Denodo OData Custom Wrapper - User Manual

Revision 20140122

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1 INTRODUCTION

OData is a protocol to access data created by Microsoft. It provides CRUD operations and is similar to JDBC or ODBC but not limited to databases.

OData uses protocols ATOM and JSON and the request uses REST model. For this reason, OData is an implementation of the Restful API that describes the data and their model.

2 ODATA SERVICES

There are several ways to access to an OData service from Virtual DataPort:

2.1 DENODO ODATA CUSTOM WRAPPER

You can use the OData custom wrapper to access to the OData service.

2.1.1 Import the Custom Wrapper

To import the custom wrapper, follow these steps:

1. In the VDP Administration Tool, go to: `File → Extensions → Jar management`
2. Click on "Create" button and select the "`denodo-odata-wrapper-jar-with-dependencies.jar`" file downloaded from Denodo SupportSite.

2.1.2 Create the OData data source

To create a new OData custom data source:

1. In the VDP Administration Tool, go to: `File → New… → Data source → Custom`
2. In the "Create a New Custom Data Source" window, do the following:
   - Set a name for the new OData data source in the "Name" field.
   - Click on "Select Jars" and select the file imported in the previous section.
   - The "Class name" field must be filled with: `com.denodo.connect.odata.wrapper.ODataWrapper`
3. Click on "Ok" button.

2.1.3 Create the base view

To create a new base view using the OData data source:

1. Double-click on the OData data source and then click on "Create base view".
2. Set the parameters as follows:

- **Service Endpoint** (*mandatory*): is the URL to the OData service. Must be something like: `http://services.odata.org/OData/OData.svc/`

- **Entity Collection** (*mandatory*): must be one of the collections defined into the OData service.

- **Service Format** (*mandatory*): is the format used by the OData custom wrapper to access to the OData service. Must be one of these:
    i. JSON
    ii. XML-Atom

- **Service Version**: if specified, the custom wrapper try to force the compatibility of the OData service with one of these versions:
    i. V1
    ii. V2

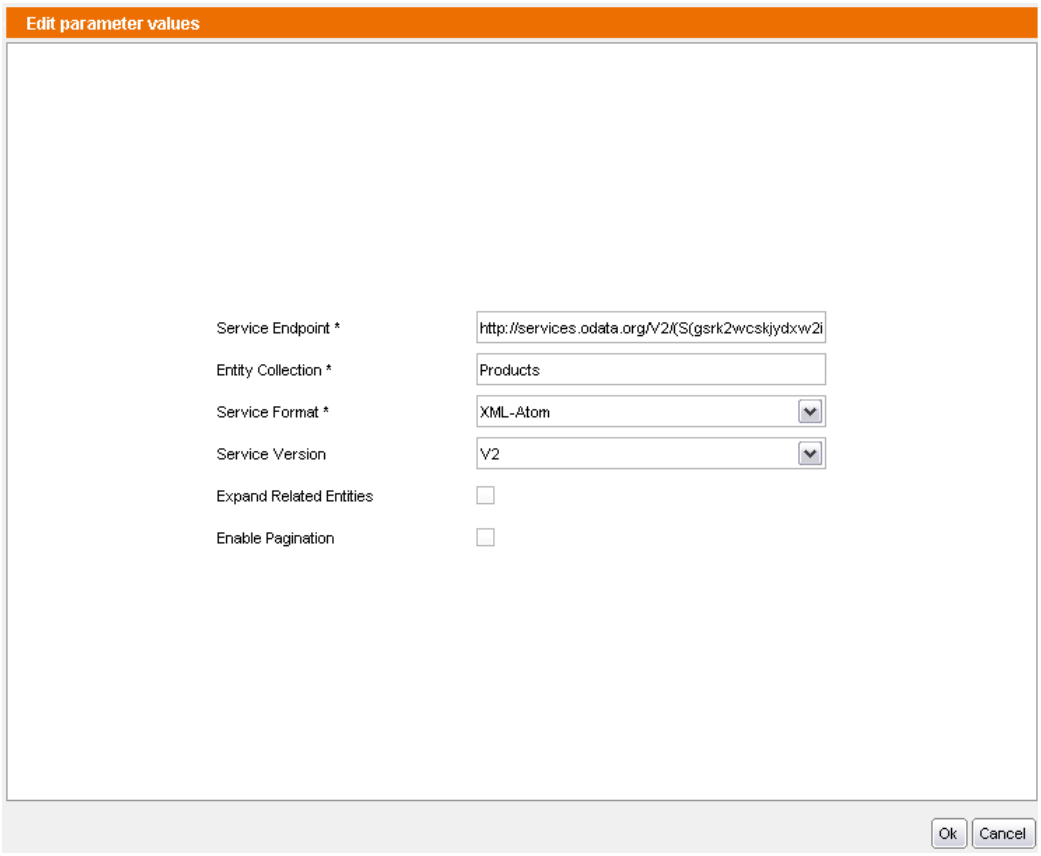
- **Expand Related Entities**: if checked, the references to other entities appear directly in the main entity as arrays or registers.

- **Enable Pagination**: if checked, two parameters are added to the view to permit the pagination of the results:
    i. fetch_size
    ii. offset_size

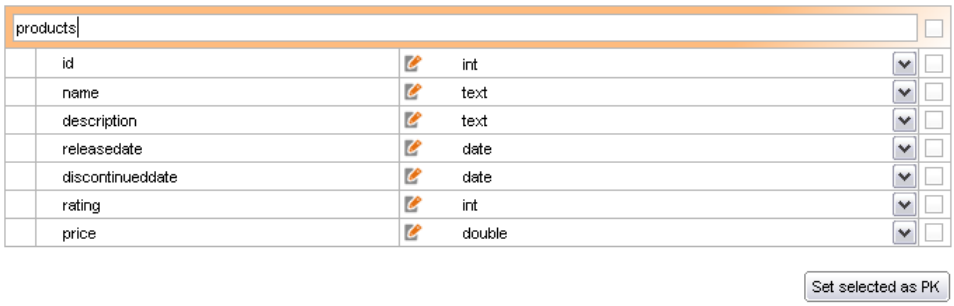
2.1.4 Example

1. Create a base view over this test service:
    - Service Endpoint = http://services.odata.org/V2/(S(gsrk2wcskjydxw2iixw3kvdr))/OData/OData.svc/
    - Entity = Products
    - Service Format = XML-Atom
    - Expand Related Entities = false

- Enable Pagination = false



2. The schema of the base view is shown and you can rename it.



3. After clicking on "Ok", you can execute queries (SELECT, INSERT, UPDATE or DELETE), for example:

- `SELECT * FROM products WHERE id = 6;`
- `INSERT INTO products (id,name,description,releasedate,rating,price) VALUES (9,'HDTV','32 inch 720p television',NOW(), 2, 600);`
- `UPDATE products SET price = 800 WHERE id = 9;`

- `DELETE FROM products WHERE ID = 9;`

2.1.5 Known Limitations

This custom data source currently only works with OData versions 1.0 or 2.0.

OData version 3.0 is partially supported interpreting it as a lower version, but this method may not work. More information:
http://code.google.com/p/odata4j/wiki/Roadmap

You can't filter elements specified obtained through "expand" related entities. VDP must post-filter these items using ROW syntax in the query.

2.2 OTHER WAYS TO CONSUME ODATA SOURCES

2.2.1 Using ATOM/XML

Is possible to access to OData server through an URL. For example, the following URL returns all the entities of the OData server:
http://services.odata.org/OData/OData.svc/

Using this URL you can access to all entities of one type:
http://services.odata.org/OData/OData.svc/Products

And you can access to one entity using the identifier:
http://services.odata.org/OData/OData.svc/Products(0)

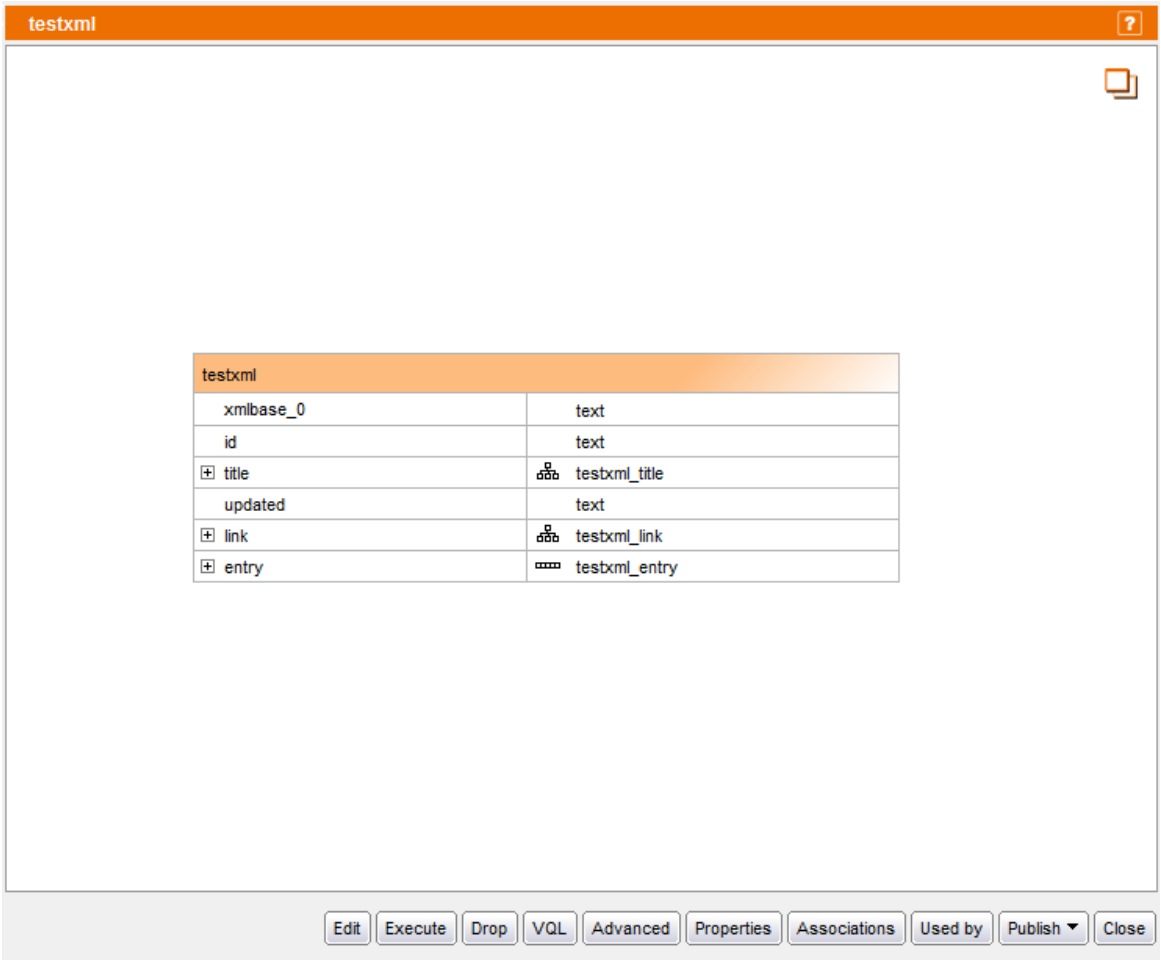
2.2.1.1 Importing ATOM/XML into VDP

1. In the VDP Administration Tool, go to: `File → New… → Data source → XML`

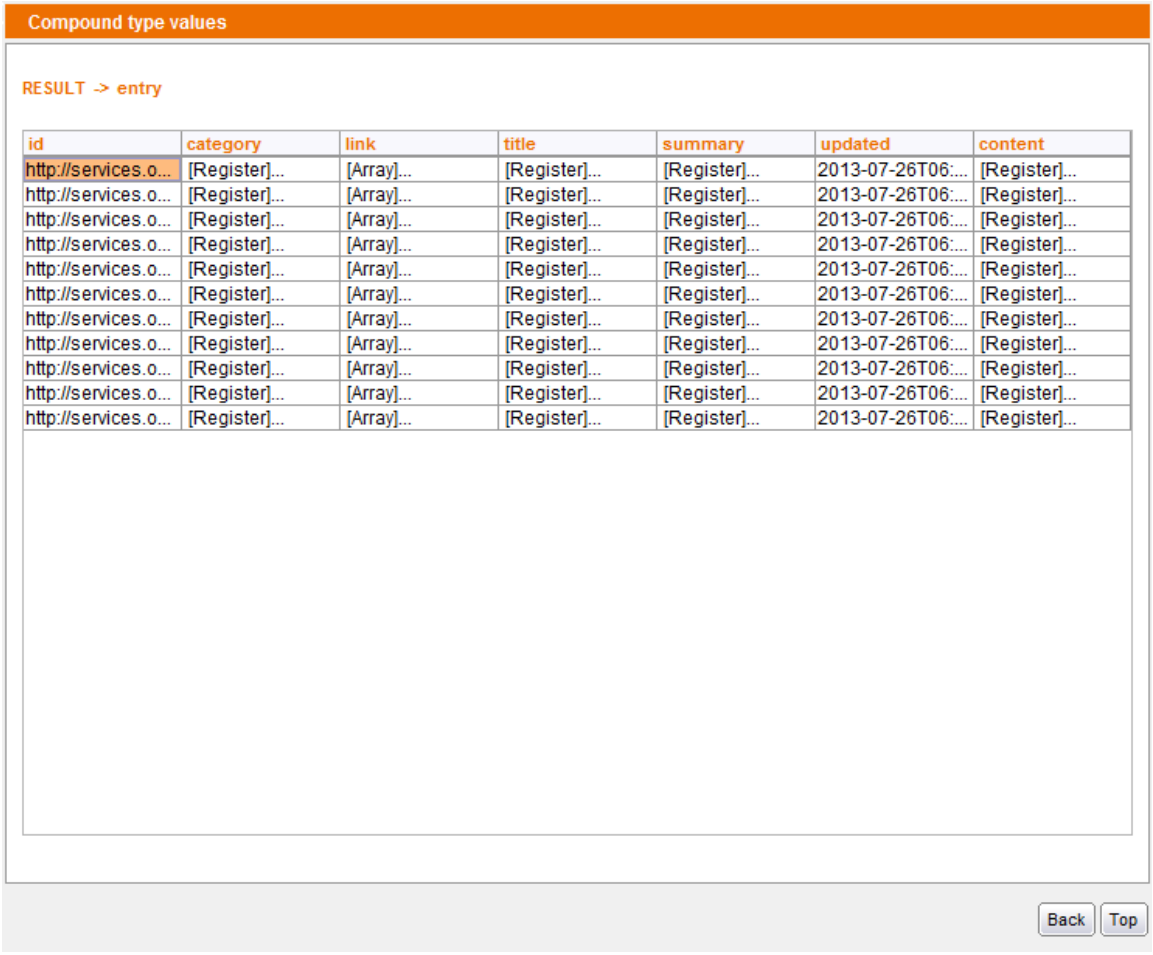
2. Set the parameters as follows:
   1. **Name**: the name of the new XML data source.
   2. **Data route**: “HTTP Client” configured as:
      1. HTTP method: GET
      2. URL: URL to the entities. For example: http://services.odata.org/OData/OData.svc/Products

3. Create a new base view:
   1. We can only recover data selecting “entry” in the section “Stream output at specified level”.

4. When clicking “Ok” we have a similar base view to the next one:


testxml
testxml
xmlbase_0
text
id
text
title
testxml_title
updated
text
link
testxml_link
entry
testxml_entry
Edit
Execute
Drop
VQL
Advanced
Properties
Associations
Used by
Publish
Close

5. If we execute the view, the results are located into the field “entry”:



2.2.2 Using JSON

To access OData using JSON only is necessary to add the following parameter to the URL:

?$format=JSON

It’s also possible to access OData using JSON adding the following parameters to the HTTP header when doing a GET:

```
Accept: application/json
```

The following is an example of using the URL to access to OData thought JSON:

http://services.odata.org/OData/OData.svc/Products?$format=json

2.2.2.1 Importing JSON into VDP

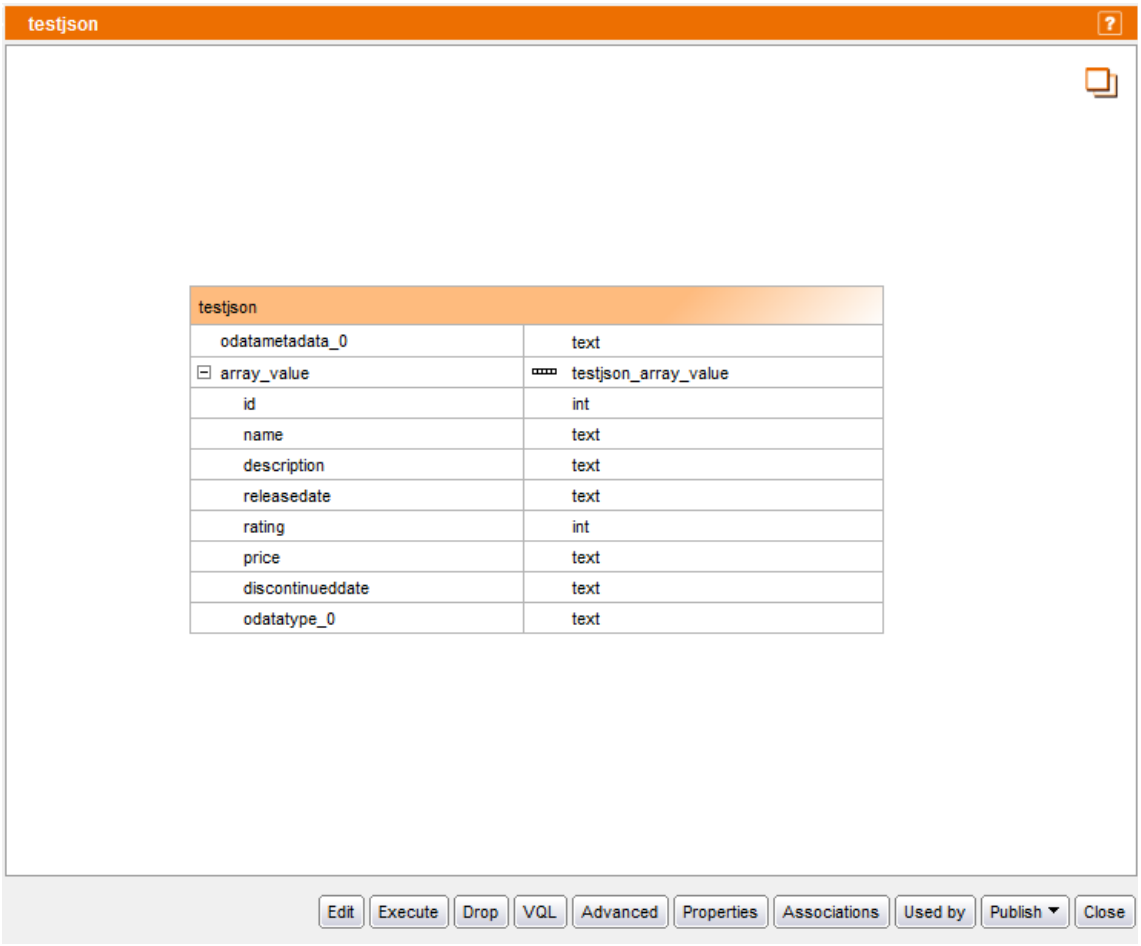
The steps to access to OData using JSON are:

1. In the VDP Administration Tool, go to: `File → New… → Data source → JSON`

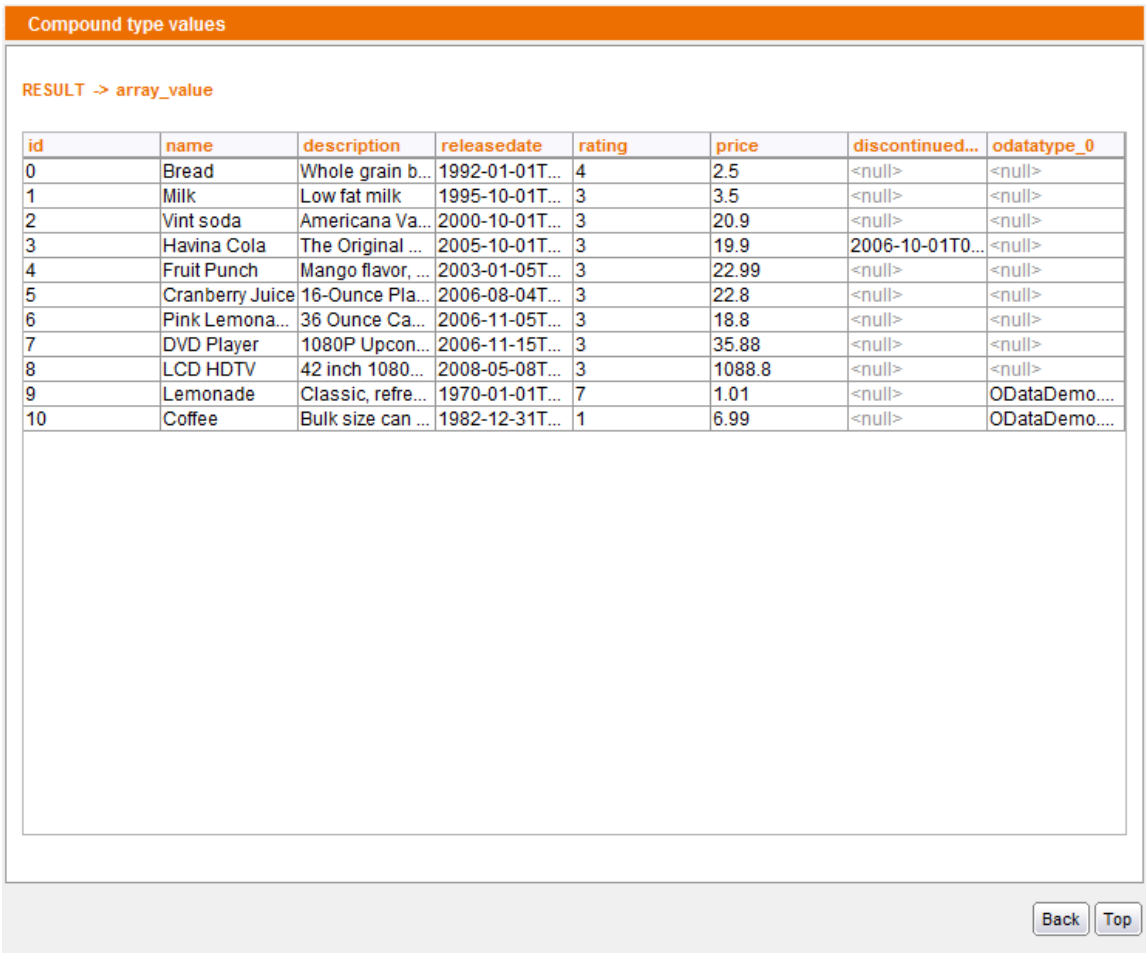
2. Set the parameters as follows:
   1. **Name**: the name of the new data source.
   2. **Data route**: “HTTP Client” configured as:
      1. HTTP method: GET
      2. URL: URL to the entities in JSON format. For example: http://services.odata.org/OData/OData.svc/Products?$format=json

3. Create a base view from the new datasource:
   1. We can get only the data setting the JSON root as: `/JSONFile/value`

4. When clicking “Ok” we have a similar base view to the next one:



5. Data are located in the field "array_value":



6. Data can be directly accessed if you specified the root "`/JSONFile/value`":

Execute view testjsonroot

Total rows received: 11 (shown 11)

odatametad...	id	name	description	releasedate	rating	price	discontinue...	odatatype_0
http://service...	0	Bread	Whole grain ...	1992-01-01...	4	2.5	<null>	<null>
http://service...	1	Milk	Low fat milk	1995-10-01...	3	3.5	<null>	<null>
http://service...	2	Vint soda	Americana V...	2000-10-01...	3	20.9	<null>	<null>
http://service...	3	Havina Cola	The Original ...	2005-10-01...	3	19.9	2006-10-01...	<null>
http://service...	4	Fruit Punch	Mango flavor...	2003-01-05...	3	22.99	<null>	<null>
http://service...	5	Cranberry Ju...	16-Ounce Pl...	2006-08-04...	3	22.8	<null>	<null>
http://service...	6	Pink Lemon...	36 Ounce C...	2006-11-05...	3	18.8	<null>	<null>
http://service...	7	DVD Player	1080P Upco...	2006-11-15...	3	35.88	<null>	<null>
http://service...	8	LCD HDTV	42 inch 108...	2008-05-08...	3	1088.8	<null>	<null>
http://service...	9	Lemonade	Classic, refr...	1970-01-01...	7	1.01	<null>	<null>
http://service...	10	Coffee	Bulk size ca...	1982-12-31...	1	6.99	<null>	<null>

Stop | View execution trace | New query | Save Output | Close

3 REFERENCES

Odata official page

1. Documentation:
    1. http://www.odata.org/docs/
2. Libraries:
    1. http://www.odata.org/libraries/

Wikipedia article:

1. http://en.wikipedia.org/wiki/Open_Data_Protocol

OData references into the Microsoft webpage:

1. Create and Consume JSON-Formatted OData:
    1. http://msdn.microsoft.com/es-es/magazine/jj190799.aspx
2. Building Rich Internet Apps with the Open Data Protocol:
    1. http://msdn.microsoft.com/es-es/magazine/ff714561.aspx
3. OData Operations:
    1. http://www.odata.org/documentation/odata-v2-documentation/operations/
4. Examples:
    1. http://msdn.microsoft.com/en-us/library/ff478141.aspx

Web pages with OData examples:

1. Example read-only service in the official web site:
    1. http://services.odata.org/OData/OData.svc/
    2. http://services.odata.org/OData/OData.svc/$metadata
    3. http://services.odata.org/OData/OData.svc/Products
    4. http://services.odata.org/OData/OData.svc/Products(0)
    5. http://services.odata.org/OData/OData.svc/Products?$format=json
    6. http://services.odata.org/OData/OData.svc/Products(0)?$format=json

2. Example read-write service in the official web site:
    1. http://services.odata.org/V2/(S(gsrk2wcskjydxw2iixw3kvdr))/OData/OData.svc/
    2. http://services.odata.org/V2/(S(gsrk2wcskjydxw2iixw3kvdr))/OData/OData.svc/Categories
    3. http://services.odata.org/V2/(S(gsrk2wcskjydxw2iixw3kvdr))/OData/OData.svc/Products
    4. http://services.odata.org/V2/(S(gsrk2wcskjydxw2iixw3kvdr))/OData/OData.svc/Suppliers