

[MS-NOTESWS]:

MS Search Lotus Notes Web Service Protocol

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Revision Summary

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1 Introduction

The MS Search Lotus Notes Web Service Protocol enables a client to query a Lotus Notes application to discover Domino servers available, discover databases available on those Domino servers, and pull content and properties from those databases.

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:

crawled property: A type of metadata that can be discovered during a crawl and applied to one or more items. It can be promoted to a managed property. See also managed property.

display URL: The URL that is displayed on a search results page for each search result. This can be different than an access URL. See also access URL.

endpoint: A communication port that is exposed by an application server for a specific shared service and to which messages can be addressed.

file extension: The sequence of characters in a file's name between the end of the file's name and the last "." character. Vendors of applications choose such sequences for the applications to uniquely identify files that were created by those applications. This allows file management software to determine which application are to be used to open a file.

Hypertext Transfer Protocol (HTTP): An application-level protocol for distributed, collaborative, hypermedia information systems (text, graphic images, sound, video, and other multimedia files) on the World Wide Web.

Hypertext Transfer Protocol Secure (HTTPS): An extension of HTTP that securely encrypts and decrypts web page requests. In some older protocols, "Hypertext Transfer Protocol over Secure Sockets Layer" is still used (Secure Sockets Layer has been deprecated). For more information, see [\[SSL3\]](#) and [\[RFC5246\]](#).

item: A unit of content that can be indexed and searched by a search application.

security descriptor: A data structure containing the security information associated with a securable object. A **security descriptor** identifies an object's owner by its security identifier (SID). If access control is configured for the object, its **security descriptor** contains a discretionary access control list (DACL) with SIDs for the security principals who are allowed or denied access. Applications use this structure to set and query an object's security status. The **security descriptor** is used to guard access to an object as well as to control which type of auditing takes place when the object is accessed. The **security descriptor** format is specified in [\[MS-DTYP\]](#) section 2.4.6; a string representation of **security descriptors**, called SDDL, is specified in [\[MS-DTYP\]](#) section 2.5.1.

SOAP: A lightweight protocol for exchanging structured information in a decentralized, distributed environment. **SOAP** uses XML technologies to define an extensible messaging framework, which provides a message construct that can be exchanged over a variety of underlying protocols. The framework has been designed to be independent of any particular programming model and other implementation-specific semantics. SOAP 1.2 supersedes SOAP 1.1. See [\[SOAP1.2-1/2003\]](#).

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.

Uniform Resource Identifier (URI): A string that identifies a resource. The URI is an addressing mechanism defined in Internet Engineering Task Force (IETF) Uniform Resource Identifier (URI): Generic Syntax [\[RFC3986\]](#).

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 message: An abstract, typed definition of the data that is communicated during a **WSDL operation** [\[WSDL\]](#). Also, an element that describes the data being exchanged between web service providers and clients.

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 namespace prefix: An abbreviated form of an **XML namespace**, as described in [\[XML\]](#).

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.

[MS-DOC] Microsoft Corporation, "[Word \(.doc\) Binary File Format](#)".

[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/>

[SOAP1.2-1/2007] Gudgin, M., Hadley, M., Mendelsohn, N., et al., "SOAP Version 1.2 Part 1: Messaging Framework (Second Edition)", W3C Recommendation, April 2007, <http://www.w3.org/TR/2007/REC-soap12-part1-20070427/>

[WSA1.0] Gudgin, M., Hadley, M., Rogers, T., et al., Eds., "Web Services Addressing 1.0 - WSDL Binding", W3C Candidate Recommendation, May 2006, <http://www.w3.org/TR/2006/CR-ws-addr-wsdl-20060529/>

[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/>

[XMLSCHEMA1/2] Thompson, H., Beech, D., Maloney, M., and Mendelsohn, N., Eds., "XML Schema Part 1: Structures Second Edition", W3C Recommendation, October 2004, <http://www.w3.org/TR/2004/REC-xmlschema-1-20041028/>

[XMLSCHEMA2/2] Biron, P., and Malhotra, A., Eds., "XML Schema Part 2: Datatypes Second Edition", W3C Recommendation, October 2004, <http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/>

1.2.2 Informative References

[MS-SPSTWS] Microsoft Corporation, "[SharePoint Security Token Service Web Service Protocol](#)".

[MS-SPTWS] Microsoft Corporation, "[Service Platform Topology Web Service Protocol](#)".

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

[SOAP1.2-2/2007] Gudgin, M., Hadley, M., Mendelsohn, N., et al., "SOAP Version 1.2 Part 2: Adjuncts (Second Edition)", W3C Recommendation, April 2007, <http://www.w3.org/TR/2007/REC-soap12-part2-20070427>

1.3 Overview

This protocol enables a protocol client to query a Lotus Notes Client application to discover Domino servers available, discover databases available on those Domino servers, and pull content and properties from those databases.

A typical scenario for using this protocol involves two stages. First, a Domino server and database are identified. This step typically involves the following sequence:

- The protocol client gets the list of servers.
- Choose a server.
- For that specific Domino server, the protocol client gets the list of databases.
- For each database, the protocol client gets the properties of that database.
- Choose a database.

The second step, after a specific database is chosen, is to retrieve items from that database. This step typically involves the following sequence:

- For that specific database, the protocol client gets the list of **items**.
- For each item, the protocol client gets the content and properties of that item.
- If an item has attachments, for each attachment, the protocol client gets the contents and properties of that attachment.

1.4 Relationship to Other Protocols

This protocol uses the **SOAP** message protocol for formatting request and response messages, as described in [\[SOAP1.1\]](#), [\[SOAP1.2-1/2007\]](#) and [\[SOAP1.2-2/2007\]](#). 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 that is used by the protocol:

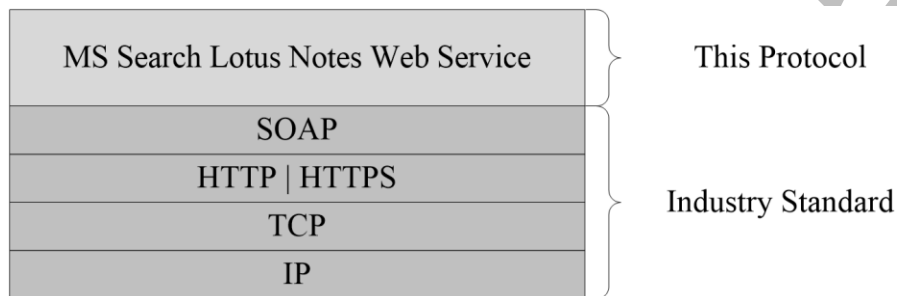


Figure 1: This protocol in relation to other protocols

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 was designed to allow a client to discover **Domino Servers**, discover databases on those servers, and retrieve indexable content, **crawled properties**, and attachments from **Lotus Notes items** on those databases. It is intended to be used as a means to crawl content on **Domino Servers**. This protocol was designed to return 10,000 or less items per call and support a minimum crawl speed of 10 items per second.

1.7 Versioning and Capability Negotiation

This document covers versioning issues in the following areas:

- **Supported Transports:** This protocol can be implemented by using transports that support sending **Simple Object Access Protocol (SOAP)** messages, as described in section 2.1.
- **Protocol Versions:** This protocol is not versioned.

Capability Negotiation: This protocol does not support version negotiation.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

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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 [\[SOAP1.2-1/2007\]](#), 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 [\[SOAP1.2-1/2007\]](#), (Section 5.4, SOAP Fault).

2.2 Common Message Syntax

This section contains common definitions that are used by this protocol. The syntax of the definitions uses **XML schema**, as specified in [\[XMLSCHEMA1/2\]](#) and [\[XMLSCHEMA2/2\]](#), and **WSDL**, as specified in [\[WSDL\]](#).

2.2.1 Namespaces

This specification defines and references various **XML namespaces** using the mechanisms specified in [\[XMLNS\]](#). Although this specification associates a specific **XML namespace prefix** for each XML namespace that is used, the choice of any particular XML namespace prefix is implementation-specific and not significant for interoperability.

Prefix	Namespace URI	Reference
soap	http://schemas.xmlsoap.org/wsdl/soap/	[SOAP1.1]
tns	http://tempuri.org/	
tns1	http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration	
tns2	http://schemas.microsoft.com/2003/10/Serialization/	
tns3	http://tempuri.org/Imports	
wsaw	http://www.w3.org/2006/05/addressing/wsdl	Web Service Addressing [WSA1.0]
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]
xs	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1/2] [XMLSCHEMA2/2]

2.2.2 Messages

This specification does not define any common **WSDL message** definitions.

2.2.3 Elements

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

2.2.4 Complex Types

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

Complex type	Description
ArrayOfNOTESATTACHMENTID	This type represents an array of NOTESATTACHMENTID values. Every NOTESATTACHMENTID.attachmentName MUST be a unique value within this array.
ArrayOfPROPERTY	This type represents an array of arbitrary PROPERTY values.
INDEXABLECONTENT	This type contains the content of the Lotus Notes item or the content of an attachment of a Lotus Notes Item .
NOTESATTACHMENTID	This type contains the unique identifier of an attachment in a Lotus Notes document.
NOTESITEM	This type contains the crawled properties , indexable content, security descriptor , display URL and attachment ids of a Lotus Notes item .
PROPERTY	This type contains the crawled property of a Lotus Notes Item .
SecurityDescriptor	This type contains the security descriptor of a Lotus Notes item .
SERVERITEM	This type contains the unique identifier and display URL of the Domino server .

2.2.4.1 ArrayOfNOTESATTACHMENTID

Namespace: <http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration>

This type represents an array of NOTESATTACHMENTID values. Every **NOTESATTACHMENTID.attachmentName** MUST be a unique value within this array.

```
<xs:complexType name="ArrayOfNOTESATTACHMENTID" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="NOTESATTACHMENTID"
type="tns1:NOTESATTACHMENTID"/>
  </xs:sequence>
</xs:complexType>
```

NOTESATTACHMENTID: The **NOTESATTACHMENTID** element contains the unique identifier of an attachment in a Lotus Notes document.

2.2.4.2 ArrayOfPROPERTY

Namespace: http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration

This type represents an array of arbitrary **PROPERTY** values.

```
<xs:complexType name="ArrayOfPROPERTY" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="PROPERTY" type="tnsl:PROPERTY"/>
  </xs:sequence>
</xs:complexType>
```

PROPERTY: The **PROPERTY** element contains a name/value pair.

2.2.4.3 INDEXABLECONTENT

Namespace: http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration

This type contains the content of the **Lotus Notes item** or the content of an attachment of a **Lotus Notes Item**.

```
<xs:complexType name="INDEXABLECONTENT" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="content" nillable="true" type="xs:base64Binary"/>
    <xs:element minOccurs="0" name="contentType" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="extension" nillable="true" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

content: Specifies the content of a **Lotus Notes Item** or the content of an attachment of a **Lotus Notes Item**.

contentType: It is currently unused and its contents MUST be ignored by the protocol client.

extension: Specifies the **file extension** of the data specified in the **content** element. If the content is of a specific file format such as Word (specified in [\[MS-DOC\]](#)) document then the extension of that specific format MUST be specified. If the data is a string then the extension 'txt' MUST be specified. The extension MUST be specified without a leading period.

2.2.4.4 NOTESATTACHMENTID

Namespace: http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration

This type contains the unique identifier of an attachment in a Lotus Notes document.

```
<xs:complexType name="NOTESATTACHMENTID" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="attachmentName" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="itemId" nillable="true" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

attachmentName: Specifies the unique identifier of the attachment in a **Lotus Notes item**.

itemId: A string value that uniquely identifies the **Lotus Notes item** that contains the attachment.

2.2.4.5 NOTESITEM

Namespace: http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration

This type contains the **crawled properties**, indexable content, **security descriptor**, **display URL** and attachment ids of a **Lotus Notes item**.

```
<xs:complexType name="NOTESITEM" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="attachmentId" nillable="true"
type="tnsl:ArrayOfNOTESATTACHMENTID"/>
    <xs:element minOccurs="0" name="displayUrl" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="itemContent" type="tnsl:INDEXABLECONTENT"/>
    <xs:element minOccurs="0" name="itemId" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="itemProps" nillable="true" type="tnsl:ArrayOfPROPERTY"/>
    <xs:element minOccurs="0" name="lastModifiedTime" type="xs:dateTime"/>
    <xs:element minOccurs="0" name="securityDesc" type="tnsl:SecurityDescriptor"/>
  </xs:sequence>
</xs:complexType>
```

attachmentId: Specifies the list of unique identifiers of the attachments.

displayUrl: Specifies the display URL of the **Lotus Notes item**.

itemContent: Specifies the content of the **Lotus Notes Item**.

itemId: Specifies the unique identifier of the **Lotus Notes item**. MUST be unique across **Domino Servers**.

itemProps: Specifies the list of crawled properties for the **Lotus Notes item**.

lastModifiedTime: Specifies the time at which the **Lotus Notes item** was last modified.

securityDesc: Specifies the security descriptor of the **Lotus Notes item**.

2.2.4.6 PROPERTY

Namespace: http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration

This type contains the **crawled property** of a **Lotus Notes Item**.

```
<xs:complexType name="PROPERTY" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="Name" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="Value" nillable="true" type="xs:anyType"/>
  </xs:sequence>
</xs:complexType>
```

Name: Specifies the name of the crawled property.

Value: Specifies the value of the crawled property. This MUST be of type xs:string, xs:integer or xs:dateTime.

2.2.4.7 SecurityDescriptor

Namespace: http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration

This type contains the **security descriptor** of a **Lotus Notes item**.


```
<xs:complexType name="SecurityDescriptor" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="SD" nillable="true" type="xs:base64Binary"/>
    <xs:element minOccurs="0" name="isNTSD" type="xs:boolean"/>
  </xs:sequence>
</xs:complexType>
```

SD: Specifies the security descriptor of the **Lotus Notes item**.

isNTSD: MUST always be set to true if the value of **SecurityDescriptor.SD** is not NULL. If the value of **SecurityDescriptor.SD** is NULL then **isNTSD** MUST be set to false.

2.2.4.8 SERVERITEM

Namespace: http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration

This type contains the unique identifier and **display URL** of the **Domino server**.

```
<xs:complexType name="SERVERITEM" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="displayUrl" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="serverId" nillable="true" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

displayUrl: Specifies the display URL of the **Domino server**.

serverId: Specifies the unique identifier of the **Domino server**.

2.2.5 Simple Types

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

2.2.6 Attributes

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

2.2.7 Groups

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

2.2.8 Attribute Groups

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

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 [\[RFC2616\]](#), Section 10.

This protocol allows protocol servers to notify protocol clients of application-level faults using SOAP faults. Except where specified, these SOAP faults are not significant for interoperability, and protocol clients can interpret them in an implementation-specific manner.

3.1 Server Details

The Server role is described in this section.

3.1.1 Abstract Data Model

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

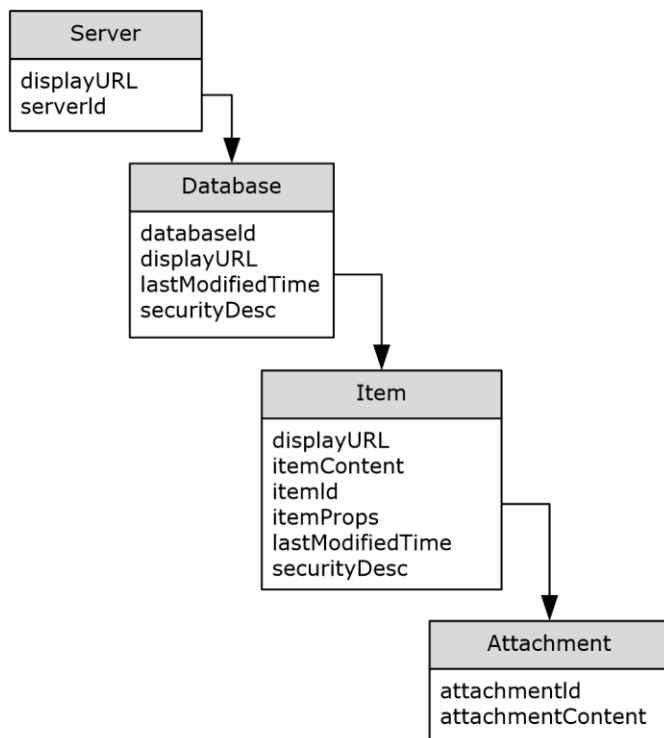


Figure 2: Object Hierarchy

3.1.1.1 Object Hierarchy

The protocol server maintains a hierarchy of objects representing state of this protocol. The properties of these objects affect the information returned from queries to the server.

3.1.1.2 Server

There MAY be zero or more server objects.

displayURL: The **display URL** associated with the Domino server this object represents

serverId: The unique identifier for this server.

3.1.1.3 Database

Each server has zero or more databases associated with it. This object represents a database that can be queried for items.

databaseId: Unique identifier for this database in the server.

displayURL: The **display URL** associated with the database this object represents.

lastModifiedTime: Timestamp indicating the last time this database was changed.

securityDesc: The **security descriptor** for the database.

3.1.1.4 Item

Each database has zero or more **items** associated with it.

displayURL: The **display URL** for the item this object represents.

itemContent: The indexable content of this item.

itemId: Unique identifier for this item in the database.

itemProps: An array consisting of zero or more name/value pairs. These pairs make up the **crawled properties** for this item.

lastModifiedTime: The timestamp representing the last time this item changed.

securityDesc: The **security descriptor** for this item.

3.1.1.5 Attachment

Each item has zero or more attachments associated with it.

attachmentID: The unique identifier for the attachment.

attachmentContent: The indexable content of the attachment.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Message Processing Events and Sequencing Rules

The following table summarizes the list of operations as defined by this specification.

Operation	Description
EnumerateDatabases	This operation is used by the protocol client to retrieve the list of all the Lotus Notes databases in a Domino server. If the value of lastSeenDatabase element is an empty string, this operation MUST return all the Lotus Notes databases in the Domino server . If the value of lastSeenDatabase element is the value of the DATABASEITEMID.databaseId element, this operation MUST return all the Lotus Notes databases in the Domino server whose databaseId is greater than DATABASEITEMID.databaseId .
EnumerateItems	This operation is used by the protocol client to retrieve the list of all the Lotus Notes items in a Lotus Notes database.
EnumerateServers	This operation is used by the protocol client to retrieve all the available Domino servers .
FetchAttachment	This operation is used by the protocol client to retrieve an attachment of a Lotus Notes item .
FetchItem	This operation is used by the protocol client to retrieve the crawled properties , indexable content, security descriptor , display URL and attachment ids of the Lotus Notes item .
GetDatabase	This operation is used by the protocol client to retrieve the unique identifier, display URL, last modified time and security descriptor of a Lotus Notes database.

Operation	Description
GetServer	This operation is not used and MUST NOT be invoked.

3.1.4.1 EnumerateDatabases

This operation is used by the protocol client to retrieve the list of all the Lotus Notes databases in a Domino server.

If the value of **lastSeenDatabase** element is an empty string, this operation MUST return all the **Lotus Notes databases** in the **Domino server**.

If the value of **lastSeenDatabase** element is the value of the **DATABASEITEMID.databaseId** element, this operation MUST return all the **Lotus Notes databases** in the **Domino server** whose **databaseId** is greater than **DATABASEITEMID.databaseId**.

The following is the **WSDL** port type specification of the **EnumerateDatabases WSDL operation**.

```
<wsdl:operation name="EnumerateDatabases" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:input wsaw:Action="http://tempuri.org/INotesWebServiceApplication/EnumerateDatabases"
    message="tns:INotesWebServiceApplication_EnumerateDatabases_InputMessage"
    xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
  <wsdl:output
    wsaw:Action="http://tempuri.org/INotesWebServiceApplication/EnumerateDatabasesResponse"
    message="tns:INotesWebServiceApplication_EnumerateDatabases_OutputMessage"
    xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
</wsdl:operation>
```

The protocol client sends an **INotesWebServiceApplication_EnumerateDatabases_InputMessage** (section [3.1.4.1.1.1](#)) request message, and the protocol server responds with an **INotesWebServiceApplication_EnumerateDatabases_OutputMessage** (section [3.1.4.1.1.2](#)) response message, as follows.

- On success, the protocol server MUST return the list of Lotus Notes databases in the Domino server.
- On error, the protocol server MUST send a `FaultException<ExceptionDetail>` message to the protocol client.

3.1.4.1.1 Messages

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

Message	Description
INotesWebServiceApplication_EnumerateDatabases_InputMessage	The request WSDL message for the EnumerateDatabases WSDL operation .
INotesWebServiceApplication_EnumerateDatabases_OutputMessage	The response WSDL message for the EnumerateDatabases WSDL operation .

3.1.4.1.1.1 INotesWebServiceApplication_EnumerateDatabases_InputMessage

The request **WSDL message** for the **EnumerateDatabases WSDL operation**.

The **SOAP action** value is:

```
http://tempuri.org/INotesWebServiceApplication/EnumerateDatabases
```

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

3.1.4.1.1.2 INotesWebServiceApplication_EnumerateDatabases_OutputMessage

The response **WSDL message** for the **EnumerateDatabases WSDL operation**.

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

3.1.4.1.2 Elements

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

Element	Description
EnumerateDatabases	The input data for the EnumerateDatabases WSDL operation .
EnumerateDatabasesResponse	The result data for the EnumerateDatabases WSDL operation .

3.1.4.1.2.1 EnumerateDatabases

The **EnumerateDatabases** element specifies the input data for the **EnumerateDatabases WSDL operation**.

```
<xs:element name="EnumerateDatabases" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="serverName" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="lastSeenDatabase" nillable="true" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

serverName: Specifies the unique identifier of the **Domino server**.

lastSeenDatabase: Specifies the unique identifier of the **Lotus Notes database**. This **MUST** be an empty string or the value of the **DATABASEITEMID.databaseId** element returned by a previous call to **EnumerateDatabases** operation.

- If this is an empty string, the **EnumerateDatabases** operation **MUST** return all the **Lotus Notes databases** in the **Domino Server**.
- If this is the value of a **DATABASEITEMID.databaseId** element, the **EnumerateDatabases** operation **MUST** return all the **Lotus Notes databases** in the **Domino Server** whose **databaseId** is greater than **DATABASEITEMID.databaseId**.

3.1.4.1.2.2 EnumerateDatabasesResponse

The **EnumerateDatabasesResponse** element specifies the result data for the **EnumerateDatabases** **WSDL operation**.

```
<xs:element name="EnumerateDatabasesResponse" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration" minOccurs="0" name="EnumerateDatabasesResult" nillable="true"
        type="tns1:ArrayOfDATABASEITEMID"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

EnumerateDatabasesResult: This contains the list of **Lotus Notes databases** in the Domino server.

3.1.4.1.3 Complex Types

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

Complex type	Description
ArrayOfDATABASEITEMID	Represents an array of arbitrary DATABASEITEMID values.
DATABASEITEMID	Contains the unique identifier of a Lotus Notes database .

3.1.4.1.3.1 ArrayOfDATABASEITEMID

Namespace: http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration

This type represents an array of arbitrary DATABASEITEMID values.

```
<xs:complexType name="ArrayOfDATABASEITEMID" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="DATABASEITEMID"
      type="tns1:DATABASEITEMID"/>
  </xs:sequence>
</xs:complexType>
```

DATABASEITEMID: The **DATABASEITEMID** contains the unique identifier of a **Lotus Notes database**.

3.1.4.1.3.2 DATABASEITEMID

Namespace: http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration

This type contains the unique identifier of a **Lotus Notes database**.

```
<xs:complexType name="DATABASEITEMID" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="databaseId" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="lastModifiedTime" type="xs:dateTime"/>
  </xs:sequence>
</xs:complexType>
```

databaseId: Specifies the unique identifier of the **Lotus Notes database**.

lastModifiedTime: Specifies the time at which the **Lotus Notes database** was last modified.

3.1.4.1.4 Simple Types

None.

3.1.4.1.5 Attributes

None.

3.1.4.1.6 Groups

None.

3.1.4.1.7 Attribute Groups

None.

3.1.4.2 EnumerateItems

This operation is used by the protocol client to retrieve the list of all the Lotus Notes items in a Lotus Notes database.

The following is the **WSDL** port type specification of the **EnumerateItems WSDL operation**.

```
<wsdl:operation name="EnumerateItems" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:input wsaw:Action="http://tempuri.org/INotesWebServiceApplication/EnumerateItems"
    message="tns:INotesWebServiceApplication_EnumerateItems_InputMessage"
    xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
  <wsdl:output
    wsaw:Action="http://tempuri.org/INotesWebServiceApplication/EnumerateItemsResponse"
    message="tns:INotesWebServiceApplication_EnumerateItems_OutputMessage"
    xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
</wsdl:operation>
```

The protocol client sends an **INotesWebServiceApplication_EnumerateItems_InputMessage** (section [3.1.4.2.1.1](#)) request message, and the protocol server responds with an **INotesWebServiceApplication_EnumerateItems_OutputMessage** (section [3.1.4.2.1.2](#)) response message, as follows.

- On success, the protocol server MUST return the list of Lotus Notes items in the Lotus Notes database.
- On error, the protocol server MUST send a `FaultException<ExceptionDetail>` message to the protocol client.

3.1.4.2.1 Messages

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

Message	Description
INotesWebServiceApplication_EnumerateItems_InputMessage	The request WSDL message for the EnumerateItems WSDL operation .

Message	Description
INotesWebServiceApplication_EnumerateItems_OutputMessage	The response WSDL message for the EnumerateItems WSDL operation.

3.1.4.2.1.1 INotesWebServiceApplication_EnumerateItems_InputMessage

The request **WSDL message** for the **EnumerateItems** WSDL operation.

The **SOAP action** value is:

```
http://tempuri.org/INotesWebServiceApplication/EnumerateItems
```

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

3.1.4.2.1.2 INotesWebServiceApplication_EnumerateItems_OutputMessage

The response **WSDL message** for the **EnumerateItems** WSDL operation.

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

3.1.4.2.2 Elements

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

Element	Description
EnumerateItems	The input data for the EnumerateItems WSDL operation.
EnumerateItemsResponse	The result data for the EnumerateItems WSDL operation.

3.1.4.2.2.1 EnumerateItems

The **EnumerateItems** element specifies the input data for the **EnumerateItems** WSDL operation.

```
<xs:element name="EnumerateItems" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="databasePath" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="lastSeenItem" nillable="true" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

databasePath: Specifies the unique identifier of the **Lotus Notes database**. This MUST be the value of the **DATABASEITEM.databaseId** element returned by the **GetDatabase** operation (section [3.1.4.6.2.1](#)).

lastSeenItem: Specifies the unique identifier of a **Lotus Notes item**. This MUST be an empty string or the value of the **NOTESITEM.itemId** element returned by a previous call to **EnumerateItems** operation.

- If this is an empty string then the **EnumerateItems** operation MUST return all the **Lotus Notes items** in the **Lotus Notes database**.
- If this is the value of a **NOTESITEM.itemId** element then the **EnumerateItems** operation MUST return all the **Lotus Notes items** in the **Lotus Notes database** whose **ItemId** is greater than **NOTESITEM.itemId**.

3.1.4.2.2 EnumerateItemsResponse

The **EnumerateItemsResponse** element specifies the result data for the **EnumerateItems WSDL operation**.

```
<xs:element name="EnumerateItemsResponse" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration"
        minOccurs="0" name="EnumerateItemsResult" nillable="true"
        type="tns1:ArrayOfNOTESITEM"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

EnumerateItemsResult: This contains the list of **Lotus Notes items** in the **Lotus Notes database**.

3.1.4.2.3 Complex Types

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

Complex type	Description
ArrayOfNOTESITEM	Represents an array of NOTESITEM values.

3.1.4.2.3.1 ArrayOfNOTESITEM

Namespace: <http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration>

This type represents an array of **NOTESITEM** values.

```
<xs:complexType name="ArrayOfNOTESITEM" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="NOTESITEM" type="tns1:NOTESITEM"/>
  </xs:sequence>
</xs:complexType>
```

NOTESITEM: The **NOTESITEM** element contains the content of a **Lotus Notes item**.

3.1.4.2.4 Simple Types

None.

3.1.4.2.5 Attributes

None.

3.1.4.2.6 Groups

None.

3.1.4.2.7 Attribute Groups

None.

3.1.4.3 EnumerateServers

This operation is used by the protocol client to retrieve all the available **Domino servers**.

The following is the **WSDL** port type specification of the **EnumerateServers WSDL operation**.

```
<wsdl:operation name="EnumerateServers" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:input wsaw:Action="http://tempuri.org/INotesWebServiceApplication/EnumerateServers"
  message="tns:INotesWebServiceApplication_EnumerateServers_InputMessage"
  xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
  <wsdl:output
  wsaw:Action="http://tempuri.org/INotesWebServiceApplication/EnumerateServersResponse"
  message="tns:INotesWebServiceApplication_EnumerateServers_OutputMessage"
  xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
</wsdl:operation>
```

The protocol client sends an **INotesWebServiceApplication_EnumerateServers_InputMessage** (section [3.1.4.3.1.1](#)) request, message and the protocol server responds with an **INotesWebServiceApplication_EnumerateServers_OutputMessage** (section [3.1.4.3.1.2](#)) response message, as follows.

- On success, the protocol server MUST return the list of Domino servers.
- On error, the protocol server MUST send a `FaultException<ExceptionDetail>` message to the protocol client.

3.1.4.3.1 Messages

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

Message	Description
INotesWebServiceApplication_EnumerateServers_InputMessage	The request WSDL message for the EnumerateServers WSDL operation .
INotesWebServiceApplication_EnumerateServers_OutputMessage	The response WSDL message for the EnumerateServers WSDL operation .

3.1.4.3.1.1 INotesWebServiceApplication_EnumerateServers_InputMessage

The request **WSDL message** for the **EnumerateServers WSDL operation**.

The **SOAP action** value is:

<http://tempuri.org/INotesWebServiceApplication/EnumerateServers>

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

3.1.4.3.1.2 INotesWebServiceApplication_EnumerateServers_OutputMessage

The response **WSDL message** for the **EnumerateServers WSDL operation**.

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

3.1.4.3.2 Elements

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

Element	Description
EnumerateServers	The input data for the EnumerateServers WSDL operation .
EnumerateServersResponse	The result data for the EnumerateServers WSDL operation .

3.1.4.3.2.1 EnumerateServers

The **EnumerateServers** element specifies the input data for the **EnumerateServers WSDL operation**.

```
<xs:element name="EnumerateServers" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence/>
  </xs:complexType>
</xs:element>
```

3.1.4.3.2.2 EnumerateServersResponse

The **EnumerateServersResponse** element specifies the result data for the **EnumerateServers WSDL operation**.

```
<xs:element name="EnumerateServersResponse" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration"
        minOccurs="0" name="EnumerateServersResult" nillable="true"
        type="tns1:ArrayOfSERVERITEM"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

EnumerateServersResult: This contains the list of **Domino servers**.

3.1.4.3.3 Complex Types

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

Complex type	Description
ArrayOfSERVERITEM	Represents an array of arbitrary SERVERITEM values.

3.1.4.3.3.1 ArrayOfSERVERITEM

Namespace: http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration

This type represents an array of arbitrary **SERVERITEM** values.

```
<xs:complexType name="ArrayOfSERVERITEM" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="SERVERITEM"
type="tns1:SERVERITEM"/>
  </xs:sequence>
</xs:complexType>
```

SERVERITEM: The **SERVERITEM** element contains the unique identifier and **display URL** of a **Domino server**.

3.1.4.3.4 Simple Types

None.

3.1.4.3.5 Attributes

None.

3.1.4.3.6 Groups

None.

3.1.4.3.7 Attribute Groups

None.

3.1.4.4 FetchAttachment

This operation is used by the protocol client to retrieve an attachment of a **Lotus Notes item**.

The following is the **WSDL** port type specification of the **FetchAttachment WSDL operation**.

```
<wsdl:operation name="FetchAttachment" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:input wsaw="http://tempuri.org/INotesWebServiceApplication/FetchAttachment"
message="tns:INotesWebServiceApplication_FetchAttachment_InputMessage"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
  <wsdl:output
wsaw="Action="http://tempuri.org/INotesWebServiceApplication/FetchAttachmentResponse"
message="tns:INotesWebServiceApplication_FetchAttachment_OutputMessage"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
</wsdl:operation>
```

The protocol client sends an **INotesWebServiceApplication_FetchAttachment_InputMessage** (section [3.1.4.4.1.1](#)) request, message and the protocol server responds with an

INotesWebServiceApplication_FetchAttachment_OutputMessage (section [3.1.4.4.1.2](#)) response message, as follows.

- On success, the protocol server MUST return the attachment of a Lotus Notes item.
- On error, the protocol server MUST send a `FaultException<ExceptionDetail>` message to the protocol client.

3.1.4.4.1 Messages

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

Message	Description
INotesWebServiceApplication_FetchAttachment_InputMessage	The request WSDL message for the FetchAttachment WSDL operation .
INotesWebServiceApplication_FetchAttachment_OutputMessage	The response WSDL message for the FetchAttachment WSDL operation .

3.1.4.4.1.1 INotesWebServiceApplication_FetchAttachment_InputMessage

The request **WSDL message** for the **FetchAttachment WSDL operation**.

The **SOAP action** value is:

```
http://tempuri.org/INotesWebServiceApplication/FetchAttachment
```

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

3.1.4.4.1.2 INotesWebServiceApplication_FetchAttachment_OutputMessage

The response **WSDL message** for the **FetchAttachment WSDL operation**.

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

3.1.4.4.2 Elements

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

Element	Description
FetchAttachment	The input data for the FetchAttachment WSDL operation .
FetchAttachmentResponse	The result data for the FetchAttachment WSDL operation .

3.1.4.4.2.1 FetchAttachment

The **FetchAttachment** element specifies the input data for the **FetchAttachment WSDL operation**.

```
<xs:element name="FetchAttachment" xmlns:xs="http://www.w3.org/2001/XMLSchema">
```

```

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

```

itemId: Specifies the unique identifier of the **Lotus Notes item** that contains the attachment. This MUST be the value of the **NOTESITEM.NOTESATTACHMENTID.itemId** element returned by the **FetchItem** (section 3.1.4.5) operation.

attachmentName: Specifies the unique identifier of the attachment in a **Lotus Notes item**. This MUST be the value of the **NOTESITEM.NOTESATTACHMENTID.attachmentName** element returned by the **FetchItem** operation.

3.1.4.4.2.2 FetchAttachmentResponse

The **FetchAttachmentResponse** element specifies the result data for the **FetchAttachment WSDL operation**.

```

<xs:element name="FetchAttachmentResponse" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration"
        minOccurs="0" name="FetchAttachmentResult" type="tns1:NOTESATTACHMENT"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>

```

FetchAttachmentResult: Contains the attachment of a **Lotus Notes item**.

3.1.4.4.3 Complex Types

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

Complex type	Description
NOTESATTACHMENT	Contains the contents of an attachment in a Lotus Notes item .

3.1.4.4.3.1 NOTESATTACHMENT

Namespace: http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration

This type contains the contents of an attachment in a **Lotus Notes item**.

```

<xs:complexType name="NOTESATTACHMENT" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="attachmentContent" type="tns1:INDEXABLECONTENT"/>
    <xs:element minOccurs="0" name="attachmentId" type="tns1:NOTESATTACHMENTID"/>
  </xs:sequence>
</xs:complexType>

```

attachmentContent: Specifies the indexable content of the attachment of a **Lotus Notes Item**.

attachmentId: Specifies the unique identifier of the attachment of a **Lotus Notes item**.

3.1.4.4.4 Simple Types

None.

3.1.4.4.5 Attributes

None.

3.1.4.4.6 Groups

None.

3.1.4.4.7 Attribute Groups

None.

3.1.4.5 FetchItem

This operation is used by the protocol client to retrieve the **crawled properties**, indexable content, **security descriptor**, **display URL** and attachment ids of the **Lotus Notes item**.

The following is the **WSDL** port type specification of the **FetchItem WSDL operation**.

```
<wsdl:operation name="FetchItem" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:input wsaw:Action="http://tempuri.org/INotesWebServiceApplication/FetchItem"
  message="tns:INotesWebServiceApplication_FetchItem_InputMessage"
  xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
  <wsdl:output wsaw:Action="http://tempuri.org/INotesWebServiceApplication/FetchItemResponse"
  message="tns:INotesWebServiceApplication_FetchItem_OutputMessage"
  xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
</wsdl:operation>
```

The protocol client sends an **INotesWebServiceApplication_FetchItem_InputMessage** (section [3.1.4.5.1.1](#)) request message, and the protocol server responds with an **INotesWebServiceApplication_FetchItem_OutputMessage** (section [3.1.4.5.1.2](#)) response message, as follows.

- On success, the protocol server MUST return the crawled properties, indexable content, security descriptor and attachment IDs of the Lotus Notes item.
- On error, the protocol server MUST send a `FaultException<ExceptionDetail>` message to the protocol client.

3.1.4.5.1 Messages

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

Message	Description
INotesWebServiceApplication_FetchItem_InputMessage	The request WSDL message for the FetchItem WSDL operation .
INotesWebServiceApplication_FetchItem_OutputMessage	The response WSDL message for the FetchItem WSDL operation .

3.1.4.5.1.1 INotesWebServiceApplication_FetchItem_InputMessage

The request **WSDL message** for the **FetchItem WSDL operation**.

The **SOAP action** value is:

```
http://tempuri.org/INotesWebServiceApplication/FetchItem
```

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

3.1.4.5.1.2 INotesWebServiceApplication_FetchItem_OutputMessage

The response **WSDL message** for the **FetchItem WSDL operation**.

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

3.1.4.5.2 Elements

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

Element	Description
FetchItem	The input data for the FetchItem WSDL operation .
FetchItemResponse	The result data for the FetchItem WSDL operation .

3.1.4.5.2.1 FetchItem

The **FetchItem** element specifies the input data for the **FetchItem WSDL operation**.

```
<xs:element name="FetchItem" xmlns:xs="http://www.w3.org/2001/XMLSchema">  
  <xs:complexType>  
    <xs:sequence>  
      <xs:element minOccurs="0" name="itemId" nillable="true" type="xs:string"/>  
    </xs:sequence>  
  </xs:complexType>  
</xs:element>
```

itemId: Specifies the unique identifier of the **Lotus Notes item**. This MUST be the value of one of the **NOTESITEM.itemId** elements returned by the **EnumerateItems** operation (section [3.1.4.2.2.1](#)).

3.1.4.5.2.2 FetchItemResponse

The **FetchItemResponse** element specifies the result data for the **FetchItem WSDL operation**.

```
<xs:element name="FetchItemResponse" xmlns:xs="http://www.w3.org/2001/XMLSchema">  
  <xs:complexType>  
    <xs:sequence>  
      <xs:element  
xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administra  
tion" minOccurs="0" name="FetchItemResult" type="tns1:NOTESITEM"/>  
    </xs:sequence>  
  </xs:complexType>
```

</xs:element>

FetchItemResult: This contains the content of the **Lotus Notes item**.

3.1.4.5.3 Complex Types

None.

3.1.4.5.4 Simple Types

None.

3.1.4.5.5 Attributes

None.

3.1.4.5.6 Groups

None.

3.1.4.5.7 Attribute Groups

None.

3.1.4.6 GetDatabase

This operation is used by the protocol client to retrieve the unique identifier, **display URL**, last modified time and **security descriptor** of a Lotus Notes database.

The following is the **WSDL** port type specification of the **GetDatabase WSDL operation**.

```
<wsdl:operation name="GetDatabase" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:input wsaw:Action="http://tempuri.org/INotesWebServiceApplication/GetDatabase"
    message="tns:INotesWebServiceApplication_GetDatabase_InputMessage"
    xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
  <wsdl:output
    wsaw:Action="http://tempuri.org/INotesWebServiceApplication/GetDatabaseResponse"
    message="tns:INotesWebServiceApplication_GetDatabase_OutputMessage"
    xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
</wsdl:operation>
```

The protocol client sends an **INotesWebServiceApplication_GetDatabase_InputMessage** (section [3.1.4.6.1.1](#)) request message, and the protocol server responds with an **INotesWebServiceApplication_GetDatabase_OutputMessage** (section [3.1.4.6.1.2](#)) response message, as follows.

- On success, the protocol server MUST return the unique identifier, display URL, last modified time and security descriptor of the Lotus Notes database.
- On error, the protocol server MUST send a `FaultException<ExceptionDetail>` message to the protocol client.

3.1.4.6.1 Messages

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

Message	Description
INotesWebServiceApplication_GetDatabase_InputMessage	The request WSDL message for the GetDatabase WSDL operation .
INotesWebServiceApplication_GetDatabase_OutputMessage	The response WSDL message for the GetDatabase WSDL operation .

3.1.4.6.1.1 INotesWebServiceApplication_GetDatabase_InputMessage

The request **WSDL message** for the **GetDatabase WSDL operation**.

The **SOAP action** value is:

```
http://tempuri.org/INotesWebServiceApplication/GetDatabase
```

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

3.1.4.6.1.2 INotesWebServiceApplication_GetDatabase_OutputMessage

The response **WSDL message** for the **GetDatabase WSDL operation**.

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

3.1.4.6.2 Elements

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

Element	Description
GetDatabase	The input data for the GetDatabase WSDL operation .
GetDatabaseResponse	The result data for the GetDatabase WSDL operation .

3.1.4.6.2.1 GetDatabase

The **GetDatabase** element specifies the input data for the **GetDatabase WSDL operation**.

```
<xs:element name="GetDatabase" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="databaseName" nillable="true" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

databaseName: Specifies the unique identifier of the **Lotus Notes database**. This MUST be the value of one of the **DATABASEITEMID.databaseId** elements returned by **EnumerateDatabases** (section [3.1.4.1](#)) operation.

3.1.4.6.2.2 GetDatabaseResponse

The **GetDatabaseResponse** element specifies the result data for the **GetDatabase WSDL operation**.

```
<xs:element name="GetDatabaseResponse" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration" minOccurs="0" name="GetDatabaseResult" type="tns1:DATABASEITEM"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

GetDatabaseResult: This contains the unique identifier, **display URL**, last modified time and **security descriptor** of the **Lotus Notes database**.

3.1.4.6.3 Complex Types

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

Complex type	Description
DATABASEITEM	Contains the unique identifier, display URL , last modified time and security descriptor of a Lotus Notes database .

3.1.4.6.3.1 DATABASEITEM

Namespace: http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration

This type contains the unique identifier, **display URL**, last modified time and **security descriptor** of a **Lotus Notes database**.

```
<xs:complexType name="DATABASEITEM" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:sequence>
    <xs:element minOccurs="0" name="databaseId" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="displayUrl" nillable="true" type="xs:string"/>
    <xs:element minOccurs="0" name="lastModifiedTime" type="xs:dateTime"/>
    <xs:element minOccurs="0" name="securityDesc" type="tns1:SecurityDescriptor"/>
  </xs:sequence>
</xs:complexType>
```

databaseId: Specifies the unique identifier of the **Lotus Notes database**.

displayUrl: Specifies the display URL of the **Lotus Notes database**.

lastModifiedTime: Specifies the time at which the **Lotus Notes database** was last modified.

securityDesc: Specifies the security descriptor of the **Lotus Notes database**.

3.1.4.6.4 Simple Types

None.

3.1.4.6.5 Attributes

None.

3.1.4.6.6 Groups

None.

3.1.4.6.7 Attribute Groups

None.

3.1.4.7 GetServer

This operation is not used and MUST NOT be invoked.

The following is the **WSDL** port type specification of the **GetServer WSDL operation**.

```
<wsdl:operation name="GetServer" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:input wsaw:Action="http://tempuri.org/INotesWebServiceApplication/GetServer"
  message="tns:INotesWebServiceApplication_GetServer_InputMessage"
  xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
  <wsdl:output wsaw:Action="http://tempuri.org/INotesWebServiceApplication/GetServerResponse"
  message="tns:INotesWebServiceApplication_GetServer_OutputMessage"
  xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"/>
</wsdl:operation>
```

3.1.4.7.1 Messages

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

Message	Description
INotesWebServiceApplication_GetServer_InputMessage	The request WSDL message for the GetServer WSDL operation .
INotesWebServiceApplication_GetServer_OutputMessage	The response WSDL message for the GetServer WSDL operation .

3.1.4.7.1.1 INotesWebServiceApplication_GetServer_InputMessage

The request **WSDL message** for the **GetServer WSDL operation**.

The **SOAP action** value is:

```
http://tempuri.org/INotesWebServiceApplication/GetServer
```

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

3.1.4.7.1.2 INotesWebServiceApplication_GetServer_OutputMessage

The response **WSDL message** for the **GetServer WSDL operation**.

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

3.1.4.7.2 Elements

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

Element	Description
GetServer	The input data for the GetServer WSDL operation .
GetServerResponse	The result data for the GetServer WSDL operation .

3.1.4.7.2.1 GetServer

The **GetServer** element specifies the input data for the **GetServer WSDL operation**.

```
<xs:element name="GetServer" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="serverName" nillable="true" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

serverName: Specifies the unique identifier of the Domino server.

3.1.4.7.2.2 GetServerResponse

The **GetServerResponse** element specifies the result data for the **GetServer WSDL operation**.

```
<xs:element name="GetServerResponse" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        xmlns:tnsl="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration"
        minOccurs="0" name="GetServerResult" type="tnsl:SERVERITEM"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

GetServerResult: This contains the unique identifier and display URL of the Domino server.

3.1.4.7.3 Complex Types

None.

3.1.4.7.4 Simple Types

None.

3.1.4.7.5 Attributes

None.

3.1.4.7.6 Groups

None.

3.1.4.7.7 Attribute Groups

None.

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

Preliminary

4 Protocol Examples

4.1 Identifying Servers and Databases

To enumerate servers, databases and to get properties for a database, the protocol client sends the following messages to the protocol server.

4.1.1 EnumerateServers

To enumerate the available Domino servers, the protocol client sends the following message:

Request message:

```
<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:Header>
    <a:Action s:mustUnderstand="1">
      http://tempuri.org/INotesWebServiceApplication/EnumerateServers
    </a:Action>
    <a:MessageID>
      urn:uuid:73bf4a5d-4c0b-4d61-b621-e255a45c5f4d
    </a:MessageID>
    <a:ReplyTo>
      <a:Address>
        http://www.w3.org/2005/08/addressing/anonymous
      </a:Address>
    </a:ReplyTo>
    <ServiceContext
      xmlns="http://schemas.microsoft.com/sharepoint/servicecontext"
      xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
      <correlationId>
        b14b0e1c-f5a5-4b96-bd92-2936264a5e5a
      </correlationId>
      <language>en-US</language>
      <region>en-US</region>
      <siteSubscriptionId>
        00000000-0000-0000-0000-000000000000
      </siteSubscriptionId>
    </ServiceContext>
    <a:To s:mustUnderstand="1" u:Id="_1">
      http://example.com:32843/088ec4ed4144457bb36088e0b5c0bea8/NotesWebService.svc
    </a:To>
  </s:Header>
  <s:Body>
    <EnumerateServers xmlns="http://tempuri.org/">
    </EnumerateServers>
  </s:Body>
</s:Envelope>
```

Response message:

```
<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:Header>
    <a:Action s:mustUnderstand="1">
      http://tempuri.org/INotesWebServiceApplication/EnumerateServersResponse
    </a:Action>
  </s:Header>
  <s:Body>
  </s:Body>
</s:Envelope>
```



```

    </a:Action>
    <a:RelatesTo>
      urn:uuid:73bf4a5d-4c0b-4d61-b621-e255a45c5f4d
    </a:RelatesTo>
  </s:Header>
  <s:Body>
    <EnumerateServersResponse xmlns="http://tempuri.org/">
      <EnumerateServersResult
xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administratio
n"
        xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
          <b:SERVERITEM>
            <b:displayUrl>http://servernotes1</b:displayUrl>
            <b:serverId>servernotes1</b:serverId>
          </b:SERVERITEM>
          <b:SERVERITEM>
            <b:displayUrl>http://servernotes2</b:displayUrl>
            <b:serverId>servernotes2</b:serverId>
          </b:SERVERITEM>
        </EnumerateServersResult>
      </EnumerateServersResponse>
    </s:Body>
  </s:Envelope>

```

4.1.2 GetDatabase

To get the properties for a specific database, the protocol client sends the following message:

Request message:

```

<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:Header>
    <a:Action s:mustUnderstand="1">
      http://tempuri.org/INotesWebServiceApplication/GetDatabase
    </a:Action>
    <a:MessageID>
      urn:uuid:c7f4e90c-2c6f-4d43-983e-a52a8a2d35a7
    </a:MessageID>
    <a:ReplyTo>
      <a:Address>
        http://www.w3.org/2005/08/addressing/anonymous
      </a:Address>
    </a:ReplyTo>
    <ServiceContext
      xmlns="http://schemas.microsoft.com/sharepoint/servicecontext"
      xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
      <correlationId>
        00000000-0000-0000-0000-000000000000
      </correlationId>
      <language>en-US</language>
      <region>en-US</region>
      <siteSubscriptionId i:nil="true"></siteSubscriptionId>
    </ServiceContext>
    <a:To s:mustUnderstand="1" u:Id="_1">
      http://example.com:32843/088ec4ed4144457bb36088e0b5c0bea8/NotesWebService.svc
    </a:To>
  </s:Header>
  <s:Body>
    <GetDatabase xmlns="http://tempuri.org/">
      <databaseName>servernotes1\database.nsf</databaseName>
    </GetDatabase>

```

```
</s:Body>
</s:Envelope>
```

Response message:

```
<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:Header>
    <a:Action s:mustUnderstand="1">
      http://tempuri.org/INotesWebServiceApplication/GetDatabaseResponse
    </a:Action>
    <a:RelatesTo>
      urn:uuid:c7f4e90c-2c6f-4d43-983e-a52a8a2d35a7
    </a:RelatesTo>
  </s:Header>
  <s:Body>
    <GetDatabaseResponse xmlns="http://tempuri.org/">
      <GetDatabaseResult

xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administratio
n"

      xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:databaseId>servernotes1\database.nsf</b:databaseId>
        <b:displayUrl>http://servernotes1/database.nsf</b:displayUrl>
        <b:lastModifiedTime>2009-12-28T15:12:16</b:lastModifiedTime>
        <b:securityDesc>
          <b:SD>security_desc_value</b:SD>
          <b:isNTSD>true</b:isNTSD>
        </b:securityDesc>
        </GetDatabaseResult>
      </GetDatabaseResponse>
    </s:Body>
  </s:Envelope>
```

4.2 Retrieving Items from the Database

To retrieve items from the database, the protocol client sends the following messages to the protocol server:

4.2.1 EnumerateItems

To enumerate the available items in a specific database, the protocol client sends the following message:

Request message:

```
<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:Header>
    <a:Action s:mustUnderstand="1">
      http://tempuri.org/INotesWebServiceApplication/EnumerateItems
    </a:Action>
    <a:MessageID>
      urn:uuid:6d826f02-57ea-464a-b579-cb4cb4b199d0
    </a:MessageID>
    <a:ReplyTo>
```

```

    <a:Address>
      http://www.w3.org/2005/08/addressing/anonymous
    </a:Address>
  </a:ReplyTo>
  <ServiceContext
    xmlns="http://schemas.microsoft.com/sharepoint/servicecontext"
    xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
    <correlationId>
      00000000-0000-0000-0000-000000000000
    </correlationId>
    <language>en-US</language>
    <region>en-US</region>
    <siteSubscriptionId i:nil="true"></siteSubscriptionId>
  </ServiceContext>
  <a:To s:mustUnderstand="1" u:Id="_1">
    http://example.com:32843/088ec4ed4144457bb36088e0b5c0bea8/NotesWebService.svc
  </a:To>
</s:Header>
<s:Body>
  <EnumerateItems xmlns="http://tempuri.org/">
    <databasePath>servernotes1\database.nsf</databasePath>
    <lastSeenItem></lastSeenItem>
  </EnumerateItems>
</s:Body>
</s:Envelope>

```

Response message:



```

<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:Header>
    <a:Action s:mustUnderstand="1">
      http://tempuri.org/INotesWebServiceApplication/EnumerateItemsResponse
    </a:Action>
    <a:RelatesTo>
      urn:uuid:6d826f02-57ea-464a-b579-cb4cb4b199d0
    </a:RelatesTo>
  </s:Header>
  <s:Body>
    <EnumerateItemsResponse xmlns="http://tempuri.org/">
      <EnumerateItemsResult
        xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administratio
        n"
        xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:NOTESITEM>
          <b:attachmentId i:nil="true"></b:attachmentId>
          <b:displayUrl>
            http://servernotes1/database.nsf/$DEFAULTVIEW/1f8e15d909ded77188256f4e0083811b
          </b:displayUrl>
          <b:itemContent>
            <b:content i:nil="true"></b:content>
            <b:contentType i:nil="true"></b:contentType>
            <b:extension i:nil="true"></b:extension>
          </b:itemContent>
          <b:itemId>
            servernotes1\database.nsf\1f8e15d909ded77188256f4e0083811b
          </b:itemId>
          <b:itemProps i:nil="true"></b:itemProps>
          <b:lastModifiedTime>2004-12-05T17:52:57</b:lastModifiedTime>
          <b:securityDesc>
            <b:SD i:nil="true"></b:SD>
            <b:isNTSD>>false</b:isNTSD>
          </b:securityDesc>

```

```

</b:NOTESITEM>
<b:NOTESITEM>
  <b:attachmentId i:nil="true"></b:attachmentId>
  <b:displayUrl>
    http://servernotes1/database.nsf/$DEFAULTVIEW/9a903eb367b0c32788256f4f0000fa7
  </b:displayUrl>
  <b:itemContent>
    <b:content i:nil="true"></b:content>
    <b:contentType i:nil="true"></b:contentType>
    <b:extension i:nil="true"></b:extension>
  </b:itemContent>
  <b:itemId>
    servernotes1\database.nsf\9a903eb367b0c32788256f4f0000fa7
  </b:itemId>
  <b:itemProps i:nil="true"></b:itemProps>
  <b:lastModifiedTime>2004-12-05T17:52:57</b:lastModifiedTime>
  <b:securityDesc>
    <b:SD i:nil="true"></b:SD>
    <b:isNTSD>false</b:isNTSD>
  </b:securityDesc>
</b:NOTESITEM>
<b:NOTESITEM>
  <b:attachmentId i:nil="true"></b:attachmentId>
  <b:displayUrl>
    http://servernotes1/database.nsf/$DEFAULTVIEW/2f774d849acbe245882570c1000634d4
  </b:displayUrl>
  <b:itemContent>
    <b:content i:nil="true"></b:content>
    <b:contentType i:nil="true"></b:contentType>
    <b:extension i:nil="true"></b:extension>
  </b:itemContent>
  <b:itemId>
    servernotes1\database.nsf\2f774d849acbe245882570c1000634d4
  </b:itemId>
  <b:itemProps i:nil="true"></b:itemProps>
  <b:lastModifiedTime>2005-11-21T17:09:41</b:lastModifiedTime>
  <b:securityDesc>
    <b:SD i:nil="true"></b:SD>
    <b:isNTSD>false</b:isNTSD>
  </b:securityDesc>
</b:NOTESITEM>
</EnumerateItemsResult>
</EnumerateItemsResponse>
</s:Body>
</s:Envelope>

```

4.2.2 FetchItem

To retrieve the properties for a specific item, the protocol client sends the following message:

Request message:

```

<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:Header>
    <a:Action s:mustUnderstand="1">
      http://tempuri.org/INotesWebServiceApplication/FetchItem
    </a:Action>
    <a:MessageID>
      urn:uuid:675c026d-f85f-425c-bf31-dc74c22a6fd8
    </a:MessageID>
    <a:ReplyTo>
      <a:Address>

```

```

    http://www.w3.org/2005/08/addressing/anonymous
  </a:Address>
</a:ReplyTo>
<ServiceContext
  xmlns="http://schemas.microsoft.com/sharepoint/servicecontext"
  xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
  <correlationId>
    00000000-0000-0000-0000-000000000000
  </correlationId>
  <language>en-US</language>
  <region>en-US</region>
  <siteSubscriptionId i:nil="true"></siteSubscriptionId>
</ServiceContext>
<a:To s:mustUnderstand="1" u:Id="_1">
  http://example.com:32843/088ec4ed4144457bb36088e0b5c0bea8/NotesWebService.svc
</a:To>
</s:Header>
<s:Body>
  <FetchItem xmlns="http://tempuri.org/">
    <itemId>servernotes1\database.nsf\2f774d849acbe245882570c1000634d4</itemId>
  </FetchItem>
</s:Body>
</s:Envelope>

```

Response message:



```

<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:Header>
    <a:Action s:mustUnderstand="1">
      http://tempuri.org/INotesWebServiceApplication/FetchItemResponse
    </a:Action>
    <a:RelatesTo>
      urn:uuid:675c026d-f85f-425c-bf31-dc74c22a6fd8
    </a:RelatesTo>
  </s:Header>
  <s:Body>
    <FetchItemResponse xmlns="http://tempuri.org/">
      <FetchItemResult
        xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administratio
        n"
          xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
            <b:attachmentId>
              <b:NOTESATTACHMENTID>
                <b:attachmentName>EXT07956</b:attachmentName>
                <b:itemId>servernotes1\database.nsf\2f774d849acbe245882570c1000634d4</b:itemId>
              </b:NOTESATTACHMENTID>
              <b:NOTESATTACHMENTID>
                <b:attachmentName i:nil="true"></b:attachmentName>
                <b:itemId>servernotes1\database.nsf\2f774d849acbe245882570c1000634d4</b:itemId>
              </b:NOTESATTACHMENTID>
              <b:NOTESATTACHMENTID>
                <b:attachmentName i:nil="true"></b:attachmentName>
                <b:itemId>servernotes1\database.nsf\2f774d849acbe245882570c1000634d4</b:itemId>
              </b:NOTESATTACHMENTID>
              <b:NOTESATTACHMENTID>
                <b:attachmentName i:nil="true"></b:attachmentName>
                <b:itemId>servernotes1\database.nsf\2f774d849acbe245882570c1000634d4</b:itemId>
              </b:NOTESATTACHMENTID>
              <b:NOTESATTACHMENTID>
                <b:attachmentName i:nil="true"></b:attachmentName>
                <b:itemId>servernotes1\database.nsf\2f774d849acbe245882570c1000634d4</b:itemId>
              </b:NOTESATTACHMENTID>
            </b:attachmentId>
          </s:Body>
        </FetchItemResponse>
      </FetchItemResult>
    </s:Body>
  </s:Envelope>

```

```

    <b:NOTESATTACHMENTID>
      <b:attachmentName i:nil="true"></b:attachmentName>
      <b:itemId>servernotes1\database.nsf\2f774d849acbe245882570c1000634d4</b:itemId>
    </b:NOTESATTACHMENTID>
  </b:attachmentId>

<b:displayUrl>http://servernotes1/database.nsf/$DEFAULTVIEW/2f774d849acbe245882570c1000634d4<
/b:displayUrl>
  <b:itemContent>
    <b:content>IA==</b:content>
    <b:contentType i:nil="true"></b:contentType>
    <b:extension>txt</b:extension>
  </b:itemContent>
  <b:itemId>servernotes1\database.nsf\2f774d849acbe245882570c1000634d4</b:itemId>
  <b:itemProps>
    <b:PROPERTY>
      <b>Name>Author</b>Name>
      <b:Value i:type="c:string"
xmlns:c="http://www.w3.org/2001/XMLSchema">Author</b:Value>
    </b:PROPERTY>
    <b:PROPERTY>
      <b>Name>Comments</b>Name>
      <b:Value i:type="c:string" xmlns:c="http://www.w3.org/2001/XMLSchema"></b:Value>
    </b:PROPERTY>
    <b:PROPERTY>
      <b>Name>Company</b>Name>
      <b:Value i:type="c:string"
xmlns:c="http://www.w3.org/2001/XMLSchema">Microsoft</b:Value>
    </b:PROPERTY>
    <b:PROPERTY>
      <b>Name>Keywords</b>Name>
      <b:Value i:type="c:string" xmlns:c="http://www.w3.org/2001/XMLSchema"></b:Value>
    </b:PROPERTY>
    <b:PROPERTY>
      <b>Name>Subject</b>Name>
      <b:Value i:type="c:string" xmlns:c="http://www.w3.org/2001/XMLSchema"></b:Value>
    </b:PROPERTY>
    <b:PROPERTY>
      <b>Name>Title</b>Name>
      <b:Value i:type="c:string" xmlns:c="http://www.w3.org/2001/XMLSchema"></b:Value>
    </b:PROPERTY>
    <b:PROPERTY>
      <b>Name>DateCreated</b>Name>
      <b:Value i:type="c:dateTime" xmlns:c="http://www.w3.org/2001/XMLSchema">2005-11-
21T17:08:00</b:Value>
    </b:PROPERTY>
    <b:PROPERTY>
      <b>Name>LastSavedBy</b>Name>
      <b:Value i:type="c:string" xmlns:c="http://www.w3.org/2001/XMLSchema"></b:Value>
    </b:PROPERTY>
    <b:PROPERTY>
      <b>Name>LastSavedDate</b>Name>
      <b:Value i:type="c:dateTime" xmlns:c="http://www.w3.org/2001/XMLSchema">2005-11-
21T17:08:00</b:Value>
    </b:PROPERTY>
    <b:PROPERTY>
      <b>Name>LinksUpToDate</b>Name>
      <b:Value i:type="c:long" xmlns:c="http://www.w3.org/2001/XMLSchema">0</b:Value>
    </b:PROPERTY>
    <b:PROPERTY>
      <b>Name>NameOfApplication</b>Name>
      <b:Value i:type="c:string" xmlns:c="http://www.w3.org/2001/XMLSchema"> </b:Value>
    </b:PROPERTY>
    <b:PROPERTY>
      <b>Name>NumberOfCharacters</b>Name>
      <b:Value i:type="c:long" xmlns:c="http://www.w3.org/2001/XMLSchema">12</b:Value>
    </b:PROPERTY>
    <b:PROPERTY>
      <b>Name>NumberOfCharactersWithSpaces</b>Name>

```

```

    <b:Value i:type="c:long" xmlns:c="http://www.w3.org/2001/XMLSchema">13</b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>NumberOfLines</b:Name>
    <b:Value i:type="c:long" xmlns:c="http://www.w3.org/2001/XMLSchema">1</b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>NumberOfPages</b:Name>
    <b:Value i:type="c:long" xmlns:c="http://www.w3.org/2001/XMLSchema">1</b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>NumberOfParagraphs</b:Name>
    <b:Value i:type="c:long" xmlns:c="http://www.w3.org/2001/XMLSchema">1</b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>NumberOfRevisions</b:Name>
    <b:Value i:type="c:string" xmlns:c="http://www.w3.org/2001/XMLSchema">1</b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>NumberOfWords</b:Name>
    <b:Value i:type="c:long" xmlns:c="http://www.w3.org/2001/XMLSchema">2</b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>Template</b:Name>
    <b:Value i:type="c:string"
xmlns:c="http://www.w3.org/2001/XMLSchema">Normal.dot</b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>TotalEditingTime</b:Name>
    <b:Value i:type="c:long" xmlns:c="http://www.w3.org/2001/XMLSchema">0</b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>ScaleOrCrop</b:Name>
    <b:Value i:type="c:long" xmlns:c="http://www.w3.org/2001/XMLSchema">0</b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>Security</b:Name>
    <b:Value i:type="c:long" xmlns:c="http://www.w3.org/2001/XMLSchema">0</b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>DocumentClass</b:Name>
    <b:Value i:type="c:string" xmlns:c="http://www.w3.org/2001/XMLSchema"></b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>FORM</b:Name>
    <b:Value i:type="c:string" xmlns:c="http://www.w3.org/2001/XMLSchema"></b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>embedTitle</b:Name>
    <b:Value i:type="c:string" xmlns:c="http://www.w3.org/2001/XMLSchema"></b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>$UpdatedBy</b:Name>
    <b:Value i:type="c:string"
xmlns:c="http://www.w3.org/2001/XMLSchema">CN=username/O=domain</b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>$Revisions</b:Name>
    <b:Value i:type="c:dateTime" xmlns:c="http://www.w3.org/2001/XMLSchema">2005-11-
21T17:09:26</b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>Author</b:Name>
    <b:Value i:type="c:string" xmlns:c="http://www.w3.org/2001/XMLSchema"></b:Value>
  </b:PROPERTY>
  <b:PROPERTY>
    <b:Name>lastaccessed</b:Name>
    <b:Value i:type="c:dateTime" xmlns:c="http://www.w3.org/2001/XMLSchema">2005-11-
21T17:09:41</b:Value>

```

```

        </b:PROPERTY>
        <b:PROPERTY>
            <b>Name>creationdate</b>Name>
            <b:Value i:type="c:dateTime" xmlns:c="http://www.w3.org/2001/XMLSchema">2005-11-
21T17:07:47</b:Value>
        </b:PROPERTY>
    </b:itemProps>
    <b:lastModifiedTime>2005-11-21T17:09:41</b:lastModifiedTime>
    <b:securityDesc>
        <b:SD>security_desc_value</b:SD>
        <b:isNTSD>true</b:isNTSD>
    </b:securityDesc>
</FetchItemResult>
</FetchItemResponse>
</s:Body>
</s:Envelope>

```

4.2.3 FetchAttachment

To retrieve a specific attachment, the protocol client sends the following message:

Request message:

```

<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:Header>
    <a:Action s:mustUnderstand="1">
      http://tempuri.org/INotesWebServiceApplication/FetchAttachment
    </a:Action>
    <a:MessageID>
      urn:uuid:8f720c2c-b4c4-4925-966d-33e74a577ede
    </a:MessageID>
    <a:ReplyTo>
      <a:Address>
        http://www.w3.org/2005/08/addressing/anonymous
      </a:Address>
    </a:ReplyTo>
    <ServiceContext
      xmlns="http://schemas.microsoft.com/sharepoint/servicecontext"
      xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
      <correlationId>
        00000000-0000-0000-0000-000000000000
      </correlationId>
      <language>en-US</language>
      <region>en-US</region>
      <siteSubscriptionId i:nil="true"></siteSubscriptionId>
    </ServiceContext>
    <a:To s:mustUnderstand="1" u:Id=" 1">
      http://example.com:32843/088ec4ed4144457bb36088e0b5c0bea8/NotesWebService.svc
    </a:To>
  </s:Header>
  <s:Body>
    <FetchAttachment xmlns="http://tempuri.org/">
      <itemId>servernotes1\database.nsf\2f774d849acbe245882570c1000634d4</itemId>
      <attachmentName>EXT07956</attachmentName>
    </FetchAttachment>
  </s:Body>
</s:Envelope>

```

Response message:


```

<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:Header>
    <a:Action s:mustUnderstand="1">
      http://tempuri.org/INotesWebServiceApplication/FetchAttachmentResponse
    </a:Action>
    <a:RelatesTo>
      urn:uuid:8f720c2c-b4c4-4925-966d-33e74a577ede
    </a:RelatesTo>
  </s:Header>
  <s:Body>
    <FetchAttachmentResponse xmlns="http://tempuri.org/">
      <FetchAttachmentResult

xmlns:b="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administratio
n"
      xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:attachmentContent>
          <b:content></b:content>
          <b:contentType i:nil="true"></b:contentType>
          <b:extension>0\Data\NotesAttachment\2f774d849acbe245882570c1000634d4-
EXT07956</b:extension>
        </b:attachmentContent>
        <b:attachmentId>
          <b:attachmentName>EXT07956</b:attachmentName>
          <b:itemId>servernotes1\database.nsf\2f774d849acbe245882570c1000634d4</b:itemId>
        </b:attachmentId>
      </FetchAttachmentResult>
    </FetchAttachmentResponse>
  </s:Body>
</s:Envelope>

```

Prelim

5 Security

5.1 Security Considerations for Implementers

None.

5.2 Index of Security Parameters

None.

Preliminary

6 Appendix A: Full WSDL

For ease of implementation, the full WSDL is provided in this appendix.

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:tns="http://tempuri.org/"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl" targetNamespace="http://tempuri.org/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:types>
    <xs:schema xmlns:tns3="http://tempuri.org/Imports"
targetNamespace="http://tempuri.org/Imports">
      <xs:import
namespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administrat
ion"/>
      <xs:import namespace="http://schemas.microsoft.com/2003/10/Serialization/">
      <xs:import namespace="http://tempuri.org/">
    </xs:schema>
  </wsdl:types>
  <wsdl:portType name="INotesWebServiceApplication">
    <wsdl:operation name="EnumerateServers">
      <wsdl:input
wsaw:Action="http://tempuri.org/INotesWebServiceApplication/EnumerateServers"
message="tns:INotesWebServiceApplication_EnumerateServers_InputMessage"/>
      <wsdl:output
wsaw:Action="http://tempuri.org/INotesWebServiceApplication/EnumerateServersResponse"
message="tns:INotesWebServiceApplication_EnumerateServers_OutputMessage"/>
    </wsdl:operation>
    <wsdl:operation name="GetServer">
      <wsdl:input wsaw:Action="http://tempuri.org/INotesWebServiceApplication/GetServer"
message="tns:INotesWebServiceApplication_GetServer_InputMessage"/>
      <wsdl:output
wsaw:Action="http://tempuri.org/INotesWebServiceApplication/GetServerResponse"
message="tns:INotesWebServiceApplication_GetServer_OutputMessage"/>
    </wsdl:operation>
    <wsdl:operation name="EnumerateDatabases">
      <wsdl:input
wsaw:Action="http://tempuri.org/INotesWebServiceApplication/EnumerateDatabases"
message="tns:INotesWebServiceApplication_EnumerateDatabases_InputMessage"/>
      <wsdl:output
wsaw:Action="http://tempuri.org/INotesWebServiceApplication/EnumerateDatabasesResponse"
message="tns:INotesWebServiceApplication_EnumerateDatabases_OutputMessage"/>
    </wsdl:operation>
    <wsdl:operation name="GetDatabase">
      <wsdl:input wsaw:Action="http://tempuri.org/INotesWebServiceApplication/GetDatabase"
message="tns:INotesWebServiceApplication_GetDatabase_InputMessage"/>
      <wsdl:output
wsaw:Action="http://tempuri.org/INotesWebServiceApplication/GetDatabaseResponse"
message="tns:INotesWebServiceApplication_GetDatabase_OutputMessage"/>
    </wsdl:operation>
    <wsdl:operation name="EnumerateItems">
      <wsdl:input wsaw:Action="http://tempuri.org/INotesWebServiceApplication/EnumerateItems"
message="tns:INotesWebServiceApplication_EnumerateItems_InputMessage"/>
      <wsdl:output
wsaw:Action="http://tempuri.org/INotesWebServiceApplication/EnumerateItemsResponse"
message="tns:INotesWebServiceApplication_EnumerateItems_OutputMessage"/>
    </wsdl:operation>
    <wsdl:operation name="FetchItem">
      <wsdl:input wsaw:Action="http://tempuri.org/INotesWebServiceApplication/FetchItem"
message="tns:INotesWebServiceApplication_FetchItem_InputMessage"/>
      <wsdl:output
wsaw:Action="http://tempuri.org/INotesWebServiceApplication/FetchItemResponse"
message="tns:INotesWebServiceApplication_FetchItem_OutputMessage"/>
    </wsdl:operation>
    <wsdl:operation name="FetchAttachment">
```

```

    <wsdl:input
wsaw:Action="http://tempuri.org/INotesWebServiceApplication/FetchAttachment"
message="tns:INotesWebServiceApplication_FetchAttachment_InputMessage"/>

    <wsdl:output
wsaw:Action="http://tempuri.org/INotesWebServiceApplication/FetchAttachmentResponse"
message="tns:INotesWebServiceApplication_FetchAttachment_OutputMessage"/>
  </wsdl:operation>
</wsdl:portType>
<wsdl:binding name="DefaultBinding_INotesWebServiceApplication"
type="tns:INotesWebServiceApplication">
  <soap:binding transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="EnumerateServers">
    <soap:operation
soapAction="http://tempuri.org/INotesWebServiceApplication/EnumerateServers"
style="document"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal"/>
    </wsdl:output>
  </wsdl:operation>
  <wsdl:operation name="GetServer">
    <soap:operation soapAction="http://tempuri.org/INotesWebServiceApplication/GetServer"
style="document"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal"/>
    </wsdl:output>
  </wsdl:operation>
  <wsdl:operation name="EnumerateDatabases">
    <soap:operation
soapAction="http://tempuri.org/INotesWebServiceApplication/EnumerateDatabases"
style="document"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal"/>
    </wsdl:output>
  </wsdl:operation>
  <wsdl:operation name="GetDatabase">
    <soap:operation soapAction="http://tempuri.org/INotesWebServiceApplication/GetDatabase"
style="document"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal"/>
    </wsdl:output>
  </wsdl:operation>
  <wsdl:operation name="EnumerateItems">
    <soap:operation
soapAction="http://tempuri.org/INotesWebServiceApplication/EnumerateItems" style="document"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal"/>
    </wsdl:output>
  </wsdl:operation>
  <wsdl:operation name="FetchItem">
    <soap:operation soapAction="http://tempuri.org/INotesWebServiceApplication/FetchItem"
style="document"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
  </wsdl:operation>

```

```

        </wsdl:input>
        <wsdl:output>
            <soap:body use="literal"/>
        </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="FetchAttachment">
        <soap:operation
soapAction="http://tempuri.org/INotesWebServiceApplication/FetchAttachment"
style="document"/>
        <wsdl:input>
            <soap:body use="literal"/>
        </wsdl:input>
        <wsdl:output>
            <soap:body use="literal"/>
        </wsdl:output>
    </wsdl:operation>
</wsdl:binding>
<wsdl:message name="INotesWebServiceApplication_EnumerateDatabases_InputMessage">
    <wsdl:part name="parameters" element="tns:EnumerateDatabases"/>
</wsdl:message>
<wsdl:message name="INotesWebServiceApplication_EnumerateDatabases_OutputMessage">
    <wsdl:part name="parameters" element="tns:EnumerateDatabasesResponse"/>
</wsdl:message>
<wsdl:message name="INotesWebServiceApplication_EnumerateItems_InputMessage">
    <wsdl:part name="parameters" element="tns:EnumerateItems"/>
</wsdl:message>
<wsdl:message name="INotesWebServiceApplication_EnumerateItems_OutputMessage">
    <wsdl:part name="parameters" element="tns:EnumerateItemsResponse"/>
</wsdl:message>
<wsdl:message name="INotesWebServiceApplication_EnumerateServers_InputMessage">
    <wsdl:part name="parameters" element="tns:EnumerateServers"/>
</wsdl:message>
<wsdl:message name="INotesWebServiceApplication_EnumerateServers_OutputMessage">
    <wsdl:part name="parameters" element="tns:EnumerateServersResponse"/>
</wsdl:message>
<wsdl:message name="INotesWebServiceApplication_FetchAttachment_InputMessage">
    <wsdl:part name="parameters" element="tns:FetchAttachment"/>
</wsdl:message>
<wsdl:message name="INotesWebServiceApplication_FetchAttachment_OutputMessage">
    <wsdl:part name="parameters" element="tns:FetchAttachmentResponse"/>
</wsdl:message>
<wsdl:message name="INotesWebServiceApplication_FetchItem_InputMessage">
    <wsdl:part name="parameters" element="tns:FetchItem"/>
</wsdl:message>
<wsdl:message name="INotesWebServiceApplication_FetchItem_OutputMessage">
    <wsdl:part name="parameters" element="tns:FetchItemResponse"/>
</wsdl:message>
<wsdl:message name="INotesWebServiceApplication_GetDatabase_InputMessage">
    <wsdl:part name="parameters" element="tns:GetDatabase"/>
</wsdl:message>
<wsdl:message name="INotesWebServiceApplication_GetDatabase_OutputMessage">
    <wsdl:part name="parameters" element="tns:GetDatabaseResponse"/>
</wsdl:message>
<wsdl:message name="INotesWebServiceApplication_GetServer_InputMessage">
    <wsdl:part name="parameters" element="tns:GetServer"/>
</wsdl:message>
<wsdl:message name="INotesWebServiceApplication_GetServer_OutputMessage">
    <wsdl:part name="parameters" element="tns:GetServerResponse"/>
</wsdl:message>
</wsdl:definitions>

```

7 Appendix B: Full XML Schema

Schema name	Prefix	Section
http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration	tns1	7.1
http://schemas.microsoft.com/2003/10/Serialization/	tns2	7.2
http://tempuri.org/	tns	7.3

For ease of implementation, the following sections provide the full XML schema for this protocol.

7.1 <http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration> Schema

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema
  xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration" elementFormDefault="qualified"
  targetNamespace="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administration" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:import namespace="http://schemas.microsoft.com/2003/10/Serialization/" />
  <xs:complexType name="ArrayOfSERVERITEM">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="SERVERITEM"
        type="tns1:SERVERITEM"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="ArrayOfSERVERITEM" nillable="true" type="tns1:ArrayOfSERVERITEM"/>
  <xs:complexType name="SERVERITEM">
    <xs:sequence>
      <xs:element minOccurs="0" name="displayUrl" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="serverId" nillable="true" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="SERVERITEM" nillable="true" type="tns1:SERVERITEM"/>
  <xs:complexType name="ArrayOfDATABASEITEMID">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="DATABASEITEMID"
        type="tns1:DATABASEITEMID"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="ArrayOfDATABASEITEMID" nillable="true"
    type="tns1:ArrayOfDATABASEITEMID"/>
  <xs:complexType name="DATABASEITEMID">
    <xs:sequence>
      <xs:element minOccurs="0" name="databaseId" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="lastModifiedTime" type="xs:dateTime"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="DATABASEITEMID" nillable="true" type="tns1:DATABASEITEMID"/>
  <xs:complexType name="DATABASEITEM">
    <xs:sequence>
      <xs:element minOccurs="0" name="databaseId" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="displayUrl" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="lastModifiedTime" type="xs:dateTime"/>
      <xs:element minOccurs="0" name="securityDesc" type="tns1:SecurityDescriptor"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="DATABASEITEM" nillable="true" type="tns1:DATABASEITEM"/>
  <xs:complexType name="SecurityDescriptor">
    <xs:sequence>
      <xs:element minOccurs="0" name="SD" nillable="true" type="xs:base64Binary"/>
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

```

        <xs:element minOccurs="0" name="isNTSD" type="xs:boolean"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="SecurityDescriptor" nillable="true" type="tns1:SecurityDescriptor"/>
<xs:complexType name="ArrayOfNOTESITEM">
    <xs:sequence>
        <xs:element minOccurs="0" maxOccurs="unbounded" name="NOTESITEM"
type="tns1:NOTESITEM"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="ArrayOfNOTESITEM" nillable="true" type="tns1:ArrayOfNOTESITEM"/>
<xs:complexType name="NOTESITEM">
    <xs:sequence>
        <xs:element minOccurs="0" name="attachmentId" nillable="true"
type="tns1:ArrayOfNOTESATTACHMENTID"/>
        <xs:element minOccurs="0" name="displayUrl" nillable="true" type="xs:string"/>
        <xs:element minOccurs="0" name="itemContent" type="tns1:INDEXABLECONTENT"/>
        <xs:element minOccurs="0" name="itemId" nillable="true" type="xs:string"/>
        <xs:element minOccurs="0" name="itemProps" nillable="true"
type="tns1:ArrayOfPROPERTY"/>
        <xs:element minOccurs="0" name="lastModifiedTime" type="xs:dateTime"/>
        <xs:element minOccurs="0" name="securityDesc" type="tns1:SecurityDescriptor"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="NOTESITEM" nillable="true" type="tns1:NOTESITEM"/>
<xs:complexType name="ArrayOfNOTESATTACHMENTID">
    <xs:sequence>
        <xs:element minOccurs="0" maxOccurs="unbounded" name="NOTESATTACHMENTID"
type="tns1:NOTESATTACHMENTID"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="ArrayOfNOTESATTACHMENTID" nillable="true"
type="tns1:ArrayOfNOTESATTACHMENTID"/>
<xs:complexType name="NOTESATTACHMENTID">
    <xs:sequence>
        <xs:element minOccurs="0" name="attachmentName" nillable="true" type="xs:string"/>
        <xs:element minOccurs="0" name="itemId" nillable="true" type="xs:string"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="NOTESATTACHMENTID" nillable="true" type="tns1:NOTESATTACHMENTID"/>
<xs:complexType name="INDEXABLECONTENT">
    <xs:sequence>
        <xs:element minOccurs="0" name="content" nillable="true" type="xs:base64Binary"/>
        <xs:element minOccurs="0" name="contentType" nillable="true" type="xs:string"/>
        <xs:element minOccurs="0" name="extension" nillable="true" type="xs:string"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="INDEXABLECONTENT" nillable="true" type="tns1:INDEXABLECONTENT"/>
<xs:complexType name="ArrayOfPROPERTY">
    <xs:sequence>
        <xs:element minOccurs="0" maxOccurs="unbounded" name="PROPERTY" type="tns1:PROPERTY"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="ArrayOfPROPERTY" nillable="true" type="tns1:ArrayOfPROPERTY"/>
<xs:complexType name="PROPERTY">
    <xs:sequence>
        <xs:element minOccurs="0" name="Name" nillable="true" type="xs:string"/>
        <xs:element minOccurs="0" name="Value" nillable="true" type="xs:anyType"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="PROPERTY" nillable="true" type="tns1:PROPERTY"/>
<xs:complexType name="NOTESATTACHMENT">
    <xs:sequence>
        <xs:element minOccurs="0" name="attachmentContent" type="tns1:INDEXABLECONTENT"/>
        <xs:element minOccurs="0" name="attachmentId" type="tns1:NOTESATTACHMENTID"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="NOTESATTACHMENT" nillable="true" type="tns1:NOTESATTACHMENT"/>

```

```
</xs:schema>
```

7.2 <http://schemas.microsoft.com/2003/10/Serialization/> Schema

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:tns2="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="tns2:char"/>
  <xs:simpleType name="char">
    <xs:restriction base="xs:int"/>
  </xs:simpleType>
  <xs:element name="duration" nillable="true" type="tns2: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="tns2: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>
```

7.3 <http://tempuri.org/> Schema

```
<?xml version="1.0" encoding="UTF-8"?>
<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.Search.Administration"/>
  <xs:element name="EnumerateServers">
    <xs:complexType>
      <xs:sequence/>
    </xs:complexType>
  </xs:element>
  <xs:element name="EnumerateServersResponse">
```



```

    <xs:complexType>
      <xs:sequence>
        <xs:element
xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administra
tion" minOccurs="0" name="EnumerateServersResult" nillable="true"
type="tns1:ArrayOfSERVERITEM"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element name="GetServer">
      <xs:complexType>
        <xs:sequence>
          <xs:element minOccurs="0" name="serverName" nillable="true" type="xs:string"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element name="GetServerResponse">
      <xs:complexType>
        <xs:sequence>
          <xs:element
xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administra
tion" minOccurs="0" name="GetServerResult" type="tns1:SERVERITEM"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element name="EnumerateDatabases">
      <xs:complexType>
        <xs:sequence>
          <xs:element minOccurs="0" name="serverName" nillable="true" type="xs:string"/>
          <xs:element minOccurs="0" name="lastSeenDatabase" nillable="true" type="xs:string"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element name="EnumerateDatabasesResponse">
      <xs:complexType>
        <xs:sequence>
          <xs:element
xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administra
tion" minOccurs="0" name="EnumerateDatabasesResult" nillable="true"
type="tns1:ArrayOfDATABASEITEMID"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element name="GetDatabase">
      <xs:complexType>
        <xs:sequence>
          <xs:element minOccurs="0" name="databaseName" nillable="true" type="xs:string"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element name="GetDatabaseResponse">
      <xs:complexType>
        <xs:sequence>
          <xs:element
xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administra
tion" minOccurs="0" name="GetDatabaseResult" type="tns1:DATABASEITEM"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element name="EnumerateItems">
      <xs:complexType>
        <xs:sequence>
          <xs:element minOccurs="0" name="databasePath" nillable="true" type="xs:string"/>
          <xs:element minOccurs="0" name="lastSeenItem" nillable="true" type="xs:string"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element name="EnumerateItemsResponse">
      <xs:complexType>

```

```

    <xs:sequence>
      <xs:element
xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administra
tion" minOccurs="0" name="EnumerateItemsResult" nillable="true"
type="tns1:ArrayOfNOTESITEM"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="FetchItem">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="itemId" nillable="true" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="FetchItemResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element
xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administra
tion" minOccurs="0" name="FetchItemResult" type="tns1:NOTESITEM"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="FetchAttachment">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="itemId" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="attachmentName" nillable="true" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="FetchAttachmentResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element
xmlns:tns1="http://schemas.datacontract.org/2004/07/Microsoft.Office.Server.Search.Administra
tion" minOccurs="0" name="FetchAttachmentResult" type="tns1:NOTESATTACHMENT"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
</xs:schema>

```

Pre

8 Appendix C: Product Behavior

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

- Microsoft FAST Search Server 2010
- Microsoft SharePoint Server 2010
- Microsoft SharePoint Server 2013
- Microsoft SharePoint Server 2016
- Microsoft SharePoint Server 2019
- Microsoft SharePoint Server Subscription Edition Preview

Exceptions, if any, are noted in this section. If an update version, service pack or Knowledge Base (KB) number appears with a product name, the behavior changed in that update. The new behavior also applies to subsequent updates 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.

9 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
8 Appendix C: Product Behavior	Updated list of supported products.	Major

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