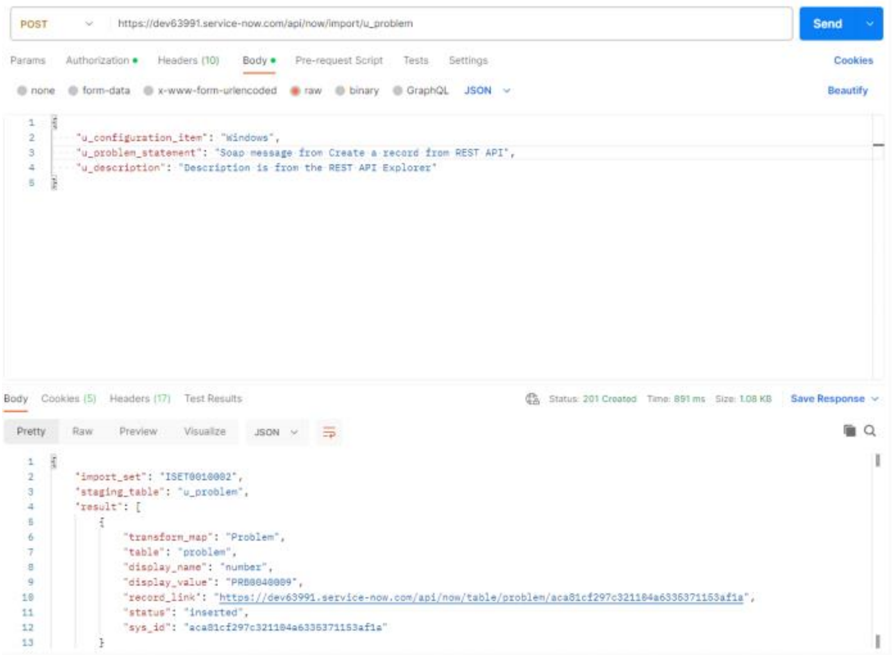
API Version: latest

Create a record in an Import Set staging table (POST)

Insert Multiple Records from same request (POST)

▶ **Retrieve an Import Set record (GET)**

Example from the POSTMAN



POST https://dev63991.service-now.com/api/now/import/u_problem

```
{
    "u_configuration_item": "Windows",
    "u_problem_statement": "Soap message from Create a record from REST API",
    "u_description": "Description is from the REST API Explorer"
}
```

Status: 201 Created Time: 891 ms Size: 1.08 KB

```
{
    "import_set": "ISET0010002",
    "staging_table": "u_problem",
    "result": [
        {
            "transform_map": "Problem",
            "table": "problem",
            "display_name": "number",
            "display_value": "PRB0040009",
            "record_link": "https://dev63991.service-now.com/api/now/table/problem/aca81cf297c321104a6335371153af1a",
            "status": "inserted",
            "sys_id": "aca81cf297c321104a6335371153af1a"
        }
```

-----------------------------------------------------------------------------------------------

Scripted web services - SOAP :

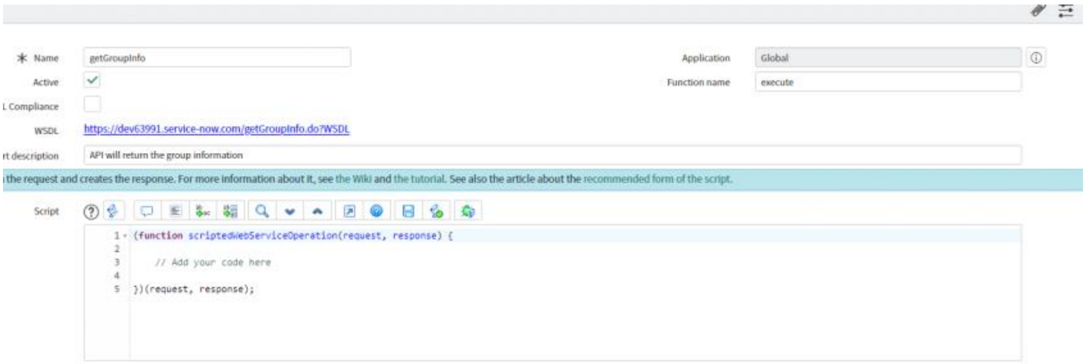
Using Scripted Web Service we can put the custom scripts and validate a lot of things. We can query multiple tables and work on this.

FN -> web services -> scripted web services -> scripted SOAP services

Scenario 1: Need Get Group Information, Group Members & Associated roles attached to group.
In this scenario, we need to call multiple tables across the platform which is not possible through simple API so we need to go for Scripted SOAP Web Services.

once scripted SOAP services is created you need to give the input parameters and output parameters(multiple parameters can be passed)

once the Scripted SOAP ws is created copy the link and import in SOAP API, based on the function name it will generate only the execute see the below screenshot



✱ Name: getGroupInfo

Application: Global

Active: ☑

Function name: execute

L Compliance: □

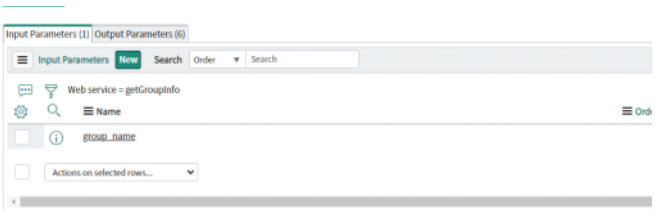
WSDL: https://dev63991.service-now.com/getGroupInfo.do?WSDL

rt description: API will return the group information

the request and creates the response. For more information about it, see the Wiki and the tutorial. See also the article about the recommended form of the script.

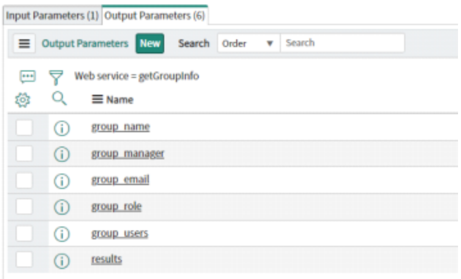
Script:

```
(function scriptedWebServiceOperation(request, response) {

    // Add your code here

})(request, response);
```



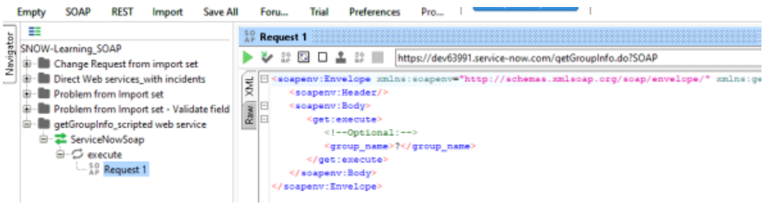
Web service = getGroupInfo

| Name |
|---|
| group_name |



Web service = getGroupInfo

| Name |
|---|
| group_name |
| group_manager |
| group_email |
| group_role |
| group_users |
| results |



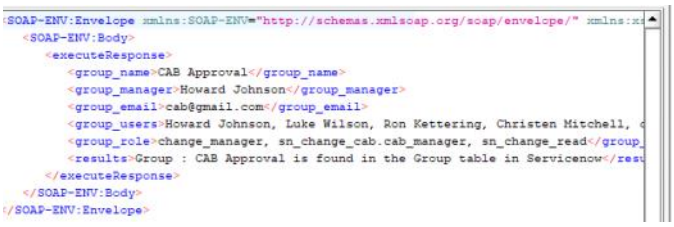
https://dev63991.service-now.com/getGroupInfo.do?SOAP

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:ge
   <soapenv:Header/>
   <soapenv:Body>
      <get:execute>
         <!--Optional:-->
         <group_name>?</group_name>
      </get:execute>
   </soapenv:Body>
</soapenv:Envelope>
```

In the Scripted SOAP WS : if user give the name of the group this script will return all the group related information.

```
(function scriptedWebServiceOperation(request, response) {

    // Add your code here

    var grp = request.group_name;
    var gr = new GlideRecord("sys_user_group");
    if (gr.get('name', grp)) {
        response.group_name = gr.name;
        response.group_manager = gr.manager.name;
        response.group_email = gr.email;
        response.group_users = getUsers(gr.sys_id);
        response.group_role = getRoles(gr.sys_id);
        response.results = "Group : " + grp + " is found in the Group table in Servicenow";
    } else {
        response.results = "Group : " + grp + " Not found in the Group table in Servicenow";
    }


    function getUsers(grId) {
        var users = "";
        var grm = new GlideRecord("sys_user_grmember");
        grm.addQuery('group', grId);
        grm.query();
        while (grm.next()) {
            if (users) {
                users = users + ", " + grm.user.name;
            } else {
                users = grm.user.name;
            }
        }
        return users;
    }

    function getRoles(grId) {
        var roles = "";
        var grr = new GlideRecord("sys_group_has_role");
        grr.addQuery('group', grId);
        grr.query();
        while (grr.next()) {
            if (roles) {
                roles = roles + ", " + grr.role.name;
            } else {
                roles = grr.role.name;
            }
        }
        return roles;
    }

})(request, response);
```

result in SOAP API :

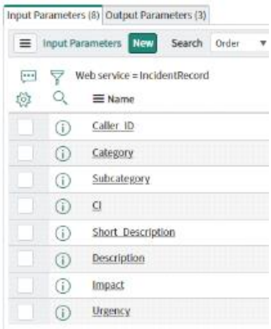


```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:x
  <SOAP-ENV:Body>
    <executeResponse>
      <group_name>CAB Approval</group_name>
      <group_manager>Howard Johnson</group_manager>
      <group_email>cab@gmail.com</group_email>
      <group_users>Howard Johnson, Luke Wilson, Ron Kettering, Christen Mitchell, c
      <group_role>change_manager, sn_change_cab.cab_manager, sn_change_read</group_
      <results>Group : CAB Approval is found in the Group table in Servicenow</resu
    </executeResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Service account :
*3e7a10H9oK$
integration.admin

scenario 2 :
Create a Scripted SOAP Message for Create a Incident with below validation:

Need to create an incident so that impact & Urgency can't be selected High.
Only deploy CI can be passed as a CI.
Category & Sub-Category Dependency should be there.

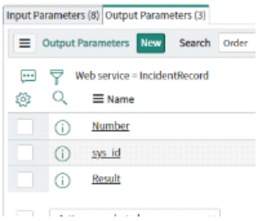


Input Parameters (8) | Output Parameters (3)

Input Parameters New Search Order

Web service = IncidentRecord

Name
- Caller_ID
- Category
- Subcategory
- CI
- Short_Description
- Description
- Impact
- Urgency



Input Parameters (8) | Output Parameters (3)

Output Parameters New Search Order

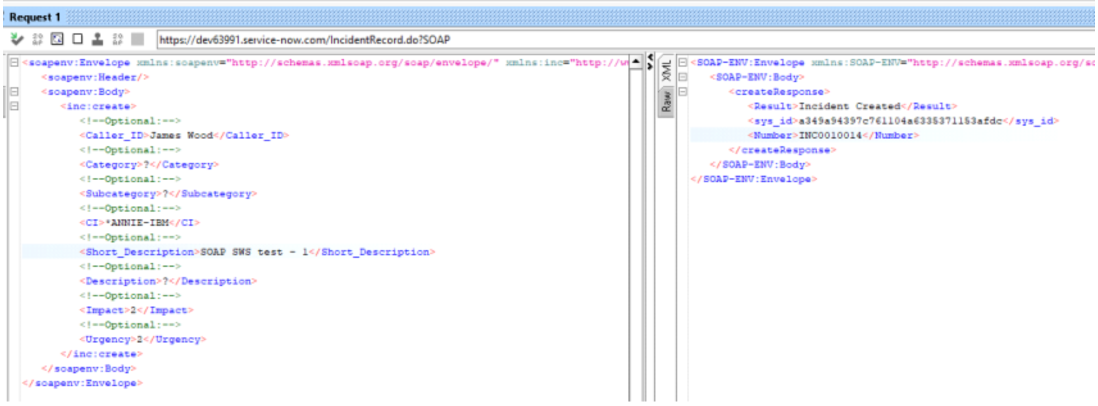
Web service = IncidentRecord

Name
- Number
- sys_id
- Result

example :

try to understand the code :

```
(function scriptedWebServiceOperation(request, response) {

    // Add your code here

    var v1 = mandatoryValidation();
    if (v1 == true) {
        var grInc = new GlideRecord("incident");
        grInc.initialize(); //it creates an empty record to populate the value
        grInc.caller_id = request.Caller_ID;
        grInc.short_description = request.Short_Description;

        var grCI1 = new GlideRecord('cmdb_ci');
        grCI1.get('name', request.CI);

        grInc.cmdb_ci = grCI1.sys_id; //because its a referrence field you need to get sys_id to populate the value
        if (request.Impact) {
            grInc.impact = request.Impact;
        }
        if (request.Urgency) {
            grInc.urgency = request.Urgency;
        }
        grInc.insert();
        response.Result = "Incident Created";
        response.sys_id = grInc.sys_id;
        response.Number = grInc.number;
    } else {
        response.Result = v1;
    }

    function mandatoryValidation() {
        if (request.Caller_ID) {
            if (request.CI) {
                var grCI = new GlideRecord('cmdb_ci');
                grCI.addQuery('name', request.CI);
                grCI.addQuery('operational_status', 1);
                grCI.query();
                if (grCI.next()) {
                    if (request.Short_Description) {
                        if (request.Impact && request.Impact == 1) {
                            return "Impact cannot be high";
                        } else {
                            if (request.Urgency && request.Urgency == 1) {
                                return "Urgency cannot be high";
                            } else {
                                return true;
                            }
                        }
                    } else {
                        return "Short Description should be mandatory";
                    }
                } else {
                    return "CI is not found and It is not operational";
                }
            } else {
                return "Configuration Item should be mandatory";
            }
        } else {
            return "Caller_ID should be mandatory";
        }
    }

})(request, response);
```



https://dev63991.service-now.com/IncidentRecord.do?SOAP

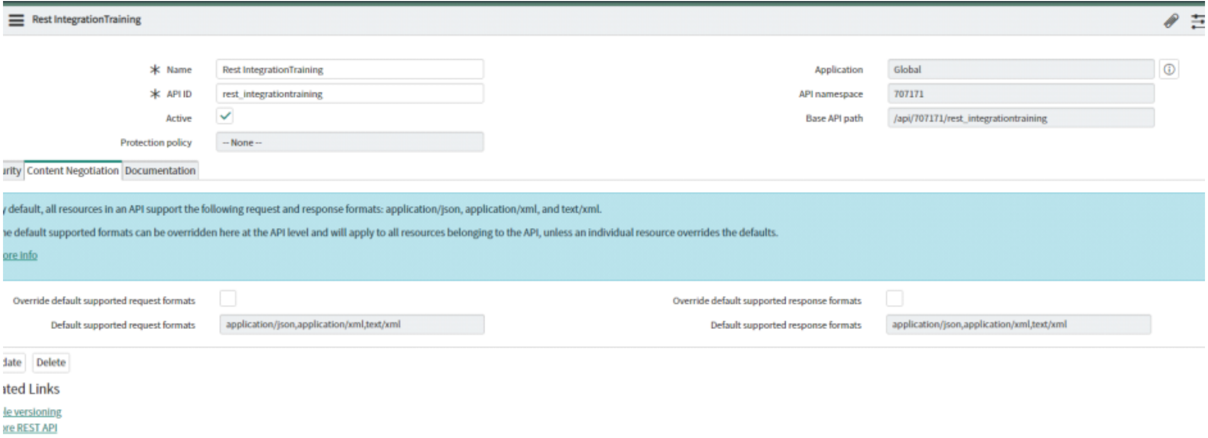
```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:inc="http://w
   <soapenv:Header/>
   <soapenv:Body>
      <inc:create>
         <!--Optional:-->
         <Caller_ID>James Wood</Caller_ID>
         <!--Optional:-->
         <Category>?</Category>
         <!--Optional:-->
         <Subcategory>?</Subcategory>
         <!--Optional:-->
         <CI>*ANNIE-IBM</CI>
         <!--Optional:-->
         <Short_Description>SOAP SWS test - 1</Short_Description>
         <!--Optional:-->
         <Description>?</Description>
         <!--Optional:-->
         <Impact>2</Impact>
         <!--Optional:-->
         <Urgency>2</Urgency>
      </inc:create>
   </soapenv:Body>
</soapenv:Envelope>
```

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/sc
   <SOAP-ENV:Body>
      <createResponse>
         <Result>Incident Created</Result>
         <sys_id>a349a94397c761104a6335371153afdc</sys_id>
         <Number>INC0010014</Number>
      </createResponse>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

-------------------------------------------------------------------------------

Scripted Web services - REST :

FN -> web services -> scripted REST API



| | | | |
|---|---|---|---|
| * Name | Rest IntegrationTraining | Application | Global |
| * API ID | rest_integrationtraining | API namespace | 707171 |
| Active | ✓ | Base API path | /api/707171/rest_integrationtraining |
| Protection policy | -- None -- | | |

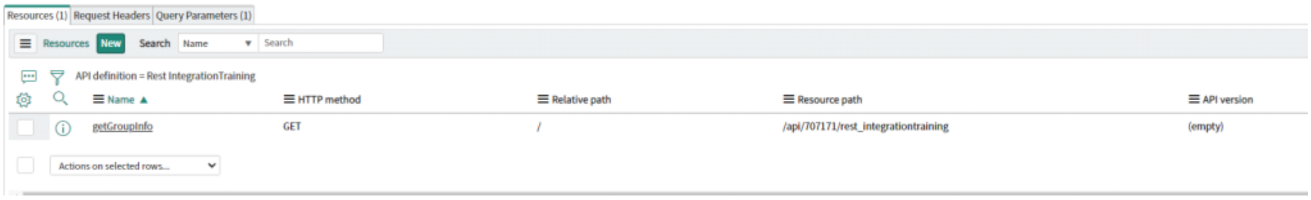
y default, all resources in an API support the following request and response formats: application/json, application/xml, and text/xml.

he default supported formats can be overridden here at the API level and will apply to all resources belonging to the API, unless an individual resource overrides the defaults.

ore info

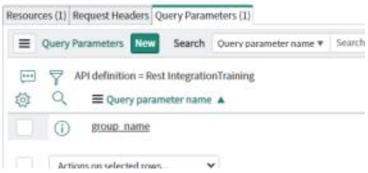
| | | | |
|---|---|---|---|
| Override default supported request formats | □ | Override default supported response formats | □ |
| Default supported request formats | application/json,application/xml,text/xml | Default supported response formats | application/json,application/xml,text/xml |

in SOAP we have input parameters but in RESt we don’t have anything like that, so instead its like "query parameter association" you need to create it and call it on the code, like "request.queryParams.group_name" and also in SOAP you can create only one function but in REST you can do a lot of function like "create, update, etc..,"



API definition = Rest IntegrationTraining

| Name ▲ | HTTP method | Relative path | Resource path | API version |
|---|---|---|---|---|
| getGroupInfo | GET | / | /api/707171/rest_integrationtraining | (empty) |



API definition = Rest IntegrationTraining

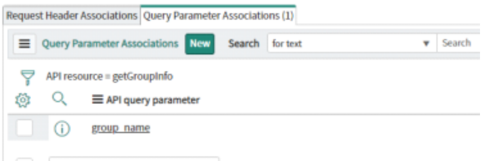
| Query parameter name ▲ |
|---|
| group_name |

Scenario 1: Need Get Group Information, Group Members & Associated roles attached to group(that we did in same in SOAP).

create one resources to get the information :

Code :

```
(function process( /*RESTAPIRequest*/ request, /*RESTAPIResponse*/ response) {

    var grp = request.queryParams.group_name.toString();
    var gr = new GlideRecord("sys_user_group");
    var json = {};
    if (gr.get('name', grp)) {
        json.group_name = gr.name;
        json.group_manager = gr.manager.name;
        json.group_email = gr.email;
        json.group_users = getUsers(gr.sys_id);
        json.group_role = getRoles(gr.sys_id);
        json.results = "Group : " + grp + " is found in the Group table in Servicenow";
        response.setStatus(200);
    } else {
        json.results = "Group : " + grp + " Not found in the Group table in Servicenow";
        response.setStatus(405);
    }

    response.setBody(json);


    function getUsers(grId) {
        var users = "";
        var grm = new GlideRecord("sys_user_grmember");
        grm.addQuery('group', grId);
        grm.query();
        while (grm.next()) {
            if (users) {
                users = users + ", " + grm.user.name;
            } else {
                users = grm.user.name;
            }
        }
        return users;
    }

    function getRoles(grId) {
        var roles = "";
        var grr = new GlideRecord("sys_group_has_role");
        grr.addQuery('group', grId);
        grr.query();
        while (grr.next()) {
            if (roles) {
                roles = roles + ", " + grr.role.name;
            } else {
                roles = grr.role.name;
            }
        }
        return roles;
    }

})(request, response);
```



Request Header Associations | Query Parameter Associations (1)

Query Parameter Associations New Search for text Search

API resource = getGroupInfo

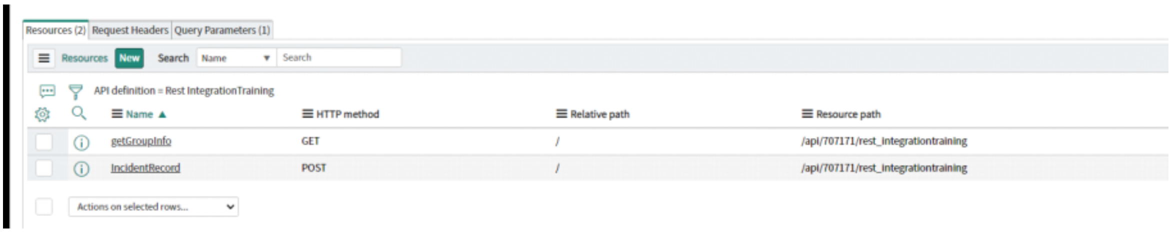
| API query parameter |
|---|
| group_name |

output :

```
{
    "result": {
        "group_name": "CAB Approval",
        "group_manager": "Howard Johnson",
        "group_email": "cab@gmail.com",
        "group_users": "Howard Johnson, Luke Wilson, Ron Kettering, Christen Mitchell, cab approver, Bernard
Laboy",
        "group_role": "change_manager, sn_change_cab.cab_manager, sn_change_read",
        "results": "Group : CAB Approval is found in the Group table in Servicenow"
    }
}
```

**** Even you can do test in "Explorer REST API" it will generate atomatically everything for you ****

scenario 2 : that we did in same SOAP API, but you can add multiple of headers in one rest api we services
Create a Scripted SOAP Message for Create a Incident with below validation:



Resources (2) | Request Headers | Query Parameters (1)

Resources New Search Name Search

API definition = Rest IntegrationTraining

| Name ▲ | HTTP method | Relative path | Resource path |
|---|---|---|---|
| getGroupInfo | GET | / | /api/707171/rest_integrationtraining |
| IncidentRecord | POST | / | /api/707171/rest_integrationtraining |

Actions on selected rows...

Need to create an incident so that impact & Urgency can’t be selected High.
Only deploy CI can be passed as a CI.

example code :

```
(function process( /*RESTAPIRequest*/ request, /*RESTAPIResponse*/ response) {

    var data = request.body.data; // this will get the body and desearealize in to an object

    var outputJSON = {};

    var v1 = mandatoryValidation();
    if (v1 == true) {
        var grInc = new GlideRecord("incident");
        grInc.initialize(); //it creates an empty record to populate the value
        grInc.caller_id = data.Caller_ID;
        grInc.short_description = data.Short_Description;

        var grCI1 = new GlideRecord('cmdb_ci');
        grCI1.get('name', data.CI);
        grInc.cmdb_ci = grCI1.sys_id; //because its a referrence field you need to get sys_id to populate the value
        if (data.Impact) {
            grInc.impact = data.Impact;
        }
        if (data.Urgency) {
            grInc.urgency = data.Urgency;
        }
        grInc.insert();
        outputJSON.Result = "Incident Created";
        outputJSON.sys_id = grInc.sys_id;
        outputJSON.Number = grInc.number;
    } else {
        outputJSON.Result = v1;
        response.setStatus(405);
    }

    response.setBody(outputJSON);

    function mandatoryValidation() {
        if (data.Caller_ID) {
            if (data.CI) {
                var grCI = new GlideRecord('cmdb_ci');
                grCI.addQuery('name', data.CI);
                grCI.addQuery('operational_status', 1);
                grCI.query();
                if (grCI.next()) {
                    if (data.Short_Description) {
                        if (data.Impact && data.Impact == 1) {
                            return "Impact cannot be high";
                        } else {
                            if (data.Urgency && data.Urgency == 1) {
                                return "Urgency cannot be high";
                            } else {
                                return true;
                            }
                        }
                    } else {
                        return "Short Description should be mandatory";
                    }
                } else {
                    return "CI is not found and It is not operational";
                }
            } else {
                return "Configuration Item should be mandatory";
            }
        } else {
            return "Caller_ID should be mandatory";
        }
    }


})(request, response);
```

output :

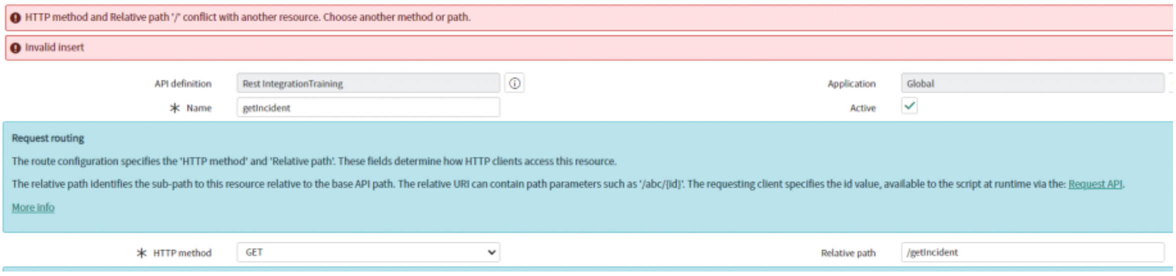
need to pass the body :

```
{
    "Caller_ID": "James Wood",
    "CI": "*ANNIE-IBM",
    "Short_Description": "REST API WS Testing - 2",
    "Impact": "2",
    "Urgency": "2"
}
```

result :

```
{
    "result": {
        "Result": "Incident Created",
        "sys_id": "793c9e43978b61104a6335371153af1e",
        "Number": "INC0010016"
    }
}
```

Note : If you try to create with same header like "GET" as  twice, you need to define the relative path



HTTP method and Relative path '/' conflict with another resource. Choose another method or path.

Invalid insert

API definition: Rest IntegrationTraining

Application: Global

* Name: getIncident

Active: ✓

**Request routing**

The route configuration specifies the 'HTTP method' and 'Relative path'. These fields determine how HTTP clients access this resource.

The relative path identifies the sub-path to this resource relative to the base API path. The relative URI can contain path parameters such as '/abc/{id}'. The requesting client specifies the id value, available to the script at runtime via the: Request API.

More info

* HTTP method: GET

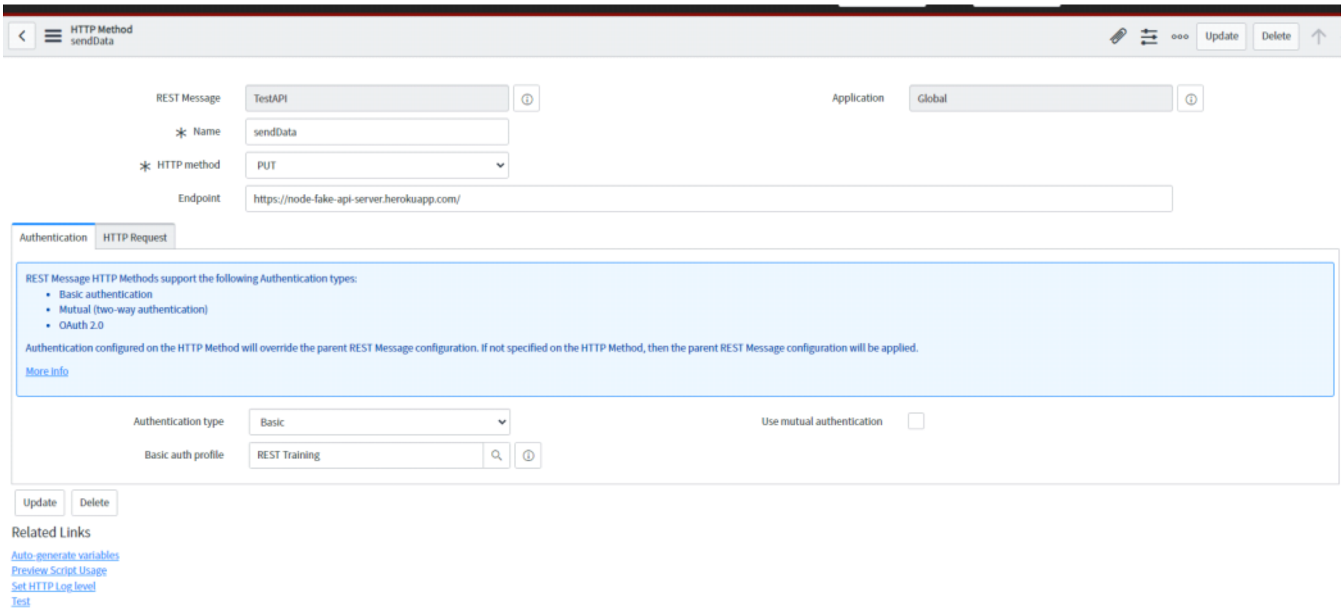
Relative path: /getIncident

--------------------------------------------------------------------------------------------------------------

REST Message Outbound :

create a REST message and trigger it from snow

create rest message : whenever you create a rest message it will give you the default HTTP header in that record and then you can edit it



HTTP Method
sendData

| | | | |
|---|---|---|---|
| REST Message | TestAPI | Application | Global |
| * Name | sendData | | |
| * HTTP method | PUT | | |
| Endpoint | https://node-fake-api-server.herokuapp.com/ | | |

REST Message HTTP Methods support the following Authentication types:

- Basic authentication
- Mutual (two-way authentication)
- OAuth 2.0

Authentication configured on the HTTP Method will override the parent REST Message configuration. If not specified on the HTTP Method, then the parent REST Message configuration will be applied.

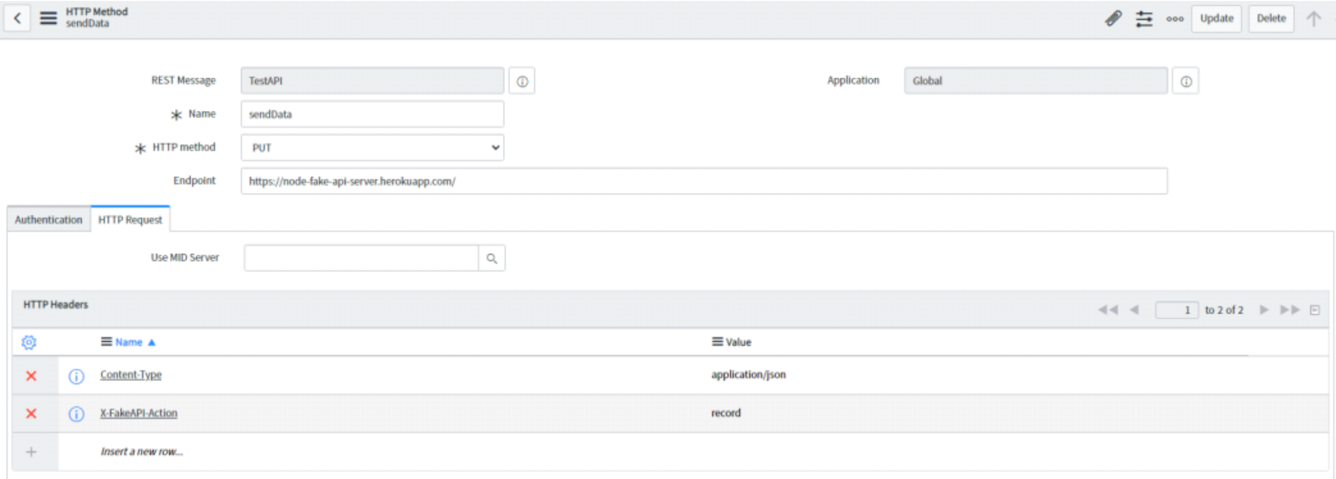
More info

| | | | |
|---|---|---|---|
| Authentication type | Basic | Use mutual authentication | □ |
| Basic auth profile | REST Training | | |

Related Links

Auto-generate variables
Preview Script Usage
Set HTTP Log level
Test

endpoint needs to be filled and authentication needs to be created



HTTP Method
sendData

| | | | |
|---|---|---|---|
| REST Message | TestAPI | Application | Global |
| * Name | sendData | | |
| * HTTP method | PUT | | |
| Endpoint | https://node-fake-api-server.herokuapp.com/ | | |

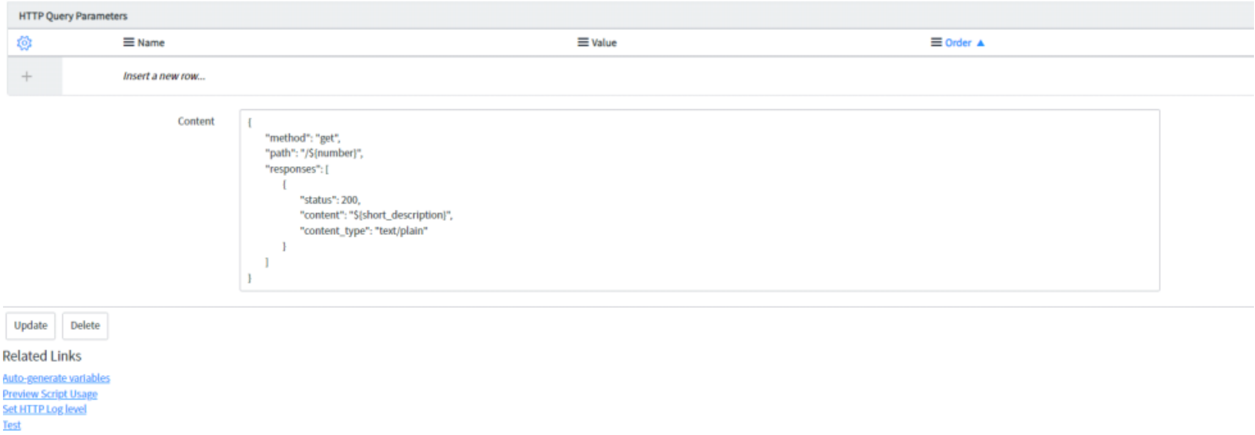
Use MID Server

HTTP Headers

| Name ▲ | Value |
|---|---|
| Content-Type | application/json |
| X-FakeAPI-Action | record |
| *Insert a new row...* | |

*** HTTP request in mandatory

then content body needs to be filled



HTTP Query Parameters

| Name | Value | Order ▲ |
|---|---|---|
| *Insert a new row...* | | |

Content

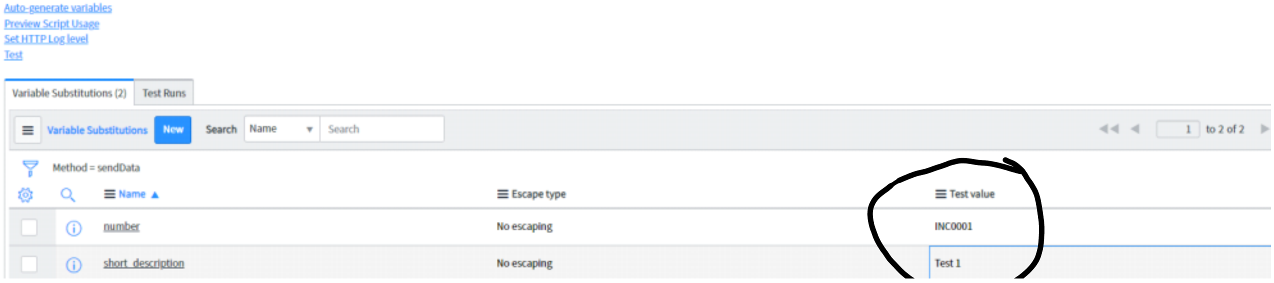
```
{
    "method": "get",
    "path": "/${number}",
    "responses": [
        {
            "status": 200,
            "content": "${short_description}",
            "content_type": "text/plain"
        }
    ]
}
```

Related Links

Auto-generate variables
Preview Script Usage
Set HTTP Log level
Test

in this content left side is third party application variable value and the right side is our application field value and when once you hit the "Auto generate variables"
the fields which it is in content with ${} it will populate in the variable substitution.

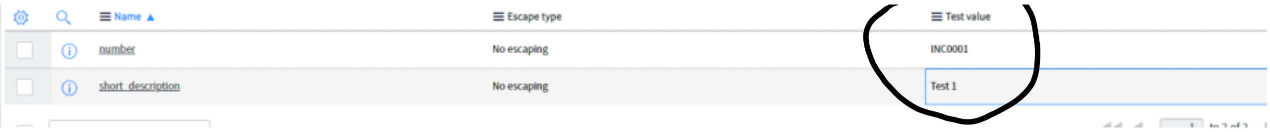
For testing : click "Test" in the related link



Auto-generate variables
Preview Script Usage
Set HTTP Log level
Test

Method = sendData

| Name ▲ | Escape type | Test value |
|---|---|---|
| number | No escaping | INC0001 |
| short_description | No escaping | Test 1 |

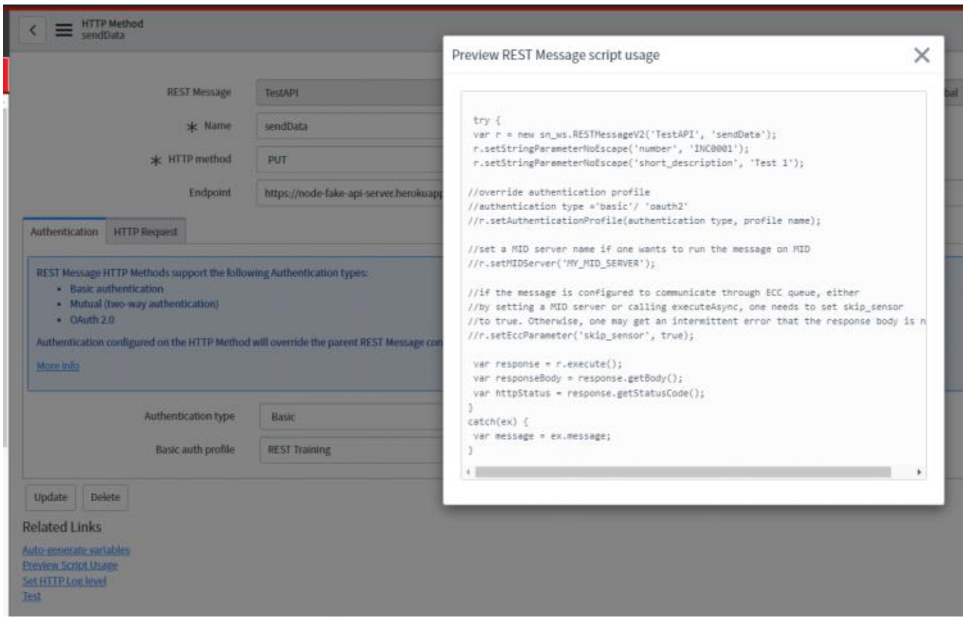


| Name ▲ | Escape type | Test value |
|---|---|---|
| number | No escaping | INC0001 |
| short_description | No escaping | Test 1 |

**** while testing this it will their end point so there is a chance of creating records in PROD instance

once the test is success and then you need to create a trigger point on the table where you want to execute for that you require a BR to work on that and simultaneously you can create whatever UI action we want

Note : for generation the scripts click "Preview script usage" it shows you the script



HTTP Method
sendData

REST Message: TestAPI

Name: sendData

HTTP method: PUT

Endpoint: https://node-fake-api-server.herokuapp

REST Message HTTP Methods support the following Authentication types:

- Basic authentication
- Mutual (two-way authentication)
- OAuth 2.0

Authentication configured on the HTTP Method will override the parent REST Message con

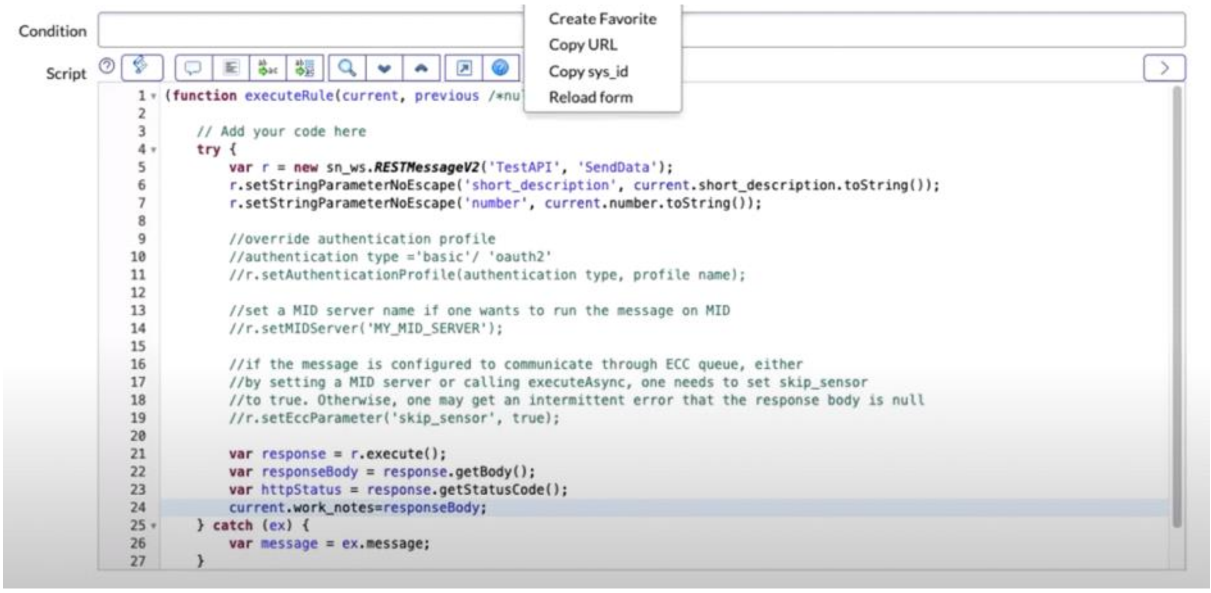
More info

Authentication type: Basic

Basic auth profile: REST Training

Preview REST Message script usage

```
 try {
 var r = new sn_ws.RESTMessageV2('TestAPI', 'sendData');
 r.setStringParameterNoEscape('number', 'INC0001');
 r.setStringParameterNoEscape('short_description', 'Test 1');

//override authentication profile
//authentication type ='basic'/ 'oauth2'
//r.setAuthenticationProfile(authentication type, profile name);

//set a MID server name if one wants to run the message on MID
//r.setMIDServer('MY_MID_SERVER');

//if the message is configured to communicate through ECC queue, either
//by setting a MID server or calling executeAsync, one needs to set skip_sensor
//to true. Otherwise, one may get an intermittent error that the response body is n
//r.setEccParameter('skip_sensor', true);

 var response = r.execute();
 var responseBody = response.getBody();
 var httpStatus = response.getStatusCode();
}
catch(ex) {
 var message = ex.message;
}
```



```
(function executeRule(current, previous /*nu

    // Add your code here
    try {
        var r = new sn_ws.RESTMessageV2('TestAPI', 'SendData');
        r.setStringParameterNoEscape('short_description', current.short_description.toString());
        r.setStringParameterNoEscape('number', current.number.toString());

        //override authentication profile
        //authentication type ='basic'/ 'oauth2'
        //r.setAuthenticationProfile(authentication type, profile name);

        //set a MID server name if one wants to run the message on MID
        //r.setMIDServer('MY_MID_SERVER');

        //if the message is configured to communicate through ECC queue, either
        //by setting a MID server or calling executeAsync, one needs to set skip_sensor
        //to true. Otherwise, one may get an intermittent error that the response body is null
        //r.setEccParameter('skip_sensor', true);

        var response = r.execute();
        var responseBody = response.getBody();
        var httpStatus = response.getStatusCode();
        current.work_notes=responseBody;
    } catch (ex) {
        var message = ex.message;
    }
```

instead of test values you can replace it as "current" to get the current record field values