

[MS-DSDIFFGRAM]: SharePoint Web Services: DataSet DiffGram Structure Specification

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Contents

1 Introduction	4
1.1 Glossary.....	4
1.2 References.....	4
1.2.1 Normative References	4
1.2.2 Informative References	5
1.3 Structure Overview (Synopsis)	5
1.4 Relationship to Protocols and Other Structures	6
1.5 Applicability Statement.....	6
1.6 Versioning and Localization	6
1.7 Vendor-Extensible Fields	6
2 Structures	7
2.1 DiffGram Namespaces	7
2.2 SharePoint DiffGram High-Level Structure	7
2.3 SharePoint DiffGram Schema Element.....	8
2.3.1 DataInstance Element	8
2.3.2 DataTable Element Schema.....	9
2.3.3 Unique Element.....	11
2.4 DiffGram Data Element	11
2.4.1 DataInstance Element.....	12
3 Structure Examples	13
4 Security Considerations	16
5 Appendix A: Product Behavior	17
6 Change Tracking	18
7 Index	19

1 Introduction

This document specifies the Microsoft SharePoint DataSet DiffGram structure used to represent the results of a SharePoint Search service [Web service](#) call. The structure used by the SharePoint Search service is a subset of the full DiffGram structure used by the ADO.NET DataSet. The DiffGram structure is useful for serializing schema and data for transmission over a network or storage on disk. SharePoint uses the DiffGram structure to encapsulate both the schema of the search results, as well as the data that represents the search results.

This document covers only the portion of the DiffGram structure that is used by the SharePoint Search service.

1.1 Glossary

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

file system
Hypertext Transfer Protocol (HTTP)
User Datagram Protocol (UDP)
XML

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

CDATA section
child element
root element
SOAP (Simple Object Access Protocol)
SOAP envelope
Web service
Web service method
XML attribute
XML document
XML element
XML namespace
XML namespace prefix
XML Schema (1)

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.

[MC-ADONETDSSS] Microsoft Corporation, "ADO.NET DataSet Structure Schema", <http://schemas.microsoft.com/2003/07/msdata.xsd>.

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

[MS-OFSGLOS] Microsoft Corporation, "Microsoft Office Server Master Glossary", June 2008, <http://msdn.microsoft.com/en-us/library/cc307431.aspx>

[MS-SEARCH] Microsoft Corporation, "[Search Protocol Specification](#)", June 2008.

[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>

[SOAP1.1] Box, D., Ehnebuske, D., Kakivaya, G., Layman, A., Mendelsohn, N., Nielsen, H. F., Thatté, S., and Winer, D., "Simple Object Access Protocol (SOAP) 1.1", May 2000, <http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>

[XML10] World Wide Web Consortium, "Extensible Markup Language (XML) 1.0 (Third Edition)", February 2004, <http://www.w3.org/TR/REC-xml>

[XMLNS] World Wide Web Consortium, "Namespaces in XML 1.0 (Second Edition)", August 2006, <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/>

[XPath] Clark, J. and DeRose, S., "XML Path Language (XPath), Version 1.0", W3C Recommendation, November 1999, <http://www.w3.org/TR/xpath>

1.2.2 Informative References

None.

1.3 Structure Overview (Synopsis)

The DataSet is the part of the .NET Framework that provides in-memory representation of relational data. A DataSet consists of a set of named tables. Each table is defined by a collection of named columns with specified data types. A set of columns in the table can also represent a primary key. When a DataSet is populated, its tables are filled with rows of data, each of which contains a value for each column. The DataSet is a completely in-memory representation of the relational data, and maintains no knowledge of the original source of the data.

In addition to storing data in the rows and columns of the DataSet, applications can attach additional data to the entire DataSet, or to particular tables or columns, via extended properties. Extended properties are name-value pairs that are exposed to consumers of the DataSet, but not interpreted by the DataSet in any way. For details on how extended properties are used in the context of a SharePoint search, please see [\[MS-SEARCH\]](#).

In various scenarios, it is necessary to transfer a DataSet across application boundaries. This is usually accomplished by serializing the DataSet into a format suitable for transmission over the serialization substrate. Common patterns include returning a DataSet from a [Web service method](#) and taking DataSets as input parameters to Web service methods.

The DiffGram structure is an [XML](#) serialized form of a DataSet that can be used in these scenarios. Any DataSet instance can be serialized into a DiffGram that can be transmitted over a service interface or written to persistent storage. The DiffGram structure encapsulates all the information

required to re-create the in-memory DataSet in the exact state it was in at the time it was serialized. This includes the schema information that defines the structure of the data in the DataSet and the actual values of data. The DiffGram also contains serialized representations of any extended properties that have been defined on the tables and/or columns.

1.4 Relationship to Protocols and Other Structures

The DiffGram structure is used by the ADO.NET Framework as a serialization format for the contents of DataSets. Whenever a DataSet is returned from or received by a [Web service method](#), the DiffGram structure is used as the default serialization format. When used this way, the DiffGram can be wrapped in other data structures (for example, as specified in [\[SOAP1.1\]](#), Section 4) that encapsulate other parts of the [Web service](#) call.

The services that exchange DataSets can use a variety of network protocols and encodings to transfer DiffGrams. For example, one Web service can choose to use a plain-text encoding of a DiffGram within a [SOAP envelope](#), transmitted using [Hypertext Transfer Protocol \(HTTP\)](#) protocol as specified in [\[RFC2616\]](#). Another can choose a binary encoding for the [SOAP envelope](#) containing the DiffGram and transmit it via [User Datagram Protocol \(UDP\)](#). The network protocols and encodings that can be used to transmit DiffGrams are not covered in this document.

1.5 Applicability Statement

The DiffGram structure can be used whenever a serialized representation of a DataSet is needed. More generally, the DiffGram can be used whenever it is necessary to serialize relational data. This document specifies the serialization of the relational data as used by the SharePoint Search service, but does not cover the general case of DataSet serialization.

1.6 Versioning and Localization

None.

1.7 Vendor-Extensible Fields

None.

2 Structures

The SharePoint DiffGram is an [XML document](#) that encapsulates the following information:

- An [XML Schema \(1\)](#) that specifies the structure of the data in a DataSet
- The data in the DataSet
- Extended properties associated with tables and columns

The following sections provide details on the particular representation used to capture this information.

2.1 DiffGram Namespaces

The [XML](#) that comprises a SharePoint DiffGram MUST include required [XML elements](#) and [XML attributes](#) as specified in the following sections of this document. These XML elements and XML attributes are defined in various [XML namespaces](#). The following table lists these XML namespaces and specifies the [XML namespace prefixes](#) commonly associated with them. Producers of SharePoint DiffGrams MUST ensure that the XML references these namespaces using the mechanisms specified in [\[XMLNS\]](#), but they SHOULD use the prefixes shown in the table below. For clarity, when XML elements and attributes from these namespaces are referenced in following sections of this document, their fully-qualified names are used.

Description	Namespace URI	Commonly used Prefix	Reference
XML Schema (1) elements and attributes	http://www.w3.org/2001/XMLSchema	xs	[XMLSCHEMA1] [XMLSCHEMA2]
DiffGram elements and attributes	urn:schemas-microsoft-com:xml-diffgram-v1	diffgr	This namespace is internal to the diffgram structure and is specified in the 2.4 section.
DataSet specific annotations	urn:schemas-microsoft-com:xml-msdata	msdata	[MC-ADONETDSSS]
DataSet extended properties	urn:schemas-microsoft-com:xml-msprop	msprop	User and application-specific information SHOULD be annotated on the DataSet schema with extended properties. The extended properties are defined in this namespace.

2.2 SharePoint DiffGram High-Level Structure

A valid SharePoint DiffGram MUST conform to the following rules:

- The SharePoint DiffGram MUST have a [root element](#), hereafter referred to as the **Root** element.
- The **Root** element MUST have two [child elements](#):
 - The first child element, hereafter referred to as the [2.3](#), MUST be a **Schema** element as defined by [\[XMLSCHEMA1\]](#) and [\[XMLSCHEMA2\]](#) and MUST contain a valid [XML Schema \(1\)](#).

- The second child element, hereafter referred to as the SharePoint [2.4](#), MUST be a **diffgram** element as defined in the namespace `urn:schemas-microsoft-com:xml-diffgram-v1`.

The sections that follow define the **Schema** element and the **Data** element in more detail. At a basic level, the purpose of these elements can be explained as follows:

- The SharePoint DiffGram **Schema** element defines the XML Schema for the data representation in the SharePoint DiffGram **Data** element's content. The [XML](#) representation of the data in the DiffGram **Data** element's content MUST conform to the XML Schema defined in the DiffGram **Schema** element.
- The SharePoint DiffGram **Data** element encapsulates the values of the data in the DataSet.

2.3 SharePoint DiffGram Schema Element

The **Schema** element in a SharePoint DiffGram MUST contain an [XML Schema \(1\)](#), as specified in [\[XMLSCHEMA1\]](#) and [\[XMLSCHEMA2\]](#), that defines an [XML](#) representation for the data in the DataSet. The **Schema** element is a representation of the shape of the DataSet that will be used for serialization purposes, with the tables, columns, and primary keys of the DataSet represented as anonymous complex types and unique elements, subject to various constraints specified in the following sections.

2.3.1 DataInstance Element

The DataInstance schema MUST define exactly one element that will encapsulate the representation of all data in the DataSet. This element is referred to as the DiffGram [2.4.1](#) element. In addition to being a valid [XML Schema \(1\)](#), this schema MUST conform to the following rules:

- The **DataInstance** element MUST be defined using an anonymous complex type. The complex type MUST be defined as a choice of element content with zero minimum occurrence and unbounded maximum occurrence. Each element in the choice MUST conform to the rules of the [2.3.2](#) element definition.
- The **DataInstance** element definition MUST contain zero or more **DataTable** element definitions in the choice element. The **DataTable** element definitions are an immediate child of the choice.
- The `http://www.w3.org/2001/XMLSchema:>` element that defines the **DataInstance** element MUST have the `urn:schemas-microsoft-com:xml-msdata:IsDataSet` attribute set to true.
- The **DataInstance** element MUST contain zero, one, or more [2.3.3](#) elements. The **Unique** elements definitions are defined immediately after the complex type element that defines a choice of **DataTable** elements.
- The **DataInstance** element complex type definition MUST NOT contain `http://www.w3.org/2001/XMLSchema:>` attribute definitions.
- The `http://www.w3.org/2001/XMLSchema:>` element that defines the **DataInstance** element MAY contain the `urn:schemas-microsoft-com:xml-msdata:UseCurrentLocale` attribute. If this attribute is present, the value of the attribute MUST be set to "true".
- The `http://www.w3.org/2001/XMLSchema:>` element that defines the **DataInstance** element MAY have the `msdata:DataSetName` attribute. If this attribute is specified, then the name of the DataSet is equal to the value of the attribute. If this attribute is not specified, then the name of the DataSet is equal to the name of the **DataInstance** element.

- Each extended property **MUST** appear as an attribute in the declaration of the **DataInstance** element (for properties that apply to the whole DataSet). The attribute name **MUST** be the name of the extended property, and the attribute's namespace **MUST** be urn:schemas-microsoft-com:xml-msprop. The attribute's value **MUST** be the value of the extended property.
- Any attributes with a namespace other than urn:schemas-microsoft-com:xml-msprop are not extended properties.

2.3.2 DataTable Element Schema

The DataInstance schema **MUST** define zero or more **DataTable** elements as children of the **DataInstance** element. A **DataTable** element **MUST** be defined using an anonymous complex type, and conform to the following rules:

- A **DataTable** element complex type definition **MUST NOT** contain attribute definitions.
- A **DataTable** element definition **MUST** allow only element content.
- The content model of a **DataTable** element definition **MUST** be specified as a sequence of elements, referred to as **DataColumn** elements, each of which represents a column in the table.
 - A **DataTable** element definition **MUST** define zero or more **DataColumn** element definitions that are the immediate children of the sequence.
 - The type of a **DataColumn** element definition **MUST** be specified as one of the following valid <http://www.w3.org/2001/XMLSchema:types>. If the type is a string, then the type **MAY** be a simple type restriction of the facets as defined by [XMLSCHEMA2](#) section 3.2.1.1, length, minlength, and maxlength. All other types **MUST NOT** be restricted.
 - string
 - Boolean
 - unsignedByte
 - base64Binary
 - double
 - float
 - short
 - int
 - long
 - byte
 - integer
 - decimal
 - date
 - time
 - unsignedShort

- unsignedInt
- unsignedLong
- dateTime
- The minimum occurrence of a **DataColumn** element definition MUST be zero or one and the maximum occurrence MUST be one.
- If the type of the **DataColumn** element definition is a string, then all data in the DataColumn instance MUST be interpreted as [CDATA section](#), even if it contains data that could be interpreted as [XML](#).
- Each extended property MUST appear as an attribute in the declaration of the **DataColumn** element (for properties that apply to columns). The attribute name MUST be the name of the extended property and the attribute's namespace MUST be urn:schemas-microsoft-com:xml-msprop. The attribute's value MUST be the value of the extended property.
- Any attributes with a namespace other than urn:schemas-microsoft-com:xml-msprop are not extended properties.
- Each extended property MUST appear as an attribute in the declaration of the **DataTable** element (for properties that apply to tables). The attribute name MUST be the name of the extended property and the attribute's namespace MUST be urn:schemas-microsoft-com:xml-msprop. The attribute's value MUST be the value of the extended property.
- Any attributes with a namespace other than urn:schemas-microsoft-com:xml-msprop are not extended properties.

The following is a sample **Schema** element from a DiffGram:

```
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:msdata="urn:schemas-microsoft-com:xml-msdata"
xmlns:msprop="urn:schemas-microsoft-com:xml-msprop">
  <xs:element name="SalesDS" msdata:IsDataSet="true">
    <xs:complexType>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element name="Customers" msprop:ExtProp1="USA">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="CustId" type="xs:int" minOccurs="0"/>
              <xs:element name="CustName" type="xs:string" minOccurs="0"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:choice>
    </xs:complexType>
    <xs:unique name="Constraint2" msdata:PrimaryKey="true">
      <xs:selector xpath="./Customers" />
      <xs:field xpath="CustId" />
    </xs:unique>
  </xs:element>
</xs:schema>
```

In this sample, the element **SalesDS** defines the **DataInstance** element. It can contain **Customers** elements, which are known as **DataTable** elements, corresponding to rows in the Customers table in the DataSet. The columns of the Customers table (CustId and CustName), which

are known as **DataColumn** elements, are represented as [child elements](#) of the **Customers** element. The primary key of the **DataTable** element is specified in the **Unique** element. The selector defines which **DataTable** element to reference. The field element defines what **DataColumn** element is part of the primary key. An extended property on the Customers table, **ExtProp1** is manifested as an attribute on the Customers **DataTable** element declaration.

2.3.3 Unique Element

A **Unique** element is specified as an [XML element](#) per [\[XMLSCHEMA1\]](#) and [\[XMLSCHEMA2\]](#) specifications. Also a **Unique** element MUST follow these rules:

- The element MUST have an `msdata:PrimaryKey` where the value is equal to "true".
- The **selector xpath** attribute value MUST use `'./data-table'` XPath-abbreviated syntax described in section 2.5 of the [\[XPATH\]](#) specification where `data-table` is the name of a **DataTable** element.
- A **field xpath** attribute value MUST use the `'data-column'` XPath-abbreviated syntax where `data-column` is the name of a **DataColumn** element. The following is an example of a **Unique** element:

```
<xs:unique name="Constraint2" msdata:PrimaryKey="true">
    <xs:selector xpath="./Customers" />
    <xs:field xpath="CustId" />
</xs:unique>
```

2.4 DiffGram Data Element

Conceptually, the DiffGram **Data** element encapsulates the [XML](#) representation of the data in the DataSet. The DiffGram **Data** element MUST have one [child element](#):

- A [2.4.1](#) element which MUST conform to the **DataInstance** element definition defined in the [2.3](#).

This high-level structure is defined by the following [XML Schema \(1\)](#):

```
<?xml version="1.0" standalone="yes"?>
<xs:schema targetNamespace="urn:schemas-microsoft-com:xml-diffgram-v1"
  xmlns="urn:schemas-microsoft-com:xml-diffgram-v1"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns:diffgr="urn:schemas-microsoft-com:xml-diffgram-v1"
  attributeFormDefault="qualified"
  elementFormDefault="qualified">
  <xs:attribute name="id" type="xs:string"/>
  <xs:element name="diffgram">
    <xs:complexType>
      <xs:sequence minOccurs="0" maxOccurs="1">
        <xs:any namespace="##other" processContents="lax" minOccurs="0"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

However, it is not possible to write a single schema for the DiffGram **Data** element that properly defines the **DataInstance** element, because the schema of the **DataInstance** element is defined by the DiffGram **Schema** element (and varies per DataSet). Therefore, the schema specified

previously in this section allows any content in the place of the **DataInstance** element. Producers and consumers of DiffGrams MUST ensure that the **DataInstance** element complies with the schema defined in the DiffGram Schema element.

The following section defines the parts of the DiffGram **Data** element in more detail.

2.4.1 DataInstance Element

The **DataInstance** element MAY contain one child element named **DocumentElement**. The **DocumentElement** MUST contain zero or more first-level [child elements](#), referred to as "row elements". If the **DocumentElement** is not present, then the **DataInstance** element MUST contain zero or more row elements. Each row element MUST conform to a **DataTable** element definition, as defined in the [2.3](#).

A row element MUST contain zero or more first-level child elements, referred to as "column elements". Each column element MUST conform to a **DataColumn** element definition. A column element's content represents a data value. A NULL data value is represented by the absence of a column element in a row element, or by using the <http://www.w3.org/2001/XMLSchema:nil> attribute.

The following is an example of a **DataInstance** element that can appear in a DiffGram **Data** element:

```
<SalesDS>
  <Customers diffgr:id="Customers1" msdata:rowOrder="0" >
    <CustId>1</CustId>
    <CustName>C1</CustName>
  </Customers>
  <Customers diffgr:id="Customers2" msdata:rowOrder="1">
    <CustId>2</CustId>
    <CustName>C2</CustName>
  </Customers>
  <Customers diffgr:id="Customers3" msdata:rowOrder="2" >
    <CustId>3</CustId>
    <CustName>C3</CustName>
  </Customers>
</SalesDS>
```

The following rules apply to the row elements within the **DataInstance** element:

- Each row element MUST have an **urn:schemas-microsoft-com:xml-diffgram-v1:id** attribute. The string value of this attribute acts as the row identifier within the scope of the DiffGram **Data** element. The **DataInstance** element MUST NOT have two row elements with the same value for the **urn:schemas-microsoft-com:xml-diffgram-v1:id** attribute.
- Each row element MUST have an **urn:schemas-microsoft-com:xml-msdata:rowOrder** attribute whose value MUST be an integer that specifies the 0-based ordinal position of the row element. The **DataInstance** element MUST NOT have two row elements with the same value for the **urn:schemas-microsoft-com:xml-msdata:rowOrder** attribute. The value for the **urn:schemas-microsoft-com:xml-msdata:rowOrder** attribute MUST be less than the count of the rows in the **DataInstance** element.
- Each row element MAY have an **urn:schemas-microsoft-com:xml-msdata:hasChanges** attribute. If this attribute is specified, the value MUST be "inserted", "modified", or "decent".

3 Structure Examples

Consider a SharePoint Search with the keywords "Cool Bikes". The results consist of a DataSet containing one DataTable named "RelevantResults", which contains the results of the search. This DataSet is serialized into an [XML document](#) that consists of one **DataTable** element with the name "RelevantResults", with a number of child **DataColumn** elements. Note that while the type of the HitHighlightedProperties **DataColumn** is a string, the contents appear to be [XML](#). However, they are serialized by the DataSet as a string, not XML, and are not encoded as XML.

The following XML is the DiffGram structure that encapsulates this search result:

```
<?xml version="1.0" encoding="utf-8" ?>
<DataSet xmlns="http://tempuri.org/">
  <xs:schema id="Results" xmlns=""
    xmlns:xs="http://www.w3.org/2001/XMLSchema"
    xmlns:msdata="urn:schemas-microsoft-com:xml-msdata"
    xmlns:msprop="urn:schemas-microsoft-com:xml-msprop">
    <xs:element name="Results" msdata:IsDataSet="true"
      msdata:UseCurrentLocale="true" msprop:QueryTerms="Cool Bikes;"
      msprop:IgnoredNoiseWords="" msprop:Keyword="" msprop:ElapsedTime="938"
      msprop:Definition="" msprop:SpellingSuggestion="">
      <xs:complexType>
        <xs:choice minOccurs="0" maxOccurs="unbounded">
          <xs:element name="RelevantResults" msprop:TotalRows="175"
            msprop:IsTotalRowsExact="False">
            <xs:complexType>
              <xs:sequence>
                <xs:element name="WorkId" type="xs:long" minOccurs="0" />
                <xs:element name="Rank" type="xs:long" minOccurs="0" />
                <xs:element name="Title" type="xs:string" minOccurs="0" />
                <xs:element name="Author" type="xs:string" minOccurs="0" />
                <xs:element name="Size" type="xs:long" minOccurs="0" />
                <xs:element name="Path" type="xs:string" minOccurs="0" />
                <xs:element name="Description" type="xs:string" minOccurs="0" />
                <xs:element name="Write" type="xs:dateTime" minOccurs="0" />
                <xs:element name="SiteName" type="xs:string" minOccurs="0" />
                <xs:element name="CollapsingStatus" type="xs:long" minOccurs="0" />
                <xs:element name="HitHighlightedSummary" type="xs:string"
                  minOccurs="0" />
                <xs:element name="HitHighlightedProperties" type="xs:string"
                  minOccurs="0" />
                <xs:element name="ContentClass" type="xs:string" minOccurs="0" />
                <xs:element name="IsDocument" type="xs:long" minOccurs="0" />
                <xs:element name="PictureThumbnailURL" type="xs:string"
                  minOccurs="0" />
              </xs:sequence>
            </xs:complexType>
          </xs:element>
        </xs:choice>
      </xs:complexType>
    </xs:element>
  </xs:schema>
  <diffgr:diffgram xmlns:msdata="urn:schemas-microsoft-com:xml-msdata"
    xmlns:diffgr="urn:schemas-microsoft-com:xml-diffgram-v1">
    <Results xmlns="">
      <RelevantResults diffgr:id="RelevantResults1" msdata:rowOrder="0">
        <WorkId>1321891</WorkId>
        <Rank>822</Rank>
```

```

<Title>New Metro Sport Equipment Bikes</Title>
<Author>Ms.Kim Abercrombie</Author>
<Size>8276480</Size>
<Path>file://PublicShare/BikesConference/postshow/NewModels.ppt</Path>
<Description>Metro Sport Equipment Bikes is introducing Bikes for this
model year - this slide deck shows the new models and options</Description>
<Write>2006-10-06T14:46:27.7529559-07:00</Write>
<SiteName>file://PublicShare/BikesConference</SiteName>
<CollapsingStatus>0</CollapsingStatus>
<HitHighlightedSummary>Metro Sport Equipment Bikes is introducing Bikes
for this model year - this slide deck shows the new models and
options</HitHighlightedSummary>
<HitHighlightedProperties>
  <HHTitle>
    Bike Retailers - Always ready to ride
  </HHTitle>
  <HHUrl>
    file://PublicShare/BikesConference/postshow/NewModels.ppt
  </HHUrl>
</HitHighlightedProperties>
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  <Rank>793</Rank>
  <Title>How to care for BB Ball Bearings</Title>
  <Author>Mr.GustavoAchong</Author>
  <Size>50004</Size>
  <Path>http://bikewiki/Parts/Wiki Pages/BB_Ball_Bearings.aspx</Path>
  <Write>2008-04-01T22:00:46-07:00</Write>
  <SiteName>http://bikewiki/Parts</SiteName>
  <CollapsingStatus>0</CollapsingStatus>
  <HitHighlightedSummary>
    BB Ball Bearings are known for being hard to take care of, but actually
they aren't too bad if you follow these simple directions.
  </HitHighlightedSummary>
  <HitHighlightedProperties>
    <HHTitle>How to care for BB Ball Bearings</HHTitle>
    <HHUrl>http://bikewiki/Parts/Wiki Pages/BB_Ball_Bearings.aspx</HHUrl>
  </HitHighlightedProperties>
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  <Rank>714</Rank>
  <Title>014 PPS Build</Title>
  <Author>Mr. Samuel N. Agcaoili</Author>
  <Size>253623</Size>
  <Path>http://sharepoint/sites/PerformanceBikes/Build Changes.docx</Path>
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4 Security Considerations

None.

5 Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products and technologies:

- Microsoft® Office SharePoint® Server 2007
- 2007 Microsoft® Office system
- Windows® SharePoint Services 3.0

Exceptions, if any, are noted below. Unless otherwise specified, any statement of optional behavior in this specification prescribed using the terms SHOULD or SHOULD NOT implies the aforementioned Microsoft products' behavior is in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies that these Microsoft products do not follow the prescription.

6 Change Tracking

This section will report content and/or editorial changes, beginning with the next release.

7 Index

A

[Applicability](#) 6

E

Examples
[overview](#) 13

F

Fields
[vendor-extensible](#) 6

G

[Glossary](#) 4

H

[high-level structure](#) 7

I

[Informative references](#) 5
[Introduction](#) 4

L

[Localization](#) 6

N

[Namespaces](#) 7
[Normative references](#) 4

O

[Overview](#) 5

P

[Product behavior](#) 17

R

[References](#) 4
[informative](#) 5
[normative](#) 4
[Relationship to other protocols](#) 6

S

Security
[overview](#) 16
Structures
[high-level](#) 7
[overview](#) 7

V

[Vendor-extensible fields](#) 6
[Versioning](#) 6