Informatica

Informatica® Cloud Data Integration

OData V2 Protocol Reader Connector

Informatica Cloud Data Integration OData V2 Protocol Reader Connector
April 2023

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Preface

Use *OData V2 Protocol Reader Connector* to learn how to read from OData V2 applications by using Cloud Data Integration. Learn to create an OData V2 Protocol Reader connection, run mappings and mapping tasks in Cloud Data Integration.

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The telephone numbers for Informatica Global Customer Support are available from the Informatica web site at https://www.informatica.com/services-and-training/support-services/contact-us.html.

CHAPTER 1

Introduction to OData V2 Protocol Reader Connector

Use OData V2 Protocol Reader Connector to connect to the OData V2 service enabled on SAP S/4HANA applications in the cloud or on-premises.

Open Data Protocol (OData) is an OASIS standard that defines best practices to build and consume RESTful APIs. OData V2 Protocol Reader Connector communicates with the OData APIs version 2, exposed through the OData V2 protocol.

You can create an OData V2 Protocol Reader connection to read data from the OData V2 applications.

You can switch mappings to advanced mode to include transformations and functions that enable advanced functionality.

Example

You want to read and filter sales order data from SAP S/4HANA Cloud. Use OData V2 Protocol Reader Connector to call the required sales order OData V2 API in SAP S/4HANA. You can then process the response obtained from SAP S/4HANA Cloud.

You can use the OData V2 Protocol Reader Connector to communicate with the OData V2 service APIs to read and filter data related to business partner, customer, supplier, and vendor entities. You can also use transformations on the data for better results.

OData V2 Protocol Reader Connector assets

You can perform read and filter operations in an application source that is enabled for the OData V2 service.

You can use Source transformation in the following Data Integration assets:

- Mapping
- Mapping task

For more information about configuring assets and transformations, see *Mappings*, *Transformations*, and *Tasks* in the Data Integration documentation.

Configure proxy settings

If your organization uses an outgoing proxy server to connect to the Internet, you can use the serverless runtime environment to connect to Informatica Intelligent Cloud Services through the proxy server.

You can use the unauthenticated or authenticated proxy server. You can configure proxy both in mappings and in mappings in advanced mode.

To configure the proxy settings for the serverless runtime environment, see *Runtime Environments* in the Administrator help.

CHAPTER 2

Connections for OData V2 Protocol Reader

Use the OData V2 Protocol Reader connection to connect to any application that exposes data through an OData V2 protocol.

You create an OData V2 Protocol Reader connection on the Connections page. Use this connection in a Source transformation in the Mapping Designer when you create a mapping.

OData V2 Protocol Reader connection properties

When you set up an OData V2 Protocol Reader connection, you must configure the connection properties.

The following table describes the OData V2 Protocol Reader connection properties:

Connection property	Description
Connection Name	Name of the connection. Each connection name must be unique within the organization. Connection names can contain alphanumeric characters, spaces, and the following special characters: _ . + -, Maximum length is 255 characters.
Description	Description of the connection. Maximum length is 4000 characters.
Type	The OData V2 Protocol Reader connection type.
Runtime Environment	The name of the runtime environment where you want to run the tasks. Specify a Secure Agent, Hosted Agent, or serverless runtime environment.
Service Type	The service type of the OData V2 application endpoint to which you want to connect. Choose one of the following service types: - SAP S/4HANA Catalog. Use the SAP S/4HANA Catalog service type for endpoints such as SAP S/4HANA that exposes specialized OData V2 service to list the services present in the endpoint. - Default. Use the Default service type for all other endpoints.

Connection property	Description

Service URL	The service URL for the selected OData V2 service type.
	For the Default service type, enter the root URL of the service.
	For example, enter the service URL in the following format:
	`https://sandbox.api.sap.com/s4hanacloud/sap/opu/odata/sap/API_CHARTOFACCOUNTS_SRV`
	You can verify if the URL is valid by appending `$metadata` to the URL.
	For SAP S/4HANA catalog service type, enter the URL of the catalog service in SAP S/4HANA.
	For example, to access the data from the SAP S/4HANA catalog service, enter the service URL in the following format:
	`http://<hostname of the OData server>:<port number>/sap/opu/odata/iwfnd/CATALOGSERVICE;v=2/`
	If the host name and port number is `inpha1.informatica.com:8001` and the service endpoint is SAP S/4HANA Catalog, enter the following URL:
	`https://inpha1.informatica.com:8001/sap/opu/odata/iwfnd/CATALOGSERVICE;v=2/`

Authentication Type	The type of user authentication to connect to the OData service. Choose from the following authentication types: - Basic. Requires the user name and password to log in to the OData V2 application. - API Key. Requires a unique API key to connect to the OData V2 application. - OAuth 2.0 authorization code. Requires authorized access to connect to the OData V2 endpoint. - OAuth 2.0 client credentials. Requires client credentials to connect to the OData V2 endpoint.
Username	Applies to basic authentication. The user name to connect to the OData V2 application.
Password	Applies to basic authentication. The password associated with the OData V2 application user name.
API Key	Applies to API key authentication. Unique API key required to connect to the OData V2 application.

Authorization code authentication

To use authorization code authentication, you must first register the following Informatica redirect URL in your application:

`https://<Informatica cloud hosting facility for your organization>/ma/proxy/oauthcallback`

If the access token expires and the response returns 401 error code, Informatica redirect URL, which is outside the customer firewall, tries to connect to the endpoint and retrieve a new access token.

The following table describes the OData V2 Protocol Reader connection properties for an OAuth 2.0 authorization code authentication type connection:

Connection property	Description
Runtime Environment	Name of the runtime environment where you want to run the tasks. Specify a Secure Agent, Hosted Agent, or serverless runtime environment.
Auth Type	The authentication method that the connector must use to connect to the OData V2 endpoint. Select **OAuth 2.0 authorization code**. Default is Basic.
Authorization Token URL	Authorization server URL configured in your application.
Access Token URL	Access token URL configured in your application.
Client ID	The client identifier issued during the application registration process.
Client Secret	The client secret issued during the application registration process.
Scope	The scope of the access request when the OData V2 endpoint has defined custom scopes. Enter space-separated scope attributes. For example: `ZGWSAMPLE_BASIC_0001 /IWFND/SG_MED_CATALOG_0002 ZAPI_CHARTOFACCOUNTS_SRV_0001`
Access Token Parameters	Additional parameters to use with the access token URL. Define parameters in the JSON format. For example: `[{"Name":"resource","Value":"https://<serverName>"}]`
Authorization Code Parameters	Additional parameters to use with the authorization token URL. Define parameters in the JSON format. For example: `[{"Name":"max_age","Value":60},{"Name":"state","Value":"test"}]`
Client Authentication	The client authentication details for authorization. Select an option to send client ID and client secret for authorization either in the request body or in the request header. Default is **Send client credentials in body**.
Generate Access Token	Generates access token and refresh token based on the specified authentication details.
Access Token	The access token granted by the authorization server to access the data using a specific role. Enter the access token value or click **Generate Access Token** to populate the access token value.
Refresh Token	Allows the Secure Agent to fetch new access token if the access token is not valid or expires. Enter the refresh token value or click **Generate Access Token** to populate the refresh token value. If the refresh token expires, you must either provide a valid refresh token or click **Generate Access Token** to regenerate a new refresh token.

Client credential authentication

The following table describes the OData V2 Protocol Reader connection properties for OAuth 2.0 client credentials authentication type connection:

Connection property	Description
Runtime Environment	Name of the runtime environment where you want to run the tasks. Specify a Secure Agent, Hosted Agent, or serverless runtime environment.
Auth Type	The authentication method that the connector must use to connect to the OData V2 endpoint. Select **OAuth 2.0 client credentials**. Default is Basic.
Access Token URL	Access token URL configured in your application.
Client ID	The client identifier issued during the application registration process.
Client Secret	The client secret issued during the application registration process.
Scope	The scope of the access request when the rest endpoint has defined custom scopes. Enter space-separated scope attributes. For example: `ZGWSAMPLE_BASIC_0001 /IWFND/SG_MED_CATALOG_0002 ZAPI_CHARTOFACCOUNTS_SRV_0001`
Access Token Parameters	Additional parameters to use with the access token URL. Define parameters in the JSON format. For example: `[{"Name":"resource","Value":"https://<serverName>"}]`
Client Authentication	The client authentication details for authorization. Select an option to send client ID and client secret for authorization either in the request body or in the request header. Default is **Send client credentials in body**.
Generate Access Token	Generates access token based on the specified authentication details.
Access Token	The access token granted by the authorization server to access the data using a specific role. Enter the access token value or click **Generate Access Token** to populate the access token value.

CHAPTER 3

Mappings and mapping tasks with OData V2 Protocol Reader Connector

Use the Data Integration Mapping Designer to create a mapping. When you create a mapping, you can configure a Source transformation to represent an OData V2 Protocol Reader object.

In advanced mode, the Mapping Designer updates the mapping canvas to include transformations and functions that enable advanced functionality.

OData V2 Protocol Reader sources in mappings

You can use an OData V2 Protocol Reader object as a source in mappings. When you create a mapping to read data from OData V2 applications, specify the OData V2 Protocol Reader source properties.

The following table describes the source properties that you can configure in a Source transformation:

Property	Description
Connection	Name of the source connection.
Source Type	Source type. Select Single as the source type.
Object	Source object for the mapping.

The following table describes the advanced source properties that you can configure in a Source transformation:

Property	Description
Page Size	Determines the number of rows to read in each request. Default is 1000 rows.
Number of Rows to Skip	Sets the number of rows you can skip. For example, you can set this property to n to skip the first n rows in a source and read from the (n+1) row. Default is 0.
Number of Rows to Fetch	Determines the number of rows you can read from the source. For example, specify a value of 100 to read 100 records from the source. Specify 0 to read all records from the source. Default is 0.
Maximum Retry Attempts	The maximum number of retry attempts made to receive the response from the OData V2 endpoint. Default is 1.
Retry Interval in seconds	The time in seconds to wait between each retry attempt. Default is 5 seconds.
Cache Size for Web Service Response (KB)	Sets the memory available for the web service response. If the web service response contains many rows or columns, you might want to increase the cache size. Default is 1024 KB. Applicable only for hierarchical entities.

The following table describes the query options that you can configure in a Source transformation:

Property	Description
Filter	Filters the source data based on the conditions you specify. You can configure a simple filter or an advanced filter to filter rows from the source based on a filter condition. You can improve efficiency by filtering early in the data flow. Click **Configure** to configure a filter option. You can specify the following filter conditions: - Not parameterized. Uses a basic filter to specify the object, field, operator, and value to select specific records. Applies only to flat entities. - Advanced. Uses an advanced filter to define a complex filter condition. Applies to flat and hierarchical entities. For more information on filters and operators, follow the conventions specified in `http://www.odata.org/documentation/odata-version-2-0/uri-conventions`

Rules and guidelines for OData V2 Protocol Reader mappings

Consider the following rules and guidelines for mappings:

- When you read a large data set, the mapping might fail with a `Data Truncation occurred` error. To resolve this, reduce the page size in the advanced source properties. To read large sets of hierarchical data, increase the cache size in the web service response in the advanced source properties.
- When you use a Joiner transformation to join the data from multiple sources that use different authentication types to connect to an OData V2 service, the mapping fails with the following error: `[ERROR] java.io.IOException: Server returned HTTP response code: 401 for URL`
- You can configure the Secure Agent to use only the unauthenticated proxy server.
- You can use only the following filter operators in a simple filter:

  Equals

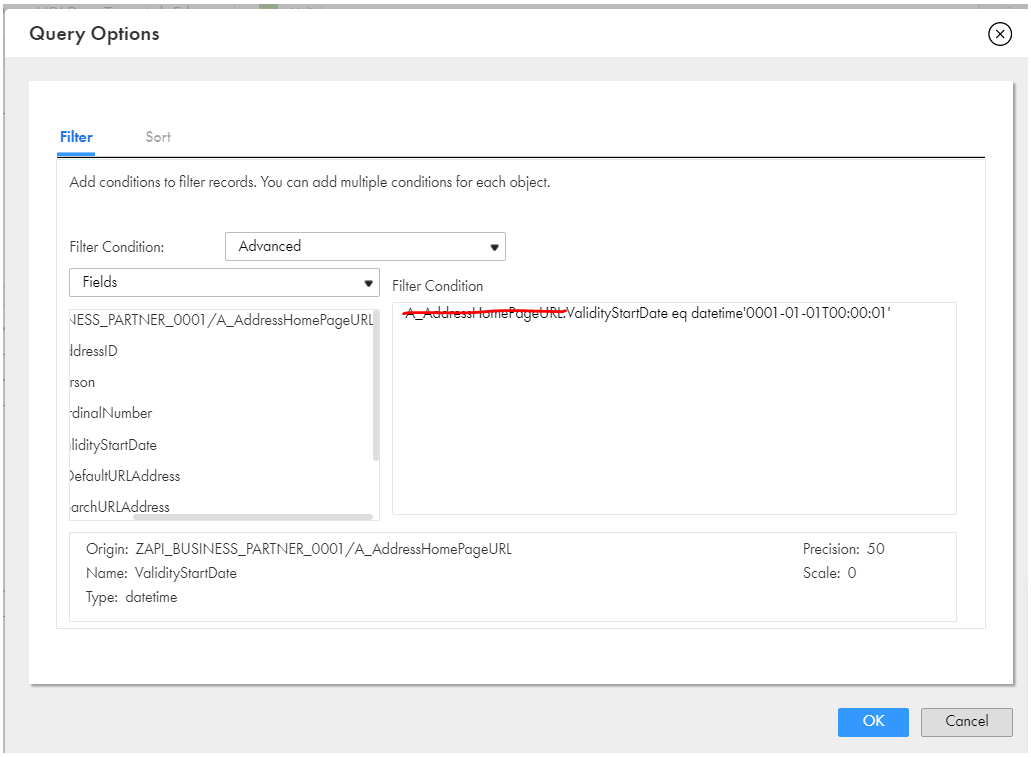
  Not Equals

  Less Than

  Less or Equals

  Greater Than

  Greater or Equals
- You cannot configure data filters on child objects for hierarchical entities.
- When you configure advanced filters, ensure that the filter condition contains only the field name, operator, and field value. You must remove any additional text that is appended to the filter condition. The following example displays the additional text that you must remove from the filter condition:



Consider the following rules and guidelines for source objects:

- Entities that have a cyclic relationship with each other are ignored and the task does not fetch the metadata for such entities. For example, if a business partner has a relationship with contact details and contact details in turn have a relationship with business partner, then the business partner details within contact fields are ignored and not displayed.

APPENDIX A

OData V2 Protocol Reader data type reference

Data Integration uses the following data types in mappings and mapping tasks with OData V2 Protocol Reader Connector:

Native data types

OData V2 data types appear in the **Fields** tab for Source transformation when you choose to edit metadata for the fields.

Transformation data types

Set of data types that appear in the transformation. They are internal data types based on ANSI SQL-92 generic data types, which Data Integration uses to move data across platforms. Transformation data types appear in all remaining transformations in a mapping, or mapping task.

When Data Integration reads source data, it converts the native data types to the comparable transformation data types before transforming the data. When Data Integration writes to a target, it converts the transformation data types to the comparable native data types.

OData V2 Protocol Reader and transformation data types

The following table lists the OData V2 data types that OData V2 Protocol Reader Connector supports along with the corresponding transformation data types:
Data types for hierarchical data fields:

OData V2 Protocol Reader Data Type	Transformation Data Type	Description
String	String	-
Boolean	String	-
GUID	String	-
Int32	Integer	-
Int16	Integer	-

OData V2 Protocol Reader Data Type	Transformation Data Type	Description
DateTime	String	For example, /Date(1592956800000)/
DateTimeOffset	String	For example, /Date(1592956800000)/
Decimal	Decimal	-
Byte	Integer	-
Time	String	-

Note: You must manually edit the precision and scale of the data types if they do not match the required metadata.

Data types for flat data fields:

OData V2 Protocol Reader Data Type	Transformation Data Type	Description
String	String	-
Boolean	String	-
Int64	Integer	-
Int32	Integer	-
Int16	Integer	-
DateTime	String	Dates earlier than 1752-09-14 or pre-Gregorian calendar dates are not read accurately.
DateTimeOffset	String	Dates earlier than 1752-09-14 or pre-Gregorian calendar dates are not read accurately.
Decimal	Decimal	-
Byte	Integer	-
Time	String	-

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