

# [MS-ODCFF]:

## Office Data Connection File Format

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## Revision Summary

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# 1 Introduction

The Office Data Connection (ODC) File Format Structure is used for specifying data connection information that can be used to retrieve data from a database.

Sections 1.7 and 2 of this specification are normative. All other sections and examples in this specification are informative.

## 1.1 Glossary

This document uses the following terms:

**application identifier:** A string that is used to look up information in a single sign-on (SSO) database.

**authentication:** The act of proving an identity to a server while providing key material that binds the identity to subsequent communications.

**catalog:** A table that defines the structure and relationships of a set of tables in a database.

**child element:** In an XML document, an element that is subordinate to and is contained by another element, which is referred to as the parent element.

**connection:** (1) A link between two devices that uses the Simple Symmetric Transport Protocol (SSTP). Each connection can support one or more SSTP sessions.

(2) A link that two physical machines or applications share to pass data back and forth.

**connection string:** A series of arguments, delimited by a semicolon, that defines the location of a database and how to connect to it.

**container:** A data model that is used to store published presence (1) information and a list of subscribers who are permitted to view that information. It enables a publisher to publish different data values of the same category (4) and instance, which enables different subscribers to see different values.

**credential:** Previously established, **authentication** data that is used by a security principal to establish its own identity. When used in reference to the Netlogon Protocol, it is the data that is stored in the NETLOGON\_CREDENTIAL structure.

**cube:** A set of data that is organized and summarized into a multidimensional structure that is defined by a set of dimensions (1) and measures.

**data connection:** (1) A link between an application and a data source. Data connections can be used to query and submit data.

(2) A collection of information, such as the type and location, that defines how to connect to an external data source, such as a database, web service, SharePoint list, or **XML** file.

**data provider:** A known data source that is specific to a target type and that provides data to a collector type.

**data source:** A database, web service, disk, file, or other collection of information from which data is queried or submitted. Supported data sources vary based on application and data provider.

**document repository:** A location that is used to store documents. A document repository is typically hosted on a server and is subject to document management policies for the documents that are stored on it.

**Hypertext Markup Language (HTML):** An application of the Standard Generalized Markup Language (SGML) that uses tags to mark elements in a document, as described in [\[HTML\]](#).

**list:** A container within a SharePoint site that stores list items. A list has a customizable schema that is composed of one or more fields.

**Multipurpose Internet Mail Extensions (MIME):** A set of extensions that redefines and expands support for various types of content in email messages, as described in [\[RFC2045\]](#), [\[RFC2046\]](#), and [\[RFC2047\]](#).

**Online Analytical Processing (OLAP):** A technology that uses multidimensional structures to provide access to data for analysis. The source data for OLAP is stored in data warehouses in a relational database. See also **cube**.

**query:** A formalized instruction to a data source to either extract data or perform a specified action. A query can be in the form of a query expression, a method-based query, or a combination of the two. The data source can be in different forms, such as a relational database, XML document, or in-memory object. See also search query.

**single sign-on (SSO):** A process that enables users who have a domain user account to log on to a network and gain access to any computer or resource in the domain without entering their **credentials** multiple times.

**Structured Query Language (SQL):** A database query and programming language that is widely used for accessing, querying, updating, and managing data in relational database systems.

**Uniform Resource Locator (URL):** A string of characters in a standardized format that identifies a document or resource on the World Wide Web. The format is as specified in [\[RFC1738\]](#).

**UTF-8:** A byte-oriented standard for encoding Unicode characters, defined in the Unicode standard. Unless specified otherwise, this term refers to the UTF-8 encoding form specified in [\[UNICODE5.0.0/2007\]](#) section 3.9.

**white space:** A character that represents a blank space in typography and is not rendered on a screen.

**XML:** The Extensible Markup Language, as described in [\[XML1.0\]](#).

**XML schema:** A description of a type of XML document that is typically expressed in terms of constraints on the structure and content of documents of that type, in addition to the basic syntax constraints that are imposed by **XML** itself. An XML schema provides a view of a document type at a relatively high level of abstraction.

**MAY, SHOULD, MUST, SHOULD NOT, MUST NOT:** These terms (in all caps) are used as defined in [\[RFC2119\]](#). All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

## 1.2 References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the [Errata](#).

### 1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact [dochelp@microsoft.com](mailto:dochelp@microsoft.com). We will assist you in finding the relevant information.

[MS-ODATA] Microsoft Corporation, "[Open Data Protocol \(OData\)](#)".

[MS-ODBCSTR] Microsoft Corporation, "[ODBC Connection String Structure](#)".

[MS-OLEDBSTR] Microsoft Corporation, "[OLEDB Connection String Structure](#)".

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <http://www.rfc-editor.org/rfc/rfc2119.txt>

[RFC3066] Alvestrand, H., "Tags for the Identification of Languages", BCP 47, RFC 3066, January 2001, <http://www.ietf.org/rfc/rfc3066.txt>

## 1.2.2 Informative References

[MSDN-IIS] Microsoft Corporation, "Internet Information Services (IIS)", <http://msdn.microsoft.com/en-us/library/aa286507.aspx>

[MSDN-OLEDBP-OI] Microsoft Corporation, "OLE DB Programming", [http://msdn.microsoft.com/en-us/library/502e07a7\(VS.80\).aspx](http://msdn.microsoft.com/en-us/library/502e07a7(VS.80).aspx)

[MSDN-OpenDBConnectivity] Microsoft Corporation, "Microsoft Open Database Connectivity (ODBC)", <http://msdn.microsoft.com/en-us/library/ms710252.aspx>

[MSFT-ODBCODCO] Microsoft Corporation, "ODBC--Open Database Connectivity Overview", March 2007, <http://support.microsoft.com/kb/110093>

## 1.3 Structure Overview (Synopsis)

The Office Data Connection (ODC) files contain **data connection (1)** information that can be used by applications for connecting to, and retrieving data from, a **data source**. ODC files are useful for storing data connection (1) information that can be reused and centrally managed.

### 1.3.1 Basic Structure of an ODC File

An ODC file is a **Hypertext Markup Language (HTML)** file that contains embedded sections of **XML**.

#### 1.3.1.1 HTML

The HTML in an ODC file contains information about the data connection (1) which the file represents. This information can be used to allow applications to quickly discover information about the data connection (1) without the need to interpret **data provider**-specific data connection (1) information. This information includes:

- Type of data connection (1).
- General data provider that is used.
- Name of the **catalog** or table where the data resides.
- Title for the document.

The HTML also provides structure so that a Web browser can display a simple rendering of information about the data connection (1).

### 1.3.1.2 XML for Document Properties

The XML in an ODC file is used for specifying more information about the data connection (1). This information includes:

- A human-readable name.
- Keywords.
- A human-readable description.

### 1.3.1.3 XML for a Data Connection

The XML in an ODC file determines the core **connection (2)** information for the data source. This information includes:

- Data provider-specific **connection string** that is used to establish and open a connection (2) to the data source.
- **Query** text that is used to fetch data.
- Name of the specific table or **cube** from which to fetch data.
- Hints about how the query text, cube, or table name is interpreted.
- Flag indicating that the ODC file is always used to connect to and query the data source (as opposed to an application using a cached version of the data connection (2) information).
- Specific **authentication** information to use for the data source. If a server application is using the ODC file to fetch data, this information will often be used for connecting to the data sources.

## 1.4 Relationship to Protocols and Other Structures

None.

## 1.5 Applicability Statement

The ODC file format can be used to persist data connection (2) information in cases where a connection string and a string representation of the data that is sought, such as a **Structured Query Language (SQL)** query, is available. An ODC file provides a **container** to preserve the relevant data connection (2) information in a compact file. It is appropriate to use ODC files to broadly share data connection (2) information among many client applications and server applications, subject to an organization's security policy. It is not appropriate to use ODC files as containers for logic that is not related to data connections (1).

Other structures or protocols that depend on this format need to be able to parse HTML and XML structures.

## 1.6 Versioning and Localization

None.

## 1.7 Vendor-Extensible Fields

None.



## 2 Structures

### 2.1 Simple Types

#### 2.1.1 ST\_ConnectionType

Specifies the database connection (2) type.

The following table specifies the enumeration values for this type.

| Enumeration value   | Meaning  |
|---------------------|--|
| <b>OLEDB</b>        | Specifies an OLE DB connection (2) type. For more information about OLE DB, see <a href="#">[MSDN-OLEDBP-OI]</a> .                         |
| <b>ODBC</b>         | Specifies an ODBC (Open Database Connectivity) connection (2) type. For more information about ODBC, see <a href="#">[MSFT-ODBCODCO]</a> . |
| <b>DATAFEED</b> <1> | Specifies a data feed connection (2) type. For more details about data feeds, see <a href="#">[MS-ODATA]</a> .                             |

The following table lists all other types that reference this type.

| Referenced by                 |
|-------------------------------|
| <a href="#">CT_Connection</a> |

The following **XML schema** fragment defines this element.

```
<xs:schema
  targetNamespace="urn:schemas-microsoft-com:office:odc"
  elementFormDefault="qualified"
  xmlns="urn:schemas-microsoft-com:office:odc"
  xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:simpleType name="ST_ConnectionType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="OLEDB" />
      <xs:enumeration value="ODBC" />
      <xs:enumeration value="DATAFEED" />
    </xs:restriction>
  </xs:simpleType>

</xs:schema>
```

#### 2.1.2 ST\_CommandType

Specifies how to use the **CommandText** element, as defined in the **CT\_Connection** complex type (section [2.2.1](#)), to obtain data from a data connection (1).

The following table specifies the enumeration values for this type.

| Enumeration value | Meaning  |
|-------------------|--|
| <b>Table</b>      | Specifies that the <b>CommandText</b> element specifies the name of a table that can be read from the data connection (1) to the data source, which is specified by the <b>ConnectionString</b> element. |

| Enumeration value                                | Meaning   |
|--|---|
| <b>SQL</b>                                       | Specifies that the <b>CommandText</b> element specifies text that can be interpreted, as an SQL query, by the data connection (1) to the data source, specified by the <b>ConnectionString</b> element.   |
| <b>Cube</b>                                      | Specifies that the <b>CommandText</b> element specifies the name of a cube within an <b>OLAP</b> database.  |
| <b>List</b>                                      | Specifies that the <b>CommandText</b> element specifies the XML of a <b>list</b> .  |
| <b>Default</b>                                   | Specifies that the <b>CommandText</b> element specifies text that will be interpreted by the data connection (1) to the data source, specified by the <b>ConnectionString</b> element. The text will be passed by the data connection (1) to the data source without change.  |
| <b>TableCollection</b> <a href="#">&lt;2&gt;</a> | Specifies that the <b>CommandText</b> element specifies the list of table names that can be read from the data connection (1) to the data source, which is specified by the <b>ConnectionString</b> element. The table names in the list MUST be separated by commas. Each table name in the list MUST be enclosed in quotes. |

The following table lists all other types that reference this type.

| Referenced by |
|---------------|
| CT_Connection |

The following XML schema fragment defines this element.

```
<xs:schema
  targetNamespace="urn:schemas-microsoft-com:office:odc"
  elementFormDefault="qualified"
  xmlns="urn:schemas-microsoft-com:office:odc"
  xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:simpleType name="ST_CommandType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="Table" />
      <xs:enumeration value="SQL" />
      <xs:enumeration value="Cube" />
      <xs:enumeration value="List" />
      <xs:enumeration value="Default" />
      <xs:enumeration value="TableCollection" />
    </xs:restriction>
  </xs:simpleType>

</xs:schema>
```

### 2.1.3 ST\_CredentialsMethod

Specifies the method used for authentication.

The following table specifies the enumeration values for this type.

| Enumeration value | Meaning   |
|-------------------|---|
| <b>None</b>       | Use no authentication.                          |
| <b>Stored</b>     | Use <b>single sign-on (SSO)</b> authentication. |

| Enumeration value | Meaning   |
|-------------------|---|
| <b>Integrated</b> | Use Integrated Windows Authentication. For more information, see <a href="#">[MSDN-IIS]</a> . |

The following table lists all other types which reference this type.

| Referenced by                 |
|-------------------------------|
| <a href="#">CT_Connection</a> |

The following XML schema fragment defines this element.

```
<xs:schema
  targetNamespace="urn:schemas-microsoft-com:office:odc"
  elementFormDefault="qualified"
  xmlns="urn:schemas-microsoft-com:office:odc"
  xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:simpleType name="ST_CredentialsMethod">
    <xs:restriction base="xs:string">
      <xs:enumeration value="Integrated" />
      <xs:enumeration value="None" />
      <xs:enumeration value="Stored" />
    </xs:restriction>
  </xs:simpleType>

</xs:schema>
```

## 2.2 Complex Types

### 2.2.1 CT\_Connection

Specifies the properties of the connection (2). The following table specifies the **child elements** of this type.

| Child element           | Meaning  |
|-------------------------|--|
| <b>ConnectionString</b> | Specifies a connection string to establish a data connection (1) to the data source.<br>If <b>Type</b> is "ODBC", the string is specified by <a href="#">[MS-ODBCSTR]</a> .<br>If <b>Type</b> is "OLEDB", the string is specified by <a href="#">[MS-OLEDBSTR]</a> . If <b>Type</b> is "DATAFEED", the string is specified by <a href="#">[MS-ODATA]</a> . |
| <b>CommandType</b>      | Specifies the command type.<br>This element <b>MUST</b> be present when <b>Type</b> is "OLEDB" and <b>CommandText</b> is present as a non-empty element. This element <b>MUST</b> be present when <b>Type</b> is "DATAFEED" with the value of "TableCollection". This element <b>MUST NOT</b> be present when <b>Type</b> is "ODBC".                       |
| <b>Parameter</b>        | Specifies information about a parameter in a SQL query.<br>This element <b>MUST NOT</b> be present when <b>Type</b> is "OLEDB" or "DATAFEED".  |
| <b>CommandText</b>      | If <b>Type</b> is "ODBC", this specifies a SQL query.<br>If <b>Type</b> is "OLEDB" or "DATAFEED", this specifies that text be interpreted according to the <b>CommandType</b> .  |

| Child element                  | Meaning  |
|--------------------------------|--|
| <b>SSOApplicationID</b>        | The <b>application identifier</b> used for SSO authentication. SHOULD be specified only when <b>CredentialsMethod</b> is "Stored".   |
| <b>CredentialsMethod</b>       | Specifies the method to use for authentication.<br>If the value is "Stored", the value of <b>SSOApplicationID</b> will be used for the SSO application identifier.<br>If this element is not present, the value is "Integrated".   |
| <b>AlwaysUseConnectionFile</b> | Specifies whether to always use the ODC file when the data is displayed or refreshed.<br>If <b>true</b> , this specifies when establishing another data connection (1) that the ODC file is to be read again.<br>If this element is not present, the value is <b>false</b> . |
| <b>Culture</b>                 | Specifies the language associated with the data connection (2). MUST <3> be a language tag as specified by <a href="#">[RFC3066].&lt;4&gt;</a><br>If this element is not present, the data connection (2) is using the server language.                                      |

The following table specifies the attributes of this type.

| Attributes | Meaning                            |
|------------|------------------------------------|
| Type       | Specifies the connection (2) type. |

The following table lists all other types which reference this type.

| Referenced by                        |
|--------------------------------------|
| <a href="#">OfficeDataConnection</a> |

The following XML schema fragment defines this element.

```
<?xml version="1.0" encoding="utf-8" ?>
<xs:schema
  targetNamespace="urn:schemas-microsoft-com:office:odc"
  elementFormDefault="qualified"
  xmlns="urn:schemas-microsoft-com:office:odc"
  xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:complexType name="CT_Connection">
    <xs:sequence>
      <xs:element name="ConnectionString" type="xs:string" />
      <xs:element name="CommandType" minOccurs="0" type="ST_CommandType" />
      <xs:element name="Parameter" minOccurs="0" maxOccurs="unbounded"
        type="CT_Parameter" />
      <xs:element name="CommandText" minOccurs="0" type="xs:string" />
      <xs:element name="SSOApplicationID" minOccurs="0" type="xs:string" />
      <xs:element name="CredentialsMethod" minOccurs="0"
        type="ST_CredentialsMethod" default="Integrated" />
      <xs:element name="AlwaysUseConnectionFile" minOccurs="0"
        type="xs:boolean" default="true" />
      <xs:element name="Culture" minOccurs="0" type="xs:string" />
    </xs:sequence>
    <xs:attribute name="Type" type="ST_ConnectionType" form="qualified"
      use="required" />
  </xs:complexType>

</xs:schema>
```

## 2.2.2 CT\_Parameter

Specifies information about a parameter in an SQL query of an ODBC connection (2) type. For more information about ODBC, see [\[MSFT-ODBCODCO\]](#).

The following table specifies the child elements of this type.

| Child element | Meaning  |
|---------------|--|
| Name          | Specifies the name of the parameter.   |
| DataType      | Specifies the type of the parameter. For more information, see <a href="#">[MSDN-OpenDBConnectivity]</a> . |

The following XML schema fragment defines this element.

```
<?xml version="1.0" encoding="utf-8" ?>
<xs:schema
  targetNamespace="urn:schemas-microsoft-com:office:odc"
  elementFormDefault="qualified"
  xmlns="urn:schemas-microsoft-com:office:odc"
  xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:complexType name="CT_Parameter">
    <xs:sequence>
      <xs:element name="Name" type="xs:string" />
      <xs:element name="DataType" type="xs:int" />
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

## 2.3 File Structure

The Office Data Connection (ODC) file format persists settings that can be used to establish a data connection (1) to a data source. The persistence is formatted as HTML, which specifies descriptive text that is associated with the data connection (1) and the settings of the data connection (1).

## 2.4 Character Encoding

The content of the file MUST be encoded as **UTF-8**.

## 2.5 HTML

The HTML specifies:

- Document properties (section [2.6](#)) used to describe the intent of the data connection (1).
- Data connection (1) settings (section [2.7](#)) used to specify the data source and the data to query.

## 2.6 Document Properties

Document properties are used to provide for the following:

- Descriptive text that is associated with the data connection (1).
- Property name/value pairs that are used by a **document repository** to categorize the data connection (1) definition.

Document properties enable a document repository to display descriptive text associated with the data connection (1) to a user.

## 2.6.1 Meta Elements

| HTML Element   | Meaning   |
|--|---|
| <pre>&lt;meta http-equiv=Content-Type content="text/x-ms-odc; charset=utf-8"&gt;</pre> | <p>Specifies that the file content has the <b>Multipurpose Internet Mail Extensions (MIME)</b> type "text/x-ms-odc", and that the encoding is UTF-8.</p>  |
| <pre>&lt;meta name=ProgId content=value&gt;</pre>                                      | <p>Specifies the data connection (1) type. The possible values are:</p> <ul style="list-style-type: none"> <li>ODC.Cube<br/>Specifies a data connection (1) to a cube within an OLAP database.</li> <li>ODC.Database<br/>Specifies a data connection (1) to a database.</li> <li>ODC.Table<br/>Specifies a data connection (1) to a tabular result within a database.</li> <li>ODC.TableCollection<br/>Specifies a data connection (1) to a collection of tabular results within a database.</li> </ul> |
| <pre>&lt;meta name=SourceType content=value&gt;</pre>                                  | <p>Specifies the database API; MUST be present. The possible values are:</p> <ul style="list-style-type: none"> <li>OLEDB<br/>Specifies to use OLE DB. For more information about OLE DB, see <a href="#">[MSDN-OLEDBP-OI]</a>.</li> <li>ODBC<br/>Specifies to use ODBC. For more information about ODBC, see <a href="#">[MSFT-ODBCODCO]</a>.</li> <li>DATAFEED<br/>Specifies to use DATAFEED. For more details about data feeds, see <a href="#">[MS-ODATA]</a>.</li> </ul>                           |
| <pre>&lt;meta name=Catalog content=value&gt;</pre>                                     | <p>Specifies the catalog that the connection string refers to, if any.</p>  |
| <pre>&lt;meta name=Schema content=value&gt;</pre>                                      | <p>Specifies the schema that the connection string refers to, if any.</p>   |
| <pre>&lt;meta name=Table content=value&gt;</pre>                                       | <p>Specifies the table that the connection string refers to, if any.</p>  |

## 2.6.2 Title Element

| HTML Element                                  | Meaning  |
|---|--|
| <code>&lt;title&gt;value&lt;/title&gt;</code> | Specifies a descriptive name given to the data connection (1). |

## 2.6.3 Office Document Properties XML

If Office Document Properties XML is present, it MUST be within the **HEAD** element of the HTML. It MUST be encapsulated in an element that has the name **xml** with a single attribute that has the name **id** and the value **docprops**. It MUST use the namespace prefix **o**.

### 2.6.3.1 DocumentProperties (Office Document Properties)

| Child element | Meaning   |
|---------------|---|
| Description   | Specifies the description for the data connection (1).  |
| Name          | Specifies a descriptive name for the data connection (1).   |
| Keywords      | Specifies the keywords that are associated with the data connection (1). The keywords are delimited by <b>white space</b> . |

The following XML schema fragment defines this element.

```
<?xml version="1.0" encoding="utf-8" ?>
<xs:schema
  targetNamespace="urn:schemas-microsoft-com:office:office"
  elementFormDefault="qualified"
  xmlns="urn:schemas-microsoft-com:office:office"
  xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:element name="DocumentProperties">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="Description" minOccurs="0" type="xs:string" />
        <xs:element name="Name" minOccurs="0" type="xs:string" />
        <xs:element name="Keywords" minOccurs="0" type="xs:string" />
      </xs:sequence>
    </xs:complexType>
  </xs:element>

</xs:schema>
```

## 2.7 Data Connection Settings

The settings for the data connection (1) provide:

- The database API used to establish the data connection (1).
- The data source of the data connection (1).
- The parameters that qualify the data to query.

## 2.7.1 Office Data Connection XML

The Office Data Connection XML specifies the data connection (1) settings, and MUST be present. It MUST be within the HEAD element of the HTML, and MUST be encapsulated in an element having the name **xml** with a single attribute having the name **id** and the value **msodc**. The Office Data Connection XML MUST use the namespace prefix **odc**. The root XML closing element tag "OfficeDataConnection" MUST have no space preceding the XML ending delimiter ">".

### 2.7.1.1 OfficeDataConnection (Office Data Connection)

| Child element | Meaning  |
|---------------|--|
| SourceFile    | Specifies the <b>Uniform Resource Locator (URL)</b> to the data source file.   |
| Connection    | Specifies the settings for the data connection (1).<br><br>If two <b>Connection</b> elements are present, the first specifies the preferred connection (1), and the second specifies an alternative in cases where the first cannot be used. |

The following XML schema fragment defines this element.

```
<?xml version="1.0" encoding="utf-8" ?>
<xs:schema
  targetNamespace="urn:schemas-microsoft-com:office:odc"
  elementFormDefault="qualified"
  xmlns="urn:schemas-microsoft-com:office:odc"
  xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:element name="OfficeDataConnection">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="SourceFile" minOccurs="0" type="xs:string" />
        <xs:element name="Connection" maxOccurs="2" type="CT_Connection" />
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```



## 3 Structure Examples

### 3.1 Retrieving Data From an SQL Source

This example shows what the ODC file contents contain for a typical scenario of fetching data from an SQL-based data source.

The HTML for this example is as follows.

```
<html xmlns:o="urn:schemas-microsoft-com:office:office"
  xmlns="http://www.w3.org/TR/REC-html40">
<head>
<meta http-equiv=Content-Type content="text/x-ms-odc; charset=utf-8">
<meta name=ProgId content=ODC.Table>
<meta name=SourceType content=ODBC>
<title>Northwind</title>
<xml id=docprops><o:DocumentProperties
  xmlns:o="urn:schemas-microsoft-com:office:office"
  xmlns="http://www.w3.org/TR/REC-html40">
  <o:Name>Northwind</o:Name>
</o:DocumentProperties>
</xml><xml id=msodc><odc:OfficeDataConnection
  xmlns:odc="urn:schemas-microsoft-com:office:odc"
  xmlns="http://www.w3.org/TR/REC-html40">
  <odc:Connection odc:Type="ODBC">
    <odc:ConnectionString>DRIVER=SQL Server;SERVER=mysqlserver;APP=2007 Microsoft Office
system;Trusted_Connection=Yes</odc:ConnectionString>
    <odc:CommandText>SELECT * FROM Northwind.dbo.Invoices Invoices</odc:CommandText>
  </odc:Connection>
</odc:OfficeDataConnection>
</xml>
</head>

</html>
```

### 3.2 Retrieving OLAP Data and Refreshing It in a Server Environment

This example shows an ODC file that contains a connection (1) to an OLAP data source, named "Adventure Works."

It also contains authentication instructions for a server application. The <CredentialsMethod> element specifies that stored **credentials** are to be retrieved for the user. The file also specifies the stored application identifier, "Application1", in the <SSOApplicationID> element.

The client applications are instructed to always use the content of the ODC file for generating connections to the data source. This is specified by the presence of the <AlwaysUseConnectionFile> element.

The HTML for this example is as follows.

```
<html xmlns:o="urn:schemas-microsoft-com:office:office"
  xmlns="http://www.w3.org/TR/REC-html40">
<head><meta http-equiv=Content-Type content="text/x-ms-odc; charset=utf-8">
<meta name=ProgId content=ODC.Cube>
<meta name=SourceType content=OLEDB>
<meta name=Catalog content="Adventure Works DW">
<meta name=Table content="Adventure Works">
<title>Adventure Works</title>
<xml id=docprops><o:DocumentProperties
  xmlns:o="urn:schemas-microsoft-com:office:office"
  xmlns="http://www.w3.org/TR/REC-html40">
```

```
<o:Name>Adventure Works</o:Name>
</o:DocumentProperties>
</xml><xml id=msodc><odc:OfficeDataConnection
  xmlns:odc="urn:schemas-microsoft-com:office:odc"
  xmlns="http://www.w3.org/TR/REC-html40">
  <odc:Connection odc:Type="OLEDB">
    <odc:ConnectionString>Provider=MSOLAP.3;Integrated Security=SSPI;Persist Security
Info=True;Data Source=myolapserver;Initial Catalog=Adventure Works DW</odc:ConnectionString>
    <odc:CommandType>Cube</odc:CommandType>
    <odc:CommandText>Adventure Works</odc:CommandText>
    <odc:SSOApplicationID>Application1</odc:SSOApplicationID>
    <odc:CredentialsMethod>Stored</odc:CredentialsMethod>
    <odc:AlwaysUseConnectionFile/>
  </odc:Connection>
</odc:OfficeDataConnection>
</xml>

</html>
```

## 4 Security Considerations

### 4.1 Security Considerations for Implementers

Implementers and consumers of the ODC file format need to take into consideration that ODC files contain sensitive information. Implementers are encouraged to treat these files as sensitive resources and protect them appropriately. ODC files often contain the following:

- Internal information, such as server names, table names, or query information.
- Username and passwords. These strings are often stored in plaintext in an ODC file. Implementers might consider storing ODC files encrypted, or reevaluate their policies for allowing user credentials to be stored in a file.

The key to stored credentials. To help facilitate server-based authentication, ODC files can contain information to allow servers to retrieve credentials on behalf of a user from a centrally located credential store. In this case, an application identifier, which is used to look up the credentials, is persisted in the ODC file.

### 4.2 Index of Security Fields

None.

## 5 Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include released service packs.

- Microsoft Office Excel 2007
- Microsoft Excel 2010
- Microsoft Excel 2013
- Microsoft Excel 2016

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms SHOULD or SHOULD NOT implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies that the product does not follow the prescription.

[<1> Section 2.1.1](#): This value is only supported in Excel 2013.

[<2> Section 2.1.2](#): This value is only supported in Excel 2013.

[<3> Section 2.2.1](#): The 2007 Microsoft Office system and Microsoft Office 2010 suites does not load a file in which this element contains a value that it does not recognize, or is not recognized by the underlying operating system. The 2007 Office system and Office 2010 recognize the following language tags:

| Language  | Locale       | Language Tag |
|-----------|--------------|--------------|
| Afrikaans | South Africa | af-ZA        |
| Albanian  | Albanian     | sq-AL        |
| Alsatian  | France       | gsw-FR       |
| Amharic   | Ethiopia     | am-ET        |
| Arabic    | Algeria      | ar-DZ        |
| Arabic    | Bahrain      | ar-BH        |
| Arabic    | Egypt        | ar-EG        |
| Arabic    | Iraq         | ar-IQ        |
| Arabic    | Jordan       | ar-JO        |
| Arabic    | Kuwait       | ar-KW        |
| Arabic    | Lebanon      | ar-LB        |
| Arabic    | Libya        | ar-LY        |

| Language                 | Locale                 | Language Tag |
|--------------------------|------------------------|--------------|
| Arabic                   | Morocco                | ar-MA        |
| Arabic                   | Oman                   | ar-OM        |
| Arabic                   | Qatar                  | ar-QA        |
| Arabic                   | Saudi Arabia           | ar-SA        |
| Arabic                   | Syria                  | ar-SY        |
| Arabic                   | Tunisia                | ar-TN        |
| Arabic                   | U.A.E.                 | ar-AE        |
| Arabic                   | Yemen                  | ar-YE        |
| Armenian                 | Armenia                | hy-AM        |
| Assamese                 | India                  | as-IN        |
| Azeri (Cyrillic)         | Azerbaijan             | az-AZ-Cyrl   |
| Azeri (Latin)            | Azerbaijan             | az-AZ-Latn   |
| Bashkir                  | Russia                 | ba-RU        |
| Basque                   | Basque                 | eu-ES        |
| Belarusian               | Belarus                | be-BY        |
| Bengali                  | Bangladesh             | bn-BD        |
| Bengali (Bengali Script) | India                  | bn-IN        |
| Bosnian (Cyrillic)       | Bosnia and Herzegovina | bs-BA-Cyrl   |
| Bosnian (Latin)          | Bosnia and Herzegovina | bs-BA-Latn   |
| Breton                   | France                 | br-FR        |
| Bulgarian                | Bulgaria               | bg-BG        |
| Catalan                  | Catalan                | ca-ES        |
| Chinese                  | Hong Kong SAR          | zh-HK        |
| Chinese                  | Macao SAR              | zh-MO        |
| Chinese                  | PRC                    | zh-CN        |
| Chinese                  | Singapore              | zh-SG        |
| Chinese                  | Taiwan                 | zh-TW        |
| Corsican                 | France                 | co-FR        |

| <b>Language</b>  | <b>Locale</b>          | <b>Language Tag</b> |
|------------------|------------------------|---------------------|
| Croatian         | Croatia                | hr-HR               |
| Croatian (Latin) | Bosnia and Herzegovina | hr-BA-Latn          |
| Czech            | Czech Republic         | cs-CZ               |
| Danish           | Denmark                | da-DK               |
| Dari             | Afghanistan            | prs-AF              |
| Divehi           | Maldives               | div-MV              |
| Dutch            | Belgium                | nl-BE               |
| Dutch            | Netherlands            | nl-NL               |
| English          | Australia              | en-AU               |
| English          | Belize                 | en-BZ               |
| English          | Canada                 | en-CA               |
| English          | Caribbean              | en-CB               |
| English          | India                  | en-IN               |
| English          | Ireland                | en-IE               |
| English          | Jamaica                | en-JM               |
| English          | Malaysia               | en-MY               |
| English          | New Zealand            | en-NZ               |
| English          | Philippines            | en-PH               |
| English          | South Africa           | en-ZA               |
| English          | Trinidad               | en-TT               |
| English          | United Kingdom         | en-GB               |
| English          | United States          | en-US               |
| English          | Zimbabwe               | en-ZW               |
| Estonian         | Estonia                | et-EE               |
| Faroese          | Faroe Islands          | fo-FO               |
| Filipino         | Philippines            | fil-PH              |
| Finnish          | Finland                | fi-FI               |
| French           | Belgium                | fr-BE               |

| Language                   | Locale        | Language Tag |
|----------------------------|---------------|--------------|
| French                     | Canada        | fr-CA        |
| French                     | France        | fr-FR        |
| French                     | Luxembourg    | fr-LU        |
| French                     | Monaco        | fr-MC        |
| French                     | Switzerland   | fr-CH        |
| Frisian                    | Netherlands   | fy-NL        |
| Galician                   | Galician      | gl-ES        |
| Georgian                   | Georgia       | ka-GE        |
| German                     | Austria       | de-AT        |
| German                     | Germany       | de-DE        |
| German                     | Liechtenstein | de-LI        |
| German                     | Luxembourg    | de-LU        |
| German                     | Switzerland   | de-CH        |
| Greek                      | Greece        | el-GR        |
| Greenlandic                | Greenland     | kl-GL        |
| Gujarati (Gujarati Script) | India         | gu-IN        |
| Hausa (Latin)              | Nigeria       | ha-NG-Latn   |
| Hebrew                     | Israel        | he-IL        |
| Hindi                      | India         | hi-IN        |
| Hungarian                  | Hungary       | hu-HU        |
| Icelandic                  | Iceland       | is-IS        |
| Igbo                       | Nigeria       | ig-NG        |
| Inari Sami                 | Finland       | smn-FI       |
| Indonesian                 | Indonesia     | id-ID        |
| Inuktitut (Latin)          | Canada        | iu-CA-Latn   |
| Inuktitut (Syllabics)      | Canada        | iu-CA-Cans   |
| Irish                      | Ireland       | ga-IE        |
| isiXhosa / Xhosa           | South Africa  | xh-ZA        |

| <b>Language</b>              | <b>Locale</b>                          | <b>Language Tag</b> |
|------------------------------|--|---------------------|
| isiZulu / Zulu               | South Africa                           | zu-ZA               |
| Italian                      | Italy                                  | it-IT               |
| Italian                      | Switzerland                            | it-CH               |
| Japanese                     | Japan                                  | ja-JP               |
| Kannada (Kannada Script)     | India                                  | kn-IN               |
| Kazakh                       | Kazakhstan                             | kk-KZ               |
| Khmer                        | Cambodia                               | kh-KH               |
| K'iche                       | Guatemala                              | qut-GT              |
| Kinyarwanda                  | Rwanda                                 | rw-RW               |
| Konkani                      | India                                  | kok-IN              |
| Korean                       | Korea                                  | ko-KR               |
| Kyrgyz                       | Kyrgyzstan                             | ky-KG               |
| Lao                          | Lao PDR                                | lo-LA               |
| Latvian                      | Latvia                                 | lv-LV               |
| Lithuanian                   | Lithuania                              | lt-LT               |
| Lower Sorbian                | Germany                                | wee-DE              |
| Lule Sami                    | Norway                                 | smj-NO              |
| Lule Sami                    | Sweden                                 | smj-SE              |
| Luxembourgish                | Luxembourg                             | lb-LU               |
| Macedonian (FYROM)           | Macedonia, Former Yugoslav Republic of | mk-MK               |
| Malay                        | Brunei                                 | ms-BN               |
| Malay                        | Malaysia                               | ms-MY               |
| Malayalam (Malayalam Script) | India                                  | ml-IN               |
| Maltese                      | Malta                                  | mt-MT               |
| Maori                        | New Zealand                            | mi-NZ               |
| Mapudungun                   | Chile                                  | arn-CL              |
| Marathi                      | India                                  | mr-IN               |
| Mohawk                       | Mohawk                                 | moh-CA              |



| Language                          | Locale                 | Language Tag |
|-----------------------------------|------------------------|--------------|
| Mongolian (Cyrillic)              | Mongolia               | mn-MN        |
| Mongolian (Mongolian)             | PRC                    | mn-CN-Mong   |
| Nepali                            | Nepal                  | ne-NP        |
| Northern Sami                     | Finland                | se-FI        |
| Northern Sami                     | Norway                 | se-NO        |
| Northern Sami                     | Sweden                 | se-SE        |
| Norwegian (Bokmål)                | Norway                 | nb-NO        |
| Norwegian (Nynorsk)               | Norway                 | nn-NO        |
| Occitan                           | France                 | oc-FR        |
| Oriya (Oriya Script)              | India                  | or-IN        |
| Pashto                            | Afghanistan            | ps-AF        |
| Persian                           | Iran                   | fa-IR        |
| Polish                            | Poland                 | pl-PL        |
| Portuguese                        | Brazil                 | pt-BR        |
| Portuguese                        | Portugal               | pt-PT        |
| Punjabi (Gurmukhi Script)         | India                  | pa-IN        |
| Quechua                           | Bolivia                | quz-BO       |
| Quechua                           | Ecuador                | quz-EC       |
| Quechua                           | Peru                   | quz-PE       |
| Romanian                          | Romania                | ro-RO        |
| Romansh                           | Switzerland            | rm-CH        |
| Russian                           | Russia                 | ru-RU        |
| Sanskrit                          | India                  | sa-IN        |
| Serbian (Cyrillic)                | Bosnia and Herzegovina | sr-BA-Cyrl   |
| Serbian (Cyrillic)                | Serbia                 | sr-SP-Cyrl   |
| Serbian (Latin)                   | Bosnia and Herzegovina | sr-BA-Latn   |
| Serbian (Latin)                   | Serbia                 | sr-SP-Latn   |
| Sesotho sa Leboa / Northern Sotho | South Africa           | ns-ZA        |

| <b>Language</b>   | <b>Locale</b>      | <b>Language Tag</b> |
|-------------------|--------------------|---------------------|
| Setswana / Tswana | South Africa       | tn-ZA               |
| Sinhala           | Sri Lanka          | si-LK               |
| Skolt Sami        | Finland            | sms-FI              |
| Slovak            | Slovakia           | sk-SK               |
| Slovenian         | Slovenia           | sl-SI               |
| Southern Sami     | Norway             | sma-NO              |
| Southern Sami     | Sweden             | sma-SE              |
| Spanish           | Argentina          | es-AR               |
| Spanish           | Bolivia            | es-BO               |
| Spanish           | Chile              | es-CL               |
| Spanish           | Columbia           | es-CO               |
| Spanish           | Costa Rica         | es-CR               |
| Spanish           | Dominican Republic | es-DO               |
| Spanish           | Ecuador            | es-EC               |
| Spanish           | El Salvador        | es-SV               |
| Spanish           | Guatemala          | es-GT               |
| Spanish           | Honduras           | es-HN               |
| Spanish           | Mexico             | es-MX               |
| Spanish           | Nicaragua          | es-NI               |
| Spanish           | Panama             | es-PA               |
| Spanish           | Paraguay           | es-PY               |
| Spanish           | Peru               | es-PE               |
| Spanish           | Puerto Rico        | es-PR               |
| Spanish           | Spain              | es-ES               |
| Spanish           | United States      | es-US               |
| Spanish           | Uruguay            | es-UY               |
| Spanish           | Venezuela          | es-VE               |
| Swahili           | Kenya              | sw-KE               |

| Language               | Locale         | Language Tag |
|------------------------|----------------|--------------|
| Swedish                | Finland        | sv-FI        |
| Swedish                | Sweden         | sv-SE        |
| Syriac                 | Syria          | syr-SY       |
| Tajik (Cyrillic)       | Tajikistan     | tg-TJ-Cyrl   |
| Tamazight (Latin)      | Algeria        | tmz-DZ-Latn  |
| Tamil                  | India          | ta-IN        |
| Tatar                  | Russia         | tt-RU        |
| Telugu (Telugu Script) | India          | te-IN        |
| Thai                   | Thailand       | th-TH        |
| Bhutanese              | Bhutan         | bo-BT        |
| Tibetan                | PRC            | bo-CN        |
| Turkish                | Turkey         | tr-TR        |
| Turkmen                | Turkmenistan   | tk-TM        |
| Uighur                 | PRC            | ug-CN        |
| Ukrainian              | Ukraine        | uk-UA        |
| Upper Sorbian          | Germany        | wen-DE       |
| Urdu                   | Pakistan       | ur-PK        |
| Uzbek (Cyrillic)       | Uzbekistan     | uz-UZ-Cyrl   |
| Uzbek (Latin)          | Uzbekistan     | uz-UZ-Latn   |
| Vietnamese             | Viet Nam       | vi-VN        |
| Welsh                  | United Kingdom | cy-GB        |
| Wolof                  | Senegal        | wo-SN        |
| Sakha                  | Russia         | sah-RU       |
| Yi                     | PRC            | ii-CN        |
| Yoruba                 | Nigeria        | yo-NG        |

<4> [Section 2.2.1](#): The 2007 Office system does not create this element.

## 6 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

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