[MS-USRPCH]:
User Profile Change Log Web Service Protocol Specification

Revision Summary

Date	Revision History	Revision Class	Comments
04/04/2008	0.1		Initial Availability
06/27/2008	1.0	Major	Revised and edited the technical content
12/12/2008	1.01	Editorial	Revised and edited the technical content
07/13/2009	1.02	Major	Revised and edited the technical content
08/28/2009	1.03	Editorial	Revised and edited the technical content
11/06/2009	1.04	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	2.04	No change	No changes to the meaning, language, or formatting of the technical content.
09/27/2010	2.04	No change	No changes to the meaning, language, or formatting of the technical content.
11/15/2010	2.04	No change	No changes to the meaning, language, or formatting of the technical content.
12/17/2010	2.04	No change	No changes to the meaning, language, or formatting of the technical content.

Table of Contents

1   Introduction

This document specifies the User Profile Change Log Web Service Protocol. This protocol enables a protocol client to query and sync changes from user profiles.

1.1   Glossary

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

Hypertext Transfer Protocol (HTTP)
Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)

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

change token
colleague
crawl
distribution list
item
multivalue property
organization
personal site
single-value property
site
site membership
SOAP action
SOAP body
SOAP fault
URL (Uniform Resource Locator)
user profile
user profile change entry log
user profile privacy policy
Web log
WSDL (Web Services Description Language)
WSDL operation
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

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-USPSWS] Microsoft Corporation, "User Profile Service Web Service 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

[RFC2616] Fielding, R., Gettys, J., Mogul, J., et al., "Hypertext Transfer Protocol -- HTTP/1.1", RFC 2616, June 1999, http://www.ietf.org/rfc/rfc2616.txt

[SOAP1.1] Box, D., Ehnebuske, D., Kakivaya, G., et al., "Simple Object Access Protocol (SOAP) 1.1", May 2000, http://www.w3.org/TR/2000/NOTE-SOAP-20000508/

[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

[SOAP1.2/2] Gudgin, M., Hadley, M., Mendelsohn, N., Moreau, J., and Nielsen, H.F., "SOAP Version 1.2 Part 2: Adjuncts", W3C Recommendation, June 2003, http://www.w3.org/TR/2003/REC-soap12-part2-20030624

[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

[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

[MC-NMF] Microsoft Corporation, ".NET Message Framing Protocol Specification", October 2007.

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

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

[RFC2818] Rescorla, E., "HTTP Over TLS", RFC 2818, May 2000, http://www.ietf.org/rfc/rfc2818.txt

1.3   Protocol Overview (Synopsis)

This protocol is used by a protocol client to query and sync changes from a user profile store. This protocol enables a protocol client to query for changes to specific user profiles or for changes to all profiles on the protocol server. This protocol is also designed to support incremental search engine **crawling**, back-up, and data transfer from the user profile store.

1.4   Relationship to Other Protocols

This protocol uses the SOAP messaging protocol for formatting requests and responses, as described in [SOAP1.2/1] and [SOAP1.2/2]. It transmits these messages by using the **HTTP** protocol, as described in [RFC2616], the HTTPS protocol, as described in [RFC2818], or the TCP protocol, as described in [MC-NMF].

The following diagram shows the underlying messaging and transport stack that the protocol uses:
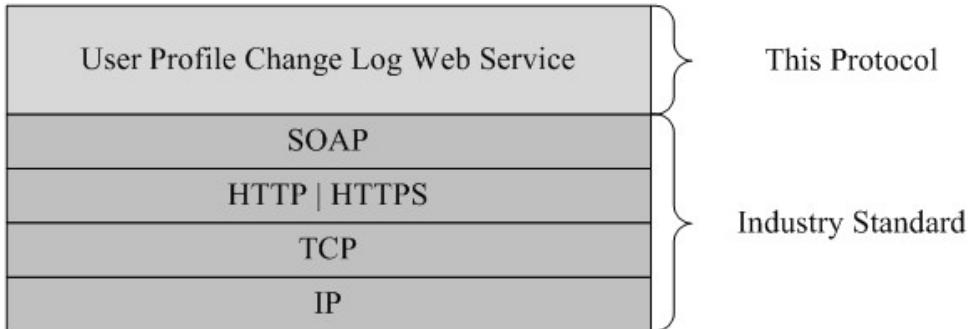
Figure 1: This protocol in relation to other protocols

1.5 Prerequisites/Preconditions

This protocol operates against a **site (2)** that is identified by a **URL** that is known by protocol clients. The protocol server endpoint is formed by appending "/_vti_bin/UserProfileChangeService.asmx" to the URL of the site (2); for example "http://www.example.com/Repository/_vti_bin/UserProfileChangeService.asmx".

This protocol assumes that authentication has been performed by the underlying protocols.

1.6 Applicability Statement

This protocol is applicable in scenarios where one protocol server replicates the **user profile** information from another protocol server for the search engine crawl process against the user profile data, and for situations where the profile data is cached on the protocol client and kept in sync with the protocol server.

1.7 Versioning and Capability Negotiation

This document covers versioning issues in the following areas:

- **Supported Transports:** This protocol uses multiple transports with SOAP, as specified in section 2.1.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2   Messages

In the following sections, the schema definition might be less restrictive than the processing rules imposed by the protocol. The **WSDL** in this specification matches the WSDL that shipped with the product and provides a base description of the schema. The text that introduces the WSDL specifies additional restrictions that reflect actual Microsoft product behavior. For example, the schema definition might allow for an element to be empty, null, or not present but the behavior of the protocol as specified restricts the same elements to being non-empty, present, and not null.

2.1   Transport

Protocol servers need to support SOAP over HTTP. Additionally, protocol servers SHOULD support SOAP over **HTTPS** for securing communication with protocol clients.

This protocol uses SOAP for formatting requests and responses, as specified in [SOAP1.1] section 4 or as specified in [SOAP1.2/1] section 5. Protocol server faults are returned either by using an HTTP Status Code as specified in [RFC2616] section 10, or by using a **SOAP fault**, as specified either in [SOAP1.1] section 4.4 or in [SOAP1.2/1] section 5.4.

2.2   Common Message Syntax

This section contains common definitions used by this protocol. The syntax of the definitions uses the **XML Schema (1)**, as defined in [XMLSCHEMA1] and [XMLSCHEMA2], and Web Services Description Language 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 not significant for interoperability.

Prefix	Namespace URI	Reference
soap	http://schemas.xmlsoap.org/wsdl/soap	[SOAP1.1]
tm	http://microsoft.com/wsdl/mime/textMatching	
soapenc	http://schemas.xmlsoap.org/soap/encoding	
mime	http://schemas.xmlsoap.org/wsdl/mime	
tns	http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService	
s1	http://microsoft.com/wsdl/types/	
s	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1] [XMLSCHEMA2]
soap12	http://schemas.xmlsoap.org/wsdl/soap12/	[SOAP1.2/1] [SOAP1.2/2]

Prefix	Namespace URI	Reference
(none)	http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService	
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]

2.2.2 Messages

None.

2.2.3 Elements

This specification does not define any common XML Schema (1) element definitions.

2.2.4 Complex Types

The following table summarizes the set of common XML Schema (1) complex type definitions defined by this specification. XML Schema (1) complex type definitions that are specific to a particular operation are described with the operation.

Complex Type	Description
ArrayOfUserProfileChangeData	An array of **UserProfileChangeData**.
UserProfileChangeData	A data type that contains one user profile change entry.
UserProfileChangeDataContainer	A container for user profile change entries returned by Web methods.
UserProfileChangeQuery	A data type that describes filter criteria for retrieving user profile change entries.
ProfileBaseChangeQuery	A base type that is used to specify the **ChangeTypes** (section 2.2.5.1) and **ObjectTypes** (section 2.2.5.2) simple types, which are used to query the user profile change entries log.
UserProfileChangeToken	A base type that is used to specify the unique sequential location of a change within the user profile change entries log.

2.2.4.1 ArrayOfUserProfileChangeData

The **ArrayOfUserProfileChangeData** complex type contains an array of user profile change entries as part of the response to any of the following request operations.

GetAllChanges (section 3.1.4.1)

GetChanges (section 3.1.4.2)

GetUserAllChanges (section 3.1.4.4)

GetUserChanges (section 3.1.4.5)

```
<s:complexType name="ArrayOfUserProfileChangeData">
  <s:sequence>
```

```
      <s:element name="UserProfileChangeData" type="tns:UserProfileChangeData"
                 nillable="true" minOccurs="0" maxOccurs="unbounded"/>
    </s:sequence>
  </s:complexType>
```

UserProfileChangeData: A **UserProfileChangeData** (section 2.2.4.2) type is a property that MUST contain the data that identifies one change in the current request response.

2.2.4.2 UserProfileChangeData

The **UserProfileChangeData** complex type contains the data that identifies a change in the request response.

```
  <s:complexType name="UserProfileChangeData">
    <s:sequence>
      <s:element minOccurs="1" maxOccurs="1" name="Id" type="s:long" />
      <s:element minOccurs="0" maxOccurs="1"
                 name="UserAccountName" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1"
                 name="UserRemotePersonalSiteHostUrl" type="s:string" />
      <s:element minOccurs="1" maxOccurs="1"
                 name="ChangeType" type="tns:ChangeTypes" />
      <s:element minOccurs="1" maxOccurs="1"
                 name="ObjectType" type="tns:ObjectTypes" />
      <s:element minOccurs="1" maxOccurs="1" name="EventTime" type="s:dateTime" />
      <s:element minOccurs="0" maxOccurs="1" name="Value" />
      <s:element minOccurs="1" maxOccurs="1" name="PolicyId" type="s1:guid" />
      <s:element minOccurs="0" maxOccurs="1" name="PropertyName" type="s:string" />
    </s:sequence>
  </s:complexType>
```

Id: A **long** type that is a property that MUST contain a unique identifier for the user profile change entry.

UserAccountName: A string that is a property that MUST contain the user name.

UserRemotePersonalSiteHostUrl: A string that is a property that MUST contain a value representing the URL of the **personal site** of the user.

ChangeType: This property MUST contain the **ChangeTypes** (section 2.2.5.1) instance for the user profile change entry.

ObjectType: This property MUST contain the **ObjectTypes** (section 2.2.5.2) instance for the user profile change entry.

EventTime: A **dateTime** type that is a property that MUST contain the date and time of the user profile change entry.

Value: This property is the value of the user profile change entry. This property does not have a specific type.

PolicyId: A **GUID** type that is a property that MUST contain a unique identifier for a **user profile privacy policy** item.

PropertyName: A string that is a property that MUST be the name of a property in the user profile change entry if the **ObjectTypes** (section 2.2.5.2) has the value "SingleValueProperty" or "MultiValueProperty". Otherwise, this property MUST be NULL.

2.2.4.3 UserProfileChangeDataContainer

The **UserProfileChangeDataContainer** type contains data about user profile change entries.

```
<s:complexType name="UserProfileChangeDataContainer">
  <s:sequence>
    <s:element minOccurs="0" maxOccurs="1"
               name="Changes" type="tns:ArrayOfUserProfileChangeData" />
    <s:element minOccurs="0" maxOccurs="1" name="ChangeToken" type="s:string" />
    <s:element minOccurs="1" maxOccurs="1"
               name="HasExceededCountLimit" type="s:boolean" />
  </s:sequence>
</s:complexType>
```

Changes: An **ArrayOfUserProfileChangeData** (section 2.2.4.1) type that represents a set of user profile change entries that MUST be older than or include the value referred to by **ChangeToken**.

ChangeToken: A string that specifies the user profile **change token** value that can be used to retrieve any user profile change entries that occur after the returned changes.

HasExceededCountLimit: A Boolean that MUST be true if the number of results exceeds 1000. Otherwise, **HasExceededCountLimit** MUST be false. If **HasExceededCountLimit** is true, only the 1000 most recent changes will be retrieved.

2.2.4.4 UserProfileChangeQuery

UserProfileChangeQuery is a complex type that is used to specify the filter criteria for retrieving user profile change entries.

```
<s:complexType name="UserProfileChangeQuery">
  <s:complexContent mixed="false">
    <s:extension base="tns:ProfileBaseChangeQuery">
      <s:sequence>
        <s:element minOccurs="1" maxOccurs="1"
                   name="Anniversary" type="s:boolean" />
        <s:element minOccurs="1" maxOccurs="1"
                   name="DistributionListMembership" type="s:boolean" />
        <s:element minOccurs="1" maxOccurs="1"
                   name="SiteMembership" type="s:boolean" />
        <s:element minOccurs="1" maxOccurs="1" name="QuickLink" type="s:boolean" />
        <s:element minOccurs="1" maxOccurs="1" name="Colleague" type="s:boolean" />
        <s:element minOccurs="1" maxOccurs="1" name="WebLog" type="s:boolean" />
        <s:element minOccurs="1" maxOccurs="1"
                   name="PersonalizationSite" type="s:boolean" />
        <s:element minOccurs="1" maxOccurs="1"
                   name="UserProfile" type="s:boolean" />
        <s:element minOccurs="1" maxOccurs="1"
                   name="OrganizationMembership" type="s:boolean" />
      </s:sequence>
    </s:extension>
  </s:complexContent>
```

```
        </s:complexType>
```

Anniversary: A Boolean that specifies a query for Anniversary (section 2.2.5.2) changes to be executed. True indicates to query for **Anniversary** changes; false indicates not to query for **Anniversary** change.

DistributionListMembership: A Boolean that specifies a query for **DLMembership** (section 2.2.5.2) changes to be executed. True indicates to query for **DLMembership** changes; false indicates not to query for **DLMembership** changes.

SiteMembership: A Boolean that specifies a query for **SiteMembership** (section 2.2.5.2) changes to be executed. True indicates to query for **SiteMembership** changes; false indicates not to query for **SiteMembership** changes.

QuickLink: A Boolean that specifies whether or not to query for **QuickLink** (section 2.2.5.2)changes. True indicates to query for **QuickLink** changes; false indicates not to query for **QuickLink** changes.

Colleague: A Boolean that specifies whether or not to query for **Colleague** (section 2.2.5.2) changes. True indicates to query for **Colleague** changes; false indicates not to query for **Colleague** changes.

WebLog: A Boolean that specifies whether or not to query for **WebLog** (section 2.2.5.2) changes. True indicates to query for **WebLog** changes; false indicates not to query for **WebLog** changes.

PersonalizationSite: A Boolean that specifies whether or not to query for **PersonalizationSite** (section 2.2.5.2) changes. True indicates to query for **PersonalizationSite** changes; false indicates not to query for **PersonalizationSite** changes.

UserProfile: A Boolean that specifies whether or not to query for **UserProfile** (section 2.2.5.2) changes. True indicates to query for **UserProfile** changes; false indicates not to query for **UserProfile** changes.

OrganizationMembership: A Boolean that specifies whether or not to query for **OrganizationMembership** (section 2.2.5.2) changes. True indicates to query for **OrganizationMembership** changes; false indicates not to query for **OrganizationMembership** changes.

2.2.4.5   ProfileBaseChangeQuery

ProfileBaseChangeQuery is a complex base type that is used to specify the **ChangeTypes** (section 2.2.5.1) and **ObjectTypes** (section 2.2.5.2) simple types, which are used to query the user profile change entries log.

```
  <s:complexType name="ProfileBaseChangeQuery">
    <s:sequence>
      <s:element minOccurs="1" maxOccurs="1"
                 name="SingleValueProperty" type="s:boolean" />
      <s:element minOccurs="1" maxOccurs="1"
                 name="MultiValueProperty" type="s:boolean" />
      <s:element minOccurs="1" maxOccurs="1" name="Custom" type="s:boolean" />
      <s:element minOccurs="1" maxOccurs="1" name="Add" type="s:boolean" />
      <s:element minOccurs="1" maxOccurs="1" name="Update" type="s:boolean" />
      <s:element minOccurs="1" maxOccurs="1"
                 name="UpdateMetadata" type="s:boolean" />
      <s:element minOccurs="1" maxOccurs="1" name="Delete" type="s:boolean" />
```

```
        <s:element minOccurs="0" maxOccurs="1"
                 name="ChangeTokenStart" type="tns:UserProfileChangeToken" />
    </s:sequence>
  </s:complexType>
```

SingleValueProperty: A Boolean that specifies whether or not to query for single value property changes. A query run based on this value specifies the modified **ChangeTypes** records. True indicates to query for single value property changes; false indicates not to query for single value property changes.

MultiValueProperty: A Boolean that specifies whether or not to query for multiple property value changes. A query run based on this value specifies all **ChangeTypes** records that match the individual values of the multiple property values. True indicates to query for multiple property value changes; false indicates not to query for multiple property value changes.

Custom: A Boolean that specifies whether or not to include Custom ObjectTypes in the query. True indicates to include Custom ObjectTypes in the query; false indicates not to include Custom ObjectTypes in the query.

Add: A Boolean that specifies whether or not to query for **Add** (section 2.2.5.1) changes. True indicates to query for **Add** changes; false indicates not to query for **Add** changes.

Update: A Boolean that specifies whether or not to query for **Modify** changes. True indicates to query for **Modify** changes; false indicates not to query for **Modify** changes.

UpdateMetadata: A Boolean that specifies whether or not to query for **Metadata** update changes. True indicates to query for **Metadata** update changes; false indicates not to query for **Metadata** update changes.

Delete: A Boolean that specifies whether or not to query for **Delete** (section 2.2.5.1) changes. True indicates to query for **Delete** changes; false indicates not to query for **Delete** changes.

ChangeTokenStart: Specifies the starting location in the user profile change logs for the query. The **UserProfileChangeToken** type MUST support construction from a string representation of a change token (section 2.2.4.3).

2.2.4.6   UserProfileChangeToken

UserProfileChangeToken is a complex base type that is used to specify the unique sequential location of a change within the user profile change entries log. The **UserProfileChangeToken** type MUST support construction from a string representation of a change token.

```
  <s:complexType name="UserProfileChangeToken" />
```

2.2.5   Simple Types

The following table summarizes the set of common XML Schema (1) simple type definitions defined by this specification. XML Schema (1) simple type definitions that are specific to a particular operation are described with the operation.

Simple Type	Description
ChangeTypes	Type of user profile change entry made on the object.

Simple Type	Description
ObjectTypes	Type of object represented

2.2.5.1 ChangeTypes

ChangeTypes is a simple type that enumerates the valid operation types applied to user profile data.

```
<s:simpleType name="ChangeTypes">
  <s:list>
    <s:simpleType>
      <s:restriction base="s:string">
        <s:enumeration value="None"/>
        <s:enumeration value="Add"/>
        <s:enumeration value="Modify"/>
        <s:enumeration value="Delete"/>
        <s:enumeration value="Metadata"/>
        <s:enumeration value="All"/>
      </s:restriction>
    </s:simpleType>
  </s:list>
</s:simpleType>
```

The following table defines the allowable values for **ChangeTypes**:

Value	Meaning
None	None.
Add	An object has been added to user profile.
Modify	An existing object has been modified.
Delete	An existing object has been deleted.
Metadata	The metadata of an object has been modified.
All	Multiple operations were performed on an object.

2.2.5.2 ObjectTypes

ObjectTypes is a simple type that enumerates the supported types.

```
<s:simpleType name="ObjectTypes">
  <s:list>
    <s:simpleType>
      <s:restriction base="s:string">
        <s:enumeration value="None"/>
        <s:enumeration value="SingleValueProperty"/>
        <s:enumeration value="MultiValueProperty"/>
        <s:enumeration value="Anniversary"/>
        <s:enumeration value="DLMembership"/>
        <s:enumeration value="SiteMembership"/>
        <s:enumeration value="QuickLink"/>
        <s:enumeration value="Colleague"/>
```

```
                <s:enumeration value="PersonalizationSite"/>
                <s:enumeration value="UserProfile"/>
                <s:enumeration value="WebLog"/>
                <s:enumeration value="Custom" />
                <s:enumeration value="OrganizationProfile" />
                <s:enumeration value="OrganizationMembership" />
                <s:enumeration value="All"/>
            </s:restriction>
        </s:simpleType>
    </s:list>
</s:simpleType>
```

The following table defines the allowable values for **ObjectTypes**:

Value	Meaning
None	None.
SingleValueProperty	A user profile **single-value property** change.
MultiValueProperty	A user profile multivalue property change.
Anniversary	A user profile anniversary change, which is an event that occurs when a date in the user's profile matches the current date.
DLMembership	A user profile **distribution list** membership change.
SiteMembership	A user profile **site membership** change.
QuickLink	A link **item** change.
Colleague	A **colleague** relationship addition, deletion, or update.
PersonalizationSite	A personal site item change.
UserProfile	A user profile change.
WebLog	A user profile **Web log** change.
Custom<1>	A custom change to a user profile.
OrganizationProfile<2>	An **Organization** object change.
OrganizationMembership<3>	A user profile organization membership change.
All	A set of all object types.

2.2.5.3 GUID

GUID is a simple type that is used to represent a **GUID**.

```
<s:simpleType name="guid">
  <s:restriction base="s:string">
    <s: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}"/>
  </s:restriction>
</s:simpleType>
```

2.2.6 Attributes

This specification does not define any common XML Schema (1) attribute definitions.

2.2.7 Groups

This specification does not define any common XML Schema (1) group definitions.

2.2.8 Attribute Groups

This specification does not define any common XML Schema (1) attribute group definitions.

3   Protocol Details

In the following sections, the schema definition might be less restrictive than the processing rules imposed by the protocol. The WSDL in this specification matches the WSDL that shipped with the product and provides a base description of the schema. The text that introduces the WSDL specifies additional restrictions that reflect actual Microsoft product behavior. For example, the schema definition might allow for an element to be empty, null, or not present but the behavior of the protocol as specified restricts the same elements to being non-empty, present, and not null.

The client side of this protocol is simply a pass-through. That is, no additional timers or other state is required on the client side of this protocol. Calls made by the higher-layer protocol or application are passed directly to the transport, and the results returned by the transport are passed directly back to the higher-layer protocol or application.

3.1   Server Details

3.1.1   Abstract Data Model

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

This protocol is contingent on the abstract data model as specified by [MS-USPSWS] section 3.1.1.
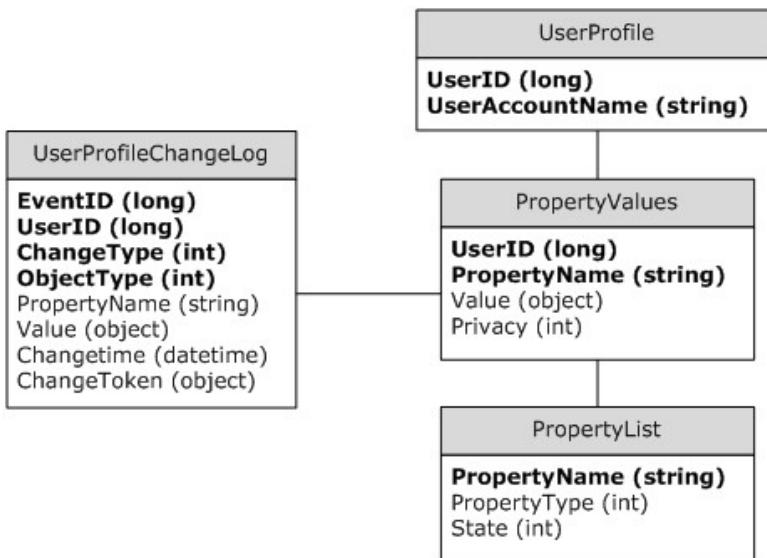
Figure 2: Abstract data model

In the preceding diagram, each table in the previous figure specifies a type of entity in the model, and each line specifies that one type of entity always contains a reference to another.

UserProfile Table: A collection of entries corresponding to the user profile available on the protocol server.

- **UserID:** A unique number that identifies the user.

- **userAccountName:** A unique string name that identifies the user.

PropertyList Table: A collection of entries, each one corresponding to a property.

- **PropertyName:** A unique name for the property.

- **PropertyType:** An integer identifying the type of the property.

- **State:** An integer identifying what is the property state.

PropertyValues Table: A collection of entries with the values of the user properties.

- **UserID:** The unique identifier of the user.

- **PropertyName:** The unique name of the property.

- **Value:** The value of the property identified by **PropertyName** for the user identified by **UserID**.

- **Privacy:** An integer indicating what the privacy policy is for this property value.

UserProfileChangeLog: A collection of entries containing the user profile change entries.

- **EventID:** A unique identifier for the user profile change log entry.

- **UserID:** The unique identifier for the user for whom the user profile change log entry was created.

- **ChangeType:** An integer identifying the change type of the user profile change log entry.

- **ObjectType:** An integer identifying the object type of the user profile change log entry.

- **PropertyName:** The name of the single value property or **multivalue property** which the user profile change log entry refers to.

- **Value:** The value of the property for the user profile change log entry.

- **ChangeTime:** The date and time at which the user profile change log entry was created.

- **ChangeToken:** The Change Token of the user profile change log entry. It uniquely identifies the specified change.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Message Processing Events and Sequencing Rules

Operation	Description
GetAllChanges	Retrieves all user profile change entries available on the protocol server.
GetChanges	Retrieves a subset of user profile change entries available on the protocol server.

Operation	Description
GetCurrentChangeToken	Retrieves the change token for the most recent user profile change entry available on the protocol server.
GetUserAllChanges	Retrieves all user profile change entries available on the protocol server for the specified user.
GetUserChanges	Retrieves of the user profile change entries available on the protocol server for the specified user.
GetUserCurrentChangeToken	Retrieves the change token for the most recent user profile change entry available on the protocol server for the specified user.

3.1.4.1 GetAllChanges

The **GetAllChanges** operation is used to get all user profile change entries available on the protocol server.

```
<wsdl:operation name="GetAllChanges">
   <wsdl:input message="GetAllChangesSoapIn" />
    <wsdl:output message="GetAllChangesSoapOut" />
</wsdl:operation>
```

The protocol client sends a **GetAllChangesSoapIn** request message and the protocol server responds with a **GetAllChangesSoapOut** response message, as follows:

This method has no input parameters and is used to retrieve all user profile change entries on the protocol server up to 1000. Only a user with administrator privileges can call this method.
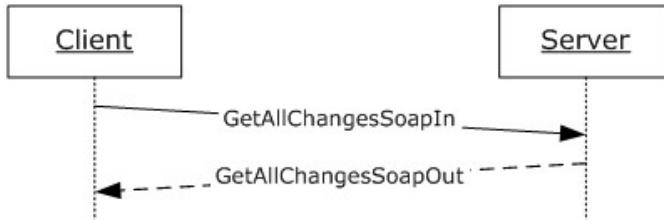
Figure 3: GetAllChanges operation

3.1.4.1.1 Messages

3.1.4.1.1.1 GetAllChangesSoapIn

The request WSDL message for a **GetAllChanges WSDL operation**.

The **SOAP action** value is:

http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/GetAllChanges

The **SOAP body** contains a **GetAllChanges** element.

3.1.4.1.1.2 GetAllChangesSoapOut

The response WSDL message for a **GetAllChanges** WSDL operation.

The SOAP action value is:

```
http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/GetAllChange
s
```

The SOAP body contains a **GetAllChangesResponse** element.

3.1.4.1.2 Elements

3.1.4.1.2.1 GetAllChanges

The input for a **GetAllChanges** WSDL operation.

```
<s:element name="GetAllChanges">
  <s:complexType/>
</s:element>
```

3.1.4.1.2.2 GetAllChangesResponse

The response WSDL message for a **GetAllChanges** WSDL operation.

```
<s:element name="GetAllChangesResponse">
  <s:complexType>
    <s:sequence>
      <s:element minOccurs="0" maxOccurs="1" name="GetAllChangesResult"
                 type="tns:UserProfileChangeDataContainer" />
    </s:sequence>
  </s:complexType>
</s:element>
```

GetAllChangesResult: The **UserProfileChangeDataContainer**, which MUST contain the returned user profile change entries.

3.1.4.2 GetChanges

The **GetChanges** operation is used to retrieve a subset of all user profile change entries available on the protocol server.

```
<wsdl:operation name="GetChanges">
    <wsdl:input message="GetChangesSoapIn" />
    <wsdl:output message="GetChangesSoapOut" />
</wsdl:operation>
```

The protocol client sends a **GetChangesSoapIn** request message and the protocol server responds with a **GetChangesSoapOut** response message, as shown in the following figure.
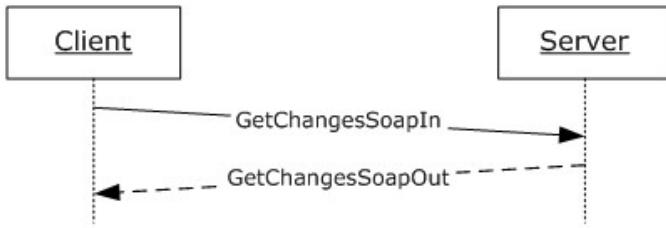
Figure 4: GetChanges operation

This method takes a **ChangeToken** and a query parameter used to filter the user profile change entries available on the protocol server. Only a user with administrator privileges can call this method.

3.1.4.2.1 Messages

3.1.4.2.1.1 GetChangesSoapIn

The request WSDL message for a **GetChanges** WSDL operation.

The SOAP action value of the message is defined as follows:

```
http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/GetChanges
```

The SOAP body contains a **GetChanges** element.

3.1.4.2.1.2 GetChangesSoapOut

The response WSDL message for a **GetChanges** WSDL operation.

The SOAP action value is:

```
http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/GetChanges
```

The SOAP body contains a **GetChangesResponse** element.

3.1.4.2.2 Elements

3.1.4.2.2.1 GetChanges

The input data for a **GetChanges** WSDL operation.

```
<s:element name="GetChanges">
  <s:complexType>
    <s:sequence>
      <s:element minOccurs="0" maxOccurs="1" name="changeToken" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="changeQuery"
                 type="tns:UserProfileChangeQuery" />
    </s:sequence>
  </s:complexType>
</s:element>
```

changeToken: A value specifying a change token. All returned user profile change entries MUST follow the user profile change entry identified by this change token.

changeQuery: A value that defines the **ObjectTypes** and **ChangeTypes** that the returned data SHOULD contain.<4>

3.1.4.2.2 GetChangesResponse

The result data for a **GetChanges** WSDL operation.

```
<s:element name="GetChangesResponse">
  <s:complexType>
    <s:sequence>
      <s:element minOccurs="0" maxOccurs="1" name="GetChangesResult"
             type="tns:UserProfileChangeDataContainer" />
    </s:sequence>
  </s:complexType>
</s:element>
```

GetChangesResult: A **UserProfileChangeDataContainer** that MUST contain all user profile change entries between 0 and 1000.

The response MUST contain a SOAP fault in the following cases:

▪ The change token provided precedes the earliest change available on the protocol server.

▪ The change token is invalid.

3.1.4.3 GetCurrentChangeToken

The **GetCurrentChangeToken** operation is used to get a change token that identifies the most recent user profile change entry available on the protocol server.

```
<wsdl:operation name="GetCurrentChangeToken">
    <wsdl:input message="GetCurrentChangeTokenSoapIn" />
    <wsdl:output message="GetCurrentChangeTokenSoapOut" />
</wsdl:operation>
```

The protocol client sends a **GetCurrentChangeTokenSoapIn** request message and the protocol server responds with a **GetCurrentChangeTokenSoapOut** response message, as shown in the following figure.
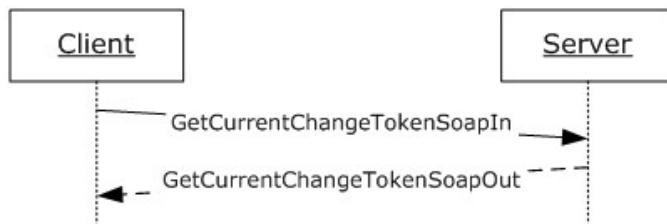

Figure 5: GetCurrentChangeToken operation

3.1.4.3.1 Messages

3.1.4.3.1.1 GetCurrentChangeTokenSoapIn

The request WSDL message for a **GetCurrentChangeToken** WSDL operation.

The SOAP action value is:

```
http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/GetCurrentCh
angeToken
```

The SOAP body contains a **GetCurrentChangeToken** element.

3.1.4.3.1.2 GetCurrentChangeTokenSoapOut

The response WSDL message for a **GetAllChanges** WSDL operation.

The SOAP action value is:

```
http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/GetCurrentCh
angeToken
```

The SOAP body contains a **GetCurrentChangeTokenResponse** element.

3.1.4.3.2 Elements

3.1.4.3.2.1 GetCurrentChangeToken

The request WSDL message for a **GetCurrentChangeToken** WSDL operation.

```
<s:element name="GetCurrentChangeToken">
  <s:complexType/>
</s:element>
```

3.1.4.3.2.2 GetCurrentChangeTokenResponse

The response WSDL message for a **GetCurrentChangeToken** WSDL operation.

```
<s:element name="GetCurrentChangeTokenResponse">
  <s:complexType>
    <s:sequence>
      <s:element minOccurs="0" maxOccurs="1" name="GetCurrentChangeTokenResult"
                 type="s:string" />
    </s:sequence>
  </s:complexType>
</s:element>
```

GetCurrentChangeTokenResult: A value that MUST identify the most recent user profile change entry available on the protocol server.

3.1.4.4 GetUserAllChanges

This operation is used to get all user profile change entries available on the protocol server for the specified user.

```
<wsdl:operation name="GetUserAllChanges">
    <wsdl:input message="GetUserAllChangesSoapIn" />
    <wsdl:output message="GetUserAllChangesSoapOut" />
</wsdl:operation>
```

This method takes a user name as a parameter and retrieves up to 1000 user profile change entries on the protocol server.

The protocol client sends a **GetUserAllChangesSoapIn** request message and the protocol server responds with a **GetUserAllChangesSoapOut** response message, as shown in the following figure.
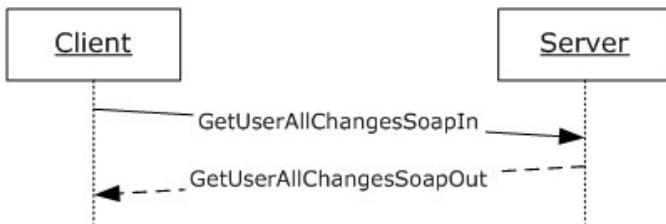
Figure 6: GetUserAllChanges operation

3.1.4.4.1 Messages

3.1.4.4.1.1 GetUserAllChangesSoapIn

The request WSDL message for a **GetUserAllChangesSoapIn** WSDL operation.

The SOAP action value is:

```
http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/GetUserAllCh
anges
```

The SOAP body contains a **GetUserAllChanges** element.

3.1.4.4.1.2 GetUserAllChangesSoapOut

The response WSDL message for a **GetUserAllChangesSoapOut** WSDL operation.

The SOAP action value is:

```
http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/GetUserAllCh
anges
```

The SOAP body contains a **GetUserAllChangesResponse** element.

3.1.4.4.2 Elements

3.1.4.4.2.1 GetUserAllChanges

The request WSDL message for a **GetUserAllChanges** WSDL operation.

```
<s:element name="GetUserAllChanges">
  <s:complexType>
    <s:sequence>
      <s:element minOccurs="0" maxOccurs="1" name="userAccountName"
              type="s:string" />
    </s:sequence>
  </s:complexType>
</s:element>
```

userAccountName: A value that indentifies the user whose profile change entries MUST be retrieved.

3.1.4.4.2.2 GetUserAllChangesResponse

The response WSDL message for a **GetUserAllChanges** WSDL operation.

```
<s:element name="GetUserAllChangesResponse">
  <s:complexType>
    <s:sequence>
      <s:element minOccurs="0" maxOccurs="1" name="GetUserAllChangesResult"
              type="tns:UserProfileChangeDataContainer" />
    </s:sequence>
  </s:complexType>
</s:element>
```

GetUserAllChangesResult: A **UserProfileChangeDataContainer** that MUST contain the user profile change entries of the specified user.

The response MUST contain a SOAP fault when the **userAccountName** does not have a corresponding profile on the protocol server.

3.1.4.5 GetUserChanges

The **GetUserChanges** operation is used to retrieve a subset of all of the user profile change entries that are available on the protocol server for the specified user.

```
<wsdl:operation name="GetUserChanges">
    <wsdl:input message="GetUserChangesSoapIn" />
    <wsdl:output message="GetUserChangesSoapOut" />
</wsdl:operation>
```

This method takes a change token and a query parameter used to filter the user profile change entries that are available on the protocol server for the specified user.

The protocol client sends a **GetUserChangesSoapIn** request message and the protocol server responds with a **GetUserChangesSoapOut** response message, as shown in the following figure.

**Figure 7: GetUserChanges operation**

3.1.4.5.1   Messages

3.1.4.5.1.1   GetUserChangesSoapIn

The request WSDL message for a **GetUserChanges** WSDL operation.

The SOAP action value of the message is defined as follows:

```
http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/GetUserChang
es
```

The SOAP body contains a **GetUserChanges** element.

3.1.4.5.1.2   GetUserChangesSoapOut

The response WSDL message for a **GetUserChanges** WSDL operation.

The SOAP action value of the message is defined as follows:

```
http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/GetUserChang
es
```

The SOAP body contains a **GetUserChangesResponse** element.

3.1.4.5.2   Elements

3.1.4.5.2.1   GetUserChanges

The **GetUserChanges** complex type is used to represent the input data of a **GetUserChanges** WSDL operation.

```
<s:element name="GetUserChanges">
  <s:complexType>
    <s:sequence>
      <s:element minOccurs="0" maxOccurs="1" name="userAccountName"
                 type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="changeToken" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="changeQuery"
                 type="tns:UserProfileChangeQuery" />
    </s:sequence>
  </s:complexType>
</s:element>
```

userAccountName: A value that identifies the user whose profile change entries MUST be retrieved.

changeToken: A value specifying a change token. All returned user profile change entries MUST follow the user profile change entry identified by this change token.

changeQuery: A value that defines the **ObjectTypes** and **ChangeTypes** that the returned data SHOULD contain.<5>

3.1.4.5.2.2 GetUserChangesResponse

The response WSDL message for a **GetUserChanges** WSDL operation.

```
<s:element name="GetUserChangesResponse">
  <s:complexType>
    <s:sequence>
      <s:element minOccurs="0" maxOccurs="1" name="GetUserChangesResult"
              type="tns:UserProfileChangeDataContainer" />
    </s:sequence>
  </s:complexType>
</s:element>
```

GetUserChangesResult: A **UserProfileChangeDataContainer** that MUST contain the user profile change entries of the specified user. It occurs after the value is identified by the change token.

The response MUST contain a SOAP fault in the following cases:

- The **userAccountName** does not have a corresponding profile on the protocol server.

- The change token provided precedes the earliest change available on the protocol server.

- The change token is invalid.

3.1.4.6 GetUserCurrentChangeToken

The **GetUserCurrentChangeToken** operation is used to return a change token that identifies the most recent user profile change entry available on the protocol server for the specified user.

```
<wsdl:operation name="GetUserCurrentChangeToken">
    <wsdl:input message="GetUserCurrentChangeTokenSoapIn" />
    <wsdl:output message="GetUserCurrentChangeTokenSoapOut" />
</wsdl:operation>
```

The protocol client sends a **GetUserCurrentChangeTokenSoapIn** request message and the protocol server responds with a **GetUserCurrentChangeTokenSoapOut** response message, as shown in the following figure.
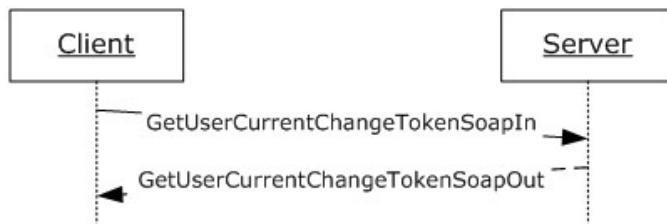
Figure 8: GetUserCurrentChangeToken operation

3.1.4.6.1 Messages

3.1.4.6.1.1 GetUserCurrentChangeTokenSoapIn

The request WSDL message for a **GetUserCurrentChangeToken** WSDL operation.

The SOAP action value is:

```
http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/GetUserCurre
ntChangeToken
```

The SOAP body contains a **GetUserCurrentChangeToken** element.

3.1.4.6.1.2 GetUserCurrentChangeTokenSoapOut

The response WSDL message for a **GetUserCurrentChangeToken** WSDL operation.

The SOAP action value is:

```
http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/GetUserCurre
ntChangeToken
```

The SOAP body contains a **GetUserCurrentChangeTokenResponse** element.

3.1.4.6.2 Elements

3.1.4.6.2.1 GetUserCurrentChangeToken

The **GetUserCurrentChangeToken** complex type is used to represent the input data of a **GetUserCurrentChangeToken** WSDL operation.

```
<s:element name="GetUserCurrentChangeToken">
  <s:complexType>
    <s:sequence>
      <s:element minOccurs="0" maxOccurs="1"
                 name="userAccountName" type="s:string" />
    </s:sequence>
  </s:complexType>
</s:element>
```

userAccountName: The specified user to whom the user profile change entry change token applies. This value MUST be retrieved and MUST NOT be NULL.

3.1.4.6.2.2 GetUserCurrentChangeTokenResponse

The response WSDL message for a **GetUserCurrentChangeToken** WSDL operation.

```
<s:element name="GetUserCurrentChangeTokenResponse">
  <s:complexType>
    <s:sequence>
      <s:element minOccurs="0" maxOccurs="1"
```

```
                    name="GetUserCurrentChangeTokenResult" type="s:string" />
        </s:sequence>
      </s:complexType>
   </s:element>
```

GetUserCurrentChangeTokenResult: A value that identifies the most recent user profile change entry that is available on the protocol server for a specified user.

The response MUST contain a SOAP fault when the **userAccountName** does not have a corresponding profile on the protocol server.

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

4 Protocol Examples

4.1 Sample Data

The user profile store contains five user profiles representing five different users. This sample data is used in the following two examples.

User	Colleague List
1	2, 3
2	1, 4, 5
3	1
4	2, 5
5	2, 4

The property store contains four properties and their privacy policy.

Property Name	Type	State
Name	String	Enabled
Address	String	Enabled
Birthday	Date	Enabled
Marriage Date	Date	Enabled

The user profile property store contains ten user profile property values.

User	Property	Value	Privacy
1	Name	User1	Public
1	Address	123 New Road, New City, ST	Manager
1	Marriage Data	02/29/2008	Public
2	Name	One More User2	Public
3	Name	Different User3	Public
3	Birthday	01/02/1973	Contacts
4	Name	Another User4	Public
4	Marriage Data	02/03/1974	Private
5	Name	Last User5	Public
5	Address	456 Some Road, Some City, ST	Organization

user profile change entry log contains six user profile change entries

EventId	User	Change Type	Object Type	Property Name	Value	Change Time
1	1	Modify	SingleValue Property	Address	123 New Road, New City, ST	02/13/2008 1:23:45 PM
2	2	Add	Colleague		Another User4	02/13/2008 2:34:56 PM
3	4	Add	Colleague		One More User2	02/13/2008 2:34:56 PM
4	5	Add	WebLog		`<?xml version="1.0" encoding="utf-16"?>` `<WebLog>` `<Title>` `My New Post` `</Title>` `<Permalink>` `http://site/p5/newpost` `</Permalink>` `</WebLog>`	02/13/2008 3:45:07 PM
5	3	Delete	WebLog		`<?xml version="1.0" encoding="utf-16"?>` `<WebLog>` `<Title>` `My Old Post` `</Title>` `<Permalink>` `http://site/p3/oldpost` `</Permalink>` `</WebLog>`	02/13/2008 4:56:18 PM
6	1	Add	SingleValue Property	Marriage Data	02/29/2008	03/01/2008 3:21:17 PM

4.2 Profile Replication

This scenario describes the protocol that is used to replicate the user profile information from one protocol server to another, for search engine crawling of user profiles, back-up, transfer, and so forth.

Initially, the protocol client retrieves the current change token to use as a starting point, and sends the following request:

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <soap:Body>
    <GetCurrentChangeToken
xmlns="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService"/>
  </soap:Body>
```

```
      </soap:Envelope>
```

The protocol server returns the current change token in the form of the following SOAP response:

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <soap:Body>
    <GetCurrentChangeTokenResponse
xmlns="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService">
      <GetCurrentChangeTokenResult>
         1;42703492;02/13/2008 14:34:56
      </GetCurrentChangeTokenResult>
    </GetCurrentChangeTokenResponse>
  </soap:Body>
</soap:Envelope>
```

The protocol client uses the change token to retrieve all user profile change entries that occurred after the date and time of the specified change token, by sending the following request:

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <soap:Body>
    <GetChanges
xmlns="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService">
      <changeToken>
         1;42703492;02/13/2008 14:34:56
      </changeToken>
      <changeQuery>
        <SingleValueProperty>true</SingleValueProperty>
        <MultiValueProperty>true</MultiValueProperty>
        <Anniversary>true</Anniversary>
        <DistributionListMembership>true</DistributionListMembership>
        <SiteMembership>true</SiteMembership>
        <QuickLink>true</QuickLink>
        <Colleague>true</Colleague>
        <PersonalizationSite>true</PersonalizationSite>
        <UserProfile>true</UserProfile>
        <WebLog>true</WebLog>
        <Add>true</Add>
        <Update>true</Update>
        <UpdateMetadata>true</UpdateMetadata>
        <Delete>true</Delete>
      </changeQuery>
    </GetChanges>
  </soap:Body>
</soap:Envelope>
```

The protocol server retrieves all user profile change entries that occurred after the specified change token and replies with the following response:

```
<?xml version="1.0" encoding="utf-8"?>
```

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <soap:Body>
    <GetChangesResponse
xmlns="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService">
      <GetChangesResult>
        <Changes>
          <UserProfileChangeData>
            <Id>42703511</Id>
            <UserAccountName>User1</UserAccountName>
            <ChangeType>Add</ChangeType>
            <ObjectType>Colleague</ObjectType>
            <EventTime>2008-02-13T14:34:56.183</EventTime>
            <Value xsi:type="xsd:string">One More User2</Value>
            <PolicyId>a88b9dcb-5b82-41e4-8a19-17672f307b95</PolicyId>
          </UserProfileChangeData>
          <UserProfileChangeData>
            <Id>42703578</Id>
            <UserAccountName>User1</UserAccountName>
            <ChangeType>Add</ChangeType>
            <ObjectType>WebLog</ObjectType>
            <EventTime>2008-02-13T15:45:07.183</EventTime>
            <PolicyId>a88b9dcb-5b82-41e4-8a19-17672f307b95</PolicyId>
          </UserProfileChangeData>
          <UserProfileChangeData>
            <Id>42703599</Id>
            <UserAccountName>User1</UserAccountName>
            <ChangeType>Delete</ChangeType>
            <ObjectType> WebLog </ObjectType>
            <EventTime>2008-02-13T16:56:18.183</EventTime>
            <PolicyId>a88b9dcb-5b82-41e4-8a19-17672f307b95</PolicyId>
          </UserProfileChangeData>
          <UserProfileChangeData>
            <Id>42703604</Id>
            <UserAccountName>User1</UserAccountName>
            <ChangeType>Add</ChangeType>
            <ObjectType>SingleValueProperty</ObjectType>
            <EventTime>2008-03-01T15:21:17.183</EventTime>
            <Value xsi:type="xsd:string">02/29/2008 </Value>
            <PolicyId>a88b9dcb-5b82-41e4-8a19-17672f307b95</PolicyId>
            <PropertyName>Marriage Data</PropertyName>
          </UserProfileChangeData>
        </Changes>
    <ChangeToken>1; 42703604;03/01/2008 15:21:17</ChangeToken>
    <HasExceededCountLimit>false</HasExceededCountLimit>
      </GetChangesResult>
    </GetChangesResponse>
  </soap:Body>
</soap:Envelope>
```

The protocol client parses each **UserProfileChangeData** record and saves data according to its own storage mechanism, then uses the value of the **ChangeToken** node to initiate a new **GetChanges** request. If **HasExceededCountLimit** is true, not all user profile change entries have been retrieved and only the most recent ones have been sent. The protocol client will then reduce the time period between two consecutive **GetChanges** requests until **HasExceededCountLimit** is false, thus ensuring that no further data is lost.

4.3 Profile Caching

This scenario describes the protocol that is used to maintain user profile information about a cached user. This example assumes that the protocol client includes data that is already cached.

The protocol client retrieves the desired user's current change token, which it uses as a starting point to send the following request:

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <soap:Body>
    <GetUserCurrentChangeToken
xmlns="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService">
      <userAccountName>User1</userAccountName>
    </GetUserCurrentChangeToken>
  </soap:Body>
</soap:Envelope>
```

The protocol server returns the current change token in the form of the following SOAP response:

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <soap:Body>
    <GetUserCurrentChangeTokenResponse
xmlns="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService">
      <GetUserCurrentChangeTokenResult>
        1;1;02/13/2008 13:23:45
      </GetUserCurrentChangeTokenResult>
      </GetUserCurrentChangeTokenResponse>
    </soap:Body>
</soap:Envelope>
```

The protocol client then uses the change token to retrieve all user profile change entries that occurred after the date and time of the specified change token, by sending the following request:

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <soap:Body>
    <GetUserChanges
xmlns="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService">
      <userAccountName>User1</userAccountName>
      <changeToken>1;1;02/13/2008 13:23:45</changeToken>
      <changeQuery>
        <SingleValueProperty>true</SingleValueProperty>
        <MultiValueProperty>true</MultiValueProperty>
        <Anniversary>true</Anniversary>
        <DistributionListMembership>true</DistributionListMembership>
        <SiteMembership>true</SiteMembership>
        <QuickLink>true</QuickLink>
        <Colleague>true</Colleague>
```

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```
            <PersonalizationSite>true</PersonalizationSite>
            <UserProfile>true</UserProfile>
            <WebLog>true</WebLog>
            <Add>true</Add>
            <Update>true</Update>
            <UpdateMetadata>true</UpdateMetadata>
            <Delete>true</Delete>
         </changeQuery>
      </GetUserChanges>
   </soap:Body>
</soap:Envelope>
```

The protocol server retrieves all user profile change entries that occurred after the specified change
token and replies with the following response:

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
   <soap:Body>
      <GetUserChangesResponse
xmlns="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService">
         <GetUserChangesResult>
            <Changes>
               <UserProfileChangeData>
                  <Id>6</Id>
                  <UserAccountName>User1</UserAccountName>
                  <ChangeType>Add</ChangeType>
                  <ObjectType> SingleValueProperty</ObjectType>
                  <EventTime>2008-03-01T15:45:07.128</EventTime>
                  <Value xsi:type="xsd:date">2008-02-29 </Value>
                  <PolicyId>a88b9dcb-5b82-41e4-8a19-17672f307b95</PolicyId>
                  <PropertyName> Marriage Data </PropertyName>
               </UserProfileChangeData>
            </Changes>
            <ChangeToken>1;6;03/01/2008 15:45:07</ChangeToken>
            <HasExceededCountLimit>false</HasExceededCountLimit>
         </GetUserChangesResult>
      </GetUserChangesResponse>
   </soap:Body>
</soap:Envelope>
```

The protocol client parses each **UserProfileChangeData** record and updates the data in the cache
accordingly. The protocol client then waits a predetermined amount of time, and uses the value of
the ChangeToken node to initiate a new operation. The **userAccountName** does not have a
corresponding profile on the protocol server.

If **HasExceededCountLimit** is true (signaling that not all user profile change entries could be
retrieved and only the most recent ones have been sent), then the protocol client will reduce the
time period between two consecutive calls. The **userAccountName** does not have a corresponding
profile on the protocol server. G**etUserChanges** requests entries until **HasExceededCountLimit** is
false, which ensures that no further data is lost.

5   Security

5.1   Security Considerations for Implementers

None.

5.2   Index of Security Parameters

None.

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6   Appendix A: Full WSDL

For ease of implementation the full WSDL is provided in the following:

```xml
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
xmlns:tns="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService"
xmlns:s1="http://microsoft.com/wsdl/types/" xmlns:s="http://www.w3.org/2001/XMLSchema"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
targetNamespace="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeSer
vice" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:types>
    <s:schema elementFormDefault="qualified"
targetNamespace="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeSer
vice">
      <s:import namespace="http://microsoft.com/wsdl/types/" />
      <s:element name="GetAllChanges">
        <s:complexType />
      </s:element>
      <s:element name="GetAllChangesResponse">
        <s:complexType>
          <s:sequence>
            <s:element minOccurs="0" maxOccurs="1" name="GetAllChangesResult"
type="tns:UserProfileChangeDataContainer" />
          </s:sequence>
        </s:complexType>
      </s:element>
      <s:complexType name="UserProfileChangeDataContainer">
        <s:sequence>
          <s:element minOccurs="0" maxOccurs="1" name="Changes"
type="tns:ArrayOfUserProfileChangeData" />
          <s:element minOccurs="0" maxOccurs="1" name="ChangeToken" type="s:string" />
          <s:element minOccurs="1" maxOccurs="1" name="HasExceededCountLimit"
type="s:boolean" />
        </s:sequence>
      </s:complexType>
      <s:complexType name="ArrayOfUserProfileChangeData">
        <s:sequence>
          <s:element minOccurs="0" maxOccurs="unbounded" name="UserProfileChangeData"
nillable="true" type="tns:UserProfileChangeData" />
        </s:sequence>
      </s:complexType>
      <s:complexType name="UserProfileChangeData">
        <s:sequence>
          <s:element minOccurs="1" maxOccurs="1" name="Id" type="s:long" />
          <s:element minOccurs="0" maxOccurs="1" name="UserAccountName" type="s:string" />
          <s:element minOccurs="0" maxOccurs="1" name="UserRemotePersonalSiteHostUrl"
type="s:string" />
          <s:element minOccurs="1" maxOccurs="1" name="ChangeType" type="tns:ChangeTypes" />
          <s:element minOccurs="1" maxOccurs="1" name="ObjectType" type="tns:ObjectTypes" />
          <s:element minOccurs="1" maxOccurs="1" name="EventTime" type="s:dateTime" />
          <s:element minOccurs="0" maxOccurs="1" name="Value" />
          <s:element minOccurs="1" maxOccurs="1" name="PolicyId" type="s1:guid" />
          <s:element minOccurs="0" maxOccurs="1" name="PropertyName" type="s:string" />
        </s:sequence>
      </s:complexType>
```

```xml
        <s:simpleType name="ChangeTypes">
          <s:list>
            <s:simpleType>
              <s:restriction base="s:string">
                <s:enumeration value="None" />
                <s:enumeration value="Add" />
                <s:enumeration value="Modify" />
                <s:enumeration value="Delete" />
                <s:enumeration value="Metadata" />
                <s:enumeration value="All" />
              </s:restriction>
            </s:simpleType>
          </s:list>
        </s:simpleType>
        <s:simpleType name="ObjectTypes">
          <s:list>
            <s:simpleType>
              <s:restriction base="s:string">
                <s:enumeration value="None" />
                <s:enumeration value="SingleValueProperty" />
                <s:enumeration value="MultiValueProperty" />
                <s:enumeration value="Anniversary" />
                <s:enumeration value="DLMembership" />
                <s:enumeration value="SiteMembership" />
                <s:enumeration value="QuickLink" />
                <s:enumeration value="Colleague" />
                <s:enumeration value="PersonalizationSite" />
                <s:enumeration value="UserProfile" />
                <s:enumeration value="WebLog" />
                <s:enumeration value="Custom" />
                <s:enumeration value="OrganizationProfile" />
                <s:enumeration value="OrganizationMembership" />
                <s:enumeration value="All" />
              </s:restriction>
            </s:simpleType>
          </s:list>
        </s:simpleType>
        <s:element name="GetChanges">
          <s:complexType>
            <s:sequence>
              <s:element minOccurs="0" maxOccurs="1" name="changeToken" type="s:string" />
              <s:element minOccurs="0" maxOccurs="1" name="changeQuery"
 type="tns:UserProfileChangeQuery" />
            </s:sequence>
          </s:complexType>
        </s:element>
        <s:complexType name="UserProfileChangeQuery">
          <s:complexContent mixed="false">
            <s:extension base="tns:ProfileBaseChangeQuery">
              <s:sequence>
              <s:element minOccurs="1" maxOccurs="1" name="Anniversary" type="s:boolean" />
              <s:element minOccurs="1" maxOccurs="1" name="DistributionListMembership"
 type="s:boolean" />
              <s:element minOccurs="1" maxOccurs="1" name="SiteMembership" type="s:boolean" />
              <s:element minOccurs="1" maxOccurs="1" name="QuickLink" type="s:boolean" />
              <s:element minOccurs="1" maxOccurs="1" name="Colleague" type="s:boolean" />
                  <s:element minOccurs="1" maxOccurs="1" name="WebLog" type="s:boolean" />
              <s:element minOccurs="1" maxOccurs="1" name="PersonalizationSite" type="s:boolean"
 />
```

```
                    <s:element minOccurs="1" maxOccurs="1" name="UserProfile" type="s:boolean" />
                       <s:element minOccurs="1" maxOccurs="1" name="OrganizationMembership"
type="s:boolean" />
                  </s:sequence>
              </s:extension>
          </s:complexContent>
      </s:complexType>
      <s:complexType name="ProfileBaseChangeQuery">
        <s:sequence>
          <s:element minOccurs="1" maxOccurs="1" name="SingleValueProperty" type="s:boolean"
/>
          <s:element minOccurs="1" maxOccurs="1" name="MultiValueProperty" type="s:boolean"
/>
          <s:element minOccurs="1" maxOccurs="1" name="Custom" type="s:boolean" />
          <s:element minOccurs="1" maxOccurs="1" name="Add" type="s:boolean" />
          <s:element minOccurs="1" maxOccurs="1" name="Update" type="s:boolean" />
          <s:element minOccurs="1" maxOccurs="1" name="UpdateMetadata" type="s:boolean" />
          <s:element minOccurs="1" maxOccurs="1" name="Delete" type="s:boolean" />
          <s:element minOccurs="0" maxOccurs="1" name="ChangeTokenStart"
type="tns:UserProfileChangeToken" />
        </s:sequence>
      </s:complexType>
      <s:complexType name="UserProfileChangeToken" />
      <s:element name="GetChangesResponse">
        <s:complexType>
          <s:sequence>
            <s:element minOccurs="0" maxOccurs="1" name="GetChangesResult"
type="tns:UserProfileChangeDataContainer" />
          </s:sequence>
        </s:complexType>
      </s:element>
      <s:element name="GetCurrentChangeToken">
        <s:complexType />
      </s:element>
      <s:element name="GetCurrentChangeTokenResponse">
        <s:complexType>
          <s:sequence>
            <s:element minOccurs="0" maxOccurs="1" name="GetCurrentChangeTokenResult"
type="s:string" />
          </s:sequence>
        </s:complexType>
      </s:element>
      <s:element name="GetUserAllChanges">
        <s:complexType>
          <s:sequence>
            <s:element minOccurs="0" maxOccurs="1" name="userAccountName" type="s:string" />
          </s:sequence>
        </s:complexType>
      </s:element>
      <s:element name="GetUserAllChangesResponse">
        <s:complexType>
          <s:sequence>
            <s:element minOccurs="0" maxOccurs="1" name="GetUserAllChangesResult"
type="tns:UserProfileChangeDataContainer" />
          </s:sequence>
        </s:complexType>
      </s:element>
      <s:element name="GetUserChanges">
        <s:complexType>
```

```
              <s:sequence>
                <s:element minOccurs="0" maxOccurs="1" name="userAccountName" type="s:string" />
                <s:element minOccurs="0" maxOccurs="1" name="changeToken" type="s:string" />
                <s:element minOccurs="0" maxOccurs="1" name="changeQuery"
type="tns:UserProfileChangeQuery" />
              </s:sequence>
            </s:complexType>
          </s:element>
          <s:element name="GetUserChangesResponse">
            <s:complexType>
              <s:sequence>
                <s:element minOccurs="0" maxOccurs="1" name="GetUserChangesResult"
type="tns:UserProfileChangeDataContainer" />
              </s:sequence>
            </s:complexType>
          </s:element>
          <s:element name="GetUserCurrentChangeToken">
            <s:complexType>
              <s:sequence>
                <s:element minOccurs="0" maxOccurs="1" name="userAccountName" type="s:string" />
              </s:sequence>
            </s:complexType>
          </s:element>
          <s:element name="GetUserCurrentChangeTokenResponse">
            <s:complexType>
              <s:sequence>
                <s:element minOccurs="0" maxOccurs="1" name="GetUserCurrentChangeTokenResult"
type="s:string" />
              </s:sequence>
            </s:complexType>
          </s:element>
        </s:schema>
        <s:schema elementFormDefault="qualified"
targetNamespace="http://microsoft.com/wsdl/types/">
          <s:simpleType name="guid">
            <s:restriction base="s:string">
              <s: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}" />
            </s:restriction>
          </s:simpleType>
        </s:schema>
      </wsdl:types>
      <wsdl:message name="GetAllChangesSoapIn">
        <wsdl:part name="parameters" element="tns:GetAllChanges" />
      </wsdl:message>
      <wsdl:message name="GetAllChangesSoapOut">
        <wsdl:part name="parameters" element="tns:GetAllChangesResponse" />
      </wsdl:message>
      <wsdl:message name="GetChangesSoapIn">
        <wsdl:part name="parameters" element="tns:GetChanges" />
      </wsdl:message>
      <wsdl:message name="GetChangesSoapOut">
        <wsdl:part name="parameters" element="tns:GetChangesResponse" />
      </wsdl:message>
      <wsdl:message name="GetCurrentChangeTokenSoapIn">
        <wsdl:part name="parameters" element="tns:GetCurrentChangeToken" />
      </wsdl:message>
      <wsdl:message name="GetCurrentChangeTokenSoapOut">
        <wsdl:part name="parameters" element="tns:GetCurrentChangeTokenResponse" />
```

```
    </wsdl:message>
    <wsdl:message name="GetUserAllChangesSoapIn">
      <wsdl:part name="parameters" element="tns:GetUserAllChanges" />
    </wsdl:message>
    <wsdl:message name="GetUserAllChangesSoapOut">
      <wsdl:part name="parameters" element="tns:GetUserAllChangesResponse" />
    </wsdl:message>
    <wsdl:message name="GetUserChangesSoapIn">
      <wsdl:part name="parameters" element="tns:GetUserChanges" />
    </wsdl:message>
    <wsdl:message name="GetUserChangesSoapOut">
      <wsdl:part name="parameters" element="tns:GetUserChangesResponse" />
    </wsdl:message>
    <wsdl:message name="GetUserCurrentChangeTokenSoapIn">
      <wsdl:part name="parameters" element="tns:GetUserCurrentChangeToken" />
    </wsdl:message>
    <wsdl:message name="GetUserCurrentChangeTokenSoapOut">
      <wsdl:part name="parameters" element="tns:GetUserCurrentChangeTokenResponse" />
    </wsdl:message>
    <wsdl:portType name="UserProfileChangeServiceSoap">
      <wsdl:operation name="GetAllChanges">
        <wsdl:input message="tns:GetAllChangesSoapIn" />
        <wsdl:output message="tns:GetAllChangesSoapOut" />
      </wsdl:operation>
      <wsdl:operation name="GetChanges">
        <wsdl:input message="tns:GetChangesSoapIn" />
        <wsdl:output message="tns:GetChangesSoapOut" />
      </wsdl:operation>
      <wsdl:operation name="GetCurrentChangeToken">
        <wsdl:input message="tns:GetCurrentChangeTokenSoapIn" />
        <wsdl:output message="tns:GetCurrentChangeTokenSoapOut" />
      </wsdl:operation>
      <wsdl:operation name="GetUserAllChanges">
        <wsdl:input message="tns:GetUserAllChangesSoapIn" />
        <wsdl:output message="tns:GetUserAllChangesSoapOut" />
      </wsdl:operation>
      <wsdl:operation name="GetUserChanges">
        <wsdl:input message="tns:GetUserChangesSoapIn" />
        <wsdl:output message="tns:GetUserChangesSoapOut" />
      </wsdl:operation>
      <wsdl:operation name="GetUserCurrentChangeToken">
        <wsdl:input message="tns:GetUserCurrentChangeTokenSoapIn" />
        <wsdl:output message="tns:GetUserCurrentChangeTokenSoapOut" />
      </wsdl:operation>
    </wsdl:portType>
    <wsdl:binding name="UserProfileChangeServiceSoap" type="tns:UserProfileChangeServiceSoap">
      <soap:binding transport="http://schemas.xmlsoap.org/soap/http" />
      <wsdl:operation name="GetAllChanges">
        <soap:operation
  soapAction="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/
  GetAllChanges" style="document" />
        <wsdl:input>
          <soap:body use="literal" />
        </wsdl:input>
        <wsdl:output>
          <soap:body use="literal" />
        </wsdl:output>
      </wsdl:operation>
      <wsdl:operation name="GetChanges">
```

```
      <soap:operation
soapAction="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/
GetChanges" style="document" />
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="GetCurrentChangeToken">
      <soap:operation
soapAction="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/
GetCurrentChangeToken" style="document" />
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="GetUserAllChanges">
      <soap:operation
soapAction="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/
GetUserAllChanges" style="document" />
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="GetUserChanges">
      <soap:operation
soapAction="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/
GetUserChanges" style="document" />
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="GetUserCurrentChangeToken">
      <soap:operation
soapAction="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/
GetUserCurrentChangeToken" style="document" />
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
  </wsdl:binding>
  <wsdl:binding name="UserProfileChangeServiceSoap12"
type="tns:UserProfileChangeServiceSoap">
    <soap12:binding transport="http://schemas.xmlsoap.org/soap/http" />
    <wsdl:operation name="GetAllChanges">
```

```
      <soap12:operation
soapAction="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/
GetAllChanges" style="document" />
      <wsdl:input>
        <soap12:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap12:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="GetChanges">
      <soap12:operation
soapAction="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/
GetChanges" style="document" />
      <wsdl:input>
        <soap12:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap12:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="GetCurrentChangeToken">
      <soap12:operation
soapAction="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/
GetCurrentChangeToken" style="document" />
      <wsdl:input>
        <soap12:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap12:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="GetUserAllChanges">
      <soap12:operation
soapAction="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/
GetUserAllChanges" style="document" />
      <wsdl:input>
        <soap12:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap12:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="GetUserChanges">
      <soap12:operation
soapAction="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/
GetUserChanges" style="document" />
      <wsdl:input>
        <soap12:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap12:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="GetUserCurrentChangeToken">
      <soap12:operation
soapAction="http://microsoft.com/webservices/SharePointPortalServer/UserProfileChangeService/
GetUserCurrentChangeToken" style="document" />
      <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® 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 2.2.5.2: Custom is not supported in Office SharePoint Server 2007.

<2> Section 2.2.5.2: OrganizationProfile is not supported in Office SharePoint Server 2007.

<3> Section 2.2.5.2: OrganizationMembership is not supported in Office SharePoint Server 2007.

<4> Section 3.1.4.2.2.1: When the user profile change entries log in the server does not have the specified ObjectTypes or ChangeTypes, the returned data will not contain the corresponding ObjectTypes or ChangeTypes.

<5> Section 3.1.4.5.2.1: When the user profile change entries log in the server does not have the specified ObjectTypes or ChangeTypes, the returned data will not contain the corresponding ObjectTypes or ChangeTypes.

8   Change Tracking

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

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