IBM WebSphere DataPower XC10 Appliance REST API

What this exercise is about

The objective of this lab is to enable you to send requests to the DataPower XC10 REST gateway to see how the REST API functions.

Lab requirements

It is required that you have access to a DataPower XC10 appliance, and have a username and password set up with “Data cache creation” permission or “All” access to an existing simple data grid.

The system on which you will exercise this lab must have a supported web browser. The following are required for this lab:

- DataPower XC10 appliance
  - Username with “Data cache creation” permission or “All” access to an existing simple data grid.
- Firefox V3.0 or other supported web browser.
- “cURL” utility: cURL is a command line tool which provides the ability to transfer data from or to a server using one of many supported protocols. cURL is available on most Linux distributions. A windows version of curl is available from the cURL project homepage (http://curl.haxx.se). Linux utility bundles which include curl are also available for Windows systems. One common bundle is Cygwin (http://www.cygwin.com).

What you should be able to do

At the end of this lab you should be able to:

- Perform calls to the DataPower XC10 REST interface to insert, retrieve, update, and delete data through the XC10 REST gateway.

Introduction

Starting with firmware XC10-1.0.0.4, the IBM WebSphere DataPower XC10 appliance includes a REST gateway which allows you to perform operations on simple data grids using HTTP requests. The REST calls that you make to the REST interface will expect an HTTP response from the REST gateway on the DataPower XC10 appliance. The REST API provides a subset of functionality provided by the Java ObjectGrid API. Since REST calls operate using standard HTTP protocols, they can be used from any programming language.

Exercise instructions

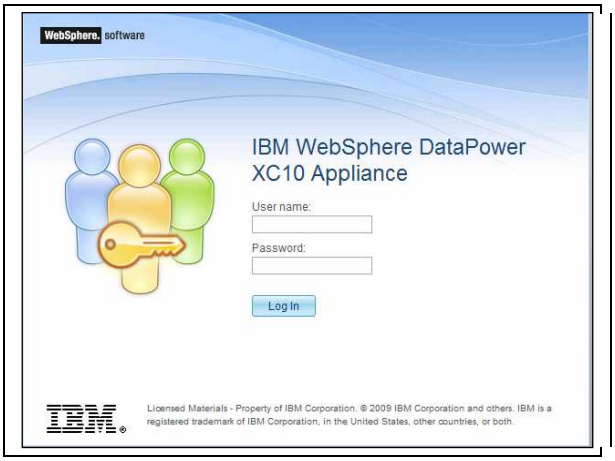
Instructions and subsequent documentation use symbolic references to directories, users, ports which are listed as follows:

Variable	Meaning
<APPLIANCE_IP>	IP address of your DataPower XC10 appliance
<USERNAME>	DataPower XC10 administrator user id
<PASSWORD>	DataPower XC10 administrator user password
<GRID_NAME>	Name of a simple data grid on the appliance
<TEST_KEY>	Key value used to address a piece of data stored in the simple data grid

Part 1: Create a simple data grid

You can create a session cache on the IBM WebSphere DataPower XC10 Appliance from the DataPower XC10 web console. The session data grid can be used for storing HTTP application session information. After creating a session cache, you can grant other users access permission to monitor the session data grid you have just created by adding user or user group credentials to the **Access granted to…** property. By default, this does not limit who can access data in the cache, only who can view it in the XC10 console.

____ 1. Open the DataPower XC10 Appliance web console in a supported browser.



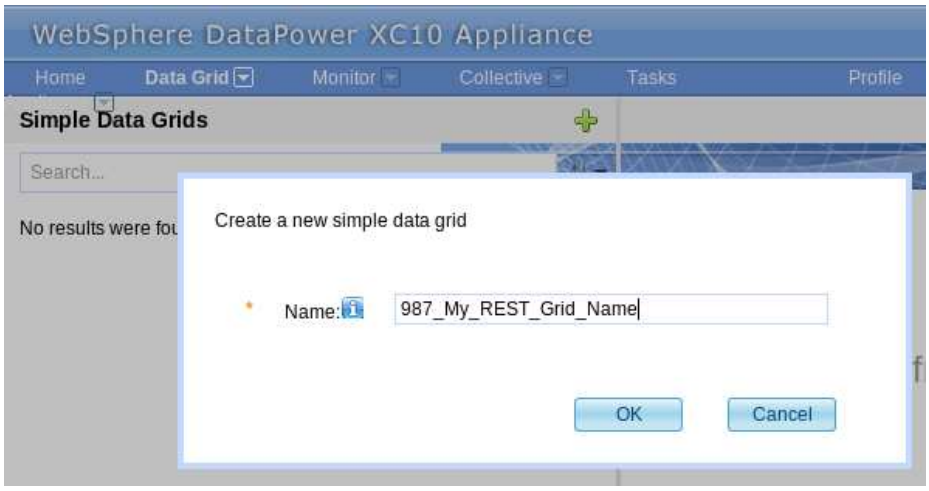
____ 2. Log in to the DataPower XC10 Appliance with your user credentials as provided by IBM.

____ 3. Create a new simple data grid.

__ **a.** Navigate to **Data Grid → Simple Data Grid.**

__ b. Click the  icon to create a new simple data grid.

__ c. Enter a unique name <GRID_NAME> for your simple data cache (Example: my_REST_Grid_Name") in the "Name" entry field.

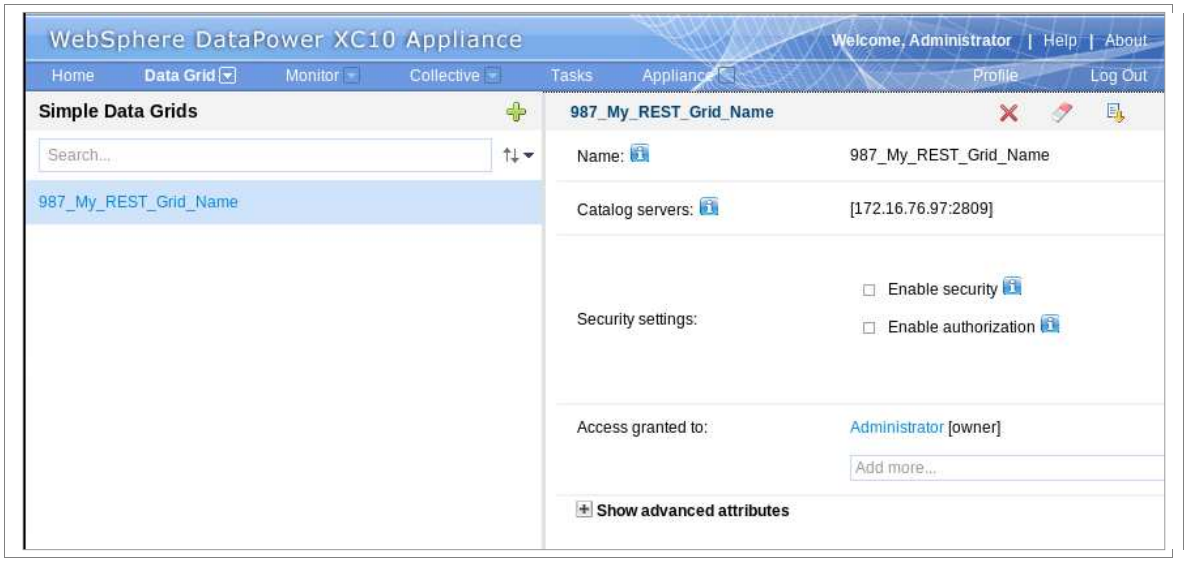


__ d. Press the **OK** button.

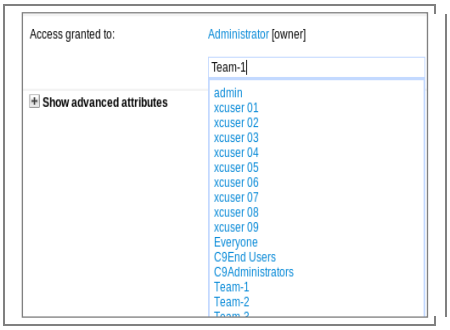
____ 4. Set permissions for your data grid, so other people in your group can monitor the cache.

__ a. Click the name of the session data grid you just created from the list on the left.

__ b. From the data grid properties shown on the right, navigate to the **Access granted to:** section.



__ c. Type the name of your user group into the **Add more…** entry field. When you click this field you should be presented with a list of users and groups you can add to your cache's authorization list.



__ d. Click the name of your user group (that is, Team-1) from the drop down box to add it to the **Access granted to:** list.

__ e. If you click the [read] link, the allowed access will change from "read" to "write". Subsequent clicks will change to "create", then "all ", then back to "read".

Set the "Access granted to" so the access is "**all".**

Part 2: Insert data into the simple data grid

This lab uses the "cURL" utility to send HTTP requests to the XC10 appliance. cURL is a command line tool which provides the ability to transfer data from or to a server using one of many supported protocols. See the cURL documentation (http://curl.haxx.se/docs/) for details on what the command line options mean.

In this example you will see that you can use the REST API to store data in a simple data grid on the DataPower XC10 appliance. This is strictly to show that the DataPower XC10 REST API is accessed using web based calls; *you would not normally use cURL scripting to access your grid data*. Once you become familiar with the REST API it can be used with specialty products such as IBM DataPower XI50 or programs using Microsoft .NET framework to integrate DataPower XC10 functionality into your company's daily operational activities.

____ 5. Open a command shell for your operating system. On Windows systems with Cygwin installed, run the cURL utility from a Cygwin bash shell: Start programs → Cygwin → Cygwin bash shell

____ 6. Execute the command below (on a single line) using your username, password, grid name and test key.

```
curl --user <USERNAME>:<PASSWORD> -k --sslv3 -H 'Content-type: text/html' -X POST
-d '<h2>Sample</h2><p>A <b>formatted</b> string</p>'
http://<APPLIANCE_IP>/resources/datacaches/<GRID_NAME>/<GRID_NAME>/<TEST_KEY>
```

Learn: In this command the <GRID_NAME> occurs twice. The first occurrence is the simple data grid name. The second is the map name within the grid. The *map* is the virtual storage container within the grid. A simple data grid can contain multiple independent maps, but will always contain one with the same name as the simple data grid. You can use different map names to specify an eviction policy for the data in the grid. See the WebSphere DataPower XC10 V2 information center for details on setting eviction policies:

http://publib.boulder.ibm.com/infocenter/wdpxc/v1r0/topic/com.ibm.websphere.datapower.xc.doc/rdevrestdynmap.html

http://publib.boulder.ibm.com/infocenter/wdpxc/v1r0/topic/com.ibm.websphere.datapower.xc.doc/rdevrestttl.html

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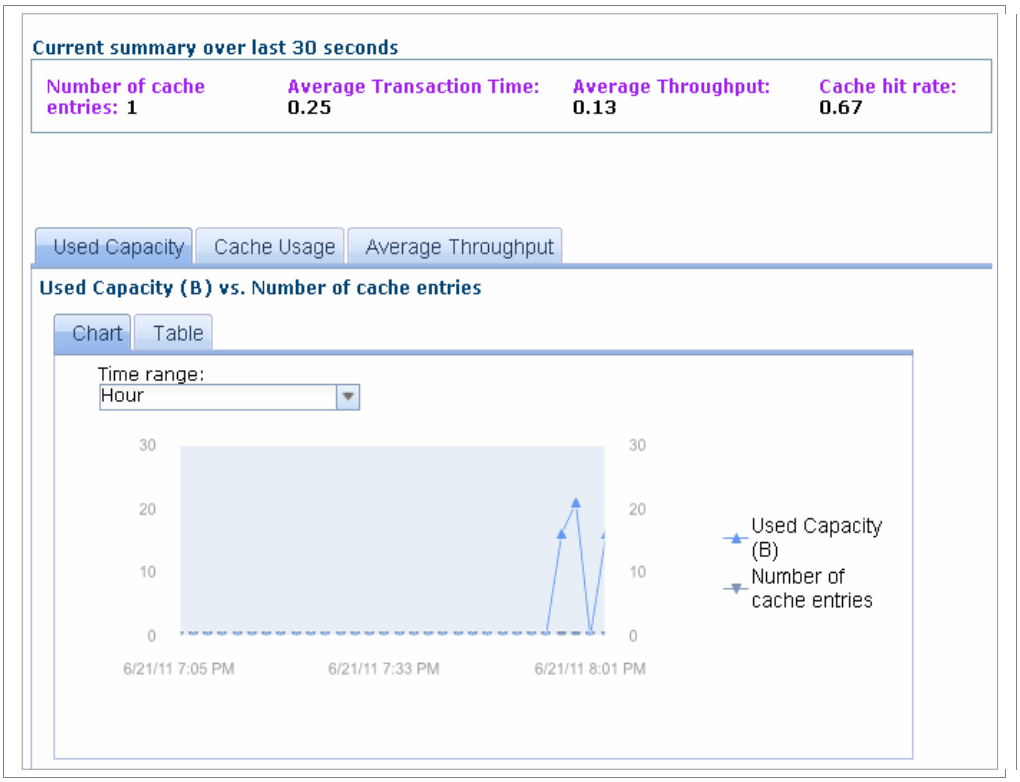
____ 7. The returned value will be

```
<html>200</html>
```

____ 8. You can also use the XC10 web console monitoring menu to see that a cache entry has been added to the grid as shown below:



Part 3: Retrieve data from the simple data grid

In this example you will retrieve the data you inserted into the simple data grid, using the REST API and a web browser.

____ 9. In your command shell window, issue the command below using your username, password, grid name, and test key.

```
curl --user <USERNAME>:<PASSWORD> -k --sslv3 -X GET
http://<APPLIANCE_IP>/resources/datacaches/<GRID_NAME>/<GRID_NAME>/<TEST_KEY>
```

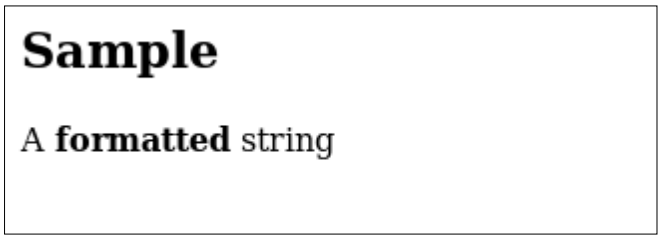
____ 10. The returned value will match the value you entered before:

```
<h2>Sample</h2><p>A <b>formatted</b> string</p>
```

____ 11. Open a supported browser and enter the address below:

```
http://<USERNAME>:<PASSWORD>@<APPLIANCE_IP>/resources/datacaches/<GRID_NAME>/
<GRID_NAME>/<TEST_KEY>
```

____ 12. The result should appear similar to



Part 4: Modify data in the simple data grid

In this example you will change the data you stored in the simple data grid under the key you used previously using the REST API, and then verify the change using a web browser.

____ 13. In your command shell window, issue the command below using your username, password, grid name, and test key.

```
curl --user <USERNAME>:<PASSWORD> -k --sslv3 -H 'Content-type: text/html' -X POST
-d '<h2>Sample</h2> <p>A <font color="red">formatted</font> string</p>'
http://<APPLIANCE_IP>/resources/datacaches/<GRID_NAME>/<GRID_NAME>/<TEST_KEY>
```

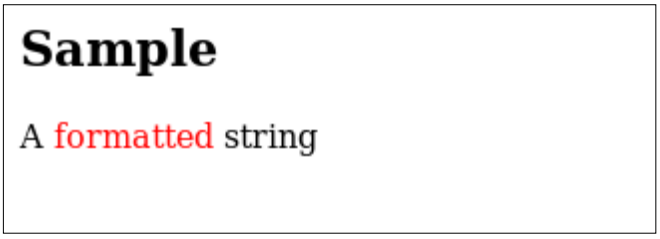
____ 14. The returned value will be

```
<html>200</html>
```

____ 15. Open a supported browser and enter the address below:

```
http://<USERNAME>:<PASSWORD>@<APPLIANCE_IP>/resources/datacaches/<GRID_NAME>/
<GRID_NAME>/<TEST_KEY>
```

____ 16. The result should appear similar to



Part 5: Delete data from the simple data grid

In this example you will use the REST API remove the data you just stored on the appliance.

Note: Use the DELETE command with caution. If you omit the key string, **this will remove all data** from the specified map.

____ 17. In your command shell window, issue the command below using your username, password, grid name, and test key.

```
curl --user <USERNAME>:<PASSWORD> -k --sslv3 -X DELETE
http://<APPLIANCE_IP>/resources/datacaches/<GRID_NAME>/<GRID_NAME>/<TEST_KEY>
```

____ 18. The result should appear similar to

```
<html>200</html>
```

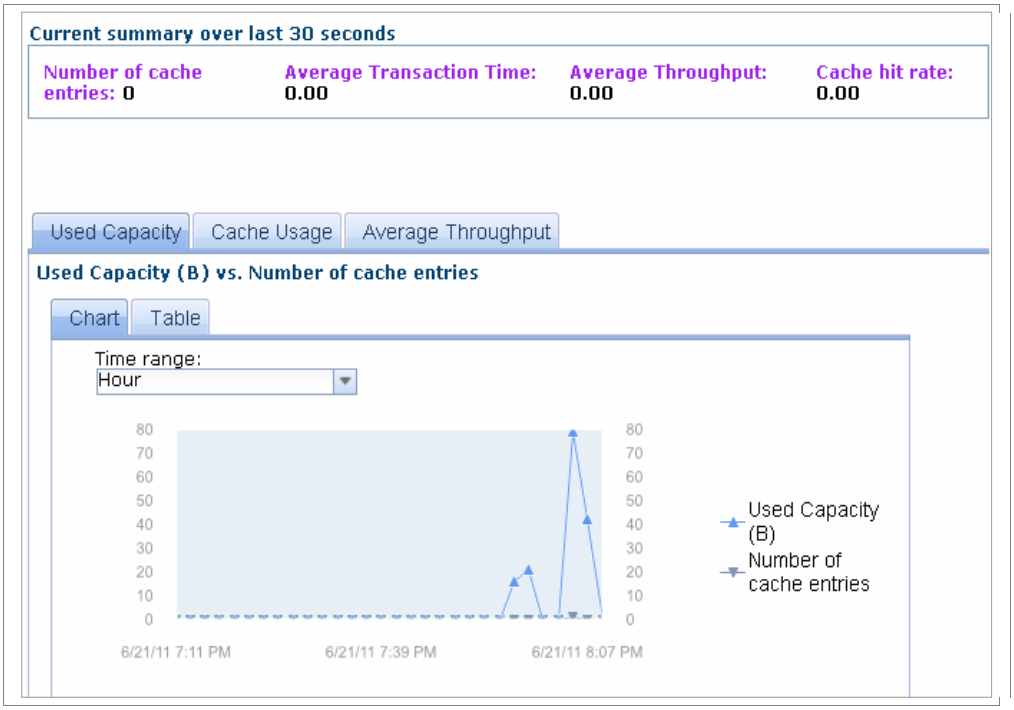
____ 19. Verify the data was removed by executing the command below using your username, password, grid name, and test key.

```
curl --user <USERNAME>:<PASSWORD> -k --sslv3 -X GET
http://<APPLIANCE_IP>/resources/datacaches/<GRID_NAME>/<GRID_NAME>/<TEST_KEY>
```

____ 20. The result should indicate the specified key was not found:

```
<html>404</html>
```

____ 21. Looking at cache entries in the XC10 web console monitoring menu of that grid should show zero fields:



What you did in this exercise

You explored some uses of the DataPower XC10 REST API. The REST API can be used to perform basic data storage and retrieval to a simple data grid. It can also be used in more complex scenarios to integrate DataPower XC10 with enterprise applications and other software products such as IBM DataPower XI50.

For more information about the REST API for the WebSphere DataPower XC10 V2, review this information topic in the information center:

http://publib.boulder.ibm.com/infocenter/wdpxc/v1r0/topic/com.ibm.websphere.datapower.xc.doc/tdevrest.html

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