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

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Revision Summary

Date	Revision History	Revision Class	Comments
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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.
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03/04/2009	1.04		Revised and edited technical content.
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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.
08/04/2010	7.0	Major	Significantly changed the technical content.
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10/07/2011	9.0	Major	Significantly changed the technical content.

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1 Introduction

The Remote Operations (ROP) List and Encoding Protocol provides the remote operations used to access and modify **mailbox** information on the server.

Sections 1.8, 2, and 3 of this specification are normative and contain RFC 2119 language. Sections 1.5 and 1.9 are also normative but cannot contain RFC 2119 language. All other sections and examples in this specification are informative.

1.1 Glossary

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

ASCII
code page
distinguished name (DN)
flags
GUID
handle
little-endian
remote procedure call (RPC)
Unicode

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

active replica
address type
entry ID
folder associated information (FAI)
Gateway Address Routing Table (GWART)
ghosted folder
hard delete
local replica
Logon object
mailbox
message class
Message object
messaging object
named property
non-read receipt
property ID
property name
property tag
public folder
Receive folder
recipient
remote operation (ROP)
replica
replica GUID (REPLGUID)
replica ID (REPLID)
ROP buffer
ROP request
ROP request buffer
ROP response
ROP response buffer

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search criteria
Server object
Server object handle
Server object handle table
server replica
special folder
store

The following terms are specific to this document:

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

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".

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

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

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

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

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

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

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

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

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

[MS-OXIMAP4] Microsoft Corporation, "Internet Message Access Protocol Version 4 (IMAP4) Extensions".

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

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

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

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

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

1.2.2 Informative References

[MS-GLOS] Microsoft Corporation, "Windows Protocols Master Glossary".

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

1.3 Overview

This protocol describes the details of each **remote operation (ROP)**.

A ROP input buffer is used by the client to send requests to the server. A ROP output buffer is used 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 input buffer and makes a method call on the **EMSMDB** interface, as specified in [MS-OXCRPC], passing the ROP input buffer as part of the payload. The server then parses the ROP requests from the ROP input buffer. Each request is executed and a **ROP response** is added to the ROP output buffer. Once the server has finished processing the ROP input buffer, the method 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 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 input buffer contains a list of ROP requests and a **Server object handle table**. A ROP output buffer contains a list of ROP responses and a Server object handle table. Each ROP request contains input values to use for an operation. Each ROP response contains output produced during the

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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 ROP response does not directly specify a Server object handle, 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 input buffer consisting of ROP requests that reference as an input parameter a Server object created earlier during the server's processing of a previous ROP input buffer. In this way, fewer round-trip calls between the client and server are necessary.

1.4 Relationship to Other Protocols

This protocol is dependent upon the Wire Format protocol, as specified in [MS-OXCRPC]. A ROP input/output buffer is sent as part of the payload of the **EcDoRpcExt2** method on the **EMSMDB** interface. In addition, information that is provided during calls of the **EcDoConnectEx** method, also on the **EMSMDB** interface, is used later when executing ROP requests. For details about the **EcDoRpcExt2** method, the **EcDoConnectEx** method, or the **EMSMDB** interface, see [MS-OXCRPC] sections 3.1 and 3.2.

This protocol provides details for implementing a ROP parsing layer. It is expected that this protocol is to be implemented in its entirety in order to facilitate working with any of the other protocols built on top of this protocol. Complete implementation is necessary to be able to parse ROPs in the ROP input/output buffer, because there are no markers between ROP buffers in the RPC buffer.

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

This protocol assumes that a connection was already made using the **EMSMDB** interface, as described 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.

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1.7 Versioning and Capability Negotiation

None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

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2 Messages

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

2.1 Transport

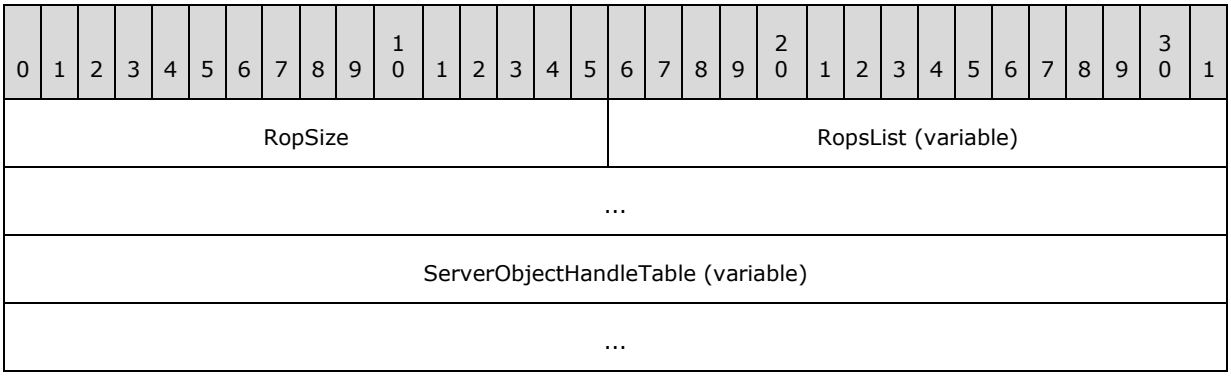
The ROP input/output buffer, as specified in section 2.2.1, is sent as part of the payload of the **EcDoRpcExt2** **RPC** method, as specified in [MS-OXCRPC] section 3.1.4.12

2.2 Message Syntax

2.2.1 ROP Input/Output Buffer

The ROP input buffer is sent by the client and includes an array of **ROP request buffers** to be processed by the server. The ROP output buffer is sent by the server and includes an array of **ROP response buffers**. The ROP input/output buffer is transmitted between the client and the server as part of the payload of the **EcDoRpcExt2** method. For more details about the **EcDoRpcExt2** method, see [MS-OXCRPC] section 3.1.4.12.

The ROP input buffer and ROP output buffer have the following structure.



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

RopsList (variable): Array of ROP buffers. For a ROP input buffer, this field contains an array of ROP request buffers. For a ROP output buffer, this field contains an array of ROP response buffers. The format of each **ROP buffer** is specified in subsequent sections. The size of this field is 2 bytes less than the value specified in the **RopSize** field.

ServerObjectHandleTable (variable): Array of 32-bit values. Each 32-bit value specifies a Server object handle that is referenced by a ROP buffer. The size of this field is equal to the number of bytes of data remaining in the ROP input/output buffer after the **RopsList** field.

2.2.2 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.

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The server SHOULD<1> return an error for the RPC, as specified in [MS-OXCRPC] section 3.1.4.12, when it encounters a **RopId** value that is associated with a reserved ROP.

RopId value	ROP name	Section
0x00	Reserved	
0x01	**RopRelease**	2.2.15.3
0x02	**RopOpenFolder**	2.2.4.1
0x03	**RopOpenMessage**	2.2.6.1
0x04	**RopGetHierarchyTable**	2.2.4.13
0x05	**RopGetContentsTable**	2.2.4.14
0x06	**RopCreateMessage**	2.2.6.2
0x07	**RopGetPropertiesSpecific**	2.2.8.3
0x08	**RopGetPropertiesAll**	2.2.8.4
0x09	**RopGetPropertiesList**	2.2.8.5
0x0A	**RopSetProperties**	2.2.8.6
0x0B	**RopDeleteProperties**	2.2.8.8
0x0C	**RopSaveChangesMessage**	2.2.6.3
0x0D	**RopRemoveAllRecipients**	2.2.6.4
0x0E	**RopModifyRecipients**	2.2.6.5
0x0F	**RopReadRecipients**	2.2.6.6
0x10	**RopReloadCachedInformation**	2.2.6.7
0x11	**RopSetMessageReadFlag**	2.2.6.11
0x12	**RopSetColumns**	2.2.5.1
0x13	**RopSortTable**	2.2.5.2
0x14	**RopRestrict**	2.2.5.3
0x15	**RopQueryRows**	2.2.5.4
0x16	**RopGetStatus**	2.2.5.6
0x17	**RopQueryPosition**	2.2.5.7
0x18	**RopSeekRow**	2.2.5.8
0x19	**RopSeekRowBookmark**	2.2.5.9
0x1A	**RopSeekRowFractional**	2.2.5.10
0x1B	**RopCreateBookmark**	2.2.5.11

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RopId value	ROP name	Section
0x1C	**RopCreateFolder**	2.2.4.2
0x1D	**RopDeleteFolder**	2.2.4.3
0x1E	**RopDeleteMessages**	2.2.4.11
0x1F	**RopGetMessageStatus**	2.2.6.9
0x20	**RopSetMessageStatus**	2.2.6.8
0x21	**RopGetAttachmentTable**	2.2.6.17
0x22	**RopOpenAttachment**	2.2.6.12
0x23	**RopCreateAttachment**	2.2.6.13
0x24	**RopDeleteAttachment**	2.2.6.14
0x25	**RopSaveChangesAttachment**	2.2.6.15
0x26	**RopSetReceiveFolder**	2.2.3.3
0x27	**RopGetReceiveFolder**	2.2.3.2
0x28	Reserved	
0x29	**RopRegisterNotification**	2.2.14.1
0x2A	**RopNotify**	2.2.14.2
0x2B	**RopOpenStream**	2.2.9.1
0x2C	**RopReadStream**	2.2.9.2
0x2D	**RopWriteStream**	2.2.9.3
0x2E	**RopSeekStream**	2.2.9.7
0x2F	**RopSetStreamSize**	2.2.9.6
0x30	**RopSetSearchCriteria**	2.2.4.4
0x31	**RopGetSearchCriteria**	2.2.4.5
0x32	**RopSubmitMessage**	2.2.7.1
0x33	**RopMoveCopyMessages**	2.2.4.6
0x34	**RopAbortSubmit**	2.2.7.2
0x35	**RopMoveFolder**	2.2.4.7
0x36	**RopCopyFolder**	2.2.4.8
0x37	**RopQueryColumnsAll**	2.2.5.12
0x38	**RopAbort**	2.2.5.5
0x39	**RopCopyTo**	2.2.8.12

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RopId value	ROP name	Section
0x3A	**RopCopyToStream**	2.2.9.8
0x3B	**RopCloneStream**	2.2.9.12
0x3C	Reserved	
0x3D	Reserved	
0x3E	**RopGetPermissionsTable**	2.2.10.2
0x3F	**RopGetRulesTable**	2.2.11.2
0x40	**RopModifyPermissions**	2.2.10.1
0x41	**RopModifyRules**	2.2.11.1
0x42	**RopGetOwningServers**	2.2.3.6
0x43	**RopLongTermIdFromId**	2.2.3.8
0x44	**RopIdFromLongTermId**	2.2.3.9
0x45	**RopPublicFolderIsGhosted**	2.2.3.7
0x46	**RopOpenEmbeddedMessage**	2.2.6.16
0x47	**RopSetSpooler**	2.2.7.4
0x48	**RopSpoolerLockMessage**	2.2.7.5
0x49	**RopGetAddressTypes**	2.2.7.3
0x4A	**RopTransportSend**	2.2.7.6
0x4B	**RopFastTransferSourceCopyMessages**	2.2.12.5
0x4C	**RopFastTransferSourceCopyFolder**	2.2.12.4
0x4D	**RopFastTransferSourceCopyTo**	2.2.12.6
0x4E	**RopFastTransferSourceGetBuffer**	2.2.12.3
0x4F	**RopFindRow**	2.2.5.13
0x50	**RopProgress**	2.2.8.13
0x51	**RopTransportNewMail**	2.2.7.7
0x52	Reserved	
0x53	**RopFastTransferDestinationConfigure**	2.2.12.1
0x54	**RopFastTransferDestinationPutBuffer**	2.2.12.2
0x55	**RopGetNamesFromPropertyIds**	2.2.8.2
0x56	**RopGetPropertyIdsFromNames**	2.2.8.1
0x57	**RopUpdateDeferredActionMessages**	2.2.11.3

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RopId value	ROP name	Section
0x58	**RopEmptyFolder**	2.2.4.9
0x59	**RopExpandRow**	2.2.5.16
0x5A	**RopCollapseRow**	2.2.5.17
0x5B	**RopLockRegionStream**	2.2.9.9
0x5C	**RopUnlockRegionStream**	2.2.9.10
0x5D	**RopCommitStream**	2.2.9.4
0x5E	**RopGetStreamSize**	2.2.9.5
0x5F	**RopQueryNamedProperties**	2.2.8.10
0x60	**RopGetPerUserLongTermIds**	2.2.3.10
0x61	**RopGetPerUserGuid**	2.2.3.11
0x62	Reserved	
0x63	**RopReadPerUserInformation**	2.2.3.12
0x64	**RopWritePerUserInformation**	2.2.3.13
0x65	Reserved	
0x66	**RopSetReadFlags**	2.2.6.10
0x67	**RopCopyProperties**	2.2.8.11
0x68	**RopGetReceiveFolderTable**	2.2.3.4
0x69	**RopFastTransferSourceCopyProperties**	2.2.12.7
0x6A	Reserved	
0x6B	**RopGetCollapseState**	2.2.5.18
0x6C	**RopSetCollapseState**	2.2.5.19
0x6D	**RopGetTransportFolder**	2.2.7.8
0x6E	**RopPending**	2.2.14.3
0x6F	**RopOptionsData**	2.2.7.9
0x70	**RopSynchronizationConfigure**	2.2.13.1
0x71	Reserved	
0x72	**RopSynchronizationImportMessageChange**	2.2.13.2
0x73	**RopSynchronizationImportHierarchyChange**	2.2.13.4
0x74	**RopSynchronizationImportDeletes**	2.2.13.5
0x75	**RopSynchronizationUploadStateStreamBegin**	2.2.13.9

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RopId value	ROP name	Section
0x76	**RopSynchronizationUploadStateStreamContinue**	2.2.13.10
0x77	**RopSynchronizationUploadStateStreamEnd**	2.2.13.11
0x78	**RopSynchronizationImportMessageMove**	2.2.13.6
0x79	**RopSetPropertiesNoReplicate**	2.2.8.7
0x7A	**RopDeletePropertiesNoReplicate**	2.2.8.9
0x7B	**RopGetStoreState**	2.2.3.5
0x7C	Reserved	
0x7D	Reserved	
0x7E	**RopSynchronizationOpenCollector**	2.2.13.7
0x7F	**RopGetLocalReplicaIds**	2.2.13.13
0x80	**RopSynchronizationImportReadStateChanges**	2.2.13.3
0x81	**RopResetTable**	2.2.5.15
0x82	**RopSynchronizationGetTransferState**	2.2.13.8
0x83	**Reserved**	
0x84	**Reserved**	
0x85	Reserved	
0x86	**RopTellVersion**	2.2.12.8
0x87	Reserved	
0x88	**Reserved**	
0x89	**RopFreeBookmark**	2.2.5.14
0x8A	Reserved	
0x8B	Reserved	
0x8C	Reserved	
0x8D	Reserved	
0x8E	Reserved	
0x8F	Reserved	
0x90	**RopWriteAndCommitStream**	2.2.9.11
0x91	**RopHardDeleteMessages**	2.2.4.12
0x92	**RopHardDeleteMessagesAndSubfolders**	2.2.4.10
0x93	**RopSetLocalReplicaMidsetDeleted**	2.2.13.12

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RopId value	ROP name	Section
0x94	Reserved	
0x95	Reserved	
0x96	Reserved	
0x97	Reserved	
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	

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RopId value	ROP name	Section
0xB2	Reserved	
0xB3	Reserved	
0xB4	Reserved	
0xB5	Reserved	
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	

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RopId value	ROP name	Section
0xD0	Reserved	
0xD1	Reserved	
0xD2	Reserved	
0xD3	Reserved	
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	

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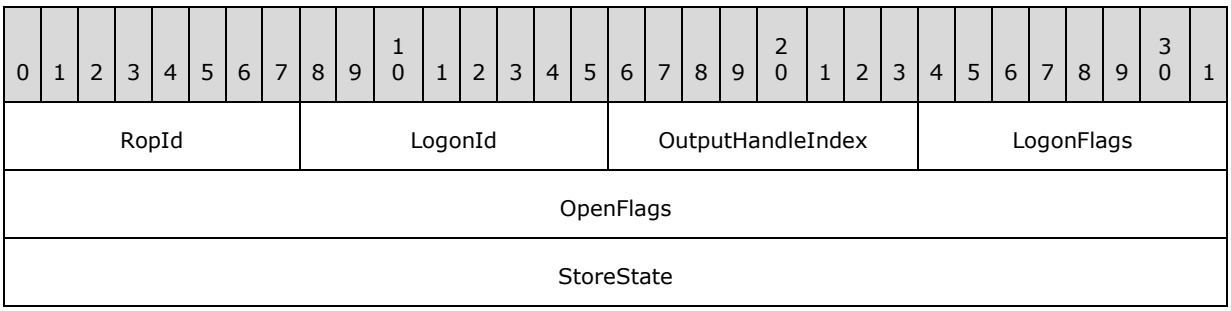
RopId value	ROP name	Section
0xEE	Reserved	
0xEF	Reserved	
0xF0	Reserved	
0xF1	Reserved	
0xF2	Reserved	
0xF3	Reserved	
0xF4	Reserved	
0xF5	Reserved	
0xF6	Reserved	
0xF7	Reserved	
0xF8	Reserved	
0xF9	**RopBackoff**	2.2.15.2
0xFA	Reserved	
0xFB	Reserved	
0xFC	Reserved	
0xFD	Reserved	
0xFE	**RopLogon**	2.2.3.1
0xFF	**RopBufferTooSmall**	2.2.15.1

2.2.3 Logon ROPs

2.2.3.1 RopLogon ROP

This ROP logs on to a mailbox or public folder. More detailed information about this operation can be found in [MS-OXCSTOR] section 2.2.1.1.

2.2.3.1.1 RopLogon ROP Request Buffer



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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 requests to have 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] section 2.2.1.1.1. 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] section 2.2.1.1.1. This structure contains more flags that control the behavior of the logon.

StoreState (4 bytes): 32-bit flags structure. This field is not used and is ignored by the server. This field MUST be set to 0x00000000.

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.

2.2.3.1.2 RopLogon ROP Success Response Buffer for Private Mailboxes

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
RopId								OutputHandleIndex								ReturnValue															
...																LogonFlags														FolderIds	
...																															
...																															
...																															
...																															
...																															
...																															

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...	
(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] section 2.2.1.1.3. 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.

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ResponseFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCSTOR] section 2.2.1.1.3. 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.

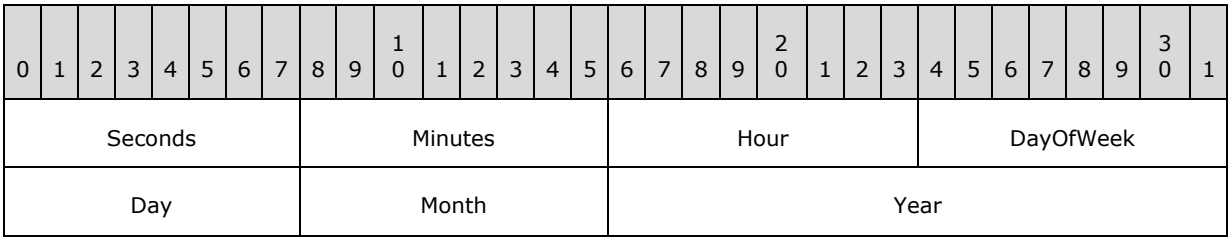
ReplGuid (16 bytes): GUID. This field specifies the **replica GUID** that is associated with the replica ID, which is specified in the **ReplId** field.

LogonTime (8 bytes): LogonTime structure. The format of this structure is specified in section 2.2.3.1.2.1. This structure specifies the time at which the logon occurred.

GwartTime (8 bytes): Unsigned 64-bit integer. This field contains a numeric value that tracks the currency of the **Gateway Address Routing Table (GWART)**. The server generates a new numeric value with each change of the GWART. The client can use the value of this field in a comparison to detect a change, but does not interpret the value of this field.

StoreState (4 bytes): 32-bit flags structure. This field MUST be set to 0x00000000 by the server and MUST be ignored by the client.

2.2.3.1.2.1 LogonTime Structure



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.

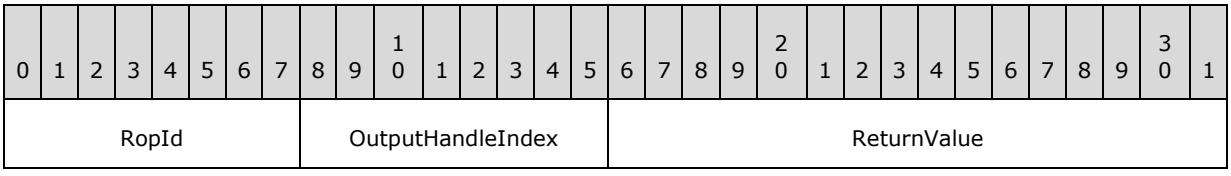
DayOfWeek (1 byte): 8-bit enumeration. This value specifies the current day of the week (Sunday = 0, Monday = 1, and so on).

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.

2.2.3.1.3 RopLogon ROP Success Response Buffer for Public Folders



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...	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.

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LogonFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCSTOR] section 2.2.1.1.4. These flags specify the type of logon.

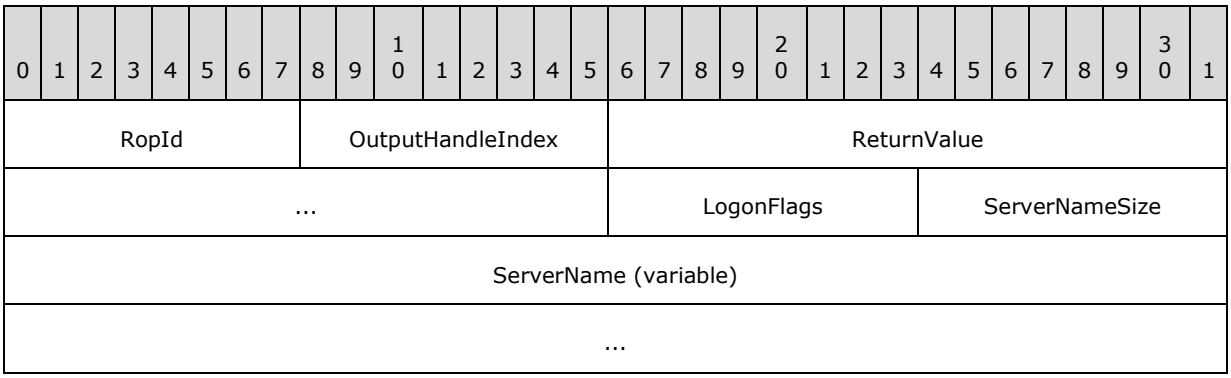
FolderIds (104 bytes): 13 64-bit identifiers. These IDs specify a set of special folders for a mailbox.

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 zeros). <2>

2.2.3.1.4 RopLogon ROP Redirect Response Buffer



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.

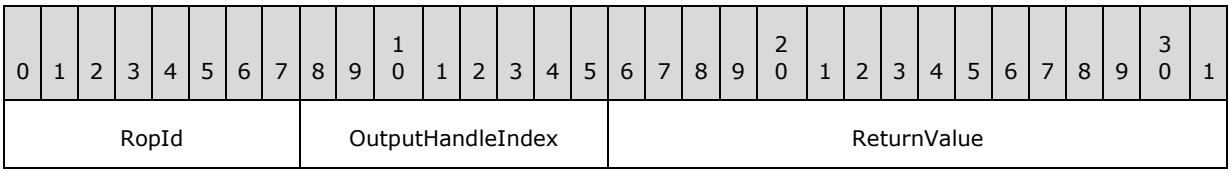
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000478.

LogonFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCSTOR] section 2.2.1.1.2. 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.

2.2.3.1.5 Failure Response Buffer



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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 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.

2.2.3.2 RopGetReceiveFolder ROP

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] section 2.2.1.2.

2.2.3.2.1 RopGetReceiveFolder ROP Request Buffer

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

2.2.3.2.2 RopGetReceiveFolder ROP Success Response Buffer

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
RopId								InputHandleIndex								ReturnValue															
...																FolderId															
...																															

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...	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.

2.2.3.2.3 RopGetReceiveFolder ROP Failure Response Buffer

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

2.2.3.3 RopSetReceiveFolder ROP

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] section 2.2.1.3.

2.2.3.3.1 RopSetReceiveFolder ROP Request Buffer

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
RopId								LogonId								InputHandleIndex								FolderId							
...																															

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...	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.

2.2.3.3.2 RopSetReceiveFolder ROP Response Buffer

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

2.2.3.4 RopGetReceiveFolderTable ROP

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] section 2.2.1.4.

2.2.3.4.1 RopGetReceiveFolderTable ROP Request Buffer

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

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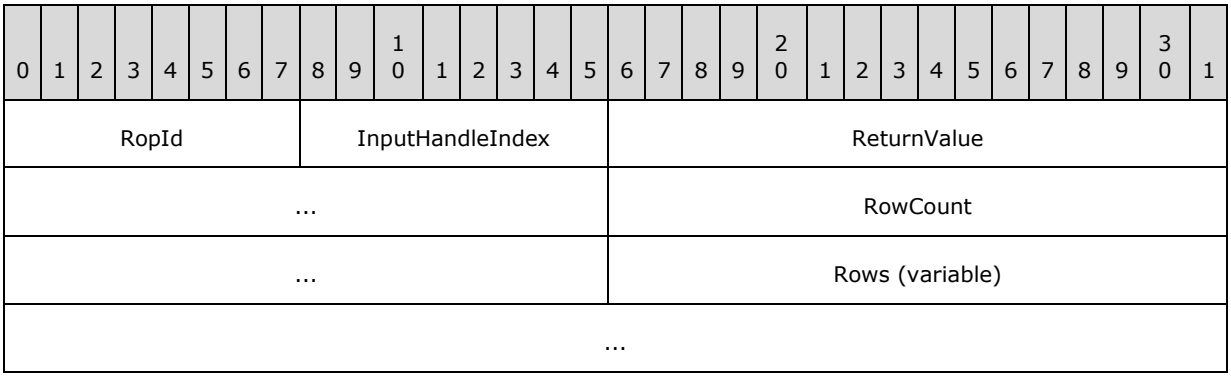
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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.

2.2.3.4.2 RopGetReceiveFolderTable ROP Success Response Buffer



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

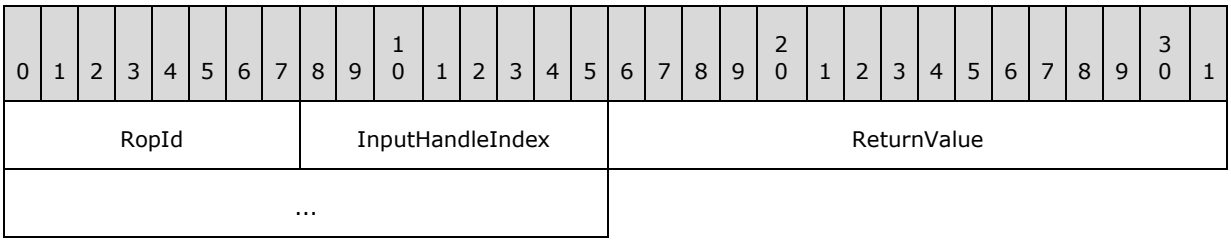
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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 2.8.1.1 and 2.8.1.2. 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** ([MS-OXPROPS] section 2.758), **PidTagMessageClass** ([MS-OXPROPS] section 2.843), and **PidTagLastModificationTime** ([MS-OXPROPS] section 2.821) properties, in that order, and no other properties.

2.2.3.4.3 RopGetReceiveFolderTable ROP Failure Response Buffer



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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 0x68.

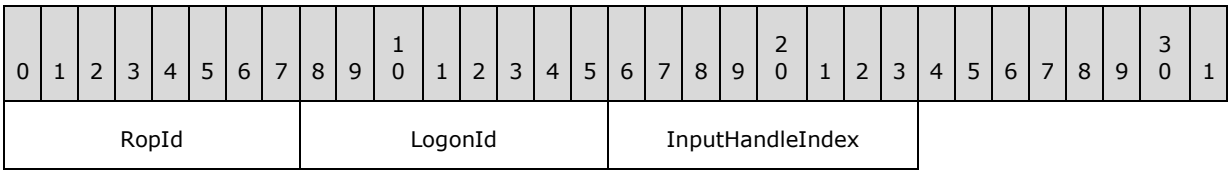
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.3.5 RopGetStoreState ROP

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] section 2.2.1.5.

2.2.3.5.1 RopGetStoreStage ROP Request Buffer

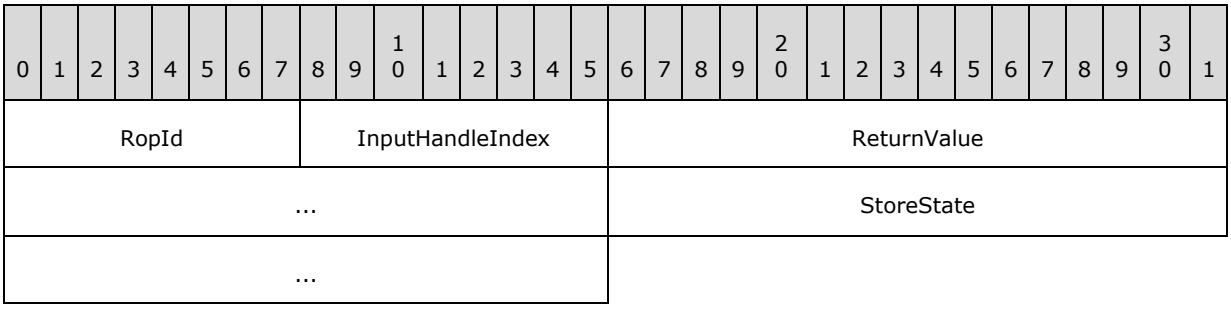


RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7B.

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.

2.2.3.5.2 RopGetStoreState ROP Success Response Buffer



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.

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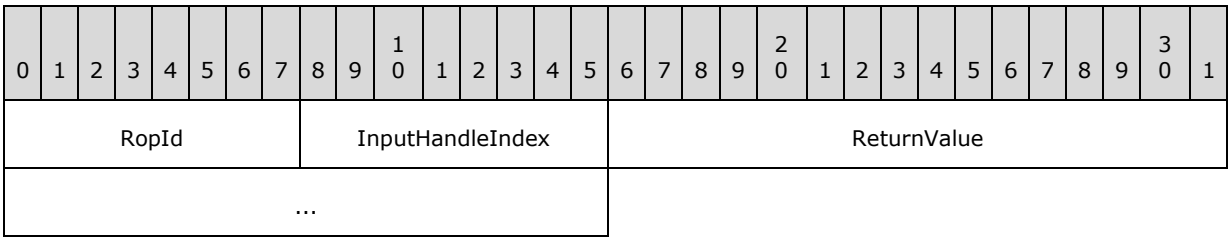
StoreState (4 bytes): 32-bit flags structure. The possible values are specified in [MS-OXCSTOR] section 2.2.1.5.2. These flags specify the state related to the logged on user.

2.2.3.5.3 RopGetStoreState ROP Failure Response Buffer



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

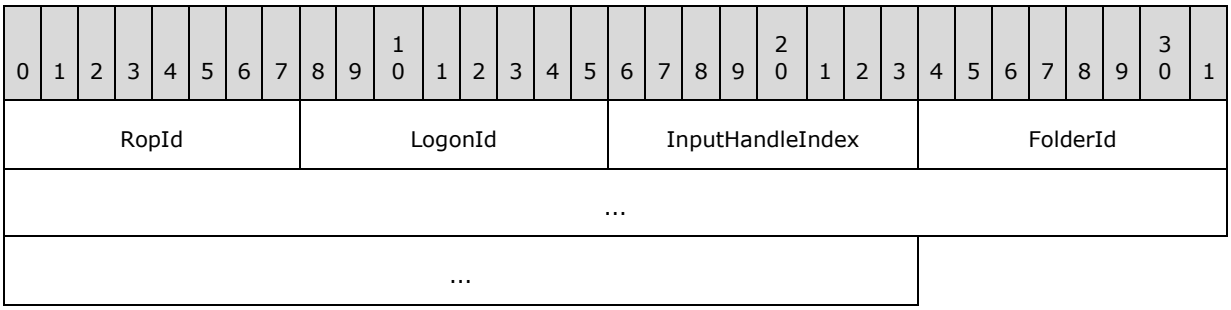
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.3.6 RopGetOwningServers ROP

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] section 2.2.1.6.

2.2.3.6.1 RopGetOwningServers ROP Request Buffer



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.

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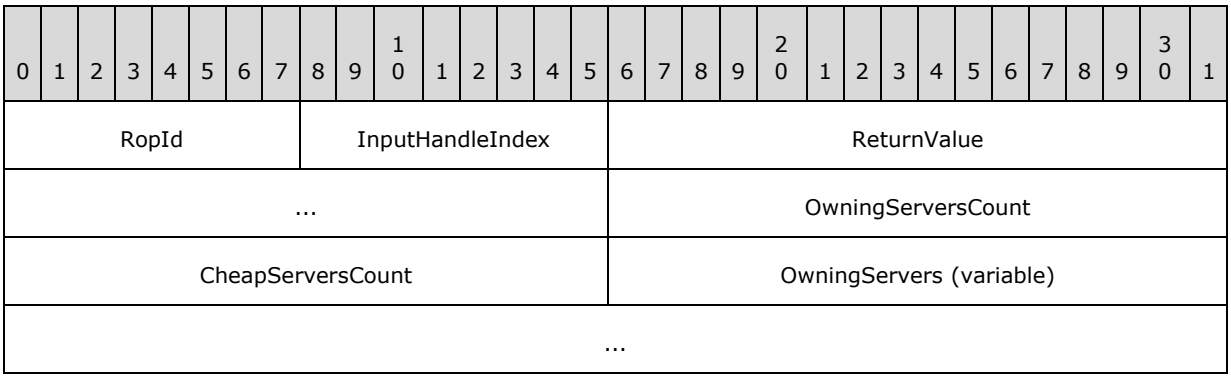
2.2.3.6.2 RopGetOwningServers ROP Success Response Buffer



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.

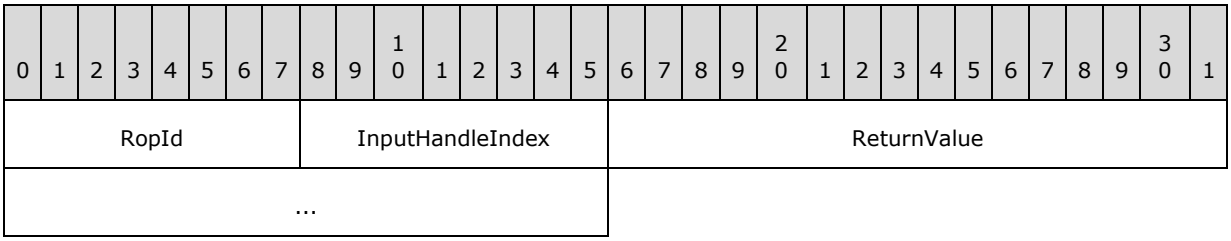
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

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.

2.2.3.6.3 RopGetOwningServers ROP Failure Response Buffer



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.

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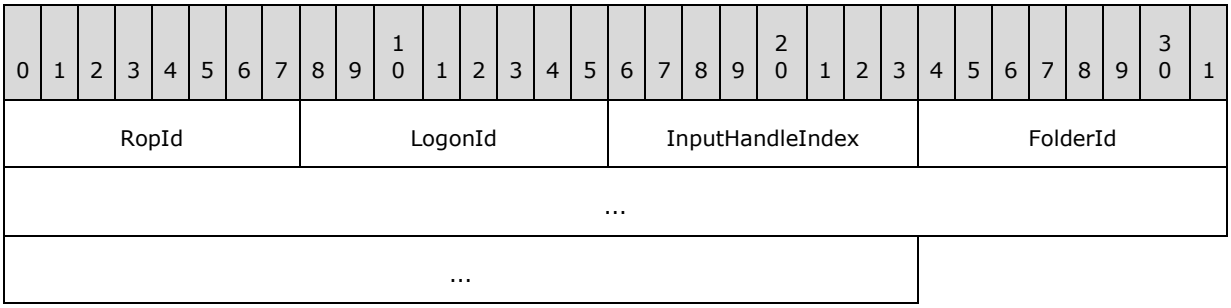
2.2.3.7 RopPublicFolderIsGhosted ROP

This ROP determines if a public folder is ghosted. More detailed information about this operation can be found in [MS-OXCSTOR] section 2.2.1.7.

2.2.3.7.1 RopPublicFolderIsGhosted ROP Request Buffer



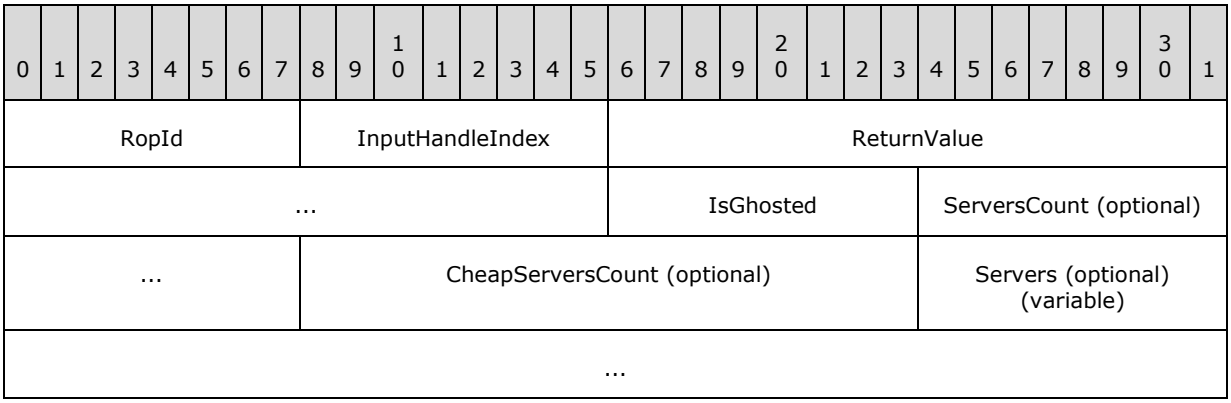
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x45.

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.

2.2.3.7.2 RopPublicFolderIsGhosted ROP Success Response Buffer



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.

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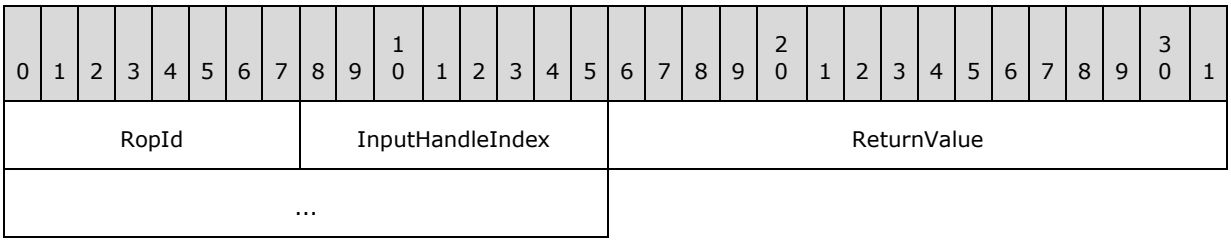
IsGhosted (1 byte): 8-bit Boolean. This value specifies whether the folder is a **ghosted folder**.

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.

2.2.3.7.3 RopPublicFolderIsGhosted ROP Failure Response Buffer



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

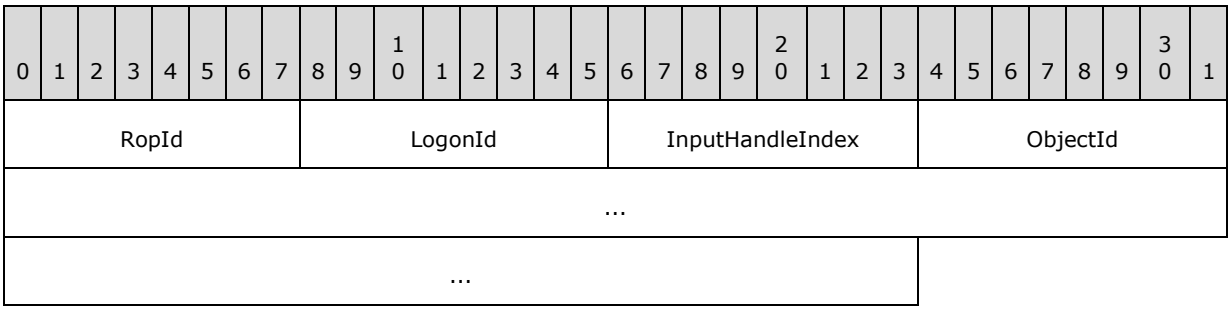
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.3.8 RopLongTermIdFromId ROP

This ROP converts a short-term ID (FID or MID) into a long term ID. More detailed information about this operation can be found in [MS-OXCSTOR] section 2.2.1.8. For more details about short-term IDs, see [MS-OXCDATA] section 2.2.1.1 and [MS-OXCDATA] section 2.2.1.2. For more details about long-term IDs, see [MS-OXCDATA] section 2.2.1.3.1.

2.2.3.8.1 RopLongTermIdFromId ROP Request Buffer



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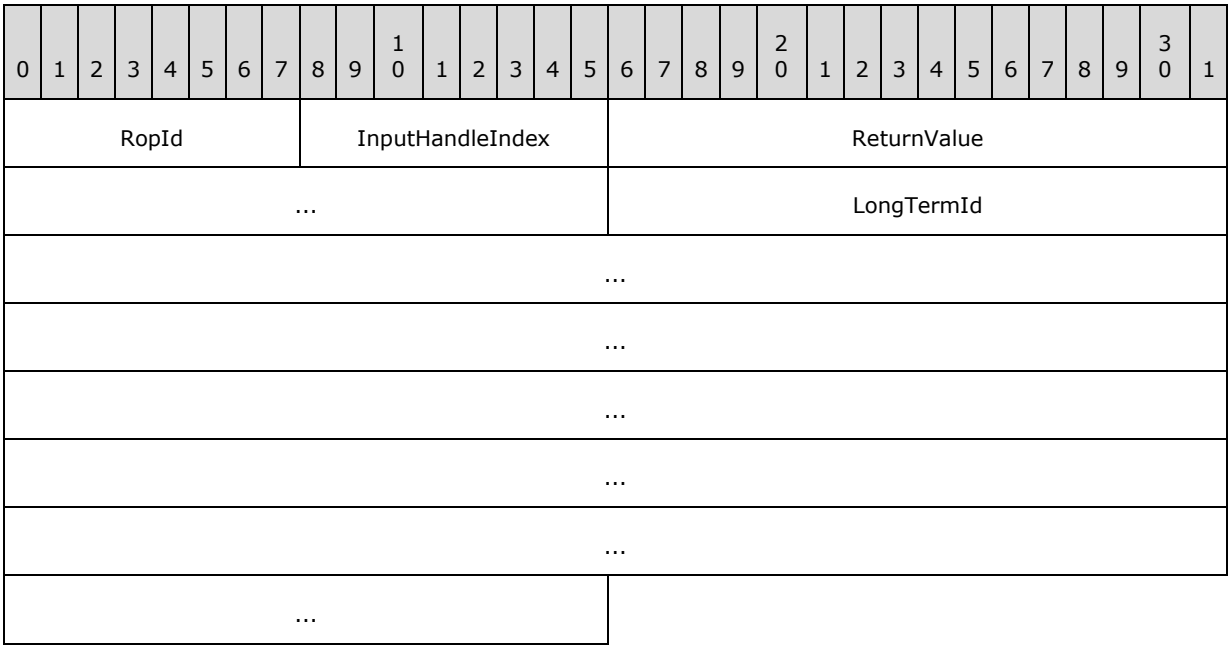
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x43.

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.

2.2.3.8.2 RopLongTermIdFromId ROP Success Response Buffer



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.

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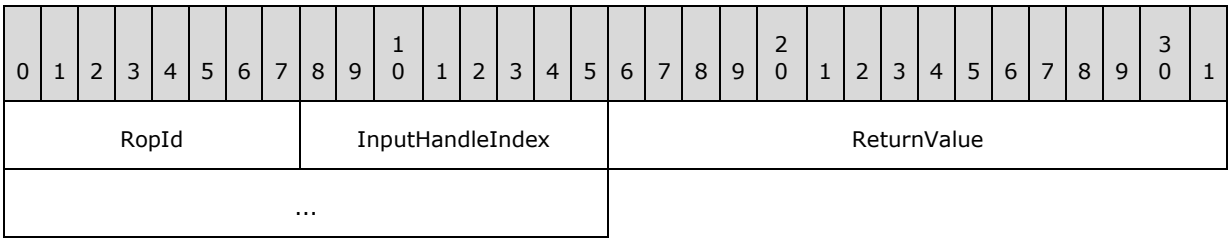
2.2.3.8.3 RopLongTermIdFromId ROP Failure Response Buffer



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

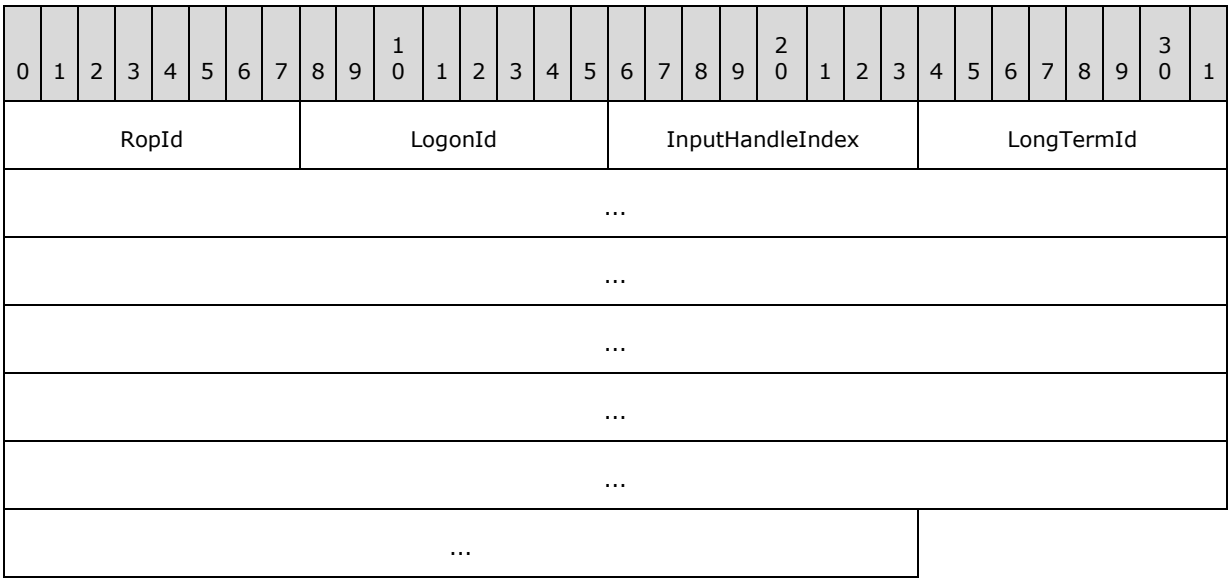
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.3.9 RopIdFromLongTermId ROP

This ROP converts a long-term ID into a short-term ID. More detailed information about this operation can be found in [MS-OXCSTOR] section 2.2.1.9.

2.2.3.9.1 RopIdFromLongTermId ROP Request Buffer



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.

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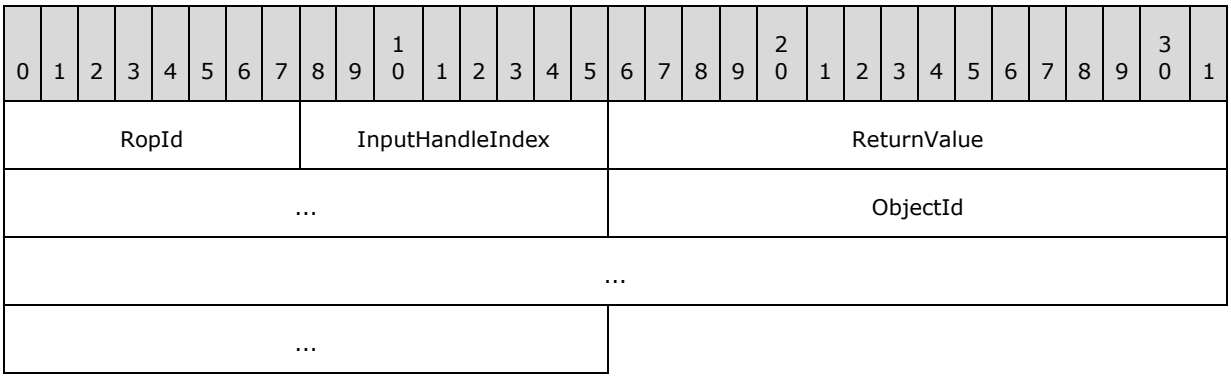
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

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.

2.2.3.9.2 RopIdFromLongTermId ROP Success Response Buffer



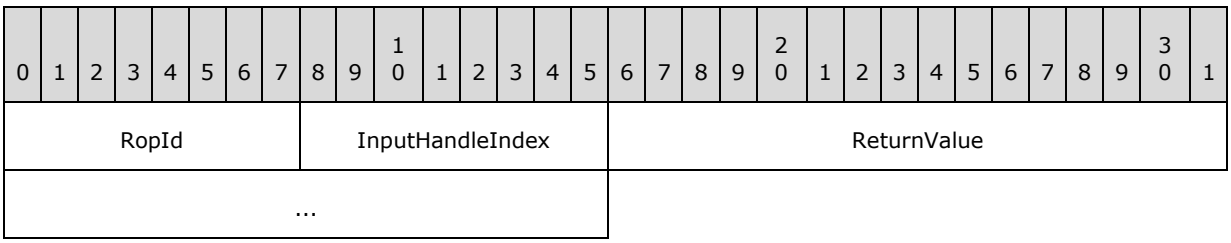
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x44.

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.

2.2.3.9.3 RopIdFromLongTermId ROP Failure Response Buffer



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.

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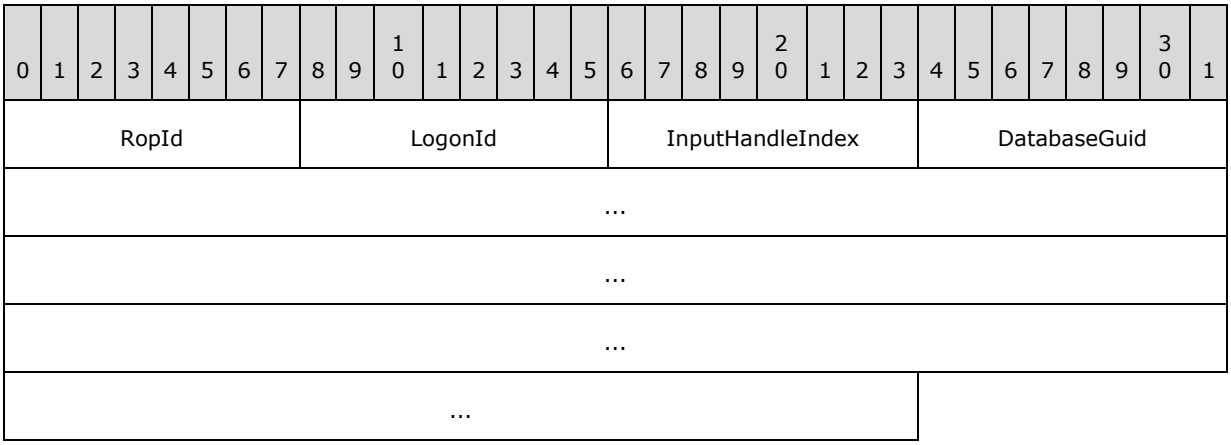
2.2.3.10 RopGetPerUserLongTermIds ROP

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] section 2.2.1.10.

2.2.3.10.1 RopGetPerUserLongTermIds ROP Request Buffer



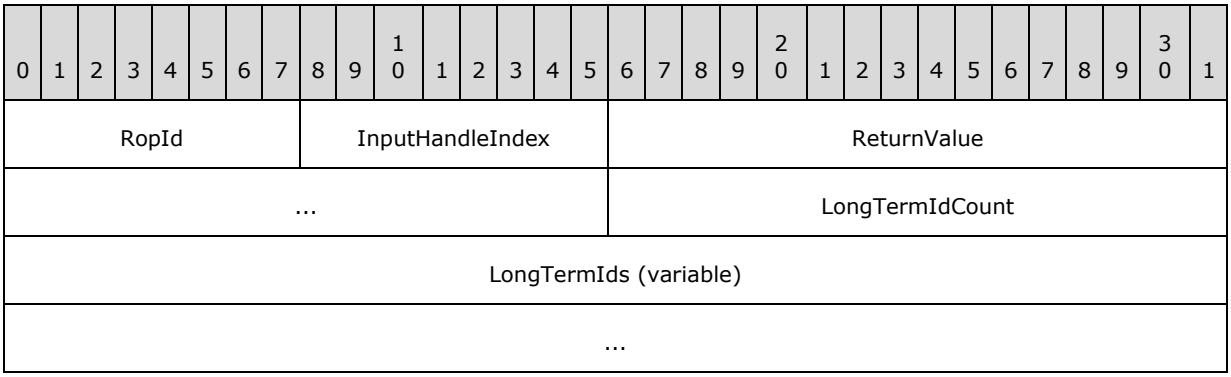
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x60.

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.

2.2.3.10.2 RopGetPerUserLongTermIds ROP Success Response Buffer



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

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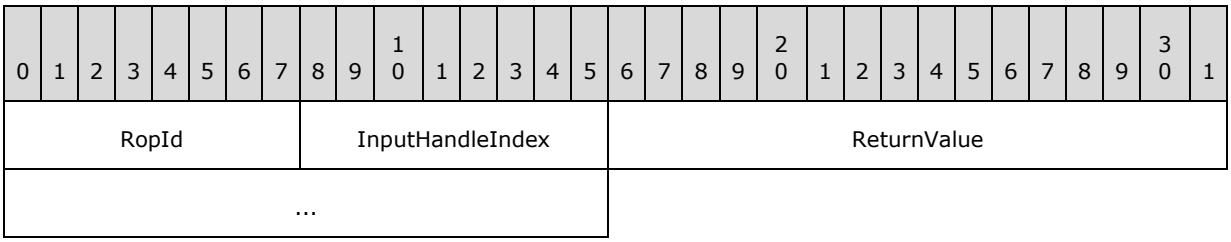
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.3.10.3 RopGetPerUserLongTermIds ROP Failure Response Buffer



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

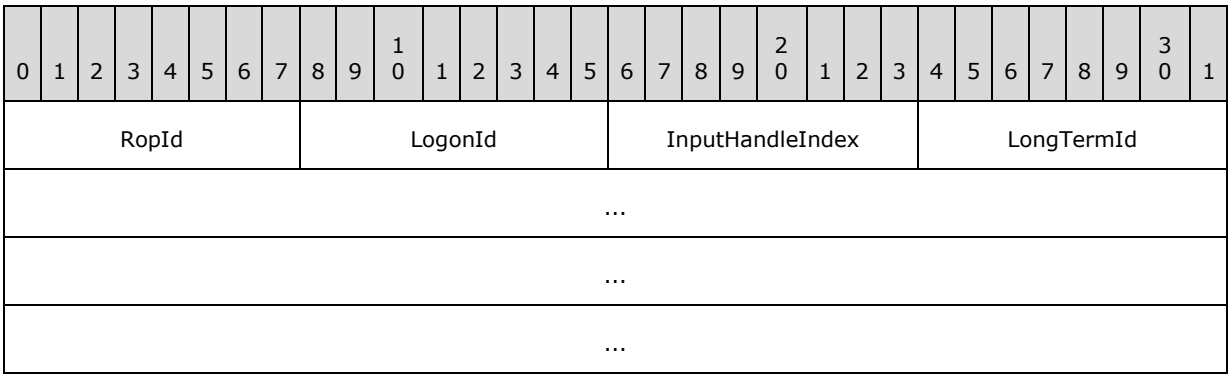
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.3.11 RopGetPerUserGuid ROP

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] section 2.2.1.11.

2.2.3.11.1 RopGetPerUserGuid ROP Request Buffer



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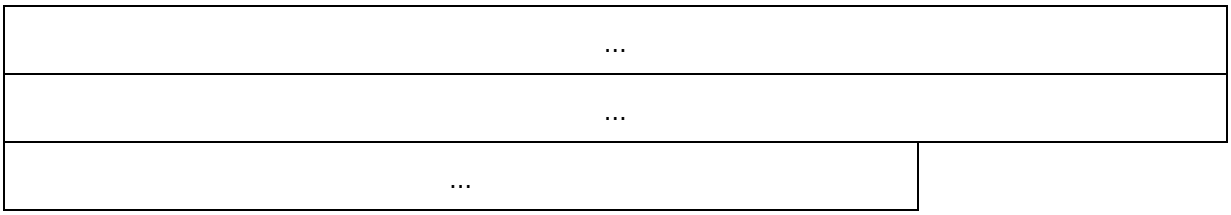


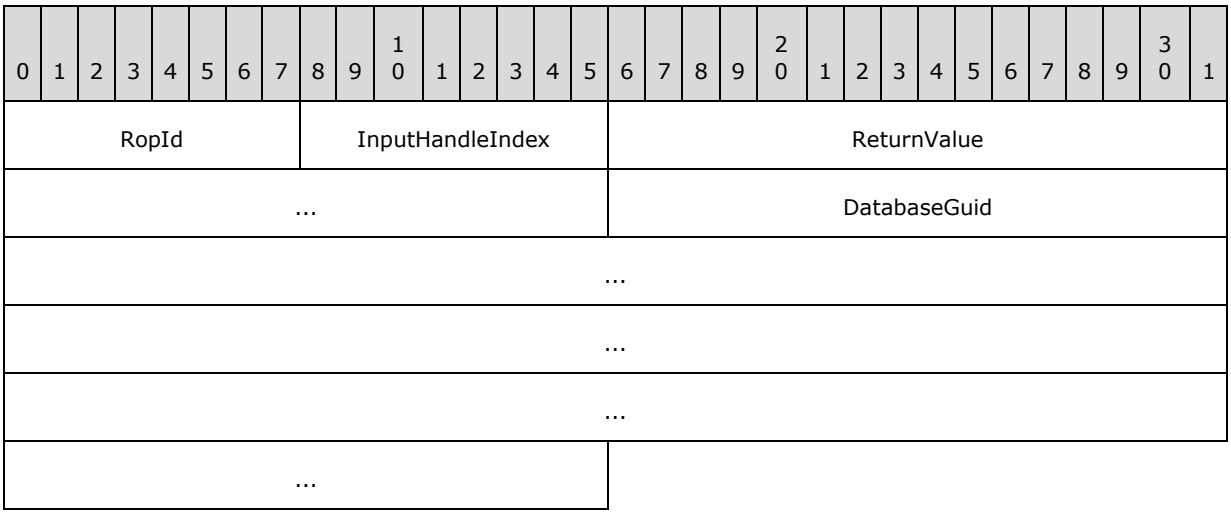
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x61.

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.

2.2.3.11.2 RopGetPerUserGuid ROP Success Response Buffer



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.

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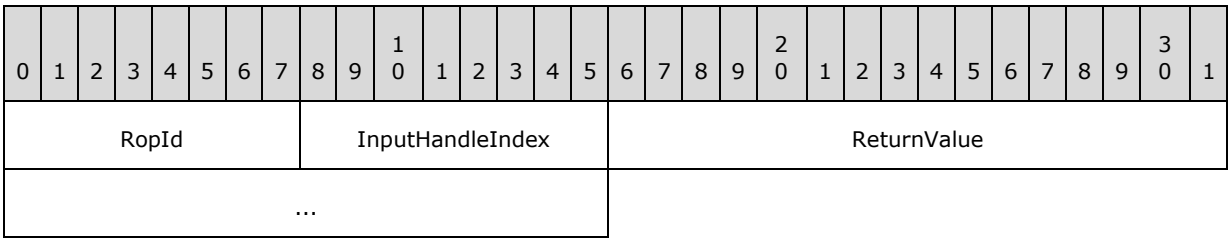
2.2.3.11.3 RopGetPerUserGuid ROP Failure Response Buffer



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

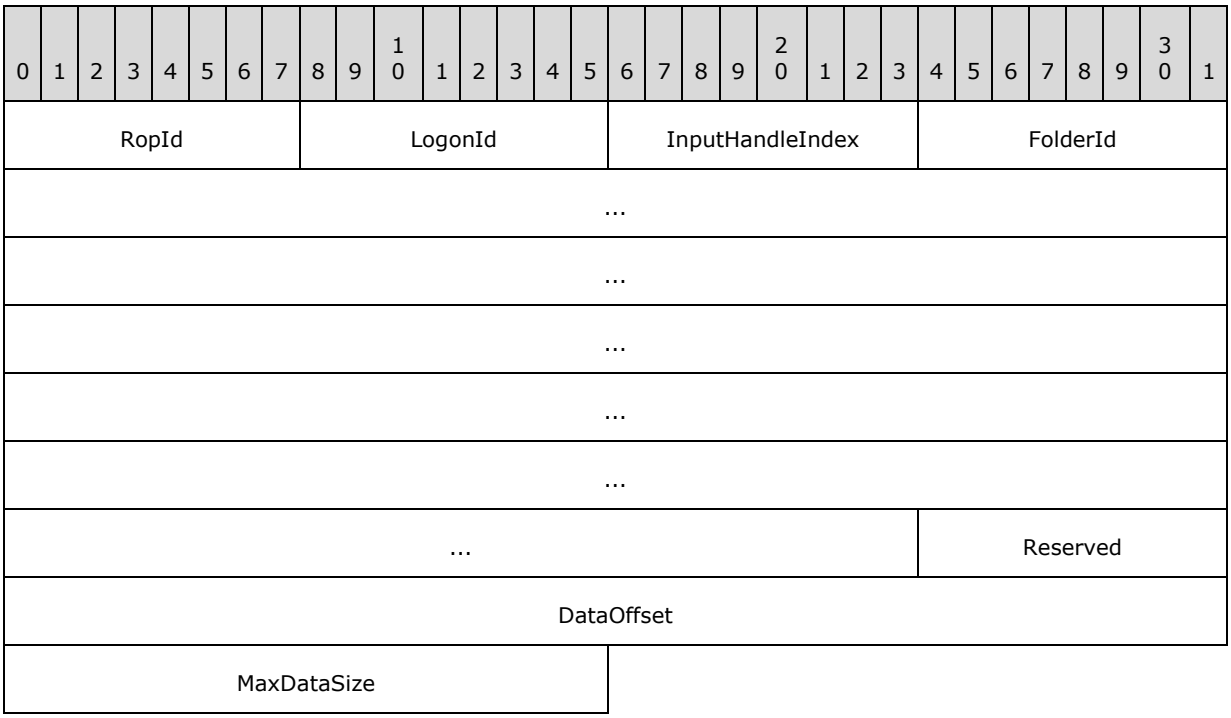
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.3.12 RopReadPerUserInformation ROP

This ROP gets per-user information for a public folder. More detailed information about this operation can be found in [MS-OXCSTOR] section 2.2.1.12.

2.2.3.12.1 RopReadPerUserInformation ROP Request Buffer



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

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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.

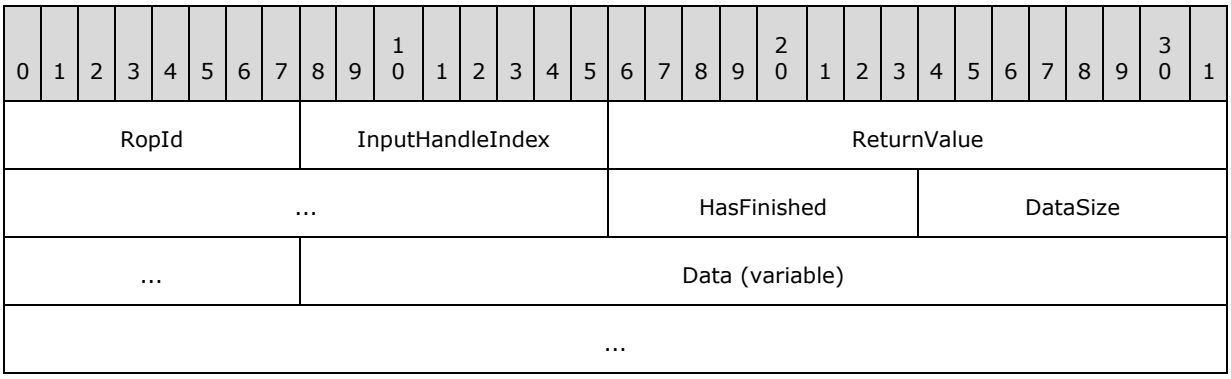
FolderId (24 bytes): LongTermID structure. The structure specifies the folder for which to get per-user information. The format of the **LongTermID** structure is specified in [MS-OXCDATA] section 2.2.1.3.1.

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.

2.2.3.12.2 RopReadPerUserInformation ROP Success Response Buffer



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.

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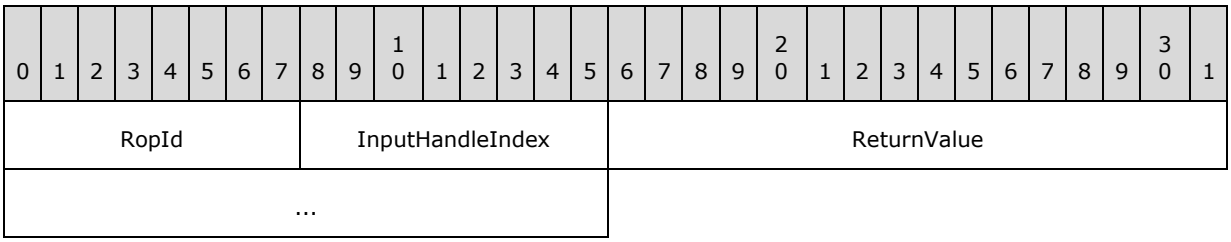
2.2.3.12.3 RopReadPerUserInformation ROP Failure Response Buffer



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

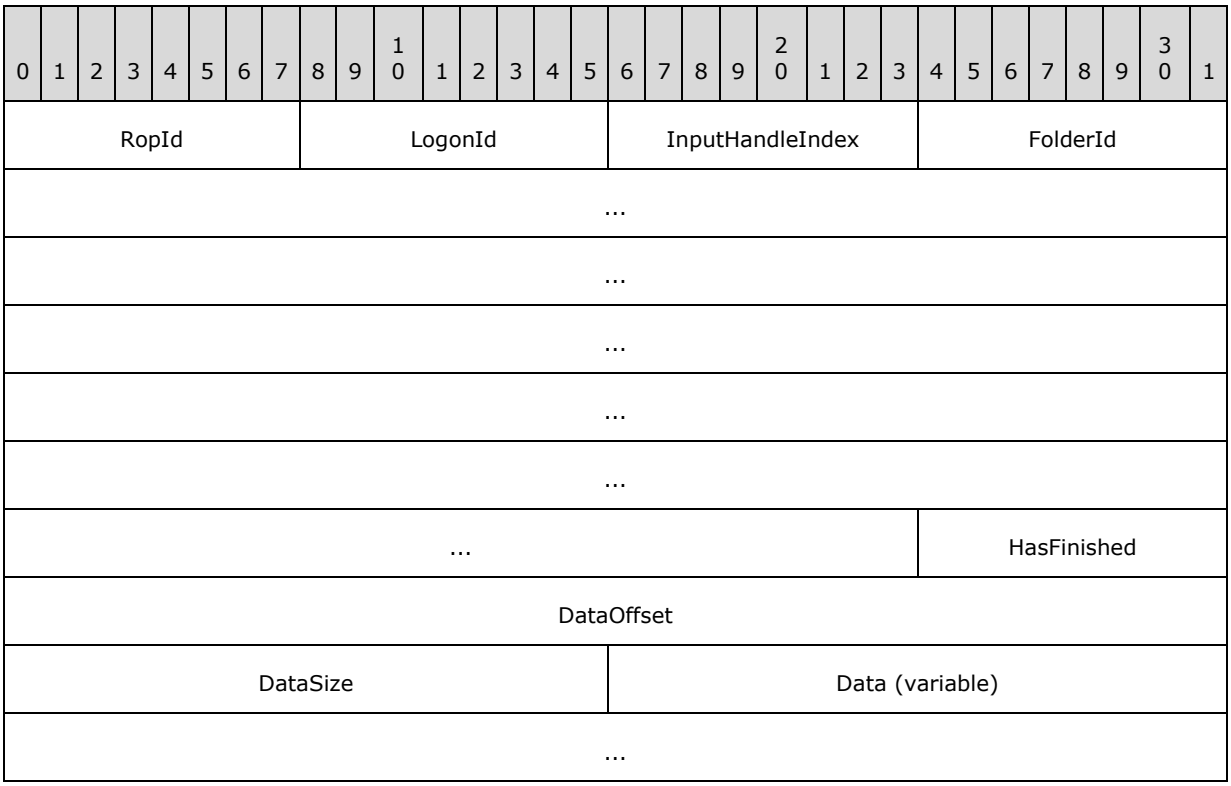
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.3.13 RopWritePerUserInformation ROP

This ROP sets per-user information for a public folder. More detailed information about this operation can be found in [MS-OXCSTOR] section 2.2.1.13.

2.2.3.13.1 RopWritePerUserInformation ROP Request Buffer



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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.

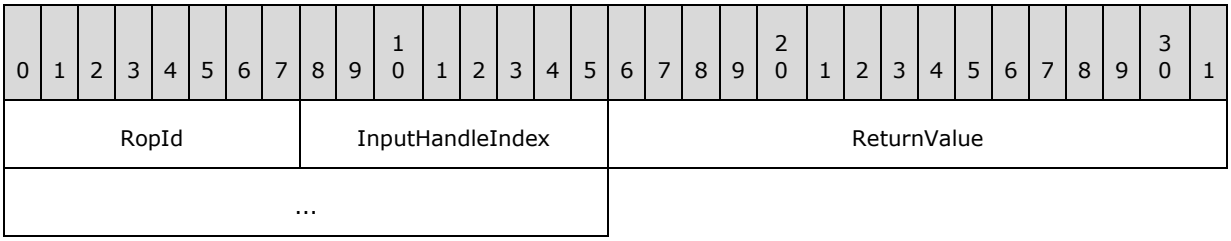
DataOffset (4 bytes): Unsigned 32-bit integer. This value specifies the location in the per-user information stream to start writing.

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] section 2.2.1.1.1 for more information) and is not present otherwise.

2.2.3.13.2 RopWritePerUserInformation ROP Response Buffer



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

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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.

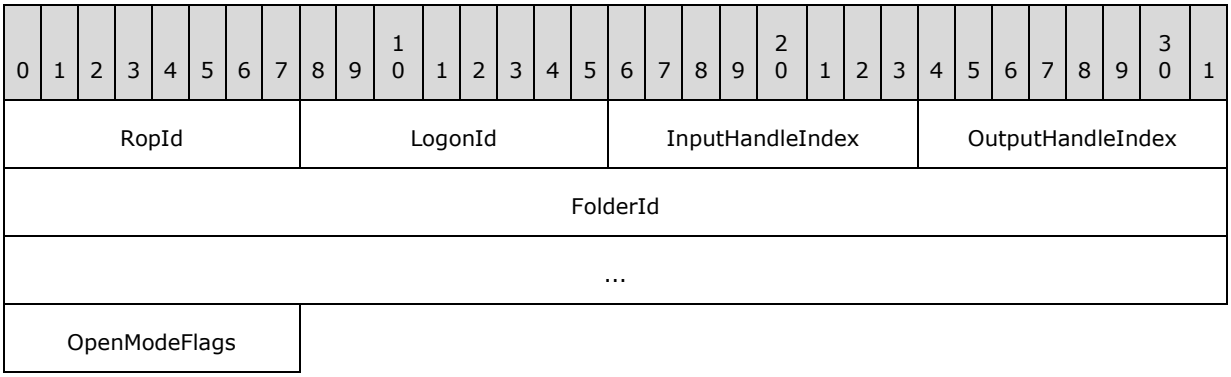
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.4 Folder ROPs

2.2.4.1 RopOpenFolder ROP

This ROP opens an existing folder in a mailbox. More detailed information about this operation can be found in [MS-OXCFOLD] section 2.2.1.1.

2.2.4.1.1 RopOpenFolder ROP Request Buffer



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.

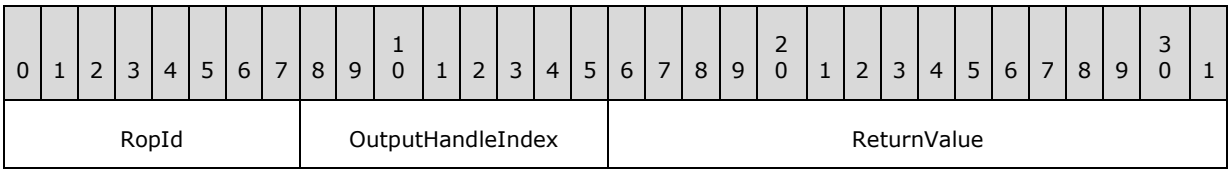
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

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] section 2.2.1.1.1.

2.2.4.1.2 RopOpenFolder ROP Success Response Buffer



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...	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.

2.2.4.1.3 RopOpenFolder ROP Failure Response Buffer

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

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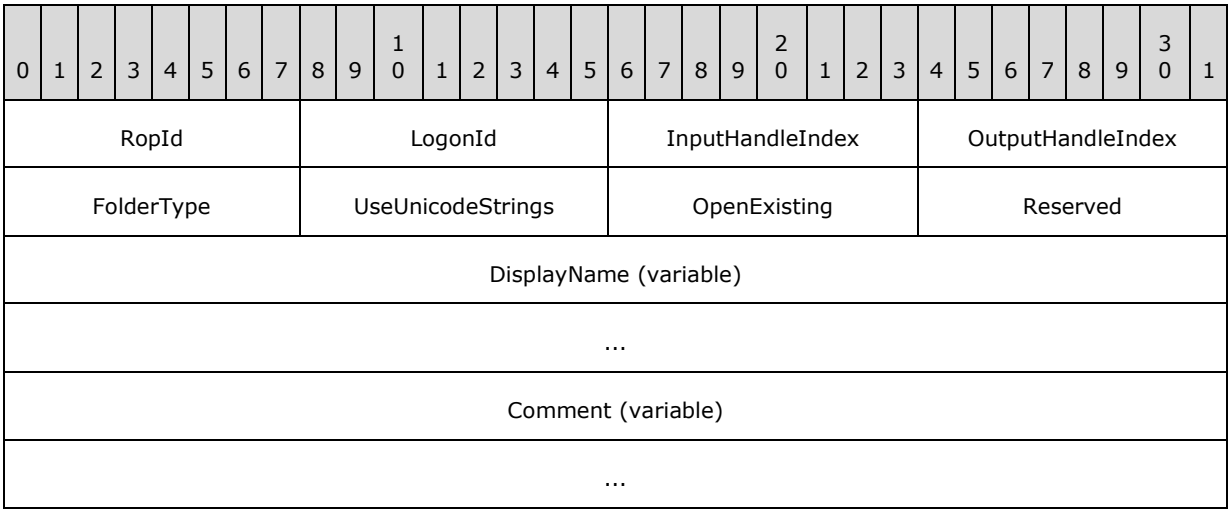
2.2.4.2 RopCreateFolder ROP

This ROP creates a new subfolder. More detailed information about this operation can be found in [MS-OXCFOLD] section 2.2.1.2 .

2.2.4.2.1 RopCreateFolder ROP Request Buffer



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] section 2.2.1.2.1. 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

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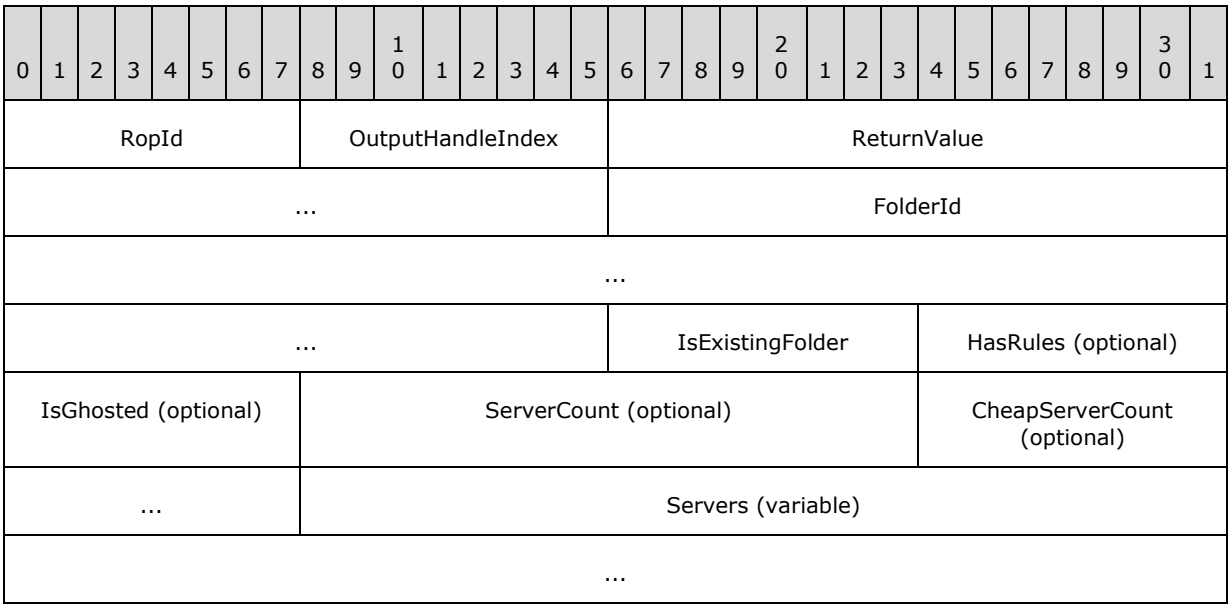
of Unicode characters. If **UseUnicodeStrings** is zero, the string is composed of multi-byte characters.

2.2.4.2.2 RopCreateFolder ROP Success Response Buffer



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.

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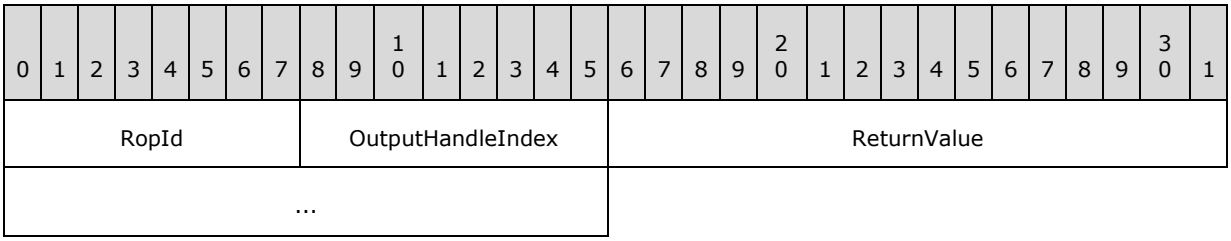
Servers (variable): List of null-terminated ASCII strings. This field is present if both **IsExistingFolder** and **IsGhosted** are nonzero and is not present otherwise. The number of strings contained in this field is specified by the **ServersCount** field. These strings specify which servers have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

2.2.4.2.3 RopCreateFolder ROP Failure Response Buffer



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

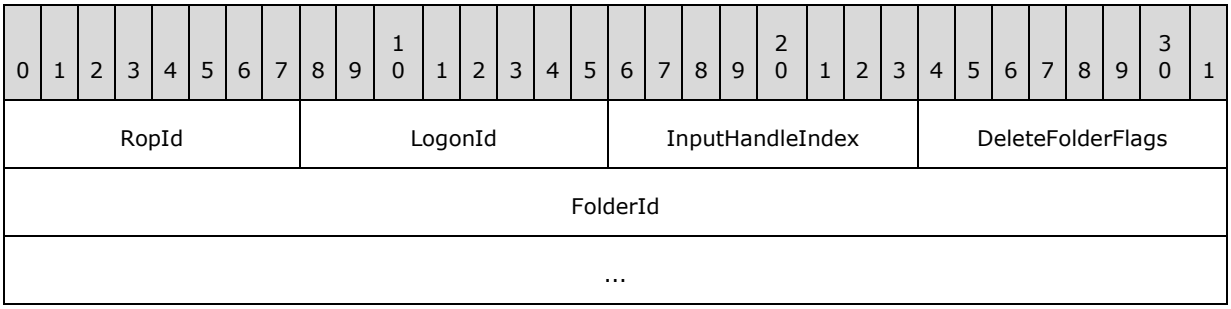
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.4.3 RopDeleteFolder ROP

This ROP deletes a subfolder. More detailed information about this operation can be found in [MS-OXCFOLD] section 2.2.1.3.

2.2.4.3.1 RopDeleteFolder ROP Request Buffer



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] section 2.2.1.3.1.

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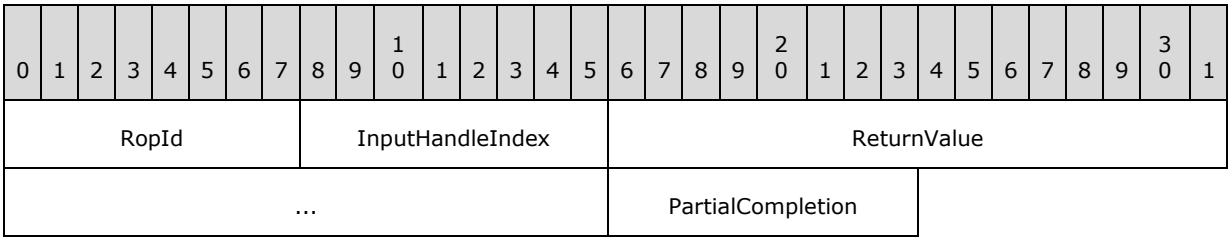
FolderId (8 bytes): 64-bit identifier. This value identifies the folder to be deleted.

2.2.4.3.2 RopDeleteFolder ROP Response Buffer



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.

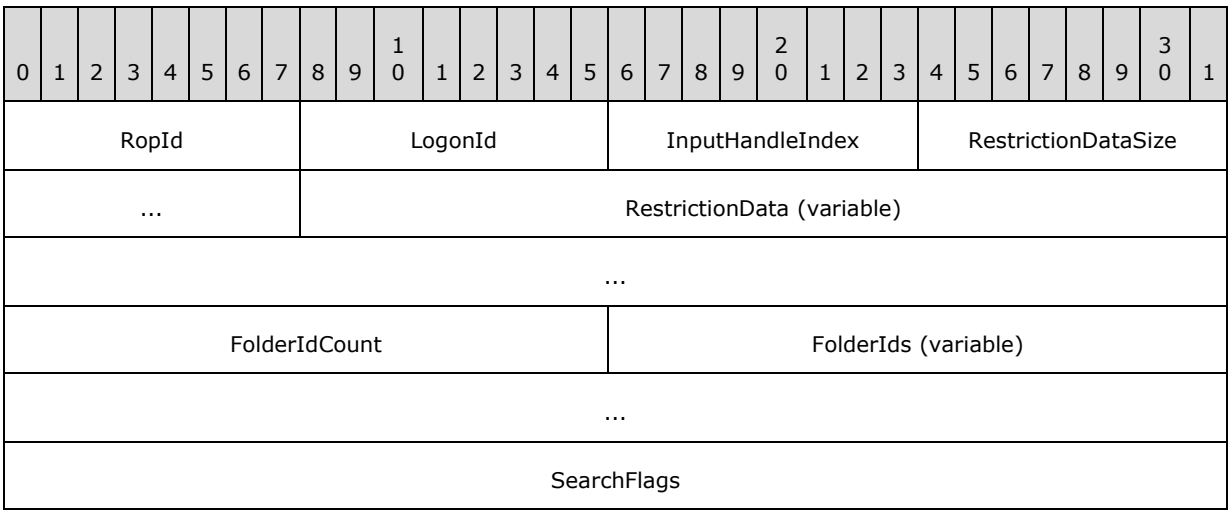
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

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

2.2.4.4 RopSetSearchCriteria ROP

This ROP sets the **search criteria** for a search folder. More detailed information about this operation can be found in [MS-OXCFOLD] section 2.2.1.4.

2.2.4.4.1 RopSetSearchCriteria ROP Request Buffer



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.

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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.

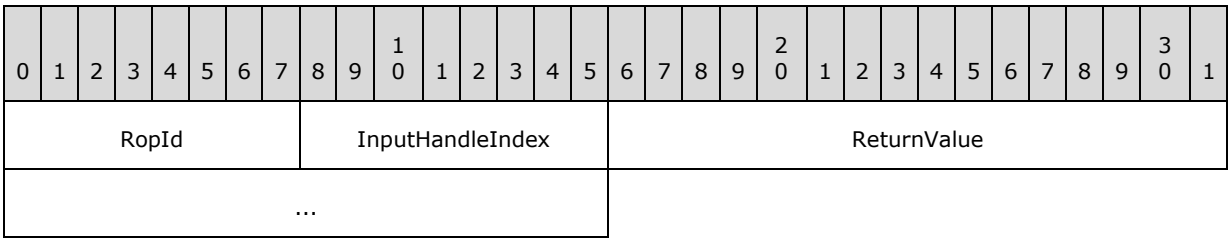
RestrictionData (variable): Restriction packet. The size of this field is **RestrictionDataSize** bytes. This field contains a restriction packet, as specified in [MS-OXCDATA] section 2.12. The restriction specifies the filter for this search folder.

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.

2.2.4.4.2 RopSetSearchCriteria ROP Response Buffer



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

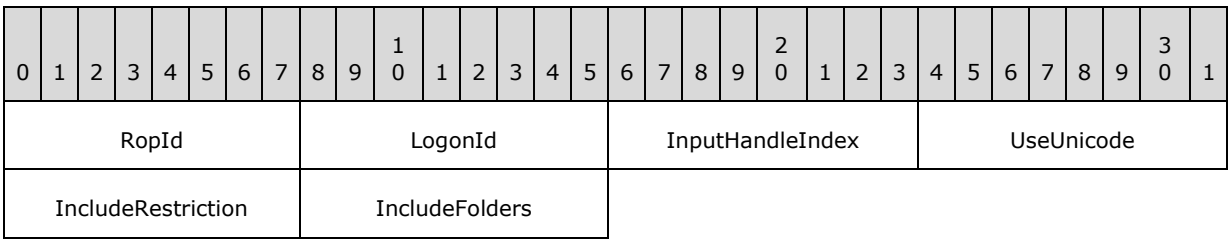
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.4.5 RopGetSearchCriteria ROP

This ROP gets the search criteria for a search folder. More detailed information about this operation can be found in [MS-OXCFOLD] section 2.2.1.5.

2.2.4.5.1 RopGetSearchCriteria ROP Request Buffer



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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 0x31.

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

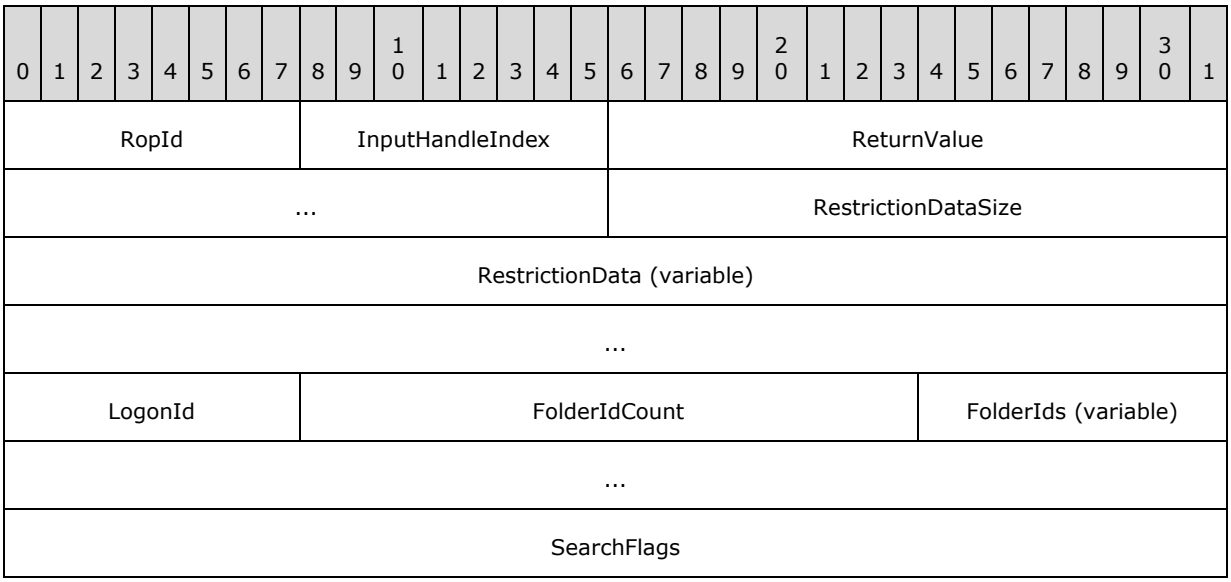
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

UseUnicode (1 byte): 8-bit Boolean. This value specifies whether the client requests that 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.

2.2.4.5.2 RopGetSearchCriteria ROP Success Response Buffer



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.

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RestrictionData (variable): Restriction packet. The size of this field is **RestrictionDataSize** bytes. This field contains a restriction packet, as specified in [MS-OXCDATA] section 2.12. The restriction specifies the filter for this search folder.

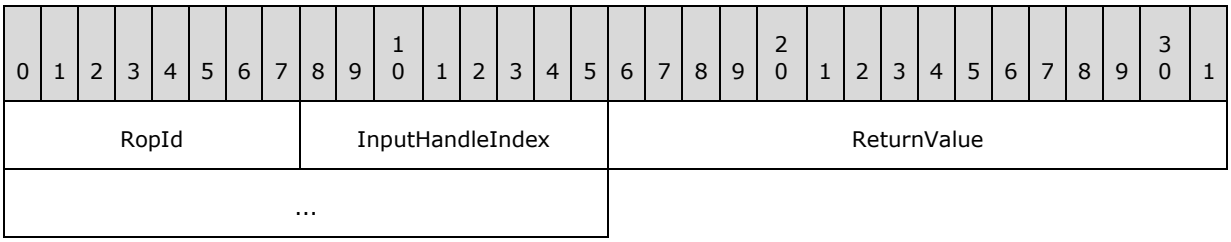
LogonId (1 byte): Unsigned 8-bit integer. This field MUST be set to the value of the **LogonId** field in the request.

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. The possible values for this field are specified in [MS-OXCFOLD] section 2.2.1.5.2.

2.2.4.5.3 RopGetSearchCriteria ROP Failure Response Buffer



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

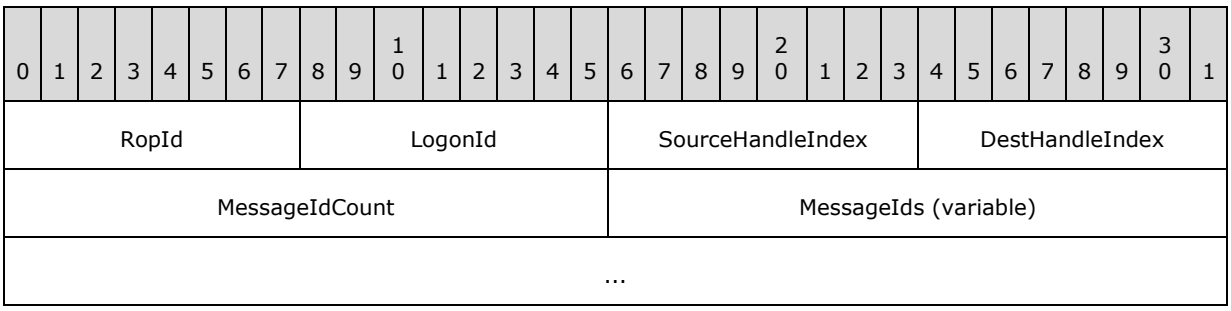
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.4.6 RopMoveCopyMessages ROP

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] section 2.2.1.6.

2.2.4.6.1 RopMoveCopyMessages ROP Request Buffer



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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.

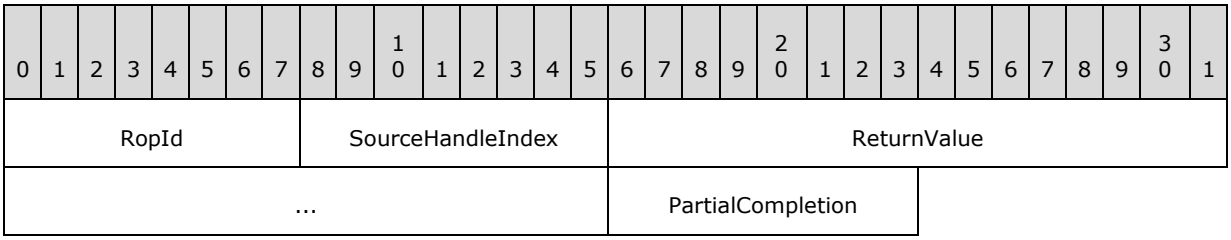
MessageIdCount (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **MessageIds** field.

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 (**section 2.2.8.13**)**.

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

2.2.4.6.2 RopMoveCopyMessages ROP Response Buffer



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.

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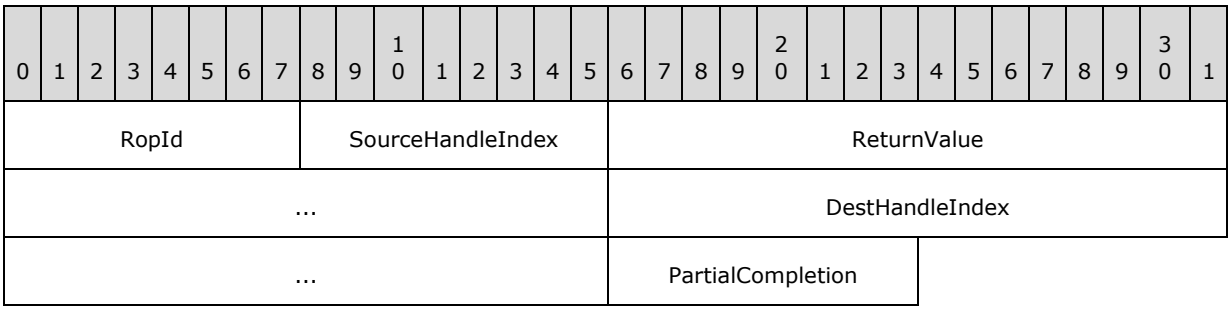
2.2.4.6.3 RopMoveCopyMessages ROP Null Destination Failure Response Buffer



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.

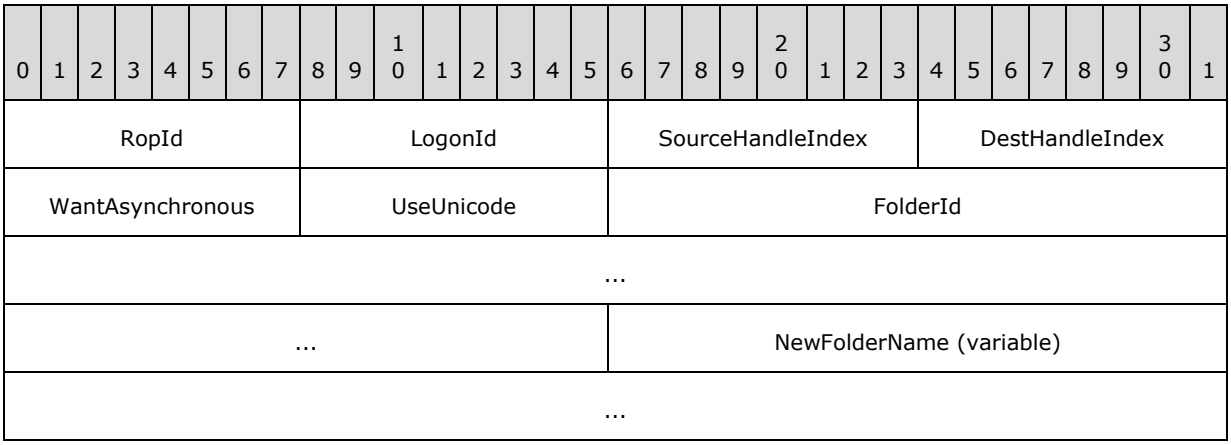
DestHandleIndex (4 bytes): Unsigned 32-bit integer. This index MUST be set to the **DestHandleIndex** specified in the request. For more details about Server objects, see section 3.

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

2.2.4.7 RopMoveFolder ROP

This ROP moves a folder. More detailed information about this operation can be found in [MS-OXCFOLD] section 2.2.1.7.

2.2.4.7.1 RopMoveFolder ROP Request Buffer



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.

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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.

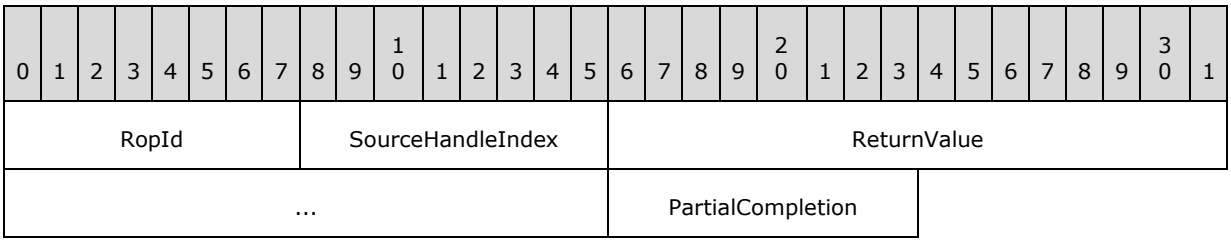
WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via **RopProgress** (section 2.2.8.13).

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.

2.2.4.7.2 RopMoveFolder ROP Response Buffer



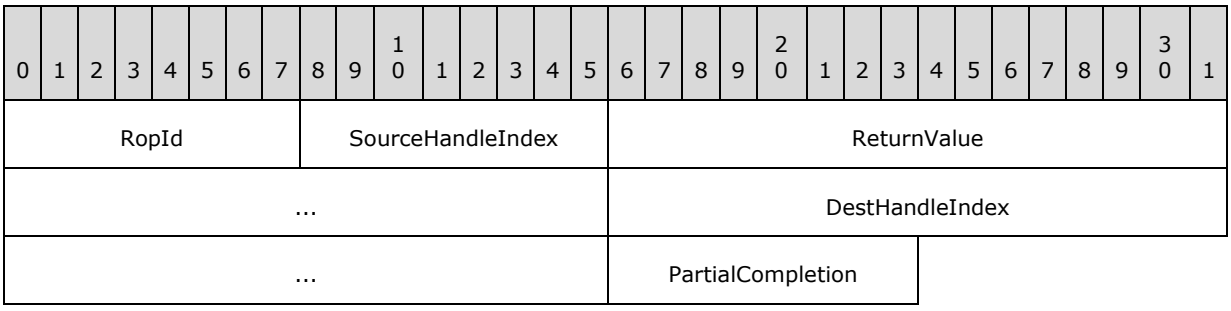
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x35.

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.

2.2.4.7.3 RopMoveFolder ROP Null Destination Failure Response Buffer



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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 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.

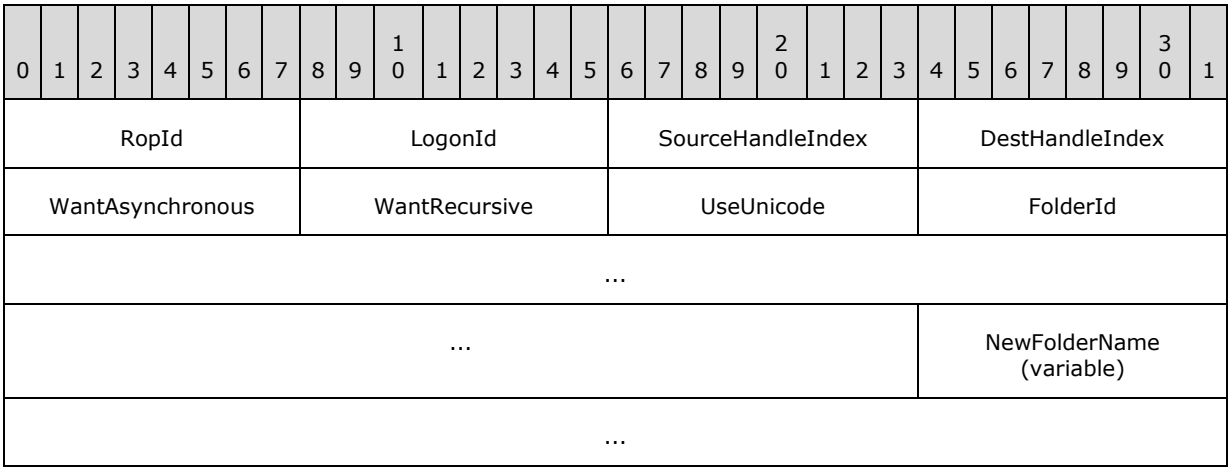
DestHandleIndex (4 bytes): Unsigned 32-bit integer. This index MUST be set to the **DestHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.4.8 RopCopyFolder ROP

This ROP copies a folder. More detailed information about this operation can be found in [MS-OXCFOLD] section 2.2.1.8.

2.2.4.8.1 RopCopyFolder ROP Request Buffer



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** (section 2.2.8.13).

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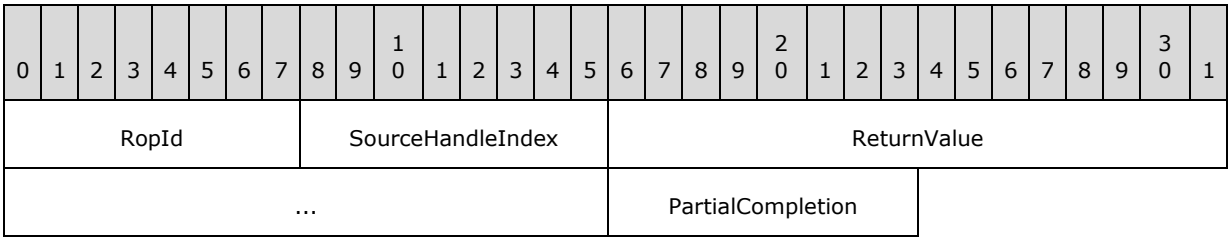
WantRecursive (1 byte): 8-bit Boolean. This value specifies that the copy is recursive.

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.

2.2.4.8.2 RopCopyFolder ROP Response Buffer



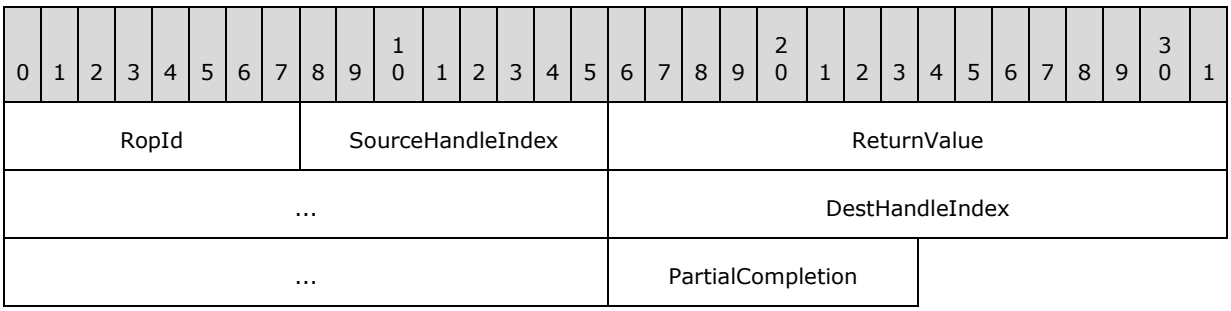
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x36.

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.

2.2.4.8.3 RopCopyFolder ROP Null Destination Failure Response Buffer



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.

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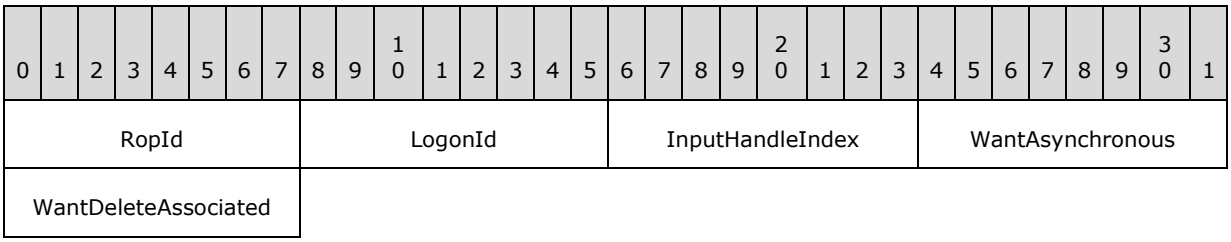
DestHandleIndex (4 bytes): Unsigned 32-bit integer. This index MUST be set to the **DestHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.4.9 RopEmptyFolder ROP

This ROP deletes all messages and subfolders from a folder. More detailed information about this operation can be found in [MS-OXCFOLD] section 2.2.1.9.

2.2.4.9.1 RopEmptyFolder ROP Request Buffer



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

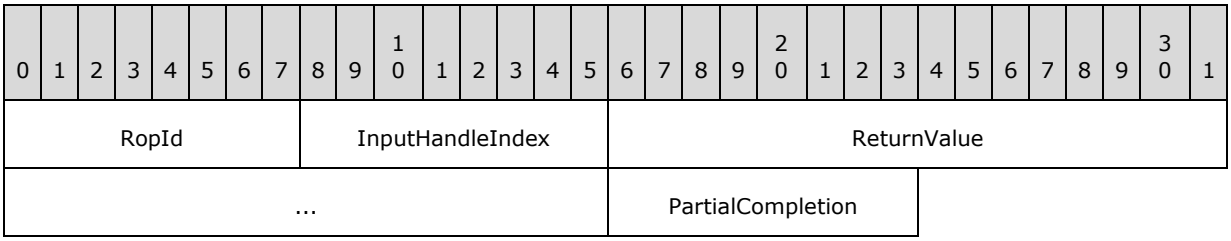
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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 (**section 2.2.8.13**)**.

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

2.2.4.9.2 RopEmptyFolder ROP Response Buffer



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.

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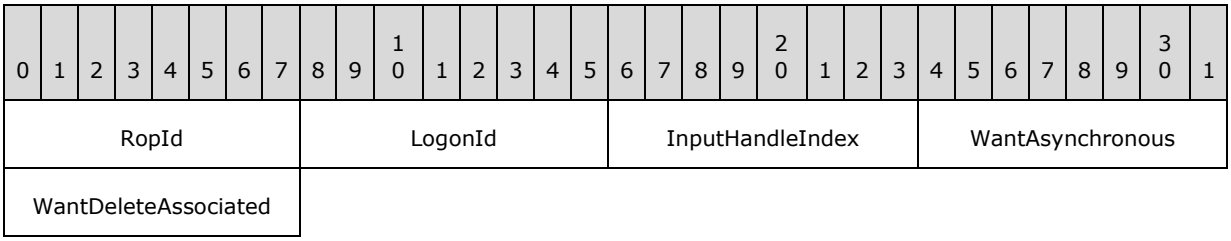
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

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

2.2.4.10 RopHardDeleteMessagesAndSubfolders ROP

This ROP **hard deletes** messages and subfolders from a folder. More detailed information about this operation can be found in [MS-OXCFOLD] section 2.2.1.10.

2.2.4.10.1 RopHardDeleteMessagesAndSubfolders ROP Request Buffer



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

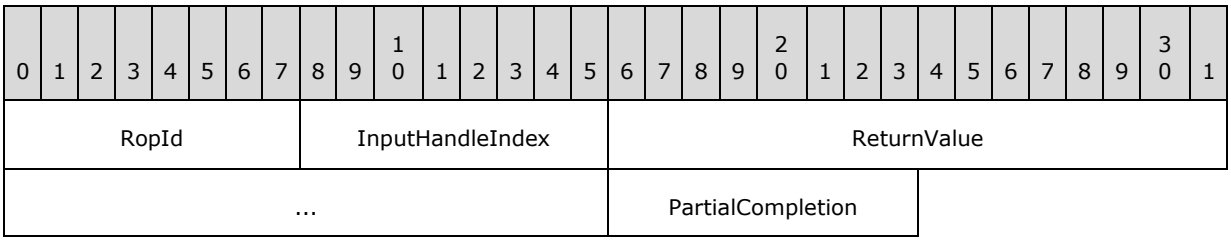
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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** (section 2.2.8.13**)**.

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

2.2.4.10.2 RopHardDeleteMessagesAndSubfolders ROP Response Buffer



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.

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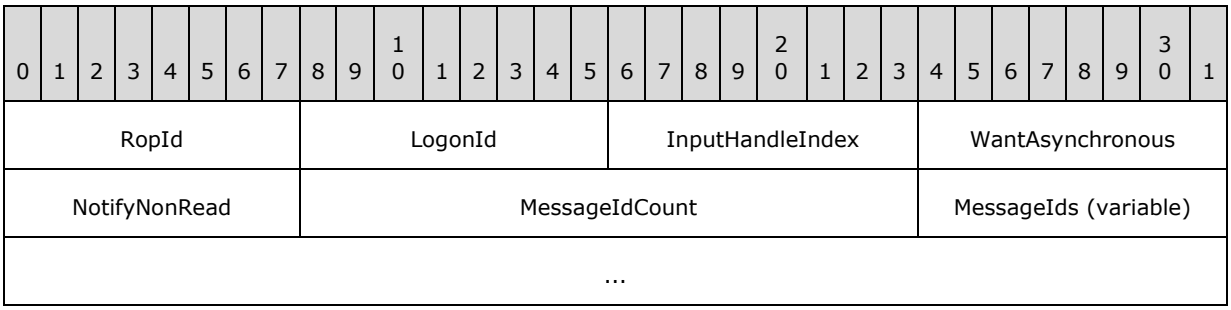
PartialCompletion (1 byte): 8-bit Boolean. This value indicates whether the operation was only partially completed.

2.2.4.11 RopDeleteMessages ROP

This ROP deletes one or more messages in a folder. More detailed information about this operation can be found in [MS-OXCFOLD] section 2.2.1.11.

2.2.4.11.1 RopDeleteMessages ROP Request Buffer



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.

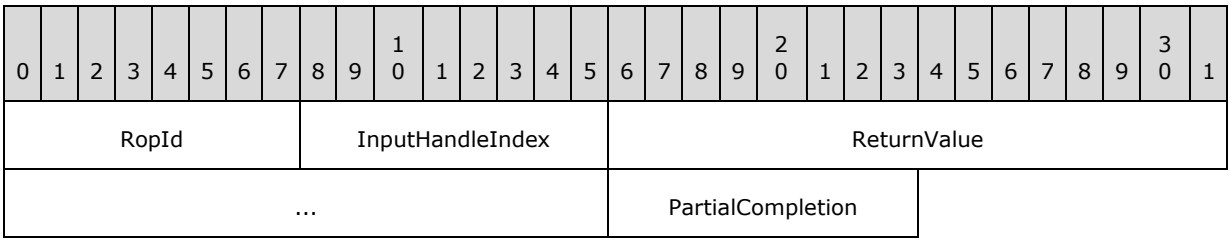
WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via **RopProgress** (section 2.2.8.13).

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.

2.2.4.11.2 RopDeleteMessages ROP Response Buffer



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

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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.

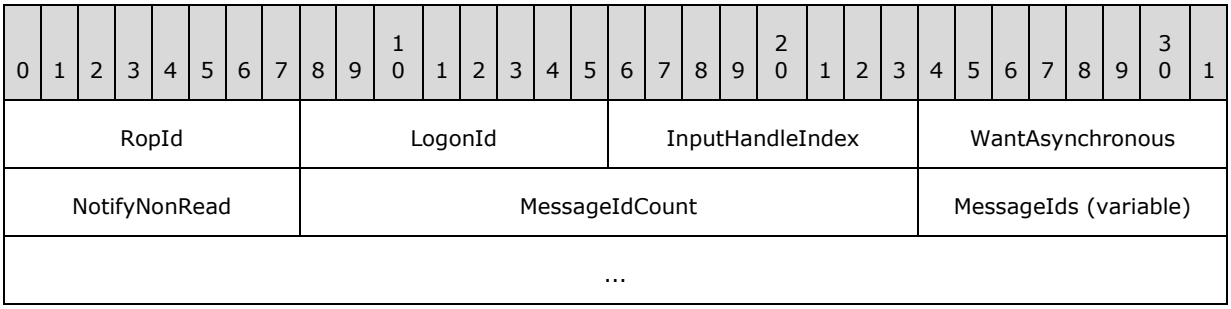
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

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

2.2.4.12 RopHardDeleteMessages ROP

This ROP hard deletes messages in a folder. More detailed information about this operation can be found in [MS-OXCFOLD] section 2.2.1.12.

2.2.4.12.1 RopHardDeleteMessages ROP Request Buffer



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.

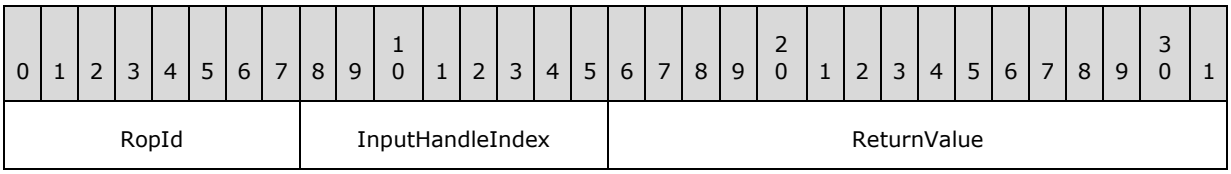
WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via **RopProgress** (section 2.2.8.13).

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.

2.2.4.12.2 RopHardDeleteMessages ROP Response Buffer



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...	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.

2.2.4.13 RopGetHierarchyTable ROP

This ROP gets the subfolder hierarchy table for a folder. More detailed information about this operation can be found in [MS-OXCFOLD] section 2.2.1.13.

2.2.4.13.1 RopGetHierarchyTable ROP Request Buffer

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
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] section 2.2.1.13.1. These flags control the type of table.

2.2.4.13.2 RopGetHierarchyTable ROP Success Response Buffer

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
RopId								OutputHandleIndex								ReturnValue															

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...	RowCount
...	

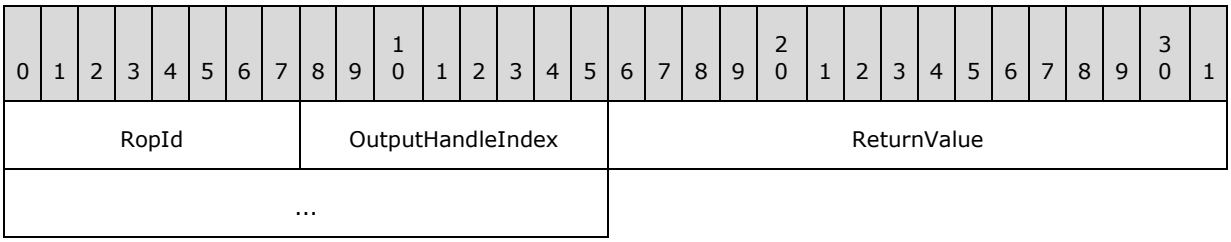
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x04.

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.

2.2.4.13.3 RopGetHierarchyTable ROP Failure Response Buffer



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

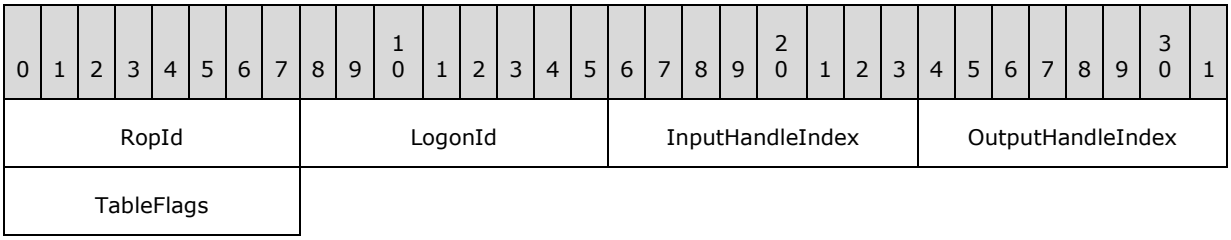
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.4.14 RopGetContentsTable ROP

This ROP gets the content table of a container. More detailed information about this operation can be found in [MS-OXCFOLD] section 2.2.1.14.

2.2.4.14.1 RopGetContentsTable ROP Request Buffer



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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 0x05.

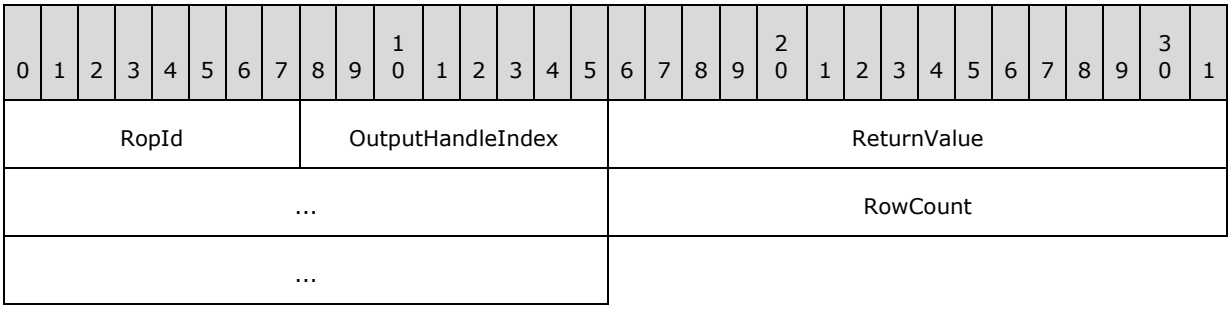
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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] section 2.2.1.14.1. These flags control the type of table.

2.2.4.14.2 RopGetContentsTable ROP Success Response Buffer



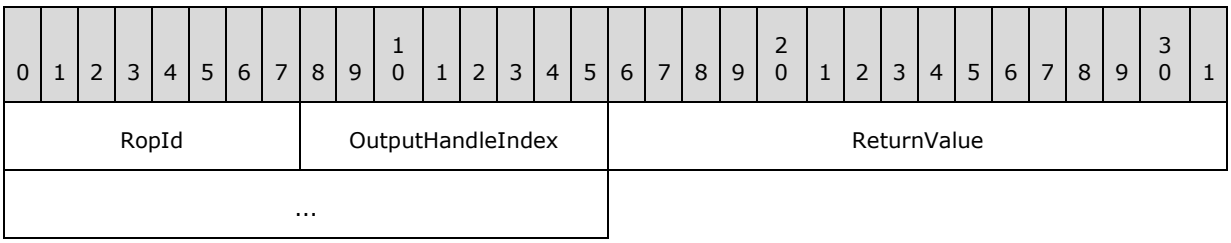
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x05.

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.

2.2.4.14.3 RopGetContentsTable ROP Failure Response Buffer



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

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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.

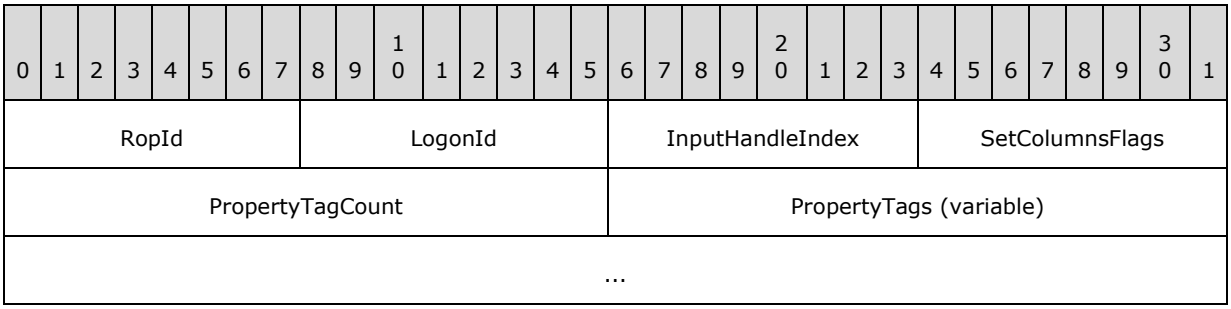
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.5 Table ROPs

2.2.5.1 RopSetColumns ROP

This ROP sets the properties visible on a table. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.2.

2.2.5.1.1 RopSetColumns ROP Request Buffer



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.

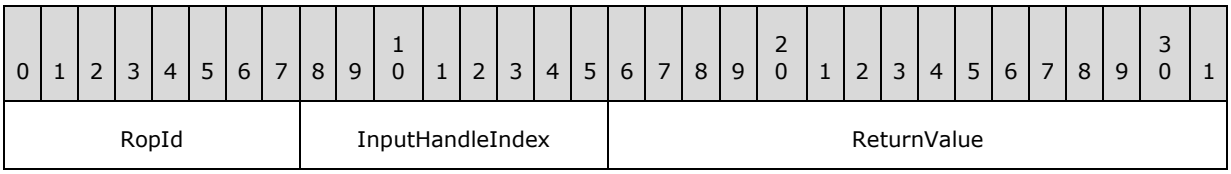
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

SetColumnsFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCTABL] section 2.2.2.2.1.1. 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] section 2.9.

2.2.5.1.2 RopSetColumns ROP Success Response Buffer



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...	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] section 2.2.2.2.2.1. This value specifies the status of the table.

2.2.5.1.3 RopSetColumns ROP Failure Response Buffer

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

2.2.5.2 RopSortTable ROP

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] section 2.2.2.3.

2.2.5.2.1 RopSortTable ROP Request Buffer

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
RopId								LogonId								InputHandleIndex								SortTableFlags							
SortOrderCount																CategoryCount															
ExpandedCount																SortOrders (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 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] section 2.2.2.3.1.1. These flags control this operation.

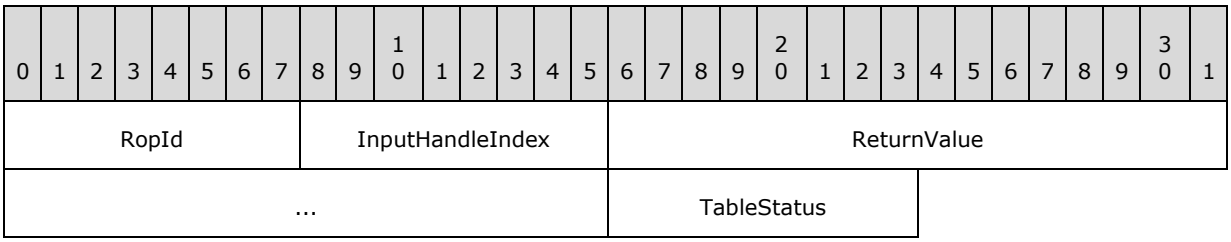
SortOrderCount (2 bytes): Unsigned 16-bit integer. This value specifies how many **SortOrder** structures are present in the **SortOrders** field. The format of the **SortOrder** structure is specified in [MS-OXCDATA] section 2.13.1.

CategoryCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of category **SortOrder** structures in the **SortOrders** field. The format of the **SortOrder** structure is specified in [MS-OXCDATA] section 2.13.1.

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] section 2.13.1. This field specifies the sort order for the rows in the table.

2.2.5.2.2 RopSortTable ROP Success Response Buffer



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] section 2.2.2.3.1.1[MS-OXCTABL] section 2.2.2.3.2.1. This value specifies the status of the table.

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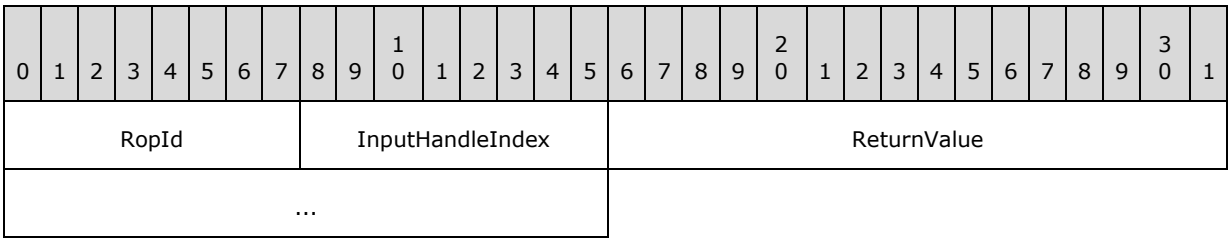
2.2.5.2.3 RopSortTable ROP Failure Response Buffer



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

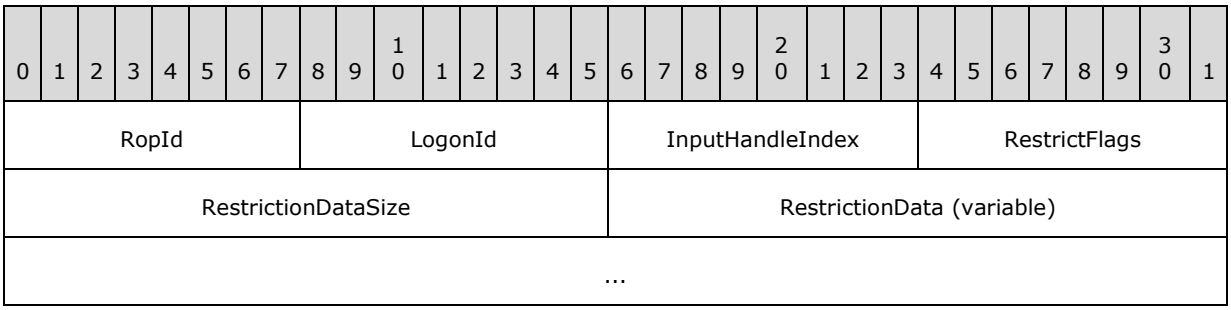
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.5.3 RopRestrict ROP

This ROP establishes a filter for a table. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.4.

2.2.5.3.1 RopRestrict ROP Request Buffer



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] section 2.2.2.4.1.1. These flags control this operation.

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

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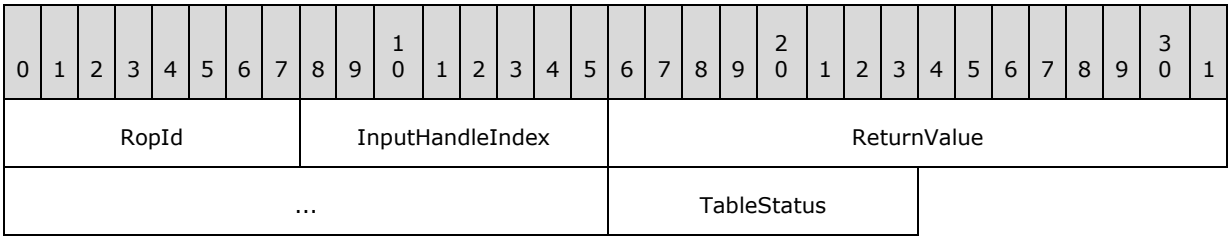
RestrictionData (variable): Restriction packet. The size of this field is **RestrictionDataSize** bytes. This field contains a restriction packet, as specified in [MS-OXCDATA] section 2.12. The restriction specifies the filter for this table.

2.2.5.3.2 RopRestrict ROP Success Response Buffer



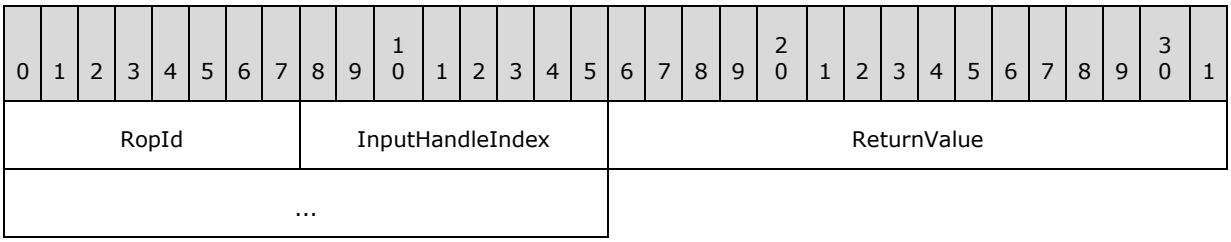
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x14.

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] section 2.2.2.4.2.1. This value specifies the status of the table.

2.2.5.3.3 RopRestrict ROP Failure Response Buffer



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.

2.2.5.4 RopQueryRows ROP

This ROP retrieves rows from a table. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.5.

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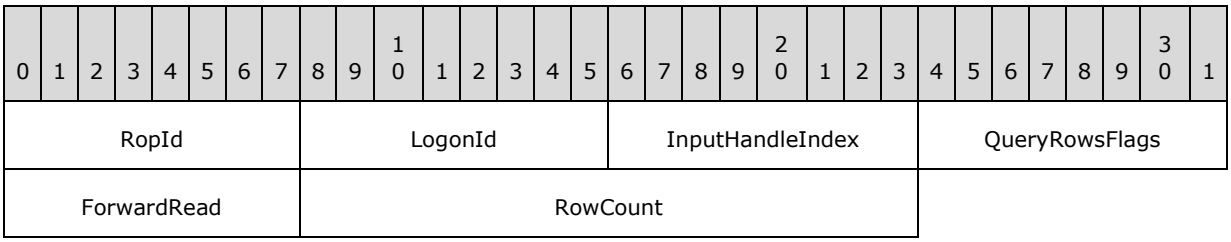
2.2.5.4.1 RopQueryRows ROP Request Buffer



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.

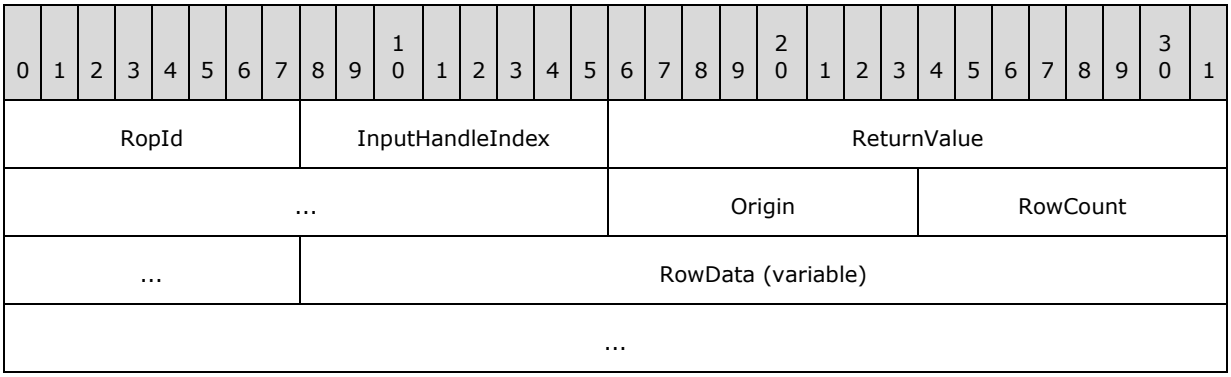
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

QueryRowsFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCTABL] section 2.2.2.5.1.1. 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.

2.2.5.4.2 RopQueryRows ROP Success Response Buffer



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] section 2.2.2.5.2.1. This value specifies current location of the cursor.

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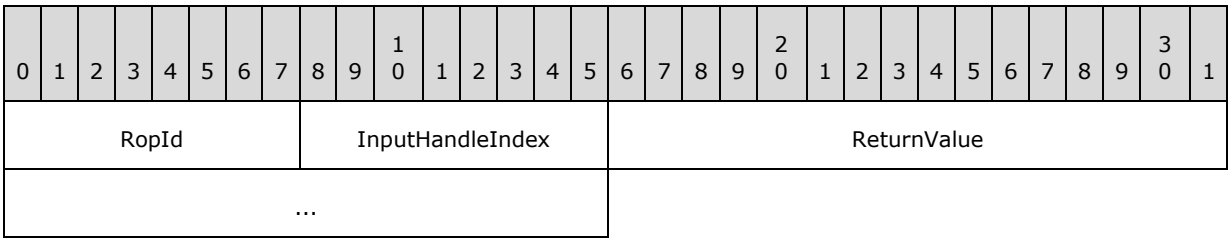
RowCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **RowData** field.

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] section 2.8 and the columns used for these rows were those previously set on this table by a **RopSetColumns** request **(**section 2.2.5.1**)**.

2.2.5.4.3 RopQueryRows ROP Failure Response Buffer



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

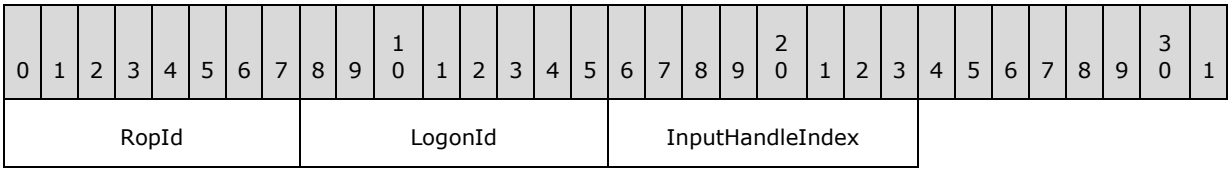
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.5.5 RopAbort ROP

This ROP aborts an asynchronous table operation in progress. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.6.

2.2.5.5.1 RopAbort ROP Request Buffer



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.

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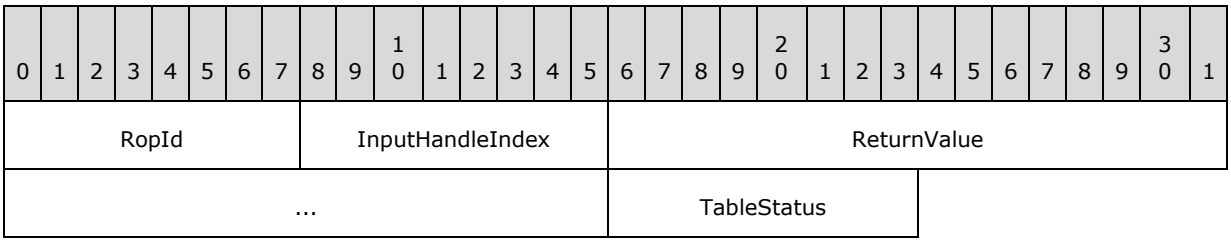
2.2.5.5.2 RopAbort ROP Success Response Buffer



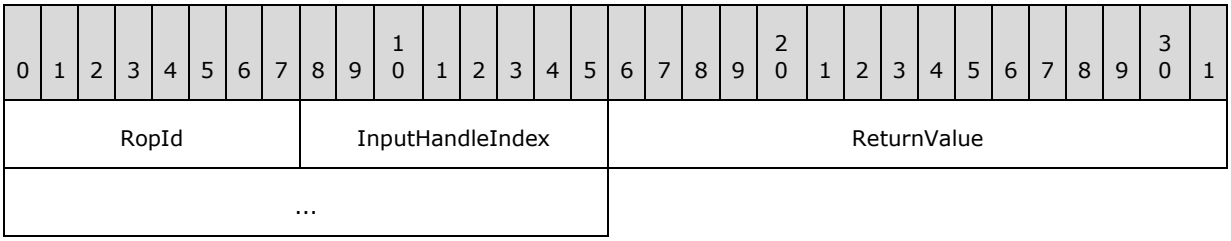
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x38.

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] section 2.2.2.6.2.1. This value specifies the status of the table.

2.2.5.5.3 RopAbort ROP Failure Response Buffer



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 a value other than 0x00000000.

2.2.5.6 RopGetStatus ROP

This ROP gets the status of a table. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.7.

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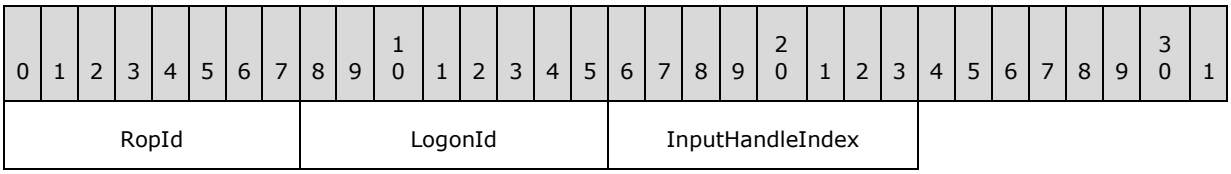
2.2.5.6.1 RopGetStatus ROP Request Buffer

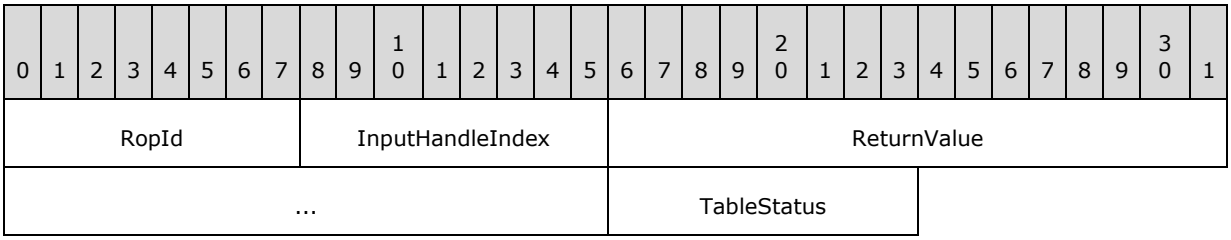


RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x16.

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.

2.2.5.6.2 RopGetStatus ROP Success Response Buffer



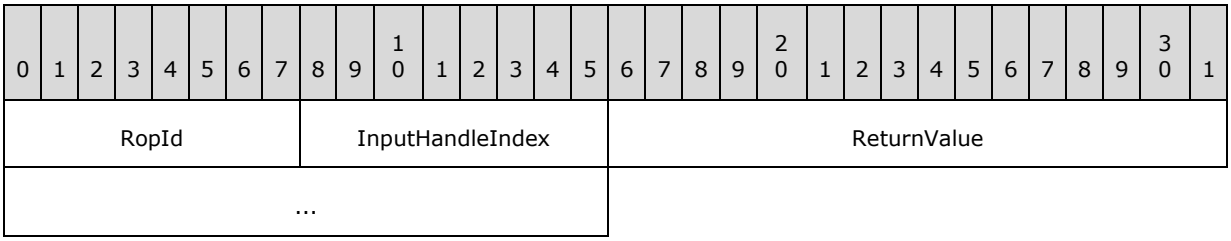
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x16.

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] section 2.2.2.7.2.1. This value specifies the status of the table.

2.2.5.6.3 RopGetStatus ROP Failure Response Buffer



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

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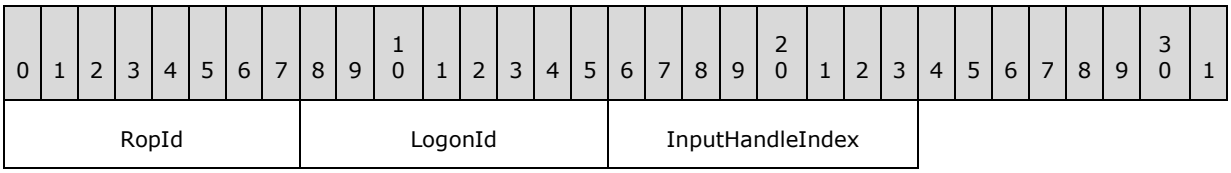
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.5.7 RopQueryPosition ROP

This ROP gets the cursor position. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.8.

2.2.5.7.1 RopQueryPosition ROP Request Buffer

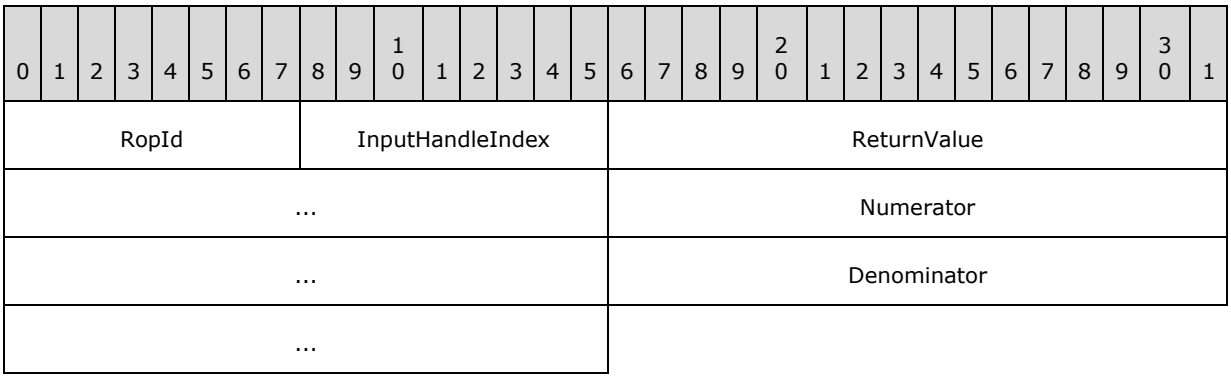


RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x17.

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.

2.2.5.7.2 RopQueryPosition ROP Success Response Buffer



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.

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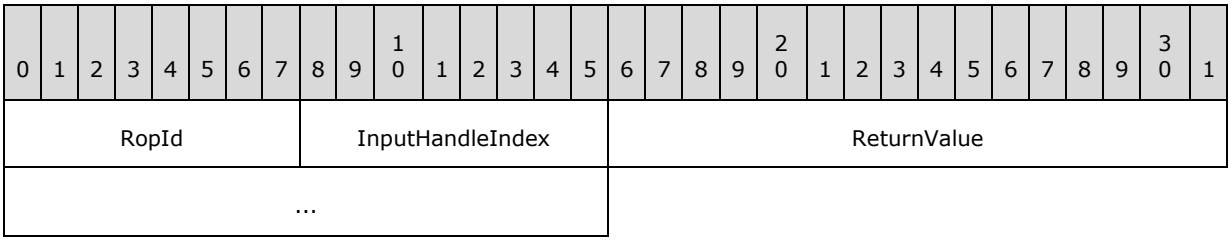
Numerator (4 bytes): Unsigned 32-bit integer. This value represents the numerator of the fraction identifying the table position.

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

2.2.5.7.3 RopQueryPosition ROP Failure Response Buffer



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

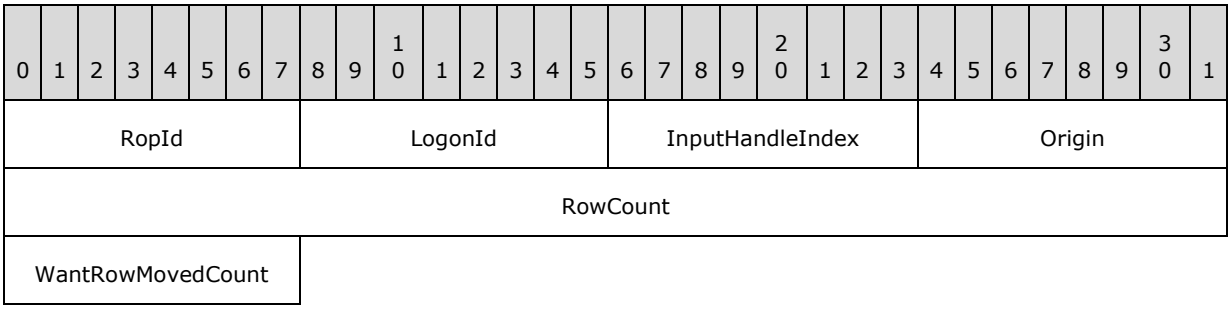
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.5.8 RopSeekRow ROP

This ROP moves the cursor to a specific position in a table. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.9.

2.2.5.8.1 RopSeekRow ROP Request Buffer



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.

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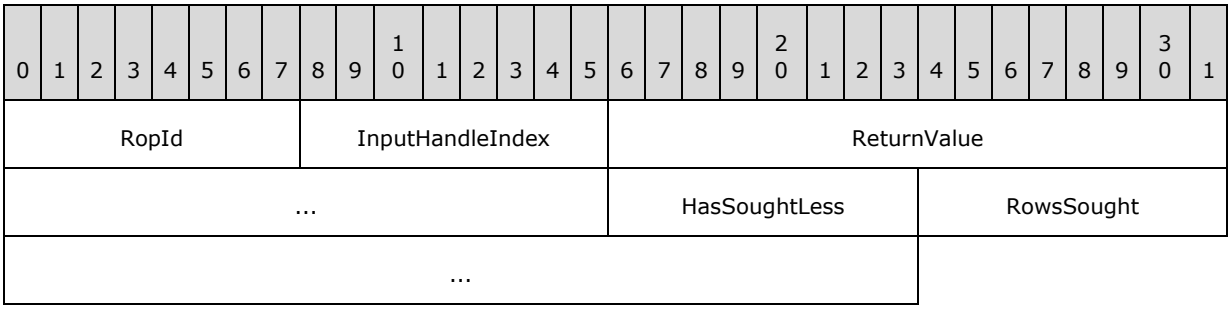
Origin (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCTABL] section 2.2.2.9.1.1. This value specifies the origin of this seek operation.

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.

2.2.5.8.2 RopSeekRow ROP Success Response Buffer



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

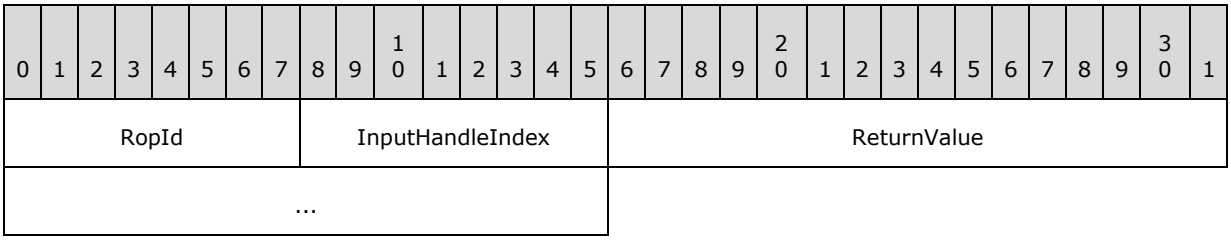
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.5.8.3 RopSeekRow ROP Failure Response Buffer



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.

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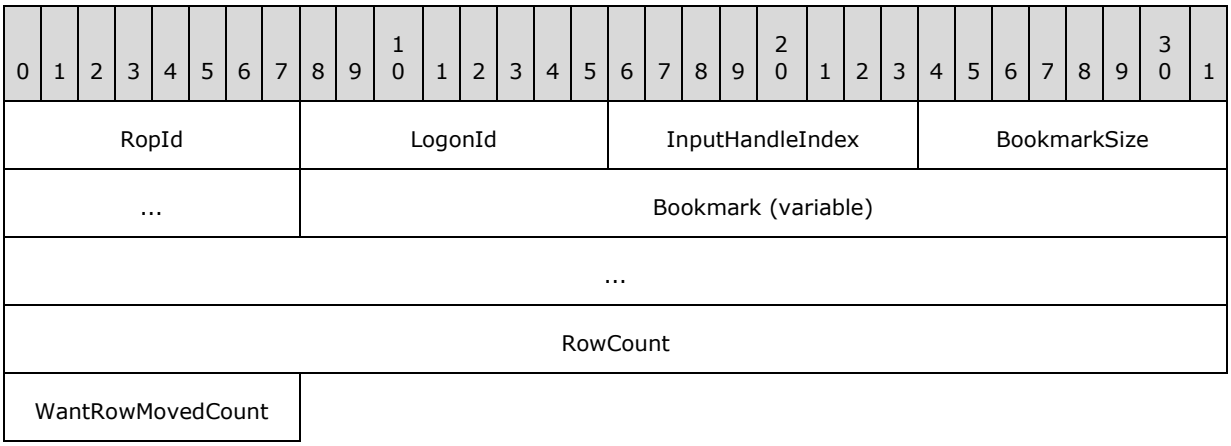
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.5.9 RopSeekRowBookmark ROP

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] section 2.2.2.10.

2.2.5.9.1 RopSeekRowBookmark ROP Request Buffer



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.

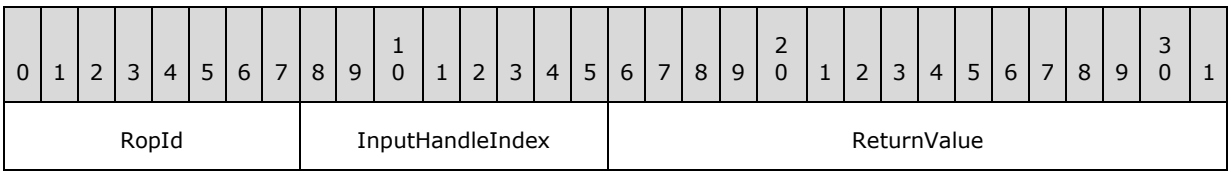
BookmarkSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **Bookmark** field.

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.

2.2.5.9.2 RopSeekRowBookmark ROP Success Response Buffer



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...	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): Unsigned 32-bit integer. This value specifies the direction and number of rows sought.

2.2.5.9.3 RopSeekRowBookmark ROP Failure Response Buffer

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

2.2.5.10 RopSeekRowFractional ROP

This ROP moves the cursor to an approximate position in a table. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.11.

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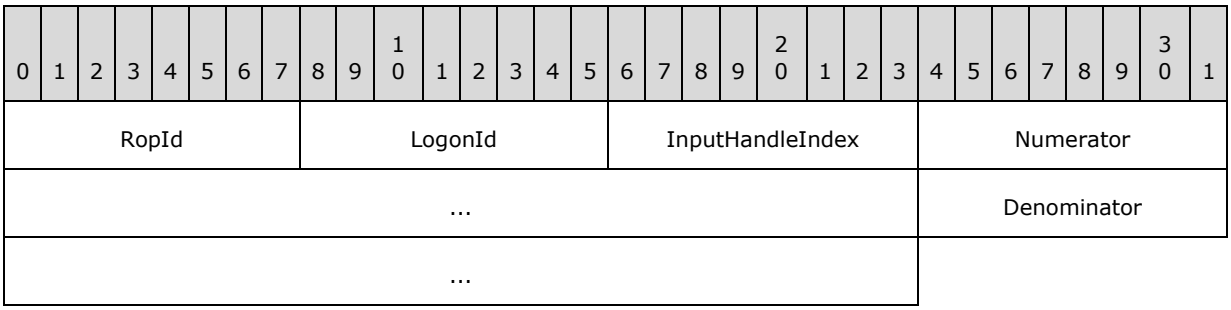
2.2.5.10.1 RopSeekRowFractional ROP Request Buffer



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

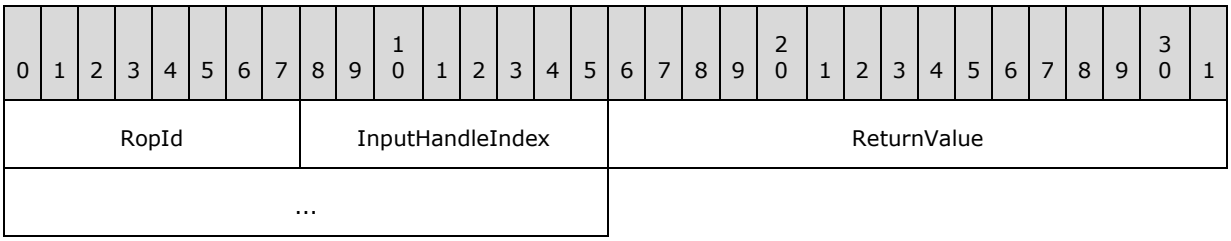
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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.

2.2.5.10.2 RopSeekRowFractional ROP Response Buffer



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.

2.2.5.11 RopCreateBookmark ROP

This ROP marks the current cursor position in a table. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.12.

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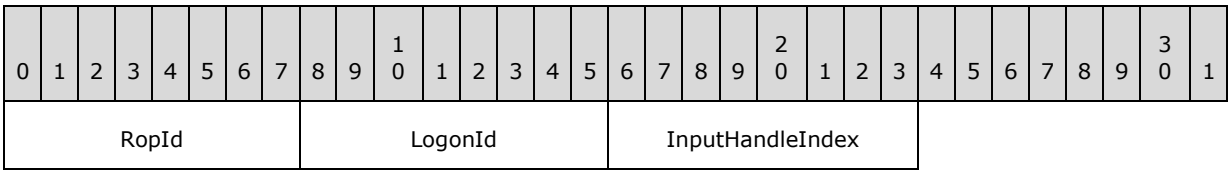
2.2.5.11.1 RopCreateBookmark ROP Request Buffer

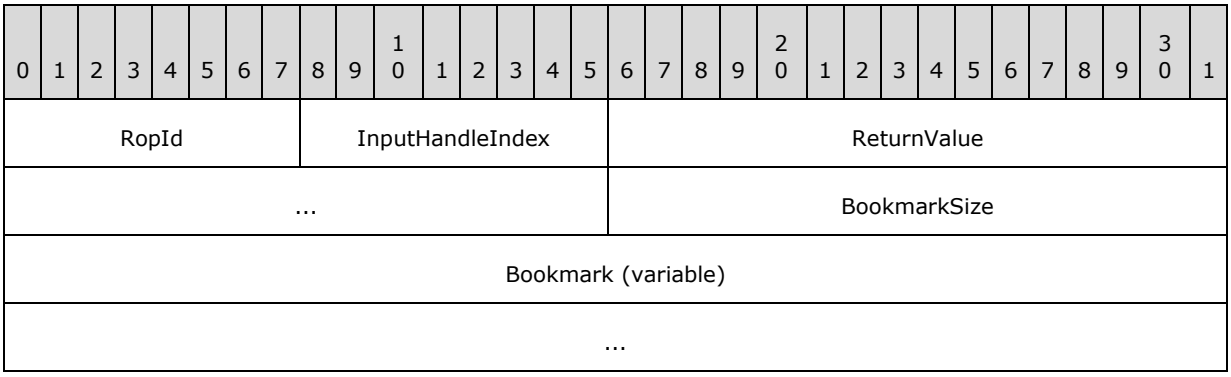


RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x1B.

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.

2.2.5.11.2 RopCreateBookmark ROP Success Response Buffer



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.

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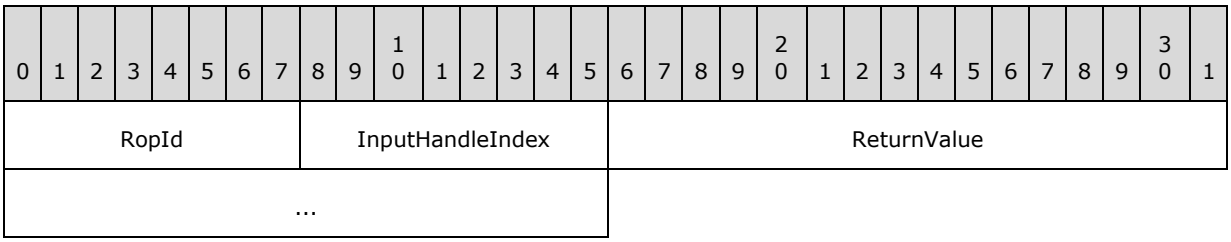
2.2.5.11.3 RopCreateBookmark ROP Failure Response Buffer



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

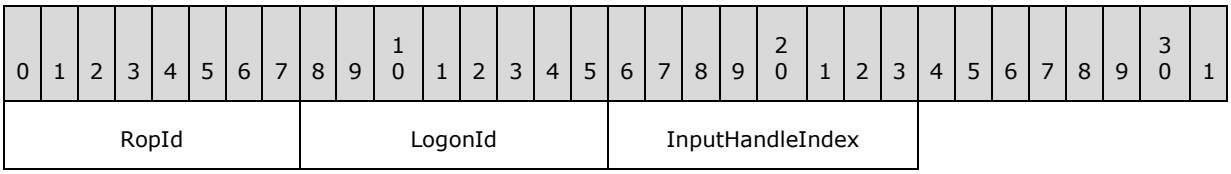
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.5.12 RopQueryColumnsAll ROP

This ROP gets a list of columns in a table. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.13.

2.2.5.12.1 RopQueryColumnsAll ROP Request Buffer

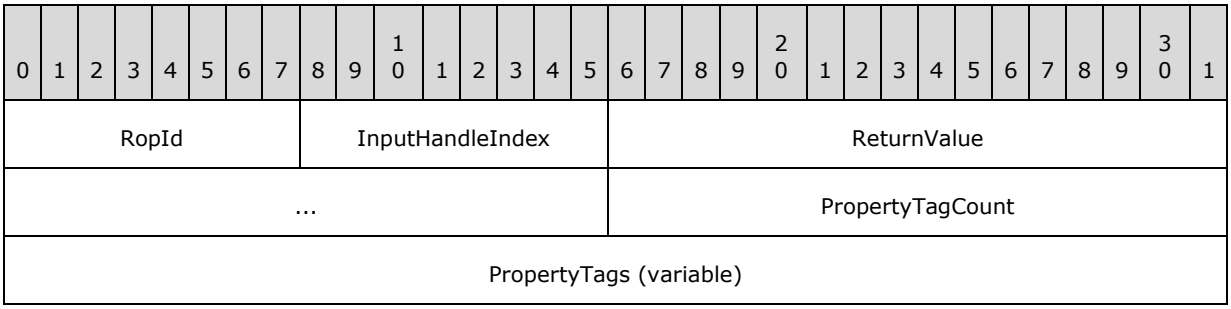


RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x37.

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.

2.2.5.12.2 RopQueryColumnsAll ROP Success Response Buffer



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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 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] section 2.9. This field specifies the columns of the table.

2.2.5.12.3 RopQueryColumnsAll ROP Failure Response Buffer

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

2.2.5.13 RopFindRow ROP

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] section 2.2.2.14.

2.2.5.13.1 RopFindRow ROP Request Buffer

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
RopId								LogonId								InputHandleIndex								FindRowFlags							
RestrictionDataSize																RestrictionData (variable)															

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...		
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] section 2.2.2.14.1.1. 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 2.12. 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.

2.2.5.13.2 RopFindRow ROP Success Response Buffer

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

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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.

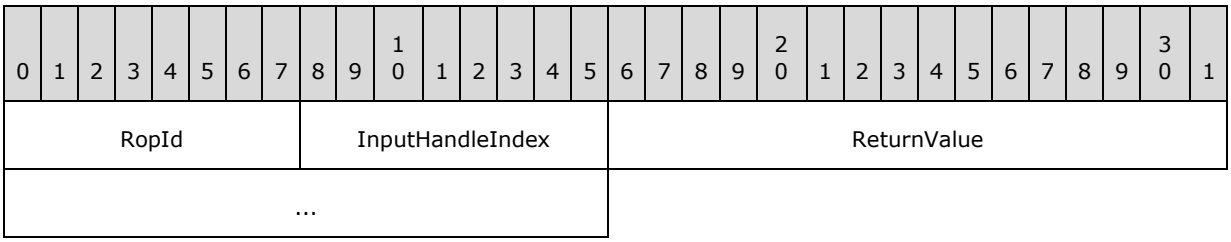
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

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] section 2.8 and the columns used for these rows were those previously set on this table by a **RopSetColumns (**section 2.2.5.1**)**.

2.2.5.13.3 RopFindRow ROP Failure Response Buffer



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

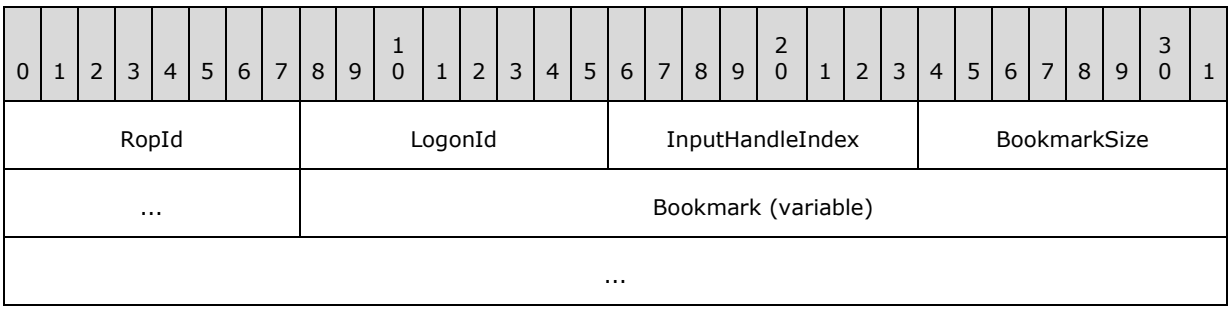
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.5.14 RopFreeBookmark ROP

This ROP releases a bookmark. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.15.

2.2.5.14.1 RopFreeBookmark ROP Request Buffer



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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 0x89.

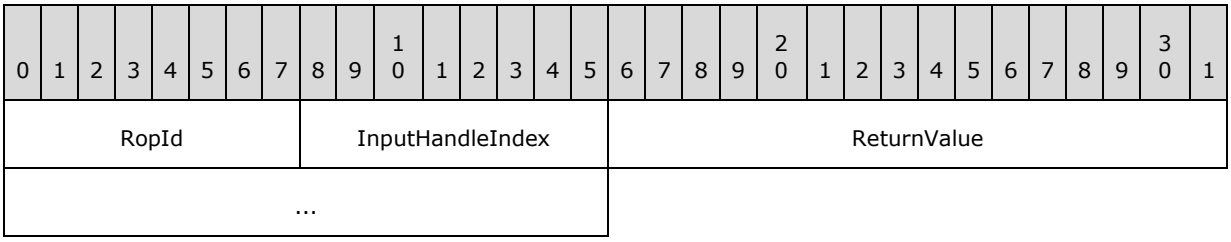
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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.

2.2.5.14.2 RopFreeBookmark ROP Response Buffer



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

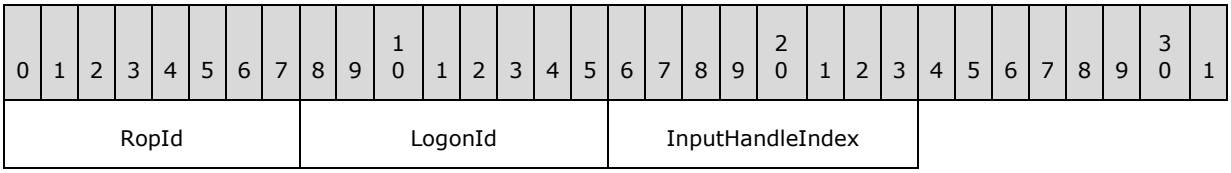
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.5.15 RopResetTablen ROP

This ROP resets a table to its original state. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.16.

2.2.5.15.1 RopResetTablen ROP Request Buffer



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.

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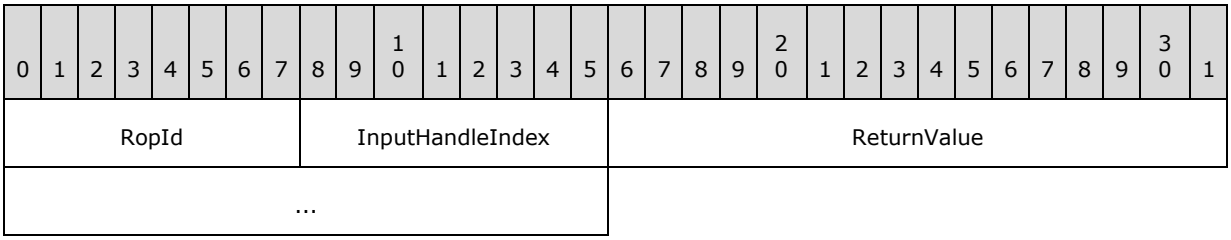
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

2.2.5.15.2 RopResetTablen ROP Response Buffer



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

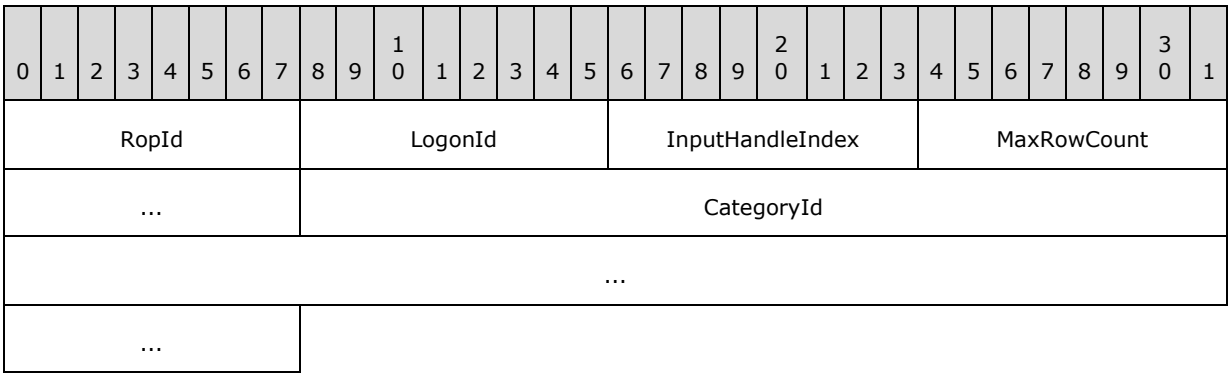
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.5.16 RopExpandRow ROP

This ROP expands a categorized row. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.17.

2.2.5.16.1 RopExpandRow ROP Request Buffer



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.

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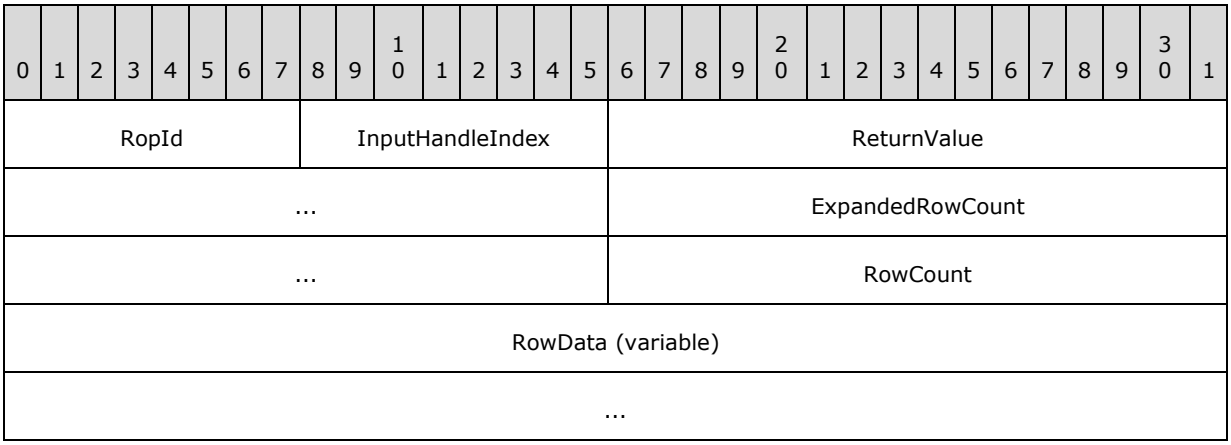
CategoryId (8 bytes): 64-bit identifier. This identifier specifies the category to be expanded.

2.2.5.16.2 RopExpandRow ROP Success Response Buffer



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.

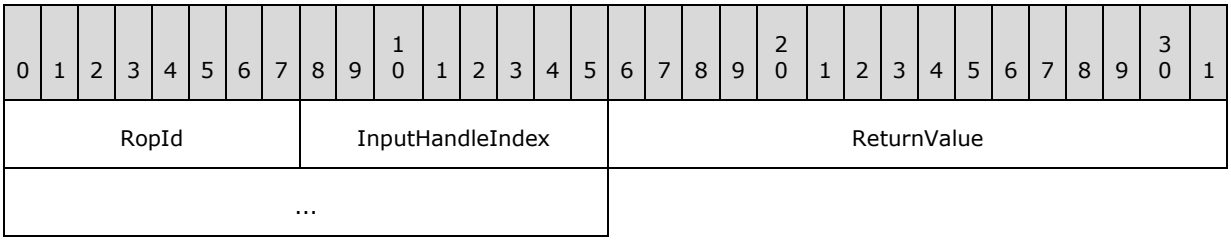
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

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] section 2.8 and the columns used for these rows were those previously set on this table by a **RopSetColumns (**section 2.2.5.1).

2.2.5.16.3 RopExpandRow ROP Failure Response Buffer



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

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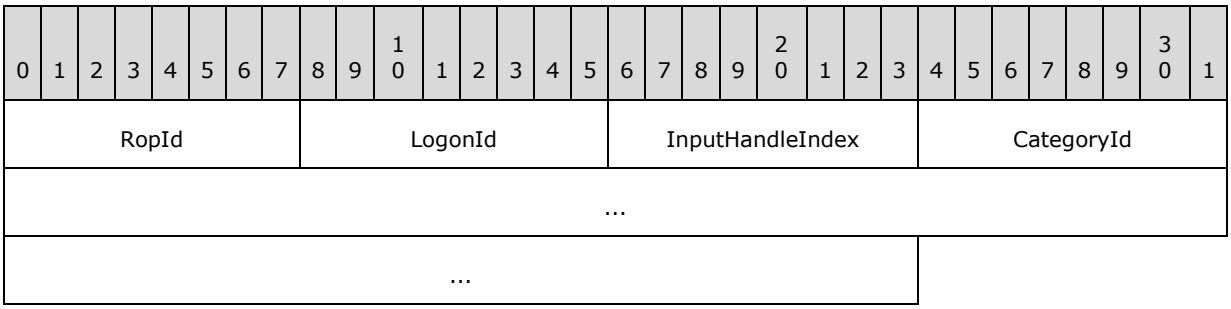
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.5.17 RopCollapseRow ROP

This ROP collapses a categorized row. More detailed information about this operation can be found in [MS-OXCTABL].[MS-OXCTABL] section 2.2.2.18

2.2.5.17.1 RopCollapseRow ROP Request Buffer



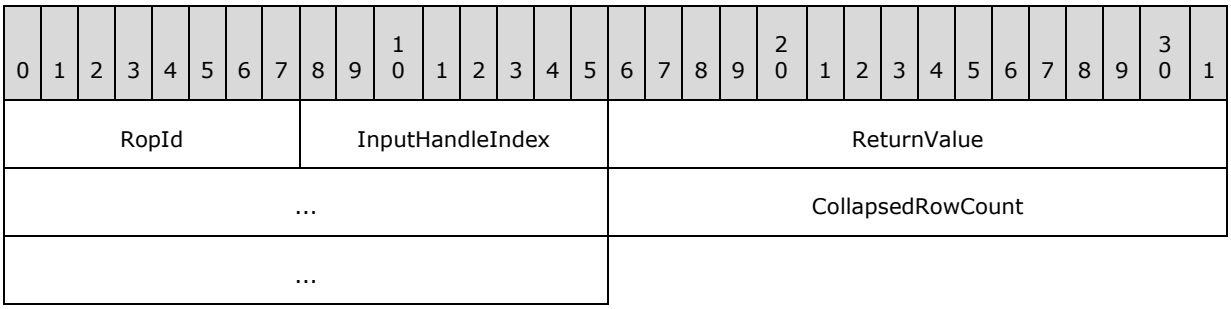
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5A.

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.

2.2.5.17.2 RopCollapseRow ROP Success Response Buffer



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.

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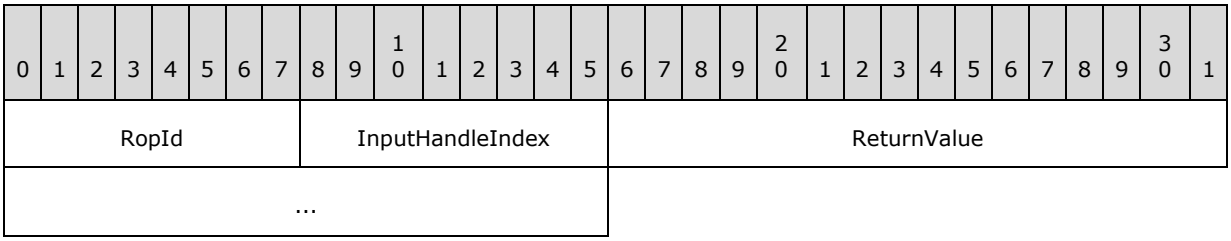
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

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

2.2.5.17.3 RopCollapseRow ROP Failure Response Buffer



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

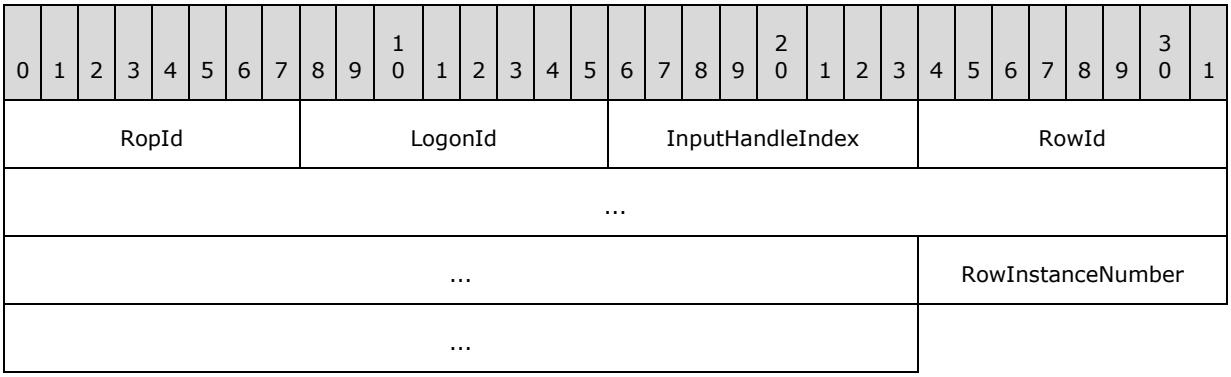
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.5.18 RopGetCollapseState ROP

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] section 2.2.2.19.

2.2.5.18.1 RopGetCollapseState ROP Request Buffer



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.

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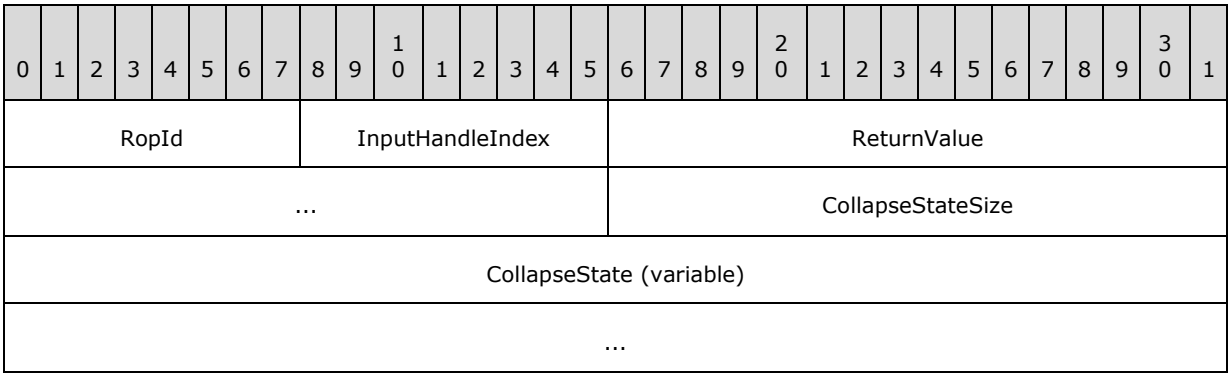
RowId (8 bytes): 64-bit identifier. This identifier specifies the row to be preserved as the cursor. The cursor is returned as part of the collapse state in the **CollapseState** field of the response.

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

2.2.5.18.2 RopGetCollapseState ROP Success Response Buffer



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

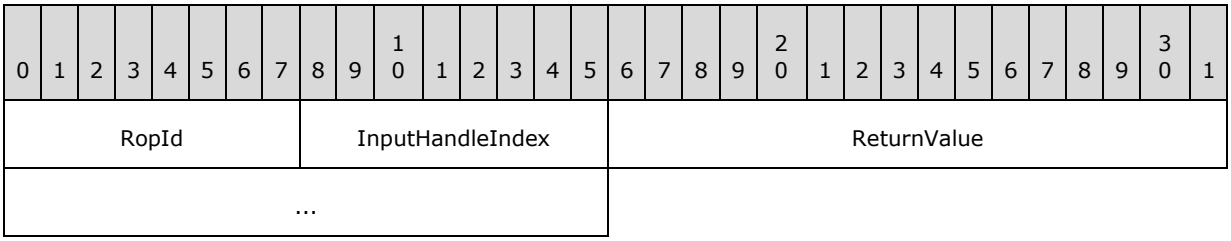
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.5.18.3 RopGetCollapseState ROP Failure Response Buffer



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.

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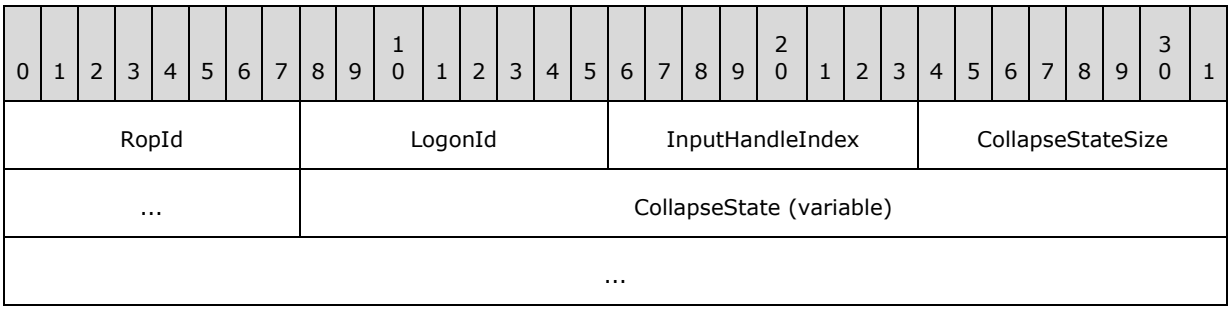
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.5.19 RopSetCollapseState ROP

This ROP restores the collapse state of rows in a categorized table. More detailed information about this operation can be found in [MS-OXCTABL] section 2.2.2.20.

2.2.5.19.1 RopSetCollapseState ROP Request Buffer



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

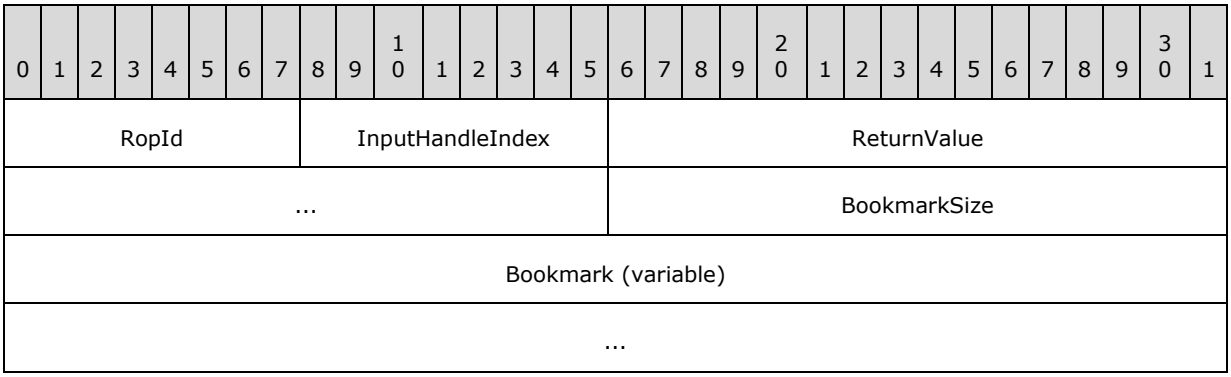
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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.

2.2.5.19.2 RopSetCollapseState ROP Success Response Buffer



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

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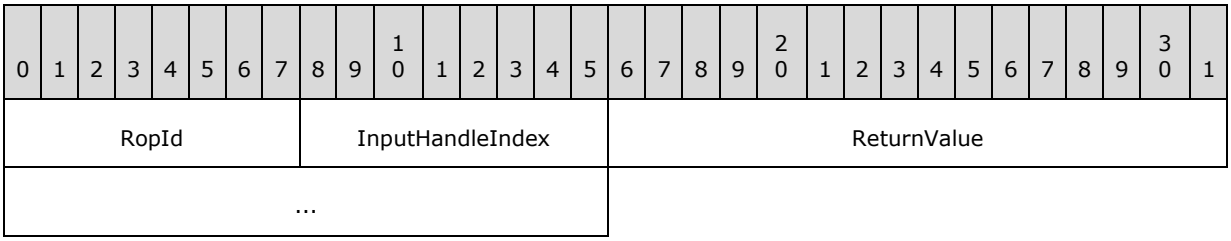
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.5.19.3 RopSetCollapseState ROP Failure Response Buffer



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.

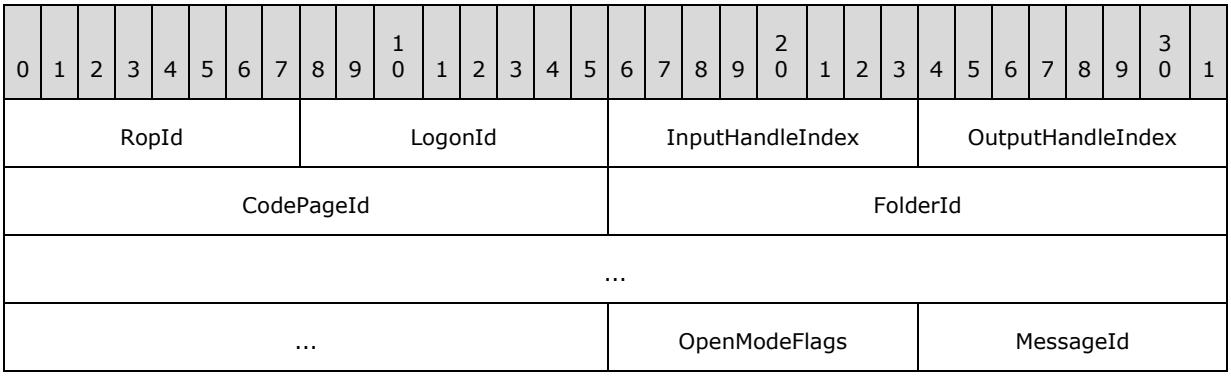
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.6 Message ROPs

2.2.6.1 RopOpenMessage ROP

This ROP opens an existing message in a mailbox. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.1.

2.2.6.1.1 RopOpenMessage ROP Request Buffer



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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 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] section 2.2.3.1.2.

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

2.2.6.1.2 RopOpenMessage ROP Success Response Buffer

<table>
<tr><th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>20</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>30</th><th>1</th></tr>
<tr><td colspan="8">RopId</td><td colspan="8">OutputHandleIndex</td><td colspan="16">ReturnValue</td></tr>
<tr><td colspan="16">…</td><td colspan="8">HasNamedProperties</td><td colspan="8">SubjectPrefix (variable)</td></tr>
<tr><td colspan="32">…</td></tr>
<tr><td colspan="32">NormalizedSubject (variable)</td></tr>
<tr><td colspan="32">…</td></tr>
<tr><td colspan="16">RecipientCount</td><td colspan="16">ColumnCount</td></tr>
<tr><td colspan="32">RecipientColumns (variable)</td></tr>
<tr><td colspan="32">…</td></tr>
</table>

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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] section 2.11.7. This structure specifies the subject prefix of the message.

NormalizedSubject (variable): TypedString structure. The format of the **TypedString** structure is specified in [MS-OXCDATA] section 2.11.7. 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] section 2.9. 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 2.2.6.1.2.1.

2.2.6.1.2.1 OpenRecipientRow structure

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
RecipientType								CodePageId																Reserved							
...								RecipientRowSize																RecipientRow (variable)							
...																															

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RecipientType (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCMSG] section 2.2.3.1.2. This enumeration specifies the type of recipient.

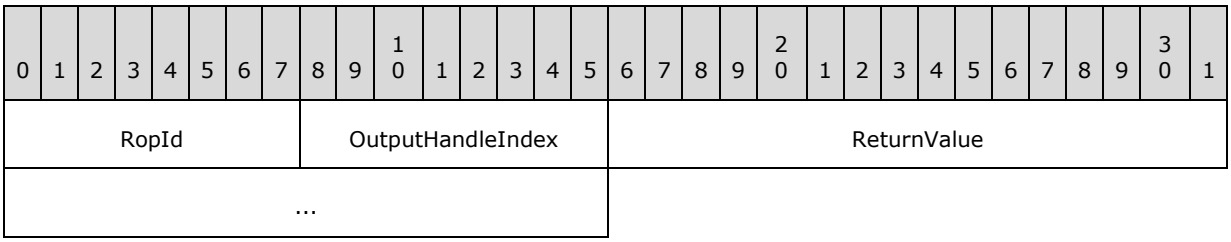
CodePageId (2 bytes): 16-bit identifier. This value specifies the code page for the recipient.

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] section 2.8.3. The size of this field, in bytes, is specified by the **RecipientRowSize** field.

2.2.6.1.3 RopOpenMessage ROP Failure Response Buffer



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

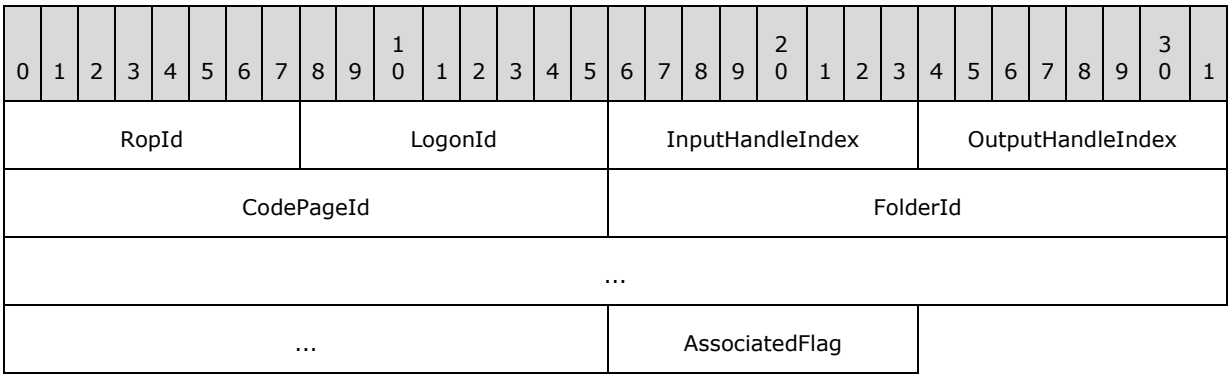
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.6.2 RopCreateMessage ROP

This ROP creates a Message object in a mailbox. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.2.

2.2.6.2.1 RopCreateMessage ROP Request Buffer



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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 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.

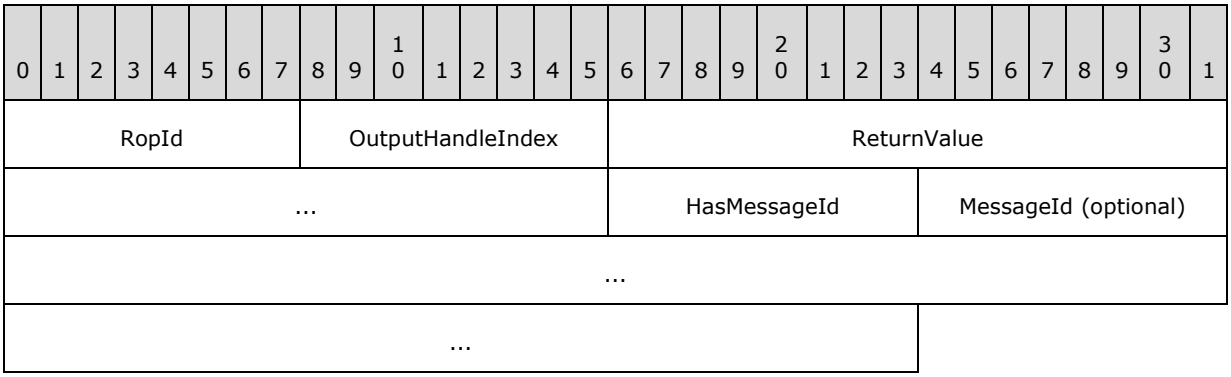
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

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.

2.2.6.2.2 RopCreateMessage ROP Success Response Buffer



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.

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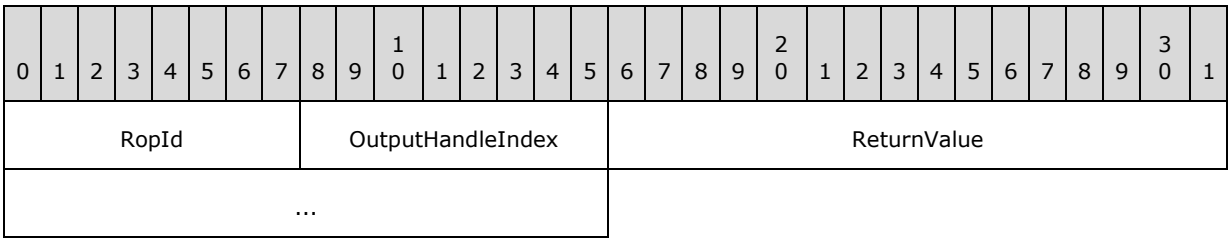
2.2.6.2.3 RopCreateMessage ROP Failure Response Buffer



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

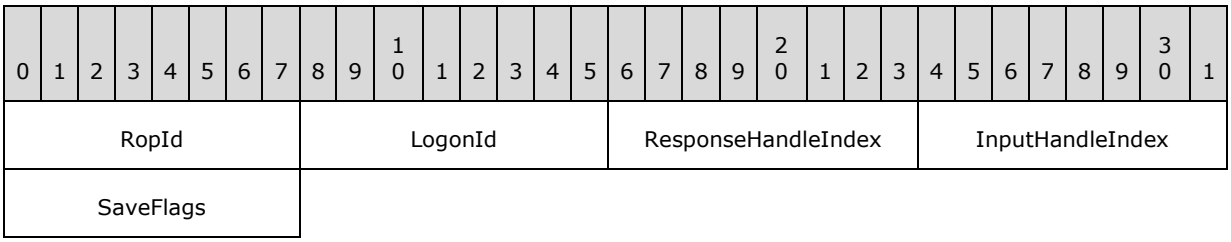
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.6.3 RopSaveChangesMessage ROP

This ROP commits the changes made to a message. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.3.

2.2.6.3.1 RopSaveChangesMessage ROP Request Buffer



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] section 2.2.3.3.1. These flags specify how the save operation behaves.

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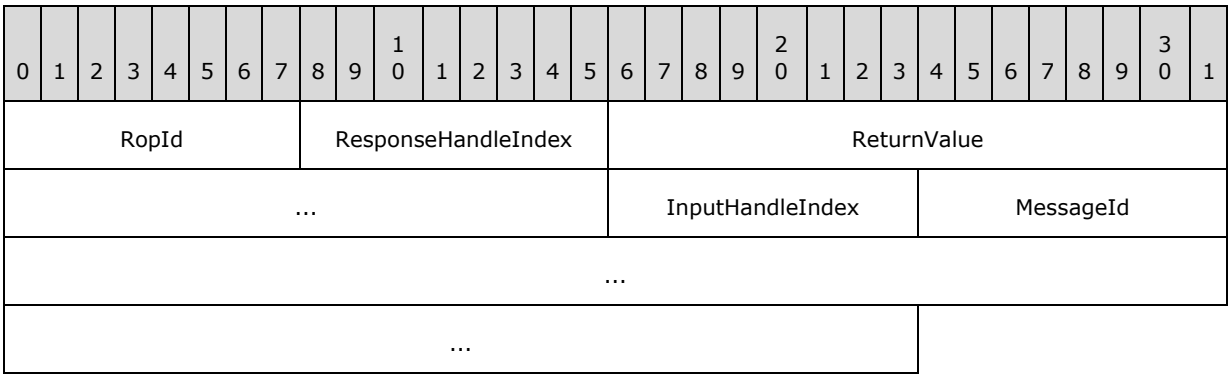
2.2.6.3.2 RopSaveChangesMessage ROP Success Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0C.

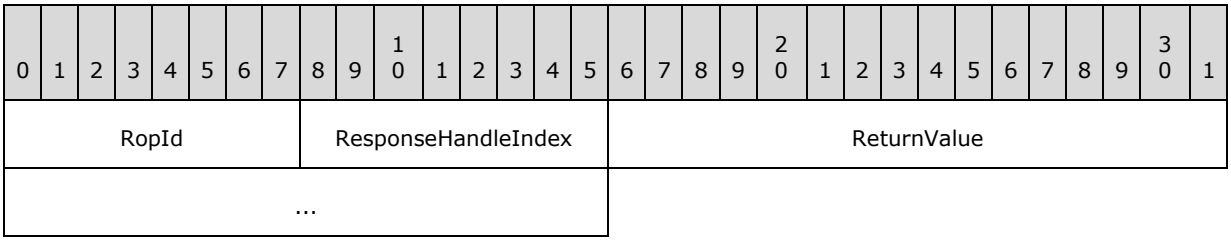
ResponseHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **ResponseHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.6.3.3 RopSaveChangesMessage ROP Failure Response Buffer



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.

2.2.6.4 RopRemoveAllRecipients ROP

This ROP deletes all recipients from a message. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.4.

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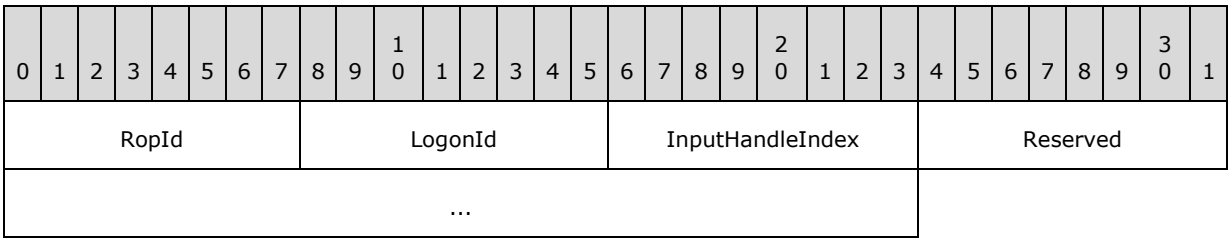
2.2.6.4.1 RopRemoveAllRecipients ROP Request Buffer



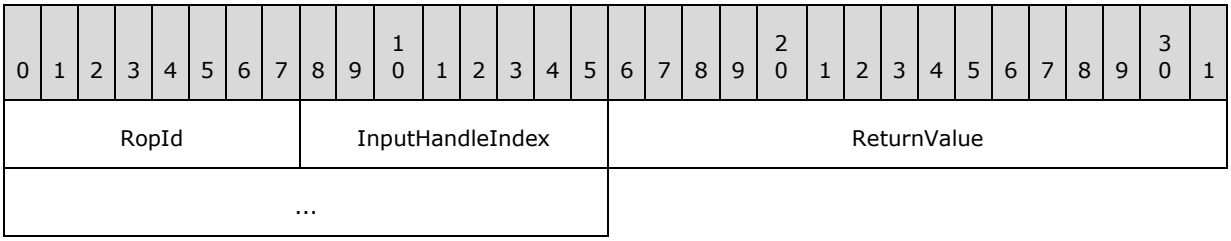
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0D.

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.

2.2.6.4.2 RopRemoveAllRecipients ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0D.

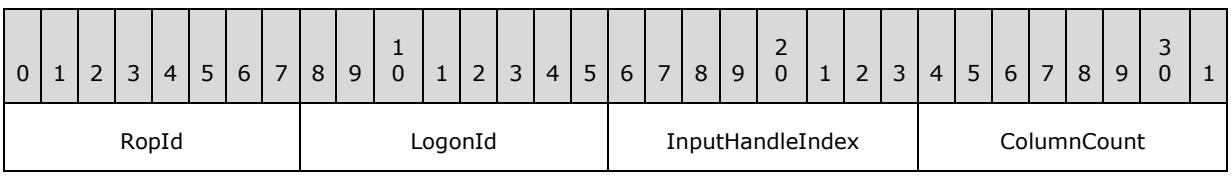
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.6.5 RopModifyRecipients ROP

This ROP adds or modifies recipients on a message. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.5.

2.2.6.5.1 RopModifyRecipients ROP Request Buffer



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...	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] section 2.9. 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 2.2.6.5.1.1.

2.2.6.5.1.1 ModifyRecipientRow structure

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
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] section 2.2.3.1.2. This enumeration specifies the type of recipient.

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

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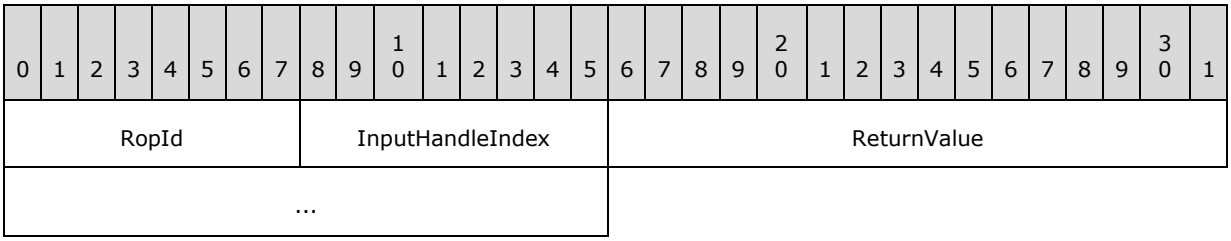
RecipientRow (variable): RecipientRow structure. This field is present when the **RecipientRowSize** field is nonzero and is not present otherwise. The format of the **RecipientRow** structure is specified in [MS-OXCDATA] section 2.8.3. The size of this field, in bytes, is specified by the **RecipientRowSize** field.

2.2.6.5.2 RopModifyRecipients ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0E.

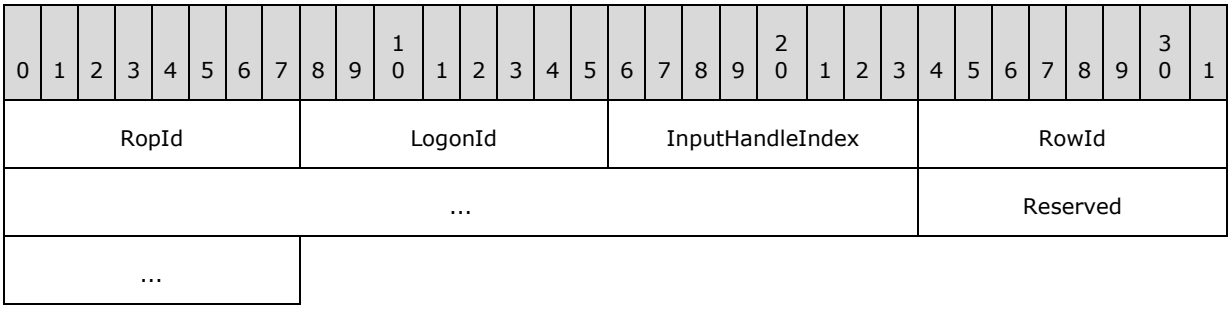
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.6.6 RopReadRecipients ROP

This ROP gets recipient details from a message. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.6.

2.2.6.6.1 RopReadRecipients ROP Request Buffer



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.

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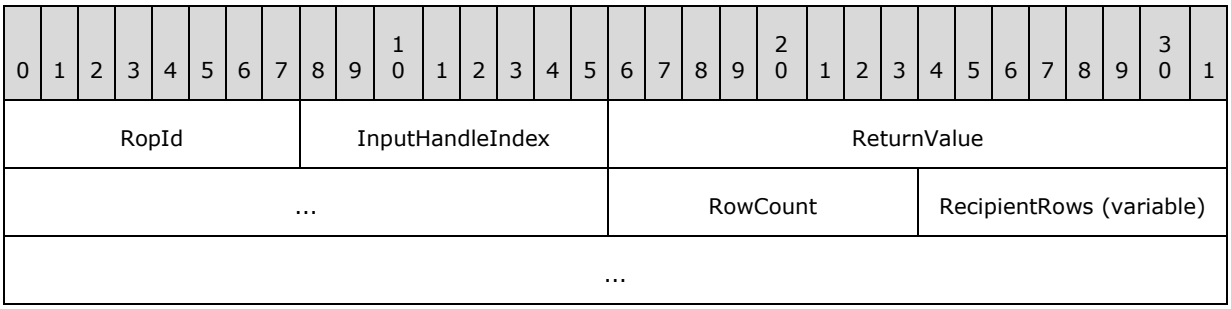
Reserved (2 bytes): Reserved. This field MUST be set to 0x0000. Server behavior is undefined if this field is not set to 0x0000.

2.2.6.6.2 RopReadRecipients ROP Success Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0F.

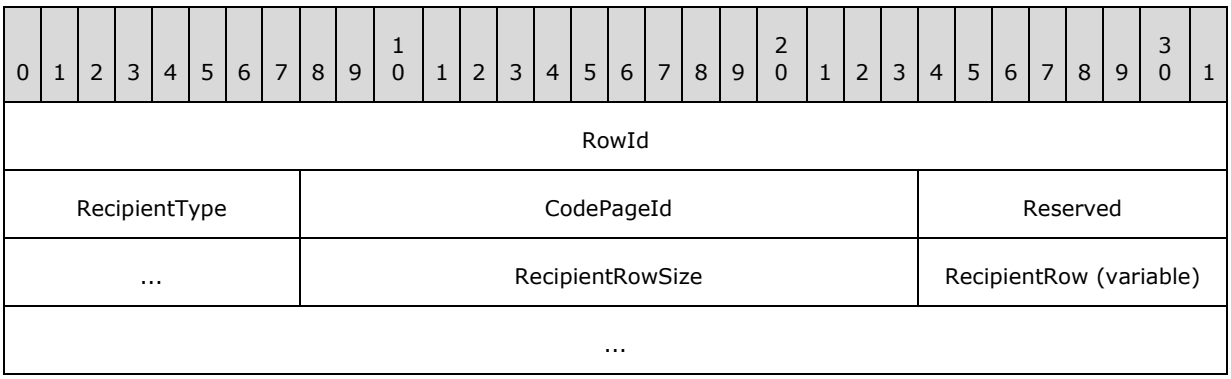
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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 2.2.6.6.2.1.

2.2.6.6.2.1 ReadRecipientRow structure



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] section 2.2.3.1.2. 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.

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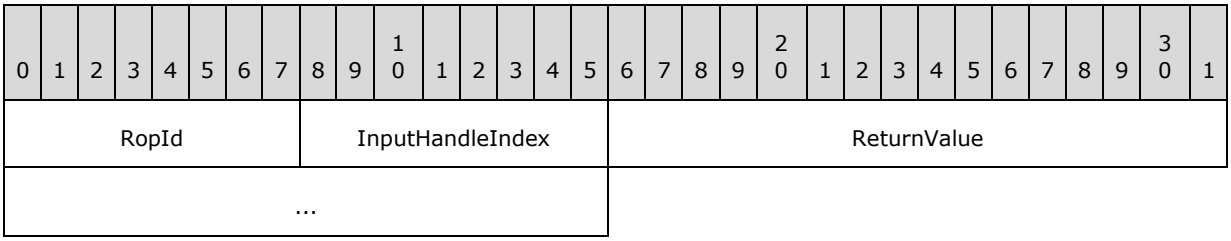
RecipientRowSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **RecipientRow** field.

RecipientRow (variable): RecipientRow structure. The format of this structure is specified in [MS-OXCDATA] section 2.8.3. The size of this field, in bytes, is specified by the **RecipientRowSize** field.

2.2.6.6.3 RopReadRecipients ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0F.

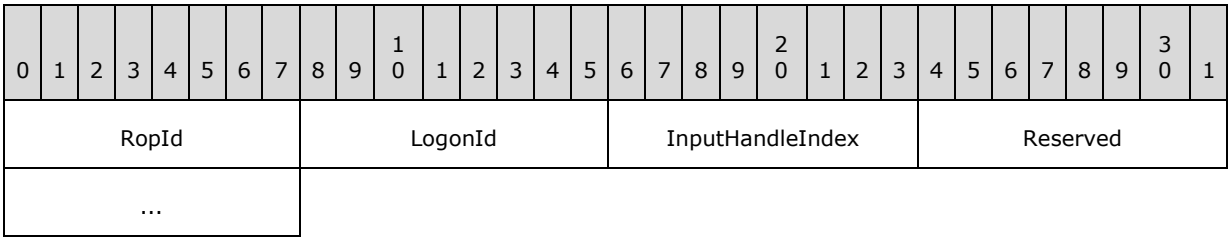
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.6.7 RopReloadCachedInformation ROP

This ROP gets message and recipient information from a message. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.7.

2.2.6.7.1 RopReloadCachedInformation ROP Request Buffer



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.

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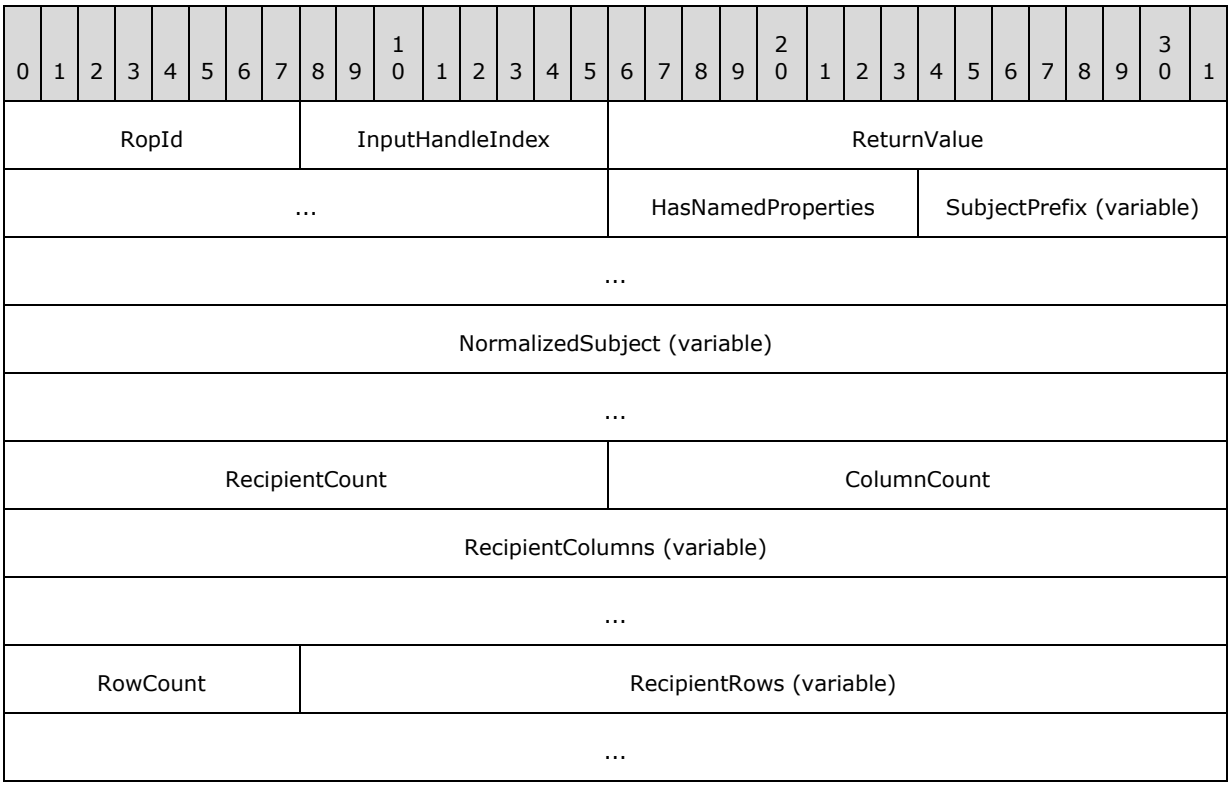
2.2.6.7.2 RopReloadCachedInformation ROP Success Response Buffer



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] section 2.11.7. This value specifies the subject prefix of the message.

NormalizedSubject (variable): TypedString structure. The format of the **TypedString** structure is specified in [MS-OXCDATA] section 2.11.7. 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.

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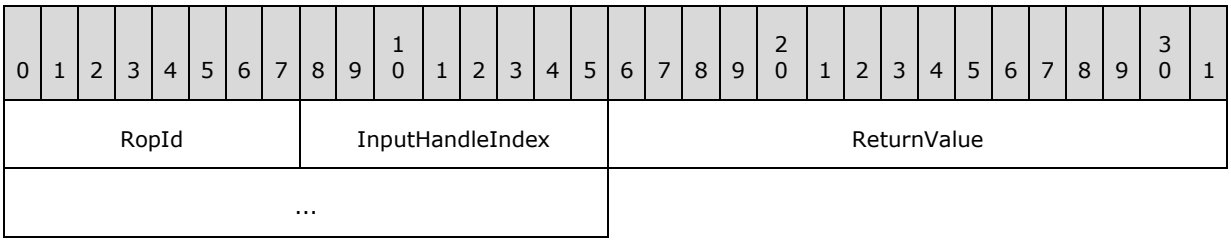
RecipientColumns (variable): Array of **PropertyTag** structures. The number of structures contained in this field is specified by the **ColumnCount** field. The format of the **PropertyTag** structure is specified in [MS-OXCDATA] section 2.9. This field specifies the property values that can be included 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 2.2.6.1.2.1.

2.2.6.7.3 RopReloadCachedInformation ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x10.

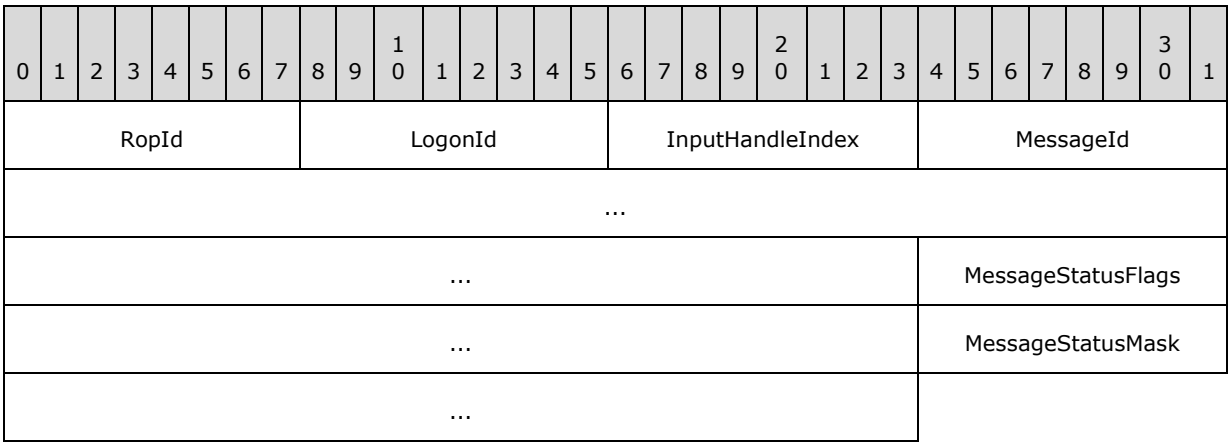
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.6.8 RopSetMessageStatus ROP

This ROP sets the status of a message in a folder. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.8.

2.2.6.8.1 RopSetMessageStatus ROP Request Buffer



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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 0x20.

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

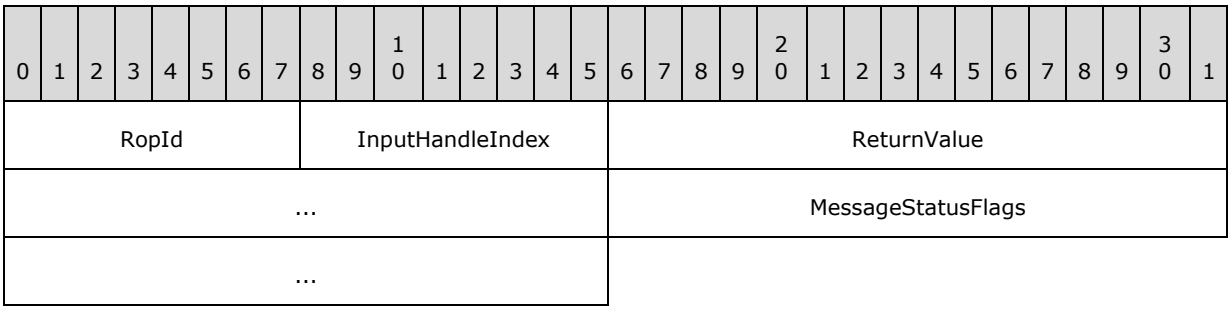
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

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] section 2.2.3.8.1.

MessageStatusMask (4 bytes): 32-bit bitmask. This bitmask specifies which bits in the **MessageStatusFlags** field are to be changed.

2.2.6.8.2 RopSetMessageStatus ROP Success Response Buffer



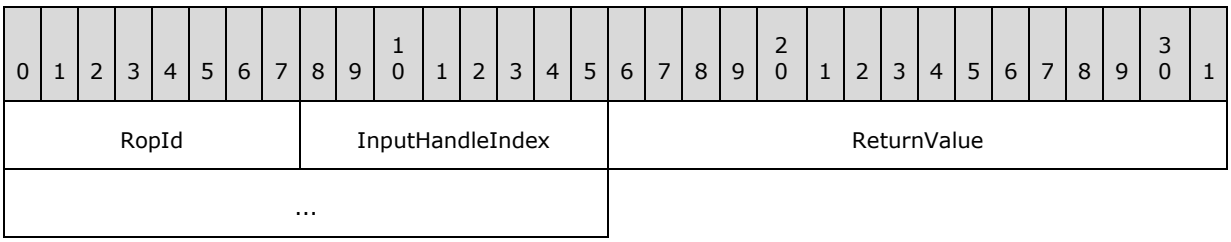
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x20.

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] section 2.2.3.8.2.

2.2.6.8.3 RopSetMessageStatus ROP Failure Response Buffer



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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 0x20.

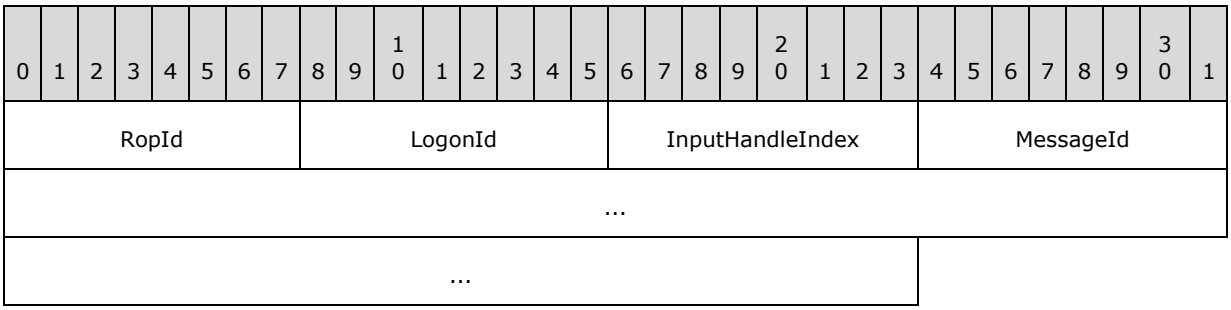
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.6.9 RopGetMessageStatus ROP

This ROP returns the status of a message in a folder. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.9.

2.2.6.9.1 RopGetMessageStatus ROP Request Buffer



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.

2.2.6.9.2 RopGetMessageStatus ROP Response Buffers

The response buffers for this ROP are the same as those for **RopSetMessageStatus**, as specified in sections 2.2.6.8.2 and 2.2.6.8.3.

2.2.6.10 RopSetReadFlags ROP

This ROP sets the read flag for messages in a folder. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.10.

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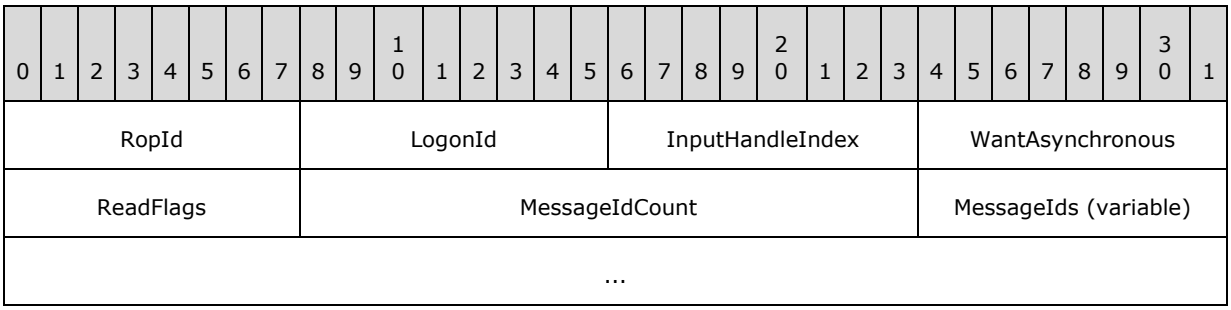
2.2.6.10.1 RopSetReadFlags ROP Request Buffer



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.

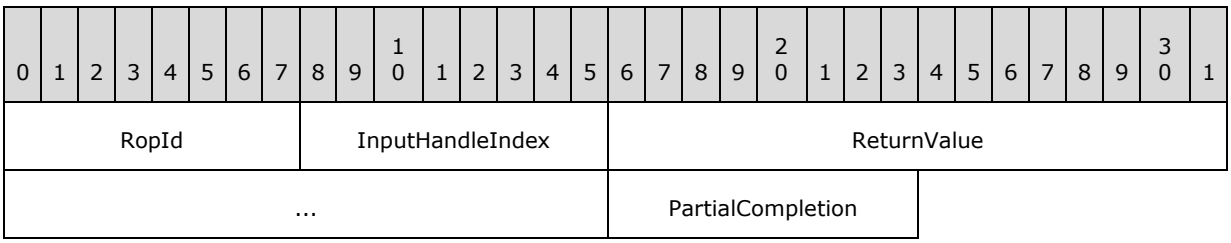
WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via **RopProgress** (section 2.2.8.13).

ReadFlags (1 byte): 8-bit flags structure. The possible values for these flags are specified in [MS-OXCMSG] section 2.2.3.10.1. 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.

2.2.6.10.2 RopSetReadFlags ROP Response Buffer



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.

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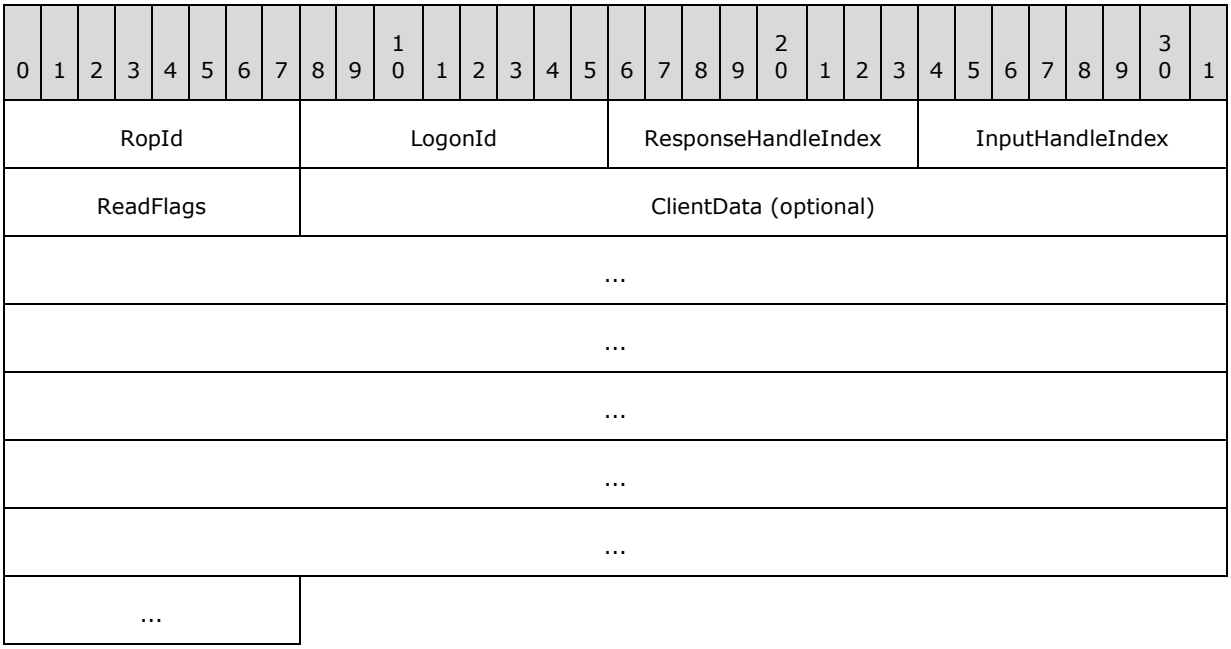
PartialCompletion (1 byte): 8-bit Boolean. This value indicates whether the operation was only partially completed. The operation is partially completed if the server was unable to modify one or more of the Message objects that are specified in the **MessageIds** field of the request.

2.2.6.11 RopSetMessageReadFlag ROP

This ROP sets or clears the message read flag. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.11.

2.2.6.11.1 RopSetMessageReadFlag ROP Request Buffer



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] section 2.2.3.11.1.

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] section 2.2.1.1.1 for more information) and is not present otherwise. This value specifies the information that is returned to the client in a successful response.

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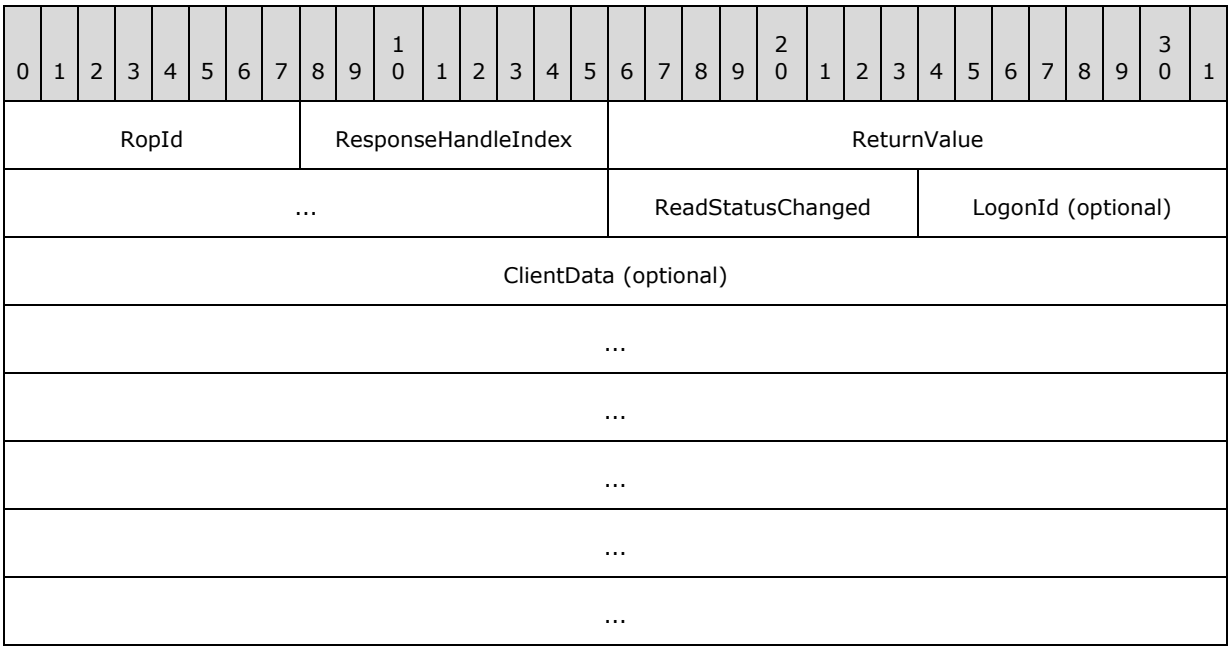
2.2.6.11.2 RopSetMessageReadFlag ROP Success Response Buffer



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.

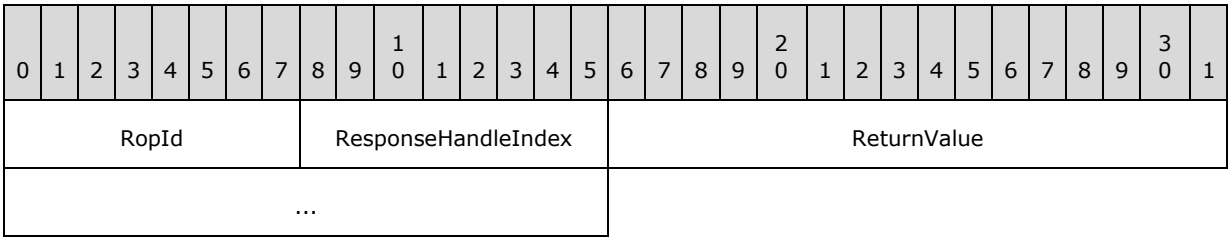
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to 0x00000000.

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.

2.2.6.11.3 RopSetMessageReadFlag ROP Failure Response Buffer



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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 0x11.

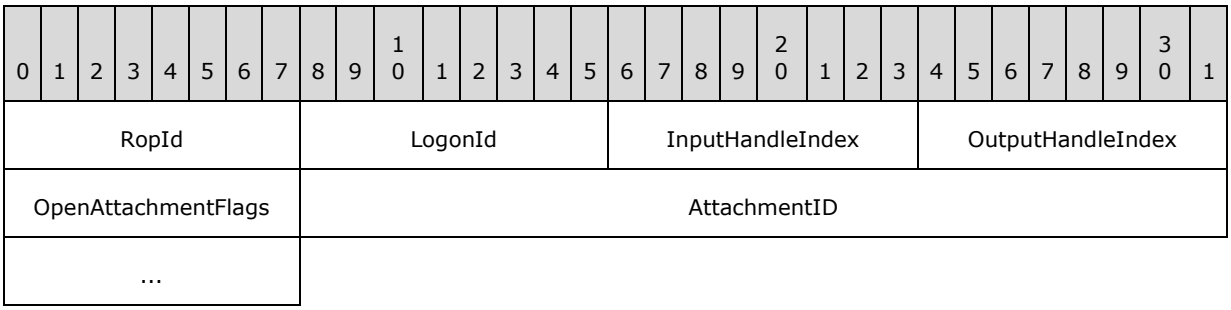
ResponseHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **ResponseHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.6.12 RopOpenAttachment ROP

This ROP opens an attachment of a message. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.12.

2.2.6.12.1 RopOpenAttachment ROP Request Buffer



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.

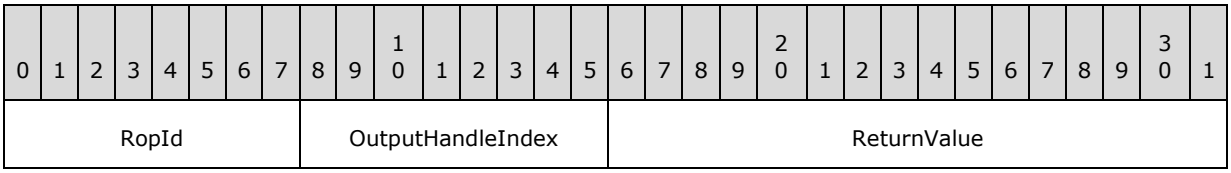
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

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. The possible values for these flags are specified in [MS-OXCMSG] section 2.2.3.12.1.

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 2.661).

2.2.6.12.2 RopOpenAttachment ROP Response Buffer



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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 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.

2.2.6.13 RopCreateAttachment ROP

This ROP creates a new attachment on a message. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.13.

2.2.6.13.1 RopCreateAttachment ROP Request Buffer

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

2.2.6.13.2 RopCreateAttachment ROP Success Response Buffer

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

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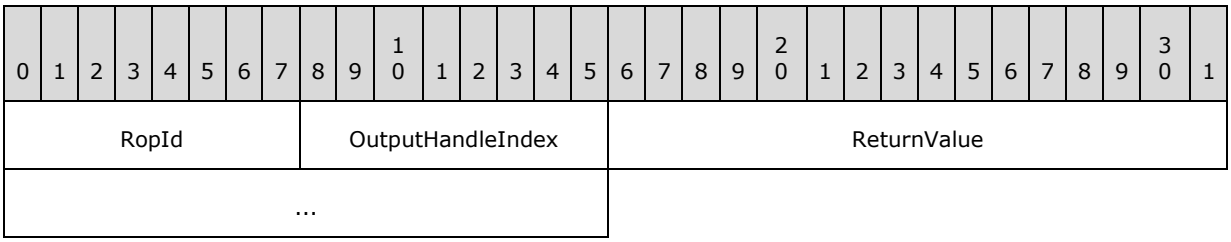
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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 2.661).

2.2.6.13.3 RopCreateAttachment ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x23.

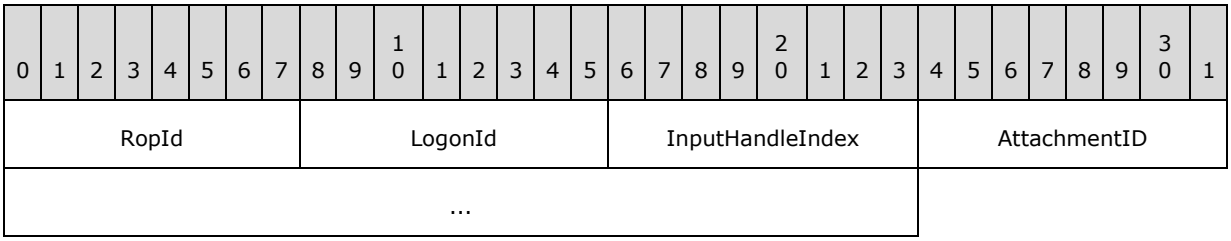
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.6.14 RopDeleteAttachment ROP

This ROP deletes an attachment on a message. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.14.

2.2.6.14.1 RopDeleteAttachment ROP Request Buffer



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.

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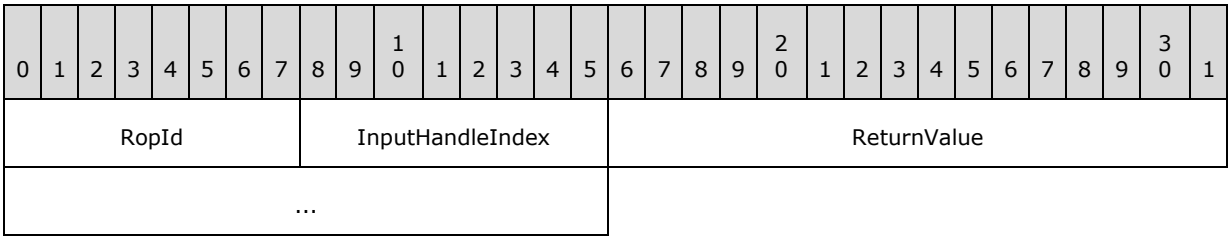
AttachmentID (4 bytes): Unsigned 32-bit integer. This value identifies the attachment to be deleted. The value of this field is equivalent to the **PidTagAttachNumber** property ([MS-OXPROPS] section 2.661).

2.2.6.14.2 RopDeleteAttachment ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x24.

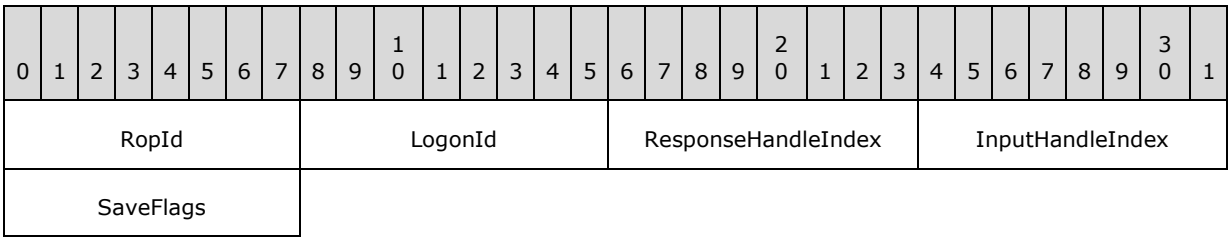
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.6.15 RopSaveChangesAttachment ROP

This ROP commits the changes made to an attachment. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.15.

2.2.6.15.1 RopSaveChangesAttachment ROP Request Buffer



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] section 2.2.3.3. These flags specify how the save operation behaves.

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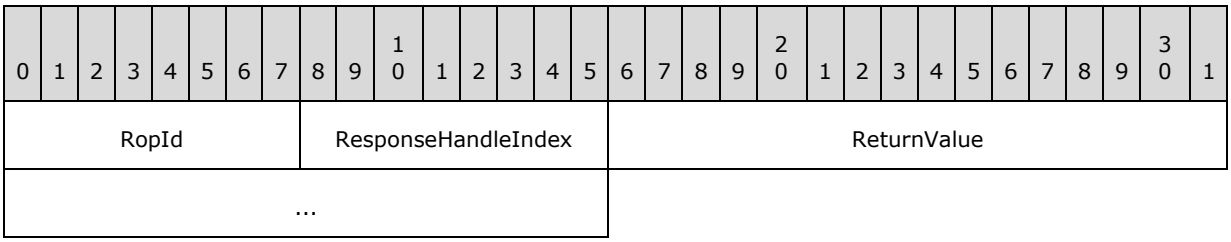
2.2.6.15.2 RopSaveChangesAttachment ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x25.

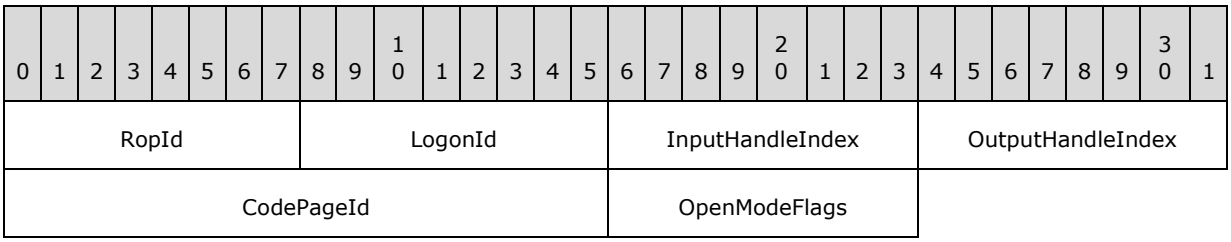
ResponseHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **ResponseHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.6.16 RopOpenEmbeddedMessage ROP

This ROP opens an attachment as a message. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.16.

2.2.6.16.1 RopOpenEmbeddedMessage ROP Request Buffer



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] section 2.2.3.16.1. These flags control the access to the message.

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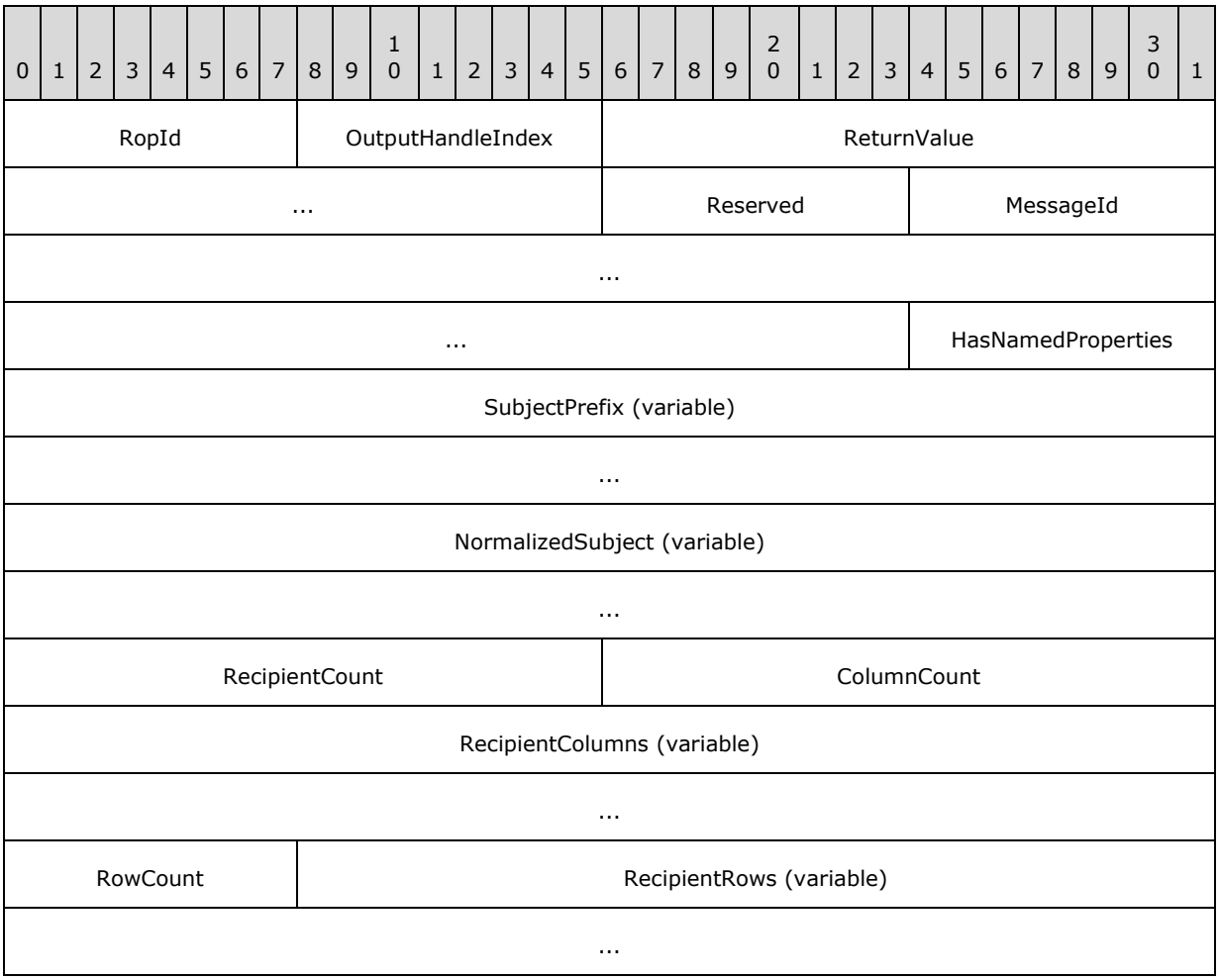
2.2.6.16.2 RopOpenEmbeddedMessage ROP Success Response Buffer



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] section 2.11.7. This structure specifies the subject prefix of the message.

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NormalizedSubject (variable): TypedString structure. The format of the **TypedString** structure is specified [MS-OXCDATA] section 2.11.7. 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.

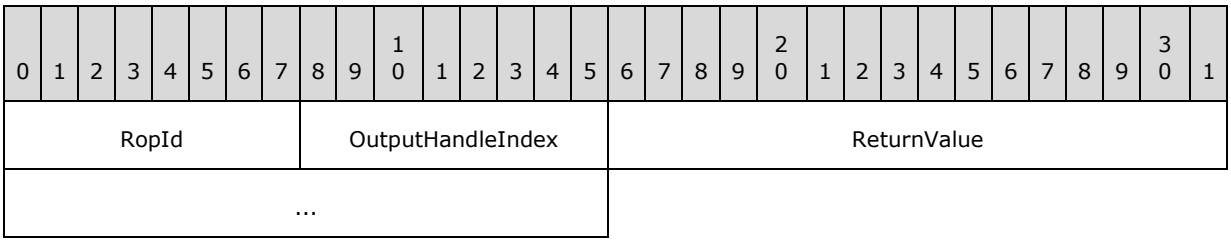
ColumnCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures in the **RecipientColumns** field.

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] section 2.9. 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 2.2.6.1.2.1.

2.2.6.16.3 RopOpenEmbeddedMessage ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x46.

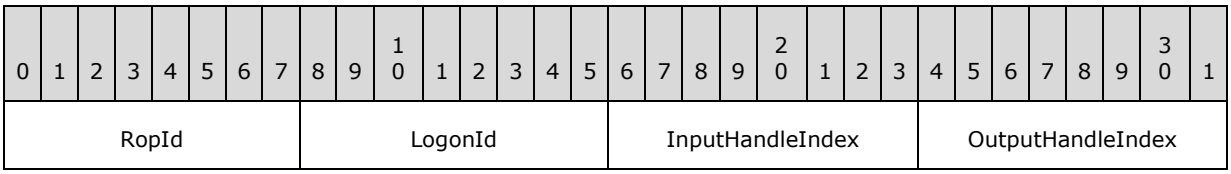
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.6.17 RopGetAttachmentTable ROP

This ROP gets the attachment table of a message. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.17.

2.2.6.17.1 RopGetAttachmentTable ROP Request Buffer



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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 0x21.

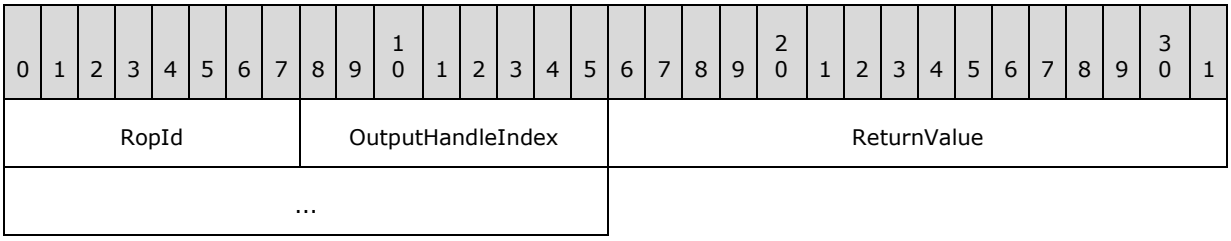
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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] section 2.2.3.17.1.

2.2.6.17.2 RopGetAttachmentTable ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x21.

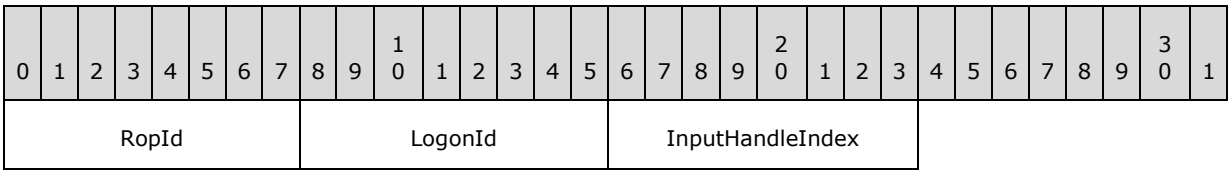
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.6.18 RopGetValidAttachments ROP

This ROP gets the valid attachment identifiers of a message. More detailed information about this operation can be found in [MS-OXCMSG] section 2.2.3.18.

2.2.6.18.1 RopGetValidAttachments ROP Request Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x52.

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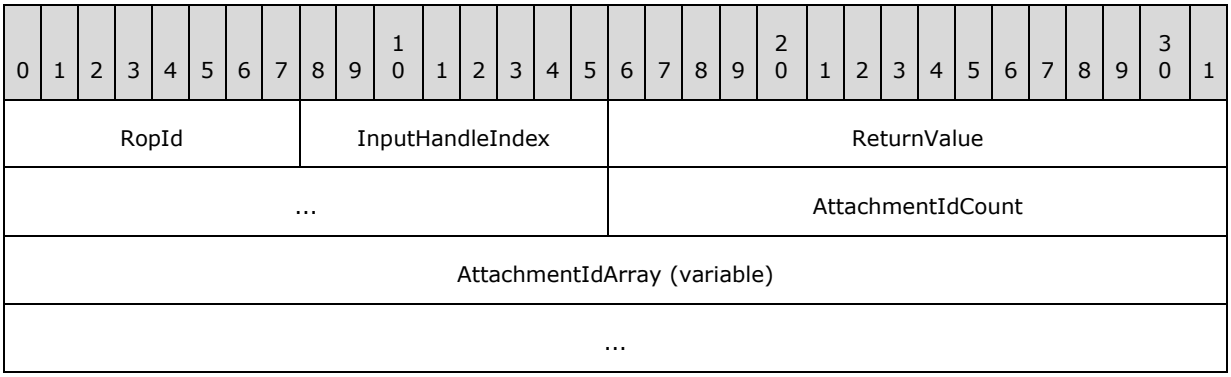
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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.

2.2.6.18.2 RopGetValidAttachments ROP Success Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x52.

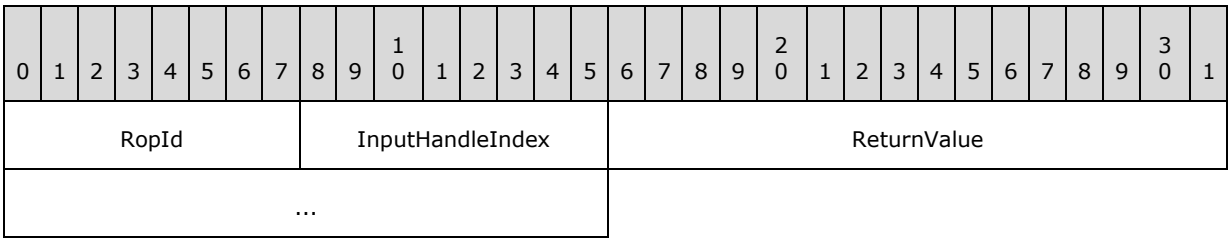
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.6.18.3 RopGetValidAttachments ROP Failure Response Buffer



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.

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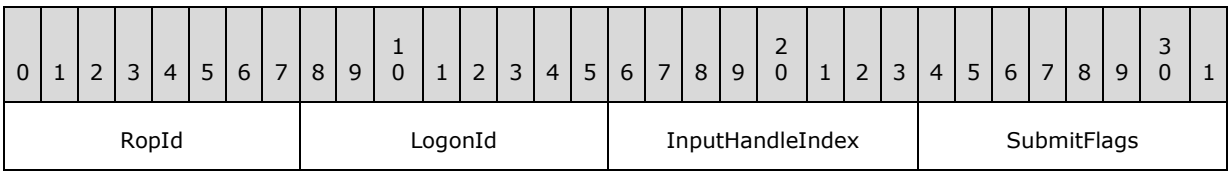
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP. For this response, this field is set to a value other than 0x00000000.

2.2.7 Transport ROPs

2.2.7.1 RopSubmitMessage ROP

This ROP submits a message for sending. More detailed information about this operation can be found in [MS-OXOMSG] section 2.2.4.1.

2.2.7.1.1 RopSubmitMessage ROP Request Buffer



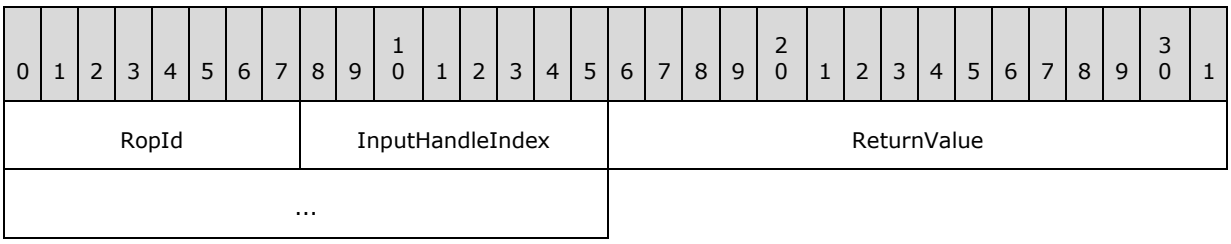
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x32.

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] section 2.2.4.1.1.

2.2.7.1.2 RopSubmitMessage ROP Response Buffer



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.

2.2.7.2 RopAbortSubmit ROP

This ROP aborts a previous message submission. More detailed information about this operation can be found in [MS-OXOMSG] section 2.2.4.2.

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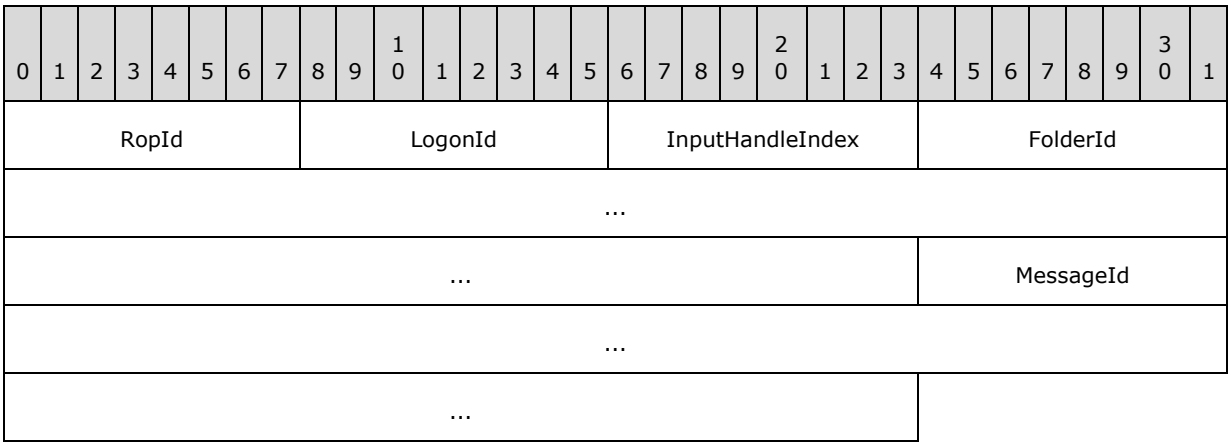
2.2.7.2.1 RopAbortSubmit ROP Request Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x34.

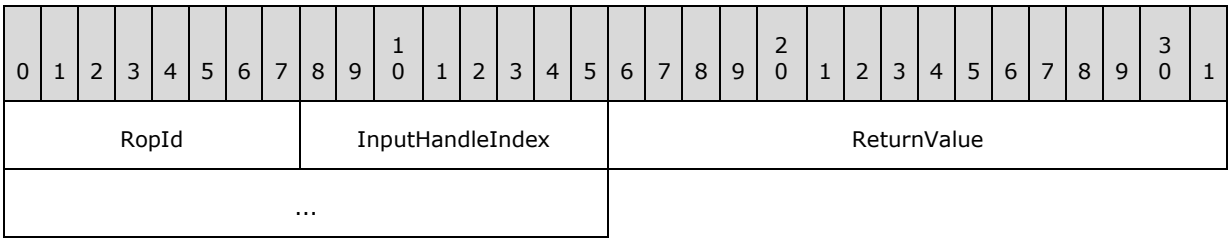
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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.

2.2.7.2.2 RopAbortSubmit ROP Response Buffer



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.

2.2.7.3 RopGetAddressTypes ROP

This ROP returns the type of recipient handled by a transport provider. More detailed information about this operation can be found in [MS-OXOMSG] section 2.2.4.3.

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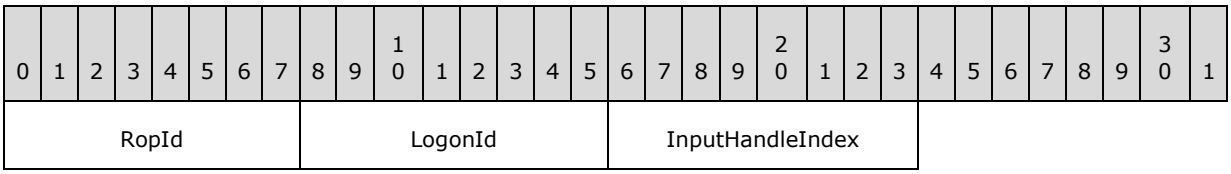
2.2.7.3.1 RopGetAddressTypes ROP Request Buffer

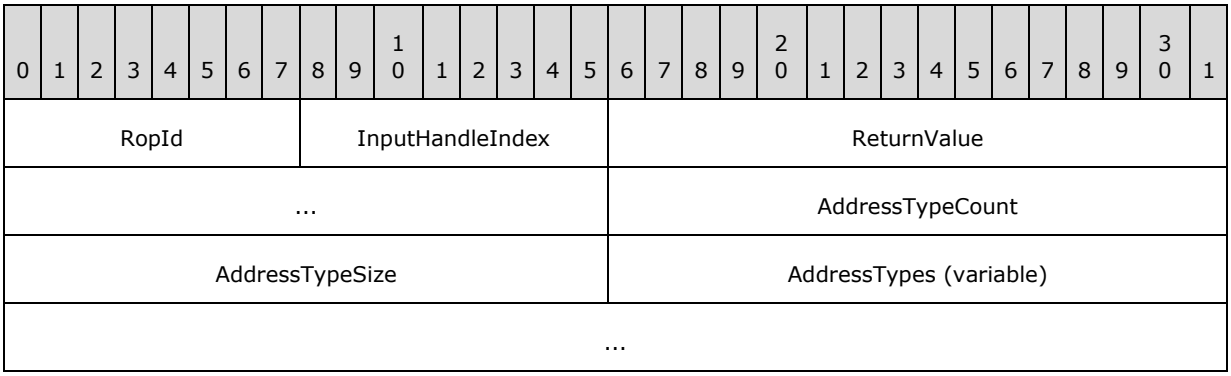


RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x49.

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.

2.2.7.3.2 RopGetAddressTypes ROP Success Response Buffer



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.

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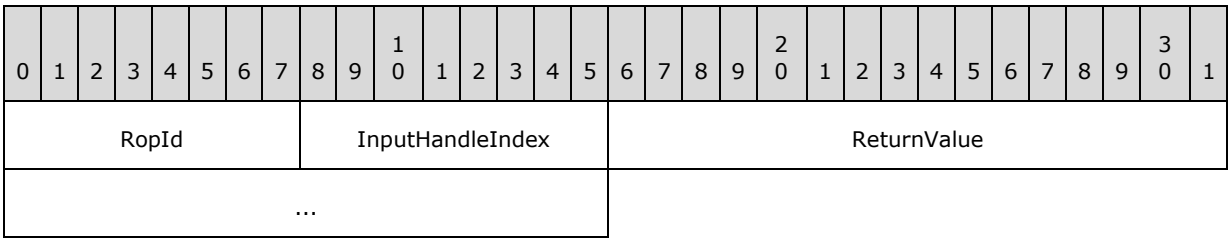
2.2.7.3.3 RopGetAddressTypes ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x49.

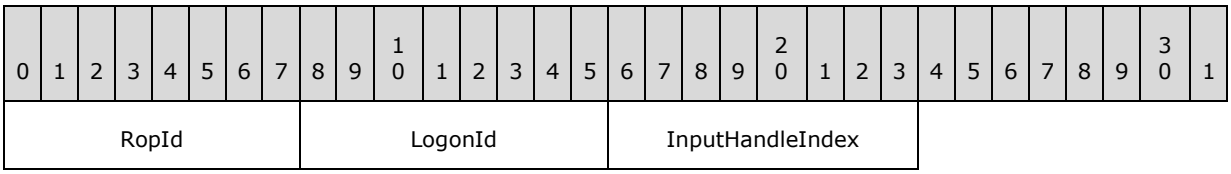
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.7.4 RopSetSpooler ROP

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] section 2.2.5.1.

2.2.7.4.1 RopSetSpooler ROP Request Buffer

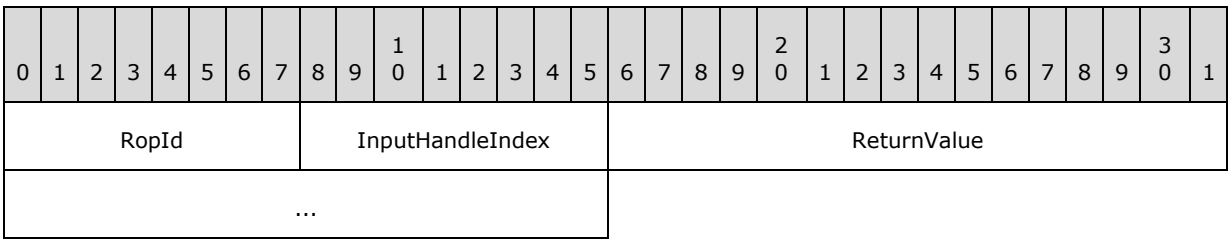


RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x47.

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.

2.2.7.4.2 RopSetSpooler ROP Response Buffer



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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 0x47.

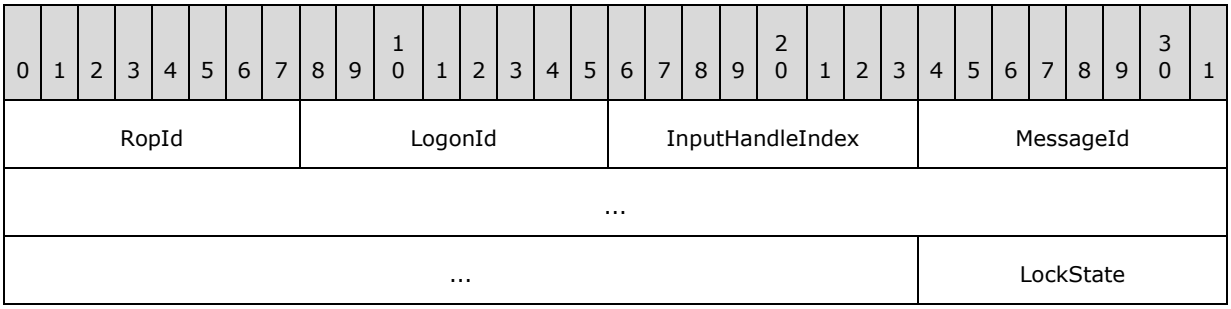
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.7.5 RopSpoolerLockMessage ROP

This ROP locks the specified message for spooling. More detailed information about this operation can be found in [MS-OXOMSG] section 2.2.5.3.

2.2.7.5.1 RopSpoolerLockMessage ROP Request Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x48.

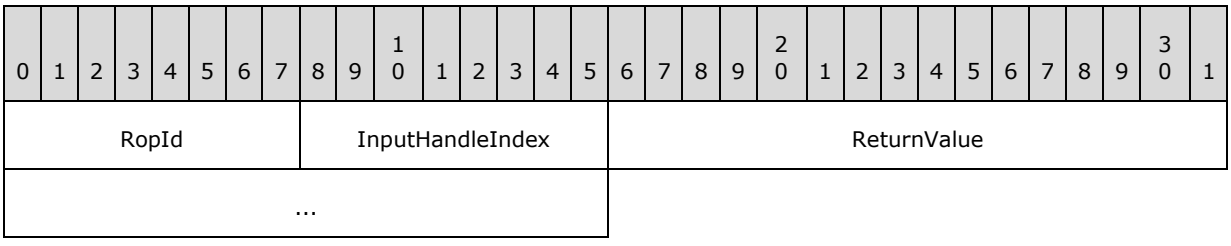
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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] section 2.2.5.3.1.

2.2.7.5.2 RopSpoolerLockMessage ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x48.

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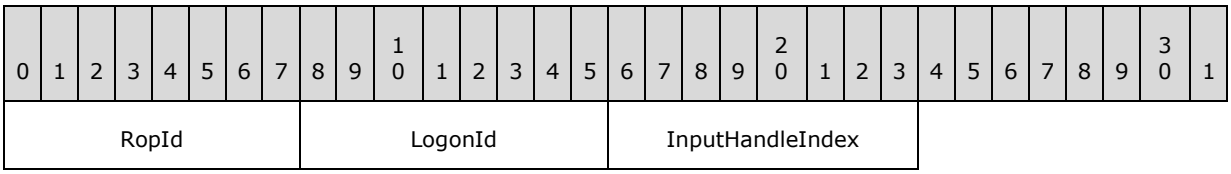
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.7.6 RopTransportSend ROP

This ROP sends the specified Message object out for message delivery. More detailed information about this operation can be found in [MS-OXOMSG] section 2.2.5.4.

2.2.7.6.1 RopTransportSend ROP Request Buffer

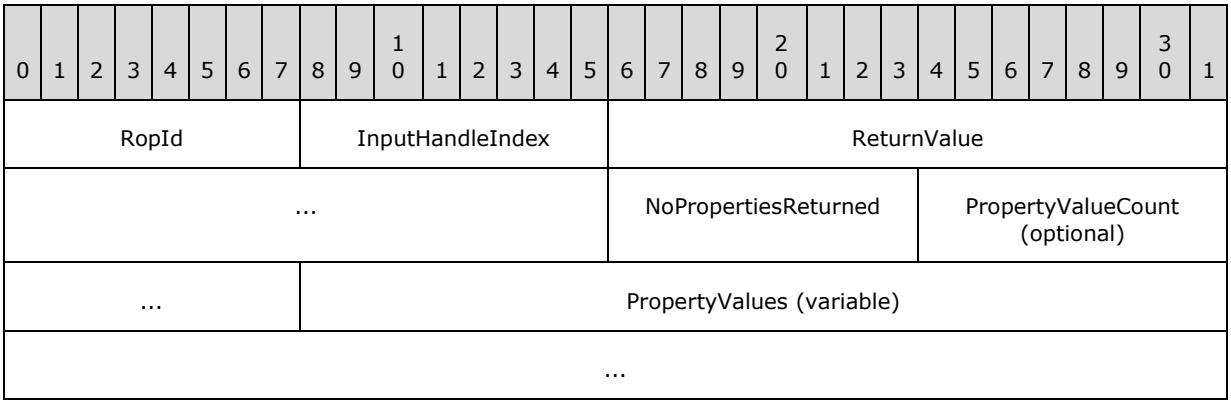


RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4A.

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.

2.2.7.6.2 RopTransportSend ROP Success Response Buffer



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. For this response, this field is set to 0x00000000.

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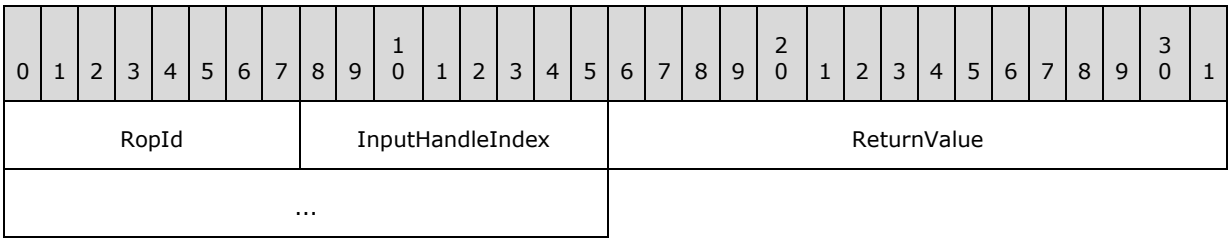
NoPropertiesReturned (1 byte): 8-bit Boolean. This value specifies whether property values are returned.

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

PropertyValues (variable): Array of **TaggedPropertyValue** structures. The format of the **TaggedPropertyValue** structure is specified in [MS-OXCDATA] section 2.11.4. The number of structures contained in this field is specified by the **PropertyValueCount** field. This array specifies the properties to copy.

2.2.7.6.3 RopTransportSend ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4A.

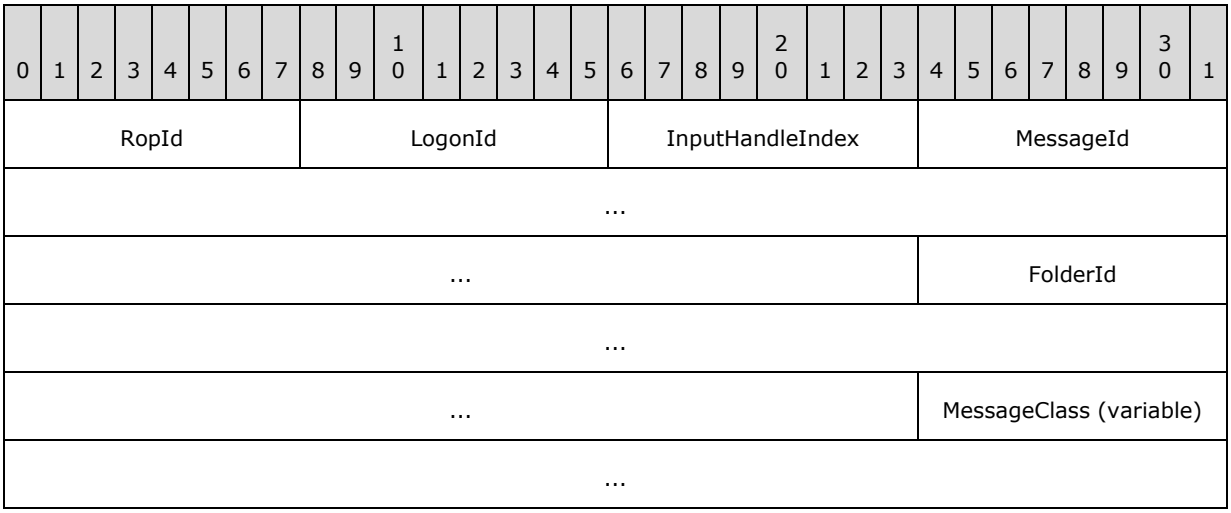
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. For more information about Server objects, see section 3.

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.

2.2.7.7 RopTransportNewMail ROP

This ROP informs the server of new mail. More detailed information about this operation can be found in [MS-OXOMSG] section 2.2.5.5.

2.2.7.7.1 RopTransportNewMail ROP Request Buffer



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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-OXOMSG] section 2.2.5.5.1. This field contains the message flags of the new Message object.

2.2.7.7.2 RopTransportNewMail ROP Response Buffer

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

2.2.7.8 RopGetTransportFolder ROP

This ROP retrieves the folder ID (FID) ([MS-OXCDATA] section 2.2.1.1) of the temporary transport folder. More detailed information about this operation can be found in [MS-OXOMSG] section 2.2.5.2.

2.2.7.8.1 RopGetTransportFolder ROP Request Buffer

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
RopId								LogonId								InputHandleIndex															

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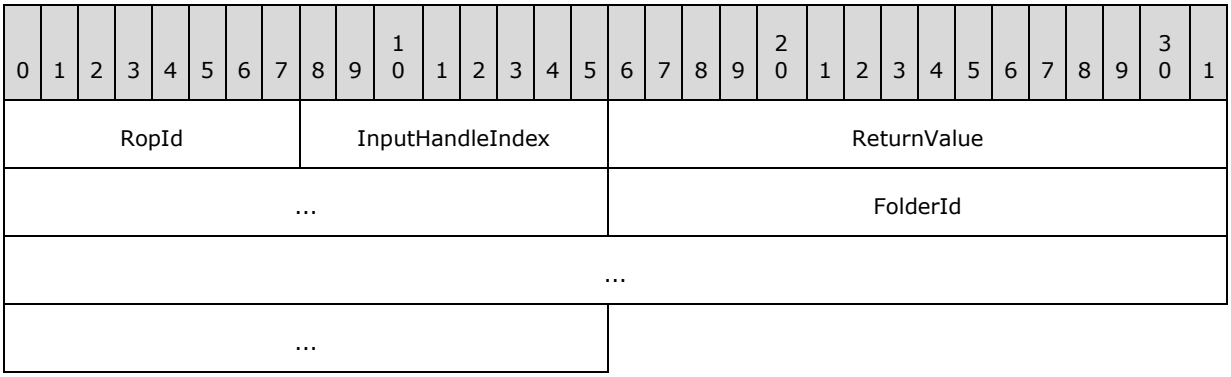
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6D.

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.

2.2.7.8.2 RopGetTransportFolder ROP Success Response Buffer



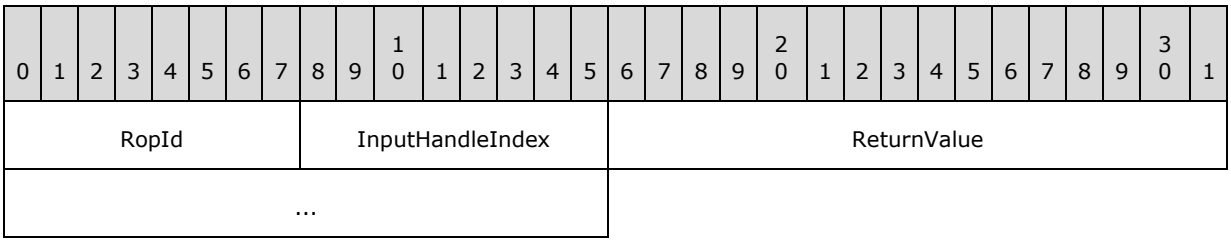
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6D.

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.

2.2.7.8.3 RopGetTransportFolder ROP Failure Response Buffer



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.

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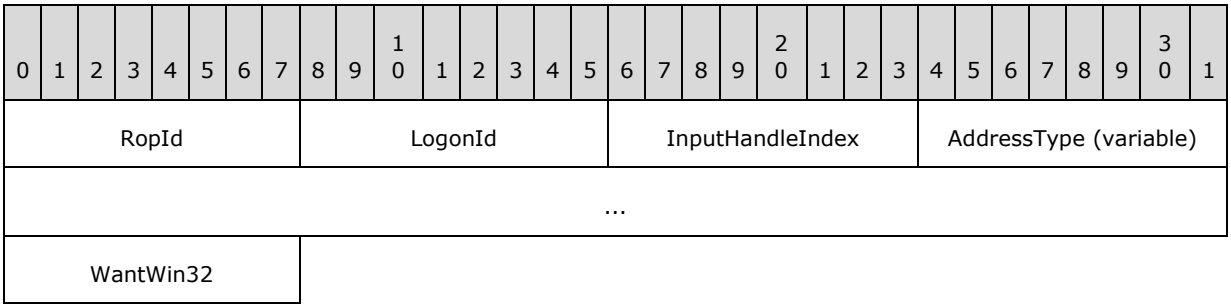
2.2.7.9 RopOptionsData ROP

This ROP retrieves the options data that is associated with an **address type**. <3> For more information about this operation, see [MS-OXOMSG] section 2.2.4.4.

2.2.7.9.1 RopOptionsData ROP Request Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6F.

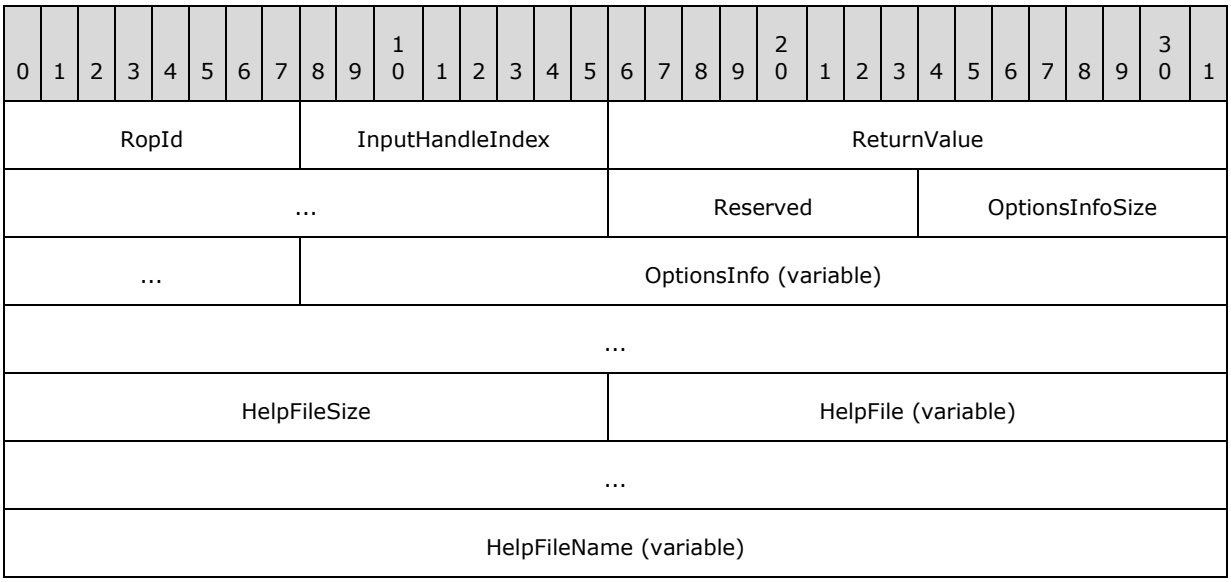
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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.

2.2.7.9.2 RopOptionsData ROP Success Response Buffer



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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 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. For this response, this field is set to 0x00000000.

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.

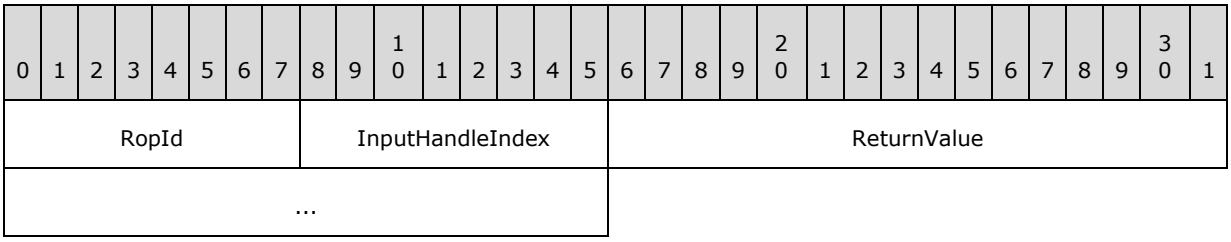
OptionsInfo (variable): Array of bytes. This field contains opaque data from the server. Clients SHOULD ignore this field. Servers SHOULD return this field as an empty array.<4> The size of this field, in bytes, is specified by the **OptionsInfoSize** field.

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. This field is present only when **HelpFileSize** is nonzero.

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.

2.2.7.9.3 RopOptionsData ROP Failure Response Buffer



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 SHOULD be set to a value other than 0x00000000. <5>

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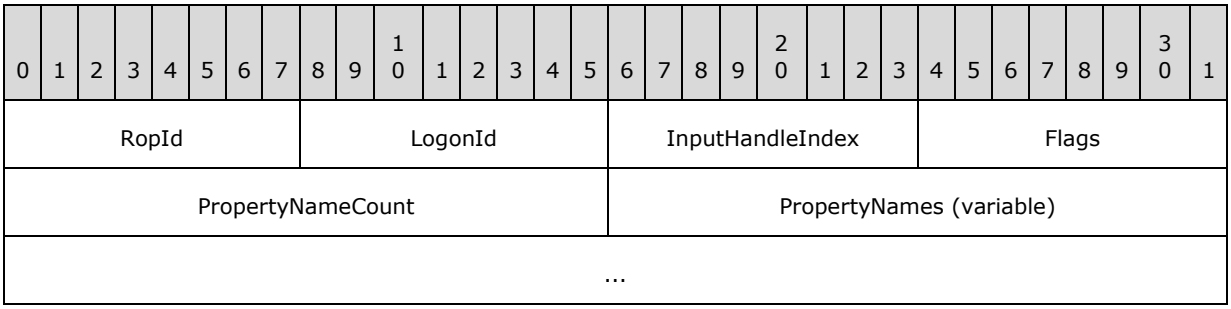
2.2.8 Property ROPs

2.2.8.1 RopGetPropertyIdsFromNames ROP

This ROP gets **property IDs** for specified **property names**. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.12.

2.2.8.1.1 RopGetPropertyIdsFromNames ROP Success Request Buffer



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.

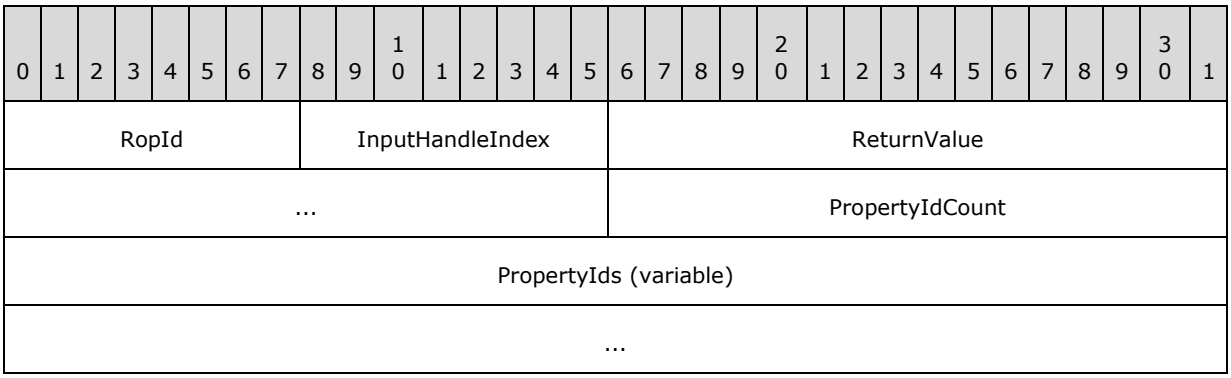
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

Flags (1 byte): 8-bit flags structure. These flags control the behavior of this operation. The possible values are specified in [MS-OXCPRPT] section 2.2.12.1.1.

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-OXCPRPT] section 2.2.12.1.3. This field specifies the property names requested.

2.2.8.1.2 RopGetPropertyIdsFromNames ROP Success Success Response Buffer



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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.

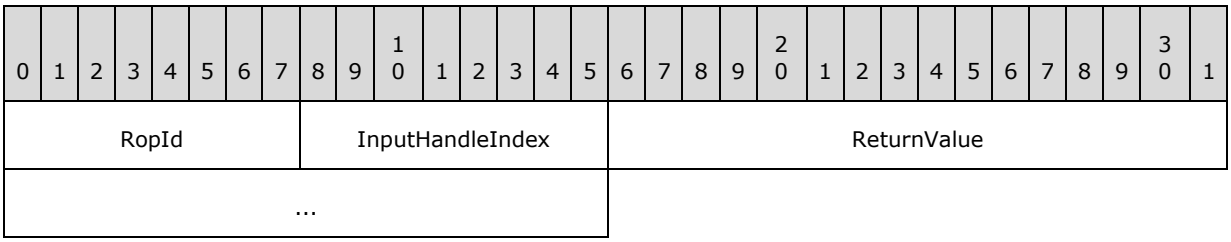
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.8.1.3 RopGetPropertyIdsFromNames ROP Failure Success Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x56.

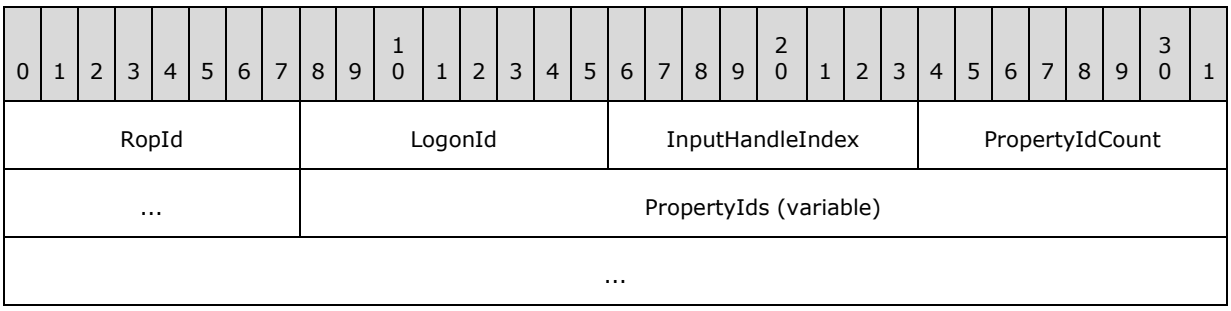
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.8.2 RopGetNamesFromPropertyIds ROP

This ROP gets property names for specified property IDs. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.13.

2.2.8.2.1 RopGetNamesFromPropertyIds ROP Request Buffer



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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 0x55.

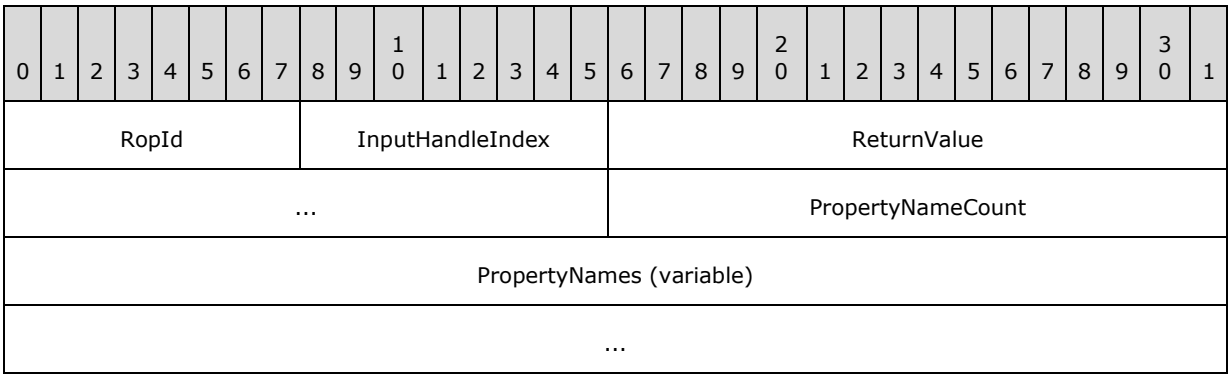
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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.

2.2.8.2.2 RopGetNamesFromPropertyIds ROP Success Response Buffer



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] section 2.6. This field lists the property names for the property IDs requested.

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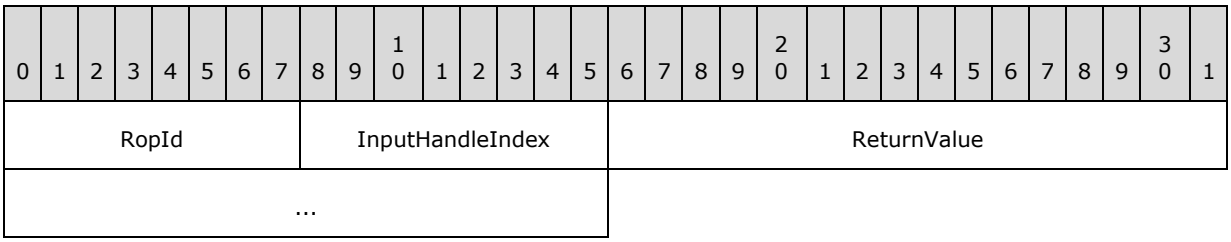
2.2.8.2.3 RopGetNamesFromPropertyIds ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x55.

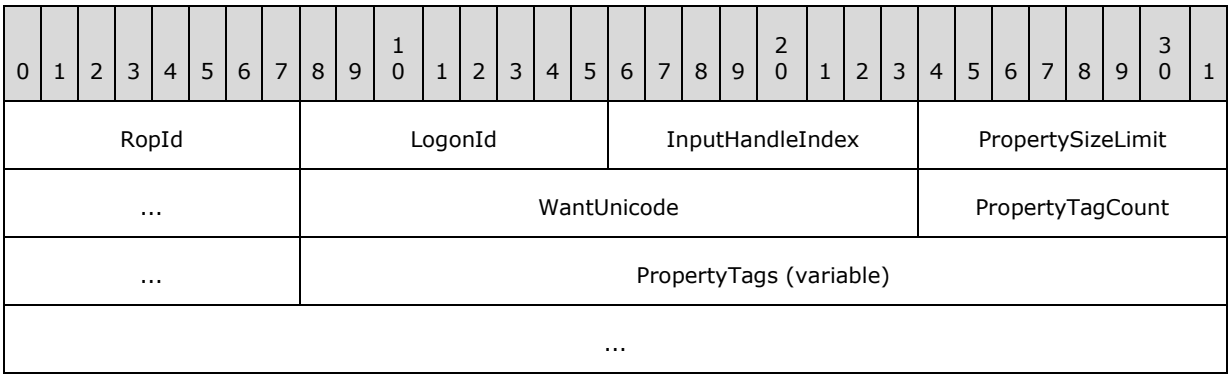
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.8.3 RopGetPropertiesSpecific ROP

This ROP gets property values for specified **property tags**. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.2.

2.2.8.3.1 RopGetPropertiesSpecific ROP Request Buffer



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.

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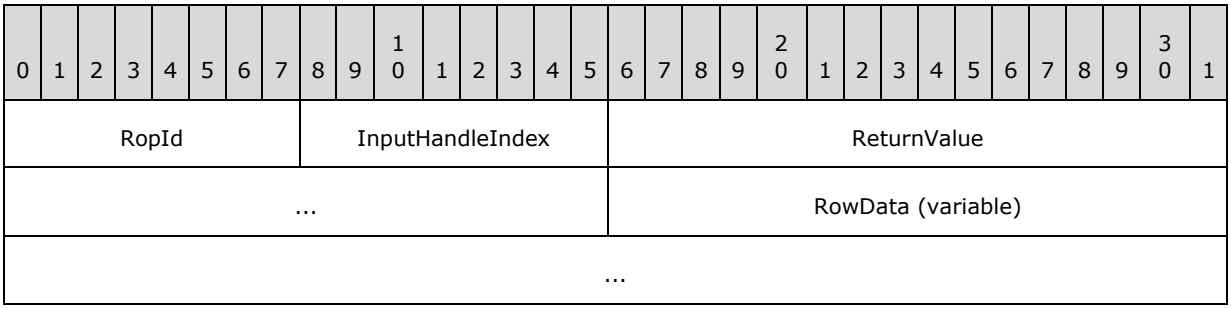
PropertyTagCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of tags present in the **PropertyTags** field.

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] section 2.9. This field specifies the properties requested.

2.2.8.3.2 RopGetPropertiesSpecific ROP Success Response Buffer



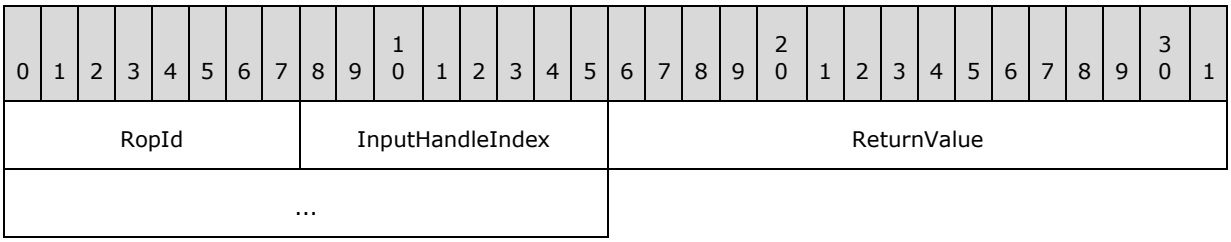
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x07.

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] section 2.8 and the columns used for these rows were those specified in the **PropertyTags** field in the request.

2.2.8.3.3 RopGetPropertiesSpecific ROP Failure Response Buffer



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.

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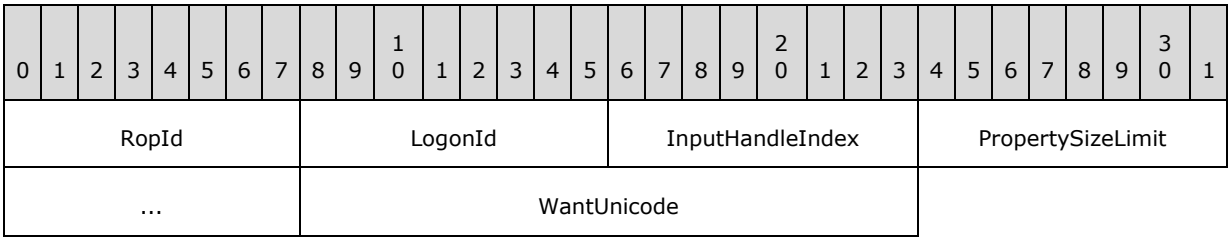
2.2.8.4 RopGetPropertiesAll ROP

This ROP gets all the property values for an object. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.3.

2.2.8.4.1 RopGetPropertiesAll ROP Request Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x08.

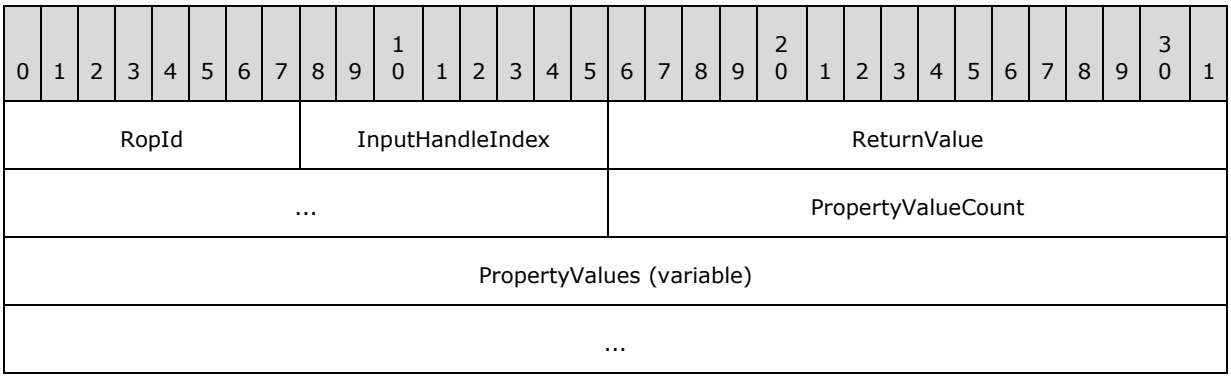
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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.

2.2.8.4.2 RopGetPropertiesAll ROP Success Response Buffer



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.

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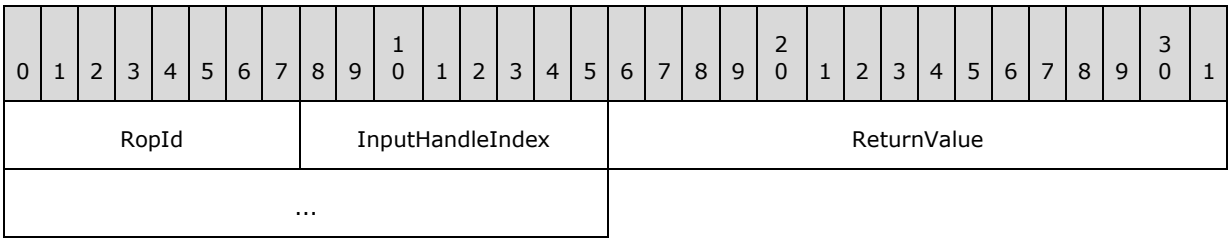
PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures present in the **PropertyValues** field.

PropertyValues (variable): Array of **TaggedPropertyValue** 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 **TaggedPropertyValue** structure is specified in [MS-OXCDATA] section 2.11.4.

2.2.8.4.3 RopGetPropertiesAll ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x08.

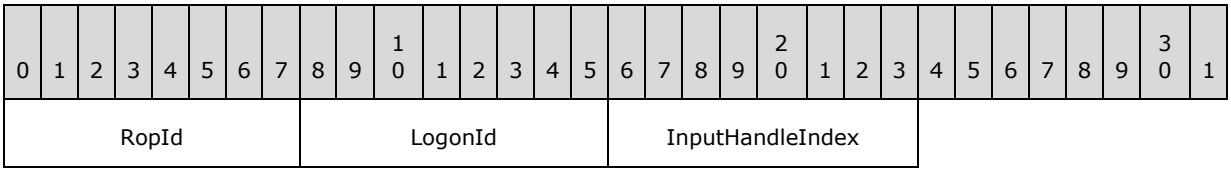
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.8.5 RopGetPropertiesList ROP

This ROP gets the list of property tags for an object. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.4.

2.2.8.5.1 RopGetPropertiesList ROP Request Buffer



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.

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2.2.8.5.2 RopGetPropertiesList ROP Success Response Buffer

RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x09.

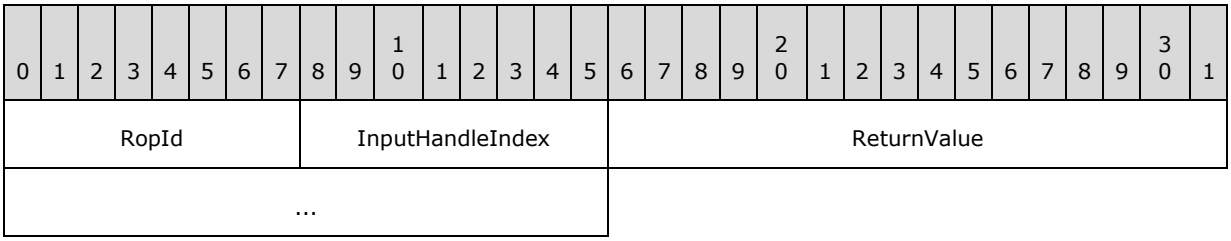
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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] section 2.9. This field lists the property tags on the object.

2.2.8.5.3 RopGetPropertiesList ROP Failure Response Buffer



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.

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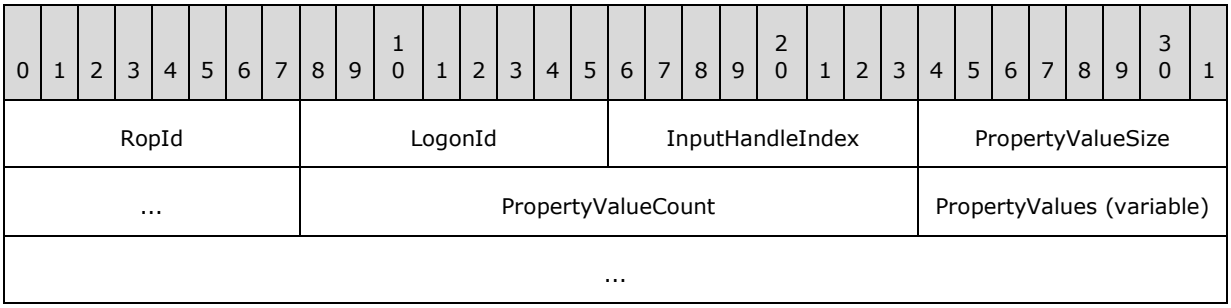
2.2.8.6 RopSetProperties ROP

This ROP sets property values for an object. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.5.

2.2.8.6.1 RopSetProperties ROP Request Buffer



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.

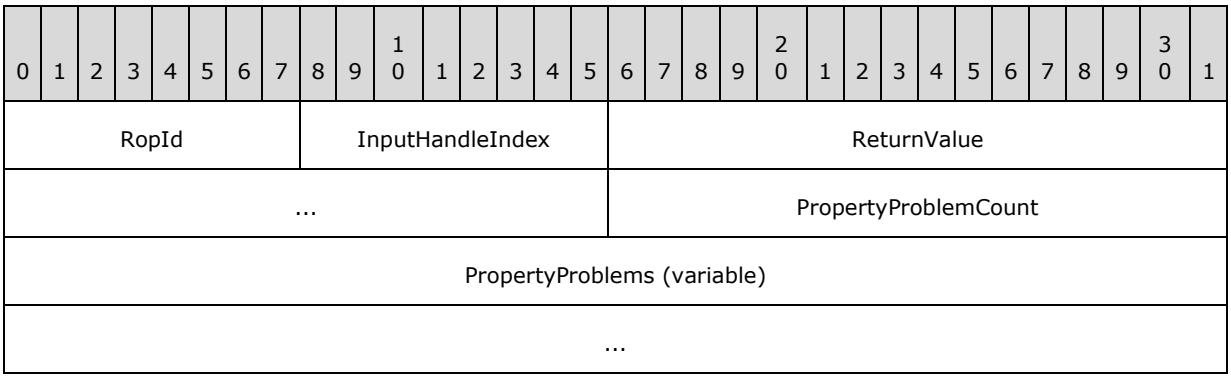
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

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 2.11.4. This field specifies the property values to be set on the object.

2.2.8.6.2 RopSetProperties ROP Success Response Buffer



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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 0x0A.

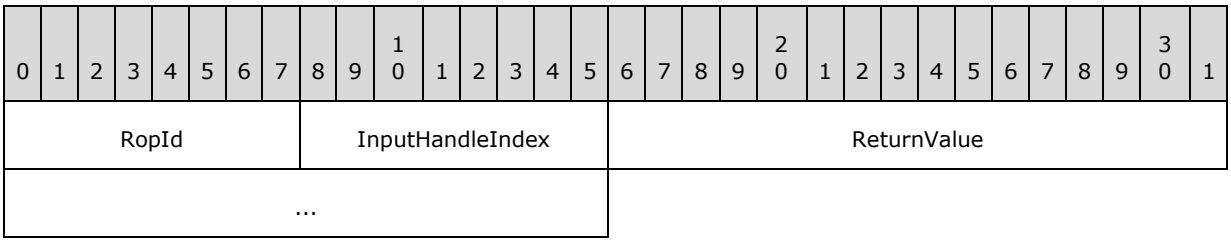
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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. The format of the **PropertyProblem** structure is specified in [MS-OXCDATA] section 2.7.

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] section 2.7.

2.2.8.6.3 RopSetProperties ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0A.

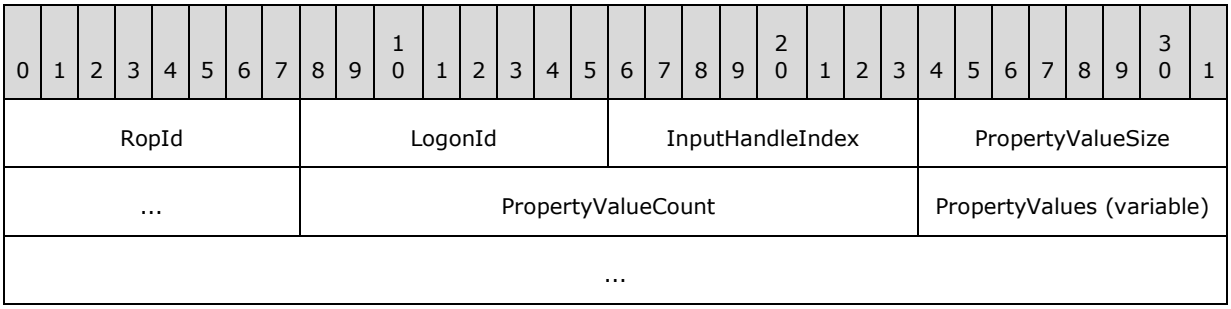
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.8.7 RopSetPropertiesNoReplicate ROP

This ROP sets property values for an object without invoking replication. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.6.

2.2.8.7.1 RopSetPropertiesNoReplicate ROP Request Buffer



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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 0x79.

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

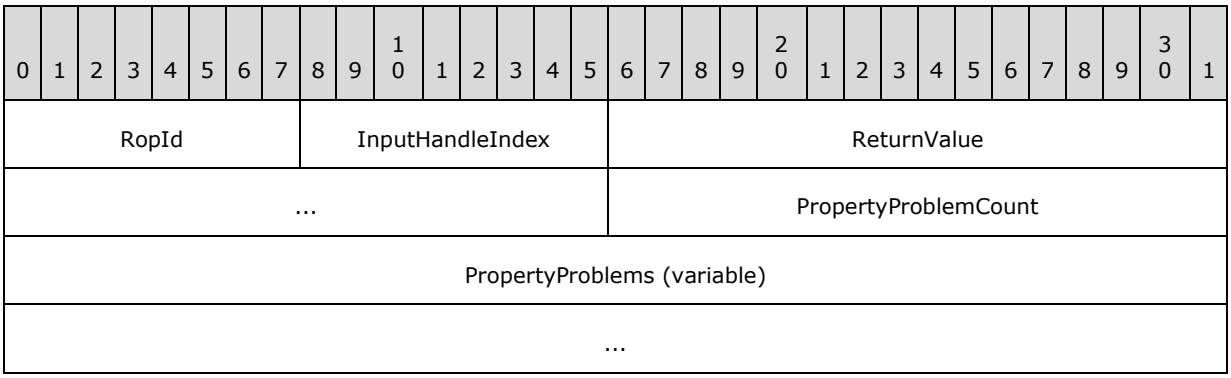
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

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 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 2.11.4. This field specifies the property values to be set on the object.

2.2.8.7.2 RopSetPropertiesNoReplicate ROP Success Response Buffer



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. The format of the **PropertyProblem** structure is specified in [MS-OXCDATA] section 2.7.

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] section 2.7.

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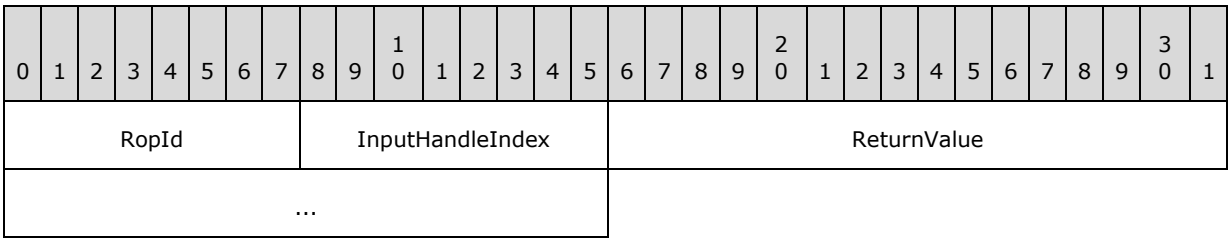
2.2.8.7.3 RopSetPropertiesNoReplicate ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x79.

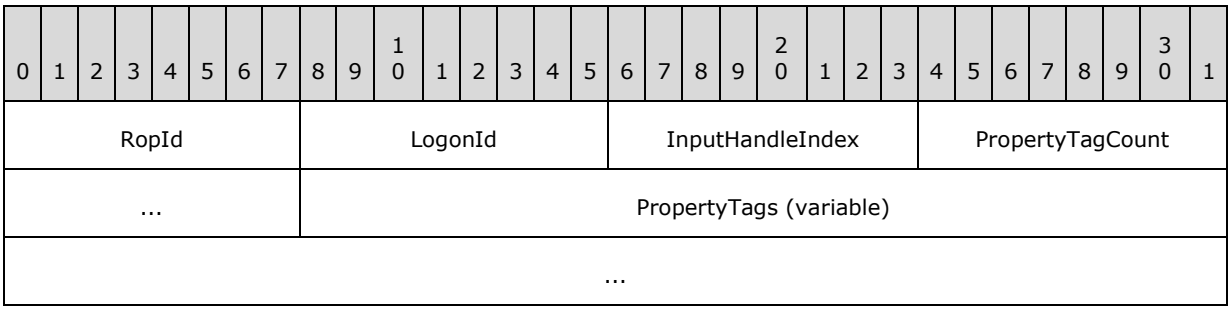
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.8.8 RopDeleteProperties ROP

This ROP deletes property values for an object. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.7.

2.2.8.8.1 RopDeleteProperties ROP Request Buffer



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. The format of the **PropertyTag** structure is specified in [MS-OXCDATA] section 2.9.

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

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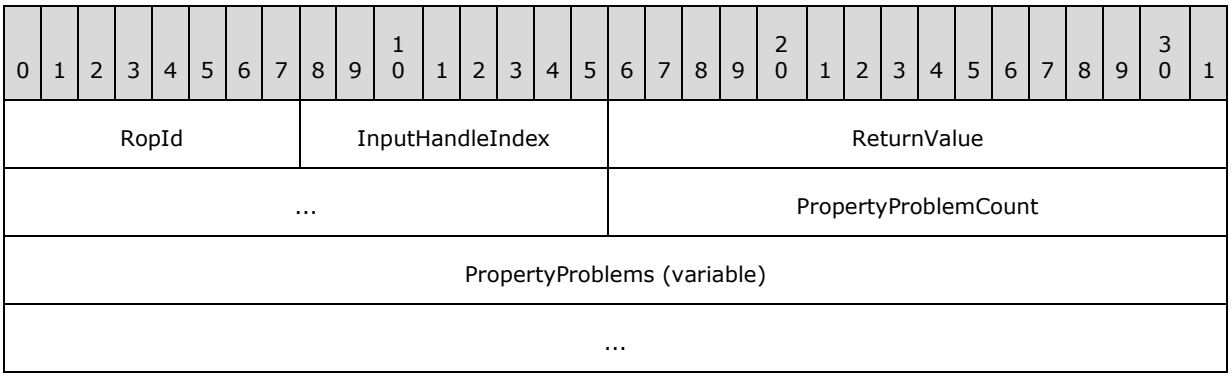
specified in [MS-OXCDATA] section 2.9. This field specifies the property values to be deleted from the object.

2.2.8.8.2 RopDeleteProperties ROP Success Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x0B.

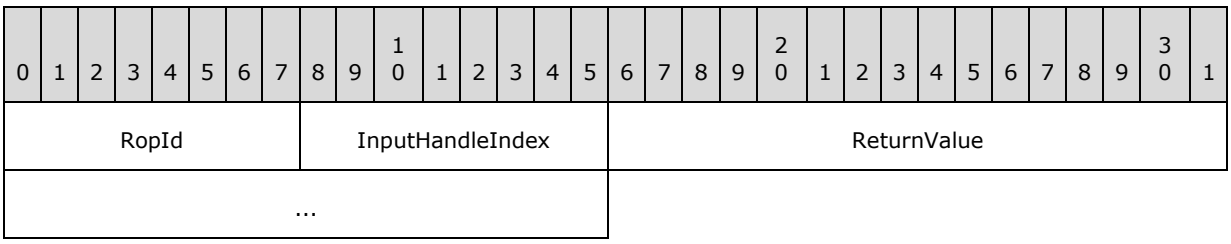
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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. The format of the **PropertyProblem** structure is specified in [MS-OXCDATA] section 2.7

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] section 2.7.

2.2.8.8.3 RopDeleteProperties ROP Failure Response Buffer



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.

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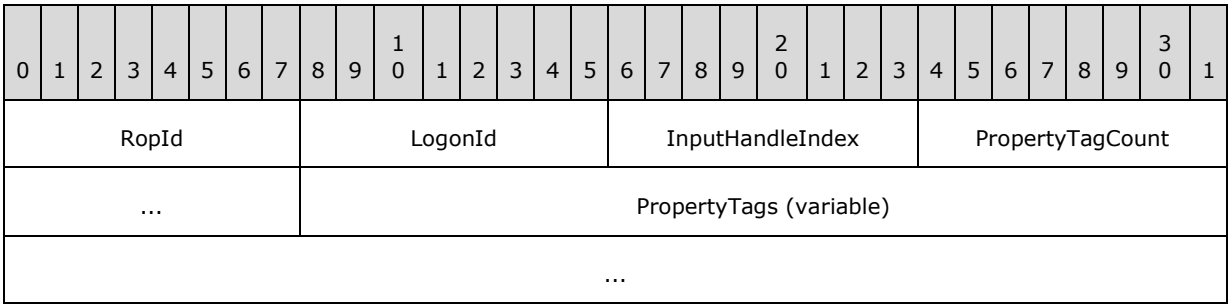
2.2.8.9 RopDeletePropertiesNoReplicate ROP

This ROP deletes property values from an object without invoking replication. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.8.

2.2.8.9.1 RopDeletePropertiesNoReplicate ROP Request Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7A.

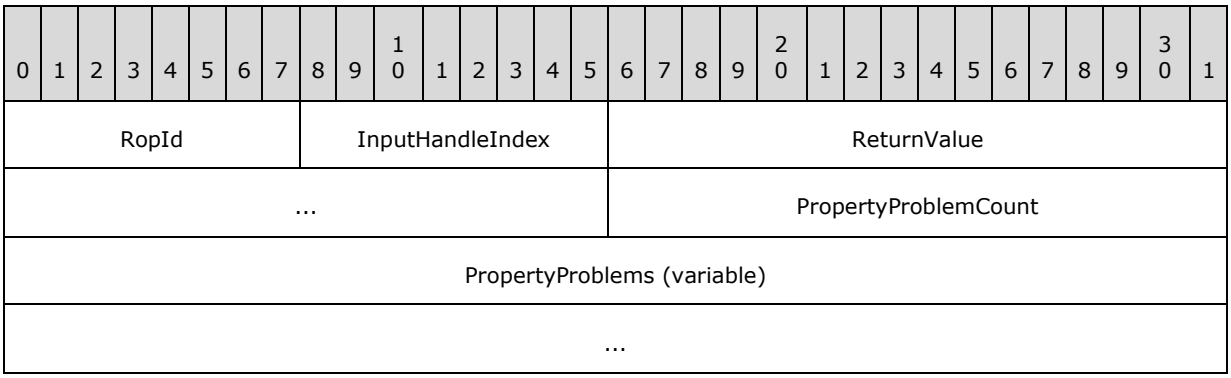
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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. The format of the **PropertyTag** structure is specified in [MS-OXCDATA] section 2.9.

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] section 2.9. This field specifies the property values to be deleted from the object.

2.2.8.9.2 RopDeletePropertiesNoReplicate ROP Success Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7A.

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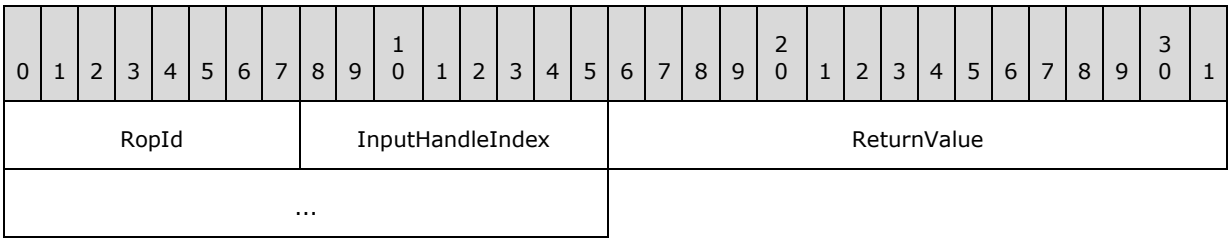
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

PropertyProblemCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of **PropertyProblem** structures in the **PropertyProblems** field. The format of the **PropertyProblem** structure is specified in [MS-OXCDATA] section 2.7.

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] section 2.7.

2.2.8.9.3 RopDeletePropertiesNoReplicate ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7A.

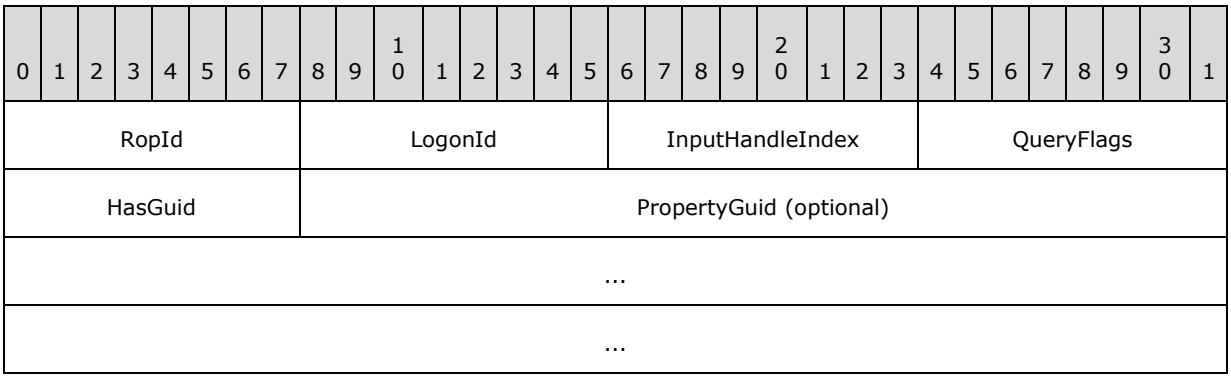
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.8.10 RopQueryNamedProperties ROP

This ROP retrieves all the named properties for an object. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.9.

2.2.8.10.1 RopQueryNamedProperties ROP Request Buffer



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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 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] section 2.2.9.1.1. 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.

2.2.8.10.2 RopQueryNamedProperties ROP Success Response Buffer

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

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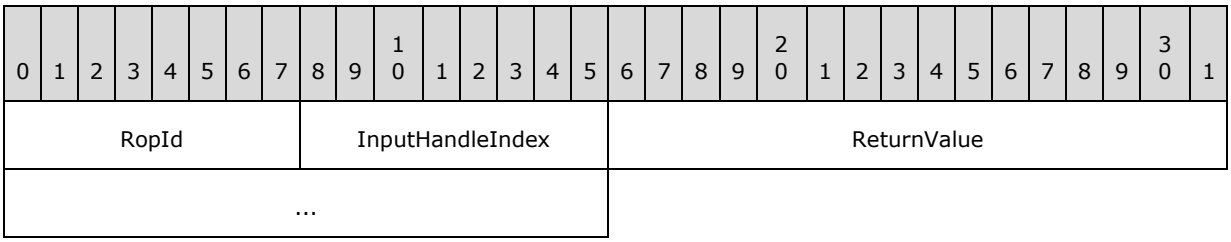
PropertyIds (variable): Array of unsigned 16-bit integers. Each integer in the array is the property ID associated with a property name. The number of integers in the array is specified by the **IdCount** field.

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] section 2.6.1. This field lists the property names for the property IDs specified in the **PropertyIds** field.

2.2.8.10.3 RopQueryNamedProperties ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5F.

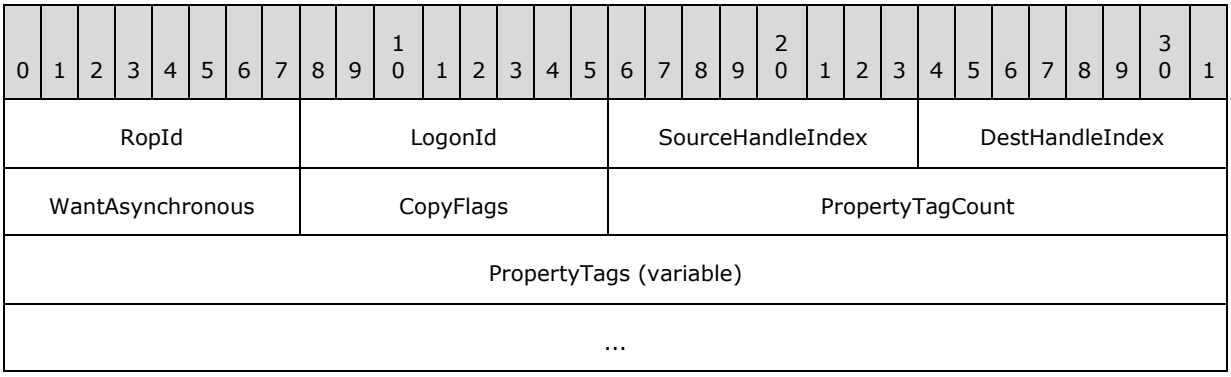
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.8.11 RopCopyProperties ROP

This ROP copies property values from one object to another. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.10.

2.2.8.11.1 RopCopyProperties ROP Request Buffer



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.

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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.

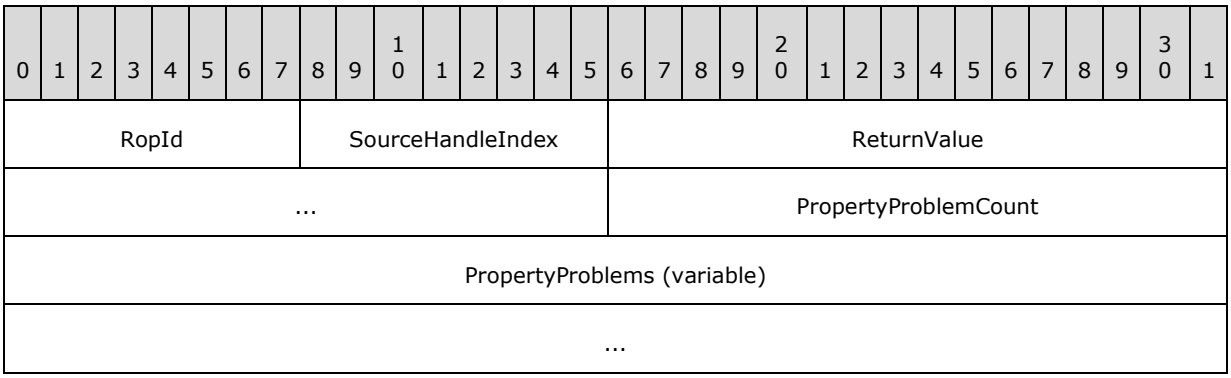
WantAsynchronous (1 byte): 8-bit Boolean. This value specifies whether the operation is to be executed asynchronously with status reported via **RopProgress** (section 2.2.8.13).

CopyFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCPRPT] section 2.2.10.1.2. 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] section 2.9. This field specifies the properties to copy.

2.2.8.11.2 RopCopyProperties ROP Success Response Buffer



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] section 2.7.

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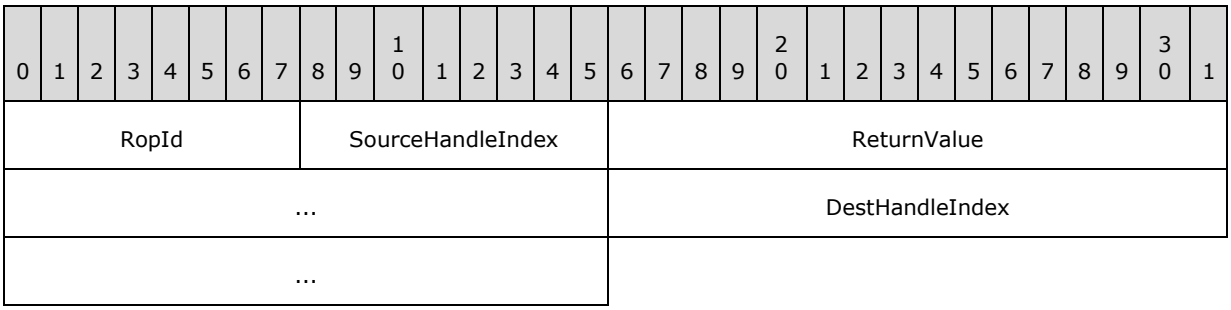
2.2.8.11.3 RopCopyProperties ROP Null Destination Failure Response Buffer



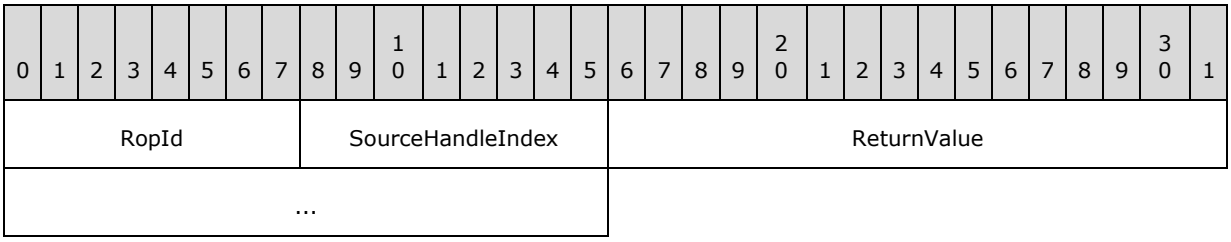
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x67.

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.

2.2.8.11.4 RopCopyProperties ROP Failure Response Buffer



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.

2.2.8.12 RopCopyTo ROP

This ROP copies properties from one Server object to another. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.11.

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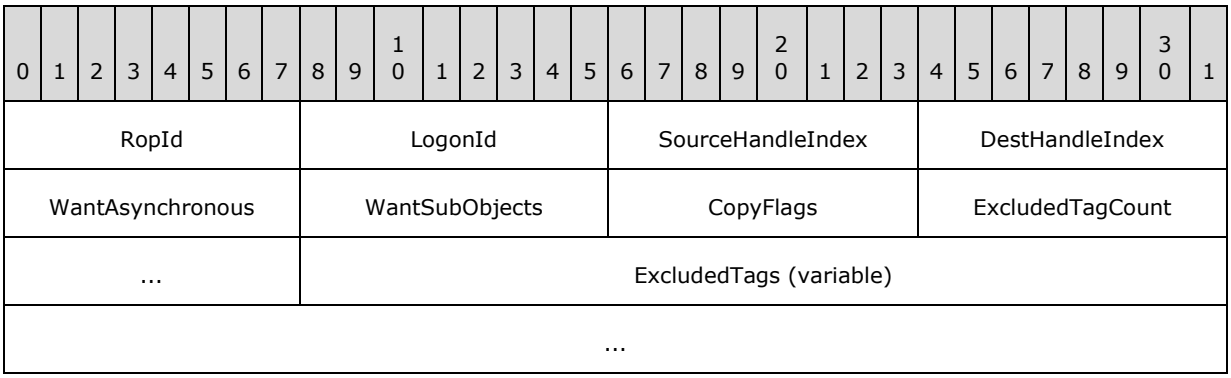
2.2.8.12.1 RopCopyTo ROP Request Buffer



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 (**section 2.2.8.13**)**.

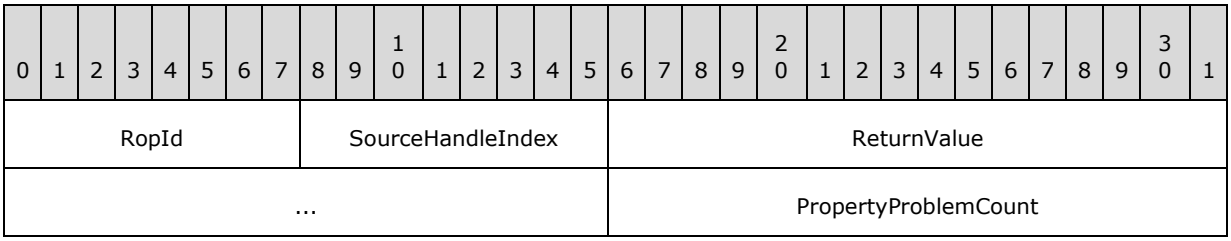
WantSubObjects (1 byte): 8-bit Boolean. This value specifies whether to copy subobjects.

CopyFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCPRPT] section 2.2.11.1.3. These flags control the operation behavior.

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

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] section 2.9. This field specifies the properties to exclude from the copy.

2.2.8.12.2 RopCopyTo ROP Success Response Buffer



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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.

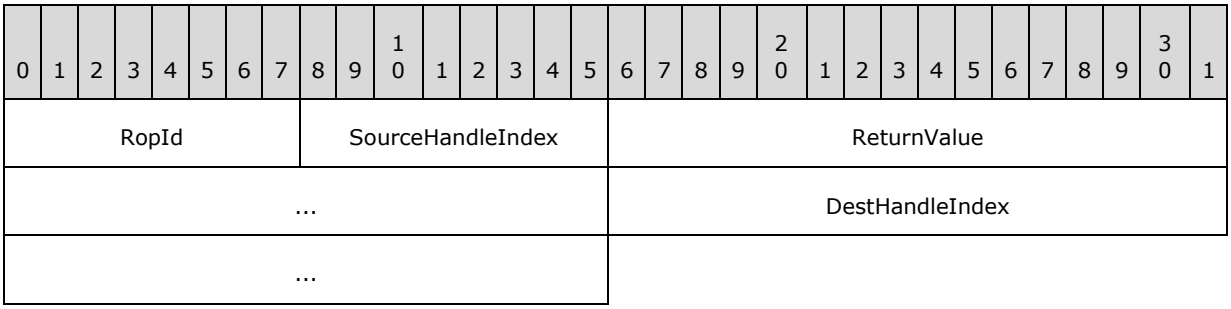
SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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. The format of the **PropertyProblem** structure is specified in [MS-OXCDATA] section 2.7.

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] section 2.7.

2.2.8.12.3 RopCopyTo ROP Null Destination Failure Response Buffer



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.

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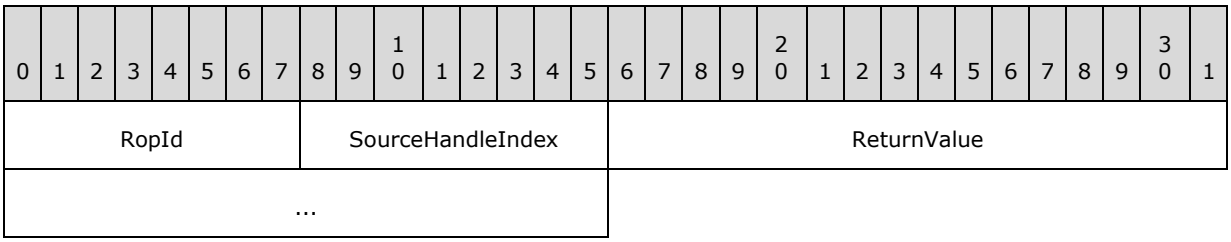
2.2.8.12.4 RopCopyTo ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x39.

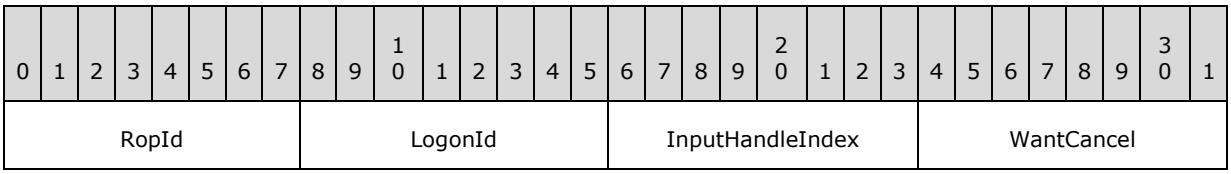
SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.8.13 RopProgress ROP

This ROP gets the status of an asynchronous operation. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.22.

2.2.8.13.1 RopProgress ROP Request Buffer



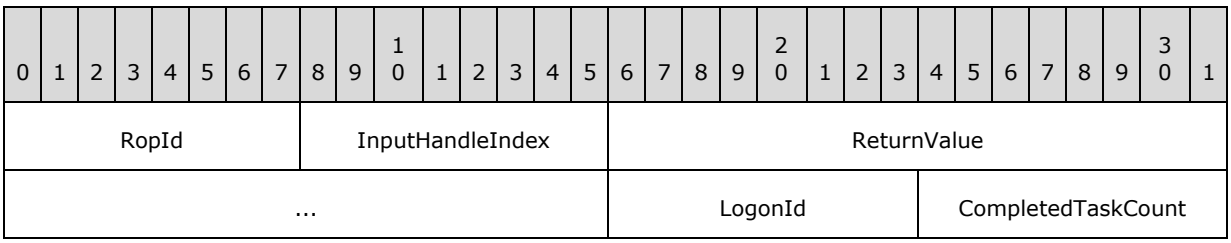
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x50.

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.

2.2.8.13.2 RopProgress ROP Success Response Buffer



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...	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.

2.2.8.13.3 RopProgress ROP Failure Response Buffer

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

2.2.9 Stream ROPs

2.2.9.1 RopOpenStream ROP

This ROP opens a property for streaming access. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.14.

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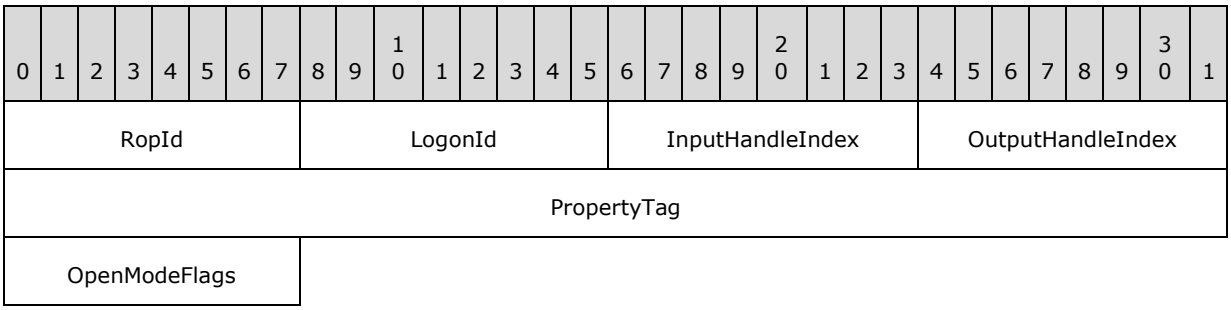
2.2.9.1.1 RopOpenStream ROP Request Buffer



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.

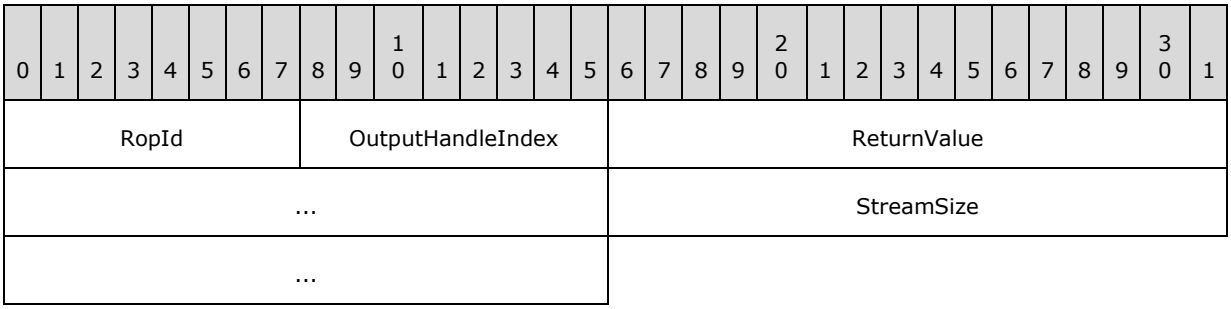
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

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] section 2.9. 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] section 2.2.14.1.2.

2.2.9.1.2 RopOpenStream ROP Success Response Buffer



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.

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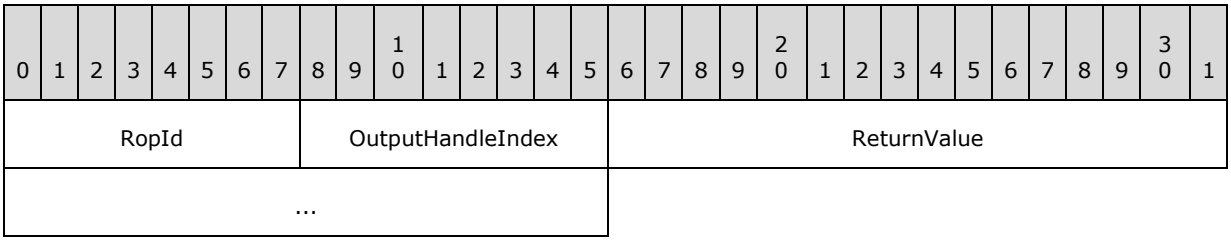
StreamSize (4 bytes): Unsigned 32-bit integer. This value indicates the size of the stream opened.

2.2.9.1.3 RopOpenStream ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2B.

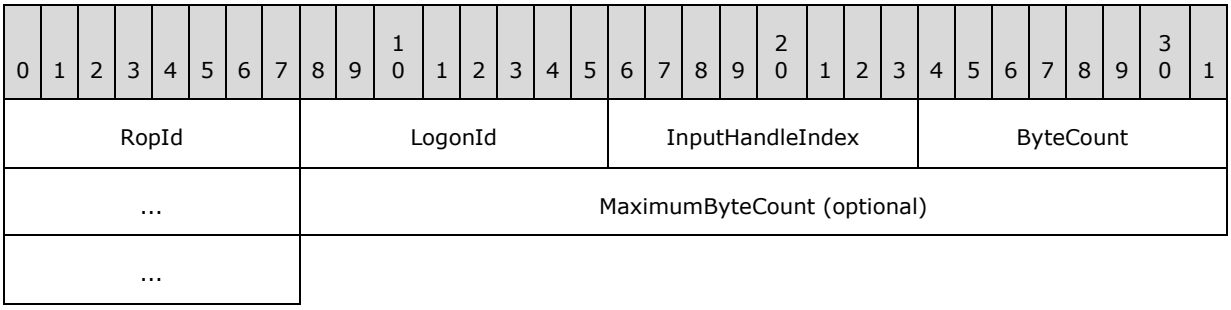
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.9.2 RopReadStream ROP

This ROP reads bytes from a stream. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.15.

2.2.9.2.1 RopReadStream ROP Request Buffer



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.<6>

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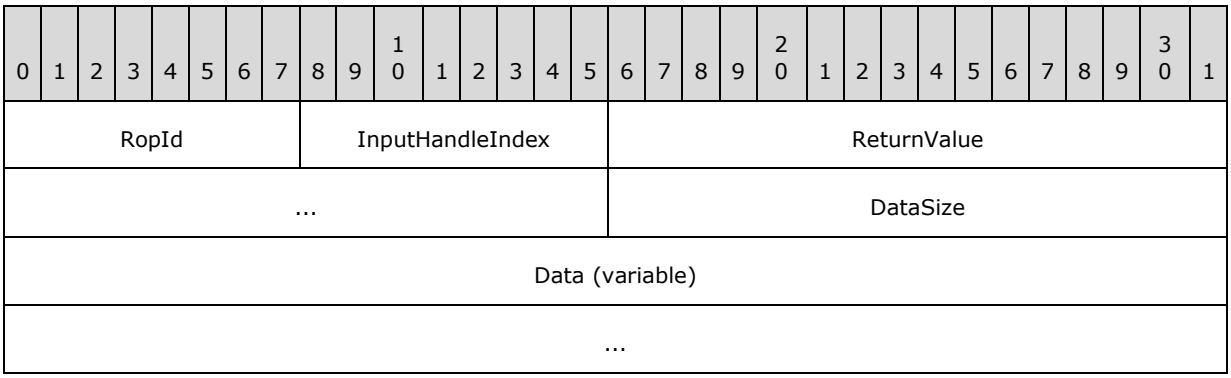
MaximumByteCount (4 bytes): Unsigned 32-bit integer. This value specifies the maximum number of bytes to read if the value of the **ByteCount** field is equal to 0xBABE. The **MaximumByteCount** field is present when **ByteCount** is equal to 0xBABE and is not present otherwise. If **MaximumByteCount** is greater than 0x80000000, then the RPC SHOULD fail with error code 0x000004B6.

2.2.9.2.2 RopReadStream ROP Response Buffer



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:

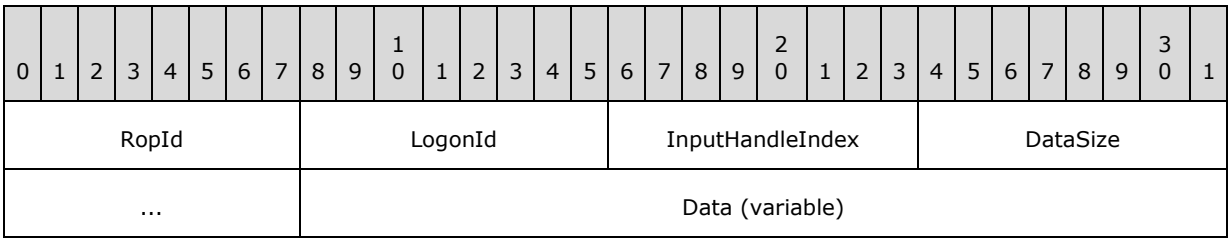
- The ByteCount field, when the value of ByteCount is not equal to 0xBABE.
- The MaximumByteCount field, when the value of ByteCount is equal to 0xBABE.

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.

2.2.9.3 RopWriteStream ROP

This ROP writes bytes to a stream. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.16.

2.2.9.3.1 RopWriteStream ROP Request Buffer



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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 0x2D.

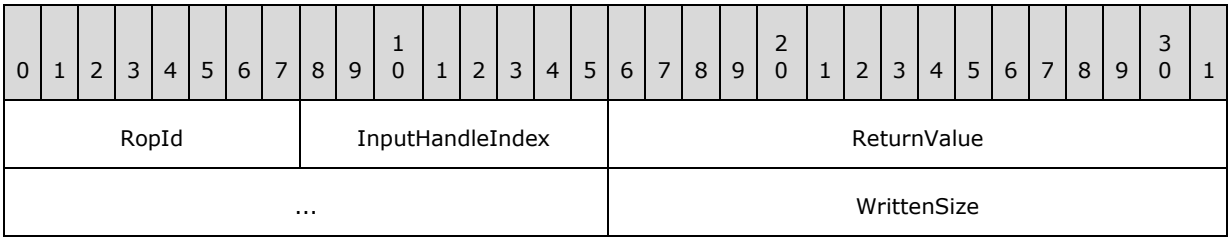
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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.

2.2.9.3.2 RopWriteStream ROP Response Buffer



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.

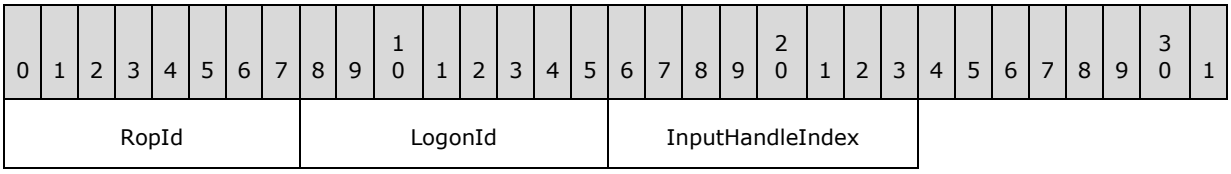
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

WrittenSize (2 bytes): Unsigned 16-bit integer. This value specifies the number of bytes actually written.

2.2.9.4 RopCommitStream ROP

This ROP commits stream operations. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.17.

2.2.9.4.1 RopCommitStream ROP Request Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5D.

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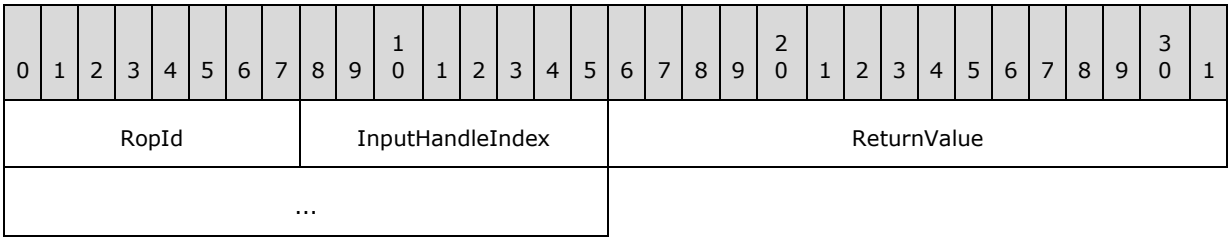
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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.

2.2.9.4.2 RopCommitStream ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5D.

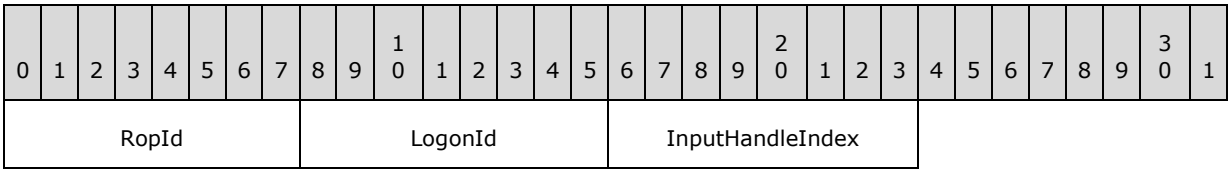
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.9.5 RopGetStreamSize ROP

This ROP gets the size of a stream. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.18.

2.2.9.5.1 RopGetStreamSize ROP Request Buffer



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.

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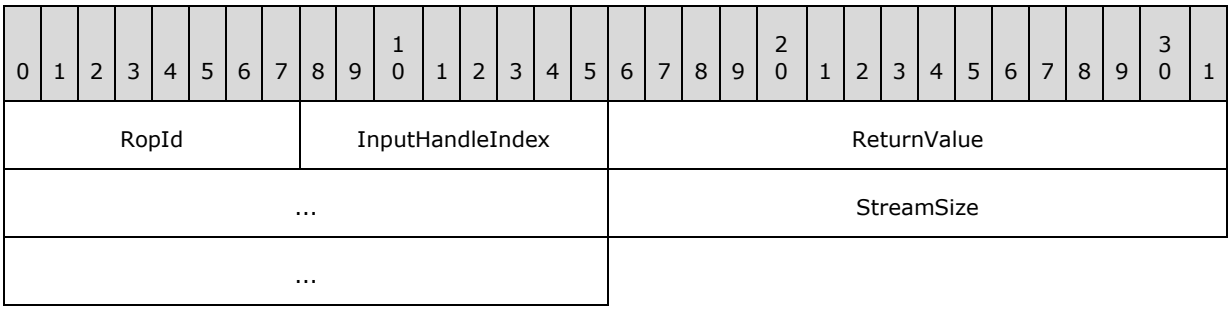
2.2.9.5.2 RopGetStreamSize ROP Success Response Buffer



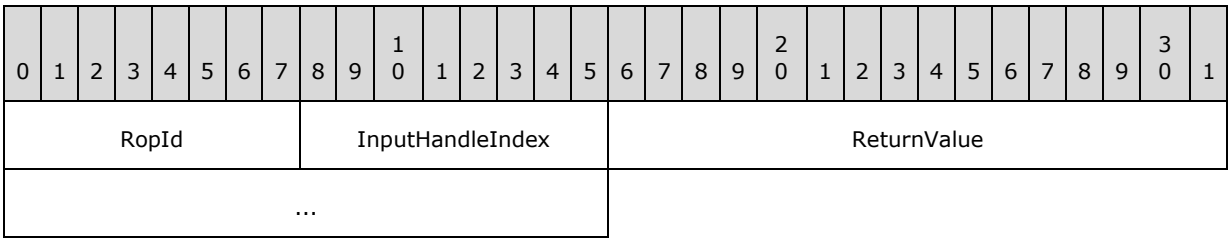
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5E.

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.

2.2.9.5.3 RopGetStreamSize ROP Failure Response Buffer



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.

2.2.9.6 RopSetStreamSize ROP

This ROP sets the size of a stream. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.19.

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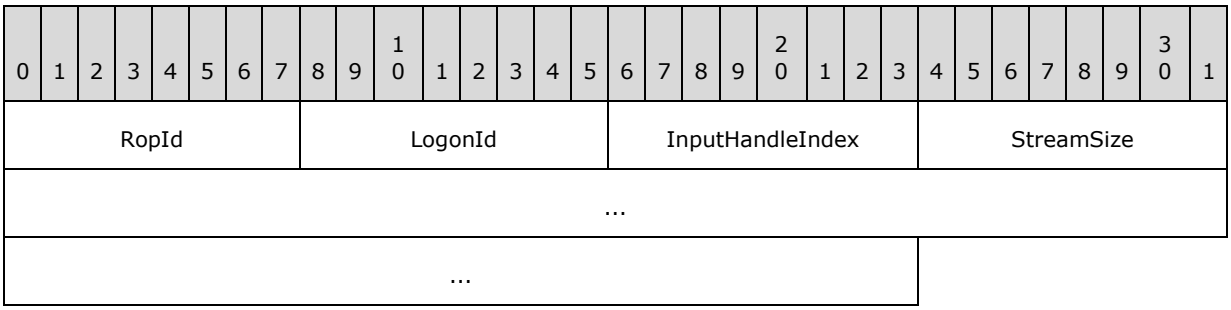
2.2.9.6.1 RopSetStreamSize ROP Request Buffer



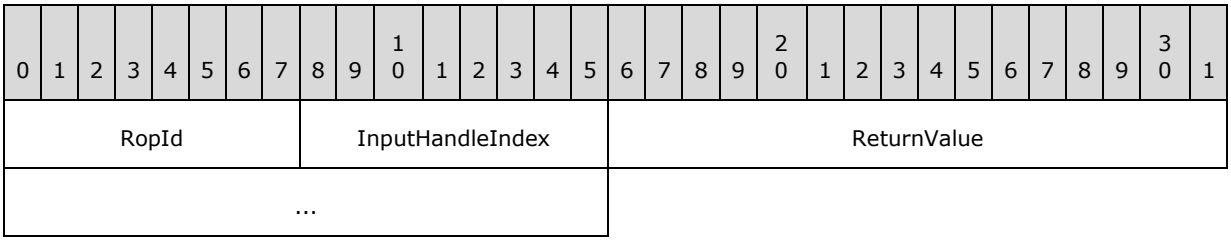
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2F.

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.<7>

2.2.9.6.2 RopSetStreamSize ROP Response Buffer



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.

2.2.9.7 RopSeekStream ROP

This ROP seeks to a specific offset within a stream. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.20.

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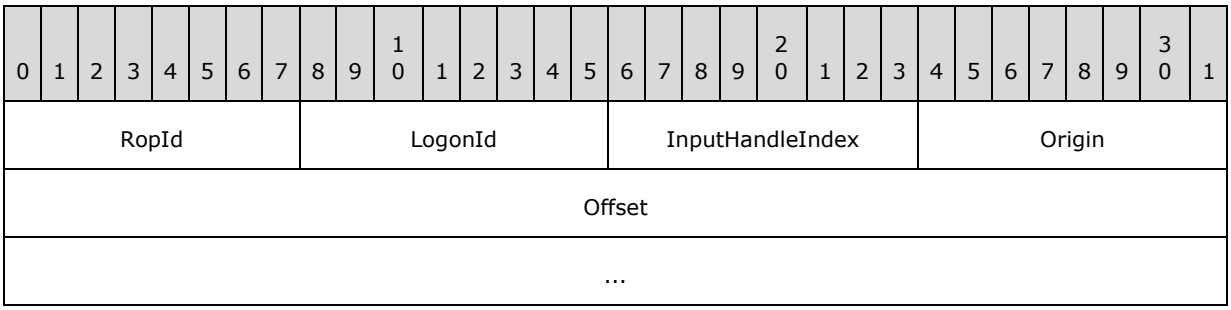
2.2.9.7.1 RopSeekStream ROP Request Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2E.

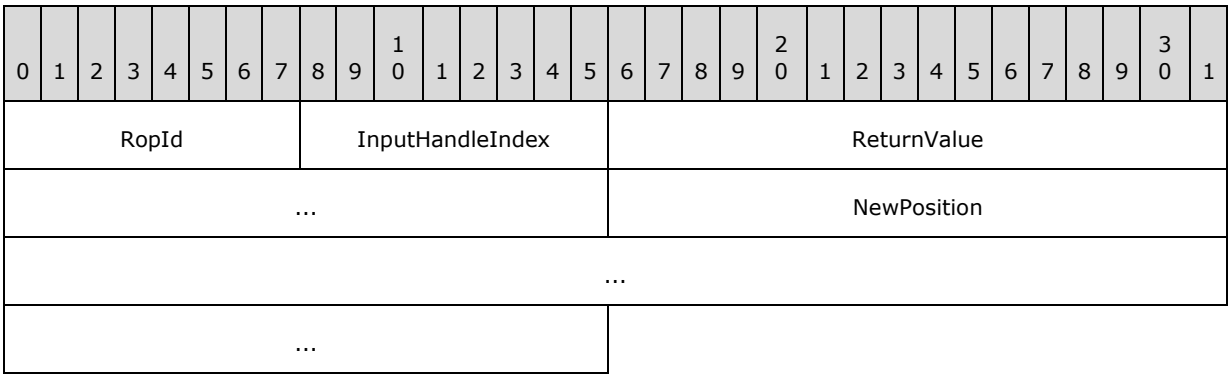
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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] section 2.2.20.1.1. This value specifies the origin location for the seek operation.

Offset (8 bytes): 64-bit integer. This value specifies the seek offset.

2.2.9.7.2 RopSeekStream ROP Success Response Buffer



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.

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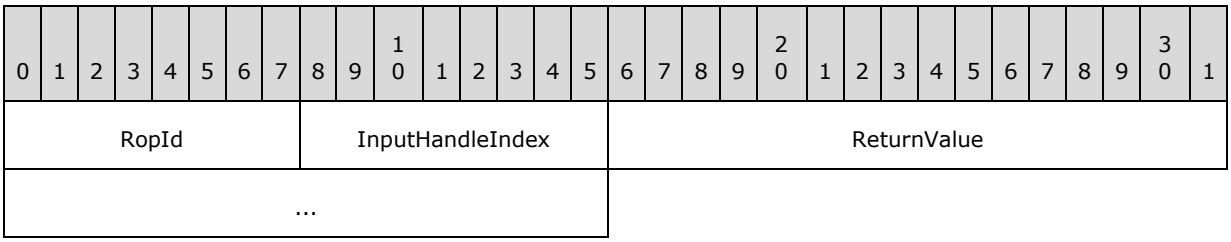
2.2.9.7.3 RopSeekStream ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2E.

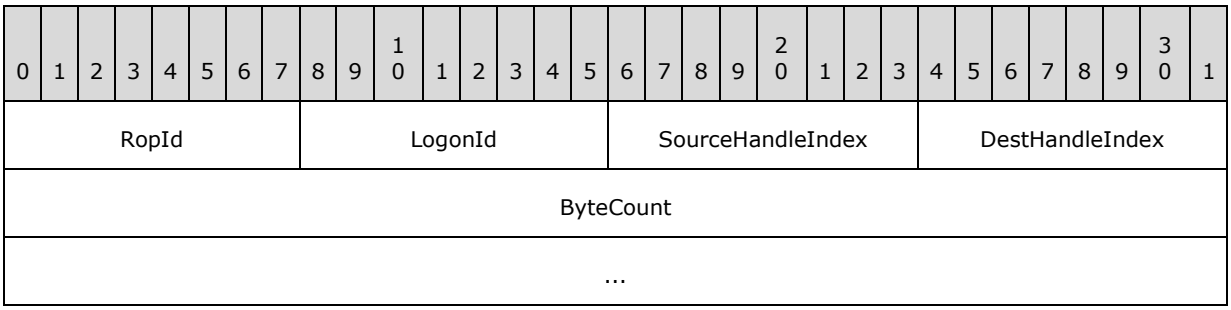
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.9.8 RopCopyToStream ROP

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] section 2.2.21.

2.2.9.8.1 RopCopyToStream ROP Request Buffer



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.

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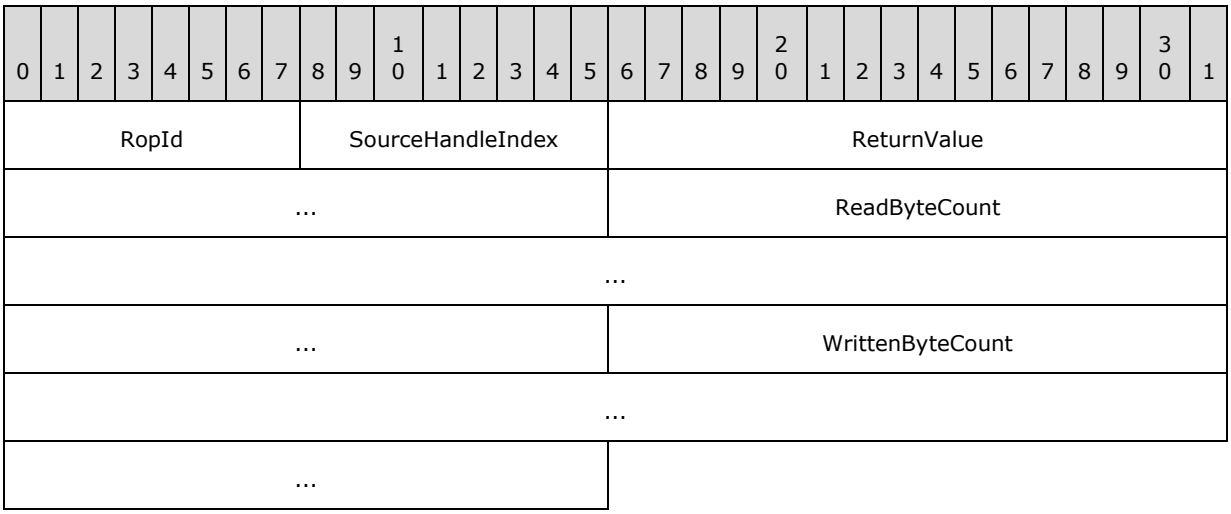
2.2.9.8.2 RopCopyToStream ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x3A.

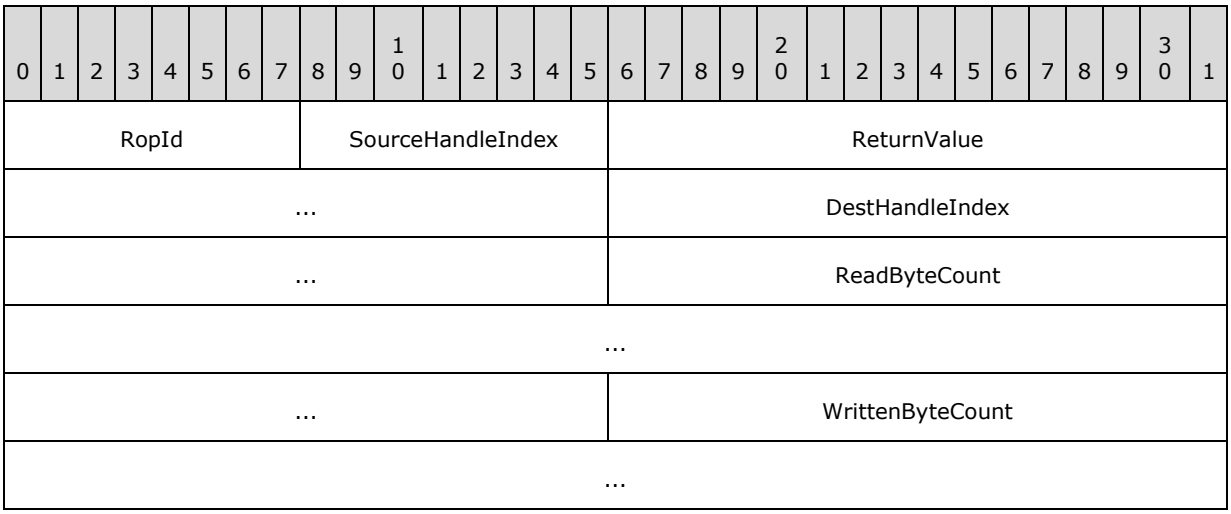
SourceHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **SourceHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.9.8.3 RopCopyToStream ROP Null Destination Failure Response Buffer



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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 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.

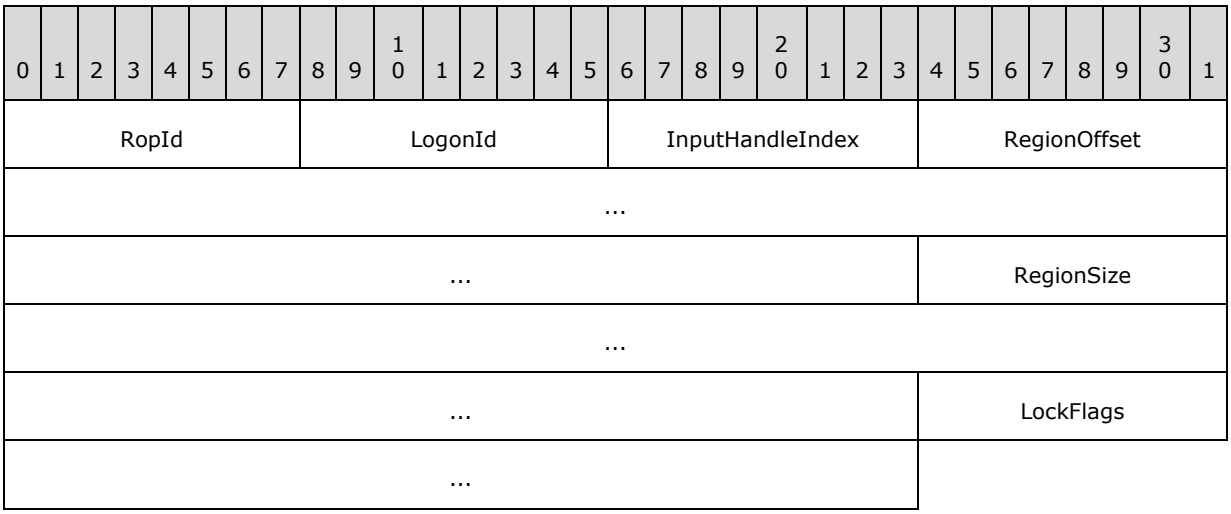
ReadByteCount (8 bytes): Unsigned 64-bit integer. For this response, this field SHOULD be set to 0x0000000000000000. <8>

WrittenByteCount (8 bytes): Unsigned 64-bit integer. For this response, this field SHOULD be set to 0x0000000000000000. <9>

2.2.9.9 RopLockRegionStream ROP

This ROP locks a specified range of bytes in a stream. For more details about this operation, see [MS-OXCPRPT] section 2.2.23.

2.2.9.9.1 RopLockRegionStream ROP Request Buffer



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.

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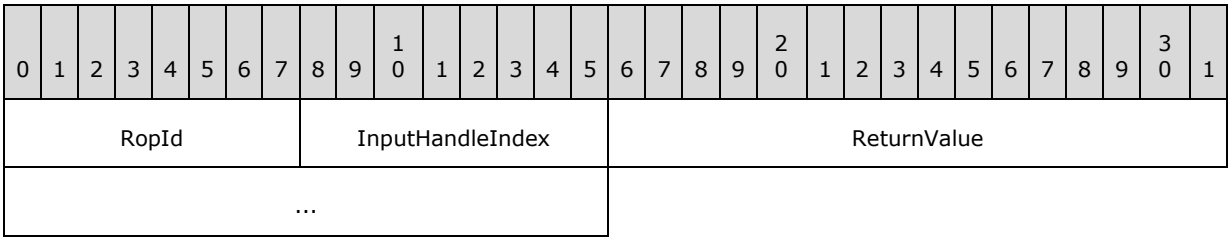
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. For more information about Server objects, see section 3.

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] section 2.2.23.1.3.

2.2.9.9.2 RopLockRegionStream ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x5B.

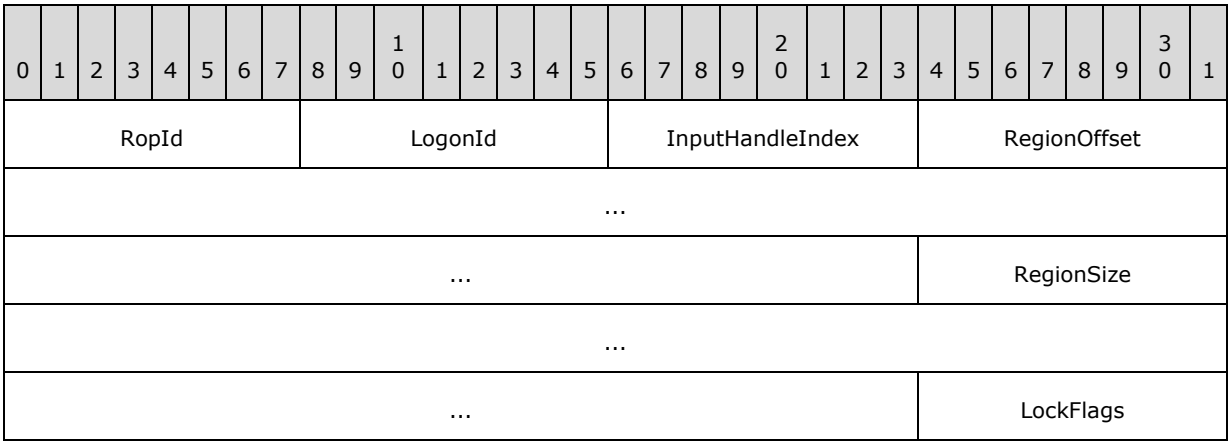
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. For more information about Server objects, see section 3.

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

2.2.9.10 RopUnlockRegionStream ROP

This ROP unlocks a specified range of bytes in a stream. For more details about this operation, see [MS-OXCPRPT] section 2.2.24.

2.2.9.10.1 RopUnlockRegionStream ROP Request Buffer



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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 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] section 2.2.24.1.3.

2.2.9.10.2 RopUnlockRegionStream ROP Response Buffer

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

2.2.9.11 RopWriteAndCommitStream ROP

This ROP writes bytes to a stream and commits the stream. More detailed information about this operation can be found in [MS-OXCPRPT] section 2.2.25.

2.2.9.11.1 RopWriteAndCommitStream ROP Request Buffer

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
RopId								LogonId								InputHandleIndex								DataSize							

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...	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.

2.2.9.11.2 RopWriteAndCommitStream ROP Response Buffer

The response buffer for this ROP is the same as the response buffer for **RopWriteStream**, as specified in section 2.2.9.3.2.

2.2.9.12 RopCloneStream ROP

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] section 2.2.26.

2.2.9.12.1 RopCloneStream ROP Request Buffer

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

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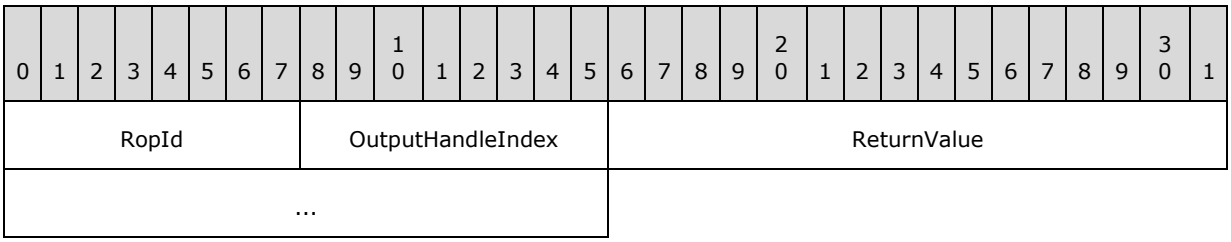
2.2.9.12.2 RopCloneStream ROP Response Buffer



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.

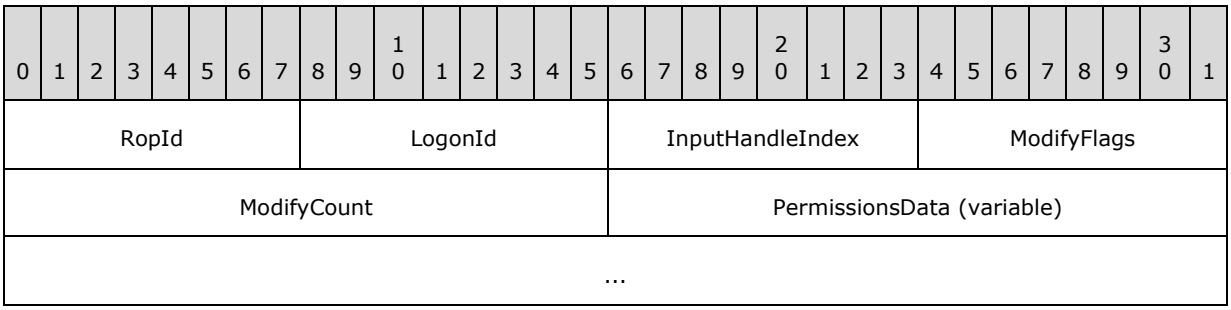
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.10 Permission ROPs

2.2.10.1 RopModifyPermissions ROP

This ROP modifies the permissions associated with a folder. More detailed information about this operation can be found in [MS-OXCPERM] section 2.2.1.2.

2.2.10.1.1 RopModifyPermissions ROP Request Buffer



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] section 2.2.1.2.1.1. 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.

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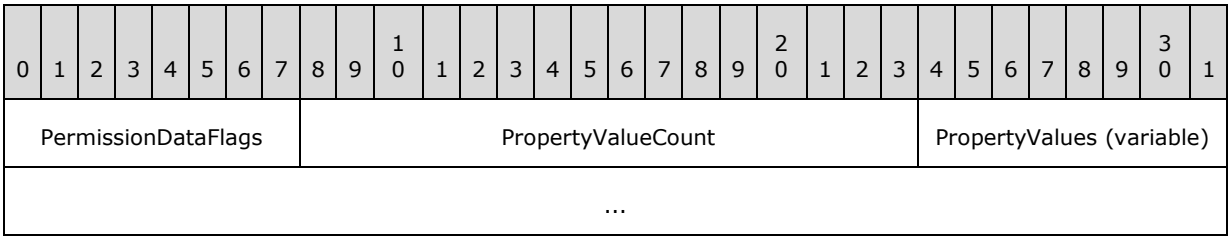
PermissionsData (variable): A list of **PermissionData** structures. The number of structures contained in this field is specified by the **ModifyCount** field. The format of the **PermissionData** structure is specified in section 2.2.10.1.1.1.

2.2.10.1.1.1 PermissionData Structure

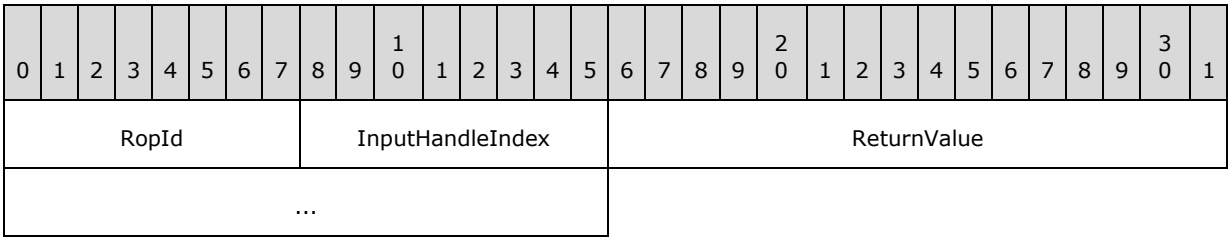


PermissionDataFlags (1 byte): 8-bit flags structure. This field is used to specify the type of operation.

PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures present 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 format of the **TaggedPropertyValue** structure is specified in [MS-OXCDATA] section 2.11.4. These values are used to specify and describe the modify operations.

2.2.10.1.2 RopModifyPermissions ROP Response Buffer



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.

2.2.10.2 RopGetPermissionsTable ROP

This ROP gets the permissions table for a folder. More detailed information about this operation can be found in [MS-OXCPERM] section 2.2.1.1.

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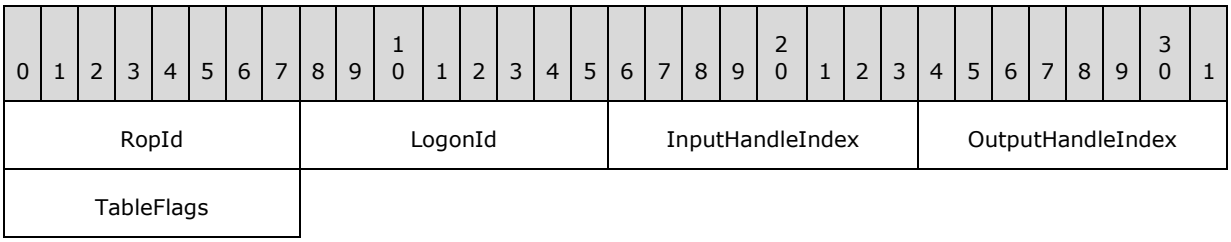
2.2.10.2.1 RopGetPermissionsTable ROP Request Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x3E.

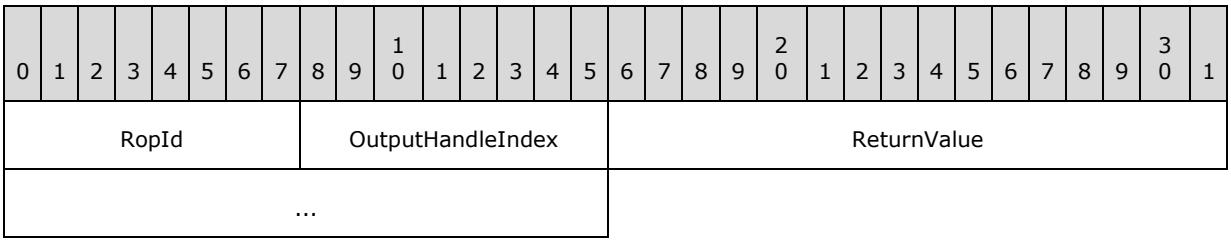
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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] section 2.2.1.1.1.1. These flags control the type of table.

2.2.10.2.2 RopGetPermissionsTable ROP Response Buffer



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.

2.2.11 Rule ROPs

2.2.11.1 RopModifyRules ROP

This ROP modifies the rules associated with a folder. More detailed information about this operation can be found in [MS-OXORULE] section 2.2.1.

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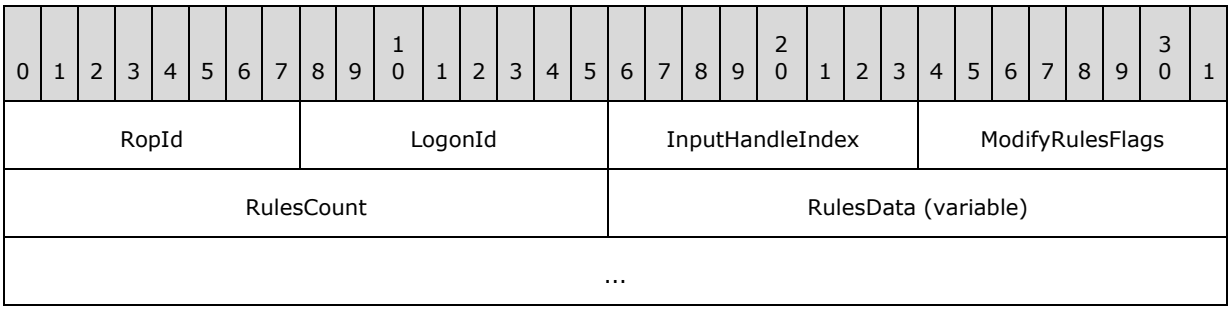
2.2.11.1.1 RopModifyRules ROP Request Buffer



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.

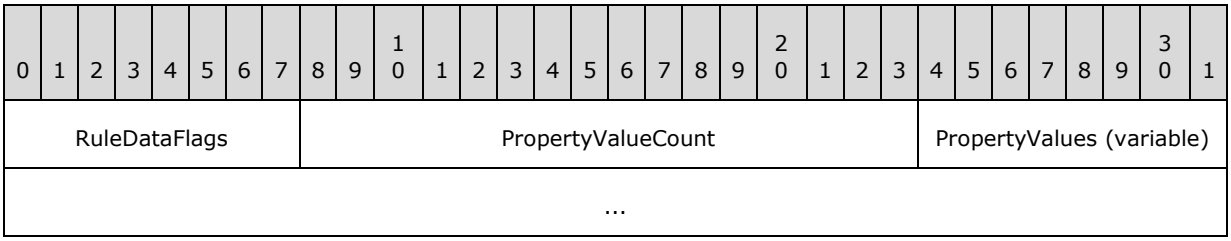
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index refers to the handle in the Server object handle table used as input for this operation. More information about Server objects can be found in section 3.

ModifyRulesFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXORULE] section 2.2.1.1.2. 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 2.2.11.1.1.1.

2.2.11.1.1.1 RuleData Structure



RuleDataFlags (1 byte): 8-bit flags structure. This field is used to specify the type of operation.

PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures present 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 format of the **TaggedPropertyValue** structure is specified in [MS-OXCDATA] section 2.11.4. These values are used to specify and describe the rule operations.

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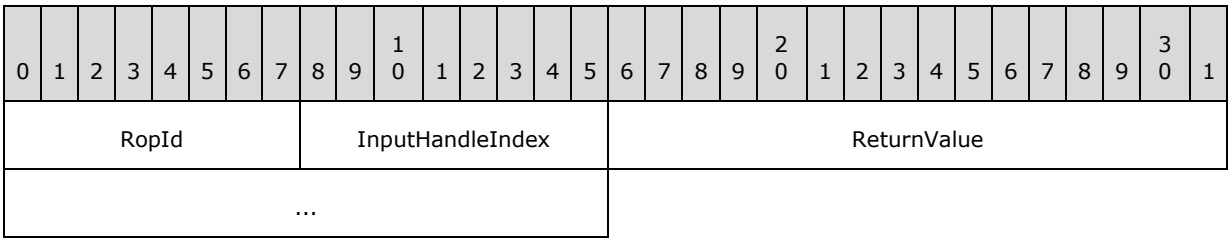
2.2.11.1.2 RopModifyRules ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x41.

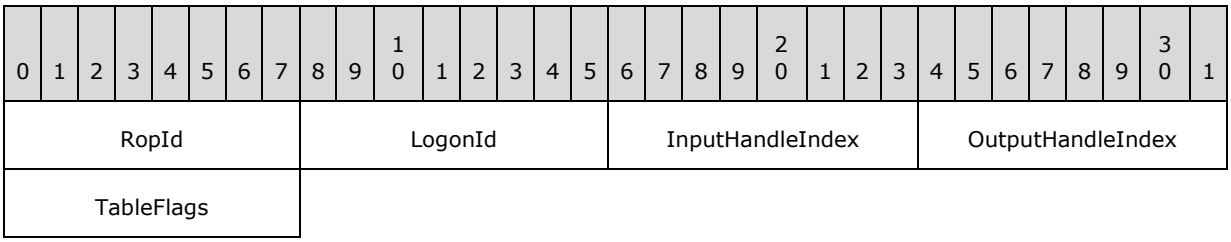
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index refers to the handle in the Server object handle table used as input for this operation. More information about Server objects can be found in section 3.

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

2.2.11.2 RopGetRulesTable ROP

This ROP gets the rules table of a folder. More detailed information about this operation can be found in [MS-OXORULE] section 2.2.2.

2.2.11.2.1 RopGetRulesTable ROP Request Buffer



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] section 2.2.2.1.2.

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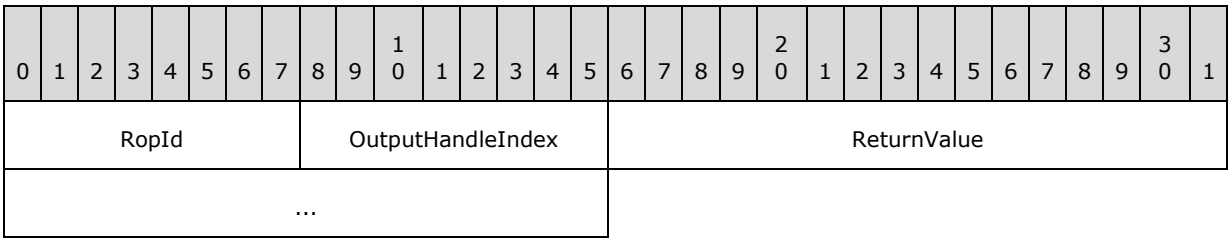
2.2.11.2.2 RopGetRulesTable ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x3F.

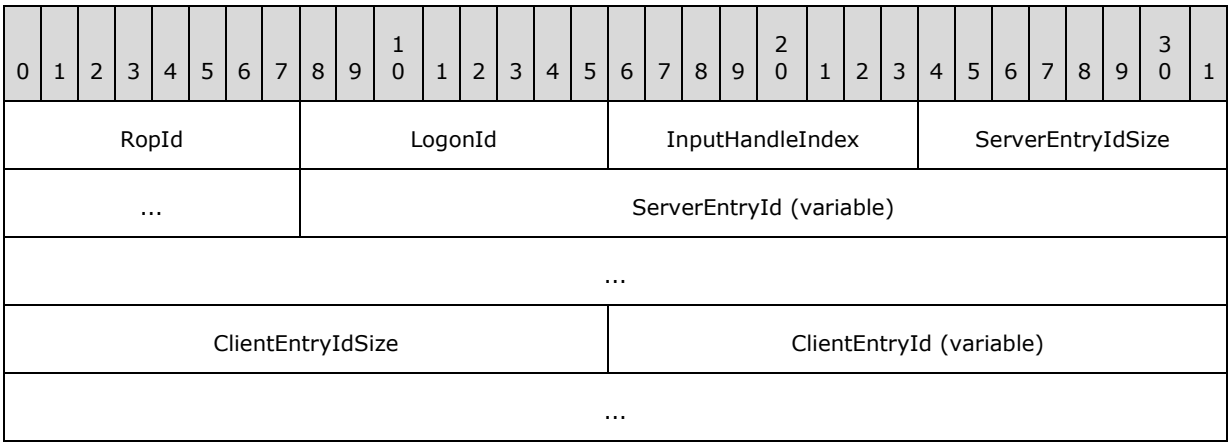
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index refers to the handle in the Server object handle table specified. More information about Server objects can be found in section 3.

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

2.2.11.3 RopUpdateDeferredActionMessages ROP

This ROP updates the **entry IDs** in the deferred action messages. More detailed information about this operation can be found in [MS-OXORULE] section 2.2.3.

2.2.11.3.1 RopUpdateDeferredActionMessages ROP Request Buffer



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.

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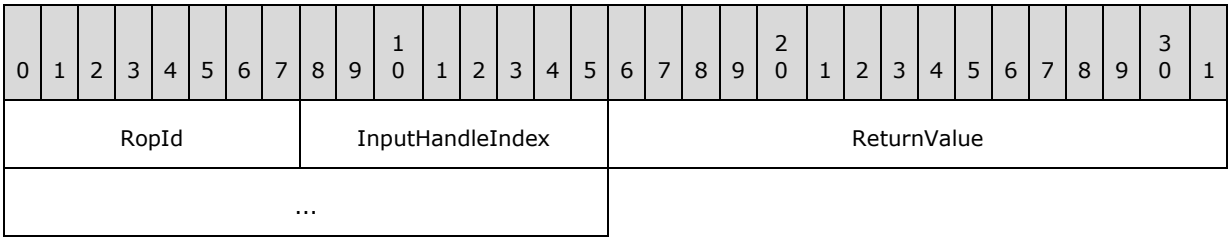
ServerEntryId (variable): Byte Array. The size of this field, in bytes, is specified by the **ServerEntryIdSize** field. This value specifies the ID of the message on the server.

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.

2.2.11.3.2 RopUpdateDeferredActionMessages ROP Response Buffer



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.

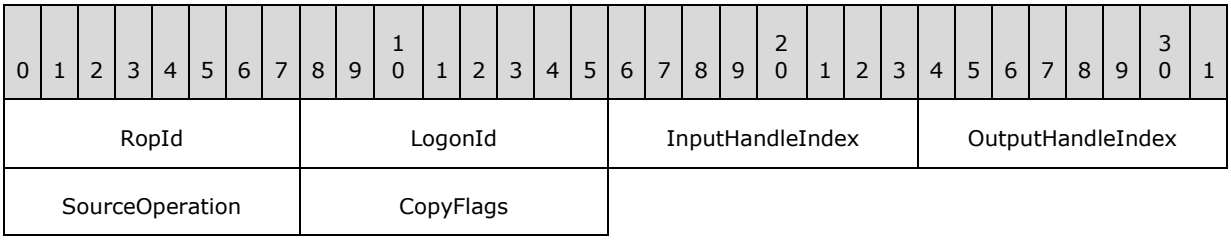
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.12 Fast Transfer ROPs

2.2.12.1 RopFastTransferDestinationConfigure ROP

This ROP creates a destination fast transfer object. More detailed information about this operation can be found in [MS-OXCFXICS] section 2.2.3.1.2.1.

2.2.12.1.1 RopFastTransferDestinationConfigure ROP Request Buffer



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.

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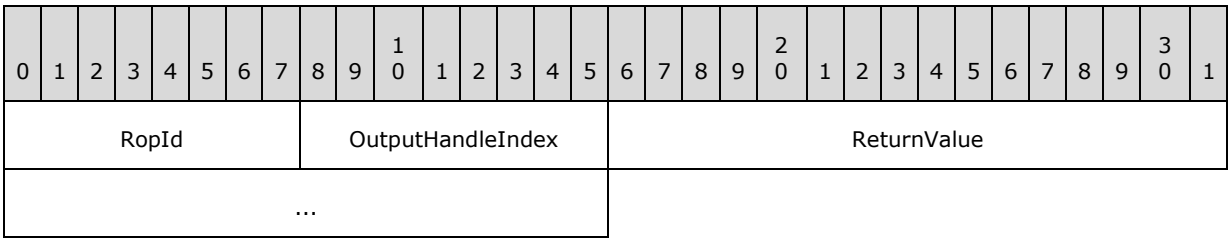
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the output Server object will be stored. More information about Server objects can be found in section 3.

SourceOperation (1 byte): 8-bit enumeration. The possible values for this enumeration are specified in [MS-OXCFXICS] section 2.2.3.1.2.1.1. 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] section 2.2.3.1.2.1.2. These flags control the behavior of the transfer operation.

2.2.12.1.2 RopFastTransferDestinationConfigure ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x53.

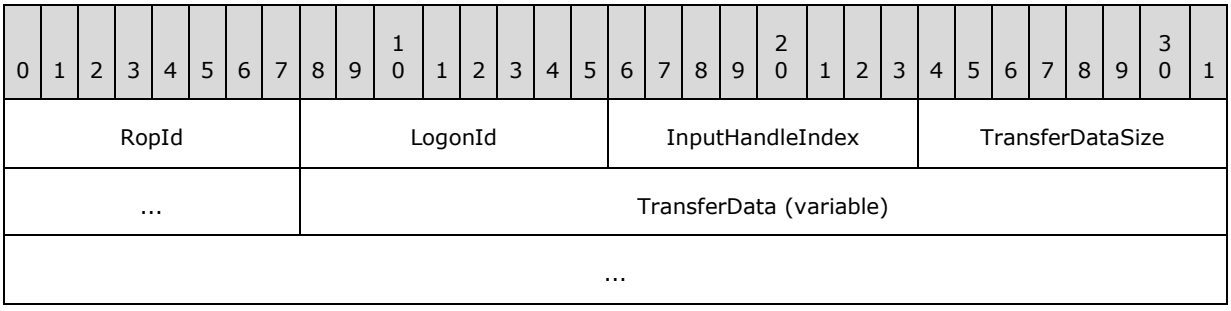
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.12.2 RopFastTransferDestinationPutBuffer ROP

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] section 2.2.3.1.2.2.

2.2.12.2.1 RopFastTransferDestinationPutBuffer ROP Request Buffer



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.

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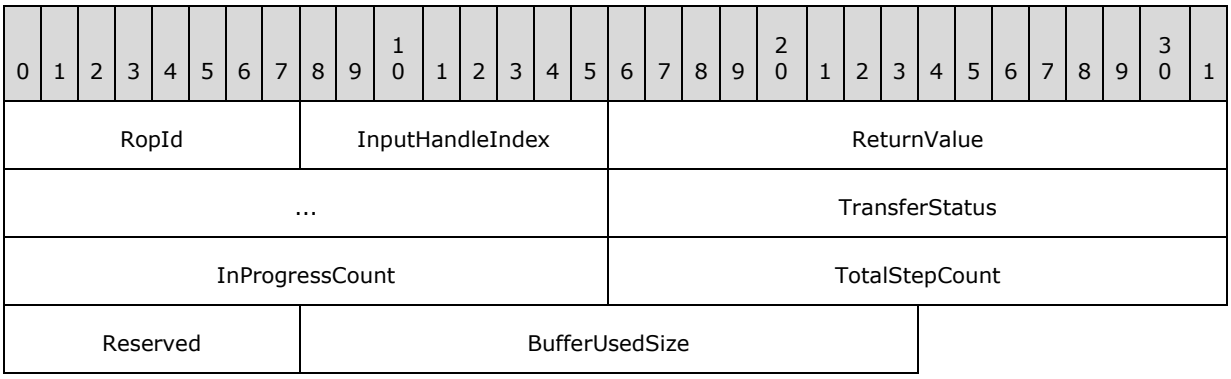
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

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.

2.2.12.2.2 RopFastTransferDestinationPutBuffer ROP Response Buffer



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] section 2.2.3.1.2.2. 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.

2.2.12.3 RopFastTransferSourceGetBuffer ROP

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] section 2.2.3.1.1.5.

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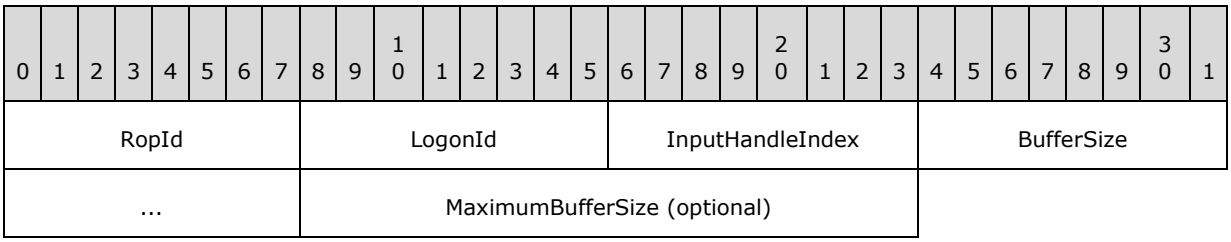
2.2.12.3.1 RopFastTransferSourceGetBuffer ROP Request Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4E.

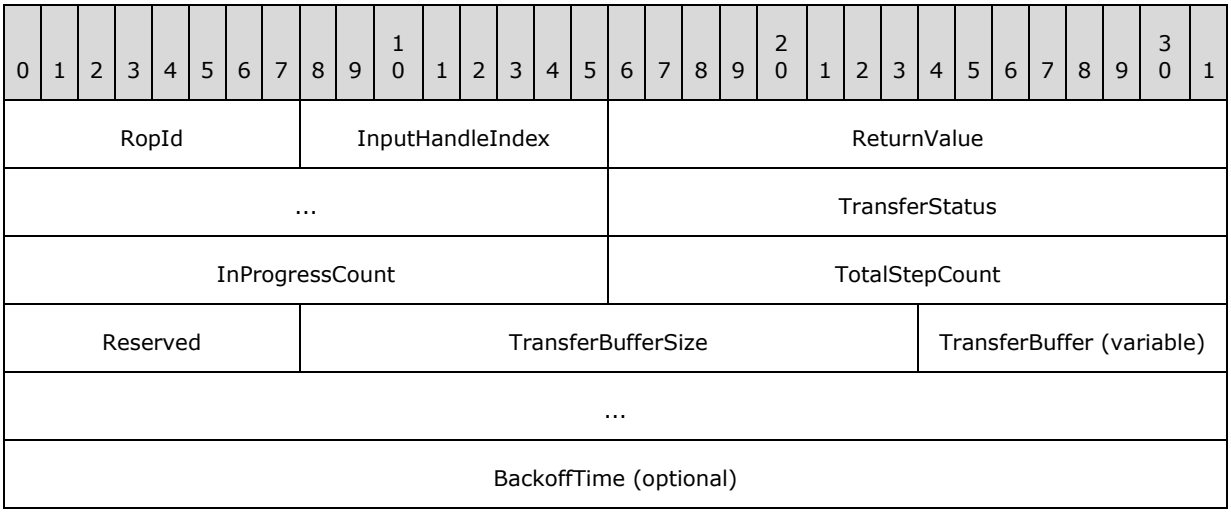
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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.

2.2.12.3.2 RopFastTransferSourceGetBuffer ROP Response Buffer



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.

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

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TransferStatus (2 bytes): 16-bit enumeration. The possible values for this enumeration are specified in [MS-OXCFXICS] section 2.2.3.1.1.5.2. 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.

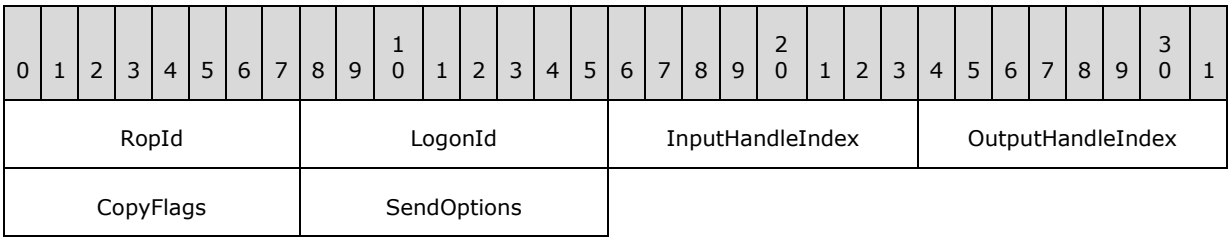
TransferBuffer (variable): Array of bytes. This field is present if the **ReturnValue** is not 0x00000480 and is not present otherwise. If present, the size of this field, in bytes, is specified by the **TransferBufferSize** field.

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.

2.2.12.4 RopFastTransferSourceCopyFolder ROP

This ROP downloads properties and descendant subobjects of a specified folder. More detailed information about this operation can be found in [MS-OXCFXICS] section 2.2.3.1.1.4.

2.2.12.4.1 RopFastTransferSourceCopyFolder ROP Request Buffer



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] section 2.2.3.1.1.4.1. These flags control the type of operation.

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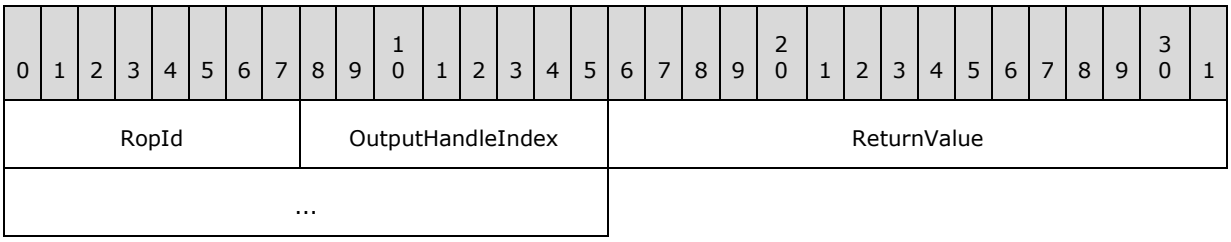
SendOptions (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS] section 2.2.3.1.1.2. These values control the behavior of the operation.

2.2.12.4.2 RopFastTransferSourceCopyFolder ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4C.

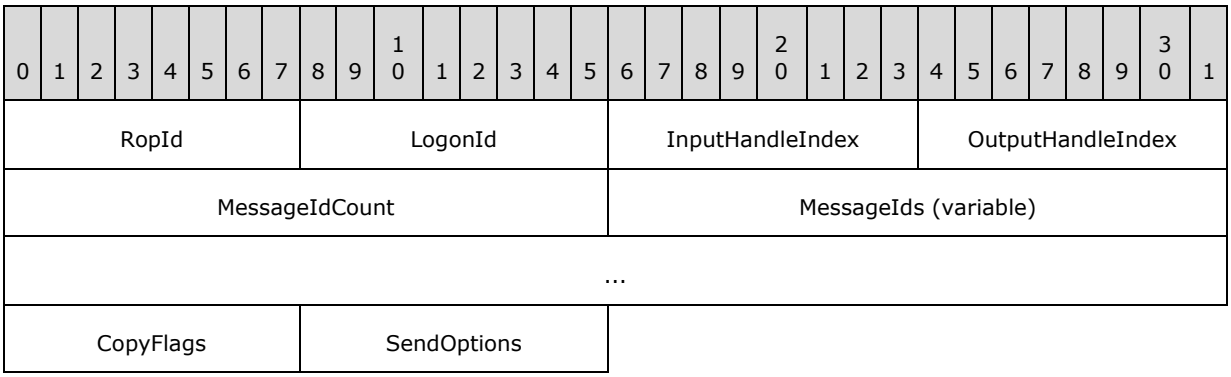
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.12.5 RopFastTransferSourceCopyMessages ROP

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] section 2.2.3.1.1.3.

2.2.12.5.1 RopFastTransferSourceCopyMessages ROP Request Buffer



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.

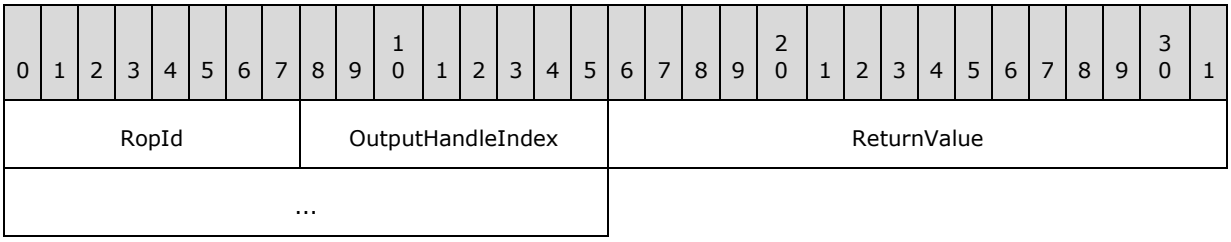
MessageIdCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of identifiers in the **MessageIds** field.

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] section 2.2.3.1.1.3.1. These values control the type of operation.

SendOptions (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS] section 2.2.3.1.1.1.2. These values control the behavior of the operation.

2.2.12.5.2 RopFastTransferSourceCopyMessages ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x4B.

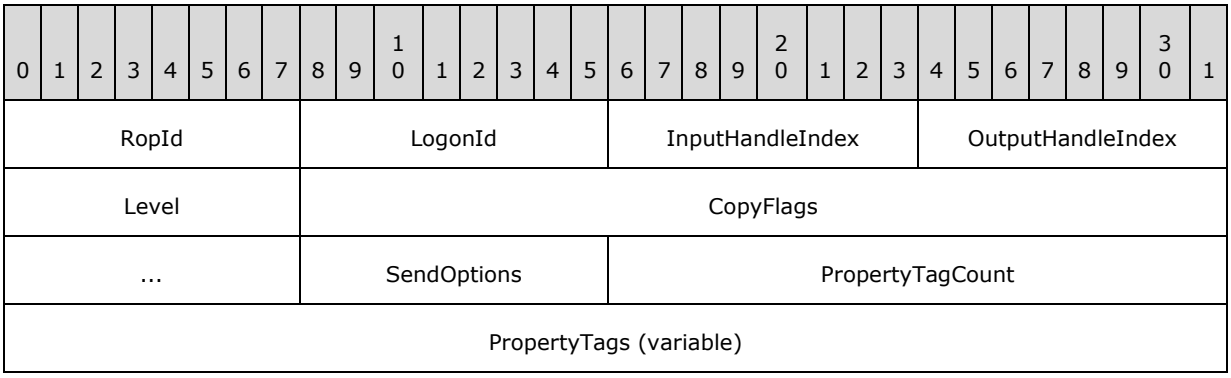
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.12.6 RopFastTransferSourceCopyTo ROP

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] section 2.2.3.1.1.1.

2.2.12.6.1 RopFastTransferSourceCopyTo ROP Request Buffer



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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 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] section 2.2.3.1.1.1.1. These flags control the behavior of the transfer operation.

SendOptions (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS] section 2.2.3.1.1.1.2. 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] section 2.9. The number of structures contained in this field is specified by the **PropertyTagCount** field. This array specifies the properties to exclude during the copy.

2.2.12.6.2 RopFastTransferSourceCopyTo ROP Response Buffer

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

2.2.12.7 RopFastTransferSourceCopyProperties ROP

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] section 2.2.3.1.1.2.

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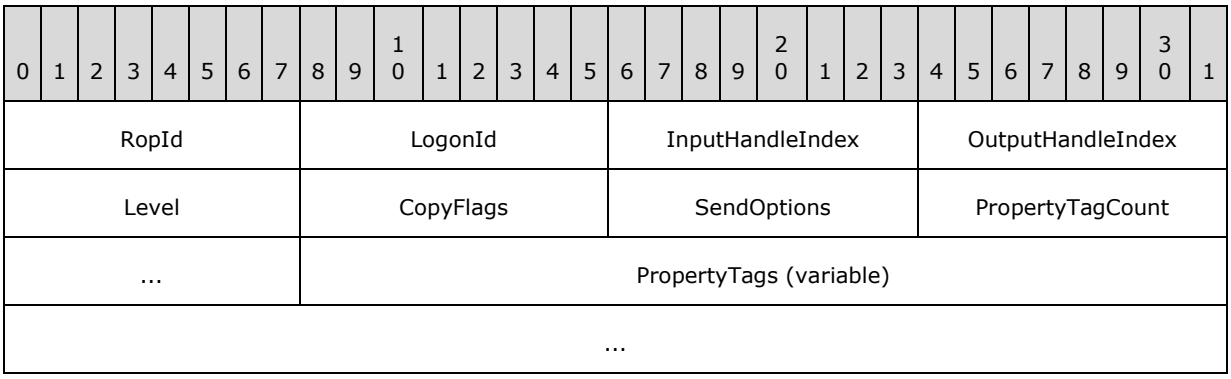
2.2.12.7.1 RopFastTransferSourceCopyProperties ROP Request Buffer



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.

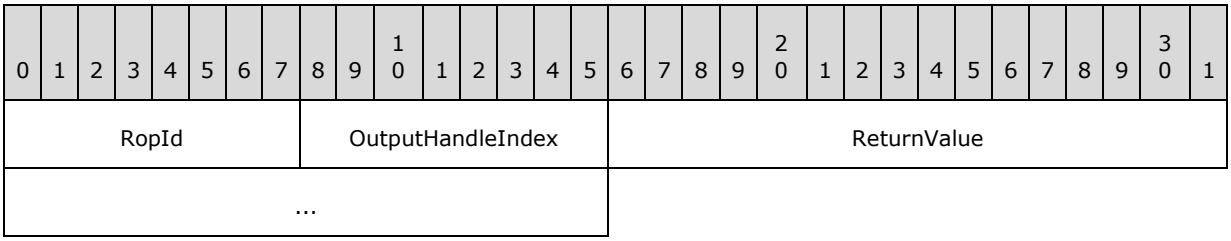
CopyFlags (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS] section 2.2.3.1.1.2.1. These flags control the behavior of the transfer operation.

SendOptions (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS] section 2.2.3.1.1.1.2. 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] section 2.9. The number of structures contained in this field is specified by the **PropertyTagCount** field. This array specifies the properties to copy.

2.2.12.7.2 RopFastTransferSourceCopyProperties ROP Response Buffer



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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 0x69.

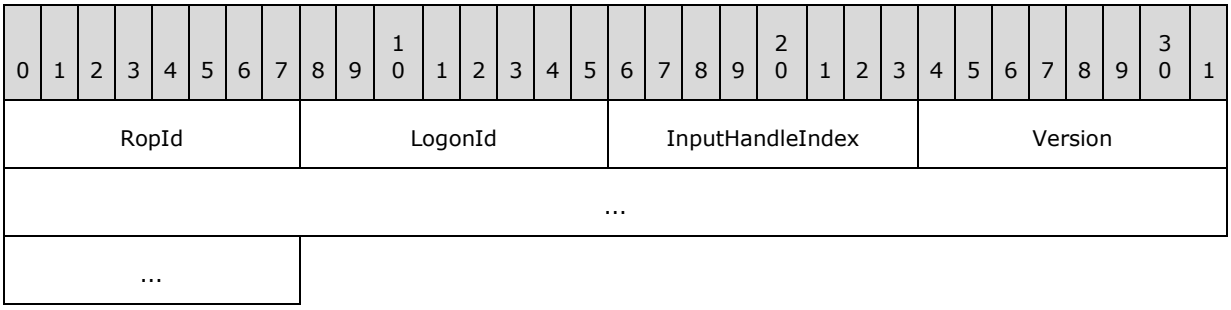
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.12.8 RopTellVersion ROP

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] section 2.2.3.1.1.6.

2.2.12.8.1 RopTellVersion ROP Request Buffer



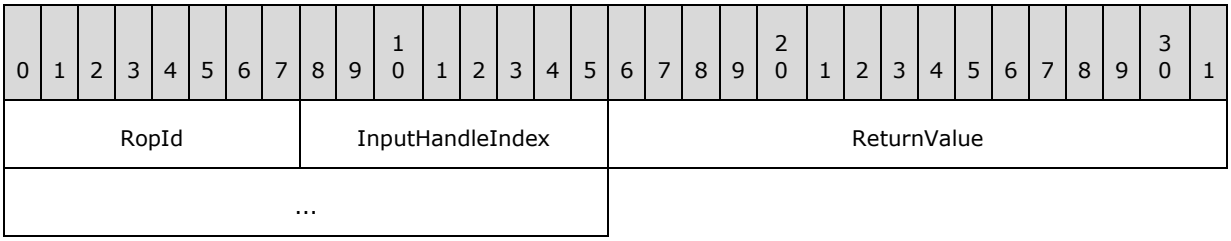
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x86.

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.

2.2.12.8.2 RopTellVersion ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x86.

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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.

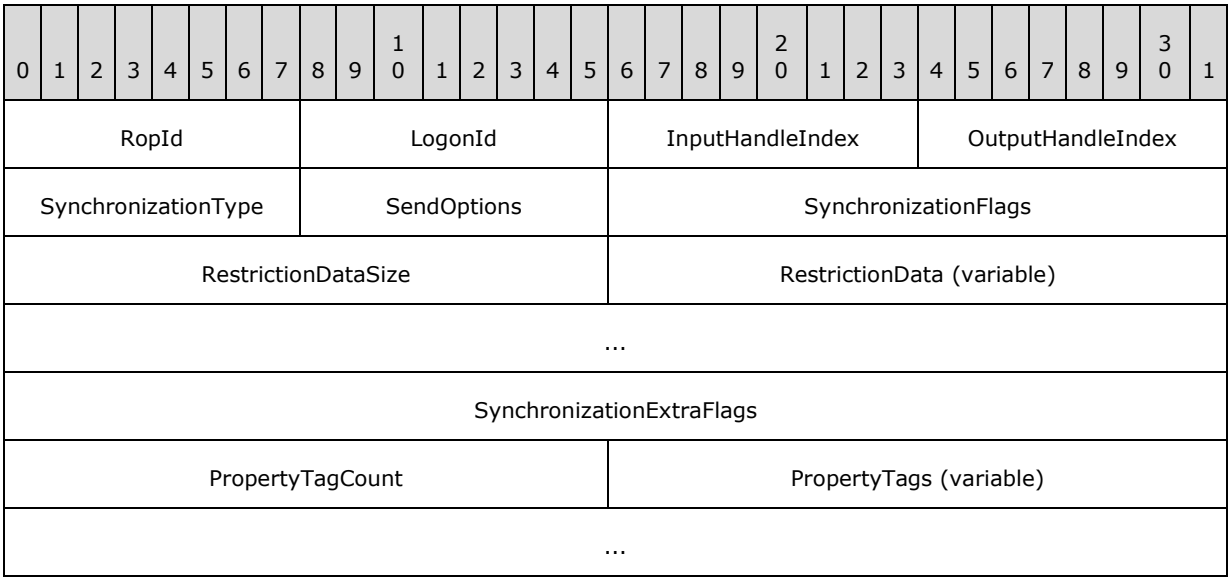
ReturnValue (4 bytes): Unsigned 32-bit integer. This value specifies the status of the ROP.

2.2.13 Incremental Change Synchronization ROPs

2.2.13.1 RopSynchronizationConfigure ROP

This ROP configures a synchronization object. More detailed information about this operation can be found in [MS-OXCFXICS] section 2.2.3.2.1.1.

2.2.13.1.1 RopSynchronizationConfigure ROP Request Buffer



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] section 2.2.3.2.1.1.1. This value controls the type of synchronization.

SendOptions (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCFXICS] section 2.2.3.1.1.1.2. These values control the behavior of the operation.

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SynchronizationFlags (2 bytes): 16-bit flags structure. The possible values are specified in [MS-OXCFXICS] section 2.2.3.2.1.1.2. These flags control the behavior of the synchronization.

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

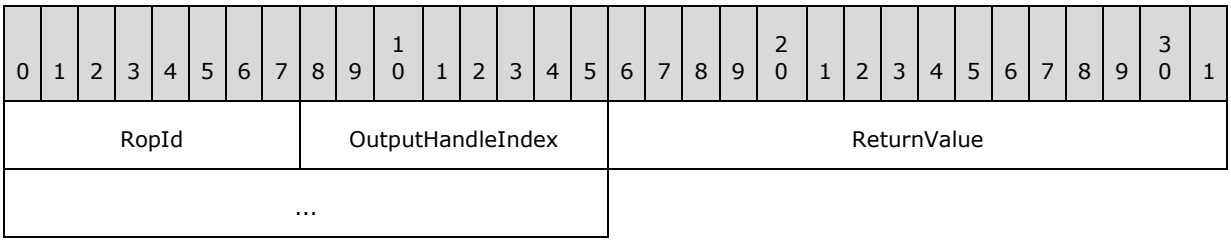
RestrictionData (variable): Restriction packet. The size of this field, in bytes, is specified by the **RestrictionDataSize** field. This field contains a restriction packet, as specified in [MS-OXCDATA] section 2.12. The restriction specifies the filter for this synchronization object.

SynchronizationExtraFlags (4 bytes): 32-bit flags structure. The possible values are specified in [MS-OXCFXICS] section 2.2.3.2.1.1.1. 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] section 2.9. This field specifies the property tags to be used for the synchronization process.

2.2.13.1.2 RopSynchronizationConfigure ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x70.

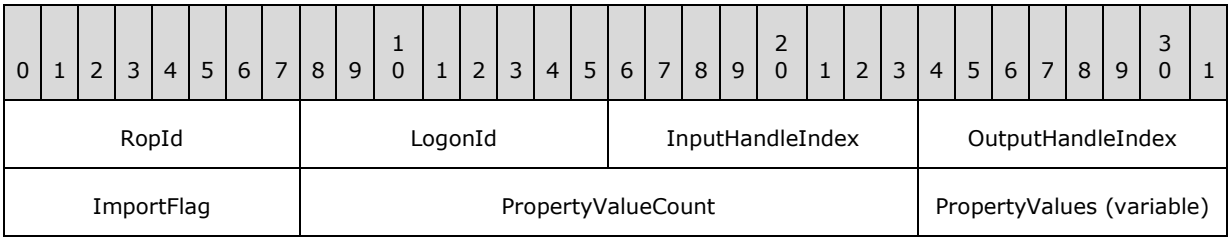
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.13.2 RopSynchronizationImportMessageChange ROP

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] section 2.2.3.2.4.2.

2.2.13.2.1 RopSynchronizationImportMessageChange ROP Request Buffer



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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 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] section 2.2.3.2.4.2.1. These flags control the behavior of the synchronization.

PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures present 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 format of the **TaggedPropertyValue** structure is specified in [MS-OXCDATA] section 2.11.4 and possible properties to be set are specified in [MS-OXCFXICS] section 2.2.3.2.4.2. These values are used to specify some extra properties on the message.

2.2.13.2.2 RopSynchronizationImportMessageChange ROP Success Response Buffer

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
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 field MUST be set to 0x0000000000000000.

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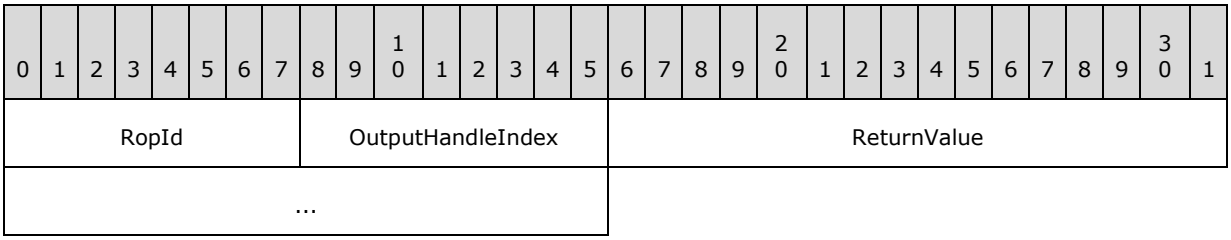
2.2.13.2.3 RopSynchronizationImportMessageChange ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x72.

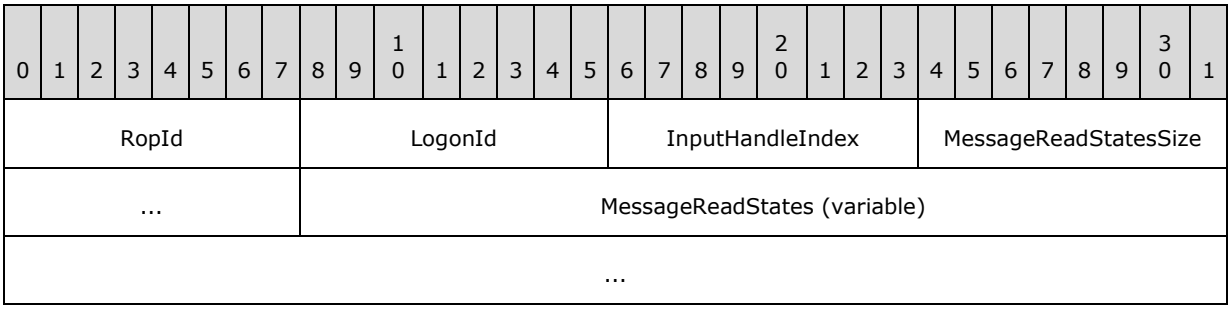
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.13.3 RopSynchronizationImportReadStateChanges ROP

This ROP synchronizes a change in the read status for messages. More detailed information about this operation can be found in [MS-OXCFXICS] section 2.2.3.2.4.6.

2.2.13.3.1 RopSynchronizationImportReadStateChanges ROP Request Buffer



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 2.2.13.3.1.1. The size of this field, in bytes, is

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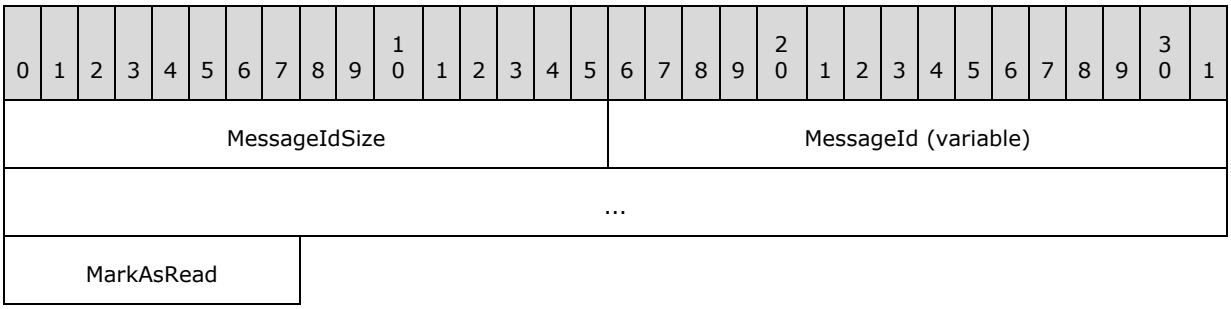
specified by the **MessageReadStatesSize** field. These values specify the messages and associated read states to be changed.

2.2.13.3.1.1 MessageReadState structure

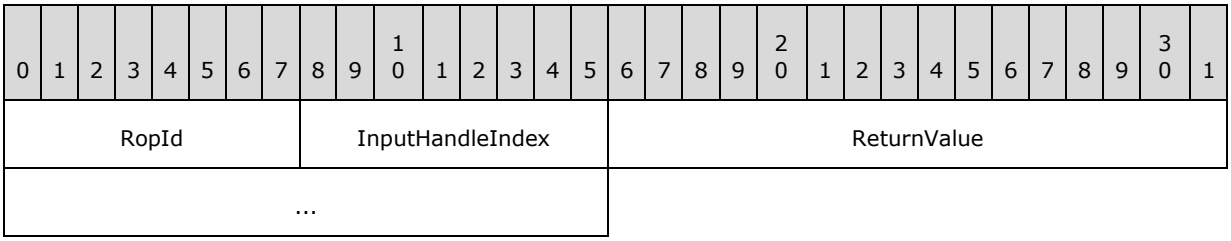


MessageIdSize (2 bytes): Unsigned 16-bit integer. This value specifies the size of the **MessageId** field.

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.

2.2.13.3.2 RopSynchronizationImportReadStateChanges ROP Response Buffer



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.

2.2.13.4 RopSynchronizationImportHierarchyChange ROP

This ROP synchronizes a change to the folder hierarchy. More detailed information about this operation can be found in [MS-OXCFXICS] section 2.2.3.2.4.3.

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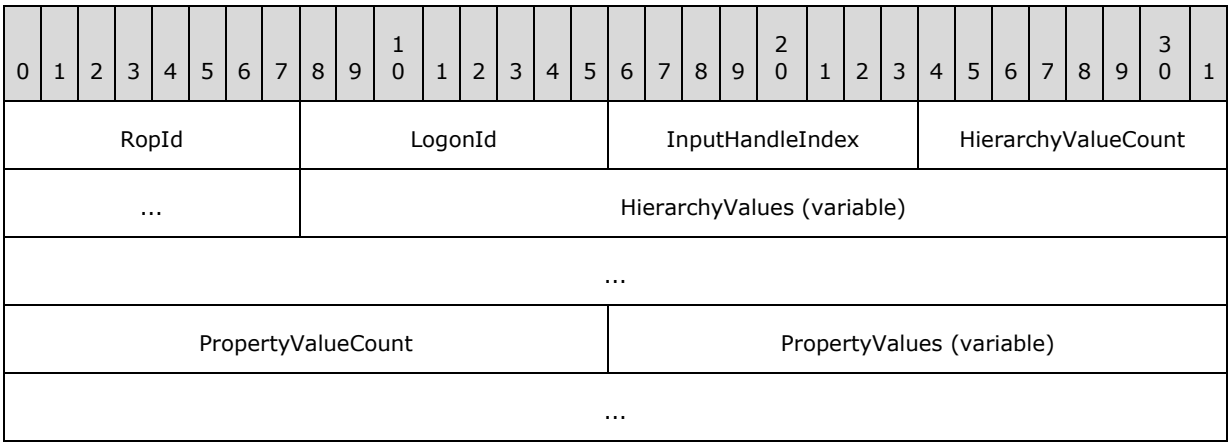
2.2.13.4.1 RopSynchronizationImportHierarchyChange ROP Request Buffer



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.

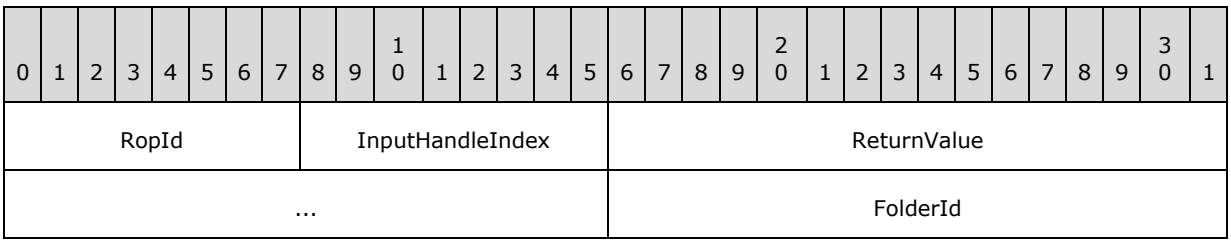
HierarchyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures present in the **HierarchyValues** field.

HierarchyValues (variable): Array of **TaggedPropertyValue** structures. The number of structures contained in this field is specified by the **HierarchyValueCount** field. The format of the **TaggedPropertyValue** structure is specified in [MS-OXCDATA] section 2.11.4 and possible properties to be set are specified in [MS-OXCFXICS] section 2.2.3.2.4.3. 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 present 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 format of the **TaggedPropertyValue** structure is specified in [MS-OXCDATA] section 2.11.4. These values are used to specify folder properties.

2.2.13.4.2 RopSynchronizationImportHierarchyChange ROP Success Response Buffer



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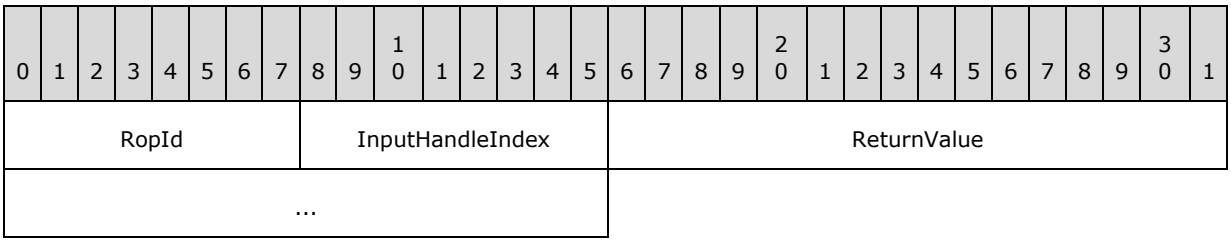
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x73.

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 field MUST be set to 0x0000000000000000.

2.2.13.4.3 RopSynchronizationImportHierarchyChange ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x73.

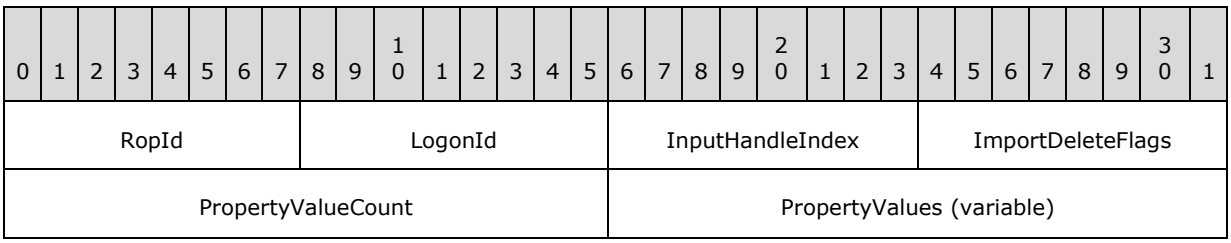
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.13.5 RopSynchronizationImportDeletes ROP

This ROP synchronizes deleted messages or folders. More detailed information about this operation can be found in [MS-OXCFXICS] section 2.2.3.2.4.5.

2.2.13.5.1 RopSynchronizationImportDeletes ROP Request Buffer



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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.

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

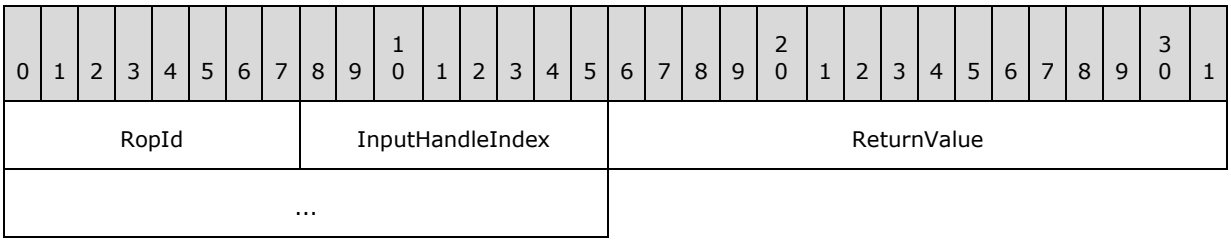
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

ImportDeleteFlags (1 byte): 8-bit flags structure. These flags specifiy options for the imported deletions. The possible values for this field are specified in [MS-OXCFXICS] section 2.2.3.2.4.5.1.

PropertyValueCount (2 bytes): Unsigned 16-bit integer. This value specifies the number of structures present 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 format of the **TaggedPropertyValue** structure is specified in [MS-OXCDATA] section 2.11.4 and possible properties to be set are specified in [MS-OXCFXICS] section 2.2.3.2.4.5. These values are used to specify the folders or messages to delete.

2.2.13.5.2 RopSynchronizationImportDeletes ROP Response Buffer



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.

2.2.13.6 RopSynchronizationImportMessageMove ROP

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] section 2.2.3.2.4.4.

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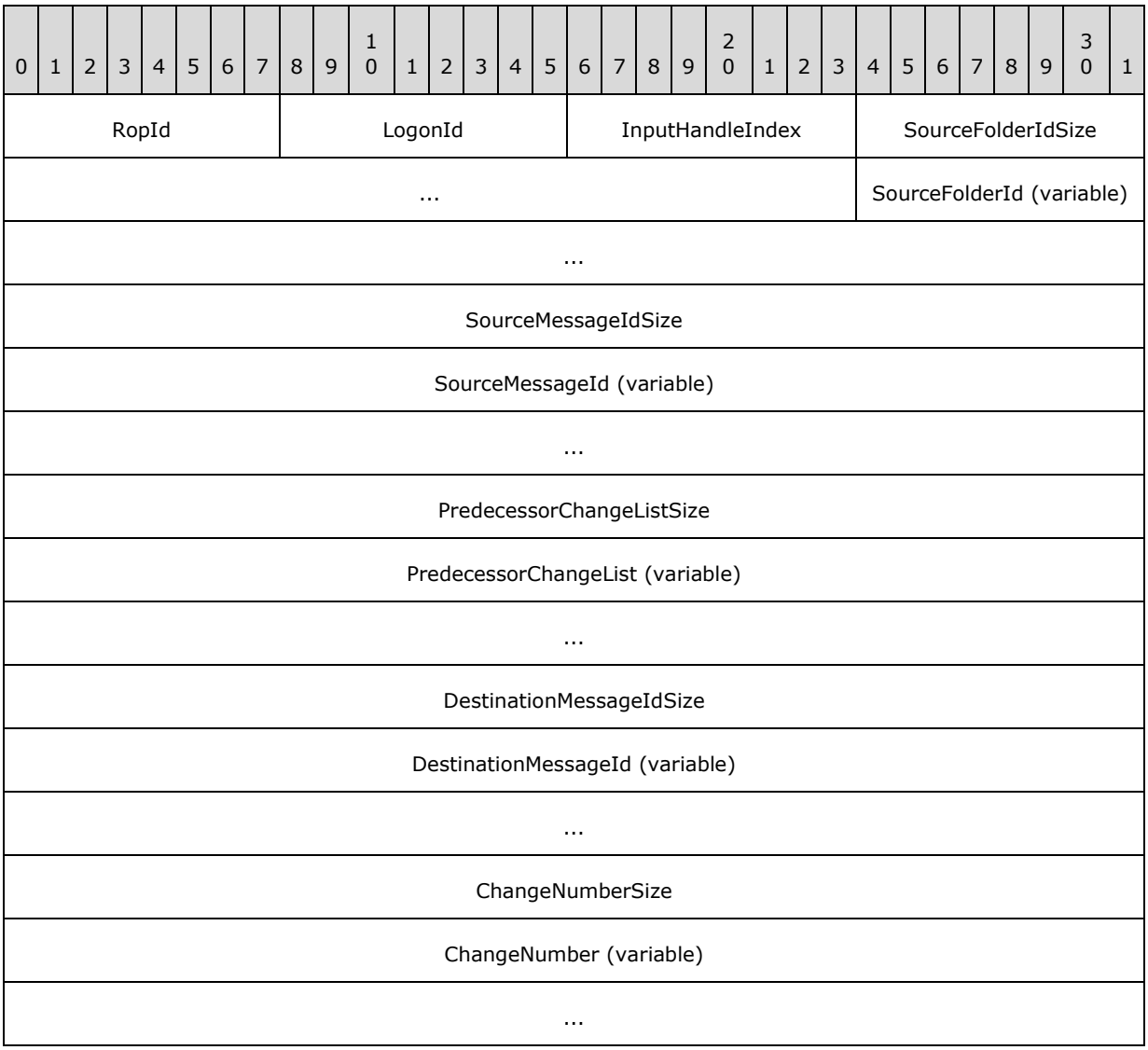
2.2.13.6.1 RopSynchronizationImportMessageMove ROP Request Buffer



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.

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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 field**. 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.

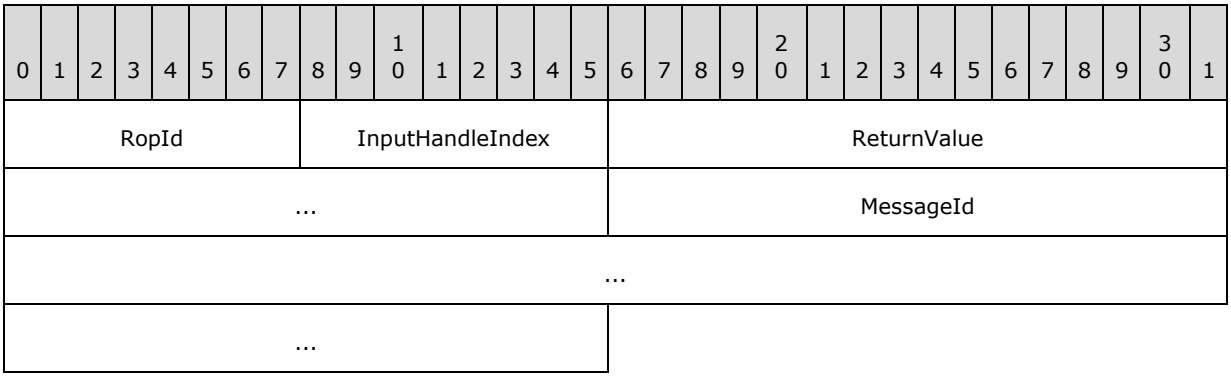
DestinationMessageIdSize (4 bytes): Unsigned 32-bit integer. This value specifies the size of the **DestinationMessageId** field.

DestinationMessageId (variable): Array of bytes. The size of this field, in bytes, is specified by the **DestinationMessageIdSize field**. 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.

2.2.13.6.2 RopSynchronizationImportMessageMove ROP Success Response Buffer



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 field MUST be set to 0x0000000000000000.

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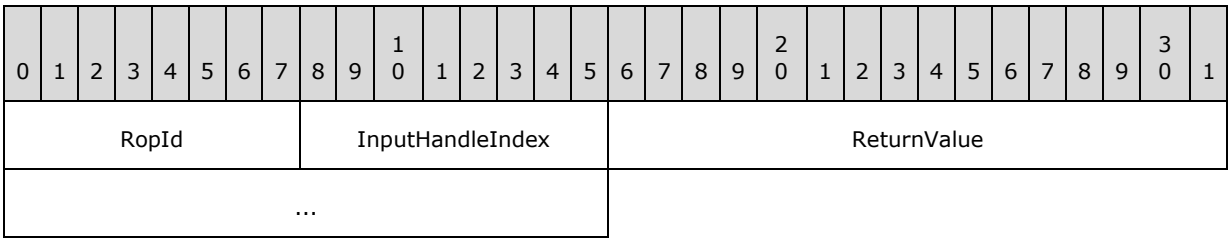
2.2.13.6.3 RopSynchronizationImportMessageMove ROP Failure Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x78.

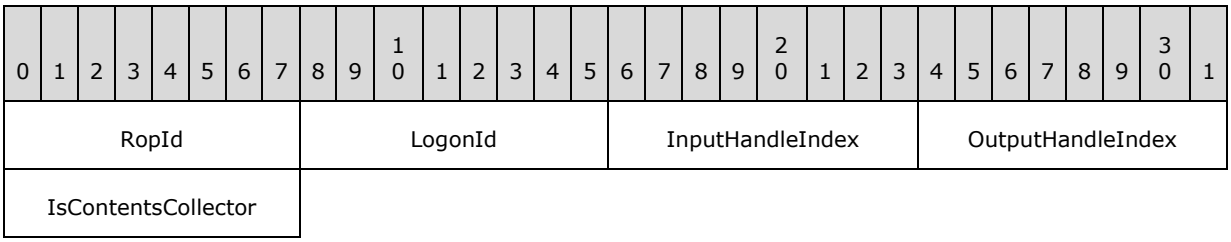
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.13.7 RopSynchronizationOpenCollector ROP

This ROP creates a new incremental change synchronization upload context. More detailed information about this operation can be found in [MS-OXCFXICS] section 2.2.3.2.4.1.

2.2.13.7.1 RopSynchronizationOpenCollector ROP Request Buffer



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 synchronization upload context is for contents or for hierarchy.

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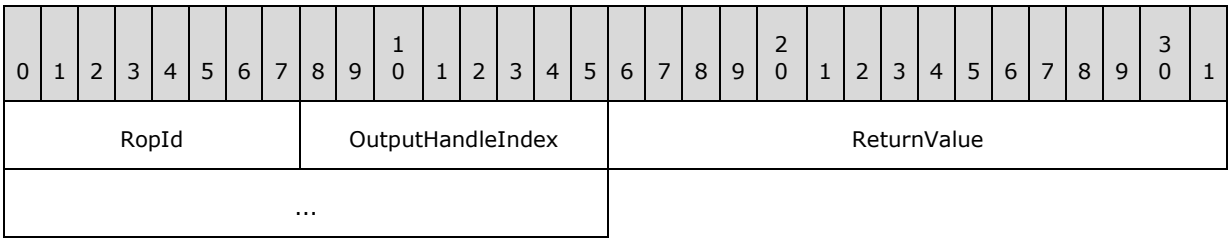
2.2.13.7.2 RopSynchronizationOpenCollector ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7E.

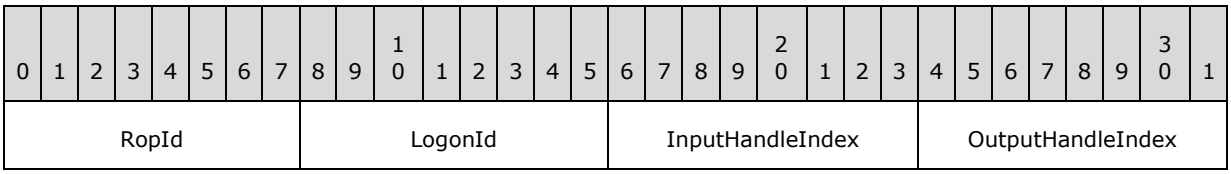
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.13.8 RopSynchronizationGetTransferState ROP

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] section 2.2.3.2.3.1.

2.2.13.8.1 RopSynchronizationGetTransferState ROP Request Buffer



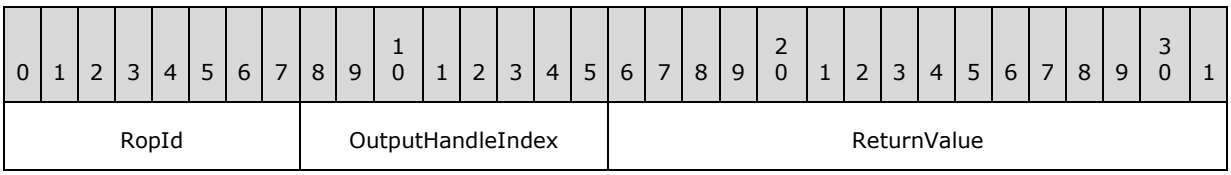
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x82.

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.

2.2.13.8.2 RopSynchronizationGetTransferState ROP Response Buffer



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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 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.

2.2.13.9 RopSynchronizationUploadStateStreamBegin ROP

This ROP begins an operation to upload stream data. More detailed information about this operation can be found in [MS-OXCFXICS] section 2.2.3.2.2.1.

2.2.13.9.1 RopSynchronizationUploadStateStreamBegin ROP Request Buffer

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
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] section 2.2.3.2.2.1.

TransferBufferSize (4 bytes): Unsigned 32-bit integer. This value specifies the size of the stream to be uploaded.

2.2.13.9.2 RopSynchronizationUploadStateStreamBegin ROP Response Buffer

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
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 0x75.

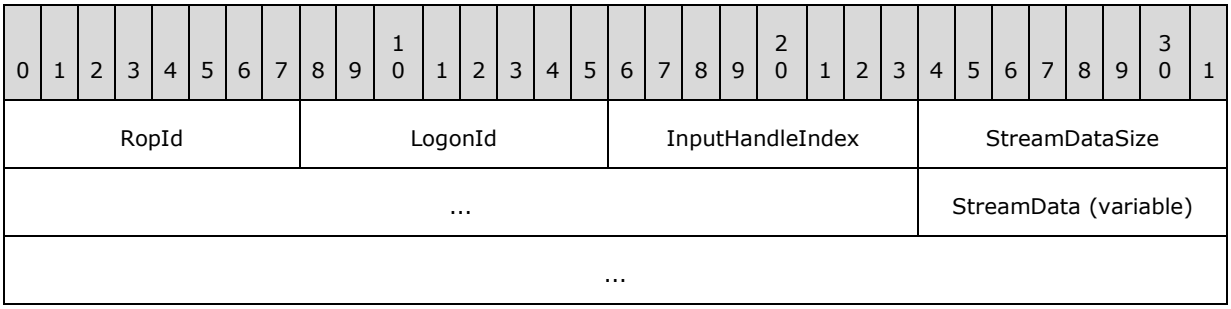
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.13.10 RopSynchronizationUploadStateStreamContinue ROP

This ROP uploads storage state property values. More detailed information about this operation can be found in [MS-OXCFXICS] section 2.2.3.2.2.2.

2.2.13.10.1 RopSynchronizationUploadStateStreamContinue ROP Request Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x76.

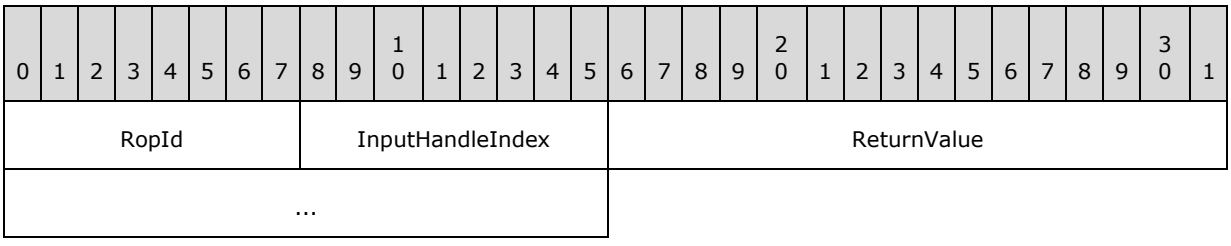
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this operation.

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 (4 bytes): Unsigned 32-bit integer. This value specifies the size, in bytes, 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.

2.2.13.10.2 RopSynchronizationUploadStateStreamContinue ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x76.

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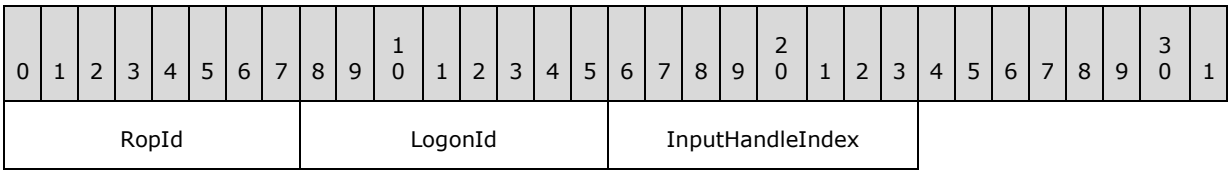
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.13.11 RopSynchronizationUploadStateStreamEnd ROP

This ROP marks the end of a storage state property upload operation. More detailed information about this operation can be found in [MS-OXCFXICS] section 2.2.3.2.2.3.

2.2.13.11.1 RopSynchronizationUploadStateStreamEnd ROP Request Buffer

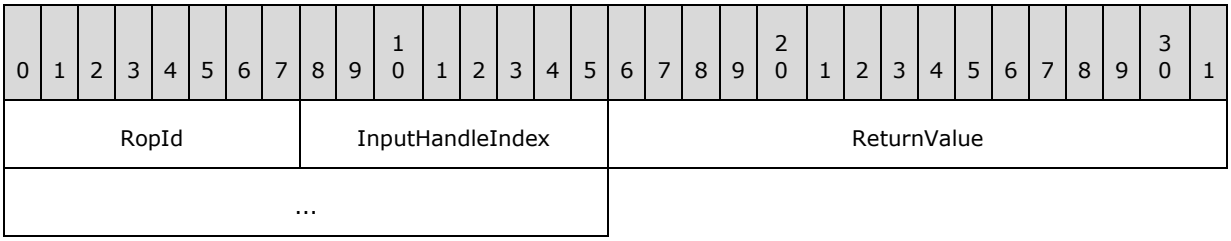


RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x77.

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.

2.2.13.11.2 RopSynchronizationUploadStateStreamEnd ROP Response Buffer



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.

2.2.13.12 RopSetLocalReplicaMidsetDeleted ROP

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] section 2.2.3.2.4.8.

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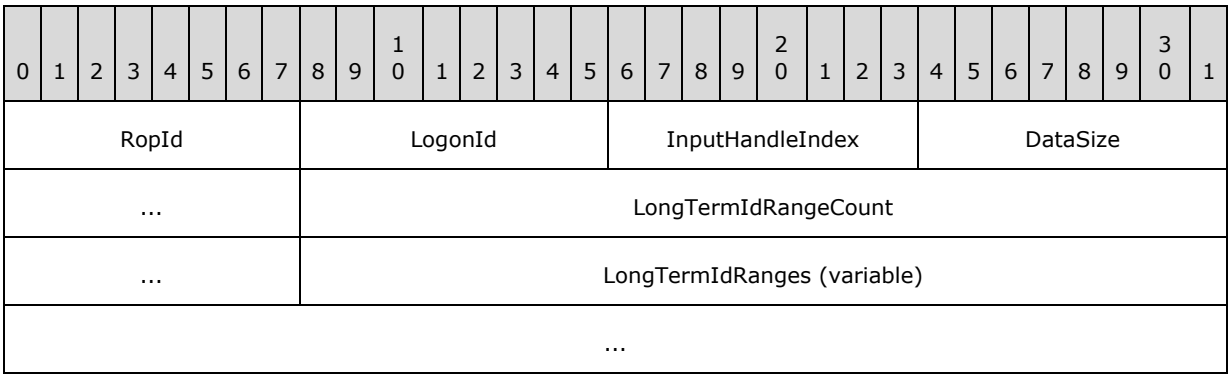
2.2.13.12.1 RopSetLocalReplicaMidsetDeleted ROP Request Buffer



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.

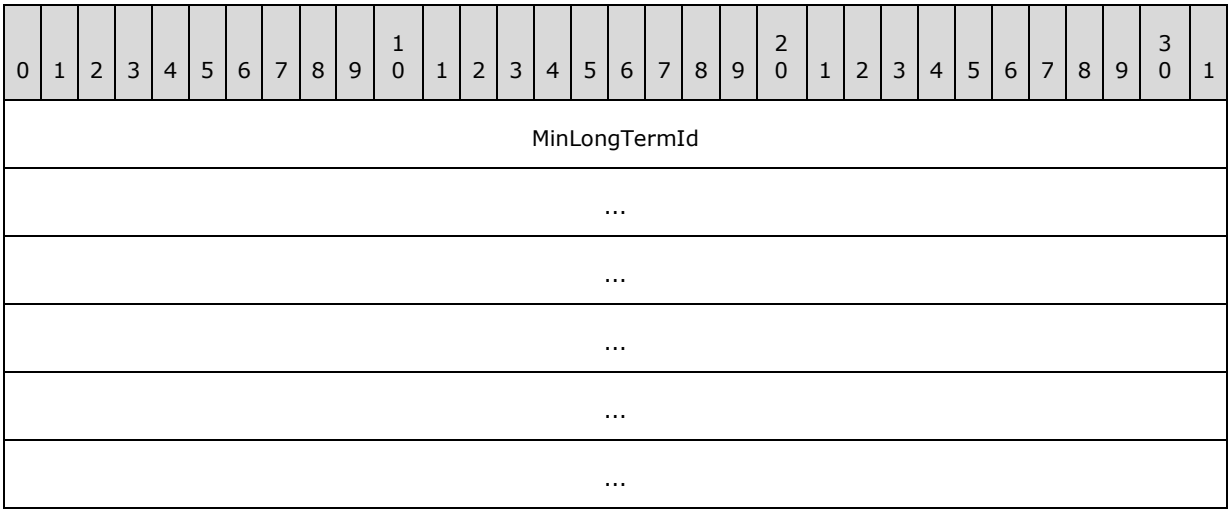
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index specifies the location in the Server object handle table where the handle for the input Server object is stored. More information about Server objects can be found in section 3.

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 2.2.13.12.1.1. These structures specify the ranges of message identifiers that have been deleted.

2.2.13.12.1.1 LongTermIdRange structure



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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.

2.2.13.12.2 RopSetLocalReplicaMidsetDeleted ROP Response Buffer

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

2.2.13.13 RopGetLocalReplicaIds ROP

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] section 2.2.3.2.4.7.

2.2.13.13.1 RopGetLocalReplicaIds ROP Request Buffer

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
RopId								LogonId								InputHandleIndex								IdCount							
...																															

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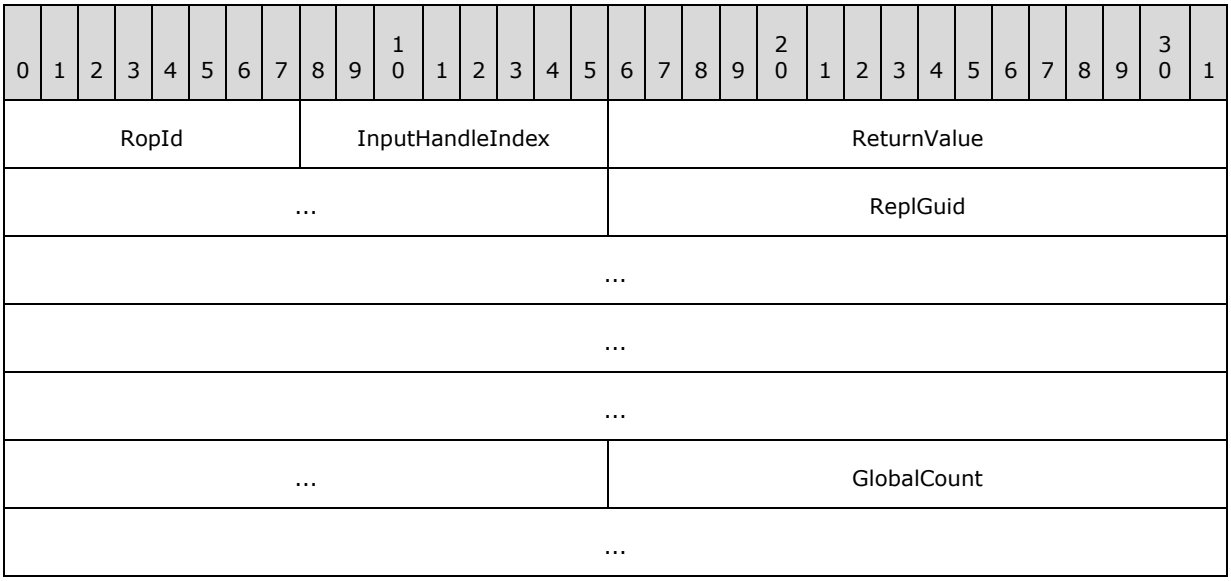
RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7F.

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.

2.2.13.13.2 RopGetLocalReplicaIds ROP Success Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x7F.

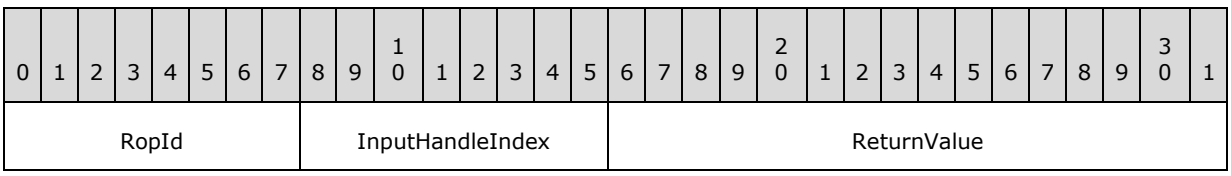
InputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **InputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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.

2.2.13.13.3 RopGetLocalReplicaIds ROP Failure Response Buffer



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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 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.

2.2.14 Notification ROPs

2.2.14.1 RopRegisterNotification ROP

This ROP registers for notification events. More detailed information about this operation can be found in [MS-OXCNOTIF] section 2.2.1.2.1.

2.2.14.1.1 RopRegisterNotification ROP Request Buffer

<table>
<tr><th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>20</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>30</th><th>1</th></tr>
<tr><td colspan="8">RopId</td><td colspan="8">LogonId</td><td colspan="8">InputHandleIndex</td><td colspan="8">OutputHandleIndex</td></tr>
<tr><td colspan="8">NotificationTypes</td><td colspan="8">Reserved</td><td colspan="8">WantWholeStore</td><td colspan="8">FolderId (optional)</td></tr>
<tr><td colspan="32">...</td></tr>
<tr><td colspan="24">...</td><td colspan="8">MessageId (optional)</td></tr>
<tr><td colspan="32">...</td></tr>
<tr><td colspan="24">...</td><td colspan="8"></td></tr>
</table>

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.

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NotificationTypes (1 byte): 8-bit flags structure. The possible values are specified in [MS-OXCNOTIF] section 2.2.1.2.1.1. These flags specify the types of events to register for.

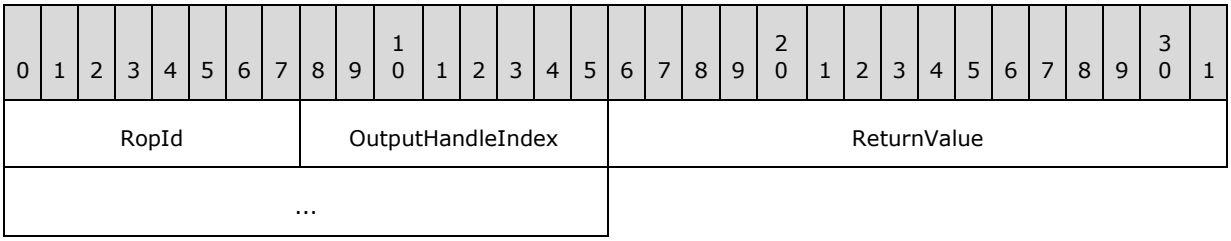
Reserved (1 byte): 8-bit flags structure. This field MUST be set to zero.

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.

2.2.14.1.2 RopRegisterNotification ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x29.

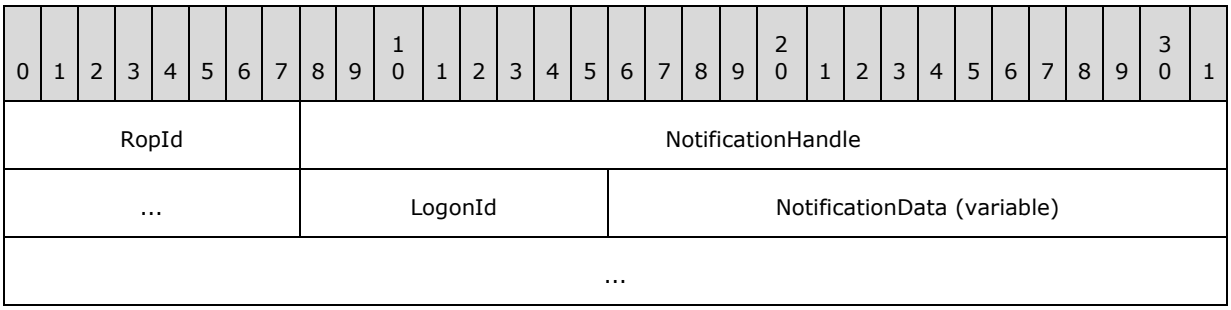
OutputHandleIndex (1 byte): Unsigned 8-bit integer. This index MUST be set to the **OutputHandleIndex** specified in the request. More information about Server objects can be found in section 3.

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

2.2.14.2 RopNotify ROP

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] section 2.2.1.4.1.

2.2.14.2.1 RopNotify ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x2A.

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NotificationHandle (4 bytes): 32-bit Server object handle. This handle specifies the notification Server object associated with this notification event.

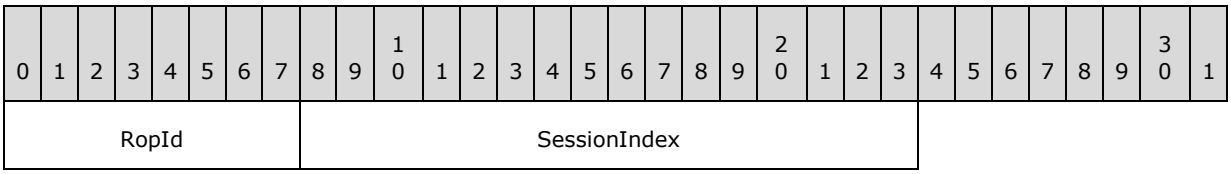
LogonId (1 byte): Unsigned 8-bit integer. This value specifies the logon associated with this notification event.

NotificationData (variable): Various structures. The various structures for this field are specified in [MS-OXCNOTIF] section 2.2.1.4.1.

2.2.14.3 RopPending ROP

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] section 2.2.1.3.1.

2.2.14.3.1 RopPending ROP Response Buffer



RopId (1 byte): Unsigned 8-bit integer. This value specifies the type of ROP. For this operation, this field is set to 0x6E.

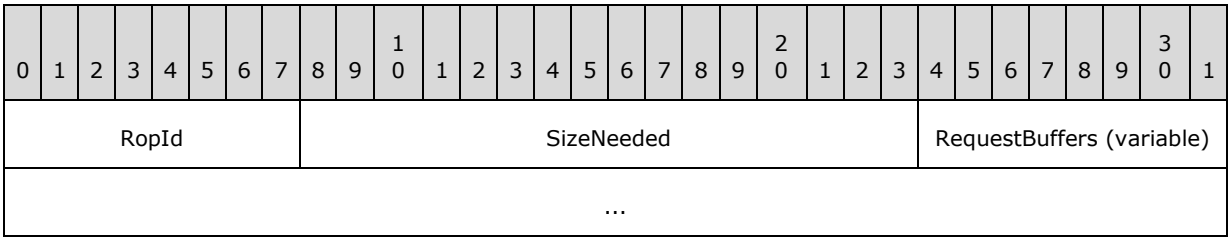
SessionIndex (2 bytes): Unsigned 16-bit integer. This index specifies which session has pending notifications.

2.2.15 Other ROPs

2.2.15.1 RopBufferTooSmall ROP

This ROP notifies the client that there is insufficient space to return all ROP responses.

2.2.15.1.1 RopBufferTooSmall ROP Response Buffer



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 required for the ROP output buffer.

RequestBuffers (variable): Array of bytes. The size of the array is equal to the size of the space remaining in the ROP output buffer. This array contains the section of the ROP input buffer that was

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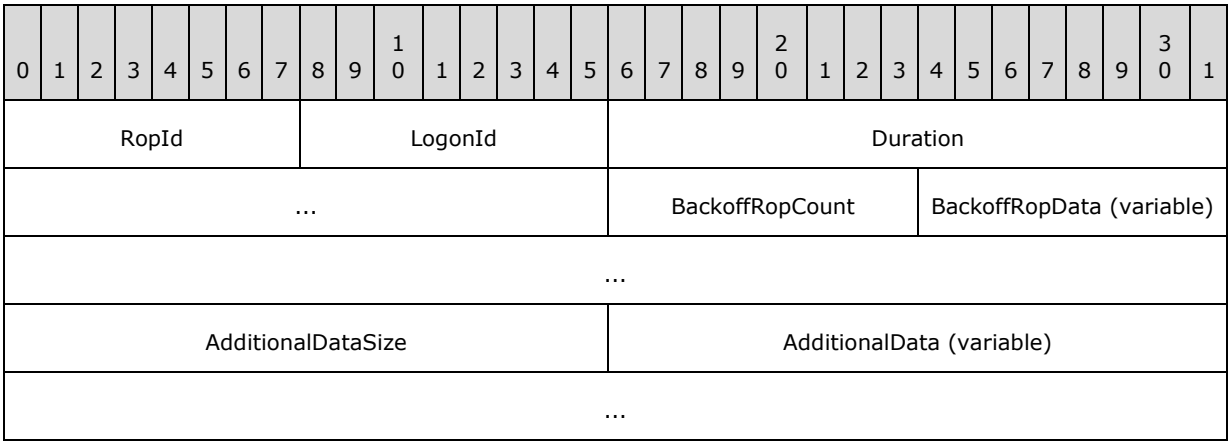
not executed because of the insufficient size of the ROP output buffer. The layout of the ROP input buffer and ROP output buffer is specified in section 2.2.1.

2.2.15.2 RopBackoff ROP

This ROP notifies the client that the server is busy and is requesting that the client retry later.

2.2.15.2.1 RopBackoff ROP Response Buffer



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.

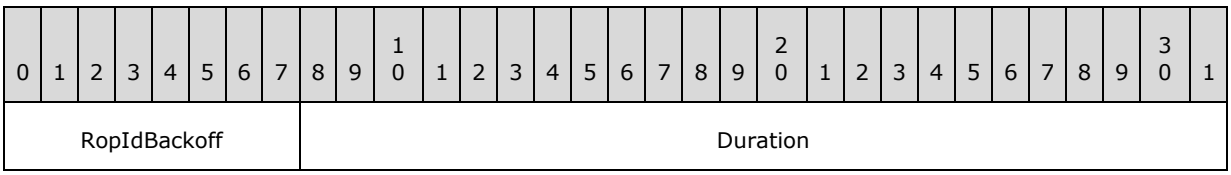
BackoffRopCount (1 byte): Unsigned 8-bit integer. This value specifies the number of structures in the **BackoffRopData** field.

BackoffRopData (variable): Array of **BackoffRop** structures. The format of the **BackoffRop** structure is specified in section 2.2.15.2.1.1. 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 field**. This array specifies additional information about the backoff response.

2.2.15.2.1.1 BackoffRop structure



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...

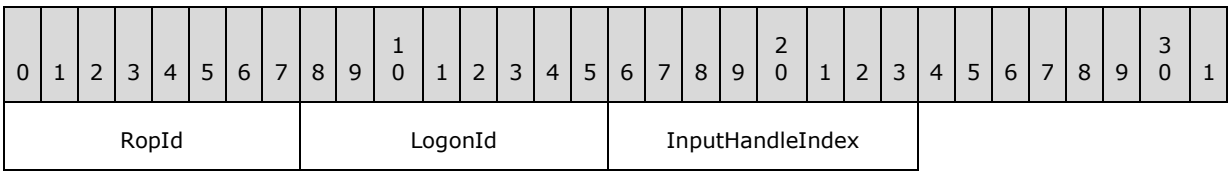
RopIdBackoff (1 byte): Unsigned 8-bit integer. This value identifies the ROP for which to apply the ROP backoff.

Duration (4 bytes): Unsigned 32-bit integer. This value specifies the number of milliseconds to apply a ROP backoff.

2.2.15.3 RopRelease ROP

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.

2.2.15.3.1 RopRelease Request Buffer



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.

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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 input buffer consisting of ROP requests for operations to be performed on the server. The ROP input buffer is sent to the server and a ROP output buffer is received back from the server.

3.1.4.1 Creating a ROP Input Buffer

The layout of the ROP input buffer and ROP output buffer is specified in section 2.2.1.

A ROP input 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 a ROP input buffer, the client MUST use a Server object handle table large enough to include an entry for the largest index used by the ROP requests. Each entry that is referenced only as input 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 referenced only as output 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 ROP input buffer can use the same Server object handle table index. For example, a **RopOpenFolder (**section 2.2.4.1**)** can specify index 1 as the location to place the handle for the folder Server object. In the same ROP input buffer, a **RopGetContentsTable (**section 2.2.4.14**)** can specify index 1 as the location for the input Server object handle.

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3.1.4.2 Logon

The client logs on to a store by using **RopLogon (**section 3.1.4.11**)** before attempting any additional ROPs on the store. Prior to logging on, the client begins an RPC session by calling the **EcDoConnectEx** method, as specified in [MS-OXCRPC] section 3.1.4.11. Once the client has successfully connected to the server, the client begins a logon session by sending a **RopLogon** request (section 2.2.3.1.1).

Each logon session is identified by a LogonID created by the client. The LogonID is associated with a **Logon object**, which is created by the server during its processing of a RopLogon request. The LogonID is initially used in the **RopLogon** request and is then used in all subsequent ROPs that are issued on the logon session. The client specifies the LogonID in the **LogonId** field of the ROP request buffer of each ROP. Any 8-bit integer value is allowed for the LogonID and the client does not have to specify LogonIDs in a certain numeric order. The LogonID MUST be unique per RPC session (per call to the **EcDoConnectEx** method).

The client can issue multiple **RopLogon** requests per RPC session. If the client specifies an active LogonID, then the current logon session is released and replaced with the new one. The client manages the active LogonIDs by use of a Logon Collection.

3.1.5 Message Processing Events and Sequencing Rules

The client receives the ROP responses in the ROP output buffer. The ROP responses in the ROP output buffer are in the same order as sent in the ROP input buffer. The ROP output buffer can also include ROP responses that do not have corresponding ROP requests in the ROP input buffer. These extra ROP responses include **RopBackoff (**section 2.2.15.2**)**, **RopBufferTooSmall (**section 2.2.15.1**)**, **RopNotify (**section 2.2.14.2**)**, and **RopPending (**section 2.2.14.3**)**.

3.1.5.1 Extra ROP Responses

3.1.5.1.1 RopBackoff

Any client reporting its version as 12.00.4228.0000 or later (as specified in [MS-OXCRPC] section 3.1.9.3) MUST support processing the **RopBackoff** response buffer. The layout of this ROP is specified in section 2.2.15.2.

RopBackoff can appear at any location within the **RopsList** field of 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** (section 2.2.15.2.1.1), it specifies the ROP request that is required 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 2.2.15.1.

The **RopBufferTooSmall** response is the last ROP response within the **RopsList** field of the ROP output buffer (section 2.2.1). The **RopBufferTooSmall** response indicates that the size of the ROP output buffer is insufficient to return responses for all of the ROP requests sent. The **RequestBuffers** field of **RopBufferTooSmall** response includes all ROP requests that were not executed by the server. The client SHOULD resend the unexecuted ROP requests in a new **EcDoRpcExt2** call to the server. The value that the client specifies in the *pcbOut* parameter of the **EcDoRpcExt2** method MUST be greater than or equal to the value of the **SizeNeeded** field of the

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RopBufferTooSmall response. For more details about the **EcDoRpcExt2** method and the *pcbOut* parameter, see [MS-OXCRPC] section 3.1.4.12.

3.1.5.1.3 RopNotify and RopPending

The **RopNotify** ([MS-OXCNOTIF] section 2.2.1.4.1) and **RopPending** ([MS-OXCNOTIF] section 2.2.1.3.1) ROP responses appear at the end of the **RopsList** field of the ROP output buffer. A **RopPending** response SHOULD<10> be present only if the ROP output buffer does not contain all queued **RopNotify** responses. For more details about how the client processes these ROPs, see [MS-OXCNOTIF] section 3.2.5.

3.1.5.2 Subsequent RopProgress Requests

Once the client receives a **RopProgress** (section 2.2.8.13) 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 (**section 2.2.15.3**)** 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 download context that is opened by **RopFastTransferSourceCopyTo** (section 2.2.12.6) or **RopFastTransferSourceCopyProperties** (section 2.2.12.7)
- A fast-transfer upload context that is opened by **RopFastTransferDestinationConfigure** (section 2.2.12.1)

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 download context that is opened by **RopFastTransferSourceCopyTo** or **RopFastTransferSourceCopyProperties**
- A fast-transfer upload context that is opened by **RopFastTransferDestinationConfigure**

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

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- A fast-transfer download context that is opened by **RopFastTransferSourceCopyTo** or **RopFastTransferSourceCopyProperties**
- A fast-transfer download context that is opened by RopFastTransferSourceCopyMessages or RopFastTransferSourceCopyFolder
- A synchronization download context that is opened by RopSynchronizationConfigure
- A fast-transfer upload context that is opened by **RopFastTransferDestinationConfigure**
- A synchronization upload context that is opened by RopSynchronizationOpenCollector

3.1.5.4 Code Page for Strings

In a ROP request, the code page for strings MUST match the code page associated with the affected Server object. The code page for a Server object is determined as follows:

- If the Server object is owned by a message, then the Server object uses the same code page that the message uses. The message's properties and the Server objects owned by the message always use the same code page that the message uses.
- If the Server object is not owned by a message, then the Server object uses the code page specified in the EcDoConnectEx method or a similar RPC method. For more details about the EcDoConnectEx method and RPC, see [MS-OXCRPC] section 3.1.7.1.1.

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 (**section 2.2.15.3**)** 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.

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3.2.3 Initialization

When a connection is first set up between a client and server via the EMSMDB interface specified in [MS-OXCRPC] section 3.1, the Server object map and Logon map are empty.

3.2.4 Higher-Layer Triggered Events

3.2.4.1 Notifications

When events for which the client has registered occur, the server sends one or more **RopNotify** responses ([MS-OXCNOTIF] section 2.2.1.4.1). If not all queued **RopNotify** responses can fit in the ROP output buffer, the server SHOULD<11> include a **RopPending** response ([MS-OXCNOTIF] section 2.2.1.3.1) in the ROP output buffer. More detailed information about notifications can be found in [MS-OXCNOTIF].

3.2.4.2 Backoff

When the server determines that a ROP request is required to be delayed, the server MUST respond with either a **RopBackoff** response (section 2.2.15.2.1) 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 substitute a **RopBackoff** response in place of the response for the delayed ROP request. If either the client or the server is an earlier version, then the server MUST instead fail the RPC by raising the RPC_S_SERVER_TOO_BUSY exception as described in [MS-OXCRPC] section 3.2.4.3.

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 in the ROP output buffer (section 2.2.1) for the remaining ROP responses, it MUST NOT execute the remaining ROPs. The server responds in one of the following ways.

- If the ROP output buffer can be resized to accommodate the remaining ROPs, then the server MUST send a **RopBufferTooSmal**l response (section 2.2.15.1). In this case, the client can resubmit the ROP requests in a new **EcDoRpcExt2** RPC, specified in [MS-OXCRPC] section 3.1.4.12, with the *pcbOut* parameter set to an appropriate value. For details about how the client processes a **RopBufferTooSmall** response, see section 3.1.5.1.2.
- If one of the ROP responses will not fit in the ROP output buffer when the *pcbOut* parameter of **EcDoRpcExt2** is set to the maximum value, then the server SHOULD<12> fail the RPC with 0x0000047D.

Some ROP response buffers are dynamically sized based on the amount of available space in the ROP output buffer. If the ROP output buffer is not large enough for the minimum size of a dynamically sized ROP response buffer followed by subsequent ROP response buffers, then the server sends **RopBufferTooSmall**.

3.2.5 Message Processing Events and Sequencing Rules

3.2.5.1 Processing a ROP Input Buffer

The layout of the ROP input buffer is specified in section 2.2.1.

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When processing a ROP input buffer received from a client, the server MUST execute the ROP requests in the order they are specified in the **RopsList** field and MUST NOT process more than one ROP input buffer concurrently for a connection. The ROP responses in the ROP output buffer MUST be in the same order in which they were executed.

If the server is unable to parse the ROP requests in the ROP input buffer, the RPC MUST fail by returning 0x000004B6.

During execution of a ROP request, the server resolves the Server object handle table index to a Server object. If the index is invalid, the server SHOULD<13> fail the ROP with the **ReturnValue** field set to 0x000004B9. 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 in the Server object map associated with the logon for the ROP request. If any lookup in either the Logon Map or the Server object map fails, the server SHOULD<14> 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 used by subsequent ROP requests in the same ROP input 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 a ROP Output Buffer

The layout of the ROP output buffer is specified in section 2.2.1.

The server constructs the ROP output buffer after processing the ROP input buffer. The ROP output buffer includes a list of ROP responses and a modified Server object handle table. The ROP responses in the ROP output buffer MUST be in the same order in which they were executed.

The Server object handle 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 ROP input 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 ROP input buffer and the ROP output buffer.

3.2.5.3 RopRelease

The layout of **RopRelease** is specified in section 2.2.15.3.

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.

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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.

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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**

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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**)

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4.3.3 Description

This buffer consists of two ROP requests. The first request is a **RopOpenFolder** (section 2.2.4.1), and the second is a **RopGetHierarchyTable** (section 2.2.4.13). 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 (section 2.2.15.3.1). 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

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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** (section 2.2.6.1) 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** (section 2.2.15.1) indicates that it would require 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**

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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 (section 2.2.15.2.1) in the same buffer as a **RopSetColumns** response (section 2.2.5.1). The **RopBackoff** here contains no information specific to a ROP, but instead a general duration for the logon.

4.7 ROP RopBackoff Response

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**)

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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 (section 2.2.15.2.1) in the same buffer as a **RopOpenFolder** response (section 2.2.4.1.2). The **RopBackoff** contains information about only one ROP, **RopCreateFolder** (section 2.2.4.2).

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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.

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6 Appendix A: Product Behavior

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

- Microsoft® Exchange Server 2003
- Microsoft® Exchange Server 2007
- Microsoft® Exchange Server 2010
- Microsoft® Office Outlook® 2003
- Microsoft® Office Outlook® 2007
- Microsoft® Outlook® 2010

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

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

<1> Section 2.2.2: Exchange 2003 and Exchange 2007 behavior is undefined when it encounters a reserved **RopId**.

<2> Section 2.2.3.1.3: Exchange 2007 does not set the **PerUserGuid** field to an empty GUID.

<3> Section 2.2.7.9: Outlook 2010 does not use **RopOptionsData**.

<4> Section 2.2.7.9.2: Exchange 2003, Exchange 2007, and Exchange 2010 do not return an empty array.

<5> Section 2.2.7.9.3: Exchange 2007 sets the **ReturnValue** field to 0x00000000 regardless of the failure of the ROP.

<6> Section 2.2.9.2.1: 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 (**section 2.2.15.1**)**. The **MaximumByteCount** field is never present in the request buffer because the **ByteCount** field is never set to 0xBABE.

<7> Section 2.2.9.6.1: Exchange 2003 and Exchange 2007 do not use a configuration setting and always limit the maximum size of the stream to 2^31 bytes.

<8> Section 2.2.9.8.3: Exchange 2003 and Exchange 2007 do not set the field to 0x0000000000000000, but the nonzero value has no meaning.

<9> Section 2.2.9.8.3: Exchange 2003 and Exchange 2007 do not set the field to 0x0000000000000000, but the nonzero value has no meaning.

<10> Section 3.1.5.1.3: Exchange 2003 and Exchange 2007 sometimes include a **RopPending** response even though the ROP output buffer contains all queued **RopNotify** responses.

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<11> Section 3.2.4.1: Exchange 2003 and Exchange 2007 sometimes include a **RopPending** response even though all queued **RopNotify** responses fit in the ROP output buffer.

<12> Section 3.2.4.3: Exchange 2003 and Exchange 2007 do not fail the **EcDoRpcExt2** remote procedure call (RPC) and instead fail the individual ROP with the **ReturnValue** field of the ROP response buffer set to 0x0000047D.

<13> Section 3.2.5.1: For some ROPs, Exchange 2003 and Exchange 2007 use different methods to resolve the Server object and, therefore, do not fail the ROP if the index is invalid.

<14> Section 3.2.5.1: Exchange 2003 and Exchange 2007 fail the RPC.

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7 Change Tracking

This section identifies changes that were made to the [MS-OXCROPS] protocol document between the August 2011 and October 2011 releases. Changes are classified as New, Major, Minor, Editorial, or No change.

The revision class **New** means that a new document is being released.

The revision class **Major** means that the technical content in the document was significantly revised. Major changes affect protocol interoperability or implementation. Examples of major changes are:

- A document revision that incorporates changes to interoperability requirements or functionality.
- An extensive rewrite, addition, or deletion of major portions of content.
- The removal of a document from the documentation set.
- Changes made for template compliance.

The revision class **Minor** means that the meaning of the technical content was clarified. Minor changes do not affect protocol interoperability or implementation. Examples of minor changes are updates to clarify ambiguity at the sentence, paragraph, or table level.

The revision class **Editorial** means that the language and formatting in the technical content was changed. Editorial changes apply to grammatical, formatting, and style issues.

The revision class **No change** means that no new technical or language changes were introduced. The technical content of the document is identical to the last released version, but minor editorial and formatting changes, as well as updates to the header and footer information, and to the revision summary, may have been made.

Major and minor changes can be described further using the following change types:

- New content added.
- Content updated.
- 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.

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- 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 are always classified with the change type **Editorially updated.**

Some important terms used in the change 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.

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

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
2.2.2 The Table of RopIds	Removed RopSynchronizationOpenAdvisor, RopRegisterSynchronizationNotifications, and RopSetSynchronizationNotificationGuid ROPs. These ROPs are not sent by the client.	Y	Content removed.
2.2.14 Notification ROPs	Removed RopSynchronizationOpenAdvisor, RopRegisterSynchronizationNotifications, and RopSetSynchronizationNotificationGuid ROPs because they are not sent by the client.	N	Content removed.

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