[MS-OXCMAPIHTTP]:

Messaging Application Programming Interface (MAPI) Extensions for HTTP

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Revision Summary

Date	Revision History	Revision Class	Comments
11/18/2013	1.0	New	Released new document.
2/10/2014	2.0	Major	Significantly changed the technical content.
4/30/2014	2.1	Minor	Clarified the meaning of the technical content.
7/31/2014	3.0	Major	Significantly changed the technical content.
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Table of Contents

1 Introduction

The Messaging Application Programming Interface (MAPI) Extensions for HTTP enable a client to access personal messaging data and directory data on a server by sending HTTP requests and receiving responses returned on the same HTTP connection. This protocol extends HTTP/1.1 and HTTP Over TLS (**HTTPS**).

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:

address book: A collection of **Address Book objects**, each of which are contained in any number of address lists.

address book container: An **Address Book object** that describes an address list.

address book hierarchy table: A collection of **address book containers** arranged in a hierarchy.

Address Book object: An entity in an **address book** that contains a set of attributes, each attribute with a set of associated values.

address creation table: A table containing information about the templates that an address book server supports for creating new email addresses.

ambiguous name resolution (ANR): A search algorithm that permits a client to search multiple naming-related attributes on objects by way of a single clause of the form "(anr=value)" in a Lightweight Directory Access Protocol (LDAP) search filter. This permits a client to query for an object when the client possesses some identifying material related to the object but does not know which attribute of the object contains that identifying material.

ASCII: The American Standard Code for Information Interchange (ASCII) is an 8-bit character-encoding scheme based on the English alphabet. ASCII codes represent text in computers, communications equipment, and other devices that work with text. ASCII refers to a single 8-bit ASCII character or an array of 8-bit ASCII characters with the high bit of each character set to zero.

binary large object (BLOB): A discrete packet of data that is stored in a database and is treated as a sequence of uninterpreted bytes.

code page: An ordered set of characters of a specific script in which a numerical index (code-point value) is associated with each character. Code pages are a means of providing support for character sets and keyboard layouts used in different countries. Devices such as the display and keyboard can be configured to use a specific code page and to switch from one code page (such as the United States) to another (such as Portugal) at the user's request.

cookie: A small data file that is stored on a user's computer and carries state information between participating protocol servers and protocol clients.

distinguished name (DN): A name that uniquely identifies an object by using the relative distinguished name (RDN) for the object, and the names of container objects and domains that contain the object. The distinguished name (DN) identifies the object and its location in a tree.

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

entry ID: See EntryID.

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

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].

language code identifier (LCID): A 32-bit number that identifies the user interface human language dialect or variation that is supported by an application or a client computer.

mailbox: A message store that contains email, calendar items, and other Message objects for a single recipient.

Minimal Entry ID: A property of an **Address Book object** that can be used to uniquely identify the object.

name service provider interface (NSPI): A method of performing address-book-related operations on Active Directory.

NT LAN Manager (NTLM) Authentication Protocol: A protocol using a challenge-response mechanism for authentication in which clients are able to verify their identities without sending a password to the server. It consists of three messages, commonly referred to as Type 1 (negotiation), Type 2 (challenge) and Type 3 (authentication).

property tag: A 32-bit value that contains a property type and a property ID. The low-order 16 bits represent the property type. The high-order 16 bits represent the property ID.

recipient: An entity that can receive email messages.

remote operation (ROP): An operation that is invoked against a server. Each ROP represents an action, such as delete, send, or query. A ROP is contained in a ROP buffer for transmission over the wire.

restriction: A filter used to map some domain into a subset of itself, by passing only those items from the domain that match the filter. Restrictions can be used to filter existing Table objects or to define new ones, such as search folder or rule criteria.

ROP request: See ROP request buffer.

ROP response: See ROP response buffer.

Session Context: A server-side partitioning for client isolation. All client actions against a server are scoped to a specific Session Context. All messaging objects and data that is opened by a client are isolated to a Session Context.

Unicode: A character encoding standard developed by the Unicode Consortium that represents almost all of the written languages of the world. The **Unicode** standard [UNICODE5.0.0/2007] provides three forms (UTF-8, UTF-16, and UTF-32) and seven schemes (UTF-8, UTF-16, UTF-16 BE, UTF-16 LE, UTF-32, UTF-32 LE, and UTF-32 BE).

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].

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

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-LCID] Microsoft Corporation, "Windows Language Code Identifier (LCID) Reference".

[MS-OXABREF] Microsoft Corporation, "Address Book Name Service Provider Interface (NSPI) Referral Protocol".

[MS-OXCDATA] Microsoft Corporation, "Data Structures".

[MS-OXCNOTIF] Microsoft Corporation, "Core Notifications Protocol".

[MS-OXCROPS] Microsoft Corporation, "Remote Operations (ROP) List and Encoding Protocol".

[MS-OXCRPC] Microsoft Corporation, "Wire Format Protocol".

[MS-OXDSCLI] Microsoft Corporation, "Autodiscover Publishing and Lookup Protocol".

[MS-OXNSPI] Microsoft Corporation, "Exchange Server Name Service Provider Interface (NSPI) Protocol".

[MS-OXOABK] Microsoft Corporation, "Address Book Object Protocol".

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

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

[RFC2818] Rescorla, E., "HTTP Over TLS", RFC 2818, May 2000, https://www.rfc-editor.org/info/rfc2818

1.2.2 Informative References

[MS-OXPROTO] Microsoft Corporation, "Exchange Server Protocols System Overview".

[RFC896] Nagle, J., "Congestion Control in IP/TCP Internetworks", RFC 896, January 1984, http://www.ietf.org/rfc/rfc896.txt

1.3 Overview

The MAPI Extensions for HTTP enable a client to communicate with a server to access personal messaging and directory data. When the client initiates communication with the server, the server creates a virtual **Session Context** and returns a session context **cookie** to the client. Once established, the Session Context allows the client to perform operations on the server. Even if network connectivity is interrupted, use of the virtual Session Context, in conjunction with the session context cookie, allows the server to keep the messaging object open and gives the client the ability to reconnect with the Session Context and to continue using the open objects. The client does not have to maintain a persistent, long-lived connection with the server.

Communications with the server are divided into three major function areas: (1) initiating and establishing connection with the server; (2) issuing **remote operations (ROPs)** to the **mailbox** server and sending commands to the **address book** server; (3) terminating communications with the server. If events on the server require more than a configured length of time, the client can either terminate the network connection and re-establish the connection at a later time or continue to keep the connection alive until the processing is completed and the server is ready to return the results to the client.

The following figure shows a simplified overview of client and server communications for a mailbox.

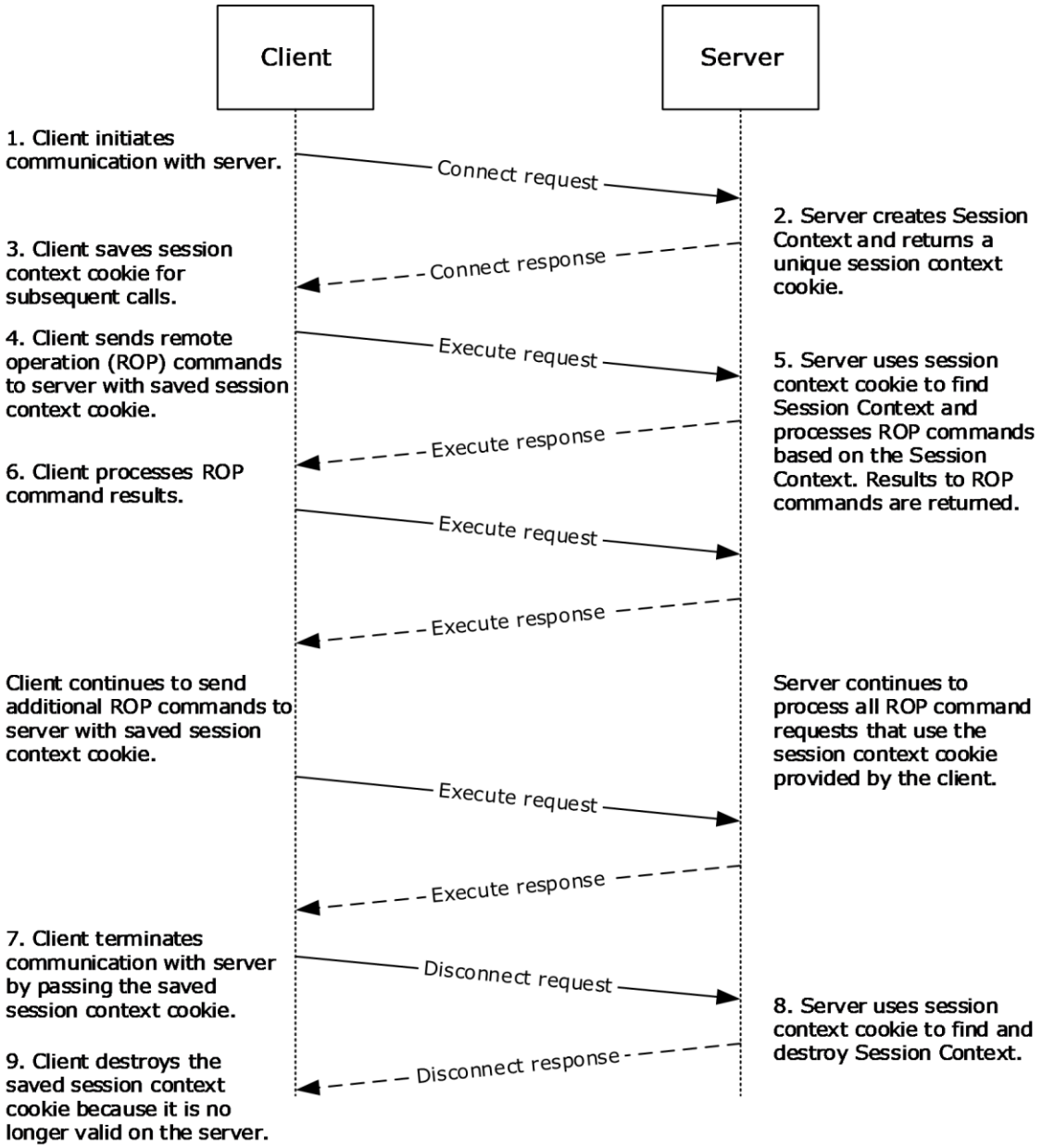


Figure 1: Client/server communications for a mailbox

1.4 Relationship to Other Protocols

A client that implements this protocol can use the Autodiscover Publishing and Lookup Protocol, as described in [MS-OXDSCLI], to determine support for this protocol and to identify the target **endpoint** to use for the requests.

This protocol uses **HTTP**, as described in [RFC2616], and **HTTPS**, as described in [RFC2818], as shown in the following layering diagram.

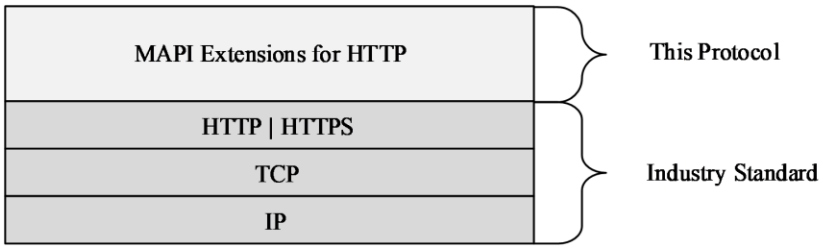


Figure 2: This protocol in relation to other protocols

For conceptual background information and overviews of the relationships and interactions between this and other protocols, see [MS-OXPROTO].

1.5 Prerequisites/Preconditions

It is assumed that a client has discovered support for this protocol via information returned by an Autodiscover response that contains the **Uniform Resource Identifier (URI)** the client will use to access either the mailbox server **endpoint** or the address book server endpoint.

1.6 Applicability Statement

This protocol is applicable to environments that require access to private **mailbox** messaging end-user data and **NSPI**.

1.7 Versioning and Capability Negotiation

This specification covers versioning and capability negotiation issues in the following areas:

Supported Transports: This protocol uses the transport described in section 2.1.

Protocol Versions: The **EMSMDB** protocol interface for this protocol has a single version number of 1.

Security and Authentication Methods: This protocol supports the following authentication methods: basic authentication scheme, **NT LAN Manager (NTLM) Authentication Protocol**, and Negotiate.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

The protocol MUST use **HTTPS** secure requests using version 1.1 of **HTTP**, as specified in [RFC2616] and [RFC2818]. All requests MUST use the **POST** method. **POST** supports uploading a request block and returning a response block.

The Autodiscover response, as specified in [MS-OXDSCLI], contains a **URI** that the client will use to access the two **endpoints** used by this protocol: the mailbox server endpoint (same as that used for the **EMSMDB** interface) and the address book server endpoint (same as that used for the **NSPI** interface).

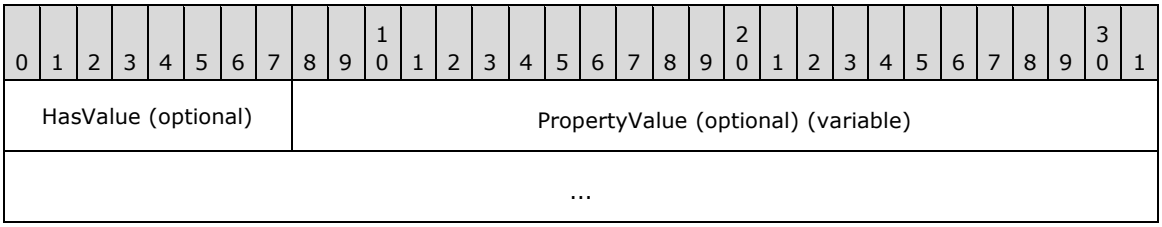
2.2 Message Syntax

2.2.1 Common Data Types

In addition to the structures defined in the following subsections, this protocol uses data types and structures that are defined in [MS-OXCRPC] section 2.2, [MS-OXNSPI] section 2.2, and [MS-OXCDATA] section 2, as needed, in the request and response bodies defined in section 2.2.4, section 2.2.5, and section 2.2.6.

2.2.1.1 AddressBookPropertyValue Structure

The **AddressBookPropertyValue** structure includes a property value.

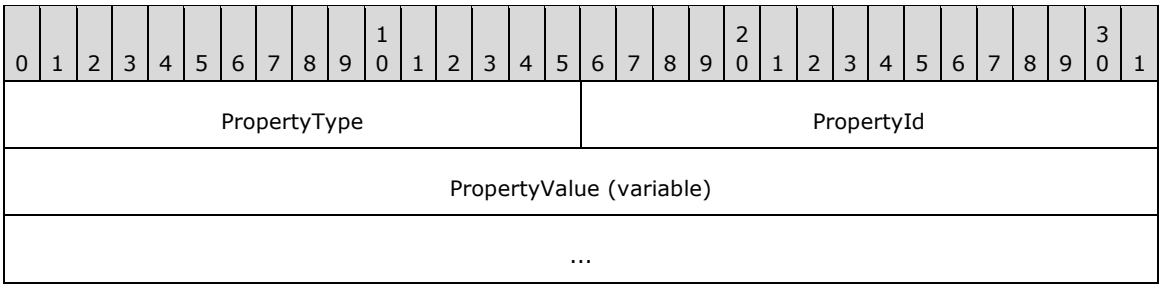


HasValue (optional) (1 byte): An unsigned integer when the **PropertyType** ([MS-OXCDATA] section 2.11.1) is known to be either **PtypString**, **PtypString8**, **PtypBinary** or **PtypMultiple** ([MS-OXCDATA] section 2.11.1). This field MUST contain either **TRUE** (0xFF) or **FALSE** (0x00). A **TRUE** value means that the **PropertyValue** field is present, whereas a FALSE value indicates that the **PropertyValue** field is not present. The **PropertyType** is not present within this structure, but conditional based on the context in which this structure is used.

PropertyValue (optional) (variable): A **PropertyValue** structure ([MS-OXCDATA] section 2.11.2.1), unless **HasValue** is present with a value of **FALSE** (0x00). This field is present when **HasValue** is not present. There will be a **HasValue (1 byte)** field in front of each **PtypString**, **PtypString8**, **PtypBinary** value when the **PropertyType** is known to be either **PtypMultipleString**, **PtypMultipleString8** or **PtypMultipleBinary**. This **HasValue** field MUST contain either **TRUE** (0xFF) or **FALSE** (0x00).

2.2.1.2 AddressBookTaggedPropertyValue Structure

The **AddressBookTaggedPropertyValue** structure includes property type, property identifier and property value.



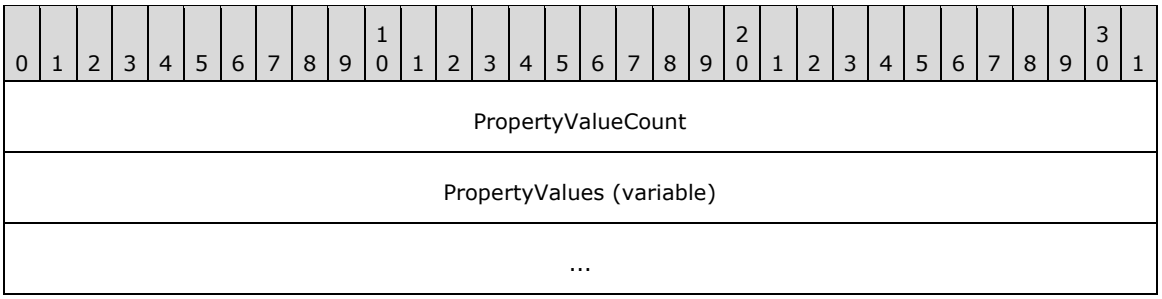
PropertyType (2 bytes): An unsigned integer that identifies the data type of the property value ([MS-OXCDATA] section 2.11.1).

PropertyId (2 bytes): An unsigned integer that identifies the property.

PropertyValue (variable): An **AddressBookPropertyValue** structure, see section 2.2.1.1.

2.2.1.3 AddressBookPropertyValueList Structure

The **AddressBookPropertyValueList** structure contains a list of properties and their values.

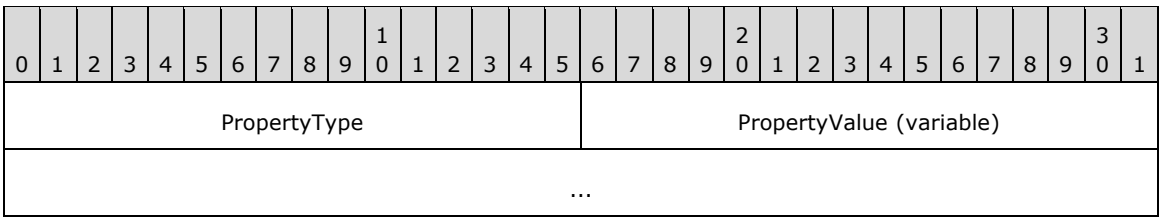


PropertyValueCount (4 bytes): An unsigned integer that specifies the number of structures contained in the **PropertyValues** field.

PropertyValues (variable): An array of **AddressBookTaggedPropertyValue** structures, as specified in section 2.2.1.2.

2.2.1.4 AddressBookTypedPropertyValue Structure

The **AddressBookTypedPropertyValue** structure includes a property type and property value.

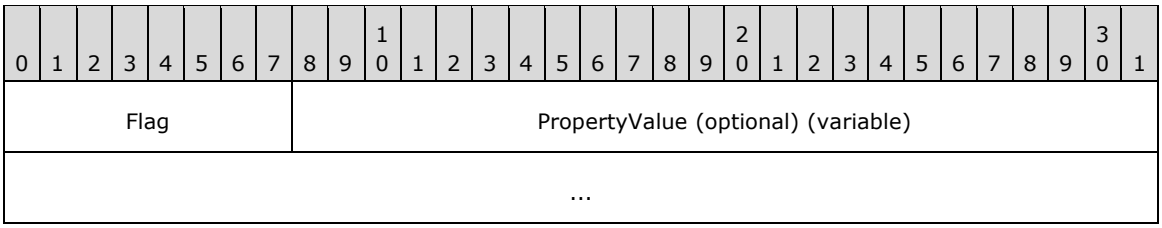


PropertyType (2 bytes): An unsigned integer that identifies the data type of the property value ([MS-OXCDATA] section 2.11.1).

PropertyValue (variable): An **AddressBookPropertyValue** structure, see section 2.2.1.1.

2.2.1.5 AddressBookFlaggedPropertyValue Structure

The **AddressBookFlaggedPropertyValue** structure includes a flag to indicate whether the value was successfully retrieved or not.



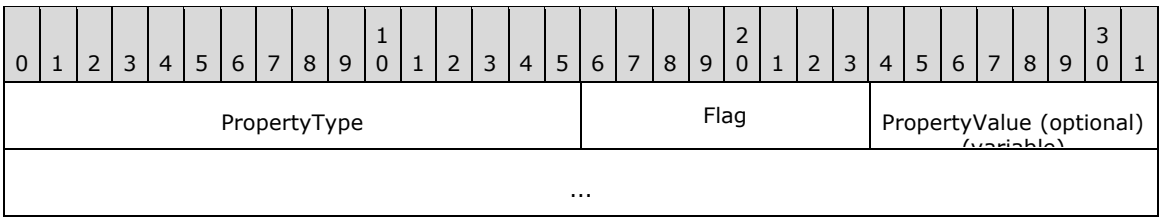
Flag (1 byte): An unsigned integer. This value of this flag determines what is conveyed in the **PropertyValue** field. The flag MUST be set to one of the values in the following table.

Flag value	Meaning
0x0	The **PropertyValue** field will be an **AddressBookPropertyValue** structure (section 2.2.1.1) containing a value compatible with the property type implied by the context.
0x1	The **PropertyValue** field is not present.
0xA	The **PropertyValue** field will be an **AddressBookPropertyValue** structure containing a value of **PtypErrorCode**, as specified in [MS-OXCDATA] section 2.11.1. This value indicates why the property value is not present. For details about property error codes, see [MS-OXCDATA] section 2.4.2.

PropertyValue (optional) (variable): An **AddressBookPropertyValue** structure, as specified in section 2.2.1.1, unless the **Flag** field is set to 0x1.

2.2.1.6 AddressBookFlaggedPropertyValueWithType Structure

The **AddressBookFlaggedPropertyValueWithType** structure includes both the property type and a flag giving more information about the property value.



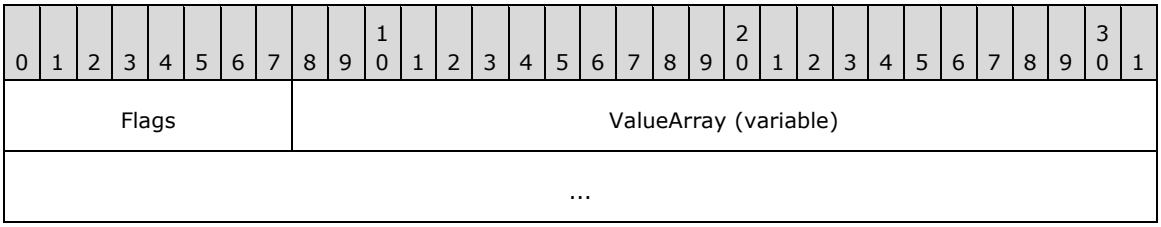
PropertyType (2 bytes): An unsigned integer that identifies the data type of the property value ([MS-OXCDATA] section 2.11.1).

Flag (1 byte): An unsigned integer. This flag MUST be set one of three possible values: 0x0, 0x1, or 0xA, which determines what is conveyed in the **PropertyValue** field. For the interpretation of this flag, refer to the table in section 2.2.1.5.

PropertyValue (optional) (variable): An **AddressBookPropertyValue** structure, as specified in section 2.2.1.1, unless **Flag** field is set to 0x01. The value MUST be compatible with the value of the **PropertyType** field.

2.2.1.7 AddressBookPropertyRow Structure

The **AddressBookPropertyRow** structure a list of property values without including the **property tags** that correspond to the property values. This structure is used when the list of property tags is known in advance.



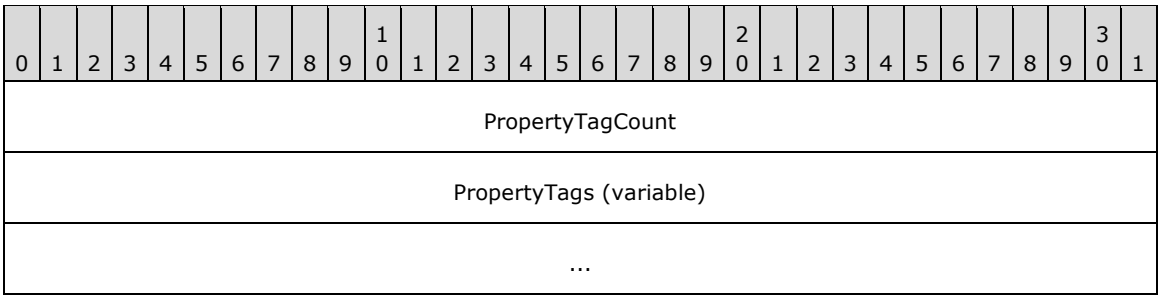
Flags (1 byte): An unsigned integer that indicates whether all property values are present and without error in the **ValueArray** field. The flag MUST be set to one of the values in the following table.

Flag value	Meaning
0x0	The **ValueArray** field contains either an **AddressBookPropertyValue** structure, see section 2.2.1.1, if the type of the property is specified, or an **AddressBookTypedPropertyValue** structure, see section 2.2.1.4, if the type of the property is **PtypUnspecified** ([MS-OXCDATA] section 2.11.1).
0x1	The **ValueArray** field contains either an **AddressBookFlaggedPropertyValue** structure, see section 2.2.1.5, if the type of the property is specified, or an **AddressBooklaggedPropertyValueWithType** structure, see section 2.2.1.6, if the type of the property is **PtypUnspecified** ([MS-OXCDATA] section 2.11.1).

ValueArray (variable): An array of variable-sized structures. Each structure in the array MUST be interpreted based on the **Flags** field.

2.2.1.8 LargePropertyTagArray Structure

The **LargePropertyTagArray** structure contains a list of **property tags**.



PropertyTagCount (4 bytes): An unsigned integer that specifies the number of structures contained in the **PropertyTags** field. The number is limited to 100,000.

PropertyTags (variable): An array of **PropertyTag** structures ([MS-OXCDATA] section 2.9), each of which contains a property tag that specifies a property.

2.2.2 POST Method

All requests in this protocol are made using the **POST** method, as specified in [RFC2616].

The destination server, request path, and optional parameters for accessing a given **mailbox** are returned in **URIs** from Autodiscover. A separate URI is returned in Autodiscover for each **endpoint**. The URI is used by the server to route a request to the appropriate mailbox server.

This protocol uses a common request and common response format for all endpoints. Body content that depends on the request type, as specified in section 2.2.4, follows the common request or common response to complete the request or response.

All requests MUST be authenticated prior to being processed by server. No anonymous requests are allowed.

2.2.2.1 Common Request Format

The common client request across all **endpoints** used in this protocol has the following format.

```
POST <Autodiscover-provided endpoint> HTTP/1.1
Host: <URL of the host server>
Content-Length: <length of REQUEST BODY>
Content-Type: application/mapi-http
X-RequestType: <?>
X-RequestId: <id>
X-ClientApplication:<client version>

<REQUEST BODY>
```

The client request MUST contain the following headers:

- **Host**, as specified in section 2.2.3.1
- **X-RequestType**, as specified in section 2.2.3.3.1
- **X-RequestId**, as specified in section 2.2.3.3.2
- **Content-Type**, as specified in section 2.2.3.2.2
- **Content-Length**, as specified in section 2.2.3.2.1

Other headers are allowed based on the request type used. For details about all headers allowed, see section 2.2.3.

2.2.2.2 Common Response Format

The common server response across all **endpoints** used in this protocol has one of the following formats, depending on whether the response is chunked.

Non-chunked response:

```
HTTP/1.1 200 OK
Content-Length: <length of META-TAGS, ADDITIONAL HEADERS and RESPONSE BODY>
Content-Type: application/mapi-http
X-RequestType: <?>
X-ResponseCode: <?>
X-RequestId: <?>
X-ServerApplication:<server version>

<META-TAGS>
```

```
<ADDITIONAL HEADERS>
<RESPONSE BODY>
```

Chunked response:

```
HTTP/1.1 200 OK
Transfer-Encoding: chunked
Content-Type: application/mapi-http
X-RequestType: <?>
X-ResponseCode: <?>
X-RequestId: <?>
X-ServerApplication:<server version>

<META-TAGS>
<ADDITIONAL HEADERS>
<RESPONSE BODY>
```

The first line of all server responses begins with the **POST** method response specified in [RFC2616], "HTTP/1.1". It also contains an **HTTP** status code, as described in this section.

Both non-chunked and chunked responses MUST contain the following headers:

- **Content-Type**, specified in section 2.2.3.2.2
- **X-RequestType**, specified in section 2.2.3.3.1
- **X-ResponseCode**, specified in section 2.2.3.3.3
- **X-RequestId**, specified in section 2.2.3.3.2

In addition to these headers, a non-chunked response contains the **Content-Length** header, specified in section 2.2.3.2.1, and a chunked response contains the **Transfer-Encoding** header, specified in section 2.2.3.2.5.

The server returns a "200 OK" HTTP status code even if the request failed for all non-exceptional failures. The server deviates from a "200 OK" HTTP status code only for authentication ("401 Access Denied"), redirection ("302 Redirect"), or if there is some exceptional condition for which the server cannot continue. Exceptional failures will produce a "500 Internal Server Error" status code or other 5xx-level status codes. For more details about the status codes, see [RFC2616] section 10.

For success or non-exceptional conditions (most failures), the server will return "200 OK" and an **X-ResponseCode** header. This header contains a numerical value that indicates the specific failure that occurred on the server. An **X-ResponseCode** of 0 (zero) means success from the perspective of the protocol transport, and the client parses the RESPONSE BODY based on the request that was issued. If the **X-ResponseCode** is not zero, the server populates the RESPONSE BODY with diagnostic information.

2.2.3 Header Fields

The following sections specify the header fields that are used by this protocol.

2.2.3.1 Host Header Field

The **Host** header field specifies the server and the **endpoint** that are being used for the connection. The value of this header field is in the format of a **URL** and port number, as specified in [RFC2616] section 14.23.

2.2.3.2 Entity Header Fields

The following sections specify the entity header fields that are used by this protocol.

2.2.3.2.1 Content-Length Header Field

The **Content-Length** header field contains the length, in bytes, of the request or response body, as specified in section 2.2.4. This header is not used in chunked responses.

2.2.3.2.2 Content-Type Header Field

The **Content-Type** header field specifies the type of content. The **Content-Type** header MUST contain the string "application/mapi-http" on requests. The **Content-Type** header MUST contain the string "application/mapi-http" on responses with **X-ResponseCode** header of 0. If **X-ResponseCode** is non-zero, the **Content-Type** header MUST contain the string "text/html".

2.2.3.2.3 Set-Cookie Header Field

The **Set-Cookie** header field contains an opaque value of the form <cookie name>=<opaque string>. For details on the use of this header field, see section 3.2.5.1. Any **Set-Cookie** header value sent by the server to the client in response to a request is saved by the client for future use, as specified in section 3.1.1.

2.2.3.2.4 Cookie Header Field

The **Cookie** header field contains the name and value of one or more **cookies**. The name and value of a cookie are formatted as <cookie name>=<opaque string>. Multiple cookies are separated by a semi-colon. For example: cookie1=value1; cookie2=value2. The client's use of cookies is specified in section 3.1.5.1.

2.2.3.2.5 Transfer-Encoding Header Field

The **Transfer-Encoding** header field contains the string "chunked" transfer coding, as specified in [RFC2616] section 3.6. The use of the **Transfer-Encoding** header field is specified in section 3.1.5.6 and section 3.2.5.2.

2.2.3.3 X-Header Fields

The following sections specify the X-header fields that are used by this protocol.

2.2.3.3.1 X-RequestType Header Field

The **X-RequestType** header identifies the request type for a **mailbox** server **endpoint** or an **address book** server endpoint. For details about these endpoints, see section 2.2.4 and section 2.2.5, respectively.

The following table lists the possible values for the **X-RequestType** header.

Value	Description	Reference
Connect	Indicates the **Connect** request type for the mailbox server endpoint.	Section 2.2.4.1
Execute	Indicates the **Execute** request type for the mailbox server endpoint.	Section 2.2.4.2
Disconnect	Indicates the **Disconnect** request type for the mailbox server	Section 2.2.4.3

Value	Description	Reference
	endpoint.	
NotificationWait	Indicates the **NotificationWait** request type for the mailbox server endpoint.	Section 2.2.4.4
PING	Indicates the **PING** request type for the mailbox server endpoint and address book server endpoint.	Section 2.2.6
Bind	Indicates the **Bind** request type for the address book server endpoint.	Section 2.2.5.1
Unbind	Indicates the **Unbind** request type for the address book server endpoint.	Section 2.2.5.2
CompareMIds	Indicates the **CompareMinIds** request type for the address book server endpoint.	Section 2.2.5.3
DNToMId	Indicates the **DNToMinId** request type for the address book server endpoint.	Section 2.2.5.4
GetMatches	Indicates the **GetMatches** request type for the address book server endpoint.	Section 2.2.5.5
GetPropList	Indicates the **GetPropList** request type for the address book server endpoint.	Section 2.2.5.6
GetProps	Indicates the **GetProps** request type for the address book server endpoint.	Section 2.2.5.7
GetSpecialTable	Indicates the **GetSpecialTable** request type for the address book server endpoint.	Section 2.2.5.8
GetTemplateInfo	Indicates the **GetTemplateInfo** request type for the address book server endpoint.	Section 2.2.5.9
ModLinkAtt	Indicates the **ModLinkAtt** request type for the address book server endpoint.	Section 2.2.5.10
ModProps	Indicates the **ModProps** request type for the address book server endpoint.	Section 2.2.5.11
QueryColumns	Indicates the **QueryColumns** request type for the address book server endpoint.	Section 2.2.5.13
QueryRows	Indicates the **QueryRows** request type for the address book server endpoint.	Section 2.2.5.12
ResolveNames	Indicates the **ResolveNames** request type for the address book	Section 2.2.5.14

Value	Description	Reference
	server endpoint.	
ResortRestriction	Indicates the **ResortRestriction** request type for the address book server endpoint.	Section 2.2.5.15
SeekEntries	Indicates the **SeekEntries** request type for the address book server endpoint.	Section 2.2.5.16
UpdateStat	Indicates the **UpdateStat** request type for the address book server endpoint.	Section 2.2.5.17
GetMailboxUrl	Indicates the **GetMailboxUrl** request type for the specified mailbox server endpoint.	Section 2.2.5.18
GetAddressBookUrl	Indicates the **GetAddressBookUrl** request type for the address book server endpoint.	Section 2.2.5.19

2.2.3.3.2 X-RequestId Header Field

The **X-RequestId** header field MUST be a combination of a globally unique value in the format of a **GUID** followed by an increasing decimal counter which MUST increase with every new **HTTP** request (for example, "{E2EA6C1C-E61B-49E9-9CFB-38184F907552}***:123456***"). The GUID portion of the **X-RequestId** header MUST be unique across all **Session Contexts** and MUST NOT change for the life of the Session Context. The client MUST send this header on every request and the server MUST return this header with the same information in the response back to the client.

2.2.3.3.3 X-ResponseCode Header Field

The **X-ResponseCode** header contains a numerical value that represents the specific result that occurred on the server.

An **X-ResponseCode** of 0 (zero) means success from the perspective of the protocol transport, and the client SHOULD parse the response body based on the request that was issued. If the **X-ResponseCode** is not zero, the client parses the response body for diagnostic information.

The response codes that can be returned in the **X-ResponseCode** header are listed in the following table.

Code	Error	Description
0	Success	The request was properly formatted and accepted.
1	Unknown Failure	The request produced an unknown failure.
2	Invalid Verb	The request has an invalid verb.
3	Invalid Path	The request has an invalid path.
4	Invalid Header	The request has an invalid header.
5	Invalid Request Type	The request has an invalid **X-RequestType** header.

Code	Error	Description
6	Invalid Context Cookie	The request has an invalid session context **cookie**.
7	Missing Header	The request has a missing required header.
8	Anonymous Not Allowed	The request is anonymous, but anonymous requests are not accepted.
9	Too Large	The request is too large.
10	Context Not Found	The **Session Context** is not found.
11	No Privilege	The client has no privileges to the Session Context.
12	Invalid Request Body	The request body is invalid.
13	Missing Cookie	The request is missing a required cookie.
14	Reserved	This value MUST be ignored by the client.
15	Invalid Sequence	The request has violated the sequencing requirement of one request at a time per Session Context.
16	Endpoint Disabled	The **endpoint** is disabled.
17	Invalid Response	The response is invalid.
18	Endpoint Shutting Down	The endpoint is shutting down.

2.2.3.3.4 X-ClientInfo Header Field

The **X-ClientInfo** header field MUST be a combination of a globally unique value in the format of a **GUID** followed by a decimal counter (for example, "{2EF33C39-49C8-421C-B876-CDF7F2AC3AA0}:***123***"). The GUID portion of the **X-ClientInfo** header MUST be unique across all client instances and MUST be the same for all requests from a client instance. The client MUST use a different decimal counter when establishing a new **Session Context** with the server endpoint. The client can use the same decimal counter when re-establishing a Session Context with the server endpoint. The client MUST send this header on every request and the server MUST return this header with the same information in the response back to the client.

2.2.3.3.5 X-PendingPeriod Header Field

The **X-PendingPeriod** header field, returned by the server, specifies the number of milliseconds to be expected between keep-alive **PENDING** meta-tags in the response stream while the server is executing the request. The default value of this header is 30000 milliseconds (30 seconds).<1>

For more details about client keep-alive functions, see section 3.1.5.3. For more details about the server keep-alive function, see section 3.2.5.3.

2.2.3.3.6 X-ClientApplication Header Field

On every request, the client includes the **X-ClientApplication** header to indicate to the server what version of the client is being used. The value of this header field has the following format: "Outlook/15.xx.xxxx.xxxx". For details about client versions, see [MS-OXCRPC] section 3.2.4.1.3.

2.2.3.3.7 X-ServerApplication Header Field

On every response, the server includes the **X-ServerApplication** header to indicate to the client what server version is being used. The value of this header field has the following format: "Exchange/15.xx.xxxx.xxx". For details about server versions, see [MS-OXCRPC] section 3.1.4.1.3.

2.2.3.3.8 X-ExpirationInfo Header Field

The **X-ExpirationInfo** header is returned by the server in every response to notify the client of the number of milliseconds before the server times-out the **Session Context**.

2.2.3.3.9 X-ElapsedTime Header Field

The **X-ElapsedTime** header specifies the amount of time, in milliseconds, that the server took to process the request. This header is returned by the server as an additional header in the final response.

2.2.3.3.10 X-StartTime Header Field

The **X-StartTime** header specifies the time that the server started processing the request. This header is returned by the server as an additional header in the final response. This header follows the date/time format, as specified in [RFC2616].

2.2.3.3.11 X-DeviceInfo Header Field

The **X-DeviceInfo** header specifies information used by devices positioned between the client and server endpoints and is to be considered opaque to the client and server. This field is intended for use by intermediate devices and SHOULD be discarded by the client or server endpoint upon receipt. The client endpoint MUST NOT send this header in a request to a server endpoint. The server MUST NOT send this header in a response to a client endpoint. A device positioned between the client and server can add the **X-DeviceInfo** header on a request to the server endpoint and add the **X-DeviceInfo** header on a response to a client endpoint. The format of the **X-DeviceInfo** header field is not specified in this document and is specific to the device(s) positioned between the client and server endpoints. The size of this field MUST NOT exceed 64 characters. The information in this header can be used to help diagnose communication issues between client and server endpoints.

2.2.4 Request Types for Mailbox Server Endpoint

The mailbox server **endpoint** supports the four request types that are specified in section 2.2.4.1 through section 2.2.4.4. The mailbox server endpoint also supports the **PING** request type, which is specified in section 2.2.6. The **X-RequestType** header, specified in section 2.2.3.3.1, identifies which request type is being used.

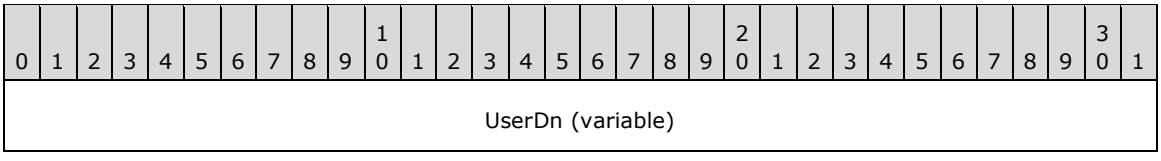
The request and response bodies associated with the specific request types are each a raw binary data **binary large object (BLOB)** that follows the common request format, as specified in section 2.2.2.1, and the common response format, as specified in section 2.2.2.2. Request and response bodies are separated from the common request and response by a blank line, as specified in [RFC2616].

2.2.4.1 Connect Request Type

The **Connect** request type is used to establish a **Session Context** with the server, as specified in section 3.1.5.1 and section 3.1.5.7.

2.2.4.1.1 Connect Request Type Request Body

The **Connect** request type request body contains the following fields. For more details about the fields, see the *[in]* parameters in [MS-OXCRPC] section 3.1.4.1.



...
Flags
DefaultCodePage
LcidSort
LcidString
AuxiliaryBufferSize
AuxiliaryBuffer (variable)
...

UserDn (variable): A null-terminated **ASCII** string that specifies the **DN** of the user who is requesting the connection. This field is equivalent to the *szUserDN* input parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

Flags (4 bytes): A set of flags that designate the type of connection being requested. This field is equivalent to the *ulFlags* input parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

DefaultCodePage (4 bytes): An unsigned integer that specifies the **code page** that the server is being requested to use for string values of properties. This field is equivalent to the *ulCpid* input parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

LcidSort (4 bytes): An unsigned integer that specifies the **language code identifier (LCID)**, as specified in [MS-LCID], to be used for sorting. This field is equivalent to the *ulLcidSort* input parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

LcidString (4 bytes): An unsigned integer that specifies the language code identifier (LCID), as specified in [MS-LCID], to be used for everything other than sorting. This field is equivalent to the *ulLcidString* input parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field. This field is equivalent to the *cbAuxIn* input parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. This field is equivalent to the *rgbAuxIn* input parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

2.2.4.1.2 Connect Request Type Success Response Body

The **Connect** request type success response body contains the following fields. For more details about the fields, see the *[out]* parameters in [MS-OXCRPC] section 3.1.4.1.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
StatusCode																															

ErrorCode
PollsMax
RetryCount
RetryDelay
DnPrefix (variable)
...
DisplayName (variable)
...
AuxiliaryBufferSize
AuxiliaryBuffer (variable)
...

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXCRPC] section 3.1.4.1 as the Return Values.

PollsMax (4 bytes): An unsigned integer that specifies the number of milliseconds for the maximum polling interval. This field is equivalent to the *pcmsPollsMax* output parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

RetryCount (4 bytes): An unsigned integer that specifies the number of times to retry request types. This field is equivalent to the *pcRetry* output parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

RetryDelay (4 bytes): An unsigned integer that specifies the number of milliseconds for the client to wait before retrying a failed request type. This field is equivalent to the *pcmsRetryDelay* output parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

DnPrefix (variable): A null-terminated **ASCII** string that specifies the **DN** prefix to be used for building message **recipients**. This field is equivalent to the *szDNPrefix* output parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

DisplayName (variable): A null-terminated **Unicode** string that specifies the display name of the user who is specified in the **UserDn** field of the **Connect** request type request body. This field is equivalent to the *szDisplayName* output parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

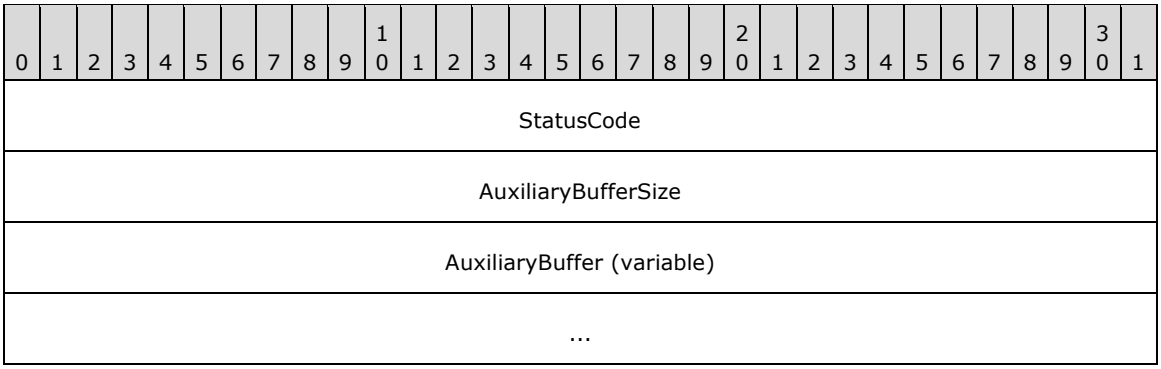
AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field. This field is equivalent to the *pcbAuxOut* output parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. This

field is equivalent to the *rgbAuxOut* output parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

2.2.4.1.3 Connect Request Type Failure Response Body

The **Connect** request type failure response body contains the following fields. For more details about the fields, see the *[out]* parameters in [MS-OXCRPC] section 3.1.4.1.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field. This field is equivalent to the *pcbAuxOut* output parameter, as specified in [MS-OXCRPC] section 3.1.4.1.

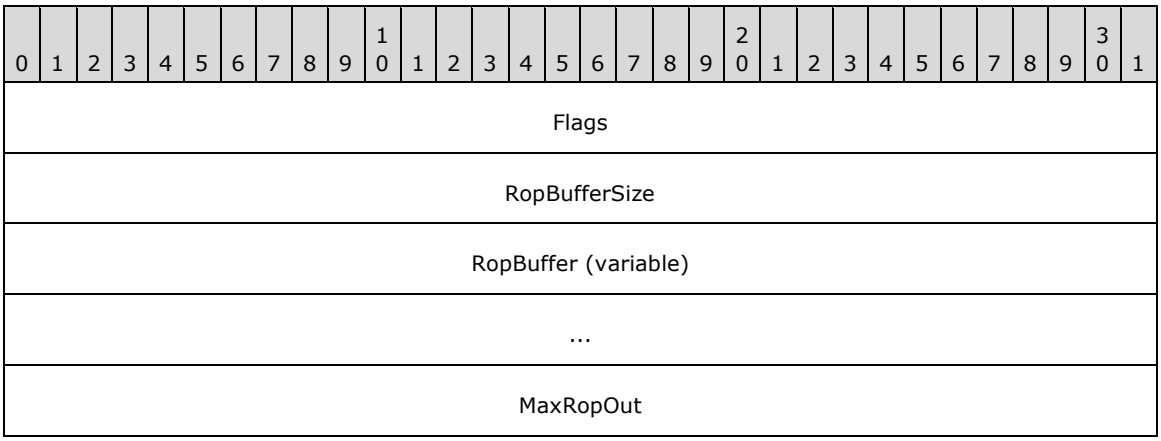
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. This field is equivalent to the *rgbAuxOut* output parameter, as specified in [MS-OXCRPC] section 3.1.4.1.<2>

2.2.4.2 Execute Request Type

The **Execute** request type is used by the client to send remote operation requests to the server.

2.2.4.2.1 Execute Request Type Request Body

The **Execute** request type request body contains the following fields. For more details about the fields, see the *[in]* parameters in [MS-OXCRPC] section 3.1.4.2.



AuxiliaryBufferSize
AuxiliaryBuffer (variable)
...

Flags (4 bytes): A set of flags that specify to the server how to build the **ROP responses** in the **RopBuffer** field of the **Execute** request type success response body, as specified in section 2.2.4.2.2. This field is equivalent to the *pulFlags* input parameter, as specified in [MS-OXCRPC] section 3.1.4.2.

RopBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **RopBuffer** field. This field is equivalent to the *cbIn* input parameter, as specified in [MS-OXCRPC] section 3.1.4.2.

RopBuffer (variable): An array of bytes that constitute the **ROP requests** payload. The size of this field, in bytes, is specified by the **RopBufferSize** field. This field is equivalent to the *rgbIn* input parameter, as specified in [MS-OXCRPC] section 3.1.4.2.

MaxRopOut (4 bytes): An unsigned integer that specifies the maximum size for the **RopBuffer** field of the **Execute** request type success response body. This field is equivalent to the *pcbOut* input parameter, as specified in [MS-OXCRPC] section 3.1.4.2.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field. This field is equivalent to the *cbAuxIn* input parameter, as specified in [MS-OXCRPC] section 3.1.4.2.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. This field is equivalent to the *rgbAuxIn* input parameter, as specified in [MS-OXCRPC] section 3.1.4.2.

2.2.4.2.2 Execute Request Type Success Response Body

The **Execute** request type success response body contains the following fields. For more details about the fields, see the *[out]* parameters in [MS-OXCRPC] section 3.1.4.2.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
StatusCode																															
ErrorCode																															
Flags																															
RopBufferSize																															
RopBuffer (variable)																															
...																															
AuxiliaryBufferSize																															

AuxiliaryBuffer (variable)
...

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXCRPC] section 3.1.4.2 as the Return Values.

Flags (4 bytes): Reserved. The server MUST set this field to 0x00000000 and the client MUST ignore this field. This field is equivalent to the *pulFlags* output parameter, as specified in [MS-OXCRPC] section 3.1.4.2.

RopBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **RopBuffer** field. This field is equivalent to the *pcbOut* output parameter, as specified in [MS-OXCRPC] section 3.1.4.2.

RopBuffer (variable): An array of bytes that constitute the **ROP responses** payload. The size of this field, in bytes, is specified by the **RopBufferSize** field. This field is equivalent to the *rgbOut* output parameter, as specified in [MS-OXCRPC] section 3.1.4.2.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field. This field is equivalent to the *pcbAuxOut* output parameter, as specified in [MS-OXCRPC] section 3.1.4.2.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. This field is equivalent to the *rgbAuxOut* output parameter, as specified in [MS-OXCRPC] section 3.1.4.2.

2.2.4.2.3 Execute Request Type Failure Response Body

The **Execute** request type failure response body contains the following fields. For more details about the fields, see the *[out]* parameters in [MS-OXCRPC] section 3.1.4.2.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
StatusCode																															
AuxiliaryBufferSize																															
AuxiliaryBuffer (variable)																															
...																															

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field. This field is equivalent to the *pcbAuxOut* output parameter, as specified in [MS-OXCRPC] section 3.1.4.2.

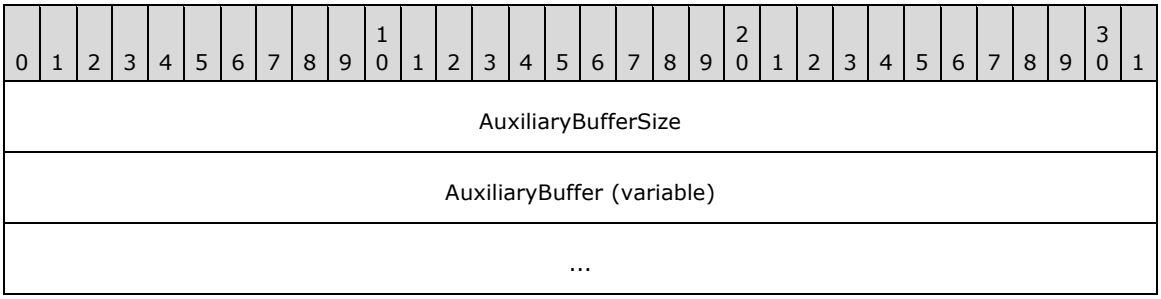
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. This field is equivalent to the *rgbAuxOut* output parameter, as specified in [MS-OXCRPC] section 3.1.4.2.<3>

2.2.4.3 Disconnect Request Type

The **Disconnect** request type is used by the client to delete a **Session Context** with the server, as specified in section 3.1.5.4.

2.2.4.3.1 Disconnect Request Type Request Body

The **Disconnect** request type request body contains the following fields.

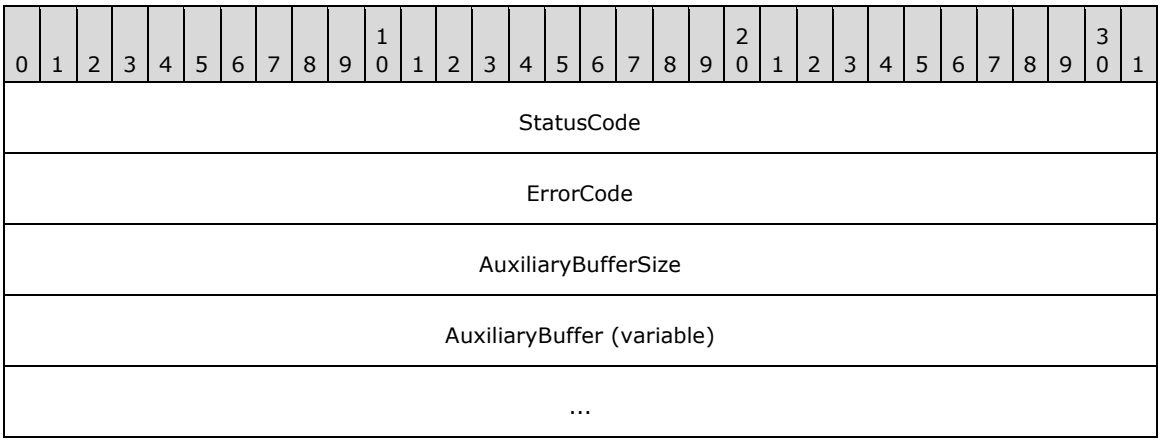


AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.1.1 and section 3.1.4.1.2.

2.2.4.3.2 Disconnect Request Type Success Response Body

The **Disconnect** request type success response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

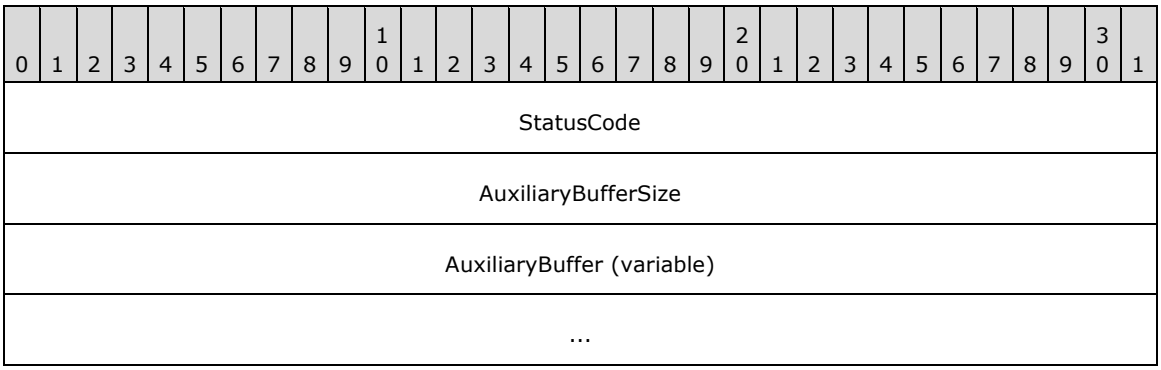
ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXCRPC] section 3.1.4.3 as the Return Values.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.1.1 and section 3.1.4.1.2.

2.2.4.3.3 Disconnect Request Type Failure Response Body

The **Disconnect** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

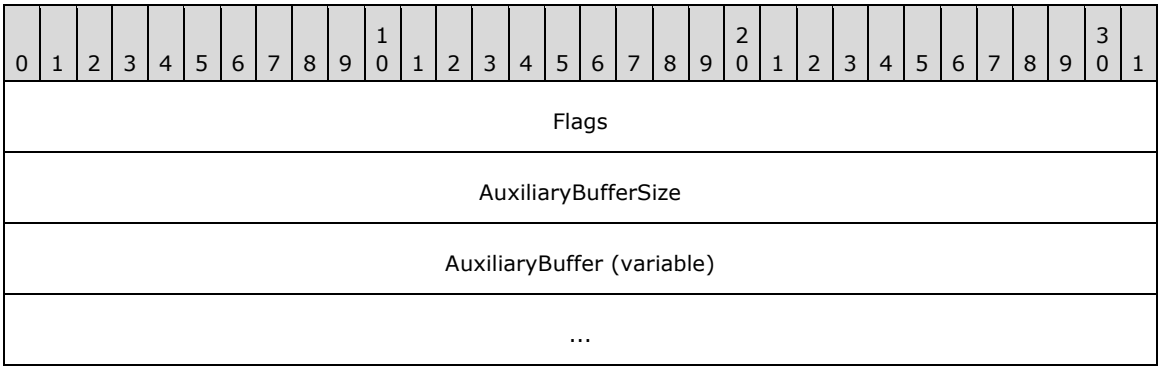
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.1.1 and section 3.1.4.1.2.<4>

2.2.4.4 NotificationWait Request Type

The **NotificationWait** request type is used by the client to request that the server notify the client when a processing request that takes an extended amount of time completes.

2.2.4.4.1 NotificationWait Request Type Request Body

The **NotificationWait** request type request body contains the following fields. For more details about the fields, see the *[in]* parameters in [MS-OXCRPC] section 3.3.4.1.



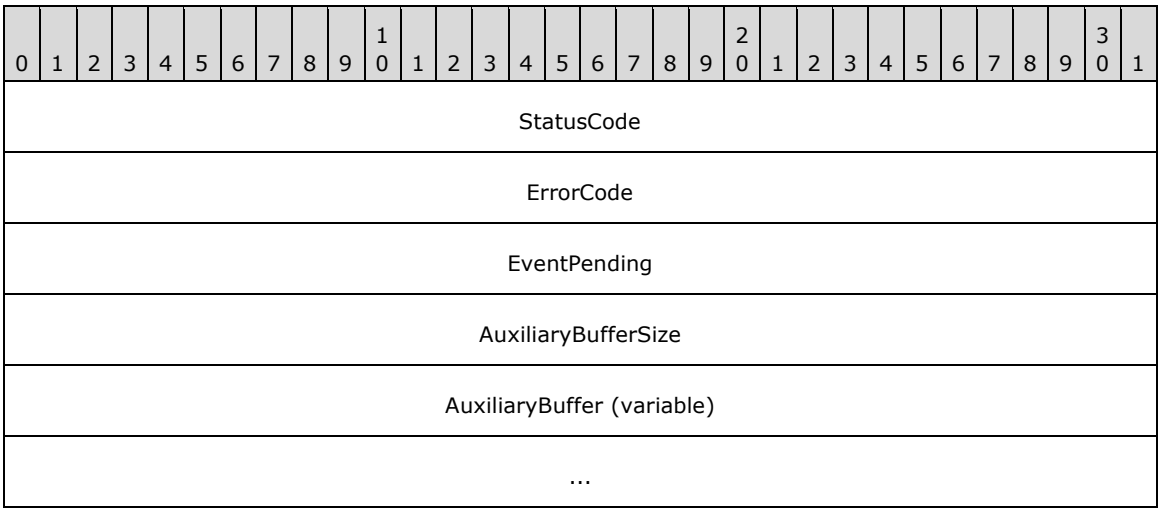
Flags (4 bytes): Reserved. The client MUST set this field to 0x00000000 and the server MUST ignore this field. This field is equivalent to the *ulFlagsIn* input parameter, as specified in [MS-OXCRPC] section 3.3.4.1.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.4.4.2 NotificationWait Request Type Success Response Body

The **NotificationWait** request type success response body contains the following fields. For more details about the fields, see the *[out]* parameters in [MS-OXCRPC] section 3.3.4.1.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXCRPC] section 3.3.4.1 as the Return Values.

EventPending (4 bytes): An unsigned integer that indicates whether an event is pending on the **Session Context**. The value 0x00000001 indicates that an event is pending; the value 0x00000000 indicates that no event is pending. This field is equivalent to the *pulFlagsOut* output parameter, as specified in [MS-OXCRPC] section 3.3.4.1.

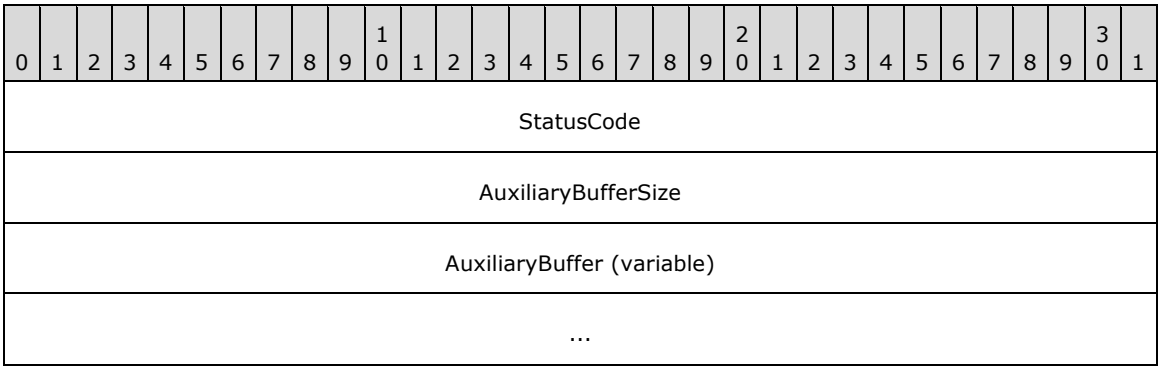
The client MUST send the **Execute** request type, as specified in section 2.2.4.2, with additional data in the request body if there is additional data to send to the server, or with an empty request body if there is no additional data to send to the server. The server will return the event details in the **Execute** request type response body.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.4.4.3 NotificationWait Request Type Failure Response Body

The **NotificationWait** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.<5>

2.2.5 Request Types for Address Book Server Endpoint

The address book server **endpoint** supports the 19 request types that are specified in section 2.2.5.1 through section 2.2.5.19. The address book server endpoint also supports the **PING** request type, which is specified in section 2.2.6. The **X-RequestType** header, specified in section 2.2.3.3.1, identifies which request type is being used.

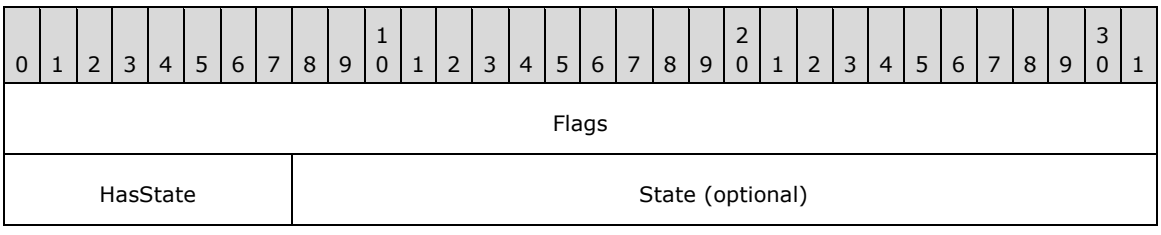
The request and response bodies associated with the specific request types are each a raw binary data **binary large object (BLOB)** that follows the common request format, as specified in section 2.2.2.1, and the common response format, as specified in section 2.2.2.2. Request and response bodies are separated from the common request and response by a blank line, as specified in [RFC2616].

2.2.5.1 Bind Request Type

The **Bind** request type is used by the client to establish a **Session Context** with the server, as specified in section 3.1.5.1 and section 3.1.5.7. For information regarding the server-side processing of the **Bind** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.1.

2.2.5.1.1 Bind Request Type Request Body

The **Bind** request type request body contains the following fields.



...	
(State field continues for 7 rows)	
...	AuxiliaryBufferSize
...	AuxiliaryBuffer (variable)
...	

Flags (4 bytes): A set of bit flags that specify the authentication type for the connection. The server MUST ignore values other than the bit flag **fAnonymousLogin** (0x00000020).

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.1.1 and section 3.1.4.1.2.

2.2.5.1.2 Bind Request Type Success Response Body

The **Bind** request type success response body contains the following fields.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
StatusCode																															
ErrorCode																															
ServerGuid																															
...																															
...																															
...																															
AuxiliaryBufferSize																															
AuxiliaryBuffer (variable)																															
...																															

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

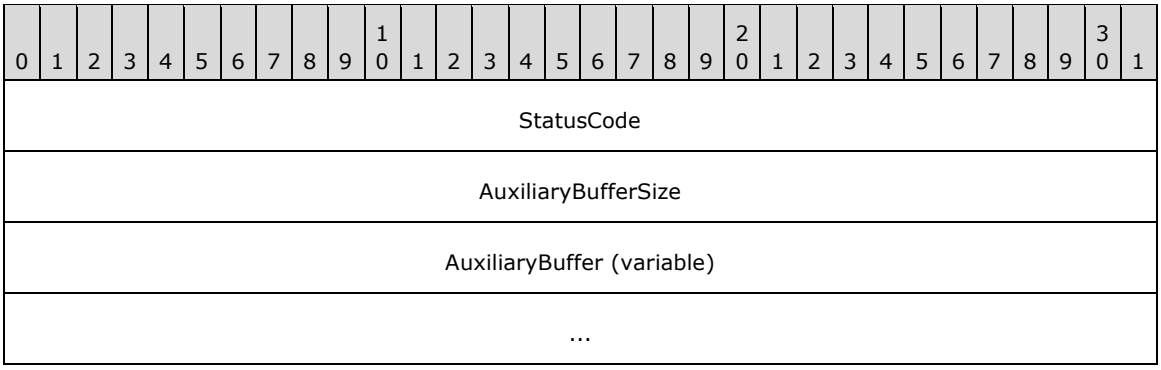
ServerGuid (16 bytes): A **GUID** that is associated with a specific **address book** server.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.1.1 and section 3.1.4.1.2.

2.2.5.1.3 Bind Request Type Failure Response Body

The **Bind** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

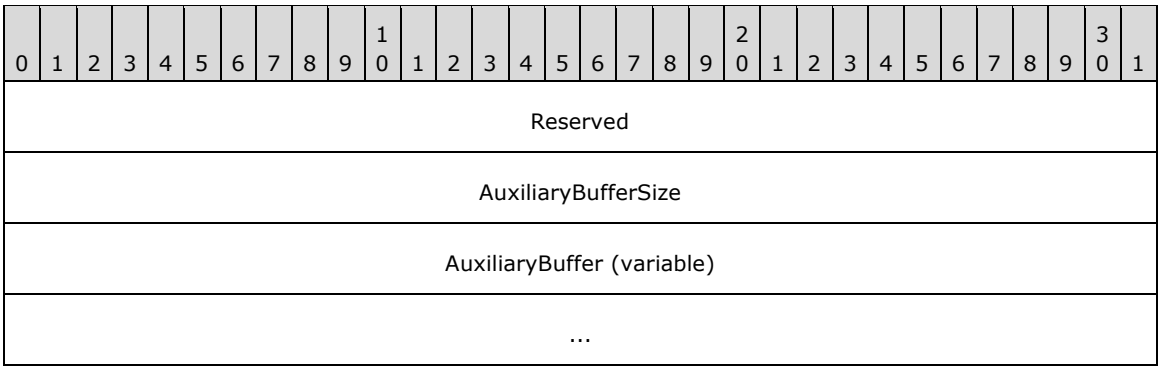
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.1.1 and section 3.1.4.1.2.

2.2.5.2 Unbind Request Type

The **Unbind** request type is used by the client to delete a **Session Context** with the server, as specified in section 3.1.5.4. For information regarding the server-side processing of the **Unbind** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.2.

2.2.5.2.1 Unbind Request Type Request Body

The **Unbind** request type request body contains the following fields.



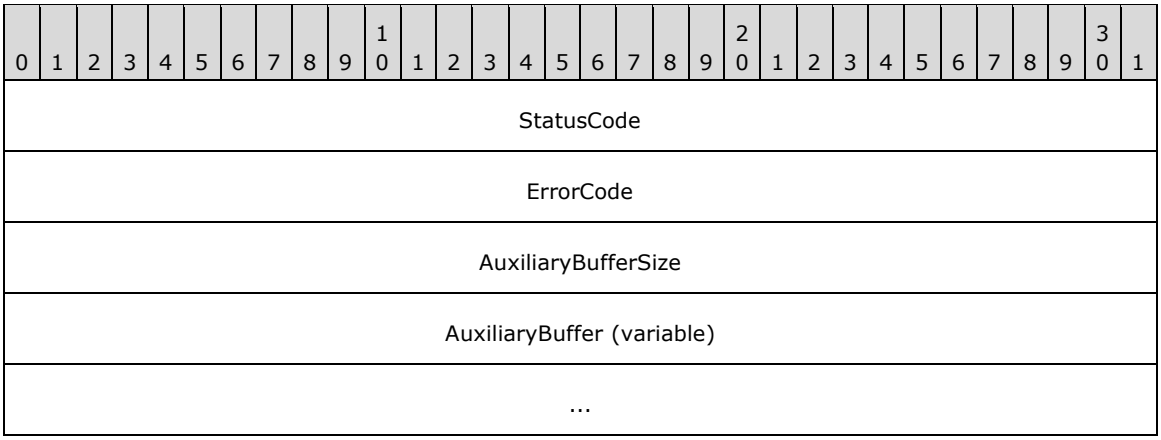
Reserved (4 bytes): Reserved. The client MUST set this field to 0x00000000 and the server MUST ignore this field.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.1.1 and section 3.1.4.1.2.

2.2.5.2.2 Unbind Request Type Success Response Body

The **Unbind** request type success response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

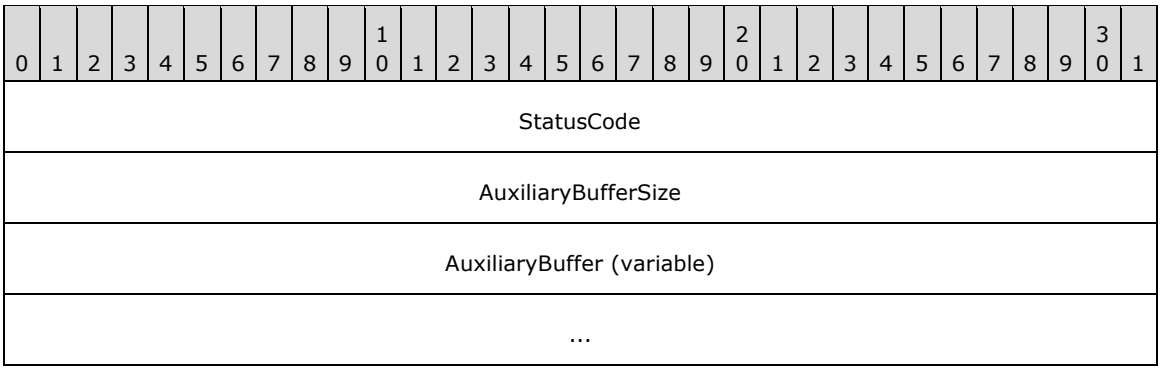
ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.1.1 and section 3.1.4.1.2.

2.2.5.2.3 Unbind Request Type Failure Response Body

The **Unbind** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

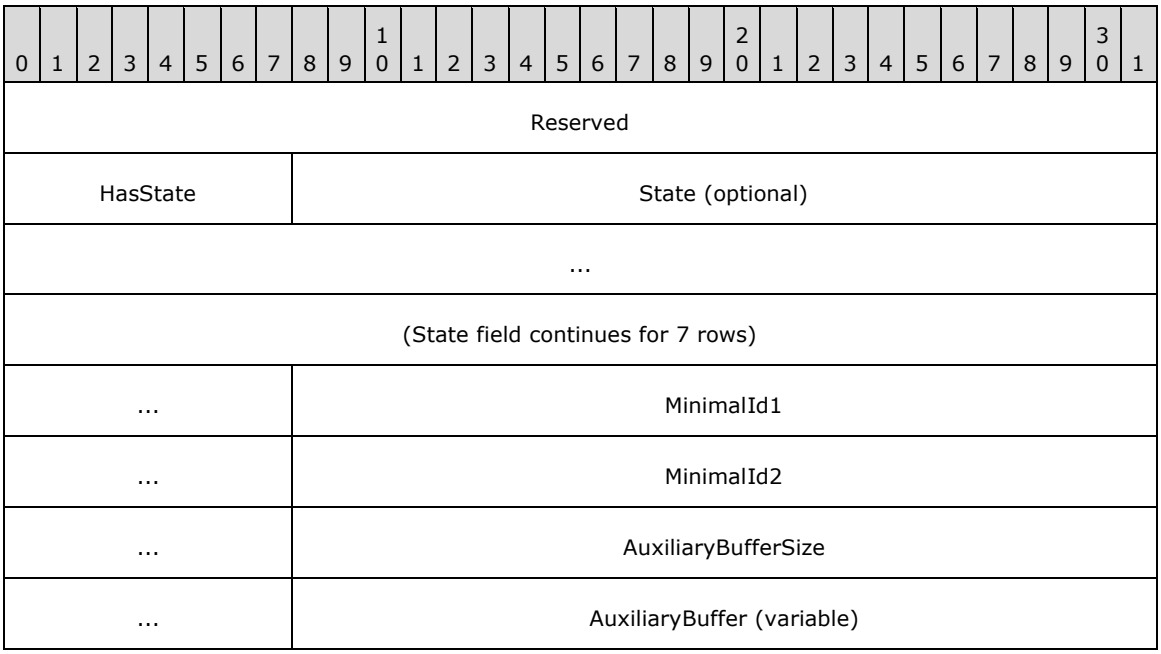
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.1.1 and section 3.1.4.1.2.

2.2.5.3 CompareMinIds Request Type

The **CompareMinIds** request type is used by the client to compare the positions of two objects in an **address book container**. For information regarding the server-side processing of the **CompareMinIds** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.12.

2.2.5.3.1 CompareMinIds Request Type Request Body

The **CompareMinIds** request type request body contains the following fields.



...

Reserved (4 bytes): Reserved. The client MUST set this field to 0x00000000 and the server MUST ignore this field.

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

MinimalId1 (4 bytes): A **MinimalEntryID** structure ([MS-OXNSPI] section 2.2.9.1) that specifies the **Minimal Entry ID** of the first object.

MinimalId2 (4 bytes): A **MinimalEntryID** structure that specifies the Minimal Entry ID of the second object.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.3.2 CompareMinIds Request Type Success Response Body

The **CompareMinIds** request type success response body contains the following fields.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
StatusCode																															
ErrorCode																															
Result																															
AuxiliaryBufferSize																															
AuxiliaryBuffer (variable)																															
...																															

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

Result (4 bytes): A signed integer that specifies the result of the comparison. The valid values for this field are specified in the following table.

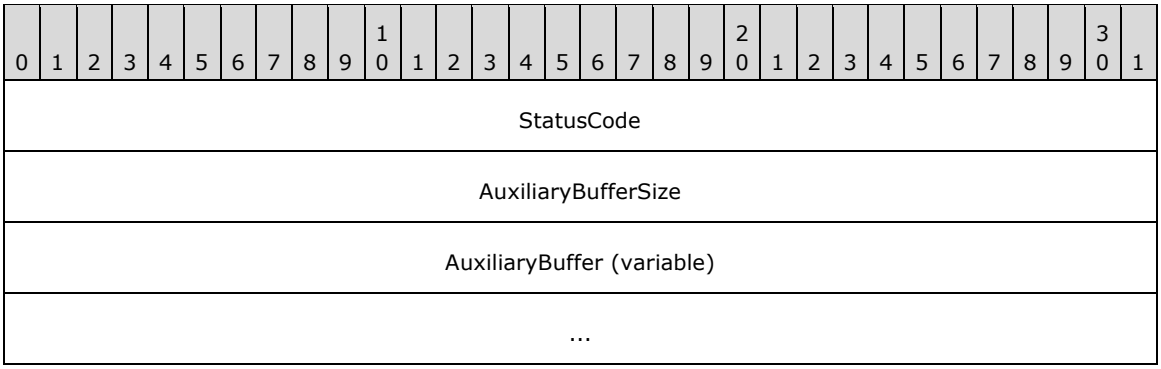
Value	Meaning
0 (zero)	The position of the object specified by the **MinimalId1** field of the request body is the same as the position of the object specified by the **MinimalId2** field. That is, the two fields specify the same object.
A value less than 0 (zero)	The position of the object specified by the **MinimalId1** field of the request body precedes the position of the object specified by the **MinimalId2** field.
A value greater than 0 (zero)	The position of the object specified by the **MinimalId1** field of the request body succeeds the position of the object specified by the **MinimalId2** field.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.3.3 CompareMinIds Request Type Failure Response Body

The **CompareMinIds** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

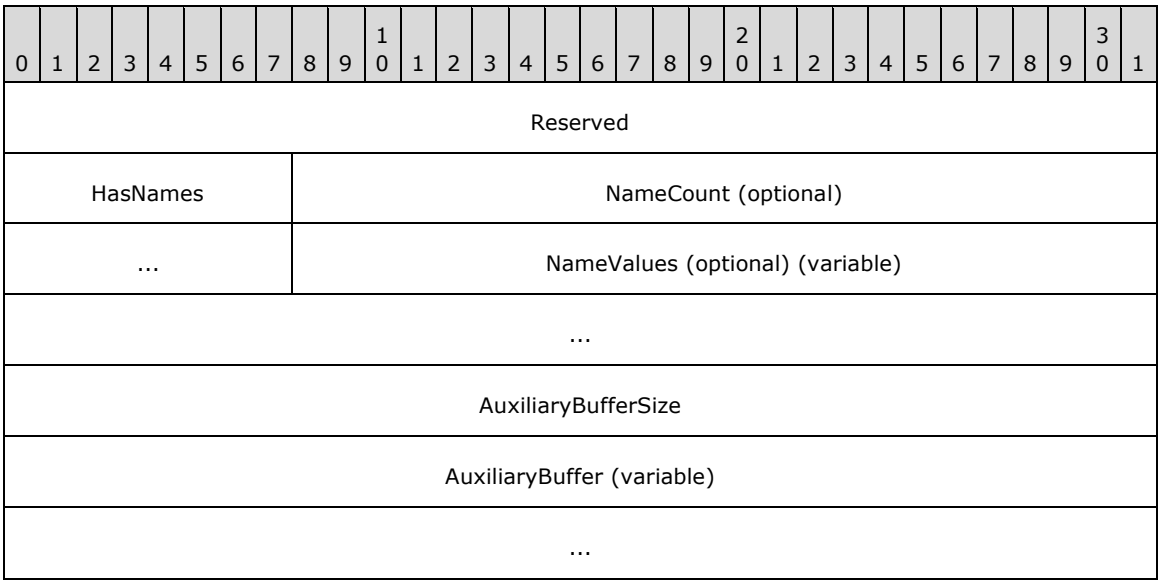
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.4 DnToMinId Request Type

The **DnToMinId** request type is used by the client to map a set of **DNs** to a set of **Minimal Entry IDs**. For information regarding the server-side processing of the **DnToMinId** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.13.

2.2.5.4.1 DnToMinId Request Type Request Body

The **DnToMinId** request type request body contains the following fields.



Reserved (4 bytes): Reserved. The client MUST set this field to 0x00000000 and the server MUST ignore this field.

HasNames (1 byte): A Boolean value that specifies whether the **NameCount** and **NameValues** fields are present.

NameCount (optional) (4 bytes): An unsigned integer that specifies the number of null-terminated **Unicode** strings in the **NameValues** field. This field is present when the value of the **HasNames** field is nonzero and is not present otherwise.

NameValues (optional) (variable): An array of null-terminated **ASCII** strings which are **distinguished names (DNs)** to be mapped to **Minimal Entry IDs**. The number of strings is specified by the **NameCount** field. This field is present when the **HasNames** field is nonzero and is not present otherwise. For details about Minimal Entry IDs, see [MS-OXNSPI] section 2.2.9.1.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.4.2 DnToMinId Request Type Success Response Body

The **DnToMinId** request type success response body contains the following fields.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
StatusCode																															
ErrorCode																															
HasMinimalIds										MinimalIdCount (optional)																				
...										MinimalIds (optional) (variable)																				
...																															
AuxiliaryBufferSize																															
AuxiliaryBuffer (variable)																															
...																															

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

HasMinimalIds (1 byte): A Boolean value that specifies whether the **MinimalIdCount** and **MinimalIds** fields are present.

MinimalIdCount (optional) (4 bytes): An unsigned integer that specifies the number of structures in the **MinimalIds** field. This field is present when the value of the **HasMinimalIds** field is nonzero and is not present otherwise.

MinimalIds (optional) (variable): An array of **MinimalEntryID** structures ([MS-OXNSPI] section 2.2.9.1), each of which specifies a **Minimal Entry ID** that matches a requested **distinguished name (DN)**. This field is present when the value of the **HasMinimalIds** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.4.3 DnToMinId Request Type Failure Response Body

The **DnToMinId** request type failure response body contains the following fields.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
StatusCode																															

AuxiliaryBufferSize
AuxiliaryBuffer (variable)
...

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.5 GetMatches Request Type

The **GetMatches** request type is used by the client to get an Explicit Table, in which the rows are determined by the specified criteria. For details about Explicit Tables, see [MS-OXNSPI] section 3.1.4.4.2. For information regarding the server-side processing of the **GetMatches** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.10.

2.2.5.5.1 GetMatches Request Type Request Body

The **GetMatches** request type request body contains the following fields.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
Reserved																															
HasState								State (optional)																							
...																															
(State field continues for 7 rows)																															
...																HasMinimalIds															
...																															
...																MinimalIds (optional) (variable)															
...																															
InterfaceOptionFlags																															
HasFilter								Filter (optional) (variable)																							
...																															

HasPropertyName	PropertyNameGuid (optional)	
...		
...		
...		
...	PropertyNameId (optional)	
...	RowCount	
...	HasColumns	Columns (optional) (variable)
...		
AuxiliaryBufferSize		
AuxiliaryBuffer (variable)		
...		

Reserved (4 bytes): Reserved. The client MUST set this field to 0x00000000 and the server MUST ignore this field.

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the value of the **HasState** field is nonzero and is not present otherwise.

HasMinimalIds (1 byte): A Boolean value that specifies whether the **MinimalIdCount** and **MinimalIds** fields are present.

MinimalIdCount (optional) (4 bytes): An unsigned integer that specifies the number of structures present in the **MinimalIds** field. This field is present when the value of the **HasMinimalIds** field is nonzero and is not present otherwise.

MinimalIds (optional) (variable): An array of **MinimalEntryID** structures ([MS-OXNSPI] section 2.2.9.1) that constitute an Explicit Table. For details about Explicit Tables, see [MS-OXNSPI] section 3.1.4.4.2. This field is present when the value of the **HasMinimalIds** field is nonzero and is not present otherwise.

InterfaceOptionFlags (4 bytes): Reserved. The client MUST set this field to 0x00000000 and the server MUST ignore this field.

HasFilter (1 byte): A Boolean value that specifies whether the **Filter** field is present.

Filter (optional) (variable): A **restriction**, as specified in [MS-OXCDATA] section 2.12, that is to be applied to the rows in the address book container. This field is present when the value of **HasFilter** is nonzero and is not present otherwise.

HasPropertyName (1 byte): A Boolean value that specifies whether the **PropertyNameGuid** and **PropertyNameId** fields are present.

PropertyNameGuid (optional) (16 bytes): The **GUID** of the property to be opened. This field is present when the value of the **HasPropertyName** field is nonzero and is not present otherwise.

PropertyNameId (optional) (4 bytes): A 4-byte value that specifies the ID of the property to be opened. This field is present when the value of the **HasPropertyName** field is nonzero and is not present otherwise.

RowCount (4 bytes): An unsigned integer that specifies the number of rows the client is requesting.

HasColumns (1 byte): A Boolean value that specifies whether the **Columns** field is present.

Columns (optional) (variable): A **LargePropertyTagArray** structure (section 2.2.1.8) that specifies the columns that the client is requesting. This field is present when the value of the **HasColumns** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.5.2 GetMatches Request Type Success Response Body

The **GetMatches** request type success response body contains the following fields.

<table>
<tr><th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>20</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>30</th><th>1</th></tr>
<tr><td colspan="32">StatusCode</td></tr>
<tr><td colspan="32">ErrorCode</td></tr>
<tr><td colspan="8">HasState</td><td colspan="24">State (optional)</td></tr>
<tr><td colspan="32">...</td></tr>
<tr><td colspan="32">(State field continues for 7 rows)</td></tr>
<tr><td colspan="8">...</td><td colspan="8">HasMinimalIds</td><td colspan="16">MinimalIdCount (optional)</td></tr>
<tr><td colspan="16">...</td><td colspan="16">MinimalIds (optional) (variable)</td></tr>
<tr><td colspan="32">...</td></tr>
<tr><td colspan="8">HasColumnsAndRows</td><td colspan="24">Columns (optional) (variable)</td></tr>
<tr><td colspan="32">...</td></tr>
<tr><td colspan="32">RowCount (optional)</td></tr>
<tr><td colspan="32">RowData (optional) (variable)</td></tr>
</table>

...
AuxiliaryBufferSize
AuxiliaryBuffer (variable)
...

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. . This field is present when the **HasState** field is nonzero and is not present otherwise.

HasMinimalIds (1 byte): A Boolean value that specifies whether the **MinimalIdCount** and **MinimalIds** fields are present.

MinimalIdCount (optional) (4 bytes): An unsigned integer that specifies the number of structures present in the **MinimalIds** field. This field is present when the value of the **HasMinimalIds** field is nonzero and is not present otherwise.

MinimalIds (optional) (variable): An array of **MinimalEntryID** structures ([MS-OXNSPI] section 2.2.9.1), each of which is the ID of an object found. This field is present when the value of the **HasMinimalIds** field is nonzero and is not present otherwise.

HasColumnsAndRows (1 byte): A Boolean value that specifies whether the **Columns**, **RowCount**, and **RowData** fields are present.

Columns (optional) (variable): A **LargePropertyTagArray** structure (section 2.2.1.8) that specifies the columns used for each row returned. This field is present when the value of the **HasColumnsAndRows** field is nonzero and is not present otherwise.

RowCount (optional) (4 bytes): An unsigned integer that specifies the number of structures in the **RowData** field. This field is present when the value of the **HasColumnsAndRows** field is nonzero and is not present otherwise.

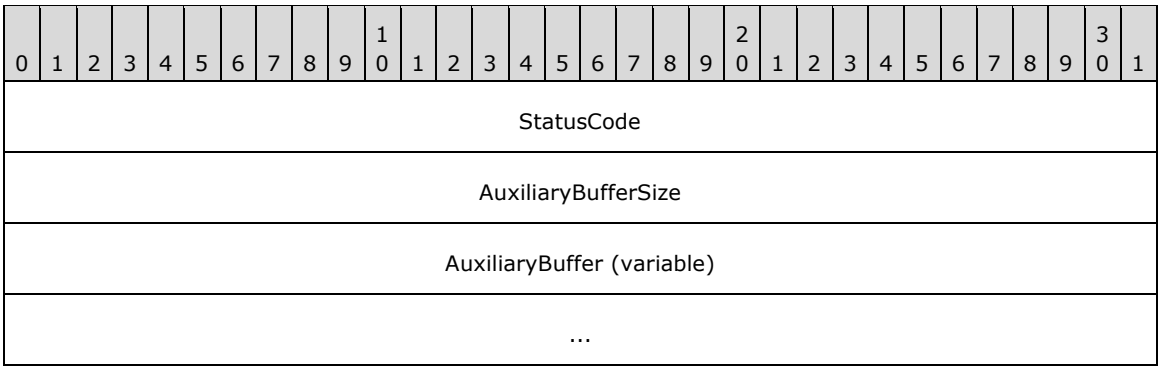
RowData (optional) (variable): An array of **AddressBookPropertyRow** structures (section 2.2.1.7), each of which specifies the row data for the entries requested. This field is present when the **HasColumnsAndRows** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.5.3 GetMatches Request Type Failure Response Body

The **GetMatches** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

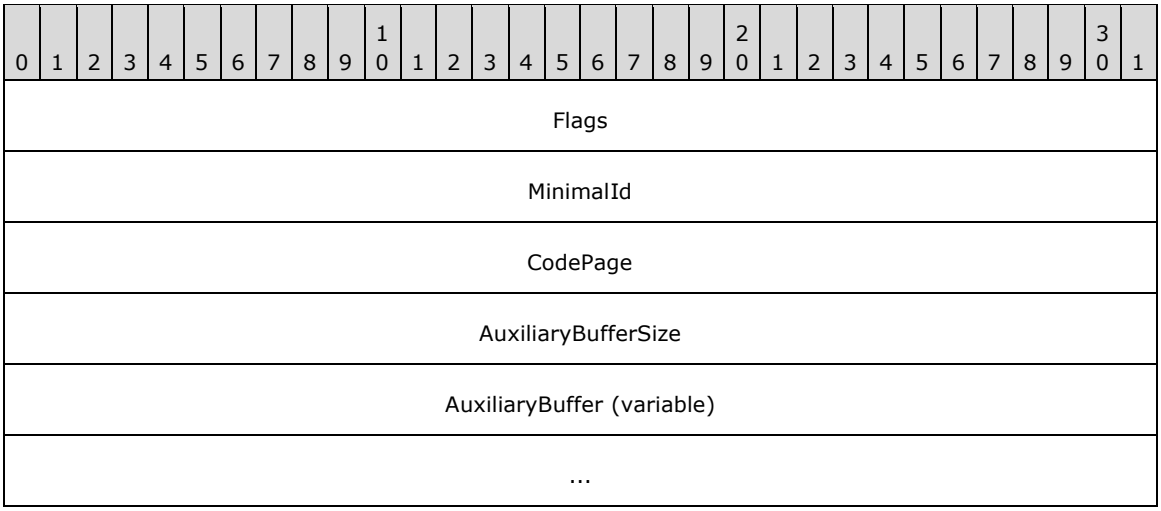
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.6 GetPropList Request Type

The **GetPropList** request type is used by the client to get a list of all of the properties that have values on an object. For information regarding the server-side processing of the **GetPropList** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.6.

2.2.5.6.1 GetPropList Request Type Request Body

The **GetPropList** request type request body contains the following fields.



Flags (4 bytes): A set of bit flags that specify options to the server. The server MUST ignore values other than the bit flag **fSkipObjects** (0x00000001).

MinimalId (4 bytes): A **MinimalEntryID** structure ([MS-OXNSPI] section 2.2.9.1) that specifies the object for which to return properties.

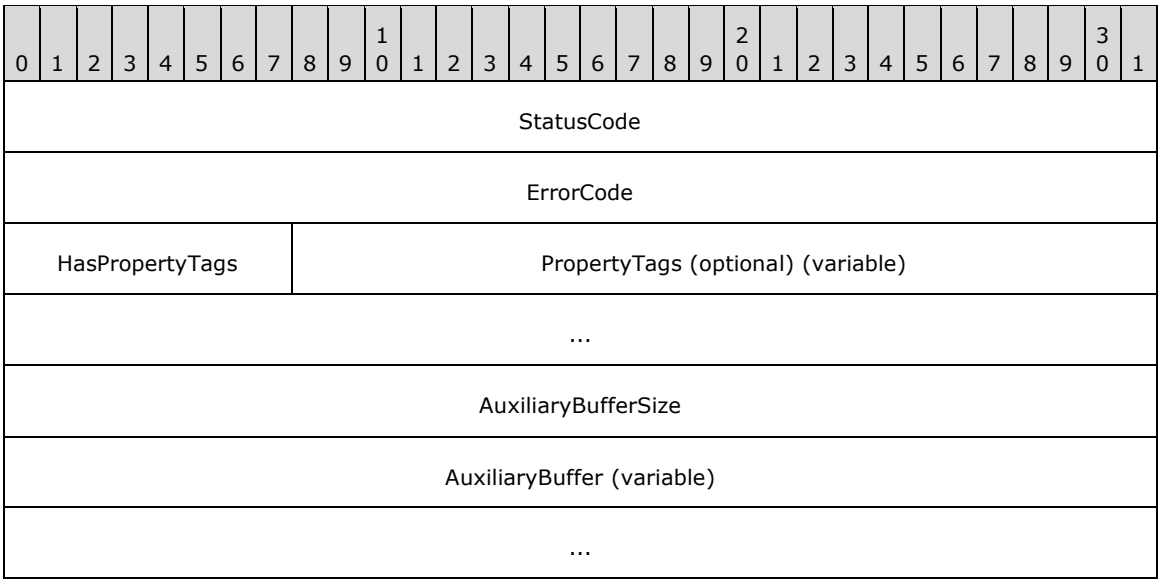
CodePage (4 bytes): An unsigned integer that specifies the **code page** that the server is being requested to use for string values of properties. For more details about code pages, see [MS-OXNSPI] section 2.2.1.5.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.6.2 GetPropList Request Type Success Response Body

The **GetPropList** request type success response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

HasPropertyTags (1 byte): A Boolean value that specifies whether the **PropertyTags** field is present.

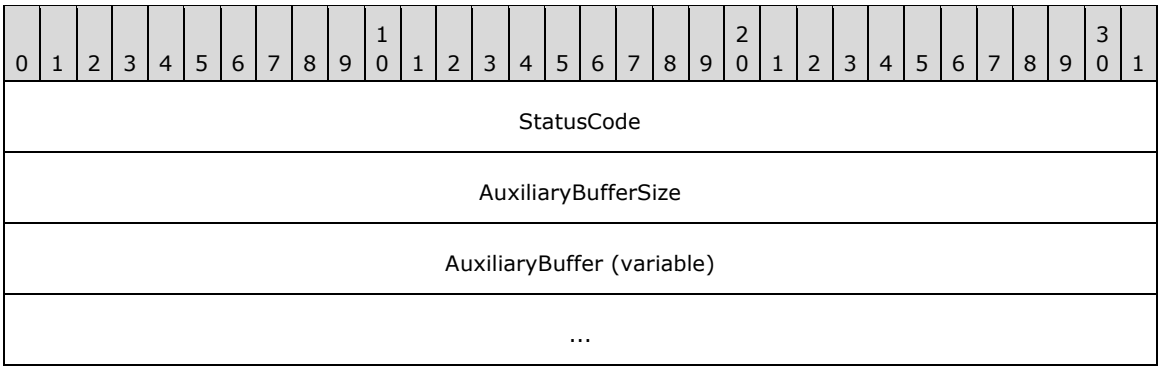
PropertyTags (optional) (variable): A **LargePropertyTagArray** structure (section 2.2.1.8) that contains the **property tags** of properties that have values on the requested object. This field is present when the value of the **HasPropertyTags** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.6.3 GetPropList Request Type Failure Response Body

The **GetPropList** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

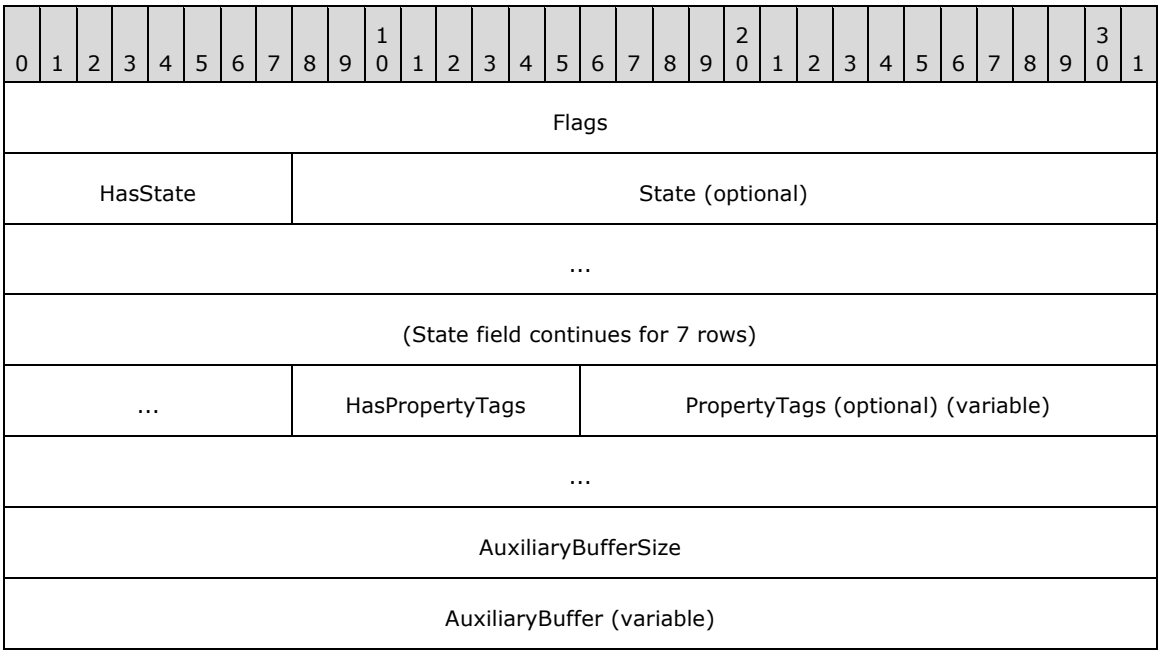
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.7 GetProps Request Type

The **GetProps** request type is used by the client to get specific properties on an object. For information regarding the server-side processing of the **GetProps** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.7.<6>

2.2.5.7.1 GetProps Request Type Request Body

The **GetProps** request type request body contains the following fields.



...

Flags (4 bytes): A set of bit flags that specify options to the server. The server MUST ignore values other than the bit flags **fEphID** (0x00000002) and **fSkipObjects** (0x00000001).

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

HasPropertyTags (1 byte): A Boolean value that specifies whether the **PropertyTags** field is present.

PropertyTags (optional) (variable): A **LargePropertyTagArray** structure (section 2.2.1.8) that contains the **property tags** of the properties that the client is requesting. This field is present when the value of the **HasPropertyTags** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.7.2 GetProps Request Type Success Response Body

The **GetProps** request type success response body contains the following fields.

<table>
<tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>20</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>30</td><td>1</td></tr>
<tr><td colspan="32">StatusCode</td></tr>
<tr><td colspan="32">ErrorCode</td></tr>
<tr><td colspan="32">CodePage</td></tr>
<tr><td colspan="8">HasPropertyValues</td><td colspan="24">PropertyValues (optional) (variable)</td></tr>
<tr><td colspan="32">...</td></tr>
<tr><td colspan="32">AuxiliaryBufferSize</td></tr>
<tr><td colspan="32">AuxiliaryBuffer (variable)</td></tr>
<tr><td colspan="32">...</td></tr>
</table>

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

CodePage (4 bytes): An unsigned integer that specifies the **code page** that the server used to express string properties. For details about code pages, see [MS-OXNSPI] section 2.2.1.5.

HasPropertyValues (1 byte): A Boolean value that specifies whether the **PropertyValues** field is present.

PropertyValues (optional) (variable): An **AddressBookPropertyValueList** structure (section 2.2.1.3) that contains the values of the properties requested. This field is present when the value of the **HasPropertyValues** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.7.3 GetProps Request Type Failure Response Body

The **GetProps** request type failure response body contains the following fields.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
StatusCode																															
AuxiliaryBufferSize																															
AuxiliaryBuffer (variable)																															
...																															

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

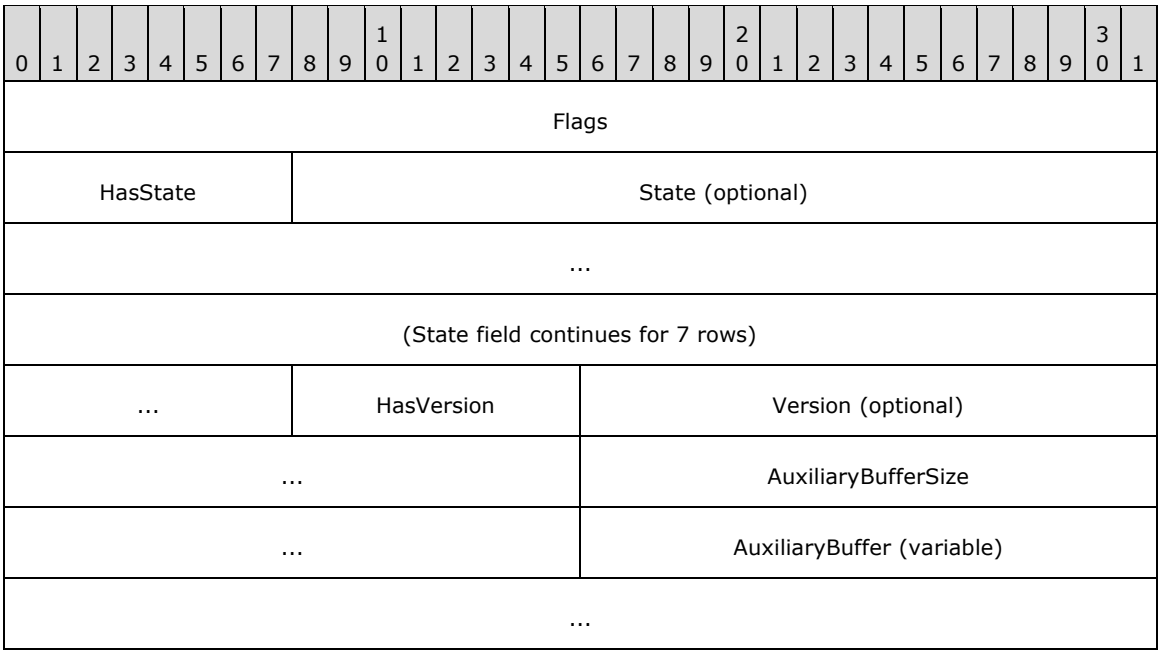
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.8 GetSpecialTable Request Type

The **GetSpecialTable** request type is used by the client to get a special table, which can be either an **address book hierarchy table** or an **address creation table**. For details about tables that are used in the NSPI data model, see [MS-OXNSPI] section 3.1.4.4. For information regarding the server-side processing of the **GetSpecialTable** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.3.

2.2.5.8.1 GetSpecialTable Request Type Request Body

The **GetSpecialTable** request type request body contains the following fields.



Flags (4 bytes): A set of bit flags that specify options to the server. The server MUST ignore values other than the bit flags **NspiAddressCreationTemplates** (0x00000002) and **NspiUnicodeStrings** (0x00000004).

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

HasVersion (1 byte): A Boolean value that specifies whether the **Version** field is present.

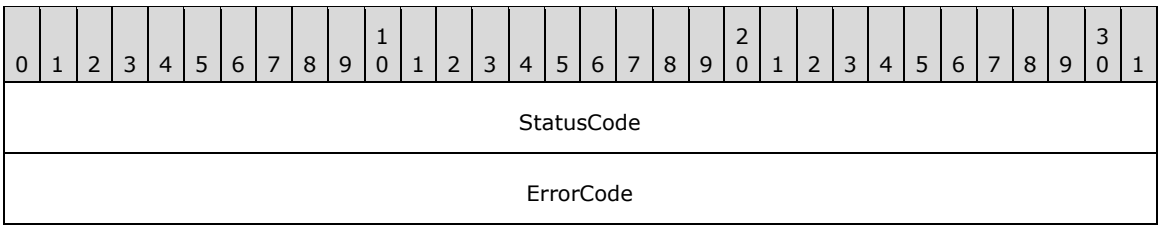
Version (optional) (4 bytes): An unsigned integer that specifies the version number of the **address book hierarchy table** that the client has. This field is present when the value of the **HasVersion** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.8.2 GetSpecialTable Request Type Success Response Body

The **GetSpecialTable** request type success response body contains the following fields.



CodePage		
HasVersion	Version (optional)	
...	HasRows	RowsCount (optional)
...		Rows (optional) (variable)
...		
AuxiliaryBufferSize		
AuxiliaryBuffer (variable)		
...		

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

CodePage (4 bytes): An unsigned integer that specifies the **code page** the server used to express string properties. The required code pages are specified in For details about code pages, see .

HasVersion (1 byte): A Boolean value that specifies whether the **Version** field is present.

Version (optional) (4 bytes): An unsigned integer that specifies the version number of the **address book hierarchy table** that the server has. This field is present when the value of the **HasVersion** field is nonzero and is not present otherwise.

HasRows (1 byte): A Boolean value that specifies whether the **RowCount** and **Rows** fields are present.

RowsCount (optional) (4 bytes): An unsigned integer that specifies the number of structures in the **Rows** field. This field is present when the value of the **HasRows** field is nonzero and is not present otherwise.

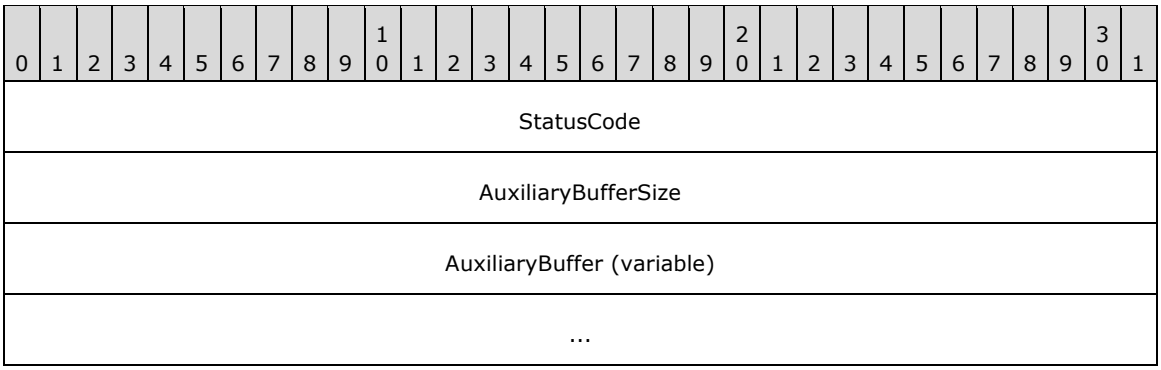
Rows (optional) (variable): An array of **AddressBookPropertyValueList** structures (section 2.2.1.3), each of which contains a row of the table that the client requested. This field is present when the value of the **HasRows** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.8.3 GetSpecialTable Request Type Failure Response Body

The **GetSpecialTable** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

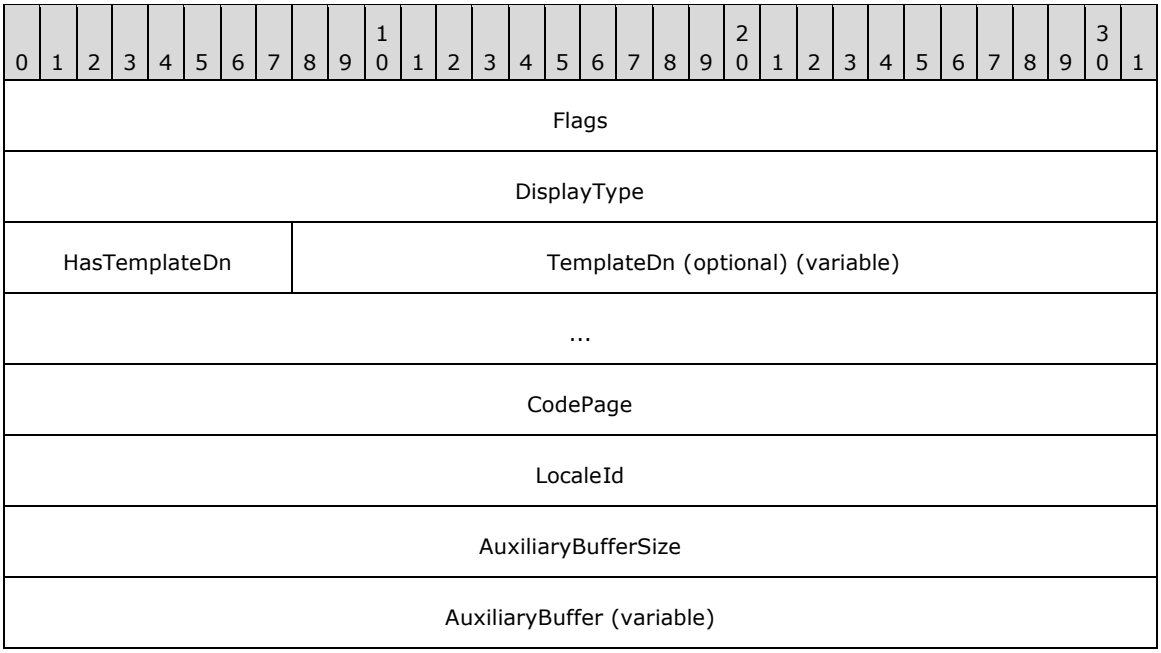
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.9 GetTemplateInfo Request Type

The **GetTemplateInfo** request type is used by the client to get information about a template that is used by the **address book**. For information regarding the server-side processing of the **GetTemplateInfo** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.18.

2.2.5.9.1 GetTemplateInfo Request Type Request Body

The **GetTemplateInfo** request type request body contains the following fields.



...

Flags (4 bytes): A set of bit flags that specify options to the server. The server MUST ignore values other than the bit flags **TI_HELPFILE_NAME** (0x00000020), **TI_HELPFILE_CONTENTS** (0x00000040), **TI_SCRIPT** (0x00000004), **TI_TEMPLATE** (0x00000001), and **TI_EMT** (0x00000010).

DisplayType (4 bytes): An unsigned integer that specifies the display type of the template for which information is requested. The valid values for this field are specified in [MS-OXNSPI] section 2.2.1.3.

HasTemplateDn (1 byte): A Boolean value that specifies whether the **TemplateDn** field is present.

TemplateDn (optional) (variable): A null-terminated **ASCII** string that specifies the **DN** of the template requested. This field is present when the **HasTemplateDn** field is nonzero and is not present otherwise.

CodePage (4 bytes): An unsigned integer that specifies the **code page** of the template for which information is requested.

LocaleId (4 bytes): An unsigned integer that specifies the **language code identifier (LCID)**, as specified in [MS-LCID], of the template for which information is requested.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.9.2 GetTemplateInfo Request Type Success Response Body

The **GetTemplateInfo** request type success response body contains the following fields.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
StatusCode																															
ErrorCode																															
CodePage																															
HasRow									Row (optional) (variable)																						
...																															
AuxiliaryBufferSize																															
AuxiliaryBuffer (variable)																															
...																															

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

CodePage (4 bytes): An unsigned integer that specifies the **code page** the server used to express string values of properties.

HasRow (1 byte): A Boolean value that specifies whether the **Row** field is present.

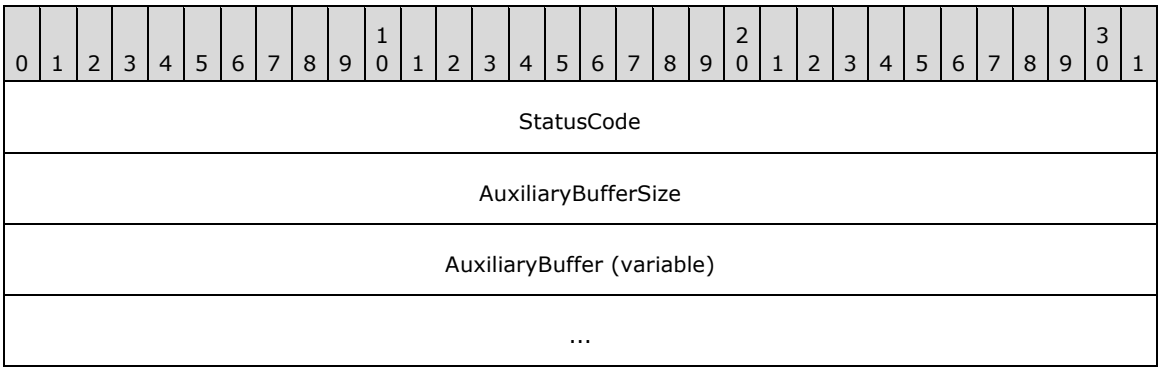
Row (optional) (variable): A **AddressBookPropertyValueList** structure (section 2.2.1.3) that specifies the information that the client requested. This field is present when the value of the **HasRow** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.9.3 GetTemplateInfo Request Type Failure Response Body

The **GetTemplateInfo** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

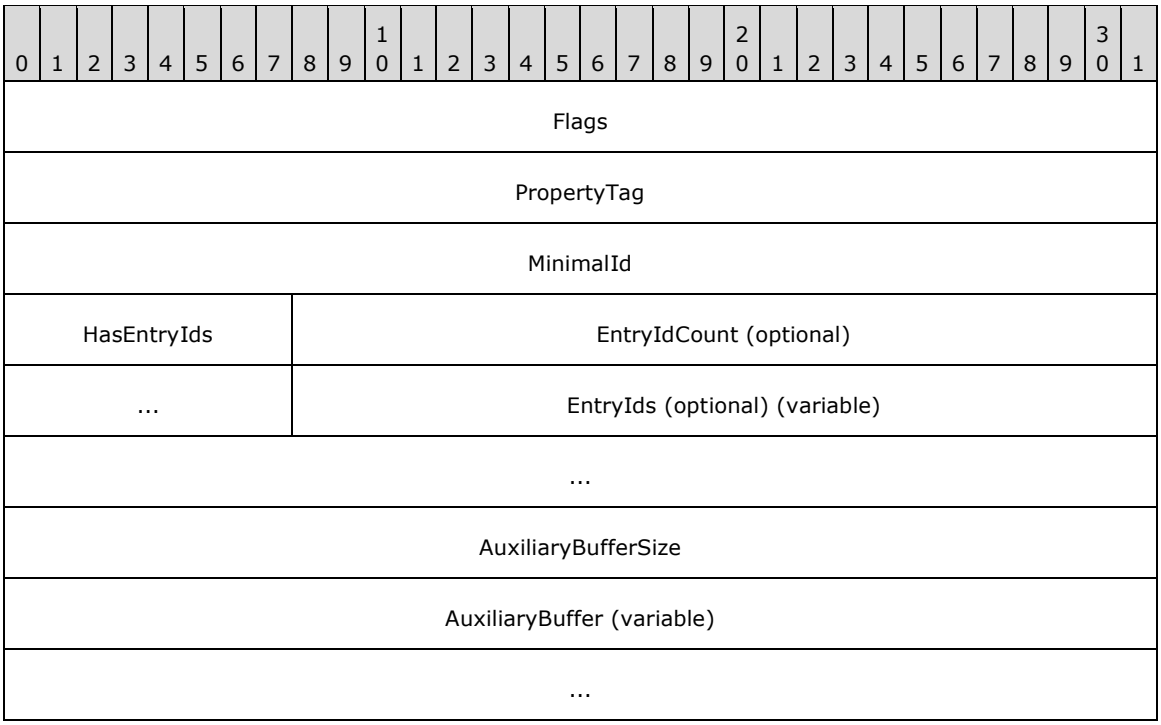
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.10 ModLinkAtt Request Type

The **ModLinkAtt** request type is used by the client to modify a specific property of a row in the **address book**. For information regarding the server-side processing of the **ModLinkAtt** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.15.

2.2.5.10.1 ModLinkAtt Request Type Request Body

The **ModLinkAtt** request type request body contains the following fields.



Flags (4 bytes): A set of bit flags that specify options to the server. The server MUST ignore values other than the bit flag **fDelete** (0x00000001).

PropertyTag (4 bytes): A **PropertyTag** structure ([MS-OXCDATA] section 2.9) that specifies the property to be modified.

The **PidTagAddressBookMember** property ([MS-OXOABK] section 2.2.6.1) can be modified only on an **Address Book object** that has a display type of **DT_DISTLIST**. The **PidTagAddressBookPublicDelegates** property ([MS-OXOABK] section 2.2.5.5) can be modified only on an Address Book object that has a display type of **DT_MAILUSER**. For details about display types, see [MS-OXNSPI] section 2.2.1.3.

MinimalId (4 bytes): A **MinimalEntryID** structure ([MS-OXNSPI] section 2.2.9.1) that specifies the **Minimal Entry ID** of the **address book** row to be modified.

HasEntryIds (1 byte): A Boolean value that specifies whether the **EntryIdCount** and **EntryIds** fields are present.

EntryIdCount (optional) (4 bytes): An unsigned integer that specifies the count of structures in the **EntryIds** field. This field is present when the value of the **HasEntryIds** field is nonzero and is not present otherwise.

EntryIds (optional) (variable): An array of **entry IDs**, each of which is either an **EphemeralEntryID** structure ([MS-OXNSPI] section 2.2.9.2) or a **PermanentEntryID** structure ([MS-OXNSPI] section 2.2.9.3). Each entry ID in the array specifies an address book row in which the specified property is to be modified. This field is present when the value of the **HasEntryIds** field is nonzero and is not present otherwise.

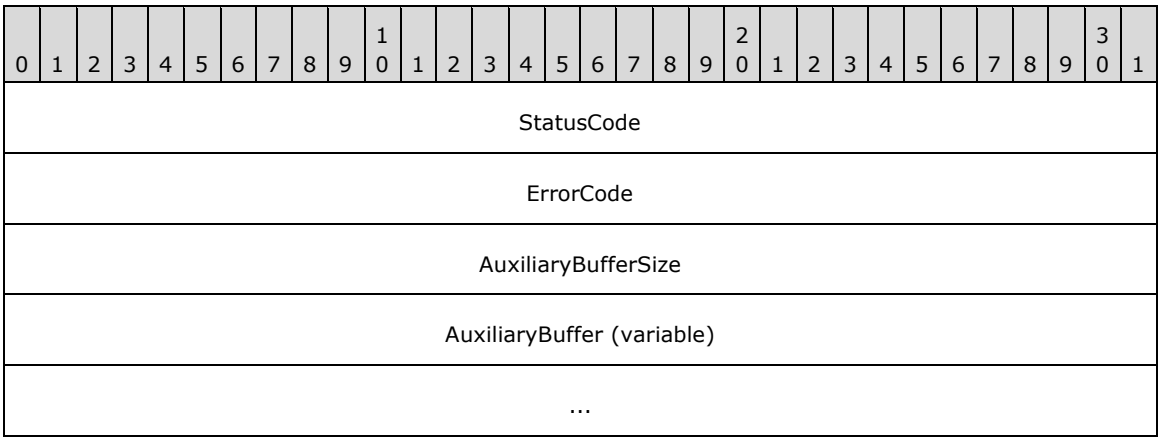
For details about how entry IDs are used to identify objects in the address book, see [MS-OXNSPI] section 3.1.4.6.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.10.2 ModLinkAtt Request Type Success Response Body

The **ModLinkAtt** request type success response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

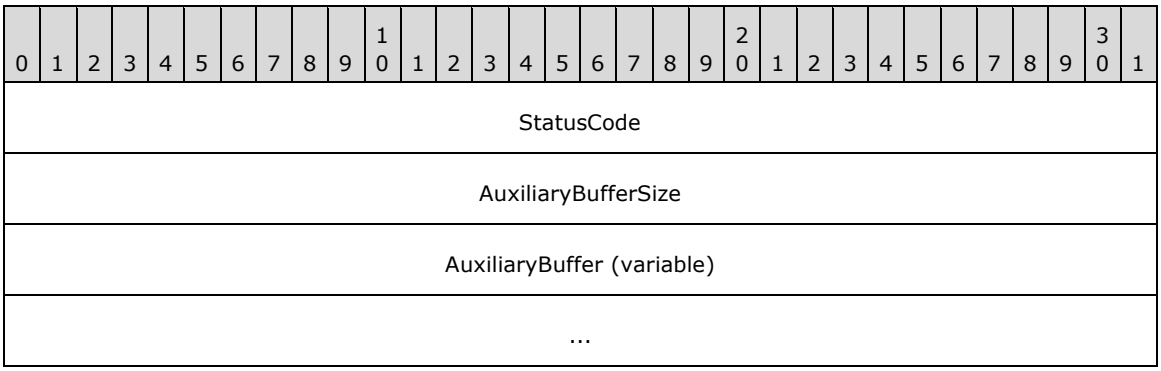
ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.10.3 ModLinkAtt Request Type Failure Response Body

The **ModLinkAtt** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

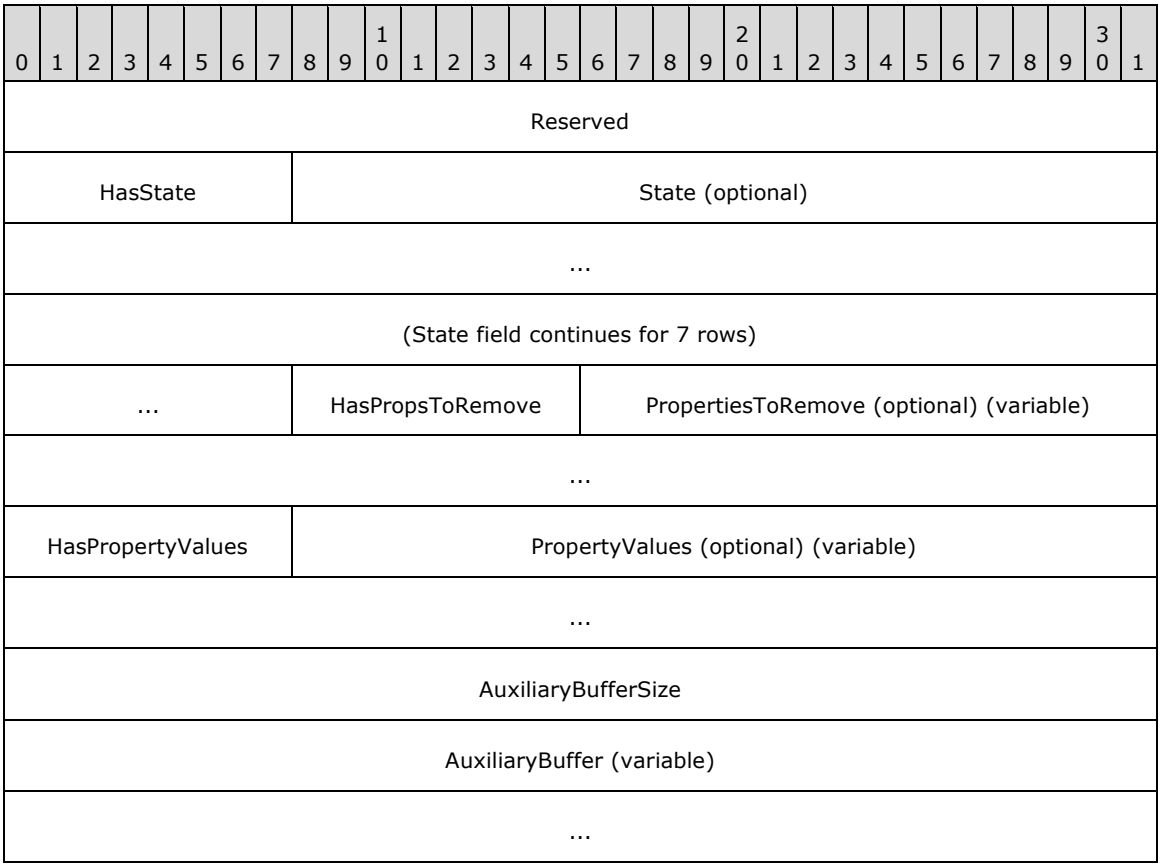
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.11 ModProps Request Type

The **ModProps** request type is used by the client to modify the specified properties of an **Address Book object**. For information regarding the server-side processing of the **ModProps** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.14.

2.2.5.11.1 ModProps Request Type Request Body

The **ModProps** request type request body contains the following fields.



Reserved (4 bytes): Reserved. The client MUST set this field to 0x00000000 and the server MUST ignore this field.

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

HasPropertyTags (1 byte): A Boolean value that specifies whether the **PropertyTags** field is present.

PropertiesTags (optional) (variable): A **LargePropertyTagArray** structure (section 2.2.1.8) that specifies the properties to be removed. This field is present when the value of the **HasPropertyTags** field is nonzero and is not present otherwise.

HasPropertyValues (1 byte): A Boolean value that specifies whether the **PropertyValues** field is present.

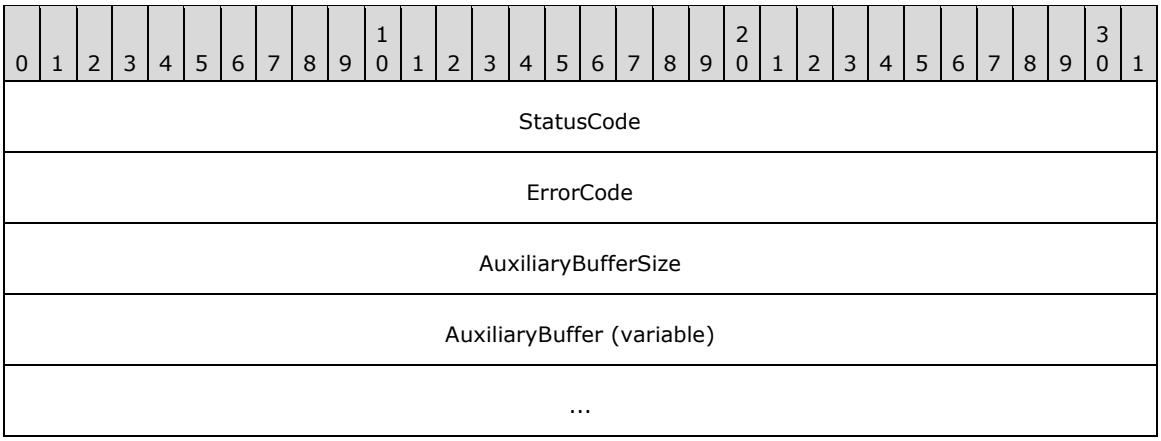
PropertyValues (optional) (variable): An **AddressBookPropertyValueList** structure (section 2.2.1.3) that specifies the values of the properties to be modified. This field is present when the value of the **HasPropertyValues** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.11.2 ModProps Request Type Success Response Body

The **ModProps** request type success response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

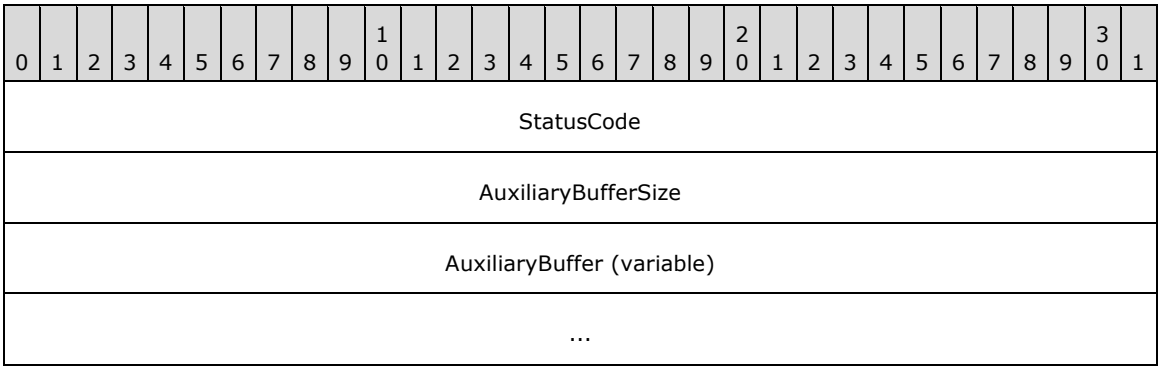
ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.11.3 ModProps Request Type Failure Response Body

The **ModProps** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

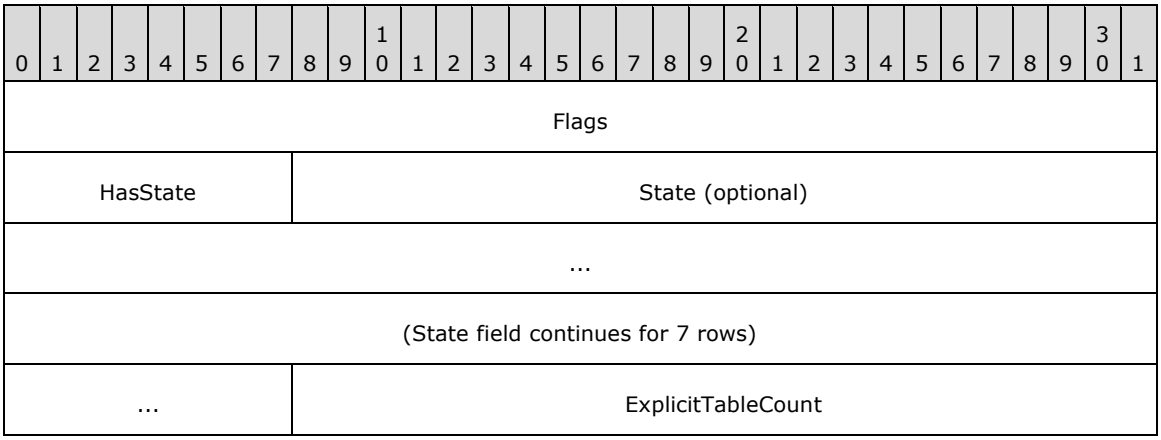
2.2.5.12 QueryRows Request Type

The **QueryRows** request type is used by the client to get a number of rows from the specified Explicit Table. For details about Explicit Tables, see [MS-OXNSPI] section 3.1.4.4.2. For information regarding the server-side processing of the **QueryRows** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.8.

Although the protocol places no boundary or requirements on the minimum number of rows the server returns, implementations SHOULD return as many rows as possible to improve usability of the server for clients.

2.2.5.12.1 QueryRows Request Type Request Body

The **QueryRows** request type request body contains the following fields.



...	ExplicitTable (variable)
...	
RowCount	
HasColumns	Columns (optional) (variable)
...	
AuxiliaryBufferSize	
AuxiliaryBuffer (variable)	
...	

Flags (4 bytes): A set of bit flags that specify options to the server. The server MUST ignore values other than the bit flags **fEphID** (0x00000002) and **fSkipObjects** (0x00000001).

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

ExplicitTableCount (4 bytes): An unsigned integer that specifies the number of structures present in the **ExplicitTable** field. This value is limited to 100,000.

ExplicitTable (variable): An array of **MinimalEntryID** structures ([MS-OXNSPI] section 2.2.9.1) that constitute the Explicit Table.

RowCount (4 bytes): An unsigned integer that specifies the number of rows the client is requesting.

HasColumns (1 byte): A Boolean value that specifies whether the **Columns** field is present.

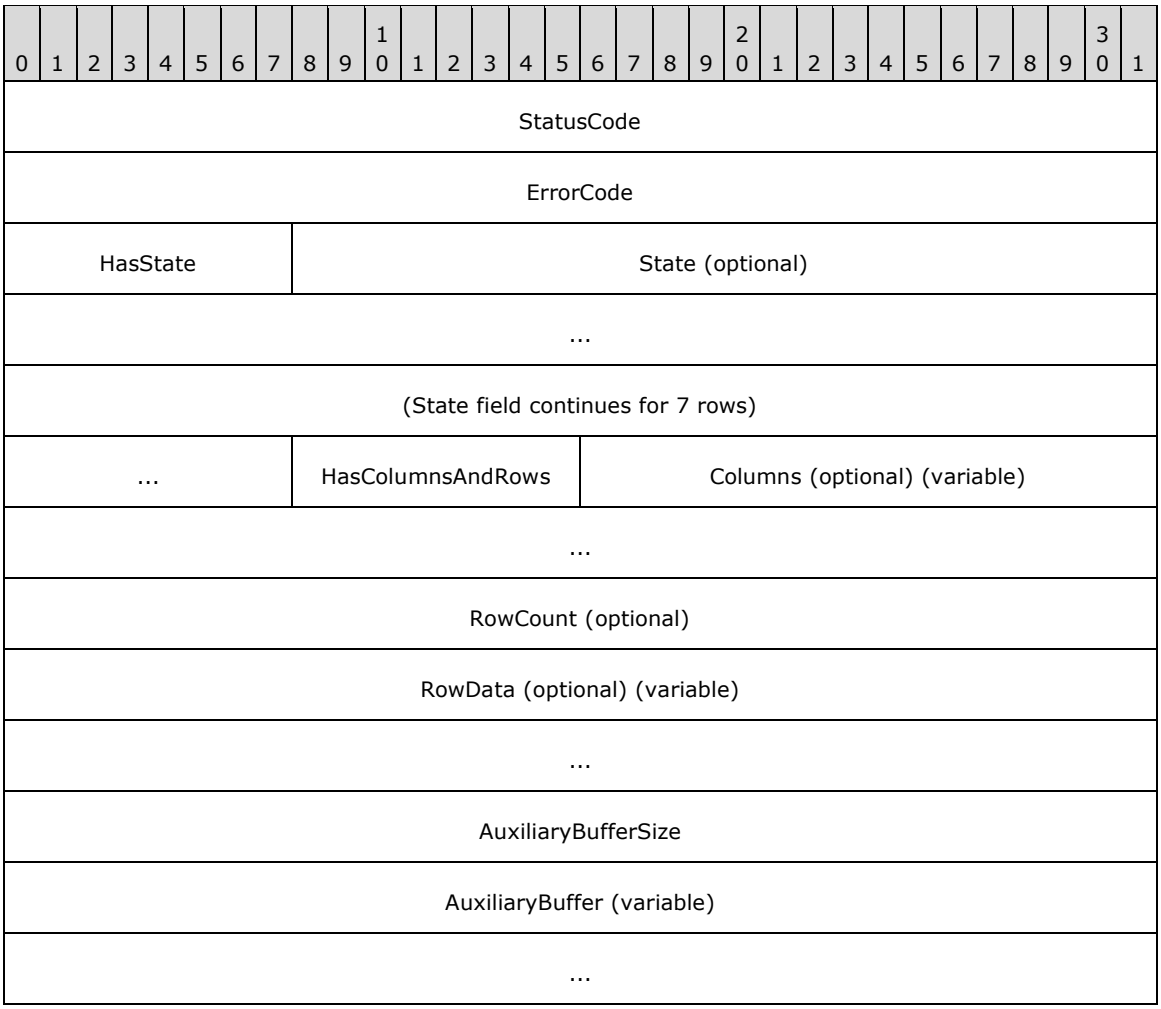
Columns (optional) (variable): A **LargePropertyTagArray** structure (section 2.2.1.8) that specifies the properties that the client requires for each row returned. This field is present when the value of the **HasColumns** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.12.2 QueryRows Request Type Success Response Body

The **QueryRows** request type success response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

HasColumnsAndRows (1 byte): A Boolean value that specifies whether the **Columns**, **RowCount**, and **RowData** fields are present.

Columns (optional) (variable): A **LargePropertyTagArray** structure (section 2.2.1.8) that specifies the columns for the returned rows. This field is present when the value of the **HasColumnsAndRows** field is nonzero and is not present otherwise.

RowCount (optional) (4 bytes): An unsigned integer that specifies the number of structures in the **RowData** field. This field is present when the value of the **HasColumnsAndRows** field is nonzero and is not present otherwise.

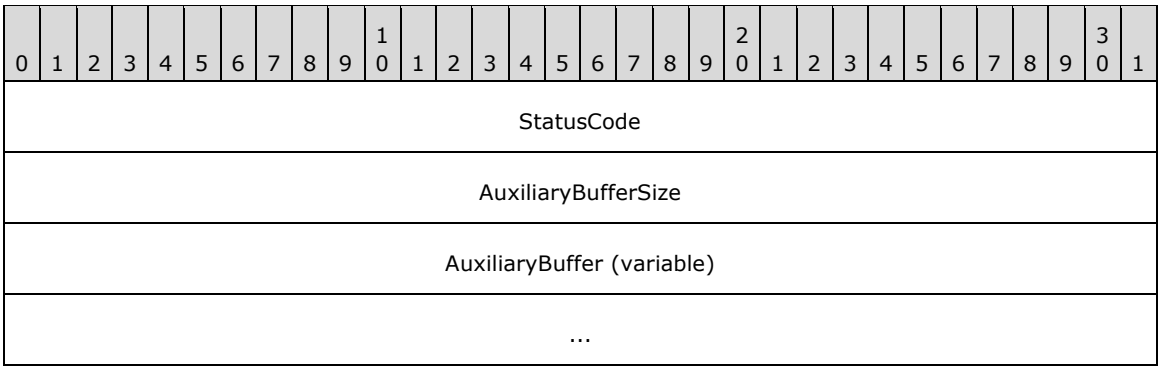
RowData (optional) (variable): An array of **AddressBookPropertyRow** structures (section 2.2.1.7), each of which specifies the row data of the Explicit Table. This field is present when the **HasColumnsAndRows** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.12.3 QueryRows Request Type Failure Response Body

The **QueryRows** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

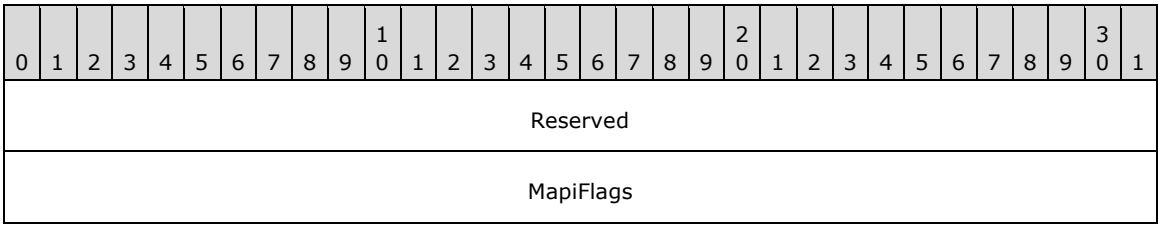
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.13 QueryColumns Request Type

The **QueryColumns** request type is used by the client to get a list of all of the properties that exist in the **address book**. For information regarding the server-side processing of the **QueryColumns** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.5.

2.2.5.13.1 QueryColumns Request Type Request Body

The **QueryColumns** request type request body contains the following fields.



AuxiliaryBufferSize
AuxiliaryBuffer (variable)
...

Reserved (4 bytes): Reserved. The client MUST set this field to 0x00000000 and the server MUST ignore this field.

MapiFlags (4 bytes): A set of bit flags that specify options to the server. The server MUST ignore values other than the bit flag **NspiUnicodeProptypes** (0x80000000).

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.13.2 QueryColumns Request Type Success Response Body

The **QueryColumns** request type success response body contains the following fields.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
StatusCode																															
ErrorCode																															
HasColumns										Columns (optional) (variable)																					
...																															
AuxiliaryBufferSize																															
AuxiliaryBuffer (variable)																															
...																															

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

HasColumns (1 byte): A Boolean value that specifies whether the **Columns** field is present.

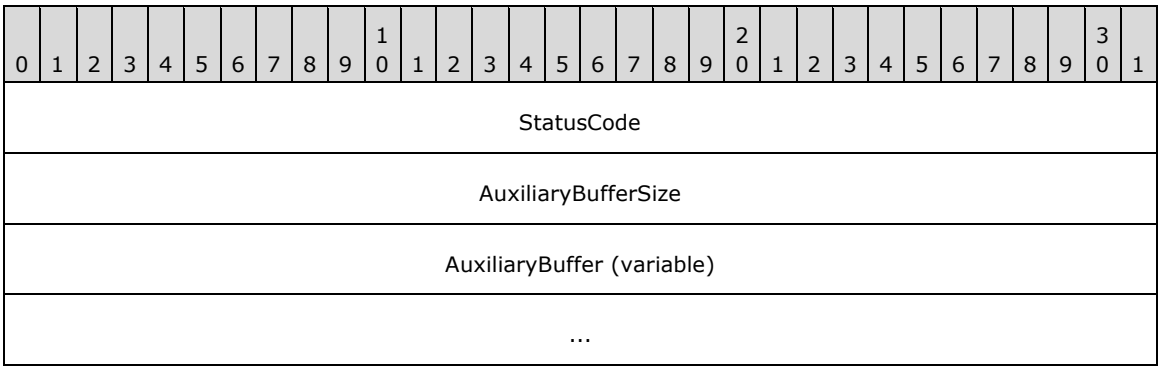
Columns (optional) (variable): A **LargePropertyTagArray** structure (section 2.2.1.8) that specifies the properties that exist on the **address book**. This field is present when the **HasColumns** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.13.3 QueryColumns Request Type Failure Response Body

The **QueryColumns** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

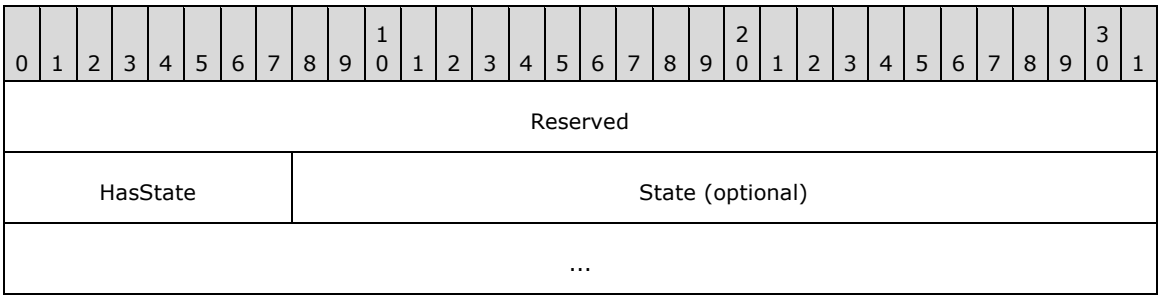
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.14 ResolveNames Request Type

The **ResolveNames** request type is used by the client to perform **ambiguous name resolution (ANR)**, as specified in [MS-OXNSPI] section 3.1.4.7. For information regarding the server-side processing of the **ResolveNames** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.16

2.2.5.14.1 ResolveNames Request Type Request Body

The **ResolveNames** request type request body contains the following fields.



(State field continues for 7 rows)		
...	HasPropertyTags	PropertyTags (optional) (variable)
...		
HasNames	NameCount (optional)	
...	NameValues (optional) (variable)	
...		
AuxiliaryBufferSize		
AuxiliaryBuffer (variable)		
...		

Reserved (4 bytes): Reserved. The client MUST set this field to 0x00000000 and the server MUST ignore this field.

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

HasPropertyTags (1 byte): A Boolean value that specifies whether the **PropertyTags** field is present.

PropertyTags (optional) (variable): A **LargePropertyTagArray** structure (section 2.2.1.8) that specifies the properties that client requires for the rows returned. This field is present when the value of the **HasPropertyTags** field is nonzero and is not present otherwise.

HasNames (1 byte): A Boolean value that specifies whether the **NameCount** and **NameValues** fields are present.

NameCount (optional) (4 bytes): An unsigned integer that specifies the number of null-terminated **Unicode** strings in the **NameValues** field. This field is present when the value of the **HasNames** field is nonzero and is not present otherwise.

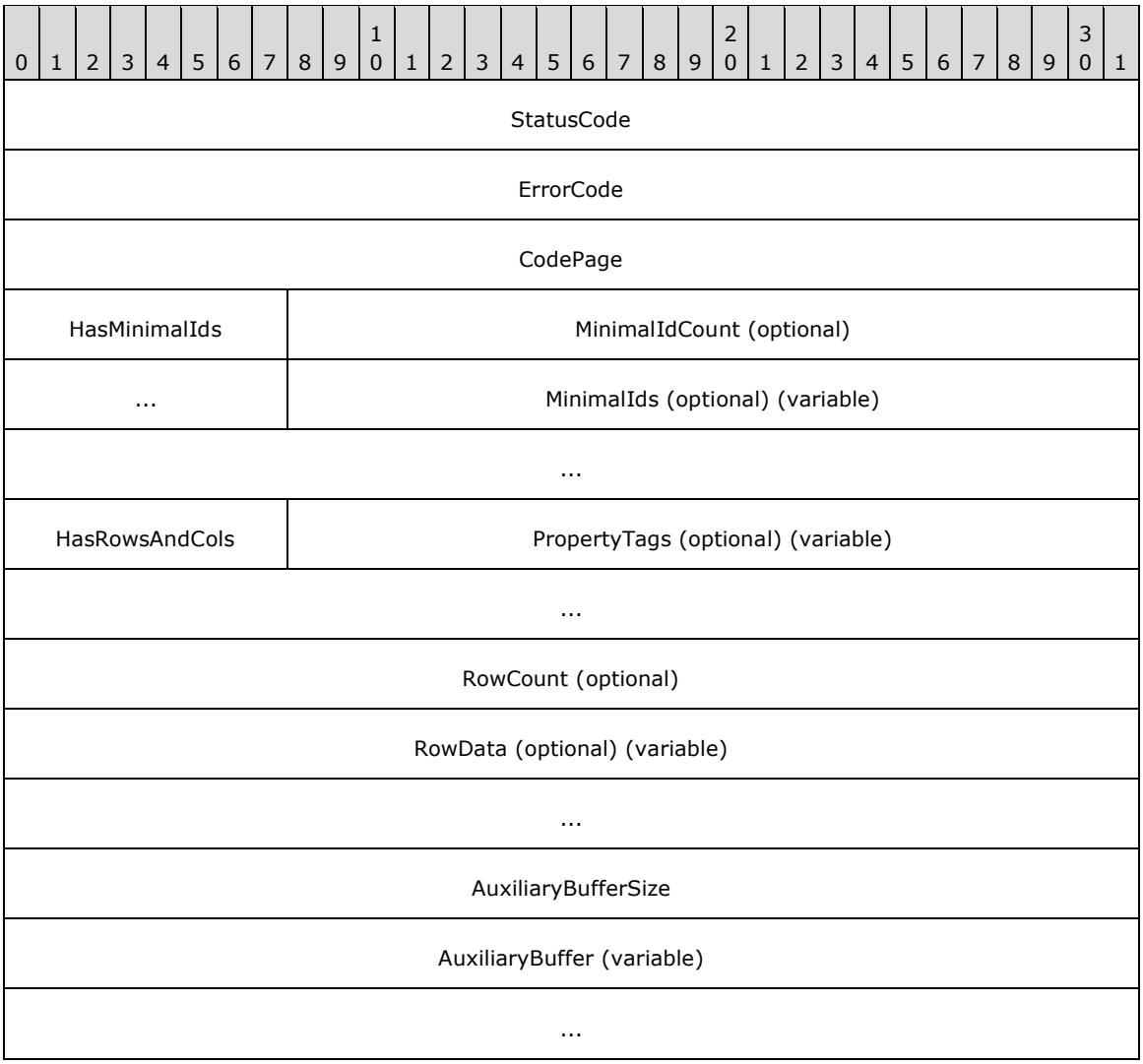
NameValues (optional) (variable): An array of null-terminated Unicode strings. The number of strings is specified by the **NameCount** field. This field is present when the **HasNames** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.14.2 ResolveNames Request Type Success Response Body

The **ResolveNames** request type success response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

CodePage (4 bytes): An unsigned integer that specifies the **code page** the server used to express string values of properties.

HasMinimalIds (1 byte): A Boolean value that specifies whether the **MinimalIdCount** and **MinimalIds** fields are present.

MinimalIdCount (optional) (4 bytes): An unsigned integer that specifies the number of structures in the **MinimalIds** field. This field is present when the value of the **HasMinimalIds** field is nonzero and is not present otherwise.

MinimalIds (optional) (variable): An array of **MinimalEntryID** structures ([MS-OXNSPI] section 2.2.9.1), each of which specifies a **Minimal Entry ID** matching a name requested by the client.

This field is present when the value of the **HasMinimalIds** field is nonzero and is not present otherwise.

HasRowsAndCols (1 byte): A Boolean value that specifies whether the **PropertyTags**, **RowCount**, and **RowData** fields are present.

PropertyTags (optional) (variable): A **LargePropertyTagArray** structure (section 2.2.1.8) that specifies the properties returned for the rows in the **RowData** field. This field is present when the value of the **HasRowsAndCols** field is nonzero and is not present otherwise.

RowCount (optional) (4 bytes): An unsigned integer that specifies the number of structures in the **RowData** field. This field is present when the value of the **HasRowsAndCols** field is nonzero and is not present otherwise.

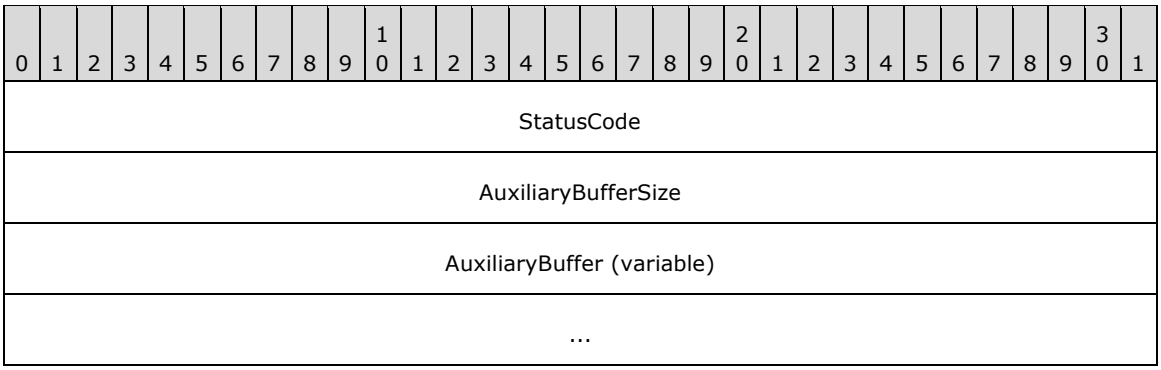
RowData (optional) (variable): An array of **AddressBookPropertyRow** structures (section 2.2.1.7), each of which specifies the row data requested. This field is present when the value of the **HasRowsAndCols** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.14.3 ResolveNames Request Type Failure Response Body

The **ResolveNames** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

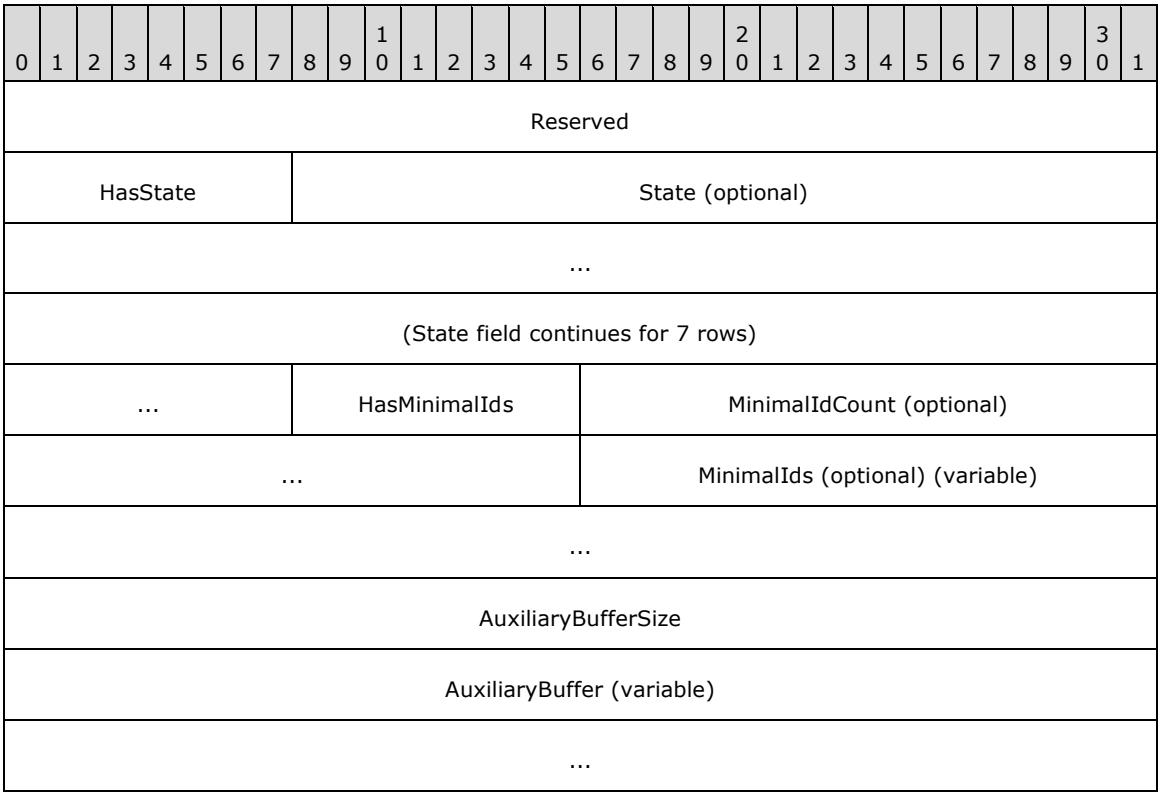
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.15 ResortRestriction Request Type

The **ResortRestriction** request type is used by the client to sort the objects in a restricted **address book container**. For information regarding the server-side processing of the **ResortRestriction** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.11.

2.2.5.15.1 ResortRestriction Request Type Request Body

The **ResortRestriction** request type request body contains the following fields.



Reserved (4 bytes): Reserved. The client MUST set this field to 0x00000000 and the server MUST ignore this field.

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

HasMinimalIds (1 byte): A Boolean value that specifies whether the **MinimalIdCount** and **MinimalIds** fields are present.

MinimalIdCount (optional) (4 bytes): An unsigned integer that specifies the number of structures in the **MinimalIds** field. This field is present when the value of the **HasMinimalIds** field is present and is not present otherwise.

MinimalIds (optional) (variable): An array of **MinimalEntryID** structures ([MS-OXNSPI] section 2.2.9.1) that compose a restricted address book container. The number of structures contained in this field is specified by the **MinimalIdCount** field. This field is present when the value of the **HasMinimalIds** field is nonzero and is not present otherwise.

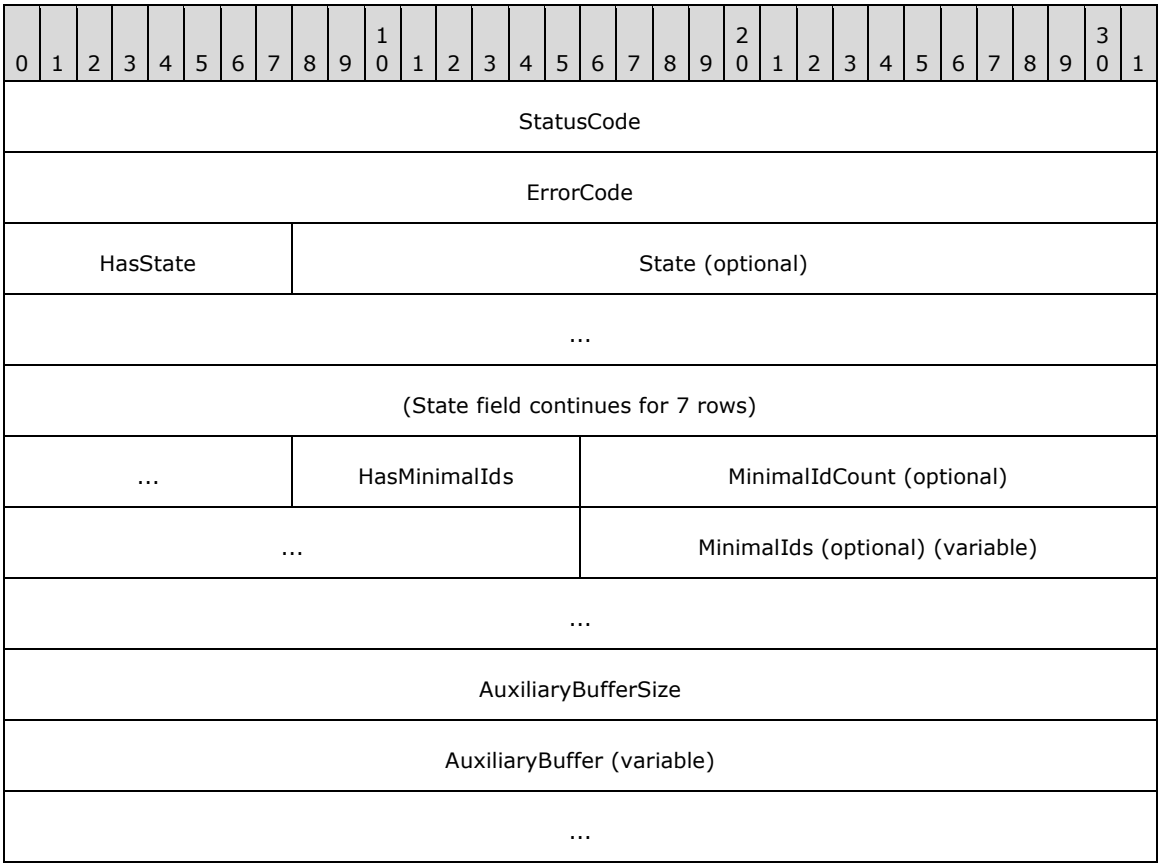
AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details

about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.15.2 ResortRestriction Request Type Success Response Body

The **ResortRestriction** request type success response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

HasMinimalIds (1 byte): A Boolean value that specifies whether the **MinimalIdCount** and **MinimalIds** fields are present.

MinimalIdCount (optional) (4 bytes): An unsigned integer that specifies the number of structures present in the **Minimalids** field. This field is present when the value of the **HasMinimalIds** field is nonzero and is not present otherwise.

MinimalIds (optional) (variable): An array of **MinimalEntryID** structures ([MS-OXNSPI] section 2.2.9.1) that compose a restricted address book container. The number of structures contained in

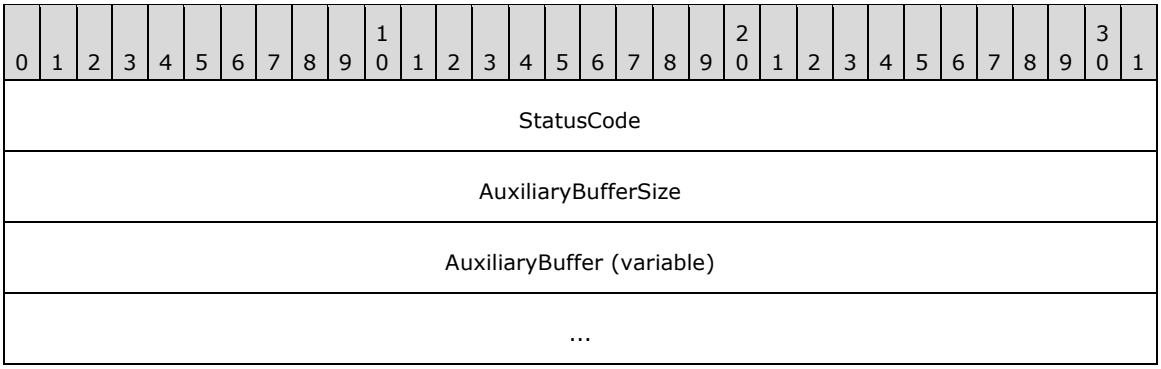
this field is specified by the **MinimalIdCount** field. This field is present when the value of the **HasMinimalIds** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.15.3 ResortRestriction Request Type Failure Response Body

The **ResortRestriction** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.16 SeekEntries Request Type

The **SeekEntries** request type is used by the client to search for and set the logical position in a specific table to the first entry greater than or equal to a specified value. Optionally, the **SeekEntries** request type can also be used to retrieve information about rows in an Explicit Table. For details about Explicit Tables, see [MS-OXNSPI] section 3.1.4.4.2. For information regarding the server-side processing of the **SeekEntries** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.9.

2.2.5.16.1 SeekEntries Request Type Request Body

The **SeekEntries** request type request body contains the following fields.

HasState	State (optional)	
...		
(State field continues for 7 rows)		
...	HasTarget	Target (optional) (variable)
...		
HasExplicitTable	ExplicitTableCount (optional)	
...	ExplicitTable (optional) (variable)	
...		
HasColumns	Columns (optional) (variable)	
...		
AuxiliaryBufferSize		
AuxiliaryBuffer (variable)		
...		

Reserved (4 bytes): Reserved. The client MUST set this field to 0x00000000 and the server MUST ignore this field.

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

HasTarget (1 byte): A Boolean value that specifies whether the **Target** field is present.

Target (optional) (variable): An **AddressBookTaggedPropertyValue** structure (section 2.2.1.2) that specifies the property value being sought. This field is present when the value of the **HasTarget** field is nonzero and is not present otherwise.

HasExplicitTable (1 byte): A Boolean value that specifies whether the **ExplicitTableCount** and **ExplicitTable** fields are present.

ExplicitTableCount (optional) (4 bytes): An unsigned integer that specifies the number of structures present in the **ExplicitTable** field. The number is limited to 100,000. This field is present when the value of the **HasExplicitTable** field is nonzero and is not present otherwise.

ExplicitTable (optional) (variable): An array of **MinimalEntryID** structures ([MS-OXNSPI] section 2.2.9.1) that constitute an Explicit Table. This field is present when the value of the **HasExplicitTable** field is nonzero and is not present otherwise.

HasColumns (1 byte): A Boolean value that specifies whether the **Columns** field is present.

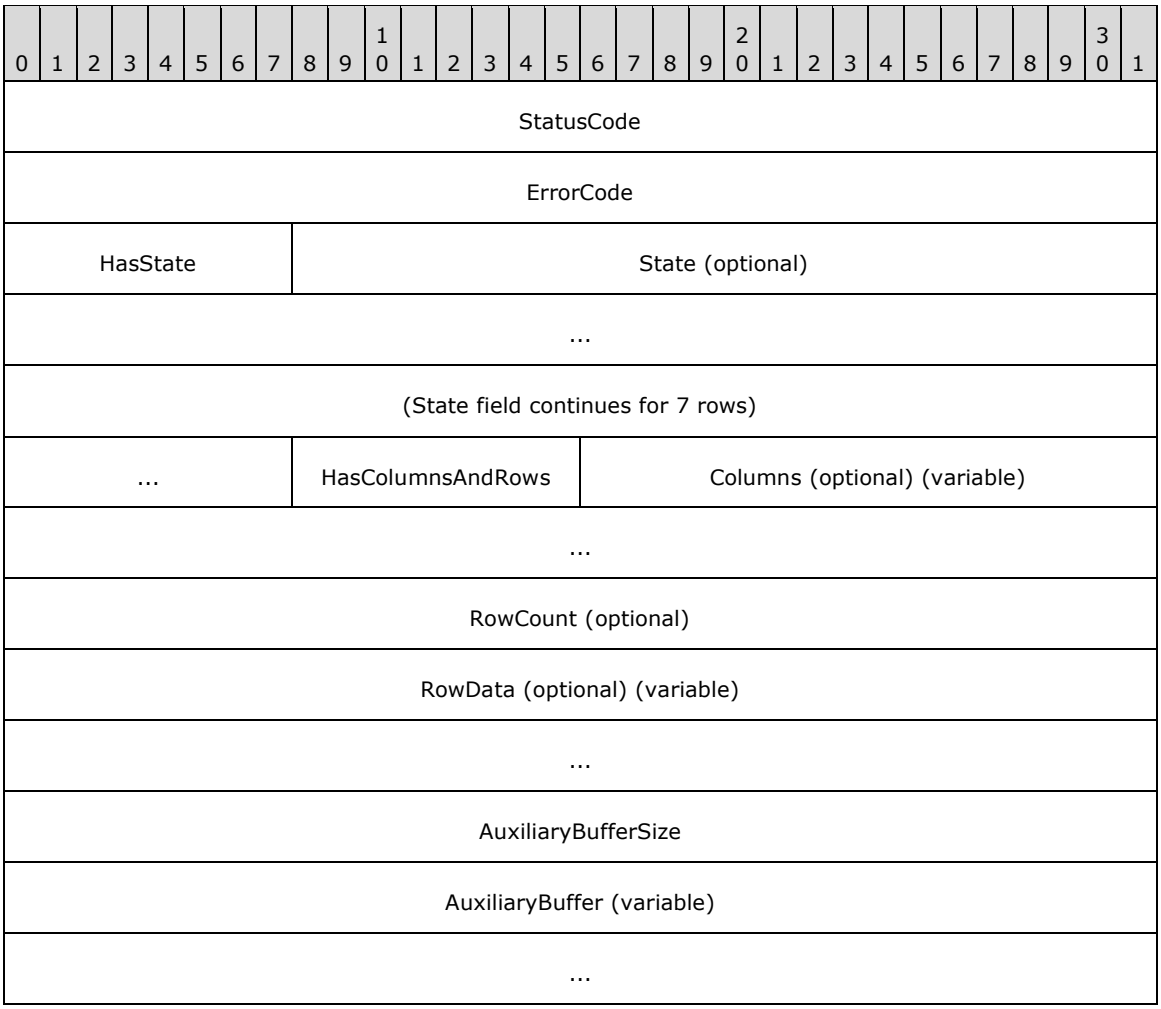
Columns (optional) (variable): A **LargePropertyTagArray** structure (section 2.2.1.8) that specifies the columns that the client is requesting. This field is present when the value of the **HasColumns** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.16.2 SeekEntries Request Type Success Response Body

The **SeekEntries** request type success response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

HasColumnsAndRows (1 byte): A Boolean value that specifies whether the **Columns**, **RowCount**, and **RowData** fields are present.

Columns (optional) (variable): A **LargePropertyTagArray** structure (section 2.2.1.8) that specifies the columns used for the rows returned. This field is present when the value of the **HasColumnsAndRows** field is nonzero and is not present otherwise.

RowCount (optional) (4 bytes): An unsigned integer that specifies the number of structures contained in the **RowData** field. This field is present when the value of the **HasColumnsAndRows** field is nonzero and is not present otherwise.

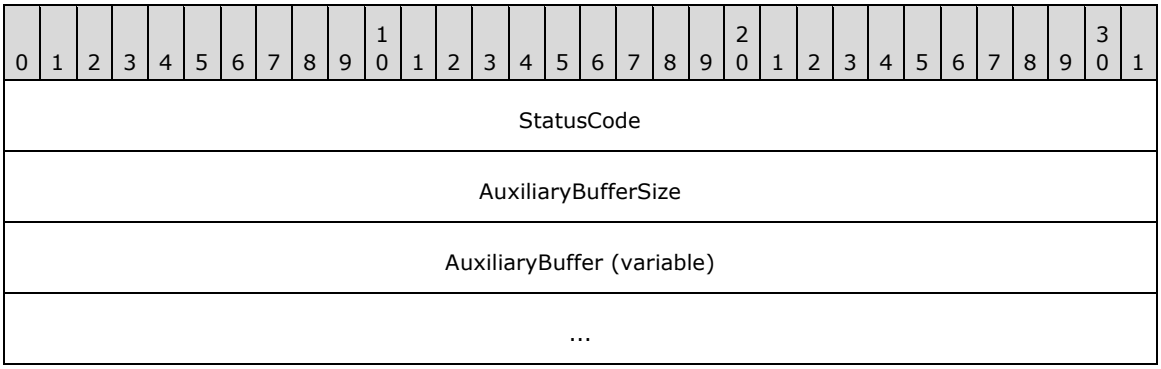
RowData (optional) (variable): An array of **AddressBookPropertyRow** structures (section 2.2.1.7), each of which specifies the row data for the entries queried. This field is present when the **HasColumnsAndRows** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.16.3 SeekEntries Request Type Failure Response Body

The **SeekEntries** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

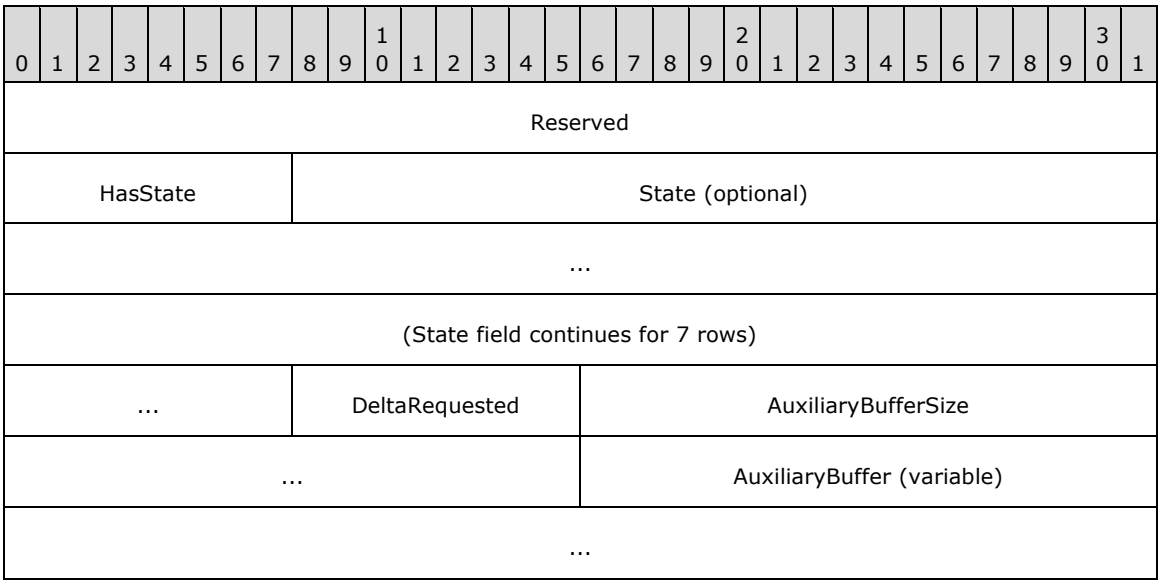
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.17 UpdateStat Request Type

The **UpdateStat** request type is used by the client to update the **STAT** structure ([MS-OXNSPI] section 2.2.8) to reflect the client's changes. For information regarding the server-side processing of the **UpdateStat** request type, see Server Processing Rules in [MS-OXNSPI] section 3.1.4.1.4.

2.2.5.17.1 UpdateStat Request Type Request Body

The **UpdateStat** request type request body contains the following fields.



Reserved (4 bytes): Reserved. The client MUST set this field to 0x00000000 and the server MUST ignore this field.

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

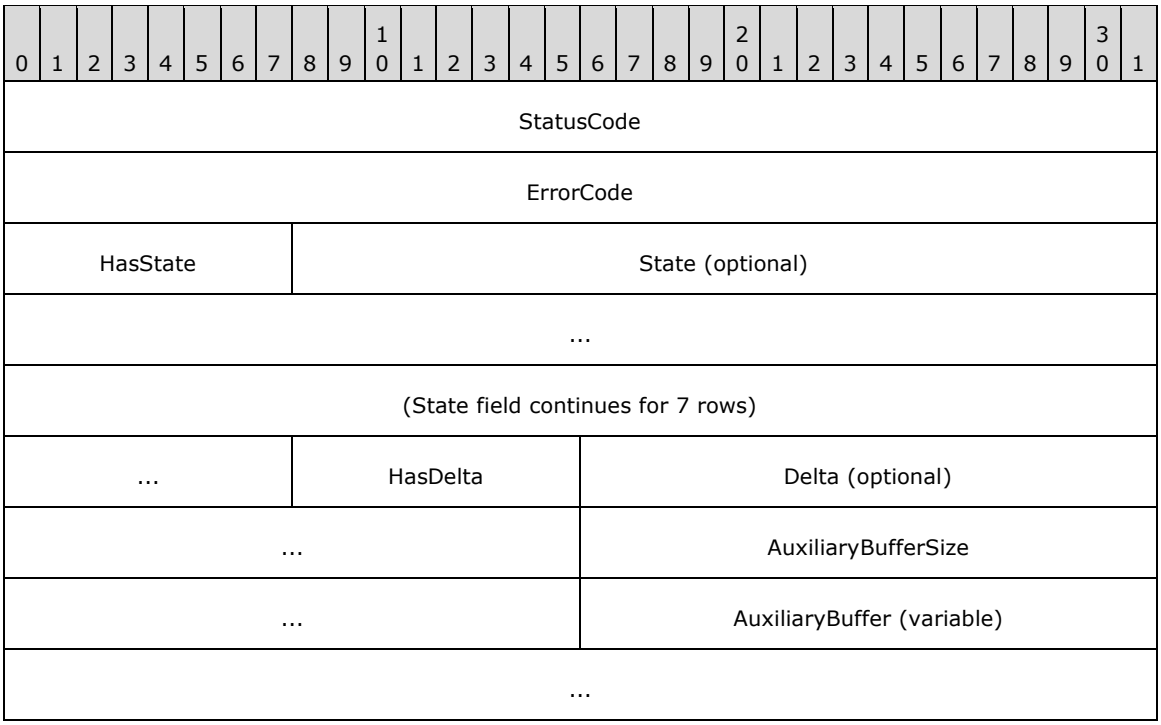
DeltaRequested (1 byte): A Boolean value that specifies whether the client is requesting a value to be returned in the **Delta** field of the response. The value zero (0x00) indicates that the value is not requested. A nonzero value indicates that the value is requested.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.17.2 UpdateStat Request Type Success Response Body

The **UpdateStat** request type success response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

HasState (1 byte): A Boolean value that specifies whether the **State** field is present.

State (optional) (36 bytes): A **STAT** structure ([MS-OXNSPI] section 2.2.8) that specifies the state of a specific **address book container**. This field is present when the **HasState** field is nonzero and is not present otherwise.

HasDelta (1 byte): A Boolean value that specifies whether the **Delta** field is present.

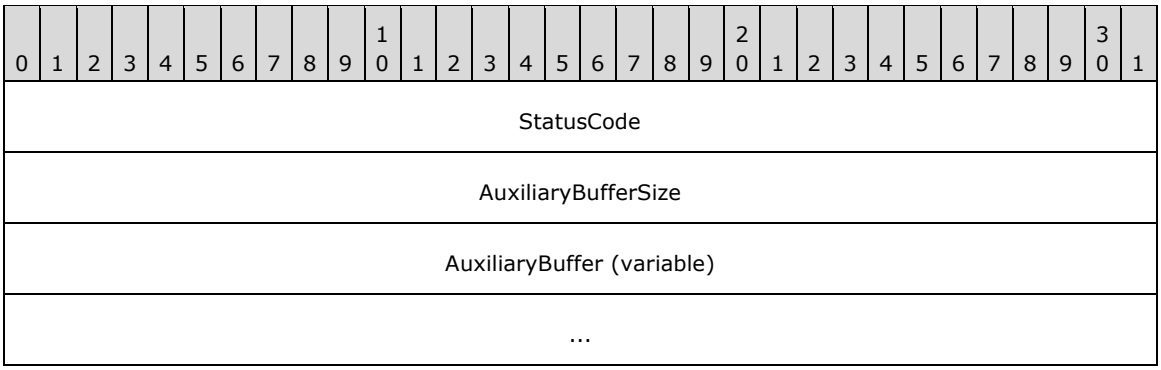
Delta (optional) (4 bytes): A signed integer that specifies the movement within the address book container that was specified in the **State** field of the request. This field is present when the value of the **HasDelta** field is nonzero and is not present otherwise.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.17.3 UpdateStat Request Type Failure Response Body

The **UpdateStat** request type failure response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

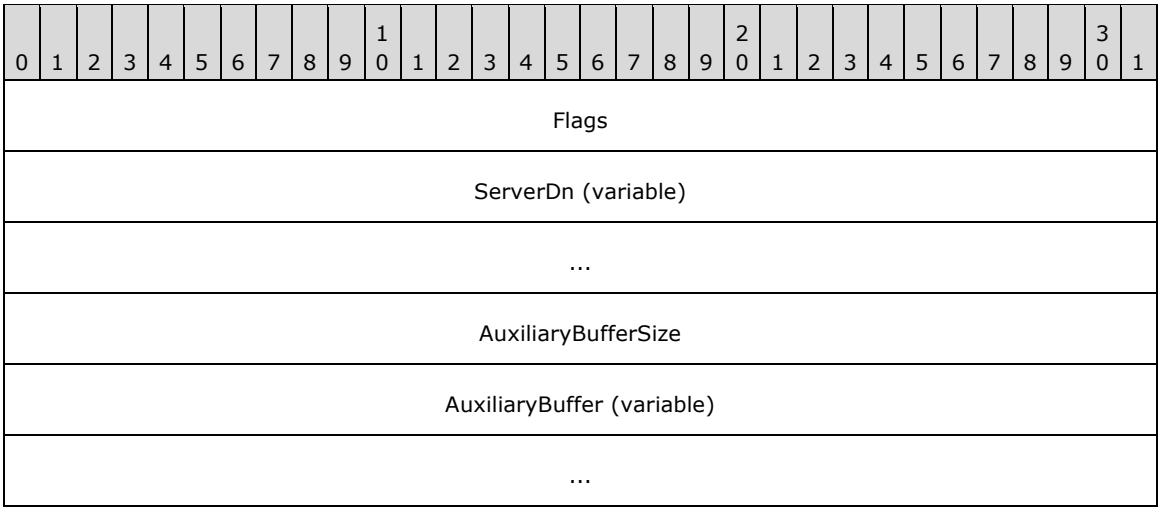
AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.18 GetMailboxUrl Request Type

The **GetMailboxUrl** request type is used by the client to get the **Uniform Resource Locator (URL)** of the specified mailbox server **endpoint**. For information regarding the server-side processing of the **GetMailboxUrl** request type, see [MS-OXABREF] section 3.1.4.2.

2.2.5.18.1 GetMailboxUrl Request Type Request Body

The **GetMailboxUrl** request type request body contains the following fields.



Flags (4 bytes): Not used. The client MUST set this field to 0x00000000 and the server MUST ignore this field.

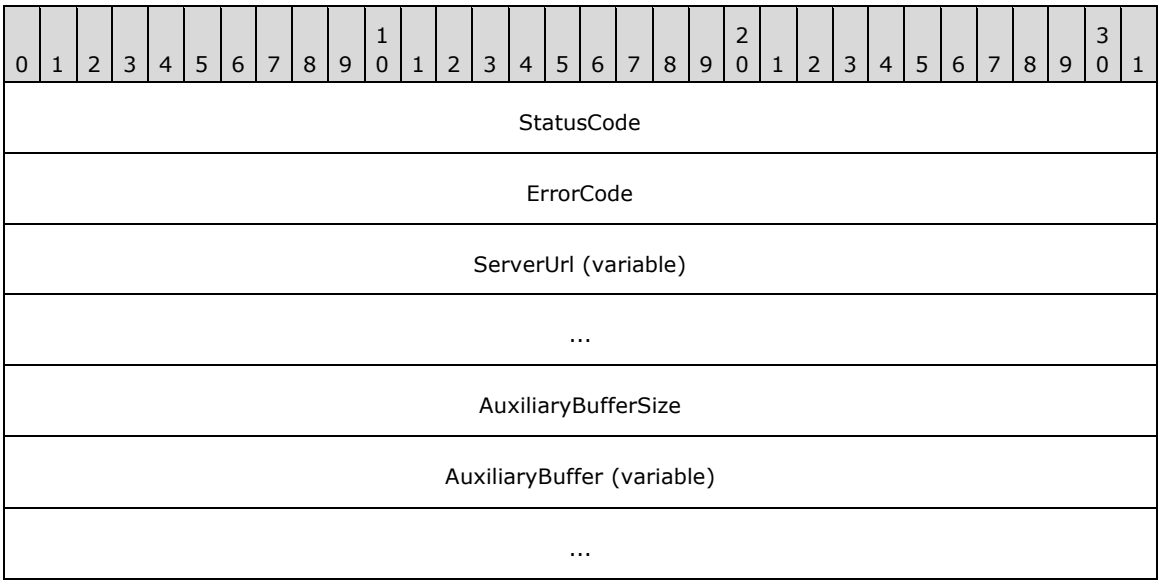
ServerDn (variable): A null-terminated **Unicode** string that specifies the **distinguished name (DN)** of the mailbox server for which to look up the **URL**.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.18.2 GetMailboxUrl Request Type Success Response Body

The **GetMailboxUrl** request type success response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

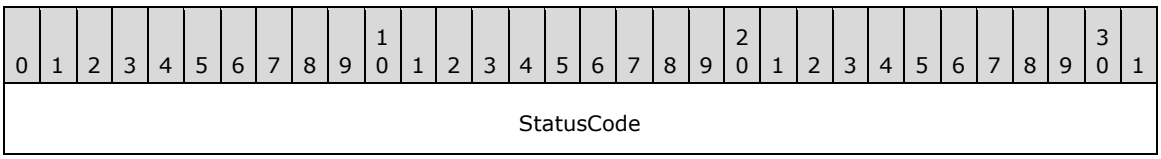
ServerUrl (variable): A null-terminated **Unicode** string that specifies **URL** of the **EMSMDB** server.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.18.3 GetMailboxUrl Request Type Failure Response Body

The **GetMailboxUrl** request type failure response body contains the following fields.



AuxiliaryBufferSize
AuxiliaryBuffer (variable)
...

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.19 GetAddressBookUrl Request Type

The **GetAddressBookUrl** request type is used by the client to get the **URL** of the specified address book server **endpoint**. For information regarding the server-side processing of the **GetAddressBookUrl** request type, see [MS-OXABREF] section 3.1.4.1.

2.2.5.19.1 GetAddressBookUrl Request Type Request Body

The **GetAddressBookUrl** request type request body contains the following fields.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
Flags																															
UserDn (variable)																															
...																															
AuxiliaryBufferSize																															
AuxiliaryBuffer (variable)																															
...																															

Flags (4 bytes): Not used. The client MUST set this field to 0x00000000 and the server MUST ignore this field.

UserDn (variable): A null-terminated **Unicode** string that specifies the **distinguished name (DN)** of the user's **mailbox**. This DN is used by the server to determine which **NSPI** server is used.

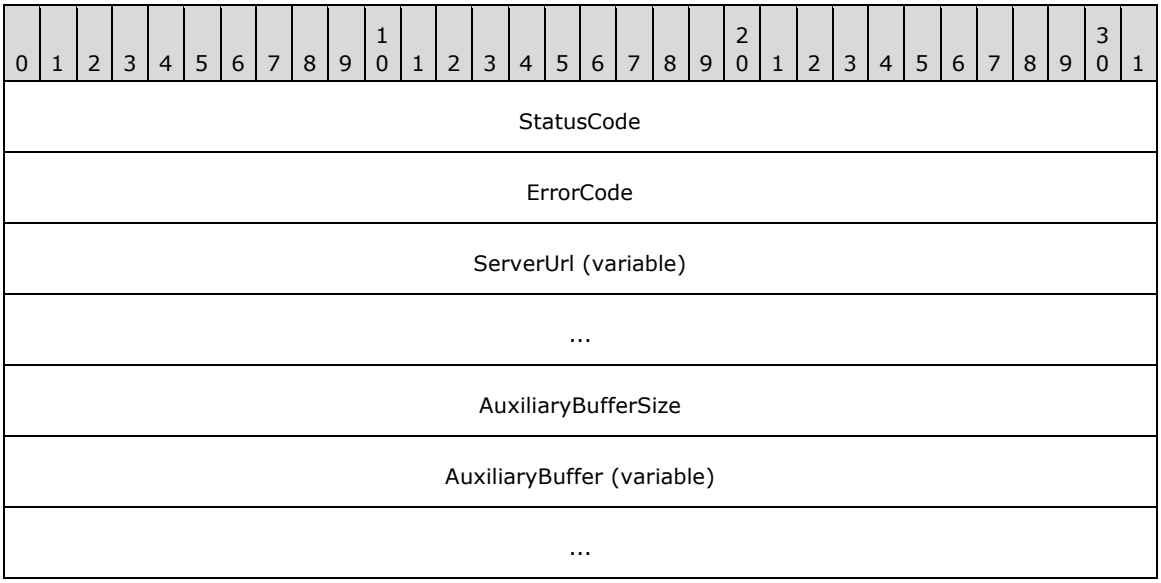
AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data sent from the client. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details

about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.19.2 GetAddressBookUrl Request Type Success Response Body

The **GetAddressBookUrl** request type success response body contains the following fields.



StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.

ErrorCode (4 bytes): An unsigned integer that specifies the return status of the operation. The error code values are specified in [MS-OXNSPI] section 2.2.1.2.

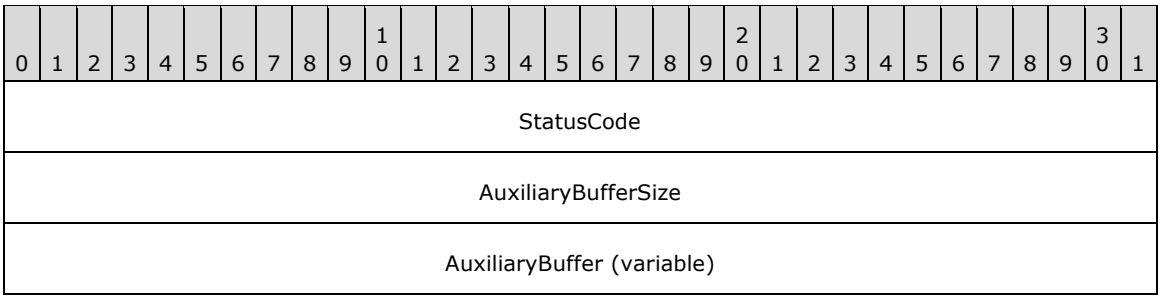
ServerUrl (variable): A null-terminated **Unicode** string that specifies the **URL** of the **NSPI** server.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.5.19.3 GetAddressBookUrl Request Type Failure Response Body

The **GetAddressBookUrl** request type failure response body contains the following fields.



...

StatusCode (4 bytes): An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

AuxiliaryBufferSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **AuxiliaryBuffer** field.

AuxiliaryBuffer (variable): An array of bytes that constitute the auxiliary payload data returned from the server. The size of this field, in bytes, is specified by the **AuxiliaryBufferSize** field. For details about extended buffers and auxiliary payloads, see [MS-OXCRPC] section 3.1.4.2.1 and section 3.1.4.2.2.

2.2.6 PING Request Type

The **PING** request type allows a client to determine whether a server's **endpoint** is reachable and operational. The **PING** request type has no request body and no response body.

The **PING** request type is supported by both the mailbox server endpoint and the address book server endpoint. For details about these endpoints, see section 2.2.4 and section 2.2.5, respectively.

2.2.7 Response Meta-Tags

The protocol defines three meta-tags that are used to inform the client as to the state of processing a request on the server. A meta-tag is returned at the beginning of the response body. For details, see section 3.2.5.2.

The following table specifies the three meta-tags that are used by this protocol.

Meta-tag	Meaning
PROCESSING	The server has queued the request to be processed.
PENDING	The server is processing the request.
DONE	The server has completed the processing of the request and additional response headers and the response body follow the **DONE** meta-tag.

3 Protocol Details

3.1 Client Details

3.1.1 Abstract Data Model

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

Cookies: All **cookies** returned to the client MUST be saved during the life of the **Session Context**.

3.1.2 Timers

An idle-time timer measures the time during which the **Session Context** has no pending requests.

3.1.3 Initialization

The client MUST establish a **Session Context**, as specified in section 3.1.5.1.

3.1.4 Higher-Layer Triggered Events

None.

3.1.5 Message Processing Events and Sequencing Rules

3.1.5.1 Creating a Session Context by Using the Connect or Bind Request Type

The client establishes a **Session Context** in the **EMSMDB** interface by issuing a request, as specified in section 2.2.2.1, using the **Connect** request type as specified in section 2.2.3.3.1, including the contents of the **Connect** request type request body, as specified in section 2.2.4.1.1. The client establishes a Session Context in the **NSPI** interface by issuing a request, as specified in section 2.2.2.1, using the **Bind** request type as specified in section 2.2.5.1, including the contents of the **Bind** request type request body, as specified in section 2.2.5.1.1. An example of using the **Connect** request type to establish a new Session Context is given in section 4.1.

The client can pass an **X-ClientInfo** header, as specified in section 2.2.3.3.4. This information is simply returned to the client in the response.

As specified in section 3.2.5.1, the server returns **cookies** used to identify the Session Context that has been created. The client MUST store all returned cookies and associate them with the Session Context. The client MUST include all cookies received from the previous call to the server for a given Session Context when issuing the next request to the server for that Session Context. If the server uses a session sequence cookie to guarantee the sequencing of requests, the client MUST pass this cookie, along with the session context cookie, to the server on the next request. The **Cookie** header, specified in section 2.2.3.2.4, is used to pass the cookies.

3.1.5.2 Sending Remote Operations by Using the Execute Request Type

The client submits **ROPs**, as specified in [MS-OXCROPS], by sending a request as specified in section 2.2.2.1, using the **Execute** request type as specified in section 2.2.3.3.1, including an **Execute** request type request body as specified in section 2.2.4.2.1. Before using the **Execute** request type, the client MUST have created a valid **Session Context** on the server as specified in section 3.1.5.1.

The client MUST include all **cookies** received from the previous call to the server for a given Session Context when issuing the next request to the server for that Session Context. The **Cookie** header, specified in section 2.2.3.2.4, is used to pass the cookies.

A scenario that describes issuing ROP commands using the **Execute** request type is presented in section 4.2.

3.1.5.3 Keeping a Session Context Alive by Using the PING Request Type

Since the **Session Context** will automatically expire on the server after a period of inactivity, the client MUST keep the Session Context alive. The client can do this by issuing a **PING** request type request, as specified in section 2.2.6. The client MUST pass all of the session context **cookies** that are returned from the server in the previous response. Additional cookies, such as the return sequence cookie, are also passed if available.

The client gets verification that the Session Context idle-time timer (section 3.1.2) was refreshed when it receives a successful **PING** response containing the **X-ExpirationInfo** header. The client SHOULD allow for network latency and issue a **PING** request type request at an interval that is less than what is specified in the **X-ExpirationInfo** header.

3.1.5.4 Destroying a Session Context by Using the Disconnect or Unbind Request Type

The client destroys the **Session Context** by sending a request using the **Disconnect** request type, as specified in section 2.2.4.3.1, or the **Unbind** request type, as specified in section 2.2.5.2.1. Destroying the Session Context releases all state information associated with the Session Context. The **Disconnect** or **Unbind** request type request MUST include the session context cookie returned when the Session Context was created, plus any other cookies returned by the server while the Session Context is active.

The client MUST NOT consider the Session Context destroyed until it receives a successful response to the **Disconnect** or **Unbind** request, as specified in section 2.2.4.3.2 and section 2.2.5.2.2, respectively.

3.1.5.5 Requesting Notification by Using the NotificationWait Request Type

A request, as specified in section 2.2.2.1, that uses the **NotificationWait** request type, as specified in section 2.2.3.3.1, with the associated **NotificationWait** request body, as specified in section 2.2.4.4.1, creates an operation on the server that will not complete until events pending on the **Session Context** complete, or at the end of a 5-minute duration during which there has been no event activity on the Session Context.

Unlike other request types, the client can send this request to the server while another request is pending (such as an **Execute** request type).

This request type is part of notification handling. For more information about notifications, see [MS-OXCNOTIF].

3.1.5.6 Handling a Chunked Response

To facilitate a positive connection between the server and client, the server uses the **Transfer-Encoding** header, as specified in section 2.2.3.2.5, with "chunked" transfer encoding, as specified in [RFC2616]. By using "chunked" transfer encoding, the server is able to return data to the client while the request is still being processed. This gives the client the expectation of getting an immediate acknowledgment of the request. If the client doesn't get this immediate acknowledgment, it can abandon the request and recover if the server's initial response is not received within a reasonable time.

After the initial immediate response, the client periodically receives a keep-alive response indicating that the server is still processing the request. The keep-alive response contains the **PENDING** meta-tag. As with the client's ability to quickly detect whether a request was received by the server, the client can abandon a request if no periodic keep-alive response is received within a reasonable amount of time. A secondary advantage of receiving the periodic keep-alive data is that the underlying **HTTP** connection remains open. This is particularly useful when there are devices in the middle that might be prone to timing out long-running requests.

The immediate response includes an **X-PendingPeriod** header, specified in section 2.2.3.3.5, to tell the client the number of milliseconds to be expected between keep-alive **PENDING** meta-tags in the response stream during the time a request is currently being processed on the server.

The client MUST be able to receive a "chunked" response for any request and know how to parse the chunked transfer encoding and work with the inner response stream (the response body) as if the chunked transfer encoding wasn't present. The initial response, plus the intermediate keep-alive transmissions, and the final response body are all part of the inner response stream. The use of "chunked" transfer encoding is a means to return an unknown amount of data to the client. The client MUST isolate the receiving of response "chunks" from the parsing and interpreting of the inner response stream. For more details about the "chunked" response, see section 3.2.5.2.

The inner response stream contains response meta-tags, as specified in section 2.2.7, to be used by the client in interpreting where the server is in the process of completing the request, the keep-alive messages, and finally the response body. For more details about the use of meta-tags, see section 3.2.5.2.

3.1.5.7 Reconnecting and Establishing a New Session Context

To re-establish a **Session Context** after a failure, a prolonged period of inactivity, or a forced action by the user, the client sends a new request using the **Connect** request type, along with the **Connect** request type request body, as specified in section 2.2.4.1.1, or by using the **Bind** request type, along with the **Bind** request type request body, as specified in section 2.2.5.1.1. The only difference between reconnecting and an initial connection is that the client passes all existing **cookies** that are associated with the previous Session Context that the client is attempting to re-establish. If the client reconnects, it SHOULD pass any cookie values it has stored for the Session Context to which it is attempting to reconnect. A client can do this if the end user forcefully reconnects. This allows the server to clean up the previous context in a timely fashion to prevent session limits from being reached. The reconnection request will look very much like a request to establish a new Session Context, with the exception of passing all existing cookies that are associated with the previous Session Context that the client is attempting to re-establish.

Since the client is not aware of the semantic meaning of the cookies, it MUST pass all cookies that it has that relate to the specific Session Context. For details about the server response, see section 3.2.5.6.

Before the client attempts to reconnect, the client SHOULD assume the Session Context is still valid. If it is unable to communicate with the server, no matter how much time has passed, when it finally re-establishes an **HTTP** connection the client SHOULD continue where it left off.

3.1.6 Timer Events

The client can choose to keep the **Session Context** alive by sending a **PING** request type request, as specified in section 2.2.3.3.1, before the idle-time timer specified in section 3.1.2 expires.

3.1.7 Other Local Events

Since a request or response can fail, the client and server need to be able to handle communication failures so that they do not get into an inconsistent state. A majority of failures are expected to occur as the client is attempting to send a new request after the server has dropped the connection because of the expiration of the idle-time timer (section 3.1.2). Under any circumstances, the client MUST be able to properly handle failures during all aspects of sending and receiving a request or response.

3.1.7.1 Handling Communication Failure Sending a Request

If the client attempts to send a new request to the server and a failure occurs either before streaming the request body or while streaming the request body, the client establishes a new **HTTP** connection, passing all existing **cookies** for the **Session Context**, and then resubmits the request as-is to the server. The client does not need to re-establish a new Session Context in this case.

3.1.7.2 Handling Communication Failure Reading a Response

If the client receives a failure while attempting to read the response after the entire request, including the request body, is streamed to the server, the client reconnects with the server and establishes a new **Session Context**, passing all existing **cookies** for the Session Context that is being reconnected. For more details, see section 3.1.5.7.

3.2 Server Details

3.2.1 Abstract Data Model

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

Cookies: All **cookies** returned to the client MUST be saved during the life of the **Session Context**.

3.2.2 Timers

A keep-alive interval timer sets the time when the server returns a keep-alive response to the client while a request is being processed. The maximum interval is configurable, and the default is set to 15 seconds.

A notification timer triggers the server to complete a **NotificationWait** request after 5 minutes of no event activity on the **Session Context**. For details about how the server responds to a **NotificationWait** request, see section 3.2.5.5.

An idle-time timer measures the time during which the Session Context has no pending requests.

3.2.3 Initialization

None.

3.2.4 Higher-Layer Triggered Events

None.

3.2.5 Message Processing Events and Sequencing Rules

3.2.5.1 Responding to a Connect or Bind Request Type Request

The server issues a response, as specified in section 2.2.2.2, to a **Connect** or **Bind** request type request. The server creates a new **Session Context** and associates it with a session context **cookie**. If successful, the server's response includes the **Connect** request type success response body, as specified in section 2.2.4.1.2, or the **Bind** request type success response body, as specified in section 2.2.5.1.2; if unsuccessful, the server's response includes the **Connect** request type failure response body, as specified in section 2.2.4.1.3, or the or **Bind** request type failure response body, as specified in section 2.2.5.1.3.

The server MUST return the cookie that represents the Session Context as the value of the **Set-Cookie** header field, as specified in section 2.2.3.2.3. The names of the cookies are implementation-specific.

The server MUST store the authentication context with the newly created Session Context. The server then MUST validate the authentication context on subsequent requests against the Session Context. If the authentication context differs, the server MUST fail the request with a value of 10 ("Context Not Found" error) in the **X-ResponseCode** header. For details about the **X-ResponseCode** header, see section 2.2.3.3.3.

The server MUST insure that the client issues only one request at a time within a Session Context. If the server detects that the client has issued simultaneous requests within a Session Context, the server MUST fail every subsequent request with a value of 15 ("Invalid Sequence" error) in the **X-ResponseCode** header.

3.2.5.2 Responding to All Request Type Requests

The server can respond to all request type requests with a chunked response, as specified in section 2.2.2.2. If the entire response is not readily available, the server MUST use the **Transfer-Encoding** header, as specified in section 2.2.3.2.5, with a value of "chunked". Chunked transfer coding is specified in [RFC2616] section 3.6.1. The **Transfer-Encoding** header is used instead of the **Content-Length** header field as specified in section 2.2.3.2.1. By using "chunked" transfer coding, the server is able to return data to the client while the request is still being processed by the server. It also allows the server to return an amount of data to the client whose length is not determined when the initial response is returned. If the server is able to return the entire response immediately, it can chose to forgo the chunked response.

The response includes all **Set-Cookie** headers as specified in section 2.2.3.2.3 associated with the **Session Context**.

After the request has been authorized, authenticated, parsed, and validated, the server MUST return a **X-ResponseCode** with a value of 0 (zero) to indicate that the request has been accepted. The server MUST respond immediately to a request while the request is being queued and processed by the server. The initial response includes the **PROCESSING** meta-tag, as specified in section 2.2.7. If the server is using the "chunked" transfer coding, it MUST flush this to the client (being careful to make sure it disables any internal Nagle algorithms, as described in [RFC896], that might attempt to buffer response data).

Beyond the initial immediate response, the server MUST also periodically return a keep-alive response to the client to let the client know that the request is still being processed. The server maintains a keep-alive timer as specified in section 3.2.2 that, when expired, causes the server to send a keep-alive response to the client. The keep-alive response includes the **PENDING** meta-tag, as specified in

section 2.2.7. Since the keep-alive interval is configurable or auto-adjusted, the server MUST return the **X-PendingPeriod** header, specified in section 2.2.3.3.5, within the immediate response to tell the client the number of milliseconds to be expected between keep-alive responses from the server during the time a request is currently being executed on the server.

After the server finishes processing the request it finishes with the **DONE** meta-tag, as specified in section 2.2.7; followed by any additional response headers. The **X-ElapsedTime** and **X-StartTime** are present after the DONE meta-tag, as specified in section 2.2.3.3.9 and 2.2.3.3.10 respectively. The server will include a **X-ResponseCode** header, as specified in section 2.2.3.3.3, if a failure occurs after the initial response is sent. More specifically, this gives the server the ability to later fail the request and return a different value in the **X-ResponseCode** header. The request type response body for the initiating request type will immediately follow any additional headers preceded by a CRLF on an empty line. If an additional **X-ResponseCode** header is returned and if it indicates a failure, then the response body can be empty or can include failure data in a format that is specified by an additional **Content-Type** header as specified in section 2.2.3.2.2.

An example of the request and response using the **Execute** request type is described in section 4.2.

3.2.5.3 Responding to a PING Request Type

The server responds to a **PING** request type by returning a **PING** request type response, as specified in section 2.2.6. The server MUST refresh the idle-time timer specified in section 3.2.2 associated with the **Session Context**. Meta-tags can be returned, but no response body is returned.

3.2.5.4 Responding to a Disconnect or Unbind Request Type Request

The server sends a response, as specified in section 2.2.2.2, to a **Disconnect** or **Unbind** request type request. The server releases all state information associated with the **Session Context** and invalidates the associated session context **cookie** passed in the request. If successful, the server's response includes the **Disconnect** request type success response body, as specified in section 2.2.4.3.2, or the **Unbind** request type success response body, as specified in section 2.2.5.2.2; if unsuccessful, the server's response includes the **Disconnect** request type failure response body, as specified in section 2.2.4.3.3, or the or **Unbind** request type failure response body, as specified in section 2.2.5.2.3.

Once the session context cookie has been invalidated by the server, the client cannot use it in subsequent requests. If the client attempts to use an invalid session context cookie in a request, the server MUST fail the request to indicate to the client that the Session Context is not valid.

The server's response includes the **Content-Length** header, as specified in section 2.2.3.2.1, if the response is not chunked. All relevant **Set-Cookie** headers, as specified in section 2.2.3.2.3, are included in the response even though the session context cookie has been invalidated.

3.2.5.5 Responding to a NotificationWait Request Type Request

The server creates a **NotificationWait** request type response, as specified in section 2.2.2.2, including the **NotificationWait** request type response body as specified in section 2.2.4.4.2 if the request was successful, or the response body specified in section 2.2.4.4.3 if unsuccessful. This response is not sent until either the current server event completes or the 5-minute maximum time limit expires. The server MUST keep the **Session Context** alive for the entire duration of the **NotificationWait** request and MUST refresh the Session Context expiration upon completion of the **NotificationWait**.

The response headers include **Set-Cookie** headers, as specified in section 2.2.3.2.3, for all **cookies** related to the Session Context. The response also includes the **Content-Length** header, as specified in section 2.2.3.2.1, if the response is not chunked.

3.2.5.6 Reconnecting and Establishing a New Session Context Server

When the connection between client and server is dropped for whatever reason, the client reconnects with the existing **Session Context** by sending a **Connect** or **Bind** request that includes the existing session **cookies** saved by the client, as specified in section 2.2.4.1.1. If the previous Session Context is still valid on the server, the server MUST destroy it before creating a new Session Context. The server returns a new session context cookie that is associated with a new Session Context. The server MUST ignore a sequence validation cookie passed in the reconnect scenario. The response from the server uses the **Set-Cookie** header, as specified in section 2.2.3.2.3, to pass any required cookies to the client. The response includes the **Content-Length** header, as specified in section 2.2.3.2.1, if the response is not chunked.

As with any new **Session Context**, the client MUST store all returned cookies and MUST NOT comingle the new cookies with cookies from the previous Session Context.

If the Session Context has expired, is no longer valid, or is not valid for the server in which the **mailbox** currently resides, then the server fails the request with an **X-ResponseCode** value of 10, as specified in section 2.2.3.3.3, and the client SHOULD reconnect and establish a new Session Context.

3.2.6 Timer Events

The idle-time timer, as specified in section 3.2.2, starts counting when the server has no pending requests for the **Session Context**. When the idle-time timer reaches the configured time limit, the server destroys the Session Context, deleting all **cookies** associated with the Session Context.

3.2.7 Other Local Events

None.

4 Protocol Examples

4.1 Establish a New Session Context

In this scenario the client establishes a new **Session Context** with the server before sending or receiving emails. The client sends a request (section 2.2.2.1) using an **X-RequestType** header field value of **Connect**, as described in section 2.2.3.3.1, and includes the **Connect** request type request body as described in section 2.2.4.1.1.

Client request

```
POST <Autodiscover-provided endpoint> HTTP/1.1
Host: <URL of the host server>
Content-Length: <length of REQUEST BODY>
Content-Type: application/mapi-http
X-RequestType: Connect
X-ClientInfo: <opaque string>
X-RequestId: <unique identifier>
X-ClientApplication: <client version>

<REQUEST BODY>
```

The server processes the request and returns a response, as described in section 2.2.2.2, that includes the session context **cookie** that identifies the new Session Context, and the **Connect** request type success response body, as described in section 2.2.4.1.2.

Server response

```
HTTP/1.1 200 OK
Content-Length: <length of META-TAGS, ADDITIONAL HEADERS and RESPONSE BODY>
Content-Type: application/mapi-http
Set-Cookie: <session context cookie>=<opaque string>
Set-Cookie: <request sequence cookie>=<opaque string>
X-PendingPeriod: 15000
X-RequestType: Connect
X-RequestId: <unique identifier>
X-ResponseCode: 0
X-ClientInfo: <opaque string>
X-ServerApplication: <server version>
X-ExpirationInfo: <milliseconds>

PROCESSING<CLRF>
DONE<CRLF>
X-ResponseCode: 0
X-ElapsedTime: <milliseconds>
X-StartTime: <date/time>
<CRLF>
<RESPONSE BODY>
```

4.2 Issue ROP Commands to the Server

In this scenario the client sends a request, as described in section 2.2.2.1, containing **ROPs** to the server using the **Execute** request type, as described in section 2.2.3.3.1, including a <REQUEST BODY> as described in section 2.2.4.2.1. As described in section 3.1.5.2, the request includes all the **cookies** related to the **Session Context** that the client has saved.

Client request

```
POST <Autodiscover-provided endpoint> HTTP/1.1
```

```
Host: <URL of the host server>
Content-Length: <length of REQUEST BODY>
Content-Type: application/mapi-http
Cookie: <session context cookie>=<opaque string>
Cookie: <return sequence cookie>=<opaque string>
X-RequestType: Execute
X-ClientInfo: <opaque string>
X-RequestId: <unique identifier>
X-ClientApplication: <client version>

<REQUEST BODY>
```

The response to an **Execute** request type is "chunked", as described in section 3.2.5.2. The initial response contains the **PROCESSING** meta-tag, as described in section 2.2.7. Depending on how long the processing takes, the initial response is followed by interim "keep-alive" responses containing the **PENDING** meta-tag. When the processing is completed, the final chunk contains the **DONE** meta-tag; the **X-ResponseCode** value, as described in section 2.2.3.3.3, for the completed response; and the **Execute** request type request body.

Server response

```
HTTP/1.1 200 OK
Transfer-Encoding: chunked
Content-Type: application/mapi-http
Cookie: MapiContext=<opaque string>
Cookie: MapiSequence=<opaque string>
X-PendingPeriod: 15000
X-RequestType: Execute
X-RequestId: <unique identifier>
X-ResponseCode: 0
X-ClientInfo: <opaque string>
X-ServerApplication: <server version>
X-ExpirationInfo: <milliseconds>
<CRLF>
C<CRLF>
PROCESSING<CRLF>
<CRLF>
```

Every 15 seconds, as indicated by the value of the **X-PendingPeriod** header described in section 2.2.3.3.5, the server returns another keep-alive chunk:

```
9<CRLF>
PENDING<CRLF>
<CRLF>
```

When the request finally completes, the server returns the **DONE** meta-tag, followed by the <RESPONSE BODY>. The final character is "0", which is the last-chunk indicator, as described in [RFC2616] section 3.6.1.

```
?<CRLF>
DONE<CRLF>
X-ResponseCode: 0<CRLF>
X-ElapsedTime: <milliseconds>
X-StartTime: <date/time>
<CRLF>
<RESPONSE BODY><CRLF>
<CRLF>
0<CRLF>
<CRLF>
```

4.3 Refresh an Idle Session Context

This scenario describes refreshing an idle **Session Context**. To keep the server from timing out the Session Context, the client issues a **PING** request type, as described in section 2.2.6. Client creation of the request is described in section 3.1.5.3. Server handling of the response is described in section 3.2.5.3.

Client request

```
POST <Autodiscover-provided endpoint> HTTP/1.1
Host: <URL of the host server>
Content-Length: 0
Content-Type: application/mapi-http
Cookie: <session context cookie>=<opaque string>
Cookie: <return sequence cookie>=<opaque string>
X-RequestType: PING
X-ClientInfo: <opaque string>
X-RequestId: <unique identifier>
X-ClientApplication: <client version>
```

Server response

```
HTTP/1.1 200 OK
Content-Length: <length of META-TAGS, ADDITIONAL HEADERS>
Content-Type: application/mapi-http
X-RequestType: PING
X-RequestId: <unique identifier>
X-ResponseCode: 0
X-ClientInfo: <opaque string>
X-ServerApplication: <server version>
X-ExpirationInfo: <milliseconds>

PROCESSING<CRLF>
DONE<CRLF>
X-ResponseCode: 0<CRLF>
X-ElapsedTime: <milliseconds>
X-StartTime: <date/time>
<CRLF>
```

4.4 Re-Establish a Timed-Out Connection to the Server

This scenario describes re-establishing a timed-out **Session Context**. This is similar to the process of establishing a new Session Context as described in section 3.1.5.1, but **Cookie** headers, as described in section 2.2.3.2.4, are passed with the session context **cookie** associated with the expired Session Context. New session context cookies are passed back in the response for the re-established **Session Context** using the **Set-Cookie** header, as described in section 2.2.3.2.3.

Client request

```
POST <Autodiscover-provided endpoint> HTTP/1.1
Host: <URL of the host server>
Content-Length: <length of REQUEST BODY>
Content-Type: application/mapi-http
Cookie: <session context cookie>=<opaque string>
Cookie: <request sequence cookie>=<opaque string>
X-RequestType: Connect
X-ClientInfo: <opaque string>
X-RequestId: <unique identifier>
X-ClientApplication: <client version>

<REQUEST BODY>
```

Server response

```
HTTP/1.1 200 OK
Content-Length: <length of META-TAGS, ADDITIONAL HEADERS and RESPONSE BODY>
Content-Type: application/mapi-http
Set-Cookie: <session context cookie>=<new opaque string>
Set-Cookie: <request sequence cookie>=<new opaque string>
X-RequestType: Connect
X-RequestId: <unique identifier>
X-ResponseCode: 0
X-ClientInfo: <opaque string>
X-ServerApplicaiton: <server version>
X-ExpirationInfo: <milliseconds>
<CRLF>
PROCESSING<CRLF>
DONE<CRLF>
X-ResponseCode: 0<CRLF>
X-ElapsedTime: <milliseconds>
X-StartTime: <date/time>
<CRLF>
<RESPONSE BODY>
```

4.5 Disconnect from the Server

This scenario describes disconnecting from server. The client passes the session context **cookie** to the server as described in section 3.1.5.4. The server responds as described in section 3.2.5.4.

Client request

```
POST <Autodiscover-provided endpoint> HTTP/1.1
Host: <URL of the host server>
Content-Length: <length of REQUEST BODY>
Content-Type: application/mapi-http
Cookie: <session context cookie>=<opaque string>
Cookie: <request sequence cookie>=<opaque string>
X-RequestType: Disconnect
X-ClientInfo: <opaque string>
X-RequestId: <unique identifier>
X-ClientApplication: <client version>

< REQUEST BODY>
```

Server response

```
HTTP/1.1 200 OK
Content-Length: <length of META-TAGS, ADDITIONAL HEADERS and RESPONSE BODY>
Content-Type: application/mapi-http
X-RequestType: Disconnect
X-RequestId: <unique identifier>
X-ResponseCode: 0
X-ClientInfo: <opaque string>
X-ServerApplication: <server version>
X-ExpirationInfo: <milliseconds>
<CRLF>
PROCESSING<CRLF>
DONE<CRLF>
X-ResponseCode: 0<CRLF>
X-ElapsedTime: <milliseconds>
X-StartTime: <date/time>
<CRLF>
<RESPONSE BODY>
```

5 Security

5.1 Security Considerations for Implementers

None.

5.2 Index of Security Parameters

None.

6 Appendix A: Product Behavior

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

- Microsoft Exchange Server 2013 Service Pack 1 (SP1)
- Microsoft Exchange Server 2016
- Microsoft Exchange Server 2019
- Microsoft Outlook 2013 Service Pack 1 (SP1)
- Microsoft Outlook 2016
- Microsoft Outlook 2019
- Microsoft Outlook 2021
- Microsoft Outlook LTSC 2024
- Microsoft Exchange Server Subscription Edition

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.

<1> Section 2.2.3.3.5: Exchange 2013 SP1 and only the initial release version of Exchange 2016 set the default value of the **X-PendingPeriod** header to 15000 milliseconds (15 seconds).

<2> Section 2.2.4.1.3: For Exchange 2013 SP1 through versions of Exchange 2016 that are released earlier than the first Exchange 2016 service pack, an **RPC_HEADER_EXT** header ([MS-OXCRPC] section 2.2.2.1) is not included before the auxiliary data is returned in the *AuxiliaryBuffer* in a failure response.

<3> Section 2.2.4.2.3: For Exchange 2013 SP1 through versions of Exchange 2016 that are released earlier than the first Exchange 2016 service pack, an **RPC_HEADER_EXT** header ([MS-OXCRPC] section 2.2.2.1) is not included before the auxiliary data is returned in the *AuxiliaryBuffer* in a failure response.

<4> Section 2.2.4.3.3: For Exchange 2013 SP1 through versions of Exchange 2016 that are released earlier than the first Exchange 2016 service pack, an **RPC_HEADER_EXT** header ([MS-OXCRPC] section 2.2.2.1) is not included before the auxiliary data is returned in the *AuxiliaryBuffer* in a failure response.

<5> Section 2.2.4.4.3: For Exchange 2013 SP1 through versions of Exchange 2016 that are released earlier than the first Exchange 2016 service pack, an **RPC_HEADER_EXT** header ([MS-OXCRPC] section 2.2.2.1) is not included before the auxiliary data is returned in the *AuxiliaryBuffer* in a failure response.

<6> Section 2.2.5.7: If the type of the returned property is **PtypObject** or **PtypEmbeddedTable** ([MS-OXCDATA] section 2.11.1), Exchange 2013 SP1 will return value 1 for the **X-ResponseCode** header.

7 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
6 Appendix A: Product Behavior	Updated list of supported products.	Major

8 Index

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