[MS-UPSSCXPP]:
User Profile Synchronization (UPS):
Schema Exchange Protocol Profile

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Revision Summary

Date	Revision History	Revision Class	Comments
08/14/2009	0.1	Major	First Release.
09/25/2009	0.2	Minor	Updated the technical content.
11/06/2009	0.2.1	Editorial	Revised and edited the technical content.
12/18/2009	0.2.2	Editorial	Revised and edited the technical content.
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Date	Revision History	Revision Class	Comments
			the technical content.
10/08/2012	1.0	No change	No changes to the meaning, language, or formatting of the technical content.
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07/30/2013	1.1	Minor	Clarified the meaning of the technical content.

Table of Contents

1   Introduction

The User Profile Synchronization (UPS): Schema Exchange Protocol Profile profiles metadata exchange with a Web service, as described in [WS-MetaDataExchange], enabling protocol clients to discover metadata for a protocol server implementation of the User Profile Synchronization (UPS): Configuration Data Structure, as described in [MS-UPSCDS].

Sections 1.8, 2, and 3 of this specification are normative and can contain the terms MAY, SHOULD, MUST, MUST NOT, and SHOULD NOT as defined in RFC 2119. Sections 1.5 and 1.9 are also normative but cannot contain those terms. All other sections and examples in this specification are informative.

1.1   Glossary

The following terms are defined in [MS-GLOS]:

> **directory service (DS)**
> **Hypertext Transfer Protocol (HTTP)**
> **SOAP action**
> **SOAP body**
> **SOAP message**
> **Transmission Control Protocol (TCP)**
> **XML namespace**

The following terms are defined in [MS-OFCGLOS]:

> **endpoint**
> **policy**
> **Uniform Resource Locator (URL)**
> **Web Services Description Language (WSDL)**
> **XML attribute**
> **XML schema**

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

References to Microsoft Open Specifications documentation do not include a publishing year because links are to the latest version of the technical documents, which are updated frequently. References to other documents include a publishing year when one is available.

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-UPSCDS] Microsoft Corporation, "User Profile Synchronization (UPS): Configuration Data 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

[SOAP1.2/1] Gudgin, M., Hadley, M., Mendelsohn, N., Moreau, J., and Nielsen, H.F., "SOAP Version 1.2 Part 1: Messaging Framework", W3C Recommendation, June 2003, http://www.w3.org/TR/2003/REC-soap12-part1-20030624

[WSDL] Christensen, E., Curbera, F., Meredith, G., and Weerawarana, S., "Web Services Description Language (WSDL) 1.1", W3C Note, March 2001, http://www.w3.org/TR/2001/NOTE-wsdl-20010315

[WS-MetaDataExchange] Ballinger, K. et al., "Web Services Metadata Exchange (WS-MetadataExchange) Version 1.1", August 2006, http://specs.xmlsoap.org/ws/2004/09/mex/WS-MetadataExchange.pdf

[WXFR] Alexander, J., Box, D., Cabrera, L.F., et al., "Web Services Transfer (WS-Transfer)", September 2006, http://www.w3.org/Submission/2006/SUBM-WS-Transfer-20060927/

[XMLNS] Bray, T., Hollander, D., Layman, A., et al., Eds., "Namespaces in XML 1.0 (Third Edition)", W3C Recommendation, December 2009, http://www.w3.org/TR/2009/REC-xml-names-20091208/

[XMLSCHEMA1/2] Thompson, H.S., Beech, D., Maloney, M., and Mendelsohn, N., Eds., "XML Schema Part 1: Structures Second Edition", W3C Recommendation, October 2004, http://www.w3.org/TR/2004/REC-xmlschema-1-20041028/

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

[XMLSCHEMA2/2] Biron, P.V., and Malhotra, A., Eds., "XML Schema Part 2: Datatypes Second Edition", W3C Recommendation, October 2004, http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/

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

1.2.2   Informative References

[IANAPORT] IANA, "Port Numbers", November 2006, http://www.iana.org/assignments/port-numbers

[MS-GLOS] Microsoft Corporation, "Windows Protocols Master Glossary".

[MS-OFCGLOS] Microsoft Corporation, "Microsoft Office Master Glossary".

[WSSE 1.0] Nadalin, A., Kaler, C., Hallam-Baker, P., and Monzillo, R., Eds., "Web Services Security: SOAP Message Security 1.0 (WS-Security 2004)", OASIS Standard 200401, March 2004, http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-security-1.0.pdf

1.3   Overview

This protocol is a profile of [WS-MetaDataExchange] that enables a protocol client to retrieve metadata from a protocol server. Included in this metadata are [XMLSCHEMA1/2] elements, which describe the structures described in [MS-UPSCDS].

As an example of how the protocol server accepts a request message sent by a protocol client, as described in [WS-MetaDataExchange], and the protocol server then returns a response message see

section 4. The following figure, Message Pattern of the User Profile Synchronization (UPS): Schema Exchange Protocol Profile, illustrates this behavior.
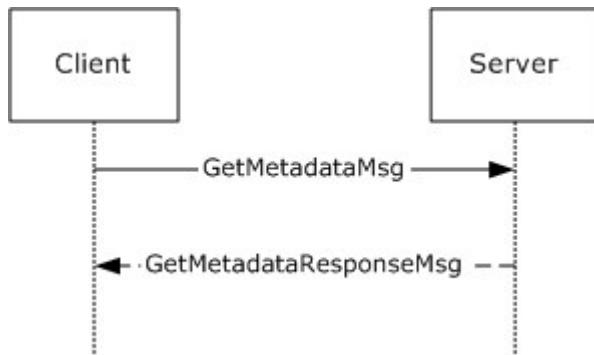
Figure 1: Message pattern of the User Profile Synchronization (UPS): Schema Exchange Protocol Profile

1.4 Relationship to Other Protocols

This protocol uses the SOAP protocol, as described in [SOAP1.2/1], over **HTTP** as shown in the following figure.
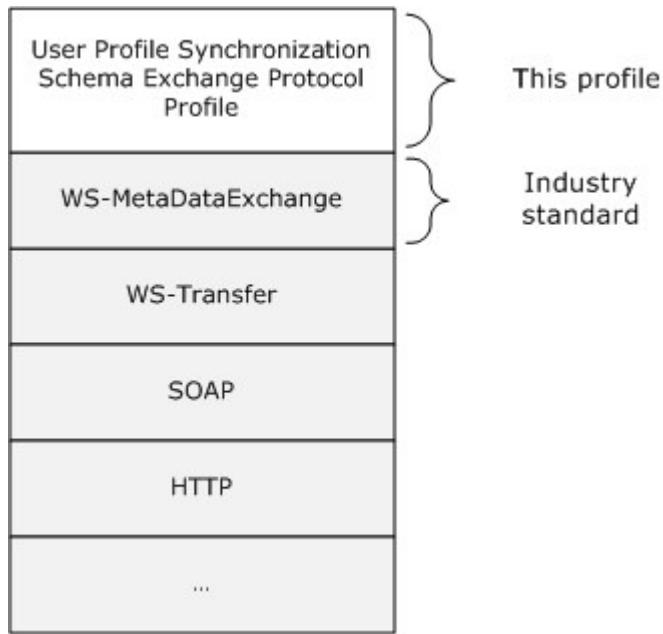
Figure 2: This protocol in relation to other protocols

1.5 Prerequisites/Preconditions

The operations described by this profile operate between a protocol client and a protocol server. The protocol client is expected to have the **URL** of the resource **endpoint (4)** of the protocol server.

The protocol server endpoint is formed by appending "/_vti_bin/OfficialFile.asmx " to the URL of the site, for example: http://www.example.com/Repository/_vti_bin/OfficialFile.asmx.

1.6 Applicability Statement

This profile is intended to return the **XML schema** elements, as described in [XMLSCHEMA1/2], of the User Profile Synchronization: Configuration Data Structure [MS-UPSCDS].

1.7 Versioning and Capability Negotiation

None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

All request messages defined in this profile are transmitted over **Transmission Control Protocol (TCP)** to a protocol server listening on port 5725.

Parameter	Value	Reference
TCP Port	5725	[IANAPORT]

2 Messages

2.1 Transport

Messages MUST be transported using the SOAP protocol, as specified in [SOAP1.2/1], over HTTP. The HTTP connection is made by a protocol client to a protocol server listening on TCP port 5725.

2.2 Common Message Syntax

This section contains common definitions used by this profile. The syntax of the definitions uses an XML schema as defined in [XMLSCHEMA1/2] and [XMLSCHEMA2/2], and the **Web Services Description Language (WSDL)** as defined in [WSDL].

2.2.1 Namespaces

This specification defines and references various **XML namespaces** using the mechanisms specified in [XMLNS]. 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 is not significant for interoperability.

Prefix	Namespace URI	Reference
xs	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1/2]
wxf	http://schemas.xmlsoap.org/ws/2004/09/transfer	[WXFR]
rm	http://schemas.microsoft.com/2006/11/ResourceManagement	[MS-UPSCDS]
mex	http://schemas.xmlsoap.org/ws/2004/09/mex	[WS-MetaDataExchange]

2.2.2 Messages

Message	Description
GetMetadataMsg (section 2.2.2.1)	A message the protocol client sends to request metadata from the protocol server.
GetMetadataResponseMsg (section 2.2.2.2)	A message the protocol server sends in response to a GetMetadataMsg request.

2.2.2.1 GetMetadataMsg

The protocol client sends the message **GetMetadataMsg** to request metadata from the protocol server.

In contrast with section 5.2 of [WS-MetaDataExchange], the **SOAP action** value of the message MUST be:

```
http://schemas.xmlsoap.org/ws/2004/09/transfer/Get
```

The **SOAP body** MUST contain the element `<mex:GetMetadata>`. The element `<mex:GetMetadata>` is defined in section 2.2.3.3.

```
<wsdl:message name="GetMetadataMsg">
    <wsdl:part name="Body" element="mex:GetMetadata" />
  </wsdl:message>
```

2.2.2.2 GetMetadataResponseMsg

The protocol server sends the message **GetMetadataResponseMsg** in response to a **GetMetadataMsg** request message (section 2.2.2.1).

In contrast with section 5.2 of [WS-MetaDataExchange], the SOAP action value of the message MUST be:

```
http://schemas.xmlsoap.org/ws/2004/09/transfer/GetResponse
```

The SOAP body MUST contain the element <mex:Metadata>. This element is defined in section 2.2.3.4.

```
<wsdl:message name="GetMetadataResponseMsg">
    <wsdl:part name="Body" element="mex:Metadata" />
  </wsdl:message>
```

2.2.3 Elements

Element	Description
DataType (section 2.2.3.1)	An element that contains the string literal "String".
GetMetadata (section 2.2.3.3)	An element that contains a query for metadata information.
Key (section 2.2.3.2)	An element that contains an integer.
Metadata (section 2.2.3.4)	An element that contains metadata information.

2.2.3.1 DataType

The element <rm:Data> is derived from xs:string and MUST be the string literal "String".

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://schemas.microsoft.com/2006/11/ResourceManagement">
  <xs:element name="Key">
    <xs:simpleType>
      <xs:restriction base="xs:string">
        <xs:enumeration value="String"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:element>
</xs:schema>
```

2.2.3.2 Key

The element <rm:Key> is an xs:integer.

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```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://schemas.microsoft.com/2006/11/ResourceManagement">
  <xs:element name="Key" type="xs:integer"/>
</xs:schema>
```

2.2.3.3 GetMetadata

The element `<mex:GetMetadata>` is defined in section 5.2 of [WS-MetaDataExchange].

As a profile of [WS-MetaDataExchange], the element `<mex:GetMetadata>` MUST contain the attribute `<mex:Dialect>`, and the value of `<mex:Dialect>` MUST be set to the literal string "http://www.w3.org/2001/XMLSchema".

As a profile of [WS-MetaDataExchange], the element `<mex:GetMetadata>` MUST contain the attribute `<mex:Identifier>`, and the value of `<mex:Identifier>` MUST be set to the literal string ":".

2.2.3.4 Metadata

The element `<mex:Metadata>` is defined in section 4 of [WS-MetaDataExchange].

As a profile of [WS-MetaDataExchange], the first child of element `<mex:Metadata>` MUST be element `<mex:MetadataSection>`. This element `<mex:MetadataSection>` MUST have an **XML attribute @xmlns** with its value set to the empty string. The element `<mex:MetadataSection>` MUST have an XML attribute **@mex:Identifier** with a value set to the literal string ":". The element `<mex:MetadataSection>` MUST have an XML attribute **@mex:Dialect** with its value set to the literal string "http://www.w3.org/2001/XMLSchema". See section 4.1.2 for an example of this element.

As a profile of [WS-MetaDataExchange], the first child of the element `<mex:MetadataSection>` MUST be element `<xs:schema>`. The element `<xs:schema>` is defined in [XMLSCHEMA1/2].

As a profile of [WS-MetaDataExchange], [XMLSCHEMA1/2] annotations are present in <xs:element> elements. Annotating elements is defined in section 3.13 of [XMLSCHEMA1/2]. The manner in which a protocol client uses annotations is not defined.

```
//xs:element/xs:annotation
```

The element `<xs:annotation>`, defined in section 3.13 of [XMLSCHEMA1/2], MUST be present as a child of all `<xs:element>` elements.

```
//xs:element/xs:annotation/xs:appinfo
```

The element `<xs:appinfo>`, defined in section 3.13 of [XMLSCHEMA1/2], MUST be present as a child of all `<xs:annotation>` elements.

```
//xs:element/xs:annotation/xs:appinfo/rm:DisplayName
```

The element `<rm:DisplayName>`, defined in [MS-UPSCDS] section 2.1.3, MUST be present as a child of all `<xs:appinfo>` elements used to annotate `<xs:element>` elements.

```
//xs:element/xs:annotation/xs:appinfo/rm:Description
```

The element `<rm:Description>`, defined in [MS-UPSCDS] section 2.1.3, MUST be present as a child of all `<xs:appinfo>` elements used to annotate `<xs:element>` elements.

```
//xs:element/xs:annotation/xs:appinfo/rm:Key
```

The element `<rm:Key>`, defined in section 2.2.3.1 of this specification, MUST be present as a child of all `<xs:appinfo>` elements used to annotate `<xs:element>` elements.

```
//xs:simpleType[/xs:restriction/@xs:base="xs:string"
/xs:pattern/@xs:value=".{0,448}"]/xs:annotation
```

The element `<xs:annotation>`, defined in section 3.13 of [XMLSCHEMA1/2], MUST be present as a child of all `<xs:simpleType>` elements that derive from `<xs:string>` with the pattern ".{0,448}".

```
//xs:simpleType[/xs:restriction/@xs:base="xs:string"
/xs:pattern/@xs:value=".{0,448}"]/xs:annotation/xs:appinfo
```

The element `<xs:appinfo>`, defined in section 3.13 of [XMLSCHEMA1/2], MUST be present as a child of all `<xs:annotation>` elements that are children of `<xs:simpleType>` elements that derive from xs:string with pattern ".{0,448}".

```
//xs:simpleType[/xs:restriction/@xs:base="xs:string"/xs:pattern/@xs:value=".{0,448}"]/xs:anno
tation/xs:appinfo/rm:DataType
```

The element `<rm:DataType>`, defined in section 2.2.3.1 of this specification, MUST be present as a child of all `<xs:appinfo>` elements that are used to annotate `<xs:simpleType>` elements that are derived from xs:string with the pattern ".{0,448}".

2.2.4 Complex Types

This specification does not define any common XML schema complex type definitions.

2.2.5 Simple Types

This specification does not define any common XML schema simple type definitions.

2.2.6 Attributes

This specification does not define any common XML schema attribute definitions.

2.2.7 Groups

This specification does not define any common XML schema group definitions.

2.2.8 Attribute Groups

This specification does not define any common XML schema attribute group definitions.

2.3 Directory Service Schema Elements

Implementations of this profile do not require access to any **directory service (DS)** schema classes or attributes.

3   Protocol Details

3.1   Server Details

As a profile of [WS-MetaDataExchange], the protocol server MUST provide the Resource endpoint (4) defined by the Resource port type in [WXFR]. The protocol server processes the following operation on the Resource endpoint (4):

▪ Get

3.1.1   Abstract Data Model

This section describes a conceptual model of possible data organization that an implementation maintains to participate in this profile. The described organization is provided to facilitate the explanation of how an implementation following this profile of [WS-MetaDataExchange] behaves. This document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this document.

No new abstract data model is required other than those specified in [WS-MetaDataExchange] and [MS-UPSCDS].

3.1.2   Timers

None.

3.1.3   Initialization

There is no initialization in this profile. All **policy**, schema, and operations MUST be pre-configured prior to the protocol client sending requests.

3.1.4   Message Processing Events and Sequencing Rules

Operation	Description
Get	An operation that accepts a **GetMetadataMsg** request (section 2.2.2.1) from the protocol client and returns a **GetMetadataResponseMsg** response (section 2.2.2.2).

3.1.4.1   Get

A protocol client sends a **GetMetadataMsg** message, defined in section 2.2.2.1 of this specification, to the Resource endpoint (4) of the protocol server to request metadata from the protocol server. Upon successful processing of the GetMetadataMsg message, the protocol server responds with a **GetMetadataResponseMsg** message, defined in section 2.2.2.2 of this specification.

```
    <wsdl:operation name="Get">
      <soap12:operation soapAction="http://schemas.xmlsoap.org/ws/2004/09/transfer/Get"
style="document" />
      <wsdl:input wsdl:message="mex:GetMetadataMsg"
wsa:Action="http://schemas.xmlsoap.org/ws/2004/09/transfer/Get">
      </wsdl:input>
      <wsdl:output wsdl:message="mex:GetMetadataResponseMsg"
wsa:Action="http://schemas.xmlsoap.org/ws/2004/09/transfer/GetResponse">
      </wsdl:output>
    </wsdl:operation>
```

If the protocol server cannot successfully process the **GetMetadataMsg** message, the protocol server will ignore any internal error and MUST respond with a **GetMetadataResponseMsg** message.

3.1.4.1.1 Messages

This operation defines no messages beyond those present in [WS-MetaDataExchange] and section 2.2.2 of this specification.

3.1.4.1.2 Elements

This operation defines no elements beyond those present in [WS-MetaDataExchange].

3.1.4.1.3 Complex Types

This operation defines no complex types beyond those present in [WS-MetaDataExchange].

3.1.4.1.4 Simple Types

This operation defines no simple types beyond those present in [WS-MetaDataExchange].

3.1.4.1.5 Attributes

This operation defines no attributes beyond those present in [WS-MetaDataExchange].

3.1.4.1.6 Groups

This operation defines no groups beyond those present in [WS-MetaDataExchange].

3.1.4.1.7 Attribute Groups

This operation defines no attribute groups beyond those present in [WS-MetaDataExchange].

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

3.2 Client Details

None.

3.2.1 Abstract Data Model

None.

3.2.2 Timers

None.

3.2.3   Initialization

All metadata dialects and identifiers defined are expected to be configured on the protocol client prior to sending requests.

3.2.4   Message Processing Events and Sequencing Rules

None.

3.2.5   Timer Events

None.

3.2.6   Other Local Events

None.

4   Protocol Examples

This section provides an example of the **SOAP messages** specified in section 2.

4.1   Example of Retrieving Metadata from the Server

In this section, the protocol client requests metadata from the protocol server using a **GetMetadataMsg** message (section 2.2.2.1) that contains a `<mex:GetMetadata>` element. The protocol server responds to the protocol client with a **GetMetadataResponseMsg** message (section 2.2.2.2) that contains a `<mex:Metadata>` element.

4.1.1   SOAP GetMetadataMsg Message

```
<?xml version="1.0" encoding="utf-8"?>
<s:Envelope
  xmlns:a="http://www.w3.org/2005/08/addressing"
  xmlns:s="http://www.w3.org/2003/05/soap-envelope"
  xmlns:mex="http://schemas.xmlsoap.org/ws/2004/09/mex">

  <s:Header>
    <a:Action
s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/09/transfer/Get</a:Action>
    <a:MessageID>urn:uuid:6eb17746-64d0-42fb-8206-af9c2470819b</a:MessageID>
    <a:ReplyTo>
      <a:Address>http://www.w3.org/2005/08/addressing/anonymous</a:Address>
    </a:ReplyTo>
    <a:To s:mustUnderstand="1">http://localhost:5725/ResourceManagementService/MEX</a:To>
  </s:Header>
  <s:Body>
    <mex:GetMetadata>
      <mex:Dialect>http://www.w3.org/2001/XMLSchema</mex:Dialect>
      <mex:Identifier>:</mex:Identifier>
    </mex:GetMetadata>
  </s:Body>
</s:Envelope>
```

4.1.2   SOAP GetMetadataResponseMsg Message

```
<?xml version="1.0" encoding="utf-8"?>
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
    <s:Header>
        <a:Action
s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/09/transfer/GetResponse</a:Action>
        <a:RelatesTo>urn:uuid:6eb17746-64d0-42fb-8206-af9c2470819b</a:RelatesTo>
    </s:Header>
    <s:Body>
        <Metadata xmlns="http://schemas.xmlsoap.org/ws/2004/09/mex"
xmlns:wsx="http://schemas.xmlsoap.org/ws/2004/09/mex">
<wsx:MetadataSection Dialect="http://www.w3.org/2001/XMLSchema" Identifier=":" xmlns="">
                <xs:schema attributeFormDefault="unqualified" elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/2006/11/ResourceManagement" version="1.0"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:rm="http://schemas.microsoft.com/2006/11/ResourceManagement">
                    <xs:simpleType name="ReferenceType">
                        <xs:restriction base="xs:string">
```

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```xml
                               <xs:pattern value="([0-9a-fA-F]){8}-([0-9a-fA-
F]){4}-([0-9a-fA-F]){4}-([0-9a-fA-F]){4}-([0-9a-fA-F]){12}" />
                          </xs:restriction>
                     </xs:simpleType>
                     <xs:complexType name="BinaryCollectionType">
                          <xs:sequence>
                               <xs:element minOccurs="1" maxOccurs="unbounded" name="Item"
type="xs:base64Binary" />
                          </xs:sequence>
                     </xs:complexType>
                     <xs:complexType name="DateTimeCollectionType">
                          <xs:sequence>
                               <xs:element minOccurs="1" maxOccurs="unbounded" name="Item"
type="xs:dateTime" />
                          </xs:sequence>
                     </xs:complexType>
                     <xs:complexType name="IntegerCollectionType">
                          <xs:sequence>
                               <xs:element minOccurs="1" maxOccurs="unbounded" name="Item"
type="xs:integer" />
                          </xs:sequence>
                     </xs:complexType>
                     <xs:complexType name="ReferenceCollectionType">
                          <xs:sequence>
                               <xs:element minOccurs="1" maxOccurs="unbounded" name="Item"
type="rm:ReferenceType" />
                          </xs:sequence>
                     </xs:complexType>
                     <xs:complexType name="StringCollectionType">
                          <xs:sequence>
                               <xs:element minOccurs="1" maxOccurs="unbounded" name="Item">
                                    <xs:simpleType>
                                         <xs:annotation>
                                              <xs:appinfo>
                                                   <rm:DataType>String</rm:DataType>
                                              </xs:appinfo>
                                         </xs:annotation>
                                         <xs:restriction base="xs:string">
                                              <xs:pattern value=".{0,448}" />
                                         </xs:restriction>
                                    </xs:simpleType>
                               </xs:element>
<xs:element minOccurs="1" name="CreatedTime" type="xs:dateTime">
                                    <xs:annotation>
                                         <xs:appinfo>
                                              <rm:DisplayName>Created Time</rm:DisplayName>
                                              <rm:Description>The time when the resource is created
in the FIM service database. This attribute is assigned its value by the FIM service. It
cannot be modified by any user.</rm:Description>
                                              <rm:Key>4</rm:Key>
                                         </xs:appinfo>
                                    </xs:annotation>
                               </xs:element>
                          </xs:sequence>
                     </xs:complexType>
<xs:element name="mv-dataInstance" type="rm:mv-data" />
               </xs:schema>
          </wsx:MetadataSection>
     </Metadata>
```

```
        </s:Body>
    </s:Envelope>
```

5 Security

5.1 Security Considerations for Implementers

In contrast with section 8 of [WS-MetaDataExchange], the protocol server and protocol client do not use security features, as described in [WSSE 1.0].

5.2 Index of Security Parameters

None.

6   Appendix A: Full WSDL

For ease of implementation, the full WSDL is provided in this appendix.

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/" xmlns:wsu="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
xmlns:tns="http://schemas.microsoft.com/2006/11/ResourceManagement"
xmlns:wsp="http://www.w3.org/ns/ws-policy"
xmlns:i0="http://schemas.xmlsoap.org/ws/2004/09/transfer"
xmlns:wsap="http://schemas.xmlsoap.org/ws/2004/08/addressing/policy"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:msc="http://schemas.microsoft.com/ws/2005/12/wsdl/contract"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
xmlns:wsa10="http://www.w3.org/2005/08/addressing"
targetNamespace="http://schemas.microsoft.com/2006/11/ResourceManagement"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:mex="http://schemas.xmlsoap.org/ws/2004/09/mex"
>
  <wsdl:import namespace="http://schemas.xmlsoap.org/ws/2004/09/transfer"
location="http://schemas.xmlsoap.org/ws/2004/09/transfer/transfer.wsdl" />
  <wsdl:types>
    <xsd:schema targetNamespace="http://schemas.xmlsoap.org/ws/2004/09/mex">
      <xsd:include
schemaLocation="http://schemas.xmlsoap.org/ws/2004/09/mex/metadataexchange.xsd" />
    </xsd:schema>
  </wsdl:types>
  <wsdl:message name="GetMetadataMsg">
    <wsdl:part name="Body" element="mex:GetMetadata" />
  </wsdl:message>
  <wsdl:message name="GetMetadataResponseMsg">
    <wsdl:part name="Body" element="mex:Metadata" />
  </wsdl:message>
  <wsdl:binding name="ServiceMultipleTokenBinding_Resource" type="i0:Resource">
    <soap12:binding transport="http://schemas.xmlsoap.org/soap/http" />
    <wsdl:operation name="Get">
      <soap12:operation soapAction="http://schemas.xmlsoap.org/ws/2004/09/transfer/Get"
style="document" />
      <wsdl:input wsdl:message="mex:GetMetadataMsg"
wsa:Action="http://schemas.xmlsoap.org/ws/2004/09/transfer/Get">
      </wsdl:input>
      <wsdl:output wsdl:message="mex:GetMetadataResponseMsg"
wsa:Action="http://schemas.xmlsoap.org/ws/2004/09/transfer/GetResponse">
      </wsdl:output>
      <wsdl:input>
        <soap12:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap12:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
  </wsdl:binding>
</wsdl:definitions>
```

7   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 SharePoint Server 2010

- Microsoft SharePoint Server 2013

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.

8 Change Tracking

This section identifies changes that were made to the [MS-UPSSCXPP] protocol document between the February 2013 and July 2013 releases. Changes are classified as New, Major, Minor, Editorial, or No change.

The revision class **New** means that a new document is being released.

The revision class **Major** means that the technical content in the document was significantly revised. Major changes affect protocol interoperability or implementation. Examples of major changes are:

- A document revision that incorporates changes to interoperability requirements or functionality.

- An extensive rewrite, addition, or deletion of major portions of content.

- The removal of a document from the documentation set.

- Changes made for template compliance.

The revision class **Minor** means that the meaning of the technical content was clarified. Minor changes do not affect protocol interoperability or implementation. Examples of minor changes are updates to clarify ambiguity at the sentence, paragraph, or table level.

The revision class **Editorial** means that the language and formatting in the technical content was changed. Editorial changes apply to grammatical, formatting, and style issues.

The revision class **No change** means that no new technical or language changes were introduced. The technical content of the document is identical to the last released version, but minor editorial and formatting changes, as well as updates to the header and footer information, and to the revision summary, may have been made.

Major and minor changes can be described further using the following change types:

- New content added.

- Content updated.

- Content removed.

- New product behavior note added.

- Product behavior note updated.

- Product behavior note removed.

- New protocol syntax added.

- Protocol syntax updated.

- Protocol syntax removed.

- New content added due to protocol revision.

- Content updated due to protocol revision.

- Content removed due to protocol revision.

- New protocol syntax added due to protocol revision.

- Protocol syntax updated due to protocol revision.

- Protocol syntax removed due to protocol revision.

- New content added for template compliance.

- Content updated for template compliance.

- Content removed for template compliance.

- Obsolete document removed.

Editorial changes are always classified with the change type **Editorially updated.**

Some important terms used in the change type descriptions are defined as follows:

- **Protocol syntax** refers to data elements (such as packets, structures, enumerations, and methods) as well as interfaces.

- **Protocol revision** refers to changes made to a protocol that affect the bits that are sent over the wire.

The changes made to this document are listed in the following table. For more information, please contact protocol@microsoft.com.

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
2.2.3.4 Metadata	Refined description for Metadata.	N	Content updated.

9 Index

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