

Denodo OData Custom Wrapper - User Manual

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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 requests use a 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

The Denodo OData Custom Wrapper allows you to access OData services even if they require authentication (HTTP BASIC or NTLM supported) or behind a proxy server (which might also be authenticated).

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
- Click on "Create" button and select the "denodo-odata-wrapper-5.0-{version}-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 \rightarrow New... \rightarrow Data source \rightarrow Custom
- 2. In the "Create a New Custom Data Source" window, do the following:
 - O Set a name for the new OData data source in the "Name" field.
 - O 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
 OData service.
 - O **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
 - O **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
 - Use NTLM Authentication: if checked, the fields "User" and "Password" will use NTLM Authentication instead of HTTP Basic Authentication. A NTLM domain could be used using the field "NTLM Domain".
 - O **User**: OData service user for HTTP Basic Authentication or NTLM Authentication, this is an optional parameter.
 - O **Password**: OData service password for HTTP Basic Authentication or NTLM Authentication, this is an optional parameter.
 - Proxy Host: host to connect to the client through a proxy, this is an optional parameter.



- O **Proxy Port:** port to connect to the client through a proxy, this is an optional parameter.
- O **Proxy User**: user for the authentication proxy, this is an optional parameter.
- Proxy Password: password for the authentication proxy, this is an optional parameter.
- NTLM Domain: OData service domain for NTLM Authentication, this is an optional parameter.

2.1.4 Example

- 1. Create a base view over this test service:
 - a)
- Service Endpoint =
 http://services.odata.org/V2/

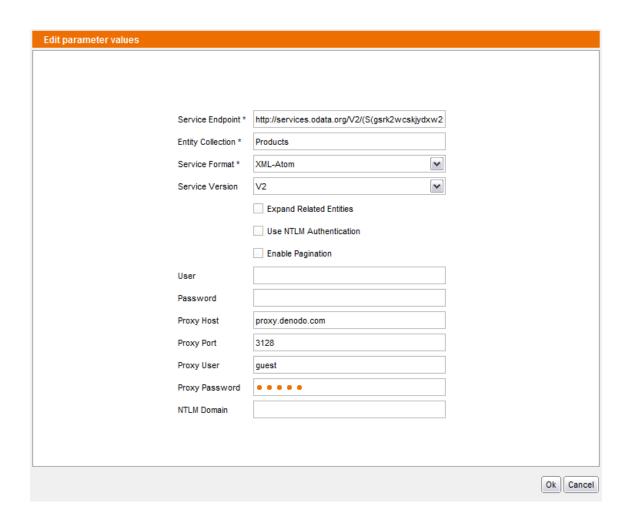
(S(gsrk2wcskjydxw2iixw3kvdr))/OData/OData.svc/

- Entity = Products
- Service Format = XML-Atom
- Expand Related Entities = false
- Enable Pagination = false
- b) This is the same option but accessing with a proxy
 - Service Endpoint = http://services.odat

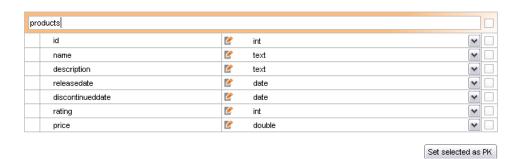
http://services.odata.org/V2/ (S(gsrk2wcskjydxw2iixw3kvdr))/OData/OData.svc/

- Entity = Products
- Service Format = XML-Atom
- Expand Related Entities = false
- Use NTLM Authentication = false
- Enable Pagination = false
- Enable Pagination = false
- O Proxy Host=proxy.denodo.com
- Proxy Port=3128
- Proxy User=guest
- O Proxy Password=******





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:
 - o SELECT * FROM products WHERE id = 6;
 - o 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/odata4i/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)

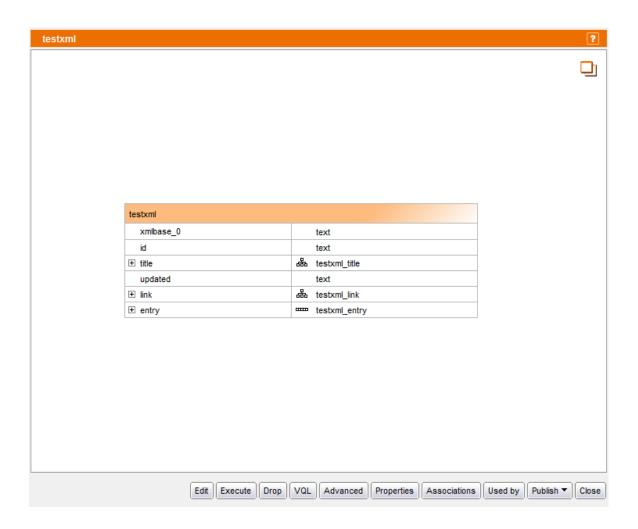
2.2.1.1 Importing ATOM/XML into VDP

- 1. In the VDP Administration Tool, go to: File \rightarrow New... \rightarrow Data source \rightarrow XML
- 2. Set the parameters as follows:
 - a. Name: the name of the new XML data source.
 - b. Data route: "HTTP Client" configured as:
 - i. HTTP method: GET
 - ii. URL: URL to the entities. For example:



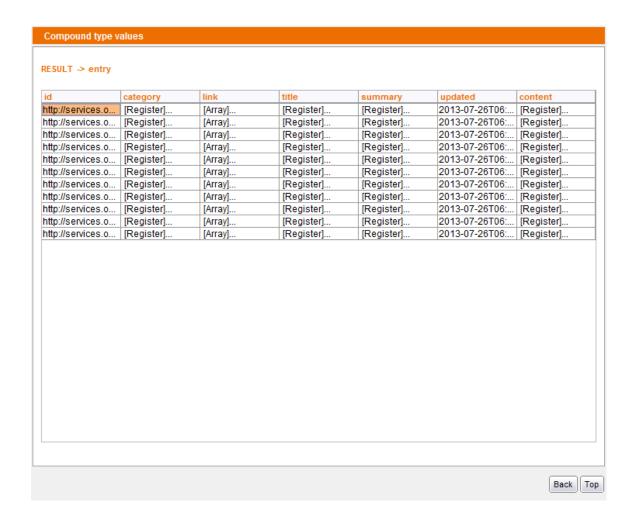
http://services.odata.org/OData/OData.svc/Products

- 3. Create a new base view:
 - a. 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:





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



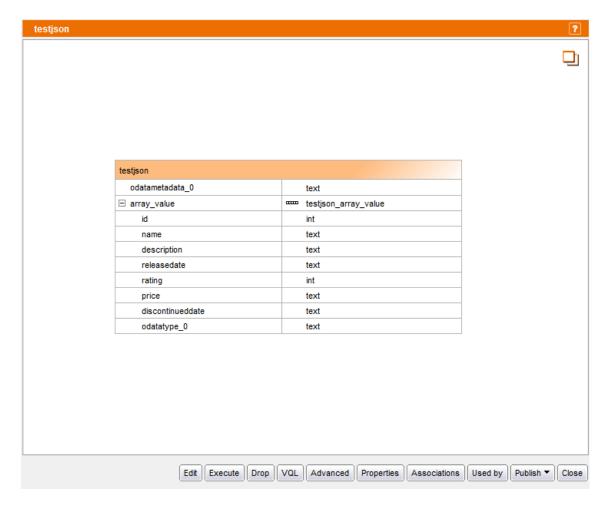
The following is an example of using the URL to access to OData thought JSON: http://services.odata.org/OData/OData.svc/Products?\$format=json

2.2.2.1 Importing JSON into VDP

The steps to access to OData using JSON are:

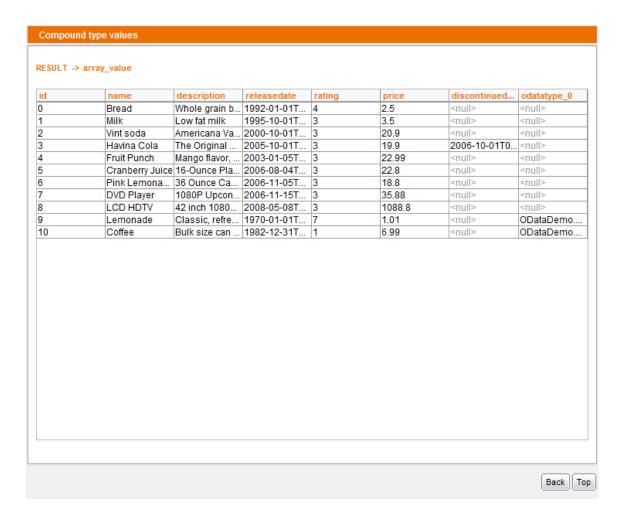
- 1. In the VDP Administration Tool, go to: File → New... → Data source → JSON
- 2. Set the parameters as follows:
 - Name: the name of the new data source.
 - o Data route: "HTTP Client" configured as:
 - HTTP method: GET
 - URL: URL to the entities in JSON format. For example: http://services.odata.org/OData/OData.svc/Products?\$format=json
- 3. Create a base view from the new datasource:
 - 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":



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



3 REFERENCES

Odata official page

- Documentation:
 - http://www.odata.org/docs/
- Libraries:
 - http://www.odata.org/libraries/

Wikipedia article:

• http://en.wikipedia.org/wiki/Open Data Protocol

OData references into the Microsoft webpage:

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

Web pages with OData examples:

- Example read-only service in the official web site:
 - http://services.odata.org/OData/OData.svc/
 - http://services.odata.org/OData/OData.svc/\$metadata
 - http://services.odata.org/OData/OData.svc/Products
 - http://services.odata.org/OData/OData.svc/Products(0)
 - http://services.odata.org/OData/OData.svc/Products?\$format=json
 - http://services.odata.org/OData/OData.svc/Products(0)?\$format=json
- Example read-write service in the official web site:
 - http://services.odata.org/V2/(S(gsrk2wcskjydxw2iixw3kvdr))/OData/OData.svc/
 - http://services.odata.org/V2/
 (S(gsrk2wcskjydxw2iixw3kvdr))/OData/OData.svc/Categories
 - http://services.odata.org/V2/ (S(gsrk2wcskjydxw2iixw3kvdr))/OData/OData.svc/Products
 - http://services.odata.org/V2/
 (S(gsrk2wcskjydxw2iixw3kvdr))/OData/OData.svc/Suppliers
- Example OData installing the module odata-server of JayData server



• You can install locally this module to test the Basic Authentication, the intructions in this url: https://www.npmjs.org/package/odata-server