

[MS-UDCX]: Universal Data Connection 2.0 XML File Format

Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation for protocols, file formats, languages, standards as well as overviews of the interaction among each of these technologies.
- **Copyrights.** This documentation is covered by Microsoft copyrights. Regardless of any other terms that are contained in the terms of use for the Microsoft website that hosts this documentation, you may make copies of it in order to develop implementations of the technologies described in the Open Specifications and may distribute portions of it in your implementations using these technologies or your documentation as necessary to properly document the implementation. You may also distribute in your implementation, with or without modification, any schema, IDL's, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications.
- **No Trade Secrets.** Microsoft does not claim any trade secret rights in this documentation.
- **Patents.** Microsoft has patents that may cover your implementations of the technologies described in the Open Specifications. Neither this notice nor Microsoft's delivery of the documentation grants any licenses under those or any other Microsoft patents. However, a given Open Specification may be covered by Microsoft's Open Specification Promise (available here: <http://www.microsoft.com/interop/osp>) or the Community Promise (available here: <http://www.microsoft.com/interop/cp/default.msp>). If you would prefer a written license, or if the technologies described in the Open Specifications are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting iplg@microsoft.com.
- **Trademarks.** The names of companies and products contained in this documentation may be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights.
- **Fictitious Names.** The example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted in this documentation are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.

Reservation of Rights. All other rights are reserved, and this notice does not grant any rights other than specifically described above, whether by implication, estoppel, or otherwise.

Tools. The Open Specifications do not require the use of Microsoft programming tools or programming environments in order for you to develop an implementation. If you have access to Microsoft programming tools and environments you are free to take advantage of them. Certain Open Specifications are intended for use in conjunction with publicly available standard specifications and network programming art, and assumes that the reader either is familiar with the aforementioned material or has immediate access to it.

Revision Summary

Date	Revision History	Revision Class	Comments
04/04/2008	0.01	Major	Initial Availability
06/27/2008	1.0	Editorial	Revised and edited technical content
07/13/2009	1.01	Major	Revised and edited the technical content
08/28/2009	1.02	Editorial	Revised and edited the technical content
11/06/2009	1.03	Editorial	Revised and edited the technical content
02/19/2010	2.0	Major	Updated and revised the technical content
03/31/2010	2.01	Editorial	Revised and edited the technical content
04/30/2010	2.02	Editorial	Revised and edited the technical content
06/07/2010	2.03	Editorial	Revised and edited the technical content
06/29/2010	2.04	Editorial	Changed language and formatting in the technical content.
07/23/2010	2.05	Editorial	Changed language and formatting in the technical content.
09/27/2010	2.05	No change	No changes to the meaning, language, or formatting of the technical content.
11/15/2010	2.05	No change	No changes to the meaning, language, or formatting of the technical content.
12/17/2010	2.05	No change	No changes to the meaning, language, or formatting of the technical content.

Table of Contents

1 Introduction	5
1.1 Glossary	5
1.2 References	5
1.2.1 Normative References	5
1.2.2 Informative References	6
1.3 Structure Overview (Synopsis)	6
1.4 Relationship to Protocols and Other Structures	7
1.5 Applicability Statement	7
1.6 Versioning and Localization	7
1.7 Vendor-Extensible Fields	7
2 Structures	8
2.1 Namespaces	8
2.2 UDC Processing Instructions	8
2.3 UDC Schema	8
2.3.1 DataSource	8
2.3.2 Name	9
2.3.3 Description	9
2.3.4 Type	9
2.3.5 ConnectionInfo	10
2.3.6 WsdUrl	11
2.3.7 SelectCommand	12
2.3.8 ListId	13
2.3.9 WebUrl	13
2.3.10 ConnectionString	13
2.3.11 Query	14
2.3.12 UpdateCommand	14
2.3.13 Submit	15
2.3.14 FileName	15
2.3.15 SoapAction	16
2.3.16 OperationName	16
2.3.17 FolderName	16
2.3.18 ServiceUrl	17
2.3.19 Authentication	18
2.3.20 UseExplicit	18
2.3.21 UserId	19
2.3.22 Password	19
2.3.23 SSO	20
2.3.24 CredentialTypeEnumeration	20
2.3.25 SubType	21
2.4 Connection Type Requirements	21
2.4.1 SharePointList Requirements	22
2.4.2 SharePointLibrary Requirements	22
2.4.3 Database Requirements	22
2.4.4 XmlQuery Requirements	22
2.4.5 WebService Requirements	23
2.4.6 XmlSubmit Requirements	23
2.4.7 Rest Requirements	23
3 Structure Examples	24

3.1 Database	24
3.2 WebService.....	24
3.3 Empty Authentication	25
4 Security Considerations.....	26
5 Appendix A: Full XML Schemas.....	27
5.1 XML Schema for the UDC File	27
6 Appendix B: Product Behavior	31
7 Change Tracking.....	32
8 Index	33

1 Introduction

This document specifies the Universal Data Connection 2.0 XML File Structure, which provides a container for data connection information. A Universal Data Connection (UDC) file uses XML to represent this information.

1.1 Glossary

The following terms are defined in [\[MS-GLOS\]](#):

authentication
credential
Hypertext Transfer Protocol (HTTP)
XML

The following terms are defined in [\[MS-OFCGLOS\]](#):

absolute URL
data connection
data source
form template
Representational State Transfer (REST)
server-relative URL
single sign-on (SSO)
URL (Uniform Resource Locator)
Web service
XML namespace

The following terms are specific to this document:

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

1.2 References

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. We will assist you in finding the relevant information. Please check the archive site, <http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[MS-ADTG] Microsoft Corporation, "[Remote Data Services \(RDS\) Transport Protocol Specification](#)", August 2007.

[MS-FSPP] Microsoft Corporation, "[Forms Services Proxy Web Service Protocol Specification](#)", June 2008.

[MS-INFODCF] Microsoft Corporation, "[InfoPath Data Connection File Download Protocol Specification](#)", June 2008.

[MS-SFU] Microsoft Corporation, "[Kerberos Protocol Extensions: Service for User and Constrained Delegation Protocol Specification](#)", January 2007.

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

[RFC2396] Berners-Lee, T., Fielding, R., and Masinter, L., "Uniform Resource Identifiers (URI): Generic Syntax", RFC 2396, August 1998, <http://www.ietf.org/rfc/rfc2396.txt>

[RFC2617] Franks, J., Hallam-Baker, P., Hostetler, J., et al., "HTTP Authentication: Basic and Digest Access Authentication", RFC 2617, June 1999, <http://www.ietf.org/rfc/rfc2617.txt>

[RFC4120] Neuman, C., Yu, T., Hartman, S., and Raeburn, K., "The Kerberos Network Authentication Service (V5)", RFC 4120, July 2005, <http://www.ietf.org/rfc/rfc4120.txt>

[RFC4559] Jaganathan, K., Zhu, L., and Brezak, J., "SPNEGO-based Kerberos and NTLM HTTP Authentication in Microsoft Windows", RFC 4559, June 2006, <http://www.ietf.org/rfc/rfc4559.txt>

[RFC5234] Crocker, D., Ed., and Overell, P., "Augmented BNF for Syntax Specifications: ABNF", STD 68, RFC 5234, January 2008, <http://www.ietf.org/rfc/rfc5234.txt>

[XML] World Wide Web Consortium, "Extensible Markup Language (XML) 1.0 (Fourth Edition)", W3C Recommendation, August 2006, <http://www.w3.org/TR/2006/REC-xml-20060816/>

[XMLNS] World Wide Web Consortium, "Namespaces in XML 1.0 (Third Edition)", W3C Recommendation 8 December 2009, <http://www.w3.org/TR/REC-xml-names/>

[XMLSCHEMA1] Thompson, H.S., Ed., Beech, D., Ed., Maloney, M., Ed., and Mendelsohn, N., Ed., "XML Schema Part 1: Structures", W3C Recommendation, May 2001, <http://www.w3.org/TR/2001/REC-xmlschema-1-20010502/>

[XMLSCHEMA2] Biron, P.V., Ed. and Malhotra, A., Ed., "XML Schema Part 2: Datatypes", W3C Recommendation, May 2001, <http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/>

1.2.2 Informative References

[MS-GLOS] Microsoft Corporation, "[Windows Protocols Master Glossary](#)", March 2007.

[MS-OFCGLOS] Microsoft Corporation, "[Microsoft Office Master Glossary](#)", June 2008.

[NTLM] Microsoft Corporation, "Microsoft NTLM", <http://msdn.microsoft.com/en-us/library/aa378749.aspx>

If you have any trouble finding [NTLM], please check [here](#).

1.3 Structure Overview (Synopsis)

The Universal Data Connection (UDC) file specifies settings for **data connections (2)** used by **form templates**. Each UDC file provides the necessary information to connect to a **data source**. The UDC file is constructed of three main parts: Name and Description, Type and Purpose, and Connection Information.

The following figure shows the structure of a UDC file.

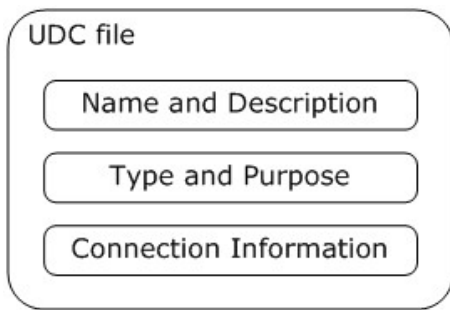


Figure 1: UDC file structure

1.4 Relationship to Protocols and Other Structures

The UDC file is used by the Forms Service Proxy Web Service Protocol ([\[MS-FSPP\]](#)) to connect to a target **Web service** and optionally use the **credentials** specified in the UDC file.

A form template uses the information in a UDC file to connect to a data source. The InfoPath Data Connection File Download Protocol ([\[MS-INFODCF\]](#)) provides a method for a protocol client that has a form template to request a UDC file.

1.5 Applicability Statement

The UDC file is used to store data connection (2) information outside of a form template. This enables multiple form templates to share the same data connections. When a UDC file is used to specify the data connections for a form template, the data connections can be updated without modifying the form template by changing the information in the UDC file.

1.6 Versioning and Localization

This document covers versioning issues in the following areas:

This document specifies the Universal Data Connection version 2.0 file format.

Localization: None.

1.7 Vendor-Extensible Fields

None.

2 Structures

2.1 Namespaces

This specification specifies and references various **XML namespaces** using the mechanisms specified in [\[XMLNS\]](#) and [\[RFC2396\]](#). Although this specification associates a specific XML Namespace prefix for each XML Namespace that is used, the choice of any particular XML Namespace prefix is implementation-specific and not significant for interoperability.

Prefix	Namespace URI	Reference
xsd	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1] [XMLSCHEMA2]
udc	http://schemas.microsoft.com/office/infopath/2006/udc	

2.2 UDC Processing Instructions

The following XML processing instruction tag, as specified in [\[XML\]](#), section 2.6, **MUST** appear in the UDC file:

```
<?MicrosoftWindowsSharePointServices...?>
```

A formal definition in Augmented Backus-Naur Format (ABNF), as specified in [\[RFC5234\]](#), of the XML processing instructions is as follows.

```
UDC_PI = '<?MicrosoftWindowsSharePointServices ' CONTENT_ID_TYPE '?>' CRLF
CONTENT_ID_TYPE = 'ContentTypeID="0x010100B4CBD48E029A4AD8B62CB0E41868F2B0"'
```

2.3 UDC Schema

The following sections specify the elements and attributes of the UDC file.

2.3.1 DataSource

A container for the elements of the UDC file.

Child Elements
ConnectionInfo
Description
Name
Type

Attributes:

MajorVersion: The major version of the UDC file.

MinorVersion: The minor version of the UDC file.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.


```

<xsd:element name="DataSource">
  <xsd:complexType>
    <xsd:all>
      <xsd:element name="Name" type="xsd:string"/>
      <xsd:element name="Description" type="xsd:string"/>
      <xsd:element ref="udc:Type"/>
      <xsd:element ref="udc:ConnectionInfo"/>
    </xsd:all>
    <xsd:attribute name="MajorVersion" fixed="2" use="required" type="xsd:int"/>
    <xsd:attribute name="MinorVersion" fixed="0" use="required" type="xsd:int"/>
  </xsd:complexType>
</xsd:element>

```

2.3.2 Name

The name of the UDC file.

Parent Elements
DataSource

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="Name" type="xsd:string"/>
```

2.3.3 Description

A long description for the UDC file.

Parent Elements
DataSource

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="Description" type="xsd:string"/>
```

2.3.4 Type

The connection type for the UDC file.

Parent Elements
DataSource

Child Elements

Child Elements
SubType

Attributes:

MajorVersion: The major version of the UDC file. MUST be ignored by the protocol server.

MinorVersion: The minor version of the UDC file. MUST be ignored by the protocol server.

Type: The connection type of the UDC file. MUST be one of the following values:

- SharePointList
- SharePointLibrary
- Database
- XmlQuery
- WebService
- XmlSubmit
- Rest

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="Type">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="udc:SubType" minOccurs="0"/>
    </xsd:sequence>
    <xsd:attribute name="MajorVersion" type="xsd:string" use="optional"/>
    <xsd:attribute name="MinorVersion" type="xsd:string" use="optional"/>
    <xsd:attribute name="Type" use="required">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="SharePointList"/>
          <xsd:enumeration value="SharePointLibrary"/>
          <xsd:enumeration value="Database"/>
          <xsd:enumeration value="XmlQuery"/>
          <xsd:enumeration value="WebService"/>
          <xsd:enumeration value="XmlSubmit"/>
          <xsd:enumeration value="Rest"/>
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:attribute>
  </xsd:complexType>
</xsd:element>
```

2.3.5 ConnectionInfo

Contains the information used to establish a connection to a data source.

Parent Elements
DataSource

Child Elements
Authentication
SelectCommand
UpdateCommand
WsdlUrl

Attributes:

AltDataSource: A **URL** to another UDC file in the same library. The protocol server **MUST NOT** support **absolute URLs** for this value. The protocol server **MUST** use the UDC file specified in this attribute instead of the current UDC file.

Purpose: Determines whether the connection is for a query or submit operation. **MUST** be one of the following values: "ReadOnly", "WriteOnly", or "ReadWrite". **MUST** be ignored by the protocol server.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="ConnectionInfo">
  <xsd:complexType>
    <xsd:all>
      <xsd:element name="WsdlUrl" minOccurs="0" type="xsd:string"/>
      <xsd:element ref="udc:SelectCommand"/>
      <xsd:element ref="udc:UpdateCommand"/>
      <xsd:element ref="udc:Authentication" minOccurs="0"/>
    </xsd:all>
    <xsd:attribute name="Purpose" use="required">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="ReadOnly"/>
          <xsd:enumeration value="WriteOnly"/>
          <xsd:enumeration value="ReadWrite"/>
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:attribute>
    <xsd:attribute name="AltDataSource" type="xsd:string" use="optional"/>
  </xsd:complexType>
</xsd:element>
```

2.3.6 WsdlUrl

When the value of the **Type** attribute of the **Type** element equals "**WebService**", this element **MUST** exist and its value **MUST** be a URL to the WSDL of a Web service where a SOAP query or SOAP submit is executed. The protocol server **MUST** support absolute URLs and **SHOULD** [<1>](#) support **server-relative URLs** for this value.

When the value of the **Type** attribute of the **Type** element is not equal to "**WebService**", the WsdUrl element MUST be ignored.

Parent Elements
ConnectionInfo

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="WsdUrl" minOccurs="0" type="xsd:string"/>
```

2.3.7 SelectCommand

Contains the information used to query data from a data source.

Parent Elements
ConnectionInfo

Child Elements
ConnectionString
ListId
OperationName
Query
ServiceUrl
SoapAction
WebUrl

Attributes:

Type: Reserved for future use. MUST be ignored by the protocol server.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="SelectCommand">  
  <xsd:complexType>  
    <xsd:all>  
      <xsd:element name="ListId" minOccurs="0" type="xsd:string"/>  
      <xsd:element name="WebUrl" minOccurs="0" type="xsd:string"/>  
      <xsd:element name="ConnectionString" minOccurs="0" type="xsd:string"/>  
      <xsd:element ref="udc:ServiceUrl" minOccurs="0"/>  
      <xsd:element ref="udc:SoapAction" minOccurs="0"/>  
      <xsd:element ref="udc:OperationName" minOccurs="0"/>  
      <xsd:element name="Query" minOccurs="0" type="xsd:string"/>  
    </xsd:all>  
  </xsd:complexType>  
</xsd:element>
```

```

    </xsd:all>
    <xsd:attribute name="Type" type="xsd:string" use="optional"/>
  </xsd:complexType>
</xsd:element>

```

2.3.8 ListId

A unique identifier for a list available on the protocol server. When the value of the **Type** attribute of the **Type** element equals "**SharePointList**", this element and its value **MUST** exist. Otherwise, it **MUST** be ignored.

Parent Elements
SelectCommand

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="ListId" minOccurs="0" type="xsd:string"/>
```

2.3.9 WebUrl

When the value of the **Type** attribute of the **Type** element equals "**SharePointList**", this element **MUST** exist and its value **MUST** be a URL to the protocol server which contains the list specified by **ListId**. The protocol server **MUST** support absolute URLs and **SHOULD** [<2>](#) support server-relative URLs for this value.

When the value of the **Type** attribute of the **Type** element is not equal to "**SharePointList**", the **WebUrl** element **MUST** be ignored.

Parent Elements
SelectCommand

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="WebUrl" minOccurs="0" type="xsd:string"/>
```

2.3.10 ConnectionString

A database connection string (as specified in [\[MS-ADTG\]](#)) to establish and maintain the connection between the database and the protocol server. When the value of the **Type** attribute of the **Type** element equals "**Database**", this element and its value **MUST** exist. Otherwise, it **MUST** be ignored.

Parent Elements
SelectCommand

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="ConnectionString" minOccurs="0" type="xsd:string"/>
```

2.3.11 Query

A query or URL. MUST be one of the following:

1. If the value of the **Type** attribute of the **Type** element equals "**Database**", then the value of the **Query** element MUST be a SQL query that can access and retrieve data from the database specified in the **ConnectionString** element to the protocol server.
2. When the value of the **Type** attribute of the **Type** element equals "**XmlQuery**", the **Query** element MUST exist and its value MUST be a URL to an **XML** file stored on a Web server that can access and retrieve data from a Web server to the protocol server. The protocol server MUST support absolute URLs and SHOULD [<3>](#) support server-relative URLs for this value.
3. If the value of the **Type** attribute of the **Type** element equals "**Rest**", this element MUST exist and its value MUST be an absolute URL to a **REST** Web service that can access and retrieve data from the Web service to the protocol server.
4. Otherwise, this element MUST be ignored by the protocol server.

Parent Elements
SelectCommand

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="Query" minOccurs="0" type="xsd:string"/>
```

2.3.12 UpdateCommand

Contains the information used to submit data to a data source. Section [2.4](#), Connection Type Requirements specifies which elements are required for each value of the **Type** attribute in the **Type** element.

Parent Elements
ConnectionInfo

Child Elements
FileName
FolderName
OperationName
ServiceUrl
SoapAction

Child Elements
Submit

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="UpdateCommand">
  <xsd:complexType>
    <xsd:all>
      <xsd:element ref="udc:ServiceUrl" minOccurs="0"/>
      <xsd:element ref="udc:SoapAction" minOccurs="0"/>
      <xsd:element ref="udc:OperationName" minOccurs="0"/>
      <xsd:element name="Submit" minOccurs="0" type="xsd:string"/>
      <xsd:element name="FileName" minOccurs="0" type="xsd:string"/>
      <xsd:element ref="udc:FolderName" minOccurs="0"/>
    </xsd:all>
  </xsd:complexType>
</xsd:element>
```

2.3.13 Submit

An absolute URL to a Web server. The Web server **MUST** be able to accept HTTP POST requests with XML in the message body. When the value of the **Type** attribute of the **Type** element equals "**XmlSubmit**", this element and its value **MUST** exist. Otherwise, it **MUST** be ignored.

Parent Elements
UpdateCommand

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="Submit" minOccurs="0" type="xsd:string"/>
```

2.3.14 FileName

The default file name for submitting to a document library on a protocol server. **MUST** be ignored by the protocol server.

Parent Elements
UpdateCommand

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="FileName" minOccurs="0" type="xsd:string"/>
```

2.3.15 SoapAction

The name of the method to execute on the SOAP node specified in the **ServiceUrl** element for the **SelectCommand** element or the **UpdateCommand** element. When the value of the **Type** attribute of the **Type** element equals "**WebService**", this element and its value MUST exist. Otherwise, it MUST be ignored.

Parent Elements
SelectCommand
UpdateCommand

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="SoapAction" type="xsd:string"/>
```

2.3.16 OperationName

The name of the WSDL operation on a SOAP node specified in the **ServiceUrl** element for the **SelectCommand** element or the **UpdateCommand** element. The protocol server MUST ignore this element.

Parent Elements
SelectCommand
UpdateCommand

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="OperationName" type="xsd:string"/>
```

2.3.17 FolderName

A URL for the document library hosted on the protocol server. When the value of the **Type** attribute of the **Type** element equals "**SharePointLibrary**", this element and its value MUST exist. Otherwise, it MUST be ignored.

Parent Elements
UpdateCommand

Attributes:

AllowOverwrite: Determines whether a file override is allowed or not. If the value of this attribute is "true" or "1", the protocol server MUST overwrite the content stored in the document library. Otherwise, the protocol server MUST NOT overwrite any content in the document library.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.


```

<xsd:element name="FolderName">
  <xsd:complexType>
    <xsd:simpleContent>
      <xsd:extension base="xsd:string">
        <xsd:attribute name="AllowOverwrite" use="optional">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string">
              <xsd:enumeration value=""/>
              <xsd:enumeration value="0"/>
              <xsd:enumeration value="1"/>
              <xsd:enumeration value="false"/>
              <xsd:enumeration value="true"/>
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:attribute>
      </xsd:extension>
    </xsd:simpleContent>
  </xsd:complexType>
</xsd:element>

```

2.3.18 ServiceUrl

When the value of the **Type** attribute of the **Type** element equals "**WebService**", this element **MUST** exist and its value **MUST** be a URL for a SOAP node. This URL **MUST** be used by the SOAP node to execute the SOAP method call specified in the **SoapAction** element. The protocol server **MUST** support absolute URLs and **SHOULD** [4](#) support server-relative URLs for this value.

When the value of the **Type** attribute of the **Type** element is not equal to "**WebService**", the **ServiceUrl** element **MUST** be ignored.

Parent Elements
SelectCommand
UpdateCommand

Attributes:

UseFormsServiceProxy: Determines whether the connection should use the Forms Service Proxy Web Service. If the value of this attribute is "true", the protocol server **MUST** use the Forms Service Proxy Web Service (as specified in [\[MS-FSPPI\]](#)), otherwise the protocol server **MUST NOT** use the Forms Service Proxy Web Service.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```

<xsd:element name="ServiceUrl">
  <xsd:complexType>
    <xsd:simpleContent>
      <xsd:extension base="xsd:string">
        <xsd:attribute name="UseFormsServiceProxy" use="optional" type="xsd:boolean"/>
      </xsd:extension>
    </xsd:simpleContent>
  </xsd:complexType>
</xsd:element>

```

2.3.19 Authentication

Contains **authentication (2)** information. If the **Authentication** element is present in the **ConnectionInfo** element, the protocol server MUST support both **single sign-on (SSO)** and explicit authentication methods and the protocol server MUST use the provided credentials to authenticate the connections specified by UDC file as follows:

- If the **SSO** element is present and the **UseExplicit** element is not present in the **Authentication** element, the protocol server MUST use single sign-on (SSO) for authentication.
- If the **UseExplicit** element is present and the **SSO** element is not present in the **Authentication** element, the protocol server MUST use explicit authentication for authentication with the credentials provided in the **UseExplicit** element.
- If both the **SSO** and the **UseExplicit** elements are present in the **Authentication** element, then the protocol server MUST use single sign-on (SSO) for authentication.
- Otherwise the protocol server MUST NOT attempt separate authentication to perform the operation specified in the file.

Parent Elements
ConnectionInfo

Child Elements
SSO
UseExplicit

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="Authentication">
  <xsd:complexType>
    <xsd:all>
      <xsd:element ref="udc:SSO" minOccurs="0"/>
      <xsd:element ref="udc:UseExplicit" minOccurs="0"/>
    </xsd:all>
  </xsd:complexType>
</xsd:element>
```

2.3.20 UseExplicit

Contains the credentials for a data source for a protocol server to establish and maintain the data connection (2). If the **UserId** element is not specified, then the **Password** element MUST be ignored by the protocol server.

Parent Elements
Authentication

Child Elements
Password
UserId

Attributes:

CredentialType: Specifies the method of authentication (2). The possible values for this attribute are specified in section [2.3.24](#), CredentialTypeEnumeration.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="UseExplicit">
  <xsd:complexType>
    <xsd:all>
      <xsd:element name="UserId" minOccurs="0" type="xsd:string"/>
      <xsd:element name="Password" minOccurs="0" type="xsd:string"/>
    </xsd:all>
    <xsd:attribute name="CredentialType" use="required"
type="udc:CredentialTypeEnumeration"/>
  </xsd:complexType>
</xsd:element>
```

2.3.21 UserId

The user name for the authentication (2) method specified in section [2.3.19](#), Authentication.

Parent Elements
UseExplicit

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="UserId" minOccurs="0" type="xsd:string"/>
```

2.3.22 Password

The password for the authentication (2) method specified in section [2.3.19](#), Authentication.

Parent Elements
UseExplicit

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="Password" minOccurs="0" type="xsd:string"/>
```

2.3.23 SSO

Specifies the single sign-on (SSO) authentication (2) method.

Parent Elements
Authentication

Attributes:

AppId: Specifies the application to be used for single sign-on (SSO) authentication (2).

CredentialType: Specifies the method of authentication (2).

The possible values for this attribute are specified in section [2.3.24](#), CredentialTypeEnumeration.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="SSO">
  <xsd:complexType>
    <xsd:attribute name="AppId" use="required" type="xsd:string"/>
    <xsd:attribute name="CredentialType" use="required"
type="udc:CredentialTypeEnumeration"/>
  </xsd:complexType>
</xsd:element>
```

2.3.24 CredentialTypeEnumeration

Specifies how the contained credentials are used. If the **CredentialType** attribute is empty for either the **SSO** or the **UseExplicit** elements, the protocol server MUST ignore both the **SSO** and the **UseExplicit** elements. The protocol server MUST support the credential type specified in this element.

The value of this element MUST be one of the following values:

Basic: Credentials will be used to perform **Hypertext Transfer Protocol (HTTP)** Basic authentication (2) (as specified in [\[RFC2617\]](#)).

CD: Credentials will be used to impersonate a user using Constrained Delegation (as specified in [\[MS-SFU\]](#)).

Digest: Credentials will be used to perform HTTP Digest authentication (2) (as specified in [\[RFC2617\]](#)).

Kerberos: Credentials will be used to impersonate a user using Kerberos (as specified in [\[RFC4120\]](#) and [\[RFC4559\]](#)).

NTLM: Credentials will be used to impersonate a user using Windows Challenge/Response (NTLM), as described in [\[NTLM\]](#).

SQL: Credentials are embedded in a database connection string for authentication (2) against a SQL server.

Referenced By

Referenced By
SSO.UniversalDataConnection@CredentialType
UseExplicit.UniversalDataConnection@CredentialType

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="CredentialTypeEnumeration">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Sql"/>
    <xsd:enumeration value="Ntlm"/>
    <xsd:enumeration value="Kerberos"/>
    <xsd:enumeration value="CD"/>
    <xsd:enumeration value="Basic"/>
    <xsd:enumeration value="Digest"/>
  </xsd:restriction>
</xsd:simpleType>
```

2.3.25 SubType

Reserved for future use. MUST be ignored by the protocol server.

Parent Elements
Type

Attributes:

MajorVersion: Reserved for future use. MUST be ignored by the protocol server.

MinorVersion: Reserved for future use. MUST be ignored by the protocol server.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="SubType">
  <xsd:complexType>
    <xsd:attribute name="MajorVersion" type="xsd:string" use="optional"/>
    <xsd:attribute name="MinorVersion" type="xsd:string" use="optional"/>
  </xsd:complexType>
</xsd:element>
```

2.4 Connection Type Requirements

Each UDC file has only one **ConnectionInfo** element. The contents of the **ConnectionInfo** element depend on the value of the **Type** attribute of the **Type** element as specified in the following tables.

The "udc" prefix used in this section maps to the following namespace:

```
http://schemas.microsoft.com/office/infopath/2006/udc
```

2.4.1 SharePointList Requirements

When the value of the **Type** attribute of the **Type** element equals "**SharePointList**", the protocol server processes the following properties.

Property	Value description
udc:DataSource/udc:Type/@Type	SharePointList
udc:DataSource/udc:ConnectionInfo/udc>SelectCommand/udc:ListId	GUID of the SharePoint list
udc:DataSource/udc:ConnectionInfo/udc:UpdateCommand/udc:WebUrl	URL to the site that contains the list.

2.4.2 SharePointLibrary Requirements

When the value of the **Type** attribute of the **Type** element equals "**SharePointLibrary**", the protocol server processes the following properties.

Property	Value description
udc:DataSource/udc:Type/@Type	SharePointLibrary
udc:DataSource/udc:ConnectionInfo/udc:UpdateCommand/udc:FolderName	A URL for the document library hosted on the protocol server.
udc:DataSource/udc:ConnectionInfo/udc:UpdateCommand/udc:FolderName/@AllowOverwrite	Determines whether to overwrite a file in a document library if the file already exists.

2.4.3 Database Requirements

When the value of the **Type** attribute of the **Type** element equals "**Database**", the protocol server processes the following properties.

Property	Value description
udc:DataSource/udc:Type/@Type	Database
udc:DataSource/udc:ConnectionInfo/udc>SelectCommand/udc:ConnectionString	Database connection string
udc:DataSource/udc:ConnectionInfo/udc>SelectCommand/udc:Query	SQL query to execute

2.4.4 XmlQuery Requirements

When the value of the **Type** attribute of the **Type** element equals "**XmlQuery**", the protocol server processes the following properties.

Property	Value description
udc:DataSource/udc:Type/@Type	XmlQuery
udc:DataSource/udc:ConnectionInfo/udc:SelectCommand/udc:Query	URL that specifies the source of the XML to retrieve.

2.4.5 WebService Requirements

When the value of the **Type** attribute of the **Type** element equals "**WebService**", the protocol server processes the following properties.

Property	Value description
udc:DataSource/udc:Type/@Type	WebService
udc:DataSource/udc:ConnectionInfo/udc:WsdlUrl	URL to the WSDL for the Web service
udc:DataSource/udc:ConnectionInfo/udc:UpdateCommand/udc:ServiceUrl	URL to the Web Service
udc:DataSource/udc:ConnectionInfo/udc:UpdateCommand/udc:SoapAction	Web service SOAP action identifier

2.4.6 XmlSubmit Requirements

When the value of the **Type** attribute of the **Type** element equals "**XmlSubmit**", the protocol server processes the following properties.

Property	Value description
udc:DataSource/udc:Type/@Type	XmlSubmit
udc:DataSource/udc:ConnectionInfo/udc:UpdateCommand/udc:Submit	URL that specifies the target of the XML to post.

2.4.7 Rest Requirements

When the value of the **Type** attribute of the **Type** element equals "**Rest**", the protocol server processes the following properties.

Property	Value description
udc:DataSource/udc:Type/@Type	Rest
udc:DataSource/udc:ConnectionInfo/udc:SelectCommand/udc:Query	URL that specifies the source of the REST Web service.

3 Structure Examples

This section contains samples of UDC file for "**Database**" and "**WebService**" data connection (2) types. This section also contains an example of an **Authentication** element when the **CredentialType** attribute is empty.

3.1 Database

The following example is a UDC file that retrieves data from a database. When there are child elements in the **ConnectionInfo** element that are not database-related, the protocol server will only use the database-related elements.

```
<?xml version="1.0" encoding="UTF-8"?>
<?MicrosoftWindowsSharePointServices
ContentTypeID="0x010100B4CBD48E029A4AD8B62CB0E41868F2B0"?>
<udc:DataSource
  MajorVersion="2"
  MinorVersion="0"
  xmlns:udc="http://schemas.microsoft.com/office/infopath/2006/udc">
  <udc:Name>DB Connection</udc:Name>
  <udc:Description>Database</udc:Description>
  <udc:Type MajorVersion="2" MinorVersion="0" Type="Database">
    <udc:SubType MajorVersion="0" MinorVersion="0" Type=""></udc:SubType>
  </udc:Type>
  <udc:ConnectionInfo Purpose="ReadOnly" AltDataSource="">
    <udc:WsdlUrl>http://</udc:WsdlUrl>
    <udc>SelectCommand Type="">
      <udc>ListId></udc>ListId>
      <udc:WebUrl>http://</udc:WebUrl>
      <udc:ConnectionString>Provider=SQLOLEDB.1;Password=MyPassword;Persist Security
Info=True;User ID=MyUserName;Initial Catalog=AdventureWorks;Data Source=testmachine;Use
Procedure for Prepare=1;Auto Translate=True;Packet Size=4096;Workstation ID=MYWORKMACHINE;Use
Encryption for Data=False;Tag with column collation when
possible=False</udc:ConnectionString>
      <udc:OperationName></udc:OperationName>
      <udc:ServiceUrl>http://</udc:ServiceUrl>
      <udc:SoapAction></udc:SoapAction>
      <udc:Query>select
"DocumentID","Title","FileName","FileExtension","Revision","ChangeNumber","Status","Documents
ummary","Document","ModifiedDate" from "Production"."Document" as "Document"</udc:Query>
    </udc>SelectCommand>
    <udc:UpdateCommand>
      <udc:OperationName></udc:OperationName>
      <udc:ServiceUrl>http://</udc:ServiceUrl>
      <udc:SoapAction></udc:SoapAction>
      <udc:Submit></udc:Submit>
    </udc:UpdateCommand>
  </udc:ConnectionInfo>
</udc:DataSource>
```

3.2 Webservice

The following example is a UDC file that retrieves data from a Web service. When there are child elements in the **ConnectionInfo** element that are not Web service related, the protocol server will only use the Web service related elements.


```

<?xml version="1.0" encoding="UTF-8"?>
<?MicrosoftWindowsSharePointServices
ContentTypeID="0x010100B4CBD48E029A4AD8B62CB0E41868F2B0"?>
<udc:DataSource
  MajorVersion="2"
  MinorVersion="0"
  xmlns:udc="http://schemas.microsoft.com/office/infopath/2006/udc">
  <udc:Name>Main query</udc:Name>
  <udc:Description>Format: UDC V2; Connection Type: WebService; Purpose: ReadOnly; Generated
by Microsoft® Office InfoPath® 2007 on 2008-02-12 at 11:23:51.</udc:Description>
  <udc:Type MajorVersion="2" MinorVersion="0" Type="WebService">
    <udc:SubType MajorVersion="0" MinorVersion="0" Type=""/>
  </udc:Type>
  <udc:ConnectionInfo Purpose="ReadOnly" AltDataSource="">
    <udc:WsdlUrl>http://testmachine/app/service.asmx?WSDL</udc:WsdlUrl>
    <udc>SelectCommand>
      <udc>ListId/>
      <udc:WebUrl/>
      <udc:ConnectionString/>
      <udc:ServiceUrl
UseFormsServiceProxy="true">http://testmachine/app/service.asmx</udc:ServiceUrl>
      <udc:SoapAction>http://testmachine/app/HelloWorld</udc:SoapAction>
      <udc:Query/>
    </udc>SelectCommand>
    <udc:UpdateCommand>
      <udc:ServiceUrl UseFormsServiceProxy="false"/>
      <udc:SoapAction/>
      <udc:Submit/>
      <udc:FileName>Specify a filename or formula</udc:FileName>
      <udc:FolderName AllowOverwrite=""/>
    </udc:UpdateCommand>
  </udc:ConnectionInfo>
</udc:DataSource>

```

3.3 Empty Authentication

The following **Authentication** element example shows how the **Explicit** credentials are ignored because the **CredentialType** attribute is empty.

```

<udc:Authentication>
  <udc:UseExplicit CredentialType="">
    <udc:UserId>MyUserName</udc:UserId>
    <udc>Password>DatabasePassword</udc>Password>
  </udc:UseExplicit>
</udc:Authentication>

```

4 Security Considerations

The UDC file contains security sensitive credentials with the provided connection information. If the explicit authentication (2) method is used the username and password are stored in plaintext under the **UseExplicit** element. The preferred authentication method is single sign-on (SSO) instead of explicit authentication.

5 Appendix A: Full XML Schemas

For ease of implementation, this section provides the full XML schema for the UDC file.

5.1 XML Schema for the UDC File

XML Schema for the Universal Data Connection (UDC) file.

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema
  targetNamespace="http://schemas.microsoft.com/office/infopath/2006/udc"
  elementFormDefault="qualified"
  xmlns:udc="http://schemas.microsoft.com/office/infopath/2006/udc"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">

  <xsd:element name="DataSource" >
    <xsd:complexType >
      <xsd:all>
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="Description" type="xsd:string" />
        <xsd:element ref="udc:Type" />
        <xsd:element ref="udc:ConnectionInfo" />
      </xsd:all>
      <xsd:attribute name="MajorVersion" fixed="2" use="required" type="xsd:int" />
      <xsd:attribute name="MinorVersion" fixed="0" use="required" type="xsd:int" />
    </xsd:complexType>
  </xsd:element>

  <xsd:element name="Type" >
    <xsd:complexType >
      <xsd:sequence>
        <xsd:element ref="udc:SubType" minOccurs="0" />
      </xsd:sequence>
      <xsd:attribute name="MajorVersion" type="xsd:string" use="optional" />
      <xsd:attribute name="MinorVersion" type="xsd:string" use="optional" />
      <xsd:attribute name="Type" use="required" >
        <xsd:simpleType >
          <xsd:restriction base="xsd:string">
            <xsd:enumeration value="SharePointList" />
            <xsd:enumeration value="SharePointLibrary" />
            <xsd:enumeration value="Database" />
            <xsd:enumeration value="XmlQuery" />
            <xsd:enumeration value="WebService" />
            <xsd:enumeration value="XmlSubmit" />
            <xsd:enumeration value="Rest" />
          </xsd:restriction>
        </xsd:simpleType>
      </xsd:attribute>
    </xsd:complexType>
  </xsd:element>

  <xsd:element name="ConnectionInfo" >
    <xsd:complexType >
      <xsd:all>
        <xsd:element name="WsdlUrl" minOccurs="0" type="xsd:string" />
        <xsd:element ref="udc:SelectCommand" />
        <xsd:element ref="udc:UpdateCommand" />
        <xsd:element ref="udc:Authentication" minOccurs="0" />
      </xsd:all>
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

```

</xsd:all>
<xsd:attribute name="Purpose" use="required" >
  <xsd:simpleType >
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="ReadOnly" />
      <xsd:enumeration value="WriteOnly" />
      <xsd:enumeration value="ReadWrite" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:attribute>
<xsd:attribute name="AltDataSource" type="xsd:string" use="optional" />
</xsd:complexType>
</xsd:element>

<xsd:element name="SelectCommand" >
  <xsd:complexType >
    <xsd:all>
      <xsd:element name="ListId" minOccurs="0" type="xsd:string" />
      <xsd:element name="WebUrl" minOccurs="0" type="xsd:string" />
      <xsd:element name="ConnectionString" minOccurs="0" type="xsd:string" />
      <xsd:element ref="udc:ServiceUrl" minOccurs="0" />
      <xsd:element ref="udc:SoapAction" minOccurs="0" />
      <xsd:element ref="udc:OperationName" minOccurs="0" />
      <xsd:element name="Query" minOccurs="0" type="xsd:string" />
    </xsd:all>
    <xsd:attribute name="Type" type="xsd:string" use="optional" />
  </xsd:complexType>
</xsd:element>

<xsd:element name="UpdateCommand" >
  <xsd:complexType >
    <xsd:all>
      <xsd:element ref="udc:ServiceUrl" minOccurs="0" />
      <xsd:element ref="udc:SoapAction" minOccurs="0" />
      <xsd:element ref="udc:OperationName" minOccurs="0" />
      <xsd:element name="Submit" minOccurs="0" type="xsd:string" />
      <xsd:element name="FileName" minOccurs="0" type="xsd:string" />
      <xsd:element ref="udc:FolderName" minOccurs="0" />
    </xsd:all>
  </xsd:complexType>
</xsd:element>

<xsd:element name="SoapAction" type="xsd:string" />

<xsd:element name="OperationName" type="xsd:string" />

<xsd:element name="FolderName" >
  <xsd:complexType >
    <xsd:simpleContent>
      <xsd:extension base="xsd:string">
        <xsd:attribute name="AllowOverwrite" use="optional" >
          <xsd:simpleType>
            <xsd:restriction base="xsd:string">
              <xsd:enumeration value="" />
              <xsd:enumeration value="0" />
              <xsd:enumeration value="1" />
              <xsd:enumeration value="false" />
              <xsd:enumeration value="true" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:attribute>
      </xsd:extension>
    </xsd:simpleContent>
  </xsd:complexType>
</xsd:element>

```

```

        </xsd:simpleType>
    </xsd:attribute>
</xsd:extension>
</xsd:simpleContent>
</xsd:complexType>
</xsd:element>

<xsd:element name="ServiceUrl" >
    <xsd:complexType >
        <xsd:simpleContent>
            <xsd:extension base="xsd:string">
                <xsd:attribute name="UseFormsServiceProxy" use="optional" type="xsd:boolean" />
            </xsd:extension>
        </xsd:simpleContent>
    </xsd:complexType>
</xsd:element>

<xsd:element name="Authentication" >
    <xsd:complexType >
        <xsd:all>
            <xsd:element ref="udc:SSO" minOccurs="0" />
            <xsd:element ref="udc:UseExplicit" minOccurs="0" />
        </xsd:all>
    </xsd:complexType>
</xsd:element>

<xsd:element name="UseExplicit" >
    <xsd:complexType >
        <xsd:all>
            <xsd:element name="UserId" minOccurs="0" type="xsd:string" />
            <xsd:element name="Password" minOccurs="0" type="xsd:string" />
        </xsd:all>
        <xsd:attribute name="CredentialType" use="required"
type="udc:CredentialTypeEnum" />
    </xsd:complexType>
</xsd:element>

<xsd:element name="SSO" >
    <xsd:complexType >
        <xsd:attribute name="AppId" use="required" type="xsd:string" />
        <xsd:attribute name="CredentialType" use="required"
type="udc:CredentialTypeEnum" />
    </xsd:complexType>
</xsd:element>

<xsd:simpleType name="CredentialTypeEnum" >
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value="Sql" />
        <xsd:enumeration value="Ntlm" />
        <xsd:enumeration value="Kerberos" />
        <xsd:enumeration value="CD" />
        <xsd:enumeration value="Basic" />
        <xsd:enumeration value="Digest" />
    </xsd:restriction>
</xsd:simpleType>

<xsd:element name="SubType" >
    <xsd:complexType >

```

```
        <xsd:attribute name="MajorVersion" type="xsd:string" use="optional" />
        <xsd:attribute name="MinorVersion" type="xsd:string" use="optional" />
    </xsd:complexType>
</xsd:element>

</xsd:schema>
```

6 Appendix B: 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 InfoPath® 2007
- Microsoft® InfoPath® 2010
- Microsoft® Office Forms Server 2007
- Microsoft® Office Enterprise 2007
- Microsoft® Office Ultimate 2007
- Microsoft® Office Professional Plus 2010
- Microsoft® SharePoint® 2010 for Internet Sites Enterprise
- Microsoft® SharePoint® 2010 for Internet Sites Standard
- Microsoft® Office SharePoint® Server 2007
- Microsoft® SharePoint® Server 2010

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 2.3.6:](#) Office InfoPath 2007, Office Forms Server 2007, Office Enterprise 2007 do not support server-relative URLs for the value of the WsdUrl element.

[<2> Section 2.3.9:](#) Office InfoPath 2007, Office Forms Server 2007, Office Enterprise 2007 do not support server-relative URLs for the value of the WebUrl element.

[<3> Section 2.3.11:](#) Office InfoPath 2007, Office Forms Server 2007, Office Enterprise 2007 do not support server-relative URLs for the value of the Query element.

[<4> Section 2.3.18:](#) Office InfoPath 2007, Office Forms Server 2007, Office Enterprise 2007 do not support server-relative URLs for the value of the ServiceUrl element.

7 Change Tracking

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

8 Index

A

Applicability ([section 1.5](#) 7, [section 1.5](#) 7)
Authentication
 [UDC schema](#) 18

C

[Change tracking](#) 32
[Connection type requirements](#) 21
 [database](#) 22
 [Rest](#) 23
 [SharePointLibrary](#) 22
 [SharePointList](#) 22
 [WebService](#) 23
 [XmlQuery](#) 22
 [XmlSubmit](#) 23
ConnectionInfo
 [UDC schema](#) 10
ConnectionString
 [UDC schema](#) 13
CredentialTypeEnumeration
 [UDC schema](#) 20

D

Database
 [connection type requirements](#) 22
 [Database example](#) 24
DataSource
 UDC schema ([section 2.3.1](#) 8, [section 2.4](#) 21)
Description
 [UDC schema](#) 9
Details - connection type requirements
 [database](#) 22
 [Rest](#) 23
 [SharePointLibrary](#) 22
 [SharePointList](#) 22
 [WebService](#) 23
 [XmlQuery](#) 22
 [XmlSubmit](#) 23
Details - UDC schema
 [Authentication](#) 18
 [ConnectionInfo](#) 10
 [ConnectionString](#) 13
 [CredentialTypeEnumeration](#) 20
 [DataSource](#) 8
 [Description](#) 9
 [FileName](#) 15
 [FolderName](#) 16
 [ListId](#) 13
 [Name](#) 9
 [OperationName](#) 16
 [Password](#) 19
 [Query](#) 14
 [SelectCommand](#) 12
 [ServiceUrl](#) 17
 [SoapAction](#) 16
 [SSO](#) 20

[Submit](#) 15
 [SubType](#) 21
 [Type](#) 9
 [UpdateCommand](#) 14
 [UseExplicit](#) 18
 [UserId](#) 19
 WebUrl ([section 2.3.9](#) 13, [section 2.3.11](#) 14)
 WsdlUrl ([section 2.3.6](#) 11, [section 2.3.11](#) 14)

E

[Empty authentication example](#) 25
Examples
 [database](#) 24
 [empty authentication](#) 25
 [overview](#) 24
 [WebService](#) 24

F

Fields
 [vendor-extensible](#) 7
[Fields - vendor-extensible](#) 7
FileName
 [UDC schema](#) 15
FolderName
 [UDC schema](#) 16
Full XML schema ([section 5](#) 27, [section 5](#) 27)

G

Glossary ([section 1.1](#) 5, [section 1.1](#) 5)

I

[Implementer - security considerations](#) 26
Informative references ([section 1.2.2](#) 6, [section 1.2.2](#) 6)
Introduction ([section 1](#) 5, [section 1](#) 5)

L

ListId
 [UDC schema](#) 13
Localization ([section 1.6](#) 7, [section 1.6](#) 7)

N

Name
 [UDC schema](#) 9
[Namespaces](#) 8
Normative references ([section 1.2.1](#) 5, [section 1.2.1](#) 5)

O

OperationName
 [UDC schema](#) 16
[Overview](#) 6

[Overview \(synopsis\)](#) 6

P

Password
[UDC schema](#) 19
[Product behavior overview](#) 31

Q

Query
[UDC schema](#) 14

R

References
informative ([section 1.2.2](#) 6, [section 1.2.2](#) 6)
normative ([section 1.2.1](#) 5, [section 1.2.1](#) 5)
[overview](#) 5
Relationship to protocols and other structures
([section 1.4](#) 7, [section 1.4](#) 7)
Rest
[connection type requirements](#) 23

S

[Security - implementer considerations](#) 26
Security considerations
[overview](#) 26
SelectCommand
[UDC schema](#) 12
ServiceUrl
[UDC schema](#) 17
SharePointLibrary
[connection type requirements](#) 22
SharePointList
[connection type requirements](#) 22
SoapAction
[UDC schema](#) 16
SSO
[UDC schema](#) 20
Structures
[connection type requirements](#) 21
[Namespaces](#) 8
[overview](#) 8
[UDC namespace](#) 8
[UDC processing instructions](#) 8
[UDC schema](#) 8
[XML schema for the InfoPath UDC File](#) 27
Submit
[UDC schema](#) 15
SubType
[UDC schema](#) 21

T

[Tracking changes](#) 32
Type
[UDC schema](#) 9

U

[UDC namespace](#) 8
[UDC processing instructions](#) 8
[UDC schema](#) 8
[Authentication](#) 18
[ConnectionInfo](#) 10
[ConnectionString](#) 13
[CredentialTypeEnumeration](#) 20
[DataSource](#) 8
[Description](#) 9
[FileName](#) 15
[FolderName](#) 16
[ListId](#) 13
[Name](#) 9
[OperationName](#) 16
[Password](#) 19
[Query](#) 14
[SelectCommand](#) 12
[ServiceUrl](#) 17
[SoapAction](#) 16
[SSO](#) 20
[Submit](#) 15
[SubType](#) 21
[Type](#) 9
[UpdateCommand](#) 14
[UseExplicit](#) 18
[UserId](#) 19
WebUrl ([section 2.3.9](#) 13, [section 2.3.11](#) 14)
WsdlUrl ([section 2.3.6](#) 11, [section 2.3.11](#) 14)
UpdateCommand
[UDC schema](#) 14
UseExplicit
[UDC schema](#) 18
UserId
[UDC schema](#) 19

V

Vendor-extensible fields ([section 1.7](#) 7, [section 1.7](#) 7)
Versioning ([section 1.6](#) 7, [section 1.6](#) 7)

W

WebService
[connection type requirements](#) 23
[WebService example](#) 24
WebUrl
UDC schema ([section 2.3.9](#) 13, [section 2.3.11](#) 14)
WsdlUrl
UDC schema ([section 2.3.6](#) 11, [section 2.3.11](#) 14)

X

XML schema ([section 5](#) 27, [section 5](#) 27)
[XML schema for the InfoPath UDC File](#) 27
XmlQuery
[connection type requirements](#) 22
XmlSubmit
[connection type requirements](#) 23