

[MS-OXWSMTRK]: Message Tracking Web Service Protocol Specification

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Revision Summary

Date	Revision History	Revision Class	Comments
07/15/2009	1.0	Major	Initial Availability.
11/04/2009	1.1.0	Minor	Updated the technical content.
02/10/2010	1.2.0	Minor	Updated the technical content.
05/05/2010	2.0.0	Major	Updated and revised the technical content.
08/04/2010	2.0.0	No change	No changes to the meaning, language, or formatting of the technical content.
11/03/2010	2.0.0	No change	No changes to the meaning, language, or formatting of the technical content.
03/18/2011	2.1	Minor	Clarified the meaning of the technical content.

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1 Introduction

This document specifies the Message Tracking Web Service protocol, which is responsible for finding and returning information about message delivery by the server. Clients use the SOAP protocol [\[SOAP1.1\]](#) to contact the message tracking service.

1.1 Glossary

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

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

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

blind carbon copy (Bcc) recipient distribution list mailbox
Simple Mail Transfer Protocol (SMTP)
SOAP message
Web Services Description Language (WSDL)
WSDL message
WSDL port type
XML namespace

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.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <http://www.ietf.org/rfc/rfc2119.txt>

[SOAP1.1] Box, D., Ehnebuske, D., Kakivaya, G., 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

The Message Tracking Web Service protocol provides clients with message delivery information on the server. Clients search for a message on the server by using the FindMessageTrackingReport operation (section [3.1.4.1](#)), and can then retrieve information from that report by using the GetMessageTrackingReport operation (section [3.1.4.2](#)).

1.4 Relationship to Other Protocols

The Message Tracking Web Service protocol uses SOAP over **HTTP** and SOAP over **HTTPS**, as shown in the following figures.

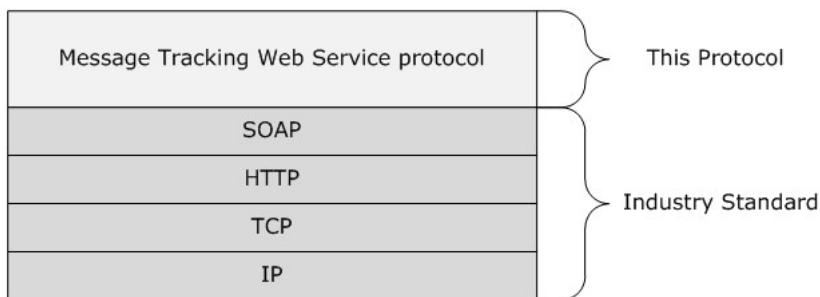


Figure 1: Message Tracking Web Service protocol HTTP stack

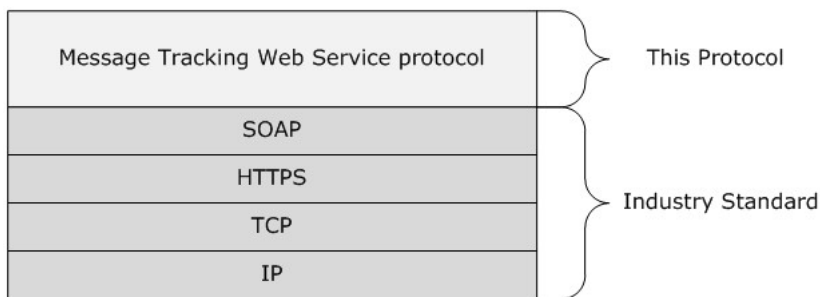


Figure 2: Message Tracking Web Service protocol HTTPS stack

The information that is returned by the Message Tracking Web Service protocol is not used by any additional protocols.

1.5 Prerequisites/Preconditions

None.

1.6 Applicability Statement

The protocol that is specified in this document is applicable to environments that track message delivery.

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.
- **Localization:** This protocol includes text strings in various messages. Localization considerations for such strings are specified in section [3.1.4](#).
- **Capability Negotiation:** None.

1.8 Vendor Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

The SOAP version supported is SOAP 1.1. For details, see [\[SOAP1.1\]](#).

2.2 Common Message Syntax

This section contains common definitions that are 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	[MS-OXWSMTRK]
s	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1]
targetNamespace	http://schemas.microsoft.com/exchange/services/2006/messages	[MS-OXWSMTRK]
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]
t	http://schemas.microsoft.com/exchange/services/2006/types	[MS-OXWSMTRK]

2.2.2 Simple Types

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

2.2.3 Complex Types

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

2.2.4 Elements

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

2.2.5 Attributes

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

2.2.6 Groups

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

2.2.7 Attribute Groups

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

2.2.8 Messages

This specification does not define any common **XML schema** message 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 that are returned by the transport are passed directly back to the higher-layer protocol or application.

3.1 ExchangeServicePortType Server Details

The Notifications Web Service protocol defines a single port type.

Operation	Description
FindMessageTrackingReport	Finds messages that meet the specified criteria.
GetMessageTrackingReport	Gets tracking information about the specified messages.

3.1.1 Abstract Data Model

The Message Tracking Web Service protocol is a stateless protocol.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Message Processing Events and Sequencing

This protocol includes the operations that are listed in the following table.

Operation	Description
FindMessageTrackingReport (section 3.1.4.1)	Finds messages that meet the specified criteria.
GetMessageTrackingReport (section 3.1.4.2)	Gets tracking information about the specified messages.

3.1.4.1 FindMessageTrackingReport

The **FindMessageTrackingReport** operation finds messages that meet the specified criteria.

```
<wsdl:operation name="FindMessageTrackingReport"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:input message="tns:FindMessageTrackingReportSoapIn" />
  <wsdl:output message="tns:FindMessageTrackingReportSoapOut" />
</wsdl:operation>
```

Request

Message Format	Description
tns:FindMessageTrackingReportSoapIn	Specifies the SOAP message that requests the report.

Response

Message Format	Description
tns:FindMessageTrackingReportSoapOut	Specifies the SOAP message that is returned by the server in response.

3.1.4.1.1 Complex Types

The following **XML schema** complex type definitions are specific to this operation.

3.1.4.1.1.1 m:FindMessageTrackingReportRequestType Complex Type

The **FindMessageTrackingReportRequestType** complex type specifies the criteria for finding a tracking report. The **FindMessageTrackingReportRequestType** complex type extends the **BaseRequestType** complex type ([\[MS-OXWSCDATA\]](#) section 2.2.3.14).

```
<xs:complexType name="FindMessageTrackingReportRequestType">
  <xs:complexContent>
    <xs:extension
      base="m:BaseRequestType"
    >
      <xs:all>
        <xs:element name="Scope"
          type="t:NonEmptyStringType"
        />
        <xs:element name="Domain"
          type="t:NonEmptyStringType"
        />
        <xs:element name="Sender"
          type="t:EmailAddressType"
          minOccurs="0"
        />
        <xs:element name="PurportedSender"
          type="t:EmailAddressType"
          maxOccurs="0"
        />
        <xs:element name="Recipient"
          type="t:EmailAddressType"
          minOccurs="0"
        />
        <xs:element name="Subject"
          type="xs:string"
          minOccurs="0"
        />
        <xs:element name="StartDateTime"
          type="xs:dateTime"
          minOccurs="0"
        />
        <xs:element name="EndDateTime"
          type="xs:dateTime"
          minOccurs="0"
        />
      </xs:all>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

```

    />
    <xs:element name="MessageId"
      type="t:NonEmptyStringType"
      minOccurs="0"
    />
    <xs:element name="FederatedDeliveryMailbox"
      type="t:EmailAddressType"
      minOccurs="0"
    />
    <xs:element name="DiagnosticsLevel"
      type="xs:string"
      minOccurs="0"
    />
    <xs:element name="ServerHint"
      type="xs:string"
      minOccurs="0"
    />
    <xs:element name="Properties"
      type="t:ArrayOfTrackingPropertiesType"
      minOccurs="0"
    />
  </xs:all>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

Child Elements

Element	Type	Description
Scope	t:NonEmptyStringType	Specifies where to perform the search. <1>
Domain	t:NonEmptyStringType	Specifies the domain to search for.
Sender	t:EmailAddressType ([MS-OXWSCDATA] section 2.2.3.25)	Specifies the e-mail address of the person who is sending the message.
PurportedSender	t:EmailAddressType	Specifies the e-mail address of the purported person who is sending the message. <2>
Recipient	t:EmailAddressType	Specifies the e-mail addresses of the people who are receiving the message.
Subject	xs:string	Specifies the subject filter to search for.
StartDateTime	xs:dateTime	Specifies the search time period, indicating that the message was sent after this value.
EndDateTime	xs:dateTime	Specifies the search time period, indicating that the

Element	Type	Description
		message was sent before this value.
MessageId	t:NonEmptyStringType	Specifies message identification to search for.
FederatedDeliveryMailbox	t:EmailAddressType	Specifies the mailbox to which a cross-premise message was sent.
DiagnosticsLevel	xs:string	Specifies how detailed the tracing report should be.
ServerHint	xs:string	Specifies the starting point for tracking a message in a remote site or forest. <3>
Properties	t:ArrayOfTrackingPropertiesType (section 3.1.4.2.7)	Specifies a list of one or more tracking properties. <4>

3.1.4.1.1.2 m:FindMessageTrackingReportResponseMessageType Complex Type

The **FindMessageTrackingReportResponseMessageType** complex type specifies the response for the **FindMessageTrackingReport** operation (section 3.1.4.1). The **FindMessageTrackingReportResponseMessageType** complex type extends the **ResponseMessageType** complex type ([\[MS-OXWSCDATA\]](#) section 2.2.3.52).

```
<xs:complexType name="FindMessageTrackingReportResponseMessageType">
  <xs:complexContent>
    <xs:extension
      base="m:ResponseMessageType"
    >
      <xs:sequence>
        <xs:element name="Diagnostics"
          type="t:ArrayOfStringsType"
          minOccurs="0"
        />
        <xs:element name="MessageTrackingSearchResults"
          type="t:ArrayOfFindMessageTrackingSearchResultType"
          minOccurs="0"
        />
        <xs:element name="ExecutedSearchScope"
          type="xs:string"
          minOccurs="0"
        />
        <xs:element name="Errors"
          type="t:ArrayOfArraysOfTrackingPropertiesType"
          minOccurs="0"
        />
        <xs:element name="Properties"
          type="t:ArrayOfTrackingPropertiesType"
          minOccurs="0"
        />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

</xs:complexType>

Child Elements

Element	Type	Description
Diagnostics	t:ArrayOfStringsType ([MS-OXWSCDATA] section 2.2.3.10)	Specifies timing and performance information that will be used to produce various statistical reports.
MessageTrackingSearchResults	t:ArrayOfFindMessageTrackingSearchResultType (section 3.1.4.1.1.3)	Specifies an array of matching records. <5>
ExecutedSearchScope	xs:string	Specifies the scope of the search that was performed to get the search results. <6>
Errors	t:ArrayOfArraysOfTrackingPropertiesType (section 3.1.4.2.2.8)	Specifies a property bag to store errors that are returned through the Web service. <7>
Properties	t:ArrayOfTrackingPropertiesType (section 3.1.4.2.2.7)	Specifies a list of one or more tracking properties. <8>

3.1.4.1.1.3 t:ArrayOfFindMessageTrackingSearchResultType Complex Type

The **ArrayOfFindMessageTrackingSearchResultType** complex type specifies an array of search results.

```
<xs:complexType name="ArrayOfFindMessageTrackingSearchResultType">
  <xs:choice
    minOccurs="0"
    maxOccurs="unbounded"
  >
    <xs:element name="MessageTrackingSearchResult"
      type="t:FindMessageTrackingSearchResultType"
    />
  </xs:choice>
</xs:complexType>
```

```

    </xs:choice>
</xs:complexType>

```

Child Elements

Element	Type	Description
MessageTrackingSearchResult	t:FindMessageTrackingSearchResultType (section 3.1.4.1.1.4)	Specifies a message that was found by using the FindMessageTrackingReport operation (section 3.1.4.1).

3.1.4.1.1.4 t:FindMessageTrackingSearchResultType Complex Type

The **FindMessageTrackingSearchResultType** complex type specifies information about the message that was found by using the **FindMessageTrackingReport** operation (section [3.1.4.1](#)).

```

<xs:complexType name="FindMessageTrackingSearchResultType">
  <xs:all>
    <xs:element name="Subject"
      type="xs:string"
    />
    <xs:element name="Sender"
      type="t:EmailAddressType"
    />
    <xs:element name="PurportedSender"
      type="t:EmailAddressType"
      minOccurs="0"
    />
    <xs:element name="Recipients"
      type="t:ArrayOfRecipientsType"
    />
    <xs:element name="SubmittedTime"
      type="xs:dateTime"
    />
    <xs:element name="MessageTrackingReportId"
      type="t:NonEmptyStringType"
    />
    <xs:element name="PreviousHopServer"
      type="t:NonEmptyStringType"
      minOccurs="0"
    />
    <xs:element name="FirstHopServer"
      type="t:NonEmptyStringType"
      minOccurs="0"
    />
    <xs:element name="Properties"
      type="t:ArrayOfTrackingPropertiesType"
      minOccurs="0"
    />
  </xs:all>
</xs:complexType>

```

Child Elements

Element	Type	Description
Subject	xs:string	Specifies the subject of the message that was found.
Sender	t:EmailAddressType ([MS-OXWSCDATA] section 2.2.3.25)	Specifies the e-mail address of the sender for the message that was found.
PurportedSender	t:EmailAddressType	Specifies the e-mail address of the purported person who is sending the message. <9>
Recipients	t:ArrayOfRecipientsType ([MS-OXWSCDATA] section 2.2.3.8)	Specifies the e-mail addresses of the recipients for the message that was found.
SubmittedTime	xs:dateTime	Specifies the time that the message entered the server.
MessageTrackingReportId	t:NonEmptyStringType	Specifies the message by its message-id, the organization where the message was found, the server on which the message was submitted, and an internal ID that uniquely identifies the message.
PreviousHopServer	t:NonEmptyStringType	Specifies the previous server name, when available, that submitted the message.
FirstHopServer	t:NonEmptyStringType	Specifies the name of the server in the forest that first accepted the message. <10>
Properties	t:ArrayOfTrackingPropertiesType (section 3.1.4.2.2.7)	Specifies a list of one or more tracking properties. <11>

3.1.4.1.2 Elements

The following **XML schema** element definitions are specific to this operation.

3.1.4.1.2.1 FindMessageTrackingReport Element

The **FindMessageTrackingReport** element specifies a request that includes the search criteria to identify a message to track.

```
<xs:element name="FindMessageTrackingReport"
  type="m:FindMessageTrackingReportRequestType"
  />
```

3.1.4.1.2.2 FindMessageTrackingReportResponse Element

The **FindMessageTrackingReportResponse** element specifies the response to a **FindMessageTrackingReport** operation (section [3.1.4.1](#)) request.


```

<xs:element name="FindMessageTrackingReportResponse"
  type="m:FindMessageTrackingReportResponseMessageType"
  />

```

3.1.4.1.3 Messages

The following **WSDL message** definitions are specific to this operation.

3.1.4.1.3.1 tns:FindMessageTrackingReportSoapIn Message

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

Part Name	Element/Type	Description
request	tns:FindMessageTrackingReport (section 3.1.4.1)	Specifies the request.
RequestVersion	t:RequestServerVersion ([MS-OXWSCDATA] section 2.2.4.7)	Specifies the schema version for the FindMessageTrackingReport operation (section 3.1.4.1) request.

3.1.4.1.3.2 tns:FindMessageTrackingReportSoapOut Message

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

Part Name	Element/Type	Description
FindMessageTrackingReportResult	tns:FindMessageTrackingReportResponse (section 3.1.4.1.2.2)	Specifies the response message.
ServerVersion	t:ServerVersionInfo ([MS-OXWSCDATA] section 2.2.4.8)	Specifies the schema version for the FindMessageTrackingReportSoapOut message.

3.1.4.2 GetMessageTrackingReport

The GetMessageTrackingReport operation gets tracking information about the specified messages.

```

<wsdl:operation name="GetMessageTrackingReport"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:input message="tns:GetMessageTrackingReportSoapIn" />
  <wsdl:output message="tns:GetMessageTrackingReportSoapOut" />
</wsdl:operation>

```

Request

Message Format	Description
tns:GetMessageTrackingReportSoapIn	Specifies the SOAP message that requests the report.

Response

Message Format	Description
tns:GetMessageTrackingReportSoapOut	Specifies the SOAP message that is returned by the server in response.

3.1.4.2.1 Simple Types

The following **XML schema** simple type definitions are specific to this operation.

3.1.4.2.1.1 t:MessageTrackingReportTemplateType Simple Type

The **MessageTrackingReportTemplateType** simple type specifies the type of report to display.

```
<xs:simpleType name="MessageTrackingReportTemplateType">
  <xs:restriction
    base="xs:string"
  >
    <xs:enumeration
      value="Summary"
    />
    <xs:enumeration
      value="RecipientPath"
    />
  </xs:restriction>
</xs:simpleType>
```

Enumeration

The following values are defined by the **MessageTrackingReportTemplateType** simple type:

Value	Description
Summary	Specifies that the report will display all the recipients of the message and the delivery status of the message to each recipient.
RecipientPath	Specifies that for a single recipient, the report will display a full history of the events that occurred.

3.1.4.2.1.2 t:MessageTrackingDeliveryStatusType Simple Type

The **MessageTrackingDeliveryStatusType** simple type specifies the status for message delivery. [<12>](#)

```
<xs:simpleType name="MessageTrackingDeliveryStatusType">
  <xs:restriction
    base="xs:string"
  >
    <xs:enumeration
      value="Unsuccessful"
    />
    <xs:enumeration
      value="Pending"
    />
  </xs:restriction>
</xs:simpleType>
```

```

    />
    <xs:enumeration
      value="Delivered"
    />
    <xs:enumeration
      value="Transferred"
    />
    <xs:enumeration
      value="Read"
    />
  </xs:restriction>
</xs:simpleType>

```

Enumeration

The following values are defined by the **MessageTrackingDeliveryStatusType** simple type:

Value	Description
Unsuccessful	Specifies that the message was not delivered.
Pending	Specifies that the message is waiting for approval from a moderator.
Delivered	Specifies that the message was delivered to the recipients.
Transferred	Specifies that the message was transferred to a server outside the search scope.
Read	Specifies that the message was delivered and read by the recipients.

3.1.4.2.1.3 t:MessageTrackingEventDescriptionType Simple Type

The **MessageTrackingEventDescriptionType** element specifies the status of the message for an event in the tracking report. [<13>](#)

```

<xs:simpleType name="MessageTrackingEventDescriptionType">
  <xs:restriction
    base="xs:string"
  >
    <xs:enumeration
      value="Submitted"
    />
    <xs:enumeration
      value="Resolved"
    />
    <xs:enumeration
      value="Expanded"
    />
    <xs:enumeration
      value="Delivered"
    />
    <xs:enumeration
      value="MovedToFolderByInboxRule"
    />
    <xs:enumeration
      value="RulesCc"
    />
  </xs:restriction>
</xs:simpleType>

```

```
<xs:enumeration
  value="FailedGeneral"
/>
<xs:enumeration
  value="FailedModeration"
/>
<xs:enumeration
  value="FailedTransportRules"
/>
<xs:enumeration
  value="SmtpSend"
/>
<xs:enumeration
  value="SmtpSendCrossSite"
/>
<xs:enumeration
  value="SmtpSendCrossForest"
/>
<xs:enumeration
  value="SmtpReceive"
/>
<xs:enumeration
  value="Forwarded"
/>
<xs:enumeration
  value="Pending"
/>
<xs:enumeration
  value="PendingModeration"
/>
<xs:enumeration
  value="ApprovedModeration"
/>
<xs:enumeration
  value="QueueRetry"
/>
<xs:enumeration
  value="QueueRetryNoRetryTime"
/>
<xs:enumeration
  value="MessageDefer"
/>
<xs:enumeration
  value="TransferredToForeignOrg"
/>
<xs:enumeration
  value="TransferredToPartnerOrg"
/>
<xs:enumeration
  value="TransferredToLegacyExchangeServer"
/>
<xs:enumeration
  value="DelayedAfterTransferToPartnerOrg"
/>
<xs:enumeration
  value="Read"
/>
<xs:enumeration
  value="NotRead"
```

```

    />
  </xs:restriction>
</xs:simpleType>

```

Enumeration

The following values are defined by the **MessageTrackingEventDescriptionType** simple type:

Value	Description
Submitted	Specifies that the message was submitted by the client.
Resolved	Specifies that the recipients for the message were successfully resolved.
Expanded	Specifies that a distribution list was expanded to deliver the message to the members.
Delivered	Specifies that the message was delivered to the recipient mailbox.
MovedToFolderByInboxRule	Specifies that the message was delivered to a different folder due to an Inbox rule.
RulesCc	Specifies that another recipient was copied on the message due to a transport rule.
FailedGeneral	Specifies that the message failed during delivery.
FailedModeration	Specifies that the delivery of the message failed because it was rejected by the moderator.
FailedTransportRules	Specifies that the delivery of the message failed due to a transport rule.
SmtplibSend	Specifies that the message was sent over SMTP to the Internet and cannot be tracked further.
SmtplibSendCrossSite	Specifies that the message was sent to a hub in a different site.
SmtplibSendCrossForest	Specifies that the message was sent to a hub in a different trusted forest.
SmtplibReceive	Specifies that the hub received a message over SMTP from a server on the Internet, or from a server that does not support tracking.
Forwarded	Specifies that the message was forwarded to another recipient.
Pending	Specifies that the message has not been delivered yet.
PendingModeration	Specifies that the message was sent to a moderator and is waiting for an approval message.
ApprovedModeration	Specifies that the message was approved by the moderator.
QueueRetry	Specifies that the message is in a transport queue and the retry time could not be retrieved.

Value	Description
QueueRetryNoRetryTime	Specifies that the message is in a transport queue and that the EventData XML element contains a string that represents the next time that the message will be retried.
MessageDefer	Specifies that the delivery of the message has been deferred for an unknown reason.
TransferredToForeignOrg	Specifies that the message was transferred to another organization or to a server in the organization that does not support tracking.
TransferredToPartnerOrg	Specifies that the message was transferred to a cross-premise organization.
TransferredToLegacyExchangeServer	Specifies that the message was transferred to an earlier version of the server, or to another server with a different schema.
DelayedAfterTransferToPartnerOrg	Specifies that the message delivery has been delayed during the transfer to a trusted organization.
Read	Specifies that the message is marked as read.
NotRead	Specifies that the message is marked as not read.

3.1.4.2.1.4 t:MessageTrackingScopeType Simple Type

The **MessageTrackingScopeType** simple type specifies where to search for tracking reports. [<14>](#)

```
<xs:simpleType name="MessageTrackingScopeType">
  <xs:restriction
    base="xs:string"
  >
    <xs:enumeration
      value="Organization"
    />
    <xs:enumeration
      value="Forest"
    />
    <xs:enumeration
      value="Site"
    />
  </xs:restriction>
</xs:simpleType>
```

Enumeration

The following values are defined by the **MessageTrackingScopeType** simple type:

Value	Description
Organization	Specifies that the search will cover all forests in the organization.
Forest	Specifies that the search will cover all servers in the forest.
Site	Specifies that the search will cover the local site of the server that executes it.

3.1.4.2.2 Complex Types

The following **XML schema** complex type definitions are specific to this operation.

3.1.4.2.2.1 m:GetMessageTrackingReportRequestType Complex Type

The **GetMessageTrackingReportRequestType** complex type specifies details for the type of report to retrieve. The **GetMessageTrackingReportRequestType** complex type extends the **BaseRequestType** complex type ([\[MS-OXWSCDATA\]](#) section 2.2.3.14).

```
<xs:complexType name="GetMessageTrackingReportRequestType">
  <xs:complexContent>
    <xs:extension
      base="m:BaseRequestType"
    >
      <xs:all>
        <xs:element name="Scope"
          type="t:NonEmptyStringType"
        />
        <xs:element name="ReportTemplate"
          type="t:MessageTrackingReportTemplateType"
        />
        <xs:element name="RecipientFilter"
          type="t:EmailAddressType"
          minOccurs="0"
        />
        <xs:element name="MessageTrackingReportId"
          type="t:NonEmptyStringType"
        />
        <xs:element name="ReturnQueueEvents"
          type="xs:boolean"
          minOccurs="0"
        />
        <xs:element name="DiagnosticsLevel"
          type="xs:string"
          minOccurs="0"
        />
        <xs:element name="Properties"
          type="t:ArrayOfTrackingPropertiesType"
          minOccurs="0"
        />
      </xs:all>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Child Elements

Element	Type	Description
Scope	t:NonEmptyStringType	Specifies where to perform the search. <15>
ReportTemplate	t:MessageTrackingReportTemplateType (section 3.1.4.2.1.1)	Specifies the type of report to get.

Element	Type	Description
RecipientFilter	t:EmailAddressType ([MS-OXWSCDATA] section 2.2.3.25)	Specifies a recipient address to use with the specified report.
MessageTrackingReportId	t:NonEmptyStringType	Specifies an identity string that was obtained from the FindMessageTrackingReport operation (section 3.1.4.1).
ReturnQueueEvents	xs:boolean	Specifies that the person who is running the task is in a privileged role.
DiagnosticsLevel	xs:string	Specifies timing and performance information that will be used to derive the report.
Properties	t:ArrayOfTrackingPropertiesType (section 3.1.4.2.2.7)	Specifies a list of one or more tracking properties. <16>

3.1.4.2.2.2 m:GetMessageTrackingReportResponseMessageType Complex Type

The **GetMessageTrackingReportResponseMessageType** complex type specifies the response for getting a report. The **GetMessageTrackingReportResponseMessageType** complex type extends the **ResponseMessageType** complex type ([\[MS-OXWSCDATA\]](#) section 2.2.3.52).

```

<xs:complexType name="GetMessageTrackingReportResponseMessageType">
  <xs:complexContent>
    <xs:extension
      base="m:ResponseMessageType"
    >
      <xs:sequence>
        <xs:element name="MessageTrackingReport"
          type="t:MessageTrackingReportType"
          minOccurs="0"
        />
        <xs:element name="Diagnostics"
          type="t:ArrayOfStringsType"
          minOccurs="0"
        />
        <xs:element name="Errors"
          type="t:ArrayOfArraysOfTrackingPropertiesType"
          minOccurs="0"
        />
        <xs:element name="Properties"
          type="t:ArrayOfTrackingPropertiesType"
          minOccurs="0"
        />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

```

Child Elements

Element	Type	Description
MessageTrackingReport	t:MessageTrackingReportType (section 3.1.4.2.2.4)	Specifies the tracking report that was requested. <17>
Diagnostics	t:ArrayOfStringsType ([MS-OXWSCDATA] section 2.2.3.10)	Specifies timing and performance information that will be used to derive the report.
Errors	t:ArrayOfArraysOfTrackingPropertiesType (section 3.1.4.2.2.8)	Specifies possible issues that will be used to derive the report. <18>
Properties	t:ArrayOfTrackingPropertiesType (section 3.1.4.2.2.7)	Specifies a list of one or more tracking properties. <19>

3.1.4.2.2.3 t:ArrayOfRecipientTrackingEventType Complex Type

The **ArrayOfRecipientTrackingEventType** complex type specifies an array of one or more events for a message.

```
<xs:complexType name="ArrayOfRecipientTrackingEventType">
  <xs:choice
    minOccurs="0"
    maxOccurs="unbounded"
  >
    <xs:element name="RecipientTrackingEvent"
      type="t:RecipientTrackingEventType"
    />
  </xs:choice>
</xs:complexType>
```

Child Elements

Element	Type	Description
RecipientTrackingEvent	t:RecipientTrackingEventType (section 3.1.4.2.2.5)	Specifies an event for a message.

3.1.4.2.2.4 t:MessageTrackingReportType Complex Type

The **MessageTrackingReportType** complex type specifies the information to be included in the report.

```
<xs:complexType name="MessageTrackingReportType">
  <xs:all>
    <xs:element name="Sender"
      type="t:EmailAddressType"
      minOccurs="0"
    />
    <xs:element name="PurportedSender"
      type="t:EmailAddressType"
    />
  </xs:all>
</xs:complexType>
```

```

        minOccurs="0"
    />
    <xs:element name="Subject"
        type="xs:string"
        minOccurs="0"
    />
    <xs:element name="SubmitTime"
        type="xs:dateTime"
        minOccurs="0"
    />
    <xs:element name="OriginalRecipients"
        type="t:ArrayOfEmailAddressesType"
        minOccurs="0"
    />
    <xs:element name="RecipientTrackingEvents"
        type="t:ArrayOfRecipientTrackingEventType"
    />
    <xs:element name="Properties"
        type="t:ArrayOfTrackingPropertiesType"
        minOccurs="0"
    />
</xs:all>
</xs:complexType>

```

Child Elements

Element	Type	Description
Sender	t:EmailAddressType ([MS-OXWSCDATA] section 2.2.3.25)	Specifies the e-mail address for the sender of the message.
PurportedSender	t:EmailAddressType	Specifies the e-mail address of the purported person who is sending the message. <20>
Subject	xs:string	Specifies the subject of the message.
SubmitTime	xs:dateTime	Specifies the time at which the message was sent to the server.
OriginalRecipients	t:ArrayOfEmailAddressesType ([MS-OXWSCDATA] section 2.2.3.5)	Specifies the e-mail addresses of the message recipients.
RecipientTrackingEvents	t:ArrayOfRecipientTrackingEventType (section 3.1.4.2.2.3)	Specifies the type of events to report.
Properties	t:ArrayOfTrackingPropertiesType (section 3.1.4.2.2.7)	Specifies a list of one or more tracking properties. <21>

3.1.4.2.2.5 t:RecipientTrackingEventType Complex Type

The **RecipientTrackingEventType** complex type specifies details for a specific event in the tracking report.

```
<xs:complexType name="RecipientTrackingEventType">
  <xs:all>
    <xs:element name="Date"
      type="xs:dateTime"
    />
    <xs:element name="Recipient"
      type="t:EmailAddressType"
    />
    <xs:element name="DeliveryStatus"
      type="xs:string"
    />
    <xs:element name="EventDescription"
      type="xs:string"
    />
    <xs:element name="EventData"
      type="t:ArrayOfStringsType"
      minOccurs="0"
    />
    <xs:element name="Server"
      type="t:NonEmptyStringType"
    />
    <xs:element name="InternalId"
      type="xs:nonNegativeInteger"
    />
    <xs:element name="BccRecipient"
      type="xs:boolean"
      minOccurs="0"
    />
    <xs:element name="HiddenRecipient"
      type="xs:boolean"
      minOccurs="0"
    />
    <xs:element name="UniquePathId"
      type="t:NonEmptyStringType"
      minOccurs="0"
    />
    <xs:element name="RootAddress"
      type="t:NonEmptyStringType"
      minOccurs="0"
    />
    <xs:element name="Properties"
      type="t:ArrayOfTrackingPropertiesType"
      minOccurs="0"
    />
  </xs:all>
</xs:complexType>
```

Child Elements

Element	Type	Description
Date	xs:dateTime	Specifies the time at which the event occurred.
Recipient	t:EmailAddressType ([MS-OXWSCDATA] section 2.2.3.25)	Specifies the recipient for whom the event occurred.
DeliveryStatus	xs:string	Specifies the status for the message. <22>
EventDescription	xs:string	Specifies the processing step for the event. <23>
EventData	t:ArrayOfStringsType ([MS-OXWSCDATA] section 2.2.3.10)	Specifies data that is associated with the processing step for the event.
Server	t:NonEmptyStringType	Specifies the physical server where the event occurred.
InternalId	xs:nonNegativeInteger	Specifies an integer value for the event.
BccRecipient	xs:boolean	Specifies that the recipient was addressed as a blind carbon copy (Bcc) recipient .
HiddenRecipient	xs:boolean	Specifies that the recipient was added by an organization policy that should be hidden from unprivileged users.
UniquePathId	t:NonEmptyStringType	Specifies a string that is different for each path.
RootAddress	t:NonEmptyStringType	Specifies the first address that starts the event for a RecipientTrackingEventType event. <24>
Properties	t:ArrayOfTrackingPropertiesType (section 3.1.4.2.2.7)	Specifies a list of one or more tracking properties. <25>

3.1.4.2.2.6 t:TrackingPropertyType Complex Type

The **TrackingPropertyType** complex type specifies a name and value pair of strings that is used to create properties for message tracking reports. <26>

```
<xs:complexType>
  <xs:sequence>
    <xs:element name="Name"
      type="xs:string"
    />
    <xs:element name="Value"
      type="xs:string"
      minOccurs="0"
    />
  </xs:sequence>
</xs:complexType>
```

Child Elements

Element	Type	Description
Name	xs:string	Defines a name for the message tracking report property.
Value	xs:string	Defines a value for the message tracking report property.

3.1.4.2.2.7 t:ArrayOfTrackingPropertiesType Complex Type

The **ArrayOfTrackingPropertiesType** complex type specifies a list of one or more tracking properties. [<27>](#)

```
<xs:complexType>
  <xs:choice
    maxOccurs="unbounded"
    minOccurs="0"
  >
    <xs:element name="TrackingPropertyType"
      type="t:TrackingPropertyType"
    />
  </xs:choice>
</xs:complexType>
```

Child Elements

Element	Type	Description
TrackingPropertyType	t:TrackingPropertyType (section 3.1.4.2.2.6)	Specifies a name and value pair of strings that is used to create properties for message tracking reports.

3.1.4.2.2.8 t:ArrayOfArraysOfTrackingPropertiesType Complex Type

The **ArrayOfArraysOfTrackingPropertiesType** complex type specifies a property bag to store errors that are returned through the Web service. [<28>](#)

```
<xs:complexType>
  <xs:choice
    maxOccurs="unbounded"
    minOccurs="0"
  >
    <xs:element name="ArrayOfTrackingPropertiesType"
      type="t:ArrayOfTrackingPropertiesType"
    />
  </xs:choice>
</xs:complexType>
```

Child Elements

Element	Type	Description
ArrayOfTrackingPropertiesType	t:ArrayOfTrackingPropertiesType (section 3.1.4.2.2.7)	Specifies a list of one or more tracking properties.

3.1.4.2.3 Elements

The following **XML schema** element definitions are specific to this operation.

3.1.4.2.3.1 GetMessageTrackingReport Element

The **GetMessageTrackingReport** element specifies the request to get a tracking report.

```
<xs:element name="GetMessageTrackingReport"
  type="m:GetMessageTrackingReportRequestType"
/>
```

3.1.4.2.3.2 GetMessageTrackingReportResponse Element

The **GetMessageTrackingReportResponse** element specifies the response for getting a report.

```
<xs:element name="GetMessageTrackingReportResponse"
  type="m:GetMessageTrackingReportResponseMessageType"
/>
```

3.1.4.2.4 Messages

The following **XML schema** message definitions are specific to this operation.

3.1.4.2.4.1 tns:GetMessageTrackingReportSoapIn Message

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

Part Name	Element/Type	Description
request	tns:GetMessageTrackingReport (section 3.1.4.2)	Specifies the request.
RequestVersion	t:RequestServerVersion ([MS-OXWSCDATA] section 2.2.4.8)	Specifies the schema version for the GetMessageTrackingReport operation request.

3.1.4.2.4.2 tns:GetMessageTrackingReportSoapOut Message

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

Part Name	Element/Type	Description
GetMessageTrackingReportResult	tns:GetMessageTrackingReportResponse (section 3.1.4.2.3.2)	Specifies the response message.
ServerVersion	t:ServerVersionInfo ([MS-OXWSCDATA] section 2.2.4.8)	Specifies the schema version for the GetMessageTrackingReportSoapOut message.

Part Name	Element/Type	Description
		pOut message.

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

3.2 Client 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 that are returned by the transport are passed directly back to the higher-layer protocol or application.

3.2.1 Abstract Data Model

None.

3.2.2 Timers

None.

3.2.3 Initialization

None.

3.2.4 Message Processing Events and Sequencing

None.

3.2.5 Timer Events

None.

3.2.6 Other Local Events

None.

4 Protocol Examples

None.

5 Security

5.1 Security Considerations for Implementers

The Message Tracking Web Service protocol does not use any additional security mechanisms.

5.2 Index of Security Parameters

None.

6 Appendix A: Full WSDL

The XML files that are listed in the following table are required in order to implement the functionality that is specified in this document. The contents of each file are included in this section.

File name	Description	Section
MS-OXWSMTRK.wsdl	Contains the WSDL for the implementation of this protocol.	WSDL (section 6.1)
MS-OXWSMTRK-types.xsd	Contains the XML schema type definitions that are used in this protocol.	Types Schema (section 6.2)
MS-OXWSMTRK-messages.xsd	Contains the XML schema message definitions that are used in this protocol.	Messages Schema (section 6.3)

These files have to be placed in a common folder in order for the WSDL to validate and operate. Also, any schema files that are included in or imported into the MS-OXWSMTRK-types.xsd or MS-OXWSMTRK-messages.xsd schemas have to be placed in the common folder along with the files.

6.1 WSDL

This section contains the contents of the MS-OXWSMTRK.wsdl file.

```
<?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:s="http://www.w3.org/2001/XMLSchema" 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:m="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:tns="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"
xmlns="http://schemas.microsoft.com/exchange/services/2006/messages">
      <xs:include schemaLocation="MS-OXWSMTRK-messages.xsd" />
      <!-- Add global elements and types from messages.xsd -->
    </xs:schema>
    <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="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
      <xs:import namespace="http://www.w3.org/XML/1998/namespace"/>
      <!-- Add global elements and types from types.xsd -->
    </xs:schema>
  </wsdl:types>
  <wsdl:portType name="ExchangeServicePortType">
    <wsdl:operation name="FindMessageTrackingReport">
      <wsdl:input message="tns:FindMessageTrackingReportSoapIn"/>
      <wsdl:output message="tns:FindMessageTrackingReportSoapOut"/>
    </wsdl:operation>
    <wsdl:operation name="GetMessageTrackingReport">
      <wsdl:input message="tns:GetMessageTrackingReportSoapIn"/>
    </wsdl:operation>
  </wsdl:portType>
</wsdl:definitions>
```

```

        <wsdl:output message="tns:GetMessageTrackingReportSoapOut"/>
    </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="FindMessageTrackingReport">
        <soap:operation
soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/FindMessageTrackingRe
port" />
        <wsdl:input>
            <soap:body parts="request" use="literal"/>
            <soap:header message="tns:FindMessageTrackingReportSoapIn"
part="RequestVersion" use="literal"/>
        </wsdl:input>
        <wsdl:output>
            <soap:body parts="FindMessageTrackingReportResult" use="literal" />
            <soap:header message="tns:FindMessageTrackingReportSoapOut"
part="ServerVersion" use="literal"/>
        </wsdl:output>
    </wsdl:operation>

    <wsdl:operation name="GetMessageTrackingReport">
        <soap:operation
soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/GetMessageTrackingRe
port" />
        <wsdl:input>
            <soap:body parts="request" use="literal"/>
            <soap:header message="tns:GetMessageTrackingReportSoapIn"
part="RequestVersion" use="literal"/>
        </wsdl:input>
        <wsdl:output>
            <soap:body parts="GetMessageTrackingReportResult" use="literal" />
            <soap:header message="tns:GetMessageTrackingReportSoapOut"
part="ServerVersion" use="literal"/>
        </wsdl:output>
    </wsdl:operation>
</wsdl:binding>
<wsdl:message name="FindMessageTrackingReportSoapIn">
    <wsdl:part name="request" element="tns:FindMessageTrackingReport"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wsdl:message>
<wsdl:message name="FindMessageTrackingReportSoapOut">
    <wsdl:part name="FindMessageTrackingReportResult"
element="tns:FindMessageTrackingReportResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>

<wsdl:message name="GetMessageTrackingReportSoapIn">
    <wsdl:part name="request" element="tns:GetMessageTrackingReport"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wsdl:message>
<wsdl:message name="GetMessageTrackingReportSoapOut">
    <wsdl:part name="GetMessageTrackingReportResult"
element="tns:GetMessageTrackingReportResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>

```

</wsdl:definitions>

6.2 Types Schema

This section contains the contents of the MS-OXWSMTRK-types.xsd file and information about additional files that this schema file requires to operate correctly.

MS-OXWSMTRK-types.xsd includes the file listed in the following table. To operate correctly, this file has to be present in the folder that contains the WSDL, types, and messages schema files for this protocol.

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

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/types"
elementFormDefault="qualified" version="Exchange2010_SP1" id="types">
  <xs:import namespace="http://www.w3.org/XML/1998/namespace"/>
  <xs:include schemaLocation="MS-OXWSCDATA-types.xsd"/>
  <xs:complexType name="ArrayOfFindMessageTrackingSearchResultType">
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element name="MessageTrackingSearchResult"
type="t:FindMessageTrackingSearchResultType"/>
    </xs:choice>
  </xs:complexType>
  <xs:complexType name="FindMessageTrackingSearchResultType">
    <xs:all>
      <xs:element name="Subject" type="xs:string"/>
      <xs:element name="Sender" type="t:EmailAddressType"/>
      <xs:element name="PurportedSender" type="t:EmailAddressType" minOccurs="0"/>
      <xs:element name="Recipients" type="t:ArrayOfRecipientsType"/>
      <xs:element name="SubmittedTime" type="xs:dateTime"/>
      <xs:element name="MessageTrackingReportId" type="t:NonEmptyStringType"/>
      <xs:element name="PreviousHopServer" type="t:NonEmptyStringType" minOccurs="0"/>
      <xs:element name="FirstHopServer" type="t:NonEmptyStringType" minOccurs="0"/>
      <xs:element name="Properties" type="t:ArrayOfTrackingPropertiesType" minOccurs="0"/>
    </xs:all>
  </xs:complexType>
  <xs:simpleType name="MessageTrackingReportTemplateType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="Summary"/>
      <xs:enumeration value="RecipientPath"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="RecipientTrackingEventType">
    <xs:all>
      <xs:element name="Date" type="xs:dateTime"/>
      <xs:element name="Recipient" type="t:EmailAddressType"/>
      <xs:element name="DeliveryStatus" type="xs:string"/>
      <xs:element name="EventDescription" type="xs:string"/>
      <xs:element name="EventData" type="t:ArrayOfStringsType" minOccurs="0"/>
      <xs:element name="Server" type="t:NonEmptyStringType"/>
      <xs:element name="InternalId" type="xs:nonNegativeInteger"/>
      <xs:element name="BccRecipient" type="xs:boolean" minOccurs="0"/>
    </xs:all>
  </xs:complexType>

```

```

    <xs:element name="HiddenRecipient" type="xs:boolean" minOccurs="0"/>
    <xs:element name="UniquePathId" type="t:NonEmptyStringType" minOccurs="0"/>
    <xs:element name="RootAddress" type="t:NonEmptyStringType" minOccurs="0"/>
    <xs:element name="Properties" type="t:ArrayOfTrackingPropertiesType" minOccurs="0"/>
  </xs:all>
</xs:complexType>
<xs:complexType name="MessageTrackingReportType">
  <xs:all>
    <xs:element name="Sender" type="t:EmailAddressType" minOccurs="0"/>
    <xs:element name="PurportedSender" type="t:EmailAddressType" minOccurs="0"/>
    <xs:element name="Subject" type="xs:string" minOccurs="0"/>
    <xs:element name="SubmitTime" type="xs:dateTime" minOccurs="0"/>
    <xs:element name="OriginalRecipients" type="t:ArrayOfEmailAddressesType"
minOccurs="0"/>
    <xs:element name="RecipientTrackingEvents"
type="t:ArrayOfRecipientTrackingEventType"/>
    <xs:element name="Properties" type="t:ArrayOfTrackingPropertiesType" minOccurs="0"/>
  </xs:all>
</xs:complexType>
<xs:complexType name="TrackingPropertyType">
  <xs:sequence>
    <xs:element name="Name" type="xs:string"/>
    <xs:element name="Value" type="xs:string" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ArrayOfTrackingPropertiesType">
  <xs:choice minOccurs="0" maxOccurs="unbounded">
    <xs:element name="TrackingPropertyType" type="t:TrackingPropertyType"/>
  </xs:choice>
</xs:complexType>
<xs:complexType name="ArrayOfArraysOfTrackingPropertiesType">
  <xs:choice minOccurs="0" maxOccurs="unbounded">
    <xs:element name="ArrayOfTrackingPropertiesType"
type="t:ArrayOfTrackingPropertiesType"/>
  </xs:choice>
</xs:complexType>
<xs:complexType name="ArrayOfRecipientTrackingEventType">
  <xs:choice minOccurs="0" maxOccurs="unbounded">
    <xs:element name="RecipientTrackingEvent" type="t:RecipientTrackingEventType"/>
  </xs:choice>
</xs:complexType>
</xs:schema>

```

6.3 Messages Schema

This section contains the contents of the MS-OXWSMTRK-messages.xsd file and information about additional files that this schema file requires to operate correctly.

MS-OXWSMTRK-messages.xsd includes the file listed in the following table. To operate correctly, this file has to be present in the folder that contains the WSDL, types schema, and messages schema files for this protocol.

File name	Defining specification
MS-OXWSCDATA-messages.xsd	[MS-OXWSCDATA] section 6.2

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

```

<xs:schema xmlns:m="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:tns="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"
elementFormDefault="qualified" version="Exchange2010_SP1" id="messages">
  <!-- CHANGE THE SCHEMA LOCATION TO REFLECT THE TYPES XSD ASSOCIATED WITH THIS DOCUMENT
  <xs:import namespace="http://schemas.microsoft.com/exchange/services/2006/types"
schemaLocation="types.xsd"/>
  <xs:include/>
-->
  <xs:include schemaLocation="MS-OXWSCDATA-messages.xsd"/>
  <xs:import namespace="http://schemas.microsoft.com/exchange/services/2006/types"
schemaLocation="MS-OXWSMTRK-types.xsd"/>
  <xs:complexType name="FindMessageTrackingReportRequestType">
    <xs:complexContent>
      <xs:extension base="m:BaseRequestType">
        <xs:all>
          <xs:element name="Scope" type="t:NonEmptyStringType"/>
          <xs:element name="Domain" type="t:NonEmptyStringType"/>
          <xs:element name="Sender" type="t:EmailAddressType" minOccurs="0"/>
          <xs:element name="PurportedSender" type="t:EmailAddressType" minOccurs="0"/>
          <xs:element name="Recipient" type="t:EmailAddressType" minOccurs="0"/>
          <xs:element name="Subject" type="xs:string" minOccurs="0"/>
          <xs:element name="StartDateTime" type="xs:dateTime" minOccurs="0"/>
          <xs:element name="EndDateTime" type="xs:dateTime" minOccurs="0"/>
          <xs:element name="MessageId" type="t:NonEmptyStringType" minOccurs="0"/>
          <xs:element name="FederatedDeliveryMailbox" type="t:EmailAddressType"
minOccurs="0"/>
          <xs:element name="DiagnosticsLevel" type="xs:string" minOccurs="0"/>
          <xs:element name="ServerHint" type="xs:string" minOccurs="0"/>
          <xs:element name="Properties" type="t:ArrayOfTrackingPropertiesType"
minOccurs="0"/>
        </xs:all>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:element name="FindMessageTrackingReport"
type="m:FindMessageTrackingReportRequestType"/>
  <xs:complexType name="FindMessageTrackingReportResponseMessageType">
    <xs:complexContent>
      <xs:extension base="m:ResponseMessageType">
        <xs:sequence>
          <xs:element name="Diagnostics" type="t:ArrayOfStringsType" minOccurs="0"/>
          <xs:element name="MessageTrackingSearchResults"
type="t:ArrayOfFindMessageTrackingSearchResultType"/>
          <xs:element name="ExecutedSearchScope" type="xs:string" minOccurs="0"/>
          <xs:element name="Errors" type="t:ArrayOfArraysOfTrackingPropertiesType"
minOccurs="0"/>
          <xs:element name="Properties" type="t:ArrayOfTrackingPropertiesType"
minOccurs="0"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:element name="FindMessageTrackingReportResponse"
type="m:FindMessageTrackingReportResponseMessageType"/>
  <xs:complexType name="GetMessageTrackingReportRequestType">
    <xs:complexContent>
      <xs:extension base="m:BaseRequestType">

```

```

        <xs:all>
            <xs:element name="Scope" type="t:NonEmptyStringType"/>
            <xs:element name="ReportTemplate" type="t:MessageTrackingReportTemplateType"/>
            <xs:element name="RecipientFilter" type="t:EmailAddressType" minOccurs="0"/>
            <xs:element name="MessageTrackingReportId" type="t:NonEmptyStringType"/>
            <xs:element name="ReturnQueueEvents" type="xs:boolean" minOccurs="0"/>
            <xs:element name="DiagnosticsLevel" type="xs:string" minOccurs="0"/>
            <xs:element name="Properties" type="t:ArrayOfTrackingPropertiesType"
minOccurs="0"/>
        </xs:all>
    </xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:element name="GetMessageTrackingReport" type="m:GetMessageTrackingReportRequestType"/>
<xs:complexType name="GetMessageTrackingReportResponseMessageType">
    <xs:complexContent>
        <xs:extension base="m:ResponseMessageType">
            <xs:sequence>
                <xs:element name="MessageTrackingReport" type="t:MessageTrackingReportType"/>
                <xs:element name="Diagnostics" type="t:ArrayOfStringsType" minOccurs="0"/>
                <xs:element name="Errors" type="t:ArrayOfArrayOfTrackingPropertiesType"
minOccurs="0"/>
                <xs:element name="Properties" type="t:ArrayOfTrackingPropertiesType"
minOccurs="0"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:element name="GetMessageTrackingReportResponse"
type="m:GetMessageTrackingReportResponseMessageType"/>
</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
- 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.

[<1> Section 3.1.4.1.1.1](#): In Exchange 2010, the type for the **Scope** element is **MessageTrackingScopeType**.

[<2> Section 3.1.4.1.1.1](#): Exchange 2010 does not include the **PurportedSender** element. .

[<3> Section 3.1.4.1.1.1](#): Exchange 2010 does not include the **ServerHint** element.

[<4> Section 3.1.4.1.1.1](#): Exchange 2010 does not include the **Properties** element.

[<5> Section 3.1.4.1.1.2](#): Exchange 2010 does not include a value for **minOccurs** attribute.

[<6> Section 3.1.4.1.1.2](#): Exchange 2010 does not include the **ExecuteSearchScope** element.

[<7> Section 3.1.4.1.1.2](#): Exchange 2010 does not include the **Errors** element.

[<8> Section 3.1.4.1.1.2](#): Exchange 2010 does not include the **Properties** element .

[<9> Section 3.1.4.1.1.4](#): Exchange 2010 does not include the **PurportedSender** element.

[<10> Section 3.1.4.1.1.4](#): Exchange 2010 does not include the **FirstHopServer** element. .

[<11> Section 3.1.4.1.1.4](#): Exchange 2010 does not include the **Properties** element.

[<12> Section 3.1.4.2.1.2](#): Exchange 2010 SP1 does not include the **MessageTrackingDeliveryStatusType** simple type.

[<13> Section 3.1.4.2.1.3](#): Exchange 2010 SP1 does not include the **MessageTrackingEventDescriptionType** simple type.

[<14> Section 3.1.4.2.1.4](#): Exchange 2010 SP1 does not include the **MessageTrackingScopeType** simple type.

[<15> Section 3.1.4.2.2.1](#): In Exchange 2010, the **Scope** element type is **MessageTrackingScopeType**.

[<16> Section 3.1.4.2.2.1](#): Exchange 2010 does not include the **Properties** element.

<17> [Section 3.1.4.2.2.2](#): In Exchange 2010, the **MessageTrackingReport** does not have a value for **minOccurs** attribute.

<18> [Section 3.1.4.2.2.2](#): Exchange 2010 does not include the **Errors** element .

<19> [Section 3.1.4.2.2.2](#): Exchange 2010 does not include the **Properties** element. .

<20> [Section 3.1.4.2.2.4](#): Exchange 2010 does not include the **PurportedSender** element.

<21> [Section 3.1.4.2.2.4](#): Exchange 2010 does not include the **Properties** element.

<22> [Section 3.1.4.2.2.5](#): In Exchange 2010, the **DeliveryStatus** element is of type **MessageTrackingDeliveryStatusType**.

<23> [Section 3.1.4.2.2.5](#): In Exchange 2010, the **EventDescription** element is of type **MessageTrackingEventDescriptionType**.

<24> [Section 3.1.4.2.2.5](#): Exchange 2010 does not include the **RootAddress** element.

<25> [Section 3.1.4.2.2.5](#): Exchange 2010 does not include the **Properties** element.

<26> [Section 3.1.4.2.2.6](#): Exchange 2010 does not include the **TrackingPropertyType** complex type.

<27> [Section 3.1.4.2.2.7](#): Exchange 2010 does not include the **ArrayOfTrackingPropertiesType** complex type.

<28> [Section 3.1.4.2.2.8](#): Exchange 2010 does not include the **ArrayOfArraysOfTrackingPropertiesType** complex type.

8 Change Tracking

This section identifies changes that were made to the [MS-OXWSMTRK] 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
6.3 Messages Schema	Updated the name of the xsd file in the description.	N	Content updated.

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