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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] must 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-OXDSRPC] Microsoft Corporation, "Wire Format Protocol".

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


1.2.2 Informative References


[MS-OXCMAPIHTTP] - v20210817
Messaging Application Programming Interface (MAPI) Extensions for HTTP
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Release: August 17, 2021
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.
1.4 Relationship to Other Protocols

A client that implements this protocol can use the Autodiscover Publishing and Lookup Protocol, as described in [MS-0XDSCLI], 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.
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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
| HasValue (optional) | PropertyValue (optional) (variable) |

**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.

2.2.1.2 AddressBookTaggedPropertyValue Structure

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

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
| PropertyType | PropertyId |
**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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
| PropertyValueCount |
| PropertyValues (variable) |

**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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
| PropertyType | PropertyValue (variable) |

**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.

<table>
<thead>
<tr>
<th>Flag value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x0</td>
<td>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.</td>
</tr>
<tr>
<td>0x1</td>
<td>The PropertyValue field is not present.</td>
</tr>
<tr>
<td>0xA</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.

| 0 1 2 3 4 5 6 7 8 9 1 0 1 2 3 4 5 6 7 8 9 2 0 1 2 3 4 5 6 7 8 9 3 0 1 |
|---------------------------|-----------------------------|--------------------------------|
| PropertyType              | Flag                        | PropertyValue (optional) (variable) |

PropertyName (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.

<table>
<thead>
<tr>
<th>Flags</th>
<th>ValueArray (variable)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Flag value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x0</td>
<td>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).</td>
</tr>
<tr>
<td>0x1</td>
<td>The ValueArray field contains either an AddressBookFlaggedPropertyValue structure, see section 2.2.1.5, if the type of the property is specified, or an AddressBookFlaggedPropertyValueWithType structure, see section 2.2.1.6, if the type of the property is PtypUnspecified ([MS-OXCDATA] section 2.11.1).</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>PropertyTagCount</th>
<th>PropertyTags (variable)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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 2.2.3.1
- **X-RequestId**, as specified in section 2.2.3.2
- **Content-Type**, as specified in section 2.2.3.2
- **Content-Length**, as specified in section 2.2.3.2

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>
```
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
- **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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect</td>
<td>Indicates the Connect request type for the mailbox server endpoint.</td>
<td>Section 2.2.4.1</td>
</tr>
<tr>
<td>Execute</td>
<td>Indicates the Execute request type for the mailbox server endpoint.</td>
<td>Section 2.2.4.2</td>
</tr>
<tr>
<td>Disconnect</td>
<td>Indicates the Disconnect request type for the mailbox server endpoint.</td>
<td>Section 2.2.4.3</td>
</tr>
<tr>
<td>NotificationWait</td>
<td>Indicates the NotificationWait request type for the mailbox server endpoint.</td>
<td>Section 2.2.4.4</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
<td>Reference</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>PING</td>
<td>Indicates the <strong>PING</strong> request type for the mailbox server endpoint and address book server endpoint.</td>
<td>Section 2.2.6</td>
</tr>
<tr>
<td>Bind</td>
<td>Indicates the <strong>Bind</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.1</td>
</tr>
<tr>
<td>Unbind</td>
<td>Indicates the <strong>Unbind</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.2</td>
</tr>
<tr>
<td>CompareMIds</td>
<td>Indicates the <strong>CompareMinIds</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.3</td>
</tr>
<tr>
<td>DNToMId</td>
<td>Indicates the <strong>DNToMinId</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.4</td>
</tr>
<tr>
<td>GetMatches</td>
<td>Indicates the <strong>GetMatches</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.5</td>
</tr>
<tr>
<td>GetPropList</td>
<td>Indicates the <strong>GetPropList</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.6</td>
</tr>
<tr>
<td>GetProps</td>
<td>Indicates the <strong>GetProps</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.7</td>
</tr>
<tr>
<td>GetSpecialTable</td>
<td>Indicates the <strong>GetSpecialTable</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.8</td>
</tr>
<tr>
<td>GetTemplateInfo</td>
<td>Indicates the <strong>GetTemplateInfo</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.9</td>
</tr>
<tr>
<td>ModLinkAtt</td>
<td>Indicates the <strong>ModLinkAtt</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.10</td>
</tr>
<tr>
<td>ModProps</td>
<td>Indicates the <strong>ModProps</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.11</td>
</tr>
<tr>
<td>QueryColumns</td>
<td>Indicates the <strong>QueryColumns</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.13</td>
</tr>
<tr>
<td>QueryRows</td>
<td>Indicates the <strong>QueryRows</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.12</td>
</tr>
<tr>
<td>ResolveNames</td>
<td>Indicates the <strong>ResolveNames</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.14</td>
</tr>
<tr>
<td>ResortRestriction</td>
<td>Indicates the <strong>ResortRestriction</strong> request type for the address book server endpoint.</td>
<td>Section 2.2.5.15</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
<td>Reference</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>SeekEntries</td>
<td>Indicates the SeekEntries request type for the address book server endpoint.</td>
<td>Section 2.2.5.16</td>
</tr>
<tr>
<td>UpdateStat</td>
<td>Indicates the UpdateStat request type for the address book server endpoint.</td>
<td>Section 2.2.5.17</td>
</tr>
<tr>
<td>GetMailboxUrl</td>
<td>Indicates the GetMailboxUrl request type for the specified mailbox server endpoint.</td>
<td>Section 2.2.5.18</td>
</tr>
<tr>
<td>GetAddressBookUrl</td>
<td>Indicates the GetAddressBookUrl request type for the address book server endpoint.</td>
<td>Section 2.2.5.19</td>
</tr>
</tbody>
</table>

### 2.2.3.3.2 X-Request-Id Header Field

The **X-Request-Id** 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-49E9-9CF8-3B184F907552):123456"). The **GUID** portion of the **X-Request-Id** 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.

<table>
<thead>
<tr>
<th>Code</th>
<th>Error</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Success</td>
<td>The request was properly formatted and accepted.</td>
</tr>
<tr>
<td>1</td>
<td>Unknown Failure</td>
<td>The request produced an unknown failure.</td>
</tr>
<tr>
<td>2</td>
<td>Invalid Verb</td>
<td>The request has an invalid verb.</td>
</tr>
<tr>
<td>3</td>
<td>Invalid Path</td>
<td>The request has an invalid path.</td>
</tr>
<tr>
<td>4</td>
<td>Invalid Header</td>
<td>The request has an invalid header.</td>
</tr>
<tr>
<td>5</td>
<td>Invalid Request Type</td>
<td>The request has an invalid X-RequestType header.</td>
</tr>
<tr>
<td>6</td>
<td>Invalid Context Cookie</td>
<td>The request has an invalid session context cookie.</td>
</tr>
<tr>
<td>7</td>
<td>Missing Header</td>
<td>The request has a missing required header.</td>
</tr>
<tr>
<td>8</td>
<td>Anonymous Not Allowed</td>
<td>The request is anonymous, but anonymous requests are not accepted.</td>
</tr>
<tr>
<td>Code</td>
<td>Error</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>9</td>
<td>Too Large</td>
<td>The request is too large.</td>
</tr>
<tr>
<td>10</td>
<td>Context Not Found</td>
<td>The Session Context is not found.</td>
</tr>
<tr>
<td>11</td>
<td>No Privilege</td>
<td>The client has no privileges to the Session Context.</td>
</tr>
<tr>
<td>12</td>
<td>Invalid Request Body</td>
<td>The request body is invalid.</td>
</tr>
<tr>
<td>13</td>
<td>Missing Cookie</td>
<td>The request is missing a required cookie.</td>
</tr>
<tr>
<td>14</td>
<td>Reserved</td>
<td>This value MUST be ignored by the client.</td>
</tr>
<tr>
<td>15</td>
<td>Invalid Sequence</td>
<td>The request has violated the sequencing requirement of one request at a time per Session Context.</td>
</tr>
<tr>
<td>16</td>
<td>Endpoint Disabled</td>
<td>The endpoint is disabled.</td>
</tr>
<tr>
<td>17</td>
<td>Invalid Response</td>
<td>The response is invalid.</td>
</tr>
<tr>
<td>18</td>
<td>Endpoint Shutting Down</td>
<td>The endpoint is shutting down.</td>
</tr>
</tbody>
</table>

### 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).

For more details about client keep-alive functions, see section [3.1.5.3](#3.1.5.3). For more details about the server keep-alive function, see section [3.2.5.3](#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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
| UserDn (variable) |
| ... |
| Flags |
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 1 2 3 4 5 6 7 8 9 2 0 1 2 3 4 5 6 7 8 9 3 0 1

  | StatusCode |
  | ErrorCode  |
  | PollsMax   |
```
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RetryCount</td>
<td>An unsigned integer that specifies the number of times to retry request types. This field is equivalent to the <code>pcRetry</code> output parameter.</td>
</tr>
<tr>
<td>RetryDelay</td>
<td>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 <code>pcmsRetryDelay</code> output parameter.</td>
</tr>
<tr>
<td>DnPrefix (variable)</td>
<td>A null-terminated ASCII string that specifies the DN prefix to be used for building message recipients. This field is equivalent to the <code>szDNPrefix</code> output parameter.</td>
</tr>
<tr>
<td>DisplayName (variable)</td>
<td>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 <code>szDisplayName</code> output parameter, as specified in [MS-OXCRPC] section 3.1.4.1.</td>
</tr>
<tr>
<td>AuxiliaryBufferSize</td>
<td>An unsigned integer that specifies the size, in bytes, of the AuxiliaryBuffer field. This field is equivalent to the <code>pcbAuxOut</code> output parameter, as specified in [MS-OXCRPC] section 3.1.4.1.</td>
</tr>
<tr>
<td>AuxiliaryBuffer (variable)</td>
<td>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 <code>rgbAuxOut</code> output parameter, as specified in [MS-OXCRPC] section 3.1.4.1.</td>
</tr>
</tbody>
</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-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.

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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

**StatusCode**

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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

**Flags**

**RopBufferSize**

**RopBuffer (variable)**

...<2>

**MaxRopOut**

**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 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

...
**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 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 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.
### 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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
| AuxiliaryBufferSize |
| AuxiliaryBuffer (variable) |

**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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
| StatusCode |
| ErrorCode |
| 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 3.1.4.3 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.

<table>
<thead>
<tr>
<th>StatusCode</th>
</tr>
</thead>
<tbody>
<tr>
<td>AuxiliaryBufferSize</td>
</tr>
<tr>
<td>AuxiliaryBuffer (variable)</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>AuxiliaryBufferSize</td>
</tr>
<tr>
<td>AuxiliaryBuffer (variable)</td>
</tr>
</tbody>
</table>

**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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 |
| StatusCode | | | | | | | | | | | | | | | | | | | | | |
| ErrorCode | | | | | | | | | | | | | | | | | | | | | |
| EventPending | | | | | | | | | | | | | | | | | | | | | |
| 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 3.3.4.1 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.
**Status Code (4 bytes):** An unsigned integer that specifies the status of the request. This field MUST NOT be set to 0x00000000.

**Auxiliary Buffer Size (4 bytes):** An unsigned integer that specifies the size, in bytes, of the Auxiliary Buffer field.

**Auxiliary Buffer (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 Auxiliary Buffer Size field. For details about extended buffers and auxiliary payloads, see [MS-OXRPC] section 3.1.4.2.1 and section 3.1.4.2.2.<ref>

### 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.
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 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

StatusCode

ErrorCode

ServerGuid

...
**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.

```
0 1 2 3 4 5 6 7 8 9 1 0 1 2 3 4 5 6 7 8 9 2 0 1 2 3 4 5 6 7 8 9 3 0 1

<table>
<thead>
<tr>
<th>Index</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

**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.

```
0 1 2 3 4 5 6 7 8 9 1 0 1 2 3 4 5 6 7 8 9 2 0 1 2 3 4 5 6 7 8 9 3 0 1

<table>
<thead>
<tr>
<th>Index</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

**Reserved**

**AuxiliaryBufferSize**
AuxiliaryBuffer (variable)

... 

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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
| StatusCode |
| ErrorCode |
| 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.

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.

<p>| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
| StatusCode |</p>
<table>
<thead>
<tr>
<th>AuxiliaryBufferSize</th>
</tr>
</thead>
<tbody>
<tr>
<td>AuxiliaryBuffer (variable)</td>
</tr>
</tbody>
</table>

**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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Reserved |
| HasState | State (optional) |
|   |   |
|   | (State field continues for 7 rows) |
|   |   |
|   | MinimalId1 |
|   |   |
|   | MinimalId2 |
|   |   |
|   | 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.

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 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

StatusCode

ErrorCode

Result

AuxiliaryBufferSize

AuxiliaryBuffer (variable)

...
<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A value less than 0 (zero)</td>
<td>The position of the object specified by the <code>MinimalId1</code> field of the request body precedes the position of the object specified by the <code>MinimalId2</code> field.</td>
</tr>
<tr>
<td>A value greater than 0 (zero)</td>
<td>The position of the object specified by the <code>MinimalId1</code> field of the request body succeeds the position of the object specified by the <code>MinimalId2</code> field.</td>
</tr>
</tbody>
</table>

**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.

| 0 1 2 3 4 5 6 7 8 9 1 0 1 2 3 4 5 6 7 8 9 2 0 1 2 3 4 5 6 7 8 9 3 0 1 |
| STATUS_CODE                      |
| 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.

### 2.2.5.4 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.

<table>
<thead>
<tr>
<th>0 1 2 3 4 5 6 7 8 9</th>
<th>0 1 2 3 4 5 6 7 8 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>0 1 2 3 4 5 6 7 8 9</th>
<th>0 1 2 3 4 5 6 7 8 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
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<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>3 0 1</td>
<td>3 0 1</td>
</tr>
</tbody>
</table>

**StatusCode**

**ErrorCode**

**HasMinimalIds**

**MinimalIdCount (optional)**
### 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 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     | 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 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
|   |   |   |   |   |   |   |   |   |   | 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 |

- **Reserved**
- **HasState**
  - State (optional)

  (State field continues for 7 rows)

- **HasMinimalIds**
  - MinimalIdCount (optional)

  (MinimalIds (optional) (variable)

  (variable)

- **InterfaceOptionFlags**
- **HasFilter**
  - Filter (optional) (variable)

  (variable)

- **HasPropertyName**
  - PropertyNameGuid (optional)

  (variable)

  (variable)

  (variable)

  (variable)

  (variable)

  (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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 |
| StatusCode |
| ErrorCode |
| HasState | State (optional) |
| ... |
| (State field continues for 7 rows) |
| ... | HasMinimalIds | MinimalIdCount (optional) |
| ... | MinimalIds (optional) (variable) |
| ... |
| HasColumnsAndRows | Columns (optional) (variable) |
| ... |
| RowCount (optional) |
| RowData (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.

**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.

<table>
<thead>
<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>0</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<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>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<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>0</th>
<th>0</th>
<th>0</th>
</tr>
</thead>
<tbody>
<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>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<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>0</th>
<th>0</th>
</tr>
</thead>
<tbody>
<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>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<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>0</th>
<th>0</th>
</tr>
</thead>
<tbody>
<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>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<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>0</th>
<th>0</th>
</tr>
</thead>
<tbody>
<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>0</td>
<td>0</td>
</tr>
</tbody>
</table>

[MS-OXCMAPIHTTP] - v20210817
Messaging Application Programming Interface (MAPI) Extensions for HTTP
Copyright © 2021 Microsoft Corporation
Release: August 17, 2021
Status Code (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.

<table>
<thead>
<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>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flags</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
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<td>MinimalId</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CodePage</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>AuxiliaryBufferSize</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AuxiliaryBuffer (variable)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 3 0 1 |
|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| StatusCode             | ErrorCode              | HasPropertyTags        | PropertyTags (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.

**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.

| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 3 0 1 |
|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| StatusCode             |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |

[MS-OXCMAPISHTTP] - v20210817
Messaging Application Programming Interface (MAPI) Extensions for HTTP
Copyright © 2021 Microsoft Corporation
Release: August 17, 2021
AuxiliaryBufferSize

AuxiliaryBuffer (variable)

...  

**Status Code (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-OXRPC] 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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
| Flags | HasState | State (optional) |
|     | ...      |                  |
|     | (State field continues for 7 rows) |
|     | ...      | HasPropertyTags  |
|     |          | PropertyTags (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.

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.

| 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 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| CodePage |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| HasPropertyValues |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| PropertyValues (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 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 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
| StatusCode          |
| AuxiliaryBufferSize |
| AuxiliaryBuffer     |

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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
| Flags |
HasState | State (optional)
---|---
... | ...
(State field continues for 7 rows)
...
HasVersion | Version (optional)
...
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 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.

<table>
<thead>
<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>0</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<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>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<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>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<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>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>StatusCodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ErrorCode</td>
</tr>
<tr>
<td>CodePage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<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>0</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<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>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<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>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<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>3</td>
</tr>
</tbody>
</table>

HasVersion | Version (optional)
Status Code (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.

Code Page (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 .

Has Version (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 Has Version field is nonzero and is not present otherwise.

Has Rows (1 byte): A Boolean value that specifies whether the Row Count and Rows fields are present.

Row Count (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 Has Rows field is nonzero and is not present otherwise.

Rows (optional) (variable): An array of Address Book Property Value List 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 Has Rows field is nonzero and is not present otherwise.

Auxiliary Buffer Size (4 bytes): An unsigned integer that specifies the size, in bytes, of the Auxiliary Buffer field.

Auxiliary Buffer (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 Auxiliary Buffer Size 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 Get Special Table Request Type Failure Response Body

The Get Special Table 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.

### 2.2.5.9 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.

<table>
<thead>
<tr>
<th>Flags</th>
<th>DisplayType</th>
</tr>
</thead>
<tbody>
<tr>
<td>HasTemplateDn</td>
<td>TemplateDn (optional) (variable)</td>
</tr>
<tr>
<td></td>
<td>...</td>
</tr>
<tr>
<td>CodePage</td>
<td>LocaleId</td>
</tr>
<tr>
<td>AuxiliaryBufferSize</td>
<td></td>
</tr>
<tr>
<td>AuxiliaryBuffer (variable)</td>
<td></td>
</tr>
</tbody>
</table>

**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**
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 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 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.

### 2.2.5.10 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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| StatusCode |
| ErrorCode |
| 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.

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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| StatusCode |
| AuxiliaryBufferSize |
| AuxiliaryBuffer (variable) |

...
**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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
| Reserved |
| HasState | State (optional) |
| ... |
| (State field continues for 7 rows) |
| ... | HasPropsToRemove | PropertiesToRemove (optional) (variable) |
| ... |
| HasPropertyValues | PropertyValues (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.

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.

<p>| | | | | | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<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>
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<td>0</td>
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<td></td>
</tr>
</tbody>
</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.

**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.
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.

<table>
<thead>
<tr>
<th>0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 3 0 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flags</td>
</tr>
<tr>
<td>HasState</td>
</tr>
<tr>
<td>...</td>
</tr>
<tr>
<td>(State field continues for 7 rows)</td>
</tr>
<tr>
<td>...</td>
</tr>
<tr>
<td>...</td>
</tr>
</tbody>
</table>

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

HasColumns (4 byte): An unsigned integer that specifies whether the Columns field is present.

Columns (optional) (variable): A LargePropertyTagArray structure (section 2.2.8) 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.

<table>
<thead>
<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>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

StatusCode
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ErrorCode</td>
<td>An unsigned integer that specifies the status of the request. This field MUST be set to 0x00000000.</td>
</tr>
<tr>
<td>HasState</td>
<td>A Boolean value that specifies whether the State field is present.</td>
</tr>
<tr>
<td>State (optional)</td>
<td>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.</td>
</tr>
<tr>
<td>HasColumnsAndRows</td>
<td>A Boolean value that specifies whether the Columns, RowCount, and RowData fields are present.</td>
</tr>
<tr>
<td>Columns (optional) (variable)</td>
<td>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.</td>
</tr>
<tr>
<td>RowCount (optional) (4 bytes)</td>
<td>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.</td>
</tr>
<tr>
<td>RowData (optional) (variable)</td>
<td>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.</td>
</tr>
<tr>
<td>AuxiliaryBufferSize (4 bytes)</td>
<td>An unsigned integer that specifies the size, in bytes, of the AuxiliaryBuffer field.</td>
</tr>
</tbody>
</table>
**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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 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.

### 2.2.5.13 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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Reserved** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **MapiFlags** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **AuxiliaryBufferSize** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **AuxiliaryBuffer (variable)** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

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[MS-OXCMAPHTTP] - v20210817
Messaging Application Programming Interface (MAPI) Extensions for HTTP
Copyright © 2021 Microsoft Corporation
Release: August 17, 2021
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 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 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.

### 2.2.5.14 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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Reserved**

**HasState**

**State (optional)**

...

(State field continues for 7 rows)

...  

**HasPropertyTags**

**PropertyTags (optional) (variable)**

...

**HasNames**

**NameCount (optional)**
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.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>StatusCode</th>
</tr>
</thead>
<tbody>
<tr>
<td>ErrorCode</td>
</tr>
</tbody>
</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 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.

<table>
<thead>
<tr>
<th>CodePage</th>
</tr>
</thead>
<tbody>
<tr>
<td>HasMinimalIds</td>
</tr>
<tr>
<td>...</td>
</tr>
<tr>
<td>...</td>
</tr>
<tr>
<td>HasRowsAndCols</td>
</tr>
<tr>
<td>...</td>
</tr>
<tr>
<td>RowCount (optional)</td>
</tr>
<tr>
<td>RowData (optional) (variable)</td>
</tr>
<tr>
<td>...</td>
</tr>
<tr>
<td>AuxiliaryBufferSize</td>
</tr>
<tr>
<td>AuxiliaryBuffer (variable)</td>
</tr>
<tr>
<td>...</td>
</tr>
</tbody>
</table>
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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 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.

### 2.2.5.15 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.
<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserved (4 bytes)</td>
<td>Reserved. The client MUST set this field to 0x00000000 and the server MUST ignore this field.</td>
</tr>
<tr>
<td>HasState (1 byte)</td>
<td>A Boolean value that specifies whether the State field is present.</td>
</tr>
<tr>
<td>State (optional)</td>
<td>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.</td>
</tr>
<tr>
<td>HasMinimalIds (1 byte)</td>
<td>A Boolean value that specifies whether the MinimalIdCount and MinimalIds fields are present.</td>
</tr>
<tr>
<td>MinimalIdCount (optional) (4 bytes)</td>
<td>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.</td>
</tr>
<tr>
<td>MinimalIds (optional) (variable)</td>
<td>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.</td>
</tr>
<tr>
<td>AuxiliaryBufferSize (4 bytes)</td>
<td>An unsigned integer that specifies the size, in bytes, of the AuxiliaryBuffer field.</td>
</tr>
<tr>
<td>AuxiliaryBuffer (variable)</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 2.2.5.15.2 ResortRestriction Request Type Success Response Body
The `ResortRestriction` request type success response body contains the following fields.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

- **StatusCode**
- **ErrorCode**
- **HasState**
- **State (optional)**

(State field continues for 7 rows)

- **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.

**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.

<table>
<thead>
<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>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>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<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>0</td>
</tr>
</tbody>
</table>

<p>| | | | | | | | | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>StatusCode</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AuxiliaryBufferSize</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AuxiliaryBuffer (variable)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

... |

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.

<table>
<thead>
<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>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>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<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>3</td>
</tr>
</tbody>
</table>

<p>| | | | | | | | | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserved</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HasState</td>
<td>State (optional)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

...
<table>
<thead>
<tr>
<th>HasState (1 byte): A Boolean value that specifies whether the State field is present.</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
<tr>
<td>HasTarget (1 byte): A Boolean value that specifies whether the Target field is present.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>HasExplicitTable (1 byte): A Boolean value that specifies whether the ExplicitTableCount and ExplicitTable fields are present.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>HasColumns (1 byte): A Boolean value that specifies whether the Columns field is present.</td>
</tr>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>
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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 3 | 0 | 1 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

  

  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

  

  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

  

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.

| 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 (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.

<table>
<thead>
<tr>
<th>0 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 2 0 1 2 3 4 5 6 7 8 9 3 0 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserved</td>
</tr>
<tr>
<td>HasState</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

(State field continues for 7 rows)

<table>
<thead>
<tr>
<th>...</th>
<th>DeltaRequested</th>
<th>AuxiliaryBufferSize</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>...</th>
<th>AuxiliaryBuffer (variable)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>0 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 2 0 1 2 3 4 5 6 7 8 9 3 0 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>StatusCode</td>
</tr>
<tr>
<td>ErrorCode</td>
</tr>
<tr>
<td>HasState</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

[MS-OXCMAPITHTTP] - v20210817
Messaging Application Programming Interface (MAPI) Extensions for HTTP
Copyright © 2021 Microsoft Corporation
Release: August 17, 2021
...(State field continues for 7 rows)

| ... | HasDelta | Delta (optional) |
| ... | ...     | 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.

**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.

<table>
<thead>
<tr>
<th>0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 2 0 1 2 3 4 5 6 7 8 9 3 0 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>StatusCode</td>
</tr>
<tr>
<td>AuxiliaryBufferSize</td>
</tr>
<tr>
<td>AuxiliaryBuffer (variable)</td>
</tr>
</tbody>
</table>

...
**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.

<table>
<thead>
<tr>
<th>Flags</th>
<th>ServerDn (variable)</th>
<th>...</th>
<th>AuxiliaryBufferSize</th>
<th>AuxiliaryBuffer (variable)</th>
<th>...</th>
</tr>
</thead>
</table>

**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.
2.2.5.18.3 GetMailboxUrl Request Type Failure Response Body

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

| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 2 0 1 2 3 4 5 6 7 8 9 3 0 1 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| StatusCode     | AuxiliaryBufferSize |
| ErrorCode      | AuxiliaryBuffer (variable) |
| ServerUrl (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.
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 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 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.

|0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3 | 0 | 1 |
|  | StatusCode |  |  | ErrorCode |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

[MS-OXCMAPIHTTP] - v20210817
Messaging Application Programming Interface (MAPI) Extensions for HTTP
Copyright © 2021 Microsoft Corporation
Release: August 17, 2021
ServerUrl (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.

**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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 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.

**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.

<table>
<thead>
<tr>
<th>Meta-tag</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROCESSING</td>
<td>The server has queued the request to be processed.</td>
</tr>
<tr>
<td>PENDING</td>
<td>The server is processing the request.</td>
</tr>
<tr>
<td>DONE</td>
<td>The server has completed the processing of the request and additional response headers and the response body follow the <strong>DONE</strong> meta-tag.</td>
</tr>
</tbody>
</table>
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 2.2.4.1. 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, 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 2.2.3.5, 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 2.2.3.9 and 2.2.3.10 respectively. The server will include a X-ResponseCode header, as specified in section 2.2.3.3, 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.

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, 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>

<RESPONSE BODY>

4.2 Issue ROP Commands to the Server

In this scenario the client sends a request, as described in section 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
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>
<CR><LF>
PROCESSING<CR><LF>
<CR><LF>
```

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:

```
<CR><LF>
PENDING<CR><LF>
<CR><LF>
```

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.

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


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>
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-ClientId: <opaque string>
X-ResponseCode: 0
X-ServerApplication: <server version>
X-ExpirationInfo: <milliseconds>
<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>
X-ResponseCode: 0
X-ElapsedTime: <milliseconds>
X-StartTime: <date/time>
<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

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.

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<tr>
<th>Section</th>
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<tbody>
<tr>
<td>6 Appendix A: Product Behavior</td>
<td>Updated list of supported products.</td>
<td>major</td>
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