

Web Services Overview

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1. Overview

The Alberta Water Wells Information Database Web Service uses Open Data Protocol (OData) 4.0. The Open Data Protocol is a RESTful (Representational State Transfer) that uses the HTTP protocol for data transfer.

2. Connecting to the Web Service

Open a web browser (Internet Explorer, Chrome, etc.) and paste the following URL:

<https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/>

Alternatively, the web service can be connected to with tools such as Excel, Power BI, Tableau, etc.

Using Excel:

- Open a new Excel Workbook
- Click on the Data tab

- Click on New Query (under the Get & Transform group)
- Click on From Other Sources
- Click on Get Data from OData feed
- Enter <https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/> in the URL box

3. Web Service Metadata

To view the web service metadata, visit the following URL:

[https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/\\$metadata](https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/$metadata)

Each entity (an entity is equivalent to a table in the database) will have the following information represented by XML tags (<tag></tag>):

- <Key></Key>: A list of primary keys of the entity
- <Property></Property>: An attribute (column) of the entity and its data type.
- <NavigationProperty></NavigationProperty>: The relationship to other entities, i.e. the foreign key of the entity

4. Querying Entities

4.1. Chaining Query Options

Query parameters can be combined together to create complex queries. The syntax required for adding multiple parameters to a query is as follows:

```
/WellReports?$expand=Well&$top=10
```

For sake of simplicity, we used the \$expand and \$top query options. Note that the first option after the Entity uses the ? character and the following options use the & character.

4.2. Basic Query

Each Entity can be queried by using its URL path. All URL paths can be found by visiting the root of the service: <https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/>

Example - Query the WellReports entity:

<https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/WellReports>

4.3. Joining Using \$expand

The \$expand query option is similar to a SQL join. Only entities that have navigation properties can be joined. Note that the name used in the \$expand keyword is the Navigation Property found in the [Web Service Metadata](#).

Example - Join WellReports and Wells entities:

[https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/WellReports?\\$expand=Well](https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/WellReports?$expand=Well)

4.4. Filtering a Query Using \$filter

The \$filter query option allows the user to filter the results returned.

Example - Query the WellReports entity to return only the well report with ID equal to 40000:

[https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/WellReports?\\$filter=WellReportId%20eq%2040000](https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/WellReports?$filter=WellReportId%20eq%2040000)

4.5. Counting Using \$count

The \$count query option allows the user to count the rows returned by the requested query. The count will be displayed in the @odata.count entry.

Example – Count the number of total Wells:

[https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/Wells?\\$count=true](https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/Wells?$count=true)

4.6. Ordering Using \$orderby

The \$count query option allows the user to order the results. By default, the results will be ordered ascending if no ordering predicate is provided. The predicates asc and desc can be provided to order ascending or descending respectively.

Example – Return all Wells and order by most recent CreateTimestamp:

[https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/Wells?\\$orderby=CreateTimestamp%20desc](https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/Wells?$orderby=CreateTimestamp%20desc)

4.7. Limiting Results Using \$top

The \$top query option allows the limiting of results returned.

Example – Return only the top 10 Wells, ordered by latest CreateTimestamp:

[https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/Wells?\\$orderby=CreateTimestamp%20desc&\\$top=10](https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/Wells?$orderby=CreateTimestamp%20desc&$top=10)

5. Filtering Using Expressions

5.1. Equal To (eq)

To limit your query based on an equality filter, use “eq” for equal-to:

5.2. Greater Than Equal To (ge)

To query for a range in a property use the “ge” for “greater-than-or-equal-to”:

[https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/WellReports?\\$filter=WellReportId%20ge%2040002](https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/WellReports?$filter=WellReportId%20ge%2040002)

5.3. Less Than Equal To (le)

To query for a range in a property use “le” for “less-than-or-equal-to” expressions instead of eq:

[https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/WellReports?\\$filter=WellReportId%20le%2040002](https://data.environment.alberta.ca/Services/EDW/waterwellsdatamart/odata/WellReports?$filter=WellReportId%20le%2040002)

Appendix A: Tutorial

For more information about OData query syntax, visit the OData tutorial at

<http://www.odata.org/getting-started/basic-tutorial/>