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Lab Guide

Integration 202:

Accessing the ServiceNow Web Service API

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Default Login / Password:

admin / Knowledge15

itil / Knowledge15

employee / Knowledge15

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Please Note:

This lab guide contains many exercises that you may not get to during the course of a typical two-hour lab session. For you benefit, the update set required for this lab can be downloaded and installed on another instance should you wish to try some of these exercises on your own time.

Resources utilized in this lab can be accessed at:

http://www.john-james-andersen.com/uncategorized/k15-integration-202-lab-resources.html

Lab Goal

This lab demonstrates basic SOAP Web Service functionality. It explains how to access tables within the ServiceNow database to both query and manipulate data using a SOAP Client.

This exercise shows you how to leverage the GUI SOAP Message tool (or use a tool of your choice, such as SOAP-UI) to access the auto-generated SOAP Web Services on basic ServiceNow instance tables. Lab activities include how to create, query, update, and delete records on a custom table.

Lab 1
SOAP Web Service API

Notes About the SOAP Client Options

1. For the exercises in this lab, the lab documentation uses the GUI based SOAP utility provided by ServiceNow, **SOAP Message**. You can use any other third party SOAP Client to perform this lab if you are more comfortable with that tool.

2. Note that the web services being called are available to any client, not just a ServiceNow instance. We use the ServiceNow instance as the client in these examples because they are accessible to everyone in the lab without requiring you to download third party software.

Log on to Your Training Instance

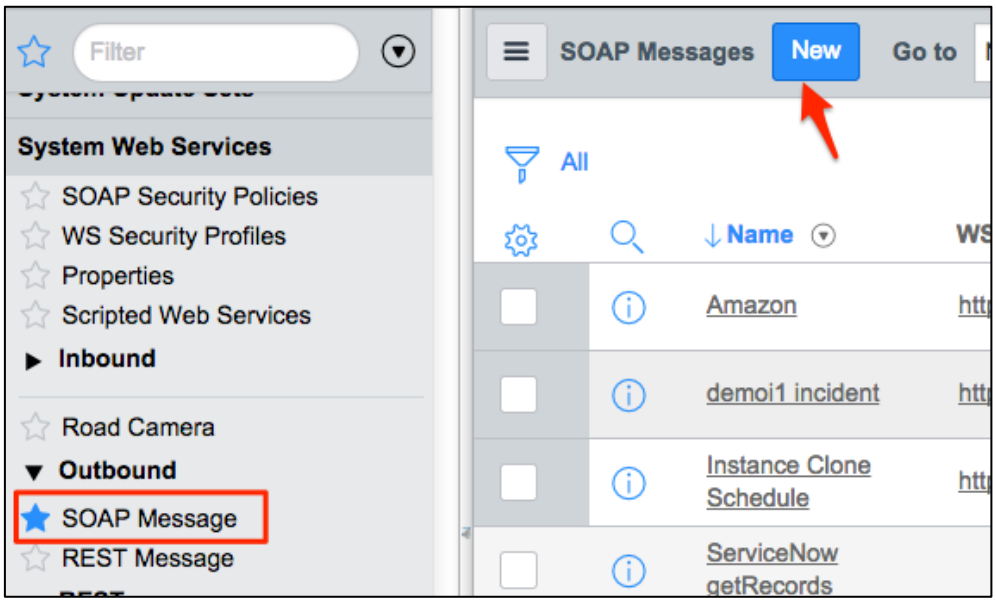
1. Navigate to the unique instance URL provided to you.

2. Log on with provided credentials.

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Set up a Client to Communicate with the Weather Camera Records

1. Navigate to **System Web Services > SOAP Message** and click **New**.



2. Set up the SOAP Client to consume the **Weather Cameras** table in ServiceNow.

   - Name: Weather Camera Direct
   - WSDL: https://YOURINSTANCE.lab.service-now.com/weather_cameras.do?WSDL
   - Download WSDL: **Checked**
   - Use Basic Authentication: **Checked**

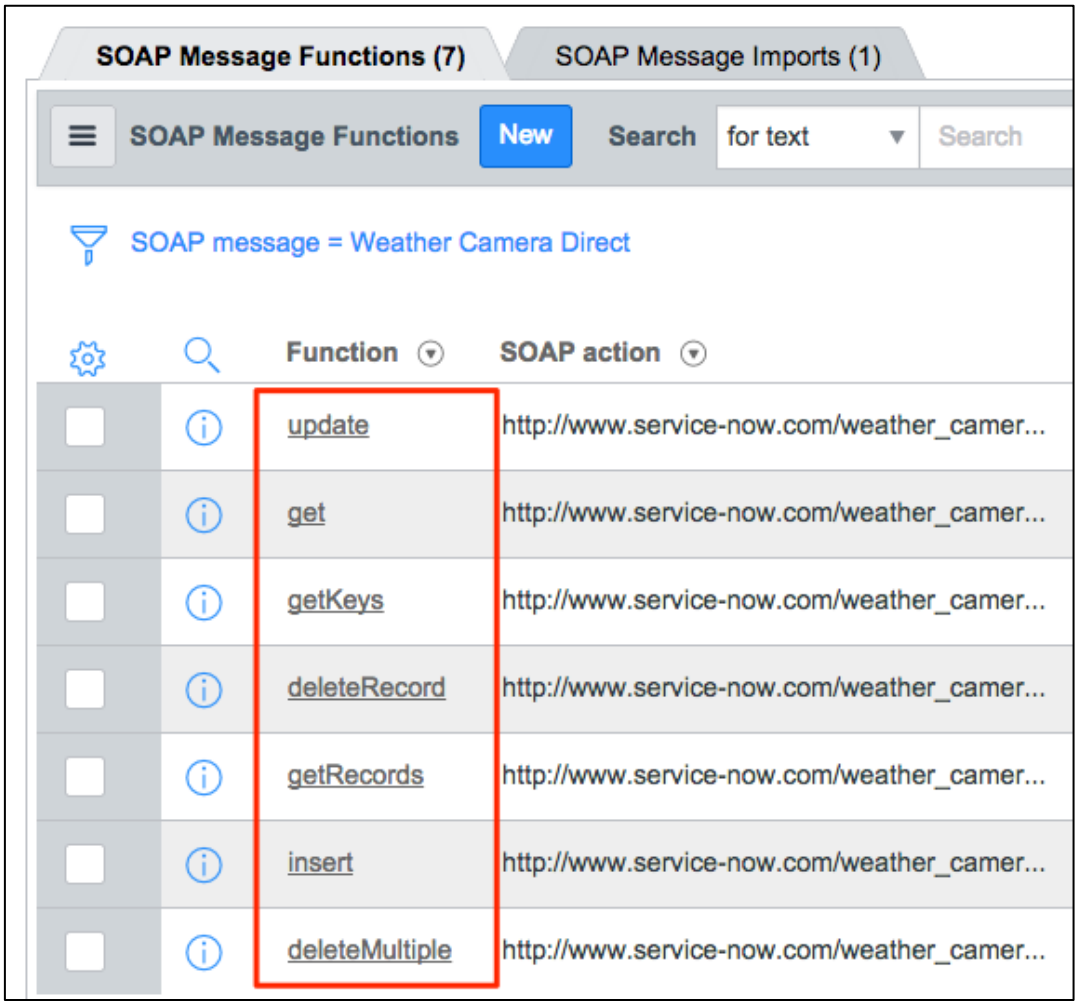
   Basic auth user ID: **admin**
   Basic auth user password: **Your instance's admin password**

3. Click the **Generate sample SOAP messages** link.



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4. Once the SOAP functions have been read by the client, the available functions will show up for you to use.

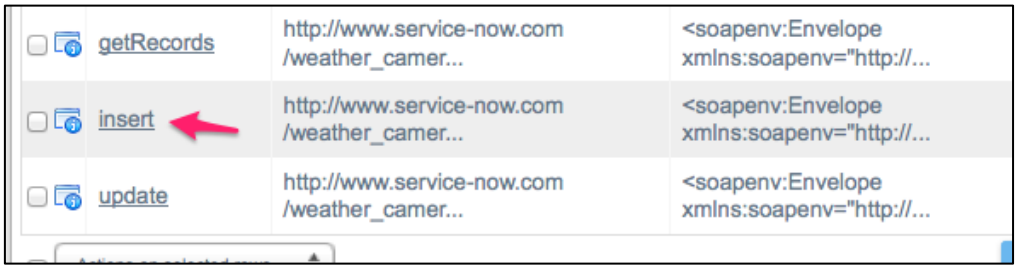


5. Which function would you use to get the details of records based off of a filter? Submit your answer: http://snquiz.com/0001093.

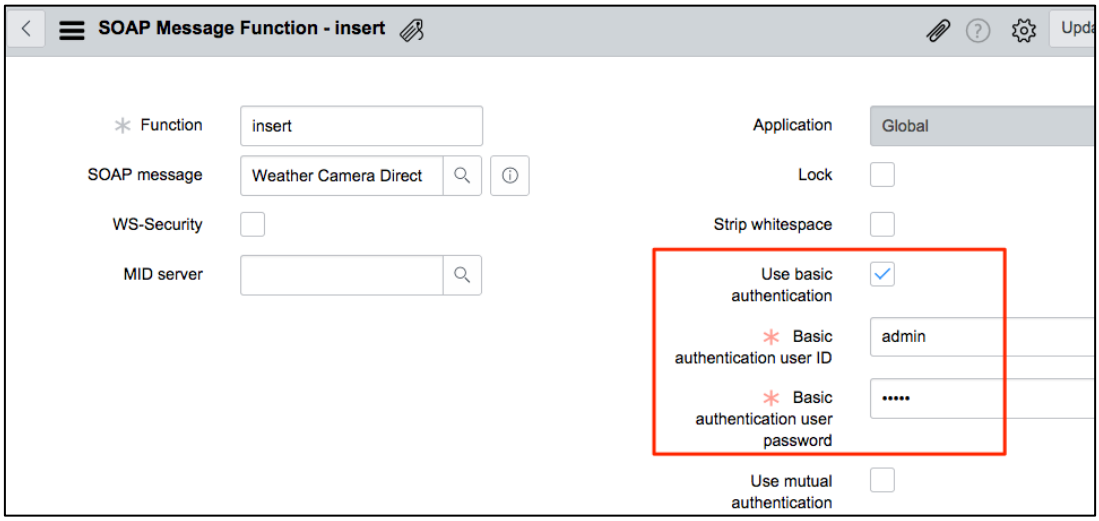
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Use the SOAP Client to Create Weather Camera Records

1. Click the **insert** SOAP Message function.

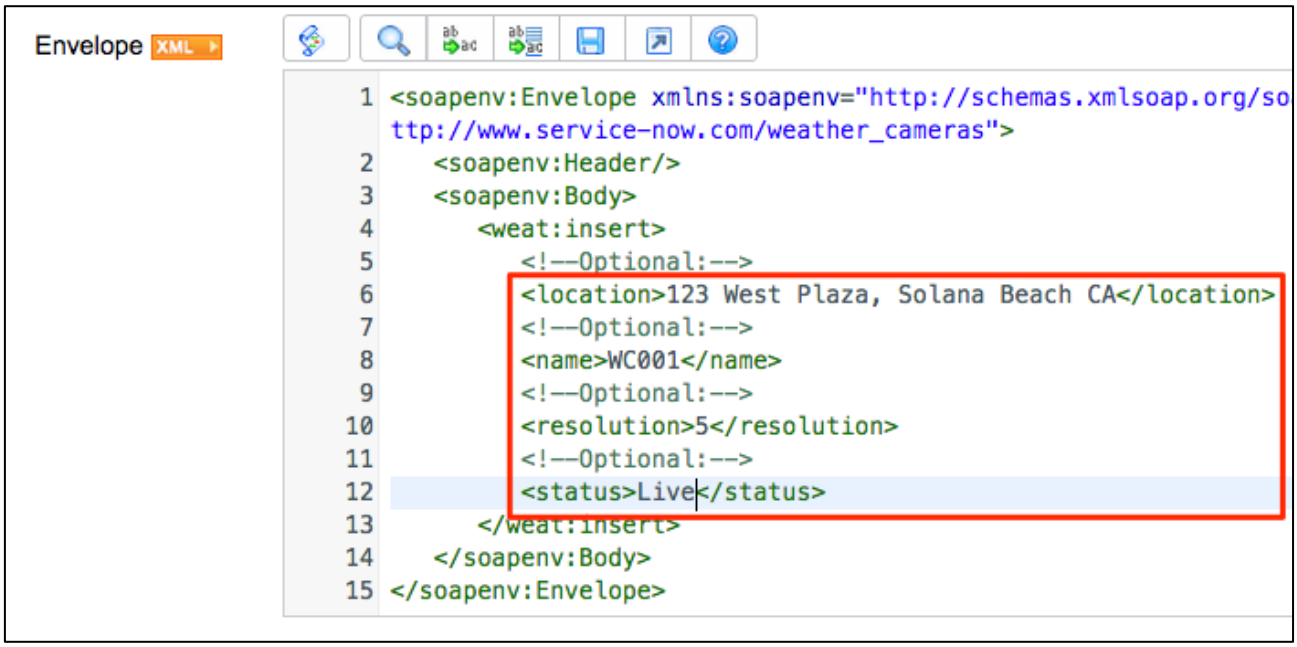


2. Set the following fields in the SOAP Message client:
   - Use basic auth: **Checked**
   - Basic auth user ID: **admin**
   - Basic auth user password: **<your password>**



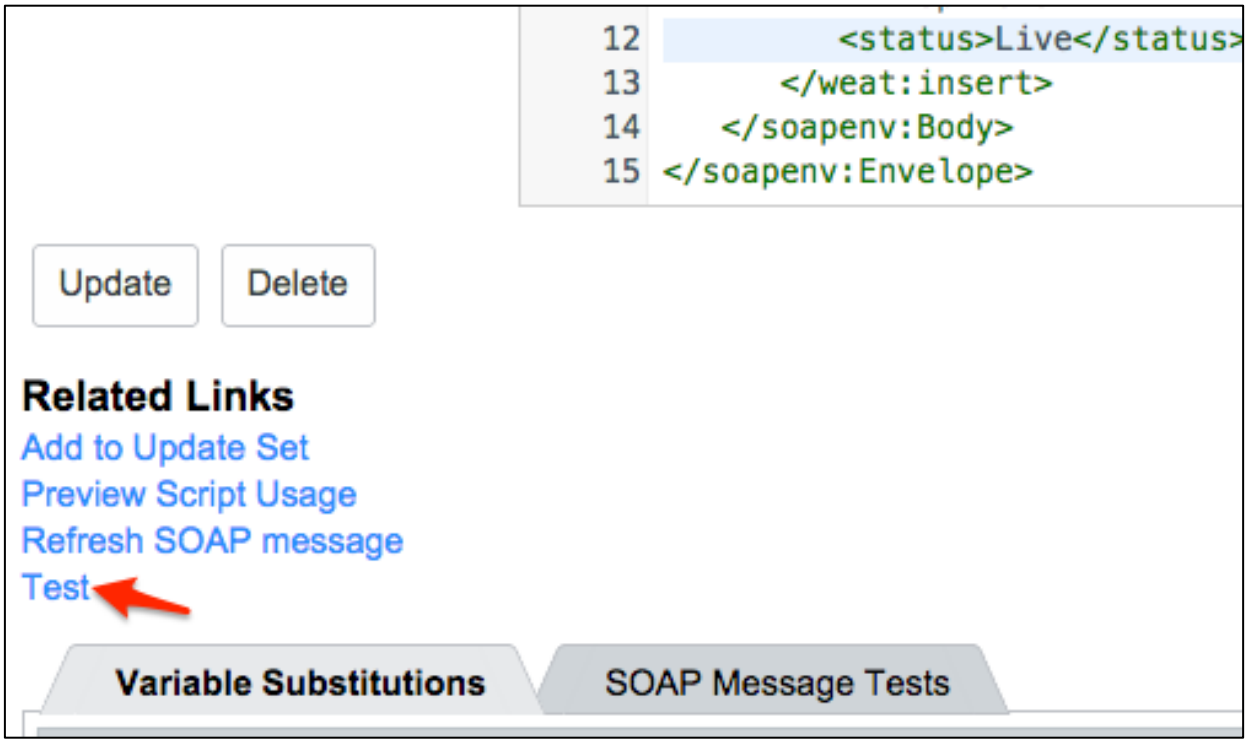
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3. Update the **Envelope** field by replacing the following variable strings with test data:
   - ${location} : 123 West Plaza, Solana Beach CA
   - ${name} : **WC001**
   - ${resolution} : **5**
   - ${status} : **Live**



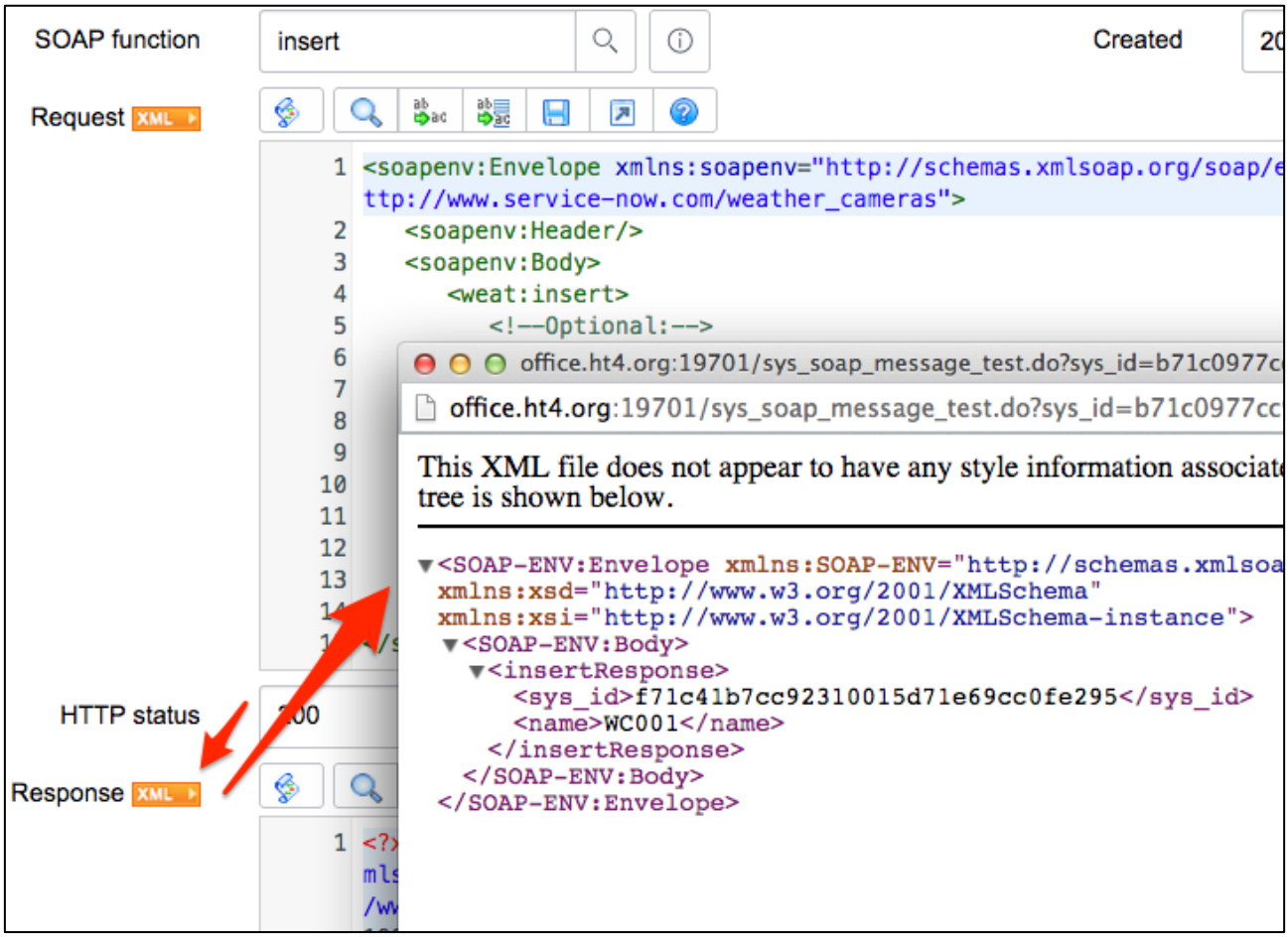
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4. Click the **Test** link.



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5. The response of the SOAP Request appears. View the formatted response by clicking the **XML** icon.



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6. The response should contain the new Weather Camera display name as well as the unique GUID it stored for the record in the database.

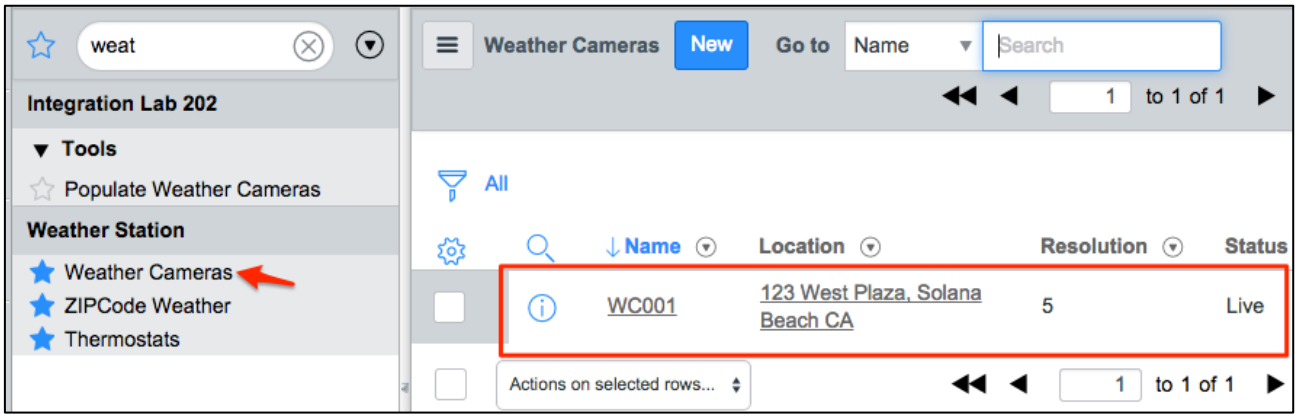


7. **Copy** the value of the **sys_id** element to the clipboard for use in the next few steps.



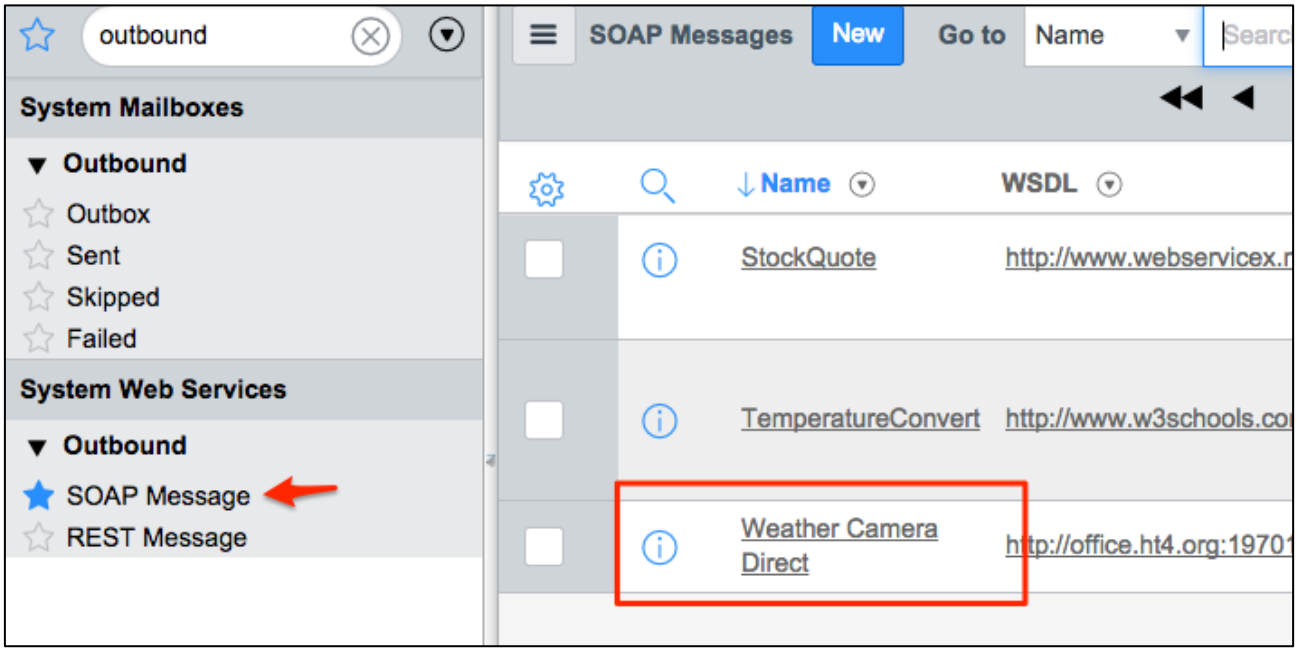
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8. To verify that the record was created, navigate to the **Weather Station > Weather Cameras** module and look for the record.



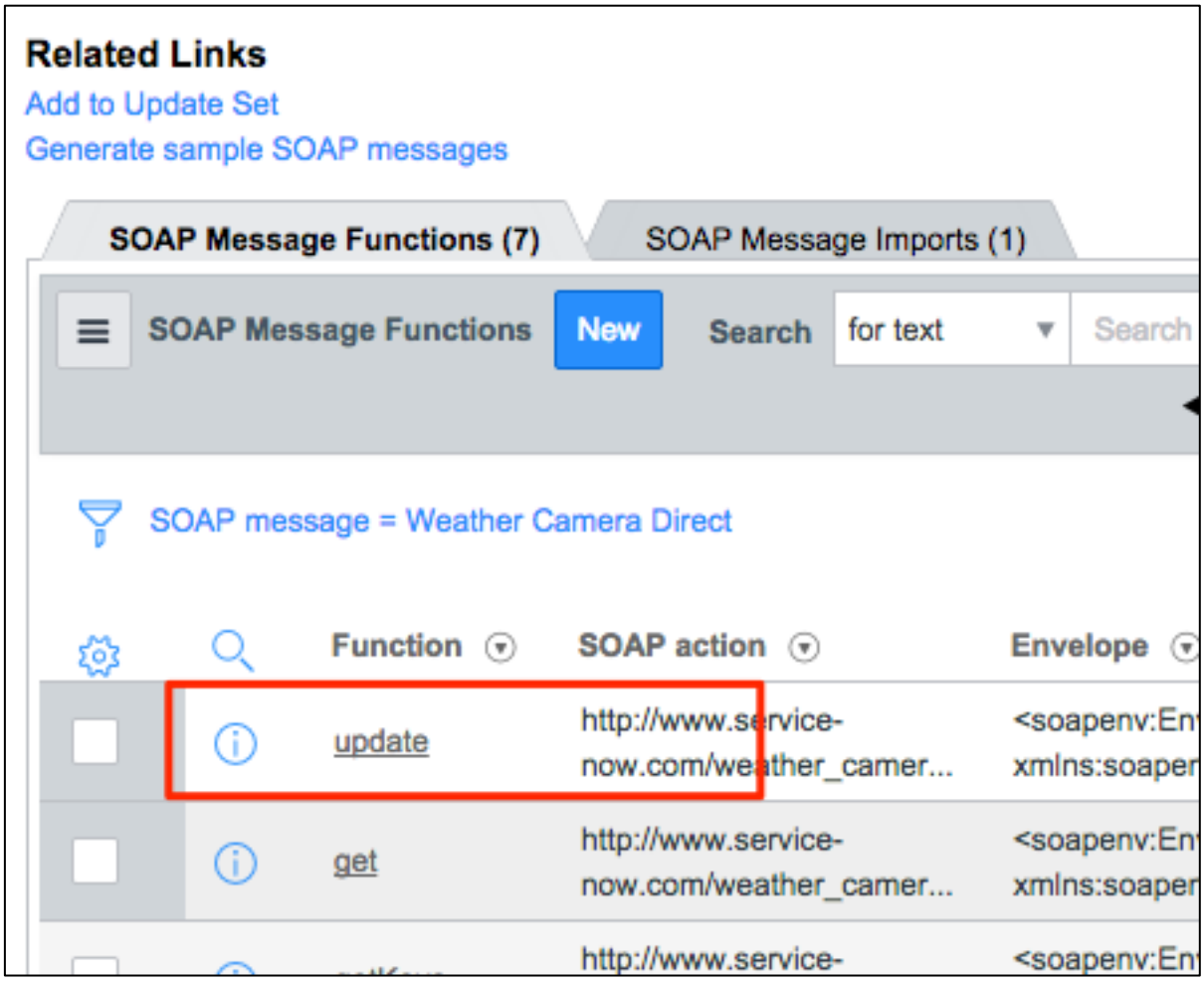
Update the WC001 Camera Status to "Down" via SOAP

1. Browse to the Web Service client record just created for Weather Cameras by navigating to **System Web Services > Outbound > SOAP Message.** Click the **Weather Camera Direct** record.



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2. Click the **update** SOAP message function.

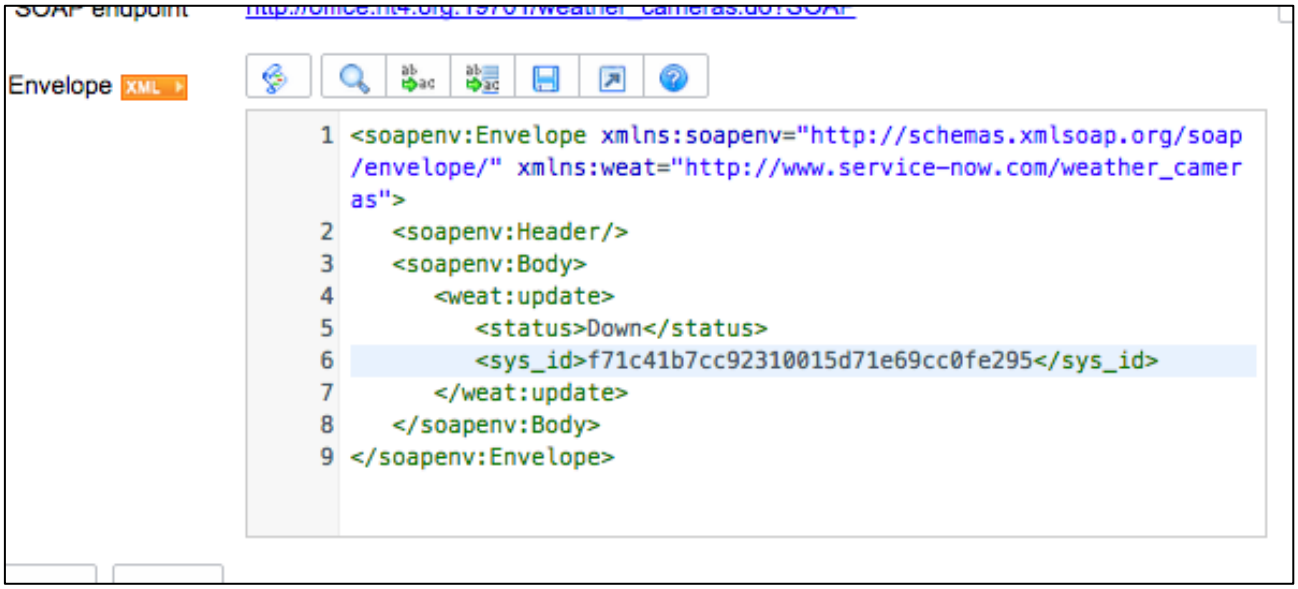


3. Set the following fields in the SOAP Message client:

   - Use basic auth: **Checked**
   - Basic auth user ID: **admin**
   - Basic auth user password: **<your password>**

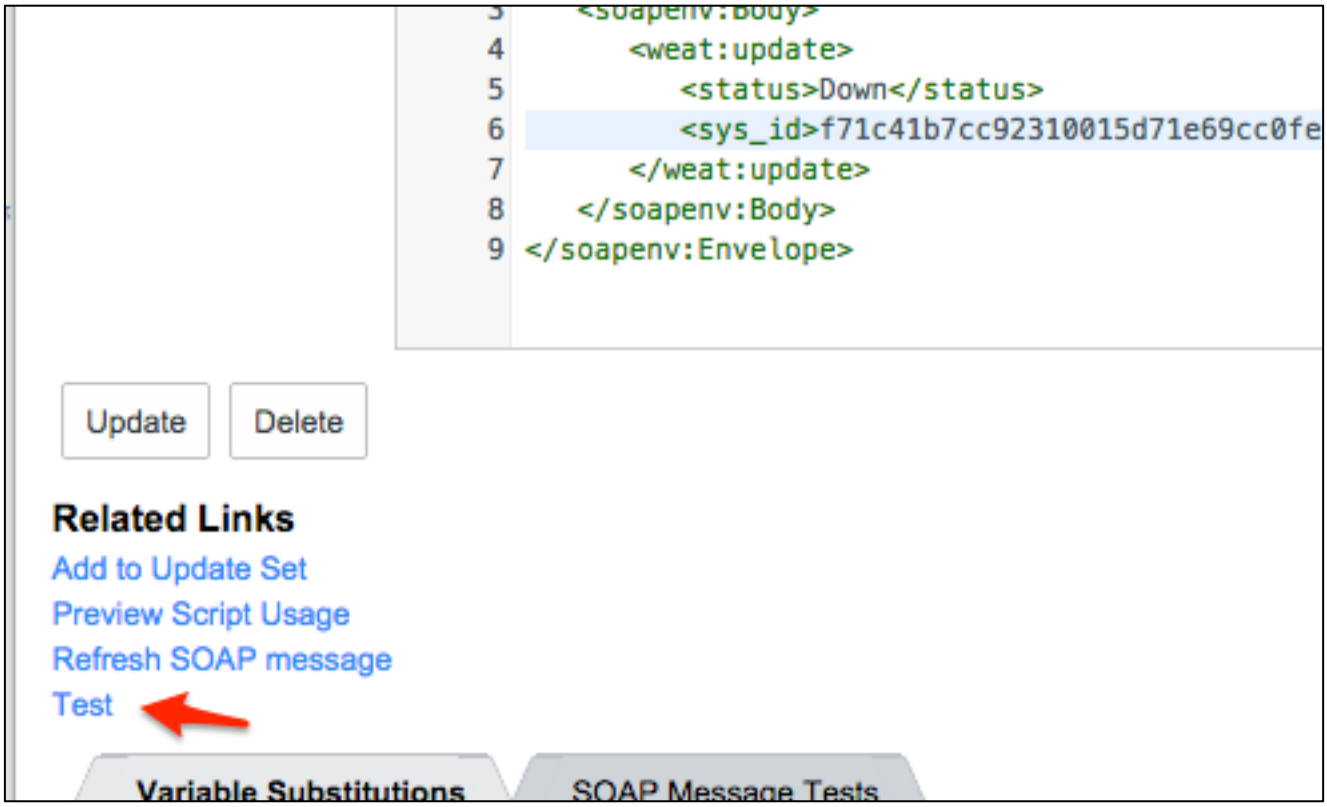
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4. Update the **Envelope** field by replacing (or deleting where noted) the following variable strings with test data:
   - ${location} : Delete the element entirely
   - ${name} : Delete the element entirely
   - ${resolution} : Delete the element entirely
   - ${status} : **Down**
   - ${sys_id} : **Paste the sys_id that you copied earlier.** If you missed it, get the **sys_id** of any record by browsing to it, right-clicking on the record, and choosing **Copy sys_id** from the menu.
5. Confirm that the **Envelope** field looks similar to the example.



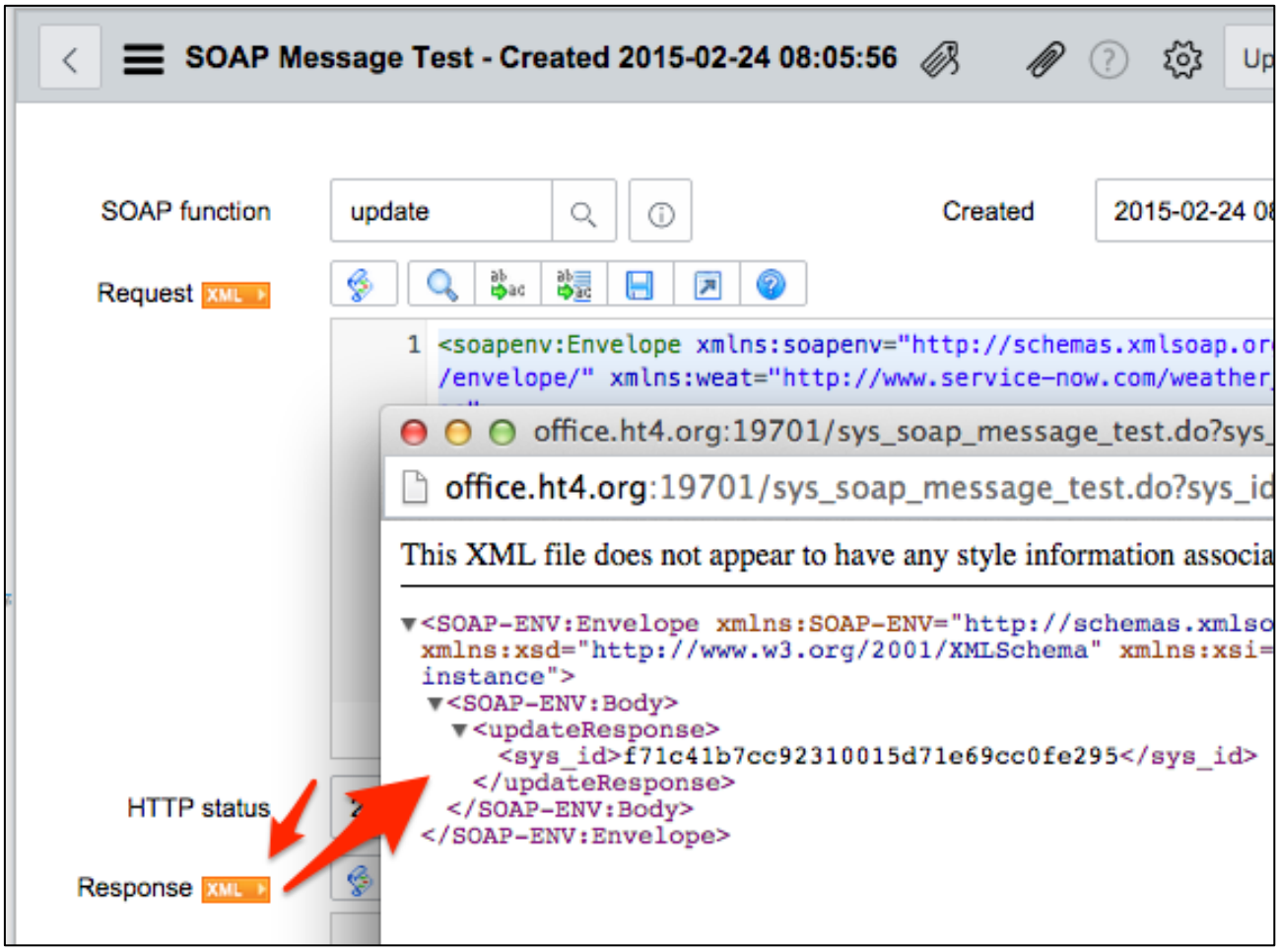
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6. Click the **Test** link.

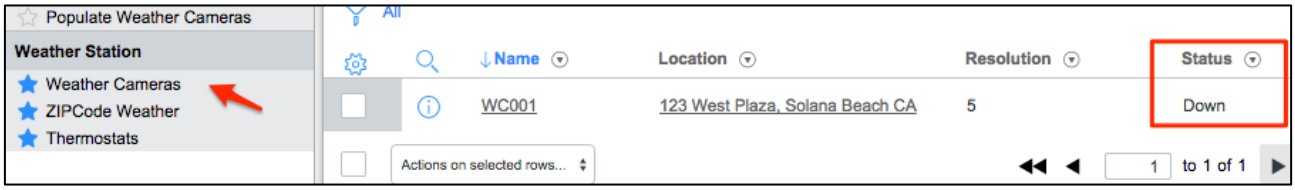


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7. The response of the SOAP request appears. View the formatted response by clicking the **XML** icon. The response should contain the **sys_id** of the Weather Camera record that was updated.



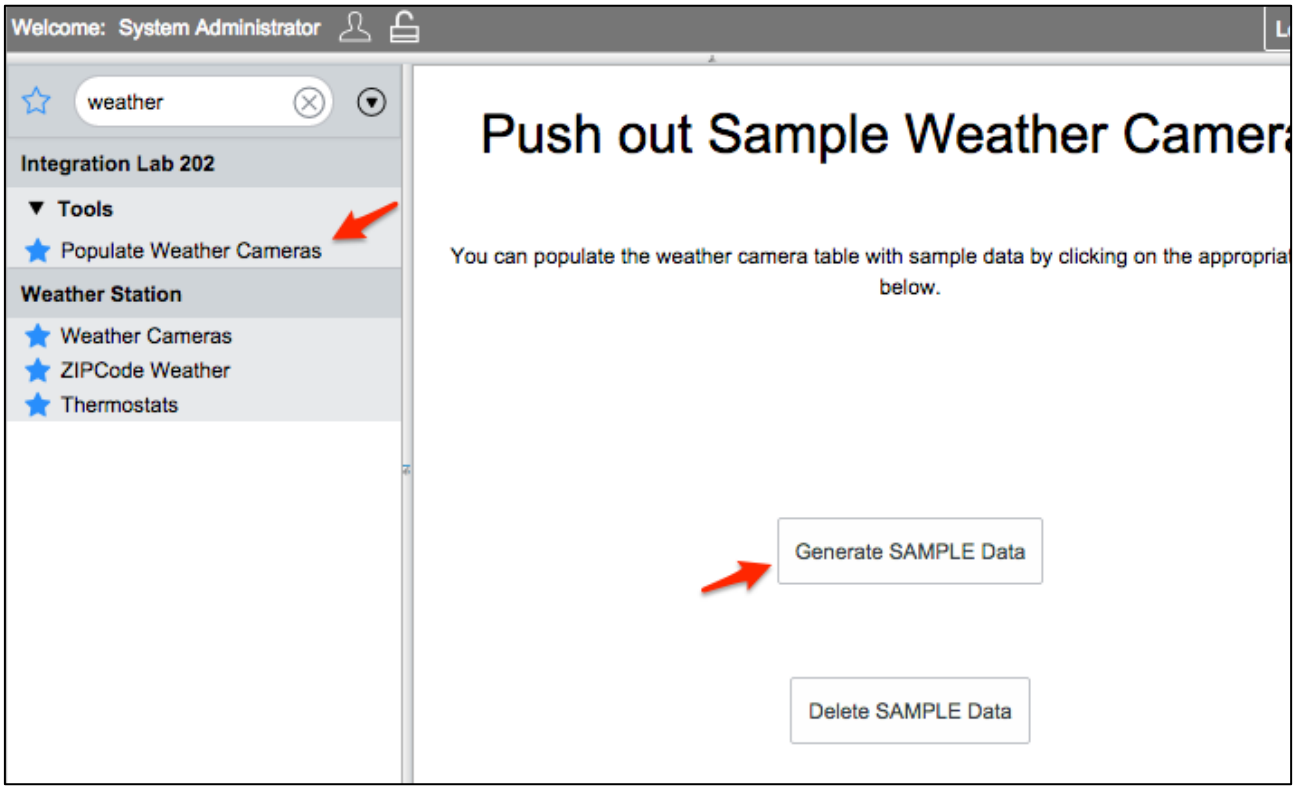
8. Confirm that the record was updated. Navigate to **Weather Station > Weather Cameras** and confirm that camera WC001 has a status of **Down**.



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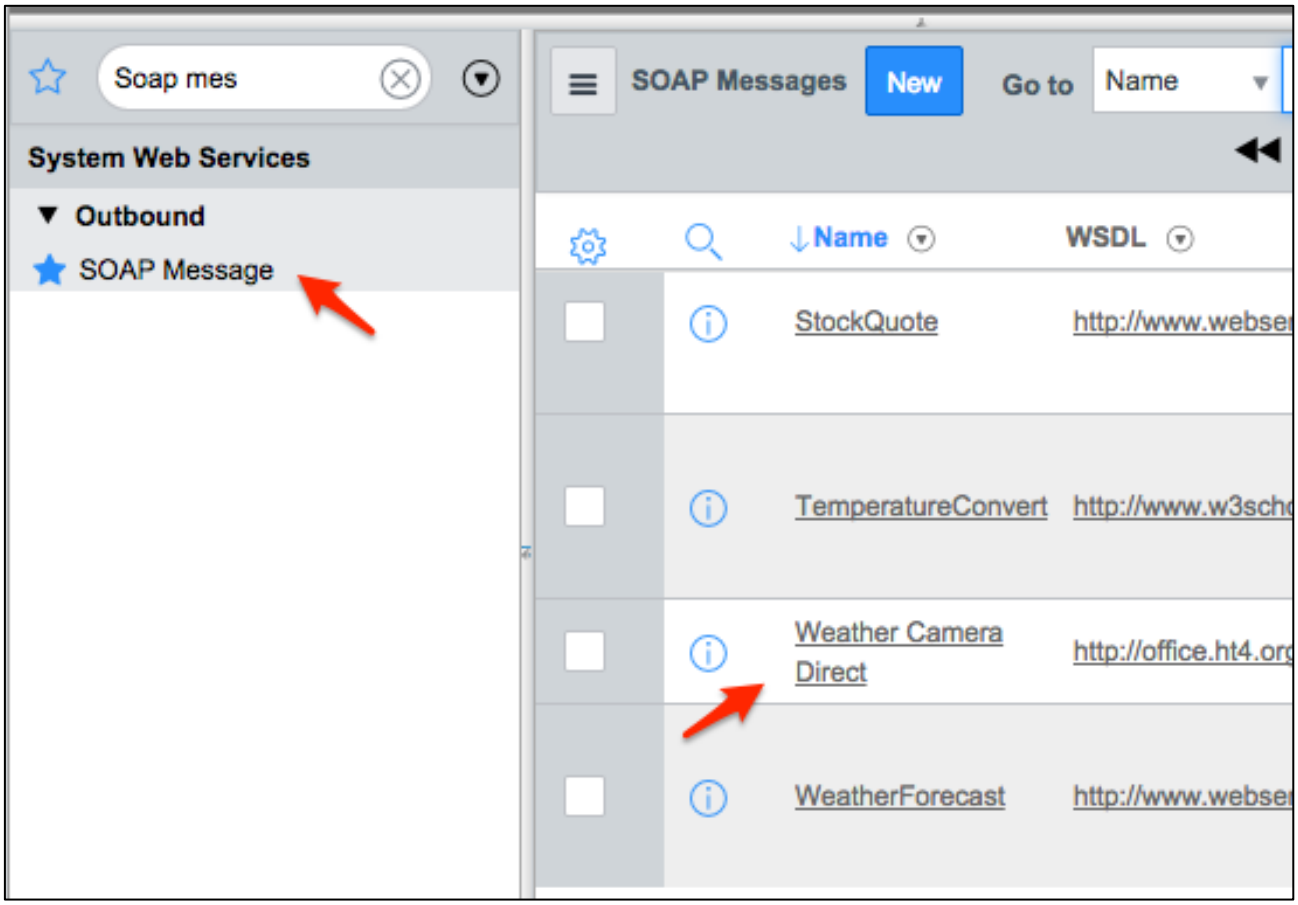
Use SOAP to Query All Cameras That Have a Status of "Down"

1. To make the query more interesting, use a tool created for this lab to generate several Weather Camera records. Navigate to the **Integration Lab 202 > Populate Weather Cameras** module. Click the **Generate SAMPLE Data** button.



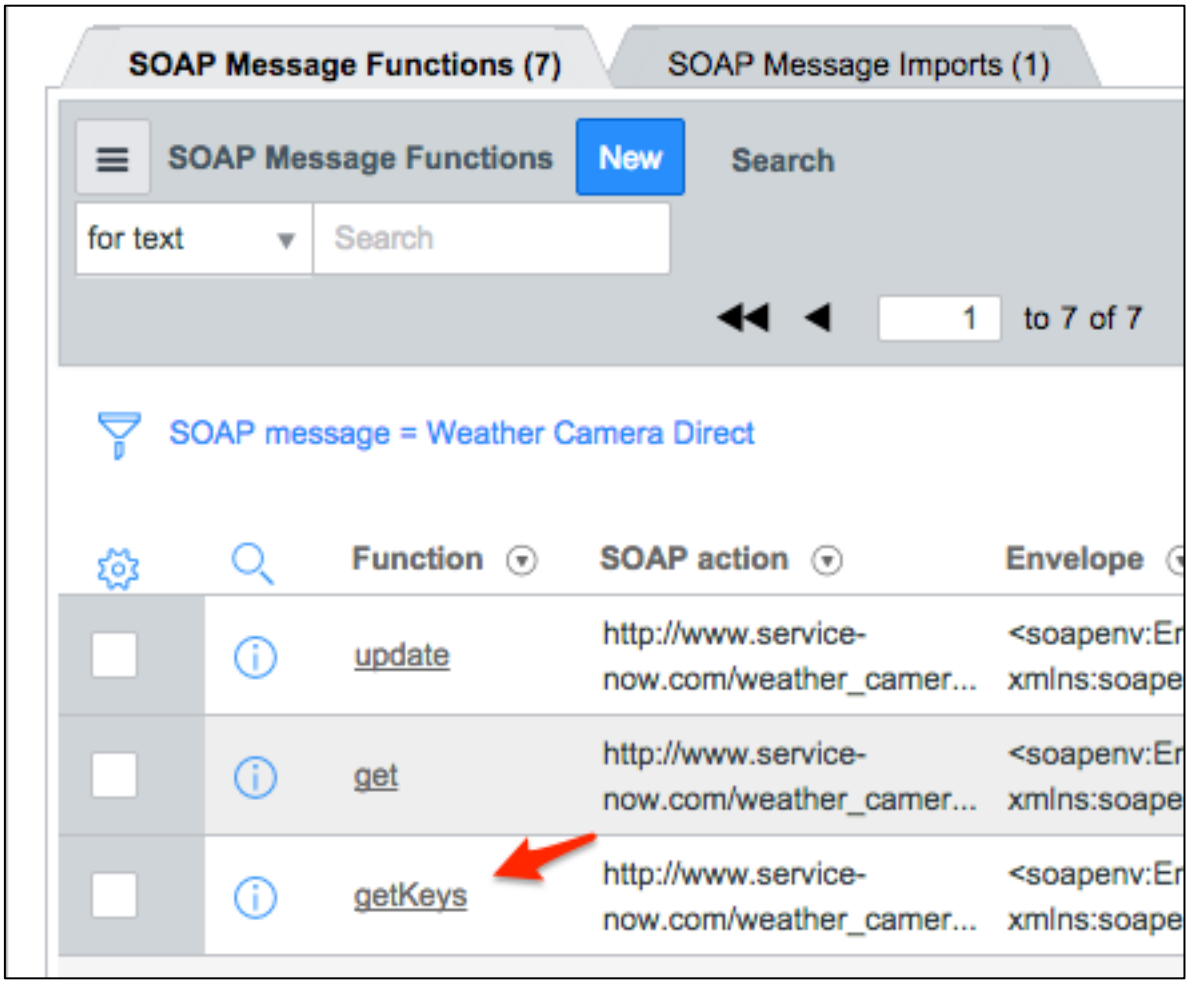
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2. Browse to the Web Service client record created for Weather Cameras by navigating to **System Web Services > Outbound > SOAP Message.** Click the **Weather Camera Direct** record.



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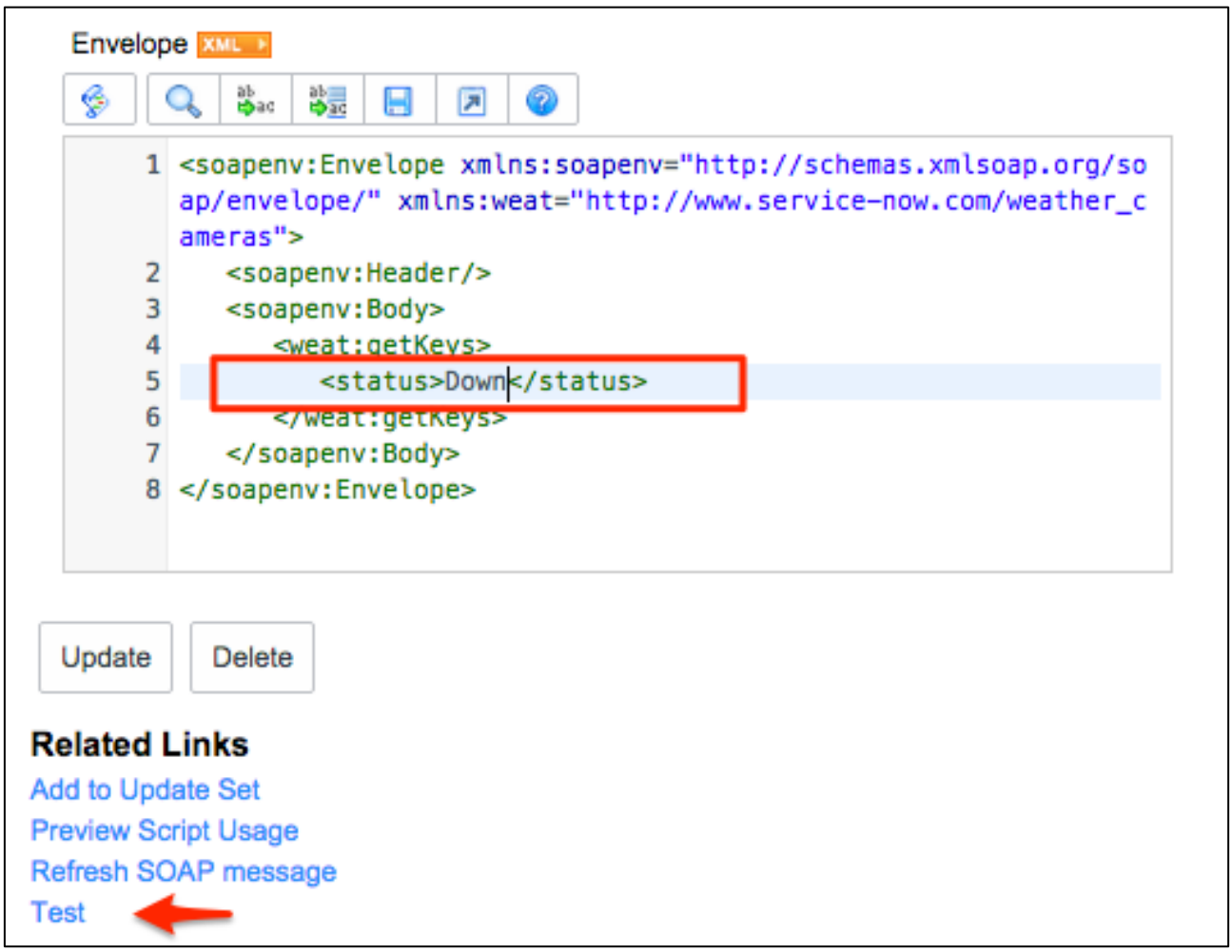
3. Click the **getKeys** SOAP Message function.



4. Set the following fields in the SOAP Message client:
   - Use basic auth: **Checked**
   - Basic auth user ID: **admin**
   - Basic auth user password: **<your password>**

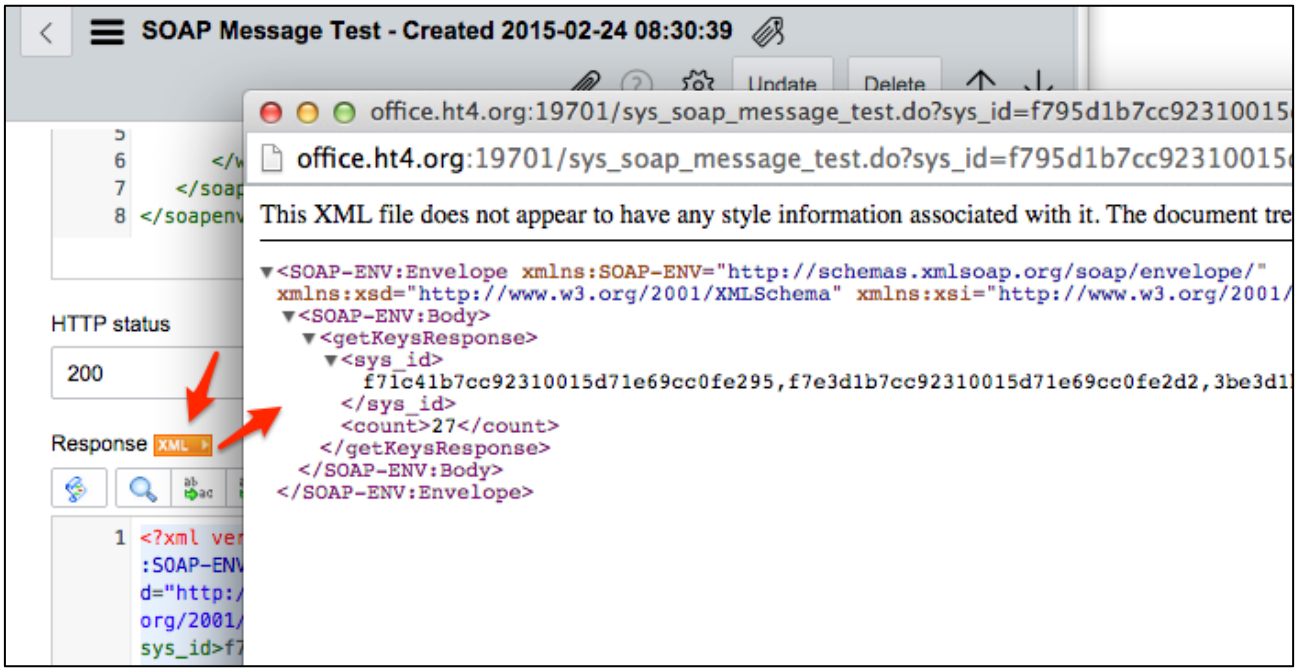
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5. Update the **Envelope** field by replacing the following variable strings with test data (or following alternative instructions if present):
   - ${location} : Delete the element entirely
   - ${name} : Delete the element entirely
   - ${resolution} : Delete the element entirely
   - ${status} : **Down**
   - Delete all other elements within the **getKeys** tag
6. Verify your data with the following screenshot, and click **Test**.



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7. The response of the SOAP Request appears. View the formatted response by clicking the **XML** icon.

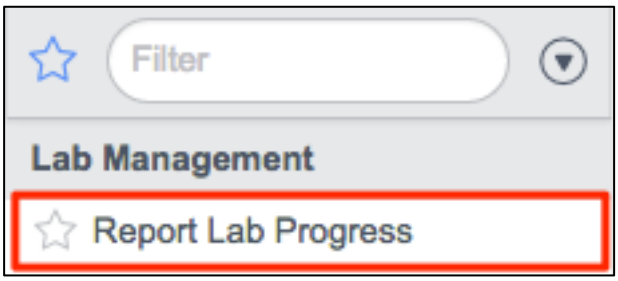


8. The response contains a comma-separated list of the **sys_ids** of the weather camera records that are listed as **Down**. The response also contains a count of how many records were returned.

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Progress Report

1. Navigate to **Lab Management > Report Lab Progress**.



2. Click **I am done!**



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Lab Goal

Lab 2
REST Table API: Create

This lab explains how to leverage the rest-based table API to create a record on a ServiceNow table directly.

In this exercise, we create a new record on the weather camera table similar to the previous exercise with the SOAP API.

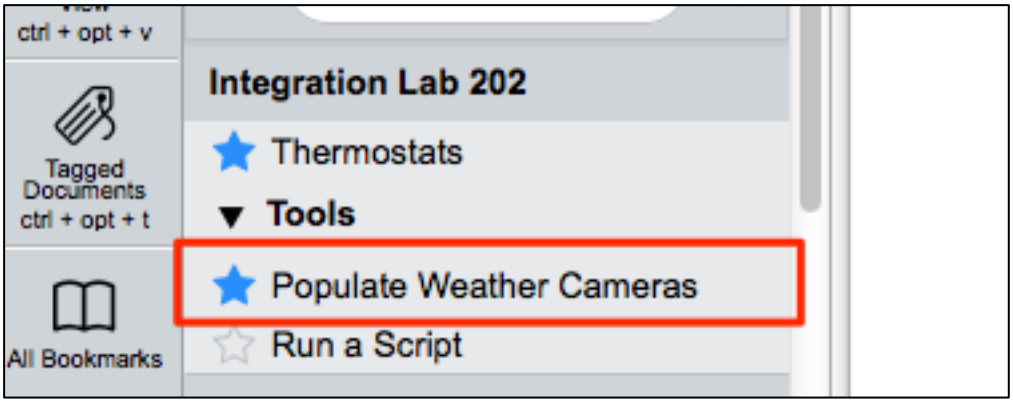
Important Note

For the exercises in this lab, the lab documentation uses the Graphical User Interface (GUI) - based REST utility provided by ServiceNow, **REST Message**. Use any other third-party REST Client to perform this lab, if you are more comfortable with that tool.

Note that these web services that we call are available to any client, not just a ServiceNow instance. We use the ServiceNow instance as the client in these examples because it is accessible to everyone in the lab without downloading third-party software.

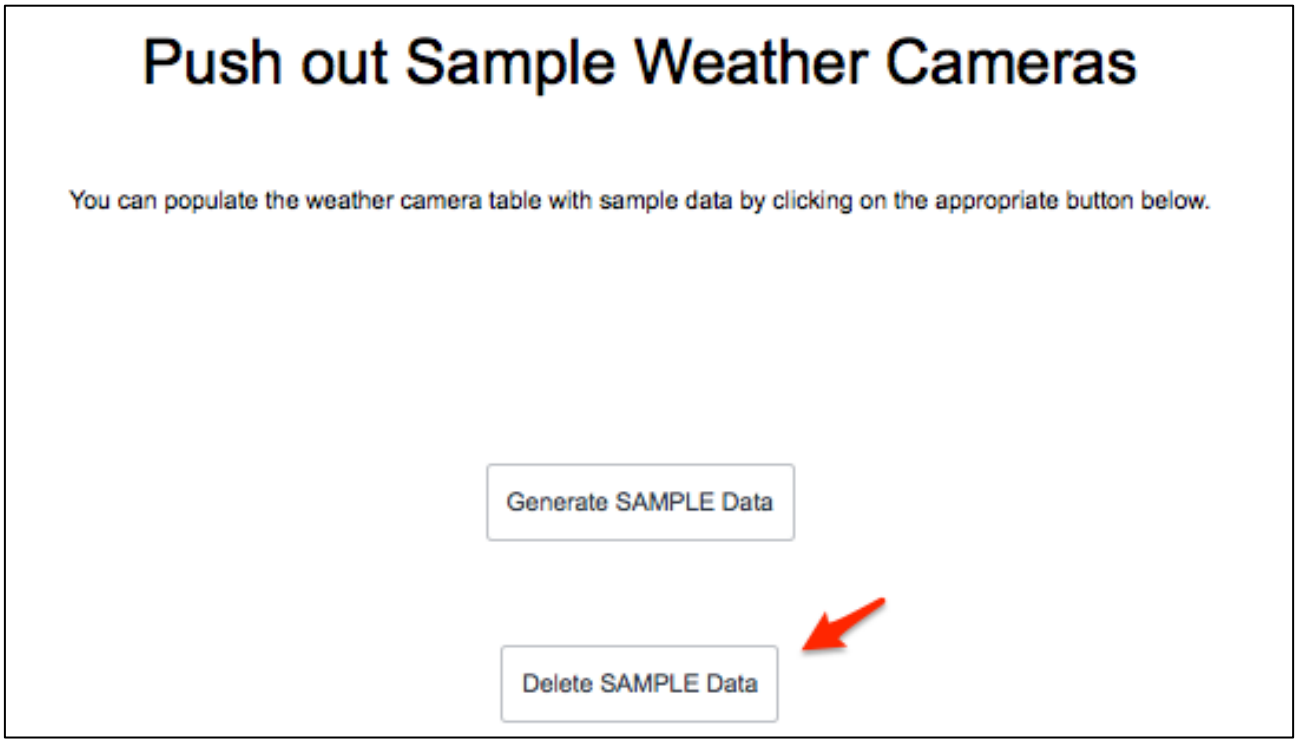
Clear Out the Old Weather Camera Records

1. Navigate to **Integration Lab 202 > Tools > Populate Weather Cameras**.

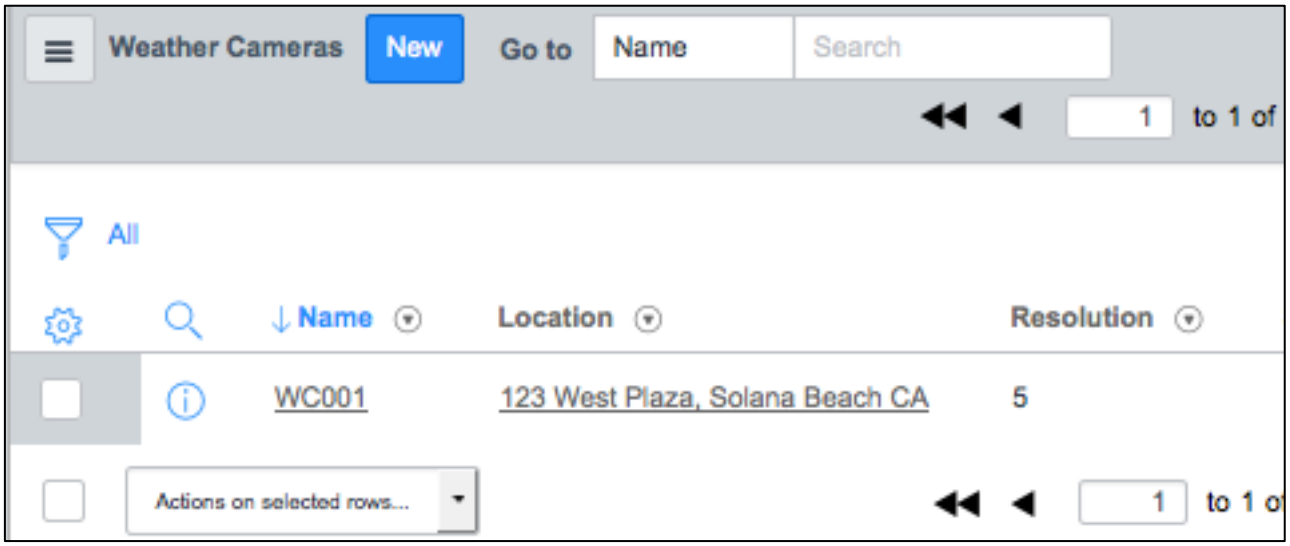


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2. Click the **Delete SAMPLE Data** button.



3. Navigate to the **Weather Station > Weather Cameras** module in the navigation pane and confirm that all the auto-generated records have been removed. You should see only the record you created with the SOAP API in the previous lab exercise.

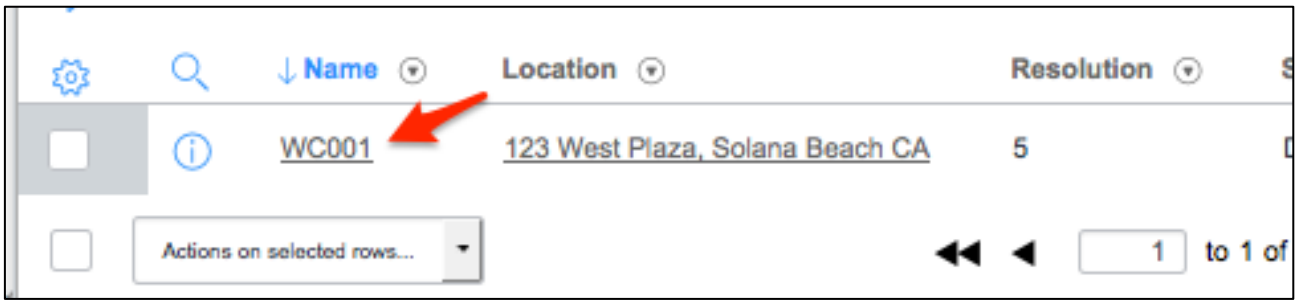


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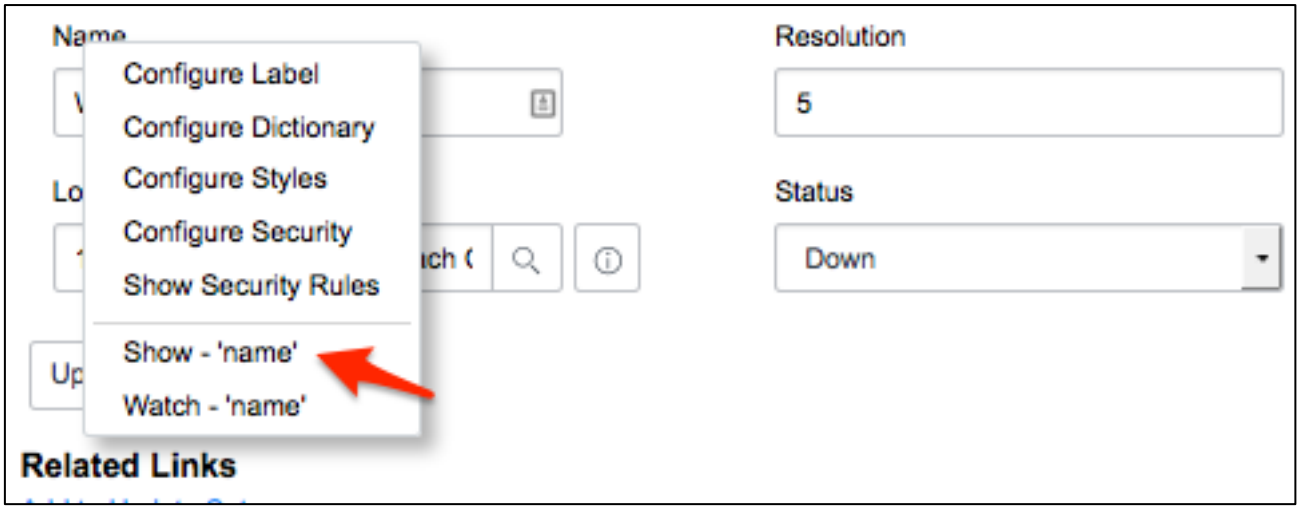
Find the Name of the Weather Camera Table

1. Navigate to the Weather Camera table by browsing to **Weather Station > Weather Cameras**.

2. Click the **WC001** record.

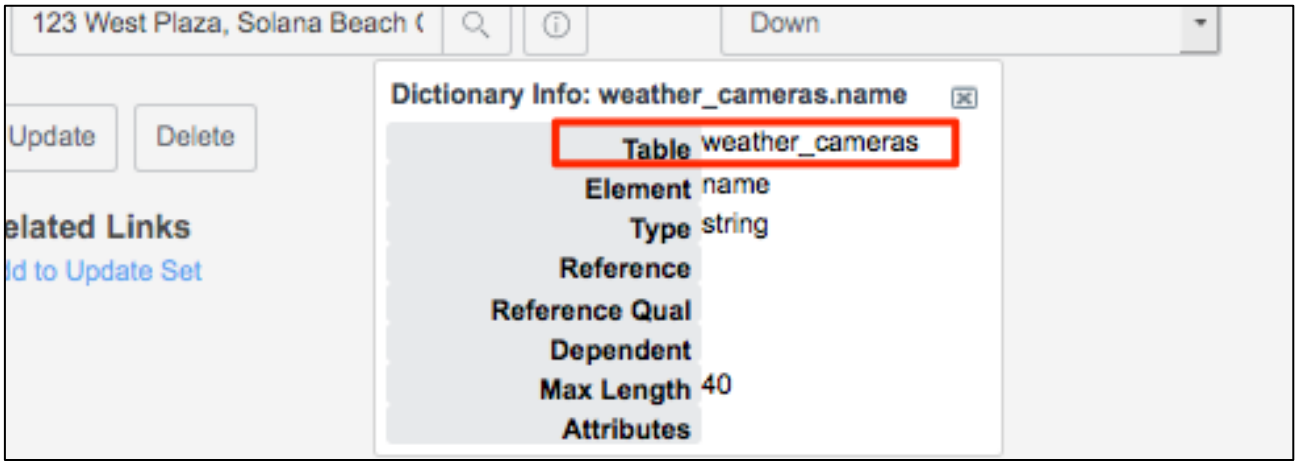


3. Right-click one of the fields on the form such as **Name** and choose the **Show - 'name'** menu option.

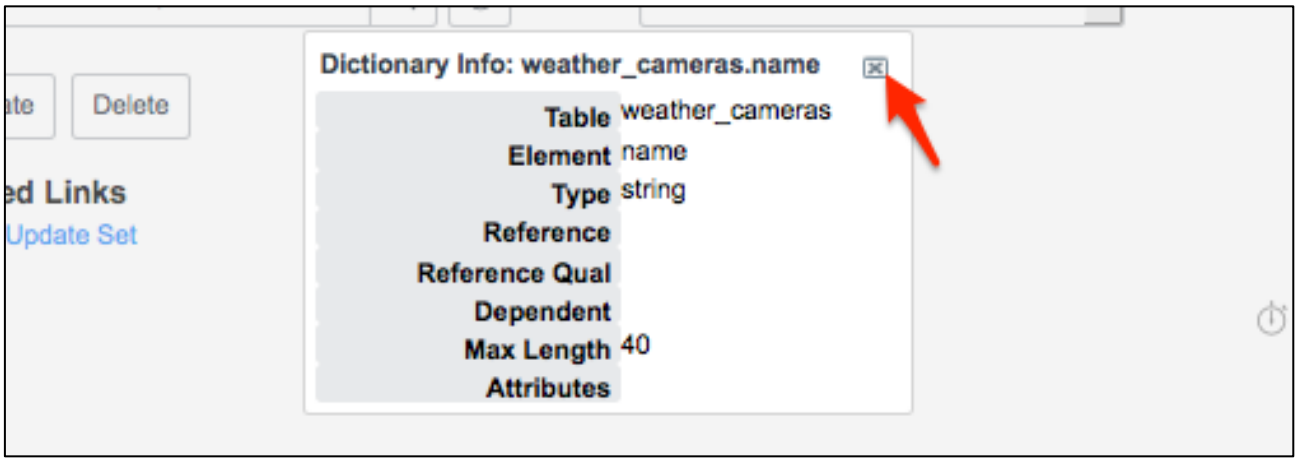


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4. Copy the value of the **Table** field on the dialog that appears. Use this table name for the REST API endpoint.



5. Close the **Dictionary Info** dialog box.

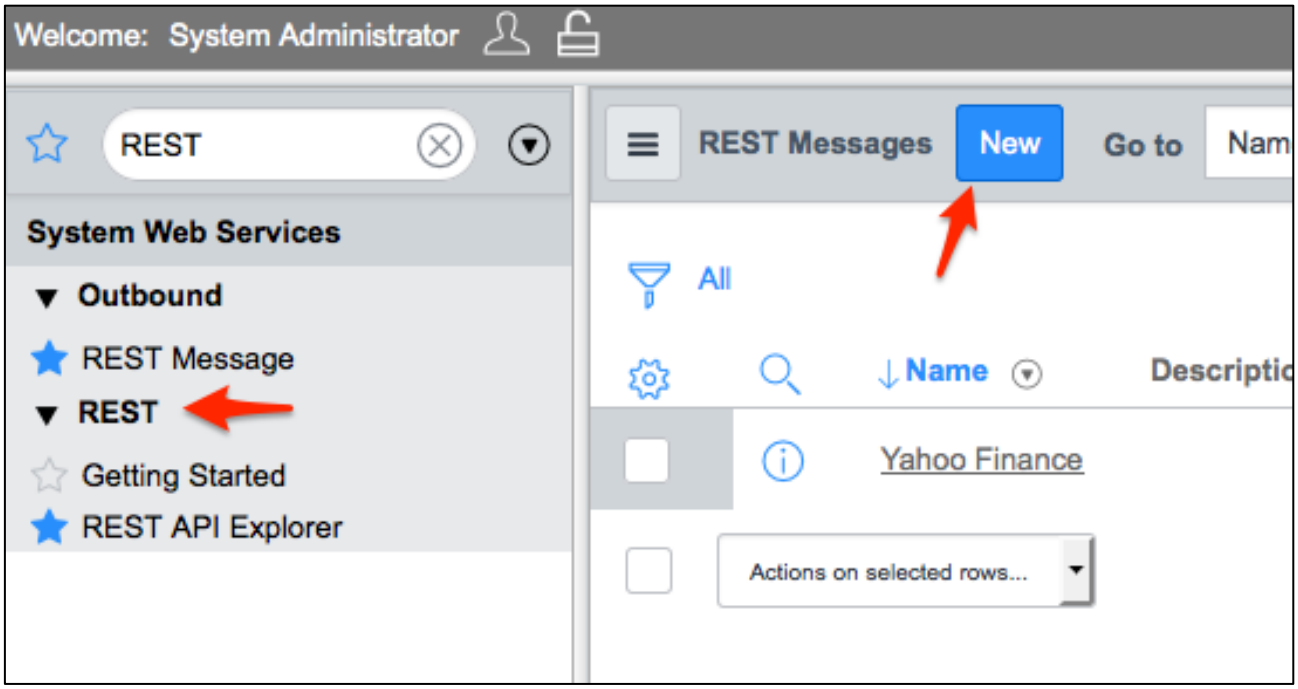


6. Answer the following question: Which one of the following endpoints on the **weather_cameras** table would be suitable for a table-based REST API call to create a new weather camera record?
Select your answer here: http://snquiz.com/0001094.

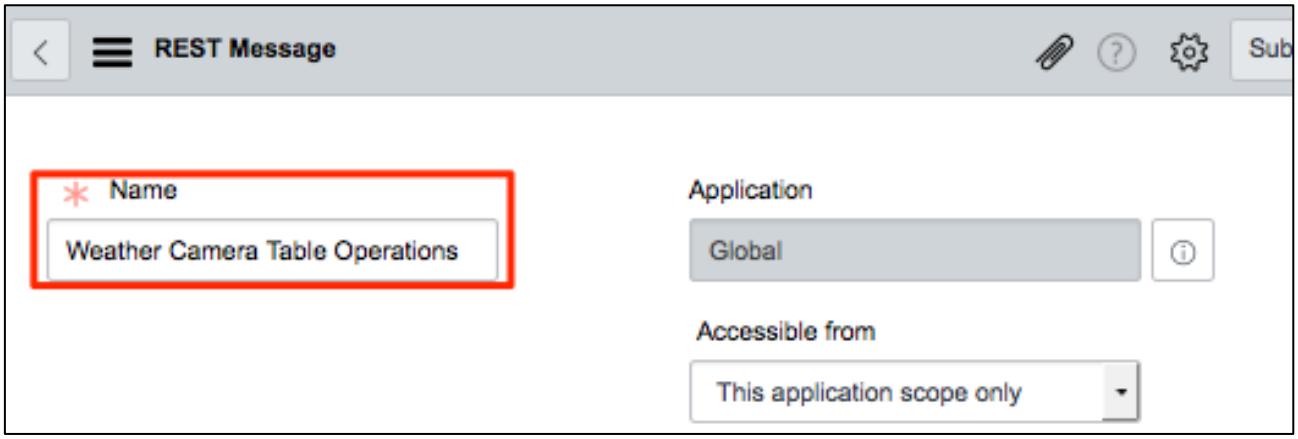
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Create a New REST Message Client Record

1. Navigate to **System Web Services > Outbound > Rest Message**.
   Click the **New** button.

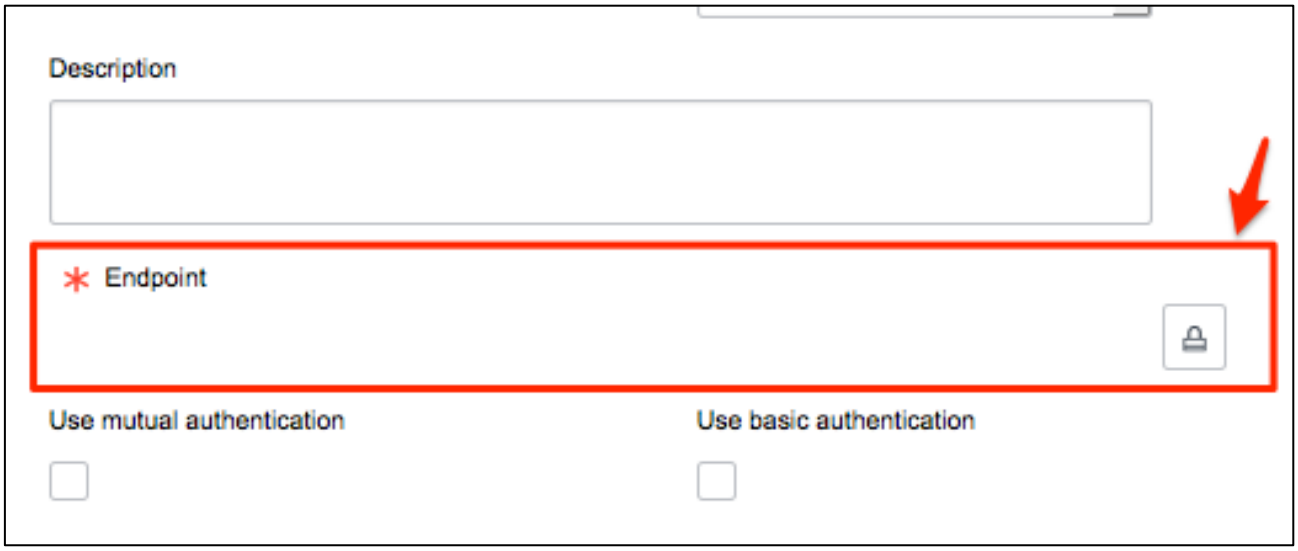


2. The name field is arbitrary. Set it to **Weather Camera Table Operations**.



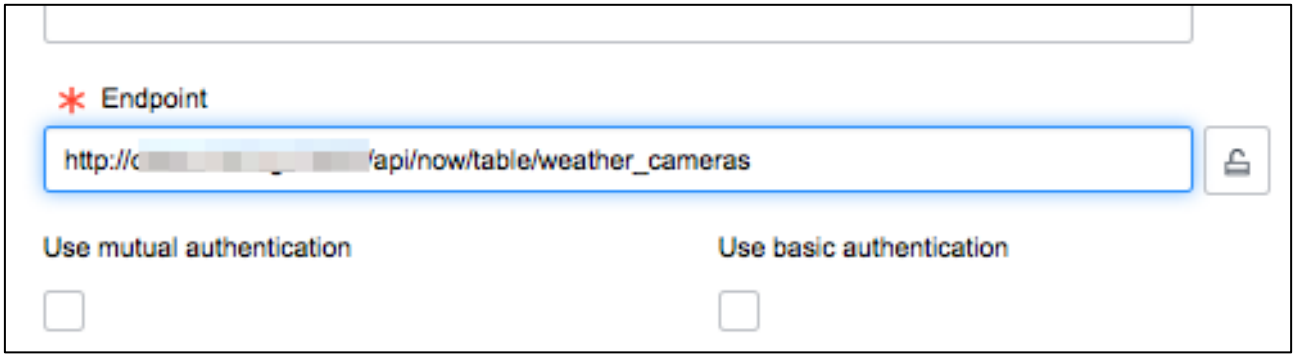
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3. Unlock the endpoint by clicking on the padlock icon near the **Endpoint** field.



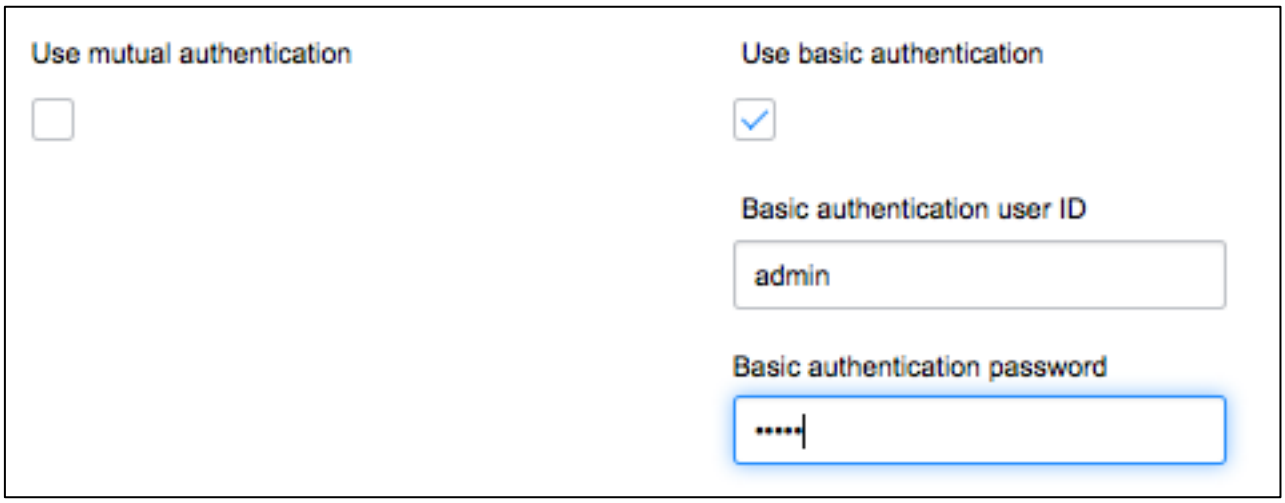
4. Set the endpoint to reference the REST Table API for the **weather cameras** table. Remember to use the table name copied earlier in the previous exercise. Your endpoint should be similar to the example.

   https://yourinstance.lab.service-now.com/api/now/table/weather_cameras

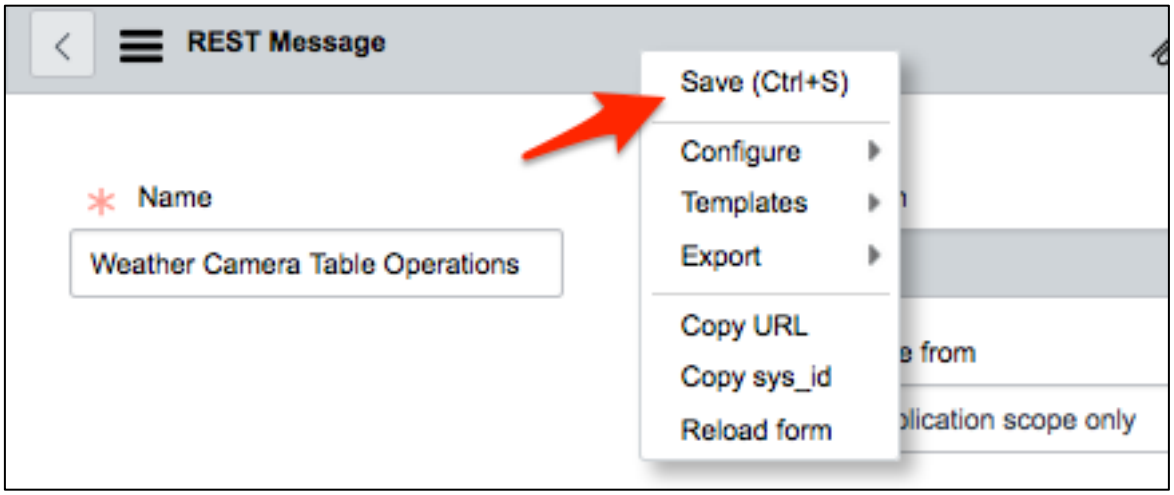


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5. Set the **Use basic authentication** field and enter your admin credentials for the instance.

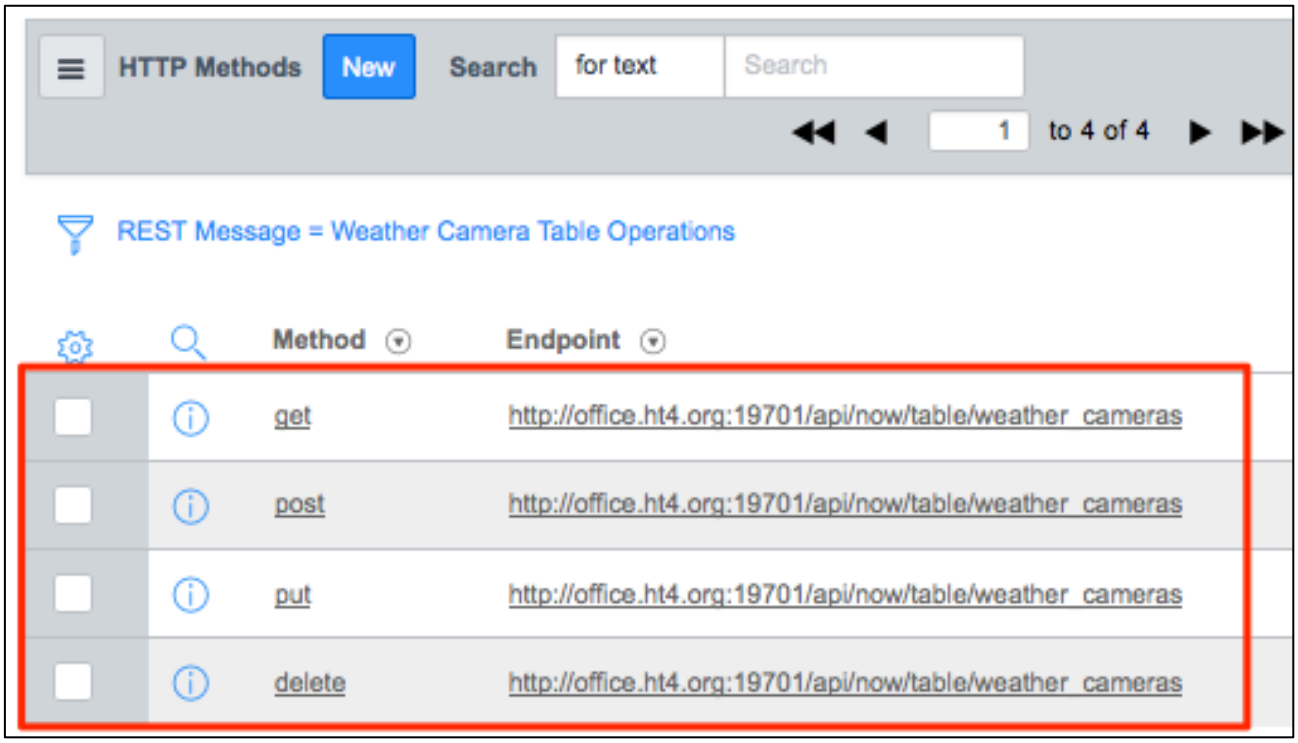


6. Right-click the title of the REST Message page and choose **Save**.



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7. Scroll to the bottom of the page. Notice there is now a section for **HTTP Methods**. There should be four methods in the list.



8. Which of the four HTTP methods available to us in the client will we use to create a new record on the Weather Cameras table?
   Submit your answer: http://snquiz.com/0001096.

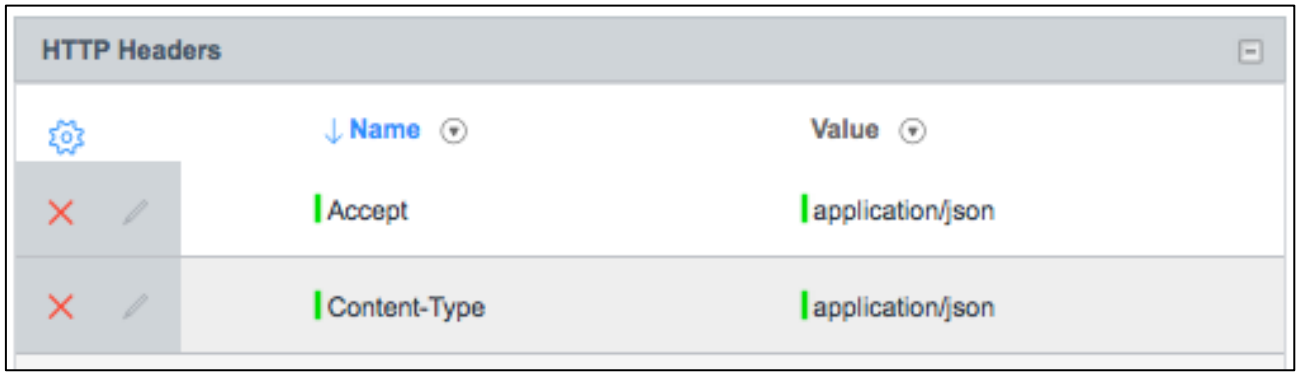
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Set up the Method to Create the Weather Camera Record

1. Click the **post** method in the **HTTP Methods** list on the REST Message record.



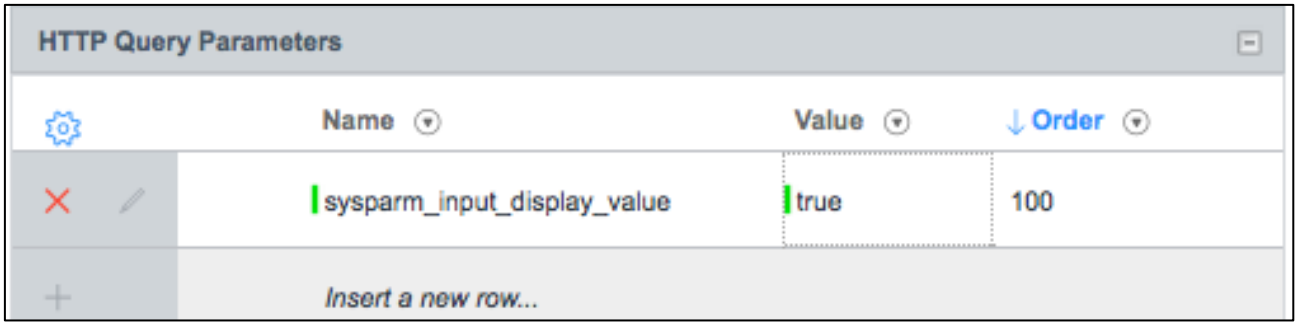
2. For this exercise, use JSON format for its simplicity both in the information to be sent and for the expected return information. Set the following **HTTP Headers**:
   - Accept: application/json
   - Content-Type: application/json



3. Answer the following question: What value would we use in our HTTP headers if we wanted to specify XML instead of JSON?
   Submit your answer: http://snquiz.com/0001095.

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4. To use **Display Values** for reference fields rather than the sys_id of the reference field, set up an HTTP Query Parameter that tells the server to use the **Display** text for reference fields. Set up an **HTTP Query Parameter** with the name **sysparm_input_display_value** and a value of **true**.



5. Build the body of the HTTP request. Using a Content-Type header value of **application/json** requires that we format the record details within a JSON string structure. Enter or paste the following into the **Content** field.

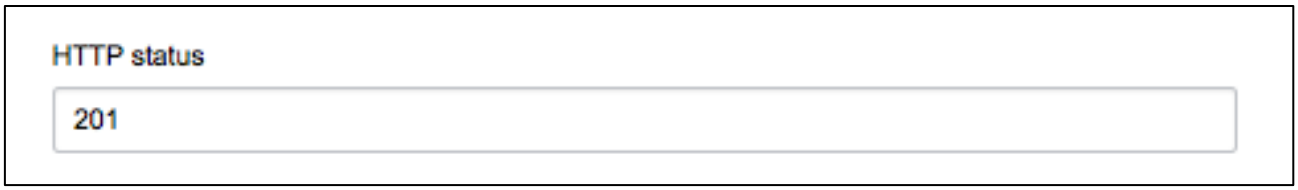
```
{
   "name":"WC002",
   "location":"150 Kennedy Road, Hong Kong",
   "resolution":"5",
   "status":"Live"
}
```

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6. Click the **test** link to submit the request.



7. Check the response for an HTTP Status of **201**, which means that the record was created.



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8. Look at the **Response** field. The data should be encoded within a JSON String. Format the string by navigating to **Integration Lab 202 > Tools > JSON Formatting Tool**. The formatted date should appear similar to the example.

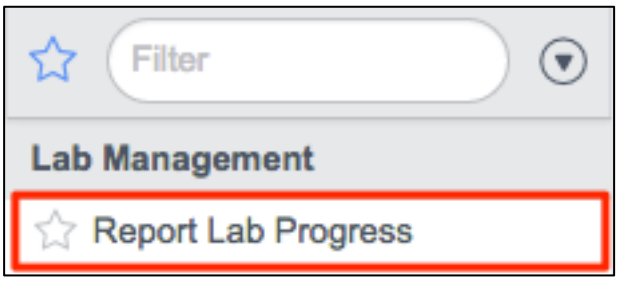

```
{
   "result":{
      "status":"Live",
      "location":{
         "link":"http://office.ht4.org:19701/api/now/table/cmn_location/2bfc77993790200044e0bfc8bcbe5d2f",
         "value":"2bfc77993790200044e0bfc8bcbe5d2f"
      },
      "sys_updated_by":"admin",
      "sys_tags":"",
      "name":"WC002",
      "sys_updated_on":"2015-02-27 16:29:36",
      "sys_id":"68ef38fccce2310015d71e69cc0fe24e",
      "sys_mod_count":"0",
      "sys_created_on":"2015-02-27 16:29:36",
      "resolution":"5",
      "sys_created_by":"admin"
   }
}
```


9. Find your **sys_id** in the response and copy it for the next exercise.

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Progress Report

1. Navigate to **Lab Management > Report Lab Progress**.



2. Click **I am done!**



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Lab Goal

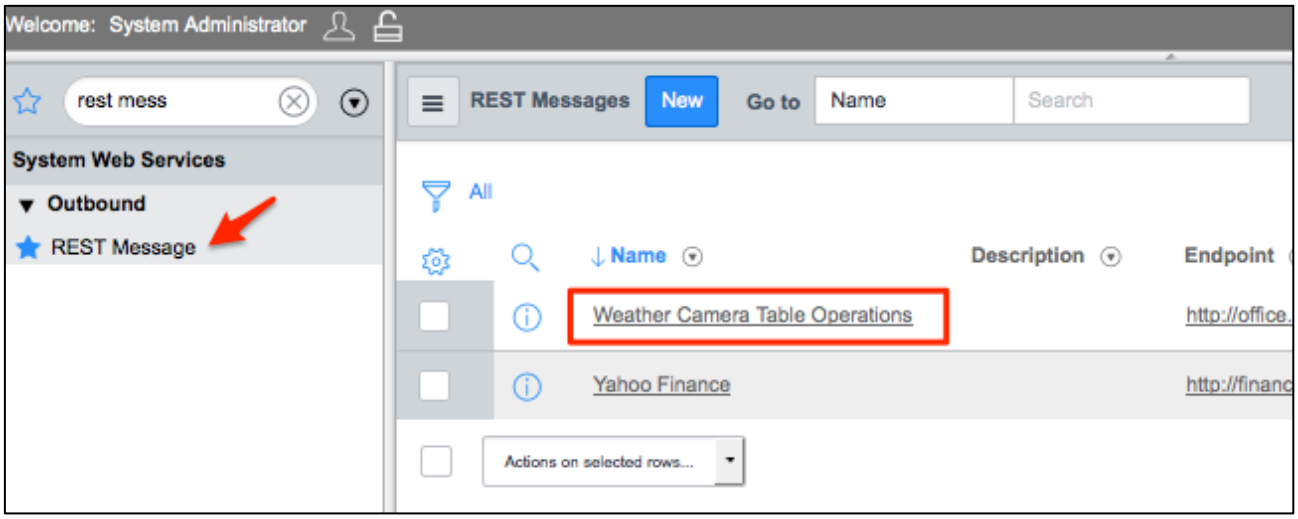
This lab exercise familiarizes you with the process used to update records directly on a table using the REST API.

In this lab exercise, you update the information on the Weather Camera you created from the previous lab.

Lab 3
REST Table API: Update Records

Update Weather Camera Information

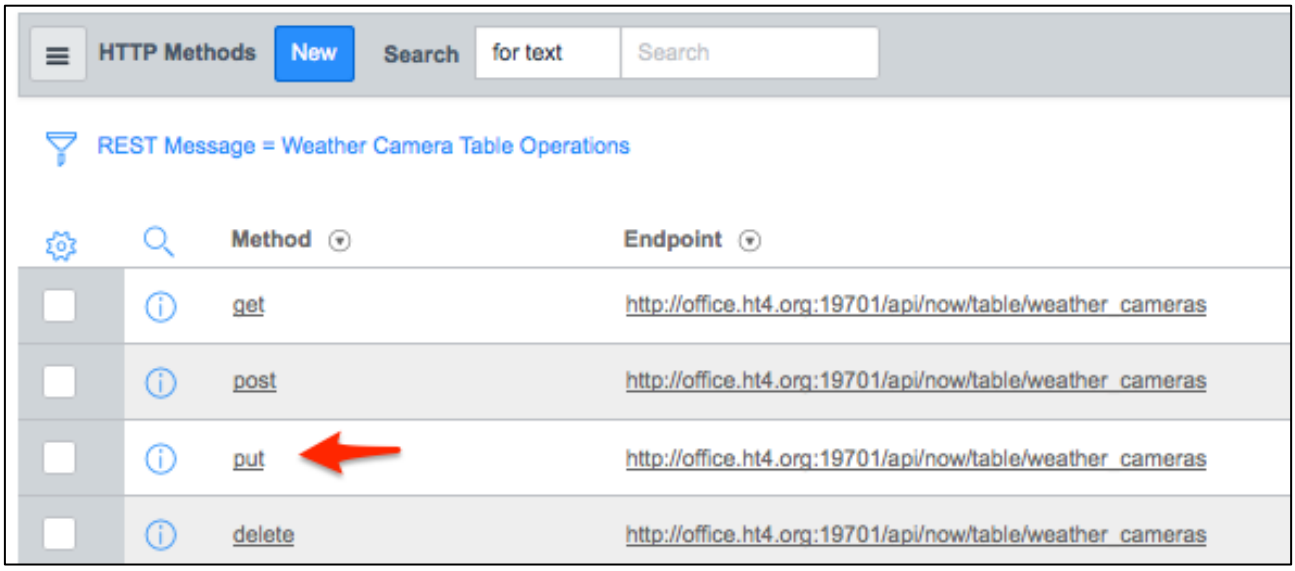
1. Navigate to **System Web Services > Outbound > REST Message** and open the **Weather Camera Table Operations** record.



2. Scroll to the bottom of the record to the **HTTP Methods** list. ServiceNow supports two HTTP methods for modifying records with the direct Table API. One of them is listed in this list as **put**. The other method is optional and not listed in this client. What is that method?
   Submit your answer: http://snquiz.com/0001097.

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3. In the HTTP Methods list, select the **put** method.



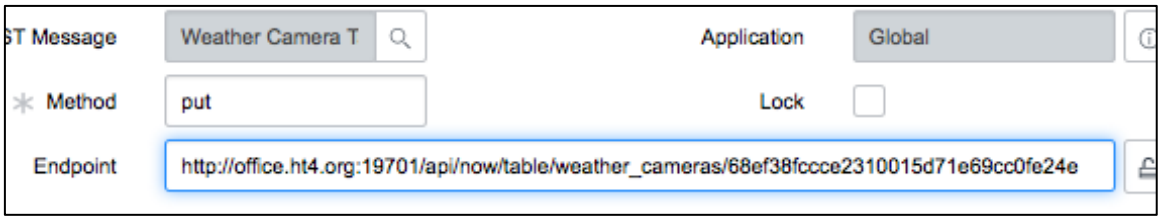
4. Since the **put** and **patch** operations need to act on a specific record, change the REST endpoint on the request and add the **sys_id** of the record to be edited. Click the **Padlock** icon on the **Endpoint** field if it is in a locked state.



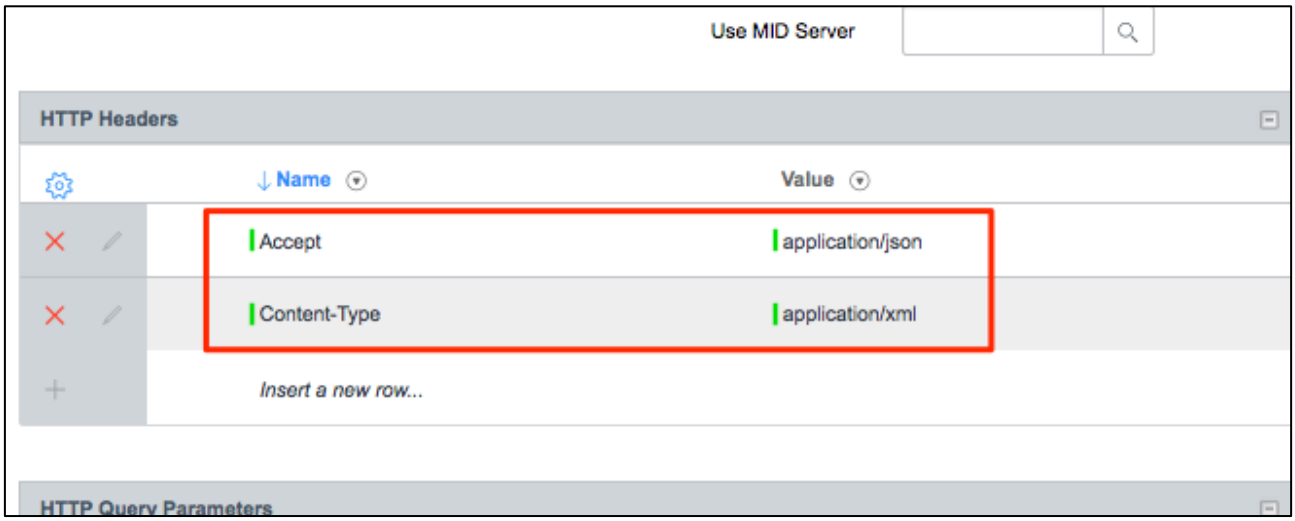
©2015 ServiceNow, Inc. All rights reserved.

5. Add the **sys_id** you copied from the prior lab to the endpoint. Make sure to precede it with a "**/**" character. The string below is an example result:

   https://myinstance.lab.service-now.com/api/now/table/weather_cameras/68ef38fccce2310015d71e69cc0fe24e



6. As practice, submit the changes in XML format rather than JSON format; request that the response come back in JSON format. Set the following **HTTP Headers** on the request:

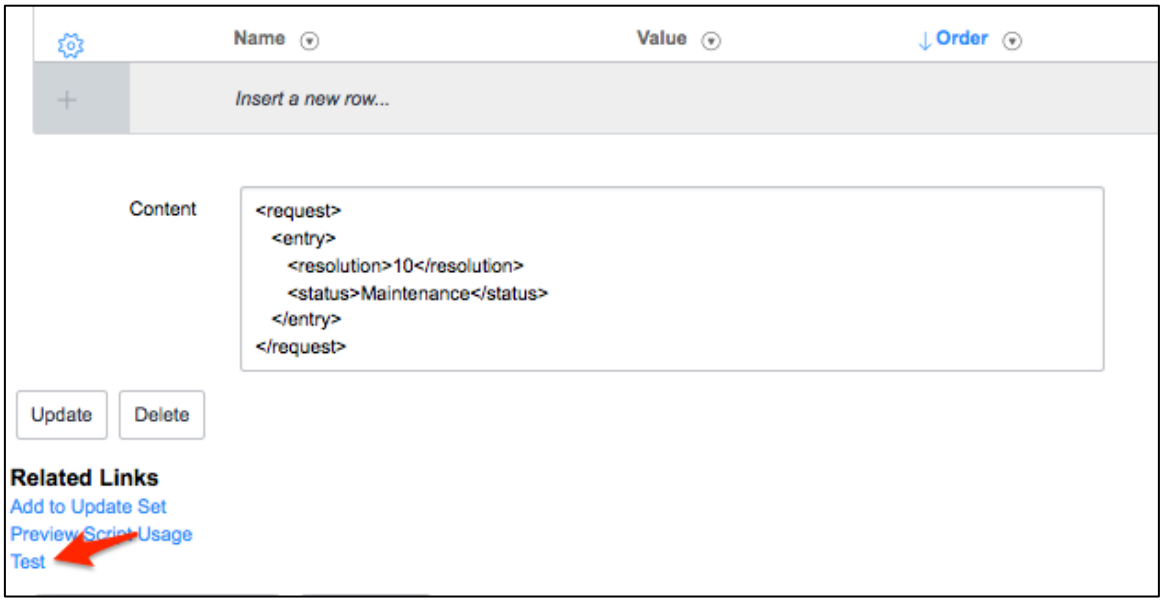


7. Set up the **Content** field to contain the following XML data (please type this vs. copying and pasting if at all possible):

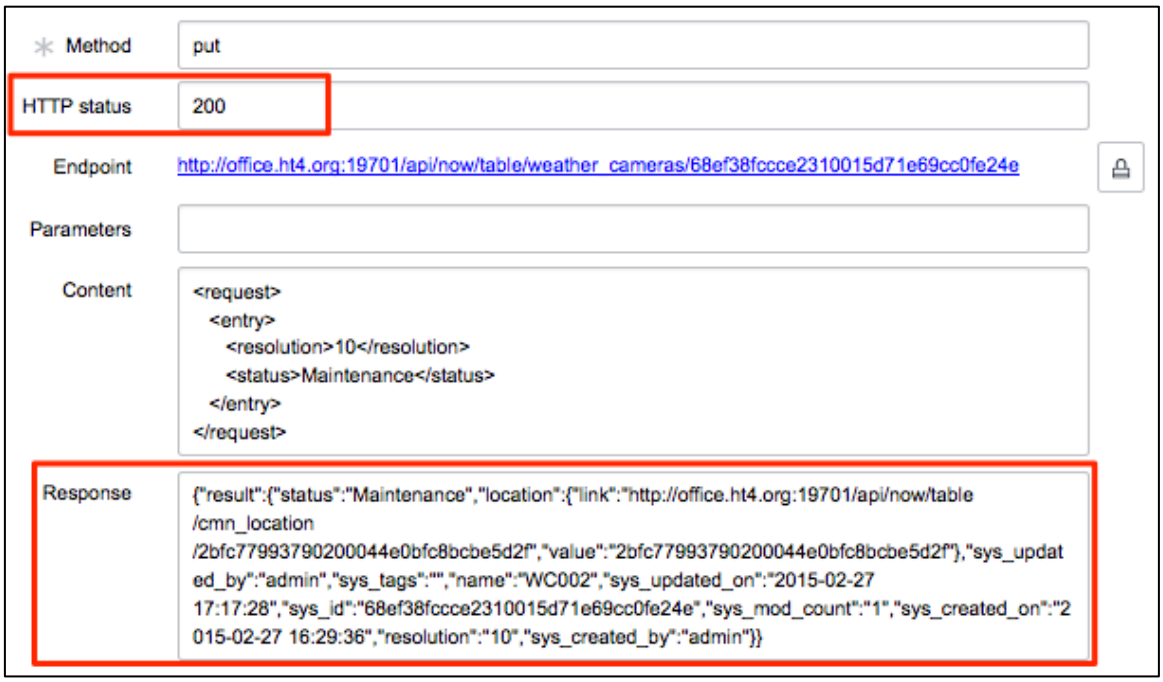
```
<request>
   <entry>
      <resolution>10</resolution>
      <status>Maintenance</status>
   </entry>
</request>
```

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8. Click the **Test** link to submit the REST request to the server.

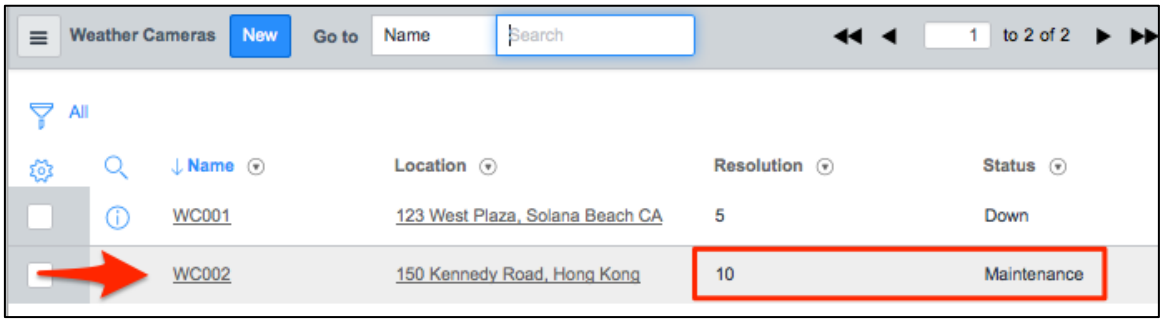


9. The response should contain an HTTP status of **200** and a JSON-encoded string in the **Response field.**



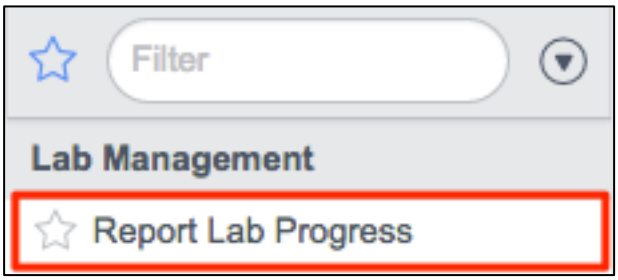
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10. Navigate to **Weather Station > Weather Cameras** to ensure the camera was updated properly.



Progress Report

1. Navigate to **Lab Management > Report Lab Progress**.



2. Click **I am done!**



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Lab Goal

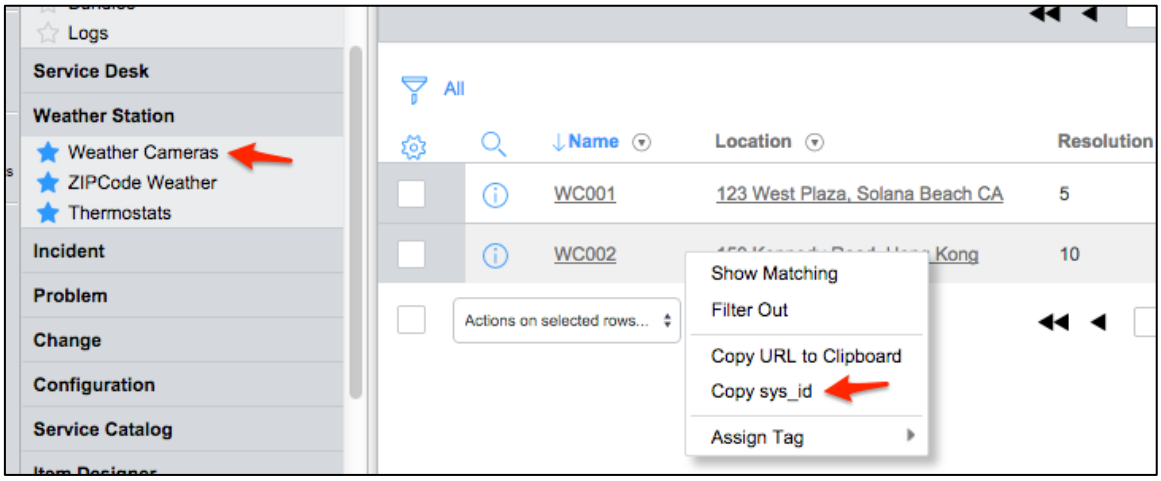
This lab exercise explains how to leverage the REST API to delete a record on the table.

In this exercise, delete the record you created and updated in the previous exercises.

Lab 4
REST Table API: Delete

Get the "sys_id" of the Record to Be Deleted

1. Navigate to **Weather Station > Weather Cameras** and right-click on the Weather Camera updated in the previous exercise. Choose the **Copy sys_id** menu option.

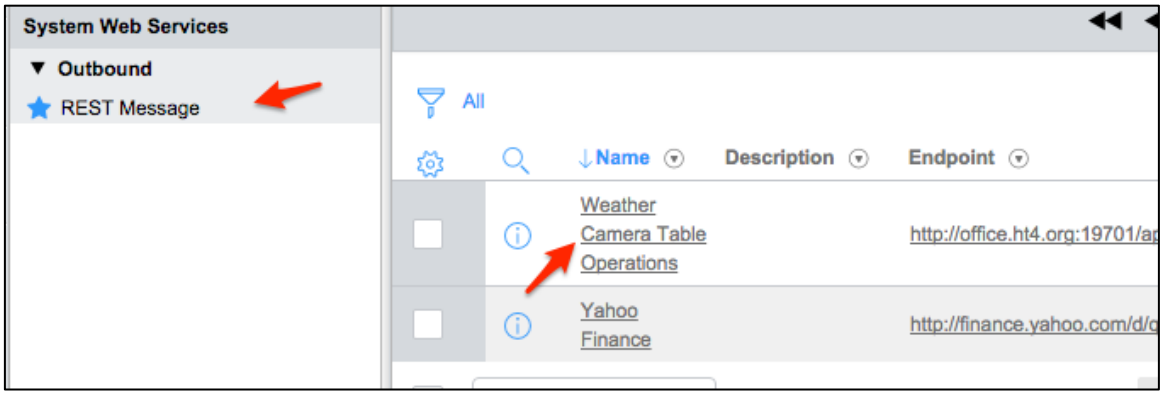


2. Copy the sys_id that comes up in the dialog box and save it for later.

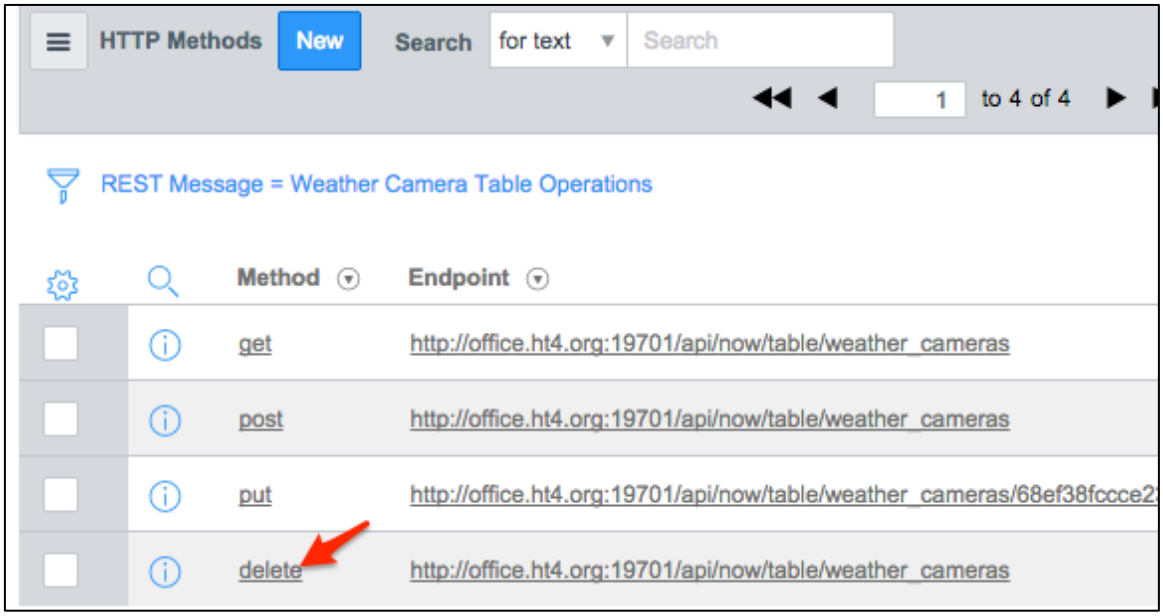
©2015 ServiceNow, Inc. All rights reserved.

Create the REST Request

1. Navigate to **System Web Services > Outbound > REST Message** and open the **Weather Camera Table Operations** REST Client record.

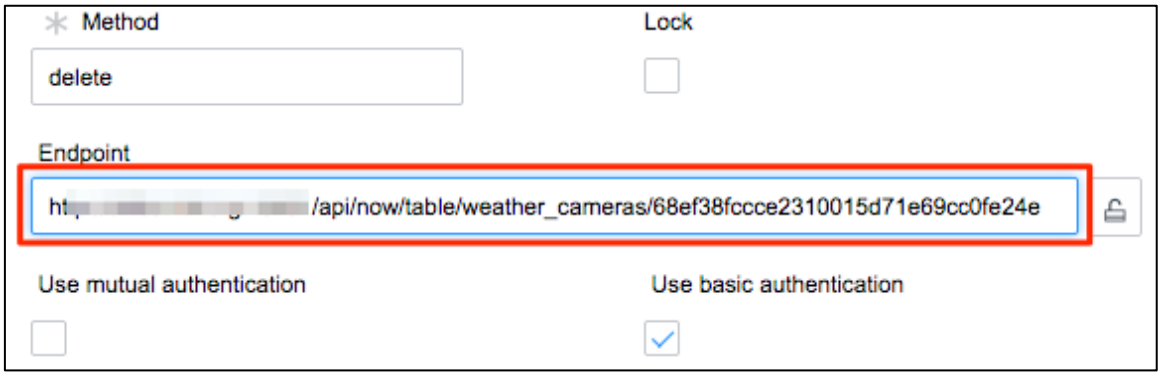


2. Scroll to the bottom of the page and open the **delete** HTTP method.



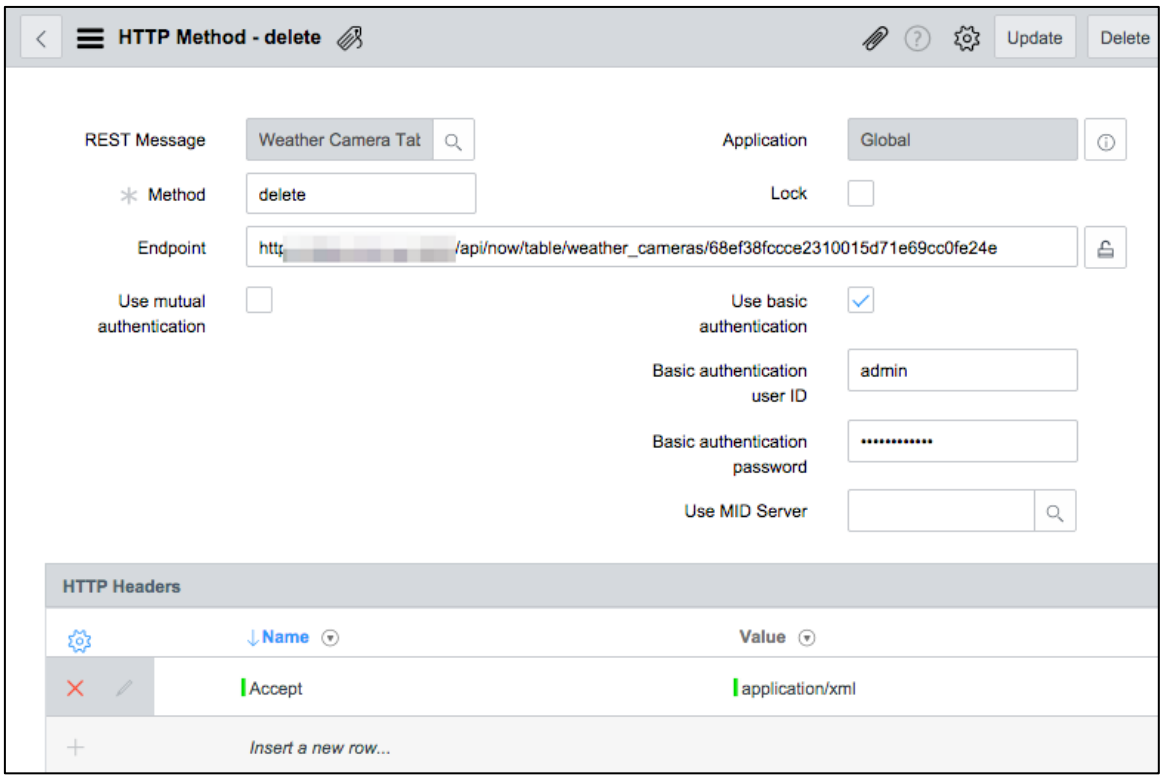
©2015 ServiceNow, Inc. All rights reserved.

3. Modify the Endpoint URL such that it contains the **sys_id** of the camera to delete. This is the **sys_id** copied in the previous steps.



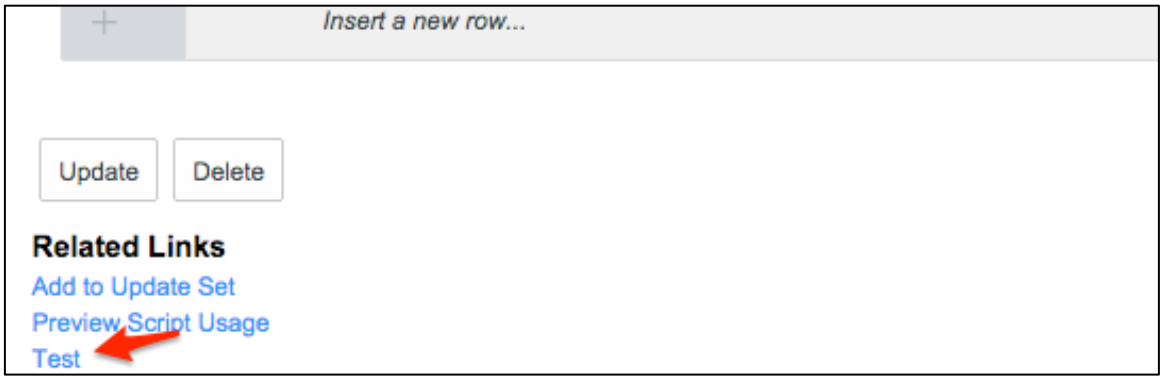
4. We want to set up the HTTP Header such that the operation will return a response in XML format. What would that header look like?
Submit your answer: http://snquiz.com/0001098.

5. Set up the proper HTTP header such that the API returns a response in XML format. If you get stuck on this step, look at the example below.

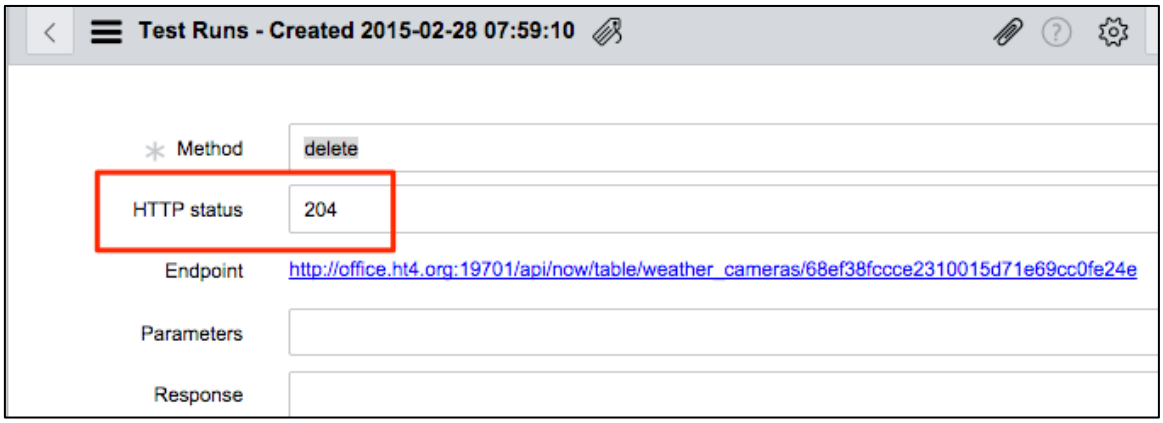


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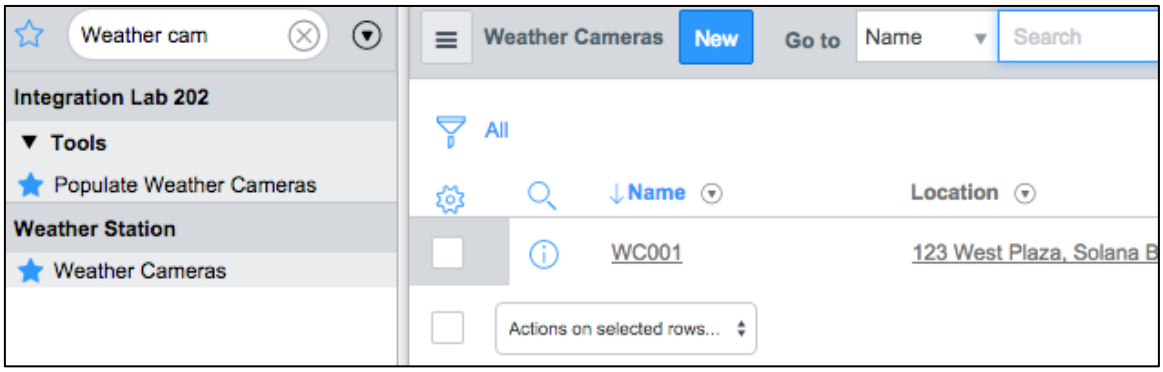
6. Click the **Test** link to submit your request.



7. You should receive an HTTP Status of **204**.



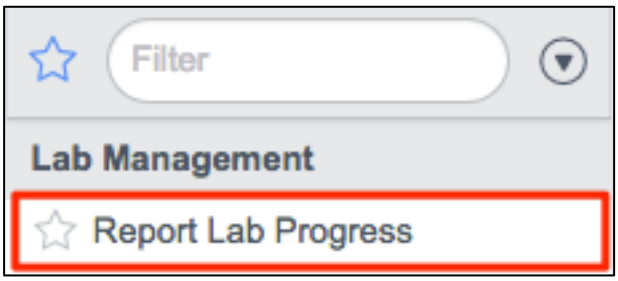
8. Confirm that the record no longer exists by navigating to **Weather Station > Weather Cameras** and ensuring that the new record has been deleted.



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Progress Report

1. Navigate to **Lab Management > Report Lab Progress**.



2. Click **I am done!**



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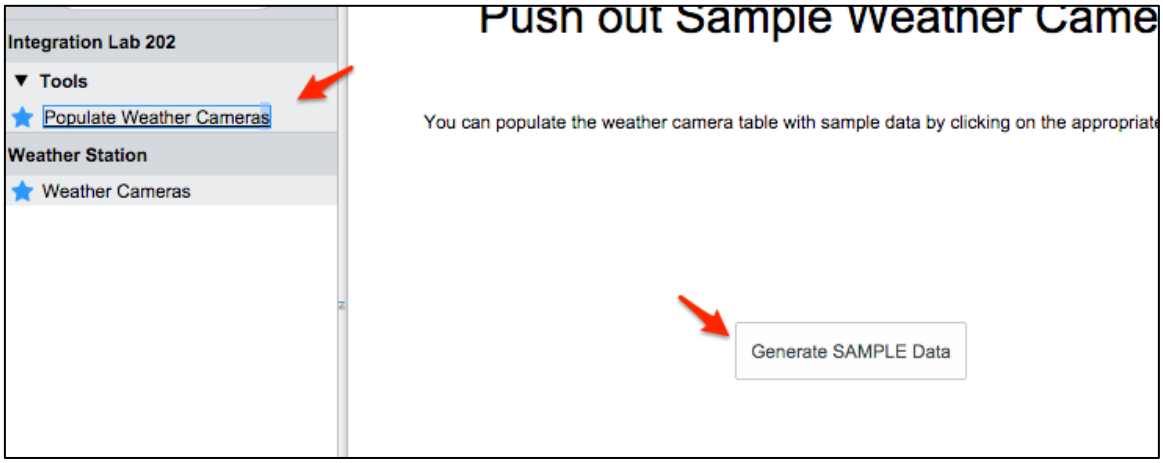
Lab Goal

This lab explains how to leverage the REST API to query records on a table.

Lab 5
REST Table API: Queries

Populate the Weather Camera Table with Sample Records

1. Navigate to **Integration Lab 202 > Tools > Populate Weather Cameras** and click the **Generate SAMPLE Data** button.

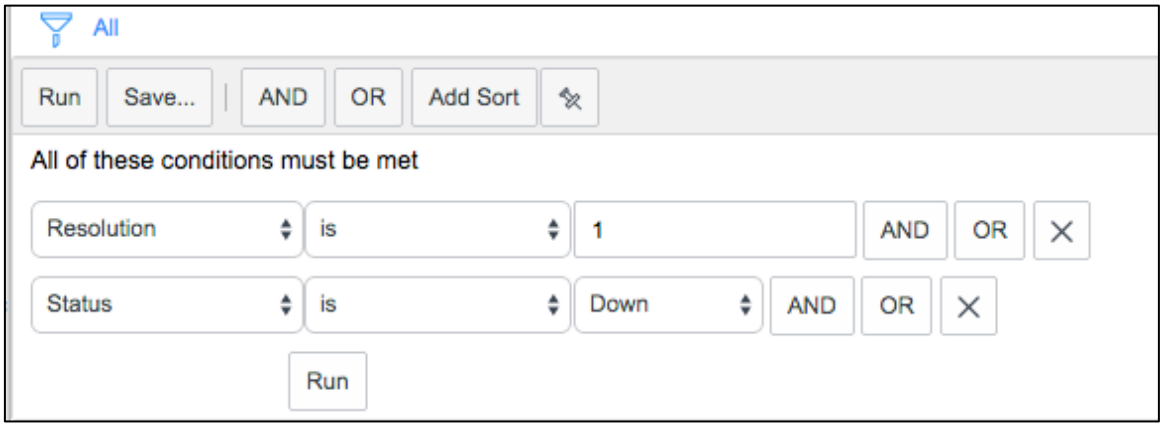


2. Navigate to **Weather Station > Weather Cameras** to confirm that the camera records were created.

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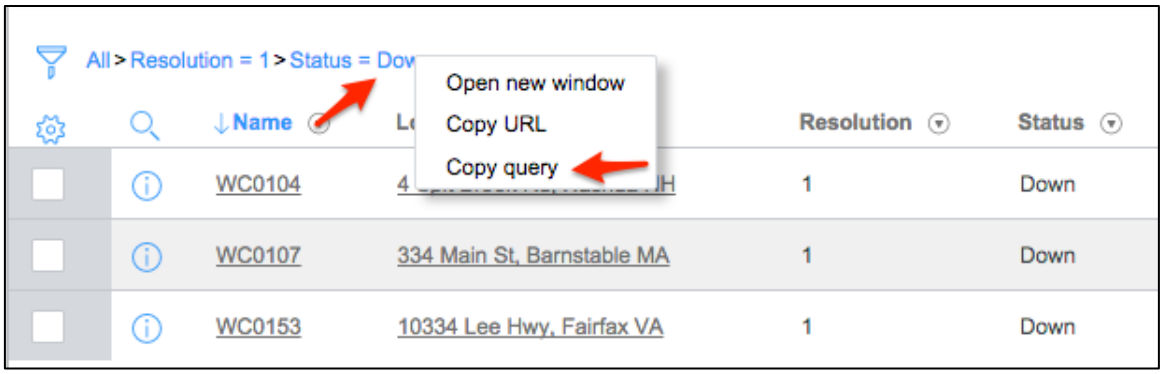
Create an Encoded Query

1. Build out the following filter on the Weather Camera Table:
   - Resolution is **1**
   - Status is **Down**



2. Click **Run.**

3. Once the filtered list is generated, right-click the last breadcrumb and choose **Copy query**.



4. The copied query should be similar to the following: **resolution=1^status=Down**.

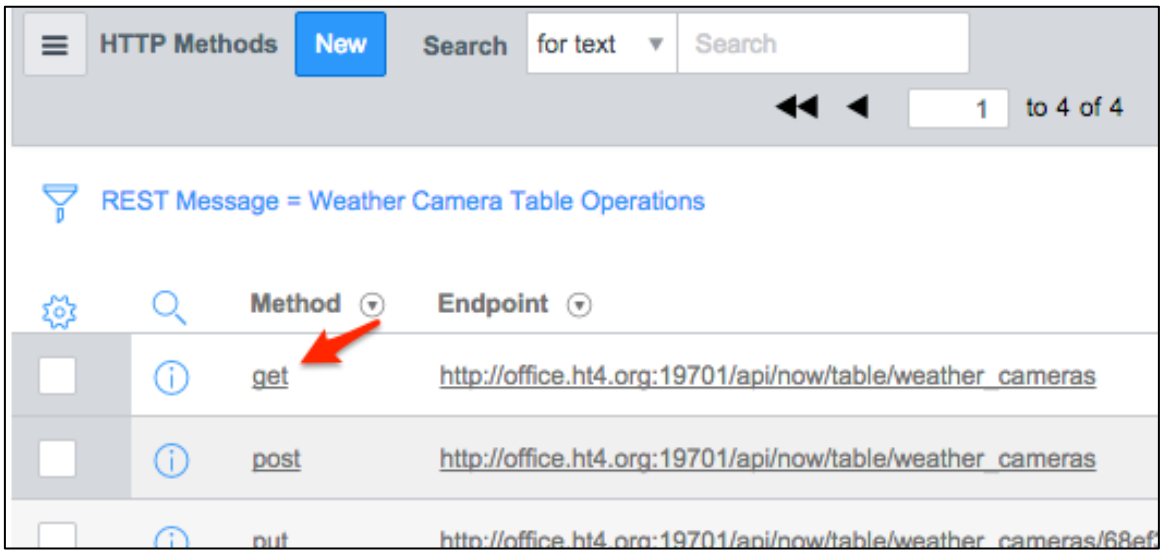
5. Store the copied query for future use and close the **Copy query** dialog.

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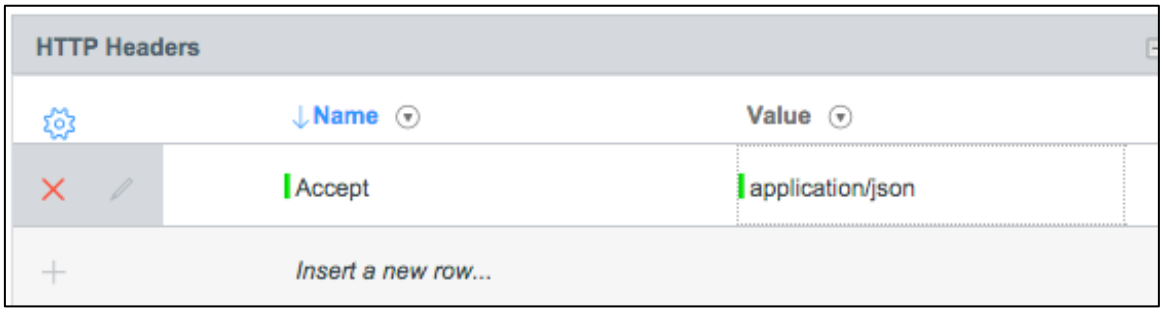
Build REST Request and Test

1. Navigate to **System Web Services > Outbound > REST Message** and open the **Weather Camera Table Operations** record.

2. Scroll to the bottom of the record and open the **get** HTTP Method.



3. To get a JSON response, set up the HTTP Header(s) so that the API responds using the JSON string format.



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4. Set the **sysparm_query** URL parameter to use the encoded query used in the previous set of steps in this exercise.



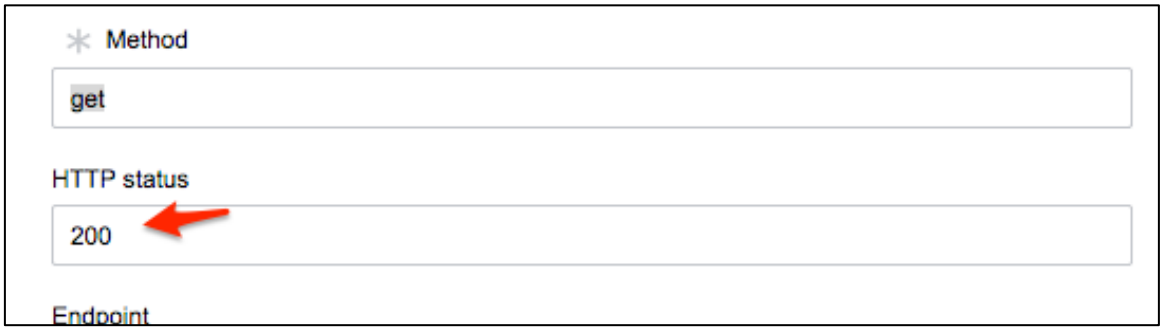
5. Use the REST Table API documentation in the wiki to understand what other **HTTP Query Parameters** provide the following benefits:

   - Have the response show both the **Display** value for a reference field and the **sys_id** to the reference field record
   - Only return the **name**, **location**, **resolution**, and **status** fields
   - Only return **1** record

   To verify that the **HTTP Query Parameters** look like the following: http://note.io/1vJK87F, click the **Test** link to execute the request.



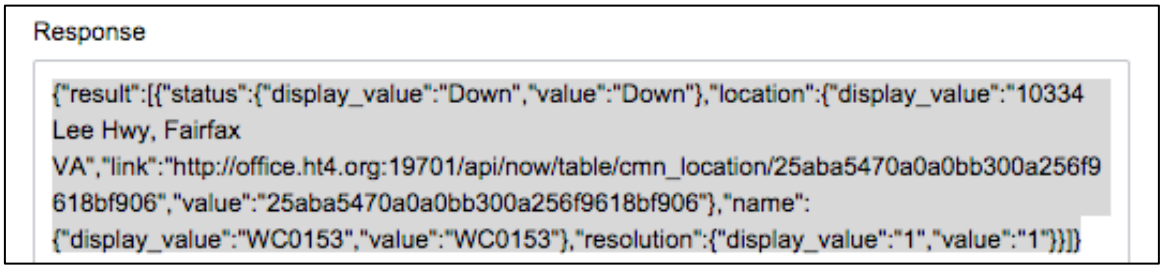
   You should get an HTTP status of **200**.



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Analyze and Validate the Response

1. Copy the **Response** text to the clipboard.



2. Navigate to **Integration Lab 202 > Tools > JSON Formatting Tool**. Paste the response into the formatting tool and format it.

3. The formatted response should be similar to the example, but individual values may be slightly different.


```
{
   "result":[
      {
         "status":{
            "display_value":"Down",
            "value":"Down"
         },
         "location":{
            "display_value":"10334 Lee Hwy, Fairfax VA",
            "link":"http://office.ht4.org:19701/api/now/table/cmn_lo
cation/25aba5470a0a0bb300a256f9618bf906",
            "value":"25aba5470a0a0bb300a256f9618bf906"
         },
         "name":{
            "display_value":"WC0153",
            "value":"WC0153"
         },
         "resolution":{
            "display_value":"1",
            "value":"1"
         }
      }
   ]
}
```


4. Verify that there is only one Camera record displayed similar to the example above.

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5. Ensure that the camera that was returned has a resolution value of **1** and a status value of **Down**.



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6. Ensure that only the status, location, name, and resolution fields were returned.



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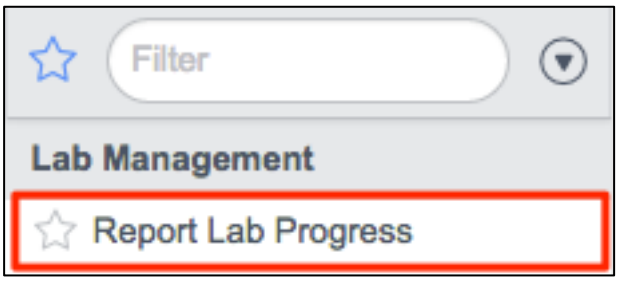
7. Ensure that there is a display value and a value all fields in the response.



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Progress Report

1. Navigate to **Lab Management > Report Lab Progress**.



2. Click **I am done!**



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Lab Goal

Lab 6
REST
Import API

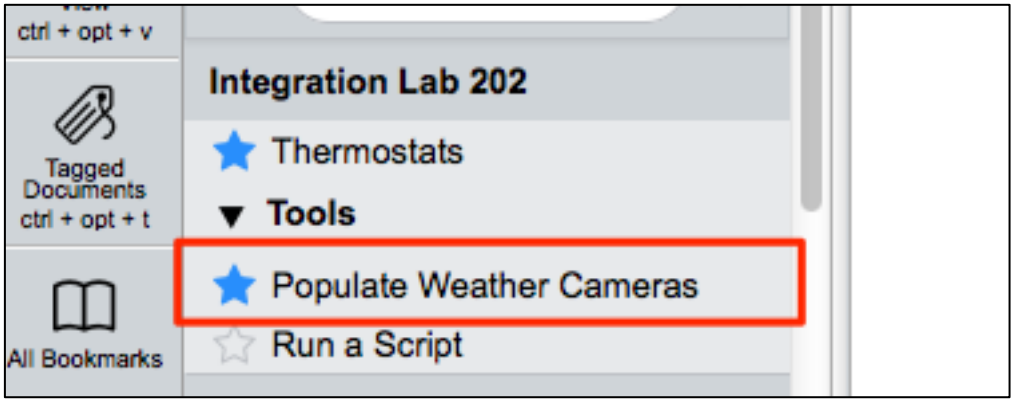
This lab explains how to leverage Import Set API with REST. Unlike the SOAP API, there is a dedicated API for Import Sets. Although they are similar in nature, there are a few differences.

In this lab, you create an inbound web service in ServiceNow for Road Cameras. The road camera interface translates road cameras into a weather camera record.

You then create a record and modify a record on the weather camera table using the web service and transform map that you created.

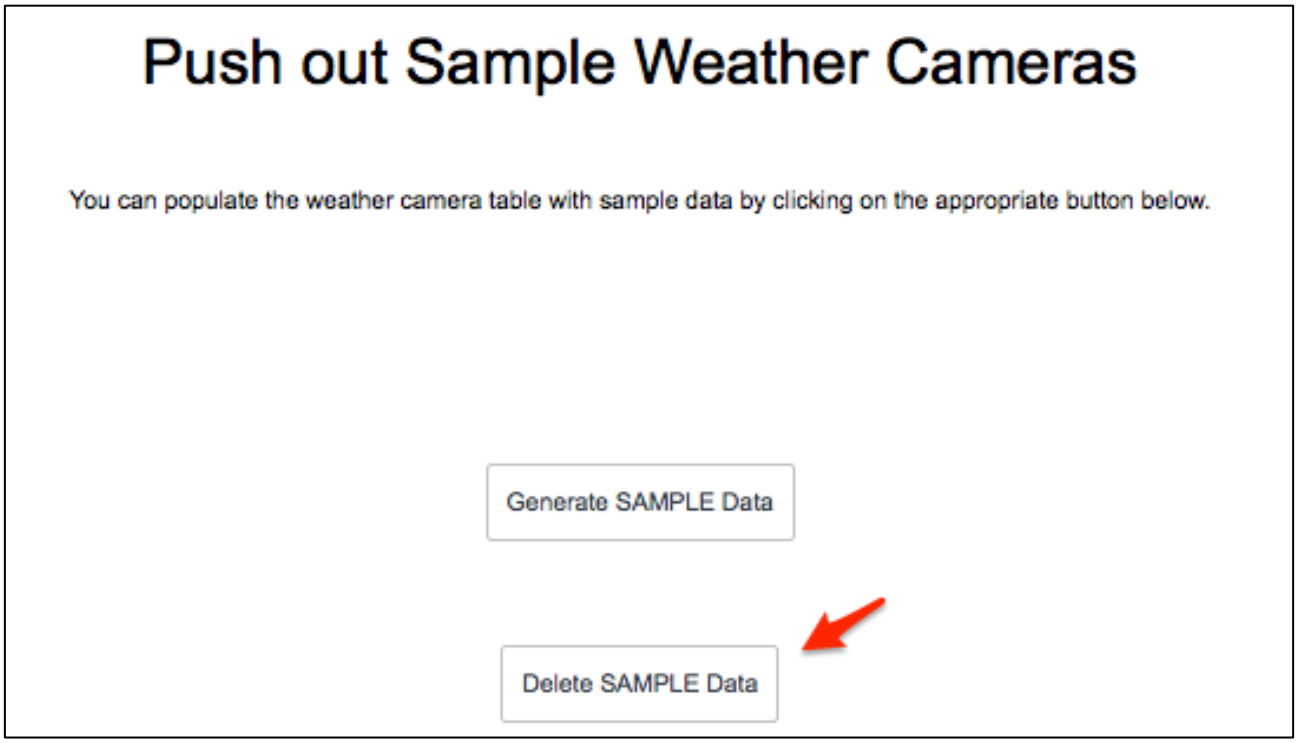
Clear out the Old Weather Camera Records

1. Navigate to **Integration Lab 202 > Tools > Populate Weather Cameras**.

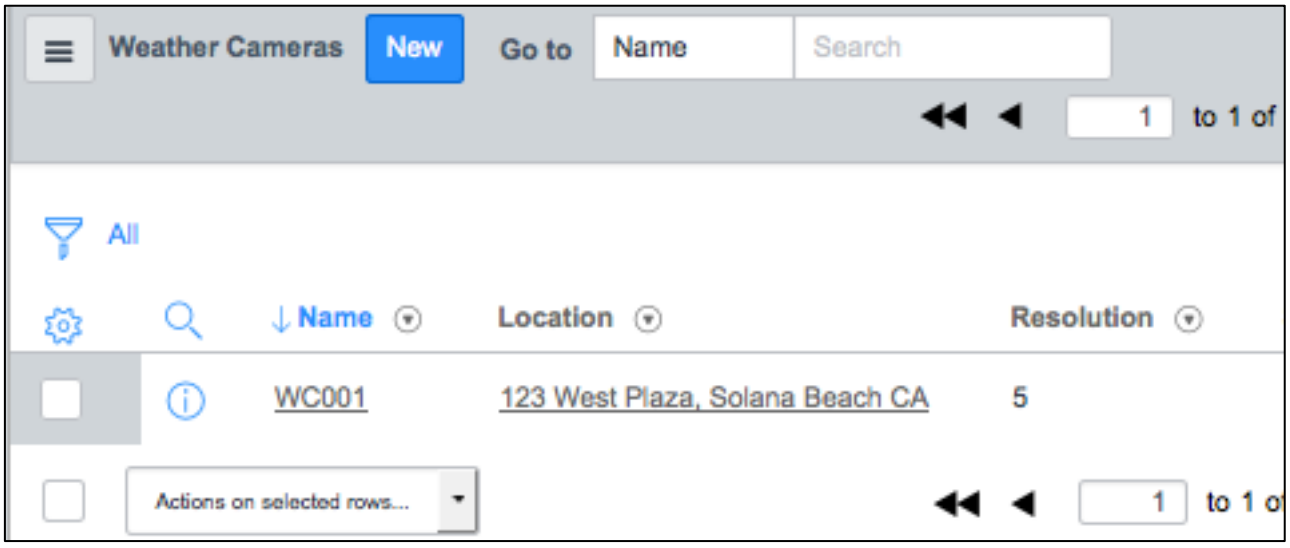


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2. Click the **Delete SAMPLE Data** button.



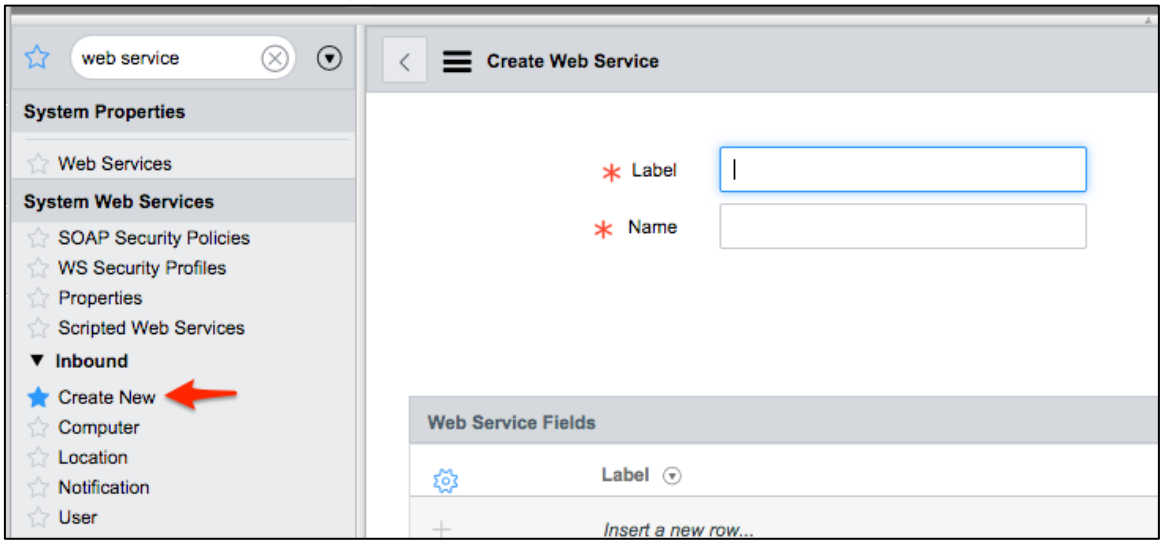
3. Navigate to the **Weather Station > Weather Cameras** module in the navigation pane and make sure that all the auto-generated records have been removed. You should see only the record created with the SOAP API in the previous lab exercise.



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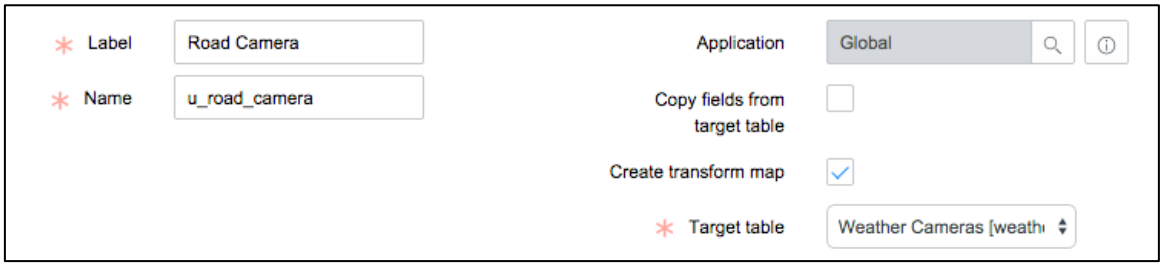
Create a Road Camera Inbound Web Service

1. Navigate to **System Web Services > Inbound > Create New**.



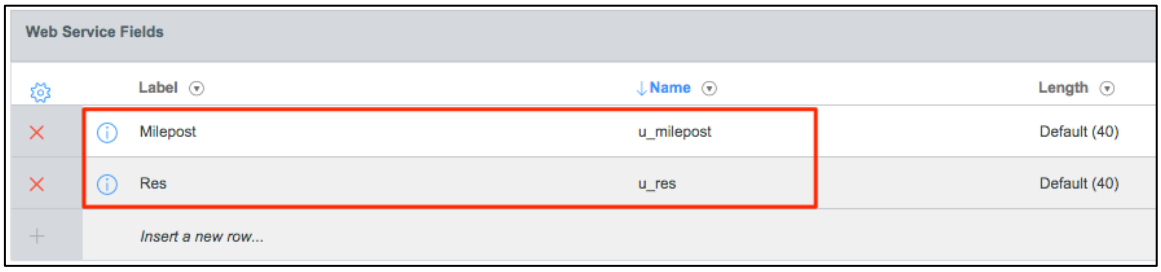
2. Set the **Label** field to **Road Camera**.

3. Set the **Target table** field to **Weather Cameras**.



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4. Set up the following two **Web Service Fields**:
   - Label: Milepost
   - Label: **Res**

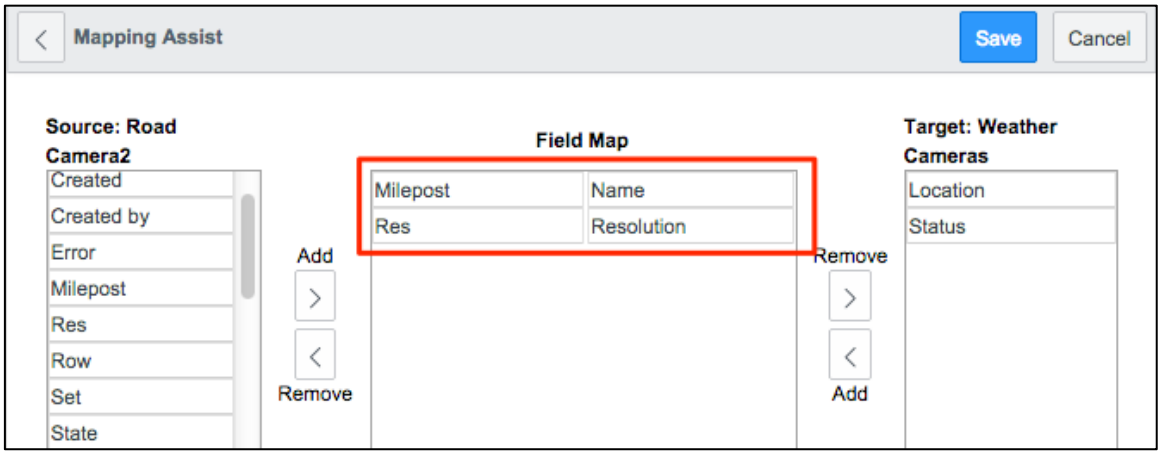


5. Click the **Create** button.

6. Once the record is created, click the **Mapping Assist** link.



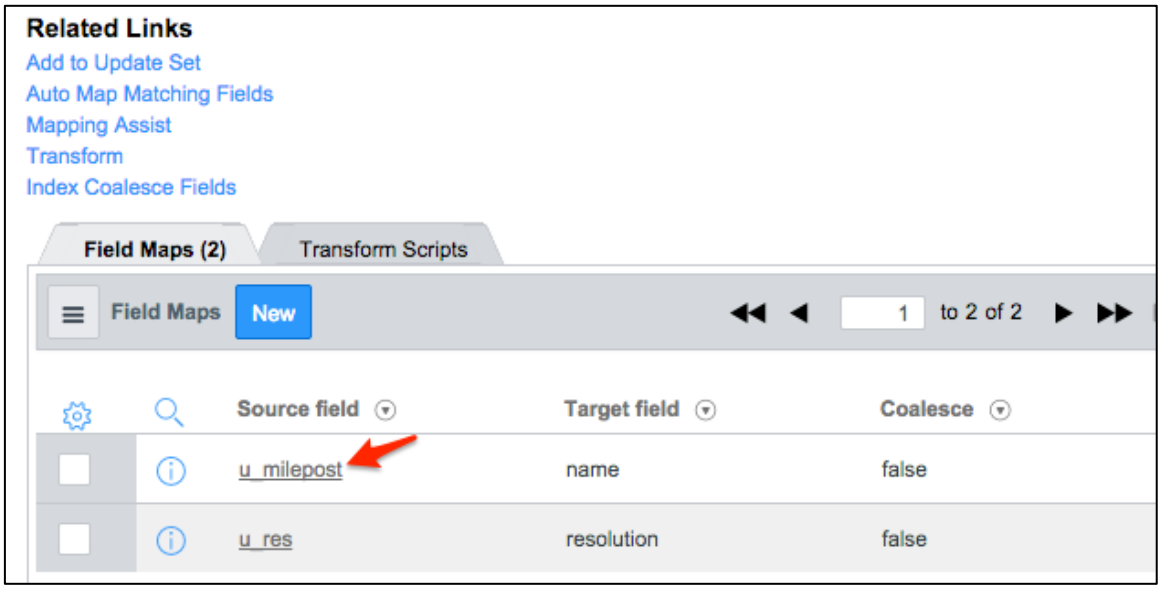
7. In the Mapping Assist Tool, match up the following pairs from the source and target tables:
   - Milespost → Name
   - Res → Resolution



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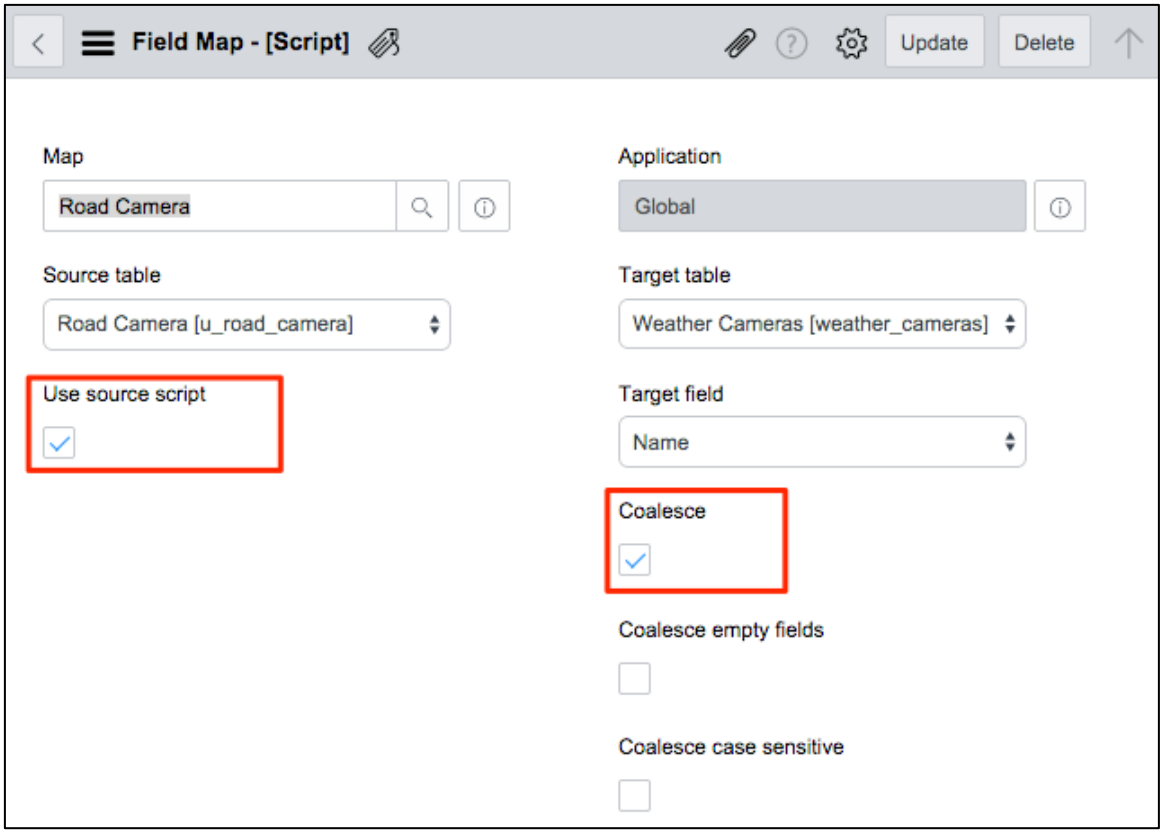
8. Click **Save**.

9. You should now be on the **Table Transform Map** form. Click the mapping record that maps **milepost** to **name**.



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10. To make transformations on the Milepost string before it gets set to the weather camera name, click the **Use source script** check box. Also select the **Coalesce** check box to make this a **coalesce** field so that if the same milepost record comes in, the record updates and does not create another camera record for that milepost.

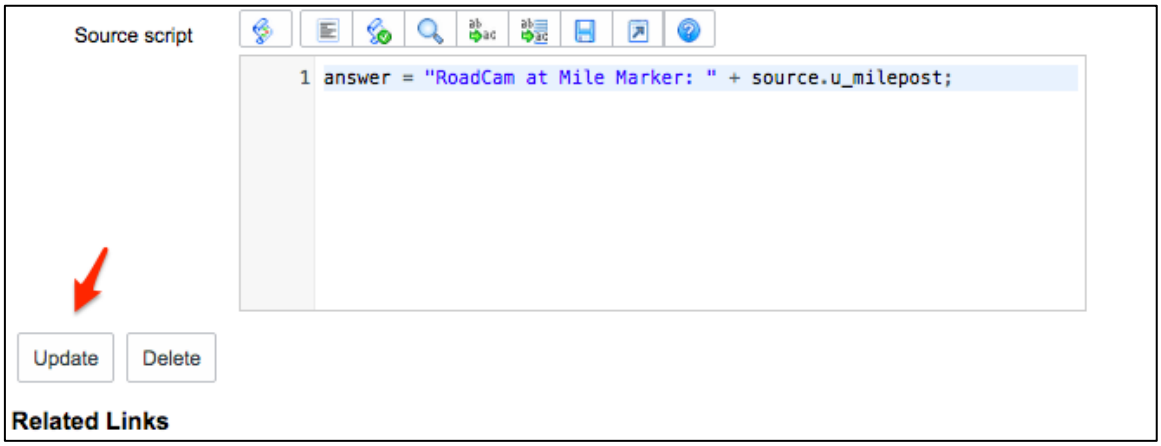


11. To create a script that transforms the milepost name into a weather camera name, in the **Source script** field, enter the following line of script:

```
answer = "RoadCam at Mile Marker: " + source.u_milepost;
```

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12. Click **Update**. (If you get a **Coalesce field not indexed** warning during this step or others, feel free to cancel the dialog box for this lab).



13. Confirm that the **Field Maps** list looks similar to the example.



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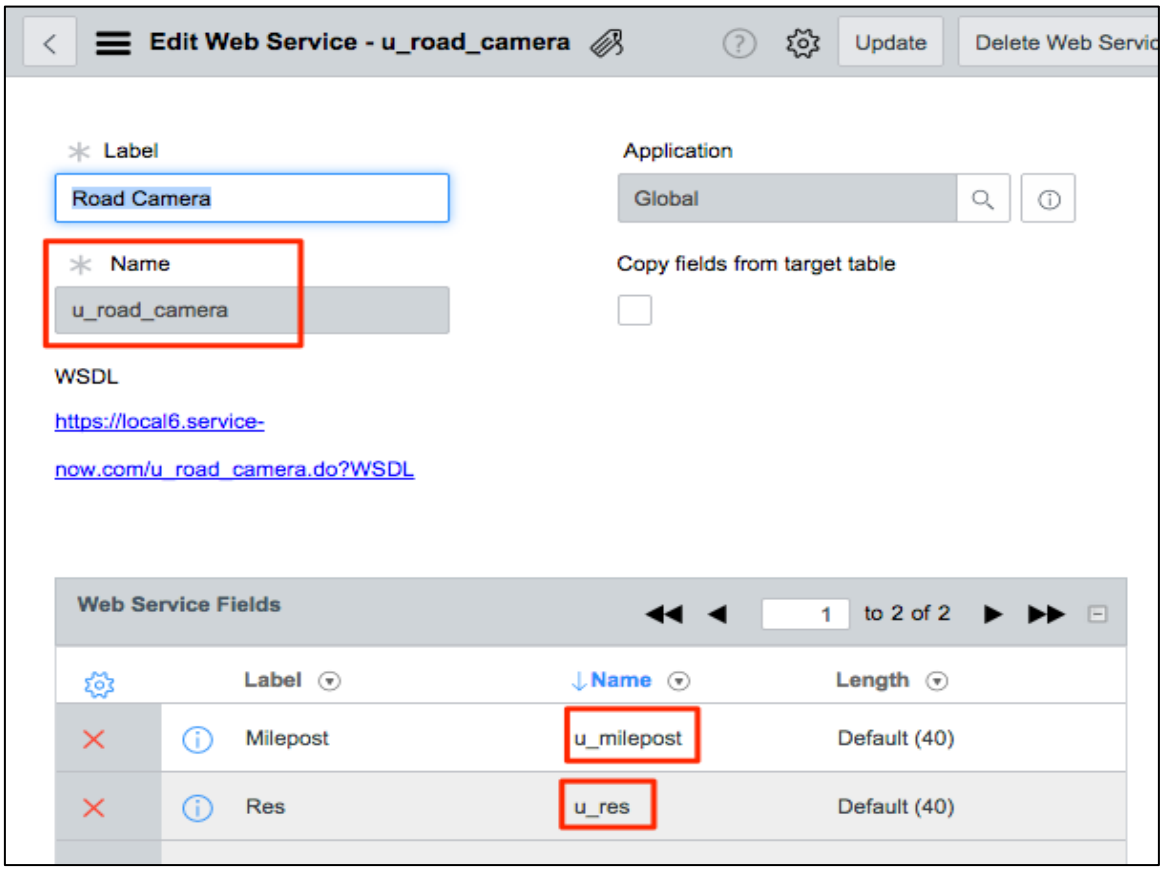
Set up a New REST Message Client Template

1. Take note of the inbound web service information by navigating to the new Inbound web service at **System Web Services > Inbound > Road Camera**. Look for the **Name** of the web service (not the label) as well as the **Name** of each of the **Web Service fields**. Enter them below:

   Web Service Name: _____

   Milepost field name:_____

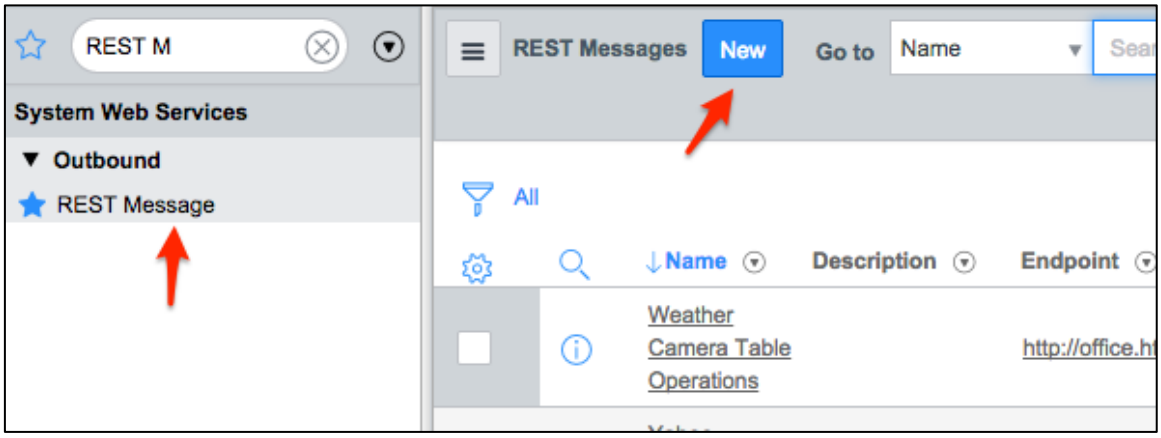
   Res field name: _____



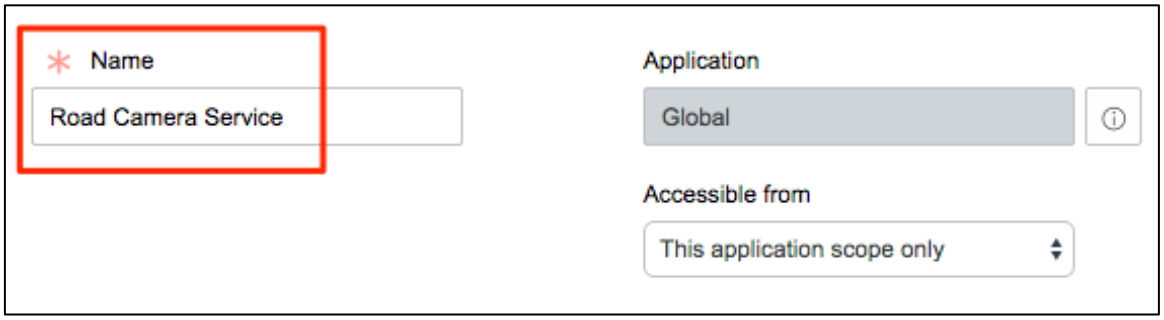
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2. Now create a new REST Message client record in ServiceNow. Remember, you can use a REST client of your choice. Since this is a controlled lab environment, we will For this exercise, use the GUI REST Client from within your lab instance.

   Navigate to **System Web Services > Outbound > REST Message** and click **New**.



3. Set the **Name** field to **Road Camera Service**.

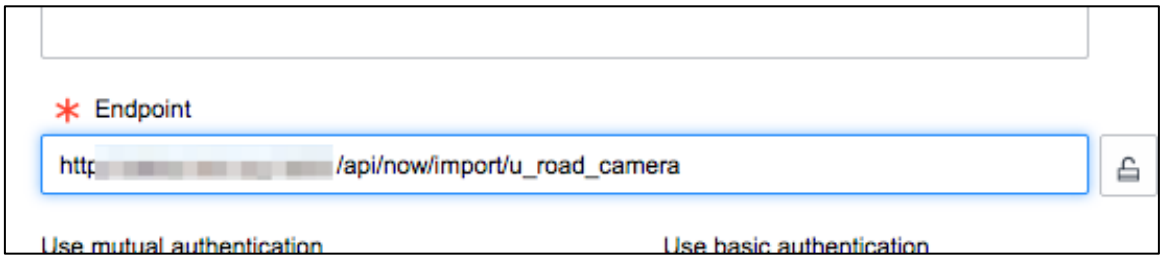


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4. Set up the REST Endpoint. Remember the naming convention for the Import API is **/api/now/import/---web_serviceimport_set_name---**. Check for the **Inbound** web service name that you noted above and enter it into the endpoint field.

   The Endpoint should be similar to the example.

```
https://yourinstancename.lab.service-now.com/api/now/import/u_road_camera
```



5. Click the **Use basic authentication** check box and enter in the admin credentials for your instance.

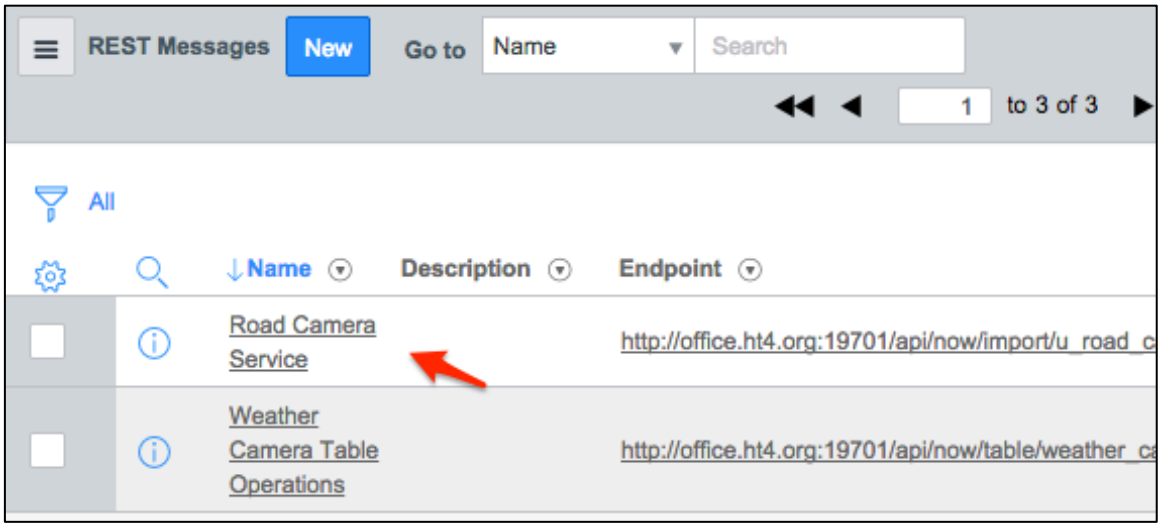


6. Click **Submit**.

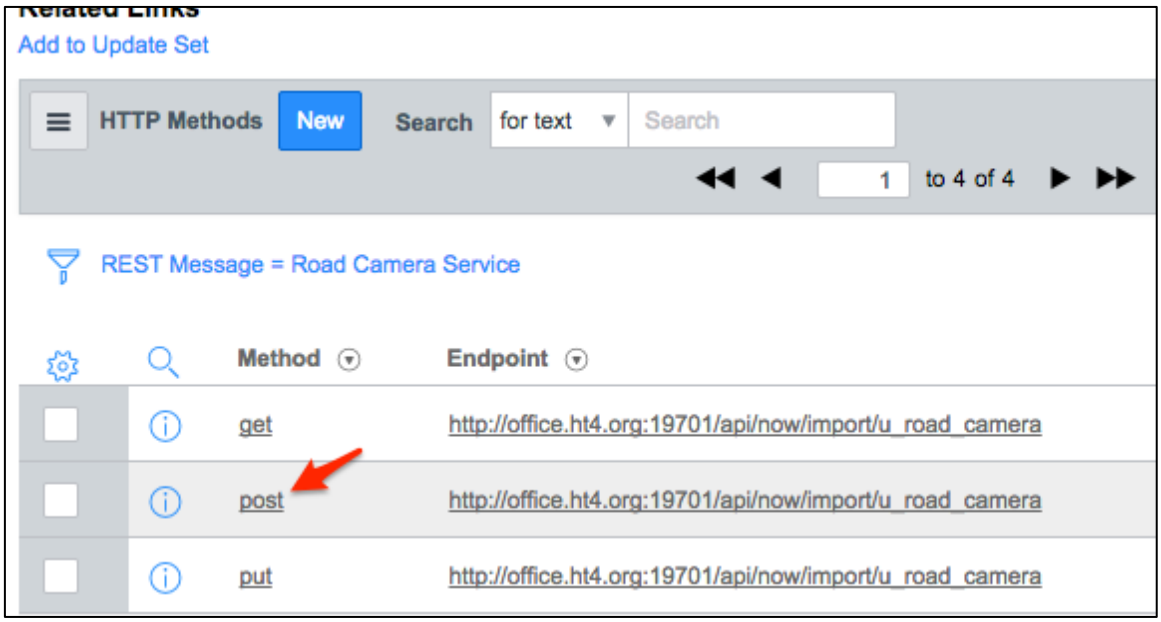
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Set up the REST Message Call to the Import Web Service

1. Navigate to **System Web Services > Outbound > REST Message** and select the newly configured **Road Camera Service** template.

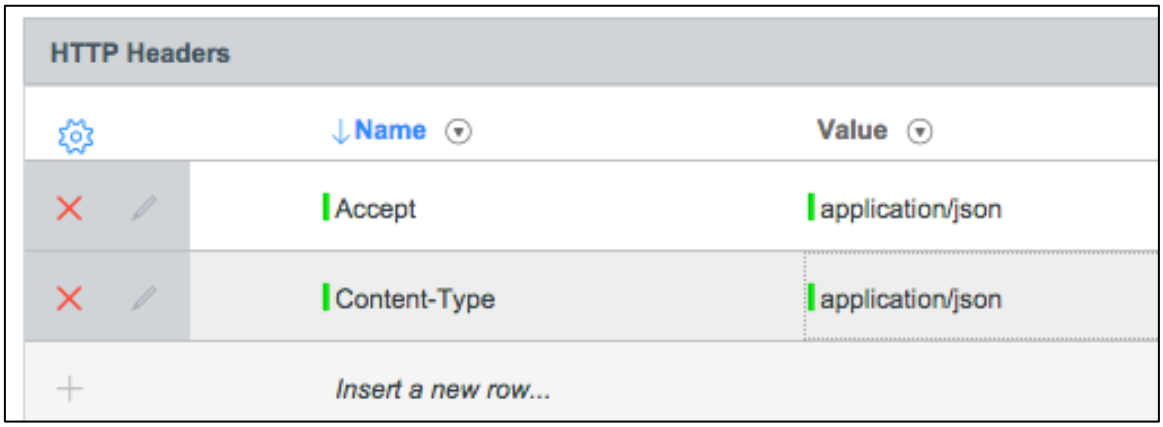


2. Scroll to the bottom of the record and choose the **Post** method.



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3. Set up the **HTTP Headers** to submit information in JSON format as well as receive a response in JSON format.



4. Set the **Content** field so that we enter with a Milepost number of **4888** and a Resolution of **10**. The JSON format represents that request in the following way:

```
{
   "u_milepost":"4888",
   "u_res":"10"
}
```

5. Click the **Test** link to submit the request.

6. Confirm that you received an HTTP Status of **201**.



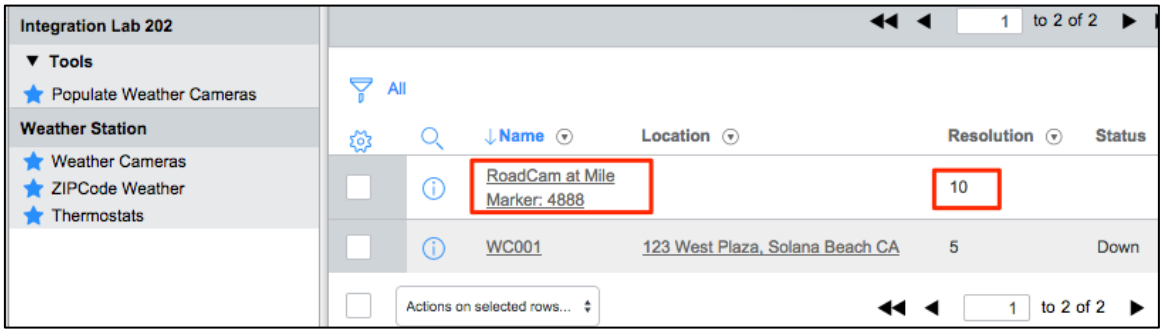
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7. Copy the **Response** from the request and format it with the tool found at **Integration Lab 202 > Tools > JSON Formatting Tool**.


```
{
   "import_set":"ISET0010001",
   "staging_table":"u_road_camera",
   "result":[
      {
         "transform_map":"Road Camera",
         "table":"weather_cameras",
         "display_name":"name",
         "display_value":"RoadCam at Mile Marker: 4888",
         "record_link":"http://office.ht4.org:19701/api/now/table/weather_cameras/f8e0bb45cc2631
         "status":"inserted",
         "sys_id":"f8e0bb45cc26310015d71e69cc0fe20e"
      }
   ]
}
```


8. What information is NOT shown in the Import Web Service response body? Submit your answer: http://snquiz.com/0001099.

9. Ensure that a new record was created by navigating to **Weather Station > Weather Cameras** and confirm that the newest weather camera has a name of **RoadCam at Mile Marker: 4888** as well as a Resolution of **10**.



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Use the Web Service to Update the Resolution on the New Camera

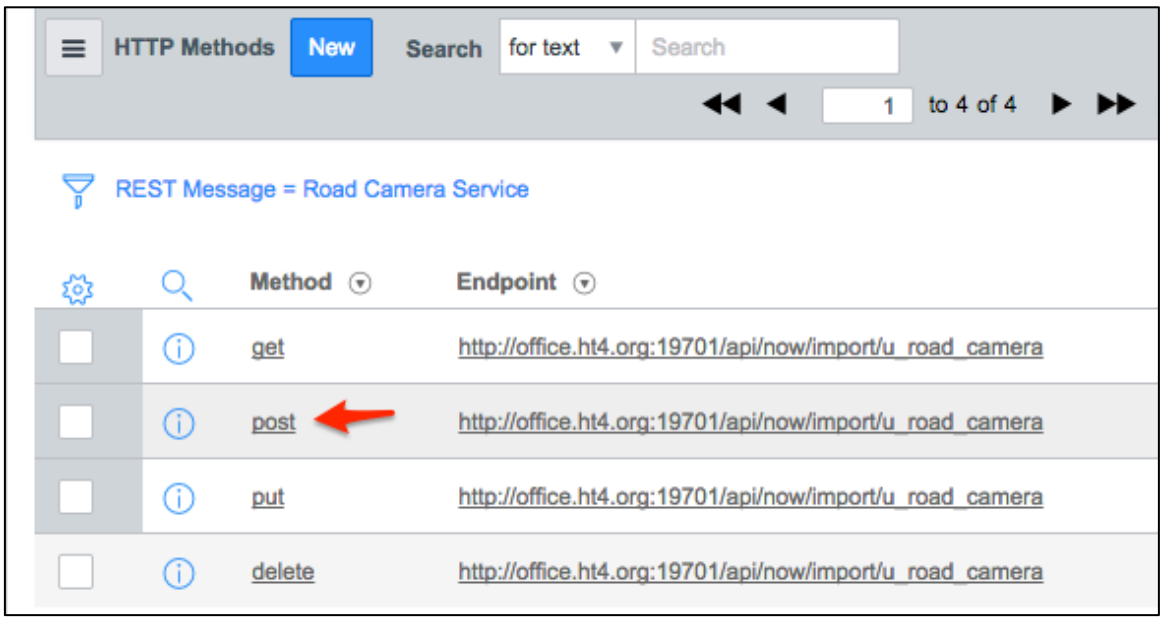
1. Upgrade the camera and use the **Road Camera web service** to update the existing record.

2. To update an existing record through the Import API, what HTTP Method would we use?
   Submit your answer: http://snquiz.com/0001100.

3. What HTTP Methods are available on the Import REST API?
   Submit your answer: http://snquiz.com/0001102.

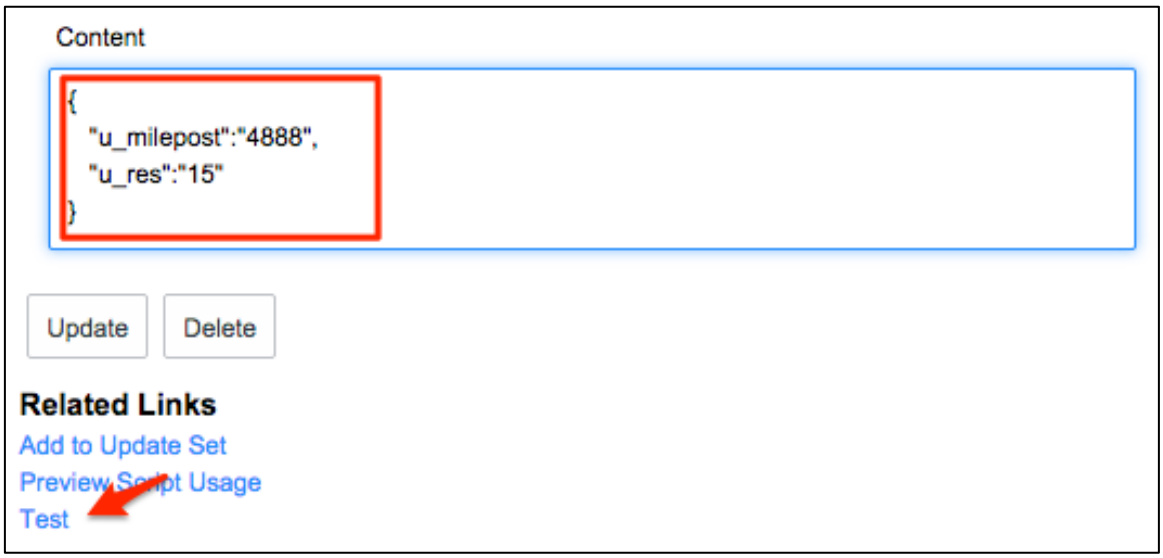
4. Navigate to the REST message template by going to **System Web Services > Outbound > REST Message.** Select **Road Camera Service**.

5. Scroll to the bottom of the record and click on the **post** record again. Remember, with web service import sets, we create records. We allow the coalesce feature to determine whether the record will be created or updated in the target table.



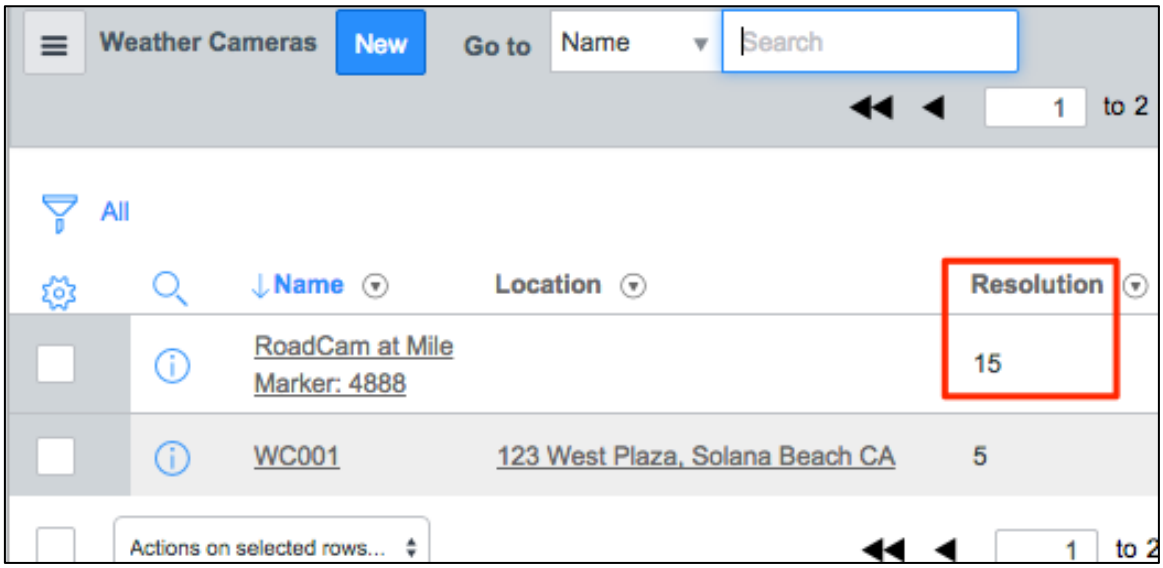
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6. Modify the **Content** field so that the resolution will be **15** instead of **10**. Click the **Test** link to submit the request.



7. You should get an HTTP Status of **201**. Look at the **Response** field. What was the resulting operation on the target table?
Submit your answer: http://snquiz.com/0001104.

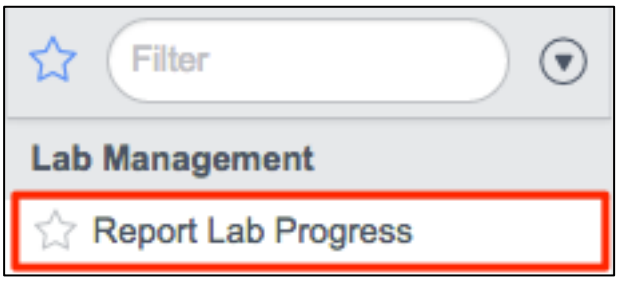
8. Verify that the Weather Camera record was modified by navigating to **Weather Station > Weather Cameras**. The screen should look similar to the example below.



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Progress Report

1. Navigate to **Lab Management > Report Lab Progress**.



2. Click **I am done!**



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Lab Goal

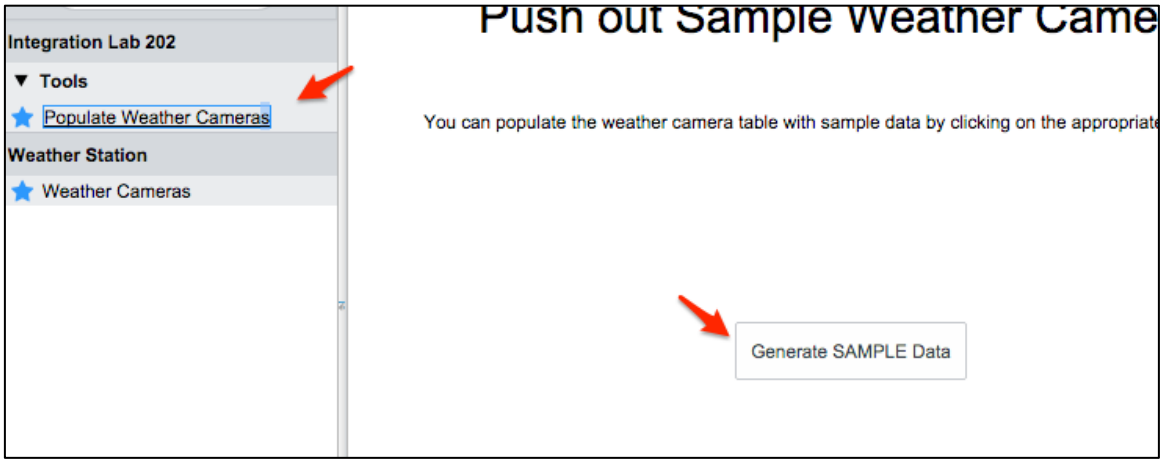
This lab explains how to pull CSV data from a ServiceNow instance using basic HTTP calls with URL parameters.

In this exercise, you leverage the built-in CSV export web services to bring filtered data from the ServiceNow instance.

Lab 7
CSV Web Service

Populate the Weather Camera Table with Sample Records

1. Navigate to **Integration Lab 202 > Tools > Populate Weather Cameras** and click the **Generate SAMPLE Data** button.



2. Navigate to **Weather Station > Weather Cameras** to confirm that the camera records were created.

Do a basic CSV Export of the Weather Cameras Table

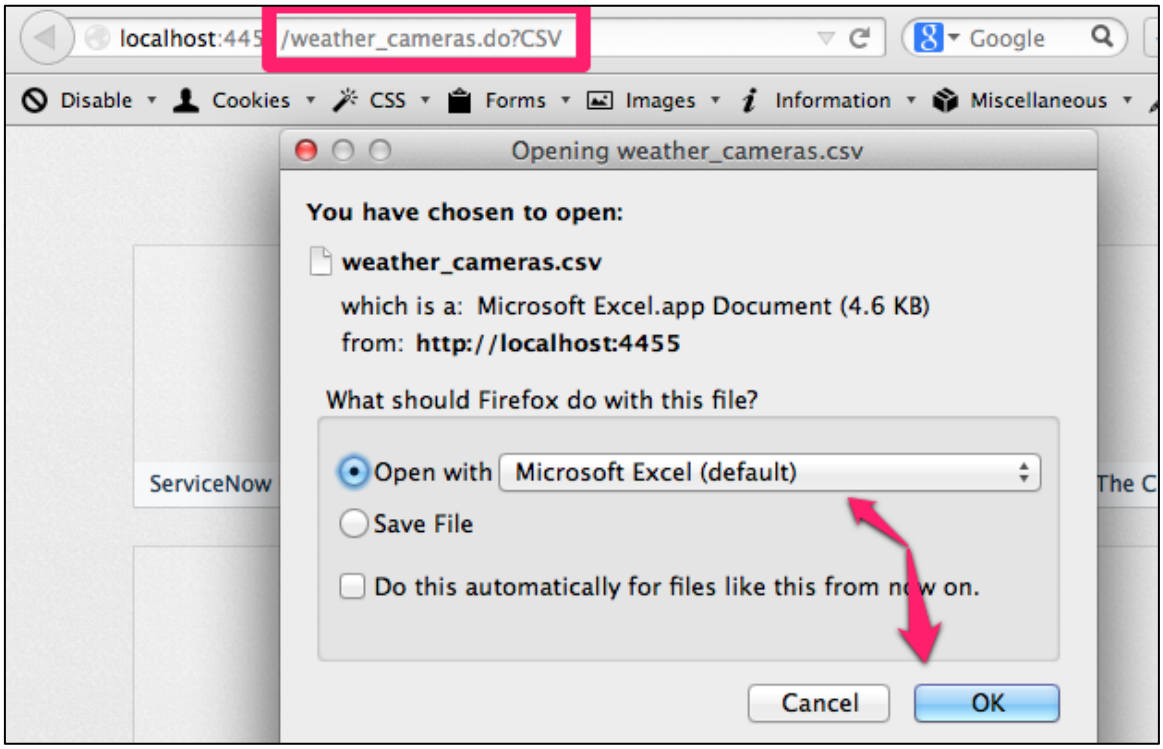
1. Open a browser of your choice.

2. In the address bar, type in the URL of the Weather Cameras table and add a URL parameter of **CSV**. The URL may look similar to the following example.

```
https://myinstance.lab.service-now.com/weather_cameras.do?CSV
```

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3. Press the **Enter** key in the address bar. Save or open the file as directed by the browser.



4. Open the resulting file. There should be about 90+ rows of camera data with four columns per row. If you open the resulting file in a spreadsheet program, it may look similar to the example.

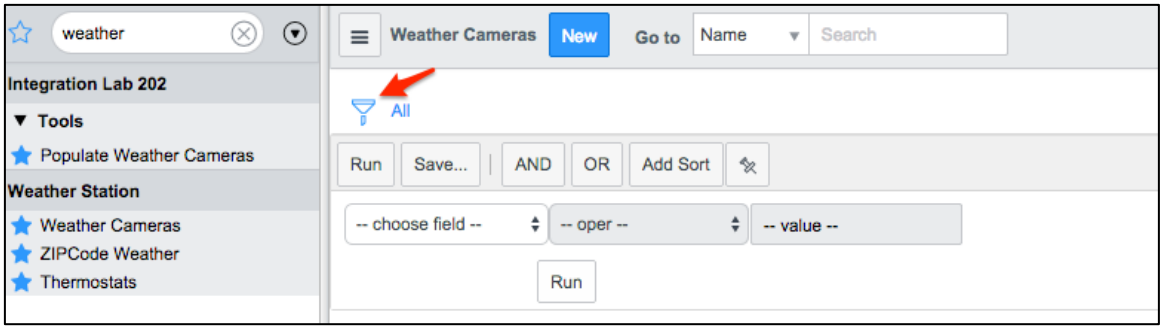
	A	B	C	D	E
1	name	location	resolution	status	
2	WC001	123 West Plaza, Solana Beach CA	5	Down	
3	WC0100	3 Whitehall Court, London	10	Down	
4	WC0101	334 Main St, Barnstable MA	10	Live	
5	WC0102	10334 Lee Hwy, Fairfax VA	5	Down	
6	WC0103	4 Spit Brook Rd, Nashua NH	10	Live	
7	WC0104	660 N Wells St, Chicago IL	5	Down	
8	WC0105	4 Spit Brook Rd, Nashua NH	15	Down	
9	WC0106	4 Spit Brook Rd, Nashua NH	2	Maintenance	

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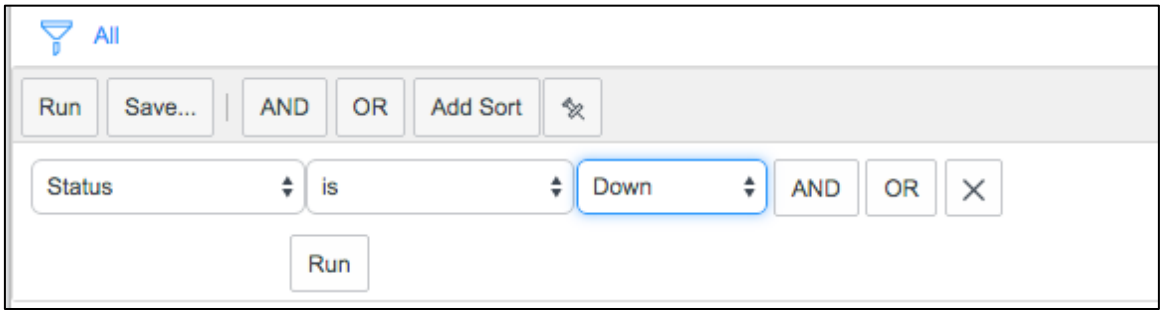
Export All Cameras in Virginia Listed as Being Down

1. In order to filter the results before they are executed, build an encoded query. This could be done manually. In this lab, build the query through the UI first and then apply it in the export process.

2. Within the ServiceNow instance, navigate to **Weather Cameras > Weather Cameras** and expand the list filter by clicking the icon next to the **All** filter.

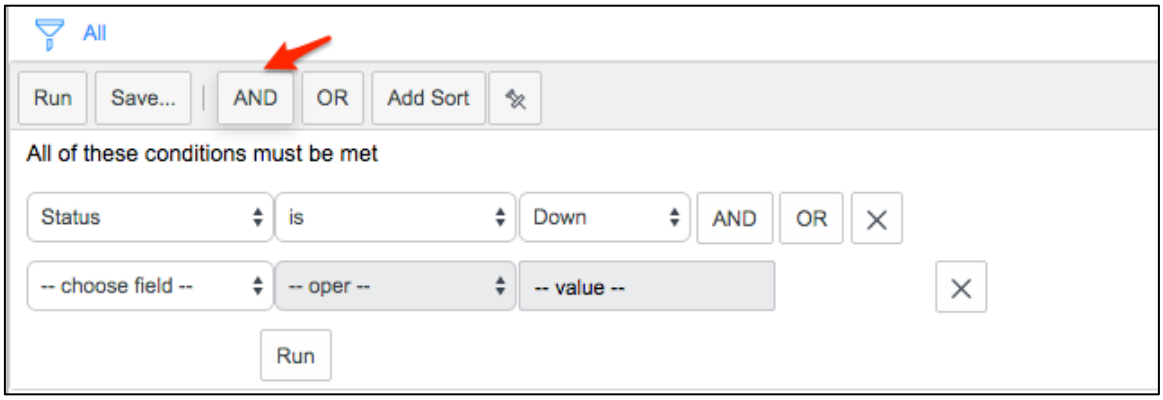


3. Choose **Status : is : Down**.

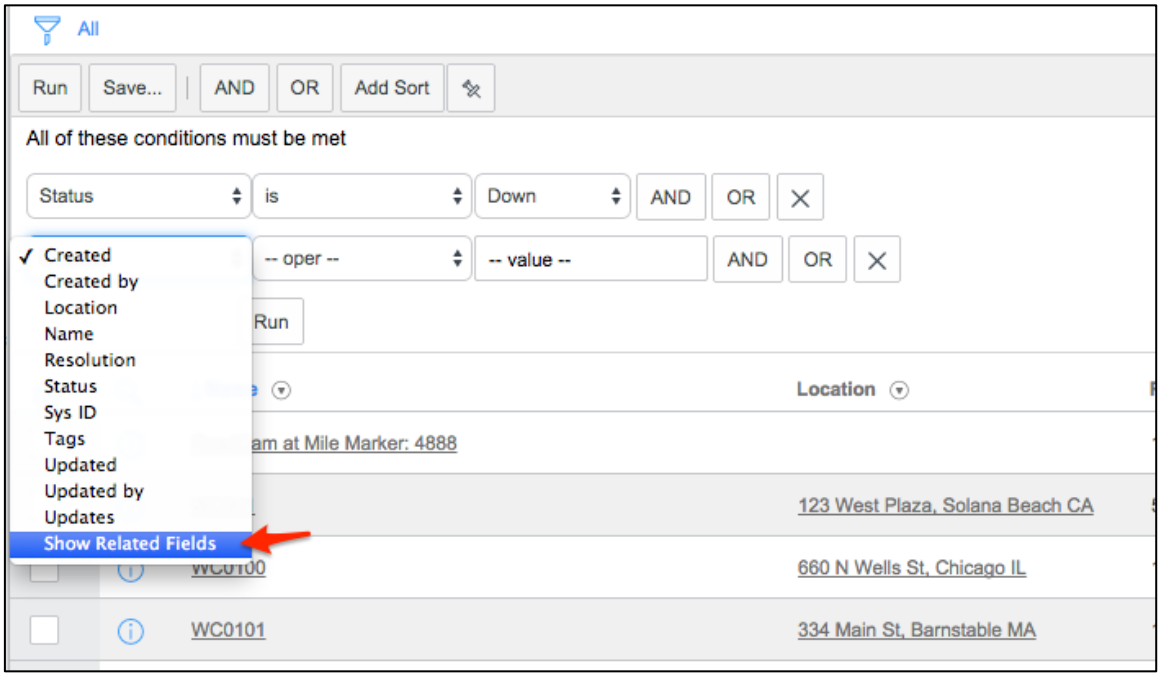


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4. Click the **AND** button to enter another criterion.

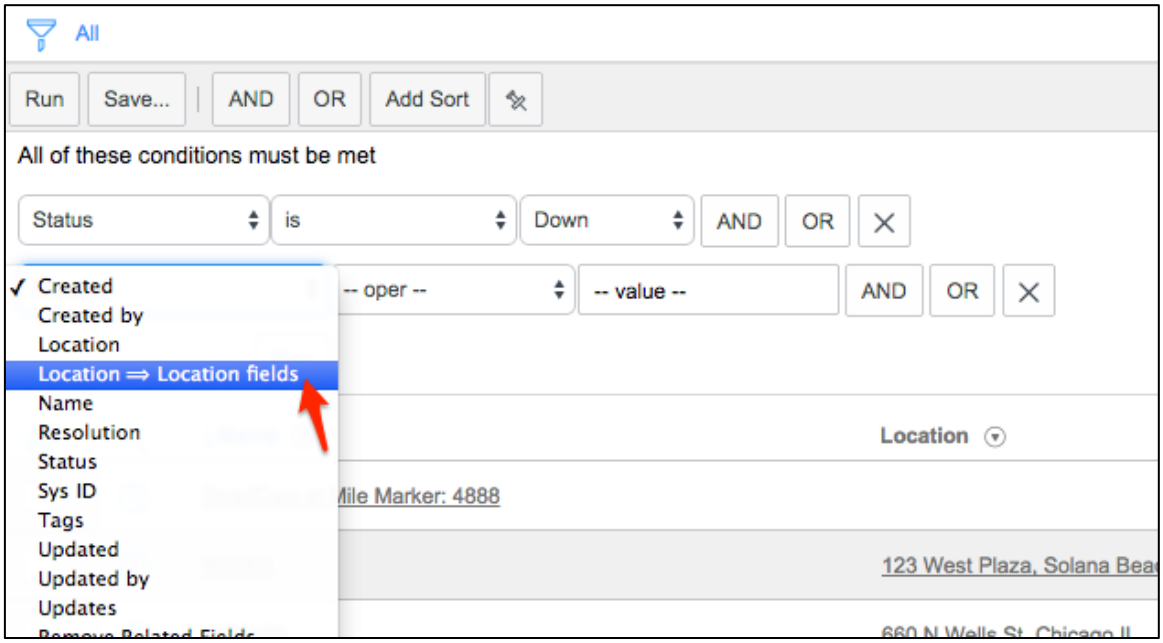


5. On the second filter row, select the Location state. To do this, show the related fields so that the filter drills down into the related table. Select **Show Related Fields**.



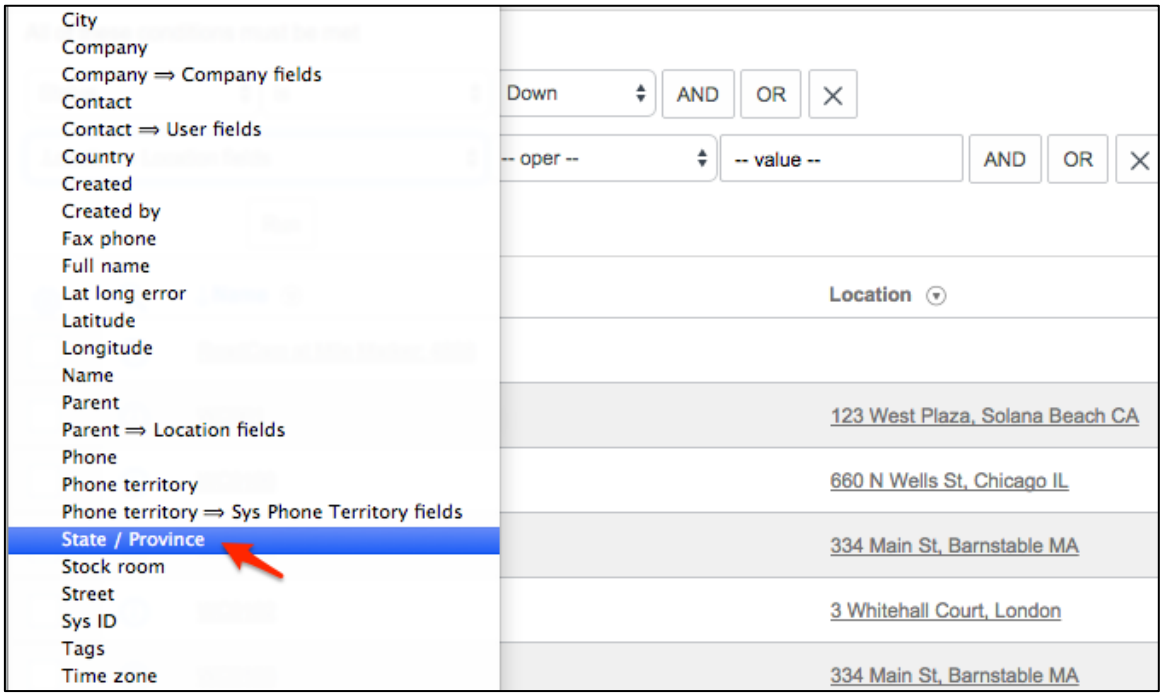
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6. On the second filter row, open the first dropdown list again. Notice the new entry in the list. Click **Location → Location fields**.



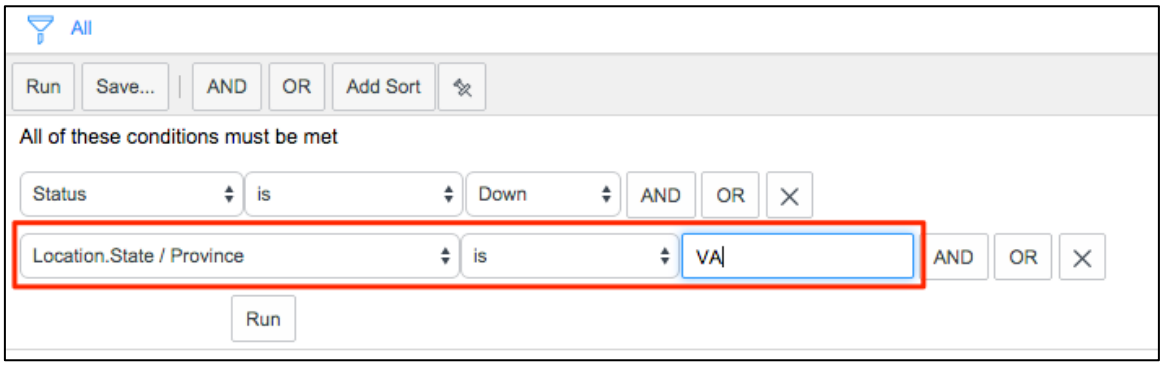
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7. Again, on the second filter row, open the first dropdown list to see all of the available Location fields. **Select State / Province**.



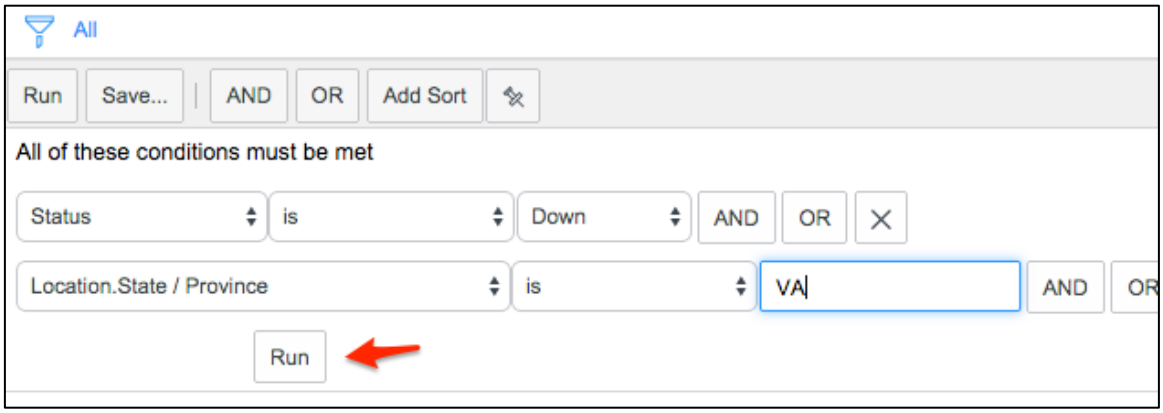
8. Finish the second row of the filter with the following settings:

   Location.State / Province : is : VA

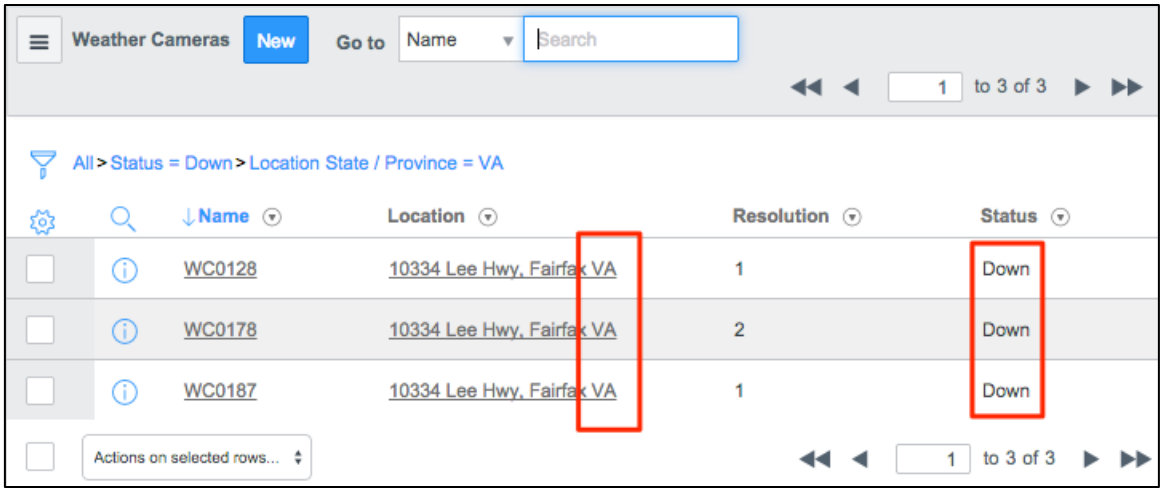


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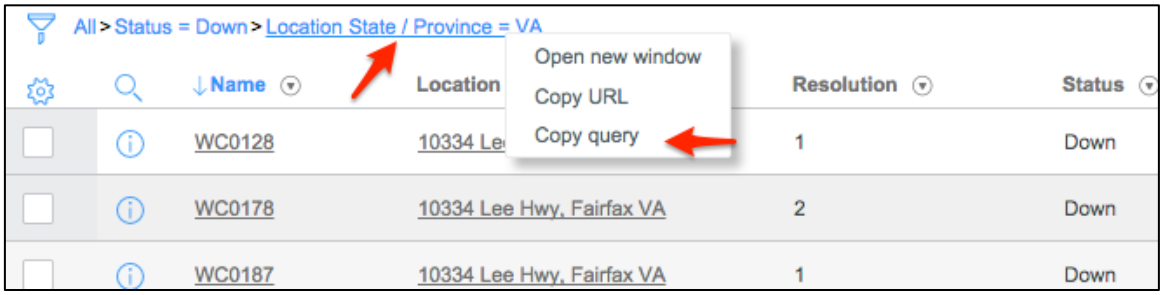
9. Click **Run**.



10. Confirm that the results only contain records that are listed as **Down** and have a location based in **Virginia**.

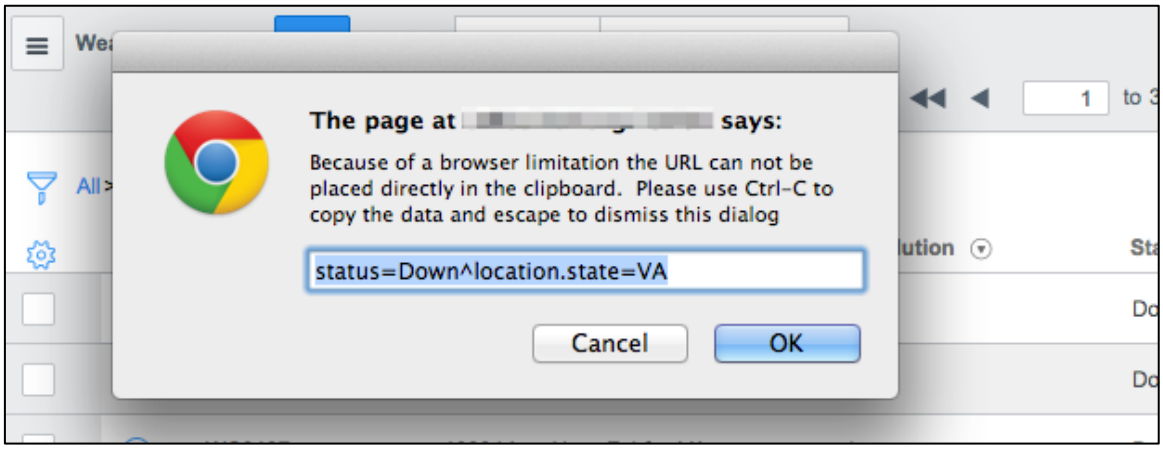


11. Copy the query string for the filter just created. To do this, right-click the last part of the filter (**Location State / Province = VA**) and click **Copy query**.



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12. A popup dialog appears with the query embedded in a text field. Highlight the query and copy it to your clipboard.



13. Click **OK**.

14. In another browser window or tab, enter in the table URL and set the query parameters to include. Add an additional parameter to the URL. The parameter name is **sysparm_query** and the value is the encoded query copied earlier. The new URL should look similar to the following example.

```
https://MYINSTANCE.lab.service-
now.com/weather_cameras.do?CSV&sysparm_query=status=Down^location.st
ate=VA
```

15. Execute the query in the browser. Save the file and open it in the editor/program of your choice. Confirm that there is the same data in your file as there was in the filtered list when you created the filter. Notice in the example below, all the records have a location of **VA** with a status of **Down**.

G15

	A	B	C	D	E	F
	name	location	resolution	status	u_cost	
	WC0108	10334 Lee Hwy, Fairfax VA	2	Down	307.61	
	WC0140	10334 Lee Hwy, Fairfax VA	15	Down	245.33	
	WC0164	10334 Lee Hwy, Fairfax VA	10	Down	378.07	
	WC0168	10334 Lee Hwy, Fairfax VA	15	Down	188.63	

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Getting the Sys_Id from the CSV Export

By default, the CSV Export web service does not export all the fields on the table. One notable concern is that it will not export the **sys_id field**. However, since the Dublin release, you can utilize a URL parameter that tells the CSV export service to export all the fields including the **sys_id**.

Read the following two references:

- http://wiki.servicenow.com/index.php?title=Exporting_Data#Determining_Which_List_Fields_are_Exported
- http://www.john-james-andersen.com/blog/service-now/getting-all-fields-with-csv-export-in-servicenow.html

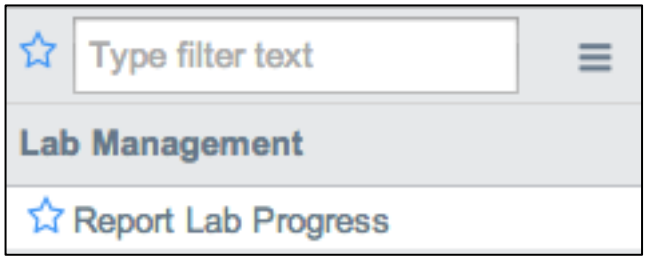
1. What is the CSV Web Service URL parameter that is required to export all fields, including the sys_id field?
   Submit your answer: http://snquiz.com/0001105.

2. Use your knowledge from the past few exercises to export a list of weather camera records to CSV format where the camera has a status of **Live**. Make sure that the export exports all the fields on the table, including the **sys_id** field.

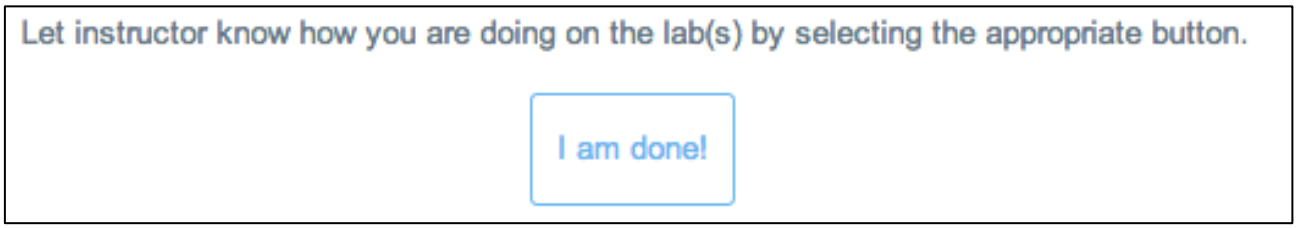
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Progress Report

1. Navigate to **Lab Management> Report Lab Progress**.



2. Click **I am Done!**



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Lab Goal

This lab explains how to pull XML data from a ServiceNow instance using basic HTTP calls with URL parameters.

In this exercise, you leverage the built-in XML export web services to bring filtered data from the ServiceNow instance.

Lab 8
XML Web Service

Download All Weather Camera Records in XML Format

1. Open a browser window of your choice. Enter the URL to the **Weather Cameras** table and provide the URL parameter of XML to download the data in XML format.

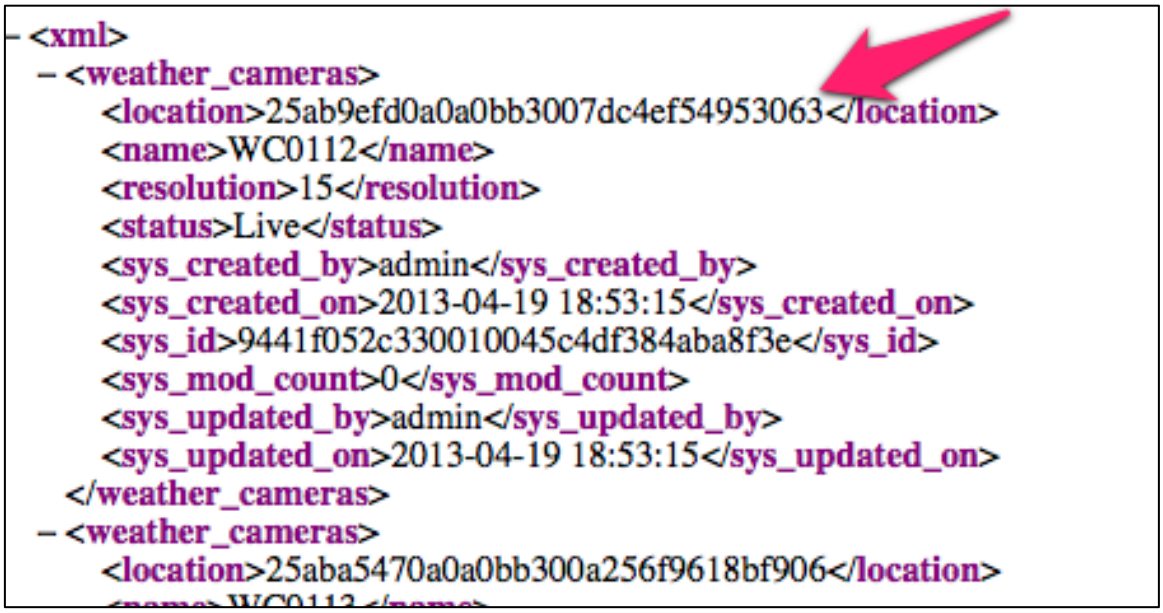


2. How does this default export of data differ from the CSV exported data?
Submit your answer: http://snquiz.com/0001106.

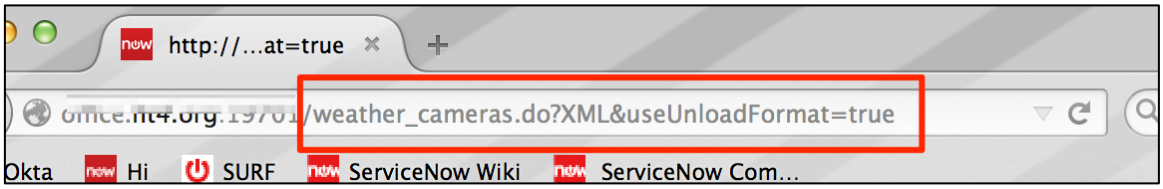
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Export the XML Data so That Display Values Are Also Included

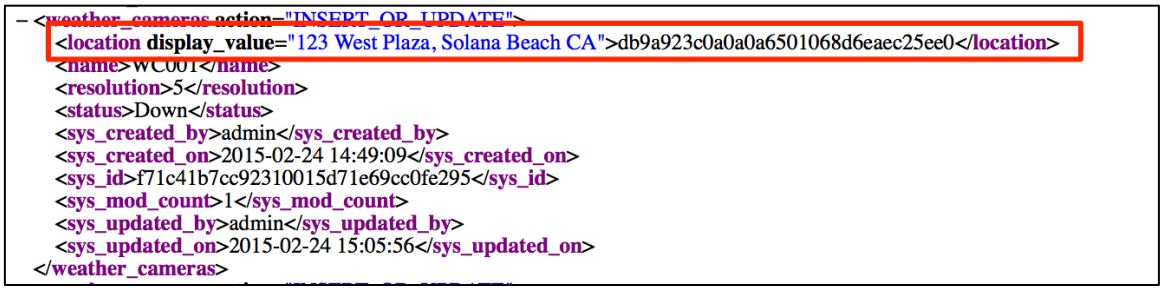
1. Notice that with the XML web service you get the **sys_id** of the reference fields (e.g., Location) instead of the human readable **display name**.



2. In the browser of your choice, enter the URL to the Weather Cameras table. Include a URL parameter to export XML data. Also, include the URL parameter of **useUnloadFormat** and set it to **true**.



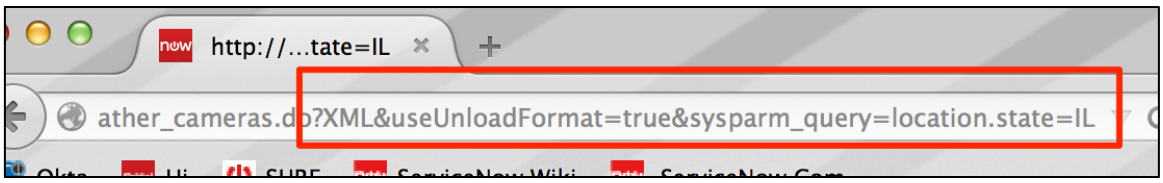
3. Notice that the XML data now contains a **display_value** attribute on reference fields.



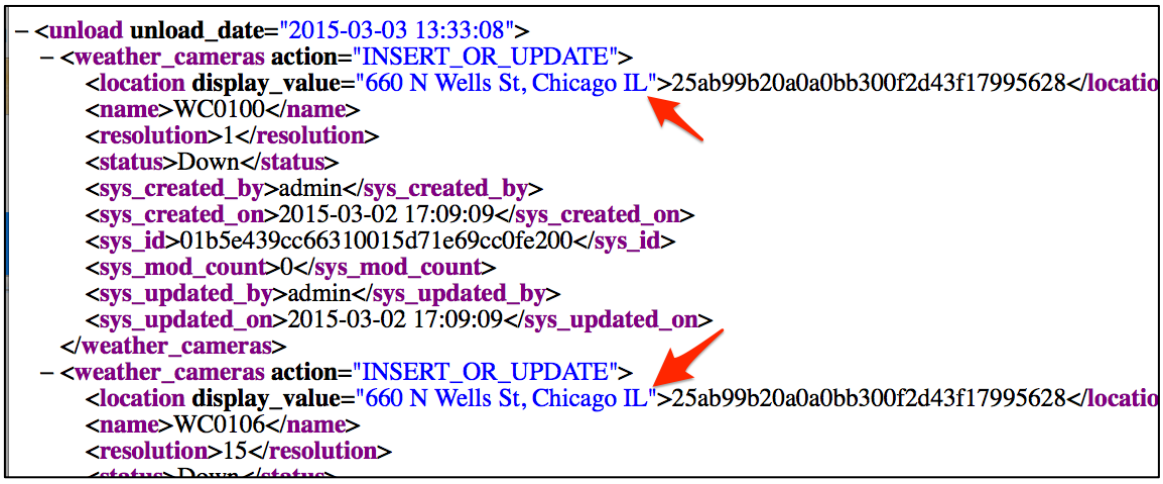
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Export All Weather Cameras from Illinois in XML Format with Display Values

1. In the browser of your choice, enter the URL that you used before. Add an encoded query to select all cameras from Illinois. To do this, the following will be your URL parameters
   - XML
   - useUnloadFormat=true
   - sysparm_query=location.state=IL
2. The URL should look similar to the example.



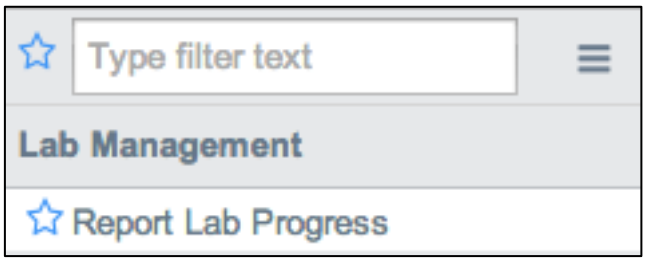
3. Confirm that the XML results only contain records of cameras in Illinois.



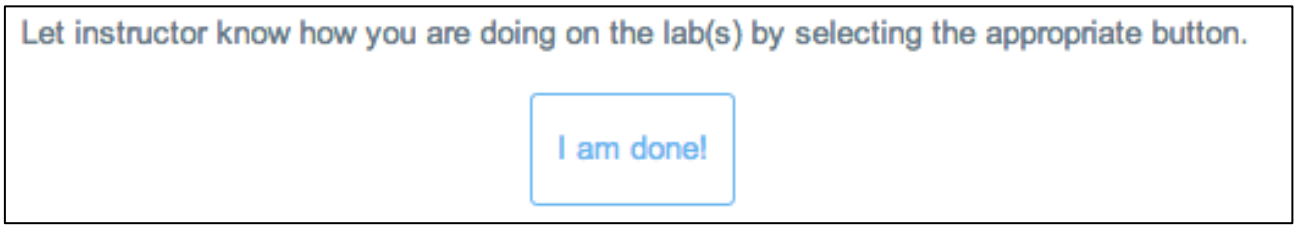
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Progress Report

1. Navigate to **Lab Management> Report Lab Progress**.



2. Click **I am Done!**



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Lab Goal

This lab explains how to pull JSON data from a ServiceNow instance using basic HTTP calls with URL parameters.

In this exercise, you leverage the built in JSONv2 export web services to bring filtered data from the ServiceNow instance.

Lab 9
JSONv2
Web
Service

Download all Weather Camera Records in JSONv2 Format

1. Open a browser window of your choice. Enter the URL to the Weather Cameras table and provide the URL parameter of JSONv2 to download the data in JSONv2 format.



{"records":
[{"__status":"success","status":"Down","location":"db9a923c0a0a0a6501068d6eaec25ee0","sys_updated_by":"admin","sys_tags":"","name":"WC001",
"sys_updated_on":"2015-02-24 15:05:56","sys_id":"f71c41b7cc92310015d71e69cc0fe295","sys_mod_count":"1","sys_created_on":"2015-02-24
14:49:09","resolution":"5","sys_created_by":"admin"},
{"__status":"success","status":"Live","location":"25ab9bbd0a0a0bb300ea1ffc33ad1eb0","sys_updated_by":"admin","sys_tags":"","name":"WC0188",
"sys_updated_on":"2015-03-02 17:09:09","sys_id":"01b52079cc66310015d71e69cc0fe2bd","sys_mod_count":"0","sys_created_on":"2015-03-02
17:09:09","resolution":"5","sys_created_by":"admin"},
{"__status":"success","status":"Down","location":"25aba5470a0a0bb300a256f9618bf906","sys_updated_by":"admin","sys_tags":"","name":"WC0187",
"sys_updated_on":"2015-03-02 17:09:09","sys_id":"cdb52079cc66310015d71e69cc0fe2bc","sys_mod_count":"0","sys_created_on":"2015-03-02
17:09:09","resolution":"1","sys_created_by":"admin"},
{"__status":"success","status":"Down","location":"8225b668ac1d55eb679878e192fca315","sys_updated_by":"admin","sys_tags":"","name":"WC0186",
"sys_updated_on":"2015-03-02 17:09:09","sys_id":"8db52079cc66310015d71e69cc0fe2bc","sys_mod_count":"0","sys_created_on":"2015-03-02
17:09:09","resolution":"1","sys_created_by":"admin"},
{"__status":"success","status":"Maintenance","location":"25ab9bbd0a0a0bb300ea1ffc33ad1eb0","sys_updated_by":"admin","sys_tags":"","name":"W
C0185","sys_updated_on":"2015-03-02 17:09:09","sys_id":"4db52079cc66310015d71e69cc0fe2bc","sys_mod_count":"0","sys_created_on":"2015-03-02
17:09:09","resolution":"10","sys_created_by":"admin"},
{"__status":"success","status":"Maintenance","location":"25aba5470a0a0bb300a256f9618bf906","sys_updated_by":"admin","sys_tags":"","name":"W
C0184","sys_updated_on":"2015-03-02 17:09:09","sys_id":"0db52079cc66310015d71e69cc0fe2bc","sys_mod_count":"0","sys_created_on":"2015-03-02

2. Retrieve just one record use the following URL parameters:
   - **sysparm_action=get**
   - **sysparm_sys_id=*pick a sys_id*** of one of the weather camera records

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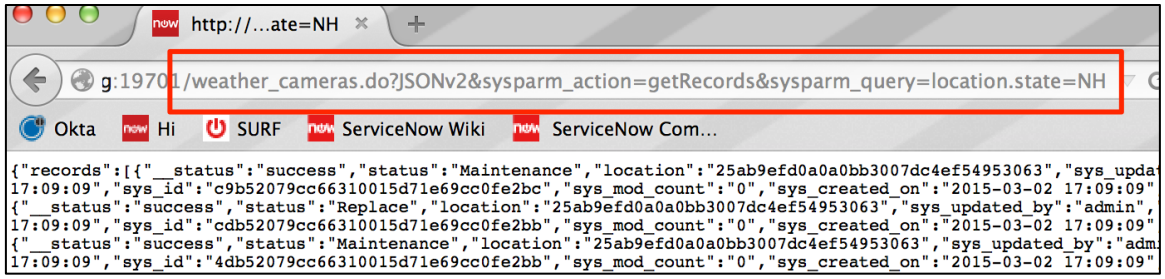
3. Example URL:

   https://instance/weather_cameras.do?JSONv2&sysparm_action=get&sysparm_sys_id=17f33c0bec83d500e5e38d1c4bef1bdb


```
{"records":
[{"__status":"success","status":"Down","location":"db9a923c0a0a0a6501068d6eaec25ee0","sys_updated_by":"admin","sys_tags":"","name":"WC001","sys_updated_on":"2015-02-24 15:05:56","sys_id":"f71c41b7cc92310015d71e69cc0fe295","sys_mod_count":"1","sys_created_on":"2015-02-24 14:49:09","resolution":"5","sys_created_by":"admin"}]}
```


4. Get all the weather cameras in New Hampshire by replacing the parameters with the following URL parameters:

   - sysparm_action=getRecords
   - sysparm_query=location.state=NH



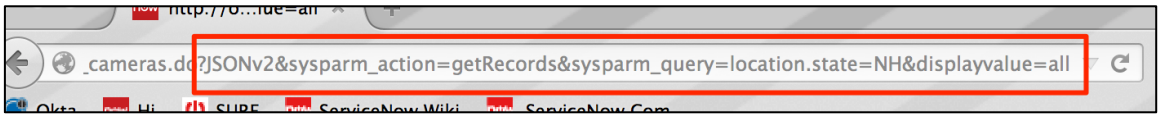
Export All Weather Cameras from New Hampshire in JSONv2 Format with Display Values

1. Notice that the last export used **sys_id** values instead of display names for reference fields such as location. Read the following wiki link to find out how you can have the JSONv2 web service return a display value: http://wiki.servicenow.com/index.php?title=JSONv2_Web_Service

2. What are valid ways to have the JSONv2 Web Service leverage display values? Submit your answer: http://snquiz.com/0001107.

3. Set up the last import you did to show both **display values** and **sys_ids** for reference fields.

4. The URL should look similar to the example.



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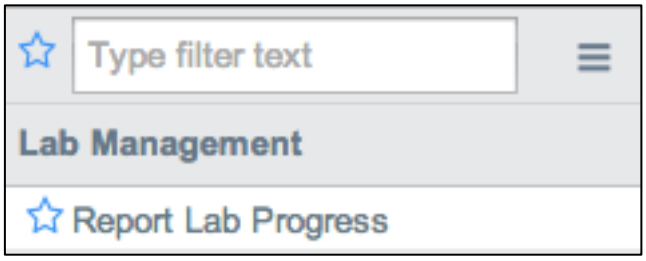
5. Verify that the output contains two values for reference fields such as **Location**.


```
{"records":[{"__status":"success","dv_sys_created_on":"2015-03-02
10:09:09","dv_sys_mod_count":"0","status":"Maintenance","location":"25ab9efd0a0
a0bb3007dc4ef54953063","dv_sys_created_by":"admin","sys_updated_on":"2015-03-02

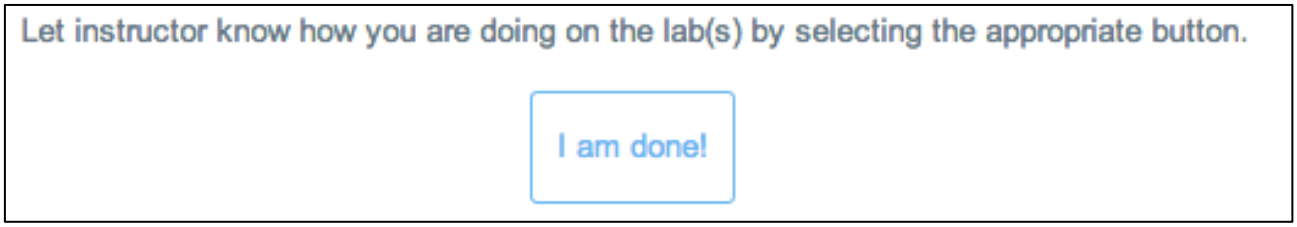
17:09:09","sys_id":"c9b52079cc66310015d71e69cc0fe2bc","dv_sys_tags":"","sys_cre
ated_on":"2015-03-02 17:09:09","resolution":"15","dv_location":"4 Spit Brook
Rd, Nashua
NH","sys_created_by":"admin","dv_resolution":"15","sys_updated_by":"admin","sys
_tags":"","name":"WC0183","dv_status":"Maintenance","sys_mod_count":"0","dv_nam
e":"WC0183","dv_sys_updated_by":"admin","dv_sys_updated_on":"2015-03-02
10:09:09","dv_sys_id":"c9b52079cc66310015d71e69cc0fe2bc"},
{"__status":"success","dv_sys_created_on":"2015-03-02
10:09:09","dv_sys_mod_count":"0","status":"Replace","location":"25ab9efd0a0a0bb
3007dc4ef54953063","dv_sys_created_by":"admin","sys_updated_on":"2015-03-02
17:09:09","sys_id":"cdb52079cc66310015d71e69cc0fe2bb","dv_sys_tags":"","sys_cre
ated_on":"2015-03-02 17:09:09","resolution":"1","dv_location":"4 Spit Brook
```


Progress Report

1. Navigate to **Lab Management> Report Lab Progress**.



2. Click **I am Done!**



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