[MS-OXWSBTRF]:
Bulk Transfer Web Service Protocol Specification

Revision Summary

Date	Revision History	Revision Class	Comments
05/05/2010	0.1.0	Major	Initial Release.
08/04/2010	0.1.0	No change	No changes to the meaning, language, or formatting of the technical content.
11/03/2010	0.1.0	No change	No changes to the meaning, language, or formatting of the technical content.
03/18/2011	1.0	Major	Significantly changed the technical content.

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Release: Tuesday, March 15, 2011

1   Introduction

This document specifies the Bulk Transfer Web Service Protocol, which is used to export and upload streamed item data between the server and the client.

Sections 1.8, 2, and 3 of this specification are normative and contain RFC 2119 language. Section 1.5 and 1.9 are also normative but cannot contain RFC 2119 language. All other sections and examples in this specification are informative.

1.1   Glossary

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

> **Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)**

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

> **mailbox**
> **SOAP message**
> **Web Services Description Language (WSDL)**
> **WSDL message**
> **WSDL port type**

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-OXWSCDATA] Microsoft Corporation, "Common Web Service Data Types", July 2009.

[MS-OXWSCORE] Microsoft Corporation, "Core Items Web Service Protocol Specification", July 2009.

[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

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

[RFC3066] Alvestrand, H., "Tags for the Identification of Language", RFC 3066, January 2001, http://www.ietf.org/rfc/rfc3066.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/

[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

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

[MS-OXGLOS] Microsoft Corporation, "Exchange Server Protocols Master Glossary", April 2008.

1.3   Overview

Bulk data transfer enables clients and servers to move large amounts of information. The Bulk Transfer Web Service Protocol enables clients to upload large streams of data to a **mailbox** server and download large streams from of data a mailbox server.

1.4   Relationship to Other Protocols

The Bulk Transfer Web Service Protocol uses SOAP [SOAP1.1] over **HTTPS** [RFC2818], as shown in the following figure.
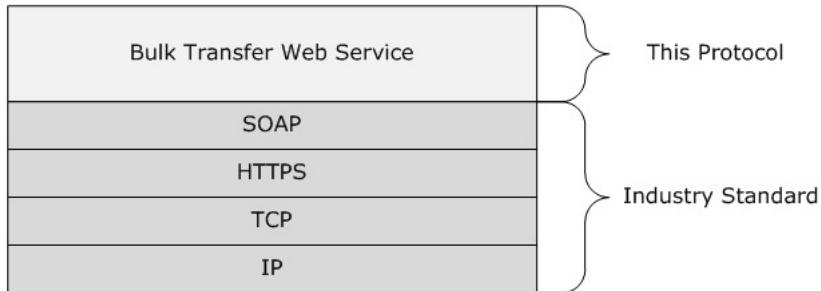
Figure 1: Bulk Transfer Web Service Protocol HTTPS stack

1.5   Prerequisites/Preconditions

None.

1.6   Applicability Statement

The protocol is applicable to environments that stream items into and out of a mailbox by using Web services. This Web service protocol is applicable to SOAP-based clients [SOAP1.1].

1.7   Versioning and Capability Negotiation

This document covers versioning issues in the following areas:

▪ Supported Transports: This protocol uses SOAP 1.1, as specified in section 2.1.

- Protocol Versions: This protocol specifies only one **WSDL port type** version.

- Security and Authentication Methods: This protocol relies on the Web server that is hosting it to perform authentication.

- Capability Negotiation: None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

The SOAP version used for this protocol is SOAP 1.1, as specified in [SOAP1.1].

2.2 Common Message Syntax

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

2.2.1 Namespaces

This specification defines and references various XML namespaces by 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]
tns	http://schemas.microsoft.com/exchange/services/2006/messages	
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]
t	http://schemas.microsoft.com/exchange/services/2006/types	
xs	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1]
m	http://schemas.microsoft.com/exchange/services/2006/messages	
none	http://schemas.microsoft.com/exchange/services/2006/messages	This is the target namespace for the WSDL file and the messages schema. See sections 6.1 and 6.2.
none	http://schemas.microsoft.com/exchange/services/2006/types	This is the target namespace for the types schema. See section 6.3.

2.2.2 Messages

This specification does not define any common message definitions.

2.2.3 Elements

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

2.2.4 Complex Types

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

2.2.5 Simple Types

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

2.2.6 Attributes

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

2.2.7 Groups

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

2.2.8 Attribute Groups

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

2.2.9 Common Data Structures

This specification does not define any common data structure definitions.

3   Protocol Details

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   ExchangeServicePortType Server Details

The Conversations Web Service Protocol defines a single WSDL port type.

Operation	Description
ExportItems	Specifies the **WSDL message** for exporting items out of a mailbox.
UploadItems	Specifies the WSDL message for uploading items into a mailbox.

3.1.1   Abstract Data Model

None.

3.1.2   Timers

None.

3.1.3   Initialization

None.

3.1.4   Message Processing Events and Sequencing Rules

The following table summarizes the list of WSDL operations that are defined by this specification.

Operation	Description
ExportItems (section 3.1.4.1)	Specifies the WSDL messages for exporting items out of a mailbox.
UploadItems (section 3.1.4.2)	Specifies the WSDL messages for uploading items into a mailbox.

3.1.4.1   ExportItems

The **ExportItems** operation exports items from a mailbox.

```
<wsdl:operation name="ExportItems">
   <wsdl:input message="tns:ExportItemsSoapIn"/>
   <wsdl:output message="tns:ExportItemsSoapOut"/>
</wsdl:operation>
```

Request

Message Format	Description
tns:ExportItemsSoapIn	Specifies the **SOAP message** that represents a request to export items out of a

Message Format	Description
	mailbox.

Response

Message Format	Description
tns:ExportItemsSoapOut	Specifies the SOAP message that represents a response that contains exported items.

3.1.4.1.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

Message	Description
ExportItemsSoapIn 3.1.4.1.1.1	Specifies the SOAP message that represents a request to export items out of a mailbox.
ExportItemsSoapOut 3.1.4.1.1.2	Specifies the SOAP message that represents a response that contains exported items.

3.1.4.1.1.1 tns:ExportItemsSoapIn Message

The **ExportItemsSoapIn** message specifies the SOAP message that represents a request to export items out of a mailbox.

```
<wsdl:message name="ExportItemsSoapIn">
  <wsdl:part name="request" element="tns:ExportItems"/>
  <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
  <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
  <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wsdl:message>
```

The **ExportItemSoapIn** message contains four parts, as described in the following table.

Part name	Element/type	Description
request	<ExportItems> (section 3.1.4.1.2.1)	Specifies the SOAP body of the request.
Impersonation	<ExchangeImpersonation> ([MS-OXWSCDATA] section 2.2.4.2)	Specifies the identifier of the account to impersonate.
MailboxCulture	<MailboxCulture> ([MS-OXWSCDATA] section 2.2.4.5)	Specifies the culture to use for accessing the server. The cultures are defined by [RFC3066].
RequestVersion	<RequestServerVersion> ([MS-OXWSCDATA] section 2.2.4.7)	Specifies the target schema version.

3.1.4.1.1.2 tns:ExportItemsSoapOut Message

The **ExportItemsSoapOut** message specifies the SOAP message that represents a response that contains exported items.

```
<wsdl:message name="ExportItemsSoapOut">
  <wsdl:part name="ExportItemsResult" element="tns:ExportItemsResponse"/>
  <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>
```

The **ExportItemsSoapOut** message contains two parts, as described in the following table.

Part name	Element/type	Description
ExportItemsResult	<ExportItemsResponse> (section 3.1.4.1.2.2)	Specifies the SOAP body of the response.
ServerVersion	<ServerVersion> ([MS-OXWSCDATA] section 2.2.4.8)	Specifies the server version.

3.1.4.1.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

Element	Description
<ExportItems> 3.1.4.1.2.1	Specifies a request to export items from a mailbox.
<ExportItemsResponse> 3.1.4.1.2.2	Specifies a response that contains exported items.

3.1.4.1.2.1 ExportItems Element

The <ExportItems> element specifies a response that contains exported items. This element MUST be present.

```
<xs:element name="ExportItems"
  type="m:ExportItemsType"
 />
```

3.1.4.1.2.2 ExportItemsResponse Element

The <ExportItemsResponse> element specifies a response to a request to export items from a mailbox. This element MUST be present.

```
<xs:element name="ExportItemsResponse"
  type="m:ExportItemsResponseType"
 />
```

3.1.4.1.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

Complex type	Description
ExportItemsResponseMessageType (section 3.1.4.1.3.1)	Specifies a single exported item.
ExportItemsResponseType (section 3.1.4.1.3.2)	Specifies a response to export items from a mailbox.
ExportItemsType (section 3.1.4.1.3.3)	Specifies a request to export items out of a mailbox.
NonEmptyArrayOfItemIdsType (section 3.1.4.1.3.4)	Specifies the array of items to export from a mailbox.

3.1.4.1.3.1 m:ExportItemsResponseMessageType Complex Type

The **ExportItemsResponseMessageType** complex type specifies a single exported item.

```
<xs:complexType name="ExportItemsResponseMessageType">
  <xs:complexContent>
    <xs:extension
      base="m:ResponseMessageType"
    >
      <xs:sequence>
        <xs:element name="ItemId"
          type="t:ItemIdType"
          minOccurs="0"
          maxOccurs="1"
        />
        <xs:element name="Data"
          type="xs:base64Binary"
          minOccurs="0"
          maxOccurs="1"
        />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Child Elements

Element	Type	Description
ItemId	t:ItemIdType	Specifies the item identifier of a single exported item. This element MUST be present if the export operation is successful. The **ItemIdType** complex type is specified in [MS-OXWSCORE] section 2.2.3.13.
Data	xs:base64Binary	Specifies the data of a single exported item. This element MUST be present if the export operation is successful. The **xs:base64Binary** type is specified in [XMLSCHEMA2].

3.1.4.1.3.2   ExportItemsResponseType Complex Type

The **ExportItemsResponseType** complex types specifies a response to export items from a mailbox.

```
<xs:complexType name="ExportItemsResponseType">
  <xs:complexContent>
    <xs:extension
      base="m:BaseResponseMessageType"
    />
  </xs:complexContent>
</xs:complexType>
```

3.1.4.1.3.3   ExportItemsType Complex Type

The **ExportItemsType** complex type specifies a request to export items out of a mailbox.

```
<xs:complexType name="ExportItemsType">
  <xs:complexContent>
    <xs:extension
      base="m:BaseRequestType"
    >
      <xs:sequence>
        <xs:element name="ItemIds"
          type="t:NonEmptyArrayOfItemIdsType"
          maxOccurs="1"
          minOccurs="1"
        />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Child Elements

Element	Type	Description
ItemIds	t:NonEmptyArrayOfItemIdsType	Specifies the item identifier array of the items to export. This element MUST be present.

3.1.4.1.3.4   t:NonEmptyArrayOfItemIdsType Complex Type

The **NonEmptyArrayOfItemIdsType** complex type specifies the array of items to export from a mailbox.

```
<xs:complexType name="NonEmptyArrayOfItemIdsType">
  <xs:sequence>
    <xs:element name="ItemId"
      type="t:ItemIdType"
      maxOccurs="unbounded"
      minOccurs="1"
    />
  </xs:sequence>
</xs:complexType>
```

Child Elements

Element	Type	Description
ItemId	t:ItemIdType	Specifies the item identifier of an item to export from a mailbox. At least one <ItemId> element MUST be present. The **ChangeKey** of the **ItemIdType** complex type ([MS-OXWSCORE] section 2.2.3.13) MUST be ignored.

3.1.4.2 UploadItems

The **UploadItems** operation uploads items to a mailbox.

```
<wsdl:operation name="UploadItems">
   <wsdl:input message="tns:UploadItemsSoapIn"/>
   <wsdl:output message="tns:UploadItemsSoapOut"/>
</wsdl:operation>
```

Request

Message format	Description
tns:UploadItemsSoapIn	Specifies the SOAP message that represents a request to upload items into a mailbox.

Response

Message format	Description
tns:UploadItemsSoapOut	Specifies the SOAP message that represents a response that contains the results of an attempt to upload items into a mailbox.

3.1.4.2.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

Message	Description
UploadItemsSoapIn (section 3.1.4.2.1.1)	Specifies the SOAP message that represents a request to upload items into a mailbox.
UploadItemsSoapOut (section 3.1.4.2.1.2)	Specifies the SOAP message that represents a response that contains the results of an attempt to upload items into a mailbox.

3.1.4.2.1.1 tns:UploadItemsSoapIn Message

The **UploadItemsSoapIn** message specifies the SOAP message that represents a request to upload items into a mailbox.

```
<wsdl:message name="UploadItemsSoapIn">
  <wsdl:part name="request" element="tns:UploadItems"/>
  <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
  <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
```

```
        <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
    </wsdl:message>
```

The **UploadItemsSoapIn** message contains four parts, as described in the following table.

Part name	Element/type	Description
request	<UploadItems> (section 3.1.4.2.2.1)	Specifies the SOAP body of the request.
Impersonation	<ExchangeImpersonation> ([MS-OXWSCDATA] section 2.2.4.2)	Specifies the identifier of the account to impersonate.
MailboxCulture	<MailboxCulture> ([MS-OXWSCDATA] section 2.2.4.5)	Specifies the culture to use for accessing the server. The cultures are defined by [RFC3066].
RequestVersion	<RequestServerVersion> ([MS-OXWSCDATA] section 2.2.4.7)	Specifies the target schema version.

3.1.4.2.1.2   tns:UploadItemsSoapOut Message

The **UploadItemsSoapOut** message specifies the SOAP message that represents a response that contains the results of an attempt to upload items into a mailbox.

```
<wsdl:message name="UploadItemsSoapOut">
    <wsdl:part name="UploadItemsResult" element="tns:UploadItemsResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>
```

The **UploadItemsSoapOut** message contains two parts, as described in the following table.

Part name	Element/type	Description
UploadItemsResult	<UploadItemsResponse> (section 3.1.4.2.2.2)	Specifies the SOAP body of the response.
ServerVersion	<ServerVersion> ([MS-OXWSCDATA] section 2.2.4.8)	Specifies the server version.

3.1.4.2.2   Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

Element	Description
UploadItems (section 3.1.4.2.2.1)	Specifies the request to upload items into a mailbox. This element MUST be present.
UploadItemsResponse (section 3.1.4.2.2.2)	Specifies the response to an attempt to upload items. This element MUST be present.

3.1.4.2.2.1   UploadItems Element

The <UploadItems> element specifies the request to upload items into a mailbox. This element MUST be present.

```
<xs:element name="UploadItems"
  type="m:UploadItemsType"
 />
```

3.1.4.2.2.2   UploadItemsResponse Element

The <UploadItemsResponse> element specifies the response to an attempt to upload items. This element MUST be present.

```
<xs:element name="UploadItemsResponse"
  type="m:UploadItemsResponseType"
 />
```

3.1.4.2.3   Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

Complex type	Description
NonEmptyArrayOfUploadItemsType (section 3.1.4.2.3.1)	Specifies the array of items to upload into a mailbox.
UploadItemsResponseMessageType (section 3.1.4.2.3.2)	Specifies the item identifier of an item that was uploaded into a mailbox.
UploadItemsResponseType (section 3.1.4.2.3.3)	Specifies the response messages for items for which an attempt was made to upload into a mailbox.
UploadItemsType (section 3.1.4.2.3.4)	Specifies the contents of a request to upload items into a mailbox.
UploadItemType (section 3.1.4.2.3.5)	Specifies the contents of single item to upload into a mailbox.

3.1.4.2.3.1   t:NonEmptyArrayOfUploadItemsType Complex Type

The **NonEmptyArrayOfUploadItemsType** complex type specifies the array of items to upload into a mailbox.

```
<xs:complexType name="NonEmptyArrayOfUploadItemsType">
  <xs:sequence>
    <xs:element name="Item"
      type="t:UploadItemType"
      maxOccurs="unbounded"
      minOccurs="1"
     />
  </xs:sequence>
</xs:complexType>
```

Child Elements

Element	Type	Description
Item	t:UploadItemType	Specifies the array of items to upload in to a mailbox. At least on <Item> element MUST be present.

3.1.4.2.3.2   m:UploadItemsResponseMessageType Complex Type

The **UploadItemsResponseMessageType** complex type specifies the item identifier of an item that was uploaded into a mailbox.

```
<xs:complexType name="UploadItemsResponseMessageType">
  <xs:complexContent>
    <xs:extension
      base="m:ResponseMessageType"
    >
      <xs:sequence>
        <xs:element name="ItemId"
          type="t:ItemIdType"
          minOccurs="0"
        />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Child Elements

Element	Type	Description
ItemId	t:ItemIdType	Specifies the item identifier of an item that was uploaded into a mailbox. Only a single instance of this element can be present. The **ItemIdType** complex in type is specified in [MS-OXWSCORE] section 2.2.3.13.

3.1.4.2.3.3   m:UploadItemsResponseType Complex Type

The **UploadItemsResponseType** complex type specifies the response messages for which an attempt was made to update into a mailbox.

```
<xs:complexType name="UploadItemsResponseType">
  <xs:complexContent>
    <xs:extension
      base="m:BaseResponseMessageType"
    />
  </xs:complexContent>
</xs:complexType>
```

3.1.4.2.3.4   m:UploadItemsType Complex Type

The **UploadItemsType** complex type specifies the contents of a request to upload items in to a mailbox.

```
<xs:complexType name="UploadItemsType">
  <xs:complexContent>
    <xs:extension
      base="m:BaseRequestType"
    >
      <xs:sequence>
        <xs:element name="Items"
          type="t:NonEmptyArrayOfUploadItemsType"
        />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Child Elements

Element	Type	Description
Items	t:NonEmptyArrayOfUploadItemsType	Specifies the collection of items to upload into a mailbox. This element MUST be present.

3.1.4.2.3.5 m:UploadItemType Complex Type

The **UploadItemType** complex type specifies the contents of a single item to upload in to a mailbox.

```
<xs:complexType name="UploadItemType">
  <xs:sequence>
    <xs:element name="ParentFolderId"
      type="t:FolderIdType"
      maxOccurs="1"
      minOccurs="1"
    />
    <xs:element name="ItemId"
      type="t:ItemIdType"
      maxOccurs="1"
      minOccurs="0"
    />
    <xs:element name="Data"
      type="xs:base64Binary"
      maxOccurs="1"
      minOccurs="1"
    />
  </xs:sequence>
  <xs:attribute name="CreateAction"
    type="t:CreateActionType"
    use="required"
  />
  <xs:attribute name="IsAssociated"
    type="xs:boolean"
  />
</xs:complexType>
```

Child Elements

Element	Type	Description
ParentFolderId	**t:FolderIdType**	Specifies the target folder in which to place the upload item. This element MUST be present. The **FolderIdType** complex type is specified in [MS-OXWSCDATA] section 2.2.3.29.
ItemId	t:ItemIdType	Specifies the item identifier of the upload item. The **ItemIdType** complex type is specified in [MS-OXWSCORE] section 2.2.3.13.
Data	xs:base64Binary	Specifies the data of the upload item. This element MUST be present. The **xs:base64Binary** type is specified in [XMLSCHEMA2].

Attributes

Name	Type	Description
CreateAction	t:CreateActionType	Specifies the action for uploading items into a mailbox. This attribute MUST be present.
IsAssociated	xs:boolean	Specifies whether the item is a folder associated item. This element is optional but MUST be present to specify that an item is a folder associated item. If this element is not present, the server MUST assume that the item is not a folder associated item. The **xs:boolean** type is specified in [XMLSCHEMA2].

3.1.4.2.4 Simple Types

The following table summarizes the XML schema simple type definitions that are specific to this operation.

Simple type	Description
CreateActionType (section 3.1.4.2.4.1)	Specifies the action for uploading items into a mailbox.

3.1.4.2.4.1 CreateActionType Simple Type

The **CreateActionType** simple type specifies the action for uploading items into a mailbox.

```
<xs:simpleType>
  <xs:restriction
    base="xs:string"
  >
    <xs:enumeration
      value="CreateNew"
     />
    <xs:enumeration
      value="Update"
     />
    <xs:enumeration
      value="UpdateOrCreate"
     />
  </xs:restriction>
</xs:simpleType>
```

Enumeration

The following values are defined by the simple type:

Value	Description
CreateNew	Specifies that a new copy of the original item is uploaded to the mailbox. The <ItemId> element in the **UploadItemType** complex type, as specified in section 3.1.4.2.3.5, MUST NOT be specified. The <ItemId> element that is returned in the **UploadItemsResponseMessageType** complex type, as specified in section 3.1.4.2.3.2, MUST contain the new item identifier.
Update	Specifies that the upload will update an item that is already present in the mailbox. The <ItemId> element in the **UploadItemType** complex type MUST be specified; otherwise, an error MUST be returned. If the target item is not in the original folder specified by the <ParentFolderId> element in the **UploadItemType** complex type, an error MUST be returned.
UpdateOrCreate	Specifies an attempt to first update the item. If the criteria for a successful update are met, the target item is updated. The <ItemId> element in the **UploadItemType** complex type MUST be specified; otherwise, an error MUST be returned. If the target item is not in the original folder specified by the <ParentFolderId> element in the **UploadItemType** complex type, the request MUST be processed as a CreateNew action.

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

4   Protocol Examples

This section provides a simplified example of a request-response sequence for the **ExportItems** operation, as specified in section 3.1.4.1.

The following example shows an **ExportItems** request to export three items.

```
<?xml version="1.0" encoding="utf-8" ?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
               xmlns:xsd="http://www.w3.org/2001/XMLSchema"
               xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
               xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
               xmlns:m="http://schemas.microsoft.com/exchange/services/2006/messages">
  <soap:Header>
    <t:RequestServerVersion Version="Exchange2010_SP1" />
  </soap:Header>
  <soap:Body>
    <m:ExportItems>
      <m:ItemIds>
        <t:ItemId Id="AAMkAGYzZjZmRiUsidkC+NAAAAY89GAAA="/>
        <t:ItemId Id="AAMkAGYzZjZmRiUsidkC+NAAAAY89FAAA="/>
        <t:ItemId Id="AAMkAGYzZjZmRiUsidkC+NAAAAY87NAAA="/>
      </m:ItemIds>
    </m:ExportItems>
  </soap:Body>
</soap:Envelope>
```

The following example shows an **ExportItems** response to the request to export three items. The item identifier and data have been shortened to preserve readability.

```
<?xml version="1.0" encoding="utf-8"?>
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Header>
    <t:ServerVersionInfo MajorVersion="14"
                         MinorVersion="1"
                         MajorBuildNumber="139"
                         MinorBuildNumber="0"
                         Version="Exchange2010_SP1"
                         xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
                         xmlns="http://schemas.microsoft.com/exchange/services/2006/types"
                         xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
                         xmlns:xsd="http://www.w3.org/2001/XMLSchema"/>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <m:ExportItemsResponse
xmlns:m="http://schemas.microsoft.com/exchange/services/2006/messages"

xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types">
      <m:ResponseMessages>
        <m:ExportItemsResponseMessage ResponseClass="Success">
          <m:ResponseCode>NoError</m:ResponseCode>
          <m:ItemId Id="AAMkAGYzZjZmRiUsidkC+NAAAAY89GAAA=" ChangeKey="FwAAAA=="/>
          <m:Data>AQAAAAgAAAAAAAAALgBlAHgAdABlAHMAdAAuAG0AQBjAHIAbwBzAG8AZgB0AC4A
          YwBvAG0AAABTAE0AVABQAAAAVQBzAGUAcgAyAEAAYQB1AGoAaQBuAGcALQBkAG8AbQQAuAGUA
          eAB0AGUAcwB0AC4AbQBpAGMAcgBvAHMAbwBmAHQALgBjBjAG8AbQAAALCE/jlMAAAAVQBzAGUA
          cgAyAEAAYQB1AGoAaQBuAGcALQBkAG8AbQQAuAGUAeAB0AGUAcwB0AC4AbQBpAGMAcgBvAHMA
```

bwBmAHQALgBjAG8AbQAAAAMAADkAAAAAAwD+DwYAAAADAARAAwACQAMADkA=</m:Data>
      </m:ExportItemsResponseMessage>
      <m:ExportItemsResponseMessage ResponseClass="Success">
        <m:ResponseCode>NoError</m:ResponseCode>
        <m:ItemId Id="AAMkAGYzZjZmRiUsidkC+NAAAAY89FAAA=" ChangeKey="FwAAAA=="/>
        <m:Data>AQAAAAgAAAAAAAAAAQAAAAMAAAAYAAAAAQAAAcDAgAAAAAAwAAAAAAAAAEYAJACA
QAAyAAAh9SpR08oBAwAEQAMAFkANABMOAwAAAQAMAIQ4AAAAAsIQSN0oAAAAyAGEAYgAxADYA
MQA2ADYALQBhAGUANQBkAC0ANAAyAGUAZgAtAGEANQA1ADkANwBjADgAOQAwADgANwBkAADIA
MwBkADgANAAAAAAAMACzf/////AwAgDmQEAAADAPcPAAAAAEAABzBPMXstUdPKAUAACDBPMXst
UdPKAQMABTcFAAAAsIQONx4AAABtAGUAcwBzAGEAZwBlAC8AcgBmAGMAOOAAyADIAAACwhAEw
IgAAAE0AbwBzAHQAIAABmAGEAcwBjAGkAbgBhAHQAaQBuAGcAcAAACAfkPBAAAAAAAAADAAFA
FABKBKZ3QrAAAAZF2mAwAXAAEAAACwhBoAEgAAAEkAUABNAC4ATgBvAHQAQZAAAMANgAAAAAA
sIQ3ACIAAABNAG8AcwB0ACAAZgBhAHMAYwBpAG4AYQB0AGkAbgBnAAAAQAA5AACq+za80coB
AgE7AGUAAAABFWDovTz1GSVJTVCBPUkdBTklaQVRJT04vT1U9RVhDSEFOR0UgQURNSU5JU1RS
QVRJVkUgR1JPVVAgKEZZRElCT0hGMjNTUERMVCkvQ049UkVDSVBJRU5UUy9DTj1VU0VST05F
ALCEPQACAAAAAACAUEAfgAAAAAADcp0DIwEIQGrS5CAArL+GCAQAAAAAAAAAvTz1GSVJT
VCBPUkdBTklaQVRJT04vT1U9RVhDSEFOR0UgQURNSU5JU1RSQVRJVkUgR1JPVVAgKEZZRElC
T0hGMjNTUERMVCkvQ049UkVDSVBJRU5UUy9DTj1VU0VST05FALCEQgAQAAAAVQB</m:Data>
      </m:ExportItemsResponseMessage>
      <m:ExportItemsResponseMessage ResponseClass="Success">
        <m:ResponseCode>NoError</m:ResponseCode>
        <m:ItemId Id="AAMkAGYzZjZmRiUsidkC+NAAAAY87NAAA=" ChangeKey="CQAAAA=="/>
        <m:Data>AQAAAAgAAAAAAAAAAQAAAAMAAAAYAAAAAQAAAcDAgAAAAAAwAAAAAAAAAEYAJACA
BAAAAYAAAABDouAAAACAAAAEiAAAOSECEBbAAAAL089RklSU1QgT1JHQU5JWkFUSU9OL09V
PUVYQ0hBTkdFIEFETUlOSVNUUkFUSVZFIEdST1VQIChGWURJQk9IRjIzU1BETFQpL0NOPVJF
Q0lQSUVOVFMvQ049AAMAFwABAAAAsIQaABIAAABJAFAATQAuAE4AbwB0AGUAAAALACMAAAAL
ACkAAAADADYAAAAAALCENwAyAAAASQBuAHQAQZByAGUAcwB0AGkAbgBnAAAAAQAgAGYACgBv
AG0AIABFAFcBNAEEAAABAADkAAHZeFxfRygECATSAZQAAAAEVYOi9PPUZJUlNUIE9SR0FO
SVpBVElPTi9PVT1FWENIQU5HQU5HRSBBRE1JTklTVFJBVElWRSBHUk9VUCAoRllESUJPSEYyM1NQ
RExUKS9DTj1SRUNJUElFTlRTL0NOPVVTRVJPTkUAsIQ9AAIAAAAAAAIBPwB+AAAAAAAANyn
QMjAQhAatLkIACsv4YIBAAAAAAAAAC9PPUZJUlNUIE9SR0FOSVpBVElPTi9PVT1FWENIQU5H</m:Data>
      </m:ExportItemsResponseMessage>
    </m:ResponseMessages>
  </m:ExportItemsResponse>
  </s:Body>
</s:Envelope>

5   Security

5.1   Security Considerations for Implementers

The Bulk Transfer Web Service Protocol does not use additional security mechanisms.

5.2   Index of Security Parameters

None.

6 Appendix A: Full WSDL

For ease of implementation, the full WSDLs and schemas are provided in the sections listed in the following table.

WSDL or schema name	Prefix	Section
WSDL	tns, wsdl, t, xs, soap	6.1
Messages	m, t, xs	6.2
Types	t, xs	6.3

The WSDL, messages, and types schema files have to be placed in a common folder in order for the WSDL to validate. Also, any schema files that are included in or imported into the messages and types schemas have to be placed in the common folder with these files.

6.1 WSDL

This section contains the contents of the WSDL file and information about additional files that this WSDL file requires to successfully validate. The following table lists additional files that have to be present in the folder that contains this WSDL.

File name	Section
MS-OXWSBTRF-messages.xsd	Section 6.2

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"

xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/messages"
                        xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
                        xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"

targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages">
   <wsdl:types>
      <xs:schema id="messages"
                        elementFormDefault="qualified"
                        version="Exchange2010_SP1"
                        xmlns:xs="http://www.w3.org/2001/XMLSchema"

targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages">
         <xs:include schemaLocation="MS-OXWSBTRF-messages.xsd"/>
      </xs:schema>
   </wsdl:types>
   <wsdl:portType name="ExchangeServicePortType">
      <wsdl:operation name="UploadItems">
         <wsdl:input message="tns:UploadItemsSoapIn"/>
         <wsdl:output message="tns:UploadItemsSoapOut"/>
      </wsdl:operation>
      <wsdl:operation name="ExportItems">
         <wsdl:input message="tns:ExportItemsSoapIn"/>
         <wsdl:output message="tns:ExportItemsSoapOut"/>
      </wsdl:operation>
   </wsdl:portType>
   <wsdl:binding name="ExchangeServiceBinding" type="tns:ExchangeServicePortType">
      <wsdl:documentation>
```

```
            <wsi:Claim conformsTo="http://ws-i.org/profiles/basic/1.0"
                           xmlns:wsi="http://ws-i.org/schemas/conformanceClaim/"/>
      </wsdl:documentation>
      <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
      <wsdl:operation name="UploadItems">
         <soap:operation
 soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/UploadItems"/>
         <wsdl:input>
            <soap:header message="tns:UploadItemsSoapIn" part="Impersonation" use="literal"/>
            <soap:header message="tns:UploadItemsSoapIn" part="MailboxCulture"
 use="literal"/>
            <soap:header message="tns:UploadItemsSoapIn" part="RequestVersion"
 use="literal"/>
            <soap:body parts="request" use="literal"/>
         </wsdl:input>
         <wsdl:output>
            <soap:body parts="UploadItemsResult" use="literal"/>
            <soap:header message="tns:UploadItemsSoapOut" part="ServerVersion"
 use="literal"/>
         </wsdl:output>
      </wsdl:operation>
      <wsdl:operation name="ExportItems">
         <soap:operation
 soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/ExportItems"/>
         <wsdl:input>
            <soap:header message="tns:ExportItemsSoapIn" part="Impersonation" use="literal"/>
            <soap:header message="tns:ExportItemsSoapIn" part="MailboxCulture"
 use="literal"/>
            <soap:header message="tns:ExportItemsSoapIn" part="RequestVersion"
 use="literal"/>
            <soap:body parts="request" use="literal"/>
         </wsdl:input>
         <wsdl:output>
            <soap:body parts="ExportItemsResult" use="literal"/>
            <soap:header message="tns:ExportItemsSoapOut" part="ServerVersion"
 use="literal"/>
         </wsdl:output>
      </wsdl:operation>
   </wsdl:binding>
   <wsdl:message name="UploadItemsSoapIn">
      <wsdl:part name="request" element="tns:UploadItems"/>
      <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
      <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
      <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
   </wsdl:message>
   <wsdl:message name="UploadItemsSoapOut">
      <wsdl:part name="UploadItemsResult" element="tns:UploadItemsResponse"/>
      <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
   </wsdl:message>
   <wsdl:message name="ExportItemsSoapIn">
      <wsdl:part name="request" element="tns:ExportItems"/>
      <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
      <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
      <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
   </wsdl:message>
   <wsdl:message name="ExportItemsSoapOut">
      <wsdl:part name="ExportItemsResult" element="tns:ExportItemsResponse"/>
      <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
   </wsdl:message>
```

```
    </wsdl:definitions>
```

6.2   Messages Schema

This section contains the contents of the messages schema and information about additional files that the messages schema file requires to successfully validate. The messages schema is referenced from the WSDL file as MS-OXWSBTRF-messages.xsd. The following table lists additional files that have to be present in the folder that contains the messages schema.

File name	Defining specification
MS-OXWSBTRF-types.xsd	Section 6.3
MS-OXWSCDATA-messages.xsd	[MS-OXWSCDATA] section 6.2

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema id="messages"
                   elementFormDefault="qualified"
                   version="Exchange2010_SP1"
                   xmlns:m="http://schemas.microsoft.com/exchange/services/2006/messages"
                   xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
                   xmlns:xs="http://www.w3.org/2001/XMLSchema"

targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages">
    <xs:import namespace="http://schemas.microsoft.com/exchange/services/2006/types"
                   schemaLocation="MS-OXWSBTRF-types.xsd"/>
    <xs:include schemaLocation="MS-OXWSCDATA-messages.xsd"/>
    <xs:complexType name="UploadItemsType">
      <xs:complexContent>
        <xs:extension base="m:BaseRequestType">
          <xs:sequence>
            <xs:element name="Items" type="t:NonEmptyArrayOfUploadItemsType"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:element name="UploadItems" type="m:UploadItemsType"/>
    <xs:complexType name="UploadItemsResponseMessageType">
      <xs:complexContent>
        <xs:extension base="m:ResponseMessageType">
          <xs:sequence>
            <xs:element name="ItemId" type="t:ItemIdType" minOccurs="0"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="UploadItemsResponseType">
      <xs:complexContent>
        <xs:extension base="m:BaseResponseMessageType"/>
      </xs:complexContent>
    </xs:complexType>
    <xs:element name="UploadItemsResponse" type="m:UploadItemsResponseType"/>
    <xs:complexType name="ExportItemsType">
      <xs:complexContent>
        <xs:extension base="m:BaseRequestType">
          <xs:sequence>
            <xs:element name="ItemIds"
```

```
                          type="t:NonEmptyArrayOfItemIdsType"
                          minOccurs="1"
                          maxOccurs="1"/>
                </xs:sequence>
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
    <xs:element name="ExportItems" type="m:ExportItemsType"/>
    <xs:complexType name="ExportItemsResponseMessageType">
        <xs:complexContent>
            <xs:extension base="m:ResponseMessageType">
                <xs:sequence>
                    <xs:element name="ItemId" type="t:ItemIdType" minOccurs="0" maxOccurs="1"/>
                    <xs:element name="Data" type="xs:base64Binary" minOccurs="0" maxOccurs="1"/>
                </xs:sequence>
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ExportItemsResponseType">
        <xs:complexContent>
            <xs:extension base="m:BaseResponseMessageType"/>
        </xs:complexContent>
    </xs:complexType>
    <xs:element name="ExportItemsResponse" type="m:ExportItemsResponseType"/>
</xs:schema>
```

6.3 Types Schema

This section contains the contents of the types schema and information about additional files that
the types schema file requires to successfully validate. The types schema is referenced from the
messages schema file as MS-OXWSBTRF-types.xsd. The following table lists additional files that
have to be present in the folder that contains the types schema file.

File name	Defining specification
MS-OXWSCDATA-types.xsd	[MS-OXWSCDATA] section 6.3

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema id="types"
                    elementFormDefault="qualified"
                    version="Exchange2010_SP1"
                    xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"

targetNamespace="http://schemas.microsoft.com/exchange/services/2006/types"
                    xmlns:xs="http://www.w3.org/2001/XMLSchema">
    <xs:include schemaLocation="MS-OXWSCDATA-types.xsd"/>
    <xs:complexType name="NonEmptyArrayOfUploadItemsType">
        <xs:sequence>
            <xs:element name="Item" type="t:UploadItemType" maxOccurs="unbounded"
minOccurs="1"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="UploadItemType">
        <xs:sequence>
            <xs:element name="ParentFolderId" type="t:FolderIdType" maxOccurs="1"
minOccurs="1"/>
            <xs:element name="ItemId" type="t:ItemIdType" maxOccurs="1" minOccurs="0"/>
```

```xml
            <xs:element name="Data" type="xs:base64Binary" maxOccurs="1" minOccurs="1"/>
        </xs:sequence>
        <xs:attribute name="CreateAction" type="t:CreateActionType" use="required"/>
        <xs:attribute name="IsAssociated" type="xs:boolean" use="optional"/>
    </xs:complexType>
    <xs:simpleType name="CreateActionType">
        <xs:restriction base="xs:string">
            <xs:enumeration value="CreateNew"/>
            <xs:enumeration value="Update"/>
            <xs:enumeration value="UpdateOrCreate"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="CompleteActionType">
        <xs:restriction base="xs:string">
            <xs:enumeration value="Commit"/>
            <xs:enumeration value="Abandon"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="NonEmptyArrayOfItemIdsType">
        <xs:sequence>
            <xs:element name="ItemId" type="t:ItemIdType" maxOccurs="unbounded" minOccurs="1"/>
        </xs:sequence>
    </xs:complexType>
  </xs:schema>
```

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® Exchange Server 2010 Service Pack 1 (SP1)

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

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

8 Change Tracking

This section identifies changes that were made to the [MS-OXWSBTRF] protocol document between the November 2010 and March 2011 releases. Changes are classified as New, Major, Minor, Editorial, or No change.

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

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

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

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

- The removal of a document from the documentation set.

- Changes made for template compliance.

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

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

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

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

- New content added.

- Content updated.

- Content removed.

- New product behavior note added.

- Product behavior note updated.

- Product behavior note removed.

- New protocol syntax added.

- Protocol syntax updated.

- Protocol syntax removed.

- New content added due to protocol revision.

- Content updated due to protocol revision.

- Content removed due to protocol revision.

- New protocol syntax added due to protocol revision.

- Protocol syntax updated due to protocol revision.

- Protocol syntax removed due to protocol revision.

- New content added for template compliance.

- Content updated for template compliance.

- Content removed for template compliance.

- Obsolete document removed.

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

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

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

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

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

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
1 Introduction	Added information about which sections of the specification are normative and can contain RFC 2119 language.	Y	New content added for template compliance.

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