[MS-MAR]:

Microsoft Office SharePoint Server (MOSS) Analytics Reporting Protocol

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Revision Summary

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Table of Contents

1 Introduction

This document specifies the Microsoft Office SharePoint Server (MOSS) Analytics Reporting Protocol. This protocol enables a protocol client to log specific events related to web-traffic, search and inventory about various entities in the **farm**, and then retrieve analytical reports about web-traffic, searches and inventory of such entities in the farm. As defined in the glossary that follows, a farm is a group of computers that work together as a single system to help ensure that applications and resources are available.

Sections 1.5, 1.8, 1.9, 2, and 3 of this specification are normative. All other sections and examples in this specification are informative.

1.1 Glossary

This document uses the following terms:

best bet: A URL that a site collection administrator assigns to a keyword as being relevant for that keyword. See also visual best bet.

content type: A named and uniquely identifiable collection of settings and fields that store metadata for individual items in a SharePoint list. One or more content types can be associated with a list, which restricts the contents to items of those types.

farm: A group of computers that work together as a single system to help ensure that applications and resources are available. Also referred to as server farm.

globally unique identifier (GUID): A term used interchangeably with universally unique identifier (UUID) in Microsoft protocol technical documents (TDs). Interchanging the usage of these terms does not imply or require a specific algorithm or mechanism to generate the value. Specifically, the use of this term does not imply or require that the algorithms described in [RFC4122] or [C706] must be used for generating the **GUID**. See also universally unique identifier (UUID).

list: A container within a SharePoint site that stores list items. A list has a customizable schema that is composed of one or more fields.

list template: An XML-based definition of list settings, including fields and views, and optionally list items. List templates are stored in .stp files in the content database.

query text: The textual, string portion of a query.

regional settings: See locale settings.

search scope: A list of attributes that define a collection of items.

service application: A middle-tier application that runs without any user interface components and supports other applications by performing tasks such as retrieving or modifying data in a database.

site: (1) A group of related webpages that is hosted by a server on the World Wide Web or an intranet. Each website has its own entry points, metadata, administration settings, and workflows. Also referred to as web site.

(2) A group of related pages and data within a SharePoint site collection. The structure and content of a site is based on a site definition. Also referred to as SharePoint site and web site.

site collection: A set of websites that are in the same content database, have the same owner, and share administration settings. A site collection can be identified by a **GUID** or the **URL** of

the top-level site for the site collection. Each site collection contains a top-level site, can contain one or more subsites, and can have a shared navigational structure.

site template: An XML-based definition of site settings, including formatting, lists, views, and elements such as text, graphics, page layout, and styles. Site templates are stored in .stp files in the content database.

SOAP action: The HTTP request header field used to indicate the intent of the SOAP request, using a URI value. See [SOAP1.1] section 6.1.1 for more information.

SOAP body: A container for the payload data being delivered by a SOAP message to its recipient. See [SOAP1.2-1/2007] section 5.3 for more information.

SOAP fault: A container for error and status information within a SOAP message. See [SOAP1.2-1/2007] section 5.4 for more information.

tenant: A protocol client or protocol server that accesses a partition in a shared service database.

time zone: A geographical area that observes the same local time. The local time has a positive, zero, or negative offset from Coordinated Universal Time (UTC). The offset can be different during standard time and daylight saving time.

Uniform Resource Locator (URL): A string of characters in a standardized format that identifies a document or resource on the World Wide Web. The format is as specified in [RFC1738].

web application: A container in a configuration database that stores administrative settings and entry-point **URLs** for **site collections**.

Web Services Description Language (WSDL): An XML format for describing network services as a set of endpoints that operate on messages that contain either document-oriented or procedure-oriented information. The operations and messages are described abstractly and are bound to a concrete network protocol and message format in order to define an endpoint. Related concrete endpoints are combined into abstract endpoints, which describe a network service. WSDL is extensible, which allows the description of endpoints and their messages regardless of the message formats or network protocols that are used.

WSDL operation: A single action or function of a web service. The execution of a WSDL operation typically requires the exchange of messages between the service requestor and the service provider.

XML namespace: A collection of names that is used to identify elements, types, and attributes in XML documents identified in a URI reference [RFC3986]. A combination of XML namespace and local name allows XML documents to use elements, types, and attributes that have the same names but come from different sources. For more information, see [XMLNS-2ED].

XML schema: A description of a type of XML document that is typically expressed in terms of constraints on the structure and content of documents of that type, in addition to the basic syntax constraints that are imposed by XML itself. An XML schema provides a view of a document type at a relatively high level of abstraction.

MAY, SHOULD, MUST, SHOULD NOT, MUST NOT: These terms (in all caps) are used as defined in [RFC2119]. All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

1.2   References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the Errata.

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.

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

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

[SOAP1.1] Box, D., Ehnebuske, D., Kakivaya, G., et al., "Simple Object Access Protocol (SOAP) 1.1", W3C Note, May 2000, http://www.w3.org/TR/2000/NOTE-SOAP-20000508/

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

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

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

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

[XMLSCHEMA1] Thompson, H., Beech, D., Maloney, M., and Mendelsohn, N., Eds., "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

None.

1.3 Protocol Overview (Synopsis)

This protocol enables a protocol client to retrieve three categories of analytical data about how the farm is being used or utilized. These three categories are:

1. Traffic data – This data is about web-traffic. Examples are top visited web-pages and trends about web-page visits, top visitors and trends about number of unique visitors.

2. Search reports – This data is about search queries and search results. Examples are top queries, failed queries and number of queries.

3. Inventory reports – This data is about utilization of various entities such as storage, libraries and templates.

Such analytical data can be retrieved for various entities at various levels in the **farm**, such as **site (2)**, **site collection** and **Web application**.

To retrieve such analytical data, a client logs specific events about an entity to the system using this protocol. For example, a client logs all the pages visited on a particular site to the system. The

protocol enables a client to retrieve a report about the traffic volume per day for that particular site, the top pages visited for that site and the top visitors for that particular site. These are some examples of the kind of reports available via the protocol. If the client logs hierarchical relationships between the various entities such as a particular site collection is a parent of a particular site (2), then the protocol enables roll-up reports for the parent as well.

1.4   Relationship to Other Protocols

This protocol uses the SOAP message protocol for formatting request and response messages, as described in [SOAP1.1], [SOAP1.2/1] and [SOAP1.2/2]. It transmits those messages by using HTTP, as described in [RFC2616], or Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS), as described in [RFC2818].

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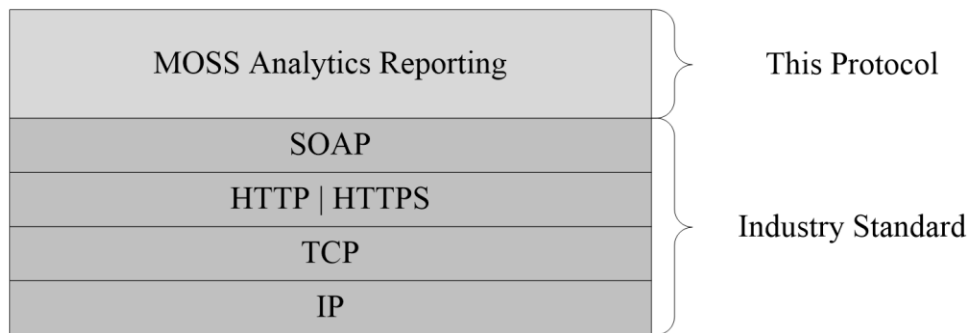
Figure 1: This protocol in relation to other protocols

1.5   Prerequisites/Preconditions

This protocol operates against a protocol server that exposes one or more endpoint URIs that are known by protocol clients. The endpoint URI of the protocol server and the transport that is used by the protocol server are either known by the protocol client or obtained by using the discovery mechanism that is described in [MS-SPTWS].

The protocol client obtains the requisite ApplicationClassId and ApplicationVersion values and the endpoint URI of the protocol server that provides the discovery mechanism, as described in [MS-SPTWS], by means that are independent of either protocol.

This protocol requires the protocol client to have permission to call the methods on the protocol server.

The protocol client implements the token-based security mechanisms that are required by the protocol server and related security protocols, as described in [MS-SPSTWS].

1.6   Applicability Statement

This protocol is designed to provide analytical data about the usage and inventory of various entities in a **farm**.

1.7   Versioning and Capability Negotiation

This protocol uses multiple transports with SOAP as specified in section 2.1.

1.8   Vendor-Extensible Fields

None.

1.9   Standards Assignments

None.

2 Messages

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

2.1 Transport

Protocol servers MUST support SOAP over HTTP. Protocol servers SHOULD additionally support SOAP over HTTPS for securing communication with protocol clients.

Protocol messages MUST be formatted as specified either in [SOAP1.1], Section 4 or in [SOAP1.2/1], Section 5. Protocol server faults MUST be returned either using HTTP Status Codes as specified in [RFC2616], Section 10 or using **SOAP faults** as specified either in [SOAP1.1], Section 4.4 or in [SOAP1.2/1], section 5.4.<1>

2.2 Common Message Syntax

This section contains common structures used by this protocol. The syntax of the structures uses XML Schema as defined in [XMLSCHEMA1] and [XMLSCHEMA2], and **WSDL** as defined in [WSDL].

2.2.1 Namespaces

This protocol specifies and references **XML namespaces** using the mechanisms specified in [XMLNS]. Although this document associates an XML namespace prefix for each XML namespace that is used, the choice of any particular XML namespace prefix is implementation-specific.

Prefix	Namespace URI	Reference
tns3	http://schemas.microsoft.com/2003/10/Serialization/Arrays	
xsd	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1] [XMLSCHEMA2]
tns2	http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever	
ser	http://schemas.microsoft.com/2003/10/Serialization/	
wsa10	http://www.w3.org/2005/08/addressing	
tns	http://tempuri.org/	
wsap	http://schemas.xmlsoap.org/ws/2004/08/addressing/policy	
xs	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1] [XMLSCHEMA2]
msc	http://schemas.microsoft.com/ws/2005/12/wsdl/contract	
wsam	http://www.w3.org/2007/05/addressing/metadata	

Prefix	Namespace URI	Reference
tns5	http://schemas.datacontract.org/2004/07/System.Data	
soap	http://schemas.xmlsoap.org/wsdl/soap/	[SOAP1.1]
soap12	http://schemas.xmlsoap.org/wsdl/soap12/	[SOAP1.2/1] [SOAP1.2/2]
soapenc	http://schemas.xmlsoap.org/soap/encoding/	
wsa	http://schemas.xmlsoap.org/ws/2004/08/addressing	
wsaw	http://www.w3.org/2006/05/addressing/wsdl	
tns1	http://schemas.microsoft.com/2003/10/Serialization/	
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]
tns7	http://tempuri.org/Imports	
wsx	http://schemas.xmlsoap.org/ws/2004/09/mex	
tns6	http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Logging	
wsu	http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd	
tns4	http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Administration	
wsp	http://www.w3.org/ns/ws-policy	

2.2.2 Messages

None.

2.2.3 Elements

None.

2.2.4 Complex Types

The following XML Schema complex type definitions are specific to the operation of retrieving data from the backend.

2.2.4.1 AggregationContext (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type defines the properties of the user requesting the data and the entity for which data is being requested.

```
<xs:complexType name="AggregationContext">
  <xs:sequence>
    <xs:element minOccurs="0" name="_isUserFarmAdmin" type="xs:boolean"/>
    <xs:element minOccurs="0" name="_isUserServiceApplicationAdmin" type="xs:boolean"/>
```

```
        <xs:element minOccurs="0" name="_isUserSiteCollectionAdmin" type="xs:boolean"/>
        <xs:element minOccurs="0" name="_isUserTenantAdmin" type="xs:boolean"/>
        <xs:element minOccurs="0" name="_isWindowsAccount" type="xs:boolean"/>
        <xs:element minOccurs="0" name="_userHasVUDPermisson" type="xs:boolean"/>
        <xs:element minOccurs="0" name="_userLogOnName" nillable="true" type="xs:string"/>
        <xs:element minOccurs="0" name="aggregationId" type="ser:guid"/>
        <xs:element minOccurs="0" name="aggregationLevel" type="tns:AggregationLevel"/>
    </xs:sequence>
  </xs:complexType>
```

_isUserFarmAdmin: An xs:boolean [XMLSCHEMA2] section 3.2.2 element that specifies whether the user is a **farm** administrator. This is required to be true in the following values of aggregationLevel to retrieve data.

Farm: True when **_userHasVUDPermisson** is false. True or false if **_userHasVUDPermisson** is true.

ServiceApplication: True if _**isUserServiceApplicationAdmin** is false. True or false when _**isUserServiceApplicationAdmin** is true.

_isUserServiceApplicationAdmin: An xs:boolean [XMLSCHEMA2] section 3.2.2 element that specifies if the user is a **service application** administrator. This is required to be true in the following values of aggregationLevel to retrieve data.

ServiceApplication: True if **_isUserFarmAdmin** is false. True or false when **_isUserFarmAdmin** is true.

_isUserSiteCollectionAdmin: An xs:boolean [XMLSCHEMA2] section 3.2.2 element that specifies if the user is a **site collection** administrator. This is required to be true in the following values of aggregationLevel to retrieve data.

SiteCollection: True when **_userHasVUDPermisson** is false. True or false if **_userHasVUDPermisson** is true.

_isUserTenantAdmin: An xs:boolean [XMLSCHEMA2] section 3.2.2 element that specifies if the user is a **tenant** administrator. This flag can be set to either true or false.

_isWindowsAccount: An xs:boolean [XMLSCHEMA2] section 3.2.2 element that specifies if the user account is a Windows account.

_userHasVUDPermisson: An xs:boolean [XMLSCHEMA2] section 3.2.2 element that specifies if the user has permission. This is required to be true in the following values of aggregationLevel to retrieve data.

Farm: True when **_isUserFarmAdmin** is false. True or false if **_isUserFarmAdmin** is true.

SiteCollection: True when **_isUserSiteCollectionAdmin** is false. True or false if **_isUserSiteCollectionAdmin** is true.

_userLogOnName: An xs:string ([XMLSCHEMA2] section 3.2.1) element that MUST be set to user login name.

aggregationId: GUID value specifying the identifier of the entity for which data is requested. The value is a MD5 hash of different GUIDs depending on the aggregationLevel.

Site: **Site (2)** identifier, Site Collection identifier

SiteCollection: Site Collection identifier

WebApplication: **Web application** identifier

ServiceApplication: Service application identifier

Farm: Farm identifier

aggregationLevel: An AggregationLevel element that specifies the level for which analyzed data is being requested.

2.2.4.2 AndCondition (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type is a LogicalCondition element that specifies an operation to combine two Condition elements by using a logical AND operator. The resultant element MUST be a Condition element.

```
<xs:complexType name="AndCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:LogicalCondition">
      <xs:sequence/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

2.2.4.3 ComparisonCondition (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type is a Condition type that specifies the value on which to perform a comparison.

```
<xs:complexType name="ComparisonCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:Condition">
      <xs:sequence>
        <xs:element name="viewPropertyValue" nillable="true" type="tns:ViewPropertyValue"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

viewPropertyValue: This element MUST be set to a ViewPropertyValue element.

2.2.4.4 Condition (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type specifies the condition to be applied when retrieving data using operation GetData.

```
<xs:complexType name="Condition">
  <xs:sequence/>
</xs:complexType>
```

2.2.4.5 DataRetrieverFailure (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type specifies information about an error that occurred during retrieving data for an entity.

```
<xs:complexType name="DataRetrieverFailure">
  <xs:sequence>
    <xs:element minOccurs="0" name="ErrorCode" type="tns:DataRetrieverErrorCode"/>
    <xs:element minOccurs="0" name="Message" nillable="true" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

ErrorCode: This DataRetrieverErrorCode element specifies the error code of the failure.

Message: An xs:string [XMLSCHEMA2] section 3.2.1 element MUST be set to error message.

2.2.4.6 EqualCondition (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type is a ComparisonCondition element where the comparison being performed is to be done with the relational equality operator.

```
<xs:complexType name="EqualCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:ComparisonCondition">
      <xs:sequence/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

2.2.4.7 GreaterThanCondition (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type is a ComparisonCondition element where the comparison being performed is to be done with the relational greater-than-inequality operator.

```
<xs:complexType name="GreaterThanCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:ComparisonCondition">
      <xs:sequence/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

2.2.4.8 GreaterThanEqualCondition (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type is a ComparisonCondition element where the comparison being performed is to be done with the relational greater-than-or-equal-to operator.

```
<xs:complexType name="GreaterThanEqualCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:ComparisonCondition">
      <xs:sequence/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

2.2.4.9 LessThanCondition (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type is a ComparisonCondition element where the comparison being performed is to be done with the relational less-than-inequality operator.

```
<xs:complexType name="LessThanCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:ComparisonCondition">
      <xs:sequence/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

2.2.4.10 LessThanEqualCondition (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type is a ComparisonCondition element where the comparison being performed is to be done with the relational less-than-or-equal-to operator.

```
<xs:complexType name="LessThanEqualCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:ComparisonCondition">
      <xs:sequence/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

2.2.4.11 LikeCondition (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type is a ComparisonCondition element where the comparison being performed is to be done with the relational LIKE operator. The behavior of the LIKE operator is similar to that in T-SQL.

```
<xs:complexType name="LikeCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:ComparisonCondition">
      <xs:sequence/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

2.2.4.12 LogicalCondition (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type is a Condition type that specifies that the two operands should be combined using a Logical operator. The resultant type is a Condition type.

```
<xs:complexType name="LogicalCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:Condition">
      <xs:sequence>
        <xs:element name="left" nillable="true" type="tns:Condition"/>
        <xs:element name="right" nillable="true" type="tns:Condition"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

left: This element MUST be a Condition element that specifies the left operand.

right: This element MUST be a Condition element that specifies the right operand.

2.2.4.13 NotEqualCondition (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type is a ComparisonCondition element where the comparison being performed is to be done with the relational not-equal-to operator.

```
<xs:complexType name="NotEqualCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:ComparisonCondition">
      <xs:sequence/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

2.2.4.14 NotLikeCondition (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type is a ComparisonCondition element where the comparison being performed is to be done with the relational NOT LIKE operator. The behavior of the NOT LIKE operator is similar to that in T-SQL.

```
<xs:complexType name="NotLikeCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:ComparisonCondition">
      <xs:sequence/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

2.2.4.15 OrCondition (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type is a [LogicalCondition](#) element that specifies an operation to combine two [Condition](#) elements by using a logical OR operator. The resultant element is a Condition element.

```
<xs:complexType name="OrCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:LogicalCondition">
      <xs:sequence/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

2.2.4.16 ViewPropertyValue (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type specifies the operands to be used in a [ComparisonCondition](#).

```
<xs:complexType name="ViewPropertyValue">
  <xs:sequence>
    <xs:element name="propertyName" nillable="true" type="xs:string"/>
    <xs:element name="propertyValue" nillable="true" type="xs:anyType"/>
    <xs:element name="viewName" nillable="true" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

propertyName: An xs:string [XMLSCHEMA2] section 3.2.1 element MUST be set to a name of a property which is a column in a data table. The value of this property (column) is used as the left-hand-side operand in the ComparisonCondition. If this is set to null then the web service call will fail.

propertyValue: An element of type xs:anyType [XMLSCHEMA1] section 3.4.7 MUST be set to the value of a property to be used as the right-hand-side operand in the ComparisonCondition.

viewName: Reserved. MUST be NULL.

2.2.4.17 SOAPFaultDetails

The **SOAPFaultDetails** complex type specifies the details of a **SOAP fault**. This complex type is defined as follows:

```
<s:schema xmlns:s="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://schemas.microsoft.com/sharepoint/soap">
   <s:complexType name="SOAPFaultDetails">
      <s:sequence>
         <s:element name="errorstring" type="s:string" />
         <s:element name="errorcode" type="s:string" minOccurs="0" />
      </s:sequence>
   </s:complexType>
</s:schema>
```

errorString: A human-readable text string explaining the application-level fault.

errorCode: The hexadecimal representation of a 4-byte result code.

2.2.5 Simple Types

The following XML Schema simple type definitions are specific to the operation of getting information from the webservice.

2.2.5.1 AggregationLevel (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This simple type specifies the level for which analyzed data is being requested.

```
<xs:simpleType name="AggregationLevel">
  <xs:restriction base="xs:string">
    <xs:enumeration value="ServiceApplication"/>
    <xs:enumeration value="WebApplication"/>
    <xs:enumeration value="SiteCollection"/>
    <xs:enumeration value="Site"/>
  </xs:restriction>
</xs:simpleType>
```

The following table specifies the allowable values for AggregationLevel:

Value	Meaning
ServiceApplication	Analyzed data is being requested for a **service application**.
WebApplication	Analyzed data is being requested for a **Web application**.
SiteCollection	Analyzed data is being requested for a **site collection**.
Site	Analyzed data is being requested for a **site (2)**.

2.2.5.2 DataRetrieverErrorCode (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This simple type specifies the error codes that MAY occur when requesting data using GetData

```
<xs:simpleType name="DataRetrieverErrorCode">
  <xs:restriction base="xs:string">
    <xs:enumeration value="NoMatchingWarehouseSubscription"/>
    <xs:enumeration value="Security"/>
    <xs:enumeration value="SqlBackend"/>
    <xs:enumeration value="QueryValidation"/>
    <xs:enumeration value="ServiceNotProvisioned"/>
    <xs:enumeration value="Unknown"/>
  </xs:restriction>
</xs:simpleType>
```

The following table specifies the allowable values for DataRetrieverErrorCode:

Value	Meaning
NoMatchingWarehouseSubscription	The entity for which the data is being requested could not be found.
Security	The call failed because of a security check.

Value	Meaning
SqlBackend	There was a general database exception.
QueryValidation	The requested data does not exist.
ServiceNotProvisioned	The service is not provisioned
Unknown	An unknown error occurred.

2.2.5.3 char (from namespace http://schemas.microsoft.com/2003/10/Serialization/)

Reserved. MUST be ignored.

```
<xs:simpleType name="char">
  <xs:restriction base="xs:int"/>
</xs:simpleType>
```

2.2.5.4 duration (from namespace http://schemas.microsoft.com/2003/10/Serialization/)

Reserved. MUST be ignored.

```
<xs:simpleType name="duration">
  <xs:restriction base="xs:duration">
    <xs:pattern value="\-?P(\d*D)?(T(\d*H)?(\d*M)?(\d*(\.\d*)?S)?)?"/>
    <xs:minInclusive value="-P10675199DT2H48M5.4775808S"/>
    <xs:maxInclusive value="P10675199DT2H48M5.4775807S"/>
  </xs:restriction>
</xs:simpleType>
```

2.2.5.5 guid (from namespace http://schemas.microsoft.com/2003/10/Serialization/)

Reserved. MUST be ignored.

```
<xs:simpleType name="guid">
  <xs:restriction base="xs:string">
    <xs:pattern value="[\da-fA-F]{8}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-F]{12}"/>
  </xs:restriction>
</xs:simpleType>
```

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.

3   Protocol Details

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

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.

Except where specified, protocol clients SHOULD interpret HTTP Status Codes returned by the protocol server as specified in [RFC2616], |Status Code Definitions (section 10).

This protocol allows protocol servers to notify protocol clients of application-level faults using SOAP faults. This protocol allows protocol servers to provide additional details for SOAP faults by including a **detail** element as specified either in [SOAP1.1], SOAP Fault (section 4.4) or [SOAP1.2/1], SOAP Fault (section 5.4) that conforms to the **XML schema** of the **SOAPFaultDetails** complex type specified in SOAPFaultDetails. Except where specified, these SOAP faults are not significant for interoperability, and protocol clients can interpret them in an implementation-specific manner.

This protocol allows protocol servers to perform implementation-specific authorization checks and notify protocol clients of authorization faults either using HTTP status codes or using SOAP faults as specified previously in this section.

3.1   Server Details

The following diagram describes the communication between the protocol client and the protocol server:
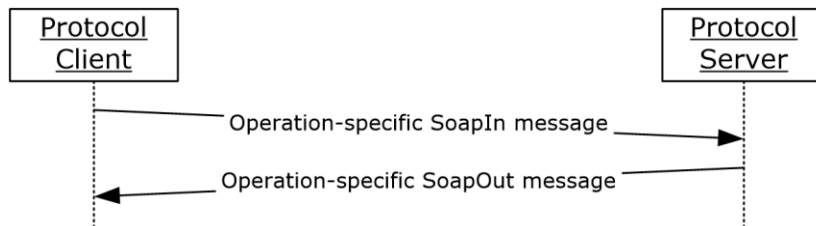

Figure 2: Message exchange between client and server

3.1.1   Abstract Data Model

The data model is based on the events that are captured. The events are; an item was clicked, an item was rated, a search query was issued, number of items and the hierarchy of the items in the farm.

3.1.2   Timers

None.

3.1.3   Initialization

None.

3.1.4 Message Processing Events and Sequencing Rules

This is specification of the Microsoft Office SharePoint Server (MOSS) Analytics Reporting Protocol operations.

This specification includes the following **WSDL operations**:

WSDL Operation	Description
GetData	The operation returns data of a particular type as specified by the **viewName** parameter, for a particular entity as specified by the **aggregationContext** parameter.
GetLoggingBatchSize	The operation is used to return the maximum number of elements that MUST be present in the list **feedback** when calling operation **LogFeedback**.
GetServerTimeZoneId	Type a brief description of the web method.
LogBestBetAction	This operation is used by the protocol to record the actions taken on a **best bet** recommendation. Best bet recommendations are returned when GetData is called with the parameter fn_WA_GetBestBetSuggestions. The actions taken are retrieved next time GetData is called with parameter fn_WA_GetBestBetSuggestions.
LogFeedback	This operation is used to log specific events to the protocol for analysis. Analyzed data SHOULD be retrieved by calling operation GetData.<2>

3.1.4.1 GetData

The operation returns data of a particular type as specified by the **viewName** parameter, for a particular entity as specified by the **aggregationContext** parameter.

```
<wsdl:operation name="GetData">
  <wsdl:input wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetData"
message="tns:IWebAnalyticsWebServiceApplication GetData InputMessage"/>
  <wsdl:output
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetDataResponse"
message="tns:IWebAnalyticsWebServiceApplication_GetData_OutputMessage"/>
  <wsdl:fault
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetDataDataRetrieverFailur
eFault" name="DataRetrieverFailureFault"
message="tns:IWebAnalyticsWebServiceApplication_GetData_DataRetrieverFailureFault_FaultMessag
e"/>
</wsdl:operation>
```

The protocol client sends an **IWebAnalyticsWebServiceApplication_GetData_InputMessage** request message, and the protocol server responds with a DataRetrieverFailureFault if there is a failure IWebAnalyticsWebServiceApplication**_GetData_OutputMessage** response message as follows:

3.1.4.1.1 Messages

3.1.4.1.1.1 IWebAnalyticsWebServiceApplication_GetData_InputMessage

The requested WSDL message for the **GetData WSDL operation**.

The **SOAP action** value is:

```
http://tempuri.org/IWebAnalyticsWebServiceApplication/GetData
```

The **SOAP body** contains the **GetData** element.

3.1.4.1.1.2   IWebAnalyticsWebServiceApplication_GetData_OutputMessage

The response WSDL message for the **GetData** method.

The **SOAP action** value is:

```
http://tempuri.org/IWebAnalyticsWebServiceApplication/GetDataResponse
```

The **SOAP body** contains the **GetDataResponse** element.

3.1.4.1.2 Elements

3.1.4.1.2.1   GetData

The input data for the **GetData** WSDL operation.

```
<xs:element name="GetData">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="aggregationContext" nillable="true"
xmlns:q1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proces
sedDataRetriever" type="q1:AggregationContext"/>
      <xs:element minOccurs="0" name="dataContext" nillable="true"
xmlns:q2="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proces
sedDataRetriever" type="q2:DataContext"/>
      <xs:element minOccurs="0" name="options" nillable="true"
xmlns:q3="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proces
sedDataRetriever" type="q3:GetDataOptions"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

aggregationContext: An AggregationContext element that specifies the properties of the user requesting data and the entity for which data is being requested. This element MUST be present.

dataContext: A DataContext element that specifies the properties of the data being requested. This element MUST be present.

options: A GetDataOptions element that specifies additional options for the data being requested. This element MUST be present.

3.1.4.1.2.2   GetDataResponse

The result data for the **GetData** WSDL operation.

```
<xs:element name="GetDataResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="GetDataResult" nillable="true"
xmlns:q4="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Admini
stration" type="q4:DataPacket"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

GetDataResult: A DataTable object that specifies the result of this operation. The data table columns for each view name are defined in the following table.

viewName	Columns
fn_WA_GetBestBetSuggestions	This table returns the query and URL **best bets** recommended by the protocol and contains the following columns: String: *QueryText, PageId, PageTitle.* DateTime: *Status, CreationDateTime, ActionDateTime*
fn_WA_GetBestBetUsage	This table returns the Best bet queries, query frequency, best bet **URL**, best bet URL click frequency and percentage of clicks of best bet URL vs. overall clicks, and contains the following columns: String: *QueryText,PageId, PageTitle, Status* Integer: *QueryFrequency, ClickFrequency* Float: *ClickPercentage* DateTime: *ActionDateTime*
fn_WA_GetClickthroughChanges	This table returns the pages most visited along with their previous rank and current and previous frequency and contains the following columns: String: *PageId, PageTitle*. Integer: *CurrentFrequency, PreviousFrequency,* *PreviousRank*
fn_WA_GetInventory	This table returns top **site templates**, product versions, languages, **list templates** and contains the following columns: String: *DimensionName*, Integer: *Frequency* Float: *Percentage*
fn_WA_GetInventoryPerDay	This table returns the number of **sites (2)**, **site collections**, **lists**, libraries and storage size per day and contains the following columns: Integer: *DateId, Sites, Webs, StorageSize,* *MaxStorage*
fn_WA_GetLast24HourClickthroughChanges	This table returns the pages most visited in the last 24 hours along with their previous rank and current and previous frequency and contains the following columns: String: *PageId, PageTitle* Integer: *CurrentFrequency, PreviousFrequency,* *PreviousRank*
fn_WA_GetLast24HourSearchQueryChanges	This table returns the search queries most issued in the last 24 hours along with their previous rank and current and previous frequency and contains the following columns: String: *QueryText*, Integer: *CurrentFrequency, PreviousFrequency,* *PreviousRank*
fn_WA_GetLast24HourUserDepartments	This table returns user departments logged in the last 24 hours and contains the following columns: String: *UserDepartment*
fn_WA_GetLast24HourUserTitles	This table returns the user titles logged in the last 24 hours

viewName	Columns
	and contains the following columns String: *UserTitle*
fn_WA_GetNumberOfClickthroughs	This table returns the total number of page views grouped per day or grouped by URL and contains the following columns: Integer: *DateId, Frequency* String: *PageId, PageTitle*
fn_WA_GetNumberOfFailedSearchQueriesPerDay	This table returns the total number of queries per day that didn't give satisfactory results. A query gives unsatisfactory results when it gives no results or the results it returns get little or no clicks. It contains the following columns: Integer: *DateId, TotalFrequency, AbandonedFrequency, ZeroResultFrequency*
fn_WA_GetNumberOfSearchQueries	This table returns the total number of search queries grouped per day or grouped by search query and contains the following columns: Integer: *DateId, Frequency* String: *QueryText*
fn_WA_GetNumberOfSearchQueriesPerDay	This table returns the total number of search queries per day and contains the following columns: Integer: *DateId, Frequency*
fn_WA_GetSearchQueryChanges	This table returns the search queries most issued along with their current and previous frequency and previous rank and contains the following columns: String: *QueryText* Integer: *CurrentFrequency, PreviousFrequency, PreviousRank, FrequencyChanges*
fn_WA_GetSummary	This table returns the summary report for the entity comprising of Traffic, Search and Inventory Data and contains the following columns: String: *PropertyName* Integer: CurrentValue, PreviousValue, PercentageChange
fn_WA_GetTopBrowsers	This table returns the top browsers and contains the following columns: String: *BrowserName* Integer: *Frequency* Float: *Percentage*
fn_WA_GetTopDestinations	This table returns top URLs that are outside the entity for which data is being requested and are referred by the entity for which data is being requested. The source and destination entities are the site (2)/ site collection / **web application**. For example this refers to the scenario when the URLs from a site (2) point to the destination site (2). It contains the following columns: String: *PageId* Integer: *Frequency* Float: *Percentage*
fn_WA_GetTopFailedSearchQueries	This table returns the search queries most issued that didn't give satisfactory results. A query gives unsatisfactory

viewName	Columns
	results when it gives no results or the results it returns get little or no clicks. It contains the following columns: String: *QueryText* Integer: *TotalFrequency, AbandonedFrequency* *Float: AbandonedPercentage, ZeroResultPercentage*
fn_WA_GetTopPages	This table returns the pages most visited and contains the following columns: String: *PageId, PageTitle*. Integer: *Frequency* Float: *Percentage*
fn_WA_GetTopReferrers	This table returns the top URLs that are outside the entity for which data is being requested and refer the entity for which data is being requested and contains the following columns: String: *ReferrerId* Integer: *Frequency* Float: *Percentage*
fn_WA_GetTopSearchQueries	This table returns the top search queries most issued and contains the following columns: String: *QueryText* Integer: *Frequency* Float: *Percentage*
fn_WA_GetTopVisitors	This table returns the top visitors and contains the following columns: String: *UserName* Integer: *Frequency* Float: *Percentage*
fn_WA_GetTotalTrafficVolume	This table returns the total number of page views and contains the following columns: Integer: *Frequency*
fn_WA_GetTrafficVolumePerDay	This table returns the page views per day and contains the following columns: Integer: *DateId, Frequency*
fn_WA_GetUserDepartments	This table returns the user department names and contains the following columns: String: *UserDepartment*
fn_WA_GetUserTitles	This table returns the user titles and contains the following columns: String: *UserTitle*

3.1.4.1.3 Complex Types

3.1.4.1.3.1   DataContext (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

A complex type that specifies the properties of the data being requested.

```
<xs:complexType name="DataContext">
  <xs:sequence>
    <xs:element minOccurs="0" name="rowCount" type="xs:int"/>
    <xs:element minOccurs="0" name="rowIndex" type="xs:int"/>
    <xs:element minOccurs="0" name="sortOrder" nillable="true" type="tns:ArrayOfSortOrder"/>
    <xs:element minOccurs="0" name="viewName" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="viewParameters" nillable="true"
type="tns:ArrayOfViewParameterValue"/>
    <xs:element minOccurs="0" name="viewProperties" nillable="true"
xmlns:q1="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
type="q1:ArrayOfstring"/>
    <xs:element minOccurs="0" name="whereCondition" nillable="true" type="tns:Condition"/>
  </xs:sequence>
</xs:complexType>
```

rowCount: An xs:int [XMLSCHEMA2] section 3.3.17 element that specifies the number of rows of data to return.

rowIndex: An xs:int [XMLSCHEMA2] section 3.3.17 element that specifies the first index of the rows of data to return. The index begins with 1.

sortOrder: An section ArrayOfSortOrder element that specifies an ordered list of columns to sort the resultant data.

viewName: An xs:string [XMLSCHEMA2] section 3.2.1 element that specifies the type of data to retrieve. The element MUST be set to one of the following:

viewName	Meaning
fn_WA_GetBestBetSuggestions	Query and URL **best bets** recommended by the protocol
fn_WA_GetBestBetUsage	Best bet queries, query frequency, best bet **URL**, best bet URL click frequency and percentage of clicks of best bet URL vs. overall clicks.
fn_WA_GetClickthroughChanges	Pages most visited along with their previous rank and current and previous frequency
fn_WA_GetInventory	Top **site templates**, product versions, languages, **list templates**
fn_WA_GetInventoryPerDay	Number of **sites (2)**, **site collections**, **lists**, libraries and storage size per day
fn_WA_GetLast24HourClickthroughChanges	Pages most visited in the last 24 hours along with their previous rank and current and previous frequency
fn_WA_GetLast24HourSearchQueryChanges	Search queries most issued in the last 24 hours along with their previous rank and current and previous frequency
fn_WA_GetLast24HourUserDepartments	User departments logged in the last 24 hours. User department is the organizational department information of a user as stored in profile database of profile service.
fn_WA_GetLast24HourUserTitles	User titles logged in the last 24 hours. User title is the organizational title information of a user as stored in profile database of profile service.

viewName	Meaning
fn_WA_GetNumberOfClickthroughs	Total number of page views grouped per day or grouped by URL
fn_WA_GetNumberOfFailedSearchQueriesPerDay	Total number of queries per day that didn't give satisfactory results. A query gives unsatisfactory results when it gives no results or the results it returns get little or no clicks.
fn_WA_GetNumberOfSearchQueries	Total number of search queries grouped per day or grouped by search query
fn_WA_GetNumberOfSearchQueriesPerDay	Total number of search queries per day
fn_WA_GetSearchQueryChanges	Search queries most issued along with their current and previous frequency and previous rank
fn_WA_GetSummary	Summary report for the entity comprising of Traffic, Search and Inventory Data
fn_WA_GetTopBrowsers	Top browsers
fn_WA_GetTopDestinations	Top URLs that are outside the entity for which data is being requested and are referred by the entity for which data is being requested. The source and destination entities are the site (2)/ site collection / **web application**. For example this refers to the scenario when the URLs from a site (2) point to the destination site (2).
fn_WA_GetTopFailedSearchQueries	Search queries most issued that didn't give satisfactory results. A query gives unsatisfactory results when it gives no results or the results it returns get little or no clicks.
fn_WA_GetTopPages	Pages most visited
fn_WA_GetTopReferrers	Top URLs that are outside the entity for which data is being requested and refer the entity for which data is being requested
fn_WA_GetTopSearchQueries	Search queries most issued
fn_WA_GetTopVisitors	Top visitors
fn_WA_GetTotalTrafficVolume	Total number of page views
fn_WA_GetTrafficVolumePerDay	Page views per day
fn_WA_GetUserDepartments	User department names. User department is the organizational department information of a user as stored in profile database of profile service.
fn_WA_GetUserTitles	User titles. User title is the organizational title information of a user as stored in profile database of profile service.

viewParameters: An ArrayOfViewParameterValue element that specifies the list of ViewParameterValue elements that are used in conjunction with the **viewName** parameter to return the requested data. Each **parameterName** element in the ViewParameterValue element MUST be one of the following:

parameterName	value	Applies to viewName(s)
StartDateId	The start date of the data being requested. The type of **value** MUST be xs:int [XMLSCHEMA2] section 3.3.17. The value MUST be calculated as the following: `value = (((year*100) + month)*100 + day)` where year, month and day are the 4-digit year, 2-digit month and 2-digit day of the date respectively. This parameter is required.	**fn_WA_GetBestBetUsage** **fn_WA_GetInventoryPerDay** **fn_WA_GetNumberOfClickthroughs** **fn_WA_GetNumberOfFailedSearchQueriesPerDay** **fn_WA_GetNumberOfSearchQueries** **fn_WA_GetNumberOfSearchQueriesPerDay** **fn_WA_GetScopeNames** **fn_WA_GetTopBrowsers** **fn_WA_GetTopDestinations** **fn_WA_GetTopFailedSearchQueries** **fn_WA_GetTopPages** **fn_WA_GetTopReferrers** **fn_WA_GetTopSearchQueries** **fn_WA_GetTopVisitors** **fn_WA_GetTotalTrafficVolume** **fn_WA_GetTrafficVolumePerDay** **fn_WA_GetUserDepartments** **fn_WA_GetUserTitles**
EndDateId	The end date for the data being requested. The type of **value** MUST be xs:int [XMLSCHEMA2] section 3.3.17. The value MUST be calculated as the following: `value = (((year*100) + month)*100 + day)` where year, month and day are the 4-digit year, 2-digit month and 2-digit day of the date respectively. This parameter is required.	**fn_WA_GetBestBetUsage** **fn_WA_GetInventoryPerDay** **fn_WA_GetNumberOfClickthroughs** **fn_WA_GetNumberOfFailedSearchQueriesPerDay** **fn_WA_GetNumberOfSearchQueries** **fn_WA_GetNumberOfSearchQueriesPerDay** **fn_WA_GetScopeNames** **fn_WA_GetTopBrowsers** **fn_WA_GetTopDestinations** **fn_WA_GetTopFailedSearchQueries** **fn_WA_GetTopPages** **fn_WA_GetTopReferrers** **fn_WA_GetTopSearchQueries** **fn_WA_GetTopVisitors** **fn_WA_GetTotalTrafficVolume** **fn_WA_GetTrafficVolumePerDay** **fn_WA_GetUserDepartments** **fn_WA_GetUserTitles**
AggregationId	**GUID** of entity for which data is being requested. The type of **value** MUST be xs:string [XMLSCHEMA2] section 3.2.1. This parameter is required.	Applies to all **viewNames**.
IncludeSubSites	An xs:boolean [XMLSCHEMA2] section 3.2.2 value that specifies if the data being requested should include child objects of the site (2) specified by **ComponentId**. This parameter is optional.	**fn_WA_GetClickthroughChanges** **fn_WA_GetInventory** **fn_WA_GetInventoryPerDay** **fn_WA_GetLast24HourClickthroughChanges**

parameterName	value	Applies to viewName(s)
		fn_WA_GetLast24HourSearchQueryChanges
		fn_WA_GetLast24HourUserDepartments
		fn_WA_GetLast24HourUserTitles
		fn_WA_GetNumberOfClickthroughs
		fn_WA_GetNumberOfFailedSearchQueriesPerDay
		fn_WA_GetNumberOfSearchQueries
		fn_WA_GetNumberOfSearchQueriesPerDay
		fn_WA_GetSearchQueryChanges
		fn_WA_GetSummary
		fn_WA_GetTopBrowsers
		fn_WA_GetTopDestinations
		fn_WA_GetTopFailedSearchQueries
		fn_WA_GetTopPages
		fn_WA_GetTopReferrers
		fn_WA_GetTopSearchQueries
		fn_WA_GetTopVisitors
		fn_WA_GetTotalTrafficVolume
		fn_WA_GetTrafficVolumePerDay
ScopeName	An xs:string [XMLSCHEMA2] section 3.2.1 that specifies the name of the **search scope** specified for the search query. This parameter is optional.	fn_WA_GetLast24HourClickthroughChanges fn_WA_GetLast24HourSearchQueryChanges fn_WA_GetNumberOfClickthroughs fn_WA_GetNumberOfSearchQueries fn_WA_GetNumberOfSearchQueriesPerDay fn_WA_GetSearchQueryChanges fn_WA_GetTopFailedSearchQueries fn_WA_GetTopSearchQueries
UserTitle	An xs:string [XMLSCHEMA2] section 3.2.1 value that specifies that the data should be scoped to the specified user title. This parameter is optional.	fn_WA_GetClickthroughChanges fn_WA_GetLast24HourClickthroughChanges fn_WA_GetLast24HourSearchQueryChanges fn_WA_GetNumberOfClickthroughs fn_WA_GetNumberOfSearchQueries fn_WA_GetSearchQueryChanges
UserDepartment	An xs:string [XMLSCHEMA2] section 3.2.1 value that specifies that the data should be scoped to the specified user department. This parameter is optional.	fn_WA_GetClickthroughChanges fn_WA_GetLast24HourClickthroughChanges fn_WA_GetLast24HourSearchQueryChanges fn_WA_GetNumberOfClickthroughs fn_WA_GetNumberOfSearchQueries fn_WA_GetSearchQueryChanges
CurrentStartDateId	The start date of the current date range. The type of **value** MUST be xs:int [XMLSCHEMA2] section 3.3.17. The value MUST be calculated as the following: value = (((year*100) +	fn_WA_GetClickthroughChanges fn_WA_GetSearchQueryChanges fn_WA_GetSummary

parameterName	value	Applies to viewName(s)
	`month)*100 + day)` where year, month and day are the 4-digit year, 2-digit month and 2-digit day of the date respectively. This parameter is required.	
PreviousStartDateId	The start date of the past date range. The type of **value** MUST be xs:int [XMLSCHEMA2] section 3.3.17. The value MUST be calculated as the following: `value = (((year*100) + month)*100 + day)` where year, month and day are the 4-digit year, 2-digit month and 2-digit day of the date respectively. This parameter is required. If current start date is s1 and previous start date is p1 where p1 is earlier than s1 then the data is compared for time periods (p1 to s1-1) and (s1 + (s1 – p1)). For example is the p1 is July 1 and s1 is August 1 then the data is compared for the periods (07/01 – 07/ 31) and (08/01 - 08/31)	**fn_WA_GetClickthroughChanges** **fn_WA_GetSearchQueryChanges** **fn_WA_GetSummary**
Duration	The duration of the date range in number of days. The type of **value** MUST be xs:int [XMLSCHEMA2] section 3.3.17. This parameter is required.	**fn_WA_GetClickthroughChanges** **fn_WA_GetSearchQueryChanges** **fn_WA_GetSummary**
GroupByDate	An xs:boolean [XMLSCHEMA2] section 3.2.2 value that specifies if the data being requested should be grouped by date. This parameter is optional.	**fn_WA_GetNumberOfClickthroughs** **fn_WA_GetNumberOfSearchQueries**
GroupByQueryText	An xs:boolean [XMLSCHEMA2] section 3.2.2 value that specifies if the data being requested should be grouped by search query text. This parameter is optional.	**fn_WA_GetNumberOfSearchQueries**
GroupByPageId	An xs:boolean [XMLSCHEMA2] section 3.2.2 value that specifies if the data being requested should be grouped by URL. This parameter is optional.	**fn_WA_GetNumberOfClickthroughs**
MetricType	An xs:int [XMLSCHEMA2] section 3.3.17 value that specifies the type of metric to return. The value MUST be one of the **MetricType** values logged via LogFeedback.	**fn_WA_GetInventory** **fn_WA_GetTrafficVolumePerDay** **fn_WA_GetTotalTrafficVolume**

parameterName	value	Applies to viewName(s)
	This parameter is required.	
DimensionType	An xs:int [XMLSCHEMA2] section 3.3.17 value that specifies the type of inventory to return. The value MUST be one of the **DimensionType** values logged via LogFeedback. This parameter is required.	fn_WA_GetInventory

viewProperties: Reserved. MUST be NULL.

whereCondition: A Condition element that is used to filter the data to return.

3.1.4.1.3.2   ArrayOfSortOrder (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

A complex type that specifies an ordered list of SortOrder elements.

```
<xs:complexType name="ArrayOfSortOrder">
  <xs:sequence>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="SortOrder" nillable="true"
type="tns:SortOrder"/>
  </xs:sequence>
</xs:complexType>
```

SortOrder: Each element MUST be set to a SortOrder element.

3.1.4.1.3.3   SortOrder (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

A complex type that specifies the order in which the resultant data should be sorted

```
<xs:complexType name="SortOrder">
  <xs:sequence>
    <xs:element name="orderType" type="tns:OrderType"/>
    <xs:element name="viewProperty" nillable="true" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

orderType: This MUST be set to an OrderType element.

viewProperty: An xs:string [XMLSCHEMA2] section 3.2.1 element that specifies a column name by which the resultant data MUST be sorted.

3.1.4.1.3.4   ArrayOfViewParameterValue (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

A complex type that specifies a list of ViewParameterValue elements.

```
<xs:complexType name="ArrayOfViewParameterValue">
```

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

ViewParameterValue: Each element MUST specify a ViewParameterValue element.

3.1.4.1.3.5 ViewParameterValue (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAn alytics.ProcessedDataRetriever)

A complex type that specifies a parameter to be used in conjunction with **viewName** for this operation.

```
<xs:complexType name="ViewParameterValue">
  <xs:sequence>
    <xs:element name="parameterName" nillable="true" type="xs:string"/>
    <xs:element name="parameterValue" nillable="true" type="xs:anyType"/>
    <xs:element name="viewName" nillable="true" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

parameterName: An xs:string [XMLSCHEMA2] section 3.2.1 element that MUST be one of the values specified in the table describing the parameter **viewParameters**.

parameterValue: An xs:anyType [XMLSCHEMA1] section 3.4.7 element that is set to a value as required by parameterName.

viewName: An xs:string [XMLSCHEMA2] section 3.2.1 element. Reserved. MUST be set to an empty string.

3.1.4.1.3.6 ArrayOfstring (from namespace http://schemas.microsoft.com/2003/10/Serialization/Arrays)

A complex type that specifies a list of xs:string [XMLSCHEMA2] section 3.2.1 elements.

```
<xs:complexType name="ArrayOfstring">
  <xs:sequence>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="string" nillable="true"
type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

string: Each element MUST specify an xs:string [XMLSCHEMA2] section 3.2.1.

3.1.4.1.3.7 GetDataOptions (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAn alytics.ProcessedDataRetriever)

A complex type that specifies additional options for the data being requested.

```
<xs:complexType name="GetDataOptions">
  <xs:sequence>
    <xs:element minOccurs="0" name="bypassCache" type="xs:boolean"/>
  </xs:sequence>
```

```
        </xs:complexType>
```

bypassCache: An xs:boolean [XMLSCHEMA2] section 3.2.2 element that specifies if the cache should be bypassed. The behavior is for the value True: It bypasses the cache. False: It does not bypass the cache.

3.1.4.1.3.8   DataPacket (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Administration)

A complex type that represents the data and additional properties associated with the data.

```
<xs:complexType name="DataPacket">
  <xs:sequence>
    <xs:element minOccurs="0" name="DataTable" nillable="true">
      <xs:complexType>
        <xs:annotation>
          <xs:appinfo>
            <ActualType Name="DataTable"
Namespace="http://schemas.datacontract.org/2004/07/System.Data"
xmlns="http://schemas.microsoft.com/2003/10/Serialization/"/>
          </xs:appinfo>
        </xs:annotation>
        <xs:sequence>
          <xs:any minOccurs="0" maxOccurs="unbounded"
namespace="http://www.w3.org/2001/XMLSchema" processContents="lax"/>
          <xs:any minOccurs="1" namespace="urn:schemas-microsoft-com:xml-diffgram-v1"
processContents="lax"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element minOccurs="0" name="LastDataUpdatedTime" type="xs:dateTime"/>
  </xs:sequence>
</xs:complexType>
```

DataTable: A DataTable object that specifies the result of this operation.

LastDataUpdatedTime: A datetime timestamp to reflect the date and time when the data was last updated.

3.1.4.1.4 Simple Types

3.1.4.1.4.1   OrderType (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This simple type specifies the sort order.

```
<xs:simpleType name="OrderType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Ascending"/>
    <xs:enumeration value="Descending"/>
  </xs:restriction>
</xs:simpleType>
```

The following table specifies the allowable values for OrderType:

Value	Meaning
Ascending	Sort the data in ascending order.
Descending	Sort the data in descending order.

3.1.4.2 GetLoggingBatchSize

The operation is used to return the maximum number of elements that MUST be present in the list **feedback** when calling operation **LogFeedback**.

```
<wsdl:operation name="GetLoggingBatchSize">
  <wsdl:input
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetLoggingBatchSize"
message="tns:IWebAnalyticsWebServiceApplication_GetLoggingBatchSize_InputMessage"/>
  <wsdl:output
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetLoggingBatchSizeRespons
e" message="tns:IWebAnalyticsWebServiceApplication_GetLoggingBatchSize_OutputMessage"/>
</wsdl:operation>
```

The protocol client sends an **IWebAnalyticsWebServiceApplication_GetLoggingBatchSize_InputMessage** request message, and the protocol server responds with an **IWebAnalyticsWebServiceApplication_GetLoggingBatchSize_OutputMessage** response message as follows:

3.1.4.2.1 Messages

3.1.4.2.1.1   IWebAnalyticsWebServiceApplication_GetLoggingBatchSize_InputMessage

The requested WSDL message for the **GetLoggingBatchSize WSDL operation**.

The **SOAP action** value is:

```
http://tempuri.org/IWebAnalyticsWebServiceApplication/GetLoggingBatchSize
```

The **SOAP body** contains the **GetLoggingBatchSize** element.

3.1.4.2.1.2   IWebAnalyticsWebServiceApplication_GetLoggingBatchSize_OutputMessage

The response WSDL message for the **GetLoggingBatchSize** method.

The **SOAP action** value is:

```
http://tempuri.org/IWebAnalyticsWebServiceApplication/GetLoggingBatchSizeResponse
```

The **SOAP body** contains the **GetLoggingBatchSizeResponse** element.

3.1.4.2.2 Elements

3.1.4.2.2.1   GetLoggingBatchSize

The input data for the **GetLoggingBatchSize** WSDL operation.

```
<xs:element name="GetLoggingBatchSize">
  <xs:complexType>
    <xs:sequence/>
  </xs:complexType>
</xs:element>
```

3.1.4.2.2.2   GetLoggingBatchSizeResponse

The result data for the **GetLoggingBatchSize** WSDL operation.

```
<xs:element name="GetLoggingBatchSizeResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="GetLoggingBatchSizeResult" type="xs:int"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

GetLoggingBatchSizeResult: An xs:int [XMLSCHEMA2] section 3.3.17 element that specifies the result of the operation.

3.1.4.3 GetServerTimeZoneId

```
<wsdl:operation name="GetServerTimeZoneId">
  <wsdl:input
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetServerTimeZoneId"
message="tns:IWebAnalyticsWebServiceApplication GetServerTimeZoneId InputMessage"/>
  <wsdl:output
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetServerTimeZoneIdRespons
e" message="tns:IWebAnalyticsWebServiceApplication_GetServerTimeZoneId_OutputMessage"/>
  <wsdl:fault
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetServerTimeZoneIdDataRet
rieverFailureFault" name="DataRetrieverFailureFault"
message="tns:IWebAnalyticsWebServiceApplication_GetServerTimeZoneId_DataRetrieverFailureFault
_FaultMessage"/>
</wsdl:operation>
```

The operation is used to return the standard integer that represents the **time zone** identifier of the time zone of the server implementing the protocol.

In this implementation of the protocol, this integer time zone identifier MUST converted into a time zone object by comparing the identifier with the identifiers stored in **regional settings** of the **site (2)**.

For example:

A call to GetServerTimeZoneId MAY return a time zone identifier 2.

The regional settings on that site (2) MAY have the following information stored about time zones.

Time Zone Identifier	Time Zone
1	Indian Standard Time (IST)
2	Greenwich Median Time (GMT)

Then this information in the regional settings is used to convert time zone identifier to a time zone.

The protocol client sends an
IWebAnalyticsWebServiceApplication_GetServerTimeZoneId_InputMessage request
message, and the protocol server responds with a [DataRetrieverFailureFault](#) if there is a failure
IWebAnalyticsWebServiceApplication_GetServerTimeZoneId_OutputMessage response
message as follows:

3.1.4.3.1 Messages

3.1.4.3.1.1   IWebAnalyticsWebServiceApplication_GetServerTimeZoneId_InputMessage

The requested WSDL message for the **GetServerTimeZoneId WSDL operation**.

The **SOAP action** value is:

```
http://tempuri.org/IWebAnalyticsWebServiceApplication/GetServerTimeZoneId
```

The **SOAP body** contains the **GetServerTimeZoneId** element.

3.1.4.3.1.2   IWebAnalyticsWebServiceApplication_GetServerTimeZoneId_OutputMessage

The response WSDL message for the **GetServerTimeZoneId** method.

The **SOAP action** value is:

```
http://tempuri.org/IWebAnalyticsWebServiceApplication/GetServerTimeZoneIdResponse
```

The **SOAP body** contains the **GetServerTimeZoneIdResponse** element.

3.1.4.3.2 Elements

3.1.4.3.2.1   GetServerTimeZoneId

The input data for the **GetServerTimeZoneId** WSDL operation.

```
<xs:element name="GetServerTimeZoneId">
  <xs:complexType>
    <xs:sequence/>
  </xs:complexType>
</xs:element>
```

3.1.4.3.2.2   GetServerTimeZoneIdResponse

The result data for the **GetServerTimeZoneId** WSDL operation.

```
<xs:element name="GetServerTimeZoneIdResponse">
  <xs:complexType>
    <xs:sequence>

      <xs:element minOccurs="0" name="GetServerTimeZoneIdResult" type="xs:unsignedShort"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

GetServerTimeZoneIdResult: An xs:unsignedShort [XMLSCHEMA2] section 3.3.23 element that specifies the result of the operation.

3.1.4.4 LogBestBetAction

This operation is used by the protocol to record the actions taken on a **best bet** recommendation. Best bet recommendations are returned when GetData is called with the parameter fn_WA_GetBestBetSuggestions. The actions taken are retrieved next time GetData is called with parameter fn_WA_GetBestBetSuggestions.

```
<wsdl:operation name="LogBestBetAction">
  <wsdl:input
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/LogBestBetAction"
message="tns:IWebAnalyticsWebServiceApplication_LogBestBetAction_InputMessage"/>
  <wsdl:output
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/LogBestBetActionResponse"
message="tns:IWebAnalyticsWebServiceApplication_LogBestBetAction_OutputMessage"/>
  <wsdl:fault
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/LogBestBetActionDataRetrie
verFailureFault" name="DataRetrieverFailureFault"
message="tns:IWebAnalyticsWebServiceApplication_LogBestBetAction_DataRetrieverFailureFault_Fa
ultMessage"/>
</wsdl:operation>
```

The protocol client sends an **IWebAnalyticsWebServiceApplication_LogBestBetAction_InputMessage** request message, and the protocol server responds with a DataRetrieverFailureFault if there is a failure **IWebAnalyticsWebServiceApplication_LogBestBetAction_OutputMessage** response message as follows.

3.1.4.4.1 Messages

3.1.4.4.1.1   IWebAnalyticsWebServiceApplication_LogBestBetAction_InputMessage

The requested WSDL message for the **LogBestBetAction WSDL operation**.

The **SOAP action** value is:

```
http://tempuri.org/IWebAnalyticsWebServiceApplication/LogBestBetAction
```

The **SOAP body** contains the **LogBestBetAction** element.

3.1.4.4.1.2   IWebAnalyticsWebServiceApplication_LogBestBetAction_OutputMessage

The response WSDL message for the **LogBestBetAction** method.

The **SOAP action** value is:

```
http://tempuri.org/IWebAnalyticsWebServiceApplication/LogBestBetActionResponse
```

The **SOAP body** contains the **LogBestBetActionResponse** element.

3.1.4.4.2 Elements

3.1.4.4.2.1   LogBestBetAction

The input data for the **LogBestBetAction** WSDL operation.

```
<xs:element name="LogBestBetAction">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="aggregationContext" nillable="true"
xmlns:q5="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proces
sedDataRetriever" type="q5:AggregationContext"/>
      <xs:element minOccurs="0" name="recommendation" nillable="true"
xmlns:q6="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proces
sedDataRetriever" type="q6:BestBetRecommendation"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

aggregationContext: An AggregationContext element that specifies the properties of the user requesting the operation and the entity for which operation is requested. This element MUST be present.

recommendation: A BestBetRecommendation element that specifies the action that is required to be logged for a particular **best bet**.

3.1.4.4.2.2   LogBestBetActionResponse

The result data for the **LogBestBetAction** WSDL operation.

```
<xs:element name="LogBestBetActionResponse">
  <xs:complexType>
    <xs:sequence/>
  </xs:complexType>
</xs:element>
```

3.1.4.4.3 Complex Types

3.1.4.4.3.1   BestBetRecommendation (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This complex type specifies the action that is required to be recorded for a **best bet**.

```
<xs:complexType name="BestBetRecommendation">
  <xs:sequence>
    <xs:element minOccurs="0" name="action" type="tns:BestBetAction"/>
    <xs:element minOccurs="0" name="assetId" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="queryText" nillable="true" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

action: A BestBetAction element that specifies the action. This element MUST be present.

assetId: A string ([XMLSCHEMA2] section 3.2.1) element MUST be set to a URL that is a best bet.

queryText: A string ([XMLSCHEMA2] section 3.2.1) element MUST be set to **query text**.

3.1.4.4.4 Simple Types

3.1.4.4.4.1 BestBetAction (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.ProcessedDataRetriever)

This simple type is used to specify the action that is required to be recorded for a **best bet**.

```
<xs:simpleType name="BestBetAction">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Accept"/>
    <xs:enumeration value="Reject"/>
  </xs:restriction>
</xs:simpleType>
```

The following table specifies the allowable values for BestBetAction:

Value	Meaning
Accept	The best bet recommendation is accepted.
Reject	The best bet recommendation is rejected.

3.1.4.5 LogFeedback

This operation is used to log specific events to the protocol for analysis. Analyzed data SHOULD be retrieved by calling operation GetData.<3>

```
<wsdl:operation name="LogFeedback">
  <wsdl:input wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/LogFeedback"
message="tns:IWebAnalyticsWebServiceApplication_LogFeedback_InputMessage"/>
  <wsdl:output
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/LogFeedbackResponse"
message="tns:IWebAnalyticsWebServiceApplication_LogFeedback_OutputMessage"/>
</wsdl:operation>
```

The protocol client sends an
IWebAnalyticsWebServiceApplication_LogFeedback_InputMessage request message, and the protocol server responds with an
IWebAnalyticsWebServiceApplication_LogFeedback_OutputMessage response message as follows:

3.1.4.5.1 Messages

3.1.4.5.1.1 IWebAnalyticsWebServiceApplication_LogFeedback_InputMessage

The requested WSDL message for the **LogFeedback WSDL operation**.

The **SOAP action** value is:

```
http://tempuri.org/IWebAnalyticsWebServiceApplication/LogFeedback
```

The **SOAP body** contains the **LogFeedback** element.

3.1.4.5.1.2 IWebAnalyticsWebServiceApplication_LogFeedback_OutputMessage

The response WSDL message for the **LogFeedback** method.

The **SOAP action** value is:

```
http://tempuri.org/IWebAnalyticsWebServiceApplication/LogFeedbackResponse
```

The **SOAP body** contains the **LogFeedbackResponse** element.

3.1.4.5.2 Elements

3.1.4.5.2.1   LogFeedback

The input data for the **LogFeedback** WSDL operation.

```
<xs:element name="LogFeedback">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="feedback" nillable="true"
xmlns:q7="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Loggin
g" type="q7:ArrayOfFeedback"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

feedback: An [ArrayOfFeedback](#) element that specify the events to be logged for analysis.

3.1.4.5.2.2   LogFeedbackResponse

The result data for the **LogFeedback** WSDL operation.

```
<xs:element name="LogFeedbackResponse">
  <xs:complexType>
    <xs:sequence/>
  </xs:complexType>
</xs:element>
```

3.1.4.5.3 Complex Types

3.1.4.5.3.1   ArrayOfFeedback (from namespace
   http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAn
   alytics.Logging)

A complex type that specifies a list of [Feedback](#) elements.

```
<xs:complexType name="ArrayOfFeedback">
  <xs:sequence>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="Feedback" nillable="true"
type="tns:Feedback"/>
  </xs:sequence>
</xs:complexType>
```

Feedback: Each element MUST specify a Feedback element.

3.1.4.5.3.2 Feedback (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Logging)

A complex type that specifies an event to be logged for analysis.

```
<xs:complexType name="Feedback">
  <xs:sequence>
    <xs:element minOccurs="0" name="FeedbackFunction" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="FeedbackParameters" nillable="true"
type="tns:ArrayOfFeedbackParameter"/>
    <xs:element minOccurs="0" name="SessionId" nillable="true" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

FeedbackFunction: An xs:string [XMLSCHEMA2] element that specifies the type of event being logged. The element MUST be one of the following:

Value	Meaning
WAClickthroughFeedback	An item was clicked.
WAQueryFeedback	A search query was issued.
WARatingFeedback	An item was rated.
WASiteInventorySnapshot	The current number of items in a **site (2)**.
WASiteHierarchySnapshot	The current hierarchy of the **farm**.

FeedbackParameters: An ArrayofFeedbackParameter element that specifies the properties of the event being logged. Each FeedbackParameter element in the list MUST be one of the following:

FeedbackFunction	FeedbackParameter	
	ParameterName	**ParameterValue**
WAClickthroughFeedback	**ClickedAssetContentType**	A value that specifies the **content type** associated with the click event. The implementation logs this field only when clickType is PageView and to SPContext.ContentType.Id.ToString();. This field is not accessed by the views so its value is not relevant.
WAClickthroughFeedback	**ClickedAssetId**	A value that specifies the **URL** associated with the click event.
WAClickthroughFeedback	**ClickedAssetAggregationId**	A value that specifies the unique identifier of the site (2) of the URL specified in **ClickedAssetId**.
WAClickthroughFeedback	**ClickedTitle**	A value that specifies the title of the URL specified in ParameterName **ClickedAssetId**.
WAClickthroughFeedback	**ClickTime**	A value that specifies the time of the event. It is in the ISO format yyyy-MM-ddTHH:mm:ss.fff example: 2009-12-23

FeedbackFunction	FeedbackParameter	
		06:15:57.000.
WAClickthroughFeedback	ClickType	A value that specifies the type of the click event. The value MUST be one of the following: 1. **Search**: The click event is associated with a search. 2. **PageView**: The click event denotes a page was viewed.
WAClickthroughFeedback, WAQueryFeedback, WARatingFeedback	CustomData	A value that specifies any custom data associated with the event. This can be any string associated with the event. There are no restrictions on what it should be. It is completely defined by the user.
WAClickthroughFeedback	IsBestBetResult	A value that specifies the URL being clicked is a **best bet**. **ClickType** MUST be present and its value MUST be **Search**.
WAClickthroughFeedback	OriginAggregationId	A value that specifies the unique identifier of the site (2) where the event occurred.
WAClickthroughFeedback	ResultPosition	A value that specifies a position of the **ClickedAssetWebId** in a list of search results. **ClickType** MUST be present and its value MUST be **Search**.
WAClickthroughFeedback, WAQueryFeedback, WARatingFeedback	UserDepartment	A value that specifies the department of the user associated with the event.
WAClickthroughFeedback, WAQueryFeedback, WARatingFeedback	UserId	A value that specifies a unique identifier of the user associated with the event.
WAClickthroughFeedback, WAQueryFeedback, WARatingFeedback	UserTitle	A value that specifies the title of the user associated with the event.
WAQueryFeedback	BrowserCulture	A value that specifies the culture of the browser where the event happened.
WAClickthroughFeedback, WAQueryFeedback, WARatingFeedback,	BrowserSessionId	A value that specifies the unique identifier of the browser session where the event happened.
WAQueryFeedback	NumBestBets	A value that specifies the number of best bets returned in the result set of the search query.
WAQueryFeedback	QueryId	A value that specifies the unique identifier of the search query.
WAQueryFeedback	QueryString	A value that specifies the text of the search query.
WAQueryFeedback	QueryTime	A value that specifies the time when the user issued the search query. It is in the ISO format yyyy-MM-ddTHH:mm:ss.fff

FeedbackFunction	FeedbackParameter	
		example: 2009-12-23 06:15:57.000.
WAQueryFeedback	ScopeName	A value that specifies the scope name of the **search scope** specified for the search query.
WAQueryFeedback	TotalResults	A value that specifies the total number of results returned for the search query.
WAQueryFeedback	AggregationId	A value that specifies the unique identifier of the site where the search query was issued.
WARatingFeedback	FeedbackIdentifier	A value that specifies the unique identifier of the rating event.
WARatingFeedback	FeedbackAnswerNumericEquivalent	A value that specifies the rating given in the event. The rating MUST be normalized to a scale of {0:100}.
WARatingFeedback	FeedbackTime	A value that specifies the time when the rating was issued. It is in the ISO format yyyy-MM-ddTHH:mm:ss.fff example: 2009-12-23 06:15:57.000.
WARatingFeedback	FeedbackControlCulture	A value that specifies the culture of the rating control.
WARatingFeedback	FeedbackQuestionId	A value that specifies unique identifier of a question provided in the rating control.
WARatingFeedback	RatedAssetAggregationId	A value that specifies the URL of the item being rated.
WARatingFeedback	RatedAssetWebId	A value that specifies the unique identifier of the site (2) of the item being rated.
WARatingFeedback	RatedAssetTitle	A value that specifies the title of the item being rated.
WASiteInventorySnapshot	ComponentId	A value that specifies the unique identifier of the site (2) or **site collection** for which inventory data is being collected.
WASiteInventorySnapshot	DateId	A value that specifies the date on which the inventory data is being collected. The format is YYYYMMDD. Example: 20091224.
WASiteInventorySnapshot	DimensionType	A value that specifies the type of inventory being logged. The inventory can be of type **site template**, site collection template, product version, language, storage size. The **DimensionType** along with the **MetricType** together determine the inventory type. The value of **DimensionType** and **MetricType** for different types of inventory are:

FeedbackFunction	FeedbackParameter	

		Site Template:
		  DimensionType: 0 MetricType: 1
		Product Version:
		  DimensionType: 1 MetricType: 1
		Language:
		  DimensionType: 2 MetricType: 1
		
		Site Collection Template:
		  DimensionType: 0 MetricType: 0
		
		Storage Size:
		  DimensionType: 0 MetricType: 7

WASiteInventorySnapshot	**DimensionName**	A value that specifies the name of the inventory being logged.
WASiteInventorySnapshot	**MetricType**	A value that specifies the type of metric being logged.

WASiteInventorySnapshot	**Frequency**	A value that specifies the number of instances of the **MetricType** being logged. The **DimensionType** along with the **MetricType** together determine the inventory type.
		The value of **DimensionType** and **MetricType** for different types of inventory are:
		
		Site Template:
		  DimensionType: 0 MetricType: 1
		Product Version:
		  DimensionType: 1 MetricType: 1
		Language:
		  DimensionType: 2 MetricType: 1
		
		Site Collection Template:
		  DimensionType: 0 MetricType: 0
		
		Storage Size:
		  DimensionType: 0 MetricType: 7

WASiteHierarchySnapshot	**DateId**	A value that specifies the date on which hierarchy data is being collected. The format is YYYYMMDD. Example: 20091224.
WASiteHierarchySnapshot	**FarmAggregationId**	A value that specifies the unique identifier of the farm.
WASiteHierarchySnapshot	**ParentWebAggregationId**	A value that specifies the unique identifier of the parent site (2).

FeedbackFunction	FeedbackParameter	
WASiteHierarchySnapshot	**ParentWebUrl**	A value that specifies the URL of the parent site (2).
WASiteHierarchySnapshot	**SiteAggregationId**	A value that specifies the unique identifier of the site collection.
WASiteHierarchySnapshot	**SiteUrl**	A value that specifies the URL of the site collection.
WASiteHierarchySnapshot	**WebApplicationAggregationId**	A value that specifies the unique identifier of the **Web application**.
WASiteHierarchySnapshot	**WebApplicationUrl**	A value that specifies the URL of the Web application.
WASiteHierarchySnapshot	**WebAggregationId**	A value that specifies the unique identifier of the site (2).
WASiteHierarchySnapshot	**WebUrl**	A value that specifies the URL of the site (2).

SessionId: An xs:string [XMLSCHEMA2] element that specifies the unique identifier of the browser session where the event occurred. If the event DID NOT occur within a browser, this element MUST be NULL.

3.1.4.5.3.3   ArrayOfFeedbackParameter (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Logging)

A complex type that specifies a list of FeedbackParameter elements.

```
<xs:complexType name="ArrayOfFeedbackParameter">
  <xs:sequence>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="FeedbackParameter" nillable="true"
type="tns:FeedbackParameter"/>
  </xs:sequence>
</xs:complexType>
```

FeedbackParameter: Each element MUST specify a FeedbackParameter element.

3.1.4.5.3.4   FeedbackParameter (from namespace http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Logging)

A complex type that specifies one property of the event being logged.

```
<xs:complexType name="FeedbackParameter">
  <xs:sequence>
    <xs:element minOccurs="0" name="ParameterName" nillable="true" type="xs:string"/>

    <xs:element minOccurs="0" name="ParameterValue" nillable="true" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

ParameterName: An xs:string [XMLSCHEMA2] element that specifies the name of the property.

ParameterValue: An xs:string [XMLSCHEMA2] element that specifies the value of the property.

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

4 Protocol Examples

The following examples contain a sample interaction between the protocol client and the protocol server.

4.1 Obtaining Information about the web traffic volume in the last 30 days

The protocol client can request information about the web traffic volume in the last 30 days. The following shows the request that can be sent to the protocol server:

```
<?xml version="1.0" encoding="utf-8"?>
  <s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <s:Body>
      <GetData xmlns="http://tempuri.org/">
        <aggregationContext
xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Process
edDataRetriever" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
          <b:_isUserFarmAdmin>true</b:_isUserFarmAdmin>
          <b:_isUserServiceApplicationAdmin>false</b:_isUserServiceApplicationAdmin>
          <b:_isUserSiteCollectionAdmin>true</b:_isUserSiteCollectionAdmin>
          <b:_isUserTenantAdmin>false</b:_isUserTenantAdmin>
          <b:_isWindowsAccount>true</b:_isWindowsAccount>
          <b:_userHasVUDPermisson>true</b:_userHasVUDPermisson>
          <b:_userLoginName>JOE_user</b:_userLoginName>
          <b:aggregationLevel>SiteCollection</b:aggregationLevel>
          <b:componentId>19dda115-1550-3943-729a-df3828df9352</b:componentId>
        </aggregationContext>
        <viewProperties xmlns:b="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
          <b:string></b:string>
        </viewProperties>
        <viewName>fn_WA_GetTrafficVolumePerDay</viewName>
        <viewParameters
xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Process
edDataRetriever" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
          <b:ViewParameterValue>
            <b:parameterName>EndDateId</b:parameterName>
            <b:value i:type="c:int"
xmlns:c="http://www.w3.org/2001/XMLSchema">20090602</b:value>
            <b:viewName></b:viewName>
          </b:ViewParameterValue>
          <b:ViewParameterValue>
            <b:parameterName>StartDateId</b:parameterName>
            <b:value i:type="c:int"
xmlns:c="http://www.w3.org/2001/XMLSchema">20090504</b:value>
            <b:viewName></b:viewName>
          </b:ViewParameterValue>
          <b:ViewParameterValue>
            <b:parameterName>ComponentId</b:parameterName>
            <b:value i:type="c:guid"
xmlns:c="http://schemas.microsoft.com/2003/10/Serialization/">19dda115-1550-3943-729a-
df3828df9352</b:value>
            <b:viewName></b:viewName>
          </b:ViewParameterValue>
          <b:ViewParameterValue>
            <b:parameterName>MetricType</b:parameterName>
            <b:value i:type="c:int" xmlns:c="http://www.w3.org/2001/XMLSchema">1</b:value>
            <b:viewName></b:viewName>
          </b:ViewParameterValue>
        </viewParameters>
        <whereCondition i:nil="true"
xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Process
edDataRetriever" xmlns:i="http://www.w3.org/2001/XMLSchema-instance"></whereCondition>
```

```
          <sortOrder
xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Process
edDataRetriever" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
            <b:SortOrder>
              <b:orderType>Ascending</b:orderType>
              <b:viewProperty>DateId</b:viewProperty>
            </b:SortOrder>
          </sortOrder>
          <rowIndex>1</rowIndex>
          <rowCount>2000</rowCount>
          <bypassCache>false</bypassCache>
        </GetData>
      </s:Body>
    </s:Envelope>
```

The protocol server can respond with the following message:

```
<?xml version="1.0" encoding="utf-8"?>
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Body>
    <GetDataResponse xmlns="http://tempuri.org/">
      <GetDataResult>
        <xs:schema id="NewDataSet" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns=""
xmlns:msdata="urn:schemas-microsoft-com:xml-msdata">
          <xs:element name="NewDataSet" msdata:IsDataSet="true"
msdata:MainDataTable="fn_wa_gettrafficvolumeperday" msdata:Locale="">
            <xs:complexType>
              <xs:choice minOccurs="0" maxOccurs="unbounded">
                <xs:element name="fn wa gettrafficvolumeperday" msdata:Locale="">
                  <xs:complexType>
                    <xs:sequence>
                      <xs:element name="DateId" type="xs:int" minOccurs="0"></xs:element>
                      <xs:element name="Frequency" type="xs:long" minOccurs="0"></xs:element>
                    </xs:sequence>
                  </xs:complexType>
                </xs:element>
              </xs:choice>
            </xs:complexType>
          </xs:element>
        </xs:schema>
        <diffgr:diffgram xmlns:diffgr="urn:schemas-microsoft-com:xml-diffgram-v1"
xmlns:msdata="urn:schemas-microsoft-com:xml-msdata">
          <DocumentElement xmlns="">
            <fn_wa_gettrafficvolumeperday diffgr:id="fn_wa_gettrafficvolumeperday1"
msdata:rowOrder="0">
              <DateId>20090519</DateId>
              <Frequency>2</Frequency>
            </fn_wa_gettrafficvolumeperday>
            <fn_wa_gettrafficvolumeperday diffgr:id="fn_wa_gettrafficvolumeperday2"
msdata:rowOrder="1">
              <DateId>20090520</DateId>
              <Frequency>9</Frequency>
            </fn wa gettrafficvolumeperday>
            <fn_wa_gettrafficvolumeperday diffgr:id="fn_wa_gettrafficvolumeperday3"
msdata:rowOrder="2">
              <DateId>20090525</DateId>
              <Frequency>5</Frequency>
            </fn wa gettrafficvolumeperday>
            <fn_wa_gettrafficvolumeperday diffgr:id="fn_wa_gettrafficvolumeperday4"
msdata:rowOrder="3">
              <DateId>20090529</DateId>
              <Frequency>1</Frequency>
            </fn_wa_gettrafficvolumeperday>
            <fn wa gettrafficvolumeperday diffgr:id="fn wa gettrafficvolumeperday5"
msdata:rowOrder="4">
```

```
                <DateId>20090530</DateId>
                <Frequency>1</Frequency>
              </fn_wa_gettrafficvolumeperday>
              <fn_wa_gettrafficvolumeperday diffgr:id="fn_wa_gettrafficvolumeperday6"
      msdata:rowOrder="5">
                <DateId>20090601</DateId>
                <Frequency>5</Frequency>
              </fn_wa_gettrafficvolumeperday>
              <fn_wa_gettrafficvolumeperday diffgr:id="fn_wa_gettrafficvolumeperday7"
      msdata:rowOrder="6">
                <DateId>20090602</DateId>
                <Frequency>24</Frequency>
              </fn_wa_gettrafficvolumeperday>
            </DocumentElement>
          </diffgr:diffgram>
        </GetDataResult>
      </GetDataResponse>
    </s:Body>
  </s:Envelope>
```

4.2   Obtaining Information about the top pages visited in the last 30 days

The protocol client can request information about the top pages visited in the last 30 days. The
following shows the request that can be sent to the protocol server:

```
<?xml version="1.0" encoding="utf-8"?>
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Body>
    <GetData xmlns="http://tempuri.org/">
      <aggregationContext
xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Process
edDataRetriever" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:_isUserFarmAdmin>true</b:_isUserFarmAdmin>
        <b:_isUserServiceApplicationAdmin>false</b:_isUserServiceApplicationAdmin>
        <b:_isUserSiteCollectionAdmin>true</b:_isUserSiteCollectionAdmin>
        <b:_isUserTenantAdmin>false</b:_isUserTenantAdmin>
        <b:_isWindowsAccount>true</b:_isWindowsAccount>
        <b:_userHasVUDPermisson>true</b:_userHasVUDPermisson>
        <b:_userLoginName>JOE_user</b:_userLoginName>
        <b:aggregationLevel>SiteCollection</b:aggregationLevel>
        <b:componentId>19dda115-1550-3943-729a-df3828df9352</b:componentId>
      </aggregationContext>
      <viewProperties xmlns:b="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:string></b:string>
      </viewProperties>
      <viewName>fn_WA_GetTopPages</viewName>
      <viewParameters
xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Process
edDataRetriever" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:ViewParameterValue>
          <b:parameterName>StartDateId</b:parameterName>
          <b:value i:type="c:int"
xmlns:c="http://www.w3.org/2001/XMLSchema">20090504</b:value>
          <b:viewName></b:viewName>
        </b:ViewParameterValue>
        <b:ViewParameterValue>
          <b:parameterName>EndDateId</b:parameterName>
          <b:value i:type="c:int"
xmlns:c="http://www.w3.org/2001/XMLSchema">20090602</b:value>
          <b:viewName></b:viewName>
        </b:ViewParameterValue>
        <b:ViewParameterValue>
          <b:parameterName>ComponentId</b:parameterName>
```

```
            <b:value i:type="c:guid"
xmlns:c="http://schemas.microsoft.com/2003/10/Serialization/">19dda115-1550-3943-729a-
df3828df9352</b:value>
            <b:viewName></b:viewName>
          </b:ViewParameterValue>
        </viewParameters>
        <whereCondition i:nil="true"
xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Process
edDataRetriever" xmlns:i="http://www.w3.org/2001/XMLSchema-instance"></whereCondition>
        <sortOrder
xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Process
edDataRetriever" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
          <b:SortOrder>
            <b:orderType>Descending</b:orderType>
            <b:viewProperty>Frequency</b:viewProperty>
          </b:SortOrder>
        </sortOrder>
        <rowIndex>1</rowIndex>
        <rowCount>2000</rowCount>
        <bypassCache>false</bypassCache>
      </GetData>
    </s:Body>
</s:Envelope>
```

The protocol server can respond with the following message:

```
<?xml version="1.0" encoding="utf-8"?>
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Body>
    <GetDataResponse xmlns="http://tempuri.org/">
      <GetDataResult>
        <xs:schema id="NewDataSet" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns=""
xmlns:msdata="urn:schemas-microsoft-com:xml-msdata">
          <xs:element name="NewDataSet" msdata:IsDataSet="true"
msdata:MainDataTable="fn wa gettoppages" msdata:Locale="">
            <xs:complexType>
              <xs:choice minOccurs="0" maxOccurs="unbounded">
                <xs:element name="fn_wa_gettoppages" msdata:Locale="">
                  <xs:complexType>
                    <xs:sequence>
                      <xs:element name="PageId" type="xs:string" minOccurs="0"></xs:element>
                      <xs:element name="Frequency" type="xs:long" minOccurs="0"></xs:element>
                      <xs:element name="Percentage" type="xs:float"
minOccurs="0"></xs:element>
                    </xs:sequence>
                  </xs:complexType>
                </xs:element>
              </xs:choice>
            </xs:complexType>
          </xs:element>
        </xs:schema>
        <diffgr:diffgram xmlns:diffgr="urn:schemas-microsoft-com:xml-diffgram-v1"
xmlns:msdata="urn:schemas-microsoft-com:xml-msdata">
          <DocumentElement xmlns="">
            <fn_wa_gettoppages diffgr:id="fn_wa_gettoppages1" msdata:rowOrder="0">
              <PageId>http://www.contoso.com/homepage.aspx</PageId>
              <Frequency>35</Frequency>
              <Percentage>74.46809</Percentage>
            </fn_wa_gettoppages>
            <fn_wa_gettoppages diffgr:id="fn_wa_gettoppages2" msdata:rowOrder="1">
              <PageId> http://www.contoso.com/pages/default.aspx</PageId>
              <Frequency>9</Frequency>
              <Percentage>19.1489353</Percentage>
            </fn wa gettoppages>
            <fn_wa_gettoppages diffgr:id="fn_wa_gettoppages3" msdata:rowOrder="2">
```

```
          <PageId> http://www.contoso.com/reports/pages/default.aspx</PageId>
          <Frequency>1</Frequency>
          <Percentage>2.12765956</Percentage>
        </fn_wa_gettoppages>
        <fn_wa_gettoppages diffgr:id="fn_wa_gettoppages4" msdata:rowOrder="3">
          <PageId> http://www.contoso.com/pages/newpage0601-1356.aspx</PageId>
          <Frequency>1</Frequency>
          <Percentage>2.12765956</Percentage>
        </fn_wa_gettoppages>
        <fn_wa_gettoppages diffgr:id="fn_wa_gettoppages5" msdata:rowOrder="4">
          <PageId> http://www.contoso.com/docs/default.aspx</PageId>
          <Frequency>1</Frequency>
          <Percentage>2.12765956</Percentage>
        </fn_wa_gettoppages>
      </DocumentElement>
    </diffgr:diffgram>
   </GetDataResult>
  </GetDataResponse>
 </s:Body>
</s:Envelope>
```

4.3   Obtaining Information about the top visitors in the last 30 days

The protocol client can request information about the top visitors in the last 30 days. The following shows the request that can be sent to the protocol server:

```
<?xml version="1.0" encoding="utf-8"?>
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Body>
    <GetData xmlns="http://tempuri.org/">
      <aggregationContext
xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Process
edDataRetriever" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:_isUserFarmAdmin>true</b:_isUserFarmAdmin>
        <b:_isUserServiceApplicationAdmin>false</b:_isUserServiceApplicationAdmin>
        <b:_isUserSiteCollectionAdmin>true</b:_isUserSiteCollectionAdmin>
        <b:_isUserTenantAdmin>false</b:_isUserTenantAdmin>
        <b:_isWindowsAccount>true</b:_isWindowsAccount>
        <b:_userHasVUDPermisson>true</b:_userHasVUDPermisson>
        <b:_userLoginName>JOE_user</b:_userLoginName>
        <b:aggregationLevel>SiteCollection</b:aggregationLevel>
        <b:componentId>19dda115-1550-3943-729a-df3828df9352</b:componentId>
      </aggregationContext>
      <viewProperties xmlns:b="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:string></b:string>
      </viewProperties>
      <viewName>fn WA GetTopVisitors</viewName>
      <viewParameters
xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Process
edDataRetriever" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:ViewParameterValue>
          <b:parameterName>StartDateId</b:parameterName>
          <b:value i:type="c:int"
xmlns:c="http://www.w3.org/2001/XMLSchema">20090504</b:value>
          <b:viewName></b:viewName>
        </b:ViewParameterValue>
        <b:ViewParameterValue>
          <b:parameterName>EndDateId</b:parameterName>
          <b:value i:type="c:int"
xmlns:c="http://www.w3.org/2001/XMLSchema">20090602</b:value>
          <b:viewName></b:viewName>
        </b:ViewParameterValue>
        <b:ViewParameterValue>
```

```
            <b:parameterName>ComponentId</b:parameterName>
            <b:value i:type="c:guid"
xmlns:c="http://schemas.microsoft.com/2003/10/Serialization/">19dda115-1550-3943-729a-
df3828df9352</b:value>
            <b:viewName></b:viewName>
          </b:ViewParameterValue>
        </viewParameters>
        <whereCondition i:type="b:GreaterThanCondition"
xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Process
edDataRetriever" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
          <b:viewPropertyValue>
            <b:propertyName>Frequency</b:propertyName>
            <b:value i:type="c:int" xmlns:c="http://www.w3.org/2001/XMLSchema">0</b:value>
            <b:viewName></b:viewName>
          </b:viewPropertyValue>
        </whereCondition>
        <sortOrder
xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Process
edDataRetriever" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
          <b:SortOrder>
            <b:orderType>Descending</b:orderType>
            <b:viewProperty>Frequency</b:viewProperty>
          </b:SortOrder>
        </sortOrder>
        <rowIndex>1</rowIndex>
        <rowCount>2000</rowCount>
        <bypassCache>false</bypassCache>
      </GetData>
    </s:Body>
</s:Envelope>
```

The protocol server can respond with the following message:

```
<?xml version="1.0" encoding="utf-8"?>
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Body>
    <GetDataResponse xmlns="http://tempuri.org/">
      <GetDataResult>
        <xs:schema id="NewDataSet" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns=""
xmlns:msdata="urn:schemas-microsoft-com:xml-msdata">
          <xs:element name="NewDataSet" msdata:IsDataSet="true"
msdata:MainDataTable="fn_wa_gettopvisitors" msdata:Locale="">
            <xs:complexType>
              <xs:choice minOccurs="0" maxOccurs="unbounded">
                <xs:element name="fn_wa_gettopvisitors" msdata:Locale="">
                  <xs:complexType>
                    <xs:sequence>
                      <xs:element name="UserName" type="xs:string"
minOccurs="0"></xs:element>
                      <xs:element name="Frequency" type="xs:long" minOccurs="0"></xs:element>
                      <xs:element name="Percentage" type="xs:float"
minOccurs="0"></xs:element>
                    </xs:sequence>
                  </xs:complexType>
                </xs:element>
              </xs:choice>
            </xs:complexType>
          </xs:element>
        </xs:schema>
        <diffgr:diffgram xmlns:diffgr="urn:schemas-microsoft-com:xml-diffgram-v1"
xmlns:msdata="urn:schemas-microsoft-com:xml-msdata">
          <DocumentElement xmlns="">
            <fn_wa_gettopvisitors diffgr:id="fn_wa_gettopvisitors1" msdata:rowOrder="0">
              <UserName>JOE user</UserName>
              <Frequency>34</Frequency>
```

```
              <Percentage>72.34042</Percentage>
            </fn_wa_gettopvisitors>
            <fn_wa_gettopvisitors diffgr:id="fn_wa_gettopvisitors2" msdata:rowOrder="1">
              <UserName>JOHN_user</UserName>
              <Frequency>8</Frequency>
              <Percentage>17.0212765</Percentage>
            </fn_wa_gettopvisitors>
            <fn_wa_gettopvisitors diffgr:id="fn_wa_gettopvisitors3" msdata:rowOrder="2">
              <UserName>JACK_user</UserName>
              <Frequency>5</Frequency>
              <Percentage>10.638298</Percentage>
            </fn_wa_gettopvisitors>
          </DocumentElement>
        </diffgr:diffgram>
      </GetDataResult>
    </GetDataResponse>
  </s:Body>
</s:Envelope>
```

5 Security

5.1 Security Considerations for Implementers

This protocol introduces no additional security considerations beyond those applicable to its underlying protocols.

5.2 Index of Security Parameters

None.

6 Appendix A: Full WSDL

For ease of implementation, the full WSDL is provided below:

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:tns="http://tempuri.org/"
xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" targetNamespace="http://tempuri.org/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:types>
    <xs:schema elementFormDefault="qualified" targetNamespace="http://tempuri.org/"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
      <xs:import
namespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proce
ssedDataRetriever" />
      <xs:import
namespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Admin
istration" />
      <xs:import
namespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Loggi
ng" />
      <xs:element name="GetData">
        <xs:complexType>
          <xs:sequence>
            <xs:element
xmlns:q1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proces
sedDataRetriever" minOccurs="0" name="aggregationContext" nillable="true"
type="q1:AggregationContext" />
            <xs:element
xmlns:q2="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proces
sedDataRetriever" minOccurs="0" name="dataContext" nillable="true" type="q2:DataContext" />
            <xs:element
xmlns:q3="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proces
sedDataRetriever" minOccurs="0" name="options" nillable="true" type="q3:GetDataOptions" />
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:element name="GetDataResponse">
        <xs:complexType>
          <xs:sequence>
            <xs:element
xmlns:q4="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Admini
stration" minOccurs="0" name="GetDataResult" nillable="true" type="q4:DataPacket" />
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:element name="GetServerTimeZoneId">
        <xs:complexType>
          <xs:sequence />
        </xs:complexType>
      </xs:element>
      <xs:element name="GetServerTimeZoneIdResponse">
        <xs:complexType>
          <xs:sequence>
            <xs:element minOccurs="0" name="GetServerTimeZoneIdResult"
type="xs:unsignedShort" />
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:element name="LogBestBetAction">
        <xs:complexType>
          <xs:sequence>
            <xs:element
xmlns:q5="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proces
sedDataRetriever" minOccurs="0" name="aggregationContext" nillable="true"
type="q5:AggregationContext" />
```

```
                <xs:element
xmlns:q6="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proces
sedDataRetriever" minOccurs="0" name="recommendation" nillable="true"
type="q6:BestBetRecommendation" />
              </xs:sequence>
            </xs:complexType>
          </xs:element>
          <xs:element name="LogBestBetActionResponse">
            <xs:complexType>
              <xs:sequence />
            </xs:complexType>
          </xs:element>
          <xs:element name="LogFeedback">
            <xs:complexType>
              <xs:sequence>
                <xs:element
xmlns:q7="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Loggin
g" minOccurs="0" name="feedback" nillable="true" type="q7:ArrayOfFeedback" />
              </xs:sequence>
            </xs:complexType>
          </xs:element>
          <xs:element name="LogFeedbackResponse">
            <xs:complexType>
              <xs:sequence />
            </xs:complexType>
          </xs:element>
          <xs:element name="GetLoggingBatchSize">
            <xs:complexType>
              <xs:sequence />
            </xs:complexType>
          </xs:element>
          <xs:element name="GetLoggingBatchSizeResponse">
            <xs:complexType>
              <xs:sequence>
                <xs:element minOccurs="0" name="GetLoggingBatchSizeResult" type="xs:int" />
              </xs:sequence>
            </xs:complexType>
          </xs:element>
        </xs:schema>
        <xs:schema
xmlns:tns="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proce
ssedDataRetriever" xmlns:ser="http://schemas.microsoft.com/2003/10/Serialization/"
elementFormDefault="qualified"
targetNamespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics
.ProcessedDataRetriever" xmlns:xs="http://www.w3.org/2001/XMLSchema">
          <xs:import namespace="http://schemas.microsoft.com/2003/10/Serialization/" />
          <xs:import namespace="http://schemas.microsoft.com/2003/10/Serialization/Arrays" />
          <xs:complexType name="AggregationContext">
            <xs:sequence>
              <xs:element minOccurs="0" name="_isUserFarmAdmin" type="xs:boolean" />
              <xs:element minOccurs="0" name="_isUserServiceApplicationAdmin" type="xs:boolean"
/>
              <xs:element minOccurs="0" name="_isUserSiteCollectionAdmin" type="xs:boolean" />
              <xs:element minOccurs="0" name="_isUserTenantAdmin" type="xs:boolean" />
              <xs:element minOccurs="0" name="_isWindowsAccount" type="xs:boolean" />
              <xs:element minOccurs="0" name="_userHasVUDPermisson" type="xs:boolean" />
              <xs:element minOccurs="0" name="_userLogOnName" nillable="true" type="xs:string" />
              <xs:element minOccurs="0" name="aggregationId" type="ser:guid" />
              <xs:element minOccurs="0" name="aggregationLevel" type="tns:AggregationLevel" />
            </xs:sequence>
          </xs:complexType>
          <xs:element name="AggregationContext" nillable="true" type="tns:AggregationContext" />
          <xs:simpleType name="AggregationLevel">
            <xs:restriction base="xs:string">
              <xs:enumeration value="ServiceApplication" />
              <xs:enumeration value="WebApplication" />
              <xs:enumeration value="SiteCollection" />
              <xs:enumeration value="Site" />
            </xs:restriction>
```

```xml
            </xs:simpleType>
            <xs:element name="AggregationLevel" nillable="true" type="tns:AggregationLevel" />
            <xs:complexType name="DataContext">
              <xs:sequence>
                <xs:element minOccurs="0" name="rowCount" type="xs:int" />
                <xs:element minOccurs="0" name="rowIndex" type="xs:int" />
                <xs:element minOccurs="0" name="sortOrder" nillable="true"
    type="tns:ArrayOfSortOrder" />
                <xs:element minOccurs="0" name="viewName" nillable="true" type="xs:string" />
                <xs:element minOccurs="0" name="viewParameters" nillable="true"
    type="tns:ArrayOfViewParameterValue" />
                <xs:element xmlns:q1="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
    minOccurs="0" name="viewProperties" nillable="true" type="q1:ArrayOfstring" />
                <xs:element minOccurs="0" name="whereCondition" nillable="true"
    type="tns:Condition" />
              </xs:sequence>
            </xs:complexType>
            <xs:element name="DataContext" nillable="true" type="tns:DataContext" />
            <xs:complexType name="ArrayOfSortOrder">
              <xs:sequence>
                <xs:element minOccurs="0" maxOccurs="unbounded" name="SortOrder" nillable="true"
    type="tns:SortOrder" />
              </xs:sequence>
            </xs:complexType>
            <xs:element name="ArrayOfSortOrder" nillable="true" type="tns:ArrayOfSortOrder" />
            <xs:complexType name="SortOrder">
              <xs:sequence>
                <xs:element name="orderType" type="tns:OrderType" />
                <xs:element name="viewProperty" nillable="true" type="xs:string" />
              </xs:sequence>
            </xs:complexType>
            <xs:element name="SortOrder" nillable="true" type="tns:SortOrder" />
            <xs:simpleType name="OrderType">
              <xs:restriction base="xs:string">
                <xs:enumeration value="Ascending" />
                <xs:enumeration value="Descending" />
              </xs:restriction>
            </xs:simpleType>
            <xs:element name="OrderType" nillable="true" type="tns:OrderType" />
            <xs:complexType name="ArrayOfViewParameterValue">
              <xs:sequence>
                <xs:element minOccurs="0" maxOccurs="unbounded" name="ViewParameterValue"
    nillable="true" type="tns:ViewParameterValue" />
              </xs:sequence>
            </xs:complexType>
            <xs:element name="ArrayOfViewParameterValue" nillable="true"
    type="tns:ArrayOfViewParameterValue" />
            <xs:complexType name="ViewParameterValue">
              <xs:sequence>
                <xs:element name="parameterName" nillable="true" type="xs:string" />
                <xs:element name="parameterValue" nillable="true" type="xs:anyType" />
                <xs:element name="viewName" nillable="true" type="xs:string" />
              </xs:sequence>
            </xs:complexType>
            <xs:element name="ViewParameterValue" nillable="true" type="tns:ViewParameterValue" />
            <xs:complexType name="Condition">
              <xs:sequence />
            </xs:complexType>
            <xs:element name="Condition" nillable="true" type="tns:Condition" />
            <xs:complexType name="EqualCondition">
              <xs:complexContent mixed="false">
                <xs:extension base="tns:ComparisonCondition">
                  <xs:sequence />
                </xs:extension>
              </xs:complexContent>
            </xs:complexType>
            <xs:element name="EqualCondition" nillable="true" type="tns:EqualCondition" />
            <xs:complexType name="ComparisonCondition">
              <xs:complexContent mixed="false">
```

```
            <xs:extension base="tns:Condition">
              <xs:sequence>
                <xs:element name="viewPropertyValue" nillable="true"
type="tns:ViewPropertyValue" />
              </xs:sequence>
            </xs:extension>
          </xs:complexContent>
        </xs:complexType>
        <xs:element name="ComparisonCondition" nillable="true" type="tns:ComparisonCondition"
/>
        <xs:complexType name="ViewPropertyValue">
          <xs:sequence>
            <xs:element name="propertyName" nillable="true" type="xs:string" />
            <xs:element name="propertyValue" nillable="true" type="xs:anyType" />
            <xs:element name="viewName" nillable="true" type="xs:string" />
          </xs:sequence>
        </xs:complexType>
        <xs:element name="ViewPropertyValue" nillable="true" type="tns:ViewPropertyValue" />
        <xs:complexType name="LessThanEqualCondition">
          <xs:complexContent mixed="false">
            <xs:extension base="tns:ComparisonCondition">
              <xs:sequence />
            </xs:extension>
          </xs:complexContent>
        </xs:complexType>
        <xs:element name="LessThanEqualCondition" nillable="true"
type="tns:LessThanEqualCondition" />
        <xs:complexType name="GreaterThanCondition">
          <xs:complexContent mixed="false">
            <xs:extension base="tns:ComparisonCondition">
              <xs:sequence />
            </xs:extension>
          </xs:complexContent>
        </xs:complexType>
        <xs:element name="GreaterThanCondition" nillable="true" type="tns:GreaterThanCondition"
/>
        <xs:complexType name="GreaterThanEqualCondition">
          <xs:complexContent mixed="false">
            <xs:extension base="tns:ComparisonCondition">
              <xs:sequence />
            </xs:extension>
          </xs:complexContent>
        </xs:complexType>
        <xs:element name="GreaterThanEqualCondition" nillable="true"
type="tns:GreaterThanEqualCondition" />
        <xs:complexType name="LikeCondition">
          <xs:complexContent mixed="false">
            <xs:extension base="tns:ComparisonCondition">
              <xs:sequence />
            </xs:extension>
          </xs:complexContent>
        </xs:complexType>
        <xs:element name="LikeCondition" nillable="true" type="tns:LikeCondition" />
        <xs:complexType name="NotLikeCondition">
          <xs:complexContent mixed="false">
            <xs:extension base="tns:ComparisonCondition">
              <xs:sequence />
            </xs:extension>
          </xs:complexContent>
        </xs:complexType>
        <xs:element name="NotLikeCondition" nillable="true" type="tns:NotLikeCondition" />
        <xs:complexType name="AndCondition">
          <xs:complexContent mixed="false">
            <xs:extension base="tns:LogicalCondition">
              <xs:sequence />
            </xs:extension>
          </xs:complexContent>
        </xs:complexType>
        <xs:element name="AndCondition" nillable="true" type="tns:AndCondition" />
```

```xml
<xs:complexType name="LogicalCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:Condition">
      <xs:sequence>
        <xs:element name="left" nillable="true" type="tns:Condition" />
        <xs:element name="right" nillable="true" type="tns:Condition" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:element name="LogicalCondition" nillable="true" type="tns:LogicalCondition" />
<xs:complexType name="OrCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:LogicalCondition">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:element name="OrCondition" nillable="true" type="tns:OrCondition" />
<xs:complexType name="NotEqualCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:ComparisonCondition">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:element name="NotEqualCondition" nillable="true" type="tns:NotEqualCondition" />
<xs:complexType name="LessThanCondition">
  <xs:complexContent mixed="false">
    <xs:extension base="tns:ComparisonCondition">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:element name="LessThanCondition" nillable="true" type="tns:LessThanCondition" />
<xs:complexType name="GetDataOptions">
  <xs:sequence>
    <xs:element minOccurs="0" name="bypassCache" type="xs:boolean" />
  </xs:sequence>
</xs:complexType>
<xs:element name="GetDataOptions" nillable="true" type="tns:GetDataOptions" />
<xs:complexType name="DataRetrieverFailure">
  <xs:sequence>
    <xs:element minOccurs="0" name="ErrorCode" type="tns:DataRetrieverErrorCode" />
    <xs:element minOccurs="0" name="Message" nillable="true" type="xs:string" />
  </xs:sequence>
</xs:complexType>
<xs:element name="DataRetrieverFailure" nillable="true" type="tns:DataRetrieverFailure"
/>
<xs:simpleType name="DataRetrieverErrorCode">
  <xs:restriction base="xs:string">
    <xs:enumeration value="NoMatchingWarehouseSubscription" />
    <xs:enumeration value="Security" />
    <xs:enumeration value="SqlBackend" />
    <xs:enumeration value="QueryValidation" />
    <xs:enumeration value="ServiceNotProvisioned" />
    <xs:enumeration value="Unknown" />
  </xs:restriction>
</xs:simpleType>
<xs:element name="DataRetrieverErrorCode" nillable="true"
type="tns:DataRetrieverErrorCode" />
<xs:complexType name="BestBetRecommendation">
  <xs:sequence>
    <xs:element minOccurs="0" name="action" type="tns:BestBetAction" />
    <xs:element minOccurs="0" name="assetId" nillable="true" type="xs:string" />
    <xs:element minOccurs="0" name="queryText" nillable="true" type="xs:string" />
  </xs:sequence>
</xs:complexType>
```

```xml
        <xs:element name="BestBetRecommendation" nillable="true"
type="tns:BestBetRecommendation" />
      <xs:simpleType name="BestBetAction">
        <xs:restriction base="xs:string">
          <xs:enumeration value="Accept" />
          <xs:enumeration value="Reject" />
        </xs:restriction>
      </xs:simpleType>
      <xs:element name="BestBetAction" nillable="true" type="tns:BestBetAction" />
    </xs:schema>
    <xs:schema xmlns:tns="http://schemas.microsoft.com/2003/10/Serialization/"
attributeFormDefault="qualified" elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/2003/10/Serialization/"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
      <xs:element name="anyType" nillable="true" type="xs:anyType" />
      <xs:element name="anyURI" nillable="true" type="xs:anyURI" />
      <xs:element name="base64Binary" nillable="true" type="xs:base64Binary" />
      <xs:element name="boolean" nillable="true" type="xs:boolean" />
      <xs:element name="byte" nillable="true" type="xs:byte" />
      <xs:element name="dateTime" nillable="true" type="xs:dateTime" />
      <xs:element name="decimal" nillable="true" type="xs:decimal" />
      <xs:element name="double" nillable="true" type="xs:double" />
      <xs:element name="float" nillable="true" type="xs:float" />
      <xs:element name="int" nillable="true" type="xs:int" />
      <xs:element name="long" nillable="true" type="xs:long" />
      <xs:element name="QName" nillable="true" type="xs:QName" />
      <xs:element name="short" nillable="true" type="xs:short" />
      <xs:element name="string" nillable="true" type="xs:string" />
      <xs:element name="unsignedByte" nillable="true" type="xs:unsignedByte" />
      <xs:element name="unsignedInt" nillable="true" type="xs:unsignedInt" />
      <xs:element name="unsignedLong" nillable="true" type="xs:unsignedLong" />
      <xs:element name="unsignedShort" nillable="true" type="xs:unsignedShort" />
      <xs:element name="char" nillable="true" type="tns:char" />
      <xs:simpleType name="char">
        <xs:restriction base="xs:int" />
      </xs:simpleType>
      <xs:element name="duration" nillable="true" type="tns:duration" />
      <xs:simpleType name="duration">
        <xs:restriction base="xs:duration">
          <xs:pattern value="\-?P(\d*D)?(T(\d*H)?(\d*M)?(\d*(\.\d*)?S)?)?" />
          <xs:minInclusive value="-P10675199DT2H48M5.4775808S" />
          <xs:maxInclusive value="P10675199DT2H48M5.4775807S" />
        </xs:restriction>
      </xs:simpleType>
      <xs:element name="guid" nillable="true" type="tns:guid" />
      <xs:simpleType name="guid">
        <xs:restriction base="xs:string">
          <xs:pattern value="[\da-fA-F]{8}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-
F]{12}" />
        </xs:restriction>
      </xs:simpleType>
      <xs:attribute name="FactoryType" type="xs:QName" />
      <xs:attribute name="Id" type="xs:ID" />
      <xs:attribute name="Ref" type="xs:IDREF" />
    </xs:schema>
    <xs:schema xmlns:tns="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
      <xs:complexType name="ArrayOfstring">
        <xs:sequence>
          <xs:element minOccurs="0" maxOccurs="unbounded" name="string" nillable="true"
type="xs:string" />
        </xs:sequence>
      </xs:complexType>
      <xs:element name="ArrayOfstring" nillable="true" type="tns:ArrayOfstring" />
    </xs:schema>
```

```
        <xs:schema
xmlns:tns="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Admin
istration" elementFormDefault="qualified"
targetNamespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics
.Administration" xmlns:xs="http://www.w3.org/2001/XMLSchema">
            <xs:complexType name="DataPacket">
              <xs:sequence>
                <xs:element minOccurs="0" name="DataTable" nillable="true">
                  <xs:complexType>
                    <xs:annotation>
                      <xs:appinfo>
                        <ActualType Name="DataTable"
Namespace="http://schemas.datacontract.org/2004/07/System.Data"
xmlns="http://schemas.microsoft.com/2003/10/Serialization/"/>
                      </xs:appinfo>
                    </xs:annotation>
                    <xs:sequence>
                      <xs:any minOccurs="0" maxOccurs="unbounded"
namespace="http://www.w3.org/2001/XMLSchema" processContents="lax" />
                      <xs:any minOccurs="1" namespace="urn:schemas-microsoft-com:xml-diffgram-v1"
processContents="lax" />
                    </xs:sequence>
                  </xs:complexType>
                </xs:element>
                <xs:element minOccurs="0" name="LastDataUpdatedTime" type="xs:dateTime" />
              </xs:sequence>
            </xs:complexType>
            <xs:element name="DataPacket" nillable="true" type="tns:DataPacket" />
        </xs:schema>
        <xs:schema
xmlns:tns="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Loggi
ng" elementFormDefault="qualified"
targetNamespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics
.Logging" xmlns:xs="http://www.w3.org/2001/XMLSchema">
            <xs:complexType name="ArrayOfFeedback">
              <xs:sequence>
                <xs:element minOccurs="0" maxOccurs="unbounded" name="Feedback" nillable="true"
type="tns:Feedback" />
              </xs:sequence>
            </xs:complexType>
            <xs:element name="ArrayOfFeedback" nillable="true" type="tns:ArrayOfFeedback" />
            <xs:complexType name="Feedback">
              <xs:sequence>
                <xs:element minOccurs="0" name="FeedbackFunction" nillable="true" type="xs:string"
/>
                <xs:element minOccurs="0" name="FeedbackParameters" nillable="true"
type="tns:ArrayOfFeedbackParameter" />
                <xs:element minOccurs="0" name="SessionId" nillable="true" type="xs:string" />
              </xs:sequence>
            </xs:complexType>
            <xs:element name="Feedback" nillable="true" type="tns:Feedback" />
            <xs:complexType name="ArrayOfFeedbackParameter">
              <xs:sequence>
                <xs:element minOccurs="0" maxOccurs="unbounded" name="FeedbackParameter"
nillable="true" type="tns:FeedbackParameter" />
              </xs:sequence>
            </xs:complexType>
            <xs:element name="ArrayOfFeedbackParameter" nillable="true"
type="tns:ArrayOfFeedbackParameter" />
            <xs:complexType name="FeedbackParameter">
              <xs:sequence>
                <xs:element minOccurs="0" name="ParameterName" nillable="true" type="xs:string" />
                <xs:element minOccurs="0" name="ParameterValue" nillable="true" type="xs:string" />
              </xs:sequence>
            </xs:complexType>
            <xs:element name="FeedbackParameter" nillable="true" type="tns:FeedbackParameter" />
        </xs:schema>
        <xs:schema xmlns:tns="http://schemas.datacontract.org/2004/07/System.Data"
elementFormDefault="qualified"
```

```
        targetNamespace="http://schemas.datacontract.org/2004/07/System.Data"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
            <xs:element name="DataTable" nillable="true">
              <xs:complexType>
                <xs:sequence>
                  <xs:any minOccurs="0" maxOccurs="unbounded"
namespace="http://www.w3.org/2001/XMLSchema" processContents="lax" />
                  <xs:any minOccurs="1" namespace="urn:schemas-microsoft-com:xml-diffgram-v1"
processContents="lax" />
                </xs:sequence>
              </xs:complexType>
            </xs:element>
        </xs:schema>
    </wsdl:types>
    <wsdl:message name="IWebAnalyticsWebServiceApplication_GetData_InputMessage">
        <wsdl:part name="parameters" element="tns:GetData" />
    </wsdl:message>
    <wsdl:message name="IWebAnalyticsWebServiceApplication_GetData_OutputMessage">
        <wsdl:part name="parameters" element="tns:GetDataResponse" />
    </wsdl:message>
    <wsdl:message
name="IWebAnalyticsWebServiceApplication_GetData_DataRetrieverFailureFault_FaultMessage">
        <wsdl:part
xmlns:q1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proces
sedDataRetriever" name="detail" element="q1:DataRetrieverFailure" />
    </wsdl:message>
    <wsdl:message name="IWebAnalyticsWebServiceApplication_GetServerTimeZoneId_InputMessage">
        <wsdl:part name="parameters" element="tns:GetServerTimeZoneId" />
    </wsdl:message>
    <wsdl:message name="IWebAnalyticsWebServiceApplication_GetServerTimeZoneId_OutputMessage">
        <wsdl:part name="parameters" element="tns:GetServerTimeZoneIdResponse" />
    </wsdl:message>
    <wsdl:message
name="IWebAnalyticsWebServiceApplication_GetServerTimeZoneId_DataRetrieverFailureFault_FaultM
essage">
        <wsdl:part
xmlns:q2="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proces
sedDataRetriever" name="detail" element="q2:DataRetrieverFailure" />
    </wsdl:message>
    <wsdl:message name="IWebAnalyticsWebServiceApplication_LogBestBetAction_InputMessage">
        <wsdl:part name="parameters" element="tns:LogBestBetAction" />
    </wsdl:message>
    <wsdl:message name="IWebAnalyticsWebServiceApplication_LogBestBetAction_OutputMessage">
        <wsdl:part name="parameters" element="tns:LogBestBetActionResponse" />
    </wsdl:message>
    <wsdl:message
name="IWebAnalyticsWebServiceApplication_LogBestBetAction_DataRetrieverFailureFault_FaultMess
age">
        <wsdl:part
xmlns:q3="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.WebAnalytics.Proces
sedDataRetriever" name="detail" element="q3:DataRetrieverFailure" />
    </wsdl:message>
    <wsdl:message name="IWebAnalyticsWebServiceApplication_LogFeedback_InputMessage">
        <wsdl:part name="parameters" element="tns:LogFeedback" />
    </wsdl:message>
    <wsdl:message name="IWebAnalyticsWebServiceApplication_LogFeedback_OutputMessage">
        <wsdl:part name="parameters" element="tns:LogFeedbackResponse" />
    </wsdl:message>
    <wsdl:message name="IWebAnalyticsWebServiceApplication_GetLoggingBatchSize_InputMessage">
        <wsdl:part name="parameters" element="tns:GetLoggingBatchSize" />
    </wsdl:message>
    <wsdl:message name="IWebAnalyticsWebServiceApplication_GetLoggingBatchSize_OutputMessage">
        <wsdl:part name="parameters" element="tns:GetLoggingBatchSizeResponse" />
    </wsdl:message>
    <wsdl:portType name="IWebAnalyticsWebServiceApplication">
        <wsdl:operation name="GetData">
            <wsdl:input wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetData"
message="tns:IWebAnalyticsWebServiceApplication_GetData_InputMessage" />
```

```
      <wsdl:output
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetDataResponse"
message="tns:IWebAnalyticsWebServiceApplication_GetData_OutputMessage" />
      <wsdl:fault
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetDataDataRetrieverFailur
eFault" name="DataRetrieverFailureFault"
message="tns:IWebAnalyticsWebServiceApplication_GetData_DataRetrieverFailureFault_FaultMessag
e" />
      </wsdl:operation>
    <wsdl:operation name="GetServerTimeZoneId">
      <wsdl:input
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetServerTimeZoneId"
message="tns:IWebAnalyticsWebServiceApplication_GetServerTimeZoneId_InputMessage" />
      <wsdl:output
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetServerTimeZoneIdRespons
e" message="tns:IWebAnalyticsWebServiceApplication_GetServerTimeZoneId_OutputMessage" />
      <wsdl:fault
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetServerTimeZoneIdDataRet
rieverFailureFault" name="DataRetrieverFailureFault"
message="tns:IWebAnalyticsWebServiceApplication_GetServerTimeZoneId_DataRetrieverFailureFault
_FaultMessage" />
      </wsdl:operation>
    <wsdl:operation name="LogBestBetAction">
      <wsdl:input
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/LogBestBetAction"
message="tns:IWebAnalyticsWebServiceApplication_LogBestBetAction_InputMessage" />
      <wsdl:output
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/LogBestBetActionResponse"
message="tns:IWebAnalyticsWebServiceApplication_LogBestBetAction_OutputMessage" />
      <wsdl:fault
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/LogBestBetActionDataRetrie
verFailureFault" name="DataRetrieverFailureFault"
message="tns:IWebAnalyticsWebServiceApplication_LogBestBetAction_DataRetrieverFailureFault_Fa
ultMessage" />
      </wsdl:operation>
    <wsdl:operation name="LogFeedback">
      <wsdl:input
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/LogFeedback"
message="tns:IWebAnalyticsWebServiceApplication_LogFeedback_InputMessage" />
      <wsdl:output
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/LogFeedbackResponse"
message="tns:IWebAnalyticsWebServiceApplication_LogFeedback_OutputMessage" />
      </wsdl:operation>
    <wsdl:operation name="GetLoggingBatchSize">
      <wsdl:input
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetLoggingBatchSize"
message="tns:IWebAnalyticsWebServiceApplication_GetLoggingBatchSize_InputMessage" />
      <wsdl:output
wsam:Action="http://tempuri.org/IWebAnalyticsWebServiceApplication/GetLoggingBatchSizeRespons
e" message="tns:IWebAnalyticsWebServiceApplication_GetLoggingBatchSize_OutputMessage" />
      </wsdl:operation>
  </wsdl:portType>
</wsdl:definitions>
```

7   Appendix B: Product Behavior

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

- Microsoft FAST Search Server 2010

- Microsoft SharePoint Server 2010

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

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

<1> Section 2.1:   This protocol is built upon the Windows Communication Foundation (WCF).

<2> Section 3.1.4: Processing of the logged data is a two-step process. The data is batched every 10 minutes and aggregated once every day.

<3> Section 3.1.4.5: Processing of the logged data is a two-step process. The data is batched every 10 minutes and aggregated once every day.

8 Change Tracking

This section identifies changes that were made to this document since the last release. Changes are classified as Major, Minor, or None.

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.
- A document revision that captures changes to protocol functionality.

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 **None** means that no new technical changes were introduced. Minor editorial and formatting changes may have been made, but the relevant technical content is identical to the last released version.

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

Section	Description	Revision class
3.1.4.3.2.2 GetServerTimeZoneIdResponse	Updated the type in the description for GetServerTimeZoneIdResult to xs:unsignedShort.	Minor

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