

02.Aug.2022

OData Concept using CAI

Chandrasekar.K

Principal Consultant chak@informatica.com

Agenda

- OData Overview
- OData Flow & Endpoint
- CAI Asset Details
- Publication
- Extract Data & System Variables
- Create CAI Process Rest Service using OData
- Demo
- Q&A

OData Overview

OData Introduction:

In computing, Open Data Protocol is an open protocol that allows the creation and consumption of queryable and interoperable REST APIs in a simple and standard way.

OData Provider

OData is a REST-based and standardized protocol that provides access to data over the Web. You can use the OData protocol to access data services from the Cloud, including internal data sources like those available with a JDBC connection.

OASIS has standardized on [OData V4](#). Informatica recommends that you use OData V4, as it is the default version.

Your organization can expose OData feeds on an endpoint such as:

`https://[host].rt.informaticacloud.com/active-bpel/odata/[version]/[connection name]/[data source name]`

OData Overview

For example, these two endpoints expose the *sampleparts* table:

OData Version 2

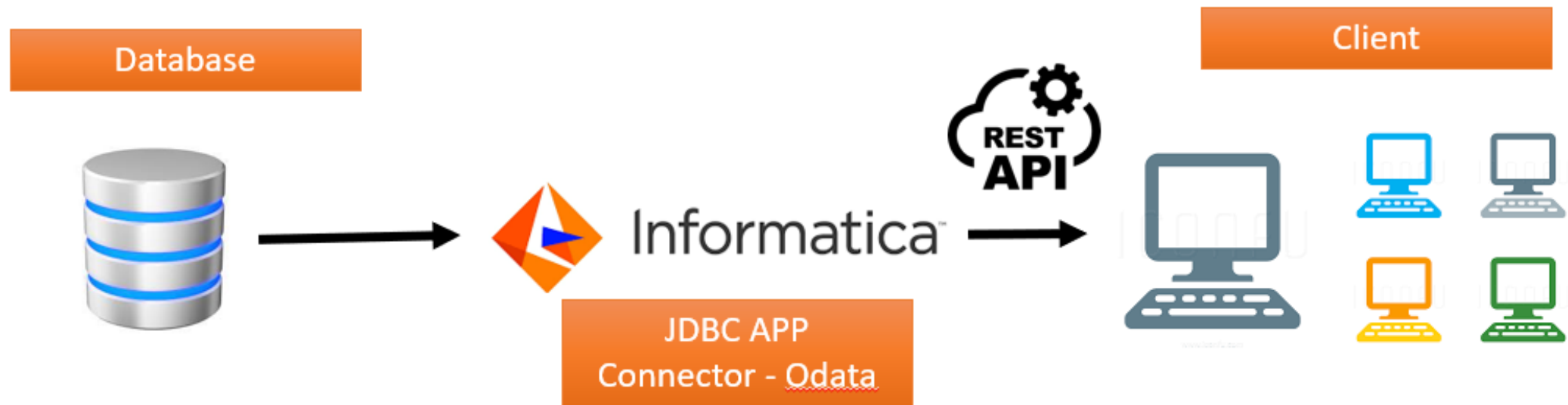
: [https://\[host\].rt.informaticacloud.com/active-bpel/odata/v2/Parts/sampleparts](https://[host].rt.informaticacloud.com/active-bpel/odata/v2/Parts/sampleparts)

~or~

OData Version 4

: [https://\[host\].rt.informaticacloud.com/active-bpel/odata/v4/Parts/sampleparts](https://[host].rt.informaticacloud.com/active-bpel/odata/v4/Parts/sampleparts) Data is available in Atom XML format or JSON, including support for the XML content-type.

Data Flow



OData Endpoints

If you publish an OData enabled connection to a Secure Agent, the OData URL on the Connection

page is an Informatica Cloud URL.

You do not see a Secure Agent URL. To construct the Secure Agent URL, replace all text `odata/v4/Oracle`

in the Informatica Cloud URL with

`https://<host>:<port>/process-engine/`

For example, if the Informatica Cloud URL is

`https://ps1w2.rt.informaticacloud.com/active-bpel/odata/v4/Oracle`

, the Secure Agent URL is

`https://localhost:7443/process-engine/odata/v4/Oracle`

OData Provider

Login into CAI :
Choose the Application Integration Service.

The image shows two overlapping screenshots of the Informatica Intelligent Cloud Services (ICM) interface. The left screenshot displays the 'My Services' grid, which contains several service tiles: API Manager, API Portal, Application Integration (highlighted in yellow), Application Integration Console, Data Integration, Administrator, Monitor, and Operational Insights. The right screenshot shows the 'New Asset' dialog box, which prompts the user to select an asset type. The 'App Connection' option is highlighted in yellow, and its description reads: 'Define actions that you can perform using a pre-defined connector or a service connector'.

OData Sample Connection

CAI JDBC OData Connection Overview :

AppConnection1 Invalid

Properties Metadata

Connection Details

Name:* AppConnection1

Location: CAI_DEMO

Description:

Type:* JDBC Generic Cloud Adapter

Run On: v01qisa01

Connection Test: Not Supported

OData-Enabled: No Yes

OData Cloud Access Enabled: No Yes

Allowed Users for OData:

Allowed Groups for OData:

Connection Properties

Name	Value	Description
------	-------	-------------

Allowed Users for OData:

Allowed Groups for OData:

Connection Properties

Name	Value	Description
JDBC Connection URL:*	<input type="text"/>	This property is required.
JDBC Jar Directory:	<input type="text"/>	
JDBC Driver Class Name:	<input type="text"/>	
Schema:	<input type="text"/>	
Username:*	chandrak	
Password:*	*****	
Object Filter:	<input type="text"/>	Comma se

OData Sample Connection

CAI JDBC OData Connection Overview :

Sample Connector :

Provide the necessary information like name of the connector, Run on, type of connector, jdbc connection string ,schema name, object filter & username & password.

Connection Properties		
Name	Value	Description
JDBC Connection URL:*	<input type="text" value="jdbc:sqlserver://prod-los;DatabaseName=Consumer"/>	
JDBC Jar Directory:	<input type="text" value="C:\Program Files\Informatica Cloud Secure Agent\apps\process-engine\ext"/>	
JDBC Driver Class Name:	<input type="text"/>	
Schema:	<input type="text" value="dbo"/>	
Username:*	<input type="text" value="informatica"/>	
Password:*	<input type="password" value="....."/>	
Object Filter:	<input type="text" value="vw_cms_provenir"/>	Comma separated
TimeZone:	<input type="text" value="Default"/>	Database timezone
Read Attributes		
Isolation Level:	<input type="text" value="TRANSACTION READ UNCOMMITTED"/>	Specifies the isolat
Override Isolation Level:	<input type="radio"/> Yes <input checked="" type="radio"/> No	Specifies if the tas
Write Attributes		
<input type="text"/>		

Save & Publish

End Point URL :

<https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer>

Swagger File URL :

[https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/\\$metadata?swagger](https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/$metadata?swagger)

Properties Detail for AP-SQL-Odata-Consumer

Basic

Unique Name: AP-SQL-Odata-Consumer

Location: CAI_DEMO

Publication Status: Published

Published On: 2021-11-12 10:45

Published By: chak@informatica.com.united.dev

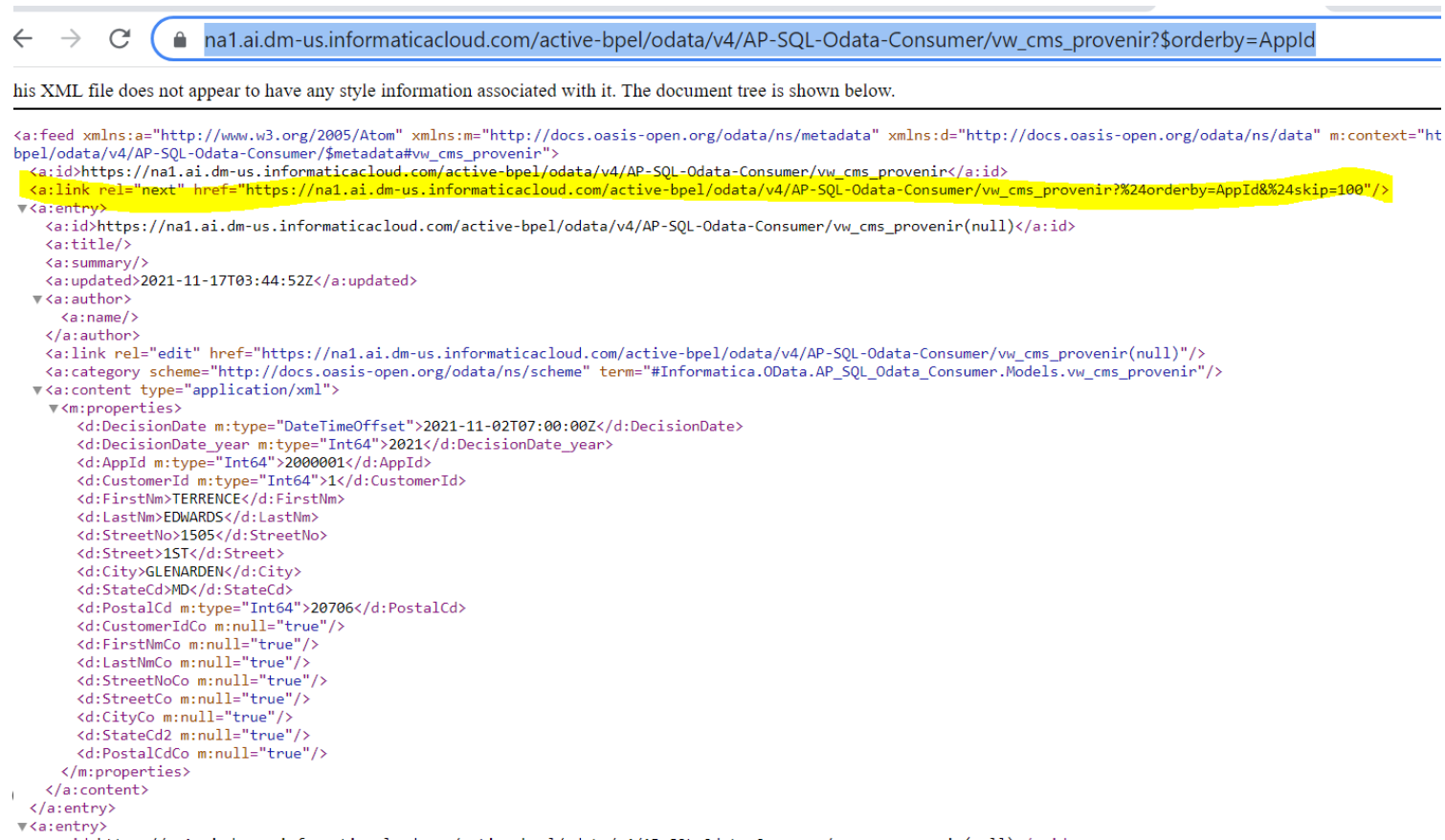
OData Service URL: <https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer>

OData Swagger URL: [https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/\\$metadata?swagger](https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/$metadata?swagger)

Extract Data & System Variables

Consume Data using CAI OData Endpoints :

Extract Data using Web Browser : \$orderby=AppId



The screenshot shows a web browser with the address bar containing the URL: `na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir?$orderby=AppId`. Below the address bar, a message states: "This XML file does not appear to have any style information associated with it. The document tree is shown below." The XML content is displayed in a tree view, with the following structure:

```
<a:feed xmlns:a="http://www.w3.org/2005/Atom" xmlns:m="http://docs.oasis-open.org/odata/ns/metadata" xmlns:d="http://docs.oasis-open.org/odata/ns/data" m:context="http://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/$metadata#vw_cms_provenir">
  <a:id>https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir</a:id>
  <a:link rel="next" href="https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir?%24orderby=AppId&%24skip=100"/>
  <a:entry>
    <a:id>https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir(null)</a:id>
    <a:title/>
    <a:summary/>
    <a:updated>2021-11-17T03:44:52Z</a:updated>
    <a:author>
      <a:name/>
    </a:author>
    <a:link rel="edit" href="https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir(null)"/>
    <a:category scheme="http://docs.oasis-open.org/odata/ns/scheme" term="#Informatica.OData.AP_SQL_Odata_Consumer.Models.vw_cms_provenir"/>
    <a:content type="application/xml">
      <m:properties>
        <d:DecisionDate m:type="DateTimeOffset">2021-11-02T07:00:00Z</d:DecisionDate>
        <d:DecisionDate_year m:type="Int64">2021</d:DecisionDate_year>
        <d:AppId m:type="Int64">2000001</d:AppId>
        <d:CustomerId m:type="Int64">1</d:CustomerId>
        <d:FirstNm>TERRENCE</d:FirstNm>
        <d>LastNm>EDWARDS</d>LastNm>
        <d:StreetNo>1505</d:StreetNo>
        <d:Street>1ST</d:Street>
        <d:City>GLENARDEN</d:City>
        <d:StateCd>MD</d:StateCd>
        <d:PostalCd m:type="Int64">20706</d:PostalCd>
        <d:CustomerIdCo m:null="true"/>
        <d:FirstNmCo m:null="true"/>
        <d>LastNmCo m:null="true"/>
        <d:StreetNoCo m:null="true"/>
        <d:StreetCo m:null="true"/>
        <d:CityCo m:null="true"/>
        <d:StateCd2 m:null="true"/>
        <d:PostalCdCo m:null="true"/>
      </m:properties>
    </a:content>
  </a:entry>
</a:entry>
```

Extract Data & System Variables

Consume Data using CAI OData Endpoints :

Copy the Endpoint URL from OData connector (AP-SQL-Odata-Consumer connection) and run using browser or postman

Extract Data using Web Browser :

Example url : https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir

Note : Pagination can be done using with below highlighted href url on the response data.

```
← → ↻ na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir
This XML file does not appear to have any style information associated with it. The document tree is shown below.
▼ <a:feed xmlns:a="http://www.w3.org/2005/Atom" xmlns:m="http://docs.oasis-open.org/odata/ns/metadata" xmlns:d="http://docs.oasis-open.org/odata/ns/data"
  bpel/odata/v4/AP-SQL-Odata-Consumer/$metadata#vw_cms_provenir">
    <a:id>https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir</a:id>
    <a:link rel="next" href="https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir?X24skip=100"/>
  ▼ <a:entry>
    <a:id>https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir(null)</a:id>
    <a:title/>
    <a:summary/>
    <a:updated>2021-11-17T03:30:39Z</a:updated>
    <a:author>
      <a:name/>
      </a:author>
    <a:link rel="edit" href="https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir(null)"/>
    <a:category scheme="http://docs.oasis-open.org/odata/ns/scheme" term="Informatica.OData.AP_SQL_Odata_Consumer.Models.vw_cms_provenir"/>
    <a:content type="application/xml">
      ▼ <m:properties>
        <d:DecisionDate m:null="true"/>
        <d:DecisionDate_year m:null="true"/>
        <d:AppId m:type="Int64" value="61869136/d:AppId"/>
        <d:CustomerId m:null="true"/>
        <d:FirstNm m:null="true"/>
        <d:LastNm m:null="true"/>
        <d:StreetNo m:null="true"/>
        <d:Street m:null="true"/>
        <d:City m:null="true"/>
        <d:StateCd m:null="true"/>
        <d:PostalCd m:null="true"/>
        <d:CustomerIdCo m:null="true"/>
        <d:FirstNmCo m:null="true"/>
        <d:LastNmCo m:null="true"/>
        <d:StreetNoCo m:null="true"/>
        <d:StreetCo m:null="true"/>
        <d:CityCo m:null="true"/>
        <d:StateCdCo m:null="true"/>
        <d:PostalCdCo m:null="true"/>
      </m:properties>
    </a:content>
  </a:entry>
  ▼ <a:entry>
    <a:id>https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir(null)</a:id>
    <a:title/>
    <a:summary/>
```

Extract Data & System Variables

Top System Query Option (\$top)

Examples

[https://services.odata.org/OData/OData.svc/Products?\\$top=5](https://services.odata.org/OData/OData.svc/Products?$top=5)

- The first 5 Product Entries returned where the Collection of Products are sorted using a scheme determined by the OData service.

[https://services.odata.org/OData/OData.svc/Products?\\$top=5&\\$orderby=Name desc](https://services.odata.org/OData/OData.svc/Products?$top=5&$orderby=Name desc)

- The first 5 Product Entries returned in descending order when sorted by the Name property.

CAI Example :

[https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir?\\$top=10&\\$orderby=AppId%20desc](https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms_provenir?$top=10&$orderby=AppId%20desc)

Extract Data & System Variables

Top System Query Option (\$top)

From Postman :

The screenshot shows a Postman interface for an OData request. The URL is `https://na1.ai.dm-us.informaticacloud.com/active-bpel/odata/v4/AP-SQL-Odata-Consumer/vw_cms...`. The response is a JSON object with the following fields:

KEY	VALUE	DESCRIPTION
DecisionDate	"2021-11-17T07:59:46.44Z"	
DecisionDate_year	2021	
AppId	6143386	
CustomerId	5587493	
FirstNm	"TYLIQ"	
LastNm	"MOSES"	
StreetNo	"4436"	
Street	"PALL MALL"	
City	"BALTIMORE"	

Extract Data & System Variables

Orderby System Query Option (\$orderby)

Examples

[https://services.odata.org/OData/OData.svc/Products?\\$orderby=Rating](https://services.odata.org/OData/OData.svc/Products?$orderby=Rating)

- All Product Entries returned in ascending order when sorted by the Rating Property.

[https://services.odata.org/OData/OData.svc/Products?\\$orderby=Rating asc](https://services.odata.org/OData/OData.svc/Products?$orderby=Rating asc)

Skip System Query Option (\$skip)

Examples

[https://services.odata.org/OData/OData.svc/Categories\(1\)/Products?\\$skip=2](https://services.odata.org/OData/OData.svc/Categories(1)/Products?$skip=2)

- The set of Product Entries (associated with the Category Entry identified by key value 1) starting with the third product.

[https://services.odata.org/OData/OData.svc/Products?\\$skip=2&\\$stop=2&\\$orderby=Rating](https://services.odata.org/OData/OData.svc/Products?$skip=2&$stop=2&$orderby=Rating)

- The third and fourth Product Entry from the collection of all products when the collection is sorted by Rating (ascending).

Extract Data & System Variables

Filter System Query Option (\$filter)

Operator	Description	Example
Logical Operators		
Eq	Equal	/Suppliers?\$filter=Address/City eq 'Redmond'
Ne	Not equal	/Suppliers?\$filter=Address/City ne 'London'
Gt	Greater than	/Products?\$filter=Price gt 20
Ge	Greater than or equal	/Products?\$filter=Price ge 10
Lt	Less than	/Products?\$filter=Price lt 20
Le	Less than or equal	/Products?\$filter=Price le 100
And	Logical and	/Products?\$filter=Price le 200 and Price gt 3.5
Or	Logical or	/Products?\$filter=Price le 3.5 or Price gt 200
Not	Logical negation	/Products?\$filter=not endswith(Description,'milk')
Arithmetic Operators		
Add	Addition	/Products?\$filter=Price add 5 gt 10
Sub	Subtraction	/Products?\$filter=Price sub 5 gt 10
Mul	Multiplication	/Products?\$filter=Price mul 2 gt 2000
Div	Division	/Products?\$filter=Price div 2 gt 4
Mod	Modulo	/Products?\$filter=Price mod 2 eq 0
Grouping Operators		
()	Precedence grouping	/Products?\$filter=(Price sub 5) gt 10

Reference Document

Reference Document : OData Function :

<https://www.odata.org/documentation/odata-version-2-0/uri-conventions/>

DEMO





THANK YOU



Q&A