[MS-OXCROPS]:
Remote Operations (ROP) List and Encoding Protocol Specification

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Revision Summary

Date	Revision History	Revision Class	Comments
04/04/2008	0.1		Initial Availability.
06/27/2008	1.0		Initial Release.
08/06/2008	1.01		Revised and edited technical content.
09/03/2008	1.02		Revised and edited technical content.
12/03/2008	1.03		Revised and edited technical content.
03/04/2009	1.04		Revised and edited technical content.
04/10/2009	2.0		Updated technical content and applicable product releases.
07/15/2009	3.0	Major	Revised and edited for technical content.
11/04/2009	4.0.0	Major	Updated and revised the technical content.
02/10/2010	5.0.0	Major	Updated and revised the technical content.
05/05/2010	6.0.0	Major	Updated and revised the technical content.

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Release: Saturday, May 1, 2010

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1 Introduction

This document specifies the Remote Operations (ROP) List and Encoding protocol, which is used by the client to access and modify **mailbox** information on the server.

1.1 Glossary

The following terms are defined in [MS-OXGLOS]:

address type
ASCII
code page (1)
distinguished name (DN)
EntryID
flags
folder
folder associated information (FAI)
folder ID (FID)
Gateway Address Routing Table (GWART)
ghosted folder
GUID
handle
hard delete
identifier
little-endian
local replica
LogonID
long-term ID
mailbox
message
message class
Message object
messaging object
named property
non-read receipt
property (1)
property ID
property name
property tag
public folder
Receive folder
recipient (1)
remote operation (ROP)
remote procedure call (RPC)
replica GUID (REPLGUID)
replica ID (REPLID)
restriction
ROP buffer
ROP request
ROP request buffer
ROP response
ROP response buffer
search criteria
search folder

Server object
Server object handle table
server replica
short-term ID
special folder
store
synchronization upload context
Unicode

The following terms are specific to this document:

Collector: See **synchronization upload context**, as specified in [MS-OXGLOS].

lowest-cost server: A server whose communication cost to access is the lowest in a list of servers.

Server object handle: A 32-bit value that identifies a **Server object**.

Server object map: An object that stores the connection between a **Server object handle** and the **Server object** that it identifies.

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

1.2   References

1.2.1   Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information. Please check the archive site, http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624, as an additional source.

[MS-OXCDATA] Microsoft Corporation, "Data Structures", April 2008.

[MS-OXCFOLD] Microsoft Corporation, "Folder Object Protocol Specification", April 2008.

[MS-OXCFXICS] Microsoft Corporation, "Bulk Data Transfer Protocol Specification", April 2008.

[MS-OXCMSG] Microsoft Corporation, "Message and Attachment Object Protocol Specification", April 2008.

[MS-OXCNOTIF] Microsoft Corporation, "Core Notifications Protocol Specification", April 2008.

[MS-OXCPERM] Microsoft Corporation, "Exchange Access and Operation Permissions Protocol Specification", April 2008.

[MS-OXCPRPT] Microsoft Corporation, "Property and Stream Object Protocol Specification", April 2008.

[MS-OXCRPC] Microsoft Corporation, "Wire Format Protocol Specification", April 2008.

[MS-OXCSTOR] Microsoft Corporation, "Store Object Protocol Specification", April 2008.

[MS-OXCTABL] Microsoft Corporation, "Table Object Protocol Specification", April 2008.

[MS-OXGLOS] Microsoft Corporation, "Exchange Server Protocols Master Glossary", April 2008.

[MS-OXOMSG] Microsoft Corporation, "E-Mail Object Protocol Specification", April 2008.

[MS-OXORULE] Microsoft Corporation, "E-Mail Rules Protocol Specification", April 2008.

[MS-OXPROPS] Microsoft Corporation, "Exchange Server Protocols Master Property List", April 2008.

[MS-XWDVSEC] Microsoft Corporation, "Web Distributed Authoring and Versioning (WebDAV) Protocol Security Descriptor Extensions", April 2008.

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

1.2.2 Informative References

None.

1.3 Overview

The Remote Operations (ROP) List and Encoding protocol specifies the details of each **remote operation (ROP)**.

 ROP buffers are used by the client to send operation requests to the server and by the server to send responses back to the client. These requests specify operations, such as the following, that access and modify mailbox data on a server:

- Log on to mailboxes or **public folders** on a server

- Retrieve the list of **folders** and **messages** on a mailbox

- Move and copy messages or folders from one location to another

- Sort and filter views of messages or folders

- Submit new messages for delivery to other mailboxes or servers

- Retrieve a list of changes made to messages and folders

- Register for notifications when contents of a mailbox have changed

A client packages one or more **ROP requests** into a ROP buffer and makes a function call on the **EMSMDB** interface, as specified in [MS-OXCRPC], passing the buffer. The server then parses the ROP requests from the buffer. Each request is executed and a **ROP response** is added to the output ROP buffer. Once the server is done processing the input ROP buffer, the function call returns the responses to the client.

1.3.1 Server Objects

A **Server object** refers to an object created during execution of specific ROPs. Once created, a Server object can then be used as a parameter for other ROPs until it is released. A Server object is typically a view of data on the server, such as a folder or a **Message object**, but it could also be an object used to control synchronization or change notifications.

A Server object is identified in a ROP buffer by a **Server object handle**, a 32-bit **handle** value. This handle is assigned by the server when the Server object is created. A client uses a Server object handle to specify a Server object to be used as input for a ROP request.

1.3.2 Format of ROP Buffers

A ROP buffer contains a list of ROP requests or responses followed by a **Server object handle table**. Each request contains input values to use for an operation. Each response contains output produced during the execution of previous requests. The Server object handle table contains Server object handles that are used as input or output for ROPs.

With few exceptions, a ROP request or response does not directly specify Server object handles, but instead contains an index into the Server object handle table. When the index is used for an input parameter, it specifies the location of the Server object handle identifying the input Server object. When the index is used for an output parameter, it specifies the entry in the Server object handle table where the handle for the created Server object will be stored if the operation is successful. If the operation is unsuccessful, the content of the entry in the Server object handle table is undefined.

The usage of an index allows a client to create a ROP buffer consisting of ROP requests that reference as an input parameter a Server object created earlier during processing of the buffer. In this way, fewer round-trip calls between the client and server are necessary.

1.4 Relationship to Other Protocols

The Remote Operations (ROP) List and Encoding protocol is dependent upon the Wire Format protocol, as specified in [MS-OXCRPC]. The ROP buffers are sent and received as parameters of the **EcDoRpcExt2** function on the **EMSMDB** interface. In addition, information that is provided during calls of the **EcDoConnectEx** function, also on the **EMSMDB** interface, is used later when executing ROP requests. For details about the **EcDoRpcExt2** function, the **EcDoConnectEx** function, or the **EMSMDB** interface, see [MS-OXCRPC] sections 3.1 and 3.2.

There are a number of protocols that are built on the Remote Operations (ROP) List and Encoding protocol. Some examples include the Bulk Data Transfer protocol, specified in [MS-OXCFXICS], and the Property and Stream Object protocol, specified in [MS-OXCPRPT].

There are several protocols which can be considered alternatives to the Remote Operations (ROP) List and Encoding protocol. These alternatives include IMAP4 and Distributed Authoring and Versioning (DAV). For details about IMAP4, see [MS-OXIMAP4]. For details about DAV, see [MS-XWDVSEC].

1.5 Prerequisites/Preconditions

The Remote Operations (ROP) List and Encoding protocol assumes that a connection was already made using the **EMSMDB** interface, as specified in [MS-OXCRPC]. The connection process authenticates and exchanges version information between the server and client.

Successful communication between the client and server requires that the client is already configured with information about the mailbox and server. Several ROPs make use of a **distinguished name (DN)** as an input field to specify a mailbox or a server.

1.6 Applicability Statement

This protocol is used to view and modify mailbox and public folder data. It provides broad low-level access to the contents that are on the server.

1.7 Versioning and Capability Negotiation

None.

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1.8   Vendor-Extensible Fields

None.

1.9   Standards Assignments

None.

2 Messages
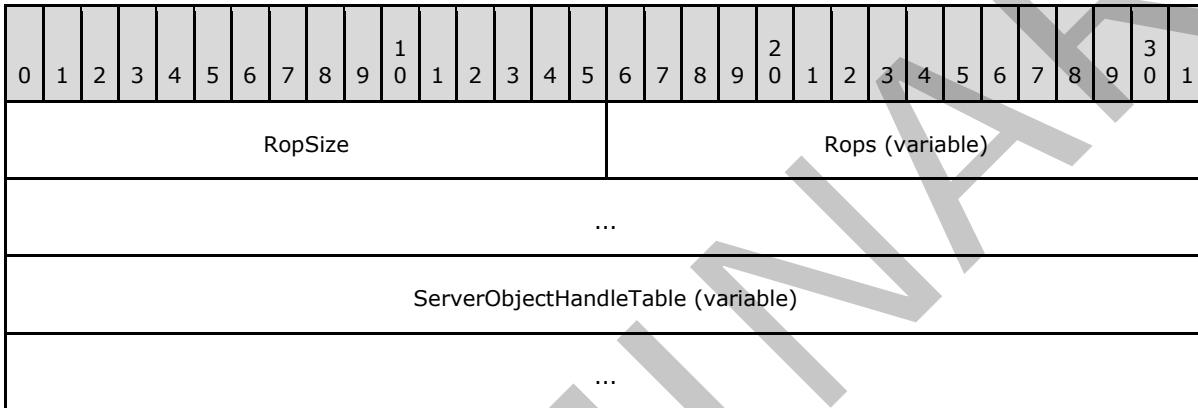
Unless otherwise specified, buffers and fields in this section are depicted in **little-endian** byte order.

2.1 Transport

The **ROP request buffers** and **ROP response buffers** specified in the following sections are sent and received by using the **EcDoRpcExt2 RPC** functions, as specified in [MS-OXCRPC].

2.2 Message Syntax

Each ROP request and response buffer consists of the following structure.

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
				RopSize												Rops (variable)															
												...																			
									ServerObjectHandleTable (variable)																					
												...																			

RopSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of this field and the **Rops** field.

Rops (variable): List of ROP buffers. The number of bytes in this field is two bytes less than the value specified in the **RopSize** field. The formats of the ROP buffers are specified in subsequent sections.

ServerObjectHandleTable (variable): Array of 32-bit identifiers. The length of this field is the length of the remaining data in the buffer after the **Rops** field. These **identifiers** specify the Server object handles that are referenced in the **Rops** field.

2.2.1 The Table of RopIds

Each remote operation (ROP) is identified by a one-byte value, which is contained in the **RopId** field of ROP request buffers and ROP response buffers. The ROPs that a client is allowed to use are listed in the following table. A ROP that is specified as "Reserved" is not used in the communication between the client and server. Therefore, the client MUST NOT use the reserved ROPs.

The server SHOULD<1> return an error for the RPC when it encounters a **RopId** value that is associated with a reserved ROP.

RopId Value	ROP name	Section
0x00	Reserved	
0x01	**RopRelease**	2.2.14.3

RopId Value	ROP name	Section
0x02	**RopOpenFolder**	2.2.3.1
0x03	**RopOpenMessage**	2.2.5.1
0x04	**RopGetHierarchyTable**	2.2.3.13
0x05	**RopGetContentsTable**	2.2.3.14
0x06	**RopCreateMessage**	2.2.5.2
0x07	**RopGetPropertiesSpecific**	2.2.7.3
0x08	**RopGetPropertiesAll**	2.2.7.4
0x09	**RopGetPropertiesList**	2.2.7.5
0x0A	**RopSetProperties**	2.2.7.6
0x0B	**RopDeleteProperties**	2.2.7.8
0x0C	**RopSaveChangesMessage**	2.2.5.3
0x0D	**RopRemoveAllRecipients**	2.2.5.4
0x0E	**RopModifyRecipients**	2.2.5.5
0x0F	**RopReadRecipients**	2.2.5.6
0x10	**RopReloadCachedInformation**	2.2.5.7
0x11	**RopSetMessageReadFlag**	2.2.5.11
0x12	**RopSetColumns**	2.2.4.1
0x13	**RopSortTable**	2.2.4.2
0x14	**RopRestrict**	2.2.4.3
0x15	**RopQueryRows**	2.2.4.4
0x16	**RopGetStatus**	2.2.4.6
0x17	**RopQueryPosition**	2.2.4.7
0x18	**RopSeekRow**	2.2.4.8
0x19	**RopSeekRowBookmark**	2.2.4.9
0x1A	**RopSeekRowFractional**	2.2.4.10
0x1B	**RopCreateBookmark**	2.2.4.11
0x1C	**RopCreateFolder**	2.2.3.2
0x1D	**RopDeleteFolder**	2.2.3.3
0x1E	**RopDeleteMessages**	2.2.3.11
0x1F	**RopGetMessageStatus**	2.2.5.9

RopId Value	ROP name	Section
0x20	**RopSetMessageStatus**	2.2.5.8
0x21	**RopGetAttachmentTable**	2.2.5.17
0x22	**RopOpenAttachment**	2.2.5.12
0x23	**RopCreateAttachment**	2.2.5.13
0x24	**RopDeleteAttachment**	2.2.5.14
0x25	**RopSaveChangesAttachment**	2.2.5.15
0x26	**RopSetReceiveFolder**	2.2.2.3
0x27	**RopGetReceiveFolder**	2.2.2.2
0x28	Reserved	
0x29	**RopRegisterNotification**	2.2.13.1
0x2A	**RopNotify**	2.2.13.5
0x2B	**RopOpenStream**	2.2.8.1
0x2C	**RopReadStream**	2.2.8.2
0x2D	**RopWriteStream**	2.2.8.3
0x2E	**RopSeekStream**	2.2.8.7
0x2F	**RopSetStreamSize**	2.2.8.6
0x30	**RopSetSearchCriteria**	2.2.3.4
0x31	**RopGetSearchCriteria**	2.2.3.5
0x32	**RopSubmitMessage**	2.2.6.1
0x33	**RopMoveCopyMessages**	2.2.3.6
0x34	**RopAbortSubmit**	2.2.6.2
0x35	**RopMoveFolder**	2.2.3.7
0x36	**RopCopyFolder**	2.2.3.8
0x37	**RopQueryColumnsAll**	2.2.4.12
0x38	**RopAbort**	2.2.4.5
0x39	**RopCopyTo**	2.2.7.12
0x3A	**RopCopyToStream**	2.2.8.8
0x3B	**RopCloneStream**	2.2.8.12
0x3C	Reserved	
0x3D	Reserved	

RopId Value	ROP name	Section
0x3E	**RopGetPermissionsTable**	2.2.9.2
0x3F	**RopGetRulesTable**	2.2.10.2
0x40	**RopModifyPermissions**	2.2.9.1
0x41	**RopModifyRules**	2.2.10.1
0x42	**RopGetOwningServers**	2.2.2.6
0x43	**RopLongTermIdFromId**	2.2.2.8
0x44	**RopIdFromLongTermId**	2.2.2.9
0x45	**RopPublicFolderIsGhosted**	2.2.2.7
0x46	**RopOpenEmbeddedMessage**	2.2.5.16
0x47	**RopSetSpooler**	2.2.6.4
0x48	**RopSpoolerLockMessage**	2.2.6.5
0x49	**RopGetAddressTypes**	2.2.6.3
0x4A	**RopTransportSend**	2.2.6.6
0x4B	**RopFastTransferSourceCopyMessages**	2.2.11.5
0x4C	**RopFastTransferSourceCopyFolder**	2.2.11.4
0x4D	**RopFastTransferSourceCopyTo**	2.2.11.6
0x4E	**RopFastTransferSourceGetBuffer**	2.2.11.3
0x4F	**RopFindRow**	2.2.4.13
0x50	**RopProgress**	2.2.7.13
0x51	**RopTransportNewMail**	2.2.6.7
0x52	**RopGetValidAttachments**	2.2.5.18
0x53	**RopFastTransferDestinationConfigure**	2.2.11.1
0x54	**RopFastTransferDestinationPutBuffer**	2.2.11.2
0x55	**RopGetNamesFromPropertyIds**	2.2.7.2
0x56	**RopGetPropertyIdsFromNames**	2.2.7.1
0x57	**RopUpdateDeferredActionMessages**	2.2.10.3
0x58	**RopEmptyFolder**	2.2.3.9
0x59	**RopExpandRow**	2.2.4.16
0x5A	**RopCollapseRow**	2.2.4.17
0x5B	**RopLockRegionStream**	2.2.8.9

RopId Value	ROP name	Section
0x5C	**RopUnlockRegionStream**	2.2.8.10
0x5D	**RopCommitStream**	2.2.8.4
0x5E	**RopGetStreamSize**	2.2.8.5
0x5F	**RopQueryNamedProperties**	2.2.7.10
0x60	**RopGetPerUserLongTermIds**	2.2.2.10
0x61	**RopGetPerUserGuid**	2.2.2.11
0x62	Reserved	
0x63	**RopReadPerUserInformation**	2.2.2.12
0x64	**RopWritePerUserInformation**	2.2.2.13
0x65	Reserved	
0x66	**RopSetReadFlags**	2.2.5.10
0x67	**RopCopyProperties**	2.2.7.11
0x68	**RopGetReceiveFolderTable**	2.2.2.4
0x69	**RopFastTransferSourceCopyProperties**	2.2.11.7
0x6A	Reserved	
0x6B	**RopGetCollapseState**	2.2.4.18
0x6C	**RopSetCollapseState**	2.2.4.19
0x6D	**RopGetTransportFolder**	2.2.6.8
0x6E	**RopPending**	2.2.13.6
0x6F	**RopOptionsData**	2.2.6.9
0x70	**RopSynchronizationConfigure**	2.2.12.1
0x71	Reserved	
0x72	**RopSynchronizationImportMessageChange**	2.2.12.2
0x73	**RopSynchronizationImportHierarchyChange**	2.2.12.4
0x74	**RopSynchronizationImportDeletes**	2.2.12.5
0x75	**RopSynchronizationUploadStateStreamBegin**	2.2.12.9
0x76	**RopSynchronizationUploadStateStreamContinue**	2.2.12.10
0x77	**RopSynchronizationUploadStateStreamEnd**	2.2.12.11
0x78	**RopSynchronizationImportMessageMove**	2.2.12.6
0x79	**RopSetPropertiesNoReplicate**	2.2.7.7

RopId Value	ROP name	Section
0x7A	**RopDeletePropertiesNoReplicate**	2.2.7.9
0x7B	**RopGetStoreState**	2.2.4.15
0x7C	Reserved	
0x7D	Reserved	
0x7E	**RopSynchronizationOpenCollector**	2.2.12.7
0x7F	**RopGetLocalReplicaIds**	2.2.12.13
0x80	**RopSynchronizationImportReadStateChanges**	2.2.12.3
0x81	**RopResetTable**	2.2.4.15
0x82	**RopSynchronizationGetTransferState**	2.2.12.8
0x83	**RopSynchronizationOpenAdvisor**	2.2.13.2
0x84	**RopRegisterSynchronizationNotifications**	2.2.13.3
0x85	Reserved	
0x86	**RopTellVersion**	2.2.11.8
0x87	Reserved	
0x88	**RopSetSynchronizationNotificationGuid**	2.2.13.4
0x89	**RopFreeBookmark**	2.2.4.14
0x8A	Reserved	
0x8B	Reserved	
0x8C	Reserved	
0x8D	Reserved	
0x8E	Reserved	
0x8F	Reserved	
0x90	**RopWriteAndCommitStream**	2.2.8.11
0x91	**RopHardDeleteMessages**	2.2.3.12
0x92	**RopHardDeleteMessagesAndSubfolders**	2.2.3.10
0x93	**RopSetLocalReplicaMidsetDeleted**	2.2.12.12
0x94	Reserved	
0x95	Reserved	
0x96	Reserved	
0x97	Reserved	

RopId Value	ROP name	Section
0x98	Reserved	
0x99	Reserved	
0x9A	Reserved	
0x9B	Reserved	
0x9C	Reserved	
0x9D	Reserved	
0x9E	Reserved	
0x9F	Reserved	
0xA0	Reserved	
0xA1	Reserved	
0xA2	Reserved	
0xA3	Reserved	
0xA4	Reserved	
0xA5	Reserved	
0xA6	Reserved	
0xA7	Reserved	
0xA8	Reserved	
0xA9	Reserved	
0xAA	Reserved	
0xAB	Reserved	
0xAC	Reserved	
0xAD	Reserved	
0xAE	Reserved	
0xAF	Reserved	
0xB0	Reserved	
0xB1	Reserved	
0xB2	Reserved	
0xB3	Reserved	
0xB4	Reserved	
0xB5	Reserved	

RopId Value	ROP name	Section
0xB6	Reserved	
0xB7	Reserved	
0xB8	Reserved	
0xB9	Reserved	
0xBA	Reserved	
0xBB	Reserved	
0xBC	Reserved	
0xBD	Reserved	
0xBE	Reserved	
0xBF	Reserved	
0xC0	Reserved	
0xC1	Reserved	
0xC2	Reserved	
0xC3	Reserved	
0xC4	Reserved	
0xC5	Reserved	
0xC6	Reserved	
0xC7	Reserved	
0xC8	Reserved	
0xC9	Reserved	
0xCA	Reserved	
0xCB	Reserved	
0xCC	Reserved	
0xCD	Reserved	
0xCE	Reserved	
0xCF	Reserved	
0xD0	Reserved	
0xD1	Reserved	
0xD2	Reserved	
0xD3	Reserved	

RopId Value	ROP name	Section
0xD4	Reserved	
0xD5	Reserved	
0xD6	Reserved	
0xD7	Reserved	
0xD8	Reserved	
0xD9	Reserved	
0xDA	Reserved	
0xDB	Reserved	
0xDC	Reserved	
0xDD	Reserved	
0xDE	Reserved	
0xDF	Reserved	
0xE0	Reserved	
0xE1	Reserved	
0xE2	Reserved	
0xE3	Reserved	
0xE4	Reserved	
0xE5	Reserved	
0xE6	Reserved	
0xE7	Reserved	
0xE8	Reserved	
0xE9	Reserved	
0xEA	Reserved	
0xEB	Reserved	
0xEC	Reserved	
0xED	Reserved	
0xEE	Reserved	
0xEF	Reserved	
0xF0	Reserved	
0xF1	Reserved	
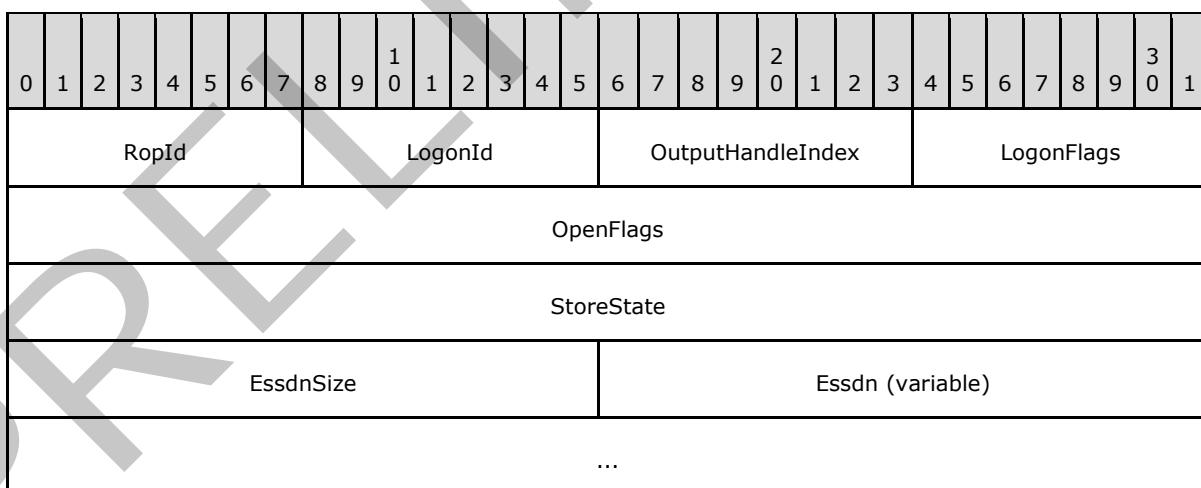
RopId Value	ROP name	Section
0xF2	Reserved	
0xF3	Reserved	
0xF4	Reserved	
0xF5	Reserved	
0xF6	Reserved	
0xF7	Reserved	
0xF8	Reserved	
0xF9	**RopBackoff**	2.2.14.2
0xFA	Reserved	
0xFB	Reserved	
0xFC	Reserved	
0xFD	Reserved	
0xFE	**RopLogon**	2.2.2.1
0xFF	**RopBufferTooSmall**	2.2.14.1

2.2.2 Logon ROPs

2.2.2.1 RopLogon

This ROP logs on to a mailbox or public folder. More detailed information about this operation can be found in [MS-OXCSTOR].

2.2.2.1.1 Request Buffer

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
RopId								LogonId								OutputHandleIndex								LogonFlags							
OpenFlags																															
StoreState																															
EssdnSize																Essdn (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0xFE.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the ID that the client wants associated with the created logon. Any value is allowed and the client does not have to use values in a certain numeric order. If the client specifies an active **LogonID**, the current logon is released and replaced with the new one.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

LogonFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCSTOR]. This structure contains **flags** that control the behavior of the logon.

OpenFlags (4 bytes): 32-bit flags structure. The possible values are specified in [MS-OXCSTOR]. This structure contains more flags that control the behavior of the logon.

StoreState (4 bytes): 32-bit flags structure. The possible values are specified in [MS-OXCSTOR]. This structure specifies ongoing action on the mailbox or public folder.

EssdnSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **Essdn** field.

Essdn (variable): Null terminated ASCII string. The number of characters (including the null) contained in this field is specified by the **EssdnSize** field. This string specifies which mailbox to log on to.

2.2.2.1.2 Success Response Buffer for Private Mailboxes

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
RopId								OutputHandleIndex								ReturnValue															
...																								LogonFlags							
																														FolderIds	
...																															
...																															
...																															
...																															
...																															
...																															
...																															

(FolderIds cont'd for 18 rows)	
...	ResponseFlags
MailboxGuid	
...	
...	
...	
ReplId	ReplGuid
...	
...	
...	
...	LogonTime
...	
...	GwartTime
...	
...	StoreState
...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0xFE.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

LogonFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCSTOR]. These flags specify the type of logon.

FolderIds (104 bytes): 13 64-bit identifiers. These IDs specify a set of **special folders** for a mailbox.

ResponseFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCSTOR]. These flags provide details about the state of the mailbox.

MailboxGuid (16 bytes): GUID. This value identifies the mailbox on which the logon was performed.

ReplId (2 bytes): 16-bit identifier. This field specifies a **replica ID** for the logon.

ReplGuid (16 bytes): GUID. This field specifies the **replica GUID** that is associated with the replica ID, which is specified in the **ReplId** field.

LogonTime (8 bytes): LogonTime structure. The format of this structure is specified in section 2.2.2.1.2.1. This structure specifies the time at which the logon occurred.

GwartTime (8 bytes): Unsigned 64-bit integer. This value represents the number of 100-nanosecond intervals since January 1, 1601. This time specifies when the **Gateway Address Routing Table (GWART)** last changed.

StoreState (4 bytes): 32-bit flags structure. The possible values are specified in [MS-OXCSTOR]. These flags specify ongoing action on the mailbox or public folder.

2.2.2.1.2.1 LogonTime Structure

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
Seconds								Minutes								Hour								DayOfWeek							
Day								Month								Year															

Seconds (1 byte): Unsigned 8-bit integer. This value specifies the current second.

Minutes (1 byte): Unsigned 8-bit integer. This value specifies the current minute.

Hour (1 byte): Unsigned 8-bit integer. This value specifies the current hour.

DayOfWeek (1 byte): 8-bit enumeration. This value specifies the current day of the week (Sunday = 0, Monday = 1, and so on).
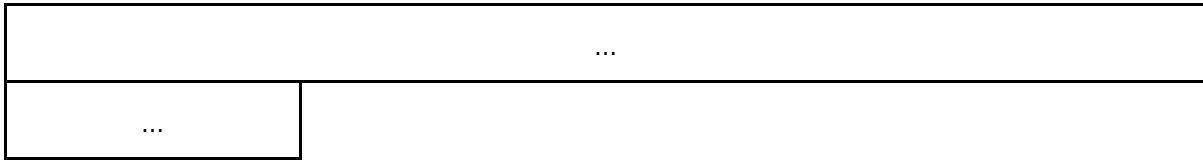
Day (1 byte): Unsigned 8-bit integer. This value specifies the current day of the month.

Month (1 byte): Unsigned 8-bit integer. This value specifies the current month (January = 1, February = 2, and so on).

Year (2 bytes): Unsigned 16-bit integer. This value specifies the current year.

2.2.2.1.3 Success Response Buffer for Public Folders

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
RopId								OutputHandleIndex								ReturnValue															
...																LogonFlags								FolderIds						
...																															
...																															
...																															
...																															
...																															
...																															
(FolderIds cont'd for 18 rows)																															
...																								ReplId							
...													ReplGuid																		
...																															
...																															
...																															
...													PerUserGuid																		
...																															
...																															

	...	
...		

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0xFE.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

LogonFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCSTOR]. These flags specify the type of logon.

FolderIds (104 bytes): 13 64-bit identifiers. These IDs specify a set of special folders for a mailbox.

ReplId (2 bytes): 16-bit identifier. This field specifies a replica ID for the logon.

ReplGuid (16 bytes): GUID. This field specifies the replica GUID associated with the replica ID that is specified in the **ReplId** field.

PerUserGuid (16 bytes): GUID. This field is not used and is ignored by the client. The server SHOULD set this field to an empty **GUID** (all zeroes).

2.2.2.1.4   Redirect Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																LogonFlags								ServerNameSize							
ServerName (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0xFE.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000478.

LogonFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCSTOR]. These flags specify the type of logon.

ServerNameSize (1 byte): Unsigned 8-bit integer. This value specifies the length of the **ServerName** field.

ServerName (variable): Null terminated ASCII string. The number of characters (including the null) contained in this field is specified by the **ServerNameSize** field. This string specifies a different server for the client to connect to.

2.2.2.1.5   Failure Response

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
RopId								OutputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0xFE.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000 or 0x00000478.

2.2.2.2   RopGetReceiveFolder

This ROP gets the **Receive folder** for incoming messages of a particular **message class**. More detailed information about this operation can be found in [MS-OXCSTOR].

2.2.2.2.1   Request Buffer

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
RopId								LogonId								InputHandleIndex								MessageClass (variable)							
...																															
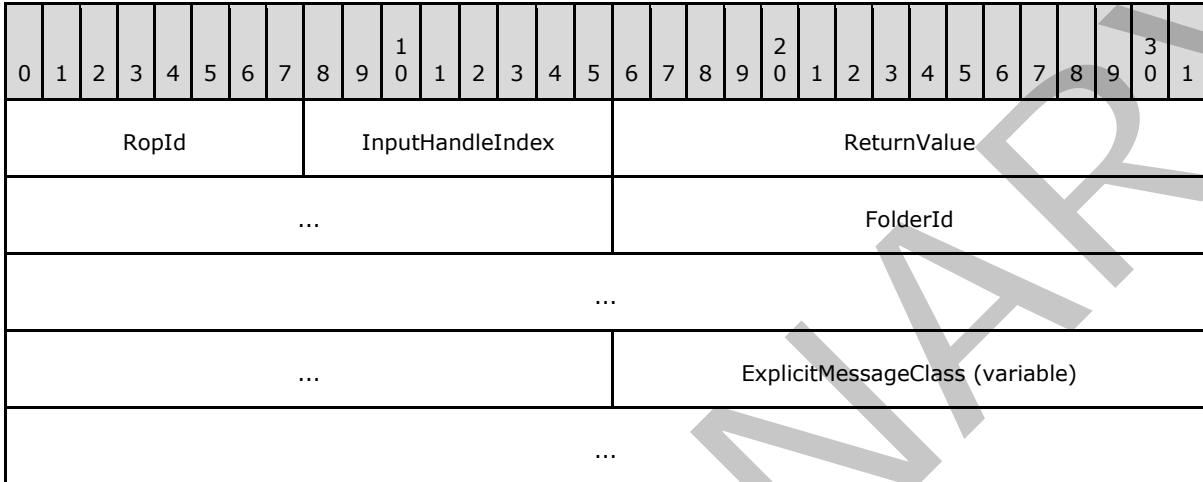
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x27.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

MessageClass (variable): Null-terminated ASCII string. This string specifies which message class to find the receive folder for.

2.2.2.2.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																FolderId															
...																															
...																ExplicitMessageClass (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x27.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

FolderId (8 bytes): 64-bit identifier. This value identifies the receive folder.

ExplicitMessageClass (variable): Null-terminated ASCII string. This string specifies the message class that is actually configured for delivery to the folder.

2.2.2.2.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x27.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.2.3 RopSetReceiveFolder

This ROP sets the receive folder for incoming messages of a particular message class. More detailed information about this operation can be found in [MS-OXCSTOR].

2.2.2.3.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								FolderId							
...																															
...																								MessageClass (variable)							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x26.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

FolderId (8 bytes): 64-bit identifier. This value identifies the Receiving folder.

MessageClass (variable): Null-terminated ASCII string. This string specifies which message class to set the receive folder for.

2.2.2.3.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x26.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.2.4 RopGetReceiveFolderTable

This ROP gets the table of all folders that were established as receive folders. More detailed information about this operation can be found in [MS-OXCSTOR].

2.2.2.4.1 Request Buffer

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
RopId								LogonId								InputHandleIndex															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x68.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.2.4.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																RowCount															
...																Rows (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x68.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

RowCount (4 bytes): 32-bit integer. This value specifies the number of row structures contained in the **Rows** field.

Rows (variable): Array of row structures. This field contains the rows of the Receive folder table. Each row is returned in either a **StandardPropertyRow** structure or a **FlaggedPropertyRow** structure, both of which are specified in [MS-OXCDATA] sections 2.9.1.1 and 2.9.1.2. The number of row structures contained in this field is specified by the **RowCount** field. The **ValueArray** field of either **StandardPropertyRow** or **FlaggedPropertyRow** MUST include only the PidTagFolderId, PidTagMessageClass, and PidTagLastModificationTime **properties**, in that order, and no other properties.

2.2.2.4.3 Failure Response Buffer

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
		RopId								InputHandleIndex								ReturnValue													
				...																											

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x68.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.2.5 RopGetStoreState

This ROP gets the current state of the **store** for the logged on user. More detailed information about this operation can be found in [MS-OXCSTOR].

2.2.2.5.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7B.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.2.5.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																StoreState															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7B.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

StoreState (4 bytes): 32-bit flags structure. The possible values are specified in [MS-OXCSTOR]. These flags specify the state related to the logged on user.

2.2.2.5.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7B.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.2.6 RopGetOwningServers

This ROP gets the list of servers that host replicas of a given public folder. More detailed information about this operation can be found in [MS-OXCSTOR].

2.2.2.6.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								FolderId							
...																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x42.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

FolderId (8 bytes): 64-bit identifier. This value identifies the folder for which to get owning servers.

2.2.2.6.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																OwningServersCount															
CheapServersCount																OwningServers (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x42.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

OwningServersCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of strings in the **OwningServers** field.

CheapServersCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of strings in **OwningServers** that refer to **lowest-cost servers**.

OwningServers (variable): List of null-terminated ASCII strings. The number of strings contained in this field is specified by the **OwningServersCount** field. These strings specify which servers have replicas of this folder.

2.2.2.6.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x42.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.2.7 RopPublicFolderIsGhosted

This ROP determines if a public folder is ghosted. More detailed information about this operation can be found in [MS-OXCSTOR].

2.2.2.7.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								FolderId							
...																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x45.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

FolderId (8 bytes): 64-bit identifier. This value identifies the folder to check.

2.2.2.7.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																IsGhosted								ServersCount (optional)							
...								CheapServersCount (optional)																Servers (optional) (variable)							
...																																

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x45.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

IsGhosted (1 byte): 8-bit Boolean. This value specifies whether the folder is a **ghosted folder**.

ServersCount (2 bytes): Unsigned 16-bit integer. This field is present if **IsGhosted** is nonzero and is not present if **IsGhosted** is zero. This value specifies the number of strings in the **Servers** field.

CheapServersCount (2 bytes): Unsigned 16-bit integer. This field is present if **IsGhosted** is nonzero and is not present if **IsGhosted** is zero. This value specifies the number of strings in **Servers** that refer to lowest-cost server.

Servers (optional) (variable): List of null-terminated ASCII strings. This field is present if **IsGhosted** is nonzero and is not present if **IsGhosted** is zero. The number of strings contained in this field is specified by the **ServersCount** field. These strings specify which servers have replicas of this folder.

2.2.2.7.3 Failure Response Buffer

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
			RopId							InputHandleIndex											ReturnValue										
								...																							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x45.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.2.8 RopLongTermIdFromId

This ROP converts a **short-term ID** into a **long-term ID**. More detailed information about this operation can be found in [MS-OXCSTOR].

2.2.2.8.1 Request Buffer

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
		RopId							LogonId								InputHandleIndex							ObjectId							
											...																				
							...																								

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x43.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

ObjectId (8 bytes): 64-bit identifier. This value specifies the short-term ID to be converted to a long-term ID.

---

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2.2.2.8.2 Success Response Buffer

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
		RopId								InputHandleIndex										ReturnValue											
						...														LongTermID											
										...																					
										...																					
										...																					
										...																					
										...																					
										...																					

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x43.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

LongTermID (24 bytes): LongTermID structure. This structure specifies the long-term ID that was converted from the short-term ID, which is specified in the **ObjectId** field of the request. The format of the **LongTermID** structure is specified in [MS-OXCDATA] section 2.2.1.3.1.

2.2.2.8.3 Failure Response Buffer

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
		RopId								InputHandleIndex										ReturnValue											
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x43.

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Release: Saturday, May 1, 2010

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.2.9 RopIdFromLongTermId

This ROP converts a long-term ID into a short-term ID. More detailed information about this operation can be found in [MS-OXCSTOR].

2.2.2.9.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								LongTermID							
...																															
...																															
...																															
...																															
...																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x44.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

LongTermID (24 bytes): LongTermID structure. The structure specifies the long-term ID to be converted to a short-term ID. The format of the **LongTermID** structure is specified in [MS-OXCDATA] section 2.2.1.3.1.

2.2.2.9.2 Success Response Buffer

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
		RopId							InputHandleIndex							ReturnValue															
		...													ObjectId																
												...																			
		...																													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x44.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

ObjectId (8 bytes): 64-bit identifier. This value specifies the short-term ID that was converted from the long-term ID, which is specified in the **LongTermId** field of the request.

2.2.2.9.3 Failure Response Buffer

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
		RopId							InputHandleIndex							ReturnValue															
		...																													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x44.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.2.10 RopGetPerUserLongTermIds

This ROP gets the long-term ID of a public folder that is identified by the per-user GUID of the logged on user. More detailed information about this operation can be found in [MS-OXCSTOR].

2.2.2.10.1 Request Buffer

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
		RopId								LogonId							InputHandleIndex								DatabaseGuid						
														...																	
														...																	
														...																	
														...																	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x60.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

DatabaseGuid (16 bytes): GUID. This value specifies which database the client is querying data for.

2.2.2.10.2 Success Response Buffer

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
		RopId								InputHandleIndex							ReturnValue														
						...												LongTermIdCount												
									LongTermIDs (variable)																						
														...																	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x60.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

LongTermIdCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **LongTermIds** field.

LongTermIDs (variable): Array of **LongTermID** structures. The format of the **LongTermID** structure is specified in [MS-OXCDATA] section 2.2.1.3.1. The number of structures contained in this field is specified by the **LongTermIdCount** field. These structures specify which folders the user has per-user information about.

2.2.2.10.3 Failure Response Buffer

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
		RopId								InputHandleIndex										ReturnValue											
					...																										

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x60.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.2.11 RopGetPerUserGuid

This ROP gets the GUID of a public folder's per-user information. More detailed information about this operation can be found in [MS-OXCSTOR].

2.2.2.11.1 Request Buffer

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
		RopId								LogonId									InputHandleIndex							LongTermID					
													...																		
													...																		
													...																		
													...																		

...		
...		
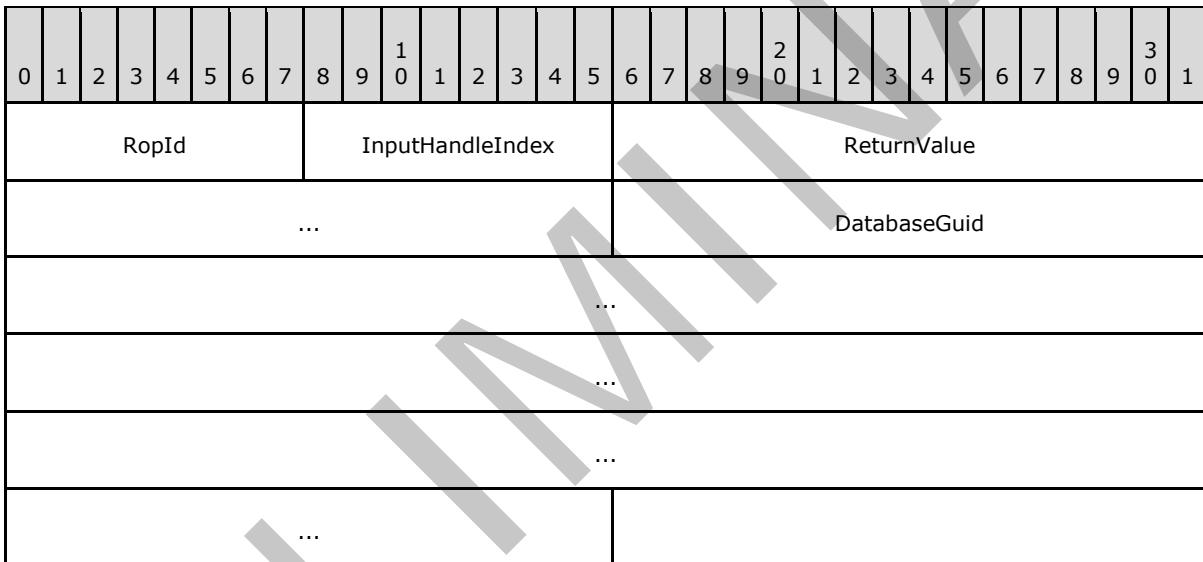
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x61.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

LongTermID (24 bytes): LongTermID structure. The format of the **LongTermID** structure is specified in [MS-OXCDATA] section 2.2.1.3.1. This structure specifies the public folder.

2.2.2.11.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																DatabaseGuid															
...																															
...																															
...																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x61.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

DatabaseGuid (16 bytes): GUID. This value specifies the database for which per-user information was obtained.

2.2.2.11.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
…																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x61.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.2.12 RopReadPerUserInformation

This ROP gets per-user information for a public folder. More detailed information about this operation can be found in [MS-OXCSTOR].

2.2.2.12.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								FolderId							
…																															
…																															
…																															
…																															
…																								Reserved							
DataOffset																															
MaxDataSize																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x63.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.
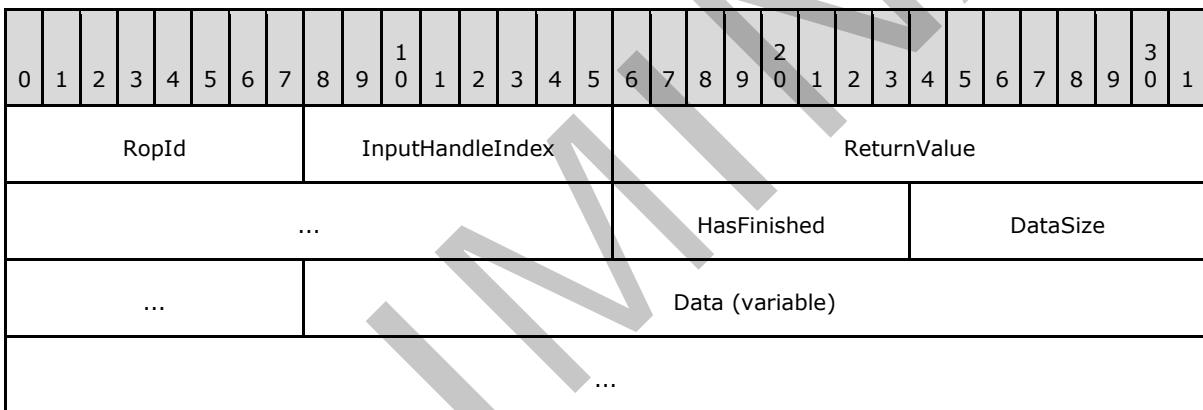
FolderId (24 bytes): LongTermID structure. The structure specifies the folder for which to get per-user information. The format of the **LongTermID** structure is specified in [MS-OXCDATA] section 2.2.1.3.1.

Reserved (1 byte): Reserved. This field is not used and is ignored by the server. This field MUST be set to 0x00.

DataOffset (4 bytes): Unsigned 32-bit integer. This value specifies the location at which to start reading within the per-user information stream.

MaxDataSize (2 bytes): Unsigned 16-bit integer. This value specifies the maximum number of bytes of per-user information to be retrieved.

2.2.2.12.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																HasFinished								DataSize							
...								Data (variable)																							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x63.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

HasFinished (1 byte): 8-bit Boolean. This value specifies whether this operation reached the end of the per-user information stream.

DataSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **Data** field.

Data (variable): Array of bytes. The size of this field, in bytes, is specified by the **DataSize** field. This field contains the per-user data that is returned.

2.2.2.12.3 Failure Response Buffer

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
		RopId								InputHandleIndex										ReturnValue											
		...																													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x63.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.2.13 RopWritePerUserInformation

This ROP sets per-user information for a public folder. More detailed information about this operation can be found in [MS-OXCSTOR].

2.2.2.13.1 Request Buffer

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
	RopId						LogonId							InputHandleIndex							FolderId										
												...																			
												...																			
												...																			
												...																			
									...													HasFinished								
												DataOffset																			
	DataSize															Data (variable)															

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...	
ReplGuid (optional)	
...	
...	
...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x64.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

FolderId (24 bytes): LongTermID structure. The structure specifies the folder for which to set per-user information. The format of the **LongTermID** structure is specified in [MS-OXCDATA] section 2.2.1.3.1.

HasFinished (1 byte): 8-bit Boolean. This value specifies whether this operation specifies the end of the per-user information stream.

DataOffset (4 bytes): Unsigned 32-bit integer. This value specifies the location in the per-user information stream to start writing.

DataSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **Data** field in bytes.

Data (variable): Array of bytes. The size of this field, in bytes, is specified by the **DataSize** field. This array is the per-user data to write.

ReplGuid (16 bytes): GUID. This field is present when the **DataOffset** field is 0x00000000 and the logon associated with **LogonId** was created with the Private flag set (see [MS-OXCSTOR] for more information) and is not present otherwise.

2.2.2.13.2   Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x64.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.3 Folder ROPs

2.2.3.1 RopOpenFolder

This ROP opens an existing folder in a mailbox. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.1.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
FolderId																															
...																															
OpenModeFlags																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x02.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

FolderId (8 bytes): 64-bit identifier. This identifier specifies the folder to be opened.

OpenModeFlags (1 byte): 8-bit flags structure. These flags are used to control how the folder is opened. The possible flags values are specified in [MS-OXCFOLD].

2.2.3.1.2 Success Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																HasRules								IsGhosted							
ServerCount (optional)																CheapServerCount (optional)															
Servers (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x02.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

HasRules (1 byte): 8-bit Boolean. This value indicates whether there are rules associated with the folder.

IsGhosted (1 byte): 8-bit Boolean. This value specifies whether the folder is a ghosted folder.

ServerCount (2 bytes): Unsigned 16-bit integer. This field is present if **IsGhosted** is nonzero and is not present if **IsGhosted** is zero. This value specifies the number of strings in the **Servers** field.

CheapServerCount (2 bytes): Unsigned 16-bit integer. This field is present if **IsGhosted** is nonzero and is not present if **IsGhosted** is zero. This value specifies the number of values in **Servers** that refers to lowest-cost servers.

Servers (variable): List of null-terminated ASCII strings. This field is present if **IsGhosted** is nonzero and is not present if **IsGhosted** is zero. The number of strings contained in this field is specified by the **ServerCount** field. These strings specify which servers have replicas of this folder.

2.2.3.1.3 Failure Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															

...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x02.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.3.2 RopCreateFolder

This ROP creates a new subfolder. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.2.1 Request Buffer

| 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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
FolderType								UseUnicodeStrings								OpenExisting								Reserved							
DisplayName (variable)																															
...																															
Comment (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1C.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

FolderType (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCFOLD]. This value specifies what type of folder to create.

UseUnicodeStrings (1 byte): 8-bit Boolean. This value specifies whether the **DisplayName** field and the **Comment** field contain **Unicode** characters or multi-byte characters.

OpenExisting (1 byte): 8-bit Boolean. This value specifies whether this operation opens or fails when a folder already exists.

Reserved (1 byte): Reserved. This field MUST be set to 0x00.

DisplayName (variable): Null-terminated multi-byte string. This value specifies the name of the created folder. If **UseUnicodeStrings** is nonzero, the string is composed of Unicode characters. If **UseUnicodeStrings** is zero, the string is composed of multi-byte characters.

Comment (variable): Null-terminated multi-byte string. This value specifies the folder comment that is associated with the created folder. If **UseUnicodeStrings** is nonzero, the string is composed of Unicode characters. If **UseUnicodeStrings** is zero, the string is composed of multi-byte characters.

2.2.3.2.2 Success Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																FolderId															
...																															
...																IsExistingFolder								HasRules (optional)							
IsGhosted (optional)								ServerCount (optional)																CheapServerCount (optional)							
...								Servers (variable)																							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1C.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

FolderId (8 bytes): 64-bit Identifier. This value identifies the folder created or opened.

IsExistingFolder (1 byte): 8-bit Boolean. This value indicates whether an existing folder was opened or a new folder was created.

HasRules (1 byte): 8-bit Boolean. This field is present if the **IsExistingFolder** field is nonzero and the folder is a public folder; otherwise, it is not present. This value indicates whether there are rules associated with the folder.

IsGhosted (1 byte): 8-bit Boolean. This field is present if the **IsExistingFolder** field is nonzero and is not present otherwise. This value indicates whether the server is an active replica of this folder.

ServerCount (2 bytes): Unsigned 16-bit integer. This field is present if both **IsExistingFolder** and **IsGhosted** are nonzero and is not present otherwise. This value specifies the number of strings in the **Servers** field.

CheapServerCount (2 bytes): Unsigned 16-bit integer. This field is present if both **IsExistingFolder** and **IsGhosted** are nonzero and is not present otherwise. This value specifies the number of values in **Servers** that refers to lowest-cost servers.

Servers (variable): List of null-terminated ASCII strings. This field is present if both **IsExistingFolder** and **IsGhosted** are nonzero and is not present otherwise. The number of strings contained in this field is specified by the **ServersCount** field. These strings specify which servers have replicas of this folder.

2.2.3.2.3 Failure Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1C.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.3.3 RopDeleteFolder

This ROP deletes a subfolder. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.3.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex								DeleteFolderFlags					
												FolderId																			
												...																			

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1D.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

DeleteFolderFlags (1 byte): 8-bit flags structure. These flags control how to delete the folder. The possible flags values are specified in [MS-OXCFOLD].

FolderId (8 bytes): 64-bit identifier. This value identifies the folder to be deleted.

2.2.3.3.2 Response Buffer

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
		RopId								InputHandleIndex								ReturnValue													
				...											PartialCompletion																

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1D.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.
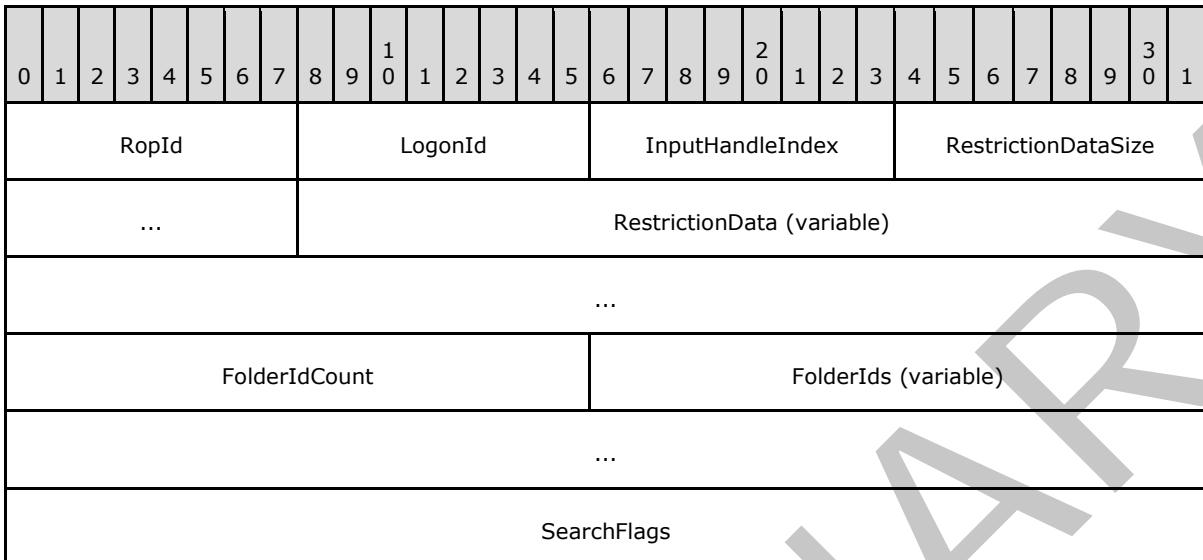
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

PartialCompletion (1 byte): 8-bit Boolean. This value specifies whether the operation was partially completed.

2.2.3.4 RopSetSearchCriteria

This ROP sets the **search criteria** for a **search folder**. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.4.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								RestrictionDataSize							
...								RestrictionData (variable)																							
...																															
FolderIdCount																FolderIds (variable)															
...																															
SearchFlags																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x30.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

RestrictionDataSize (2 bytes): Unsigned 16-bit integer. This value specifies the length of the **RestrictionData** field.

RestrictionData (variable): Restriction packet. The size of this field is **RestrictionDataSize** bytes. This field contains a **restriction** packet, as specified in [MS-OXCDATA] section 2.13. The restriction specifies the filter for this search folder.

FolderIdCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of IDs in the **FolderIds** field.

FolderIds (variable): Array of 64-bit identifiers. This field contains identifiers that specify which folders are searched. The number of identifiers contained in this field is specified by the **FolderIdCount** field.

SearchFlags (4 bytes): 32-bit flags structure. These flags control the search for a search folder.

2.2.3.4.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x30.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.3.5 RopGetSearchCriteria

This ROP gets the search criteria for a search folder. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.5.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								UseUnicode							
IncludeRestriction								IncludeFolders																							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x31.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.
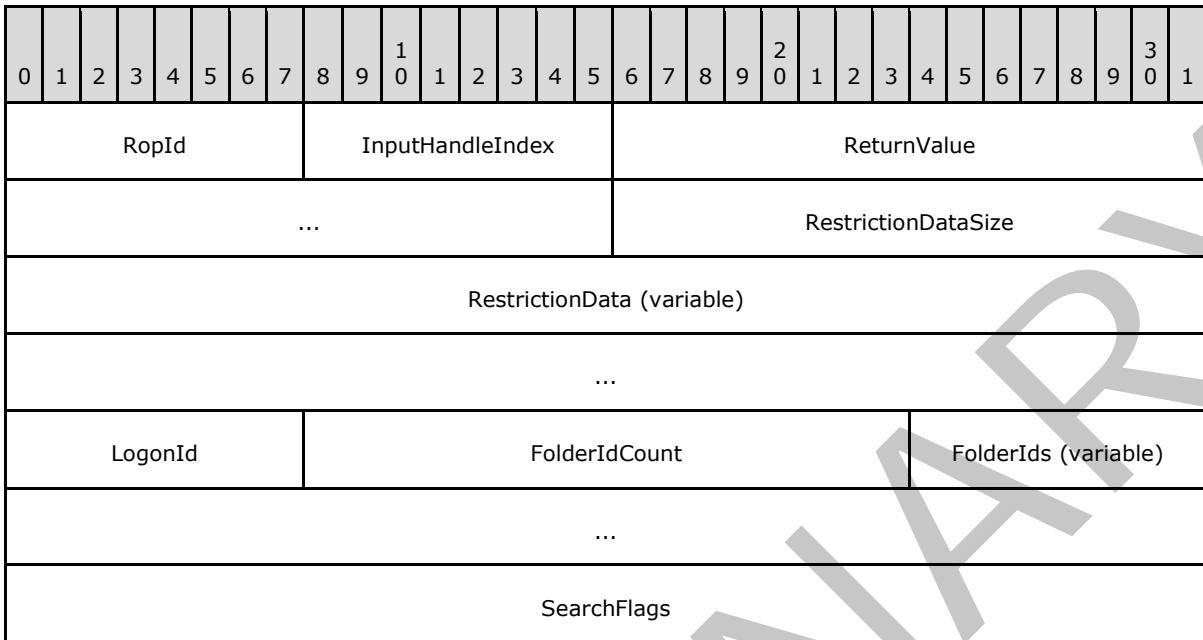
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

UseUnicode (1 byte): 8-bit Boolean. This value specifies whether the client wants the restriction data (returned in the **RestrictionData** field of the response) to be specified with Unicode strings or **ASCII** strings.

IncludeRestriction (1 byte): 8-bit Boolean. This value specifies whether the server includes the restriction information in the response.

IncludeFolders (1 byte): 8-bit Boolean. This value specifies whether the server includes the folders list in the response.

2.2.3.5.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																RestrictionDataSize															
RestrictionData (variable)																															
...																															
LogonId								FolderIdCount																FolderIds (variable)							
...																															
SearchFlags																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x31.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

RestrictionDataSize (2 bytes): Unsigned 16-bit integer. This value specifies the length of the **RestrictionData** field.

RestrictionData (variable): Restriction packet. The size of this field is **RestrictionDataSize** bytes. This field contains a restriction packet, as specified in [MS-OXCDATA] section 2.13. The restriction specifies the filter for this search folder.

LogonId (1 byte): Unsigned 8-bit integer. This field MUST be set to the value of the **LogonId** field in the request.

FolderIdCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of IDs in the **FolderIds** field.

FolderIds (variable): Array of 64-bit identifiers. This field contains identifiers that specify which folders are searched. The number of identifiers contained in this field is specified by the **FolderIdCount** field.

SearchFlags (4 bytes): 32-bit flags structure. These flags control the search for a search folder.

2.2.3.5.3 Failure Response Buffer

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
			RopId							InputHandleIndex										ReturnValue											
							...																								

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x31.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.3.6 RopMoveCopyMessages

This ROP either moves or copies messages from a source folder to a destination folder. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.6.1 Request Buffer

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
		RopId							LogonId						SourceHandleIndex							DestHandleIndex									
			MessageIdCount									MessageIds (variable)																	
							...																								
		WantAsynchronous							WantCopy																					

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x33.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the source Server object is stored. More information about Server objects can be found in section 3.

DestHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the destination Server object is stored. More information about Server objects can be found in section 3.

MessageIdCount (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **MessageIds** field.

MessageIds (variable): Array of 64-bit identifiers. The number of identifiers contained in this field is specified by the **MessageIdCount** field. These identifiers specify which messages to move or copy.

WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via **RopProgress**.

WantCopy (1 byte): 8-bit Boolean. This value specifies whether the operation is a copy or a move.

2.2.3.6.2 Response Buffer

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
RopId								SourceHandleIndex								ReturnValue															
...																PartialCompletion															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x33.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000503.

PartialCompletion (1 byte): 8-bit Boolean. This value indicates whether the operation was only partially completed.

2.2.3.6.3 Null Destination Failure Response Buffer

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
RopId								SourceHandleIndex								ReturnValue															
...																DestHandleIndex															
...																PartialCompletion															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x33.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. For more details about Server objects, see section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000503.

DestHandleIndex (4 bytes): Unsigned 32-bit integer. This index MUST be set to the **DestHandleIndex** specified in the request. For more details about Server objects, see section 3.

PartialCompletion (1 byte): 8-bit Boolean. This value indicates whether the operation was only partially completed.

2.2.3.7   RopMoveFolder

This ROP moves a folder. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.7.1   Request Buffer

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
RopId								LogonId								SourceHandleIndex								DestHandleIndex							
WantAsynchronous								UseUnicode								FolderId															
...																															
...																NewFolderName (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x35.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the source Server object is stored. More information about Server objects can be found in section 3.

DestHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the destination Server object is stored. More information about Server objects can be found in section 3.

WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via RopProgress.

UseUnicode (1 byte): 8-bit Boolean. This value specifies whether the **NewFolderName** field contains Unicode characters or multi-byte characters.

FolderId (8 bytes): 64-bit identifier. This value identifies the folder to be moved.

NewFolderName (variable): Null-terminated multi-byte string. If the **UseUnicode** field is nonzero, then the string is composed of Unicode characters. Otherwise, the string is composed of multi-byte characters. This string specifies the name for the new moved folder.

2.2.3.7.2   Response Buffer

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
		RopId								SourceHandleIndex										ReturnValue											
				...														PartialCompletion													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x35.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000503.

PartialCompletion (1 byte): 8-bit Boolean. This value indicates whether the operation was only partially completed.

2.2.3.7.3   Null Destination Failure Response Buffer

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
		RopId								SourceHandleIndex										ReturnValue											
				...														DestHandleIndex												
				...														PartialCompletion												

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x35.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000503.

DestHandleIndex (4 bytes): Unsigned 32-bit integer. This index MUST be set to the **DestHandleIndex** specified in the request. More information about Server objects can be found in section 3.

PartialCompletion (1 byte): 8-bit Boolean. This value indicates whether the operation was only partially completed.

2.2.3.8 RopCopyFolder

This ROP copies a folder. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.8.1 Request Buffer

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
RopId								LogonId								SourceHandleIndex								DestHandleIndex							
WantAsynchronous								WantRecursive								UseUnicode								FolderId							
...																															
...																								NewFolderName (variable)							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x36.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the source Server object is stored. More information about Server objects can be found in section 3.

DestHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the destination Server object is stored. More information about Server objects can be found in section 3.

WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via RopProgress.

WantRecursive (1 byte): 8-bit Boolean. This value specifies that the copy is recursive.

UseUnicode (1 byte): 8-bit Boolean. This value specifies whether the **NewFolderName** field contains Unicode characters or multi-byte characters.

FolderId (8 bytes): 64-bit identifier. This value identifies the folder to be copied.

NewFolderName (variable): Null-terminated multi-byte string. If the **UseUnicode** field is nonzero, then the string is composed of Unicode characters. Otherwise, the string is composed of multi-byte characters. This string specifies the name for the new copied folder.

2.2.3.8.2   Response Buffer

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
		RopId								SourceHandleIndex								ReturnValue													
				...													PartialCompletion														

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x36.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000503.

PartialCompletion (1 byte): 8-bit Boolean. This value indicates whether the operation was only partially completed.

2.2.3.8.3   Null Destination Failure Response Buffer

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
		RopId								SourceHandleIndex								ReturnValue													
				...													DestHandleIndex														
				...													PartialCompletion													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x36.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000503.

DestHandleIndex (4 bytes): Unsigned 32-bit integer. This index MUST be set to the **DestHandleIndex** specified in the request. More information about Server objects can be found in section 3.

PartialCompletion (1 byte): 8-bit Boolean. This value indicates whether the operation was only partially completed.

2.2.3.9 RopEmptyFolder

This ROP deletes all messages and subfolders from a folder. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.9.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								WantAsynchronous							
WantDeleteAssociated																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x58.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via **RopProgress**.

WantDeleteAssociated (1 byte): 8-bit Boolean. This value specifies whether the operation also deletes **folder associated information (FAI)** messages.

2.2.3.9.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																PartialCompletion															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x58.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

PartialCompletion (1 byte): 8-bit Boolean. This value indicates whether the operation was only partially completed.

2.2.3.10 RopHardDeleteMessagesAndSubfolders

This ROP **hard deletes** messages and subfolders from a folder. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.10.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex								WantAsynchronous						
		WantDeleteAssociated																													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x92.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via **RopProgress**.

WantDeleteAssociated (1 byte): 8-bit Boolean. This value specifies whether to also delete folder associated information (FAI) messages.

2.2.3.10.2 Response Buffer

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
		RopId							InputHandleIndex								ReturnValue														
			...														PartialCompletion														

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x92.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

PartialCompletion (1 byte): 8-bit Boolean. This value indicates whether the operation was only partially completed.

2.2.3.11 RopDeleteMessages

This ROP deletes one or more messages in a folder. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.11.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								WantAsynchronous							
NotifyNonRead								MessageIdCount																MessageIds (variable)							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1E.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via **RopProgress**.

NotifyNonRead (1 byte): 8-bit Boolean. This value specifies whether the server sends a **non-read receipt** to the message-sender when a message is deleted.

MessageIdCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of identifiers in the **MessageIds** field.

MessageIds (variable): Array of 64-bit identifiers. The number of identifiers contained in this field is specified by the **MessageIdCount** field. These IDs specify the messages to be deleted.

2.2.3.11.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																PartialCompletion															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1E.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

PartialCompletion (1 byte): 8-bit Boolean. This value specifies whether this operation partially completed.

2.2.3.12 RopHardDeleteMessages

This ROP hard deletes messages in a folder. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.12.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								WantAsynchronous							
NotifyNonRead								MessageIdCount																MessageIds (variable)							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x91.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via **RopProgress**.

NotifyNonRead (1 byte): 8-bit Boolean. This value specifies whether the server sends a non-read receipt to the message-sender when a message is deleted.

MessageIdCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of identifiers in the **MessageIds** field.

MessageIds (variable): Array of 64-bit identifiers. The number of identifiers contained in this field is specified by the **MessageIdCount** field. These IDs specify the messages to be hard deleted.

2.2.3.12.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																PartialCompletion														

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x91.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

PartialCompletion (1 byte): 8-bit Boolean. This value indicates whether the operation was only partially completed.

2.2.3.13 RopGetHierarchyTable

This ROP gets the subfolder hierarchy table for a folder. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.13.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
TableFlags																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x04.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

TableFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFOLD]. These flags control the type of table.

2.2.3.13.2 Success Response Buffer

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
			RopId						OutputHandleIndex										ReturnValue												
			...													RowCount															
			...																												

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x04.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

RowCount (4 bytes): Unsigned 32-bit integer. This value represents the number of rows in the hierarchy table.

2.2.3.13.3 Failure Response Buffer

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
			RopId						OutputHandleIndex										ReturnValue												
			...																												

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x04.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.3.14 RopGetContentsTable

This ROP gets the content table of a container. More detailed information about this operation can be found in [MS-OXCFOLD].

2.2.3.14.1   Request Buffer

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
		RopId								LogonId								InputHandleIndex								OutputHandleIndex					
		TableFlags																													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x05.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored.

TableFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFOLD]. These flags control the type of table.

2.2.3.14.2   Success Response Buffer

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
		RopId								OutputHandleIndex								ReturnValue													
		...																RowCount													
		...																													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x05.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

RowCount (4 bytes): Unsigned 32-bit integer. This value represents the number of rows in the hierarchy table.

2.2.3.14.3 Failure Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x05.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4 Table ROPs

2.2.4.1 RopSetColumns

This ROP sets the properties visible on a table. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.1.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								SetColumnsFlags							
PropertyTagCount																PropertyTags (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x12.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

SetColumnsFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCTABL]. These flags control this operation.

PropertyTagCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of tags present in the **PropertyTags** field.

PropertyTags (variable): Array of PropertyTag structures. This field specifies the property values that are visible in table rows. The number of structures contained in this field is specified by the **PropertyTagCount** field. The format of the **PropertyTag** structure is specified in [MS-OXCDATA].

2.2.4.1.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																								TableStatus							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x12.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

TableStatus (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCTABL]. This value specifies the status of the table.

2.2.4.1.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x12.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.2 RopSortTable

This ROP defines the order of rows of a table based on sort criteria. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.2.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								SortTableFlags							
SortOrderCount																CategoryCount															
ExpandedCount																SortOrders (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x13.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

SortTableFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCTABL]. These flags control this operation.

SortOrderCount (2 bytes): Unsigned 16-bit integer. This value specifies how many **SortOrder** structures are present in the **SortOrders** field.

CategoryCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of category **SortOrder** structures in the **SortOrders** field.

ExpandedCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of expanded categories in the **SortOrders** field.

SortOrders (variable): Array of SortOrder structures. The number of structures contained in this field is specified by the **SortOrderCount** field. The format of the **SortOrder** structure is specified in [MS-OXCDATA]. This field specifies the sort order for the rows in the table.

2.2.4.2.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															

...	TableStatus

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x13.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

TableStatus (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCTABL]. This value specifies the status of the table.

2.2.4.2.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x13.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.3 RopRestrict

This ROP establishes a filter for a table. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.3.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								RestrictFlags							
RestrictionDataSize																RestrictionData (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x14.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

RestrictFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCTABL]. These flags control this operation.

RestrictionDataSize (2 bytes): Unsigned 16-bit integer. This value specifies the length of the **RestrictionData** field.

RestrictionData (variable): Restriction packet. The size of this field is **RestrictionDataSize** bytes. This field contains a restriction packet, as specified in [MS-OXCDATA] section 2.13. The restriction specifies the filter for this table.

2.2.4.3.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																TableStatus															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x14.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

TableStatus (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCTABL]. This value specifies the status of the table.

2.2.4.3.3 Failure Response Buffer

| 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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x14.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.4 RopQueryRows

This ROP retrieves rows from a table. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.4.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								QueryRowsFlags							
ForwardRead								RowCount																							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x15.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

QueryRowsFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCTABL]. These flags control this operation.

ForwardRead (1 byte): 8-bit Boolean. This value specifies the direction to read rows.

RowCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of requested rows.

2.2.4.4.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																Origin								RowCount							

...	RowData (variable)
...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x15.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

Origin (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCTABL]. This value specifies current location of the cursor.

RowCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **RowData** field.

RowData (variable): List of PropertyRow structures. The number of structures contained in this field is specified by the **RowCount** field. The format of the **PropertyRow** structure is specified in [MS-OXCDATA] and the columns used for these rows were those previously set on this table by a RopSetColumns request.

2.2.4.4.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x15.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.5 RopAbort

This ROP aborts an asynchronous table operation in progress. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.5.1 Request Buffer

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
			RopId							LogonId								InputHandleIndex													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x38.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.4.5.2 Success Response Buffer

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
			RopId							InputHandleIndex								ReturnValue													
				...														TableStatus													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x38.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

TableStatus (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCTABL]. This value specifies the status of the table.

2.2.4.5.3 Failure Response Buffer

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
			RopId							InputHandleIndex								ReturnValue													
				...																											

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x38.

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InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.6 RopGetStatus

This ROP gets the status of a table. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.6.1 Request Buffer

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
RopId								LogonId								InputHandleIndex															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x16.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.4.6.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																TableStatus															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x16.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

TableStatus (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCTABL]. This value specifies the status of the table.

2.2.4.6.3 Failure Response Buffer

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
			RopId							InputHandleIndex										ReturnValue											
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x16.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.7 RopQueryPosition

This ROP gets the cursor position. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.7.1 Request Buffer

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
			RopId							LogonId										InputHandleIndex											

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x17.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.4.7.2 Success Response Buffer

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
			RopId							InputHandleIndex										ReturnValue											
						...														Numerator											

...	Denominator
...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x17.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

Numerator (4 bytes): Unsigned 32-bit integer. This value represents the numerator of the fraction identifying the table position.

Denominator (4 bytes): Unsigned 32-bit integer. This value represents the denominator of the fraction identifying the table position.

2.2.4.7.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x17.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.8 RopSeekRow

This ROP moves the cursor to a specific position in a table. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.8.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex								Origin					
											RowCount																				
		WantRowMovedCount																													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x18.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

Origin (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCTABL]. This value specifies the origin of this seek operation.

RowCount (4 bytes): Signed 32-bit integer. This value specifies the direction and the number of rows to seek.

WantRowMovedCount (1 byte): 8-bit Boolean. This value specifies whether the server returns the actual number of rows moved in the response.

2.2.4.8.2 Success Response Buffer

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
		RopId								InputHandleIndex								ReturnValue													
		...													HasSoughtLess								RowsSought							
											...																				

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x18.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

HasSoughtLess (1 byte): 8-bit Boolean. This value specifies whether the full number of rows sought past was less than the number that was requested.

RowsSought (4 bytes): Signed 32-bit integer. This value specifies the direction and number of rows sought.

2.2.4.8.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x18.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.9 RopSeekRowBookmark

This ROP moves the cursor to a location specified relative to a user-defined bookmark. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.9.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								BookmarkSize							
...								Bookmark (variable)																							
...																															
RowCount																															
WantRowMovedCount																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x19.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

BookmarkSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **Bookmark** field.

Bookmark (variable): Array of bytes. The size of this field, in bytes, is specified by the **BookmarkSize** field. This array specifies the origin for the seek operation.

RowCount (4 bytes): Signed 32-bit integer. This value specifies the direction and the number of rows to seek.

WantRowMovedCount (1 byte): 8-bit Boolean. This value specifies whether the server returns the actual number of rows sought in the response.

2.2.4.9.2   Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																RowNoLongerVisible								HasSoughtLess							
RowsSought																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x19.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

RowNoLongerVisible (1 byte): 8-bit Boolean. This value specifies whether the bookmark target is no longer visible.

HasSoughtLess (1 byte): 8-bit Boolean. This value specifies whether the full number of rows sought past was less than the number that was requested.

RowsSought (4 bytes): Signed 32-bit integer. This value specifies the direction and number of rows sought.

2.2.4.9.3 Failure Response Buffer

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
		RopId							InputHandleIndex											ReturnValue											
		...																													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x19.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.10 RopSeekRowFractional

This ROP moves the cursor to an approximate position in a table. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.10.1 Request Buffer

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
		RopId								LogonId							InputHandleIndex							Numerator							
						...																	Denominator								
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1A.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

Numerator (4 bytes): Unsigned 32-bit integer. This value represents the numerator of the fraction identifying the table position to seek to.

Denominator (4 bytes): Unsigned 32-bit integer. This value represents the denominator of the fraction identifying the table position to seek to.

2.2.4.10.2 Response Buffer

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
			RopId							InputHandleIndex										ReturnValue											
								...																							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1A.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.4.11 RopCreateBookmark

This ROP marks the current cursor position in a table. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.11.1 Request Buffer

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
			RopId							LogonId									InputHandleIndex												

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1B.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.4.11.2 Success Response Buffer

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
			RopId							InputHandleIndex									ReturnValue											
								...												BookmarkSize										

Bookmark (variable)
...

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1B.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

BookmarkSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **Bookmark** field.

Bookmark (variable): Array of bytes. The size of this field, in bytes, is specified by the **BookmarkSize** field. This array specifies the bookmark created.

2.2.4.11.3   Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1B.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.12   RopQueryColumnsAll

This ROP gets a list of columns in a table. More detailed information about this operation can be found in [MS-OXTABL].

2.2.4.12.1 Request Buffer

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
			RopId								LogonId								InputHandleIndex												

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x37.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.4.12.2 Success Response Buffer

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
			RopId							InputHandleIndex								ReturnValue													
				...														PropertyTagCount												
						PropertyTags (variable)																									
							...																								

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x37.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

PropertyTagCount (2 bytes): Unsigned 16-bit integer. This value specifies how many tags are present in the **PropertyTags** field.

PropertyTags (variable): Array of PropertyTag structures. The number of structures contained in this field is specified by the **PropertyTagCount** field. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. This field specifies the columns of the table.

2.2.4.12.3 Failure Response Buffer

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
			RopId							InputHandleIndex											ReturnValue										
								...																							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x37.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.13 RopFindRow

This ROP moves the cursor to a row in a table that matches specific search criteria. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.13.1 Request Buffer

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
		RopId							LogonId								InputHandleIndex							FindRowFlags						
		RestrictionDataSize													RestrictionData (variable)																
								...																							
		Origin						BookmarkSize									Bookmark (variable)													
								...																							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4F.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

FindRowFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCTABL]. These flags control this operation.

RestrictionDataSize (2 bytes): Unsigned 16-bit integer. This value specifies the length of the **RestrictionData** field.

RestrictionData (variable): Restriction packet. The size of this field, in bytes, is specified by the **RestrictionDataSize** field. This field contains a restriction packet, as specified in [MS-OXCDATA] section 2.13. The restriction specifies the filter for this operation.

Origin (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCTABL]. This enumeration specifies where this operation begins its search.

BookmarkSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **Bookmark** field.

Bookmark (variable): Array of bytes. The size of this field, in bytes, is specified by the **BookmarkSize** field. This array specifies the bookmark to use as the origin.

2.2.4.13.2   Success Response Buffer

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

RopId								InputHandleIndex								ReturnValue															
...																RowNoLongerVisible								HasRowData							
RowData (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4F.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

RowNoLongerVisible (1 byte): 8-bit Boolean. This value specifies whether the bookmark target is no longer visible.

HasRowData (1 byte): 8-bit Boolean. This value indicates whether the **RowData** field is present.

RowData (variable): **PropertyRow** structure. This field is only present when the **HasRowData** field is set to a nonzero value. The format of the **PropertyRow** structure is specified in [MS-OXCDATA] and the columns used for these rows were those previously set on this table by a RopSetColumns.

2.2.4.13.3 Failure Response Buffer

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
		RopId							InputHandleIndex							ReturnValue															
				...																											

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4F.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.14 RopFreeBookmark

This ROP releases a bookmark. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.14.1 Request Buffer

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
		RopId							LogonId							InputHandleIndex								BookmarkSize						
		...									Bookmark (variable)																			
										...																					

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x89.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

BookmarkSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **Bookmark** field.

Bookmark (variable): Array of bytes. The size of this field, in bytes, is specified by the **BookmarkSize** field. This array specifies the bookmark to be freed.

2.2.4.14.2 Response Buffer

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
		RopId								InputHandleIndex										ReturnValue											
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x89.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.4.15 RopResetTable

This ROP resets a table to its original state. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.15.1 Request Buffer

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
		RopId								LogonId										InputHandleIndex											

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x81.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.4.15.2 Response Buffer

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
		RopId								InputHandleIndex										ReturnValue											
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x81.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.4.16 RopExpandRow

This ROP expands a categorized row. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.16.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								MaxRowCount							
...								CategoryId																							
...																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x59.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

MaxRowCount (2 bytes): Unsigned 16-bit integer. This value specifies the maximum number of expanded rows to return data for.

CategoryId (8 bytes): 64-bit identifier. This identifier specifies the category to be expanded.

2.2.4.16.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																ExpandedRowCount															

...	RowCount
RowData (variable)	
...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x59.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

ExpandedRowCount (4 bytes): Unsigned 32-bit integer. This value specifies the total number of rows available in the expanded category.

RowCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures present in the **RowData** field.

RowData (variable): List of PropertyRow structures. The number of structures contained in this field is specified by the **RowCount** field. The format of the **PropertyRow** structure is specified in [MS-OXCDATA] and the columns used for these rows were those previously set on this table by a RopSetColumns.

2.2.4.16.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x59.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.17 RopCollapseRow

This ROP collapses a categorized row. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.17.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex								CategoryId					
														...																	
												...																			

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5A.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

CategoryId (8 bytes): 64-bit identifier. This identifier specifies the category to be collapsed.

2.2.4.17.2 Success Response Buffer

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
		RopId								InputHandleIndex								ReturnValue													
				...											CollapsedRowCount																
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5A.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

CollapsedRowCount (4 bytes): Unsigned 32-bit integer. This value specifies the total number of rows in the collapsed category.

2.2.4.17.3 Failure Response Buffer

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
			RopId							InputHandleIndex										ReturnValue											
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5A.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.18 RopGetCollapseState

This ROP gets the current collapse state of rows in a categorized table. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.18.1 Request Buffer

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
		RopId								LogonId							InputHandleIndex								RowId						
															...																
									...														RowInstanceNumber							
											...																				

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6B.
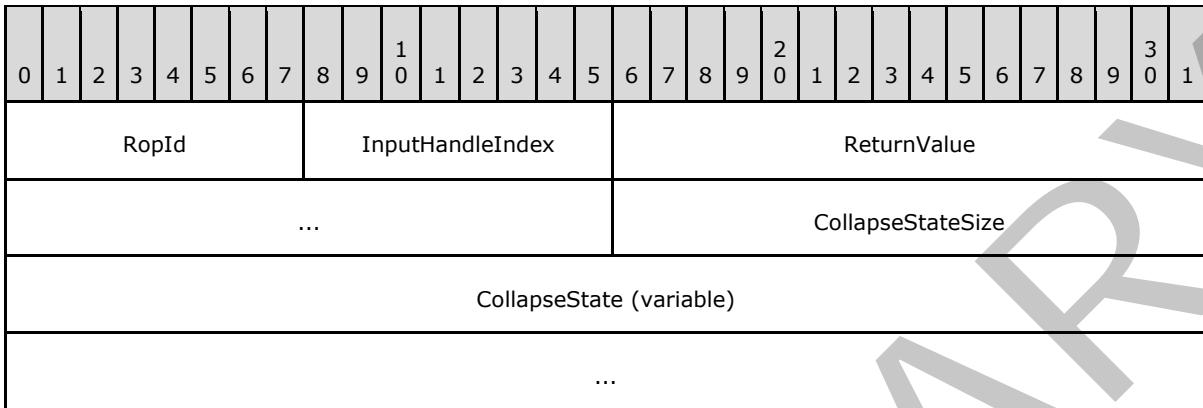
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

RowId (8 bytes): 64-bit identifier. This identifier specifies the row to be preserved as the cursor. The cursor is returned as part of the collapse state in the **CollapseState** field of the response.

RowInstanceNumber (4 bytes): Unsigned 32-bit integer. This value specifies the instance number of the row that is to be preserved as the cursor.

2.2.4.18.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																CollapseStateSize															
CollapseState (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6B.
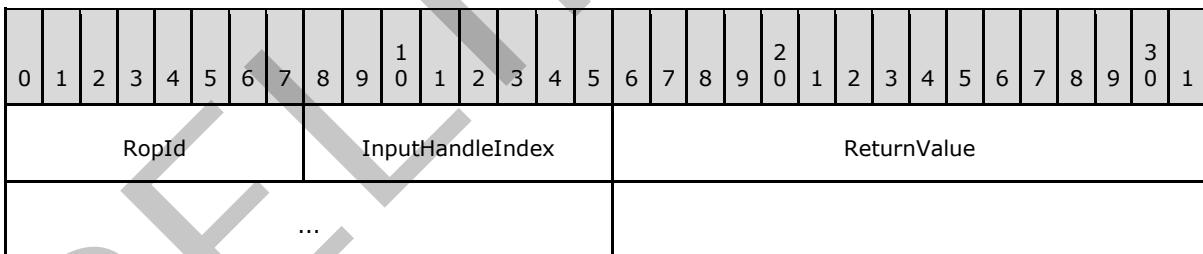
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

CollapseStateSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **CollapseState** field.

CollapseState (variable): Array of bytes. The size of this field, in bytes, is specified by the **CollapseStateSize** field. This array specifies a collapse state for a categorized table.

2.2.4.18.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6B.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.4.19 RopSetCollapseState

This ROP restores the collapse state of rows in a categorized table. More detailed information about this operation can be found in [MS-OXCTABL].

2.2.4.19.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								CollapseStateSize							
...								CollapseState (variable)																							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6C.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

CollapseStateSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **CollapseState** field.

CollapseState (variable): Array of bytes. The size of this field, in bytes, is specified by the **CollapseStateSize** field. This array specifies a collapse state for a categorized table.

2.2.4.19.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																BookmarkSize															
Bookmark (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6C.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

BookmarkSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **Bookmark** field.

Bookmark (variable): Array of bytes. The size of this field, in bytes, is specified by the **BookmarkSize** field. This array specifies the current cursor position.

2.2.4.19.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6C.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.5 Message ROPs

2.2.5.1 RopOpenMessage

This ROP opens an existing message in a mailbox. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.1.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
CodePageId																FolderId															
...																															

...	OpenModeFlags	MessageId
...		
...		

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x03.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

CodePageId (2 bytes): 16-bit identifier. This value specifies which **code page** will be used for string values associated with the message.

FolderId (8 bytes): 64-bit identifier. This value identifies the parent folder of the message to be opened.

OpenModeFlags (1 byte): 8-bit flags structure. These flags control the access to the message. The possible values are specified in [MS-OXCMSG].

MessageId (8 bytes): 64-bit identifier. This value identifies the message to be opened.

2.2.5.1.2 Success Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																HasNamedProperties								SubjectPrefix (variable)						
...																															
NormalizedSubject (variable)																															
...																															
RecipientCount																ColumnCount															

RecipientColumns (variable)	
...	
RowCount	RecipientRows (variable)
...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x03.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

HasNamedProperties (1 byte): 8-bit Boolean. This value specifies whether the message has **named properties**.

SubjectPrefix (variable): TypedString structure. The format of the **TypedString** structure is specified in [MS-OXCDATA]. This structure specifies the subject prefix of the message.

NormalizedSubject (variable): TypedString structure. The format of the **TypedString** structure is specified in [MS-OXCDATA]. This structure specifies the normalized subject of the message.

RecipientCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of **recipients** on the message.

ColumnCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **RecipientColumns** field.

RecipientColumns (variable): Array of PropertyTag structures. The number of structures contained in this field is specified by the **ColumnCount** field. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. This field specifies the property values that can be included in each row that is specified in the **RecipientRows** field.

RowCount (1 byte): Unsigned 8-bit integer. This value specifies the number of structures in the **RecipientRows** field.

RecipientRows (variable): List of OpenRecipientRow structures. The number of structures contained in this field is specified by the **RowCount** field. The format of the **OpenRecipientRow** structure is defined in section 2.2.5.1.2.1.

2.2.5.1.2.1 OpenRecipientRow structure

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
		Recipi	entType								CodePageId													Reserved							
			...								RecipientRowSize													RecipientRow (variable)							
														...																	

RecipientType (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCMSG]. This enumeration specifies the type of recipient.

CodePageId (2 bytes): 16-bit identifier. This value specifies the code page for the recipient.

Reserved (2 bytes): Reserved. The server MUST set this field to 0x0000.

RecipientRowSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **RecipientRow** field.

RecipientRow (variable): RecipientRow structure. The format of this structure is specified in [MS-OXCDATA]. The size of this field, in bytes, is specified by the **RecipientRowSize** field.

2.2.5.1.3 Failure Response Buffer

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
		Ro	pId								OutputHandleIndex													ReturnValue							
							...																								

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x03.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.5.2 RopCreateMessage

This ROP creates a Message object in a mailbox. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.2.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
CodePageId																FolderId															
...																															
...																AssociatedFlag															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x06.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

CodePageId (2 bytes): 16-bit identifier. This value specifies the code page for the message.

FolderId (8 bytes): 64-bit identifier. This value identifies the parent folder.

AssociatedFlag (1 byte): 8-bit Boolean. This value specifies whether the message is a folder associated information (FAI) message.

2.2.5.2.2 Success Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																HasMessageId								MessageId (optional)							
...																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x06.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

HasMessageId (1 byte): 8-bit Boolean. This value specifies whether the **MessageId** field is present.

MessageId (8 bytes): 64-bit identifier. This field is present if **HasMessageId** is nonzero and is not present if it is zero. This value is an identifier that is associated with the created message.

2.2.5.2.3 Failure Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x06.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.5.3 RopSaveChangesMessage

This ROP commits the changes made to a message. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.3.1 Request Buffer

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
RopId								LogonId								ResponseHandleIndex								InputHandleIndex							
SaveFlags																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0C.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

ResponseHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table that is referenced in the response. More information about Server objects can be found in section 3.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

SaveFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCMSG]. These flags specify how the save operation behaves.

2.2.5.3.2 Success Response Buffer

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
RopId								ResponseHandleIndex								ReturnValue															
...																InputHandleIndex								MessageId						
...																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0C.

ResponseHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **ResponseHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

MessageId (8 bytes): 64-bit identifier. This value specifies the ID of the message saved.

2.2.5.3.3 Failure Response Buffer

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
RopId								ResponseHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0C.

ResponseHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **ResponseHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.5.4 RopRemoveAllRecipients

This ROP deletes all recipients from a message. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.4.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								Reserved							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0D.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

Reserved (4 bytes): Reserved. The client SHOULD set this field to 0x00000000. The server MUST ignore this field, regardless of its value.

2.2.5.4.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0D.

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InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.5.5 RopModifyRecipients

This ROP adds or modifies recipients on a message. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.5.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								ColumnCount							
...																RecipientColumns (variable)															
...																															
RowCount																RecipientRows (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0E.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

ColumnCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **RecipientColumns** field.

RecipientColumns (variable): Array of PropertyTag structures. The number of structures contained in this field is specified by the **ColumnCount** field. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. This field specifies the property values that can be included for each recipient.

RowCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of rows in the **RecipientRows** field.

RecipientRows (variable): List of ModifyRecipientRow structures. The number of structures contained in this field is specified by the **RowCount** field. The format of **ModifyRecipientRow** is defined in section 2.2.5.5.1.1.

2.2.5.5.1.1 ModifyRecipientRow structure

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
RowId																															
RecipientType								RecipientRowSize																RecipientRow (variable)							
...																															

RowId (4 bytes): Unsigned 32-bit integer. This value specifies the ID of the recipient.

RecipientType (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCMSG]. This enumeration specifies the type of recipient.

RecipientRowSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **RecipientRow** field.

RecipientRow (variable): RecipientRow structure. This field is present when the **RecipientRowSize** field is nonzero and is not present otherwise. The format of the **RecipientRow** structure is specified in [MS-OXCDATA]. The size of this field, in bytes, is specified by the **RecipientRowSize** field.

2.2.5.5.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0E.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.5.6 RopReadRecipients

This ROP gets recipient details from a message. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.6.1 Request Buffer

									1											2										3	
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	0	1
RopId								LogonId								InputHandleIndex								RowId							
...																								Reserved							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0F.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

RowId (4 bytes): Unsigned 32-bit integer. This value specifies the recipient to start reading.

Reserved (2 bytes): Reserved. This field MUST be set to 0x0000. Server behavior is undefined if this field is not set to 0x0000.

2.2.5.6.2 Success Response Buffer

									1											2										3	
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	0	1
RopId								InputHandleIndex								ReturnValue															
...																RowCount								RecipientRows (variable)							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0F.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

RowCount (1 byte): Unsigned 8-bit integer. This value specifies the number of structures in the **RecipientRows** field.

RecipientRows (variable): List of ReadRecipientRow structures. The number of structures contained in this field is specified by the **RowCount** field. The format of the **ReadRecipientRow** structure is defined in section 2.2.5.6.2.1.

2.2.5.6.2.1   ReadRecipientRow structure

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
RowId																															
RecipientType								CodePageId																Reserved							
...								RecipientRowSize																RecipientRow (variable)							
...																															

RowId (4 bytes): Unsigned 32-bit integer. This value specifies the ID of the recipient.

RecipientType (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCMSG]. This enumeration specifies the type of recipient.

CodePageId (2 bytes): 16-bit identifier. This value specifies the code page for the recipient.

Reserved (2 bytes): Reserved. The server MUST set this field to 0x0000.

RecipientRowSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **RecipientRow** field.

RecipientRow (variable): RecipientRow structure. The format of this structure is specified in [MS-OXCDATA]. The size of this field, in bytes, is specified by the **RecipientRowSize** field.

2.2.5.6.3   Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0F.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.5.7 RopReloadCachedInformation

This ROP gets message and recipient information from a message. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.7.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								Reserved							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x10.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

Reserved (2 bytes): Reserved. This field MUST be set to 0x0000. Server behavior is undefined if this field is not set to 0x0000.

2.2.5.7.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																HasNamedProperties								SubjectPrefix (variable)							
...																															
NormalizedSubject (variable)																															
...																															
RecipientCount																ColumnCount															
RecipientColumns (variable)																															
...																															

RowCount	RecipientRows (variable)
...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x10.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

HasNamedProperties (1 byte): 8-bit Boolean. This value specifies whether the message has named properties.

SubjectPrefix (variable): TypedString structure. The format of the **TypedString** structure is specified in [MS-OXCDATA]. This value specifies the subject prefix of the message.

NormalizedSubject (variable): TypedString structure. The format of the **TypedString** structure is specified in [MS-OXCDATA]. This value specifies the normalized subject of the message.

RecipientCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of recipients on the message.

ColumnCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **RecipientColumns** field.

RecipientColumns (variable): Array of PropertyTag structures. The number of structures contained in this field is specified by the **ColumnCount** field. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. This field specifies the property values that can be included for each recipient.

RowCount (1 byte): Unsigned 8-bit integer. This value specifies the number of rows in the **RecipientRows** field.

RecipientRows (variable): List of OpenRecipientRow structures. The number of structures contained in this field is specified by the **RowCount** field. The format of the **OpenRecipientRow** structure is defined in section 2.2.5.1.2.1.

2.2.5.7.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x10.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.5.8 RopSetMessageStatus

This ROP sets the status of a message in a folder. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.8.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								MessageId							
...																															
...																								MessageStatusFlags							
...																								MessageStatusMask							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x20.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

MessageId (8 bytes): 64-bit identifier. This value identifies the message for which the status will be changed.

MessageStatusFlags (4 bytes): 32-bit flags structure. This field contains status flags to set on the message. The possible values are specified in [MS-OXCMSG].

MessageStatusMask (4 bytes): 32-bit bitmask. This bitmask specifies which bits in the **MessageStatusFlags** field are to be changed.

2.2.5.8.2 Success Response Buffer

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
			RopId							InputHandleIndex										ReturnValue											
			...																	MessageStatusFlags											
			...																												

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x20.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

MessageStatusFlags (4 bytes): 32-bit flags structure. This field contains the status flags that were set on the message before this operation. The possible values are specified in [MS-OXCMSG].

2.2.5.8.3 Failure Response Buffer

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
			RopId							InputHandleIndex										ReturnValue											
			...																												

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x20.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.5.9 RopGetMessageStatus

This ROP returns the status of a message in a folder. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.9.1 Request Buffer

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
			RopId							LogonId								InputHandleIndex								MessageId					
																...															
											...																				

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1F.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

MessageId (8 bytes): 64-bit identifier. This value identifies the message for which the status will be returned.

2.2.5.9.2 Response Buffers

The response buffers for this ROP are the same as those for RopSetMessageStatus, as specified in sections 2.2.5.8.2 and 2.2.5.8.3.

2.2.5.10 RopSetReadFlags

This ROP sets the read flag for messages in a folder. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.10.1 Request Buffer

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
			RopId							LogonId								InputHandleIndex							WantAsynchronous					
		ReadFlags								MessageIdCount												MessageIds (variable)							
																...															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x66.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via RopProgress.

ReadFlags (1 byte): 8-bit flags structure. The possible values for these flags are specified in [MS-OXCMSG]. These flags specify the flags to set.

MessageIdCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of identifiers in the **MessageIds** field.

MessageIds (variable): Array of 64-bit identifiers. The number of identifiers contained in this field is specified by the **MessageIdCount** field. These IDs specify the messages that are to have their read flags changed.

2.2.5.10.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																PartialCompletion															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x66.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

PartialCompletion (1 byte): 8-bit Boolean. This value indicates whether the operation was only partially completed. The operation is partially completed if the server was unable to modify one or more of the Message objects that are specified in the **MessageIds** field of the request.

2.2.5.11 RopSetMessageReadFlag

This ROP sets or clears the message read flag. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.11.1 Request Buffer

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
RopId								LogonId								ResponseHandleIndex								InputHandleIndex							

ReadFlags	ClientData (optional)
...	
...	
...	
...	
...	
...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x11.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

ResponseHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table that is referenced in the response. More information about Server objects can be found in section 3.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

ReadFlags (1 byte): 8-bit flags structure. The possible values for these flags are specified in [MS-OXCMSG].

ClientData (24 bytes): Array of 24 bytes. This field is present when the logon associated with **LogonId** was created with the Private flag unset (see [MS-OXCSTOR] for more information) and is not present otherwise. This value specifies the information that is returned to the client in a successful response.

2.2.5.11.2   Success Response Buffer

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
RopId								ResponseHandleIndex								ReturnValue															
...																ReadStatusChanged								LogonId (optional)						
ClientData (optional)																															

...	
...	
...	
...	
...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x11.

ResponseHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **ResponseHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

ReadStatusChanged (1 byte): 8-bit Boolean. This value specifies whether the read status of a public folder's message has changed.

LogonId (1 byte): Unsigned 8-bit integer. This field is present when the value in the **ReadStatusChanged** field is nonzero and is not present otherwise. This field MUST be set to the value of the **LogonId** field in the request.

ClientData (24 bytes): Array of 24 bytes. This field is present when the value in the **ReadStatusChanged** field is nonzero and is not present otherwise. This field MUST be set to the value of the **ClientData** field in the request.

2.2.5.11.3   Failure Response Buffer

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
RopId								ResponseHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x11.

ResponseHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **ResponseHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.5.12　RopOpenAttachment

This ROP opens an attachment of a message. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.12.1　Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
OpenAttachmentFlags								AttachmentID																							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x22.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

OpenAttachmentFlags (1 byte): 8-bit flags structure. This field contains flags for opening attachments.

AttachmentID (4 bytes): Unsigned 32-bit integer. This value identifies the attachment to be opened. The value of this field is equivalent to the PidTagAttachNumber property ([MS-OXPROPS] section 2.672).

2.2.5.12.2　Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x22.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.5.13 RopCreateAttachment

This ROP creates a new attachment on a message. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.13.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x23.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

2.2.5.13.2 Success Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																AttachmentID															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x23.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

AttachmentID (4 bytes): Unsigned 32-bit integer. This ID refers to the attachment created. The value of this field is equivalent to the PidTagAttachNumber property ([MS-OXPROPS] section 2.672).

2.2.5.13.3 Failure Response Buffer

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
		RopId								OutputHandleIndex								ReturnValue													
							...																								

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x23.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.5.14 RopDeleteAttachment

This ROP deletes an attachment on a message. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.14.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex								AttachmentID					
							...																								

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x24.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

AttachmentID (4 bytes): Unsigned 32-bit integer. This value identifies the attachment to be deleted. The value of this field is equivalent to the PidTagAttachNumber property ([MS-OXPROPS] section 2.672).

2.2.5.14.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x24.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.5.15 RopSaveChangesAttachment

This ROP commits the changes made to an attachment. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.15.1 Request Buffer

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
RopId								LogonId								ResponseHandleIndex								InputHandleIndex							
SaveFlags																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x25.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

ResponseHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table that is referenced in the response. More information about Server objects can be found in section 3.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

SaveFlags (1 byte): 8-bit flags structure. The possible values for these flags are specified in [MS-OXCMSG]. These flags specify how the save operation behaves.

2.2.5.15.2 Response Buffer

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
RopId								ResponseHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x25.

ResponseHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **ResponseHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.5.16 RopOpenEmbeddedMessage

This ROP opens an attachment as a message. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.16.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
CodePageId																OpenModeFlags															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x46.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

CodePageId (2 bytes): 16-bit identifier. This value specifies which code page is used for string values associated with the message.

OpenModeFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCMSG]. These flags control the access to the message.

2.2.5.16.2 Success Response Buffer

										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
0	1	2	3	4	5	6	7	8	9																						
RopId								OutputHandleIndex								ReturnValue															
...																Reserved								MessageId							
...																															
...																								HasNamedProperties							
SubjectPrefix (variable)																															
...																															
NormalizedSubject (variable)																															
...																															
RecipientCount																ColumnCount															
RecipientColumns (variable)																															
...																															
RowCount								RecipientRows (variable)																							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x46.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

Reserved (1 byte): Reserved. This field MUST be set to 0x00.

MessageId (8 bytes): 64-bit identifier. This value specifies the ID of the embedded message.

HasNamedProperties (1 byte): 8-bit Boolean. This value specifies whether the message has named properties.

SubjectPrefix (variable): TypedString structure. The format of the **TypedString** structure is specified in [MS-OXCDATA]. This structure specifies the subject prefix of the message.

NormalizedSubject (variable): TypedString structure. The format of the **TypedString** structure is specified in [MS-OXCDATA]. This structure specifies the normalized subject of the message.

RecipientCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of recipients on the message.

ColumnCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **RecipientColumns** field.

RecipientColumns (variable): Array of PropertyTag structures. The number of structures contained in this field is specified by the **ColumnCount** field. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. This field specifies the property values that can be included for each recipient.

RowCount (1 byte): Unsigned 8-bit integer. This value specifies the number of rows in the **RecipientRows** field.

RecipientRows (variable): List of OpenRecipientRow structures. The number of structures contained in this field is specified by the **RowCount** field. The format of the **OpenRecipientRow** structure is defined in section 2.2.5.1.2.1.

2.2.5.16.3 Failure Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x46.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.5.17 RopGetAttachmentTable

This ROP gets the attachment table of a message. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.17.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex								OutputHandleIndex					
		TableFlags																													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x21.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

TableFlags (1 byte): 8-bit flags structure. These flags control the type of table. The possible values are specified in [MS-OXCMSG].

2.2.5.17.2 Response Buffer

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
		RopId								OutputHandleIndex								ReturnValue													
		...																													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x21.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.5.18 RopGetValidAttachments

This ROP gets the valid attachment identifiers of a message. More detailed information about this operation can be found in [MS-OXCMSG].

2.2.5.18.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x52.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.5.18.2 Success Response Buffer

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
		RopId						InputHandleIndex								ReturnValue															
				...												AttachmentIdCount															
								AttachmentIdArray (variable)																							
														...																	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x52.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

AttachmentIdCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of integers in the **AttachmentIdArray** field.

AttachmentIdArray (variable): Array of 32-bit integers. The number of integer values contained in this field is specified by the **AttachmentIdCount** field. These values represent the valid attachment identifiers of the message.

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2.2.5.18.3 Failure Response Buffer

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
			RopId							InputHandleIndex										ReturnValue											
					...																										

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x52.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.6 Transport ROPs

2.2.6.1 RopSubmitMessage

This ROP submits a message for sending. More detailed information about this operation can be found in [MS-OXOMSG].

2.2.6.1.1 Request Buffer

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
			RopId							LogonId								InputHandleIndex								SubmitFlags					

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x32.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

SubmitFlags (1 byte): 8-bit flags structure. These flags specify special behavior for submitting the message. The possible values are specified in [MS-OXOMSG].

2.2.6.1.2 Response Buffer

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
			RopId							InputHandleIndex									ReturnValue												
										...																					

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x32.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.6.2 RopAbortSubmit

This ROP aborts a previous message submission. More detailed information about this operation can be found in [MS-OXOMSG].

2.2.6.2.1 Request Buffer

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
		RopId							LogonId							InputHandleIndex								FolderId							
										...																					
						...																			MessageId						
										...																					
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x34.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

FolderId (8 bytes): 64-bit identifier. This value identifies the folder in which the submitted message is located.

MessageId (8 bytes): 64-bit identifier. This value identifies the submitted message.

2.2.6.2.2 Response Buffer

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
		RopId								InputHandleIndex								ReturnValue													
					...																										

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x34.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.6.3 RopGetAddressTypes

This ROP returns the type of recipient handled by a transport provider. More detailed information about this operation can be found in [MS-OXOMSG].

2.2.6.3.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x49.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.6.3.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																AddressTypeCount															
AddressTypeSize																AddressTypes (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x49.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

AddressTypeCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of strings in the **AddressTypes** field.

AddressTypeSize (2 bytes): Unsigned 16-bit integer. This value specifies the length of the **AddressTypes** field.

AddressTypes (variable): List of null-terminated ASCII strings. The number of strings contained in this field is specified by the **AddressTypeCount** field. The size of this field, in bytes, is specified by the **AddressTypeSize** field.

2.2.6.3.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x49.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.6.4 RopSetSpooler

This ROP informs the server that the client intends to act as a mail spooler. More detailed information about this operation can be found in [MS-OXOMSG].

2.2.6.4.1 Request Buffer

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
RopId								LogonId								InputHandleIndex															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x47.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.6.4.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x47.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.6.5 RopSpoolerLockMessage

This ROP locks the specified message for spooling. More detailed information about this operation can be found in [MS-OXOMSG].

2.2.6.5.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex								MessageId					
														...																	
												...														LockState					

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x48.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

MessageId (8 bytes): 64-bit identifier. This value identifies the message for which the status will be changed.

LockState (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXOMSG].

2.2.6.5.2 Response Buffer

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
		RopId								InputHandleIndex								ReturnValue													
								...																							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x48.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.6.6 RopTransportSend

This ROP sends the specified Message object out for message delivery. More detailed information about this operation can be found in [MS-OXOMSG].

2.2.6.6.1   Request Buffer

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
		RopId									LogonId										InputHandleIndex											

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4A.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.6.6.2   Response Buffer

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
		RopId								InputHandleIndex								ReturnValue													
				...								NoPropertiesReturned									PropertyValueCount (optional)									
			...							PropertyValues (variable)																					
										...																					

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4A.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

NoPropertiesReturned (1 byte): 8-bit Boolean. This value specifies whether property values are returned.

PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures returned in the **PropertyValues** field.

PropertyValues (variable): Array of PropertyValue structures. The format of the **PropertyValue** structure is specified in [MS-OXCDATA]. The number of structures contained in this field is specified by the **PropertyValueCount** field. This array specifies the properties to copy.

2.2.6.6.3 Failure Response Buffer

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
	RopId							InputHandleIndex								ReturnValue															
	...																														

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4A.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. For more information about Server objects, see section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.6.7 RopTransportNewMail

This ROP informs the server of new mail. More detailed information about this operation can be found in [MS-OXOMSG].

2.2.6.7.1 Request Buffer

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
	RopId							LogonId								InputHandleIndex								MessageId							
	...																														
	...																							FolderId							
	...																														
	...																							MessageClass (variable)							
	...																														
	MessageFlags																														

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x51.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

MessageId (8 bytes): 64-bit identifier. This value identifies the new Message object.

FolderId (8 bytes): 64-bit identifier. This value identifies the folder of the new Message object.

MessageClass (variable): Null-terminated ASCII string. This string specifies the message class of the new Message object.

MessageFlags (4 bytes): 32-bit flags structure. The possible values are specified in [MS-OXCMSG]. This field contains the message flags of the new Message object.

2.2.6.7.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x51.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.6.8 RopGetTransportFolder

This ROP retrieves the **folder ID (FID)** of the temporary transport folder. More detailed information about this operation can be found in [MS-OXOMSG].

2.2.6.8.1 Request Buffer
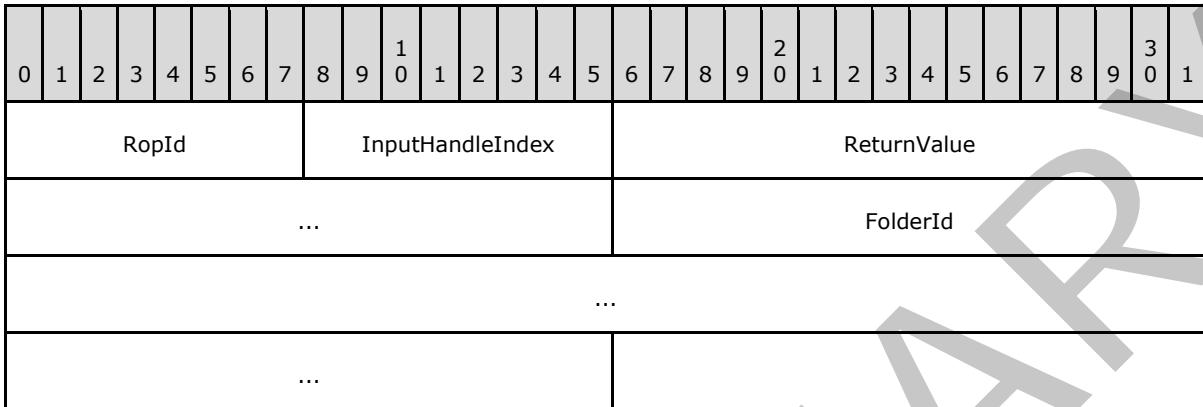
0	1	2	3	4	5	6	7	8	9	1 0	1	2	3	4	5	6	7	8	9	2 0	1	2	3	4	5	6	7	8	9	3 0	1
RopId								LogonId								InputHandleIndex															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6D.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.6.8.2   Success Response Buffer
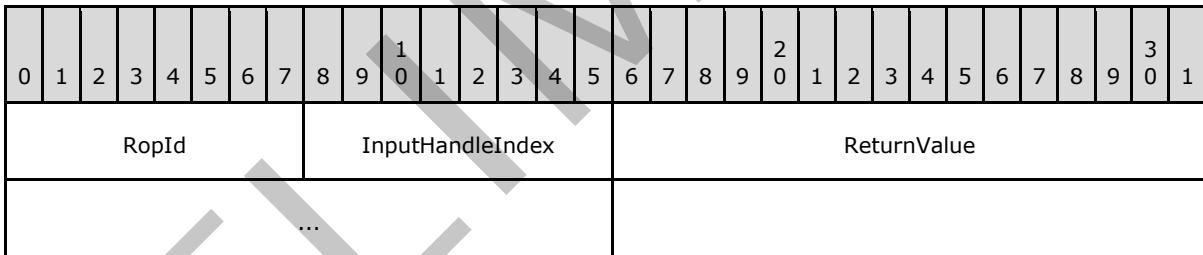
0	1	2	3	4	5	6	7	8	9	1 0	1	2	3	4	5	6	7	8	9	2 0	1	2	3	4	5	6	7	8	9	3 0	1
RopId								InputHandleIndex								ReturnValue																
...																FolderId															
...																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6D.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This field MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

FolderId (8 bytes): 64-bit identifier. This value identifies the transport folder.

2.2.6.8.3   Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6D.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This field MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.6.9 RopOptionsData

This ROP retrieves the options data that is associated with an **address type**. For more information about this operation, see [MS-OXOMSG].

2.2.6.9.1 Request Buffer

										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
0	1	2	3	4	5	6	7	8	9																						
RopId								LogonId								InputHandleIndex								AddressType (variable)							
...																															
WantWin32																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6F.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. For more information about Server objects, see section 3.

AddressType (variable): Null-terminated ASCII string. This value specifies the address type for which options are to be returned.

WantWin32 (1 byte): Unsigned 8-bit Boolean. This value specifies whether the help file data is to be returned in a format that is suited for 32-bit machines.

2.2.6.9.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																Reserved								OptionsInfoSize							
...																OptionsInfo (variable)															
...																															
HelpFileSize																HelpFile (variable)															
...																															

HelpFileName (variable)
...

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6F.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This field MUST be set to the **InputHandleIndex** specified in the request. For more information about Server objects, see section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

Reserved (1 byte): Reserved. This field MUST be set to 0x01.

OptionsInfoSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **OptionsInfo** field.

OptionsInfo (variable): Array of bytes. This field contains opaque data from the server. Clients SHOULD ignore this field. Servers SHOULD return this field as an empty array.<2> The size of this field, in bytes, is specified by the **OptionsInfoSize** field.

HelpFileSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **HelpFile** field.

HelpFile (variable): Array of bytes. This field contains the help file associated with the specified address type. The size of this field, in bytes, is specified by the **HelpFileSize** field.

HelpFileName (variable): Null-terminated multi-byte string. This string specifies the name of the help file that is associated with the specified address type. The string is composed of multi-byte characters. This field is present if **HelpFileSize** is nonzero and is not present otherwise.

2.2.6.9.3   Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6F.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. For more information about Server objects, see section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.7 Property ROPs

2.2.7.1 RopGetPropertyIdsFromNames

This ROP gets **property IDs** for specified **property names**. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.7.1.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								Flags							
PropertyNameCount																PropertyNames (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x56.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

Flags (1 byte): 8-bit flags structure. These flags control the behavior of this operation. The possible values are specified in [MS-OXCPRPT].

PropertyNameCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **PropertyNames** field.

PropertyNames (variable): List of PropertyName structures. The number of structures contained in this field is specified by the **PropertyNameCount** field. The format of the **PropertyName** structure is specified in [MS-OXCDATA]. This field specifies the property names requested.

2.2.7.1.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																PropertyIdCount															
PropertyIds (variable)																															

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...

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x56.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

PropertyIdCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of integers contained in the **PropertyIds** field.

PropertyIds (variable): Array of unsigned 16-bit integers. Each integer in the array is the property ID associated with a property name. The number of integers in the array is specified by the **PropertyIdCount** field.

2.2.7.1.3 Failure Response Buffer

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
		RopId								InputHandleIndex									ReturnValue												
					...																										

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x56.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.7.2 RopGetNamesFromPropertyIds

This ROP gets property names for specified property IDs. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.7.2.1 Request Buffer

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
		RopId								LogonId									InputHandleIndex									PropertyIdCount		

...	PropertyIds (variable)
...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x55.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

PropertyIdCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of integers contained in the **PropertyIds** field.

PropertyIds (variable): Array of unsigned 16-bit integers. Each integer in the array is the property ID associated with a property name to be returned in the response. The number of integers in the array is specified by the **PropertyIdCount** field.

2.2.7.2.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																PropertyNameCount														
PropertyNames (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x55.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.
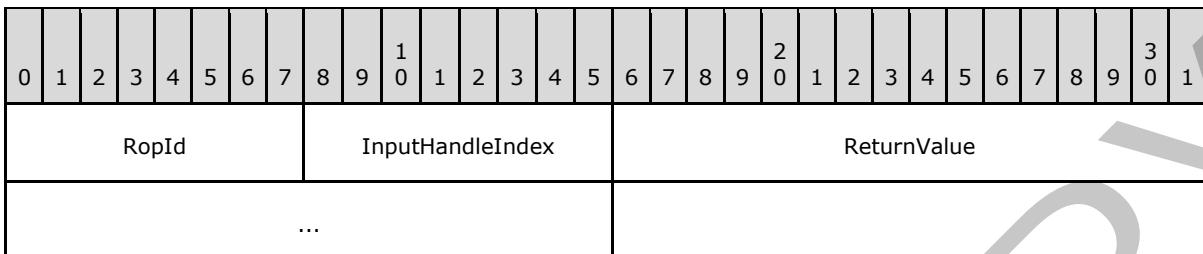
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

PropertyNameCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **PropertyNames** field.

PropertyNames (variable): List of PropertyName structures. The number of structures contained in this field is specified by the **PropertyNameCount** field. The format of the

PropertyName structure is specified in [MS-OXCDATA]. This field lists the property names for the property IDs requested.

2.2.7.2.3 Failure Response Buffer

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
		RopId								InputHandleIndex										ReturnValue											
				...																											

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x55.
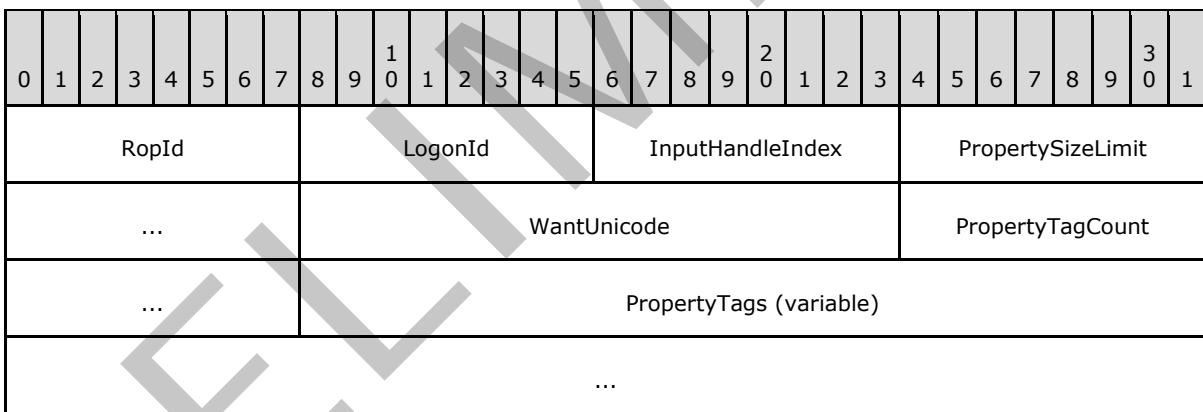
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.7.3 RopGetPropertiesSpecific

This ROP gets property values for specified **property tags**. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.7.3.1 Request Buffer

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
		RopId								LogonId						InputHandleIndex								PropertySizeLimit							
		...								WantUnicode										PropertyTagCount								
		...							PropertyTags (variable)																						
										...																					

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x07.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

PropertySizeLimit (2 bytes): Unsigned 16-bit integer. This value specifies the maximum size allowed for a property value returned.

WantUnicode (2 bytes): 16-bit Boolean. This value specifies whether to return string properties in Unicode.

PropertyTagCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of tags present in the **PropertyTags** field.

PropertyTags (variable): Array of PropertyTag structures. The number of structures contained in this field is specified by the **PropertyTagCount** field. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. This field specifies the properties requested.

2.2.7.3.2 Success Response Buffer

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
	RopId								InputHandleIndex								ReturnValue														
			...														RowData (variable)														
												...																			

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x07.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

RowData (variable): PropertyRow structure. The format of the **PropertyRow** structure is specified in [MS-OXCDATA] and the columns used for these rows were those specified in the **PropertyTags** field in the request.

2.2.7.3.3 Failure Response Buffer

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
	RopId								InputHandleIndex								ReturnValue														
			...																												

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x07.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.7.4 RopGetPropertiesAll

This ROP gets all the property values for an object. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.7.4.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								PropertySizeLimit							
...								WantUnicode																							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x08.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

PropertySizeLimit (2 bytes): Unsigned 16-bit integer. This value specifies the maximum size allowed for a property value returned.

WantUnicode (2 bytes): 16-bit Boolean. This value specifies whether to return string properties in Unicode.

2.2.7.4.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																PropertyValueCount														
PropertyValues (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x08.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of **PropertyValue** structures present in the **PropertyValues** field.

PropertyValues (variable): List of PropertyValue structures. The number of structures contained in this field is specified by the **PropertyValueCount** field. These values are the properties defined on the object. The format of the **PropertyValue** structure is specified in [MS-OXCDATA].

2.2.7.4.3 Failure Response Buffer

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
			RopId							InputHandleIndex										ReturnValue											
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x08.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.7.5 RopGetPropertiesList

This ROP gets the list of property tags for an object. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.7.5.1 Request Buffer
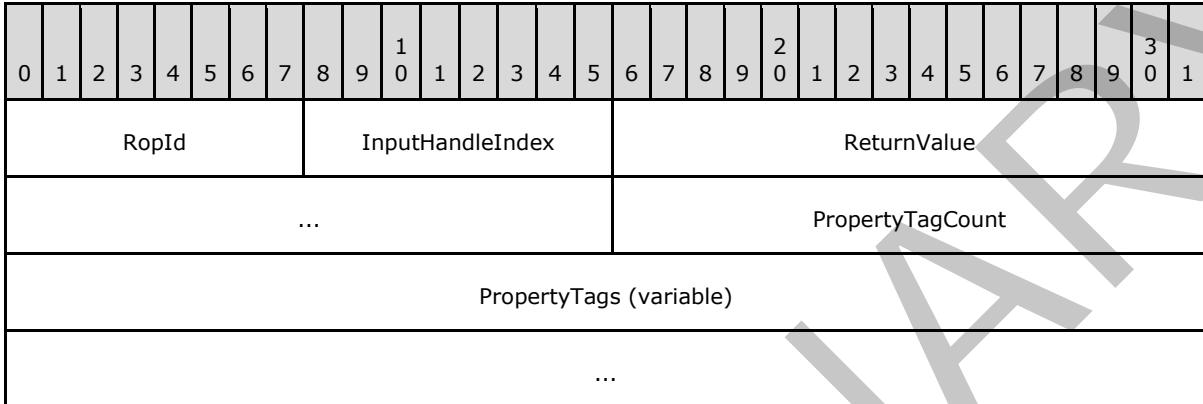
0	1	2	3	4	5	6	7	8	9	1 0	1	2	3	4	5	6	7	8	9	2 0	1	2	3	4	5	6	7	8	9	3 0	1
			RopId							LogonId									InputHandleIndex												

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x09.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.7.5.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																PropertyTagCount														
PropertyTags (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x09.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

PropertyTagCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of property tags in the **PropertyTags** field.

PropertyTags (variable): Array of PropertyTag structures. The number of structures contained in this field is specified by the **PropertyTagCount** field. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. This field lists the property tags on the object.

2.2.7.5.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x09.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.7.6 RopSetProperties

This ROP sets property values for an object. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.7.6.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								PropertyValueSize							
...								PropertyValueCount																PropertyValues (variable)							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0A.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

PropertyValueSize (2 bytes): Unsigned 16-bit integer. This value specifies the number of bytes used for the **PropertyValueCount** field and the **PropertyValues** field.

PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of **PropertyValue** structures listed in the **PropertyValues** field.

PropertyValues (variable): Array of TaggedPropertyValue structures. The number of structures contained in this field is specified by the **PropertyValueCount** field. The size of this field, in bytes, is equal to **PropertyValueSize** - 2. The format of the **TaggedPropertyValue** structure is specified in [MS-OXCDATA] section 2.12.4. This field specifies the property values to be set on the object.

2.2.7.6.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															

...	PropertyProblemCount
PropertyProblems (variable)	
...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0A.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

PropertyProblemCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of **PropertyProblem** structures in the **PropertyProblems** field.

PropertyProblems (variable): Array of PropertyProblem structures. The number of structures contained in this field is specified by the **PropertyProblemCount** field. The format of the **PropertyProblem** structure is specified in [MS-OXCDATA].

2.2.7.6.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0A.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.7.7 RopSetPropertiesNoReplicate

This ROP sets property values for an object without invoking replication. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.7.7.1 Request Buffer

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
			RopId								LogonId							InputHandleIndex							PropertyValueSize						
			...									PropertyValueCount										PropertyValues (variable)						
											...																				

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x79.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

PropertyValueSize (2 bytes): Unsigned 16-bit integer. This value specifies the number of bytes used for the **PropertyValueCount** field and the **PropertyValues** field.

PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of **PropertyValue** structures listed in the **PropertyValues** field.

PropertyValues (variable): List of PropertyValue structures. The number of structures contained in this field is specified by the **PropertyValueCount** field. The size of this field, in bytes, is equal to **PropertyValueSize** - 2. The format of the **PropertyValue** structure is specified in [MS-OXCDATA]. This field specifies the property values to be set on the object.

2.2.7.7.2 Success Response Buffer

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
		RopId							InputHandleIndex						ReturnValue																
			...													PropertyProblemCount														
								PropertyProblems (variable)																							
											...																				

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x79.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

PropertyProblemCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of **PropertyProblem** structures in the **PropertyProblems** field.

PropertyProblems (variable): Array of PropertyProblem structures. The number of structures contained in this field is specified by the **PropertyProblemCount** field. The format of the **PropertyProblem** structure is specified in [MS-OXCDATA].

2.2.7.7.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x79.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.7.8 RopDeleteProperties

This ROP deletes property values for an object. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.7.8.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								PropertyTagCount							
...								PropertyTags (variable)																							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0B.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

PropertyTagCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of **PropertyTag** structures in the **PropertyTags** field.

PropertyTags (variable): Array of PropertyTag structures. The number of structures contained in this field is specified by the **PropertyTagCount** field. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. This field specifies the property values to be deleted from the object.

2.2.7.8.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																PropertyProblemCount															
PropertyProblems (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0B.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

PropertyProblemCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of **PropertyProblem** structures in the **PropertyProblems** field.

PropertyProblems (variable): Array of PropertyProblem structures. The number of structures contained in this field is specified by the **PropertyProblemCount** field. The format of the **PropertyProblem** structure is specified in [MS-OXCDATA].

2.2.7.8.3 Failure Response Buffer

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
		RopId								InputHandleIndex													ReturnValue								
							...																								

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0B.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.7.9 RopDeletePropertiesNoReplicate

This ROP deletes property values from an object without invoking replication. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.7.9.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex							PropertyTagCount						
		...								PropertyTags (variable)																					
										...																					

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7A.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

PropertyTagCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of **PropertyTag** structures in the **PropertyTags** field.

PropertyTags (variable): Array of PropertyTag structures. The number of structures contained in this field is specified by the **PropertyTagCount** field. The format of the **PropertyTag**

structure is specified in [MS-OXCDATA]. This field specifies the property values to be deleted from the object.

2.2.7.9.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																PropertyProblemCount														
PropertyProblems (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7A.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

PropertyProblemCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of **PropertyProblem** structures in the **PropertyProblems** field.

PropertyProblems (variable): Array of PropertyProblem structures. The number of structures contained in this field is specified by the **PropertyProblemCount** field. The format of the **PropertyProblem** structure is specified in [MS-OXCDATA].

2.2.7.9.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7A.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.7.10 RopQueryNamedProperties

This ROP retrieves all the named properties for an object. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.7.10.1 Request Buffer

										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
0	1	2	3	4	5	6	7	8	9																						
RopId								LogonId								InputHandleIndex								QueryFlags							
HasGuid								PropertyGuid (optional)																							
...																															
...																															
...																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5F.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

QueryFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCPRPT]. These flags control how this ROP behaves.

HasGuid (1 byte): 8-bit Boolean. This value specifies whether the **PropertyGuid** field is present.

PropertyGuid (16 bytes): 128-bit GUID. This field is present if **HasGuid** is nonzero and is not present if the value of the **HasGuid** field is zero. This value specifies the subset of named properties to be returned.

2.2.7.10.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																IdCount															
PropertyIds (variable)																															
...																															
PropertyNames (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5F.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000 or 0x00040380.

IdCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of elements contained in the **PropertyIds** and **PropertyNames** fields.

PropertyIds (variable): Array of unsigned 16-bit integers. Each integer in the array is the property ID associated with a property name. The number of integers in the array is specified by the **IdCount** field.

PropertyNames (variable): List of PropertyName structures. The number of structures contained in this field is specified by the **IdCount** field. The format of the **PropertyName** structure is specified in [MS-OXCDATA]. This field lists the property names for the property IDs specified in the **PropertyIds** field.

2.2.7.10.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5F.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000 or 0x00040380.

2.2.7.11 RopCopyProperties

This ROP copies property values from one object to another. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.7.11.1 Request Buffer

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
RopId								LogonId								SourceHandleIndex								DestHandleIndex							
WantAsynchronous								CopyFlags								PropertyTagCount															
PropertyTags (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x67.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the source Server object is stored. More information about Server objects can be found in section 3.

DestHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the destination Server object is stored. More information about Server objects can be found in section 3.

WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via RopProgress.

CopyFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCPRPT]. These flags control the operation behavior.

PropertyTagCount (2 bytes): Unsigned 16-bit integer. This value specifies how many tags are present in the **PropertyTags** field.

PropertyTags (variable): Array of PropertyTag structures. The number of structures contained in this field is specified by the **PropertyTagCount** field. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. This field specifies the properties to copy.

2.2.7.11.2 Success Response Buffer

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
RopId								SourceHandleIndex								ReturnValue															
...																PropertyProblemCount															
PropertyProblems (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x67.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** value specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

PropertyProblemCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of **PropertyProblem** structures in the **PropertyProblems** field.

PropertyProblems (variable): Array of PropertyProblem structures. The number of structures contained in this field is specified by the **PropertyProblemCount** field. The format of the **PropertyProblem** structure is specified in [MS-OXCDATA].

2.2.7.11.3 Null Destination Failure Response Buffer

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
RopId								SourceHandleIndex								ReturnValue															
...																DestHandleIndex															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x67.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000503.

DestHandleIndex (4 bytes): Unsigned 32-bit integer. This index MUST be set to the **DestHandleIndex** specified in the request. More information about Server objects can be found in section 3.

2.2.7.11.4   Failure Response Buffer

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
RopId								SourceHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x67.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000 or 0x00000503.

2.2.7.12   RopCopyTo

This ROP copies properties from one Server object to another. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.7.12.1   Request Buffer

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
RopId								LogonId								SourceHandleIndex								DestHandleIndex							
WantAsynchronous								WantSubObjects								CopyFlags								ExcludedTagCount							
...								ExcludedTags (variable)																							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x39.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the source Server object is stored. More information about Server objects can be found in section 3.

DestHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the destination Server object is stored. More information about Server objects can be found in section 3.

WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via RopProgress.

WantSubObjects (1 byte): 8-bit Boolean. This value specifies whether to copy subobjects.

CopyFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCPRPT]. These flags control the operation behavior.

ExcludedTagCount (2 bytes): Unsigned 16-bit integer. This value specifies how many tags are present in **ExcludedTags**.

ExcludedTags (variable): Array of PropertyTag structures. The number of structures contained in this field is specified by the **ExcludedTagCount** field. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. This field specifies the properties to exclude from the copy.

2.2.7.12.2 Success Response Buffer

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
RopId								SourceHandleIndex								ReturnValue															
...																PropertyProblemCount															
PropertyProblems (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x39.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

PropertyProblemCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of **PropertyProblem** structures in the **PropertyProblems** field.

PropertyProblems (variable): Array of PropertyProblem structures. The number of structures contained in this field is specified by the **PropertyProblemCount** field. The format of the **PropertyProblem** structure is specified in [MS-OXCDATA].

2.2.7.12.3   Null Destination Failure Response Buffer

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
	RopId								SourceHandleIndex							ReturnValue															
	...															DestHandleIndex															
	...																														

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x39.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000503.

DestHandleIndex (4 bytes): Unsigned 32-bit integer. This index MUST be set to the **DestHandleIndex** specified in the request. More information about Server objects can be found in section 3.

2.2.7.12.4   Failure Response Buffer

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
	RopId								SourceHandleIndex							ReturnValue															
	...																														

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x39.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000 or 0x00000503.

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2.2.7.13 RopProgress

This ROP gets the status of an asynchronous operation. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.7.13.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								WantCancel							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x50.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

WantCancel (1 byte): 8-bit Boolean. This value specifies whether to cancel the operation.

2.2.7.13.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																LogonId								CompletedTaskCount							
...																								TotalTaskCount							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x50.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

CompletedTaskCount (4 bytes): Unsigned 32-bit integer. This value specifies the number of tasks completed.

TotalTaskCount (4 bytes): Unsigned 32-bit integer. This value specifies the total number of tasks.

2.2.7.13.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x50.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.8 Stream ROPs

2.2.8.1 RopOpenStream

This ROP opens a property for streaming access. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.8.1.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
PropertyTag																															
OpenModeFlags																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2B.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

PropertyTag (4 bytes): PropertyTag structure. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. This structure specifies the property of the object to stream.

OpenModeFlags (1 byte): 8-bit flags structure. These flags control how the stream is opened. The possible values are specified in [MS-OXCPRPT].

2.2.8.1.2 Success Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																StreamSize															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2B.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

StreamSize (4 bytes): Unsigned 32-bit integer. This value indicates the size of the stream opened.

2.2.8.1.3 Failure Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2B.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.8.2 RopReadStream

This ROP reads bytes from a stream. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.8.2.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								ByteCount							
...								MaximumByteCount (optional)																							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2C.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.
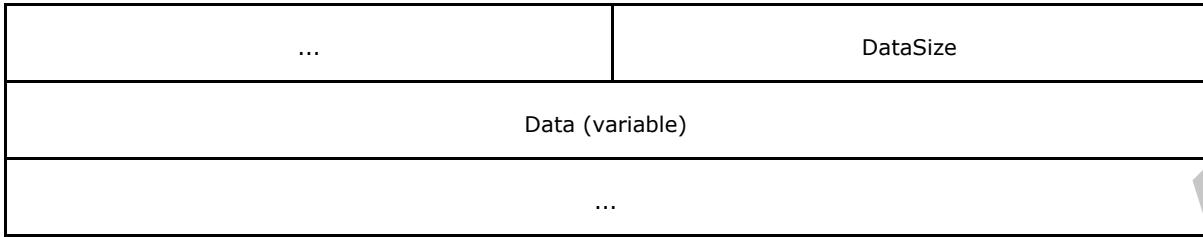
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

ByteCount (2 bytes): Unsigned 16-bit integer. The value of this field specifies the maximum number of bytes to read if the value is not equal to 0xBABE; the **MaximumByteCount** field specifies the maximum number of bytes to read if the value of **ByteCount** is equal to 0xBABE.<3>

MaximumByteCount (4 bytes): Unsigned 32-bit integer. This value specifies the maximum number of bytes to read if the value of the **ByteCount** field is equal to 0xBABE. The **MaximumByteCount** field is present when **ByteCount** is equal to 0xBABE and is not present otherwise. If **MaximumByteCount** is greater than 0x80000000, then the RPC SHOULD fail with error code 0x000004B6.

2.2.8.2.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															

...		DataSize	
Data (variable)			
...			

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2C.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

DataSize (2 bytes): Unsigned 16-bit integer. This value specifies the size, in bytes, of the **Data** field. The maximum size is specified in the request buffer by one of the following:

- The **ByteCount** field, when the value of **ByteCount** is not equal to 0xBABE.

- The **MaximumByteCount** field, when the value of **ByteCount** is equal to 0xBABE.

Data (variable): Array of bytes. These values are the bytes read from the stream. The size of this field, in bytes, is specified by the **DataSize** field.

2.2.8.3 RopWriteStream

This ROP writes bytes to a stream. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.8.3.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								DataSize							
...									Data (variable)																						
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2D.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

DataSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **Data** field.

Data (variable): Array of bytes. The size of this field, in bytes, is specified by the **DataSize** field. These values specify the bytes to be written to the stream.

2.2.8.3.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																WrittenSize															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2D.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

WrittenSize (2 bytes): Unsigned 16-bit integer. This value specifies the number of bytes actually written.

2.2.8.4 RopCommitStream

This ROP commits stream operations. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.8.4.1 Request Buffer

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
RopId								LogonId								InputHandleIndex															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5D.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.8.4.2 Response Buffer

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
			RopId							InputHandleIndex										ReturnValue											
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5D.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.8.5 RopGetStreamSize

This ROP gets the size of a stream. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.8.5.1 Request Buffer

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
			RopId							LogonId										InputHandleIndex											

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5E.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.8.5.2 Success Response Buffer

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
			RopId							InputHandleIndex										ReturnValue											
						...														StreamSize											

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5E.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

StreamSize (4 bytes): Unsigned 32-bit integer. This value is the current size of the stream.

2.2.8.5.3 Failure Response Buffer

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
		RopId								InputHandleIndex									ReturnValue												
							...																								

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5E.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.8.6 RopSetStreamSize

This ROP sets the size of a stream. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.8.6.1 Request Buffer

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
		RopId								LogonId									InputHandleIndex									StreamSize		
												...																			
									...																						

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2F.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

StreamSize (8 bytes): Unsigned 64-bit integer. This value specifies the size of the stream. The server limits the maximum size of the stream to the value specified in a configuration file. If no value is specified in a configuration file, then the maximum size is 2^31 bytes.<4>

2.2.8.6.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2F.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.8.7 RopSeekStream

This ROP seeks to a specific offset within a stream. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.8.7.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								Origin							
Offset																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2E.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

Origin (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCPRPT]. This value specifies the origin location for the seek operation.

Offset (8 bytes): 64-bit integer. This value specifies the seek offset.

2.2.8.7.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																NewPosition															
...																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2E.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

NewPosition (8 bytes): Unsigned 64-bit integer. This value represents the new position after the operation.

2.2.8.7.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2E.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.8.8 RopCopyToStream

This ROP copies a number of bytes from a source stream to a destination stream. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.8.8.1 Request Buffer

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
RopId								LogonId								SourceHandleIndex								DestHandleIndex							
ByteCount																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x3A.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the source Server object is stored. More information about Server objects can be found in section 3.

DestHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the destination Server object is stored. More information about Server objects can be found in section 3.

ByteCount (8 bytes): Unsigned 64-bit integer. This value specifies the number of bytes to be copied.

2.2.8.8.2 Response Buffer

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
RopId								SourceHandleIndex								ReturnValue															
...																ReadByteCount															
...																															

...			WrittenByteCount		
...					
...					

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x3A.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000503.

ReadByteCount (8 bytes): Unsigned 64-bit integer. This value specifies the number of bytes read from the source object.

WrittenByteCount (8 bytes): Unsigned 64-bit integer. This value specifies the number of bytes written to the destination object.

2.2.8.8.3   Null Destination Failure Response Buffer

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
RopId								SourceHandleIndex								ReturnValue															
...																DestHandleIndex															
...																ReadByteCount															
...																															
...																WrittenByteCount															
...																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x3A.

SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000503.

DestHandleIndex (4 bytes): Unsigned 32-bit integer. This index MUST be set to the **DestHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReadByteCount (8 bytes): Unsigned 64-bit integer. This value specifies the number of bytes read from the source object and for this result SHOULD be 0x0000000000000000.

WrittenByteCount (8 bytes): Unsigned 64-bit integer. This value specifies the number of bytes written to the destination object and for this result SHOULD be 0x0000000000000000.

2.2.8.9 RopLockRegionStream

This ROP locks a specified range of bytes in a stream. For more details about this operation, see [MS-OXCPRPT].

2.2.8.9.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								RegionOffset							
...																															
...																								RegionSize							
...																															
...																								LockFlags							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5B.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. For more information about Server objects, see section 3.

RegionOffset (8 bytes): Unsigned 64-bit integer. This value specifies the byte location in the stream where the region begins.

RegionSize (8 bytes): Unsigned 64-bit integer. This value specifies the size of the region, in bytes.

LockFlags (4 bytes): 32-bit flags structure. This structure contains flags specifying the behavior of the lock operation. The possible values for this structure are specified in [MS-OXCPRPT].

2.2.8.9.2   Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5B.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. For more information about Server objects, see section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.8.10   RopUnlockRegionStream

This ROP unlocks a specified range of bytes in a stream. For more details about this operation, see [MS-OXCPRPT].

2.2.8.10.1   Request Buffer

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
RopId								LogonId								InputHandleIndex								RegionOffset							
...																															
...																								RegionSize							
...																															
...																								LockFlags							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5C.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. For more information about Server objects, see section 3.

RegionOffset (8 bytes): Unsigned 64-bit integer. This value specifies the byte location in the stream where the region begins.

RegionSize (8 bytes): Unsigned 64-bit integer. This value specifies the size of the region in bytes.

LockFlags (4 bytes): 32-bit flags structure. This structure contains flags specifying the behavior of the lock operation. The possible values for this structure are specified in [MS-OXCPRPT].

2.2.8.10.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5C.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. For more information about Server objects, see section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.8.11 RopWriteAndCommitStream

This ROP writes bytes to a stream and commits the stream. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.8.11.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								DataSize							
...								Data (variable)																							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x90.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

DataSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **Data** field.

Data (variable): Array of bytes. The size of this field, in bytes, is specified by the **DataSize** field. This array contains the bytes to be written to the stream.

2.2.8.11.2 Response Buffer

The response buffer for this ROP is the same as the response buffer for RopWriteStream, as specified in section 2.2.8.3.2.

2.2.8.12 RopCloneStream

This ROP creates a new stream object based on the same data as another stream. More detailed information about this operation can be found in [MS-OXCPRPT].

2.2.8.12.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x3B.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

2.2.8.12.2 Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															

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RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x3B.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.9 Permission ROPs

2.2.9.1 RopModifyPermissions

This ROP modifies the permissions associated with a folder. More detailed information about this operation can be found in [MS-OXCPERM].

2.2.9.1.1 Request Buffer

									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
0	1	2	3	4	5	6	7	8	9																					
RopId								LogonId								InputHandleIndex								ModifyFlags						
ModifyCount																PermissionsData (variable)														
...																														

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x40.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

ModifyFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCPERM]. These flags control behavior of this operation.

ModifyCount (2 bytes): Unsigned 16-bit integer. This count specifies the number of structures serialized in the **PermissionData** array.

PermissionsData (variable): A list of PermissionData structures. The number of structures contained in this field is specified by the **ModifyCount** field. The format of the **PermissionData** structure is specified in section 2.2.9.1.1.1.

2.2.9.1.1.1 PermissionData Structure

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
PermissionDataFlags								PropertyValueCount																PropertyValues (variable)							
...																															

PermissionDataFlags (1 byte): 8-bit flag structure. This field is used to specify the type of operation.

PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of value structures in the **PropertyValues** field.

PropertyValues (variable): Array of PropertyValue structures. The number of structures contained in this field is specified by the **PropertyValueCount** field. The format of the **PropertyValue** structure is specified in [MS-OXCDATA]. These values are used to specify and describe the modify operations.

2.2.9.1.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x40.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.9.2 RopGetPermissionsTable

This ROP gets the permissions table for a folder. More detailed information about this operation can be found in [MS-OXCPERM].

2.2.9.2.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							

TableFlags							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x3E.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

TableFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCPERM]. These flags control the type of table.

2.2.9.2.2 Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x3E.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.10 Rule ROPs

2.2.10.1 RopModifyRules

This ROP modifies the rules associated with a folder. More detailed information about this operation can be found in [MS-OXORULE].

2.2.10.1.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								ModifyRulesFlags							

RulesCount	RulesData (variable)
...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x41.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon on which the operation is performed.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index refers to the handle in the Server object handle table used as input for this operation. More information about Server objects can be found in section 3.

ModifyRulesFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXORULE]. These flags specify behavior of this operation.

RulesCount (2 bytes): Unsigned 16-bit integer. This count specifies the number of structures serialized in the **RuleData** field.

RulesData (variable): A list of RuleData structures. The number of structures contained in this field is specified by the **RulesCount** field. The format of the **RuleData** structure is specified in section 2.2.10.1.1.1.

2.2.10.1.1.1 RuleData Structure

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
RuleDataFlags								PropertyValueCount																PropertyValues (variable)							
...																															

RuleDataFlags (1 byte): 8-bit flag structure. This field is used to specify the type of operation.

PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of value structures in the **PropertyValues** field.

PropertyValues (variable): Array of PropertyValue structures. The number of structures contained in this field is specified by the **PropertyValueCount** field. The format of the **PropertyValue** structure is specified in [MS-OXCDATA]. These values are used to specify and describe the rule operations.

2.2.10.1.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															

									...																						

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x41.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index refers to the handle in the Server object handle table used as input for this operation. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.10.2 RopGetRulesTable

This ROP gets the rules table of a folder. More detailed information about this operation can be found in [MS-OXORULE].

2.2.10.2.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex								OutputHandleIndex					
		TableFlags																													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x3F.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon on which the operation is performed.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index refers to the location in the Server object handle table used to find the handle for this operation. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index refers to the location in the Server object handle table used to store the output handle. More information about Server objects can be found in section 3.

TableFlags (1 byte): 8-bit flags structure. These flags control the type of table. The possible values are specified in [MS-OXORULE].

2.2.10.2.2 Response Buffer

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
		RopId								OutputHandleIndex								ReturnValue													

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x3F.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index refers to the handle in the Server object handle table specified. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.10.3 RopUpdateDeferredActionMessages

This ROP updates the **entry IDs** in the deferred action messages. More detailed information about this operation can be found in [MS-OXORULE].

2.2.10.3.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								ServerEntryIdSize							
...								ServerEntryId (variable)																							
...																															
ClientEntryIdSize																ClientEntryId (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x57.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon on which the operation is performed.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index refers to the location in the Server object handle table used to find the handle for this operation. More information about Server objects can be found in section 3.

ServerEntryIdSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **ServerEntryId** field.

ServerEntryId (variable): Byte Array. The size of this field, in bytes, is specified by the **ServerEntryIdSize** field. This value specifies the ID of the message on the server.

ClientEntryIdSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **ClientEntryId** field.

ClientEntryId (variable): Byte Array. The size of this field, in bytes, is specified by the **ClientEntryIdSize** field. This value specifies the ID of the downloaded message on the client.

2.2.10.3.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x57.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index refers to the handle in the Server object handle table specified as the input handle. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.11 Fast Transfer ROPs

2.2.11.1 RopFastTransferDestinationConfigure

This ROP creates a destination fast transfer object. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.11.1.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
SourceOperation								CopyFlags																							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x53.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

SourceOperation (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCFXICS]. This enumeration is used to indicate how the data stream was created on the source.

CopyFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS]. These flags control the behavior of the transfer operation.

2.2.11.1.2 Response Buffer

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
			RopId						OutputHandleIndex						ReturnValue																
				...																											

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x53.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.11.2 RopFastTransferDestinationPutBuffer

This ROP sends a stream of data to a fast transfer destination object. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.11.2.1 Request Buffer

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
		RopId							LogonId						InputHandleIndex						TransferDataSize									
		...										TransferData (variable)																		
											...																				

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x54.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

TransferDataSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **TransferData** field.

TransferData (variable): Array of bytes. The size of this field, in bytes, is specified by the **TransferDataSize** field. This array contains the data to be uploaded to the destination fast transfer object.

2.2.11.2.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																TransferStatus															
InProgressCount																TotalStepCount															
Reserved								BufferUsedSize																							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x54.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

TransferStatus (2 bytes): 16-bit enumeration. The possible values for this enumeration are specified in [MS-OXCFXICS]. This value specifies the current status of the transfer.

InProgressCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of steps that have been completed in the current operation.

TotalStepCount (2 bytes): Unsigned 16-bit integer. This value specifies the approximate total number of steps to be completed in the current operation.

Reserved (1 byte): Reserved. The server MUST set this field to 0x00.

BufferUsedSize (2 bytes): Unsigned 16-bit integer. This value is the buffer size that was used.

2.2.11.3 RopFastTransferSourceGetBuffer

This ROP retrieves a stream of data from a fast transfer source object. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.11.3.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex								BufferSize					
		...								MaximumBufferSize (optional)																					

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4E.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

BufferSize (2 bytes): Unsigned 16-bit integer. This value specifies the buffer size requested.

MaximumBufferSize (2 bytes): Unsigned 16-bit integer. This field is present when the **BufferSize** field is set to 0xBABE. This value specifies the maximum size limit when the server determines the buffer size.

2.2.11.3.2 Response Buffer

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
	RopId								InputHandleIndex								ReturnValue														
	...																	TransferStatus													
	InProgressCount																TotalStepCount													
	Reserved								TransferBufferSize									TransferBuffer (variable)												
	...																														
	BackoffTime (optional)																														

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4E.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

TransferStatus (2 bytes): 16-bit enumeration. The possible values for this enumeration are specified in [MS-OXCFXICS]. This value specifies the current status of the transfer.

InProgressCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of steps that have been completed in the current operation.

TotalStepCount (2 bytes): Unsigned 16-bit integer. This value specifies the approximate number of steps to be completed in the current operation.

Reserved (1 byte): Reserved. The server MUST set this field to 0x00.

TransferBufferSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **TransferBuffer** field.

TransferBuffer (variable): Array of bytes. This field is present if the **ReturnValue** is not 0x00000480 and is not present otherwise. If present, the size of this field, in bytes, is specified by the **TransferBufferSize** field.

BackoffTime (4 bytes): Unsigned 32-bit integer. This field is present if the **ReturnValue** is 0x00000480 and is not present otherwise. This value specifies the number of milliseconds for the client to wait before trying this operation again.

2.2.11.4 RopFastTransferSourceCopyFolder

This ROP downloads properties and descendant subobjects of a specified folder. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.11.4.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
CopyFlags								SendOptions																							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4C.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

CopyFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS]. These flags control the type of operation.

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SendOptions (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS]. These values control the behavior of the operation.

2.2.11.4.2 Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4C.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.11.5 RopFastTransferSourceCopyMessages

This ROP downloads from a folder the content and descendant subobjects for messages identified by a given set of IDs. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.11.5.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
MessageIdCount																MessageIds (variable)															
...																															
CopyFlags								SendOptions																							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4B.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

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OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

MessageIdCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of identifiers in the **MessageIds** field.

MessageIds (variable): Array of 64-bit identifiers. The number of identifiers contained in this field is specified by the **MessageIdCount** field. This list specifies the messages to copy.

CopyFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS]. These values control the type of operation.

SendOptions (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS]. These values control the behavior of the operation.

2.2.11.5.2 Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4B.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.11.6 RopFastTransferSourceCopyTo

This ROP downloads the properties of a given **messaging object** and its descendant subobjects. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.11.6.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
Level								CopyFlags																							
...								SendOptions								PropertyTagCount															

| | | | | | | | | | 1 | | | | | | | 2 | | | | | | | | | | 3 | |
|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|0|1|

PropertyTags (variable)

...

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4D.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

Level (1 byte): Unsigned 8-bit integer. This value specifies the level at which the copy is occurring.

CopyFlags (4 bytes): 32-bit flags structure. The possible values are specified in [MS-OXCFXICS]. These flags control the behavior of the transfer operation.

SendOptions (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS]. These values control the behavior of the operation.

PropertyTagCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **PropertyTags** field.

PropertyTags (variable): Array of PropertyTag structures. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. The number of structures contained in this field is specified by the **PropertyTagCount** field. This array specifies the properties to exclude during the copy.

2.2.11.6.2 Response Buffer

| | | | | | | | | | 1 | | | | | | | 2 | | | | | | | | | | 3 | |
|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|0|1|

RopId	OutputHandleIndex	ReturnValue

...

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4D.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.11.7 RopFastTransferSourceCopyProperties

This ROP copies properties from a messaging object to a fast transfer object. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.11.7.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
Level								CopyFlags								SendOptions								PropertyTagCount							
...								PropertyTags (variable)																							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x69.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

Level (1 byte): Unsigned 8-bit integer. This value specifies the level at which the copy is occurring.

CopyFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS]. These flags control the behavior of the transfer operation.

SendOptions (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS]. These values control the behavior of the operation.

PropertyTagCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **PropertyTags** field.

PropertyTags (variable): Array of PropertyTag structures. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. The number of structures contained in this field is specified by the **PropertyTagCount** field. This array specifies the properties to copy.

2.2.11.7.2 Response Buffer

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
			RopId							OutputHandleIndex										ReturnValue											
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x69.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.11.8 RopTellVersion

This ROP provides the version of the other server in a server-to-client-to-server upload. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.11.8.1 Request Buffer

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
		RopId								LogonId								InputHandleIndex								Version					
												...																			
			...																												

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x86.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

Version (6 bytes): Array of 3 unsigned 16-bit integers. This array contains the version information for the other server. The format of this structure is the same as that specified in [MS-OXCRPC] section 3.1.9.

2.2.11.8.2 Response Buffer

| 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
			RopId							InputHandleIndex										ReturnValue											
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x86.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.12 Incremental Change Synchronization ROPs

2.2.12.1 RopSynchronizationConfigure

This ROP configures a synchronization object. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.12.1.1 Request Buffer

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
		RopId								LogonId							InputHandleIndex							OutputHandleIndex							
	SynchronizationType								SendOptions								SynchronizationFlags													
		RestrictionDataSize														RestrictionData (variable)															
															...															
										SynchronizationExtraFlags																				
	PropertyTagCount															PropertyTags (variable)															
															...															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x70.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

SynchronizationType (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCFXICS]. This value controls the type of synchronization.

SendOptions (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS]. These values control the behavior of the operation.

SynchronizationFlags (2 bytes): 16-bit flags structure. The possible values are specified in [MS-OXCFXICS]. These flags control the behavior of the synchronization.

RestrictionDataSize (2 bytes): Unsigned 16-bit integer. This value specifies the length of the **RestrictionData** field.

RestrictionData (variable): Restriction packet. The size of this field, in bytes, is specified by the **RestrictionDataSize** field. This field contains a restriction packet, as specified in [MS-OXCDATA] section 2.13. The restriction specifies the filter for this synchronization object.

SynchronizationExtraFlags (4 bytes): 32-bit flags structure. The possible values are specified in [MS-OXCFXICS]. These flags control the additional behavior of the synchronization.

PropertyTagCount (2 bytes): Unsigned 16-bit integer. This value specifies how many tags are present in the **PropertyTags** field.

PropertyTags (variable): Array of PropertyTag structures. The number of structures contained in this field is specified by the **PropertyTagCount** field. The format of the **PropertyTag** structure is specified in [MS-OXCDATA]. This field specifies the property tags to be used for the synchronization process.

2.2.12.1.2   Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x70.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.12.2 RopSynchronizationImportMessageChange

This ROP imports new messages or full changes to existing messages into the **server replica**. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.12.2.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
ImportFlag								PropertyValueCount																PropertyValues (variable)							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x72.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

ImportFlag (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS]. These flags control the behavior of the synchronization.

PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **PropertyValues** field.

PropertyValues (variable): Array of PropertyValue structures. The number of structures contained in this field is specified by the **PropertyValueCount** field. The format of the **PropertyValue** structure is specified in [MS-OXCDATA] and possible properties to be set are specified in [MS-OXCFXICS]. These values are used to specify some extra properties on the message.

2.2.12.2.2 Success Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															

...	MessageId
...	
...	

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x72.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

MessageId (8 bytes): 64-bit identifier. This value is the ID of the message that was imported.

2.2.12.2.3 Failure Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x72.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.12.3 RopSynchronizationImportReadStateChanges

This ROP synchronizes a change in the read status for messages. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.12.3.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								MessageReadStatesSize							

...	MessageReadStates (variable)	
...		

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x80.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

MessageReadStatesSize (2 bytes): Unsigned 16-bit integer. This value specifies the size, in bytes, of the **MessageReadStates** field.

MessageReadStates (variable): List of MessageReadState structures. The format of the **MessageReadState** structure is defined in section 2.2.12.3.1.1. The size of this field, in bytes, is specified by the **MessageReadStatesSize** field. These values specify the messages and associated read states to be changed.

2.2.12.3.1.1   MessageReadState structure

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
MessageIdSize																MessageId (variable)															
...																															
MarkAsRead																															

MessageIdSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **MessageId** field.

MessageId (variable): Array of bytes. The size of this field, in bytes, is specified by the **MessageIdSize** field. This value identifies the message to be marked as read or unread.

MarkAsRead (1 byte): 8-bit Boolean. This value specifies whether to mark the message as read or not.

2.2.12.3.2   Response Buffer

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
RopId								InputHandleIndex								ReturnValue															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x80.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.12.4 RopSynchronizationImportHierarchyChange

This ROP synchronizes a change to the folder hierarchy. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.12.4.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								HierarchyValueCount							
...								HierarchyValues (variable)																							
...																															
PropertyValueCount																PropertyValues (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x73.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

HierarchyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **HierarchyValues** field.

HierarchyValues (variable): Array of PropertyValue structures. The number of structures contained in this field is specified by the **HierarchyValueCount** field. The format of the **PropertyValue** structure is specified in [MS-OXCDATA] and possible properties to be set are specified in [MS-OXCFXICS]. These values are used to specify some hierarchy related properties of the folder.

PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **PropertyValues** field.

PropertyValues (variable): Array of PropertyValue structures. The number of structures contained in this field is specified by the **PropertyValueCount** field. The format of the **PropertyValue** structure is specified in [MS-OXCDATA]. These values are used to specify folder properties.

2.2.12.4.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																FolderId															
...																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x73.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

FolderId (8 bytes): 64-bit identifier. This value is the ID of the folder that was imported.

2.2.12.4.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x73.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.12.5 RopSynchronizationImportDeletes

This ROP synchronizes deleted messages or folders. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.12.5.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								IsHierarchy							
PropertyValueCount																PropertyValues (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x74.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

IsHierarchy (1 byte): 8-bit Boolean. This value specifies whether this operation consists of hierarchy or content deletions.

PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **PropertyValues** field.

PropertyValues (variable): Array of PropertyValue structures. The number of structures contained in this field is specified by the **PropertyValueCount** field. The format of the **PropertyValue** structure is specified in [MS-OXCDATA] and possible properties to be set are specified in [MS-OXCFXICS]. These values are used to specify the folders or messages to delete.

2.2.12.5.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

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RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x74.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.12.6 RopSynchronizationImportMessageMove

This ROP synchronizes a move of a message from one folder to another. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.12.6.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								SourceFolderIdSize							
...																								SourceFolderId (variable)							
...																															
SourceMessageIdSize																															
SourceMessageId (variable)																															
...																															
PredecessorChangeListSize																															
PredecessorChangeList (variable)																															
...																															
DestinationMessageIdSize																															
DestinationMessageId (variable)																															
...																															
ChangeNumberSize																															

								ChangeNumber (variable)																							
								...																							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x78.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

SourceFolderIdSize (4 bytes): Unsigned 32-bit integer. This value specifies the size of the **SourceFolderId** field.

SourceFolderId (variable): Array of bytes. The size of this field, in bytes, is specified by the **SourceFolderIdSize** field. This value identifies the parent folder of the source message.

SourceMessageIdSize (4 bytes): Unsigned 32-bit integer. This value specifies the size of the **SourceMessageId** field.

SourceMessageId (variable): Array of bytes. The size of this field, in bytes, is specified by the **SourceMessageIdSize**. This value identifies the source message.

PredecessorChangeListSize (4 bytes): Unsigned 32-bit integer. This value specifies the size of the **PredecessorChangeList** field.

PredecessorChangeList (variable): Array of bytes. The size of this field, in bytes, is specified by the **PredecessorChangeListSize** field.

DestinationMessageIdSize (4 bytes): Unsigned 32-bit integer. This value specifies the size of the **DestinationMessageId** field.

DestinationMessageId (variable): Array of bytes. The size of this field, in bytes, is specified by the **DestinationMessageIdSize**. This value identifies the destination message.

ChangeNumberSize (4 bytes): Unsigned 32-bit integer. This value specifies the size of the **ChangeNumber** field.

ChangeNumber (variable): Array of bytes. The size of this field, in bytes, is specified by the **ChangeNumberSize** field. This field specifies the change number of the message.

2.2.12.6.2 Success Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																MessageId															

...				
...				

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x78.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

MessageId (8 bytes): 64-bit identifier. This value is the ID of the moved message.

2.2.12.6.3 Failure Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x78.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.12.7 RopSynchronizationOpenCollector

This ROP creates a new incremental change synchronization **collector**. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.12.7.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
IsContentsCollector																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7E.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

IsContentsCollector (1 byte): 8-bit Boolean. This value specifies whether this collector is for contents or for hierarchy.

2.2.12.7.2 Response Buffer

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
RopId								OutputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7E.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.12.8 RopSynchronizationGetTransferState

This ROP opens a synchronization transfer object to retrieve the storage state properties. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.12.8.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x82.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

2.2.12.8.2 Response Buffer

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
			RopId						OutputHandleIndex											ReturnValue											
							...																								

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x82.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.12.9 RopSynchronizationUploadStateStreamBegin

This ROP begins an operation to upload stream data. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.12.9.1 Request Buffer

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
		RopId							LogonId								InputHandleIndex								StateProperty						
								...																	TransferBufferSize						
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x75.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

StateProperty (4 bytes): 32-bit PropertyTag. The possible values for this field are specified in [MS-OXCFXICS].

TransferBufferSize (4 bytes): Unsigned 32-bit integer. This value specifies the size of the stream to be uploaded.

2.2.12.9.2 Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x75.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.12.10 RopSynchronizationUploadStateStreamContinue

This ROP uploads storage state property values. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.12.10.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								StreamDataSize							
...								StreamData (variable)																							
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x76.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

StreamDataSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **StreamData** field.

StreamData (variable): Array of bytes. The size of this field, in bytes, is specified by the **StreamDataSize** field. This array contains the state stream data to be uploaded.

2.2.12.10.2   Response Buffer

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
RopId								InputHandleIndex								ReturnValue															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x76.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.12.11   RopSynchronizationUploadStateStreamEnd

This ROP marks the end of a storage state property upload operation. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.12.11.1   Request Buffer

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
RopId								LogonId								InputHandleIndex															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x77.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.12.11.2 Response Buffer

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
		RopId							InputHandleIndex							ReturnValue															
				...																											

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x77.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.12.12 RopSetLocalReplicaMidsetDeleted

This ROP marks a set of messages in a given folder as deleted. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.12.12.1 Request Buffer

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
		RopId							LogonId							InputHandleIndex							DataSize								
		...							LongTermIdRangeCount																						
		...							LongTermIdRanges (variable)																						
												...																			

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x93.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.
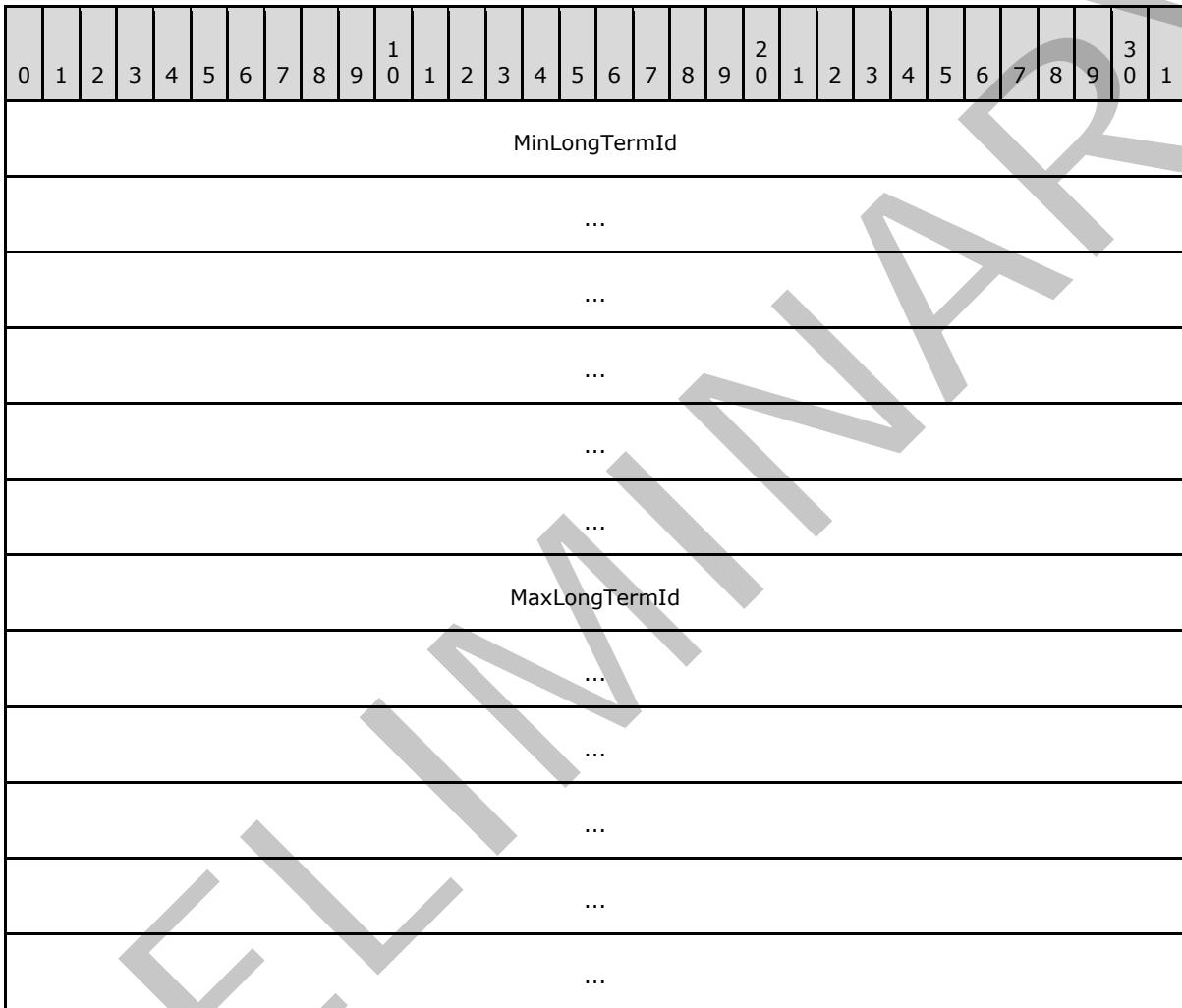
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

DataSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of both the **LongTermIdRangeCount** and **LongTermIdRanges** fields.

LongTermIdRangeCount (4 bytes): Unsigned 32-bit integer. This value specifies the number of structures in the **LongTermIdRanges** field.

LongTermIdRanges (variable): Array of LongTermIdRange structures. The number of structures contained in this field is specified by the **LongTermIdRangeCount** field. The format of the **LongTermIdRange** structure is specified in section 2.2.12.12.1.1. These structures specify the ranges of message identifiers that have been deleted.

2.2.12.12.1.1 LongTermIdRange structure

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
MinLongTermId																														
...																														
...																														
...																														
...																														
...																														
MaxLongTermId																														
...																														
...																														
...																														
...																														
...																														

MinLongTermId (24 bytes): LongTermId structure. The format of the **LongTermId** structure is specified in [MS-OXCDATA] section 2.2.1.3.1. This identifier specifies the beginning of a range.

MaxLongTermId (24 bytes): LongTermId structure. The format of the **LongTermId** structure is specified in [MS-OXCDATA] section 2.2.1.3.1. This identifier specifies the end of a range.

2.2.12.12.2 Response Buffer

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
			RopId						InputHandleIndex										ReturnValue												
					...																										

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x93.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.12.13 RopGetLocalReplicaIds

This ROP reserves a range of IDs to be used by a **local replica**. More detailed information about this operation can be found in [MS-OXCFXICS].

2.2.12.13.1 Request Buffer

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
		RopId							LogonId								InputHandleIndex								IdCount					
					...																										

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7F.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

IdCount (4 bytes): Unsigned 32-bit integer. This value specifies the number of IDs to reserve.

2.2.12.13.2 Success Response Buffer

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
		RopId							InputHandleIndex										ReturnValue												
		...														ReplGuid														
										...																					
										...																					
										...																					
				...												GlobalCount														
										...																					

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7F.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

ReplGuid (16 bytes): GUID. This field contains the replica GUID that is shared by the IDs.

GlobalCount (6 bytes): Array of bytes. This array specifies the first value in the reserved range.

2.2.12.13.3 Failure Response Buffer

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
		RopId							InputHandleIndex										ReturnValue												
						...																									

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7F.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.13 Notification ROPs

2.2.13.1 RopRegisterNotification

This ROP registers for notification events. More detailed information about this operation can be found in [MS-OXCNOTIF].

2.2.13.1.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								OutputHandleIndex							
NotificationTypes								Reserved								WantWholeStore								FolderId (optional)							
...																															
...																								MessageId (optional)							
...																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x29.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

NotificationTypes (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCNOTIF]. These flags specify the types of events to register for.

Reserved (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCNOTIF].

WantWholeStore (1 byte): 8-bit Boolean. This value specifies whether the notification is scoped to the mailbox store instead of a specific folder or message.

FolderId (8 bytes): 64-bit identifier. This field is present when the **WantWholeStore** field is zero and is not present when it is nonzero. This value specifies the folder to register notifications for.

MessageId (8 bytes): 64-bit identifier. This field is present when the **WantWholeStore** field is zero and is not present when it is nonzero. This value specifies the message to register notifications for.

2.2.13.1.2 Response Buffer

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
		RopId							OutputHandleIndex										ReturnValue												
					...																										

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x29.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.13.2 RopSynchronizationOpenAdvisor

This ROP opens the incremental change synchronization advisor object. More detailed information about this operation can be found in [MS-OXCNOTIF].

2.2.13.2.1 Request Buffer

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
		RopId							LogonId							InputHandleIndex								OutputHandleIndex							

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x83.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

2.2.13.2.2 Response Buffer

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
RopId								OutputHandleIndex								ReturnValue																
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x83.

OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.13.3 RopRegisterSynchronizationNotifications

This ROP registers incremental change synchronization notifications for given folders. More detailed information about this operation can be found in [MS-OXCNOTIF].

2.2.13.3.1 Request Buffer

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
RopId								LogonId								InputHandleIndex								FolderCount							
...								FolderIds (variable)																								
...																															
FolderChangeNumbers (variable)																															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x84.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

FolderCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of folders to register for notifications for.

FolderIds (variable): Array of 64-bit identifiers. The number of identifiers contained in this field is specified by the **FolderCount** field. These IDs specify the folders to register for notification for.

FolderChangeNumbers (variable): Array of unsigned 32-bit integers. The number of 32-bit integers contained in this field is specified by the **FolderCount** field. Each value is a unique change number for a folder.

2.2.13.3.2   Response Buffer

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
	RopId								InputHandleIndex							ReturnValue															
	...																														

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x84.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.13.4   RopSetSynchronizationNotificationGuid

This ROP sets the incremental synchronization notification GUID. More detailed information about this operation can be found in [MS-OXCNOTIF].

2.2.13.4.1   Request Buffer

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
	RopId								LogonId							InputHandleIndex								NotificationGuid							
	...																														
	...																														
	...																														

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x88.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

NotificationGuid (16 bytes): GUID. This GUID specifies the notification GUID to set.

2.2.13.4.2   Response Buffer

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
RopId								InputHandleIndex								ReturnValue																
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x88.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.13.5   RopNotify

This ROP provides notification event data to the client. There is no request buffer for this ROP. More detailed information about this operation can be found in [MS-OXCNOTIF].

2.2.13.5.1   Response Buffer

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
RopId								NotificationHandle																							
...								LogonId								NotificationData (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2A.

NotificationHandle (4 bytes): 32-bit Server object handle. This handle specifies the notification Server object associated with this notification event.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this notification event.

NotificationData (variable): Various structures. The notification structures that can be found here are specified in [MS-OXCDATA].

2.2.13.6 RopPending

This ROP notifies the client that there are pending notifications on a session. There is no request buffer for this ROP. More detailed information about this operation can be found in [MS-OXCNOTIF].

2.2.13.6.1 Response Buffer

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
			RopId												SessionIndex																

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6E.

SessionIndex (2 bytes): Unsigned 16-bit integer. This index specifies which session has pending notifications.

2.2.14 Other ROPs

2.2.14.1 RopBufferTooSmall

This ROP notifies the client that there is insufficient space to return all ROP responses.

2.2.14.1.1 Response Buffer

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
			RopId									SizeNeeded											RequestBuffers (variable)								
												...																			

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0xFF.

SizeNeeded (2 bytes): Unsigned 16-bit integer. This value specifies the size needed for the output buffer.

RequestBuffers (variable): Array of bytes. The size of the array is equal to the size of the space remaining in the output ROP response buffer. This array contains the section of the input buffer that was not executed because of the insufficient size of the output buffer.

2.2.14.2 RopBackoff

This ROP notifies the client that the server is busy and is requesting that the client retry later.

2.2.14.2.1 Response Buffer

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
RopId								LogonId								Duration															
...																BackoffRopCount								BackoffRopData (variable)							
...																															
AdditionalDataSize																AdditionalData (variable)															
...																															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0xF9.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon to which the RopBackoff response applies.

Duration (4 bytes): Unsigned 32-bit integer. This value specifies the number of milliseconds to apply a logon backoff.

BackoffRopCount (1 byte): Unsigned 8-bit integer. This value specifies the number of structures in the **BackoffRopData** field.

BackoffRopData (variable): Array of BackoffRop structures. The format of the **BackoffRop** structure is specified in section 2.2.14.2.1.1. This array specifies the operations to be backed off and also the backoff duration for each.

AdditionalDataSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **AdditionalData** field.

AdditionalData (variable): Array of bytes. The size of this field, in bytes, is specified by the **AdditionalDataSize**. This array specifies additional information about the backoff response.

2.2.14.2.1.1 BackoffRop structure

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
RopIdBackoff								Duration																							
...																															

RopIdBackoff (1 byte): Unsigned 8-bit integer. This value identifies the ROP for which to apply the ROP backoff.

Duration (4 bytes): Unsigned 32-bit integer. This value specifies the number of milliseconds to apply a ROP backoff.

2.2.14.3   RopRelease

This ROP releases all resources associated with a Server object. For more details about the dependencies of Server objects, see section 3.1.5.3.

2.2.14.3.1   Request Buffer

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
RopId								LogonId								InputHandleIndex															

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x01.

LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

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 document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this document.

Logon Collection: A collection of LogonIDs in use.

Server Object Handle Collection: A collection of valid Server object handles received from the server but not yet released.

3.1.2   Timers

None.

3.1.3   Initialization

None.

3.1.4   Higher-Layer Triggered Events

The client creates ROP buffers consisting of ROP requests for operations to be performed on the server. This input buffer is sent to the server and an output ROP buffer is received back from the server.

3.1.4.1   Creating an Input ROP Buffer

An input ROP buffer is constructed by the client and sent to the server. The client packages its ROP requests together in the intended execution order and creates an associated Server object handle table.

When assembling an input ROP buffer, the client MUST use a Server object handle table large enough to include an entry for the largest index used by ROP requests in the buffer. Each entry in the table that is only referenced as input indexes for ROPs MUST be filled in with the handle of the Server object that is intended to be the input of the operation. Each entry that is only referenced as an output index SHOULD be filled in with the 0xFFFFFFFF value. Each entry that is referenced first as an output index and then as input indexes SHOULD also be initialized to the 0xFFFFFFFF value.

Multiple ROPs in a buffer can use the same Server object handle table index. For example, a RopOpenFolder can specify index 1 as the location to place the handle for the folder Server object. Later in the same buffer, a RopGetContentsTable can specify index 1 as the location for the input Server object handle.

3.1.4.2   Logon

The client specifies the LogonID associated with the logon Server object created by a RopLogon request. The client manages the identifiers in use by use of a Logon Collection. Any 8-bit integer value is allowed for the LogonID and the client does not have to specify LogonIDs in a certain

numeric order. If the client specifies an active LogonID, the current logon is released and replaced with the new one.

3.1.5 Message Processing Events and Sequencing Rules

The client finds the responses for the operations in this output buffer in the same order as sent in the input buffer. The output buffer can also include ROP responses that do not have corresponding ROP requests in the input buffer. These extra ROP responses include RopBackoff, RopBufferTooSmall, RopNotify, and RopPending.

3.1.5.1 Extra ROP Responses

3.1.5.1.1 RopBackoff

Any client reporting its version as 12.0.4228.0 or later (as specified in [MS-OXCRPC]) MUST support processing the RopBackoff response buffer. The layout of this ROP is specified in section 2.2.14.2.

RopBackoff can appear at any location in the ROP output buffer. This ROP response indicates that the server requests the client delay the resending of ROP requests for the specified logon or type of ROPs for an amount of time. When this response contains a nonzero **RopIdBackoff**, it specifies the ROP request that needs to be delayed. The ROP response that was delayed and all subsequent ROP responses will not be in the buffer. When the **BackoffRopCount** is set to 0x00, this indicates that all ROP requests for that logon are to be delayed.

3.1.5.1.2 RopBufferTooSmall

The layout of this ROP is specified in section 2.2.14.1.

RopBufferTooSmall can appear at any location in the ROPs field in the ROP buffer. This ROP response indicates that the size of the output buffer is insufficient to return responses for all the ROP requests sent. The **RopBufferTooSmall** includes all the ROP requests that were not executed by the server. The client SHOULD resend the unexecuted ROP requests in a new call to the server. The client MUST also specify an output buffer size that is at least as large as the size specified in the **RopBufferTooSmall** response.

3.1.5.1.3 RopNotify and RopPending

These ROP responses appear at the end of the ROP output buffer. More detailed information about these ROPs can be found in [MS-OXCNOTIF].

3.1.5.2 Subsequent RopProgress Requests

Once the client receives a RopProgress response, all subsequent RopProgress requests MUST use the same Server object handle table values as those used in the first RopProgress request.

3.1.5.3 Server Object Dependencies

The client MUST use RopRelease to release an object. The client MUST release an owned object before releasing the object's owner. For example, a stream object that is owned by a folder is released before the owning folder is released. A summary of object owners and the objects that they can own is provided below.

An attachment owns the following:

▪ A stream that is opened on properties of the attachment.

- An embedded message that is created from the attachment.

- A fast-transfer source stream that is opened by RopFastTransferSourceCopyTo or RopFastTransferSourceCopyProperties.

- A fast-transfer destination stream that is opened by **RopFastTransferDestinationCopyTo** or **RopFastTransferDestinationCopyProperties**.

A message owns the following:

- An attachment of the message.

- A stream that is opened on properties of the message.

- An attachments table that is opened on the message.

- A fast-transfer source stream that is opened by RopFastTransferSourceCopyTo or RopFastTransferSourceCopyProperties.

- A fast-transfer destination stream that is opened by **RopFastTransferDestinationCopyTo** or **RopFastTransferDestinationCopyProperties**.

A folder owns the following:

- A stream that is opened on properties of the folder.

- A rules table that is opened on the folder.

- A permissions table that is opened on the folder.

- A fast-transfer source stream that is opened by RopFastTransferSourceCopyTo or RopFastTransferSourceCopyProperties.

- A fast-transfer source stream that is opened by RopSynchronizationConfigure, RopFastTransferSourceCopyMessages, or RopFastTransferSourceCopyFolder.

- A fast-transfer destination stream that is opened by **RopFastTransferDestinationCopyTo** or **RopFastTransferDestinationCopyProperties**.

- A fast-transfer destination stream that is opened by **RopFastTransferDestinationCopyMessages** or **RopFastTransferDestinationCopyFolder**.

- A **synchronization upload context** (also called a collector) that is opened by RopSynchronizationOpenCollector.

3.1.5.4 Code Page for Strings

In an ROP request, the code page for strings MUST match the code page specified in the **EcDoConnectEx** method or similar RPC method. For more details about the **EcDoConnectEx** method and RPC, see [MS-OXCRPC]. The specified code page can be overridden for a message. The message's properties and the Server objects owned by the message always use the same code page that the message uses.

3.1.6 Timer Events

None.

3.1.7 Other Local Events

3.1.7.1 Shutdown

When the client shuts down, it SHOULD send RopRelease requests to the server to clean up all Server objects it had created but had not yet released before it disconnects.

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 document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that specified in this document.

Logon Map: A mapping of LogonIDs and logon Server objects.

Server Object Map: A mapping of Server object handles and Server objects. There is one map for each logon Server object.

3.2.2 Timers

None.

3.2.3 Initialization

When a connection is first set up between a client and server via the EMSMDB interface specified in [MS-OXCRPC], the **Server Object Map** and Logon Map are empty.

3.2.4 Higher-Layer Triggered Events

3.2.4.1 Notifications

More detailed information about notifications can be found in [MS-OXCNOTIF].

3.2.4.2 Backoff

When the server determines that a ROP request needs to be delayed, the server MUST respond with either a RopBackoff response or fail the RPC.

If the server version is greater than 08.00.0525.0, and the client version is greater than 12.0.4228.0, the server SHOULD add a RopBackoff response buffer is returned in place of the response for the ROP request. If either the client or the server are earlier versions, the server MUST instead fail the RPC by raising the RPC_S_SERVER_TOO_BUSY exception as specified in [MS-OXCRPC].

If ROPs are specified in a RopBackoff response, then all subsequent ROP requests SHOULD NOT be processed.

3.2.4.3 Insufficient Output Buffer Space

When the server determines that there is not enough space remaining in the output ROP buffer for responses for remaining ROPs, it MUST NOT execute the remaining ROPs. If the client is able to

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resubmit the remaining ROPs in another call, then the server MUST use a [RopBufferTooSmall](#) response. If another call would fail, such as if one ROP response is larger than the maximum output **RopBufferSize**, the server MUST fail the RPC returning 0x0000047D.

3.2.5 Message Processing Events and Sequencing Rules

3.2.5.1 Processing an Input ROP Buffer

When processing an input ROP buffer received from a client, the server MUST execute the ROP requests in the order they are specified in the ROP buffer and MUST NOT process more than one input ROP buffer concurrently for a connection. The ROP responses in the output ROP buffer MUST also be in the same order in which they were executed.

If the server is unable to parse the ROP requests in the input ROP buffer, the RPC MUST fail by returning 0x000004B6.

During execution of a ROP request, the server needs to resolve the Server object handle table index to a Server object. Any index used for input is converted into the corresponding Server object by looking up the handle in the Server object handle table and then looking up the Server object handle in the Server object map associated with the logon for the ROP request. If any lookup in the Logon Map or the Server object map fails, the server MUST fill in a failure ROP response with a nonzero return value.

After successful execution of a ROP request that created a Server object, the server MUST assign an unused Server object handle to the object and record the mapping in the Server object map for the logon associated with the ROP. The handle assigned is then set in the Server object handle table at the location specified by the output index in the ROP request and can be potentially used by subsequent ROP requests in the buffer.

Because the Server object handle value 0xFFFFFFFF is used to initialize unused entries of a Server object handle table, a server MUST NOT assign that value to a created Server object.

3.2.5.2 Creating an Output ROP Buffer

After processing the input ROP buffer, a list of ROP responses and a modified Server object handle table are specified in the output ROP buffer created by the server. This table MUST be large enough to contain an entry for the highest Server object handle table index specified in the ROP responses. The table can be a smaller size compared to the table in the input ROP buffer if entries at the end of the table were not referenced. The server MUST preserve the order of entries in the Server object handle table between the input and output tables.

3.2.5.3 RopRelease

The layout of [RopRelease](#) is specified in section [2.2.14.3](#).

This request is used when the client is done with a Server object. The server MUST remove the mapping for the Server object handle from the Server object map and release the resources associated with it. The same Server object handle can now be reused for another Server object. If the Server object specified is a logon Server object, then the server MUST also remove it from the Logon Map.

Unlike all other ROP requests, RopRelease does not have any associated ROP response. The server MUST not return any response for a RopRelease request. Any errors resulting from the execution of this ROP MUST be ignored and not sent back to the client.

3.2.6 Timer Events

None.

3.2.7 Other Local Events

3.2.7.1 Disconnection

When the client disconnects, the server MUST release all Server objects, Logon Maps, and Server object maps associated with the connection.

4 Protocol Examples

4.1 Empty ROP Buffer

4.1.1 Full Buffer

```
02 00
```

4.1.2 Explanation of Parts

RopSize:

02 00

Rops:

<empty>

ServerObjectHandleTable:

<empty>

4.1.3 Description

This empty buffer contains no ROPs and no Server object handles. This type of buffer can be used by a client when it expects to receive extra information in the output buffer, such as pending notifications.

4.2 Single ROP Request

4.2.1 Full Buffer

```
09 00 15 01 01 02 01 FF 0F 6D 00 00 00 56 00 00 00
```

4.2.2 Explanation of Parts

RopSize:

09 00

Rops:

15 —**RopId** (**RopQueryRows**)

01 —**LogonId**

01 —**InputHandleIndex**

02 —**QueryRowsFlags**

01 —**ForwardRead**

FF 0F —**RowCount**

ServerObjectHandleTable:

6D 00 00 00 (Handle 0, unused)

56 00 00 00 (Handle 1, input of **RopQueryRows**)

4.2.3   Description

This buffer contains a single ROP that has an input index. The **ServerObjectHandleTable** field is offset from the beginning of the buffer by the number of bytes specified in the **RopSize** field. The Server object handle table in this buffer contains an unused entry.

4.3   Multiple ROP Request

4.3.1   Full Buffer

```
14 00 02 00 00 01 01 00 59 65 73 73 69 72 00 04 00 01 02 04 6E 00 00 00 FF FF FF FF FF FF FF
FF
```

4.3.2   Explanation of Parts

RopSize:

14 00

Rops:

02 —**RopId** (**RopOpenFolder**)

00 —**LogonId**

00 —**InputHandleIndex**

01 —**OutputHandleIndex**

01 00 59 65 73 73 69 72 —**FolderId** (ID of the folder to be opened)

00 —**OpenModeFlags**

04 —**RopId** (**RopGetHierarchyTable**)

00 —**LogonId**

01 —**InputHandleIndex**

02 —**OutputHandleIndex**

04 —**TableFlags**

ServerObjectHandleTable:

6E 00 00 00 (Handle 0, input of **RopOpenFolder**)

FF FF FF FF (Handle 1, output of **RopOpenFolder**, input of **RopGetHierarchyTable**)

FF FF FF FF (Handle 2, output of **RopGetHierarchyTable**)

4.3.3 Description

This buffer consists of two ROP requests. The first request is a RopOpenFolder, and the second is a RopGetHierarchyTable. The input for the second ROP is the output for the first ROP. All output handles are initialized to 0xFFFFFFFF.

4.4 RopRelease Request

4.4.1 Full Buffer

```
08 00 01 00 00 01 00 01 6F 00 00 00 6E 00 00 00
```

4.4.2 Explanation of Parts

RopSize:

08 00

Rops:

01 —**RopId** (**RopRelease**)

00 —**LogonId**

00 —**InputHandleIndex**

01 —**RopId** (**RopRelease**)

00 —**LogonId**

01 —**InputHandleIndex**

ServerObjectHandleTable:

6F 00 00 00 (Handle 0, input of first **RopRelease**)

6E 00 00 00 (Handle 1, input of second **RopRelease**)

4.4.3 Description

This buffer contains a pair of RopRelease requests. These two ROPs are releasing two different Server objects, based on the different Server object handles they reference.

4.5 RopBufferTooSmall Response

4.5.1 Full Buffer

```
1C 00 FF 2C 00 03 00 00 01 FF 0F 01 00 15 89 00 78 27 1E 03 01 00 15 89 00 78 2F BB 12 00 00
00 FF FF FF FF
```

4.5.2 Explanation of Parts

RopSize:

1C 00

Rops:

FF —**RopId** (**RopBufferTooSmall**)

2C 00 —**SizeNeeded** (0x002C bytes)

03 —**RopId** (**RopOpenMessage**)

00 —**LogonId**

00 —**InputHandleIndex**

01 —**OutputHandleIndex**

FF 0F —**CodePageID**

01 00 15 89 00 78 27 1E —**FolderId**

03 —**OpenModeFlags**

01 00 15 89 00 78 2F BB —**MessageId**

ServerObjectHandleTable:

12 00 00 00 (Handle 0, input of **RopOpenMessage**)

FF FF FF FF (Handle 1, output of **RopOpenMessage**)

4.5.3   Description

This buffer shows a RopOpenMessage call that would produce a response that wouldn't fit in the buffer (the output buffer was much smaller than usual for this example). The RopBufferTooSmall indicates that it would need at least 0x002C bytes to return a response buffer. The RopOpenMessage request and the Server object handle table are the same as what would have been specified in the input ROP buffer. In this buffer, the RopBufferTooSmall is the first ROP, which indicates that no ROPs were executed before running out of room.

4.6   Logon RopBackoff Response

4.6.1   Full Buffer

```
12 00 12 00 00 00 00 00 00 F9 00 34 12 00 00 00 00 00 28 00 00 00
```

4.6.2   Explanation of Parts

RopSize:

12 00

Rops:

12 —**RopId** (**RopSetColumns**)

00 —**InputHandleIndex**

00 00 00 00 —**ReturnValue**

00 —**TableStatus**

F9 —**RopId** (**RopBackoff**)

00 —**LogonId**

34 12 00 00 —**Duration**

00 —**BackoffRopCount**

00 00 —**AdditionalDataSize**

ServerObjectHandleTable:

28 00 00 00 (Handle 0, input of **RopSetColumns**)

4.6.3   Description

This buffer contains a RopBackoff response in the same buffer as a RopSetColumns response. The RopBackoff here contains no information specific to a ROP, but instead a general duration for the logon.

4.7   ROP RopBackoff Request

4.7.1   Full Buffer

```
18 00 02 01 00 00 00 00 00 00 F9 00 00 00 00 00 01 1C 17 4F 04 00 00 00 0A 00 00 00 24 00 00
00
```

4.7.2   Explanation of Parts

RopSize:

18 00

Rops:

02 —**RopId** (**RopOpenFolder**)

01 —**OutputHandleIndex**

00 00 00 00 —**ReturnValue**

00 —**HasRules**

00 —**IsGhosted**

F9 —**RopId** (**RopBackoff**)

00 —**LogonId**

00 00 00 00 —**Duration**

01 —**BackoffRopCount**

1C —**RopIdBackoff** (1C is the **RopId** value of **RopCreateFolder**)

---

17 4F 04 00 —**Duration**

00 00 —**AdditionalDataSize**

ServerObjectHandleTable:

0A 00 00 00 (Handle 0, unused)

24 00 00 00 (Handle 1, output of **RopOpenFolder**)

4.7.3 Description

This buffer shows a RopBackoff response in the same buffer as a RopOpenFolder response. The RopBackoff contains information about only one ROP, RopCreateFolder.

5 Security

5.1 Security Considerations for Implementers

There are no special security considerations specific to this protocol. General security considerations pertaining to the underlying Wire Format protocol apply, as specified in [MS-OXCRPC].

5.2 Index of Security Parameters

None.

6   Appendix A: Product Behavior

The information in this specification is applicable to the following product versions. References to product versions include released service packs.

- Microsoft® Office Outlook® 2003

- Microsoft® Exchange Server 2003

- Microsoft® Office Outlook® 2007

- Microsoft® Exchange Server 2007

- Microsoft® Outlook® 2010

- Microsoft® Exchange Server 2010

- Microsoft® Exchange Server 2010 SP1 Beta

Exceptions, if any, are noted below. If a service pack number appears with the product version, behavior changed in that service pack. The new behavior also applies to subsequent service packs of the product unless otherwise specified.

Unless otherwise specified, any statement of optional behavior in this specification 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 product does not follow the prescription.

<1> Section 2.2.1: Exchange Server 2003 and Exchange Server 2007 behavior is undefined when it encounters a reserved **RopId**.

<2> Section 2.2.6.9.2: Exchange 2003, Exchange 2007, and Exchange 2010 do not return an empty array.

<3> Section 2.2.8.2.1: Exchange 2003 limits the stream size to 32K bytes. Therefore, if the value of the **ByteCount** field in the request buffer is greater than 0x8000, the server returns RopBufferTooSmall. The **MaximumByteCount** field is never present in the request buffer because the **ByteCount** field is never set to 0xBABE.

<4> Section 2.2.8.6.1: Exchange 2003 and Exchange 2007 do not use a configuration setting and always limit the maximum size of the stream to 2^31 bytes.

7   Change Tracking

This section identifies changes made to [MS-OXCROPS] protocol documentation between February 2010 and May 2010 releases. Changes are classed as major, minor, or editorial.

Major changes affect protocol interoperability or implementation. Examples of major changes are:

- A document revision that incorporates changes to interoperability requirements or functionality.
- An extensive rewrite, addition, or deletion of major portions of content.
- A protocol is deprecated.
- The removal of a document from the documentation set.
- Changes made for template compliance.

Minor changes do not affect protocol interoperability or implementation. Examples are updates to fix technical accuracy or ambiguity at the sentence, paragraph, or table level.

Editorial changes apply to grammatical, formatting, and style issues.

No changes means that the document is identical to its last release.

Major and minor changes can be described further using the following revision types:

- New content added.
- Content update.
- Content removed.
- New product behavior note added.
- Product behavior note updated.
- Product behavior note removed.
- New protocol syntax added.
- Protocol syntax updated.
- Protocol syntax removed.
- New content added due to protocol revision.
- Content updated due to protocol revision.
- Content removed due to protocol revision.
- New protocol syntax added due to protocol revision.
- Protocol syntax updated due to protocol revision.
- Protocol syntax removed due to protocol revision.
- New content added for template compliance.
- Content updated for template compliance.

- Content removed for template compliance.

- Obsolete document removed.

Editorial changes always have the revision type "Editorially updated."

Some important terms used in revision type descriptions are defined as follows:

Protocol syntax refers to data elements (such as packets, structures, enumerations, and methods) as well as interfaces.

Protocol revision refers to changes made to a protocol that affect the bits that are sent over the wire.

Changes are listed in the following table. If you need further information, please contact protocol@microsoft.com.

Section	Tracking number (if applicable) and description	Major change (Y or N)	Revision Type
1.1 Glossary	54946 Added "non-read receipt" to the list of terms that are defined in [MS-OXGLOS].	N	Content update.
1.1 Glossary	55294 Added the following to the list of terms: address type, ASCII, flags, handle, hard delete, local replica, LogonID, named property, recipient, remote procedure call (RPC), ROP request buffer, ROP response buffer, and Unicode. Removed the following from the list of terms: Folder object.	N	Content update.
1.3 Overview	Updated the section title.	N	Content updated for template compliance.
2.2.3.2.1 Request Buffer	54838 Updated the descriptions of the UseUnicodeStrings field, the DisplayName field, and the Comment field as follows: Changed "ASCII" to "multi-byte"; revised some wording for clarity.	N	Content update.
2.2.3.2.2 Success Response Buffer	54983 Specified an additional condition for the presence of the HasRules field.	N	Content update.
2.2.3.7.1 Request Buffer	54838 Updated the descriptions of the UseUnicode field and the NewFolderName field as follows: Changed "ASCII" to "multi-byte";	N	Content update.

Section	Tracking number (if applicable) and description	Major change (Y or N)	Revision Type
	revised some wording for clarity.		
2.2.3.8.1 Request Buffer	54838 Updated the descriptions of the UseUnicode field and the NewFolderName field as follows: Changed "ASCII" to "multi-byte"; revised some wording for clarity.	N	Content update.
2.2.6.6.3 Failure Response Buffer	55020 New section.	N	New content added.
2.2.6.9.2 Response Buffer	54838 Updated the description of the HelpFileName field to specify that it is a string of multi-byte characters.	N	Content update.
2.2.6.9.3 Failure Response Buffer	55020 New section.	N	New content added.
2.2.7.1.2 Success Response Buffer	54996 Changed the type of the PropertyIds field from "array of PropertyId structures" to "array of unsigned 16-bit integers". Revised wording appropriately in the descriptions of the PropertyIdCount field and the PropertyIds field.	N	Content update.
2.2.7.2.1 Request Buffer	54996 Changed the type of the PropertyIds field from "array of PropertyId structures" to "array of unsigned 16-bit integers". Revised wording appropriately in the descriptions of the PropertyIdCount field and the PropertyIds field.	N	Content update.
2.2.7.10.2 Success Response Buffer	54996 Changed the type of the PropertyIds field from "array of PropertyId structures" to "array of unsigned 16-bit integers". Revised wording appropriately in the descriptions of the IdCount field and the PropertyIds field.	N	Content update.
2.2.8.6.1 Request Buffer	54947 Updated the product behavior note and the description of the StreamSize field to specify how the maximum size of the stream is determined for Exchange 2003, Exchange 2007, and Exchange 2010.	N	Product behavior note updated.

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Section	Tracking number (if applicable) and description	Major change (Y or N)	Revision Type
2.2.11.7 RopFastTransferSourceCopyProperties	55239 Updated "Message, Folder, or Attachment objects" to "a messaging object".	N	Content update.
2.2.12.13.2 Success Response Buffer	55083 Changed the datatype of the ReplGuid field from REPLGUID structure to GUID and updated the description as appropriate.	N	Content update.
2.2.14.1.1 Response Buffer	55197 Clarified the descriptions of the SizeNeeded field and the RequestBuffers field.	N	Content update.
3.1.5.2 Subsequent RopProgress Requests	54832 New section.	N	New content added.
3.1.5.4 Code Page for Strings	54838 Added new section.	Y	New content added.

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