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[MS-UPGRAD] — v20120630  
*User Profile Service Push Protocol Specification*  
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Release: July 16, 2012
1 Introduction

This document describes the User Profile Service Push protocol, which allows one user profile service to push updated user profiles and audiences to another user profile service.

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]:

GUID
security identifier (SID)
Security Support Provider Interface (SSPI)

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

audience
farm
login name
result set
return code
stored procedure
Structured Query Language (SQL)
Transact-Structured Query Language (T-SQL)
user profile
user profile change entry log

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.

1.3 Protocol Overview (Synopsis)

This protocol describes how the user profile service, acting as the protocol client, can communicate with a prior version of the user profile service, acting as the protocol server, to regularly update user profiles and audience details.

1.4 Relationship to Other Protocols

The following diagram shows the transport stack that the protocol uses:
1.5 Prerequisites/Preconditions

This protocol requires that a farm is installed and configured. The operations described by the protocol operate between a client and a backend database server on which the databases of the farm are stored.

The user that calls the stored procedures is required to have adequate permission to access the databases that contain the stored procedures.

1.6 Applicability Statement

This protocol is appropriate when there is simultaneously a prior version of the user profile service and a current version of the user profile service, and the prior version is considered to be read-only to its users. In this scenario, this protocol allows the current version to push updates to the prior version. This protocol is only appropriate as a temporary measure until all users of the prior version can be transitioned to the current version.

1.7 Versioning and Capability Negotiation

Versions of the data structures or stored procedures in the database are required to be the same as those expected by the front-end Web. If the stored procedures do not provide the calling parameters or return values as expected, the results of the call are indeterminate.

The version negotiation process for this protocol is identical to the process defined in [MS-WSSFO2] section 1.7.

This protocol supports the Security Support Provider Interface (SSPI) and SQL authentication with the Protocol Server role. These authentication methods are defined in [MS-TDS].

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.
2 Messages

2.1 Transport

[MS-TDS] is the transport protocol used to call the stored procedures, to get return codes, and to return result sets.

2.2 Common Data Types

None.

2.2.1 Simple Data Types and Enumerations

No common simple data types or enumerations are defined in this protocol.

2.2.2 Bit Fields and Flag Structures

No common bit field or flag structures are defined in this protocol.

2.2.3 Binary Structures

No common binary structures are defined in this protocol.

2.2.4 Result Sets

2.2.4.1 UpdateUserProfileBlobDataResult Result Set

The profile_UpdateUserProfileBlobData stored procedure returns an UpdateUserProfileBlobDataResult result set that contains information about the changes that were applied. The result set MUST contain 1 row. The UpdateUserProfileBlobDataResult result set is defined using T-SQL syntax, as follows:

```sql
UserID uniqueidentifier,
UpdateCount int;
```

**UserID**: The identifier of the user profile that was created or updated.

**UpdateCount**: The number of user profile properties updated. MUST be 1.

2.2.4.2 UpdateUserProfileDataResult Result Set

The profile_UpdateUserProfileData stored procedure returns an UpdateUserProfileDataResult result set that contains details about the error information in case of failure or the count of properties updated in the case of a success. The UpdateUserProfileDataResult result set is defined using T-SQL syntax, as follows:

```sql
ERROR int,
XMLUpdateUserErr int,
XMLUpdatePropertyErr int,
UpdatePropertyCount int,
NEWUSERGUID GUID;
```
**ERROR**: Ignored. MUST always be 0.

**XMLUpdateUserErr**: Number of user profiles which failed to be updated. MUST be 0 or 1.

**XMLUpdatePropertyErr**: Number of user profile properties which failed to be updated. MUST be 0 or 1.

**UpdatePropertyCount**: Number of user profile properties which have been successfully updated. MUST be 0 or 1.

**NEWUSERGUID**: Ignored. MUST always be NULL.

### 2.2.5 Tables and Views

No common table or view structures are defined in this protocol.

### 2.2.6 XML Structures

No common XML structures are defined in this protocol.
3 Protocol Details

3.1 User Profile Service Push Protocol 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 that described in this document.

The protocol server stores information about user profiles and their values for each user profile property, and information about audiences. Each message processing event for this protocol is intended to update this set of information.

3.1.2 Timers

An execution timeout timer on the protocol server governs the execution time for the client's requests. The amount of time is specified by a timeout value that is configured on the protocol server for all connections.

3.1.3 Initialization

A connection that uses the underlying protocol layers that are specified in section 1.4: Relationship to Other Protocols MUST be established before using this protocol.

3.1.4 Higher-Layer Triggered Events

None.

3.1.5 Message Processing Events and Sequencing Rules

The following table summarizes the types that are defined in this specification.

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<tr>
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<td>Orgle_UpdateOrgleUpgrade</td>
<td>Updates the name, description, and memberships of an audience.</td>
</tr>
<tr>
<td>profile_UpdateUserProfileBlobData</td>
<td>Creates a new user profile.</td>
</tr>
<tr>
<td>profile_UpdateUserProfileData</td>
<td>Updates the user profile property values for a given user profile.</td>
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</tbody>
</table>

3.1.5.1 Update UserProfile UserIDs

The Update UserProfile UserIDs command is called to update the user profile identifier. Update UserProfile UserIDs is defined using T-SQL syntax, as follows:

```
exec sp_executesql N'update userprofile set UserID=@UserId where ntname=@AccountName',
N'@UserId uniqueidentifier,@AccountName nvarchar(400)', @UserId='<@UserId Value>',
@AccountName=N'<@AccountName Value>'
```
<!--AccountName Value-->: The login name that identifies the user profile to be updated. MUST be specified. MUST be a string with a maximum length of 400 characters.

<!--UserId Value-->: The updated identifier to apply to the user profile. MUST be a GUID. MUST NOT be NULL.

If there is a user profile with a login name matching the @AccountName parameter, then the user profile identifier MUST be set to the value of the @UserId parameter. If there is no matching user profile, then this command MUST NOT change any values.

Return Code Values: The Update UserProfile UserIDs command MUST return an integer return code with the value 0.

Result Sets: The Update UserProfile UserIDs command MUST NOT return a result set.

3.1.5.2 Orgle_UpdateOrgleUpgrade

The Orgle_UpdateOrgleUpgrade stored procedure is called to update the name, description, and members of a specified audience. Orgle_UpdateOrgleUpgrade is defined using T-SQL syntax, as follows:

```sql
PROCEDURE Orgle_UpdateOrgleUpgrade(
    @OrgleID                uniqueidentifier,
    @OrgleName              nvarchar(200),
    @Description            nvarchar(1500),
    @ItemsXml               ntext
);
```

@OrgleID: The identifier of the audience to be updated. MUST NOT be NULL.

@OrgleName: The name of the audience. MUST be specified and MUST be less than 200 characters.

@Description: The description of the audience. MUST be less than 1500 characters.

@ItemsXml: The list of members of the audience. MUST be specified. MUST conform to the XML schema as follows ([XML10], [XMLNS], [XMLINFOSET], [XMLSCHEMA1], [XMLSCHEMA2]).

```xml
<?xml version="1.0" encoding="utf-16"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="Orgle">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="Result" minOccurs="0" maxOccurs="unbounded">
          <xs:complexType>
            <xs:attribute name="NTName" type="xs:string"/>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

Result: The set of members of the audience.
**NTName:** The login name of a user who is a member of the specified audience. MUST not be NULL. MUST be less than 400 characters.

If there is an audience with an identifier matching the @OrgleID parameter, then that audience name, description, and list of members MUST be updated based on the parameters. This stored procedure MUST remove all existing members of the audience, and replace them with the list of users specified in the @ItemsXml parameter. If there is no matching audience, then this stored procedure MUST NOT change any values.

**Return Code Values:** Orgle_UpdateOrgleUpgrade MUST return an integer return code with the value 0.

**Result Sets:** Orgle_UpdateOrgleUpgrade MUST NOT return a result set.

### 3.1.5.3 profile_UpdateUserProfileBlobData

The profile_UpdateUserProfileBlobData stored procedure is called to create a new user profile. profile_UpdateUserProfileBlobData is defined using T-SQL syntax, as follows:

```sql
PROCEDURE profile_UpdateUserProfileBlobData (  
  @UserID uniqueidentifier,  
  @NTName nvarchar(400),  
  @PropertyName nvarchar(250),  
  @PropertyValVarbinary varbinary(7500) = null,  
  @PropertyValText ntext = null,  
  @PropertyValImage image = null,  
  @Debug bit = 0
);
```

**@UserID:** Reserved. MUST be NULL.

**@NTName:** The login name for the user whose user profile is to be created. MUST NOT be NULL. MUST be less than 400 characters.

**@PropertyName:** Reserved. MUST be the string "SID".

**@PropertyValVarbinary:** The binary data value of the security identifier (SID) of the user. MUST be specified. MUST NOT be NULL.

**@PropertyValText:** This parameter MUST NOT be specified and MUST be ignored by the server.

**@PropertyValImage:** This parameter MUST NOT be specified and MUST be ignored by the server.

**@Debug:** This parameter MUST NOT be specified and MUST be ignored by the server.

If there is no existing user profile with a security identifier matching the @PropertyValVarbinary parameter, then the user profile will be created. If there is already a matching user profile, then this stored procedure MUST NOT change any values.

**Return Code Values:** profile_UpdateUserProfileBlobData MUST return an integer return code with the value 0.

**Result Sets:** profile_UpdateUserProfileBlobData MUST return the UpdateUserProfileBlobDataResult result set.
3.1.5.4 profile_UpdateUserProfileData

The `profile_UpdateUserProfileData` stored procedure is called to update a single value for a single user profile property corresponding to the specified user profile. `profile_UpdateUserProfileData` is defined using T-SQL syntax, as follows:

```sql
PROCEDURE profile_UpdateUserProfileData(
    @UpdatePropertyList ntext,
    @Debug bit = 0,
);  
```

`@UpdatePropertyList`: Contains the user profile property and the new value that is to be applied. This parameter MUST be specified and MUST adhere to the following XML schema ([XML10], [XMLNS], [XMLINFOSET], [XMLSCHEMA1], [XMLSCHEMA2]).

```xml
<?xml version="1.0" encoding="utf-16"?>
<xs:schema id="MSPROFILE" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="MSPROFILE">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="PROFILE">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="USER">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element name="PROPERTY">
                      <xs:complexType>
                        <xs:attribute name="PropertyName" type="xs:string" use="required" />  
                        <xs:attribute name="PropertyValue" type="xs:string" />  
                        <xs:attribute name="RemoveFlag" type="xs:int" />  
                      </xs:complexType>
                    </xs:element>
                  </xs:sequence>
                  <xs:attribute name="UserID" type="xs:string" use="required" />  
                  <xs:attribute name="NTAccount" type="xs:string" use="required" />  
                  <xs:attribute name="NewUser" type="xs:int" use="required" />  
                </xs:complexType>
              </xs:element>
              <xs:attribute name="ProfileName" type="xs:string" use="required"/>
            </xs:sequence>
            <xs:attribute name="ProfileName" type="xs:string" use="required"/>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:element>
  </xs:schema>
```

**MSPROFILE.PROFILE.USER.UserID**: The identifier of the user profile to be updated. MUST be a GUID.

**MSPROFILE.PROFILE.USER.NTAccount**: The login name of the user profile to be updated. MUST NOT be NULL and MUST be less than 400 characters.
**MSPROFILE.PROFILE.USER.NewUser:** This parameter MUST be 0 and MUST be ignored by the server.

**MSPROFILE.PROFILE.USER.PROPERTY.PropertyName:** The name of the user profile property to be updated. MUST NOT be NULL and MUST be less than 250 characters.

**MSPROFILE.PROFILE.USER.PROPERTY.PropertyValue:** The new value of the user profile property to be applied to the specified user profile. MUST be less than 3600 characters.

**MSPROFILE.PROFILE.USER.PROPERTY.RemoveFlag:** Whether the existing value for the specified user profile property should be removed. The value MUST NOT be specified when applying the value specified in PropertyValue, and MUST be 1 to remove any existing value. When RemoveFlag is 1, PropertyValue MUST be NULL.

**@Debug:** This parameter MUST NOT be specified and MUST be ignored by the server.

If there is a user profile with an identifier matching the **MSPROFILE.PROFILE.USER.UserID** attribute value, then that user profile MUST be updated. If there is no matching user profile, then this stored procedure MUST NOT change any values.

**Return Code Values:** **profile_UpdateUserProfileData** MUST return an integer return code with the value 0.

**Result Sets:** **profile_UpdateUserProfileData** MUST return the **UpdateUserProfileDataResult** result set.

### 3.1.6 Timer Events

None.

### 3.1.7 Other Local Events

None.

### 3.2 User Profile Service Push Client Details

#### 3.2.1 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 that described in this document.

The protocol client stores information about user profiles and their values for each user profile property, and information about audiences.

The protocol client also maintains a **user profile change entry log** to keep track of changes to user profiles.

#### 3.2.2 Timers

The protocol client MUST create a timer to regularly update the protocol server. The timer MUST run once per hour.
3.2.3 Initialization

The protocol client MUST be initialized with the list of the user profile properties to be updated on the protocol server, such that calls to profile_UpdateUserProfileData will only be made for user profile properties that actually exist.

3.2.4 Higher-Layer Triggered Events

None.

3.2.5 Message Processing Events and Sequencing Rules

None.

3.2.6 Timer Events

The timer created by the protocol client, as described in section 3.2.2, MUST discover when user profiles are created or updated on the protocol client, and create new user profiles and update user profile property values on the protocol server. The timer MUST load all audiences on the protocol client and update audience information about the protocol server.

3.2.7 Other Local Events

None.
4 Protocol Examples

4.1 User Profiles

User profiles can be kept up to date by using the [MS-UPSCHNG] protocol to detect the latest changes to any user profiles.

As an example, consider the case where a new user is detected with login name "contoso\john", UserID "07010AA8-9347-4D6D-A9B9-4C61EB57A9E3" and SID "0x01050000000000515000000A065CF7E784B9B5FE77C87703D32000".

When the new user profile is detected, the protocol client calls profile_UpdateUserProfileBlobData with the user profile login name and the SID to create the user profile on the protocol server:

```sql
exec dbo.profilesynch_UpdateUserProfileBlobData
    @UserID = null,
    @NTName = 'contoso\john',
    @PropertyName = 'SID',
    @PropertyValVarbinary = 
        '0x01050000000000515000000A065CF7E784B9B5FE77C87703D32000'
```

The protocol client then calls the Update User Profile UserIDs command to update the user’s ID on the protocol server:

```sql
exec sp_executesql
    N'update userprofile set UserID=@UserID where ntname=@AccountName',
    N'@UserID uniqueidentifier,@AccountName nvarchar(400)',
    @UserID='07010AA8-9347-4D6D-A9B9-4C61EB57A9E3',
    @AccountName=N'contoso\john'
```

Now suppose the user's "FirstName" user profile property is changed to "John".

When the change to a user profile property is detected, the protocol client calls profile_UpdateUserProfileData with the user profile identifier to update the user profile property value on the protocol server:

```sql
exec dbo.profilesynch_UpdateUserProfileData
    @UpdatePropertyList = '
        <xml version="1.0" encoding="utf-16"?>
        <MSPROFILE>
            <PROFILE ProfileName="UserProfile">
                <USER NewUser="0" NTAccount="contoso\john" UserID="07010AA8-9347-4D6D-A9B9-4C61EB57A9E3">
                    <PROPERTY PropertyName="FirstName" PropertyValue="John" />
                </USER>
            </PROFILE>
        </MSPROFILE>
    '
```
4.2 Audiences

Audiences can be kept up to date by using the [MS-UPSAUD] protocol to load the latest details for each audience.

As an example, consider the case where a new audience is detected with name "John's reports", description "People who report to John", ID "69D93917-9BAD-4F8E-9A78-98685246ADB6", and members "contoso\lori" and "contoso\sara".

When the new audience is detected, the protocol client calls orgle_UpdateOrgleUpgrade for the audience to update the name, description, and memberships on the protocol server:

```sql
exec dbo.Orgle_UpdateOrgleUpgrade
    @OrgleID = '69D93917-9BAD-4F8E-9A78-98685246ADB6',
    @OrgleName = 'John's reports',
    @Description = 'People who report to John',
    @ItemsXml = '
        <xml version="1.0" encoding="utf-16">
            <Orgle>
                <Result NTName = "contoso\lori" />
                <Result NTName = "contoso\sara" />
            </Orgle>
        </xml>
    '
```
5 Security

5.1 Security Considerations for Implementers

Interactions with SQL are susceptible to tampering and other forms of security risks. Implementers are advised to sanitize input parameters for stored procedures prior to invoking the stored procedure.

5.2 Index of Security Parameters

None.
6 Appendix A: Product Behavior

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

- Microsoft® SharePoint® 2010 for Internet Sites Enterprise
- Microsoft® SharePoint® 2010 for Internet Sites Standard
- Microsoft® Office SharePoint® Server 2007
- Microsoft® SharePoint® Server 2010

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

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms SHOULD or SHOULD NOT implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies that the product does not follow the prescription.
7 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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